CERATIZIT GROUP



The Catalogue

TEAM CUTTING TOOLS

CUTTING SOLUTIONS BY CERATIZIT · KOMET · WNT · KLENK

CERATIZIT is a high-tech engineering group specialised in tooling and hard material technologies.

Tooling the Future

www.ceratizit.com

CERATIZIT Group
With passion and pioneering spirit for carbide

CERATIZIT has been a pioneer in the field of demanding carbide solutions for machining and wear protection for more than 95 years, controlling the entire value chain from powder to the finished end product.

With exclusive access to the highest quality carbide raw materials, CERATIZIT offers more than 130 carbide grades and as a full-range supplier manufactures highly specialized cutting tools, indexable inserts, rods made of hard materials and wear parts.

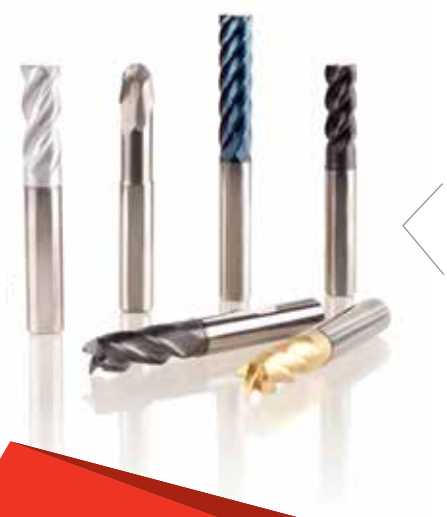
With more than 9,000 employees worldwide at 34 production sites and a sales network of more than 70 branches, the CERATIZIT Group is a global player in the carbide industry. As a technology leader, CERATIZIT continually invests in research and development and owns more than 1,000 patents.

Under the motto „Tooling the Future," our innovative materials and applications help our customers develop a variety of machines and products that shape our immediate environment and are part of our everyday lives.

The goal remains the same: CERATIZIT provides competitive advantages – through new technological standards, innovative materials and coatings as well as unique carbide products.









Welcome!



It couldn't be easier

Ordering via the Online Shop

http://cuttingtools.ceratizit.com



On-site technical support

Your Local Technical Sales Engineer

Your customer number

Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut
11 Grooving Tools
12 Miniature turning tools

Milling

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

Tool Clamping

16 Adapters
17 Accessories

18 Material examples and article no. index

Team Cutting Tools

The new full-range supplier in machining

Four experts, one expertise: Cutting Solutions by CERATIZIT, KOMET, WNT and KLENK bundle their expertise and, with Team Cutting Tools, offer a uniquely broad know-how in the field of machining. Partners and customers benefit from a highly attractive, holistic service promise:
One of the largest product ranges on the market. An enormously efficient distribution. Leading expertise in future technologies from digitization to nanotechnology. Deep industry expertise based on many years of experience. All under one roof.

Solutions for the metalworking industry



Automotive



Aerospace



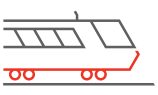
Heavy Duty machining



Energy



Medical



Rail industry



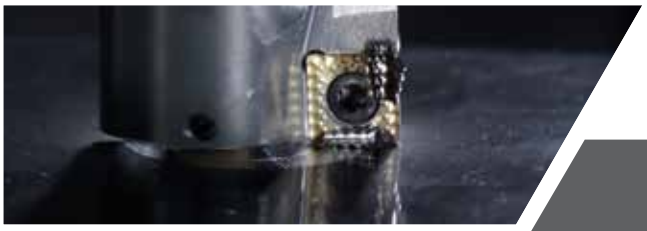
General Engineering



CUTTING SOLUTIONS BY CERATIZIT

COMPETENCE SUPPLIER IN THE DEVELOPMENT AND MANUFACTURE OF INDUSTRIAL SOLUTIONS

Cutting Solutions by CERATIZIT is a leader in the development and manufacturing of industrial solutions and has decades of experience in the manufacture of tungsten carbide tools and inserts.



KOMET

AN INNOVATIVE PIONEER IN HOLE PRODUCTION FOR OVER A CENTURY

KOMET is a global technology leader in high-precision drilling, reaming and threading. Like other members of the CERATIZIT group, KOMET has also established itself as a manufacturer of high-quality cutting tools by developing innovative products.



WNT

STRONG SERVICE, EXTENSIVE PORTFOLIO

Cutting edge quality tooling for every application from the machine spindle to the machine table: With this impressive range of high quality products combined with industry leading service and outstanding logistical support, WNT always delivers the highest cutting efficiency to the customer.



KLENK

PREMIUM CUTTING TOOLS FOR THE AEROSPACE AND ASTRONAUTICAL INDUSTRIES

KLENK focuses primarily on the aerospace industry and is a leader in rotary tools for drilling, milling, reaming and countersinking. Many of these products are custom-made for customers worldwide and are predestined for machining CFRP, titanium, aluminum and steel components.

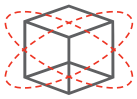
Tool + Service = Solution



On the latest technology

Technical Training

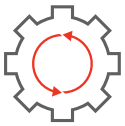
Our engineers are provided with constant training to keep them up to speed on all technical matters. We will gladly share this knowledge with you. Use our Service for the further education of your metal cutting technicians in the Technical Centre.



Tool data always at your fingertips

Cutting data and CAD models for day-to-day assistance

In addition to detailed cutting data we also offer 2D and 3D models to assist you with your tool management or for simulating an operation. All data for this Service is available for you in our Online Shop.



Bringing the old back to life

Regrinding, not replacing

Your used precision tool is in the best possible hands with us. We return your tool to you with the original finish, coating and geometry – as good as new and ready for use back in the machine.



We come full circle

Our recycling service

Our joint contribution for the good of the environment: we take back your carbide and process it appropriately. You receive a credit from us that you can redeem with your next tool purchase.



Intelligent Machining

Industry 4.0 with ToolScope

ToolScope is a modular assistance system for monitoring and optimizing machining processes. With it, we are the only company that offers not only the tools, but also the expertise and capabilities to master and improve processes throughout the entire machining process.



Competent advice also available on call

Application engineers with know-how

An application engineer is always available by phone to answer your application-specific questions. Even if they are not on-site with you, our experts are always ready to answer your questions.



Your competent partner on-site

Technical advice from your Technical Sales engineer

There is a simple reason why we like to support our customers: we want the best for them. And the best solutions are developed when we work together. Thanks to many years of practical experience our experts are able to quickly recognize your individual needs and assist you in optimizing your productivity.



Ordered quickly, Available now, Delivered immediately



It couldn't be easier

Ordering via the Online Shop

In the Online Shop you can select and order your tool with a mouse click, 24 hours a day, 7 days a week. All your transactions including those in the past can be viewed clearly and easily in the online shop. Register and use our Service: **cuttingtools.ceratizit.com**



Stock around the clock!

Tool Supply 24/7

If you install a Tool-O-Mat it means that we take on all the procurement and stocking costs for you. You have 100 % availability of all tools at all times and without expenditure.



From single items to large orders!

There are no minimum order quantities

No matter which tool you need, we promise you quick and uncomplicated delivery. Even if you only order one item! We do not have minimum order quantities.



Your tool is ready!

High product availability thanks to state-of-the-art logistics

Why own stock? We take care of that for you! With the cutting-edge logistics center of the cutting tools industry, we guarantee that your order will be delivered promptly.



Where is my order right now?

Order Delivery Tracking

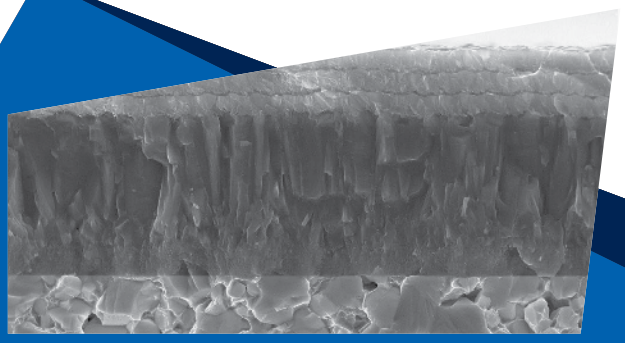
For those who do not want to lose sight of their order: With the shipment number you can track the current status of your order online – no matter how your order was placed.

Dragonskin by CERATIZIT
The latest generation of coating technology

Decades of experience coupled to consistent and constant development are in the unique Dragonskin coating technology. Thanks to our innovative design and expertise in powder metallurgy, we – and above all you – achieve an unmatched level of performance in machining.

Like the Dragon‘s invulnerability, Dragonskin Coating Technology offers the highest levels of protection against wear and is designed with its impermeable layer for the most adverse requirements. The result is an extremely hard and durable surface with a satin finish.

The perfect combination of state-of-the-art high-performance substrates and new coating structures enable high cutting speeds and increased process reliability. A proven – up to 80 % – increased performance through the latest Dragonskin coating technology offers you a significant competitive advantage.



Dragonskin Coating

DRAGONSKIN

Dragonskin – The coatings for the highest performance

The product category Dragonskin is intended to help make tools easily recognizable and quick to find using CERATIZIT's high-performance coating technology. All products that are marked with the Dragonskin icon represent unmatchable performance, maximum tool life and maximum process reliability.

Legendary Performance



Dragonskin

Stable production processes in a networked world

From tool management and the CAD / CAM system to simulation software and the machine itself – all systems involved in modern production processes can and want to deal more and more with digital data. To meet this demand, we are able to provide you with all the necessary production-relevant data that your production systems require for a smooth process.
All tool dimensions & data are in accordance with ISO 13399 in the product tables, enabling the digitized future.

Digital Tool Data

Technology Data

- Recommended use: Secure tool planning information on selecting the ideal tools for the relevant application
- Cutting data: optimal starting values for the machining of different materials

CAD Data

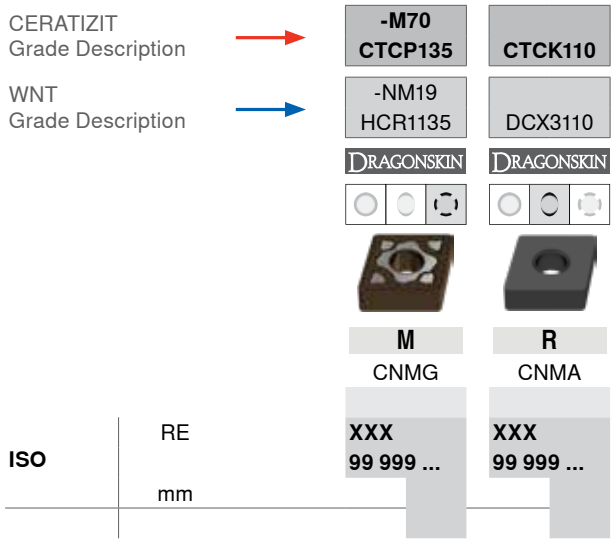
- All tool data is created in accordance with the current standards ISO 13399 / DIN 4003
- 3D solid models in STEP and STL formats
- 2D drawings as DXF
- Usable in all major CAD / CAM systems
- Perfect for integration in tool management systems
- Compatible with the CNC machine simulation to avoid collisions, tool breakage and damage to machinery

Direct and Free of Charge

- Recommended use and cutting data can be found in detail in the catalogue
- All information in digital form can be found on the website to download: **cuttingtools.ceratizit.com**
- Password protected customer area for unrestricted access to all data on the website

Simplified ordering with dual grade descriptions

To simplify identification, the inserts are labeled with the grade descriptions of both CERATIZIT and WNT. Even if these differ, it is always the same, high quality product meaning you can continue to work with the familiar grade description. The same applies to chip breakers, some of which also carry dual designations.



The Catalogue For Workpiece Clamping

We offer our extensive clamping technology program in a separate catalogue. In this you will find the comprehensive vice program, the mechanical (MNG) and pneumatic (PNG) zero-point clamping systems, as well as magnetic clamping technology (MST).



Clamping Systems Overview

Single clamping vice
- power booster systems NCG, HDG and H5G
- fixed jaw as reference
- high repeatability



Centric vice
- symmetrical clamping
- very good accessibility for 5-sided machining
- part datum always centered
- high repeatability



Multiple vice
- Faster set up times
- multifunctional use
- optimum utilization of the machine table
- high repeatability



Clamping variants
- Zero point clamping system
- Zero point clamping system grid plate



Clamping Towers
- Double sided clamping tower
- Triangular clamping tower
- Cruciform clamping tower
- Cube clamping tower



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5 Spindle Tooling

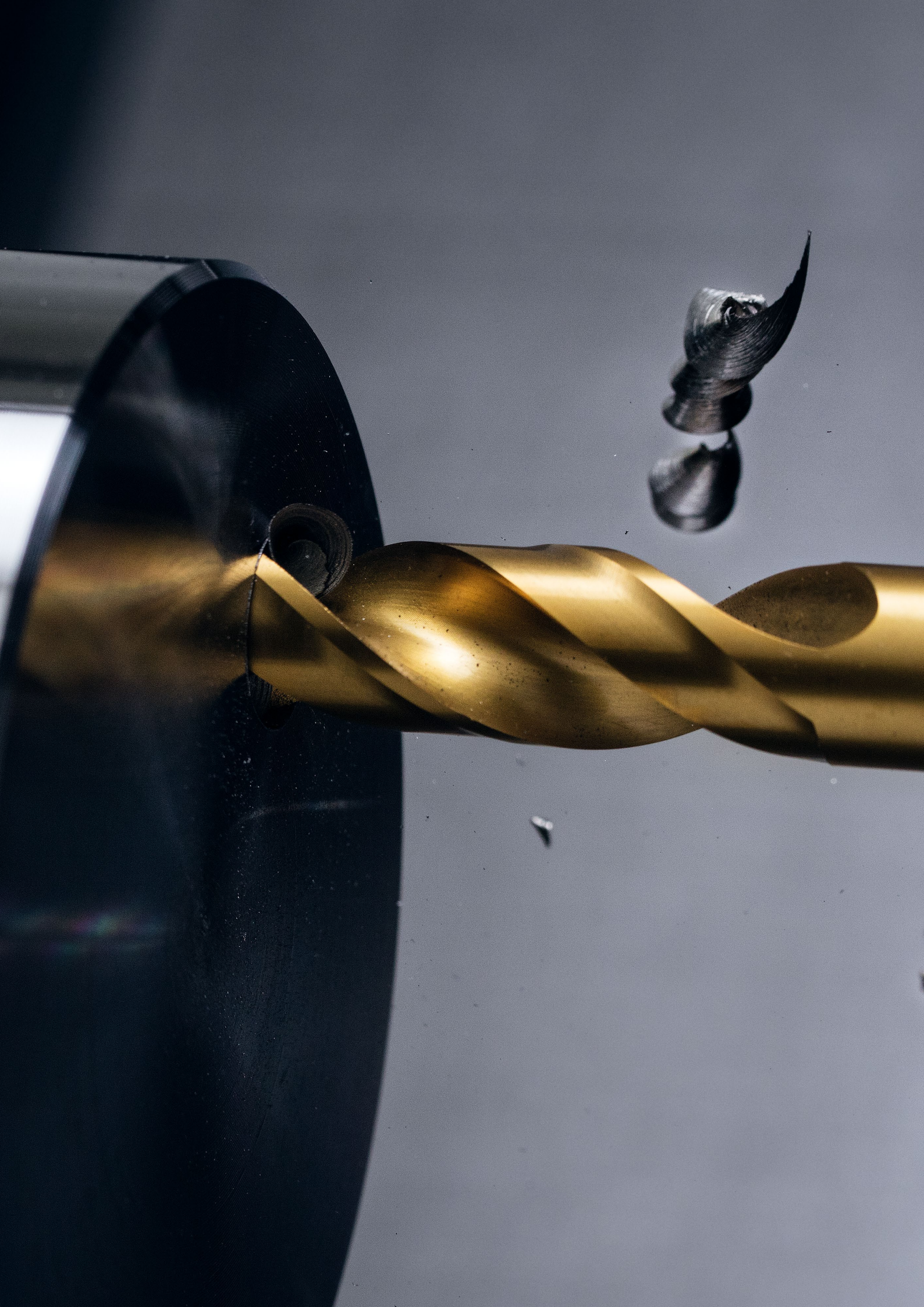
Threading
6 Taps and thread formers
7 Circular and Thread Milling
8 Thread turning

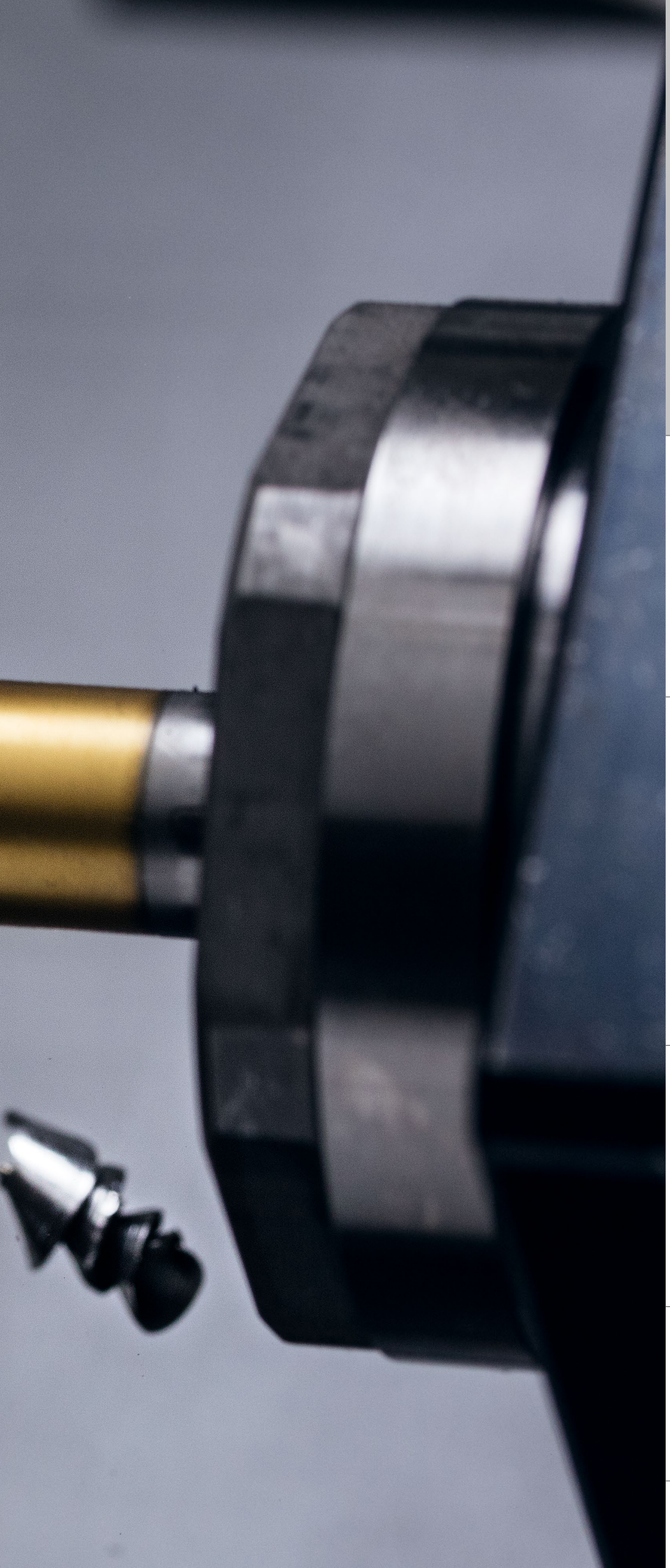
Turning
9 Turning Tools
10 EcoCut
11 Grooving Tools
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WNT \ Performance

Premium quality tools for high performance.

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

Symbol explanation

Shank











Version



Int. coolant supply



self-centering

● = **Main Application**

○ = Extended application

Toolfinder

	Tool type	Material/ Coating	Description	DIN 1897	DIN 338	DIN 340	Series 1	Series 2	Series 3
				3xD	5xD	10xD	> 10xD		
Steel – Universal	**VX**	HSS-E TiN	▲ universal high-performance drill ▲ shank DIN 1835A ▲ self centering	8	16				
	UNI	HSS-E PM TiN	▲ wear-resistant due to HSS-E-PM and TiN coating ▲ universal high-performance drill	9–14	17–22				
	UNI	HSS-E TiN	▲ as for type VX ▲ without standard shank to DIN 1835 A ▲ available as a set	9–14	17–22	26–28			
	N	HSS vap.	▲ stable twist drill ▲ also suitable for portable drills ▲ available in set	9–14	17–22				
	WT	HSS-E vap.	▲ for high alloy steel and special alloys (Hastelloy, Inconel, Nimonic)	9–14					
	WT	HSS-E TiN	▲ as type WT HSS-E vap. ▲ higher wear resistance due to coating	9–14					
	WTL-L	HSS F.-nit	▲ left-hand cutting ▲ nitrided cutting edge giving increased wear protection to cutting corners and guide lands	15	23				
	WNXi	HSS-E	▲ very good chip evacuation with thro' coolant ▲ for long chipping materials to 1000 N/mm²		25				
	WNXi	HSS-E TiN	▲ as type WNXi HSS-E ▲ higher wear resistance due to coating		25				
	WTL	HSS-E F.-nit	▲ special flute profile with large chip gullet ▲ nitrided cutting edge giving increased wear protection to cutting corners and guide lands		17–22	26–28			
	WTL	HSS-E TiN	▲ as WTL HSS-E, but higher v_c and wear resistance due to coating ▲ suitable for steel and cast iron		17–22				
	WTL	HSS-E TiCN	▲ as WTL TiN, but higher v_c and wear resistance possible with high alloy steels		23				
	WTL	HSS F.-nit	▲ special flute profile with large chip gullet ▲ nitrided cutting edge giving increased wear protection to cutting corners and guide lands			26–28	29	30	30
	WTL	HSS TiN	▲ as WTL HSS, but higher v_c and wear resistance due to coating			26–28			
	WNX	HSS-E	▲ wide chip flutes for long-chipping materials ▲ self-centring	9–14					
	NC	HSS	▲ suitable for use with drill bushes ▲ very good chip evacuation with thro' coolant			25			
	NC	HSS TiAlN	▲ as NC, but higher v_c and wear resistance due to coating			25			
Stainless steel	**VA**	HSS-E	▲ specialist for stainless and acid-resistant materials ▲ special geometry	9–14	17–22				
Non-ferrous metals	**W**	HSS	▲ specialist for non-ferrous metals		17–22				
	WTW	HSS	▲ for non-ferrous metals to 500 N/mm² ▲ for deep holes			26–28			

HSS Drills Overview

3xD without thro‘ coolant

	Tool type	Material | Coating	Point angle	Diameter in mm DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials		coated	uncoated	WNT \ Performance
	VX	HSS-E TiN	118°	2–20	●	●	●	●	○			■		8
	UNI	HSS-E PM TiN	130°	1–14	●	○	●	○	○			■		9–14
	UNI	HSS-E TiN	118°	1–14	●	●	●	●	○	○		■		9–14
	N	HSS vap.	118°	0,4–20	●		●	○				■		9–14
	VA	HSS-E	130°	1–12	○	●	○	○	○				□	9–14
	WNX	HSS-E	130°	1–20	●	○	○	●	○				□	9–14
	WT	HSS-E vap.	130°	0,4–25	●	○	○	○	○	○		■		9–14
	WT	HSS-E TiN	130°	1–20	●	○	○	○	○	○		■		9–14
	WTL-L	HSS F-nit	130°	1–19	●	○	○	●		○	left-hand cutting	■		15

5xD without thro‘ coolant

	Tool type	Material | Coating	Point angle	Diameter in mm DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials		coated	uncoated	WNT \ Performance
	VX	HSS-E TiN	118°	2–20	●	●	●	●	○			■		16
	UNI	HSS-E PM TiN	130°	1–14	●	○	●	○	○			■		17–22
	UNI	HSS-E TiN	118°	0,9–14	●	●	●	●	○			■		17–22
	N	HSS vap.	118°	0,2–20	●		●	○				■		17–22
	VA	HSS-E	130°	1–12	○	●	○	○	○				□	17–22
	WTL	HSS-E F-nit.	130°	1–16	●	○	○	○				■		17–22
	WTL	HSS-E TiN	130°	1–16	●	○	○	○				■		17–22
	WTL	HSS-E TiCN	130°	3–12	●	○						■		23
	W	HSS	130°	0,20–20				●					□	17–22
	WTL-L	HSS F-nit.	130°	1–16	●		○	○			left-hand cutting	■		23

HSS Drills Overview

	Tool type	Material | Coating	Point angle	Diameter in mm DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials	coated	uncoated	WNT \ Performance
5xD with thro' coolant													
	WNXi	HSS-E	130°	5–20	●	●	●	○	○	E		□	25
	WNXi	HSS-E TiN	130°	5–20	●	●	●	○	○	E	■		25
up to 10xD without thro' coolant													
	UNI	HSS-E TiN	118°	1–14	●	○	●	○		A	■		26–28
	WTL	HSS TiN	130°	1–14	●		●	●		A	■		26–28
	WTL	HSS-E F-nit.	130°	1–12	●	●	●	●		A	■		26–28
	WTL	HSS F-nit.	130°	1–14	●		●	●		A	■		26–28
	WTW	HSS	130°	1–14				●		A		□	26–28
up to 10xD with thro' coolant													
	NC	HSS	130°	3–13	●	○	●	○	○	A		□	25
	NC	HSS TiAlN	130°	3–13	●	○	●	○	○	A	■		25
over 10xD without thro' coolant													
	WTL	HSS Series 1	130°	2–13	●	○	●	●		A	■		29
	WTL	HSS Series 2	130°	2–13	●	○	●	●		A	■		30
	WTL	HSS Series 3	130°	2,5–13	●	○	●	●		A	■		30
Mini-drill													
	N	HSS-E PM	118°	0,15–1,45	●	●	●	●	○	A		□	31
Twist Drill Sets													
	N	HSS vap.	118°	1–10	●		●			A	■		24
	UNI	HSS-E TiN	118°	1–10	●	●	●	●	○	A	■		24

HSS Drills Overview

	Tool type	Material | Coating	Point angle	Diameter in mm DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials		coated	uncoated	WNT \ Performance
NC Spot Drill														
	NC-A	HSS	90°	3–20	●	○	●	○			A ~B		□	35–37
	NC-A	HSS TiN	90°	3–20	●	○	●	○			A ~B	■		35+36
	NC-A	HSS	120°	3–20	●	○	●	○			A ~B		□	35+36
	NC-A	HSS TiN	120°	3–20	●	○	●	○			A ~B	■		35+36
Centre drills														
	ZB	HSS	118°	0,5–6,3	●	○	●	○				DIN 333 – Form A/B/R	□	37–39
	ZB	HSS TiN	118°	0,5–6,3	●	○	●	○				DIN 333 – Form A	■	38
	ZB	HSS-E	118°	0,5–6,3	●	○	●	○				DIN 333 – Form A	□	38
Core drills														
	N	HSS	120°	3,8–12	●	○	●	●	○		A	3 flute	□	40
Stepped drills														
	SB	HSS vap.	118°	2,5–10,2	●	○	●	○			A	Countersinking angle 90°	■	41
	SB	HSS	118°	2,5–10,2	●	○	●	○			A	Countersinking angle 90°	□	41
	SB	HSS vap.	118°	3,2–10,5	●	○	●	○			A	Countersinking angle 90°	■	41
	SB	HSS	118°	3,2–10,5	●	○	●	○			A	Countersinking angle 90°	□	41
	SB	HSS vap.	118°	3,4–11	●	○	●	○			A	Countersinking angle 180°	■	42
	SB	HSS	118°	3,4–11	●	○	●	○			A	Countersinking angle 180°	□	42
	SB	HSS vap.	118°	3,3–21	●	○	●	○				Countersinking angle 60°	■	44

HSS Drills Overview

	Tool type	Material | Coating	Point angle	Diameter in mm DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials		coated ■ uncoated □	WNT \ Performance
Drills with Morse taper													
3xD													
	WT	HSS-E vap.	**130°**	10–30	●	○	○	○	○		MK	■	31
5xD													
	N	HSS vap.	**118°**	10–60	●		●	○			MK	■	32
	WTL	HSS-E F.-nit	**130°**	10–27	●	○	○	○			MK	■	32
10xD													
	N	HSS vap.	**118°**	10–50	●		●	○			MK	■	33
	WTL	HSS-E F.-nit	**130°**	10–26	●	●	●	●			MK	■	33
above 10xD													
	WTL	HSS Series 1	**130°**	10–30	●	○	●	●			MK	■	34
	WTL	HSS Series 2	**130°**	10–30	●	○	●	●			MK	■	34
Core drills													
	N	HSS vap.	**120°**	10–30	●	○	●	●	○		MK	3 flute ■	40
Stepped drills													
	SB	HSS vap.	**118°**	5,5–22	●	○	●	○			MK	Countersinking angle 180° ■	43

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

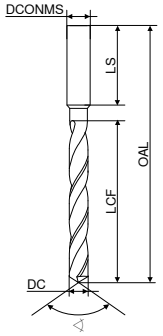
- shank to DIN 1835 A
- special point thinning
- very good centering behaviour
- 4 facet
- highest Performance

≤ 3xD



VX

TiN





HSS-E

DC h8	OAL	LCF	DCONMS h6	LS	Article no. 10 122 ...
mm	mm	mm	mm	mm	
2,00	44	12	3	28	020
2,10	44	12	3	28	021
2,20	45	13	3	28	022
2,30	45	13	3	28	023
2,40	46	14	3	28	024
2,50	46	14	3	28	025
2,60	46	14	3	28	026
2,70	48	16	3	28	027
2,80	48	16	3	28	028
2,90	48	16	3	28	029
3,00	48	16	3	28	030
3,10	50	18	4	28	031
3,20	50	18	4	28	032
3,30	50	18	4	28	033
3,40	52	20	4	28	034
3,50	52	20	4	28	035
3,60	52	20	4	28	036
3,70	52	20	4	28	037
3,80	54	22	4	28	038
3,90	54	22	4	28	039
4,00	54	22	4	28	040
4,10	66	22	6	36	041
4,20	66	22	6	36	042
4,30	68	24	6	36	043
4,40	68	24	6	36	044
4,50	68	24	6	36	045
4,60	68	24	6	36	046
4,70	68	24	6	36	047
4,80	70	26	6	36	048
4,90	70	26	6	36	049
5,00	70	26	6	36	050
5,10	70	26	6	36	051
5,20	70	26	6	36	052
5,30	70	26	6	36	053
5,40	72	28	6	36	054
5,50	72	28	6	36	055
5,55	72	28	6	36	555
5,60	72	28	6	36	056
5,70	72	28	6	36	057
5,80	72	28	6	36	058
5,90	72	28	6	36	059
6,00	72	28	6	36	060
6,10	75	31	8	36	061
6,20	75	31	8	36	062
6,30	75	31	8	36	063
6,40	75	31	8	36	064
6,50	75	31	8	36	065
6,60	75	31	8	36	066
6,70	75	31	8	36	067
6,80	78	34	8	36	068
6,90	78	34	8	36	069
7,00	78	34	8	36	070

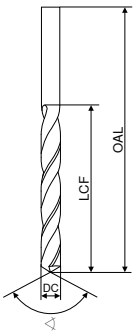
DC h8	OAL	LCF	DCONMS h6	LS	Article no. 10 122 ...
mm	mm	mm	mm	mm	
7,10	78	34	8	36	071
7,20	78	34	8	36	072
7,30	78	34	8	36	073
7,40	78	34	8	36	074
7,45	78	34	8	36	745
7,50	78	34	8	36	075
7,60	81	37	8	36	076
7,70	81	37	8	36	077
7,80	81	37	8	36	078
7,90	81	37	8	36	079
8,00	81	37	8	36	080
8,10	87	37	10	40	081
8,20	87	37	10	40	082
8,30	87	37	10	40	083
8,40	87	37	10	40	084
8,50	87	37	10	40	085
8,60	91	40	10	40	086
8,70	91	40	10	40	087
8,80	91	40	10	40	088
8,90	91	40	10	40	089
9,00	91	40	10	40	090
9,10	91	40	10	40	091
9,20	91	40	10	40	092
9,30	91	40	10	40	093
9,35	91	40	10	40	935
9,40	91	40	10	40	094
9,50	91	40	10	40	095
9,60	93	43	10	40	096
9,70	93	43	10	40	097
9,80	93	43	10	40	098
9,90	93	43	10	40	099
10,00	93	43	10	40	100
10,10	100	43	12	45	101
10,20	100	43	12	45	102
10,30	100	43	12	45	103
10,40	100	43	12	45	104
10,50	100	43	12	45	105
10,60	100	43	12	45	106
10,70	104	47	12	45	107
10,80	104	47	12	45	108
10,90	104	47	12	45	109
11,00	104	47	12	45	110
11,10	104	47	12	45	111
11,50	104	47	12	45	115
11,70	104	47	12	45	117
11,80	104	47	12	45	118
11,90	108	51	12	45	119
12,00	108	51	12	45	120
12,10	111	51	16	48	121
12,20	111	51	16	48	122
12,30	111	51	16	48	123
12,40	111	51	16	48	124
12,50	111	51	16	48	125
12,60	111	51	16	48	126
12,70	111	51	16	48	127
12,80	111	51	16	48	128
12,90	111	51	16	48	129
13,00	111	51	16	48	130
13,50	114	54	16	48	135
14,00	114	54	16	48	140
14,50	116	56	16	48	145
15,00	116	56	16	48	150
15,50	118	58	16	48	155
16,00	118	58	16	48	160
16,50	126	60	20	50	165
17,00	126	60	20	50	170
17,50	128	62	20	50	175
18,00	128	62	20	50	180
18,50	130	64	20	50	185
19,00	130	64	20	50	190
19,50	132	66	20	50	195
20,00	132	66	20	50	200

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○

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

≤ 3xD



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



◁ 130°	◁ 118°	◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
HSS-E-PM	HSS-E	HSS	HSS-E	HSS-E	HSS-E	HSS-E

DC $_{h8}$	DC	OAL	LCF	Article no. 10 113 ...	Article no. 10 107 ...	Article no. 10 105 ...	Article no. 10 130 ...	Article no. 10 106 ...	Article no. 10 109 ...	Article no. 10 110 ...
mm	inch	mm	mm							
0,40		19	2,5			004 [1]			00400 [1]	
0,50		20	3,0			005 [1]			00500 [1]	
0,55		21	3,5						00550 [1]	
0,60		21	3,5			006 [1]			00600 [1]	
0,65		22	4,0						00650 [1]	
0,70		23	4,5			007 [1]			00700 [1]	
0,75		23	4,5						00750 [1]	
0,80		24	5,0			008 [1]			00800 [1]	
0,85		24	5,0						00850 [1]	
0,90		25	5,5			009 [1]			00900 [1]	
0,95		25	5,5						00950 [1]	
1,00		26	6,0	010 [2]	010	010 [1]	010	010	01000 [1]	010
1,05		26	6,0						01050 [1]	
1,10		28	7,0	011 [2]	011	011 [1]	011	011	01100 [1]	011
1,15		28	7,0						01150 [1]	
1,20		30	8,0	012 [2]	012	012 [1]	012	012	01200 [1]	012
1,25		30	8,0						01250 [1]	
1,30		30	8,0	013 [2]	013	013 [1]	013	013	01300 [1]	013
1,35		32	9,0						01350 [1]	
1,40		32	9,0	014 [2]	014	014 [1]	014	014	01400 [1]	014
1,45		32	9,0						01450 [1]	
1,50		32	9,0	015 [2]	015	015 [1]	015	015	01500 [1]	015
1,55		34	10,0						01550 [1]	
1,60		34	10,0	016 [2]	016	016 [1]	016	016	01600 [1]	016
1,65		34	10,0						01650 [1]	
1,70		34	10,0	017 [2]	017	017 [1]	017	017	01700 [1]	017
1,75		36	11,0						01750 [1]	
1,80		36	11,0	018 [2]	018	018 [1]	018	018	01800 [1]	018
1,83		36	11,0						01830 [1]	
1,85		36	11,0						01850 [1]	
1,90		36	11,0	019 [2]	019	019 [1]	019	019	01900 [1]	019
1,95		38	12,0						01950 [1]	
2,00		38	12,0	020 [2]	020	020 [1]	020	020	02000 [1]	020
2,05		38	12,0						02050 [1]	
2,10		38	12,0	021 [2]	021	021 [1]	021	021	02100 [1]	021
2,15		40	13,0						02150 [1]	
2,20		40	13,0	022 [2]	022	022 [1]	022	022	02200 [1]	022
2,25		40	13,0						02250 [1]	
2,30		40	13,0	023 [2]	023	023 [1]	023	023	02300 [1]	023
2,35		40	13,0						02350 [1]	
2,38	3/32	43	14,0	238 [2]	238					
2,40		43	14,0	024 [2]	024	024	024	024	02400	024
2,45		43	14,0						02450	

Steel	●	●	●	○	●	●	●
Stainless steel	○	●		●	○	○	○
Cast iron	●	●	●	○	○	○	○
Non ferrous metals	○	●	○	○	●	○	○
Heat resistant alloys	○	○		○	○	○	○
Hardened materials		○				○	○

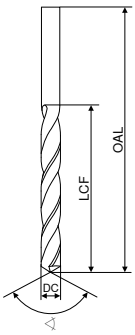
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

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

≤ 3xD



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



◁ 130°	◁ 118°	◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
HSS-E-PM	HSS-E	HSS	HSS-E	HSS-E	HSS-E	HSS-E

DC $_{h8}$	DC	OAL	LCF	Article no. 10 113 ...	Article no. 10 107 ...	Article no. 10 105 ...	Article no. 10 130 ...	Article no. 10 106 ...	Article no. 10 109 ...	Article no. 10 110 ...
mm	inch	mm	mm							
2,50		43	14,0	025 [2]	025	025	025	025	02500	025
2,55		43	14,0						02550	
2,60		43	14,0	026 [2]	026	026	026	026	02600	026
2,65		43	14,0						02650	
2,70		46	16,0	027 [2]	027	027	027	027	02700	027
2,75		46	16,0						02750	
2,78	7/64	46	16,0	278 [2]	278					
2,80		46	16,0	028 [2]	028	028	028	028	02800	028
2,85		46	16,0						02850	
2,90		46	16,0	029 [2]	029	029	029	029	02900	029
2,95		46	16,0						02950	
3,00		46	16,0	030 [2]	030	030	030	030	03000	030
3,05		49	18,0						03050	
3,10		49	18,0	031 [2]	031	031	031	031	03100	031
3,15		49	18,0						03150	
3,17	1/8	49	18,0	317 [2]	317					
3,20		49	18,0	032 [2]	032	032	032	032	03200	032
3,25		49	18,0						03250	
3,30		49	18,0	033 [2]	033	033	033	033	03300	033
3,35		49	18,0						03350	
3,40		52	20,0	034 [2]	034	034	034	034	03400	034
3,45		52	20,0						03450	
3,50		52	20,0	035 [2]	035	035	035	035	03500	035
3,55		52	20,0						03550	
3,57	9/64	52	20,0	357 [2]	357					
3,60		52	20,0	036 [2]	036	036	036	036	03600	036
3,70		52	20,0	037 [2]	037	037	037	037	03700	037
3,75		52	20,0						03750	
3,80		55	22,0	038 [2]	038	038	038	038	03800	038
3,85		55	22,0						03850	
3,90		55	22,0	039 [2]	039	039		039	03900	039
3,95		55	22,0						03950	
3,97	5/32	55	22,0	397 [2]	397					
4,00		55	22,0	040 [2]	040	040	040	040	04000	040
4,05		55	22,0						04050	
4,10		55	22,0	041 [2]	041	041	041	041	04100	041
4,15		55	22,0						04150	
4,20		55	22,0	042 [2]	042	042	042	042	04200	042
4,25		55	22,0						04250	
4,30		58	24,0	043 [2]	043	043	043	043	04300	043
4,35		58	24,0						04350	
4,37	11/64	58	24,0	437 [2]	437					
4,40		58	24,0	044 [2]	044	044		044	04400	044

Steel	●	●	●	○	●	●	●
Stainless steel	○	●		●	○	○	○
Cast iron	●	●	●	○	○	○	○
Non ferrous metals	○	●	○	○	●	○	○
Heat resistant alloys	○	○		○	○	○	○
Hardened materials		○				○	○

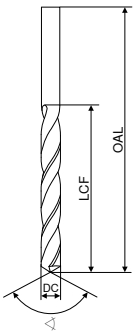
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

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

≤ 3xD



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



◁ 130°	◁ 118°	◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
HSS-E-PM	HSS-E	HSS	HSS-E	HSS-E	HSS-E	HSS-E

DC h8	DC	OAL	LCF	Article no. 10 113 ...	Article no. 10 107 ...	Article no. 10 105 ...	Article no. 10 130 ...	Article no. 10 106 ...	Article no. 10 109 ...	Article no. 10 110 ...
mm	inch	mm	mm							
4,45		58	24,0						04450	
4,50		58	24,0	045 2)	045	045	045	045	04500	045
4,55		58	24,0						04550	
4,60		58	24,0	046 2)	046	046	046	046	04600	046
4,65		58	24,0						04650	465
4,70		58	24,0	047 2)	047	047	047	047	04700	047
4,75		58	24,0						04750	
4,76	3/16	62	26,0	476 2)	476					
4,80		62	26,0	048 2)	048	048	048	048	04800	048
4,85		62	26,0						04850	
4,90		62	26,0	049 2)	049	049	049	049	04900	049
4,95		62	26,0						04950	
5,00		62	26,0	050 2)	050	050	050	050	05000	050
5,05		62	26,0						05050	
5,10		62	26,0	051 2)	051	051	051	051	05100	051
5,15		62	26,0						05150	
5,16	13/64	62	26,0	516 2)	516					
5,20		62	26,0	052 2)	052	052	052	052	05200	052
5,25		62	26,0						05250	
5,30		62	26,0	053 2)	053	053	053	053	05300	053
5,35		66	28,0						05350	
5,40		66	28,0	054 2)	054	054		054	05400	054
5,45		66	28,0						05450	
5,50		66	28,0	055 2)	055	055	055	055	05500	055
5,55		66	28,0						05550	555
5,56	7/32	66	28,0	556 2)	556					
5,60		66	28,0	056 2)	056	056	056	056	05600	056
5,70		66	28,0	057 2)	057	057	057	057	05700	057
5,75		66	28,0						05750	
5,80		66	28,0	058 2)	058	058	058	058	05800	058
5,85		66	28,0						05850	
5,90		66	28,0	059 2)	059	059	059	059	05900	059
5,95	15/64	66	28,0	595 2)	595				05950	
6,00		66	28,0	060 2)	060	060	060	060	06000	060
6,05		70	31,0						06050	
6,10		70	31,0	061 2)	061	061	061	061	06100	061
6,15		70	31,0						06150	
6,20		70	31,0	062 2)	062	062	062	062	06200	062
6,25		70	31,0						06250	
6,30		70	31,0	063 2)	063	063	063	063	06300	063
6,35	1/4	70	31,0	635 2)	635				06350	
6,40		70	31,0	064 2)	064	064	064	064	06400	064
6,45		70	31,0						06450	

Steel	●	●	●	○	●	●	●
Stainless steel	○	●		●	○	○	○
Cast iron	●	●	●	○	○	○	○
Non ferrous metals	○	●	○	○	●	○	○
Heat resistant alloys	○	○		○	○	○	○
Hardened materials		○				○	○

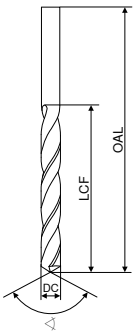
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

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

≤ 3xD



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



◁ 130°	◁ 118°	◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
HSS-E-PM	HSS-E	HSS	HSS-E	HSS-E	HSS-E	HSS-E

DC $_{h8}$	DC	OAL	LCF	Article no. 10 113 ...	Article no. 10 107 ...	Article no. 10 105 ...	Article no. 10 130 ...	Article no. 10 106 ...	Article no. 10 109 ...	Article no. 10 110 ...
mm	inch	mm	mm							
6,50		70	31,0	065 2)	065	065	065	065	06500	065
6,55		70	31,0						06550	
6,60		70	31,0	066 2)	066	066	066	066	06600	066
6,65		70	31,0						06650	
6,70		70	31,0	067 2)	067	067	067	067	06700	067
6,75		74	34,0	675 2)	675				06750	
6,80		74	34,0	068 2)	068	068	068	068	06800	068
6,85		74	34,0						06850	
6,90		74	34,0	069 2)	069	069	069	069	06900	069
7,00		74	34,0	070 2)	070	070	070	070	07000	070
7,05		74	34,0						07050	
7,10		74	34,0	071 2)	071	071	071	071	07100	071
7,14	9/32	74	34,0	714 2)	714					
7,20		74	34,0	072 2)	072	072	072	072	07200	072
7,25		74	34,0						07250	
7,30		74	34,0	073 2)	073	073		073	07300	073
7,35		74	34,0						07350	
7,40		74	34,0	074 2)	074	074		074	07400	074
7,50		74	34,0	075 2)	075	075	075	075	07500	075
7,60		79	37,0	076 2)	076	076		076	07600	076
7,70		79	37,0	077 2)	077	077	077	077	07700	077
7,75		79	37,0						07750	
7,80		79	37,0	078 2)	078	078		078	07800	078
7,90		79	37,0	079 2)	079	079	079	079	07900	079
7,94	5/16	79	37,0	794 2)	794					
8,00		79	37,0	080 2)	080	080	080	080	08000	080
8,05		79	37,0						08050	
8,10		79	37,0	081 2)	081	081	081	081	08100	081
8,15		79	37,0						08150	
8,20		79	37,0	082 2)	082	082	082	082	08200	082
8,25		79	37,0						08250	
8,30		79	37,0	083 2)	083	083	083	083	08300	083
8,40		79	37,0	084 2)	084	084	084	084	08400	084
8,50		79	37,0	085 2)	085	085	085	085	08500	085
8,55		84	40,0						08550	
8,60		84	40,0		086	086	086	086	08600	086
8,70		84	40,0		087	087	087	087	08700	087
8,73	11/32	84	40,0	873 2)	873					
8,75		84	40,0						08750	
8,80		84	40,0	088 2)	088	088		088	08800	088
8,90		84	40,0		089	089		089	08900	089
8,95		84	40,0						08950	
9,00		84	40,0	090 2)	090	090	090	090	09000	090

Steel	●	●	●	○	●	●	●
Stainless steel	○	●		●	○	○	○
Cast iron	●	●	●	○	○	○	○
Non ferrous metals	○	●	○	○	●	○	○
Heat resistant alloys	○	○		○	○	○	○
Hardened materials		○				○	○

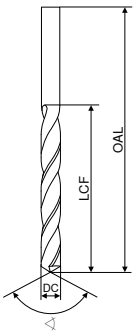
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

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

≤ 3xD



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



◁ 130°	◁ 118°	◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
HSS-E-PM	HSS-E	HSS	HSS-E	HSS-E	HSS-E	HSS-E

DC h8	DC	OAL	LCF	Article no. 10 113 ...	Article no. 10 107 ...	Article no. 10 105 ...	Article no. 10 130 ...	Article no. 10 106 ...	Article no. 10 109 ...	Article no. 10 110 ...
mm	inch	mm	mm							
9,05		84	40,0						09050	
9,10		84	40,0		091	091		091	09100	091
9,20		84	40,0		092	092	092	092	09200	092
9,25		84	40,0						09250	
9,30		84	40,0	093 2)	093	093	093	093	09300	093
9,40		84	40,0		094	094		094	09400	094
9,50		84	40,0	095 2)	095	095	095	095	09500	095
9,60		89	43,0		096	096		096	09600	096
9,65		89	43,0						09650	
9,70		89	43,0		097	097		097	09700	097
9,75		89	43,0						09750	
9,80		89	43,0	098 2)	098	098	098	098	09800	098
9,90		89	43,0		099	099		099	09900	099
10,00		89	43,0	100 2)	100	100	100	100	10000	100
10,05		89	43,0						10050	
10,10		89	43,0		101	101			10100	
10,20		89	43,0	102 2)	102	102	102	102	10200	102
10,25		89	43,0						10250	
10,30		89	43,0		103	103			10300	
10,40		89	43,0		104	104			10400	
10,50		89	43,0	105 2)	105	105	105	105	10500	105
10,60		95	47,0			106			10600	
10,70		95	47,0			107			10700	
10,75		95	47,0						10750	
10,80		95	47,0			108		108	10800	108
10,90		95	47,0			109			10900	
11,00		95	47,0	110 2)	110	110	110	110	11000	110
11,10		95	47,0			111			11100	
11,11	7/16	95	47,0	111 2)	111					
11,20		95	47,0			112			11200	
11,30		95	47,0			113			11300	
11,40		95	47,0			114			11400	
11,50		95	47,0	115 2)	115	115	115	115	11500	115
11,60		95	47,0			116				
11,70		95	47,0			117	117		11700	
11,75		95	47,0						11750	
11,80		95	47,0			118		118	11800	118
11,90		102	51,0			119				
12,00		102	51,0	120 2)	120	120	120	120	12000	120
12,10		102	51,0			121			12100	
12,20		102	51,0			122			12200	
12,25		102	51,0						12250	
12,30		102	51,0	123 2)	123	123		123	12300	123

Steel	●	●	●	○	●	●	●
Stainless steel	○	●		●	○	○	○
Cast iron	●	●	●	○	○	○	○
Non ferrous metals	○	●	○	○	●	○	○
Heat resistant alloys	○	○		○	○	○	○
Hardened materials		○				○	○

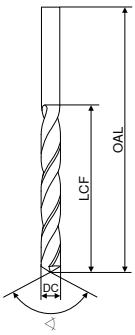
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

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

≤ 3xD



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



◁ 130°	◁ 118°	◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
HSS-E-PM	HSS-E	HSS	HSS-E	HSS-E	HSS-E	HSS-E

DC $_{h8}$	DC	OAL	LCF	Article no. 10 113 ...	Article no. 10 107 ...	Article no. 10 105 ...	Article no. 10 130 ...	Article no. 10 106 ...	Article no. 10 109 ...	Article no. 10 110 ...
mm	inch	mm	mm							
12,40		102	51,0			124			12400	
12,50		102	51,0	125 [2]	125	125		125	12500	125
12,60		102	51,0			126			12600	
12,70		102	51,0	127 [2]	127	127			12700	
12,80		102	51,0			128		128	12800	128
12,90		102	51,0			129			12900	
13,00		102	51,0	130 [2]	130	130		130	13000	130
13,20		102	51,0			132			13200	
13,30		107	54,0			133				
13,50		107	54,0	135 [2]	135	135		135	13500	135
13,80		107	54,0			138		138		138
14,00		107	54,0	140 [2]	140	140		140	14000	140
14,50		111	56,0			145		145	14500	145
14,75		111	56,0			147				
14,80		111	56,0					148		
15,00		111	56,0			150		150	15000	150
15,25		115	58,0			152			15250	
15,50		115	58,0			155		155	15500	155
15,75		115	58,0							157
16,00		115	58,0			160		160	16000	160
16,50		119	60,0			165		165	16500	165
17,00		119	60,0			170		170	17000	170
17,50		123	62,0			175		175	17500	175
17,75		123	62,0							177
18,00		123	62,0			180		180	18000	180
18,50		127	64,0			185			18500	185
19,00		127	64,0			190		190	19000	190
19,50		131	66,0			195			19500	195
19,75		131	66,0							197
20,00		131	66,0			200		200	20000	200
20,50		136	68,0						20500	
21,00		136	68,0						21000	
21,50		141	70,0						21500	
22,00		141	70,0						22000	
22,20		141	70,0						22200	
23,00		146	72,0						23000	
24,00		151	75,0						24000	
25,00		151	75,0						25000	

Steel	●	●	●	○	●	●	●
Stainless steel	○	●		●	○	○	○
Cast iron	●	●	●	○	○	○	○
Non ferrous metals	○	●	○	○	●	○	○
Heat resistant alloys	○	○		○	○	○	○
Hardened materials		○				○	○

1) uncoated
2) self-centering

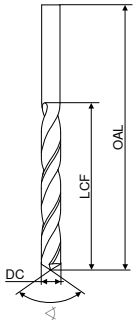
→ v_c Page 46+47

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

▲ left-hand cutting

≤ 3xD

WTL-L





DC h8	OAL	LCF	Article no. 10 112 ...
mm	mm	mm	
1,0	26	6	010 1)
1,1	28	7	011 1)
1,2	30	8	012 1)
1,3	30	8	013 1)
1,4	32	9	014 1)
1,5	32	9	015 1)
1,6	34	10	016 1)
1,7	34	10	017 1)
1,8	36	11	018 1)
1,9	36	11	019 1)
2,0	38	12	020 1)
2,1	38	12	021 1)
2,2	40	13	022 1)
2,3	40	13	023 1)
2,4	43	14	024 2)
2,5	43	14	025 2)
2,6	43	14	026 2)
2,7	46	16	027 2)
2,8	46	16	028 2)
2,9	46	16	029 2)
3,0	46	16	030 2)
3,1	49	18	031 2)
3,2	49	18	032 2)
3,3	49	18	033 2)
3,4	52	20	034 2)
3,5	52	20	035 2)
3,6	52	20	036 2)
3,7	52	20	037 2)
3,8	55	22	038 2)
3,9	55	22	039 2)
4,0	55	22	040 2)
4,1	55	22	041 2)
4,2	55	22	042 2)
4,3	58	24	043 2)
4,4	58	24	044 2)
4,5	58	24	045 2)
4,6	58	24	046 2)
4,7	58	24	047 2)
4,8	62	26	048 2)
4,9	62	26	049 2)
5,0	62	26	050 2)
5,1	62	26	051 2)
5,2	62	26	052 2)
5,3	62	26	053 2)
5,4	66	28	054 2)
5,5	66	28	055 2)
5,6	66	28	056 2)
5,7	66	28	057 2)
5,8	66	28	058 2)
5,9	66	28	059 2)
6,0	66	28	060 2)
6,1	70	31	061 2)
6,2	70	31	062 2)
6,3	70	31	063 2)
6,4	70	31	064 2)
6,5	70	31	065 2)
6,6	70	31	066 2)
6,7	70	31	067 2)
6,8	74	34	068 2)
6,9	74	34	069 2)
7,0	74	34	070 2)
7,2	74	34	072 2)
7,3	74	34	073 2)
7,4	74	34	074 2)
7,5	74	34	075 2)
7,7	79	37	077 2)
8,0	79	37	080 2)
8,1	79	37	081 2)
8,2	79	37	082 2)
8,3	79	37	083 2)
8,5	79	37	085 2)
8,6	84	40	086 2)
8,7	84	40	087 2)
8,8	84	40	088 2)
9,0	84	40	090 2)
9,5	84	40	095 2)
9,7	89	43	097 2)
10,0	89	43	100 2)
10,1	89	43	101 2)
10,2	89	43	102 2)
10,5	89	43	105 2)
11,0	95	47	110 2)
11,5	95	47	115 2)
11,8	95	47	118 2)
12,0	102	51	120 2)
12,5	102	51	125 2)
12,8	102	51	128 2)
13,0	102	51	130 2)
14,0	107	54	140 2)
14,5	111	56	145 2)
15,0	111	56	150 2)
16,0	115	58	160 3)
18,0	123	62	180 3)
19,0	127	64	190 3)

Steel	●
Stainless steel	○
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	
Hardened materials	○

1) uncoated
2) nitrided chamfer
3) vaporised

→ v_c Page 47

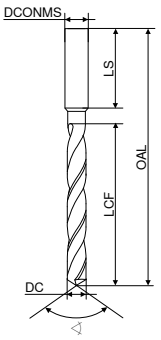
High-performance twist drill similar to DIN 338, short

- with shank to DIN 1835 A
- special point thinning
- 4 facet
- highest Performance
- very good centering behaviour

≤ 5xD

VX

TiN





HSS-E

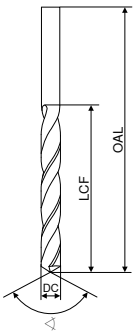
DC h8	OAL	LCF	DCONMS h6	LS	Article no. 10 124 ...
mm	mm	mm	mm	mm	
2,00	56	24	3	28	020
2,10	56	24	3	28	021
2,20	59	27	3	28	022
2,30	59	27	3	28	023
2,40	62	30	3	28	024
2,50	62	30	3	28	025
2,60	62	30	3	28	026
2,70	65	33	3	28	027
2,80	65	33	3	28	028
2,90	65	33	3	28	029
3,00	65	33	3	28	030
3,10	68	36	4	28	031
3,20	68	36	4	28	032
3,30	68	36	4	28	033
3,40	71	39	4	28	034
3,50	71	39	4	28	035
3,60	71	39	4	28	036
3,70	71	39	4	28	037
3,80	75	43	4	28	038
3,90	75	43	4	28	039
4,00	75	43	4	28	040
4,10	87	43	6	36	041
4,20	87	43	6	36	042
4,30	91	47	6	36	043
4,40	91	47	6	36	044
4,50	91	47	6	36	045
4,60	91	47	6	36	046
4,65	91	47	6	36	465
4,70	91	47	6	36	047
4,80	96	52	6	36	048
4,90	96	52	6	36	049
5,00	96	52	6	36	050
5,10	96	52	6	36	051
5,20	96	52	6	36	052
5,30	96	52	6	36	053
5,40	101	57	6	36	054
5,50	101	57	6	36	055
5,55	101	57	6	36	555
5,60	101	57	6	36	056
5,70	101	57	6	36	057
5,80	101	57	6	36	058
5,90	101	57	6	36	059
6,00	101	57	6	36	060
6,10	107	63	8	36	061
6,20	107	63	8	36	062
6,30	107	63	8	36	063
6,40	107	63	8	36	064
6,50	107	63	8	36	065
6,60	107	63	8	36	066
6,70	107	63	8	36	067
6,80	113	69	8	36	068
6,90	113	69	8	36	069
7,00	113	69	8	36	070
7,10	113	69	8	36	071
7,20	113	69	8	36	072
7,30	113	69	8	36	073
7,40	113	69	8	36	074
7,50	113	69	8	36	075
7,55	119	75	8	36	755
7,60	119	75	8	36	076
7,70	119	75	8	36	077
7,80	119	75	8	36	078
7,90	119	75	8	36	079
8,00	119	75	8	36	080
8,10	125	75	10	40	081
8,20	125	75	10	40	082
8,30	125	75	10	40	083
8,40	125	75	10	40	084
8,50	125	75	10	40	085
8,60	131	81	10	40	086
8,70	131	81	10	40	087
8,80	131	81	10	40	088
8,90	131	81	10	40	089
9,00	131	81	10	40	090
9,10	131	81	10	40	091
9,20	131	81	10	40	092
9,30	131	81	10	40	093
9,40	131	81	10	40	094
9,50	131	81	10	40	095
9,55	137	87	10	40	955
9,60	137	87	10	40	096
9,70	137	87	10	40	097
9,80	137	87	10	40	098
9,90	137	87	10	40	099
10,00	137	87	10	40	100
10,10	144	87	12	45	101
10,20	144	87	12	45	102
10,30	144	87	12	45	103
10,40	144	87	12	45	104
10,50	144	87	12	45	105
10,60	144	87	12	45	106
10,70	151	94	12	45	107
10,80	151	94	12	45	108
10,90	151	94	12	45	109
11,00	151	94	12	45	110
11,10	151	94	12	45	111
11,20	151	94	12	45	112
11,30	151	94	12	45	113
11,40	151	94	12	45	114
11,50	151	94	12	45	115
11,60	151	94	12	45	116
11,70	151	94	12	45	117
11,80	151	94	12	45	118
11,90	158	101	12	45	119
12,00	158	101	12	45	120
12,10	161	101	16	48	121
12,20	161	101	16	48	122
12,30	161	101	16	48	123
12,40	161	101	16	48	124
12,50	161	101	16	48	125
12,60	161	101	16	48	126
12,70	161	101	16	48	127
12,80	161	101	16	48	128
12,90	161	101	16	48	129
13,00	161	101	16	48	130
13,50	166	106	16	48	135
14,00	166	106	16	48	140
14,50	169	109	16	48	145
15,00	169	109	16	48	150
15,50	172	112	16	48	155
16,00	172	112	16	48	160
16,50	181	115	20	50	165
17,00	181	115	20	50	170
17,50	184	118	20	50	175
18,00	184	118	20	50	180
18,50	188	122	20	50	185
19,00	188	122	20	50	190
19,50	191	125	20	50	195
20,00	191	125	20	50	200

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○

→ v_c Page 48

Twist drill to DIN 338, short

≤ 5xD



UNI	UNI	N	VA	W	WTL	WTL
TiN	TiN	vap.			F.-nit	TiN
						
◁ 130°	◁ 118°	◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
HSS-E-PM	HSS-E	HSS	HSS-E	HSS	HSS-E	HSS-E

DC $_{h8}$	DC	OAL	LCF	Article no. 10 173 ...	Article no. 10 171 ...	Article no. 10 152 ...	Article no. 10 175 ...	Article no. 10 161 ...	Article no. 10 168 ...	Article no. 10 170 ...
mm	inch	mm	mm							
0,20		19	2,5			00200 [1]		00200		
0,25		19	3,0			00250 [1]		00250		
0,30		19	3,0			00300 [1]		00300		
0,35		19	4,0			00350 [1]		00350		
0,40		20	5,0			00400 [1]		00400		
0,45		20	5,0			00450 [1]		00450		
0,50		22	6,0			00500 [1]		00500		
0,55		24	7,0			00550 [1]		00550		
0,60		24	7,0			00600 [1]		00600		
0,65		26	8,0			00650 [1]		00650		
0,70		28	9,0			00700 [1]		00700		
0,75		28	9,0			00750 [1]		00750		
0,80		30	10,0			00800 [1]		00800		
0,85		30	10,0			00850 [1]		00850		
0,90		32	11,0		009	00900 [1]		00900		
0,95		32	11,0			00950 [1]		00950		
1,00		34	12,0	010 [2]	010	01000 [1]	010	01000	010 [1]	010
1,05		34	12,0			01050 [1]		01050		
1,10		36	14,0	011 [2]	011	01100 [1]	011	01100	011 [1]	011
1,15		36	14,0			01150 [1]		01150		
1,20		38	16,0	012 [2]	012	01200 [1]	012	01200	012 [1]	012
1,25		38	16,0		125	01250 [1]		01250		
1,30		38	16,0	013 [2]	013	01300 [1]	013	01300	013 [1]	013
1,35		40	18,0			01350 [1]		01350		
1,40		40	18,0	014 [2]	014	01400 [1]	014	01400	014 [1]	014
1,45		40	18,0		145	01450 [1]		01450		901
1,50		40	18,0	015 [2]	015	01500 [1]	015	01500	015 [1]	015
1,55		43	20,0		155	01550 [1]		01550		902
1,60		43	20,0	016 [2]	016	01600 [1]	016	01600	016 [1]	016
1,65		43	20,0		165	01650 [1]		01650		903
1,70		43	20,0	017 [2]	017	01700 [1]	017	01700	017 [1]	017
1,75		46	22,0			01750 [1]		01750		
1,80		46	22,0	018 [2]	018	01800 [1]	018	01800	018 [1]	018
1,85		46	22,0			01850 [1]		01850		904
1,90		46	22,0	019 [2]	019	01900 [1]	019	01900	019 [1]	019
1,95		49	24,0			01950 [1]		01950		
2,00		49	24,0	020 [2]	020	02000 [1]	020	02000	020 [1]	020
2,05		49	24,0			02050 [1]		02050		905
2,10		49	24,0	021 [2]	021	02100 [1]	021	02100	021 [1]	021
2,15		53	27,0			02150 [1]		02150		
2,20		53	27,0	022 [2]	022	02200 [1]	022	02200	022 [1]	022
2,25		53	27,0			02250 [1]		02250		
2,30		53	27,0	023 [2]	023	02300 [1]	023	02300	023 [1]	023
2,35		53	27,0			02350 [1]		02350		
2,38	3/32	57	30,0	238 [2]	238					
2,40		57	30,0	024 [2]	024	02400	024	02400	024	024

Steel	●	●	●	○		●	●
Stainless steel	○	●		●		○	○
Cast iron	●	●	●	○		○	○
Non ferrous metals	○	●	○	○	●	○	○
Heat resistant alloys	○	○		○			
Hardened materials		○					

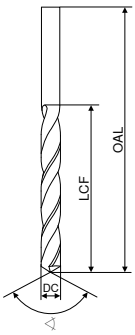
1) uncoated
2) self-centering

→ v_c Page 48+49

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



	UNI	UNI	N	VA	W	WTL	WTL
	TiN	TiN	vap.			F.-nit	TiN
							
	◁ 130° HSS-E-PM	◁ 118° HSS-E	◁ 118° HSS	◁ 130° HSS-E	◁ 130° HSS	◁ 130° HSS-E	◁ 130° HSS-E

DC $_{h8}$	DC	OAL	LCF	Article no. 10 173 ...	Article no. 10 171 ...	Article no. 10 152 ...	Article no. 10 175 ...	Article no. 10 161 ...	Article no. 10 168 ...	Article no. 10 170 ...
mm	inch	mm	mm							
2,45		57	30,0			02450		02450		
2,50		57	30,0	025 [2]	025	02500	025	02500	025	025
2,55		57	30,0		255	02550		02550		
2,60		57	30,0	026 [2]	026	02600	026	02600	026	026
2,65		57	30,0			02650		02650		
2,70		61	33,0	027 [2]	027	02700	027	02700	027	027
2,75		61	33,0			02750		02750		
2,78	7/64	61	33,0	278 [2]	278					
2,80		61	33,0	028 [2]	028	02800	028	02800	028	028
2,85		61	33,0			02850		02850		
2,90		61	33,0	029 [2]	029	02900	029	02900	029	029
2,95		61	33,0			02950		02950		
3,00		61	33,0	030 [2]	030	03000	030	03000	030	030
3,05		65	36,0			03050		03050		
3,10		65	36,0	031 [2]	031	03100	031	03100	031	031
3,15		65	36,0			03150		03150		
3,17	1/8	65	36,0	317 [2]	317					
3,20		65	36,0	032 [2]	032	03200	032	03200	032	032
3,25		65	36,0		325	03250		03250		
3,30		65	36,0	033 [2]	033	03300	033	03300	033	033
3,35		65	36,0			03350		03350		
3,40		70	39,0	034 [2]	034	03400	034	03400	034	034
3,45		70	39,0			03450		03450		
3,50		70	39,0	035 [2]	035	03500	035	03500	035	035
3,55		70	39,0			03550		03550		
3,57	9/64	70	39,0	357 [2]	357					
3,60		70	39,0	036 [2]	036	03600	036	03600	036	036
3,65		70	39,0			03650		03650		
3,70		70	39,0	037 [2]	037	03700	037	03700	037	037
3,75		70	39,0			03750		03750		
3,80		75	43,0	038 [2]	038	03800	038	03800	038	038
3,85		75	43,0			03850		03850		
3,90		75	43,0	039 [2]	039	03900	039	03900	039	039
3,95		75	43,0			03950		03950		
3,97	5/32	75	43,0	397 [2]	397					
4,00		75	43,0	040 [2]	040	04000	040	04000	040	040
4,05		75	43,0			04050		04050		
4,10		75	43,0	041 [2]	041	04100	041	04100	041	041
4,15		75	43,0			04150		04150		
4,20		75	43,0	042 [2]	042	04200	042	04200	042	042
4,25		75	43,0		425	04250		04250		
4,30		80	47,0	043 [2]	043	04300	043	04300	043	043
4,35		80	47,0			04350		04350		
4,37	11/64	80	47,0	437 [2]	437					
4,40		80	47,0	044 [2]	044	04400	044	04400	044	044
4,45		80	47,0			04450				

Steel	●	●	●	○		●	●
Stainless steel	○	●		●		○	○
Cast iron	●	●	●	○		○	○
Non ferrous metals	○	●	○	○	●	○	○
Heat resistant alloys	○	○		○			
Hardened materials		○					

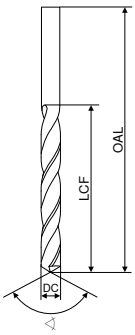
1) uncoated
2) self-centering

→ v_c Page 48+49

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



UNI	UNI	N	VA	W	WTL	WTL
TiN	TiN	vap.			F.-nit	TiN
						
◁ 130°	◁ 118°	◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
HSS-E-PM	HSS-E	HSS	HSS-E	HSS	HSS-E	HSS-E

DC $_{h8}$	DC	OAL	LCF	Article no. 10 173 ...	Article no. 10 171 ...	Article no. 10 152 ...	Article no. 10 175 ...	Article no. 10 161 ...	Article no. 10 168 ...	Article no. 10 170 ...
mm	inch	mm	mm							
4,50		80	47,0	045 [2]	045	04500	045	04500	045	045
4,55		80	47,0			04550		04550		
4,60		80	47,0	046 [2]	046	04600	046	04600	046	046
4,65		80	47,0		465	04650		04650		
4,70		80	47,0	047 [2]	047	04700	047	04700	047	047
4,75		80	47,0			04750		04750		
4,76	3/16	86	52,0	476 [2]	476					
4,80		86	52,0	048 [2]	048	04800	048	04800	048	048
4,85		86	52,0			04850		04850		
4,90		86	52,0	049 [2]	049	04900	049	04900	049	049
4,95		86	52,0		495	04950		04950		
5,00		86	52,0	050 [2]	050	05000	050	05000	050	050
5,05		86	52,0		505	05050		05050		
5,10		86	52,0	051 [2]	051	05100	051	05100	051	051
5,15		86	52,0			05150				
5,16	13/64	86	52,0	516 [2]	516					
5,20		86	52,0	052 [2]	052	05200	052	05200	052	052
5,25		86	52,0			05250		05250		
5,30		86	52,0	053 [2]	053	05300	053	05300	053	053
5,35		93	57,0			05350				
5,40		93	57,0	054 [2]	054	05400	054	05400	054	054
5,45		93	57,0			05450		05450		
5,50		93	57,0	055 [2]	055	05500	055	05500	055	055
5,55		93	57,0		555	05550		05550		
5,56	7/32	93	57,0	556 [2]	556					
5,60		93	57,0	056 [2]	056	05600	056	05600	056	056
5,65		93	57,0			05650		05650		
5,70		93	57,0	057 [2]	057	05700	057	05700	057	057
5,75		93	57,0		575	05750		05750		
5,80		93	57,0	058 [2]	058	05800	058	05800	058	058
5,85		93	57,0			05850		05850		
5,90		93	57,0	059 [2]	059	05900	059	05900	059	059
5,95	15/64	93	57,0	595 [2]	595	05950		05950		
6,00		93	57,0	060 [2]	060	06000	060	06000	060	060
6,05		101	63,0			06050		06050		
6,10		101	63,0	061 [2]	061	06100	061	06100	061	061
6,15		101	63,0			06150		06150		
6,20		101	63,0	062 [2]	062	06200	062	06200	062	062
6,25		101	63,0			06250		06250		
6,30		101	63,0	063 [2]	063	06300	063	06300	063	063
6,35	1/4	101	63,0	635 [2]	635	06350		06350		
6,40		101	63,0	064 [2]	064	06400	064	06400	064	064
6,45		101	63,0			06450				
6,50		101	63,0	065 [2]	065	06500	065	06500	065	065
6,55		101	63,0			06550		06550		
6,60		101	63,0	066 [2]	066	06600	066	06600	066	066

Steel	●	●	●	○		●	●
Stainless steel	○	●		●		○	○
Cast iron	●	●	●	○		○	○
Non ferrous metals	○	●	○	○	●	○	○
Heat resistant alloys	○	○		○			
Hardened materials		○					

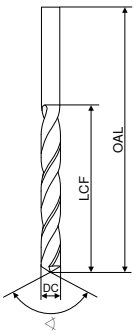
1) uncoated
2) self-centering

→ v_c Page 48+49

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Twist drill to DIN 338, short

≤ 5xD



UNI	UNI	N	VA	W	WTL	WTL
TiN	TiN	vap.			F.-nit	TiN
						
◁ 130°	◁ 118°	◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
HSS-E-PM	HSS-E	HSS	HSS-E	HSS	HSS-E	HSS-E

DC $_{h8}$	DC	OAL	LCF	Article no. 10 173 ...	Article no. 10 171 ...	Article no. 10 152 ...	Article no. 10 175 ...	Article no. 10 161 ...	Article no. 10 168 ...	Article no. 10 170 ...
mm	inch	mm	mm							
6,65		101	63,0			06650		06650		
6,70		101	63,0	067 [2]	067	06700	067	06700	067	067
6,75		109	69,0	675 [2]	675	06750		06750		
6,80		109	69,0	068 [2]	068	06800	068	06800	068	068
6,85		109	69,0			06850		06850		
6,90		109	69,0	069 [2]	069	06900	069	06900	069	069
6,95		109	69,0			06950		06950		
7,00		109	69,0	070 [2]	070	07000	070	07000	070	070
7,05		109	69,0			07050		07050		
7,10		109	69,0	071 [2]	071	07100	071	07100	071	071
7,14	9/32	109	69,0	714 [2]	714					
7,15		109	69,0			07150				
7,20		109	69,0	072 [2]	072	07200	072	07200	072	072
7,25		109	69,0			07250		07250		
7,30		109	69,0	073 [2]	073	07300	073	07300	073	073
7,35		109	69,0			07350				
7,40		109	69,0	074 [2]	074	07400	074	07400	074	074
7,45		109	69,0		745	07450				
7,50		109	69,0	075 [2]	075	07500	075	07500	075	075
7,55		117	75,0			07550				
7,60		117	75,0	076 [2]	076	07600	076	07600	076	076
7,65		117	75,0			07650				
7,70		117	75,0	077 [2]	077	07700	077	07700	077	077
7,75		117	75,0			07750		07750		
7,80		117	75,0	078 [2]	078	07800	078	07800	078	078
7,85		117	75,0			07850				
7,90		117	75,0	079 [2]	079	07900	079	07900	079	079
7,94	5/16	117	75,0	794 [2]	794					
7,95		117	75,0			07950				
8,00		117	75,0	080 [2]	080	08000	080	08000	080	080
8,05		117	75,0			08050		08050		
8,10		117	75,0	081 [2]	081	08100	081	08100	081	081
8,15		117	75,0			08150		08150		
8,20		117	75,0	082 [2]	082	08200	082	08200	082	082
8,25		117	75,0			08250		08250		
8,30		117	75,0	083 [2]	083	08300	083	08300	083	083
8,35		117	75,0			08350				
8,40		117	75,0	084 [2]	084	08400	084	08400	084	084
8,45		117	75,0			08450		08450		
8,50		117	75,0	085 [2]	085	08500	085	08500	085	085
8,55		125	81,0			08550		08550		
8,60		125	81,0		086	08600	086	08600	086	086
8,65		125	81,0			08650				
8,70		125	81,0		087	08700	087	08700	087	087
8,73	11/32	125	81,0	873 [2]	873					
8,75		125	81,0			08750		08750		

Steel	●	●	●	○		●	●
Stainless steel	○	●		●		○	○
Cast iron	●	●	●	○		○	○
Non ferrous metals	○	●	○	○	●	○	○
Heat resistant alloys	○	○		○			
Hardened materials		○					

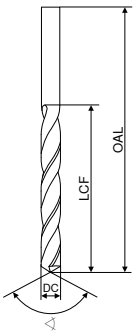
1) uncoated
2) self-centering

→ v_c Page 48+49

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Twist drill to DIN 338, short

≤ 5xD



UNI	UNI	N	VA	W	WTL	WTL
TiN	TiN	vap.			F.-nit	TiN
						
◁ 130°	◁ 118°	◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
HSS-E-PM	HSS-E	HSS	HSS-E	HSS	HSS-E	HSS-E

DC $_{h8}$	DC	OAL	LCF	Article no. 10 173 ...	Article no. 10 171 ...	Article no. 10 152 ...	Article no. 10 175 ...	Article no. 10 161 ...	Article no. 10 168 ...	Article no. 10 170 ...
mm	inch	mm	mm							
8,80		125	81,0	088 2)	088	08800	088	08800	088	088
8,90		125	81,0		089	08900	089	08900	089	089
8,95		125	81,0			08950				
9,00		125	81,0	090 2)	090	09000	090	09000	090	090
9,05		125	81,0			09050				
9,10		125	81,0		091	09100	091	09100	091	091
9,15		125	81,0			09150				
9,20		125	81,0		092	09200	092	09200	092	092
9,25		125	81,0			09250		09250		
9,30		125	81,0	093 2)	093	09300	093	09300	093	093
9,35		125	81,0		935	09350				
9,40		125	81,0		094	09400	094	09400	094	094
9,45		125	81,0			09450				
9,50		125	81,0	095 2)	095	09500	095	09500	095	095
9,55		133	87,0			09550				
9,60		133	87,0		096	09600	096	09600	096	096
9,65		133	87,0			09650				
9,70		133	87,0		097	09700	097	09700	097	097
9,75		133	87,0			09750				
9,80		133	87,0	098 2)	098	09800	098	09800	098	098
9,85		133	87,0			09850				
9,90		133	87,0		099	09900	099	09900	099	099
9,95		133	87,0			09950				
10,00		133	87,0	100 2)	100	10000	100	10000	100	100
10,05		133	87,0			10050		10050		
10,10		133	87,0		101	10100	101	10100	101	101
10,15		133	87,0			10150				
10,20		133	87,0	102 2)	102	10200	102	10200	102	102
10,25		133	87,0			10250		10250		
10,30		133	87,0		103	10300	103	10300	103	103
10,35		133	87,0			10350				
10,40		133	87,0		104	10400	104	10400	104	104
10,45		133	87,0			10450				
10,50		133	87,0	105 2)	105	10500	105	10500	105	105
10,55		133	87,0		955	10550				
10,60		133	87,0			10600	106	10600	106	
10,70		142	94,0			10700	107	10700	107	107
10,75		142	94,0			10750		10750		
10,80		142	94,0			10800	108	10800	108	108
10,90		142	94,0			10900	109	10900	109	
11,00		142	94,0	110 2)	110	11000	110	11000	110	110
11,10		142	94,0			11100	111	11100	111	
11,11	7/16	142	94,0	111 2)	111					
11,20		142	94,0		112	11200	112	11200	112	112
11,30		142	94,0		113		113		113	
11,40		142	94,0		114	11400	114	11400	114	

Steel	●	●	●	○		●	●
Stainless steel	○	●		●		○	○
Cast iron	●	●	●	○		○	○
Non ferrous metals	○	●	○	○	●	○	○
Heat resistant alloys	○	○		○			
Hardened materials		○					

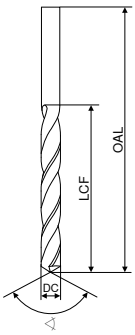
1) uncoated
2) self-centering

→ v_c Page 48+49

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Twist drill to DIN 338, short

≤ 5xD



UNI	UNI	N	VA	W	WTL	WTL
TiN	TiN	vap.			F.-nit	TiN
						
◁ 130°	◁ 118°	◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
HSS-E-PM	HSS-E	HSS	HSS-E	HSS	HSS-E	HSS-E

DC $_{h8}$	DC	OAL	LCF	Article no. 10 173 ...	Article no. 10 171 ...	Article no. 10 152 ...	Article no. 10 175 ...	Article no. 10 161 ...	Article no. 10 168 ...	Article no. 10 170 ...
mm	inch	mm	mm							
11,50		142	94,0	115 [2]	115	11500	115	11500	115	115
11,60		142	94,0		116	11600	116	11600	116	
11,70		142	94,0			11700	117	11700	117	117
11,80		142	94,0			11800	118	11800	118	118
11,90		151	101,0			11900	119	11900		
12,00		151	101,0	120 [2]	120	12000	120	12000	120	120
12,15		151	101,0		121					
12,20		151	101,0			12200		12200		
12,25		151	101,0			12250				
12,30		151	101,0	123 [2]	123					
12,50		151	101,0	125 [2]	925	12500		12500	125	125
12,70		151	101,0	127 [2]	127	12700		12700		
12,80		151	101,0			12800		12800	128	128
13,00		151	101,0	130 [2]	130	13000		13000	130	130
13,10		151	101,0		131					
13,20		151	101,0			13200		13200		
13,30		160	108,0		133					
13,50		160	108,0	135 [2]	135	13500		13500	135	135
13,80		160	108,0			13800		13800	138	138
14,00		160	108,0	140 [2]	140	14000		14000	140	140
14,50		169	114,0			14500		14500	145	145
14,80		169	114,0						148	148
15,00		169	114,0			15000		15000	150	150
15,25		178	120,0			15250				
15,50		178	120,0			15500		15500	155	155
15,80		178	120,0			15800				
16,00		178	120,0			16000		16000	160	160
16,50		184	125,0			16500		16500		
17,00		184	125,0			17000		17000		
17,50		191	130,0			17500		17500		
18,00		191	130,0			18000		18000		
18,50		198	135,0			18500				
19,00		198	135,0			19000		19000		
19,50		205	140,0			19500				
20,00		205	140,0			20000		20000		

Steel	●	●	●	○		●	●
Stainless steel	○	●		●		○	○
Cast iron	●	●	●	○		○	○
Non ferrous metals	○	●	○	○	●	○	○
Heat resistant alloys	○	○		○			
Hardened materials		○					

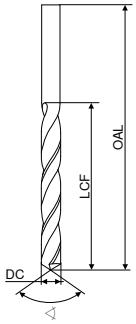
1) uncoated
2) self-centering

→ v_c Page 48+49

Twist drill to DIN 338, short

▲ Article no. 10 169 ... WTL-L – left-hand cutting drill

≤ 5xD



WTL
TiCN



130°
HSS-E

WTL-L
F.-nit



130°
HSS

DC_{h8} mm	OAL mm	LCF mm	Article no. 10 172 ...	Article no. 10 169 ...
1,0	34	12		010 1)
1,3	38	16		013 1)
1,4	40	18		014 1)
1,5	40	18		015 1)
1,6	43	20		016 1)
1,7	43	20		017 1)
1,8	46	22		018 1)
1,9	46	22		019 1)
2,0	49	24		020 1)
2,1	49	24		021 1)
2,2	53	27		022 1)
2,3	53	27		023 1)
2,4	57	30		024
2,5	57	30		025
2,6	57	30		026
2,7	61	33		027
2,8	61	33		028
2,9	61	33		029
3,0	61	33	030	030
3,1	65	36	031	031
3,2	65	36	032	032
3,3	65	36	033	033
3,4	70	39	034	034
3,5	70	39	035	035
3,6	70	39	036	036
3,7	70	39	037	037
3,8	75	43	038	038
3,9	75	43	039	039
4,0	75	43	040	040
4,1	75	43	041	041
4,2	75	43	042	042
4,3	80	47	043	043
4,4	80	47	044	044
4,5	80	47	045	045
4,6	80	47	046	046
4,7	80	47	047	047
4,8	86	52	048	048
4,9	86	52	049	049
5,0	86	52	050	050
5,1	86	52	051	051
5,2	86	52	052	052
5,3	86	52	053	053
5,4	93	57	054	054
5,5	93	57	055	055
5,6	93	57	056	056
5,7	93	57	057	057
5,8	93	57	058	058
5,9	93	57	059	059
6,0	93	57	060	060
6,1	101	63	061	061
6,2	101	63	062	062
6,3	101	63	063	063
6,4	101	63	064	064
6,5	101	63	065	065
6,6	101	63	066	066
6,7	101	63	067	067
6,8	109	69	068	068
6,9	109	69	069	069
7,0	109	69	070	070
7,1	109	69	071	071
7,2	109	69	072	072
7,3	109	69		073
7,4	109	69	074	074
7,5	109	69	075	075
7,7	117	75	077	077
7,8	117	75	078	078
7,9	117	75		079
8,0	117	75	080	080
8,1	117	75	081	081
8,2	117	75	082	082
8,3	117	75		083
8,4	117	75	084	084
8,5	117	75	085	085
8,6	125	81	086	086
8,7	125	81	087	087
8,8	125	81	088	088
8,9	125	81	089	089
9,0	125	81	090	090
9,2	125	81		092
9,3	125	81		093
9,5	125	81	095	095
9,8	133	87		098
9,9	133	87		099
10,0	133	87	100	100
10,1	133	87		101
10,2	133	87	102	102
10,3	133	87		103
10,4	133	87		104
10,5	133	87	105	105
11,0	142	94	110	110
11,5	142	94	115	115
12,0	151	101	120	120
12,2	151	101		122
12,5	151	101		125
13,0	151	101		130
14,0	160	108		140
14,5	169	114		145
15,0	169	114		150
16,0	178	120		160

	Article no. 10 172 ...	Article no. 10 169 ...
Steel	●	●
Stainless steel	○	
Cast iron		○
Non ferrous metals		○
Heat resistant alloys		

1) uncoated

→ v_c Page 49

Twist drill sets DIN 338, short

- ▲ in metal box
- ▲ in 0.1 mm steps

≤ 5xD



	N	UNI
	vap.	TiN
		
	Drill set type N HSS	Drill set type UNI TiN HSS-E
$d_{1\ h8}$ mm	Article no. 10 158 ...	Article no. 10 158 ...
1,0 - 5,9	050	054
6,0 - 10,0	100	104
Steel	●	●
Stainless steel		●
Cast iron	●	●
Non ferrous metals		●
Heat resistant alloys		○

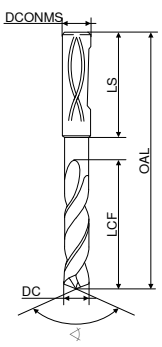
→ v_c Page 48

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

Twist drill with thro' coolant ~ DIN 338, short

- relief ground
- special point thinning
- wide chip flutes
- rounded flute edges
- for long chipping materials up to 1000 N/mm²

≤ 5xD



WNXi



HSS-E

WNXi
TiN



HSS-E

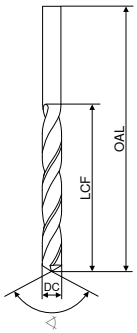
DC h8	OAL	LCF	DCONMS h6	LS	Article no. 10 180 ...	Article no. 10 181 ...
mm	mm	mm	mm	mm		
5,0	82	44	6	38	050	050
5,5	82	44	6	38	055	055
6,0	82	44	6	38	060	060
6,5	91	53	8	38	065	065
6,8	91	53	8	38	068	068
7,0	91	53	8	38	070	070
7,5	91	53	8	38	075	075
7,8	91	53	8	38	078	078
8,0	91	53	8	38	080	080
8,5	103	61	10	42	085	085
9,0	103	61	10	42	090	090
9,5	103	61	10	42	095	095
10,0	103	61	10	42	100	100
10,2	118	71	12	47	102	102
10,5	118	71	12	47	105	105
11,0	118	71	12	47	110	110
11,5	118	71	12	47	115	115
12,0	118	71	12	47	120	120
12,5	124	77	14	47	125	125
13,0	124	77	14	47	130	130
13,5	124	77	14	47	135	135
14,0	124	77	14	47	140	140
14,5	133	83	16	50	145	145
15,0	133	83	16	50	150	150
15,5	133	83	16	50	155	155
16,0	133	83	16	50	160	160
16,5	143	93	18	50	165	165
17,0	143	93	18	50	170	170
17,5	143	93	18	50	175	175
18,0	143	93	18	50	180	180
18,5	153	101	20	52	185	185
19,0	153	101	20	52	190	190
19,5	153	101	20	52	195	195
20,0	153	101	20	52	200	200

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○

→ v_c Page 49

Twist drills with coolant hole, factory standard, long

≤ 10xD



NC



HSS

NC
TiAlN



HSS

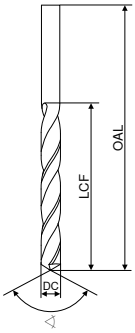
DC h8	OAL	LCF	Article no. 10 223 ...	Article no. 10 224 ...
mm	mm	mm		
3,0	100	66	030	030
3,3	106	69	033	033
3,5	112	73	035	035
3,8	119	78		038
4,0	119	78	040	040
4,2	119	78	042	042
4,5	126	82	045	045
4,8	132	87		048
5,0	132	87	050	050
5,5	139	91	055	055
5,8	139	91		058
6,0	139	91	060	060
6,5	148	97	065	065
6,8	156	102	068	068
7,0	156	102	070	070
7,5	156	102	075	075
7,8	165	109		078
8,0	165	109	080	080
8,5	165	109	085	085
8,8	175	115		088
9,0	175	115	090	090
9,5	175	115	095	095
9,8	184	121		098
10,0	184	121	100	100
10,2	184	121	102	102
10,5	184	121	105	105
10,8	195	128		108
11,0	195	128	110	110
11,5	195	128	115	115
11,8	205	134		118
12,0	205	134	120	120
12,8	205	134		128
13,0	205	134	130	130

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○

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Twist drills, DIN 340, long

≤ 10xD



UNI	WTL	WTL	WTL	WTW
TiN	F.-nit	F.-nit	TiN	
				
◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
HSS-E	HSS-E	HSS	HSS	HSS

DC_{h8}	OAL	LCF	Article no. 10 270 ...	Article no. 10 225 ...	Article no. 10 215 ...	Article no. 10 210 ...	Article no. 10 200 ...
mm	mm	mm					
1,0	56	33	010	010 [1]	010 [1]	010	010
1,1	60	37	011	011 [1]	011 [1]	011	011
1,2	65	41	012	012 [1]	012 [1]	012	012
1,3	65	41	013	013 [1]	013 [1]	013	013
1,4	70	45	014	014 [1]	014 [1]	014	014
1,5	70	45	015	015 [1]	015 [1]	015	015
1,6	76	50	016	016 [1]	016 [1]	016	016
1,7	76	50	017	017 [1]	017 [1]	017	017
1,8	80	53	018	018 [1]	018 [1]	018	018
1,9	80	53	019	019 [1]	019 [1]	019	019
2,0	85	56	020	020 [1]	020 [1]	020	020
2,1	85	56	021	021 [1]	021 [1]	021	021
2,2	90	59	022	022 [1]	022 [1]	022	022
2,3	90	59	023	023 [1]	023 [1]	023	023
2,4	95	62	024	024	024	024	024
2,5	95	62	025	025	025	025	025
2,6	95	62	026	026	026	026	026
2,7	100	66	027	027	027	027	027
2,8	100	66	028	028	028	028	028
2,9	100	66	029	029	029	029	029
3,0	100	66	030	030	030	030	030
3,1	106	69	031	031	031	031	031
3,2	106	69	032	032	032	032	032
3,3	106	69	033	033	033	033	033
3,4	112	73	034	034	034	034	034
3,5	112	73	035	035	035	035	035
3,6	112	73	036	036	036	036	036
3,7	112	73	037	037	037	037	037
3,8	119	78	038	038	038	038	038
3,9	119	78	039	039	039	039	039
4,0	119	78	040	040	040	040	040
4,1	119	78	041	041	041	041	041
4,2	119	78	042	042	042	042	042
4,3	126	82	043	043	043	043	043
4,4	126	82	044	044	044	044	044
4,5	126	82	045	045	045	045	045
4,6	126	82	046	046	046	046	046
4,7	126	82	047	047	047	047	047
4,8	132	87	048	048	048	048	048
4,9	132	87	049	049	049	049	049
5,0	132	87	050	050	050	050	050
5,1	132	87	051	051	051	051	051
5,2	132	87	052	052	052	052	052
5,3	132	87	053	053	053	053	053

Steel	●	●	●	●		
Stainless steel	○	●				
Cast iron	●	●	●	●		
Non ferrous metals	○	●	●	●	●	
Heat resistant alloys						

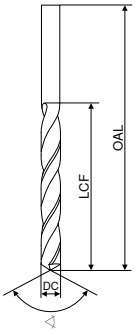
1) uncoated

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Continued on next page

Twist drills, DIN 340, long

≤ 10xD



UNI	WTL	WTL	WTL	WTW
TiN	F.-nit	F.-nit	TiN	
				
◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
HSS-E	HSS-E	HSS	HSS	HSS
Article no. 10 270 ...	Article no. 10 225 ...	Article no. 10 215 ...	Article no. 10 210 ...	Article no. 10 200 ...

DC h8	OAL	LCF					
mm	mm	mm					
5,4	139	91	054	054	054	054	054
5,5	139	91	055	055	055	055	055
5,6	139	91	056	056	056	056	056
5,7	139	91	057	057	057	057	057
5,8	139	91	058	058	058	058	058
5,9	139	91	059	059	059	059	059
6,0	139	91	060	060	060	060	060
6,1	148	97	061	061	061	061	061
6,2	148	97	062	062	062	062	062
6,3	148	97	063	063	063	063	063
6,4	148	97	064	064	064	064	064
6,5	148	97	065	065	065	065	065
6,6	148	97	066	066	066	066	066
6,7	148	97	067	067	067	067	067
6,8	156	102	068	068	068	068	068
6,9	156	102	069	069	069	069	069
7,0	156	102	070	070	070	070	070
7,1	156	102	071	071	071		071
7,2	156	102	072	072	072	072	072
7,3	156	102	073	073	073	073	073
7,4	156	102	074	074	074	074	074
7,5	156	102	075	075	075	075	075
7,6	165	109	076		076	076	076
7,7	165	109	077	077	077		077
7,8	165	109	078	078	078	078	078
7,9	165	109	079	079	079	079	079
8,0	165	109	080	080	080	080	080
8,1	165	109	081	081	081	081	081
8,2	165	109	082	082	082	082	082
8,3	165	109	083	083	083	083	083
8,4	165	109	084	084	084	084	084
8,5	165	109	085	085	085	085	085
8,6	175	115	086	086	086	086	086
8,7	175	115	087	087	087	087	
8,8	175	115	088	088	088	088	088
8,9	175	115	089	089	089	089	089
9,0	175	115	090	090	090	090	090
9,1	175	115	091	091	091	091	091
9,2	175	115	092	092	092		092
9,3	175	115	093	093	093		093
9,4	175	115	094	094			094
9,5	175	115	095	095	095	095	095
9,6	184	121	096		096		096
9,7	184	121	097	097	097	097	

Steel	●	●	●	●	
Stainless steel	○	●			
Cast iron	●	●	●	●	
Non ferrous metals	○	●	●	●	●
Heat resistant alloys					

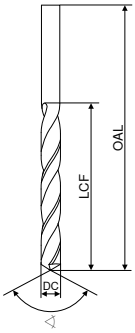
1) uncoated

→ v_c Page 50

Continued on next page

Twist drills, DIN 340, long

≤ 10xD



	UNI	WTL	WTL	WTL	WTW
	TiN	F.-nit	F.-nit	TiN	
					
	◁ 118° HSS-E	◁ 130° HSS-E	◁ 130° HSS	◁ 130° HSS	◁ 130° HSS
DC h8 mm	OAL mm	LCF mm	Article no. 10 270 ...	Article no. 10 225 ...	Article no. 10 215 ...	Article no. 10 210 ...	Article no. 10 200 ...
9,8	184	121	098	098	098	098	098
9,9	184	121	099	099	099	099	
10,0	184	121	100	100	100	100	100
10,1	184	121	101		101	101	
10,2	184	121	102	102	102	102	102
10,3	184	121	103		103		103
10,4	184	121	104		104		104
10,5	184	121	105	105	105	105	105
10,6	184	121				106	
10,8	195	128		108	108		108
11,0	195	128	110	110	110	110	110
11,5	195	128	115	115	115	115	115
11,6	195	128					116
11,8	195	128		118	118		118
12,0	205	134	120	120	120	120	120
12,2	205	134					122
12,3	205	134					123
12,5	205	134	125		125	125	125
13,0	205	134	130		130	130	130
13,5	214	140	135		135		
14,0	214	140	140		140	140	140
Steel			●	●	●	●	
Stainless steel			○	●			
Cast iron			●	●	●	●	
Non ferrous metals			○	●	●	●	●
Heat resistant alloys							

1) uncoated

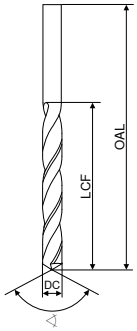
→ v_c Page 50

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

> 10xD

WTL

F.-nit





DC h8	OAL	LCF	Article no. 10 235 ...
mm	mm	mm	
2,0	125	85	020 1)
2,1	125	85	021 1)
2,2	135	90	022 1)
2,3	135	90	023 1)
2,4	140	95	024
2,5	140	95	025
2,6	140	95	026
2,7	150	100	027
2,8	150	100	028
2,9	150	100	029
3,0	150	100	030
3,1	155	105	031
3,2	155	105	032
3,3	155	105	033
3,4	165	115	034
3,5	165	115	035
3,6	165	115	036
3,7	165	115	037
3,8	175	120	038
3,9	175	120	039
4,0	175	120	040
4,1	175	120	041
4,2	175	120	042
4,3	185	125	043
4,4	185	125	044
4,5	185	125	045
4,6	185	125	046
4,7	185	125	047
4,8	195	135	048
4,9	195	135	049
5,0	195	135	050
5,1	195	135	051
5,2	195	135	052
5,3	195	135	053
5,4	205	140	054
5,5	205	140	055
5,6	205	140	056
5,7	205	140	057
5,8	205	140	058
5,9	205	140	059
6,0	205	140	060
6,1	215	150	061
6,2	215	150	062
6,3	215	150	063
6,4	215	150	064
6,5	215	150	065
6,6	215	150	066
6,7	215	150	067
6,8	225	155	068
6,9	225	155	069
7,0	225	155	070
7,1	225	155	071
7,3	225	155	073
7,4	225	155	074
7,5	225	155	075
7,7	240	165	077
7,8	240	165	078
7,9	240	165	079
8,0	240	165	080
8,1	240	165	081
8,2	240	165	082
8,3	240	165	083
8,4	240	165	084
8,5	240	165	085
8,6	250	175	086
8,7	250	175	087
8,8	250	175	088
9,0	250	175	090
9,2	250	175	092
9,4	250	175	094
9,5	250	175	095
9,6	265	185	096
9,7	265	185	097
9,8	265	185	098
9,9	265	185	099
10,0	265	185	100
10,5	265	185	105
11,0	280	195	110
11,5	280	195	115
12,0	295	205	120
12,5	295	205	125
13,0	295	205	130

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	

1) uncoated

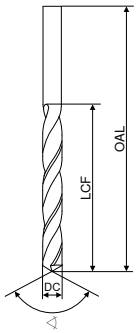
→ v_c Page 51

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

> 10xD

WTL

F.-nit





DC h8	OAL	LCF	Article no. 10 245 ...
mm	mm	mm	
2,0	160	110	020 1)
2,5	180	120	025
3,0	190	130	030
3,5	210	145	035
4,0	220	150	040
4,5	235	160	045
5,0	245	170	050
5,5	260	180	055
6,0	260	180	060
6,5	275	190	065
7,0	290	200	070
7,5	290	200	075
8,0	305	210	080
8,5	305	210	085
9,0	320	220	090
9,5	320	220	095
10,0	340	235	100
10,5	340	235	105
11,0	365	250	110
11,5	365	250	115
12,0	375	260	120
12,5	375	260	125
13,0	375	260	130

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	

1) uncoated

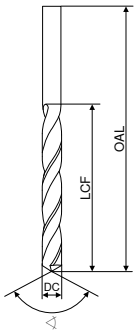
→ v_c Page 51

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

> 10xD

WTL

F.-nit





DC h8	OAL	LCF	Article no. 10 255 ...
mm	mm	mm	
2,5	225	150	025
3,0	240	160	030
3,5	265	180	035
4,0	280	190	040
4,5	295	200	045
5,0	315	210	050
5,5	330	225	055
6,0	330	225	060
6,5	350	235	065
7,0	370	250	070
7,5	370	250	075
8,0	390	265	080
8,5	390	265	085
9,0	410	280	090
9,5	410	280	095
10,0	430	295	100
10,5	430	295	105
11,0	455	310	110
11,5	455	310	115
12,0	480	330	120
12,5	480	330	125
13,0	480	330	130

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	

→ v_c Page 51

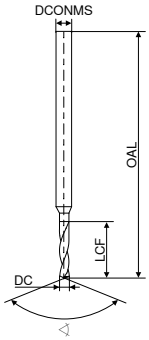
Micro drills, DIN 1899

- 4 facet
- with reinforced shank

Scope of supply:

- pack quantity 5 pieces
- price per piece

N





118°
HSS-E-PM

DC $_{-0,004}$	OAL	LCF	DCONMS $_{h8}$	Article no. 10 103 ...
mm	mm	mm	mm	
0,15	25	0,8	1,0	00150
0,20	25	1,5	1,0	00200
0,25	25	1,9	1,0	00250
0,30	25	1,9	1,0	00300
0,35	25	2,4	1,0	00350
0,40	25	3,0	1,0	00400
0,45	25	3,0	1,0	00450
0,50	25	3,4	1,0	00500
0,55	25	3,9	1,0	00550
0,60	25	3,9	1,0	00600
0,65	25	4,2	1,0	00650
0,70	25	4,8	1,0	00700
0,75	25	4,8	1,0	00750
0,80	25	5,3	1,5	00800
0,85	25	5,3	1,5	00850
0,90	25	6,0	1,5	00900
0,95	25	6,0	1,5	00950
1,00	25	6,8	1,5	01000
1,05	25	6,8	1,5	01050
1,10	25	7,6	1,5	01100
1,15	25	7,6	1,5	01150
1,20	25	8,5	1,5	01200
1,25	25	8,5	1,5	01250
1,30	25	8,5	1,5	01300
1,35	25	9,5	1,5	01350
1,40	25	9,5	1,5	01400
1,45	25	9,5	1,5	01450

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○

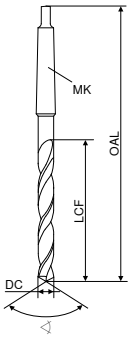
→ v_c Page 52

Twist drill, factory standard, short

≤ 3xD

WT

vap.





130°
HSS-E

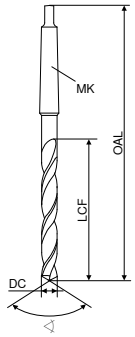
DC $_{h8}$	OAL	LCF	MK	Article no. 10 285 ...
mm	mm	mm		
10,0	138	57	1	100
10,5	138	57	1	105
11,0	142	61	1	110
11,5	142	61	1	115
12,0	147	66	1	120
12,5	147	66	1	125
13,0	147	66	1	130
13,5	168	70	2	135
14,0	168	70	2	140
14,5	172	74	2	145
15,0	172	74	2	150
15,5	176	78	2	155
16,0	176	78	2	160
16,5	179	81	2	165
17,0	179	81	2	170
17,5	183	85	2	175
18,0	183	85	2	180
18,5	186	88	2	185
19,0	186	88	2	190
19,5	212	91	3	195
20,0	212	91	3	200
21,0	216	95	3	210
22,0	219	98	3	220
23,0	222	101	3	230
24,0	225	104	3	240
25,0	225	104	3	250
26,0	256	107	4	260
27,0	259	110	4	270
28,0	259	110	4	280
30,0	263	114	4	300

Steel	●
Stainless steel	○
Cast iron	○
Non ferrous metals	○
Heat resistant alloys	○

→ v_c Page 47

Twist drills, DIN 345

≤ 5xD



N
vap.



HSS

WTL
F.-nit



HSS-E

DC h8 mm	OAL mm	LCF mm	MK	Article no. 10 265 ...	Article no. 10 280 ...
10,00	168	87	1	100	100
10,20	168	87	1	102	102
10,50	168	87	1	105	105
10,80	175	94	1	108	108
11,00	175	94	1	110	110
11,20	175	94	1	112	
11,50	175	94	1	115	115
11,80	175	94	1	118	
12,00	182	101	1	120	120
12,20	182	101	1	122	122
12,50	182	101	1	125	125
12,80	182	101	1	128	
13,00	182	101	1	130	130
13,20	182	101	1	132	
13,50	189	108	1	135	135
13,80	189	108	1	138	
14,00	189	108	1	140	140
14,25	212	114	2	142	142
14,50	212	114	2	145	145
14,75	212	114	2	147	
15,00	212	114	2	150	150
15,25	218	120	2	152	152
15,50	218	120	2	155	155
15,75	218	120	2	157	157
16,00	218	120	2	160	160
16,25	223	125	2	162	
16,50	223	125	2	165	165 [1]
16,75	223	125	2	167	
17,00	223	125	2	170	170 [1]
17,25	228	130	2	172	172 [1]
17,50	228	130	2	175	175 [1]
17,75	228	130	2	177	177 [1]
18,00	228	130	2	180	180 [1]
18,25	233	135	2	182	
18,50	233	135	2	185	185 [1]
18,75	233	135	2	187	
19,00	233	135	2	190	190 [1]
19,25	238	140	2	192	
19,50	238	140	2	195	
19,75	238	140	2	197	
20,00	238	140	2	200	200 [1]
20,25	243	145	2	202	
20,50	243	145	2	205	
20,75	243	145	2	207	
21,00	243	145	2	210	210 [1]
21,25	248	150	2	212	
21,50	248	150	2	215	
21,75	248	150	2	217	
22,00	248	150	2	220	220 [1]
22,25	248	150	2	222	
22,50	253	155	2	225	225 [1]
22,75	253	155	2	227	
23,00	253	155	2	230	230 [1]
23,50	276	155	3	235	
23,75	281	160	3	237	
24,00	281	160	3	240	240 [1]
24,50	281	160	3	245	
24,75	281	160	3	247	
25,00	281	160	3	250	250 [1]
25,50	286	165	3	255	
25,75	286	165	3	257	
26,00	286	165	3	260	260 [1]
26,50	286	165	3	265	
26,75	291	170	3	267	
27,00	291	170	3	270	270 [1]
27,50	291	170	3	275	
27,75	291	170	3	277	
28,00	291	170	3	280	
28,50	296	175	3	285	
28,75	296	175	3	287	
29,00	296	175	3	290	
29,50	296	175	3	295	
29,75	296	175	3	297	
30,00	296	175	3	300	
30,50	301	180	3	305	
31,00	301	180	3	310	
31,50	301	180	3	315	
32,00	334	185	4	320	
32,50	334	185	4	325	
33,00	334	185	4	330	
33,50	334	185	4	335	
34,00	339	190	4	340	
34,50	339	190	4	345	
35,00	339	190	4	350	
35,50	339	190	4	355	
36,00	344	195	4	360	
36,50	344	195	4	365	
37,00	344	195	4	370	
37,50	344	195	4	375	
38,00	349	200	4	380	
38,50	349	200	4	385	
39,00	349	200	4	390	
39,50	349	200	4	395	
40,00	349	200	4	400	
41,00	354	205	4	410	
42,00	354	205	4	420	
43,00	359	210	4	430	
44,00	359	210	4	440	
45,00	359	210	4	450	
46,00	364	215	4	460	
47,00	364	215	4	470	
48,00	369	220	4	480	
49,00	369	220	4	490	
50,00	369	220	4	500	
51,00	412	225	5	510	
52,00	412	225	5	520	
53,00	412	225	5	530	
54,00	417	230	5	540	
55,00	417	230	5	550	
56,00	417	230	5	560	
57,00	422	235	5	570	
58,00	422	235	5	580	
59,00	422	235	5	590	
60,00	422	235	5	600	

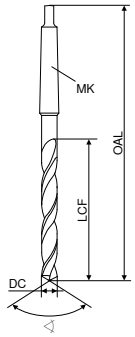
	Article no. 10 265 ...	Article no. 10 280 ...
Steel	●	●
Stainless steel		○
Cast iron	●	○
Non ferrous metals	○	○
Heat resistant alloys		

1) vaporised

→ v_c Page 49

Twist drills, DIN 341, long

≤ 10xD



N
vap.



HSS

WTL
F.-nit



HSS-E

DC h8 mm	OAL mm	LCF mm	MK	Article no. 10 295 ...	Article no. 10 297 ...
10,00	197	116	1	100	100
10,20	197	116	1	102	102
10,50	197	116	1	105	105
10,80	206	125	1	108	
11,00	206	125	1	110	110
11,20	206	125	1	112	112
11,50	206	125	1	115	115
11,80	206	125	1	118	118
12,00	215	134	1	120	120
12,20	215	134	1	122	122
12,50	215	134	1	125	125
12,80	215	134	1	128	128
13,00	215	134	1	130	130
13,20	215	134	1	132	
13,50	223	142	1	135	135
13,80	223	142	1	138	138
14,00	223	142	1	140	140
14,25	245	147	2	142	
14,50	245	147	2	145	145
14,75	245	147	2	147	
15,00	245	147	2	150	150
15,25	251	153	2	152	
15,50	251	153	2	155	155
15,75	251	153	2	157	
16,00	251	153	2	160	160
16,25	257	159	2	162	
16,50	257	159	2	165	165 [1]
16,75	257	159	2	167	
17,00	257	159	2	170	170 [1]
17,25	263	165	2	172	
17,50	263	165	2	175	175 [1]
17,75	263	165	2	177	
18,00	263	165	2	180	180 [1]
18,25	269	171	2	182	
18,50	269	171	2	185	185 [1]
18,75	269	171	2	187	
19,00	269	171	2	190	190 [1]
19,25	275	177	2	192	
19,50	275	177	2	195	195 [1]
19,75	275	177	2	197	
20,00	275	177	2	200	200 [1]
20,50	282	184	2	205	205 [1]
21,00	282	184	2	210	210 [1]
21,50	289	191	2	215	
21,75	289	191	2	217	
22,00	289	191	2	220	220 [1]
22,50	296	198	2	225	
23,00	296	198	2	230	
23,50	319	198	3	235	
24,00	327	206	3	240	240 [1]
24,50	327	206	3	245	
25,00	327	206	3	250	250 [1]
25,50	335	214	3	255	
26,00	335	214	3	260	260 [1]
26,50	335	214	3	265	
27,00	343	222	3	270	
27,50	343	222	3	275	
28,00	343	222	3	280	
29,00	351	230	3	290	
29,50	351	230	3	295	
30,00	351	230	3	300	
30,50	360	239	3	305	
31,00	360	239	3	310	
31,50	360	239	3	315	
32,00	397	248	4	320	
33,00	397	248	4	330	
33,50	397	248	4	335	
34,00	406	257	4	340	
35,00	406	257	4	350	
36,00	416	267	4	360	
37,00	416	267	4	370	
37,50	416	267	4	375	
38,00	426	277	4	380	
39,00	426	277	4	390	
40,00	426	277	4	400	
42,00	436	287	4	420	
43,00	447	298	4	430	
44,00	447	298	4	440	
45,00	447	298	4	450	
50,00	470	321	4	500	

	Article no. 10 295 ...	Article no. 10 297 ...
Steel	●	●
Stainless steel		●
Cast iron	●	●
Non ferrous metals	○	●
Heat resistant alloys		

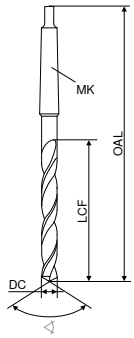
1) vaporised

→ v_c Page 50

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

> 10xD

WTL





HSS

DC h8 mm	OAL mm	LCF mm	MK	Article no. 10 305 ...	
10,0	285	185	1	100	1)
10,5	285	185	1	105	1)
11,0	300	195	1	110	1)
11,5	300	195	1	115	1)
12,0	310	205	1	120	1)
12,5	310	205	1	125	1)
13,0	310	205	1	130	1)
13,5	325	220	1	135	1)
14,0	325	220	1	140	1)
14,5	340	220	2	145	1)
15,0	340	220	2	150	1)
15,5	355	230	2	155	1)
16,0	355	230	2	160	1)
16,5	355	230	2	165	2)
17,0	355	230	2	170	2)
17,5	370	245	2	175	2)
18,0	370	245	2	180	2)
18,5	370	245	2	185	2)
19,0	370	245	2	190	2)
19,5	385	260	2	195	2)
20,0	385	260	2	200	2)
21,0	385	260	2	210	2)
22,0	405	270	2	220	2)
23,0	405	270	2	230	2)
24,0	440	290	3	240	2)
25,0	440	290	3	250	2)
26,0	440	290	3	260	2)
28,0	460	305	3	280	2)
30,0	460	305	3	300	2)

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	

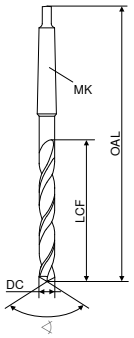
1) nitrided chamfer
2) vaporised

→ v_c Page 51

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

> 10xD

WTL





HSS

DC h8 mm	OAL mm	LCF mm	MK	Article no. 10 315 ...	
10,0	360	235	1	100	1)
10,5	360	235	1	105	1)
11,0	375	250	1	110	1)
11,5	375	250	1	115	1)
12,0	395	260	1	120	1)
13,0	395	260	1	130	1)
13,5	410	275	1	135	1)
14,0	410	275	1	140	1)
14,5	425	275	2	145	1)
15,0	425	275	2	150	1)
15,5	445	295	2	155	1)
16,0	445	295	2	160	1)
16,5	445	295	2	165	2)
17,0	445	295	2	170	2)
17,5	465	310	2	175	2)
18,0	465	310	2	180	2)
18,5	465	310	2	185	2)
19,0	465	310	2	190	2)
19,5	490	325	2	195	2)
20,0	490	325	2	200	2)
21,0	490	325	2	210	2)
22,0	515	345	2	220	2)
23,0	515	345	2	230	2)
24,0	555	365	3	240	2)
25,0	555	365	3	250	2)
26,0	555	365	3	260	2)
28,0	580	385	3	280	2)
30,0	580	385	3	300	2)

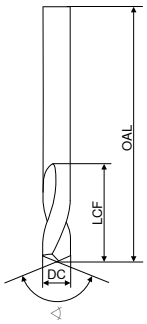
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	

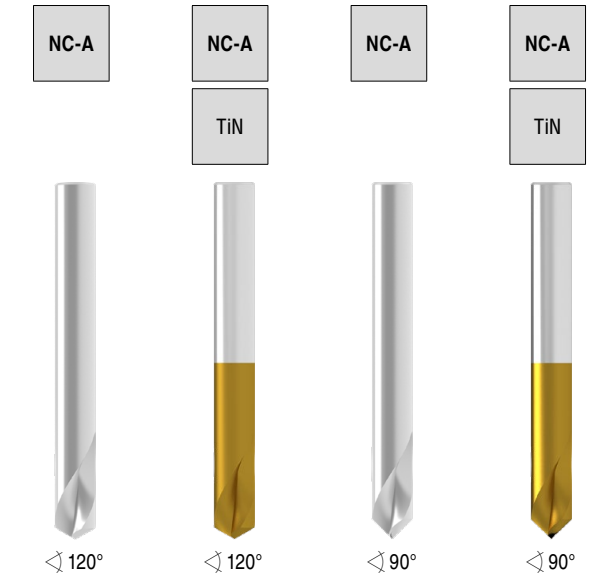
1) nitrided chamfer
2) vaporised

→ v_c Page 51

NC spot drills, factory standard

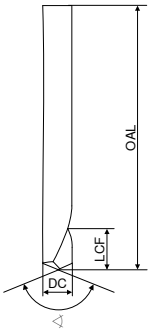
▲ helical flutes

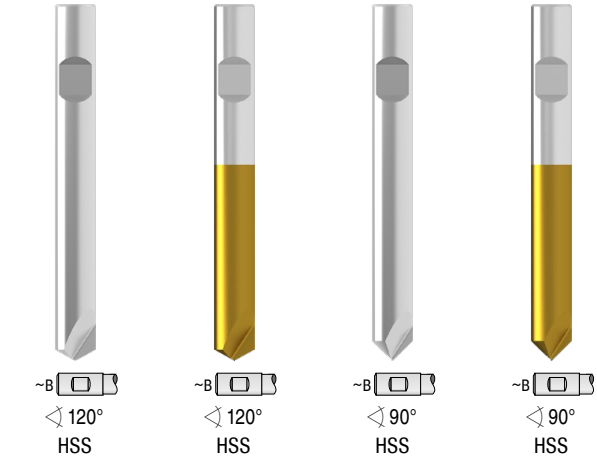




DC h6	OAL	LCF	Article no. 10 510 ...	Article no. 10 512 ...	Article no. 10 520 ...	Article no. 10 522 ...
mm	mm	mm				
3	46	12,0	030	030	030	030
4	55	12,0	040	040	040	040
5	62	14,0	050	050	050	050
6	66	16,0	060	060	060	060
8	79	21,0	080	080	080	080
10	89	25,0	100	100	100	100
12	102	30,0	120	120	120	120
16	115	37,5	160	160	160	160
20	131	45,0	200	200	200	200

▲ with clamping flat to DIN 1835 B





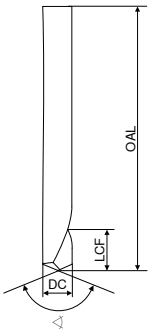
DC h6	OAL	LCF	Article no. 10 511 ...	Article no. 10 513 ...	Article no. 10 521 ...	Article no. 10 523 ...
mm	mm	mm				
6	66	7,0	060	060	060	060
8	79	9,0	080	080	080	080
10	89	11,5	100	100	100	100
12	102	14,0	120	120	120	120
16	115	18,0	160	160	160	160
20	131	23,0	200	200	200	200

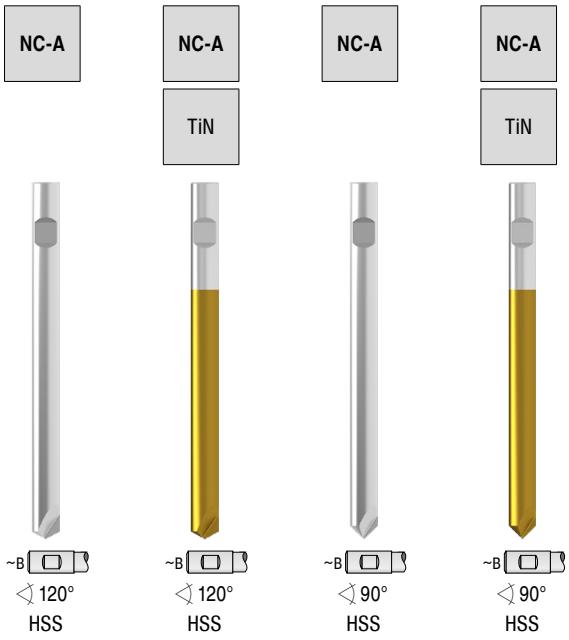
Steel	**15-35**	**25-55**	**15-35**	**25-55**
Stainless steel	10-15	20-25	10-15	20-25
Cast iron	**20-35**	**30-55**	**20-35**	**30-55**
Non ferrous metals	50-70	65-85	50-70	65-85
Heat resistant alloys				

Suitable only for spot drilling!

NC spot Drill Factory Standard Long

▲ with clamping flat to DIN 1835 B





DC h6 mm	OAL mm	LCF mm	Article no. 10 530 ...	Article no. 10 532 ...	Article no. 10 526 ...	Article no. 10 528 ...
6	93	7,0	**060**	**060**	**060**	**060**
8	117	9,0	**080**	**080**	**080**	**080**
10	133	11,5	**100**	**100**	**100**	**100**
12	151	14,0	**120**	**120**	**120**	**120**
16	178	18,0	**160**	**160**	**160**	**160**
20	205	23,0	**200**	**200**	**200**	**200**

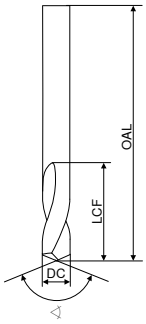
Steel	**15-35**	**25-55**	**15-35**	**25-55**
Stainless steel	10-15	20-25	10-15	20-25
Cast iron	**20-35**	**30-55**	**20-35**	**30-55**
Non ferrous metals	50-70	65-85	50-70	65-85
Heat resistant alloys				

Suitable only for spot drilling!

NC spot drills, factory standard, long

▲ helical flutes

NC-A





90°
HSS

DC h6	OAL	LCF	Article no. 10 525 ...
mm	mm	mm	
6,35	105	17	025
8,00	118	21	030
9,52	132	25	040
12,70	159	30	050
15,87	186	37	060
19,05	213	45	075

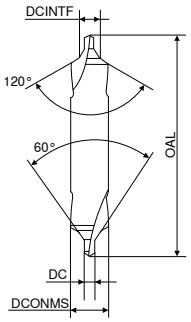
Steel	**15-35**
Stainless steel	10-15
Cast iron	**20-35**
Non ferrous metals	50-70
Heat resistant alloys	

Suitable only for spot drilling!

Centre drills, DIN 333, form B

▲ with protective countersink 120°

ZB ZB







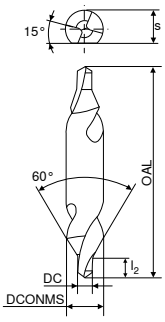
Right-hand
118°
HSS

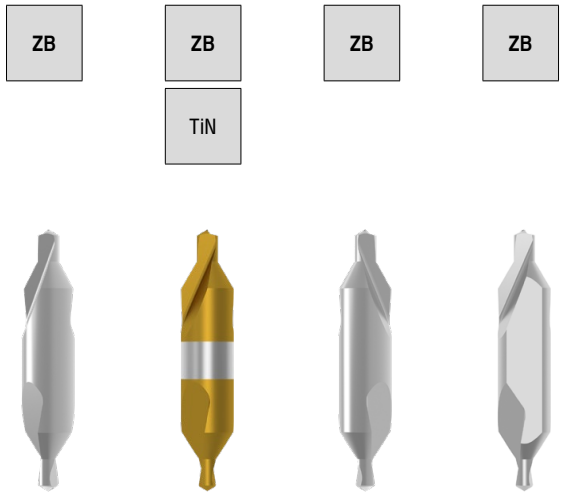
Left-hand
118°
HSS

DC	DCONMS h8	DCINTF k12	OAL	Article no. 10 480 ...	Article no. 10 485 ...
mm	mm	mm	mm		
1,00	4,0	2,12	35,5	100	100
1,25	5,0	2,65	40,0	125	125
1,60	6,3	3,35	45,0	160	160
2,00	8,0	4,25	50,0	200	200
2,50	10,0	5,30	56,0	250	250
3,15	11,2	6,70	62,0	315	315
4,00	14,0	8,50	69,0	400	400
5,00	18,0	10,60	77,0	500	500

Steel	**15-35**	**15-35**
Stainless steel	10-15	10-15
Cast iron	**20-35**	**20-35**
Non ferrous metals	50-70	50-70
Heat resistant alloys		

Centre drills, DIN 333, form A

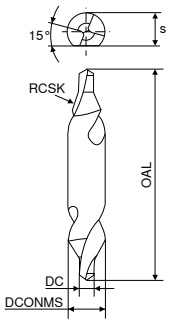




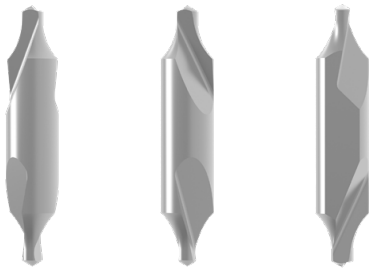
DC	s	DCONMS $_{h8}$	OAL	l_2	Right-hand ◁ 118° HSS	Right-hand ◁ 118° HSS	Left-hand ◁ 118° HSS	Right-hand ◁ 118° HSS-E
mm	mm	mm	mm	mm	Article no. 10 415 ...	Article no. 10 425 ...	Article no. 10 435 ...	Article no. 10 445 ...
0,50		3,15	25,0	0,8	050 [2]	050 [2]	050 [2]	
0,80		3,15	25,0	1,1	080 [2]	080 [2]	080 [2]	
1,00		3,15	31,5	1,3	100	100	100	
1,25		3,15	31,5	1,6	125	125	125	
1,60	3,25	4,00	35,5	2,0				160 [1]
1,60		4,00	35,5	2,0	160	160	160	
2,00	4,20	5,00	40,0	2,5				200 [1]
2,00		5,00	40,0	2,5	200	200	200	
2,50	5,35	6,30	45,0	3,1				250 [1]
2,50		6,30	45,0	3,1	250	250	250	
3,15	6,95	8,00	50,0	3,9				315 [1]
3,15		8,00	50,0	3,9	315	315	315	
4,00	8,40	10,00	56,0	5,0				400 [1]
4,00		10,00	56,0	5,0	400	400	400	
5,00	10,95	12,50	63,0	6,3				500 [1]
5,00		12,50	63,0	6,3	500	500	500	
6,30	14,00	16,00	71,0	8,0				630 [1]
6,30		16,00	71,0	8,0	630	630	630	
Steel					**15-35**	**25-55**	**15-35**	**15-35**
Stainless steel					10-15	20-25	10-15	10-15
Cast iron					**20-35**	**30-55**	**20-35**	**20-35**
Non ferrous metals					50-70	65-85	50-70	50-70
Heat resistant alloys								

1) with flat
2) Single ended

Centre drills, DIN 333, form R



ZB ZB ZB

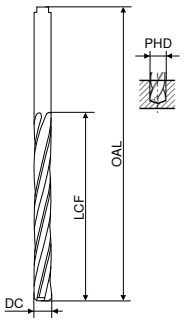


DC	s	DCONMS h8	OAL	RCSK	Right-hand ◁ 118° HSS	Left-hand ◁ 118° HSS	Right-hand ◁ 118° HSS
mm	mm	mm	mm	mm	Article no. 10 455 ...	Article no. 10 475 ...	Article no. 10 465 ...
0,50		3,15	25,0	2,00	050 [2]		
0,80		3,15	25,0	2,50	080 [2]	080 [2]	
1,00		3,15	31,5	2,90	100	100	
1,25		3,15	31,5	3,15	125	125	
1,60	3,25	4,00	35,5	4,00			160 [1]
1,60		4,00	35,5	4,00	160	160	
2,00	4,20	5,00	40,0	5,00			200 [1]
2,00		5,00	40,0	5,00	200	200	
2,50	5,35	6,30	45,0	6,30			250 [1]
2,50		6,30	45,0	6,30	250	250	
3,15	6,95	8,00	50,0	8,00			315 [1]
3,15		8,00	50,0	8,00	315	315	
4,00	8,40	10,00	56,0	10,00			400 [1]
4,00		10,00	56,0	10,00	400	400	
5,00	10,95	12,50	63,0	12,50			500 [1]
5,00		12,50	63,0	12,50	500	500	
6,30	14,00	16,00	71,0	16,00			630 [1]
6,30		16,00	71,0	16,00	630		
Steel					**15-35**	**15-35**	**15-35**
Stainless steel					10-15	10-15	10-15
Cast iron					**20-35**	**20-35**	**20-35**
Non ferrous metals					50-70	50-70	50-70
Heat resistant alloys							

1) with flat
2) Single ended

Core drills (spiral countersinks)

▲ with cylindrical shank, DIN 344

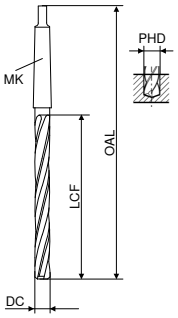




DC h8 mm	OAL mm	LCF mm	PHD mm	Article no. 10 226 ...
3,80	96	64	2,8	038
4,00	96	64	2,8	040
4,80	108	74	3,5	048
5,00	108	74	3,5	050
5,80	116	80	4,2	058
6,00	116	80	4,2	060
6,80	133	93	4,9	068
7,00	133	93	4,9	070
7,80	142	100	5,6	078
8,00	142	100	5,6	080
8,80	151	107	6,3	088
9,00	151	107	6,3	090
9,80	162	116	7,0	098
10,00	162	116	7,0	100
10,75	173	125	7,7	107
11,00	173	125	7,7	110
11,75	184	134	8,4	117
12,00	184	134	8,4	120

Steel	**15-35**
Stainless steel	10-15
Cast iron	**20-35**
Non ferrous metals	**50-80**
Heat resistant alloys	14-28

Core drills (spiral countersinks)





DC h8 mm	OAL mm	LCF mm	PHD mm	MK	Article no. 10 228 ...
10,00	168	87	7,0	1	100
10,75	175	94	7,7	1	107
11,00	175	94	7,7	1	110
11,75	182	101	8,4	1	117
12,00	182	101	8,4	1	120
12,75	182	101	9,1	1	127
13,00	182	101	9,1	1	130
13,75	189	108	9,8	1	137
14,00	189	108	9,8	1	140
14,75	212	114	10,5	2	147
15,00	212	114	10,5	2	150
15,75	218	120	11,2	2	157
16,00	218	120	11,2	2	160
16,75	223	125	11,9	2	167
17,00	223	125	11,9	2	170
17,75	228	130	12,6	2	177
18,00	228	130	12,6	2	180
18,70	233	135	13,3	2	187
19,00	233	135	13,3	2	190
19,70	238	140	14,0	2	197
20,00	238	140	14,0	2	200
20,70	243	145	14,6	2	207
21,00	243	145	14,6	2	210
21,70	248	150	15,3	2	217
22,00	248	150	15,3	2	220
22,70	253	155	16,0	2	227
23,00	253	155	16,0	2	230
23,70	281	160	16,6	3	237
24,00	281	160	16,6	3	240
24,70	281	160	17,3	3	247
25,00	281	160	17,3	3	250
25,70	286	165	18,0	3	257
26,00	286	165	18,0	3	260
26,70	291	170	18,6	3	267
27,00	291	170	18,6	3	270
27,70	291	170	19,3	3	277
28,00	291	170	19,3	3	280
28,70	296	175	20,0	3	287
29,00	296	175	20,0	3	290
29,70	296	175	20,5	3	297
30,00	296	175	20,5	3	300

Steel	**15-35**
Stainless steel	10-15
Cast iron	**20-35**
Non ferrous metals	**50-80**
Heat resistant alloys	14-28

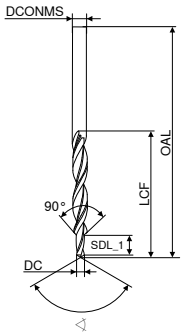
Stepped drills, DIN 8378

- countersinking angle 90°
- for tapping drill holes according to DIN 336, Table 1 with 90° chamfer and for through holes according to DIN EN 20273 – medium

DIN 8378

SB

vap.



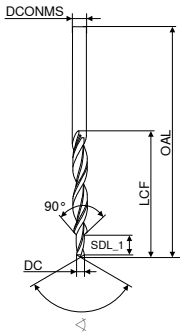


118°
HSS

For threads	DC h9	DCONMS h8	OAL	SDL_1	LCF	Article no. 10 365 ...
	mm	mm	mm	mm	mm	
M3	2,5	3,4	70	8,8	39	030
M4	3,3	4,5	80	11,4	47	040
M5	4,2	5,5	93	13,6	57	050
M6	5,0	6,6	101	16,5	63	060
M8	6,8	9,0	125	21,0	81	080
M10	8,5	11,0	142	25,5	94	100
M12	10,2	13,5	160	30,0	108	120

- for through holes according to DIN EN 20273 – fine
- with 90° screw head countersink

DIN 8374





118°
HSS

For threads	DC h9	DCONMS h8	OAL	SDL_1	LCF	Article no. 10 355 ...
	mm	mm	mm	mm	mm	
M3	3,2	6,0	93	9	57	030
M4	4,3	8,0	117	11	75	040
M5	5,3	10,0	133	13	87	050
M6	6,4	11,5	142	15	94	060
M8	8,4	15,0	169	19	114	080
M10	10,5	19,0	198	23	135	100

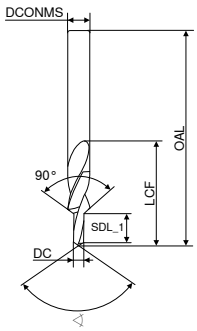
Steel	**10-30**
Stainless steel	10-15
Cast iron	**20-35**
Non ferrous metals	50-70
Heat resistant alloys	

Stepped drills, overall length to DIN 1897

- countersinking angle 90°
- for tapping drill holes according to DIN 336, Table 1 with 90° chamfer and for through holes according to DIN EN 20273 – medium

DIN 8378

SB



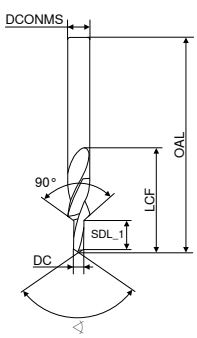


118°
HSS

For threads	DC h6	DCONMS h6	OAL	SDL_1	LCF	Article no. 10 320 ...
	mm	mm	mm	mm	mm	
M3	2,5	3,4	52	8,8	20	030
M4	3,3	4,5	58	11,4	24	040
M5	4,2	5,5	66	13,6	28	050
M6	5,0	6,6	70	16,5	31	060
M8	6,8	9,0	84	21,0	40	080
M10	8,5	11,0	95	25,5	47	100
M12	10,2	13,5	107	30,0	54	120

- for through holes according to DIN EN 20273 – fine
- with 90° screw head countersink

DIN 8374





118°
HSS

For threads	DC h6	DCONMS h6	OAL	SDL_1	LCF	Article no. 10 330 ...
	mm	mm	mm	mm	mm	
M3	3,2	6,0	66	9	28	030
M4	4,3	8,0	79	11	37	040
M5	5,3	10,0	89	13	43	050
M6	6,4	11,5	95	15	47	060
M8	8,4	15,0	111	19	56	080
M10	10,5	19,0	127	23	64	100

Steel	**10-30**
Stainless steel	10-15
Cast iron	**20-35**
Non ferrous metals	50-70
Heat resistant alloys	

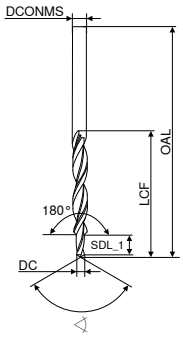
Stepped drills, DIN 8376

- countersinking angle 180°
- for through holes according to DIN EN 20273 – Medium
- for screw heads to DIN 974-1 – Series 1

DIN 8376

SB

vap.





118°
HSS

For threads	DC h9	DCONMS h8	OAL	SDL_1	LCF	Article no. 10 375 ...
	mm	mm	mm	mm	mm	
M3	3,4	6	93	9	57	**030** 1)
M4	4,5	8	117	11	75	**040**
M5	5,5	10	133	13	87	**050**
M6	6,6	11	142	15	94	**060**
M8	9,0	15	169	19	114	**080**
M10	11,0	18	191	23	130	**100**

Steel	**10-30**
Stainless steel	10-15
Cast iron	**20-35**
Non ferrous metals	50-70
Heat resistant alloys	

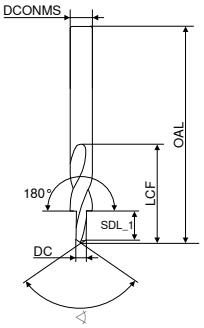
1) DCONMS not according to DIN 974-1

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

- countersinking angle 180°
- for through holes according to DIN EN 20273 – Medium
- for screw heads to DIN 974-1 – Series 1

DIN 8376

SB





118°
HSS

For threads	DC h6	DCONMS h6	OAL	SDL_1	LCF	Article no. 10 340 ...
	mm	mm	mm	mm	mm	
M3	3,4	6	66	9	28	**030** 1)
M4	4,5	8	79	11	37	**040**
M5	5,5	10	89	13	43	**050**
M6	6,6	11	95	15	47	**060**
M8	9,0	15	111	19	56	**080**
M10	11,0	18	123	23	62	**100**

Steel	**10-30**
Stainless steel	10-15
Cast iron	**20-35**
Non ferrous metals	50-70
Heat resistant alloys	

1) DCONMS not according to DIN 974-1

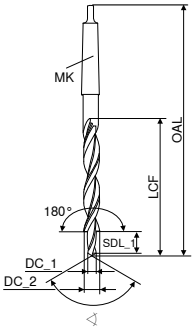
Stepped drills, DIN 8377

- countersinking angle 180°
- for through holes according to DIN EN 20273 – Medium
- for screw heads to DIN 974-1 – Series 1

DIN 8377

SB

vap.





HSS

For threads	DC_1 h9 mm	DC_2 mm	OAL mm	SDL_1 mm	LCF mm	MK	Article no. 10 405 ...
M5	5,5	10	168	13	87	1	**050**
M6	6,6	11	175	15	94	1	**060**
M8	9,0	15	212	19	114	2	**080**
M10	11,0	18	228	23	130	2	**100**
M12	13,5	20	238	27	140	2	**120**
M14	15,5	24	281	31	160	3	**140**
M16	17,5	26	286	35	165	3	**160**
M18	20,0	30	296	39	175	3	**180**
M20	22,0	33	334	43	185	4	**200**

Steel	**10-30**
Stainless steel	10-15
Cast iron	**20-35**
Non ferrous metals	50-70
Heat resistant alloys	

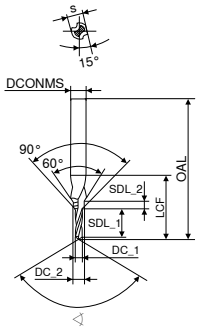
Stepped drills for centring, factory standard

- with flat
- countersinking angle 60°
- special drill for creating tapping drill holes with centring, 60° countersinking angle according to DIN 332, sheet 2, form D.
- point thinning ≥ Ø 3,3 mm



SB

vap.





118°
HSS

For threads	DC_1 h8	DCONMS h7	DC_2	s	OAL	SDL_1	LCF	SDL_2	Article no. 10 350 ...
	mm	mm	mm	mm	mm	mm	mm	mm	
M4	3,3	8,0	4,3	6,75	63	11,0	23	1,60	**040**
M5	4,2	10,0	5,3	8,45	67	13,0	27	2,15	**050**
M6	5,0	12,5	6,4	10,45	71	16,0	33	2,90	**060**
M8	6,8	14,0	8,4	12,50	88	19,5	41	3,50	**080**
M10	8,5	16,0	10,5	14,85	94	23,0	47	4,70	**100**
M12	10,2	20,0	13,0	18,45	105	28,0	59	6,50	**120**
M16	14,0	25,0	17,0	23,40	132	33,0	67	8,30	**160**
M20	17,5	31,5	21,0	29,35	145	38,0	77	10,35	**200**
M24	21,0	40,0	25,0	36,50	160	45,0	90	12,00	**240**

Steel	**10-30**
Stainless steel	10-15
Cast iron	**20-35**
Non ferrous metals	50-70
Heat resistant alloys	

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data standard values – Hole depth 3xD

	Type VX-TiN 10 122 ...		Type UNI-PM-TiN 10 113 ...		Type UNI-TiN 10 107 ...		Type N 10 105 ...		Type VA 10 130 ...		Type WNX 10 106 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
1.1	**33–38**	5-6	**37-42**	**5-6**	**33–38**	5-6	**22–27**	5-6			**22–27**	5-6
1.2	**40–44**	6	**44-47**	**6-7**	**40–44**	6	**26–34**	5-6			**22–30**	5-6
1.3	**44**	6	**47**	**4**	**44**	6	**30**	6	36	6	**30**	6
1.4	**18–22**	3-4	**20-25**	**4-5**	**18–22**	3-4			18-32	3-4	**15–18**	3-4
1.5	**40–44**	6	**47**	**6**	**40–44**	6	**25**	5			**25**	5
1.6	**26**	5	**44**	**5**	**26**	5	**16**	5			**20**	5
1.7	**27**	4	**30**	**4**	**27**	4					**18**	4
1.8	**22**	3	**25**	**3**	**22**	3					**15**	3
1.9	**20**	4	**22**	**4**	**20**	4					**18**	4
1.10	**22**	4	**25**	**4**	**22**	4			20	4	**18**	4
1.11	**16**	3	**20**	**4**	**16**	3			15	3	**13**	4
1.12	**20**	4	**25**	**4**	**20**	4	**16**	4			**18**	4
1.13	**9**	2	**10**	**2**	**9**	2			12	2	**6**	2
1.14	**13**	3	**16**	**3**	**13**	3					**12**	3
1.15	**15–20**	3-4	**17-22**	**4-5**	**15–20**	3-4	**12–16**	3-4			**13–18**	3-4
1.16	**15–20**	3-4	**17-22**	**4-5**	**15–20**	3-4	**12–16**	3-4			**13–18**	3-4
2.1	**20**	4	19	**4**	**20**	4			**18**	4	13	4
2.2	**18**	4	17	**4**	**18**	4			**15**	4	11	4
2.3	**18**	4	16	**4**	**18**	4			**14**	3	12	4
2.4	**18**	4	15	**4**	**18**	4					11	4
2.5	**15**	3	14	**3**	**15**	3			**13**	3	10	3
2.6	**16**	3	15	**3**	**16**	3			**12**	3	9	3
2.7	**12**	3	13	**3**	**12**	3					8	3
3.1	**45**	6	**50**	6	**45**	6	**34**	6			31	6
3.2	**40**	6	**44**	6	**40**	6	**26**	6			28	6
3.3	**40**	6	**44**	6	**40**	6	**25**	6			21	6
3.4	**30**	6	**33**	6	**30**	6	**20**	6			17	6
3.5	**42**	6	**44**	6	**42**	6	**26**	6	45	6	21	6
3.6	**35**	6	**33**	6	**35**	6	**23**	6	32	6	18	6
3.7	**32**	6	**44**	6	**32**	6	**22**	6			24	6
3.8	**30**	6	**33**	6	**30**	6	**21**	6			23	6
4.1	**70**	7			**70**	7			90	7	**70**	7
4.2	**70**	7			**70**	7			90	7	**70**	7
4.3	**85**	7			**85**	7			80	7	**50**	7
4.4	**70**	7			**70**	7			70	6	**50**	6
4.5	**70**	6			**70**	6			70	6	**50**	6
4.6	**88**	5	88	5	**88**	5			40	5	**60**	5
4.7	**44**	5	50	5	**44**	5			38	4	**40**	4
4.8	**50**	4	33	5	**50**	4			48	4	**36**	4
4.9	**45**	4	29	5	**45**	4			43	4	**35**	4
4.10	**40**	4	28	5	**40**	4			37	4	**32**	4
4.11	**77**	5	84	5	**77**	5	36-40	4				
4.12	**44**	5	46	5	**44**	5			40	5	**40**	5
4.13	**15**	4	27	5	**15**	4					**28**	4
4.14	**25**	4	22	4	**25**	4	18	4	20	4	**18**	4
4.15												
4.16	**70**	6			**70**	6					**70**	6
4.17												
4.18	**14**	3			**14**	3						
4.19	**18**	4			**18**	4						
5.1	8	2			8	2						
5.2	10	2			10	2						
5.3	8	1			8	1						
5.4	8	1	5	**2**	8	1						
5.5	8	2			8	2						
5.6	8	2			8	2						
5.7	10	2	10	**2**	10	2			7	2	6	2
5.8	8	1			8	1						
5.9	8	1			8	1						
5.10	12	2			12	2			10	2		
5.11	8	2			8	2			6	2		
6.1	8	1			8	1						
6.2												
6.3												
6.4												
6.5												

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

	Type WT 10 109 ...		Type WT-TiN 10 110 ...		Type WTL-L 10 112 ...		Type WT-MK 10 285 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
1.1	**30–35**	5	**35–45**	5	**22–27**	5-6	**30–35**	5
1.2	**30–35**	5	**35–45**	5	**26–34**	5-6	**30–40**	5
1.3	**36**	4	**44**	4	**30**	6	**36**	6
1.4	**15–20**	3-4	**18–22**	3-4	**13–16**	3-4	**15–20**	3-4
1.5	**40**	5	**44**	5	**25–34**	5	**35–40**	5
1.6	**35**	4	**38**	4	**16**	5	**35**	4
1.7	**20**	4	**27**	4	**16**	4	**20**	4
1.8	**16**	3	**22**	3	**13**	3	**16**	3
1.9	**16**	3	**18**	3	**16**	4	**16**	3
1.10	**16**	4	**22**	4	**16**	4	**16**	4
1.11	**12**	3	**18**	3	**11**	4	**12**	3
1.12	**15**	4	**17**	4	**16**	4	**20**	4
1.13	**8**	2	**9**	2	**12**	2	**8**	2
1.14	**12**	3	**15**	3	**12**	3	**15**	3
1.15	**12–15**	3-4	**14–19**	3-4	**12–16**	3-4	**12–20**	3-4
1.16	**12–15**	3-4	**14–19**	3-4	**12–16**	3-4	**12–20**	3-4
2.1	16	4	18	4	12	4	16	4
2.2	14	4	15	4	10	3	14	4
2.3	15	3	17	3	11	3	15	3
2.4	14	3	15	3	10	3	14	3
2.5	13	3	15	3	9	3	13	3
2.6	12	3	14	3	8	3	12	3
2.7	11	3	13	3	7	3	11	3
3.1	35	6	40	6	30	6	35	6
3.2	30	6	35	6	25	6	30	6
3.3	30	6	33	6	25	6	30	6
3.4	25	6	27	6	20	6	25	6
3.5	30	6	36	6	26	6	30	6
3.6	28	6	34	6	23	6	28	6
3.7	26	6	30	6	22	6	26	6
3.8	24	6	28	6	21	6	24	6
4.1					**70**	7		
4.2					**70**	7		
4.3					**50**	7		
4.4					**50**	6		
4.5					**45**	6		
4.6					**60**	5		
4.7	38	5	40	5	**40**	4	38	5
4.8	38	4	40	4	**32**	4	38	4
4.9	25	4	32	4	**30**	4	25	4
4.10					**28**	4		
4.11								
4.12					**40**	5		
4.13					**28**	5		
4.14	20	4	25	4	**18**	4	20	4
4.15								
4.16					**70**	6		
4.17								
4.18								
4.19								
5.1								
5.2								
5.3	7	1	8	1			7	1
5.4	7	1	8	1			7	1
5.5	7	1	8	1			7	1
5.6	8	2	10	2			8	2
5.7								
5.8								
5.9	12	2	15	2			10	2
5.10	12	2	15	2			10	2
5.11	8	2	10	2			6	2
6.1	4	1	8	1	6	1-2	4	1
6.2			4	1				
6.3								
6.4								
6.5								

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

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 53**

Cutting data standard values – Hole depth 5xD

	Type VX-TiN 10 124 ...		Type UNI-PM-TiN 10 173 ...		Type UNI-TiN 10 171 ...		Type N 10 152 ...		Type VA 10 175 ...		Type W 10 161 ...		Type WTL 10 168 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
1.1	**33–38**	5-6	**37-42**	**5-6**	**33–38**	5-6	**22–27**	5-6					**30–35**	5
1.2	**40–44**	5-6	**44-47**	**6-7**	**40–44**	5-6	**26–34**	5-6					**40**	5
1.3	**44**	6	**47**	**4**	**44**	6	**30**	6					**36**	5
1.4	**18–22**	3-4	**20-25**	**4-5**	**18–22**	3-4			16-28	3-4			**15–20**	3-4
1.5	**40–44**	6	**47**	**6**	**40–44**	6	**25**	5					**40**	5
1.6	**26**	5	**44**	**5**	**26**	5							**35**	4
1.7	**27**	4	**30**	**4**	**27**	4							**20**	4
1.8	**22**	3	**25**	**3**	**22**	3							**16**	3
1.9	**20**	4	**22**	**4**	**20**	4							**14**	3
1.10	**22**	4	**25**	**4**	**22**	4			18	4			**16**	4
1.11	**16**	3	**20**	**4**	**16**	3			15	3			**12**	3
1.12	**20**	4	**25**	**4**	**20**	4	**16**	4					**10**	3
1.13	**9**	2	**10**	**2**	**9**	2								
1.14	**13**	3	**16**	**3**	**13**	3							**15**	3
1.15	**15–20**	3-4	**17-22**	**4-5**	**15–20**	3-4	**12–16**	3-4					**15**	4
1.16	**15–20**	3-4	**17-22**	**4-5**	**15–20**	3-4	**12–16**	3-4					**12**	3
2.1	**20**	4	19	**4**	**20**	4			**16**	4			15	4
2.2	**18**	4	17	**4**	**18**	4			**14**	4			14	4
2.3	**18**	4	16	**4**	**18**	4			**13**	4			12	3
2.4	**18**	4	15	**4**	**18**	4			**14**	3			13	3
2.5	**15**	3	14	**3**	**15**	3			**12**	3				
2.6	**16**	3	15	**3**	**16**	3			**11**	3				
2.7	**12**	3	13	**3**	**12**	3			**10**	3				
3.1	**45**	6	**50**	6	**45**	6	**34**	6					36	6
3.2	**40**	6	**44**	6	**40**	6	**26**	6					28	6
3.3	**40**	6	**44**	6	**40**	6	**25**	6					30	6
3.4	**30**	6	**33**	6	**30**	6	**20**	6					22	6
3.5	**42**	6	**44**	6	**42**	6	**26**	6	42	6			28	6
3.6	**35**	6	**33**	6	**35**	6	**23**	6	30	6			23	6
3.7	**32**	6	**44**	6	**32**	6	**22**	6					20	6
3.8	**30**	6	**33**	6	**30**	6	**21**	6					18	6
4.1	**70**	7			**70**	7					**80**	7		
4.2	**70**	7			**70**	7			90	7	**80**	7		
4.3	**85**	7			**85**	7			90	7	**63**	7	70	7
4.4	**70**	7			**70**	7			70	6			55	6
4.5	**70**	6			**70**	6			70	6			55	6
4.6	**88**	5	88	5	**88**	5			55	5	**50**	5	40	5
4.7	**44**	5	50	5	**44**	5			44	4			36	5
4.8	**47**	4	33	5	**47**	4			36	4			28	4
4.9	**43**	4	29	5	**43**	4			30	4			22	4
4.10	**38**	4	28	5	**38**	4			30	3			20	4
4.11	**77**	5	84	5	**77**	5								
4.12	**44**	5	46	5	**44**	5			45	5			45	4
4.13	**15**	4	27	5	**15**	4					**28**	5		
4.14	**25**	4	22	4	**25**	4	18	4					20	4
4.15														
4.16	**70**	6			**70**	6								
4.17														
4.18	**14**	3			**14**	3			11	3				
4.19	**18**	4			**18**	4			13	4				
5.1	8	2			8	2								
5.2	10	2			10	2								
5.3	8	1			8	1								
5.4	8	1	5	**2**	8	1								
5.5	8	2			8	2								
5.6	8	2			8	2								
5.7	10	1	10	**2**	10	1			9	2				
5.8	8	1			8	1								
5.9	8	1			8	1								
5.10	12	2			12	2			10	2				
5.11	8	2			8	2								
6.1	8	1			8	1								
6.2														
6.3														
6.4														
6.5														

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

	Type WTL-TiN 10 170 ...		Type WTL-TiCN 10 172 ...		Type WTL-L 10 169 ...		Type WNXi 10 180 ...		Type WNXi-TiN 10 181 ...		Type N-MK 10 265 ...		Type WTL-MK 10 280 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
1.1	**36–42**	5	**36–42**	6	**22–27**	5-6	**42–50**	6-7	**42–60**	6-7	**22–27**	5-6	**30–35**	5
1.2	**42–48**	5	**42–48**	6	**25–32**	5-6	**42–50**	6-7	**42–60**	6-7	**25–32**	5-6	**40**	5
1.3	**48**	4	**48**	7	**32**	6	**50**	7	**62**	7	**30**	6	**36**	6
1.4	**20–24**	3-4	**20–24**	4-5			**16–22**	4-5	**20–31**	4-5			**15–20**	3-4
1.5	**48**	5	**48**	6	**25**	5	**38–48**	6	**48–60**	6	**25**	5	**28–40**	5
1.6	**42**	4	**42**	5			**28**	5	**30**	5			**28**	4
1.7	**34**	4	**34**	5			**25**	5	**30**	5			**18–20**	4
1.8	**30**	3	**30**	4			**20**	4	**25**	4			**16**	3
1.9	**18**	3	**20**	4			**22**	5	**25**	5			**14**	3
1.10	**24**	4	**20**	5			**22**	5	**28**	5			**14–16**	4
1.11	**20**	3	**15**	4			**14**	4	**20**	4			**12**	3
1.12	**13**	3	**15**	4			**24**	5	**26**	5	**16**	4	**10**	3
1.13			**11**	3			**15**	3	**18**	3				
1.14	**17**	3	**17**	4			**18**	4	**20**	4			**10–15**	3
1.15	**18**	4	**21**	5	**16**	4	**16–24**	4-5	**18–30**	4-5	**12–16**	3-4	**15**	4
1.16	**14**	3	**15**	4			**16–24**	4-5	**18–30**	4-5	**12–16**	3-4	**12**	3
2.1	18	4	20	5			**20**	5	**25**	5			15	4
2.2	16	4	18	4			**18**	5	**22**	5			14	4
2.3	14	3	16	4			**16**	5	**20**	5			12	3
2.4	15	3	17	4			**18**	5	**22**	5			13	3
2.5							**15**	4	**19**	4				
2.6							**14**	4	**18**	4				
2.7							**12**	4	**17**	4				
3.1	45	6			32	6	**48**	7	**60**	7	**32**	6	36	6
3.2	36	6			25	6	**42**	7	**52**	7	**25**	6	28	6
3.3	40	6			28	6	**42**	7	**52**	7	**28**	6	30	6
3.4	28	6			20	6	**40**	7	**50**	7	**20**	6	22	6
3.5	36	6			25	6	**42**	7	**52**	7	**25**	6	28	6
3.6	30	6			22	6	**35**	7	**45**	7	**22**	6	23	6
3.7	25	6			18	6	**32**	7	**42**	7	**21**	6	20	6
3.8	22	6			16	6	**30**	7	**40**	7	**20**	6	18	6
4.1					80	7								
4.2					80	7								
4.3	85	7			63	7	95	7	120	7			70-80	7
4.4	70	6			50	6	75	8	95	8			60-70	6
4.5	70	6			50	6	75	8	95	8			60-70	6
4.6	88	5			32	5	78	6	98	6			40	5
4.7	45	5			50	5	55	6	62	6			36	5
4.8	32	4			15	4							28	4
4.9	25	4					42	5	48	5			22	4
4.10	22	4					38	5	44	5			20	4
4.11														
4.12					40	5	55	6	55	6			45	4
4.13							38	6	44	6	28	5		
4.14	24	4			16	4					18	4	18	4
4.15														
4.16														
4.17														
4.18							15	4	20	4				
4.19							18	4	22	5				
5.1							9	3	11	3				
5.2							11	3	13	3				
5.3							9	2	11	2				
5.4							9	2	11	2				
5.5							9	2	11	2				
5.6							11	3	13	3				
5.7							9	2	11	2				
5.8							9	3	11	3				
5.9							9	2	11	2				
5.10							14	3	17	3				
5.11							10	3	12	3				
6.1							8	3	10	3				
6.2							4	3	5	3				
6.3														
6.4														
6.5														

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

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 53**

Cutting data standard values – Hole depth 10xD and over 10xD

	Hole depth 10xD													
	Type NC 10 223 ...		Type NC-TiALN 10 224 ...		Type UNI-TiN 10 270 ...		Type WTL 10 225 ...		Type WTL 10 215 ...		Type WTL-TiN 10 210 ...		Type WTW 10 200 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
1.1	**30–40**	5-6	**50–65**	6-7	**25–32**	5-6	**28–32**	5-6	**22–28**	5-6	**24–30**	5-6		
1.2	**30–40**	5-6	**50–65**	6-7	**28–35**	6	**28–32**	5-6	**22–28**	5-6	**28–32**	5-6		
1.3	**40**	6	**65**	7	**28**	6	**32**	6	**28**	6	**32**	6		
1.4	**12–17**	3-4	**18–25**	4-5	**12–14**	3-4	**13–18**	3-4			**10–14**	4		
1.5	**30–40**	5	**45–55**	6	**25–28**	6	**26–36**	5	**22**	5	**26–36**	5		
1.6	**22**	4	**35**	5	**15**	5	**24**	4-5			**24**	4		
1.7	**20**	3	**30**	4	**13**	4	**16**	4			**18**	4		
1.8	**14**	3	**20**	4	**12**	3	**12**	3						
1.9	**14**	3	**20**	4	**13**	4	**12**	3						
1.10	**14**	4	**20**	5	**13**	4	**14**	4			**12**	4		
1.11	**10**	3	**15**	4	**8**	3	**10**	3						
1.12	**10**	3	**15**	4			**8**	3			**8**	3		
1.13	**7**	2	**12**	3			**6**	2						
1.14	**10**	3	**15**	4	**10**	3	**12**	3						
1.15	**20**	4	**30**	4	**10–13**	3-4	**16**	8	**14**	4	**15**	4		
1.16	**10**	3	**15**	4	**10–13**	3-4	**8**	3			**8**	3		
2.1	14	4	20	4	13	4	**12**	4						
2.2	14	4	20	4			**13**	4						
2.3	12	3	18	3	12	4	**10**	3						
2.4	13	3	20	3			**11**	3						
2.5	11	3	16	3			**9**	3						
2.6	10	3	15	3	8-13	3-4	**8**	3						
2.7							**7**	2-3						
3.1	**40**	6	**65**	7	**32**	6	**28**	6	**28**	6	**36**	6-7		
3.2	**30**	6	**50**	7	**26**	6	**22**	6	**22**	6	**28**	6-7		
3.3	**35**	6	**60**	7	**28**	6	**30**	6	**22**	6	**28**	6-7		
3.4	**25**	6	**40**	7	**20**	6	**24**	6	**18**	6	**22**	6-7		
3.5	**30**	6	**50**	7	**28**	6	**24**	6	**22**	6	**28**	6-7		
3.6	**32**	6	**55**	7	**20**	6	**20**	6	**16**	6	**30**	6-7		
3.7	**24**	6	**36**	7	**28**	6	**16**	6	**14**	6	**20**	6-7		
3.8	**22**	6	**32**	7	**20**	6	**15**	6	**13**	6	**18**	6-7		
4.1					50	7							**65**	7
4.2	80	6	110	7	60	7							**65**	7
4.3	80	6	110	7	60	7	**70**	7	**55**	7	**70**	7		
4.4	75	7	95	8	50	6	**60**	6	**45**	6	**55**	6		
4.5	60	6	80	7	50	6	**60**	6	**45**	6	**55**	6		
4.6	60	5	60	6	24	5	**54**	5	**54**	5	**65**	5		
4.7	40	5	60	6			**30**	5	**28**	5	**36**	5		
4.8	36	4	55	5			**26**	4	**24**	4	**28**	4		
4.9	25	4	35	5			**22**	4	**20**	4	**22**	4		
4.10	23	4	30	5			**20**	4	**18**	4	**20**	4		
4.11					35-50	4-5								
4.12	50	5	65	5	28	5	**38**	5	**34**	5	**44**	5		
4.13	30	5	40	5	12	4							**22**	5
4.14					18	4	**16**	4	**14**	4	**18**	4		
4.15														
4.16					50	6							**63**	6
4.17														
4.18	8	2	10	3										
4.19	7	2	9	3										
5.1	8	2	11	2-3										
5.2	6	2	7	2-3										
5.3	6	1	7	2										
5.4	6	2	7	2										
5.5	6	1	7	2										
5.6	5	1	6	2										
5.7	5	1	6	2										
5.8	5	1	6	1										
5.9	5	1	6	1										
5.10	6	2	7	2-3										
5.11	6	1	7	2-3										
6.1	6	3	7	3										
6.2	4	2	5	2										
6.3														
6.4														
6.5														

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

	Hole depth 10xD				Hole depth above 10xD									
	Type N-MK 10 295 ...		Type WTL-MK 10 297 ...		Type WTL-R1 10 235 ...		Type WTL-R2 10 245 ...		Type WTL-R3 10 255 ...		Type WTL-MK-R1 10 305 ...		Type WTL-MK-R2 10 315 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
1.1	**28–36**	5-6	**28–32**	5-6	**18–22**	4-5	**18–22**	4-5	**18–22**	4-5	**18–22**	4-5	**18–22**	4-5
1.2	**28–36**	5-6	**28–32**	5-6	**18–22**	4-5	**18–22**	4-5	**18–22**	4-5	**18–22**	4-5	**18–22**	4-5
1.3	**27**	6	**32**	6	**22**	4	**22**	4	**22**	4	**22**	4	**22**	4
1.4	**14**	4	**10–14**	3-4	**10**	3	**10**	3	**10**	3	**10**	3	**10**	3
1.5	**28–36**	5	**36**	5	**18–22**	4	**18–22**	4	**18–22**	4	**18–22**	4	**18–22**	4
1.6	**22**	4	**24**	4										
1.7	**18**	4	**16**	4	**12**	3	**12**	3	**12**	3	**12**	3	**12**	3
1.8			**12**	3										
1.9			**12**	3										
1.10	**12**	4	**12**	4	**8**	3	**8**	3	**8**	3	**8**	3	**8**	3
1.11			**8**	3										
1.12	**8**	3	**8**	3										
1.13			**6**	2										
1.14			**8**	3	**6**	2	**6**	2	**6**	2	**6**	2	**6**	2
1.15	**18**	4	**16**	4										
1.16	**8**	3	**8**	3										
2.1			**12**	4	8	3	8	3	8	3	8	3	8	3
2.2			**13**	4	8	3	8	3	8	3	8	3	8	3
2.3			**10**	3										
2.4			**11**	3										
2.5			**9**	3										
2.6			**8**	3										
2.7			**7**	2-3										
3.1	**36**	6-7	**28**	6	**22**	5	**22**	5	**22**	5	**22**	5	**22**	5
3.2	**28**	6-7	**22**	6	**18**	5	**18**	5	**18**	5	**18**	5	**18**	5
3.3	**28**	6-7	**30**	6	**20**	5	**20**	5	**20**	5	**20**	5	**20**	5
3.4	**22**	6-7	**24**	6	**14**	5	**14**	5	**14**	5	**14**	5	**14**	5
3.5	**28**	6-7	**22**	6	**18**	5	**18**	5	**18**	5	**18**	5	**18**	5
3.6	**30**	6-7	**20**	6	**16**	5	**16**	5	**16**	5	**16**	5	**16**	5
3.7	**20**	6-7	**16**	6	**14**	5	**14**	5	**14**	5	**14**	5	**14**	5
3.8	**18**	6-7	**15**	6	**12**	5	**12**	5	**12**	5	**12**	5	**12**	5
4.1														
4.2														
4.3	70	7	**70**	7	**45**	6	**45**	6	**45**	6	**45**	6	**45**	6
4.4	55	6	**60**	6	**36**	5	**36**	5	**36**	5	**36**	5	**36**	5
4.5	55	6	**50**	6	**36**	5	**36**	5	**36**	5	**36**	5	**36**	5
4.6	54	5	**54**	5	**22**	4	**22**	4	**22**	4	**22**	4	**22**	4
4.7	36	5	**30**	5	**20**	3	**20**	3	**20**	3	**20**	3	**20**	3
4.8	28	4	**26**	4	**22**	3	**22**	3	**22**	3	**22**	3	**22**	3
4.9	22	4	**22**	4	**22**	3	**22**	3	**22**	3	**22**	3	**22**	3
4.10	20	4	**20**	4	**20**	3	**20**	3	**20**	3	**20**	3	**20**	3
4.11														
4.12	36	4	**38**	5	**28**	4	**28**	4	**28**	4	**28**	4	**28**	4
4.13	22	5			**20**	3	**20**	3	**20**	3	**20**	3	**20**	3
4.14	14	4	**16**	4	**14**	4	**14**	4	**14**	4	**14**	4	**14**	4
4.15														
4.16					**55**	5	**55**	5	**55**	5	**55**	5	**55**	5
4.17														
4.18														
4.19														
5.1														
5.2														
5.3														
5.4														
5.5														
5.6														
5.7														
5.8														
5.9														
5.10														
5.11														
6.1														
6.2														
6.3														
6.4														
6.5														

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

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 53**

Cutting data standard values – micro drills 10 103 ...

		Nominal Ø in mm						
		Ø 0,15	Ø 0,20–0,25	Ø 0,30–0,35	Ø 0,40–0,55	Ø 0,60–0,75	Ø 0,80–0,95	Ø 1,00–1,45
Index	v_c in m/min	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
1.1	**18**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
1.2	**18**	0,007	0,009	0,011	0,014	0,020	0,024	0,041
1.3	**18**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
1.4	**14**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.5	**18**	0,007	0,009	0,011	0,014	0,020	0,024	0,041
1.6	**14**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.7	**14**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.8	**12**	0,004	0,005	0,007	0,009	0,012	0,016	0,029
1.9	**12**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
1.10	**14**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.11	**12**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
1.12	**14**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
1.13	**8**	0,003	0,004	0,005	0,007	0,009	0,013	0,024
1.14	**14**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
1.15	**12–14**	0,004	0,006	0,008	0,007	0,010	0,014	0,026
1.16	**12–14**	0,004	0,006	0,008	0,007	0,010	0,014	0,026
2.1	**12**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
2.2	**10**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
2.3	**6**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
2.4	**6**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
2.5	**6**	0,004	0,006	0,008	0,007	0,010	0,014	0,026
2.6	**6**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
2.7	**6**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
3.1	**25**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.2	**22**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.3	**18**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.4	**22**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.5	**22**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.6	**20**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
3.7	**22**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
3.8	**20**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
4.1								
4.2								
4.3	**26**	0,012	0,014	0,019	0,024	0,034	0,038	0,060
4.4	**24**	0,012	0,014	0,019	0,024	0,034	0,038	0,060
4.5	**18**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
4.6	**42**	0,007	0,009	0,011	0,014	0,020	0,024	0,041
4.7	**38**	0,007	0,009	0,011	0,014	0,020	0,024	0,041
4.8	**45**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
4.9	**35**	0,007	0,009	0,011	0,014	0,020	0,024	0,041
4.10	**30**	0,007	0,009	0,011	0,014	0,02	0,024	0,041
4.11								
4.12	**22**	0,007	0,009	0,011	0,014	0,020	0,024	0,041
4.13	**18**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
4.14	**16**	0,005	0,007	0,009	0,011	0,015	0,020	0,035
4.15								
4.16	**75**	0,009	0,011	0,015	0,019	0,026	0,031	0,050
4.17								
4.18	**6**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
4.19	**6**	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.1	5	0,004	,0,005	0,007	0,008	0,012	0,016	0,029
5.2	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.3	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.4	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.5	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.6	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.7	6	0,005	0,007	0,009	0,011	0,015	0,020	0,035
5.8	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.9	5	0,004	0,005	0,007	0,008	0,012	0,016	0,029
5.10	4	0,003	0,004	0,005	0,007	0,009	0,013	0,024
5.11	4	0,003	0,004	0,005	0,007	0,009	0,013	0,024
6.1	3	0,002	0,003	0,004	0,005	0,007	0,010	0,020
6.2								
6.3								
6.4								
6.5								

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

Feed rate guide values for HSS twist drills

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

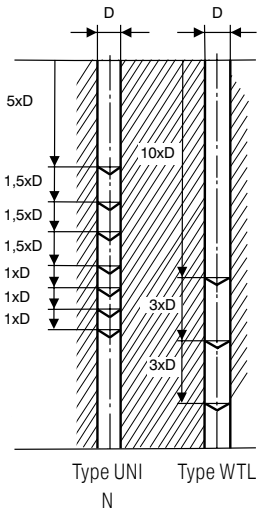
All the indicated data are guide values only and represent average values.

Speed for HSS drills

v_c m/min	Drill diameter in mm															
	2,0	2,5	3,15	4,0	5,0	6,3	8,0	10,0	12,5	16,0	20,0	25,0	31,5	40,0	50,0	63,0	80,0
	Speed in U/min																
80	12500	10000	8000	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320
63	10000	8000	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250
50	8000	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200
40	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160
32	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125
25	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100
20	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80
16	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63
12	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63	50
10	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63	50	40
8	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32
6	1000	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25
5	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20
4	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20	16
3	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20	16	12

Peck frequency for deep drilling

- drill must be sufficiently cooled
- by use of a drill with flat chip gullet profile (type WTL) chip transport is substantially improved
- for extremely deep drilling or when machining horizontally through coolant drills with internal coolant supply are recommended



Coatings

TiN

- TiN coating
- maximum application temperature: 450 °C

TiAlN

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

vap.

- vaporised
- vaporisation (vapour-deposition) prevents cold welds from forming on the tool and increases the surface hardness and thus the wear resistance

TiCN

- TiCN multilayer coating
- maximum application temperature: 450 °C

F.-nit

- titanium carbon nitride based PVD coating particularly suitable for steel machining
- applicable up to approx. 450 °C



New products for machining technicians

NEW WTX – Speed UNI

≤ 3xD | ≤ 5xD | ≤ 8xD



The new WTX – Speed UNI raises your productivity and increases process security thanks to a new geometry and new Dragonskin coating DPX14S.

NEW WTX – Feed UNI

≤ 5xD | ≤ 8xD | ≤ 12xD



The update means the WTX – Feed UNI is even more versatile and capable thanks to several geometrical changes and the tried-and-tested universal Dragonskin coating DPX74S. Now available from Ø 4.00 mm.

NEW WTX – Quattro 4F

≤ 5xD | ≤ 8xD | ≤ 12xD



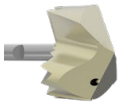
The high-performance drill with four guide lands has been made even more capable through geometrical changes and the universal Dragonskin coating DPX74S.

NEW WTX – short step drill



The WTX short step drill with tried-and-tested universal Dragonskin coating DPX74S.

NEW WTX – Change UNI



The WTX – Change UNI exchangeable head with tried-and-tested universal Dragonskin coating DPX74S.

NEW WTX – AL

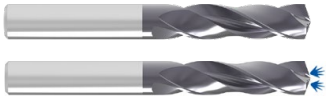
≤ 5xD | ≤ 8xD | ≤ 12xD



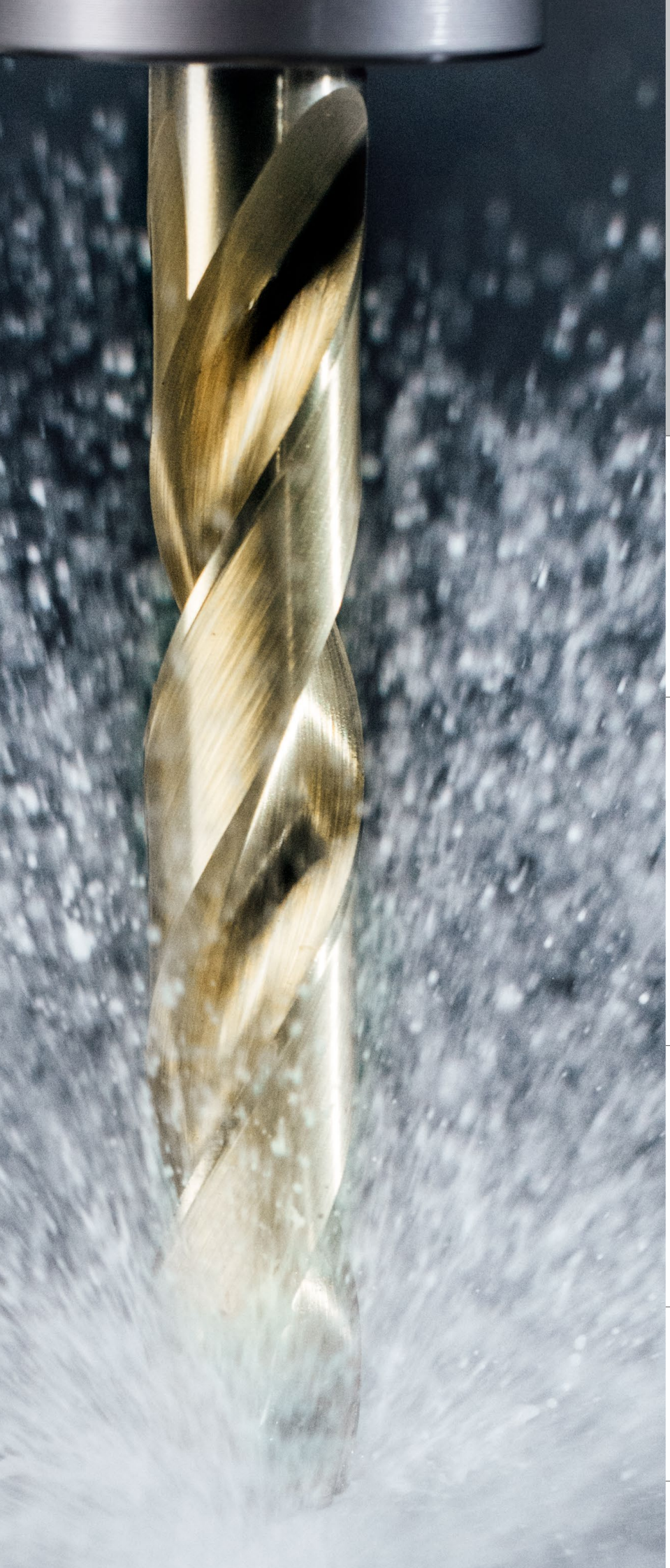
DLC-coated high-performance drill for aluminium machining.

NEW WTX – H

≤ 3xD



High-performance drill for hardened steels from 45 to 70 HRC.



Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut
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Milling

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WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Shank











Version



Int. coolant supply



self-centering



▲ Pilot drilling
▲ min. 2xD

● = **Main Application**

○ = Extended application

Toolfinder

Steel/Universal

Product name	Tool type	Description	Int. coolant supply	Heads	1xD	3xD	5xD	8xD	12xD
Solid carbide drilling									
WTX	Speed UNI	▲ High performance drill for high cutting speeds ▲ Using new DPX14S Dragonskin coating ▲ new cutting geometry	✓			21–24	38–42	55–58	
WTX	Feed UNI	▲ High feed drills with 3 cutting edges ▲ for difficult drilling conditions ▲ high positional accuracy	✓				38–42	55–58	63–65
WTX	UNI	▲ highest performance for all materials up to 1200 N/mm² ▲ suitable for volume production	✗ ✓			9–13 21–24	32–35 38–42	 55–58	
WPC	UNI	▲ Quality Tools for Standard Applications	✗ ✓			14–17 25–28	36 50–53	 59	 66
WTX	180	▲ for inclined surfaces up to 45 ° and flat bottom holes	✓			31	54		
WTX	Quattro 4F	▲ with additional guide land for best alignment accuracy, concentricity and positional accuracy	✗ ✓				32–35 38–42	 55–58	 63–65
	N	▲ Uncoated solid carbide drills ▲ Universal application	✗			20	37		
Mini-drill									
WTX	MINI	▲ Standard shank Ø 3.0 mm ▲ Optimal chip formation and removal thanks to WTX flute geometry	✗ ✓				70 71	 71	 72
Drill Reamers									
WTX	Finish BR/ BR100	▲ Solid carbide high performance drill reamer ▲ Excellent surface quality ▲ For blind and through holes	✓			73+74	74		
Stepped drills									
WTX	SB	▲ Core hole plus countersink for thread forming and tapping	✗			75			
NC Spot Drill									
	NC-A	▲ spiral fluted ▲ 90°, 120°, 142°	✗		76+77				
Centre drills									
	ZB	▲ spiral fluted ▲ 120°	✗		78				
Exchange head drill									
WTX	Change Feed UNI	▲ Three-edged exchangeable head drill with solid carbide drill head type Feed UNI from Ø 14.0 mm to 32.0 mm ▲ Universal application (steel, cast iron)	✓	79+80		81	81	82	
WTX	Change UNI	▲ Exchangeable head drill with type UNI solid carbide drill head from Ø 12.0 mm to 41.0 mm ▲ for steels < 700 N/mm²	✓	83–88	89	89	90	90	91
WTX	Change P	▲ Exchangeable head drill with type P solid carbide drill head from Ø 12.0 mm to 41.0 mm ▲ for steels > 700 N/mm²	✓	83–88	89	89	90	90	91
Exchangeable head NC spot drill									
	NC-A	▲ NC spot drill – Exchange Head System ▲ 90°, 120°, 142°	✗	93					

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

Toolfinder

	Product name	Tool type	Description	Int. coolant supply	Heads	1xD	3xD	5xD	8xD	12xD
Stainless steel	**Solid carbide drilling**									
	WTX	VA	▲ highest performance for corrosion and acid resistant steels and aluminium ▲ for volume production	✖ ✓			9–13 21–24	32–35 43–49	 60–62	
	WPC	VA	▲ Quality tools for corrosion and acid-resistant steels and aluminum	✖ ✓			14–17 25–28	 50–53		
	WTX	Speed VA	▲ double the cutting speed in corrosion and acid-resistant steels and aluminum	✓				43–49		
	Exchange head drill									
	WTX	Change VA	▲ Exchangeable head drill with solid carbide drill head type VA from Ø 12.0 mm to 32.0 mm	✓	83–88	89	89	90	90	91
Cast iron	**Solid carbide drilling**									
	WTX	GG	▲ highest performance in cast materials to 250 HB	✓				43–49	60–62	
	Exchange head drill									
	WTX	Change GG	▲ Exchangeable head drill with solid carbide drill head type GG from Ø 12.0 mm to 32.0 mm	✓	83–88	89	89	90	90	91
Non-ferrous metals	**Solid carbide drilling**									
	WTX	AL	▲ Solid carbide high performance drill, especially for the machining of aluminum, copper and brass ▲ for volume production	✓				43–49	60–62	63–65
	Exchange head drill									
	WTX	Change AL	▲ Exchangeable head drill with solid carbide drill head type AL from Ø 12.0 mm to 32.0 mm	✓	83–88	89	89	90	90	91
Heat-resistant	**Solid carbide drilling**									
	WTX	Ti	▲ highest performance in titanium, titanium alloys and heat resistant alloys	✓			29+30	43–49		
Tempered steel	**Solid carbide drilling**									
	WTX	H	▲ highest performance in hardened steel from 46 to 70 HRC	✖ ✓			19 18			

	Product name	Tool type	Description	Int. coolant supply	16xD	20xD	25xD	30xD	40xD	50xD
	Deep Hole Drills									
Steel/ Universal	WTX	TB UNI	▲ Solid carbide deep hole drill to 50xD without peck ▲ 4 facet geometry for excellent alignment accuracy	✓	67	67	68	68	69	69
Non-ferrous metals	WTX	TB ALU	▲ Solid carbide deep hole drills, up to 30xD without pecking ▲ 6-facet head geometry for excellent alignment accuracy	✓	67	67	68	68		

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

Overview Solid Carbide Drills

	Product name	Tool type	Length	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
3xD without thro' coolant															
	WTX	UNI	≤ 3xD	3–25	●		●	○		○		■		9–13	
	WTX	VA	≤ 3xD	2–20	○	●	○	●		○		■		9–13	
	WPC	UNI	≤ 3xD	1–20	●		●	○				■			14–17
	WPC	VA	≤ 3xD	1–20	○	●	○	●		○		■			14–17
	WTX	H	≤ 3xD	2,55–14						●	up to 70 HRC	■		19	
		N	≤ 3xD	0,5–20	●	○	○	●	○				□		20
3xD with thro' coolant															
	WTX	Speed UNI	≤ 3xD	3–20	●		●	○		○		■		21–24	
	WTX	UNI	≤ 3xD	3–25	●	○	●	○		○		■		21–24	
	WTX	VA	≤ 3xD	3–20	○	●	○	●	○			■		21–24	
	WPC	UNI	≤ 3xD	1–20	●	○	●	○				■			25–28
	WPC	VA	≤ 3xD	1–20	○	●	○	●	●			■			25–28
	WTX	Ti	≤ 3xD	3–20		●				●		■		29+30	
	WTX	180	≤ 3xD	3–20	●	○	●	○		○		■		31	
	WTX	H	≤ 3xD	2,55–14	○		○			●	up to 58 HRC	■		18	
5xD without thro' coolant															
	WTX	UNI	≤ 5xD	3–20	●		●	○				■		32–35	
	WTX	Quattro 4F	≤ 5xD	3–20	●		●					■		32–35	
	WTX	VA	≤ 5xD	3–20	○	●	○	●		○		■		32–35	
	WPC	UNI	≤ 5xD	3–20	●		●	○				■			36
		N	≤ 5xD	0,5–16	●	○	○	●	○				□		37

Overview Solid Carbide Drills

5xD with thro‘ coolant

	Product name	Tool type	Length	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
	WTX	Feed UNI	≤ 5xD	4–20	●	●	●	○			3 flute	■		38–42	
	WTX	Speed UNI	≤ 5xD	3–20	●	●	●	○		○		■		38–42	
	WTX	UNI	≤ 5xD	3–25	●	○	●	○				■		38–42	
	WTX	Quattro 4F	≤ 5xD	3–20	●	○	●	○				■		38–42	
	WTX	Speed VA	≤ 5xD	3–20	○	●	○	○	○			■		43–49	
	WTX	VA	≤ 5xD	3–20	○	●	○	●	○			■		43–49	
	WTX	GG	≤ 5xD	3–20			●	●				■		43–49	
	WTX	AL	≤ 5xD	2,5–20			○	●				■		43–49	
	WTX	Ti	≤ 5xD	3–20		●			●			■		43–49	
	WPC	UNI	≤ 5xD	1–20	●	○	●	○				■		50–53	
	WPC	VA	≤ 5xD	1–20	○	●	○	●	●			■		50–53	
	WTX	180	≤ 5xD	3–20	●	○	●			○		■		54	

8xD with thro‘ coolant

	Product name	Tool type	Length	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
	WTX	Feed UNI	≤ 8xD	4–20	●	●	●				3 flute	■		55–58	
	WTX	Speed UNI	≤ 8xD	3–20	●		●					■		55–58	
	WTX	UNI	≤ 8xD	3–25	●		●	○				■		55–58	
	WTX	Quattro 4F	≤ 8xD	3–20	●		●	○		○		■		55–58	
	WPC	UNI	≤ 8xD	3–20	●	○	●	○				■		59	
	WTX	VA	≤ 8xD	3–20	○	●	○	●	○			■		60–62	
	WTX	GG	≤ 8xD	3–20			●	●				■		60–62	
	WTX	AL	≤ 8xD	3–20			○	●				■		60–62	

Overview Solid Carbide Drills

Product name	Tool type	Length	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials		coated ■ uncoated □	WNT \ Performance	WNT \ Standard
12xD with thro‘ coolant													
 WTX	Feed UNI	≤ 12xD	4–20	●	●	●	○			HA	■	63–65	
 WTX	Quattro 4F	≤ 12xD	3–20	●		●	○			HA	■	63–65	
 WTX	AL	≤ 12xD	3–20			○	●			HA	■	63–65	
 WPC	UNI	≤ 12xD	3–18	●	○	●	○			HA	■		66
Deep Hole Drills													
WTX	TB UNI	≤ 16xD ≤ 20xD	2–12	●	●	●				HA	■	67	
WTX	TB UNI	≤ 25xD ≤ 30xD	2–12	●	●	●				HA	■	68	
WTX	TB UNI	≤ 40xD	3–9	●	●	●				HA	■	69	
WTX	TB UNI	≤ 50xD	3–6,8	●	●	●				HA	■	69	
WTX	TB ALU	≤ 16xD ≤ 20xD	2–12				●			HA	■	67	
WTX	TB ALU	≤ 25xD ≤ 30xD	2–12				●			HA	■	68	
Micro Drills 5xD/8xD/12xD													
 WTX	MINI	≤ 5xD	0,1–2,9	●		●	○	○		HA	■	70	
 WTX	MINI	≤ 5xD	1,0–2,9	●	●	●	●	●		HA	with thro‘ coolant ■	71	
 WTX	MINI	≤ 8xD	1,0–2,9	●	●	●	●	●		HA	with thro‘ coolant ■	71	
 WTX	MINI	≤ 12xD	1,0–2,9	●		●	●			HA	with thro‘ coolant ■	72	
Drill Reamers													
 WTX	Finish BR100	≤ 3xD	3,97–12,02	●		●	○			HA	■	73	
 WTX	Finish BR	≤ 3xD	4–16	●		●	○			HA	Tolerance H7 ■	74	
 WTX	Finish BR	≤ 5xD	4–20	●		●	○			HA	Tolerance H7 ■	74	

Overview Solid Carbide Drills

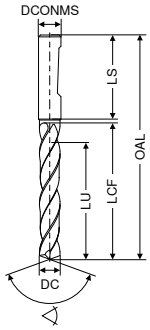
	Product name	Tool type	Point angle	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials		coated	uncoated	WNT \ Performance	WNT \ Standard
Stepped drills															
	WTX	SB		2,5–14	●		○	○			Thread cutting	■		75	
					HA										
	WTX	SB		2,8–15	●		○	○			Thread forming	■		75	
					HA										
NC Spot Drill															
		NC–A	◁ 90° ◁ 120° ◁ 142°	2–20	●		●	●					□		76
					HA										
		NC–A	◁ 90° ◁ 120° ◁ 142°	2–20	●		●					■			76
					HB										
		NC–A	◁ 90° ◁ 120° ◁ 142°	3–16	●		●				Long version	■			77
					HA						HB				
Centre drills															
		ZB	◁ 120°	0,5–6,3	●		●	●					□	78	
Exchangeable head system – heads															
	WTX	Change Feed		14–32	●		●					■		79+80	
	WTX	Change UNI		12–41	●		●					■		83–88	
	WTX	Change P		12–41	●		●					■		83–88	
	WTX	Change VA		12–32	○	●	○					■		83–88	
	WTX	Change GG		12–32			●					■		83–88	
	WTX	Change ALU		12–32				●				■		83–88	
Exchangeable head system – holders 1xD/3xD/5xD/8xD/12xD															
	WTX	Change Feed		14–32										81+82	
					HB										
	WTX	Change		12–41										89–91	
					HB										
MultiChange NC spot drill															
		NC–A	◁ 90° ◁ 120° ◁ 142°	8–20	●	●	●	●				■		93	

WTX – High Performance Drill, DIN 6537

2

≤ 3xD





UNI	UNI	UNI	VA	VA
DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HB	HE	HA	HE
140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC_{m7}	$DCONMS_{h6}$	OAL	LCF	LU	LS	Article no. 11 777 ...	Article no. 11 778 ...	Article no. 11 776 ...	Article no. 10 731 ...	Article no. 10 732 ...
mm	mm	mm	mm	mm	mm					
2,00	6	58	16	11	36				020	020
2,10	6	58	16	11	36				021	021
2,20	6	58	16	11	36				022	022
2,30	6	58	16	11	36				023	023
2,33	6	58	16	11	36				823	
2,40	6	58	16	11	36				024	024
2,43	6	58	16	11	36				824	
2,50	6	58	16	11	36				025	025
2,55	6	58	16	11	36				825	
2,60	6	58	16	11	36				026	026
2,62	6	58	16	11	36				826	
2,70	6	58	16	11	36				027	027
2,80	6	58	16	11	36				028	028
2,90	6	58	16	11	36				029	029
3,00	6	62	20	14	36	03000	03000	03000	030	030
3,10	6	62	20	14	36	03100	03100	03100	031	031
3,15	6	62	20	14	36	03150	03150	03150	831	
3,20	6	62	20	14	36	03200	03200	03200	032	032
3,22	6	62	20	14	36	03220	03220	03220	832	
3,25	6	62	20	14	36	03250	03250	03250	890	
3,30	6	62	20	14	36	03300	03300	03300	033	033
3,40	6	62	20	14	36	03400	03400	03400	034	034
3,50	6	62	20	14	36	03500	03500	03500	035	035
3,60	6	62	20	14	36	03600	03600	03600	036	036
3,70	6	62	20	14	36	03700	03700	03700	037	037
3,80	6	66	24	17	36	03800	03800	03800	038	038
3,85	6	66	24	17	36	03850	03850	03850	838	
3,90	6	66	24	17	36	03900	03900	03900	039	039
4,00	6	66	24	17	36	04000	04000	04000	040	040
4,10	6	66	24	17	36	04100	04100	04100	041	041
4,20	6	66	24	17	36	04200	04200	04200	042	042
4,25	6	66	24	17	36	04250	04250	04250		
4,30	6	66	24	17	36	04300	04300	04300	043	043
4,35	6	66	24	17	36	04350	04350	04350	843	
4,40	6	66	24	17	36	04400	04400	04400	044	044
4,45	6	66	24	17	36	04450	04450	04450	844	
4,50	6	66	24	17	36	04500	04500	04500	045	045
4,60	6	66	24	17	36	04600	04600	04600	046	046
4,65	6	66	24	17	36	04650	04650	04650	900	900
4,70	6	66	24	17	36	04700	04700	04700	047	047
4,80	6	66	28	20	36	04800	04800	04800	048	048
4,90	6	66	28	20	36	04900	04900	04900	049	049
4,95	6	66	28	20	36	04950	04950	04950		

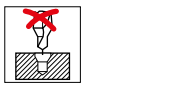
Steel	●	●	●	○	○
Stainless steel				●	●
Cast iron	●	●	●	○	○
Non ferrous metals	○	○	○	●	●
Heat resistant alloys					
Hardened materials	○	○	○	○	○

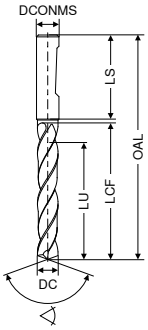
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WTX – High Performance Drill, DIN 6537

≤ 3xD





UNI	UNI	UNI	VA	VA
DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HB	HE	HA	HE
140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC $_{m7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	Article no. 11 777 ...	Article no. 11 778 ...	Article no. 11 776 ...	Article no. 10 731 ...	Article no. 10 732 ...
mm	mm	mm	mm	mm	mm					
5,00	6	66	28	20	36	05000	05000	05000	050	050
5,05	6	66	28	20	36	05050	05050	05050		
5,10	6	66	28	20	36	05100	05100	05100	051	051
5,20	6	66	28	20	36	05200	05200	05200	052	052
5,30	6	66	28	20	36	05300	05300	05300	053	053
5,40	6	66	28	20	36	05400	05400	05400	054	054
5,50	6	66	28	20	36	05500	05500	05500	055	055
5,55	6	66	28	20	36	05550	05550	05550	902	902
5,60	6	66	28	20	36	05600	05600	05600	056	056
5,70	6	66	28	20	36	05700	05700	05700	057	057
5,75	6	66	28	20	36	05750	05750	05750	916	
5,80	6	66	28	20	36	05800	05800	05800	058	058
5,90	6	66	28	20	36	05900	05900	05900	059	059
5,95	6	66	28	20	36	05950	05950	05950	959	
6,00	6	66	28	20	36	06000	06000	06000	060	060
6,10	8	79	34	24	36	06100	06100	06100	061	061
6,20	8	79	34	24	36	06200	06200	06200	062	062
6,30	8	79	34	24	36	06300	06300	06300	063	063
6,40	8	79	34	24	36	06400	06400	06400	064	064
6,50	8	79	34	24	36	06500	06500	06500	065	065
6,60	8	79	34	24	36	06600	06600	06600	066	066
6,70	8	79	34	24	36	06700	06700	06700	067	067
6,80	8	79	34	24	36	06800	06800	06800	068	068
6,90	8	79	34	24	36	06900	06900	06900	069	069
7,00	8	79	34	24	36	07000	07000	07000	070	070
7,10	8	79	41	29	36	07100	07100	07100	071	071
7,20	8	79	41	29	36	07200	07200	07200	072	072
7,30	8	79	41	29	36	07300	07300	07300	073	073
7,40	8	79	41	29	36	07400	07400	07400	074	074
7,45	8	79	41	29	36	07450	07450	07450	924	
7,50	8	79	41	29	36	07500	07500	07500	075	075
7,60	8	79	41	29	36	07600	07600	07600	076	076
7,70	8	79	41	29	36	07700	07700	07700	077	077
7,80	8	79	41	29	36	07800	07800	07800	078	078
7,90	8	79	41	29	36	07900	07900	07900	079	079
8,00	8	79	41	29	36	08000	08000	08000	080	080
8,10	10	89	47	35	40	08100	08100	08100	081	081
8,20	10	89	47	35	40	08200	08200	08200	082	082
8,30	10	89	47	35	40	08300	08300	08300	083	083
8,40	10	89	47	35	40	08400	08400	08400	084	084
8,50	10	89	47	35	40	08500	08500	08500	085	085
8,60	10	89	47	35	40	08600	08600	08600	086	086
8,70	10	89	47	35	40	08700	08700	08700	087	087

Steel	●	●	●	○	○
Stainless steel				●	●
Cast iron	●	●	●	○	○
Non ferrous metals	○	○	○	●	●
Heat resistant alloys					
Hardened materials	○	○	○	○	○

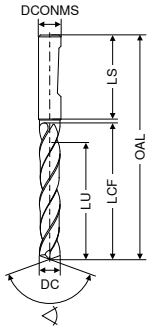
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WTX – High Performance Drill, DIN 6537

≤ 3xD





UNI	UNI	UNI	VA	VA
DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HB	HE	HA	HE
140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC_{m7}	$DCONMS_{h6}$	OAL	LCF	LU	LS	Article no. 11 777 ...	Article no. 11 778 ...	Article no. 11 776 ...	Article no. 10 731 ...	Article no. 10 732 ...
mm	mm	mm	mm	mm	mm					
8,80	10	89	47	35	40	08800	08800	08800	088	088
8,90	10	89	47	35	40	08900	08900	08900	089	089
9,00	10	89	47	35	40	09000	09000	09000	090	090
9,10	10	89	47	35	40	09100	09100	09100	091	091
9,20	10	89	47	35	40	09200	09200	09200	092	092
9,30	10	89	47	35	40	09300	09300	09300	093	093
9,35	10	89	47	35	40	09350	09350	09350	930	
9,40	10	89	47	35	40	09400	09400	09400	094	094
9,45	10	89	47	35	40	09450	09450	09450	994	
9,50	10	89	47	35	40	09500	09500	09500	095	095
9,60	10	89	47	35	40	09600	09600	09600	096	096
9,70	10	89	47	35	40	09700	09700	09700	097	097
9,80	10	89	47	35	40	09800	09800	09800	098	098
9,90	10	89	47	35	40	09900	09900	09900	099	099
10,00	10	89	47	35	40	10000	10000	10000	100	100
10,10	12	102	55	40	45	10100	10100	10100	101	101
10,20	12	102	55	40	45	10200	10200	10200	102	102
10,30	12	102	55	40	45	10300	10300	10300	103	103
10,40	12	102	55	40	45	10400	10400	10400	104	104
10,50	12	102	55	40	45	10500	10500	10500	105	105
10,55	12	102	55	40	45	10550	10550	10550	932	
10,60	12	102	55	40	45	10600	10600	10600	106	106
10,70	12	102	55	40	45	10700	10700	10700	107	107
10,75	12	102	55	40	45	10750	10750	10750		
10,80	12	102	55	40	45	10800	10800	10800	108	108
10,90	12	102	55	40	45	10900	10900	10900	109	109
11,00	12	102	55	40	45	11000	11000	11000	110	110
11,10	12	102	55	40	45	11100	11100	11100	111	111
11,20	12	102	55	40	45	11200	11200	11200	112	112
11,25	12	102	55	40	45	11250	11250	11250	912	
11,30	12	102	55	40	45	11300	11300	11300	113	113
11,35	12	102	55	40	45	11350	11350	11350	913	
11,40	12	102	55	40	45	11400	11400	11400	114	114
11,45	12	102	55	40	45	11450	11450	11450	914	
11,50	12	102	55	40	45	11500	11500	11500	115	115
11,60	12	102	55	40	45	11600	11600	11600	116	116
11,70	12	102	55	40	45	11700	11700	11700	117	117
11,80	12	102	55	40	45	11800	11800	11800	118	118
11,90	12	102	55	40	45	11900	11900	11900	119	119
12,00	12	102	55	40	45	12000	12000	12000	120	120
12,15	14	107	60	43	45	12150	12150	12150	921	
12,25	14	107	60	43	45	12250	12250	12250		
12,50	14	107	60	43	45	12500	12500	12500	125	125

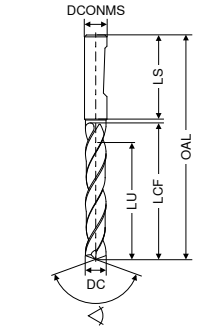
Steel	●	●	●	○	○
Stainless steel				●	●
Cast iron	●	●	●	○	○
Non ferrous metals	○	○	○	●	●
Heat resistant alloys					
Hardened materials	○	○	○	○	○

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WTX – High Performance Drill, DIN 6537

≤ 3xD



UNI	UNI	UNI	VA	VA
DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



	HA	HB	HE	HA	HE
	140°	140°	140°	140°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC $_{m7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	Article no. 11 777 ...	Article no. 11 778 ...	Article no. 11 776 ...	Article no. 10 731 ...	Article no. 10 732 ...
mm	mm	mm	mm	mm	mm					
12,55	14	107	60	43	45	12550	12550	12550	925	
12,70	14	107	60	43	45	12700	12700	12700		
12,80	14	107	60	43	45	12800	12800	12800	128	128
12,90	14	107	60	43	45	12900	12900	12900		
13,00	14	107	60	43	45	13000	13000	13000	130	130
13,10	14	107	60	43	45	13100	13100	13100		
13,30	14	107	60	43	45	13300	13300	13300		
13,35	14	107	60	43	45	13350	13350	13350	933	
13,50	14	107	60	43	45	13500	13500	13500	135	135
13,70	14	107	60	43	45	13700	13700	13700		
13,80	14	107	60	43	45	13800	13800	13800	138	138
14,00	14	107	60	43	45	14000	14000	14000	140	140
14,20	16	115	65	45	48	14200	14200	14200		
14,50	16	115	65	45	48	14500	14500	14500	145	145
14,80	16	115	65	45	48	14800	14800	14800	148	148
15,00	16	115	65	45	48	15000	15000	15000	150	150
15,10	16	115	65	45	48	15100	15100	15100		
15,25	16	115	65	45	48	15250	15250	15250		
15,30	16	115	65	45	48	15300	15300	15300		
15,35	16	115	65	45	48	15350	15350	15350	953	
15,50	16	115	65	45	48	15500	15500	15500	155	155
15,60	16	115	65	45	48	15600	15600	15600		
15,80	16	115	65	45	48	15800	15800	15800	158	158
16,00	16	115	65	45	48	16000	16000	16000	160	160
16,05	18	123	73	51	48	16050	16050	16050	960	
16,50	18	123	73	51	48	16500	16500	16500	165	165
16,80	18	123	73	51	48	16800	16800	16800	168	168
16,90	18	123	73	51	48	16900	16900	16900		
17,00	18	123	73	51	48	17000	17000	17000	170	170
17,50	18	123	73	51	48	17500	17500	17500	175	175
17,60	18	123	73	51	48	17600	17600	17600		
17,80	18	123	73	51	48	17800	17800	17800	178	178
18,00	18	123	73	51	48	18000	18000	18000	180	180
18,50	20	131	79	55	50	18500	18500	18500	185	185
18,80	20	131	79	55	50	18800	18800	18800	188	188
18,90	20	131	79	55	50	18900	18900	18900		
19,00	20	131	79	55	50	19000	19000	19000	190	190
19,35	20	131	79	55	50	19350	19350	19350	993	
19,50	20	131	79	55	50	19500	19500	19500	195	195
19,60	20	131	79	55	50	19600	19600	19600		
19,80	20	131	79	55	50	19800	19800	19800	198	198
20,00	20	131	79	55	50	20000	20000	20000	200	200
20,50	25	151	93	66	56	20500	20500	20500		

Steel	●	●	●	○	○
Stainless steel				●	●
Cast iron	●	●	●	○	○
Non ferrous metals	○	○	○	●	●
Heat resistant alloys					
Hardened materials	○	○	○	○	○

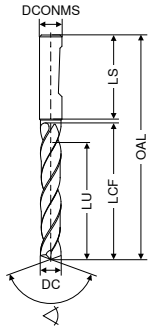
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WTX – High Performance Drill, DIN 6537

≤ 3xD





UNI	UNI	UNI	VA	VA
DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



	HA	HB	HE	HA	HE
	140°	140°	140°	140°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

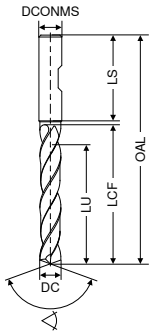
DC $_{m7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	Article no. 11 777 ...	Article no. 11 778 ...	Article no. 11 776 ...	Article no. 10 731 ...	Article no. 10 732 ...
mm	mm	mm	mm	mm	mm					
21,00	25	151	93	66	56	**21000**	**21000**	**21000**		
21,50	25	151	93	66	56	**21500**	**21500**	**21500**		
22,00	25	151	93	66	56	**22000**	**22000**	**22000**		
22,50	25	153	96	72	56	**22500**	**22500**	**22500**		
23,00	25	153	96	72	56	**23000**	**23000**	**23000**		
23,50	25	153	96	72	56	**23500**	**23500**	**23500**		
24,00	25	153	96	72	56	**24000**	**24000**	**24000**		
24,50	25	153	96	75	56	**24500**	**24500**	**24500**		
25,00	25	153	96	75	56	**25000**	**25000**	**25000**		

Steel	●	●	●	○	○
Stainless steel				●	●
Cast iron	●	●	●	○	○
Non ferrous metals	○	○	○	●	●
Heat resistant alloys					
Hardened materials	○	○	○	○	○

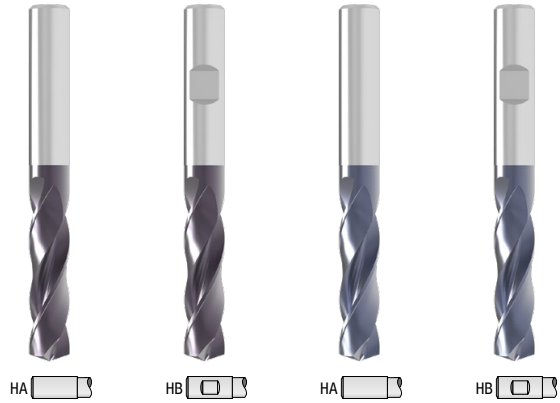
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WPC – High Performance Drill, DIN 6537

≤ 3xD



UNI	UNI	VA	VA
TiAlN	TiAlN	TiAlN	TiAlN



HA	HB	HA	HB
140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 600 ...	Article no. 11 601 ...	Article no. 11 620 ...	Article no. 11 621 ...
mm	mm	mm	mm	mm	mm				
1,00	4	45	5,0	4,5	32,0	010		010	
1,10	4	45	5,5	5,0	31,5	011		011	
1,20	4	45	6,0	5,4	31,0	012		012	
1,30	4	45	6,5	5,9	31,5	013		013	
1,40	4	45	7,0	6,3	30,0	014		014	
1,50	4	50	7,5	6,8	35,0	015		015	
1,60	4	50	8,0	7,2	34,5	016		016	
1,70	4	50	8,5	7,7	34,0	017		017	
1,80	4	50	9,0	8,1	33,5	018		018	
1,90	4	50	9,5	8,6	33,0	019		019	
2,00	6	58	14,0	11,0	36,0	020	020	020	020
2,10	6	58	14,0	11,0	36,0	021	021	021	021
2,20	6	58	14,0	11,0	36,0	022	022	022	022
2,30	6	58	14,0	11,0	36,0	023	023	023	023
2,40	6	58	14,0	11,0	36,0	024	024	024	024
2,50	6	58	14,0	11,0	36,0	025	025	025	025
2,60	6	58	14,0	11,0	36,0	026	026	026	026
2,70	6	58	14,0	11,0	36,0	027	027	027	027
2,80	6	58	14,0	11,0	36,0	028	028	028	028
2,90	6	58	14,0	11,0	36,0	029	029	029	029
3,00	6	62	20,0	14,0	36,0	030	030	030	030
3,10	6	62	20,0	14,0	36,0	031	031	031	031
3,20	6	62	20,0	14,0	36,0	032	032	032	032
3,30	6	62	20,0	14,0	36,0	033	033	033	033
3,40	6	62	20,0	14,0	36,0	034	034	034	034
3,50	6	62	20,0	14,0	36,0	035	035	035	035
3,60	6	62	20,0	14,0	36,0	036	036	036	036
3,70	6	62	20,0	14,0	36,0	037	037	037	037
3,80	6	66	24,0	17,0	36,0	038	038	038	038
3,90	6	66	24,0	17,0	36,0	039	039	039	039
4,00	6	66	24,0	17,0	36,0	040	040	040	040
4,10	6	66	24,0	17,0	36,0	041	041	041	041
4,20	6	66	24,0	17,0	36,0	042	042	042	042
4,30	6	66	24,0	17,0	36,0	043	043	043	043
4,40	6	66	24,0	17,0	36,0	044	044	044	044
4,50	6	66	24,0	17,0	36,0	045	045	045	045
4,60	6	66	24,0	17,0	36,0	046	046	046	046
4,65	6	66	24,0	17,0	36,0	900	900	900	900
4,70	6	66	24,0	17,0	36,0	047	047	047	047

Steel	●	●	○	○
Stainless steel			●	●
Cast iron	●	●	○	○
Non ferrous metals	○	○	●	●
Heat resistant alloys				
Hardened materials			○	○

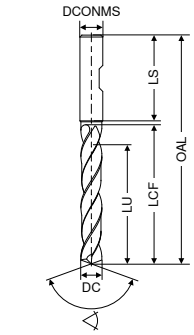
→ v_c Page 116+120

Continued on next page

WPC – High Performance Drill, DIN 6537

2

≤ 3xD



UNI	UNI	VA	VA
TiAlN	TiAlN	TiAlN	TiAlN



HA	HB	HA	HB
140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 600 ...	Article no. 11 601 ...	Article no. 11 620 ...	Article no. 11 621 ...
mm	mm	mm	mm	mm	mm				
4,80	6	66	28,0	20,0	36,0	048	048	048	048
4,90	6	66	28,0	20,0	36,0	049	049	049	049
5,00	6	66	28,0	20,0	36,0	050	050	050	050
5,10	6	66	28,0	20,0	36,0	051	051	051	051
5,20	6	66	28,0	20,0	36,0	052	052	052	052
5,30	6	66	28,0	20,0	36,0	053	053	053	053
5,40	6	66	28,0	20,0	36,0	054	054	054	054
5,50	6	66	28,0	20,0	36,0	055	055	055	055
5,55	6	66	28,0	20,0	36,0	902	902	902	902
5,60	6	66	28,0	20,0	36,0	056	056	056	056
5,70	6	66	28,0	20,0	36,0	057	057	057	057
5,80	6	66	28,0	20,0	36,0	058	058	058	058
5,90	6	66	28,0	20,0	36,0	059	059	059	059
6,00	6	66	28,0	20,0	36,0	060	060	060	060
6,10	8	79	34,0	24,0	36,0	061	061	061	061
6,20	8	79	34,0	24,0	36,0	062	062	062	062
6,30	8	79	34,0	24,0	36,0	063	063	063	063
6,40	8	79	34,0	24,0	36,0	064	064	064	064
6,50	8	79	34,0	24,0	36,0	065	065	065	065
6,60	8	79	34,0	24,0	36,0	066	066	066	066
6,70	8	79	34,0	24,0	36,0	067	067	067	067
6,80	8	79	34,0	24,0	36,0	068	068	068	068
6,90	8	79	34,0	24,0	36,0	069	069	069	069
7,00	8	79	34,0	24,0	36,0	070	070	070	070
7,10	8	79	41,0	29,0	36,0	071	071	071	071
7,20	8	79	41,0	29,0	36,0	072	072	072	072
7,30	8	79	41,0	29,0	36,0	073	073	073	073
7,40	8	79	41,0	29,0	36,0	074	074	074	074
7,50	8	79	41,0	29,0	36,0	075	075	075	075
7,55	8	79	41,0	29,0	36,0	975	975	975	975
7,60	8	79	41,0	29,0	36,0	076	076	076	076
7,70	8	79	41,0	29,0	36,0	077	077	077	077
7,80	8	79	41,0	29,0	36,0	078	078	078	078
7,90	8	79	41,0	29,0	36,0	079	079	079	079
8,00	8	79	41,0	29,0	36,0	080	080	080	080
8,10	10	89	47,0	35,0	40,0	081	081	081	081
8,20	10	89	47,0	35,0	40,0	082	082	082	082
8,30	10	89	47,0	35,0	40,0	083	083	083	083
8,40	10	89	47,0	35,0	40,0	084	084	084	084

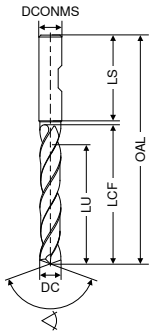
Steel	●	●	○	○
Stainless steel			●	●
Cast iron	●	●	○	○
Non ferrous metals	○	○	●	●
Heat resistant alloys				
Hardened materials			○	○

→ v_c Page 116+120

Continued on next page

WPC – High Performance Drill, DIN 6537

≤ 3xD



UNI	UNI	VA	VA
TiAlN	TiAlN	TiAlN	TiAlN
			
HA	HB	HA	HB
140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 600 ...	Article no. 11 601 ...	Article no. 11 620 ...	Article no. 11 621 ...
mm	mm	mm	mm	mm	mm				
8,50	10	89	47,0	35,0	40,0	085	085	085	085
8,60	10	89	47,0	35,0	40,0	086	086	086	086
8,70	10	89	47,0	35,0	40,0	087	087	087	087
8,80	10	89	47,0	35,0	40,0	088	088	088	088
8,90	10	89	47,0	35,0	40,0	089	089	089	089
9,00	10	89	47,0	35,0	40,0	090	090	090	090
9,10	10	89	47,0	35,0	40,0	091	091	091	091
9,20	10	89	47,0	35,0	40,0	092	092	092	092
9,25	10	89	47,0	35,0	40,0	925	925	925	925
9,30	10	89	47,0	35,0	40,0	093	093	093	093
9,40	10	89	47,0	35,0	40,0	094	094	094	094
9,50	10	89	47,0	35,0	40,0	095	095	095	095
9,60	10	89	47,0	35,0	40,0	096	096	096	096
9,70	10	89	47,0	35,0	40,0	097	097	097	097
9,80	10	89	47,0	35,0	40,0	098	098	098	098
9,90	10	89	47,0	35,0	40,0	099	099	099	099
10,00	10	89	47,0	35,0	40,0	100	100	100	100
10,10	12	102	55,0	40,0	45,0	101	101	101	101
10,20	12	102	55,0	40,0	45,0	102	102	102	102
10,30	12	102	55,0	40,0	45,0	103	103	103	103
10,40	12	102	55,0	40,0	45,0	104	104	104	104
10,50	12	102	55,0	40,0	45,0	105	105	105	105
10,60	12	102	55,0	40,0	45,0	106	106	106	106
10,70	12	102	55,0	40,0	45,0	107	107	107	107
10,80	12	102	55,0	40,0	45,0	108	108	108	108
10,90	12	102	55,0	40,0	45,0	109	109	109	109
11,00	12	102	55,0	40,0	45,0	110	110	110	110
11,10	12	102	55,0	40,0	45,0	111	111	111	111
11,20	12	102	55,0	40,0	45,0	112	112	112	112
11,30	12	102	55,0	40,0	45,0	113	113	113	113
11,40	12	102	55,0	40,0	45,0	114	114	114	114
11,50	12	102	55,0	40,0	45,0	115	115	115	115
11,60	12	102	55,0	40,0	45,0	116	116	116	116
11,70	12	102	55,0	40,0	45,0	117	117	117	117
11,80	12	102	55,0	40,0	45,0	118	118	118	118
11,90	12	102	55,0	40,0	45,0	119	119	119	119
12,00	12	102	55,0	40,0	45,0	120	120	120	120
12,25	14	107	60,0	43,0	45,0	122	122		
12,50	14	107	60,0	43,0	45,0	125	125	125	125

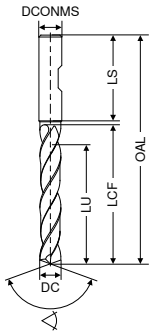
Steel	●	●	○	○
Stainless steel			●	●
Cast iron	●	●	○	○
Non ferrous metals	○	○	●	●
Heat resistant alloys				
Hardened materials			○	○

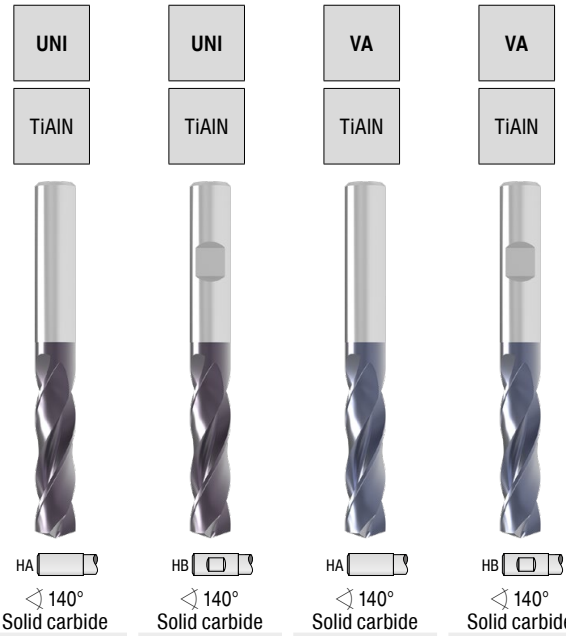
→ v_c Page 116+120

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WPC – High Performance Drill, DIN 6537

≤ 3xD





140°
Solid carbide

140°
Solid carbide

140°
Solid carbide

140°
Solid carbide

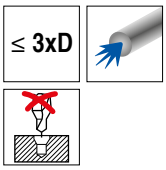
DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 600 ...	Article no. 11 601 ...	Article no. 11 620 ...	Article no. 11 621 ...
mm	mm	mm	mm	mm	mm				
12,70	14	107	60,0	43,0	45,0	127	127	127	127
12,80	14	107	60,0	43,0	45,0	128	128		
12,90	14	107	60,0	43,0	45,0	129	129		
13,00	14	107	60,0	43,0	45,0	130	130	130	130
13,30	14	107	60,0	43,0	45,0	133	133		
13,50	14	107	60,0	43,0	45,0	135	135	135	135
13,70	14	107	60,0	43,0	45,0	137	137	137	137
13,80	14	107	60,0	43,0	45,0	138	138		
14,00	14	107	60,0	43,0	45,0	140	140	140	140
14,20	16	115	65,0	45,0	48,0	142	142		
14,50	16	115	65,0	45,0	48,0	145	145	145	145
14,70	16	115	65,0	45,0	48,0	147	147	147	147
14,80	16	115	65,0	45,0	48,0	148	148		
15,00	16	115	65,0	45,0	48,0	150	150	150	150
15,25	16	115	65,0	45,0	48,0	152	152		
15,30	16	115	65,0	45,0	48,0	153	153		
15,50	16	115	65,0	45,0	48,0	155	155	155	155
15,70	16	115	65,0	45,0	48,0	157	157	157	157
15,80	16	115	65,0	45,0	48,0	158	158		
16,00	16	115	65,0	45,0	48,0	160	160	160	160
16,50	18	123	73,0	51,0	48,0	165	165	165	165
16,80	18	123	73,0	51,0	48,0	168	168		
17,00	18	123	73,0	51,0	48,0	170	170	170	170
17,50	18	123	73,0	51,0	48,0	175	175	175	175
17,80	18	123	73,0	51,0	48,0	178	178		
18,00	18	123	73,0	51,0	48,0	180	180	180	180
18,50	20	131	79,0	55,0	50,0	185	185	185	185
18,80	20	131	79,0	55,0	50,0	188	188		
19,00	20	131	79,0	55,0	50,0	190	190	190	190
19,50	20	131	79,0	55,0	50,0	195	195	195	195
19,80	20	131	79,0	55,0	50,0	198	198		
20,00	20	131	79,0	55,0	50,0	200	200	200	200
Steel						●	●	○	○
Stainless steel								●	●
Cast iron						●	●	○	○
Non ferrous metals						○	○	●	●
Heat resistant alloys									
Hardened materials								○	○

→ v_c Page 116+120

WTX – High Performance Drill, factory standard

- ▲ Special cutting edge geometry
- ▲ Special flute geometry
- ▲ Special core diameter
- ▲ 46–58 HRC

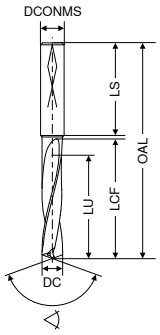
≤ 3xD



H

DPX64S

DRAGONSKIN





140°

Solid carbide

DC h7	DCONMS h6	OAL	LCF	LU	LS	NEW Article no. 10 776 ...
mm	mm	mm	mm	mm	mm	
2,55	4	55	20	7,6	28	02550
2,60	4	55	20	7,8	28	02600
2,70	4	55	20	8,1	28	02700
2,80	4	55	20	8,4	28	02800
2,90	4	55	20	8,7	28	02900
3,00	6	62	20	9,0	36	03000
3,10	6	62	20	9,3	36	03100
3,20	6	62	20	9,6	36	03200
3,30	6	62	20	9,9	36	03300
3,40	6	62	20	10,2	36	03400
3,50	6	62	20	10,5	36	03500
3,60	6	62	20	10,8	36	03600
3,70	6	62	20	11,1	36	03700
3,80	6	66	24	11,4	36	03800
3,90	6	66	24	11,7	36	03900
4,00	6	66	24	12,0	36	04000
4,10	6	66	24	12,3	36	04100
4,20	6	66	24	12,6	36	04200
4,30	6	66	24	12,9	36	04300
4,40	6	66	24	13,2	36	04400
4,50	6	66	24	13,5	36	04500
4,60	6	66	24	13,8	36	04600
4,70	6	66	24	14,1	36	04700
4,80	6	66	28	14,4	36	04800
4,90	6	66	28	14,7	36	04900
5,00	6	66	28	15,0	36	05000
5,10	6	66	28	15,3	36	05100
5,20	6	66	28	15,6	36	05200
5,30	6	66	28	15,9	36	05300
5,40	6	66	28	16,2	36	05400
5,50	6	66	28	16,5	36	05500
5,60	6	66	28	16,8	36	05600
5,70	6	66	28	17,1	36	05700
5,80	6	66	28	17,4	36	05800
5,90	6	66	28	17,7	36	05900
6,00	6	66	28	18,0	36	06000
6,10	8	79	34	18,3	36	06100
6,20	8	79	34	18,6	36	06200
6,30	8	79	34	18,9	36	06300
6,40	8	79	34	19,2	36	06400
6,50	8	79	34	19,5	36	06500
6,60	8	79	34	19,8	36	06600
6,70	8	79	34	20,1	36	06700
6,80	8	79	34	20,4	36	06800
6,90	8	79	34	20,7	36	06900
7,00	8	79	34	21,0	36	07000
7,10	8	79	41	21,3	36	07100
7,20	8	79	41	21,6	36	07200
7,30	8	79	41	21,9	36	07300
7,40	8	79	41	22,2	36	07400
7,50	8	79	41	22,5	36	07500
7,60	8	79	41	22,8	36	07600
7,70	8	79	41	23,1	36	07700
7,80	8	79	41	23,4	36	07800
7,90	8	79	41	23,7	36	07900
8,00	8	79	41	24,0	36	08000
8,10	10	89	47	24,3	40	08100
8,20	10	89	47	24,6	40	08200
8,30	10	89	47	24,9	40	08300
8,40	10	89	47	25,2	40	08400
8,50	10	89	47	25,5	40	08500
8,60	10	89	47	25,8	40	08600
8,70	10	89	47	26,1	40	08700
8,80	10	89	47	26,4	40	08800
8,90	10	89	47	26,7	40	08900
9,00	10	89	47	27,0	40	09000
9,10	10	89	47	27,3	40	09100
9,20	10	89	47	27,6	40	09200
9,30	10	89	47	27,9	40	09300
9,40	10	89	47	28,2	40	09400
9,50	10	89	47	28,5	40	09500
9,60	10	89	47	28,8	40	09600
9,70	10	89	47	29,1	40	09700
9,80	10	89	47	29,4	40	09800
9,90	10	89	47	29,7	40	09900
10,00	10	89	47	30,0	40	10000
10,10	12	102	55	30,3	45	10100
10,20	12	102	55	30,6	45	10200
10,30	12	102	55	30,9	45	10300
10,40	12	102	55	31,2	45	10400
10,50	12	102	55	31,5	45	10500
10,60	12	102	55	31,8	45	10600
10,70	12	102	55	32,1	45	10700
10,80	12	102	55	32,4	45	10800
10,90	12	102	55	32,7	45	10900
11,00	12	102	55	33,0	45	11000
11,10	12	102	55	33,3	45	11100
11,20	12	102	55	33,6	45	11200
11,30	12	102	55	33,9	45	11300
11,40	12	102	55	34,2	45	11400
11,50	12	102	55	34,5	45	11500
11,60	12	102	55	34,8	45	11600
11,70	12	102	55	35,1	45	11700
11,80	12	102	55	35,4	45	11800
11,90	12	102	55	35,7	45	11900
12,00	12	102	55	36,0	45	12000
12,10	14	107	60	36,3	45	12100
12,20	14	107	60	36,6	45	12200
12,30	14	107	60	36,9	45	12300
12,40	14	107	60	37,2	45	12400
12,50	14	107	60	37,5	45	12500
12,60	14	107	60	37,8	45	12600
12,70	14	107	60	38,1	45	12700
12,80	14	107	60	38,4	45	12800
12,90	14	107	60	38,7	45	12900
13,00	14	107	60	39,0	45	13000
13,10	14	107	60	39,3	45	13100
13,20	14	107	60	39,6	45	13200
13,30	14	107	60	39,9	45	13300
13,40	14	107	60	40,2	45	13400
13,50	14	107	60	40,5	45	13500
13,60	14	107	60	40,8	45	13600
13,70	14	107	60	41,1	45	13700
13,80	14	107	60	41,4	45	13800
13,90	14	107	60	41,7	45	13900
14,00	14	107	60	42,0	45	14000

Steel	○
Cast iron	○
Hardened < 45 HRC	●
Hardened 46–55 HRC	●
Hardened 56–60 HRC	○
Hardened 61–65 HRC	
Hardened 65–70 HRC	

→ v_c Page 111

WTX – High Performance Drill, factory standard

- ▲ Special cutting edge geometry
- ▲ Special flute geometry
- ▲ Special core diameter
- ▲ 46–70 HRC

2

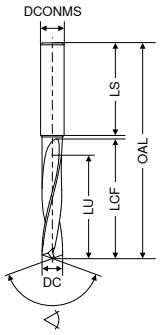
≤ 3xD



H

DPX64U

DRAGONSKIN





140°

Solid carbide

DC h7	DCONMS h6	OAL	LCF	LU	LS	NEW Article no. 10 777 ...
mm	mm	mm	mm	mm	mm	
2,55	4	55	20	7,6	28	02550
2,60	4	55	20	7,8	28	02600
2,70	4	55	20	8,1	28	02700
2,80	4	55	20	8,4	28	02800
2,90	4	55	20	8,7	28	02900
3,00	6	62	20	9,0	36	03000
3,10	6	62	20	9,3	36	03100
3,20	6	62	20	9,6	36	03200
3,30	6	62	20	9,9	36	03300
3,40	6	62	20	10,2	36	03400
3,50	6	62	20	10,5	36	03500
3,60	6	62	20	10,8	36	03600
3,70	6	62	20	11,1	36	03700
3,80	6	66	24	11,4	36	03800
3,90	6	66	24	11,7	36	03900
4,00	6	66	24	12,0	36	04000
4,10	6	66	24	12,3	36	04100
4,20	6	66	24	12,6	36	04200
4,30	6	66	24	12,9	36	04300
4,40	6	66	24	13,2	36	04400
4,50	6	66	24	13,5	36	04500
4,60	6	66	24	13,8	36	04600
4,70	6	66	24	14,1	36	04700
4,80	6	66	28	14,4	36	04800
4,90	6	66	28	14,7	36	04900
5,00	6	66	28	15,0	36	05000
5,10	6	66	28	15,3	36	05100
5,20	6	66	28	15,6	36	05200
5,30	6	66	28	15,9	36	05300
5,40	6	66	28	16,2	36	05400
5,50	6	66	28	16,5	36	05500
5,60	6	66	28	16,8	36	05600
5,70	6	66	28	17,1	36	05700
5,80	6	66	28	17,4	36	05800
5,90	6	66	28	17,7	36	05900
6,00	6	66	28	18,0	36	06000
6,10	8	79	34	18,3	36	06100
6,20	8	79	34	18,6	36	06200
6,30	8	79	34	18,9	36	06300
6,40	8	79	34	19,2	36	06400
6,50	8	79	34	19,5	36	06500
6,60	8	79	34	19,8	36	06600
6,70	8	79	34	20,1	36	06700
6,80	8	79	34	20,4	36	06800
6,90	8	79	34	20,7	36	06900
7,00	8	79	34	21,0	36	07000
7,10	8	79	41	21,3	36	07100
7,20	8	79	41	21,6	36	07200
7,30	8	79	41	21,9	36	07300
7,40	8	79	41	22,2	36	07400
7,50	8	79	41	22,5	36	07500
7,60	8	79	41	22,8	36	07600
7,70	8	79	41	23,1	36	07700
7,80	8	79	41	23,4	36	07800
7,90	8	79	41	23,7	36	07900
8,00	8	79	41	24,0	36	08000
8,10	10	89	47	24,3	40	08100
8,20	10	89	47	24,6	40	08200
8,30	10	89	47	24,9	40	08300
8,40	10	89	47	25,2	40	08400
8,50	10	89	47	25,5	40	08500
8,60	10	89	47	25,8	40	08600
8,70	10	89	47	26,1	40	08700
8,80	10	89	47	26,4	40	08800
8,90	10	89	47	26,7	40	08900
9,00	10	89	47	27,0	40	09000
9,10	10	89	47	27,3	40	09100
9,20	10	89	47	27,6	40	09200
9,30	10	89	47	27,9	40	09300
9,40	10	89	47	28,2	40	09400
9,50	10	89	47	28,5	40	09500
9,60	10	89	47	28,8	40	09600
9,70	10	89	47	29,1	40	09700
9,80	10	89	47	29,4	40	09800
9,90	10	89	47	29,7	40	09900
10,00	10	89	47	30,0	40	10000
10,10	12	102	55	30,3	45	10100
10,20	12	102	55	30,6	45	10200
10,30	12	102	55	30,9	45	10300
10,40	12	102	55	31,2	45	10400
10,50	12	102	55	31,5	45	10500
10,60	12	102	55	31,8	45	10600
10,70	12	102	55	32,1	45	10700
10,80	12	102	55	32,4	45	10800
10,90	12	102	55	32,7	45	10900
11,00	12	102	55	33,0	45	11000
11,10	12	102	55	33,3	45	11100
11,20	12	102	55	33,6	45	11200
11,30	12	102	55	33,9	45	11300
11,40	12	102	55	34,2	45	11400
11,50	12	102	55	34,5	45	11500
11,60	12	102	55	34,8	45	11600
11,70	12	102	55	35,1	45	11700
11,80	12	102	55	35,4	45	11800
11,90	12	102	55	35,7	45	11900
12,00	12	102	55	36,0	45	12000
12,10	14	107	60	36,3	45	12100
12,20	14	107	60	36,6	45	12200
12,30	14	107	60	36,9	45	12300
12,40	14	107	60	37,2	45	12400
12,50	14	107	60	37,5	45	12500
12,60	14	107	60	37,8	45	12600
12,70	14	107	60	38,1	45	12700
12,80	14	107	60	38,4	45	12800
12,90	14	107	60	38,7	45	12900
13,00	14	107	60	39,0	45	13000
13,10	14	107	60	39,3	45	13100
13,20	14	107	60	39,6	45	13200
13,30	14	107	60	39,9	45	13300
13,40	14	107	60	40,2	45	13400
13,50	14	107	60	40,5	45	13500
13,60	14	107	60	40,8	45	13600
13,70	14	107	60	41,1	45	13700
13,80	14	107	60	41,4	45	13800
13,90	14	107	60	41,7	45	13900
14,00	14	107	60	42,0	45	14000

Hardened < 45 HRC	●
Hardened 46–55 HRC	●
Hardened 56–60 HRC	●
Hardened 61–65 HRC	●
Hardened 65–70 HRC	●

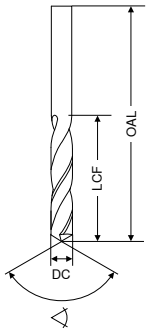
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Twist drill similar to DIN 1897

- Rake angle 30°
- Shank Ø h7

≤ 3xD

N





118°
Solid carbide

DC h7	OAL	LCF	Article no. 10 700 ...
mm	mm	mm	
0,5	20	3,0	005
0,6	21	3,5	006
0,7	23	4,5	007
0,8	24	5,0	008
0,9	25	5,5	009
1,0	26	6,0	010
1,2	30	8,0	012
1,3	30	8,0	013
1,4	32	9,0	014
1,5	32	9,0	015
1,6	34	10,0	016
1,7	34	10,0	017
1,8	36	11,0	018
1,9	36	11,0	019
2,0	38	12,0	020
2,1	38	12,0	021
2,2	40	13,0	022
2,3	40	13,0	023
2,4	43	14,0	024
2,5	43	14,0	025
2,6	43	14,0	026
2,7	46	16,0	027
2,8	46	16,0	028
2,9	46	16,0	029
3,0	46	16,0	030
3,1	49	18,0	031
3,2	49	18,0	032
3,3	49	18,0	033
3,4	52	20,0	034
3,5	52	20,0	035
3,6	52	20,0	036
3,7	52	20,0	037
3,8	55	22,0	038
3,9	55	22,0	039
4,0	55	22,0	040
4,1	55	22,0	041
4,2	55	22,0	042
4,3	58	24,0	043
4,4	58	24,0	044
4,5	58	24,0	045
4,6	58	24,0	046
4,7	58	24,0	047
4,8	62	26,0	048
4,9	62	26,0	049
5,0	62	26,0	050
5,1	62	26,0	051
5,2	62	26,0	052
5,3	62	26,0	053
5,4	66	28,0	054
5,5	66	28,0	055
5,6	66	28,0	056
5,7	66	28,0	057
5,8	66	28,0	058
5,9	66	28,0	059
6,0	66	28,0	060
6,1	70	31,0	061
6,2	70	31,0	062
6,3	70	31,0	063
6,4	70	31,0	064
6,5	70	31,0	065
6,6	70	31,0	066
6,7	70	31,0	067
6,8	74	34,0	068
6,9	74	34,0	069
7,0	74	34,0	070
7,1	74	34,0	071
7,2	74	34,0	072
7,3	74	34,0	073
7,4	74	34,0	074
7,5	74	34,0	075
7,6	79	37,0	076
7,7	79	37,0	077
7,8	79	37,0	078
7,9	79	37,0	079
8,0	79	37,0	080
8,1	79	37,0	081
8,2	79	37,0	082
8,3	79	37,0	083
8,4	79	37,0	084
8,5	79	37,0	085
8,6	84	40,0	086
8,7	84	40,0	087
8,8	84	40,0	088
8,9	84	40,0	089
9,0	84	40,0	090
9,1	84	40,0	091
9,2	84	40,0	092
9,3	84	40,0	093
9,4	84	40,0	094
9,5	84	40,0	095
9,6	89	43,0	096
9,7	89	43,0	097
9,8	89	43,0	098
9,9	89	43,0	099
10,0	89	43,0	100
10,2	89	43,0	102
10,5	89	43,0	105
10,8	95	47,0	108
11,0	95	47,0	110
11,2	95	47,0	112
11,5	95	47,0	115
11,8	95	47,0	118
12,0	102	51,0	120
12,5	102	51,0	125
13,0	102	51,0	130
13,5	107	54,0	135
14,0	107	54,0	140
14,5	111	56,0	145
15,0	111	56,0	150
15,5	115	58,0	155
16,0	115	58,0	160
18,0	123	62,0	180
20,0	131	66,0	200

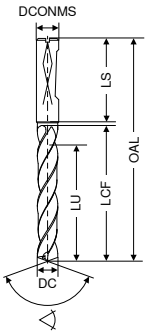
Steel	●
Stainless steel	○
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	○

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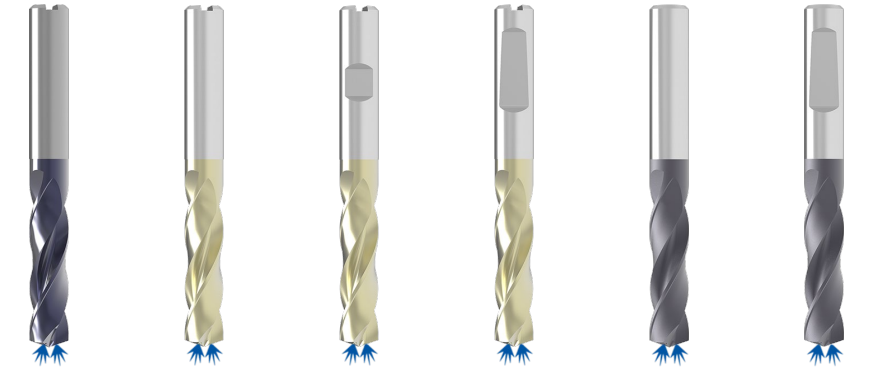
WTX – High Performance Drill, DIN 6537

≤ 3xD





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



HA	HA	HB	HE	HA	HE
◁ 145°	◁ 140°	◁ 140°	◁ 140°	◁ 140°	◁ 140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
NEW					

DC $_{m7/h7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	Article no. 10 781 ...	Article no. 11 780 ...	Article no. 11 781 ...	Article no. 11 779 ...	Article no. 10 734 ...	Article no. 10 733 ...
mm	mm	mm	mm	mm	mm						
3,00	6	62	20	14	36	03000	03000	03000	03000	030	030
3,10	6	62	20	14	36	03100	03100	03100	03100	031	031
3,15	6	62	20	14	36		03150	03150	03150	831	
3,20	6	62	20	14	36	03200	03200	03200	03200	032	032
3,22	6	62	20	14	36		03220	03220	03220	832	
3,25	6	62	20	14	36		03250	03250	03250	890	
3,30	6	62	20	14	36	03300	03300	03300	03300	033	033
3,40	6	62	20	14	36	03400	03400	03400	03400	034	034
3,50	6	62	20	14	36	03500	03500	03500	03500	035	035
3,60	6	62	20	14	36	03600	03600	03600	03600	036	036
3,70	6	62	20	14	36	03700	03700	03700	03700	037	037
3,80	6	66	24	17	36	03800	03800	03800	03800	038	038
3,85	6	66	24	17	36		03850	03850	03850	838	
3,90	6	66	24	17	36	03900	03900	03900	03900	039	039
4,00	6	66	24	17	36	04000	04000	04000	04000	040	040
4,10	6	66	24	17	36	04100	04100	04100	04100	041	041
4,20	6	66	24	17	36	04200	04200	04200	04200	042	042
4,25	6	66	24	17	36		04250	04250	04250		
4,30	6	66	24	17	36	04300	04300	04300	04300	043	043
4,35	6	66	24	17	36		04350	04350	04350	843	
4,40	6	66	24	17	36	04400	04400	04400	04400	044	044
4,45	6	66	24	17	36		04450	04450	04450	844	
4,50	6	66	24	17	36	04500	04500	04500	04500	045	045
4,60	6	66	24	17	36	04600	04600	04600	04600	046	046
4,65	6	66	24	17	36	04650	04650	04650	04650	900	900
4,70	6	66	24	17	36	04700	04700	04700	04700	047	047
4,80	6	66	28	20	36	04800	04800	04800	04800	048	048
4,90	6	66	28	20	36	04900	04900	04900	04900	049	049
4,95	6	66	28	20	36		04950	04950	04950		
5,00	6	66	28	20	36	05000	05000	05000	05000	050	050
5,05	6	66	28	20	36		05050	05050	05050		
5,10	6	66	28	20	36	05100	05100	05100	05100	051	051
5,20	6	66	28	20	36	05200	05200	05200	05200	052	052
5,30	6	66	28	20	36	05300	05300	05300	05300	053	053
5,40	6	66	28	20	36	05400	05400	05400	05400	054	054
5,50	6	66	28	20	36	05500	05500	05500	05500	055	055
5,55	6	66	28	20	36	05550	05550	05550	05550	902	902
5,60	6	66	28	20	36	05600	05600	05600	05600	056	056
5,70	6	66	28	20	36	05700	05700	05700	05700	057	057
5,75	6	66	28	20	36		05750	05750	05750	916	
5,80	6	66	28	20	36	05800	05800	05800	05800	058	058
5,90	6	66	28	20	36	05900	05900	05900	05900	059	059

Steel	●	●	●	●	○	○
Stainless steel	●	○	○	○	●	●
Cast iron	●	●	●	●	○	○
Non ferrous metals	○	○	○	○	●	●
Heat resistant alloys					○	○
Hardened materials	○	○	○	○		

→ v_c Page 96–102

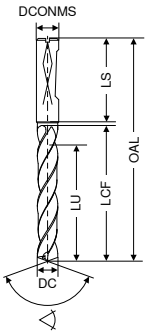
Ø DC_{m7} for Type UNI and VA / **Ø DC_{h7}** for Type Speed UNI

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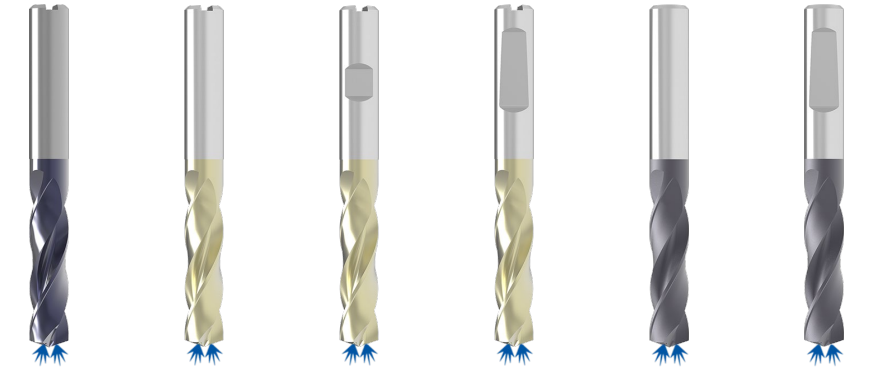
WTX – High Performance Drill, DIN 6537

≤ 3xD





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



	HA	HA	HB	HE	HA	HE
	145°	140°	140°	140°	140°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	NEW					
	Article no. 10 781 ...	Article no. 11 780 ...	Article no. 11 781 ...	Article no. 11 779 ...	Article no. 10 734 ...	Article no. 10 733 ...

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

Steel	●	●	●	●	○	○
Stainless steel	●	○	○	○	●	●
Cast iron	●	●	●	●	○	○
Non ferrous metals	○	○	○	○	●	●
Heat resistant alloys					○	○
Hardened materials	○	○	○	○		

→ v_c Page 96–102

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

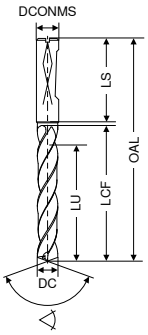
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WTX – High Performance Drill, DIN 6537

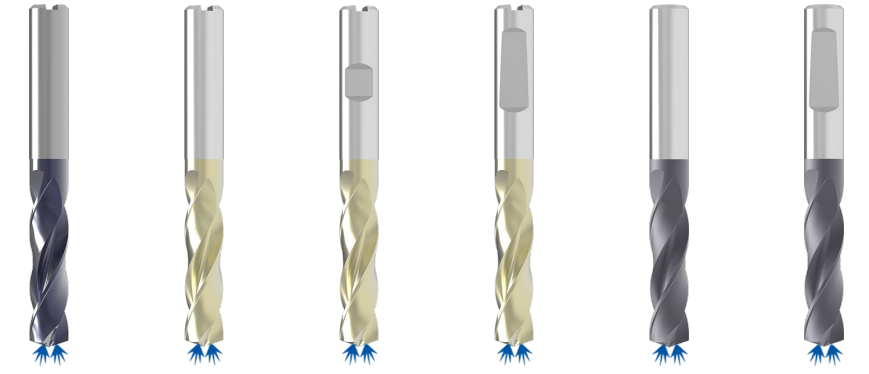
2

≤ 3xD





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



	HA	HA	HB	HE	HA	HE
	145°	140°	140°	140°	140°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
NEW						

DC $_{m7/h7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	Article no. 10 781 ...	Article no. 11 780 ...	Article no. 11 781 ...	Article no. 11 779 ...	Article no. 10 734 ...	Article no. 10 733 ...
mm	mm	mm	mm	mm	mm						
9,80	10	89	47	35	40	09800	09800	09800	09800	098	098
9,90	10	89	47	35	40	09900	09900	09900	09900	099	099
10,00	10	89	47	35	40	10000	10000	10000	10000	100	100
10,10	12	102	55	40	45	10100	10100	10100	10100	101	101
10,20	12	102	55	40	45	10200	10200	10200	10200	102	102
10,30	12	102	55	40	45	10300	10300	10300	10300	103	103
10,40	12	102	55	40	45	10400	10400	10400	10400	104	104
10,50	12	102	55	40	45	10500	10500	10500	10500	105	105
10,55	12	102	55	40	45		10550	10550	10550	932	
10,60	12	102	55	40	45	10600	10600	10600	10600	106	106
10,70	12	102	55	40	45	10700	10700	10700	10700	107	107
10,75	12	102	55	40	45		10750	10750	10750		
10,80	12	102	55	40	45	10800	10800	10800	10800	108	108
10,90	12	102	55	40	45	10900	10900	10900	10900	109	109
11,00	12	102	55	40	45	11000	11000	11000	11000	110	110
11,10	12	102	55	40	45	11100	11100	11100	11100	111	111
11,20	12	102	55	40	45	11200	11200	11200	11200	112	112
11,25	12	102	55	40	45		11250	11250	11250	912	
11,30	12	102	55	40	45	11300	11300	11300	11300	113	113
11,35	12	102	55	40	45		11350	11350	11350	913	
11,40	12	102	55	40	45	11400	11400	11400	11400	114	114
11,45	12	102	55	40	45		11450	11450	11450	914	
11,50	12	102	55	40	45	11500	11500	11500	11500	115	115
11,60	12	102	55	40	45	11600	11600	11600	11600	116	116
11,70	12	102	55	40	45	11700	11700	11700	11700	117	117
11,80	12	102	55	40	45	11800	11800	11800	11800	118	118
11,90	12	102	55	40	45	11900	11900	11900	11900	119	119
12,00	12	102	55	40	45	12000	12000	12000	12000	120	120
12,15	14	107	60	43	45		12150	12150	12150	921	
12,25	14	107	60	43	45		12250	12250	12250		
12,50	14	107	60	43	45	12500	12500	12500	12500	125	125
12,55	14	107	60	43	45		12550	12550	12550	925	
12,70	14	107	60	43	45		12700	12700	12700		
12,80	14	107	60	43	45	12800	12800	12800	12800	128	128
12,90	14	107	60	43	45		12900	12900	12900		
13,00	14	107	60	43	45	13000	13000	13000	13000	130	130
13,10	14	107	60	43	45		13100	13100	13100		
13,30	14	107	60	43	45		13300	13300	13300		
13,35	14	107	60	43	45		13350	13350	13350	933	
13,50	14	107	60	43	45	13500	13500	13500	13500	135	135
13,70	14	107	60	43	45		13700	13700	13700		
13,80	14	107	60	43	45	13800	13800	13800	13800	138	138

Steel	●	●	●	●	○	○
Stainless steel	●	○	○	○	●	●
Cast iron	●	●	●	●	○	○
Non ferrous metals	○	○	○	○	●	●
Heat resistant alloys					○	○
Hardened materials	○	○	○	○		

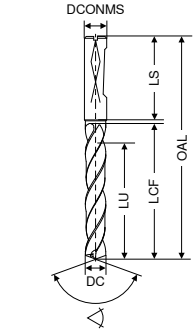
→ v_c Page 96–102

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

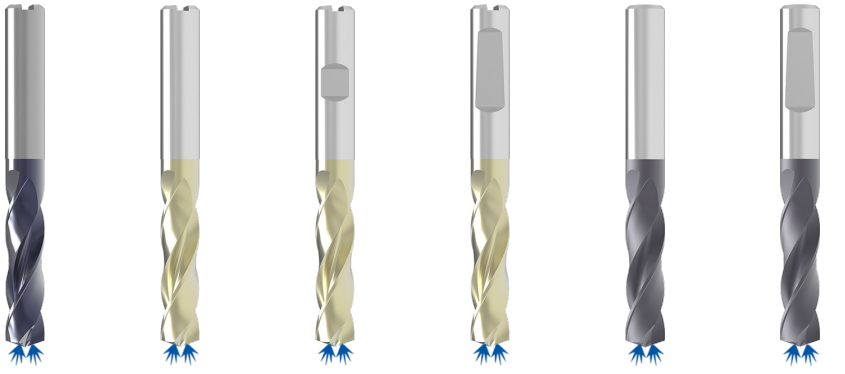
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WTX – High Performance Drill, DIN 6537

≤ 3xD



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



HA	HA	HB	HE	HA	HE
◁ 145°	◁ 140°	◁ 140°	◁ 140°	◁ 140°	◁ 140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
NEW					

DC $_{m7/h7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	Article no. 10 781 ...	Article no. 11 780 ...	Article no. 11 781 ...	Article no. 11 779 ...	Article no. 10 734 ...	Article no. 10 733 ...
mm	mm	mm	mm	mm	mm						
14,00	14	107	60	43	45	14000	14000	14000	14000	140	140
14,20	16	115	65	45	48		14200	14200	14200		
14,50	16	115	65	45	48	14500	14500	14500	14500	145	145
14,80	16	115	65	45	48	14800	14800	14800	14800	148	148
15,00	16	115	65	45	48	15000	15000	15000	15000	150	150
15,10	16	115	65	45	48		15100	15100	15100		
15,25	16	115	65	45	48		15250	15250	15250		
15,30	16	115	65	45	48		15300	15300	15300		
15,35	16	115	65	45	48		15350	15350	15350	953	
15,50	16	115	65	45	48	15500	15500	15500	15500	155	155
15,60	16	115	65	45	48		15600	15600	15600		
15,80	16	115	65	45	48	15800	15800	15800	15800	158	158
16,00	16	115	65	45	48	16000	16000	16000	16000	160	160
16,05	18	123	73	51	48		16050	16050	16050	960	
16,50	18	123	73	51	48	16500	16500	16500	16500	165	165
16,80	18	123	73	51	48	16800	16800	16800	16800	168	168
16,90	18	123	73	51	48		16900	16900	16900		
17,00	18	123	73	51	48	17000	17000	17000	17000	170	170
17,50	18	123	73	51	48	17500	17500	17500	17500	175	175
17,60	18	123	73	51	48		17600	17600	17600		
17,80	18	123	73	51	48	17800	17800	17800	17800	178	178
18,00	18	123	73	51	48	18000	18000	18000	18000	180	180
18,50	20	131	79	55	50	18500	18500	18500	18500	185	185
18,80	20	131	79	55	50	18800	18800	18800	18800	188	188
18,90	20	131	79	55	50		18900	18900	18900		
19,00	20	131	79	55	50	19000	19000	19000	19000	190	190
19,35	20	131	79	55	50		19350	19350	19350	993	
19,50	20	131	79	55	50	19500	19500	19500	19500	195	195
19,60	20	131	79	55	50		19600	19600	19600		
19,80	20	131	79	55	50	19800	19800	19800	19800	198	198
20,00	20	131	79	55	50	20000	20000	20000	20000	200	200
20,50	25	151	93	66	56		20500	20500	20500		
21,00	25	151	93	66	56		21000	21000	21000		
21,50	25	151	93	66	56		21500	21500	21500		
22,00	25	151	93	66	56		22000	22000	22000		
22,50	25	153	96	72	56		22500	22500	22500		
23,00	25	153	96	72	56		23000	23000	23000		
23,50	25	153	96	72	56		23500	23500	23500		
24,00	25	153	96	72	56		24000	24000	24000		
24,50	25	153	96	75	56		24500	24500	24500		
25,00	25	153	96	75	56		25000	25000	25000		

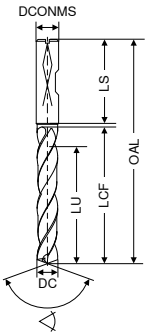
Steel	●	●	●	●	○	○
Stainless steel	●	○	○	○	●	●
Cast iron	●	●	●	●	○	○
Non ferrous metals	○	○	○	○	●	●
Heat resistant alloys					○	○
Hardened materials	○	○	○	○		

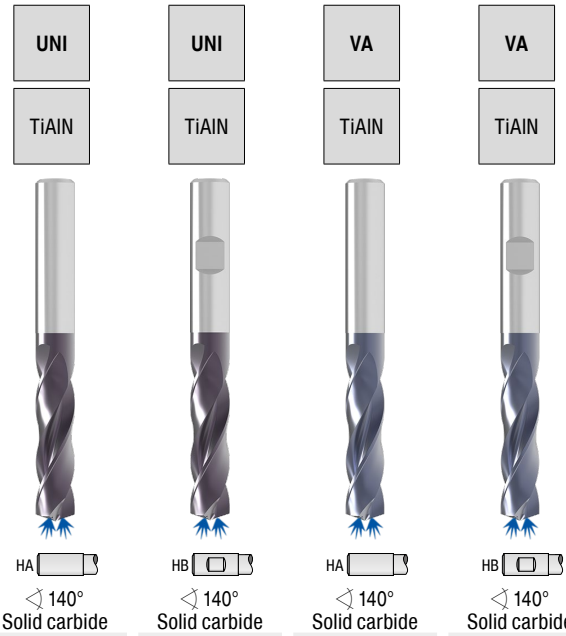
→ v_c Page 96–102

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

WPC – High Performance Drill, DIN 6537

≤ 3xD





DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 603 ...	Article no. 11 604 ...	Article no. 11 623 ...	Article no. 11 624 ...
mm	mm	mm	mm	mm	mm				
1,00	4	45	6,0	4,5	32,0	010		010	
1,10	4	45	6,6	5,0	31,5	011		011	
1,20	4	45	7,2	5,4	31,0	012		012	
1,30	4	45	7,8	5,9	31,5	013		013	
1,40	4	45	8,4	6,3	30,0	014		014	
1,50	4	50	9,0	6,8	35,0	015		015	
1,60	4	50	9,6	7,2	34,5	016		016	
1,70	4	50	10,2	7,7	34,0	017		017	
1,80	4	50	10,8	8,1	33,5	018		018	
1,90	4	50	11,4	8,6	33,0	019		019	
2,00	4	50	12,0	9,0	33,0	020		020	
2,10	4	55	12,6	9,5	37,5	021		021	
2,20	4	55	13,2	9,9	37,0	022		022	
2,30	4	55	13,8	10,4	36,5	023		023	
2,40	4	55	14,4	10,8	36,0	024		024	
2,50	4	55	15,0	11,3	35,5	025		025	
2,60	4	55	15,6	11,7	35,5	026		026	
2,70	4	55	16,2	12,2	35,0	027		027	
2,80	4	55	16,8	12,6	34,0	028		028	
2,90	4	55	17,4	13,1	34,0	029		029	
3,00	6	62	20,0	14,0	36,0	030	030	030	030
3,10	6	62	20,0	14,0	36,0	031	031	031	031
3,20	6	62	20,0	14,0	36,0	032	032	032	032
3,25	6	62	20,0	14,0	36,0	890	890	03250	
3,30	6	62	20,0	14,0	36,0	033	033	033	033
3,40	6	62	20,0	14,0	36,0	034	034	034	034
3,50	6	62	20,0	14,0	36,0	035	035	035	035
3,60	6	62	20,0	14,0	36,0	036	036	036	036
3,70	6	62	20,0	14,0	36,0	037	037	037	037
3,80	6	66	24,0	17,0	36,0	038	038	038	038
3,90	6	66	24,0	17,0	36,0	039	039	039	039
4,00	6	66	24,0	17,0	36,0	040	040	040	040
4,10	6	66	24,0	17,0	36,0	041	041	041	041
4,20	6	66	24,0	17,0	36,0	042	042	042	042
4,30	6	66	24,0	17,0	36,0	043	043	043	043
4,40	6	66	24,0	17,0	36,0	044	044	044	044
4,50	6	66	24,0	17,0	36,0	045	045	045	045
4,60	6	66	24,0	17,0	36,0	046	046	046	046
4,65	6	66	24,0	17,0	36,0	900	900	900	900
4,70	6	66	24,0	17,0	36,0	047	047	047	047
4,80	6	66	28,0	20,0	36,0	048	048	048	048

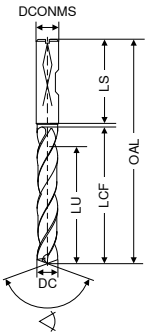
Steel	●	●	○	○
Stainless steel	○	○	●	●
Cast iron	●	●	○	○
Non ferrous metals	○	○	●	●
Heat resistant alloys			●	●

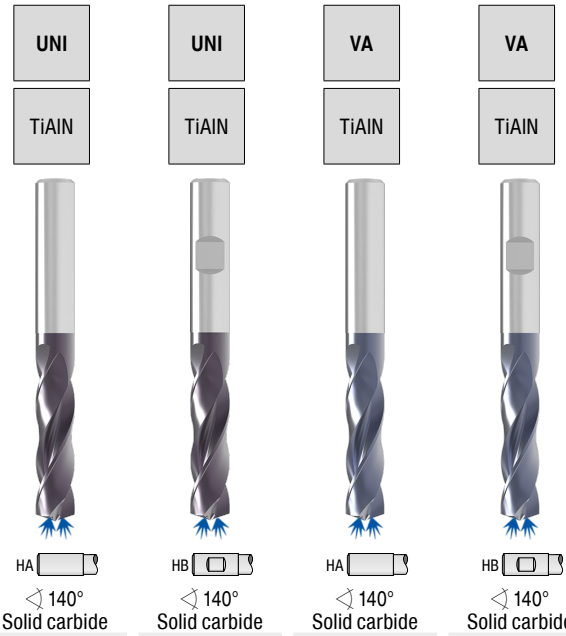
→ v_c Page 116+120

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WPC – High Performance Drill, DIN 6537

≤ 3xD





140°
Solid carbide

140°
Solid carbide

140°
Solid carbide

140°
Solid carbide

DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 603 ...	Article no. 11 604 ...	Article no. 11 623 ...	Article no. 11 624 ...
mm	mm	mm	mm	mm	mm				
4,90	6	66	28,0	20,0	36,0	049	049	049	049
5,00	6	66	28,0	20,0	36,0	050	050	050	050
5,10	6	66	28,0	20,0	36,0	051	051	051	051
5,20	6	66	28,0	20,0	36,0	052	052	052	052
5,30	6	66	28,0	20,0	36,0	053	053	053	053
5,40	6	66	28,0	20,0	36,0	054	054	054	054
5,50	6	66	28,0	20,0	36,0	055	055	055	055
5,55	6	66	28,0	20,0	36,0	902	902	902	902
5,60	6	66	28,0	20,0	36,0	056	056	056	056
5,70	6	66	28,0	20,0	36,0	057	057	057	057
5,80	6	66	28,0	20,0	36,0	058	058	058	058
5,90	6	66	28,0	20,0	36,0	059	059	059	059
6,00	6	66	28,0	20,0	36,0	060	060	060	060
6,10	8	79	34,0	24,0	36,0	061	061	061	061
6,20	8	79	34,0	24,0	36,0	062	062	062	062
6,30	8	79	34,0	24,0	36,0	063	063	063	063
6,40	8	79	34,0	24,0	36,0	064	064	064	064
6,50	8	79	34,0	24,0	36,0	065	065	065	065
6,60	8	79	34,0	24,0	36,0	066	066	066	066
6,70	8	79	34,0	24,0	36,0	067	067	067	067
6,80	8	79	34,0	24,0	36,0	068	068	068	068
6,90	8	79	34,0	24,0	36,0	069	069	069	069
7,00	8	79	34,0	24,0	36,0	070	070	070	070
7,10	8	79	41,0	29,0	36,0	071	071	071	071
7,20	8	79	41,0	29,0	36,0	072	072	072	072
7,30	8	79	41,0	29,0	36,0	073	073	073	073
7,40	8	79	41,0	29,0	36,0	074	074	074	074
7,45	8	79	41,0	29,0	36,0	924	924	07450	
7,50	8	79	41,0	29,0	36,0	075	075	075	075
7,55	8	79	41,0	29,0	36,0	975	975	975	975
7,60	8	79	41,0	29,0	36,0	076	076	076	076
7,70	8	79	41,0	29,0	36,0	077	077	077	077
7,80	8	79	41,0	29,0	36,0	078	078	078	078
7,90	8	79	41,0	29,0	36,0	079	079	079	079
8,00	8	79	41,0	29,0	36,0	080	080	080	080
8,10	10	89	47,0	35,0	40,0	081	081	081	081
8,20	10	89	47,0	35,0	40,0	082	082	082	082
8,30	10	89	47,0	35,0	40,0	083	083	083	083
8,40	10	89	47,0	35,0	40,0	084	084	084	084
8,50	10	89	47,0	35,0	40,0	085	085	085	085
8,60	10	89	47,0	35,0	40,0	086	086	086	086

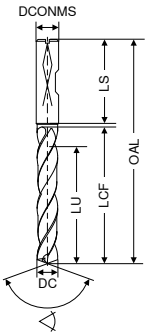
Steel	●	●	○	○
Stainless steel	○	○	●	●
Cast iron	●	●	○	○
Non ferrous metals	○	○	●	●
Heat resistant alloys			●	●

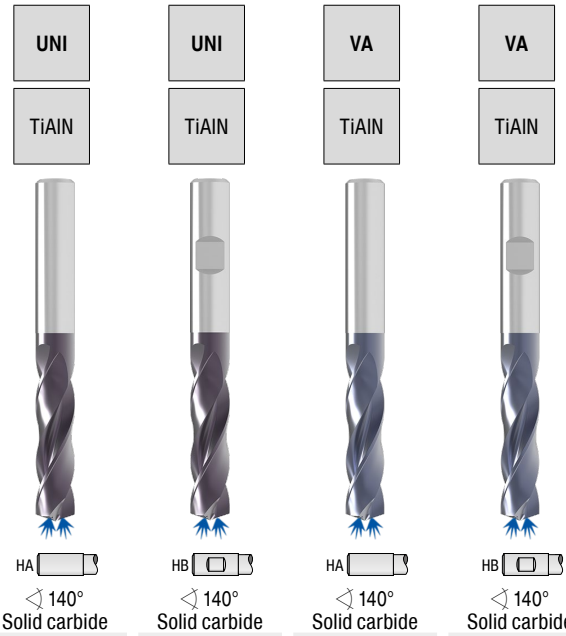
→ v_c Page 116+120

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WPC – High Performance Drill, DIN 6537

≤ 3xD





Solid carbide | Solid carbide | Solid carbide | Solid carbide

DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 603 ...	Article no. 11 604 ...	Article no. 11 623 ...	Article no. 11 624 ...
mm	mm	mm	mm	mm	mm				
8,70	10	89	47,0	35,0	40,0	087	087	087	087
8,80	10	89	47,0	35,0	40,0	088	088	088	088
8,90	10	89	47,0	35,0	40,0	089	089	089	089
9,00	10	89	47,0	35,0	40,0	090	090	090	090
9,10	10	89	47,0	35,0	40,0	091	091	091	091
9,20	10	89	47,0	35,0	40,0	092	092	092	092
9,25	10	89	47,0	35,0	40,0	925	925	925	925
9,30	10	89	47,0	35,0	40,0	093	093	093	093
9,35	10	89	47,0	35,0	40,0	930	930	09350	
9,40	10	89	47,0	35,0	40,0	094	094	094	094
9,50	10	89	47,0	35,0	40,0	095	095	095	095
9,60	10	89	47,0	35,0	40,0	096	096	096	096
9,70	10	89	47,0	35,0	40,0	097	097	097	097
9,80	10	89	47,0	35,0	40,0	098	098	098	098
9,90	10	89	47,0	35,0	40,0	099	099	099	099
10,00	10	89	47,0	35,0	40,0	100	100	100	100
10,10	12	102	55,0	40,0	45,0	101	101	101	101
10,20	12	102	55,0	40,0	45,0	102	102	102	102
10,30	12	102	55,0	40,0	45,0	103	103	103	103
10,40	12	102	55,0	40,0	45,0	104	104	104	104
10,50	12	102	55,0	40,0	45,0	105	105	105	105
10,60	12	102	55,0	40,0	45,0	106	106	106	106
10,70	12	102	55,0	40,0	45,0	107	107	107	107
10,75	12	102	55,0	40,0	45,0	904	904	10750	
10,80	12	102	55,0	40,0	45,0	108	108	108	108
10,90	12	102	55,0	40,0	45,0	109	109	109	109
11,00	12	102	55,0	40,0	45,0	110	110	110	110
11,10	12	102	55,0	40,0	45,0	111	111	111	111
11,20	12	102	55,0	40,0	45,0	112	112	112	112
11,25	12	102	55,0	40,0	45,0	912	912	11250	
11,30	12	102	55,0	40,0	45,0	113	113	113	113
11,40	12	102	55,0	40,0	45,0	114	114	114	114
11,50	12	102	55,0	40,0	45,0	115	115	115	115
11,60	12	102	55,0	40,0	45,0	116	116	116	116
11,70	12	102	55,0	40,0	45,0	117	117	117	117
11,80	12	102	55,0	40,0	45,0	118	118	118	118
11,90	12	102	55,0	40,0	45,0	119	119	119	119
12,00	12	102	55,0	40,0	45,0	120	120	120	120
12,25	14	107	60,0	43,0	45,0	122	122	12250	
12,50	14	107	60,0	43,0	45,0	125	125	125	125
12,70	14	107	60,0	43,0	45,0	127	127	127	127

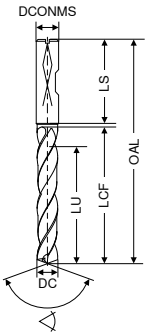
Steel	●	●	○	○
Stainless steel	○	○	●	●
Cast iron	●	●	○	○
Non ferrous metals	○	○	●	●
Heat resistant alloys			●	●

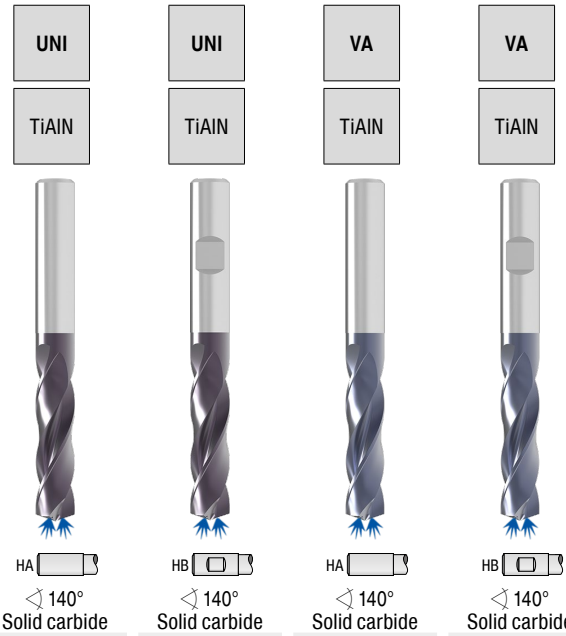
→ v_c Page 116+120

Continued on next page

WPC – High Performance Drill, DIN 6537

≤ 3xD





Solid carbide | Solid carbide | Solid carbide | Solid carbide

DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 603 ...		Article no. 11 604 ...		Article no. 11 623 ...		Article no. 11 624 ...	
mm	mm	mm	mm	mm	mm								
12,80	14	107	60,0	43,0	45,0	128		128					
12,90	14	107	60,0	43,0	45,0	129		129					
13,00	14	107	60,0	43,0	45,0	130		130		130		130	
13,10	14	107	60,0	43,0	45,0	131		131					
13,30	14	107	60,0	43,0	45,0	133		133					
13,50	14	107	60,0	43,0	45,0	135		135		135		135	
13,70	14	107	60,0	43,0	45,0	137		137		137		137	
13,80	14	107	60,0	43,0	45,0	138		138					
14,00	14	107	60,0	43,0	45,0	140		140		140		140	
14,20	16	115	65,0	45,0	48,0	142		142					
14,50	16	115	65,0	45,0	48,0	145		145		145		145	
14,70	16	115	65,0	45,0	48,0	147		147		147		147	
14,80	16	115	65,0	45,0	48,0	148		148					
15,00	16	115	65,0	45,0	48,0	150		150		150		150	
15,10	16	115	65,0	45,0	48,0	151		151					
15,25	16	115	65,0	45,0	48,0	152		152					
15,30	16	115	65,0	45,0	48,0	153		153					
15,50	16	115	65,0	45,0	48,0	155		155		155		155	
15,60	16	115	65,0	45,0	48,0	156		156					
15,70	16	115	65,0	45,0	48,0	157		157		157		157	
15,80	16	115	65,0	45,0	48,0	158		158					
16,00	16	115	65,0	45,0	48,0	160		160		160		160	
16,50	18	123	73,0	51,0	48,0	165		165		165		165	
16,80	18	123	73,0	51,0	48,0	168		168					
16,90	18	123	73,0	51,0	48,0	169		169					
17,00	18	123	73,0	51,0	48,0	170		170		170		170	
17,50	18	123	73,0	51,0	48,0	175		175		175		175	
17,60	18	123	73,0	51,0	48,0	176		176					
17,80	18	123	73,0	51,0	48,0	178		178					
18,00	18	123	73,0	51,0	48,0	180		180		180		180	
18,50	20	131	79,0	55,0	50,0	185		185		185		185	
18,80	20	131	79,0	55,0	50,0	188		188					
18,90	20	131	79,0	55,0	50,0	189		189					
19,00	20	131	79,0	55,0	50,0	190		190		190		190	
19,50	20	131	79,0	55,0	50,0	195		195		195		195	
19,60	20	131	79,0	55,0	50,0	196		196					
19,80	20	131	79,0	55,0	50,0	198		198					
20,00	20	131	79,0	55,0	50,0	200		200		200		200	

Steel	●	●	○	○
Stainless steel	○	○	●	●
Cast iron	●	●	○	○
Non ferrous metals	○	○	●	●
Heat resistant alloys			●	●

→ v_c Page 116+120

WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials

≤ 3xD

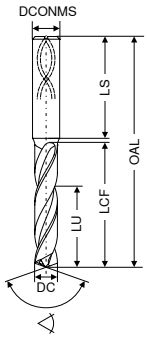




Ti

DPA54

DRAGONSKIN





140°

Solid carbide

DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 10 786 ...
mm	mm	mm	mm	mm	mm	
3,00	6	62	20	14	36	030
3,10	6	62	20	14	36	031
3,20	6	62	20	14	36	032
3,30	6	62	20	14	36	033
3,40	6	62	20	14	36	034
3,50	6	62	20	14	36	035
3,60	6	62	20	14	36	036
3,70	6	62	20	14	36	037
3,80	6	66	24	17	36	038
3,90	6	66	24	17	36	039
3,97	6	66	24	17	36	900
4,00	6	66	24	17	36	040
4,10	6	66	24	17	36	041
4,20	6	66	24	17	36	042
4,23	6	66	24	17	36	901
4,30	6	66	24	17	36	043
4,40	6	66	24	17	36	044
4,50	6	66	24	17	36	045
4,60	6	66	24	17	36	046
4,70	6	66	24	17	36	047
4,80	6	66	28	20	36	048
4,90	6	66	28	20	36	049
5,00	6	66	28	20	36	050
5,10	6	66	28	20	36	051
5,20	6	66	28	20	36	052
5,30	6	66	28	20	36	053
5,40	6	66	28	20	36	054
5,50	6	66	28	20	36	055
5,56	6	66	28	20	36	902
5,60	6	66	28	20	36	056
5,70	6	66	28	20	36	057
5,80	6	66	28	20	36	058
5,90	6	66	28	20	36	059
6,00	6	66	28	20	36	060
6,10	8	79	34	24	36	061
6,20	8	79	34	24	36	062
6,30	8	79	34	24	36	063
6,35	8	79	34	24	36	903
6,40	8	79	34	24	36	064
6,50	8	79	34	24	36	065
6,60	8	79	34	24	36	066
6,70	8	79	34	24	36	067
6,80	8	79	34	24	36	068
6,90	8	79	34	24	36	069
7,00	8	79	34	24	36	070
7,10	8	79	41	29	36	071
7,20	8	79	41	29	36	072
7,30	8	79	41	29	36	073
7,40	8	79	41	29	36	074
7,50	8	79	41	29	36	075
7,60	8	79	41	29	36	076
7,70	8	79	41	29	36	077
7,80	8	79	41	29	36	078
7,90	8	79	41	29	36	079
7,94	8	79	41	29	36	904
8,00	8	79	41	29	36	080
8,10	10	89	47	35	40	081
8,20	10	89	47	35	40	082
8,30	10	89	47	35	40	083
8,40	10	89	47	35	40	084
8,50	10	89	47	35	40	085
8,60	10	89	47	35	40	086
8,70	10	89	47	35	40	087
8,80	10	89	47	35	40	088
8,90	10	89	47	35	40	089
9,00	10	89	47	35	40	090
9,10	10	89	47	35	40	091
9,20	10	89	47	35	40	092
9,30	10	89	47	35	40	093
9,40	10	89	47	35	40	094
9,50	10	89	47	35	40	095
9,55	10	89	47	35	40	905
9,60	10	89	47	35	40	096
9,70	10	89	47	35	40	097
9,80	10	89	47	35	40	098
9,90	10	89	47	35	40	099
10,00	10	89	47	35	40	100
10,10	12	102	55	40	45	101
10,20	12	102	55	40	45	102
10,30	12	102	55	40	45	103
10,40	12	102	55	40	45	104
10,50	12	102	55	40	45	105
10,60	12	102	55	40	45	106
10,70	12	102	55	40	45	107
10,80	12	102	55	40	45	108
10,90	12	102	55	40	45	109
11,00	12	102	55	40	45	110
11,10	12	102	55	40	45	111
11,11	12	102	55	40	45	906
11,20	12	102	55	40	45	112
11,30	12	102	55	40	45	113
11,40	12	102	55	40	45	114
11,50	12	102	55	40	45	115
11,60	12	102	55	40	45	116
11,70	12	102	55	40	45	117
11,80	12	102	55	40	45	118
11,90	12	102	55	40	45	119
12,00	12	102	55	40	45	120
12,10	14	107	60	43	45	121
12,20	14	107	60	43	45	122
12,30	14	107	60	43	45	123
12,40	14	107	60	43	45	124
12,50	14	107	60	43	45	125
12,60	14	107	60	43	45	126
12,70	14	107	60	43	45	907
12,80	14	107	60	43	45	128
12,90	14	107	60	43	45	129
13,00	14	107	60	43	45	130
13,10	14	107	60	43	45	131
13,20	14	107	60	43	45	132
13,30	14	107	60	43	45	133
13,40	14	107	60	43	45	134
13,50	14	107	60	43	45	135
13,60	14	107	60	43	45	136
13,70	14	107	60	43	45	137
13,80	14	107	60	43	45	138
13,90	14	107	60	43	45	139

Steel	
Stainless steel	●
Cast iron	
Non ferrous metals	
Heat resistant alloys	●

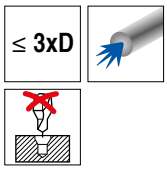
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Continued on next page

WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials

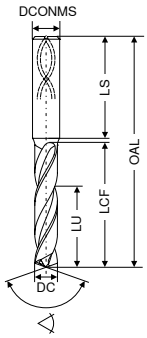
≤ 3xD



Ti

DPA54

DRAGONSKIN





140°

Solid carbide

DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 10 786 ...
mm	mm	mm	mm	mm	mm	
14,0	14	107	60	43	45	140
14,1	16	115	65	45	48	141
14,2	16	115	65	45	48	142
14,3	16	115	65	45	48	143
14,4	16	115	65	45	48	144
14,5	16	115	65	45	48	145
14,6	16	115	65	45	48	146
14,7	16	115	65	45	48	147
14,8	16	115	65	45	48	148
14,9	16	115	65	45	48	149
15,0	16	115	65	45	48	150
15,1	16	115	65	45	48	151
15,2	16	115	65	45	48	152
15,3	16	115	65	45	48	153
15,4	16	115	65	45	48	154
15,5	16	115	65	45	48	155
15,6	16	115	65	45	48	156
15,7	16	115	65	45	48	157
15,8	16	115	65	45	48	158
15,9	16	115	65	45	48	159
16,0	16	115	65	45	48	160
16,1	18	123	73	51	48	161
16,2	18	123	73	51	48	162
16,3	18	123	73	51	48	163
16,4	18	123	73	51	48	164
16,5	18	123	73	51	48	165
16,6	18	123	73	51	48	166
16,7	18	123	73	51	48	167
16,8	18	123	73	51	48	168
16,9	18	123	73	51	48	169
17,0	18	123	73	51	48	170
17,1	18	123	73	51	48	171
17,2	18	123	73	51	48	172
17,3	18	123	73	51	48	173
17,4	18	123	73	51	48	174
17,5	18	123	73	51	48	175
17,6	18	123	73	51	48	176
17,7	18	123	73	51	48	177
17,8	18	123	73	51	48	178
17,9	18	123	73	51	48	179
18,0	18	123	73	51	48	180
18,1	20	131	79	55	50	181
18,2	20	131	79	55	50	182
18,3	20	131	79	55	50	183
18,4	20	131	79	55	50	184
18,5	20	131	79	55	50	185
18,6	20	131	79	55	50	186
18,7	20	131	79	55	50	187
18,8	20	131	79	55	50	188
18,9	20	131	79	55	50	189
19,0	20	131	79	55	50	190
19,1	20	131	79	55	50	191
19,2	20	131	79	55	50	192
19,3	20	131	79	55	50	193
19,4	20	131	79	55	50	194
19,5	20	131	79	55	50	195
19,6	20	131	79	55	50	196
19,7	20	131	79	55	50	197
19,8	20	131	79	55	50	198
19,9	20	131	79	55	50	199
20,0	20	131	79	55	50	200

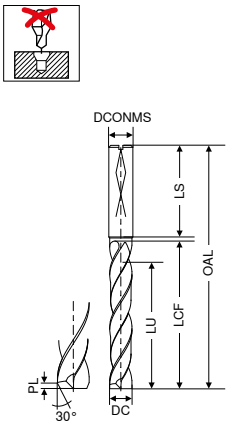
Steel	
Stainless steel	●
Cast iron	
Non ferrous metals	
Heat resistant alloys	●

→ v_c Page 95

WTX – High Performance Drill, DIN 6537

- ▲ universal application
- ▲ four guidance lands
- ▲ polished chip flutes
- ▲ Type ALU 3xD (10 722 ...) on request
- ▲ PL = corner chamfers

≤ 3xD



180

Ti800



HA

180°

Solid carbide

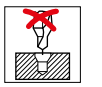
DC m7	DCONMS h6	OAL	LCF	LU	LS	PL	Article no. 10 720 ...
mm	mm	mm	mm	mm	mm	mm	
3,00	6	62	20	14	36	0,15	030
3,10	6	62	20	14	36	0,16	031
3,20	6	62	20	14	36	0,16	032
3,30	6	62	20	14	36	0,17	033
3,40	6	62	20	14	36	0,17	034
3,50	6	62	20	14	36	0,18	035
3,60	6	62	20	14	36	0,18	036
3,70	6	62	20	14	36	0,19	037
3,80	6	66	24	17	36	0,19	038
3,90	6	66	24	17	36	0,20	039
4,00	6	66	24	17	36	0,20	040
4,10	6	66	24	17	36	0,21	041
4,20	6	66	24	17	36	0,21	042
4,30	6	66	24	17	36	0,22	043
4,40	6	66	24	17	36	0,22	044
4,50	6	66	24	17	36	0,23	045
4,60	6	66	24	17	36	0,23	046
4,65	6	66	24	17	36	0,23	900
4,70	6	66	24	17	36	0,24	047
4,80	6	66	28	20	36	0,24	048
4,90	6	66	28	20	36	0,25	049
5,00	6	66	28	20	36	0,25	050
5,10	6	66	28	20	36	0,26	051
5,20	6	66	28	20	36	0,26	052
5,30	6	66	28	20	36	0,27	053
5,40	6	66	28	20	36	0,27	054
5,50	6	66	28	20	36	0,28	055
5,55	6	66	28	20	36	0,28	902
5,60	6	66	28	20	36	0,28	056
5,70	6	66	28	20	36	0,29	057
5,80	6	66	28	20	36	0,29	058
5,90	6	66	28	20	36	0,30	059
6,00	6	66	28	20	36	0,30	060
6,10	8	79	34	24	36	0,31	061
6,20	8	79	34	24	36	0,31	062
6,30	8	79	34	24	36	0,32	063
6,40	8	79	34	24	36	0,32	064
6,50	8	79	34	24	36	0,33	065
6,60	8	79	34	24	36	0,33	066
6,70	8	79	34	24	36	0,34	067
6,80	8	79	34	24	36	0,34	068
6,90	8	79	34	24	36	0,35	069
7,00	8	79	34	24	36	0,35	070
7,10	8	79	41	29	36	0,36	071
7,20	8	79	41	29	36	0,36	072
7,30	8	79	41	29	36	0,37	073
7,40	8	79	41	29	36	0,37	074
7,50	8	79	41	29	36	0,38	075
7,60	8	79	41	29	36	0,38	076
7,70	8	79	41	29	36	0,39	077
7,80	8	79	41	29	36	0,39	078
7,90	8	79	41	29	36	0,40	079
8,00	8	79	41	29	36	0,40	080
8,10	10	89	47	35	40	0,41	081
8,20	10	89	47	35	40	0,41	082
8,30	10	89	47	35	40	0,42	083
8,40	10	89	47	35	40	0,42	084
8,50	10	89	47	35	40	0,43	085
8,60	10	89	47	35	40	0,43	086
8,70	10	89	47	35	40	0,44	087
8,80	10	89	47	35	40	0,44	088
8,90	10	89	47	35	40	0,45	089
9,00	10	89	47	35	40	0,45	090
9,10	10	89	47	35	40	0,46	091
9,20	10	89	47	35	40	0,46	092
9,30	10	89	47	35	40	0,47	093
9,40	10	89	47	35	40	0,47	094
9,50	10	89	47	35	40	0,48	095
9,60	10	89	47	35	40	0,48	096
9,70	10	89	47	35	40	0,49	097
9,80	10	89	47	35	40	0,49	098
9,90	10	89	47	35	40	0,50	099
10,00	10	89	47	35	40	0,50	100
10,10	12	100	53	38	45	0,51	101
10,20	12	100	53	38	45	0,51	102
10,30	12	100	53	38	45	0,52	103
10,40	12	100	53	38	45	0,52	104
10,50	12	100	53	38	45	0,53	105
10,60	12	100	53	38	45	0,53	106
10,70	12	100	53	38	45	0,54	107
10,80	12	100	53	38	45	0,54	108
10,90	12	100	53	38	45	0,55	109
11,00	12	100	53	38	45	0,55	110
11,10	12	100	53	38	45	0,56	111
11,20	12	100	53	38	45	0,56	112
11,30	12	100	53	38	45	0,57	113
11,40	12	100	53	38	45	0,57	114
11,50	12	100	53	38	45	0,58	115
11,60	12	100	53	38	45	0,58	116
11,70	12	100	53	38	45	0,59	117
11,80	12	100	53	38	45	0,59	118
11,90	12	100	53	38	45	0,60	119
12,00	12	100	53	38	45	0,60	120
12,50	14	105	58	41	45	0,63	125
12,80	14	105	58	41	45	0,64	128
13,00	14	105	58	41	45	0,65	130
13,50	14	105	58	41	45	0,68	135
13,80	14	105	58	41	45	0,69	138
14,00	14	105	58	41	45	0,70	140
14,50	16	113	63	43	48	0,73	145
14,80	16	113	63	43	48	0,74	148
15,00	16	113	63	43	48	0,75	150
15,50	16	113	63	43	48	0,78	155
15,80	16	113	63	43	48	0,79	158
16,00	16	113	63	43	48	0,80	160
16,50	18	121	71	49	48	0,83	165
16,80	18	121	71	49	48	0,84	168
17,00	18	121	71	49	48	0,85	170
17,50	18	121	71	49	48	0,88	175
17,80	18	121	71	49	48	0,89	178
18,00	18	121	71	49	48	0,90	180
18,50	20	129	77	53	50	0,93	185
18,80	20	129	77	53	50	0,94	188
19,00	20	129	77	53	50	0,95	190
19,50	20	129	77	53	50	0,98	195
19,80	20	129	77	53	50	0,99	198
20,00	20	129	77	53	50	1,00	200

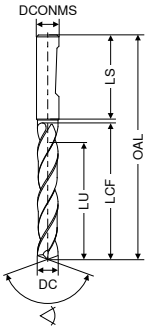
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
Hardened materials	○

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WTX – High Performance Drill, DIN 6537

≤ 5xD





UNI	UNI	UNI	Quattro 4F	VA	VA
DPX74S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HB	HE	HA	HA	HE
140°	140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
			NEW		

DC $_{m7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	Article no. 11 783 ...	Article no. 11 784 ...	Article no. 11 782 ...	Article no. 10 730 ...	Article no. 10 740 ...	Article no. 10 741 ...
mm	mm	mm	mm	mm	mm						
3,00	6	66	28	23	36	03000	03000	03000	03000	030	030
3,10	6	66	28	23	36	03100	03100	03100	03100	031	031
3,15	6	66	28	23	36	03150	03150	03150			
3,20	6	66	28	23	36	03200	03200	03200	03200	032	032
3,22	6	66	28	23	36	03220	03220	03220			
3,25	6	66	28	23	36	03250	03250	03250			
3,30	6	66	28	23	36	03300	03300	03300	03300	033	033
3,40	6	66	28	23	36	03400	03400	03400	03400	034	034
3,50	6	66	28	23	36	03500	03500	03500	03500	035	035
3,60	6	66	28	23	36	03600	03600	03600	03600	036	036
3,70	6	66	28	23	36	03700	03700	03700	03700	037	037
3,80	6	74	36	29	36	03800	03800	03800	03800	038	038
3,85	6	74	36	29	36	03850	03850	03850			
3,90	6	74	36	29	36	03900	03900	03900	03900	039	039
4,00	6	74	36	29	36	04000	04000	04000	04000	040	040
4,10	6	74	36	29	36	04100	04100	04100	04100	041	041
4,20	6	74	36	29	36	04200	04200	04200	04200	042	042
4,25	6	74	36	29	36	04250	04250	04250			
4,30	6	74	36	29	36	04300	04300	04300	04300	043	043
4,35	6	74	36	29	36	04350	04350	04350			
4,40	6	74	36	29	36	04400	04400	04400	04400	044	044
4,45	6	74	36	29	36	04450	04450	04450			
4,50	6	74	36	29	36	04500	04500	04500	04500	045	045
4,60	6	74	36	29	36	04600	04600	04600	04600	046	046
4,65	6	74	36	29	36	04650	04650	04650			
4,70	6	74	36	29	36	04700	04700	04700	04700	047	047
4,80	6	82	44	35	36	04800	04800	04800	04800	048	048
4,90	6	82	44	35	36	04900	04900	04900	04900	049	049
4,95	6	82	44	35	36	04950	04950	04950			
5,00	6	82	44	35	36	05000	05000	05000	05000	050	050
5,05	6	82	44	35	36	05050	05050	05050			
5,10	6	82	44	35	36	05100	05100	05100	05100	051	051
5,20	6	82	44	35	36	05200	05200	05200	05200	052	052
5,30	6	82	44	35	36	05300	05300	05300	05300	053	053
5,40	6	82	44	35	36	05400	05400	05400	05400	054	054
5,50	6	82	44	35	36	05500	05500	05500	05500	055	055
5,55	6	82	44	35	36	05550	05550	05550			
5,60	6	82	44	35	36	05600	05600	05600	05600	056	056
5,70	6	82	44	35	36	05700	05700	05700	05700	057	057
5,75	6	82	44	35	36	05750	05750	05750			
5,80	6	82	44	35	36	05800	05800	05800	05800	058	058
5,90	6	82	44	35	36	05900	05900	05900	05900	059	059
5,95	6	82	44	35	36	05950	05950	05950			
6,00	6	82	44	35	36	06000	06000	06000	06000	060	060

Steel	●	●	●	●	○	○
Stainless steel					●	●
Cast iron	●	●	●	●	○	○
Non ferrous metals	○	○	○	○	●	●
Heat resistant alloys						
Hardened materials				○	○	○

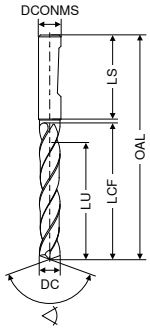
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WTX – High Performance Drill, DIN 6537

≤ 5xD





UNI	UNI	UNI	Quattro 4F	VA	VA
DPX74S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HB	HE	HA	HA	HE
140°	140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC $_{m7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	Article no. 11 783 ...	Article no. 11 784 ...	Article no. 11 782 ...	NEW Article no. 10 730 ...	Article no. 10 740 ...	Article no. 10 741 ...
mm	mm	mm	mm	mm	mm						
6,10	8	91	53	43	36	06100	06100	06100	06100	061	061
6,20	8	91	53	43	36	06200	06200	06200	06200	062	062
6,30	8	91	53	43	36	06300	06300	06300	06300	063	063
6,40	8	91	53	43	36	06400	06400	06400	06400	064	064
6,50	8	91	53	43	36	06500	06500	06500	06500	065	065
6,60	8	91	53	43	36	06600	06600	06600	06600	066	066
6,70	8	91	53	43	36	06700	06700	06700	06700	067	067
6,80	8	91	53	43	36	06800	06800	06800	06800	068	068
6,90	8	91	53	43	36	06900	06900	06900	06900	069	069
7,00	8	91	53	43	36	07000	07000	07000	07000	070	070
7,10	8	91	53	43	36	07100	07100	07100	07100	071	071
7,20	8	91	53	43	36	07200	07200	07200	07200	072	072
7,30	8	91	53	43	36	07300	07300	07300	07300	073	073
7,40	8	91	53	43	36	07400	07400	07400	07400	074	074
7,45	8	91	53	43	36	07450	07450	07450			
7,50	8	91	53	43	36	07500	07500	07500	07500	075	075
7,60	8	91	53	43	36	07600	07600	07600	07600	076	076
7,70	8	91	53	43	36	07700	07700	07700	07700	077	077
7,80	8	91	53	43	36	07800	07800	07800	07800	078	078
7,90	8	91	53	43	36	07900	07900	07900	07900	079	079
8,00	8	91	53	43	36	08000	08000	08000	08000	080	080
8,10	10	103	61	49	40	08100	08100	08100	08100	081	081
8,20	10	103	61	49	40	08200	08200	08200	08200	082	082
8,30	10	103	61	49	40	08300	08300	08300	08300	083	083
8,40	10	103	61	49	40	08400	08400	08400	08400	084	084
8,50	10	103	61	49	40	08500	08500	08500	08500	085	085
8,60	10	103	61	49	40	08600	08600	08600	08600	086	086
8,70	10	103	61	49	40	08700	08700	08700	08700	087	087
8,80	10	103	61	49	40	08800	08800	08800	08800	088	088
8,90	10	103	61	49	40	08900	08900	08900	08900	089	089
9,00	10	103	61	49	40	09000	09000	09000	09000	090	090
9,10	10	103	61	49	40	09100	09100	09100	09100	091	091
9,20	10	103	61	49	40	09200	09200	09200	09200	092	092
9,30	10	103	61	49	40	09300	09300	09300	09300	093	093
9,35	10	103	61	49	40	09350	09350	09350			
9,40	10	103	61	49	40	09400	09400	09400	09400	094	094
9,45	10	103	61	49	40	09450	09450	09450			
9,50	10	103	61	49	40	09500	09500	09500	09500	095	095
9,60	10	103	61	49	40	09600	09600	09600	09600	096	096
9,70	10	103	61	49	40	09700	09700	09700	09700	097	097
9,80	10	103	61	49	40	09800	09800	09800	09800	098	098
9,90	10	103	61	49	40	09900	09900	09900	09900	099	099
10,00	10	103	61	49	40	10000	10000	10000	10000	100	100
10,10	12	118	71	56	45	10100	10100	10100	10100	101	101

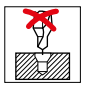
Steel	●	●	●	●	○	○
Stainless steel					●	●
Cast iron	●	●	●	●	○	○
Non ferrous metals	○	○	○	○	●	●
Heat resistant alloys						
Hardened materials				○	○	○

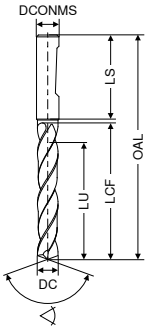
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WTX – High Performance Drill, DIN 6537

≤ 5xD





UNI	UNI	UNI	Quattro 4F	VA	VA
DPX74S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HB	HE	HA	HA	HE
140°	140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 783 ...	Article no. 11 784 ...	Article no. 11 782 ...	NEW Article no. 10 730 ...	Article no. 10 740 ...	Article no. 10 741 ...
mm	mm	mm	mm	mm	mm						
10,20	12	118	71	56	45	10200	10200	10200	10200	102	102
10,30	12	118	71	56	45	10300	10300	10300	10300	103	103
10,40	12	118	71	56	45	10400	10400	10400	10400	104	104
10,50	12	118	71	56	45	10500	10500	10500	10500	105	105
10,55	12	118	71	56	45	10550	10550	10550			
10,60	12	118	71	56	45	10600	10600	10600	10600	106	106
10,70	12	118	71	56	45	10700	10700	10700	10700	107	107
10,75	12	118	71	56	45	10750	10750	10750			
10,80	12	118	71	56	45	10800	10800	10800	10800	108	108
10,90	12	118	71	56	45	10900	10900	10900	10900	109	109
11,00	12	118	71	56	45	11000	11000	11000	11000	110	110
11,10	12	118	71	56	45	11100	11100	11100	11100	111	111
11,20	12	118	71	56	45	11200	11200	11200	11200	112	112
11,25	12	118	71	56	45	11250	11250	11250			
11,30	12	118	71	56	45	11300	11300	11300	11300	113	113
11,35	12	118	71	56	45	11350	11350	11350			
11,40	12	118	71	56	45	11400	11400	11400	11400	114	114
11,45	12	118	71	56	45	11450	11450	11450			
11,50	12	118	71	56	45	11500	11500	11500	11500	115	115
11,60	12	118	71	56	45	11600	11600	11600	11600	116	116
11,70	12	118	71	56	45	11700	11700	11700	11700	117	117
11,80	12	118	71	56	45	11800	11800	11800	11800	118	118
11,90	12	118	71	56	45	11900	11900	11900	11900	119	119
12,00	12	118	71	56	45	12000	12000	12000	12000	120	120
12,15	14	124	77	60	45	12150	12150	12150			
12,25	14	124	77	60	45	12250	12250	12250			
12,50	14	124	77	60	45	12500	12500	12500	12500	125	125
12,55	14	124	77	60	45	12550	12550	12550			
12,70	14	124	77	60	45	12700	12700	12700			
12,80	14	124	77	60	45	12800	12800	12800	12800	128	128
12,90	14	124	77	60	45	12900	12900	12900			
13,00	14	124	77	60	45	13000	13000	13000	13000	130	130
13,10	14	124	77	60	45	13100	13100	13100			
13,30	14	124	77	60	45	13300	13300	13300			
13,35	14	124	77	60	45	13350	13350	13350			
13,50	14	124	77	60	45	13500	13500	13500	13500	135	135
13,70	14	124	77	60	45	13700	13700	13700			
13,80	14	124	77	60	45	13800	13800	13800	13800	138	138
14,00	14	124	77	60	45	14000	14000	14000	14000	140	140
14,20	16	133	83	63	48	14200	14200	14200			
14,50	16	133	83	63	48	14500	14500	14500	14500	145	145
14,80	16	133	83	63	48	14800	14800	14800	14800	148	148
15,00	16	133	83	63	48	15000	15000	15000	15000	150	150
15,10	16	133	83	63	48	15100	15100	15100			

Steel	●	●	●	●	○	○
Stainless steel					●	●
Cast iron	●	●	●	●	○	○
Non ferrous metals	○	○	○	○	●	●
Heat resistant alloys						
Hardened materials				○	○	○

→ v_c Page 101–104

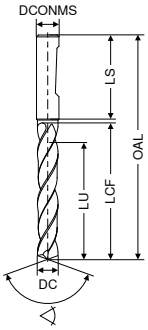
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WTX – High Performance Drill, DIN 6537

2

≤ 5xD





UNI	UNI	UNI	Quattro 4F	VA	VA
DPX74S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HB	HE	HA	HA	HE
140°	140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 783 ...	Article no. 11 784 ...	Article no. 11 782 ...	NEW Article no. 10 730 ...	Article no. 10 740 ...	Article no. 10 741 ...
mm	mm	mm	mm	mm	mm						
15,25	16	133	83	63	48	15250	15250	15250			
15,30	16	133	83	63	48	15300	15300	15300			
15,35	16	133	83	63	48	15350	15350	15350			
15,50	16	133	83	63	48	15500	15500	15500	15500	155	155
15,60	16	133	83	63	48	15600	15600	15600			
15,80	16	133	83	63	48	15800	15800	15800	15800	158	158
16,00	16	133	83	63	48	16000	16000	16000	16000	160	160
16,05	18	143	93	71	48	16050	16050	16050			
16,50	18	143	93	71	48	16500	16500	16500	16500	165	165
16,80	18	143	93	71	48	16800	16800	16800	16800	168	168
16,90	18	143	93	71	48	16900	16900	16900			
17,00	18	143	93	71	48	17000	17000	17000	17000	170	170
17,50	18	143	93	71	48	17500	17500	17500	17500	175	175
17,60	18	143	93	71	48	17600	17600	17600			
17,80	18	143	93	71	48	17800	17800	17800	17800	178	178
18,00	18	143	93	71	48	18000	18000	18000	18000	180	180
18,50	20	153	101	77	50	18500	18500	18500	18500	185	185
18,80	20	153	101	77	50	18800	18800	18800	18800	188	188
18,90	20	153	101	77	50	18900	18900	18900			
19,00	20	153	101	77	50	19000	19000	19000	19000	190	190
19,35	20	153	101	77	50	19350	19350	19350			
19,50	20	153	101	77	50	19500	19500	19500	19500	195	195
19,60	20	153	101	77	50	19600	19600	19600			
19,80	20	153	101	77	50	19800	19800	19800	19800	198	198
20,00	20	153	101	77	50	20000	20000	20000	20000	200	200

Steel	●	●	●	●	○	○
Stainless steel					●	●
Cast iron	●	●	●	●	○	○
Non ferrous metals	○	○	○	○	●	●
Heat resistant alloys						
Hardened materials				○	○	○

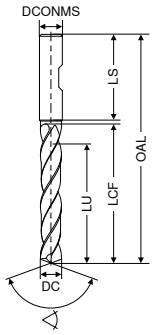
→ v_c Page 101–104

WPC – High Performance Drill, DIN 6537

≤ 5xD

UNI

TiAlN





HA

140°

Solid carbide

UNI

TiAlN



HB

140°

Solid carbide

DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 606 ...	Article no. 11 607 ...
mm	mm	mm	mm	mm	mm		
3,00	6	66	28	23	36	030	030
3,10	6	66	28	23	36	031	031
3,20	6	66	28	23	36	032	032
3,30	6	66	28	23	36	033	033
3,40	6	66	28	23	36	034	034
3,50	6	66	28	23	36	035	035
3,60	6	66	28	23	36	036	036
3,70	6	66	28	23	36	037	037
3,80	6	74	36	29	36	038	038
3,90	6	74	36	29	36	039	039
4,00	6	74	36	29	36	040	040
4,10	6	74	36	29	36	041	041
4,20	6	74	36	29	36	042	042
4,30	6	74	36	29	36	043	043
4,40	6	74	36	29	36	044	044
4,50	6	74	36	29	36	045	045
4,60	6	74	36	29	36	046	046
4,65	6	74	36	29	36	900	900
4,70	6	74	36	29	36	047	047
4,80	6	82	44	35	36	048	048
4,90	6	82	44	35	36	049	049
5,00	6	82	44	35	36	050	050
5,10	6	82	44	35	36	051	051
5,20	6	82	44	35	36	052	052
5,30	6	82	44	35	36	053	053
5,40	6	82	44	35	36	054	054
5,50	6	82	44	35	36	055	055
5,55	6	82	44	35	36	902	902
5,60	6	82	44	35	36	056	056
5,70	6	82	44	35	36	057	057
5,80	6	82	44	35	36	058	058
5,90	6	82	44	35	36	059	059
6,00	6	82	44	35	36	060	060
6,10	8	91	53	43	36	061	061
6,20	8	91	53	43	36	062	062
6,30	8	91	53	43	36	063	063
6,40	8	91	53	43	36	064	064
6,50	8	91	53	43	36	065	065
6,60	8	91	53	43	36	066	066
6,70	8	91	53	43	36	067	067
6,80	8	91	53	43	36	068	068
6,90	8	91	53	43	36	069	069
7,00	8	91	53	43	36	070	070
7,10	8	91	53	43	36	071	071
7,20	8	91	53	43	36	072	072
7,30	8	91	53	43	36	073	073
7,40	8	91	53	43	36	074	074
7,50	8	91	53	43	36	075	075
7,55	8	91	53	43	36	975	975
7,60	8	91	53	43	36	076	076
7,70	8	91	53	43	36	077	077
7,80	8	91	53	43	36	078	078
7,90	8	91	53	43	36	079	079
8,00	8	91	53	43	36	080	080
8,10	10	103	61	49	40	081	081
8,20	10	103	61	49	40	082	082
8,30	10	103	61	49	40	083	083
8,40	10	103	61	49	40	084	084
8,50	10	103	61	49	40	085	085
8,60	10	103	61	49	40	086	086
8,70	10	103	61	49	40	087	087
8,80	10	103	61	49	40	088	088
8,90	10	103	61	49	40	089	089
9,00	10	103	61	49	40	090	090
9,10	10	103	61	49	40	091	091
9,20	10	103	61	49	40	092	092
9,25	10	103	61	49	40	925	925
9,30	10	103	61	49	40	093	093
9,40	10	103	61	49	40	094	094
9,50	10	103	61	49	40	095	095
9,60	10	103	61	49	40	096	096
9,70	10	103	61	49	40	097	097
9,80	10	103	61	49	40	098	098
9,90	10	103	61	49	40	099	099
10,00	10	103	61	49	40	100	100
10,10	12	118	71	56	45	101	101
10,20	12	118	71	56	45	102	102
10,30	12	118	71	56	45	103	103
10,40	12	118	71	56	45	104	104
10,50	12	118	71	56	45	105	105
10,60	12	118	71	56	45	106	106
10,70	12	118	71	56	45	107	107
10,80	12	118	71	56	45	108	108
10,90	12	118	71	56	45	109	109
11,00	12	118	71	56	45	110	110
11,10	12	118	71	56	45	111	111
11,20	12	118	71	56	45	112	112
11,30	12	118	71	56	45	113	113
11,40	12	118	71	56	45	114	114
11,50	12	118	71	56	45	115	115
11,60	12	118	71	56	45	116	116
11,70	12	118	71	56	45	117	117
11,80	12	118	71	56	45	118	118
11,90	12	118	71	56	45	119	119
12,00	12	118	71	56	45	120	120
12,25	14	124	77	60	45	122	122
12,50	14	124	77	60	45	125	125
12,70	14	124	77	60	45	127	127
12,80	14	124	77	60	45	128	128
12,90	14	124	77	60	45	129	129
13,00	14	124	77	60	45	130	130
13,30	14	124	77	60	45	133	133
13,50	14	124	77	60	45	135	135
13,70	14	124	77	60	45	137	137
13,80	14	124	77	60	45	138	138
14,00	14	124	77	60	45	140	140
14,20	16	133	83	63	48	142	142
14,50	16	133	83	63	48	145	145
14,70	16	133	83	63	48	147	147
14,80	16	133	83	63	48	148	148
15,00	16	133	83	63	48	150	150
15,25	16	133	83	63	48	152	152
15,30	16	133	83	63	48	153	153
15,50	16	133	83	63	48	155	155
15,70	16	133	83	63	48	157	157
15,80	16	133	83	63	48	158	158
16,00	16	133	83	63	48	160	160
16,50	18	143	93	71	48	165	165
16,80	18	143	93	71	48	168	168
17,00	18	143	93	71	48	170	170
17,50	18	143	93	71	48	175	175
17,80	18	143	93	71	48	178	178
18,00	18	143	93	71	48	180	180
18,50	20	153	101	77	50	185	185
18,80	20	153	101	77	50	188	188
19,00	20	153	101	77	50	190	190
19,50	20	153	101	77	50	195	195
19,80	20	153	101	77	50	198	198
20,00	20	153	101	77	50	200	200

	Article no. 11 606 ...	Article no. 11 607 ...
Steel	●	●
Stainless steel		
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys		

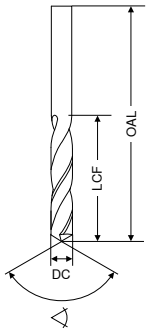
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Twist drill similar to DIN 338

▲ Rake angle 30°
▲ Shank Ø h7

≤ 5xD

N





118°
Solid carbide

DC h7	OAL	LCF	Article no. 10 710 ...
mm	mm	mm	
0,5	22	6	005
0,6	24	7	006
0,7	28	9	007
0,8	30	10	008
0,9	32	11	009
1,0	34	12	010
1,1	36	14	011
1,2	38	16	012
1,3	38	16	013
1,4	40	18	014
1,5	40	18	015
1,6	43	20	016
1,7	43	20	017
1,8	46	22	018
1,9	46	22	019
2,0	49	24	020
2,1	49	24	021
2,2	53	27	022
2,3	53	27	023
2,4	57	30	024
2,5	57	30	025
2,6	57	30	026
2,7	61	33	027
2,8	61	33	028
2,9	61	33	029
3,0	61	33	030
3,1	65	36	031
3,2	65	36	032
3,3	65	36	033
3,4	70	39	034
3,5	70	39	035
3,6	70	39	036
3,7	70	39	037
3,8	75	43	038
3,9	75	43	039
4,0	75	43	040
4,1	75	43	041
4,2	75	43	042
4,3	80	47	043
4,4	80	47	044
4,5	80	47	045
4,6	80	47	046
4,7	80	47	047
4,8	86	52	048
4,9	86	52	049
5,0	86	52	050
5,1	86	52	051
5,2	86	52	052
5,3	86	52	053
5,4	93	57	054
5,5	93	57	055
5,6	93	57	056
5,7	93	57	057
5,8	93	57	058
5,9	93	57	059
6,0	93	57	060
6,1	101	63	061
6,2	101	63	062
6,3	101	63	063
6,4	101	63	064
6,5	101	63	065
6,6	109	69	066
6,8	109	69	068
7,0	109	69	070
7,5	109	69	075
7,8	117	75	078
8,0	117	75	080
8,5	117	75	085
8,8	125	81	088
9,0	125	81	090
9,5	125	81	095
9,8	133	87	098
10,0	133	87	100
10,2	133	87	102
10,5	133	87	105
11,0	142	94	110
11,5	142	94	115
12,0	151	101	120
13,0	151	101	130
14,0	160	108	140
16,0	178	120	160

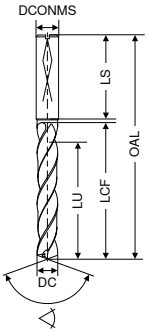
Steel	●
Stainless steel	○
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	○

→ v_c Page 119

WTX – High Performance Drill, DIN 6537

≤ 5xD





Feed UNI = Three Cutting Edges

Feed UNI	Speed UNI	UNI	UNI	UNI	Quattro 4F
DPX74S	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
HA	HA	HA	HB	HE	HA
140°	145°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
NEW	NEW				NEW
Article no. 10 789 ...	Article no. 10 771 ...	Article no. 11 786 ...	Article no. 11 787 ...	Article no. 11 785 ...	Article no. 10 735 ...

DC m7/h7	DCONMS h6	OAL	LCF	LU	LS												
mm	mm	mm	mm	mm	mm												
3,00	6	66	28	23	36			03000		03000		03000		03000		03000	
3,10	6	66	28	23	36			03100		03100		03100		03100		03100	
3,15	6	66	28	23	36					03150		03150		03150			
3,20	6	66	28	23	36			03200		03200		03200		03200		03200	
3,22	6	66	28	23	36					03220		03220		03220			
3,25	6	66	28	23	36					03250		03250		03250			
3,30	6	66	28	23	36			03300		03300		03300		03300		03300	
3,40	6	66	28	23	36			03400		03400		03400		03400		03400	
3,50	6	66	28	23	36			03500		03500		03500		03500		03500	
3,60	6	66	28	23	36			03600		03600		03600		03600		03600	
3,70	6	66	28	23	36			03700		03700		03700		03700		03700	
3,80	6	74	36	29	36			03800		03800		03800		03800		03800	
3,85	6	74	36	29	36					03850		03850		03850			
3,90	6	74	36	29	36			03900		03900		03900		03900		03900	
4,00	6	74	36	29	36	04000		04000		04000		04000		04000		04000	
4,10	6	74	36	29	36	04100		04100		04100		04100		04100		04100	
4,20	6	74	36	29	36	04200		04200		04200		04200		04200		04200	
4,25	6	74	36	29	36					04250		04250		04250			
4,30	6	74	36	29	36	04300		04300		04300		04300		04300		04300	
4,35	6	74	36	29	36					04350		04350		04350			
4,40	6	74	36	29	36	04400		04400		04400		04400		04400		04400	
4,45	6	74	36	29	36					04450		04450		04450			
4,50	6	74	36	29	36	04500		04500		04500		04500		04500		04500	
4,60	6	74	36	29	36	04600		04600		04600		04600		04600		04600	
4,65	6	74	36	29	36			04650		04650		04650		04650			
4,70	6	74	36	29	36	04700		04700		04700		04700		04700		04700	
4,80	6	82	44	35	36	04800		04800		04800		04800		04800		04800	
4,90	6	82	44	35	36	04900		04900		04900		04900		04900		04900	
4,95	6	82	44	35	36					04950		04950		04950			
5,00	6	82	44	35	36	05000		05000		05000		05000		05000		05000	
5,05	6	82	44	35	36					05050		05050		05050			
5,10	6	82	44	35	36	05100		05100		05100		05100		05100		05100	
5,20	6	82	44	35	36	05200		05200		05200		05200		05200		05200	
5,30	6	82	44	35	36	05300		05300		05300		05300		05300		05300	
5,40	6	82	44	35	36	05400		05400		05400		05400		05400		05400	
5,50	6	82	44	35	36	05500		05500		05500		05500		05500		05500	

Steel	●	●	●	●	●	●
Stainless steel	●	●	○	○	○	○
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys						
Hardened materials		○	○	○	○	○

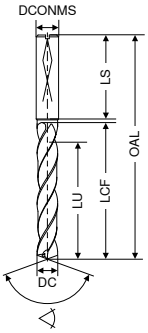
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Ø DC_{m7} for Type UNI, Feed UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 5xD



Feed UNI = Three Cutting Edges

Feed UNI	Speed UNI	UNI	UNI	UNI	Quattro 4F
DPX74S	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
HA	HA	HA	HB	HE	HA
140°	145°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
NEW	NEW				NEW
Article no. 10 789 ...	Article no. 10 771 ...	Article no. 11 786 ...	Article no. 11 787 ...	Article no. 11 785 ...	Article no. 10 735 ...

DC $_{m7/h7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS												
mm	mm	mm	mm	mm	mm												
5,55	6	82	44	35	36	05550		05550		05550		05550		05550			
5,60	6	82	44	35	36	05600		05600		05600		05600		05600		05600	
5,70	6	82	44	35	36	05700		05700		05700		05700		05700		05700	
5,75	6	82	44	35	36					05750		05750		05750			
5,80	6	82	44	35	36	05800		05800		05800		05800		05800		05800	
5,90	6	82	44	35	36	05900		05900		05900		05900		05900		05900	
5,95	6	82	44	35	36					05950		05950		05950			
6,00	6	82	44	35	36	06000		06000		06000		06000		06000		06000	
6,10	8	91	53	43	36	06100		06100		06100		06100		06100		06100	
6,20	8	91	53	43	36	06200		06200		06200		06200		06200		06200	
6,30	8	91	53	43	36	06300		06300		06300		06300		06300		06300	
6,40	8	91	53	43	36	06400		06400		06400		06400		06400		06400	
6,50	8	91	53	43	36	06500		06500		06500		06500		06500		06500	
6,60	8	91	53	43	36	06600		06600		06600		06600		06600		06600	
6,70	8	91	53	43	36	06700		06700		06700		06700		06700		06700	
6,80	8	91	53	43	36	06800		06800		06800		06800		06800		06800	
6,90	8	91	53	43	36	06900		06900		06900		06900		06900		06900	
7,00	8	91	53	43	36	07000		07000		07000		07000		07000		07000	
7,10	8	91	53	43	36	07100		07100		07100		07100		07100		07100	
7,20	8	91	53	43	36	07200		07200		07200		07200		07200		07200	
7,30	8	91	53	43	36	07300		07300		07300		07300		07300		07300	
7,40	8	91	53	43	36	07400		07400		07400		07400		07400		07400	
7,45	8	91	53	43	36					07450		07450		07450			
7,50	8	91	53	43	36	07500		07500		07500		07500		07500		07500	
7,60	8	91	53	43	36	07600		07600		07600		07600		07600		07600	
7,70	8	91	53	43	36	07700		07700		07700		07700		07700		07700	
7,80	8	91	53	43	36	07800		07800		07800		07800		07800		07800	
7,90	8	91	53	43	36	07900		07900		07900		07900		07900		07900	
8,00	8	91	53	43	36	08000		08000		08000		08000		08000		08000	
8,10	10	103	61	49	40	08100		08100		08100		08100		08100		08100	
8,20	10	103	61	49	40	08200		08200		08200		08200		08200		08200	
8,30	10	103	61	49	40	08300		08300		08300		08300		08300		08300	
8,40	10	103	61	49	40	08400		08400		08400		08400		08400		08400	
8,50	10	103	61	49	40	08500		08500		08500		08500		08500		08500	
8,60	10	103	61	49	40	08600		08600		08600		08600		08600		08600	
8,70	10	103	61	49	40	08700		08700		08700		08700		08700		08700	

Steel	●	●	●	●	●	●
Stainless steel	●	●	○	○	○	○
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys						
Hardened materials		○	○	○	○	○

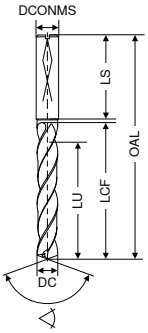
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Ø DC_{m7} for Type UNI, Feed UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 5xD



Feed UNI = Three Cutting Edges

Feed UNI	Speed UNI	UNI	UNI	UNI	Quattro 4F
DPX74S	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
HA	HA	HA	HB	HE	HA
140°	145°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
NEW	NEW				NEW
Article no. 10 789 ...	Article no. 10 771 ...	Article no. 11 786 ...	Article no. 11 787 ...	Article no. 11 785 ...	Article no. 10 735 ...

DC $_{m7/h7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS												
mm	mm	mm	mm	mm	mm												
8,80	10	103	61	49	40	08800		08800		08800		08800		08800		08800	
8,90	10	103	61	49	40	08900		08900		08900		08900		08900		08900	
9,00	10	103	61	49	40	09000		09000		09000		09000		09000		09000	
9,10	10	103	61	49	40	09100		09100		09100		09100		09100		09100	
9,20	10	103	61	49	40	09200		09200		09200		09200		09200		09200	
9,30	10	103	61	49	40	09300		09300		09300		09300		09300		09300	
9,35	10	103	61	49	40					09350		09350		09350			
9,40	10	103	61	49	40	09400		09400		09400		09400		09400		09400	
9,45	10	103	61	49	40					09450		09450		09450			
9,50	10	103	61	49	40	09500		09500		09500		09500		09500		09500	
9,60	10	103	61	49	40	09600		09600		09600		09600		09600		09600	
9,70	10	103	61	49	40	09700		09700		09700		09700		09700		09700	
9,80	10	103	61	49	40	09800		09800		09800		09800		09800		09800	
9,90	10	103	61	49	40	09900		09900		09900		09900		09900		09900	
10,00	10	103	61	49	40	10000		10000		10000		10000		10000		10000	
10,10	12	118	71	56	45	10100		10100		10100		10100		10100		10100	
10,20	12	118	71	56	45	10200		10200		10200		10200		10200		10200	
10,30	12	118	71	56	45	10300		10300		10300		10300		10300		10300	
10,40	12	118	71	56	45	10400		10400		10400		10400		10400		10400	
10,50	12	118	71	56	45	10500		10500		10500		10500		10500		10500	
10,55	12	118	71	56	45					10550		10550		10550			
10,60	12	118	71	56	45	10600		10600		10600		10600		10600		10600	
10,70	12	118	71	56	45	10700		10700		10700		10700		10700		10700	
10,75	12	118	71	56	45					10750		10750		10750			
10,80	12	118	71	56	45	10800		10800		10800		10800		10800		10800	
10,90	12	118	71	56	45	10900		10900		10900		10900		10900		10900	
11,00	12	118	71	56	45	11000		11000		11000		11000		11000		11000	
11,10	12	118	71	56	45	11100		11100		11100		11100		11100		11100	
11,20	12	118	71	56	45	11200		11200		11200		11200		11200		11200	
11,25	12	118	71	56	45					11250		11250		11250			
11,30	12	118	71	56	45	11300		11300		11300		11300		11300		11300	
11,35	12	118	71	56	45					11350		11350		11350			
11,40	12	118	71	56	45	11400		11400		11400		11400		11400		11400	
11,45	12	118	71	56	45					11450		11450		11450			
11,50	12	118	71	56	45	11500		11500		11500		11500		11500		11500	
11,60	12	118	71	56	45	11600		11600		11600		11600		11600		11600	

Steel	●	●	●	●	●	●
Stainless steel	●	●	○	○	○	○
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys						
Hardened materials		○	○	○	○	○

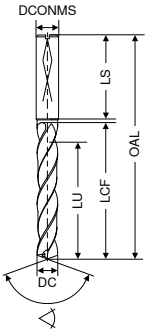
→ v_c Page 96–104

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

Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 5xD



Feed UNI = Three Cutting Edges

Feed UNI	Speed UNI	UNI	UNI	UNI	Quattro 4F
DPX74S	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
HA	HA	HA	HB	HE	HA
140°	145°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
NEW	NEW				NEW
Article no. 10 789 ...	Article no. 10 771 ...	Article no. 11 786 ...	Article no. 11 787 ...	Article no. 11 785 ...	Article no. 10 735 ...

DC m7/h7	DCONMS h6	OAL	LCF	LU	LS												
mm	mm	mm	mm	mm	mm												
11,70	12	118	71	56	45		11700		11700		11700		11700		11700		11700
11,80	12	118	71	56	45		11800		11800		11800		11800		11800		11800
11,90	12	118	71	56	45		11900		11900		11900		11900		11900		11900
12,00	12	118	71	56	45		12000		12000		12000		12000		12000		12000
12,15	14	124	77	60	45						12150		12150		12150		
12,20	14	124	77	60	45				12200								
12,25	14	124	77	60	45						12250		12250		12250		
12,50	14	124	77	60	45		12500		12500		12500		12500		12500		12500
12,55	14	124	77	60	45						12550		12550		12550		
12,70	14	124	77	60	45						12700		12700		12700		
12,80	14	124	77	60	45		12800		12800		12800		12800		12800		12800
12,90	14	124	77	60	45						12900		12900		12900		
13,00	14	124	77	60	45		13000		13000		13000		13000		13000		13000
13,10	14	124	77	60	45						13100		13100		13100		
13,30	14	124	77	60	45						13300		13300		13300		
13,35	14	124	77	60	45						13350		13350		13350		
13,50	14	124	77	60	45		13500		13500		13500		13500		13500		13500
13,70	14	124	77	60	45						13700		13700		13700		
13,80	14	124	77	60	45		13800		13800		13800		13800		13800		13800
14,00	14	124	77	60	45		14000		14000		14000		14000		14000		14000
14,20	16	133	83	63	48				14200		14200		14200		14200		
14,50	16	133	83	63	48		14500		14500		14500		14500		14500		14500
14,80	16	133	83	63	48		14800		14800		14800		14800		14800		14800
15,00	16	133	83	63	48		15000		15000		15000		15000		15000		15000
15,10	16	133	83	63	48						15100		15100		15100		
15,20	16	133	83	63	48				15200								
15,25	16	133	83	63	48						15250		15250		15250		
15,30	16	133	83	63	48						15300		15300		15300		
15,35	16	133	83	63	48						15350		15350		15350		
15,50	16	133	83	63	48		15500		15500		15500		15500		15500		15500
15,60	16	133	83	63	48						15600		15600		15600		
15,80	16	133	83	63	48		15800		15800		15800		15800		15800		15800
16,00	16	133	83	63	48		16000		16000		16000		16000		16000		16000
16,05	18	143	93	71	48						16050		16050		16050		
16,50	18	143	93	71	48		16500		16500		16500		16500		16500		16500
16,80	18	143	93	71	48		16800		16800		16800		16800		16800		16800

Steel	●	●	●	●	●	●
Stainless steel	●	●	○	○	○	○
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys						
Hardened materials		○	○	○	○	○

→ v_c Page 96–104

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

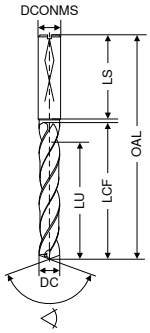
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WTX – High Performance Drill, DIN 6537

≤ 5xD

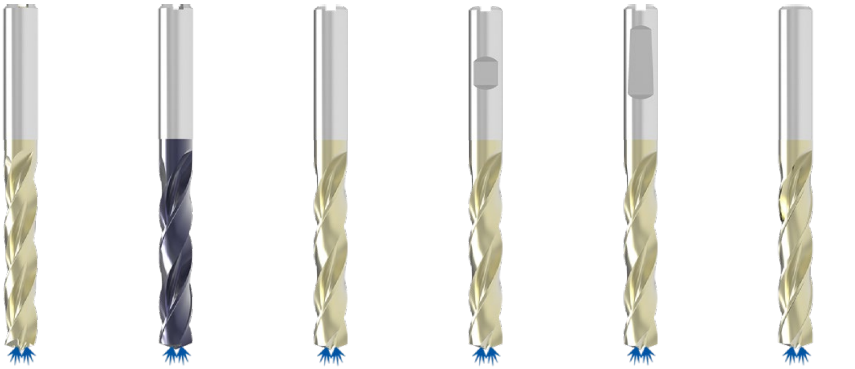






Feed UNI = Three Cutting Edges

Feed UNI	Speed UNI	UNI	UNI	UNI	Quattro 4F
DPX74S	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



HA	HA	HA	HB	HE	HA
140°	145°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC $_{m7/h7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	NEW Article no. 10 789 ...	NEW Article no. 10 771 ...	Article no. 11 786 ...	Article no. 11 787 ...	Article no. 11 785 ...	NEW Article no. 10 735 ...
mm	mm	mm	mm	mm	mm						
16,90	18	143	93	71	48			16900	16900	16900	
17,00	18	143	93	71	48	17000	17000	17000	17000	17000	17000
17,50	18	143	93	71	48	17500	17500	17500	17500	17500	17500
17,60	18	143	93	71	48			17600	17600	17600	
17,80	18	143	93	71	48	17800	17800	17800	17800	17800	17800
18,00	18	143	93	71	48	18000	18000	18000	18000	18000	18000
18,50	20	153	101	77	50	18500	18500	18500	18500	18500	18500
18,80	20	153	101	77	50	18800	18800	18800	18800	18800	18800
18,90	20	153	101	77	50			18900	18900	18900	
19,00	20	153	101	77	50	19000	19000	19000	19000	19000	19000
19,35	20	153	101	77	50			19350	19350	19350	
19,50	20	153	101	77	50	19500	19500	19500	19500	19500	19500
19,60	20	153	101	77	50			19600	19600	19600	
19,80	20	153	101	77	50	19800	19800	19800	19800	19800	19800
20,00	20	153	101	77	50	20000	20000	20000	20000	20000	20000
20,50	25	200	135	110	56			20500	20500	20500	
21,00	25	200	135	110	56			21000	21000	21000	
21,50	25	200	135	110	56			21500	21500	21500	
22,00	25	200	135	110	56			22000	22000	22000	
22,50	25	200	140	120	56			22500	22500	22500	
23,00	25	200	140	120	56			23000	23000	23000	
23,50	25	200	140	120	56			23500	23500	23500	
24,00	25	200	140	120	56			24000	24000	24000	
24,50	25	200	140	120	56			24500	24500	24500	
25,00	25	200	140	120	56			25000	25000	25000	

Steel	●	●	●	●	●	●
Stainless steel	●	●	○	○	○	○
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys						
Hardened materials		○	○	○	○	○

→ v_c Page 96–104

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

WTX – High-performance drill, DIN 6537

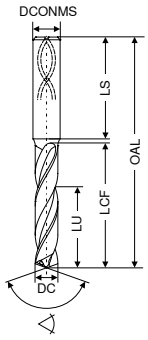
≤ 5xD





Speed VA	VA	VA	GG	AL	Ti
Ti800	Ti700	Ti700	Ti700	DLC	DPA54

DRAGONSKIN



Type GG = Straight Fluted



	HA	HA	HE	HA	HA	HA
	135°	140°	140°	130°	135°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
					NEW	
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	Article no. 10 773 ...	Article no. 10 745 ...	Article no. 10 746 ...	Article no. 10 749 ...	Article no. 10 791 ...	Article no. 10 787 ...
2,50	4	57	21	17	28					02500	
2,60	4	57	21	17	28					02600	
2,70	4	57	21	17	28					02700	
2,80	4	57	21	17	28					02800	
2,90	4	57	21	17	28					02900	
3,00	6	66	28	23	36	030	030	030	030	03000	030
3,10	6	66	28	23	36	031	031	031	031	03100	031
3,15	6	66	28	23	36		831				
3,20	6	66	28	23	36	032	032	032	032	03200	032
3,22	6	66	28	23	36		832				
3,25	6	66	28	23	36		890				
3,30	6	66	28	23	36	033	033	033	033	03300	033
3,40	6	66	28	23	36	034	034	034	034	03400	034
3,50	6	66	28	23	36	035	035	035	035	03500	035
3,60	6	66	28	23	36	036	036	036	036	03600	036
3,70	6	66	28	23	36	037	037	037	037	03700	037
3,80	6	74	36	29	36	038	038	038	038	03800	038
3,85	6	74	36	29	36		838				
3,90	6	74	36	29	36	039	039	039	039	03900	039
3,97	6	74	36	29	36						900
4,00	6	74	36	29	36	040	040	040	040	04000	040
4,10	6	74	36	29	36	041	041	041	041	04100	041
4,20	6	74	36	29	36	042	042	042	042	04200	042
4,23	6	74	36	29	36						901
4,30	6	74	36	29	36	043	043	043	043	04300	043
4,35	6	74	36	29	36		843				
4,40	6	74	36	29	36	044	044	044	044	04400	044
4,45	6	74	36	29	36		844				
4,50	6	74	36	29	36	045	045	045	045	04500	045
4,60	6	74	36	29	36	046	046	046	046	04600	046
4,65	6	74	36	29	36	900	900				
4,70	6	74	36	29	36	047	047	047	047	04700	047
4,80	6	82	44	35	36	048	048	048	048	04800	048
4,90	6	82	44	35	36	049	049	049	049	04900	049
5,00	6	82	44	35	36	050	050	050	050	05000	050
5,10	6	82	44	35	36	051	051	051	051	05100	051
5,20	6	82	44	35	36	052	052	052	052	05200	052
5,30	6	82	44	35	36	053	053	053	053	05300	053
5,40	6	82	44	35	36	054	054	054	054	05400	054
5,50	6	82	44	35	36	055	055	055	055	05500	055
5,55	6	82	44	35	36	902					

Steel	○	○	○			
Stainless steel	●	●	●			●
Cast iron	○	○	○	●	○	
Non ferrous metals	○	●	●	●	●	
Heat resistant alloys	○	○	○			●

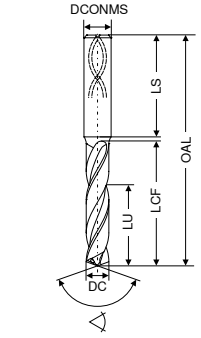
→ v_c Page 95–108

Ø DC$_{m7}$ for Type VA, Ti and GG / **Ø DC$_{h7}$** for Type Speed VA and AL

Continued on next page

WTX – High-performance drill, DIN 6537

≤ 5xD



Type GG = Straight Fluted

Speed VA	VA	VA	GG	AL	Ti
Ti800	Ti700	Ti700	Ti700	DLC	DPA54
					DRAGONSKIN



	HA	HA	HE	HA	HA	HA
	135°	140°	140°	130°	135°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
					NEW	
DC m7/h7	Article no. 10 773 ...	Article no. 10 745 ...	Article no. 10 746 ...	Article no. 10 749 ...	Article no. 10 791 ...	Article no. 10 787 ...
mm						

DC m7/h7	DCONMS h6	OAL	LCF	LU	LS	10 773 ...	10 745 ...	10 746 ...	10 749 ...	10 791 ...	10 787 ...
mm	mm	mm	mm	mm	mm						
5,56	6	82	44	35	36						902
5,60	6	82	44	35	36	056	056	056	056	05600	056
5,70	6	82	44	35	36	057	057	057	057	05700	057
5,75	6	82	44	35	36		916				
5,80	6	82	44	35	36	058	058	058	058	05800	058
5,90	6	82	44	35	36	059	059	059	059	05900	059
5,95	6	82	44	35	36		959				
6,00	6	82	44	35	36	060	060	060	060	06000	060
6,10	8	91	53	43	36	061	061	061	061	06100	061
6,20	8	91	53	43	36	062	062	062	062	06200	062
6,30	8	91	53	43	36	063	063	063	063	06300	063
6,35	8	91	53	43	36						903
6,40	8	91	53	43	36	064	064	064	064	06400	064
6,50	8	91	53	43	36	065	065	065	065	06500	065
6,60	8	91	53	43	36	066	066	066	066	06600	066
6,70	8	91	53	43	36	067	067	067	067	06700	067
6,80	8	91	53	43	36	068	068	068	068	06800	068
6,90	8	91	53	43	36	069	069	069	069	06900	069
7,00	8	91	53	43	36	070	070	070	070	07000	070
7,10	8	91	53	43	36	071	071	071	071	07100	071
7,20	8	91	53	43	36	072	072	072	072	07200	072
7,30	8	91	53	43	36	073	073	073	073	07300	073
7,40	8	91	53	43	36	074	074	074	074	07400	074
7,45	8	91	53	43	36		924				
7,50	8	91	53	43	36	075	075	075	075	07500	075
7,60	8	91	53	43	36	076	076	076	076	07600	076
7,70	8	91	53	43	36	077	077	077	077	07700	077
7,80	8	91	53	43	36	078	078	078	078	07800	078
7,90	8	91	53	43	36	079	079	079	079	07900	079
7,94	8	91	53	43	36						904
8,00	8	91	53	43	36	080	080	080	080	08000	080
8,10	10	103	61	49	40	081	081	081	081	08100	081
8,20	10	103	61	49	40	082	082	082	082	08200	082
8,30	10	103	61	49	40	083	083	083	083	08300	083
8,40	10	103	61	49	40	084	084	084	084	08400	084
8,50	10	103	61	49	40	085	085	085	085	08500	085
8,60	10	103	61	49	40	086	086	086	086	08600	086
8,70	10	103	61	49	40	087	087	087	087	08700	087
8,80	10	103	61	49	40	088	088	088	088	08800	088
8,90	10	103	61	49	40	089	089	089	089	08900	089
9,00	10	103	61	49	40	090	090	090	090	09000	090

Steel	○	○	○			
Stainless steel	●	●	●			●
Cast iron	○	○	○	●	○	
Non ferrous metals	○	●	●	●	●	
Heat resistant alloys	○	○	○			●

→ v_c Page 95–108

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

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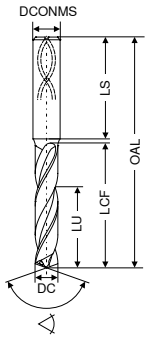
WTX – High-performance drill, DIN 6537

≤ 5xD





Speed VA	VA	VA	GG	AL	Ti
Ti800	Ti700	Ti700	Ti700	DLC	DPA54
					DRAGONSKIN



Type GG = Straight Fluted



HA	HA	HE	HA	HA	HA
135°	140°	140°	130°	135°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
				NEW	

DC $_{m7/h7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	Article no. 10 773 ...	Article no. 10 745 ...	Article no. 10 746 ...	Article no. 10 749 ...	Article no. 10 791 ...	Article no. 10 787 ...
mm	mm	mm	mm	mm	mm						
9,10	10	103	61	49	40	091	091	091	091	09100	091
9,20	10	103	61	49	40	092	092	092	092	09200	092
9,30	10	103	61	49	40	093	093	093	093	09300	093
9,35	10	103	61	49	40		930				
9,40	10	103	61	49	40	094	094	094	094	09400	094
9,45	10	103	61	49	40		994				
9,50	10	103	61	49	40	095	095	095	095	09500	095
9,53	10	103	61	49	40						905
9,60	10	103	61	49	40	096	096	096	096	09600	096
9,70	10	103	61	49	40	097	097	097	097	09700	097
9,80	10	103	61	49	40	098	098	098	098	09800	098
9,90	10	103	61	49	40	099	099	099	099	09900	099
10,00	10	103	61	49	40	100	100	100	100	10000	100
10,10	12	118	71	54	45						101
10,10	12	118	71	56	45	101	101	101	101	10100	
10,20	12	118	71	54	45						102
10,20	12	118	71	56	45	102	102	102	102	10200	
10,30	12	118	71	54	45						103
10,30	12	118	71	56	45	103	103	103	103	10300	
10,40	12	118	71	54	45						104
10,40	12	118	71	56	45	104	104	104	104	10400	
10,50	12	118	71	56	45	105	105	105	105	10500	
10,50	12	118	71	54	45						105
10,55	12	118	71	56	45		932				
10,60	12	118	71	56	45	106	106	106	106	10600	
10,60	12	118	71	54	45						106
10,70	12	118	71	54	45						107
10,70	12	118	71	56	45	107	107	107	107	10700	
10,80	12	118	71	54	45						108
10,80	12	118	71	56	45	108	108	108	108	10800	
10,90	12	118	71	54	45						109
10,90	12	118	71	56	45	109	109	109	109		
11,00	12	118	71	54	45						110
11,00	12	118	71	56	45	110	110	110	110	11000	
11,10	12	118	71	56	45	111	111	111	111	11100	
11,10	12	118	71	54	45						111
11,11	12	118	71	54	45						906
11,20	12	118	71	56	45	112	112	112	112	11200	
11,20	12	118	71	54	45						112
11,25	12	118	71	56	45		912				
11,30	12	118	71	56	45	113	113	113	113	11300	

Steel	○	○	○			
Stainless steel	●	●	●			●
Cast iron	○	○	○	●	○	
Non ferrous metals	○	●	●	●	●	
Heat resistant alloys	○	○	○			●

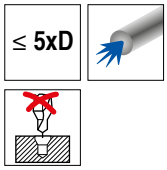
→ v_c Page 95–108

Ø DC$_{m7}$ for Type VA, Ti and GG / **Ø DC$_{h7}$** for Type Speed VA and AL

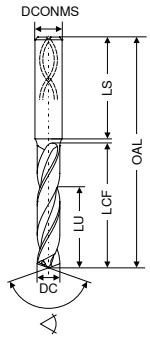
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WTX – High-performance drill, DIN 6537

≤ 5xD



Speed VA	VA	VA	GG	AL	Ti
Ti800	Ti700	Ti700	Ti700	DLC	DPA54
					DRAGONSKIN



Type GG = Straight Fluted



	HA	HA	HE	HA	HA	HA
	135°	140°	140°	130°	135°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
					NEW	

DC m7/h7	DCONMS h6	OAL	LCF	LU	LS	Article no. 10 773 ...	Article no. 10 745 ...	Article no. 10 746 ...	Article no. 10 749 ...	Article no. 10 791 ...	Article no. 10 787 ...
mm	mm	mm	mm	mm	mm						
11,30	12	118	71	54	45						113
11,35	12	118	71	56	45		913				
11,40	12	118	71	54	45						114
11,40	12	118	71	56	45	114	114	114	114	11400	
11,45	12	118	71	56	45		914				
11,50	12	118	71	56	45	115	115	115	115	11500	
11,50	12	118	71	54	45						115
11,60	12	118	71	54	45						116
11,60	12	118	71	56	45	116	116	116	116		
11,70	12	118	71	54	45						117
11,70	12	118	71	56	45	117	117	117	117	11700	
11,80	12	118	71	54	45						118
11,80	12	118	71	56	45	118	118	118	118	11800	
11,90	12	118	71	54	45						119
11,90	12	118	71	56	45	119	119	119	119		
12,00	12	118	71	54	45						120
12,00	12	118	71	56	45	120	120	120	120	12000	
12,10	14	124	77	58	45						121
12,15	14	124	77	60	45		921				
12,20	14	124	77	58	45						122
12,20	14	124	77	60	45					12200	
12,30	14	124	77	58	45						123
12,40	14	124	77	58	45						124
12,50	14	124	77	58	45						125
12,50	14	124	77	60	45	125	125	125	125	12500	
12,55	14	124	77	60	45		925				
12,60	14	124	77	58	45						126
12,60	14	124	77	60	45					12600	
12,70	14	124	77	58	45						907
12,80	14	124	77	58	45						128
12,80	14	124	77	60	45	128	128	128	128	12800	
12,90	14	124	77	58	45						129
13,00	14	124	77	58	45						130
13,00	14	124	77	60	45	130	130	130	130	13000	
13,10	14	124	77	58	45						131
13,20	14	124	77	58	45						132
13,30	14	124	77	58	45						133
13,35	14	124	77	60	45		933				
13,40	14	124	77	58	45						134
13,50	14	124	77	60	45	135	135	135	135	13500	
13,50	14	124	77	58	45						135

Steel	○	○	○			
Stainless steel	●	●	●			●
Cast iron	○	○	○	●	○	
Non ferrous metals	○	●	●	●	●	
Heat resistant alloys	○	○	○			●

→ v_c Page 95-108

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

Continued on next page

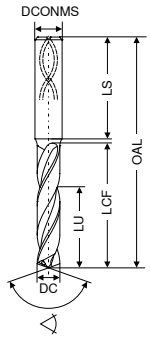
WTX – High-performance drill, DIN 6537

≤ 5xD





Speed VA	VA	VA	GG	AL	Ti
Ti800	Ti700	Ti700	Ti700	DLC	DPA54
					DRAGONSKIN



Type GG = Straight Fluted



HA
135°
Solid carbide



HA
140°
Solid carbide



HE
140°
Solid carbide



HA
130°
Solid carbide



HA
135°
Solid carbide

NEW



HA
140°
Solid carbide

DC m7/h7	DCONMS h6	OAL	LCF	LU	LS	Article no. 10 773 ...	Article no. 10 745 ...	Article no. 10 746 ...	Article no. 10 749 ...	Article no. 10 791 ...	Article no. 10 787 ...
mm	mm	mm	mm	mm	mm						
13,60	14	124	77	58	45						136
13,70	14	124	77	58	45						137
13,80	14	124	77	58	45						138
13,80	14	124	77	60	45	138	138	138	138	13800	
13,90	14	124	77	58	45						139
14,00	14	124	77	60	45	140	140	140	140	14000	
14,00	14	124	77	58	45						140
14,10	16	133	83	61	48						141
14,20	16	133	83	61	48						142
14,20	16	133	83	63	48					14200	
14,30	16	133	83	61	48						143
14,40	16	133	83	61	48						144
14,50	16	133	83	61	48						145
14,50	16	133	83	63	48	145	145	145	145	14500	
14,60	16	133	83	61	48						146
14,70	16	133	83	61	48						147
14,80	16	133	83	61	48						148
14,80	16	133	83	63	48	148	148	148	148	14800	
14,90	16	133	83	61	48						149
15,00	16	133	83	61	48						150
15,00	16	133	83	63	48	150	150	150	150	15000	
15,10	16	133	83	61	48						151
15,20	16	133	83	61	48						152
15,20	16	133	83	63	48					15200	
15,30	16	133	83	61	48						153
15,35	16	133	83	63	48		953				
15,40	16	133	83	61	48						154
15,50	16	133	83	61	48						155
15,50	16	133	83	63	48	155	155	155	155	15500	
15,60	16	133	83	61	48						156
15,70	16	133	83	61	48						157
15,80	16	133	83	61	48						158
15,80	16	133	83	63	48	158	158	158	158	15800	
15,90	16	133	83	61	48						159
16,00	16	133	83	61	48						160
16,00	16	133	83	63	48	160	160	160	160	16000	
16,05	18	143	93	71	48		960				
16,10	18	143	93	69	48						161
16,20	18	143	93	69	48						162
16,30	18	143	93	69	48						163
16,40	18	143	93	69	48						164

Steel	○	○	○			
Stainless steel	●	●	●			●
Cast iron	○	○	○	●	○	
Non ferrous metals	○	●	●	●	●	
Heat resistant alloys	○	○	○			●

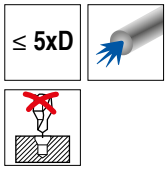
→ v_c Page 95–108

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

Continued on next page

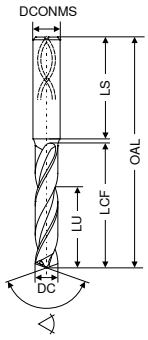
WTX – High-performance drill, DIN 6537

≤ 5xD



Speed VA	VA	VA	GG	AL	Ti
Ti800	Ti700	Ti700	Ti700	DLC	DPA54

DRAGONSKIN



Type GG = Straight Fluted



	HA	HA	HE	HA	HA	HA
	135°	140°	140°	130°	135°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
					NEW	
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	Article no. 10 773 ...	Article no. 10 745 ...	Article no. 10 746 ...	Article no. 10 749 ...	Article no. 10 791 ...	Article no. 10 787 ...
16,50	18	143	93	69	48						165
16,50	18	143	93	71	48	165	165	165	165	16500	
16,60	18	143	93	69	48						166
16,70	18	143	93	69	48						167
16,80	18	143	93	69	48						168
16,80	18	143	93	71	48	168	168	168	168		
16,90	18	143	93	69	48						169
17,00	18	143	93	71	48	170	170	170	170	17000	
17,00	18	143	93	69	48						170
17,10	18	143	93	69	48						171
17,20	18	143	93	69	48						172
17,30	18	143	93	69	48						173
17,40	18	143	93	69	48						174
17,50	18	143	93	69	48						175
17,50	18	143	93	71	48	175	175	175	175	17500	
17,60	18	143	93	69	48						176
17,70	18	143	93	69	48						177
17,80	18	143	93	69	48						178
17,80	18	143	93	71	48	178	178	178	178		
17,90	18	143	93	69	48						179
18,00	18	143	93	69	48						180
18,00	18	143	93	71	48	180	180	180	180	18000	
18,10	20	153	101	75	50						181
18,20	20	153	101	75	50						182
18,30	20	153	101	75	50						183
18,40	20	153	101	75	50						184
18,50	20	153	101	75	50						185
18,50	20	153	101	77	50	185	185	185	185	18500	
18,60	20	153	101	75	50						186
18,70	20	153	101	75	50						187
18,80	20	153	101	75	50						188
18,80	20	153	101	77	50	188	188	188	188		
18,90	20	153	101	75	50						189
19,00	20	153	101	75	50						190
19,00	20	153	101	77	50	190	190	190	190	19000	
19,10	20	153	101	75	50						191
19,20	20	153	101	75	50						192
19,30	20	153	101	75	50						193
19,35	20	153	101	77	50		993				
19,40	20	153	101	75	50						194
19,50	20	153	101	77	50	195	195	195	195	19500	

Steel	○	○	○			
Stainless steel	●	●	●			●
Cast iron	○	○	○	●	○	
Non ferrous metals	○	●	●	●	●	
Heat resistant alloys	○	○	○			●

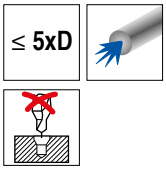
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Ø DC_{m7} for Type VA, Ti and GG / **Ø DC_{h7}** for Type Speed VA and AL

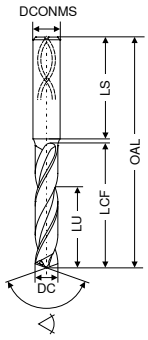
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WTX – High-performance drill, DIN 6537

≤ 5xD



Speed VA	VA	VA	GG	AL	Ti
Ti800	Ti700	Ti700	Ti700	DLC	DPA54
					DRAGONSKIN



Type GG = Straight Fluted



	HA	HA	HE	HA	HA	HA
	135°	140°	140°	130°	135°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
					NEW	
DC m7/h7	Article no. 10 773 ...	Article no. 10 745 ...	Article no. 10 746 ...	Article no. 10 749 ...	Article no. 10 791 ...	Article no. 10 787 ...
mm						
19,50						195
19,60						196
19,70						197
19,80	198	198	198	198		
19,80						198
19,90						199
20,00						200
20,00	200	200	200	200	20000	

DCONMS h6	OAL	LCF	LU	LS
mm	mm	mm	mm	mm
20	153	101	75	50
20	153	101	75	50
20	153	101	75	50
20	153	101	77	50
20	153	101	75	50
20	153	101	75	50
20	153	101	75	50
20	153	101	77	50

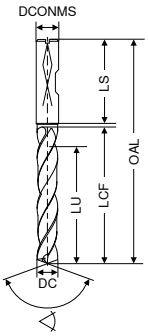
Steel	○	○	○			
Stainless steel	●	●	●			●
Cast iron	○	○	○	●	○	
Non ferrous metals	○	●	●	●	●	
Heat resistant alloys	○	○	○			●

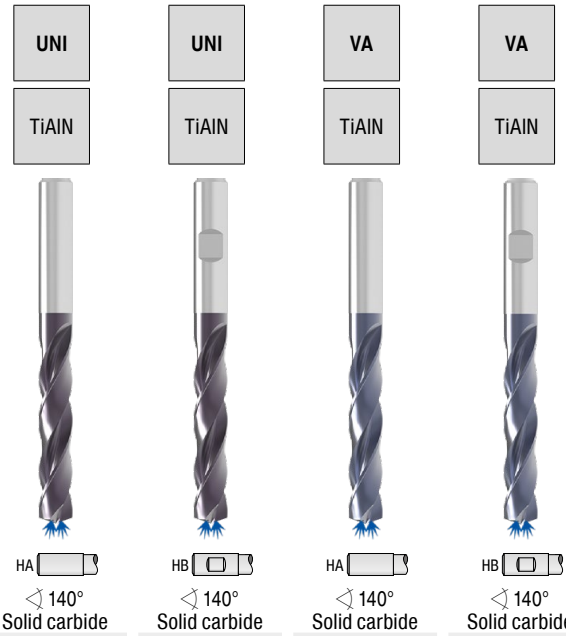
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Ø DC_{m7} for Type VA, Ti and GG / **Ø DC_{h7}** for Type Speed VA and AL

WPC – High Performance Drill, DIN 6537

≤ 5xD





140°
Solid carbide

140°
Solid carbide

140°
Solid carbide

140°
Solid carbide

DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 609 ...	Article no. 11 610 ...	Article no. 11 629 ...	Article no. 11 630 ...
mm	mm	mm	mm	mm	mm				
1,00	4	45	8,0	6,5	30,0	010		010	
1,10	4	45	8,8	7,2	29,0	011		011	
1,20	4	45	9,6	7,8	29,0	012		012	
1,30	4	45	10,4	8,5	28,5	013		013	
1,40	4	45	11,2	9,1	28,0	014		014	
1,50	4	50	12,0	9,8	32,0	015		015	
1,60	4	50	12,8	10,4	31,0	016		016	
1,70	4	50	13,6	11,1	30,5	017		017	
1,80	4	50	14,4	11,7	30,0	018		018	
1,90	4	50	15,2	12,4	29,5	019		019	
2,00	4	50	16,0	13,0	29,0	020		020	
2,10	4	55	16,8	13,7	33,0	021		021	
2,20	4	55	17,6	14,3	32,5	022		022	
2,30	4	55	18,4	15,0	32,0	023		023	
2,40	4	55	19,2	15,6	31,5	024		024	
2,50	4	55	20,0	16,3	30,5	025		025	
2,60	4	55	20,8	16,9	30,0	026		026	
2,70	4	55	21,6	17,6	29,0	027		027	
2,80	4	55	22,4	18,2	29,0	028		028	
2,90	4	55	23,2	18,9	28,5	029		029	
3,00	6	66	28,0	23,0	36,0	030	030	030	030
3,10	6	66	28,0	23,0	36,0	031	031	031	031
3,20	6	66	28,0	23,0	36,0	032	032	032	032
3,25	6	66	28,0	23,0	36,0	890	890	03250	
3,30	6	66	28,0	23,0	36,0	033	033	033	033
3,40	6	66	28,0	23,0	36,0	034	034	034	034
3,50	6	66	28,0	23,0	36,0	035	035	035	035
3,60	6	66	28,0	23,0	36,0	036	036	036	036
3,70	6	66	28,0	23,0	36,0	037	037	037	037
3,80	6	74	36,0	29,0	36,0	038	038	038	038
3,90	6	74	36,0	29,0	36,0	039	039	039	039
4,00	6	74	36,0	29,0	36,0	040	040	040	040
4,10	6	74	36,0	29,0	36,0	041	041	041	041
4,20	6	74	36,0	29,0	36,0	042	042	042	042
4,30	6	74	36,0	29,0	36,0	043	043	043	043
4,40	6	74	36,0	29,0	36,0	044	044	044	044
4,50	6	74	36,0	29,0	36,0	045	045	045	045
4,60	6	74	36,0	29,0	36,0	046	046	046	046
4,65	6	74	36,0	29,0	36,0	900	900	900	900
4,70	6	74	36,0	29,0	36,0	047	047	047	047
4,80	6	82	44,0	35,0	36,0	048	048	048	048
4,90	6	82	44,0	35,0	36,0	049	049	049	049
5,00	6	82	44,0	35,0	36,0	050	050	050	050
5,10	6	82	44,0	35,0	36,0	051	051	051	051

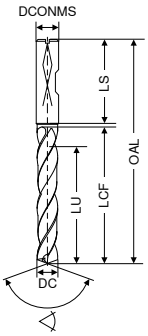
Steel	●	●	○	○
Stainless steel	○	○	●	●
Cast iron	●	●	○	○
Non ferrous metals	○	○	●	●
Heat resistant alloys			●	●

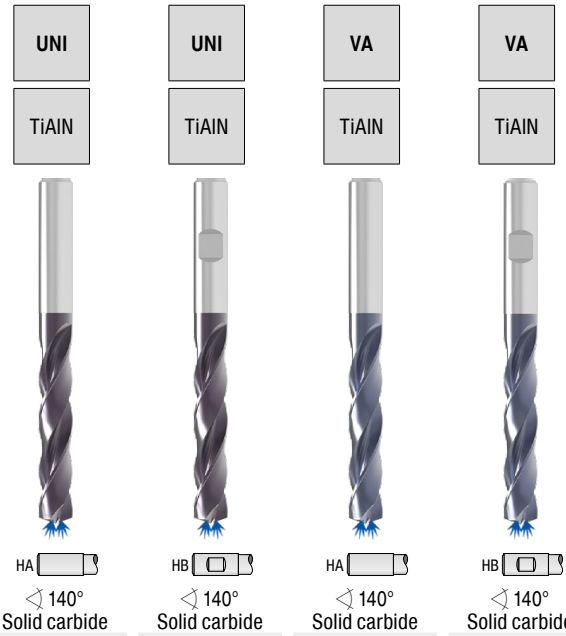
→ v_c Page 117+121

Continued on next page

WPC – High Performance Drill, DIN 6537

≤ 5xD





Solid carbide | Solid carbide | Solid carbide | Solid carbide

DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 609 ...	Article no. 11 610 ...	Article no. 11 629 ...	Article no. 11 630 ...
mm	mm	mm	mm	mm	mm				
5,20	6	82	44,0	35,0	36,0	052	052	052	052
5,30	6	82	44,0	35,0	36,0	053	053	053	053
5,40	6	82	44,0	35,0	36,0	054	054	054	054
5,50	6	82	44,0	35,0	36,0	055	055	055	055
5,55	6	82	44,0	35,0	36,0	902	902	902	902
5,60	6	82	44,0	35,0	36,0	056	056	056	056
5,70	6	82	44,0	35,0	36,0	057	057	057	057
5,80	6	82	44,0	35,0	36,0	058	058	058	058
5,90	6	82	44,0	35,0	36,0	059	059	059	059
6,00	6	82	44,0	35,0	36,0	060	060	060	060
6,10	8	91	53,0	43,0	36,0	061	061	061	061
6,20	8	91	53,0	43,0	36,0	062	062	062	062
6,30	8	91	53,0	43,0	36,0	063	063	063	063
6,40	8	91	53,0	43,0	36,0	064	064	064	064
6,50	8	91	53,0	43,0	36,0	065	065	065	065
6,60	8	91	53,0	43,0	36,0	066	066	066	066
6,70	8	91	53,0	43,0	36,0	067	067	067	067
6,80	8	91	53,0	43,0	36,0	068	068	068	068
6,90	8	91	53,0	43,0	36,0	069	069	069	069
7,00	8	91	53,0	43,0	36,0	070	070	070	070
7,10	8	91	53,0	43,0	36,0	071	071	071	071
7,20	8	91	53,0	43,0	36,0	072	072	072	072
7,30	8	91	53,0	43,0	36,0	073	073	073	073
7,40	8	91	53,0	43,0	36,0	074	074	074	074
7,45	8	91	53,0	43,0	36,0	924	924	07450	
7,50	8	91	53,0	43,0	36,0	075	075	075	075
7,55	8	91	53,0	43,0	36,0	975	975	975	975
7,60	8	91	53,0	43,0	36,0	076	076	076	076
7,70	8	91	53,0	43,0	36,0	077	077	077	077
7,80	8	91	53,0	43,0	36,0	078	078	078	078
7,90	8	91	53,0	43,0	36,0	079	079	079	079
8,00	8	91	53,0	43,0	36,0	080	080	080	080
8,10	10	103	61,0	49,0	40,0	081	081	081	081
8,20	10	103	61,0	49,0	40,0	082	082	082	082
8,30	10	103	61,0	49,0	40,0	083	083	083	083
8,40	10	103	61,0	49,0	40,0	084	084	084	084
8,50	10	103	61,0	49,0	40,0	085	085	085	085
8,60	10	103	61,0	49,0	40,0	086	086	086	086
8,70	10	103	61,0	49,0	40,0	087	087	087	087
8,80	10	103	61,0	49,0	40,0	088	088	088	088
8,90	10	103	61,0	49,0	40,0	089	089	089	089
9,00	10	103	61,0	49,0	40,0	090	090	090	090
9,10	10	103	61,0	49,0	40,0	091	091	091	091
9,20	10	103	61,0	49,0	40,0	092	092	092	092

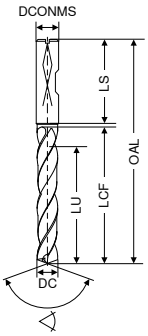
Steel	●	●	○	○
Stainless steel	○	○	●	●
Cast iron	●	●	○	○
Non ferrous metals	○	○	●	●
Heat resistant alloys			●	●

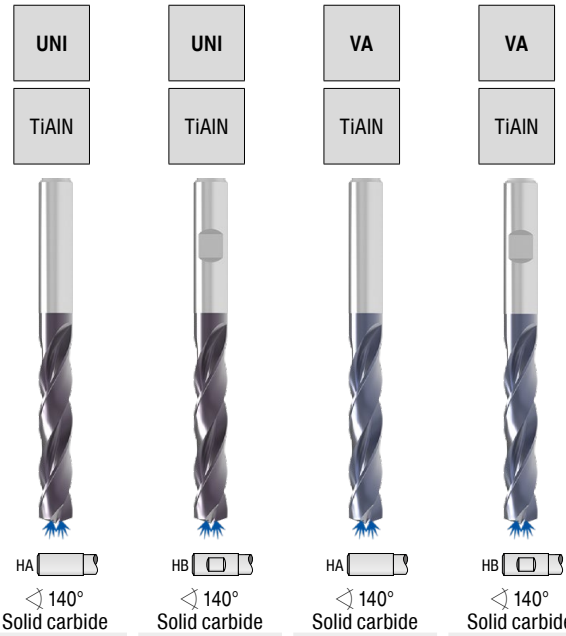
→ v_c Page 117+121

Continued on next page

WPC – High Performance Drill, DIN 6537

≤ 5xD





140°
Solid carbide

140°
Solid carbide

140°
Solid carbide

140°
Solid carbide

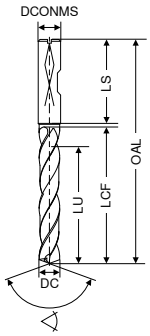
DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 609 ...	Article no. 11 610 ...	Article no. 11 629 ...	Article no. 11 630 ...
mm	mm	mm	mm	mm	mm				
9,25	10	103	61,0	49,0	40,0	925	925	925	925
9,30	10	103	61,0	49,0	40,0	093	093	093	093
9,35	10	103	61,0	49,0	40,0	930	930	09350	
9,40	10	103	61,0	49,0	40,0	094	094	094	094
9,50	10	103	61,0	49,0	40,0	095	095	095	095
9,60	10	103	61,0	49,0	40,0	096	096	096	096
9,70	10	103	61,0	49,0	40,0	097	097	097	097
9,80	10	103	61,0	49,0	40,0	098	098	098	098
9,90	10	103	61,0	49,0	40,0	099	099	099	099
10,00	10	103	61,0	49,0	40,0	100	100	100	100
10,10	12	118	71,0	56,0	45,0	101	101	101	101
10,20	12	118	71,0	56,0	45,0	102	102	102	102
10,30	12	118	71,0	56,0	45,0	103	103	103	103
10,40	12	118	71,0	56,0	45,0	104	104	104	104
10,50	12	118	71,0	56,0	45,0	105	105	105	105
10,60	12	118	71,0	56,0	45,0	106	106	106	106
10,70	12	118	71,0	56,0	45,0	107	107	107	107
10,75	12	118	71,0	56,0	45,0	904	904	10750	
10,80	12	118	71,0	56,0	45,0	108	108	108	108
10,90	12	118	71,0	56,0	45,0	109	109	109	109
11,00	12	118	71,0	56,0	45,0	110	110	110	110
11,10	12	118	71,0	56,0	45,0	111	111	111	111
11,20	12	118	71,0	56,0	45,0	112	112	112	112
11,25	12	118	71,0	56,0	45,0	912	912	11250	
11,30	12	118	71,0	56,0	45,0	113	113	113	113
11,40	12	118	71,0	56,0	45,0	114	114	114	114
11,50	12	118	71,0	56,0	45,0	115	115	115	115
11,60	12	118	71,0	56,0	45,0	116	116	116	116
11,70	12	118	71,0	56,0	45,0	117	117	117	117
11,80	12	118	71,0	56,0	45,0	118	118	118	118
11,90	12	118	71,0	56,0	45,0	119	119	119	119
12,00	12	118	71,0	56,0	45,0	120	120	120	120
12,25	14	124	77,0	60,0	45,0	122	122	12250	
12,50	14	124	77,0	60,0	45,0	125	125	125	125
12,70	14	124	77,0	60,0	45,0	127	127	127	127
12,80	14	124	77,0	60,0	45,0	128	128		
12,90	14	124	77,0	60,0	45,0	129	129		
13,00	14	124	77,0	60,0	45,0	130	130	130	130
13,10	14	124	77,0	60,0	45,0	131	131		
13,30	14	124	77,0	60,0	45,0	133	133		
13,50	14	124	77,0	60,0	45,0	135	135	135	135
13,70	14	124	77,0	60,0	45,0	137	137	137	137
13,80	14	124	77,0	60,0	45,0	138	138		
14,00	14	124	77,0	60,0	45,0	140	140	140	140
Steel						●	●	○	○
Stainless steel						○	○	●	●
Cast iron						●	●	○	○
Non ferrous metals						○	○	●	●
Heat resistant alloys								●	●

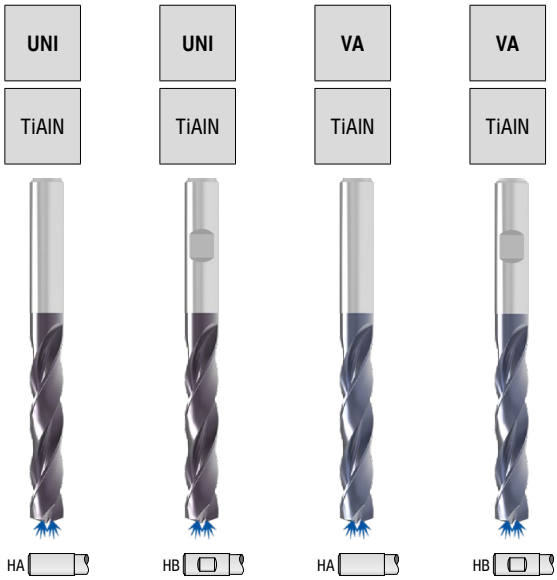
→ v_c Page 117+121

Continued on next page

WPC – High Performance Drill, DIN 6537

≤ 5xD





140°
Solid carbide

140°
Solid carbide

140°
Solid carbide

140°
Solid carbide

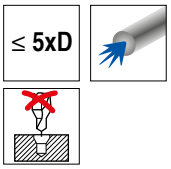
DC m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 609 ...	Article no. 11 610 ...	Article no. 11 629 ...	Article no. 11 630 ...
mm	mm	mm	mm	mm	mm				
14,20	16	133	83,0	63,0	48,0	142	142		
14,50	16	133	83,0	63,0	48,0	145	145	145	145
14,70	16	133	83,0	63,0	48,0	147	147	147	147
14,80	16	133	83,0	63,0	48,0	148	148		
15,00	16	133	83,0	63,0	48,0	150	150	150	150
15,10	16	133	83,0	63,0	48,0	151	151		
15,25	16	133	83,0	63,0	48,0	152	152		
15,30	16	133	83,0	63,0	48,0	153	153		
15,50	16	133	83,0	63,0	48,0	155	155	155	155
15,60	16	133	83,0	63,0	48,0	156	156		
15,70	16	133	83,0	63,0	48,0	157	157	157	157
15,80	16	133	83,0	63,0	48,0	158	158		
16,00	16	133	83,0	63,0	48,0	160	160	160	160
16,50	18	143	93,0	71,0	48,0	165	165	165	165
16,80	18	143	93,0	71,0	48,0	168	168		
16,90	18	143	93,0	71,0	48,0	169	169		
17,00	18	143	93,0	71,0	48,0	170	170	170	170
17,50	18	143	93,0	71,0	48,0	175	175	175	175
17,60	18	143	93,0	71,0	48,0	176	176		
17,80	18	143	93,0	71,0	48,0	178	178		
18,00	18	143	93,0	71,0	48,0	180	180	180	180
18,50	20	153	101,0	77,0	50,0	185	185	185	185
18,80	20	153	101,0	77,0	50,0	188	188		
18,90	20	153	101,0	77,0	50,0	189	189		
19,00	20	153	101,0	77,0	50,0	190	190	190	190
19,50	20	153	101,0	77,0	50,0	195	195	195	195
19,60	20	153	101,0	77,0	50,0	196	196		
19,80	20	153	101,0	77,0	50,0	198	198		
20,00	20	153	101,0	77,0	50,0	200	200	200	200
Steel						●	●	○	○
Stainless steel						○	○	●	●
Cast iron						●	●	○	○
Non ferrous metals						○	○	●	●
Heat resistant alloys								●	●

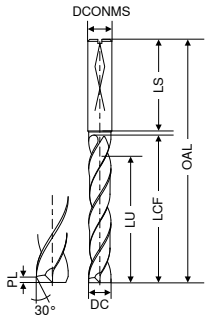
→ v_c Page 117+121

WTX – High Performance Drill, DIN 6537

- ▲ universal application
- ▲ four guidance lands
- ▲ polished chip flutes
- ▲ Type ALU 5xD (10 723 ...) on request
- ▲ PL = corner chamfers

≤ 5xD





180

Ti800





180°
Solid carbide

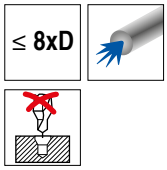
DC m7	DCONMS h6	OAL	LCF	LU	LS	PL	Article no. 10 721 ...
mm	mm	mm	mm	mm	mm	mm	
3,00	6	66	28	23	36	0,15	030
3,10	6	66	28	23	36	0,16	031
3,20	6	66	28	23	36	0,16	032
3,30	6	66	28	23	36	0,17	033
3,40	6	66	28	23	36	0,17	034
3,50	6	66	28	23	36	0,18	035
3,60	6	66	28	23	36	0,18	036
3,70	6	66	28	23	36	0,19	037
3,80	6	74	36	29	36	0,19	038
3,90	6	74	36	29	36	0,20	039
4,00	6	74	36	29	36	0,20	040
4,10	6	74	36	29	36	0,21	041
4,20	6	74	36	29	36	0,21	042
4,30	6	74	36	29	36	0,22	043
4,40	6	74	36	29	36	0,22	044
4,50	6	74	36	29	36	0,23	045
4,60	6	74	36	29	36	0,23	046
4,65	6	74	36	29	36	0,23	900
4,70	6	74	36	29	36	0,24	047
4,80	6	82	44	35	36	0,24	048
4,90	6	82	44	35	36	0,25	049
5,00	6	82	44	35	36	0,25	050
5,10	6	82	44	35	36	0,26	051
5,20	6	82	44	35	36	0,26	052
5,30	6	82	44	35	36	0,27	053
5,40	6	82	44	35	36	0,27	054
5,50	6	82	44	35	36	0,28	055
5,55	6	82	44	35	36	0,28	902
5,60	6	82	44	35	36	0,28	056
5,70	6	82	44	35	36	0,29	057
5,80	6	82	44	35	36	0,29	058
5,90	6	82	44	35	36	0,30	059
6,00	6	82	44	35	36	0,30	060
6,10	8	91	53	43	36	0,31	061
6,20	8	91	53	43	36	0,31	062
6,30	8	91	53	43	36	0,32	063
6,40	8	91	53	43	36	0,32	064
6,50	8	91	53	43	36	0,33	065
6,60	8	91	53	43	36	0,33	066
6,70	8	91	53	43	36	0,34	067
6,80	8	91	53	43	36	0,34	068
6,90	8	91	53	43	36	0,35	069
7,00	8	91	53	43	36	0,35	070
7,10	8	91	53	43	36	0,36	071
7,20	8	91	53	43	36	0,36	072
7,30	8	91	53	43	36	0,37	073
7,40	8	91	53	43	36	0,37	074
7,50	8	91	53	43	36	0,38	075
7,60	8	91	53	43	36	0,38	076
7,70	8	91	53	43	36	0,39	077
7,80	8	91	53	43	36	0,39	078
7,90	8	91	53	43	36	0,40	079
8,00	8	91	53	43	36	0,40	080
8,10	10	103	61	49	40	0,41	081
8,20	10	103	61	49	40	0,41	082
8,30	10	103	61	49	40	0,42	083
8,40	10	103	61	49	40	0,42	084
8,50	10	103	61	49	40	0,43	085
8,60	10	103	61	49	40	0,43	086
8,70	10	103	61	49	40	0,44	087
8,80	10	103	61	49	40	0,44	088
8,90	10	103	61	49	40	0,45	089
9,00	10	103	61	49	40	0,45	090
9,10	10	103	61	49	40	0,46	091
9,20	10	103	61	49	40	0,46	092
9,30	10	103	61	49	40	0,47	093
9,40	10	103	61	49	40	0,47	094
9,50	10	103	61	49	40	0,48	095
9,60	10	103	61	49	40	0,48	096
9,70	10	103	61	49	40	0,49	097
9,80	10	103	61	49	40	0,49	098
9,90	10	103	61	49	40	0,50	099
10,00	10	103	61	49	40	0,50	100
10,10	12	116	69	54	45	0,51	101
10,20	12	116	69	54	45	0,51	102
10,30	12	116	69	54	45	0,52	103
10,40	12	116	69	54	45	0,52	104
10,50	12	116	69	54	45	0,53	105
10,60	12	116	69	54	45	0,53	106
10,70	12	116	69	54	45	0,54	107
10,80	12	116	69	54	45	0,54	108
10,90	12	116	69	54	45	0,55	109
11,00	12	116	69	54	45	0,55	110
11,10	12	116	69	54	45	0,56	111
11,20	12	116	69	54	45	0,56	112
11,30	12	116	69	54	45	0,57	113
11,40	12	116	69	54	45	0,57	114
11,50	12	116	69	54	45	0,58	115
11,60	12	116	69	54	45	0,58	116
11,70	12	116	69	54	45	0,59	117
11,80	12	116	69	54	45	0,59	118
11,90	12	116	69	54	45	0,60	119
12,00	12	116	69	54	45	0,60	120
12,50	14	122	75	58	45	0,63	125
12,80	14	122	75	58	45	0,64	128
13,00	14	122	75	58	45	0,65	130
13,50	14	122	75	58	45	0,68	135
13,80	14	122	75	58	45	0,69	138
14,00	14	122	75	58	45	0,70	140
14,50	16	131	81	61	48	0,73	145
14,80	16	131	81	61	48	0,74	148
15,00	16	131	81	61	48	0,75	150
15,50	16	131	81	61	48	0,78	155
15,80	16	131	81	61	48	0,79	158
16,00	16	131	81	61	48	0,80	160
16,50	18	141	91	69	48	0,83	165
16,80	18	141	91	69	48	0,84	168
17,00	18	141	91	69	48	0,85	170
17,50	18	141	91	69	48	0,88	175
17,80	18	141	91	69	48	0,89	178
18,00	18	141	91	69	48	0,90	180
18,50	20	151	99	75	50	0,93	185
18,80	20	151	99	75	50	0,94	188
19,00	20	151	99	75	50	0,95	190
19,50	20	151	99	75	50	0,98	195
19,80	20	151	99	75	50	0,99	198
20,00	20	151	99	75	50	1,00	200

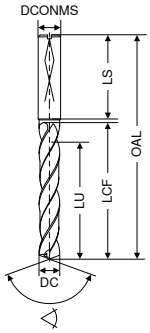
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
Hardened materials	○

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WTX – High Performance Drill, factory standard

≤ 8xD





Feed UNI = Three Cutting Edges

Feed UNI	Speed UNI	UNI	UNI	UNI	Quattro 4F
DPX74S	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



HA	HA	HA	HB	HE	HA
135°	145°	135°	135°	135°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC $_{m7/h7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	NEW Article no. 10 794 ...	NEW Article no. 10 782 ...	Article no. 11 789 ...	Article no. 11 790 ...	Article no. 11 788 ...	NEW Article no. 10 736 ...
mm	mm	mm	mm	mm	mm						
3,00	6	72	34	29	36		03000	030	030	030	03000
3,10	6	72	34	29	36		03100	031	031	031	03100
3,20	6	72	34	29	36		03200	032	032	032	03200
3,30	6	72	34	29	36		03300	033	033	033	03300
3,40	6	72	34	29	36		03400	034	034	034	03400
3,50	6	72	34	29	36		03500	035	035	035	03500
3,60	6	72	34	29	36		03600	036	036	036	03600
3,70	6	72	34	29	36		03700	037	037	037	03700
3,80	6	81	43	36	36		03800	038	038	038	03800
3,90	6	81	43	36	36		03900	039	039	039	03900
4,00	6	81	43	36	36		04000	040	040	040	04000
4,00	6	95	57	48	36	04000					
4,10	6	81	43	36	36		04100	041	041	041	04100
4,10	6	95	57	48	36	04100					
4,20	6	81	43	36	36		04200	042	042	042	04200
4,20	6	95	57	48	36	04200					
4,30	6	81	43	36	36		04300	043	043	043	04300
4,30	6	95	57	48	36	04300					
4,40	6	81	43	36	36		04400	044	044	044	04400
4,40	6	95	57	48	36	04400					
4,50	6	81	43	36	36		04500	045	045	045	04500
4,50	6	95	57	48	36	04500					
4,60	6	81	43	36	36		04600	046	046	046	04600
4,60	6	95	57	48	36	04600					
4,65	6	81	43	36	36		04650				
4,70	6	81	43	36	36		04700	047	047	047	04700
4,70	6	95	57	48	36	04700					
4,80	6	95	57	48	36	04800	04800	048	048	048	04800
4,90	6	95	57	48	36	04900	04900	049	049	049	04900
5,00	6	95	57	48	36	05000	05000	050	050	050	05000
5,10	6	95	57	48	36	05100	05100	051	051	051	05100
5,20	6	95	57	48	36	05200	05200	052	052	052	05200
5,30	6	95	57	48	36	05300	05300	053	053	053	05300
5,40	6	95	57	48	36	05400	05400	054	054	054	05400
5,50	6	95	57	48	36	05500	05500	055	055	055	05500
5,55	6	95	57	48	36	05550	05550				

Steel	●	●	●	●	●	●
Stainless steel	●	●				
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys						
Hardened materials		○				○

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

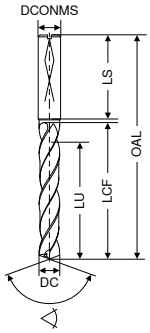
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WTX – High Performance Drill, factory standard

≤ 8xD







Feed UNI = Three Cutting Edges

Feed UNI	Speed UNI	UNI	UNI	UNI	Quattro 4F
DPX74S	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



HA	HA	HA	HB	HE	HA
135°	145°	135°	135°	135°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
NEW	NEW				NEW

DC $_{m7/h7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	Article no. 10 794 ...	Article no. 10 782 ...	Article no. 11 789 ...	Article no. 11 790 ...	Article no. 11 788 ...	Article no. 10 736 ...
mm	mm	mm	mm	mm	mm						
5,60	6	95	57	48	36	05600	05600	056	056	056	05600
5,70	6	95	57	48	36	05700	05700	057	057	057	05700
5,80	6	95	57	48	36	05800	05800	058	058	058	05800
5,90	6	95	57	48	36	05900	05900	059	059	059	05900
6,00	6	95	57	48	36	06000	06000	060	060	060	06000
6,10	8	114	76	64	36	06100	06100	061	061	061	06100
6,20	8	114	76	64	36	06200	06200	062	062	062	06200
6,30	8	114	76	64	36	06300	06300	063	063	063	06300
6,40	8	114	76	64	36	06400	06400	064	064	064	06400
6,50	8	114	76	64	36	06500	06500	065	065	065	06500
6,60	8	114	76	64	36	06600	06600	066	066	066	06600
6,70	8	114	76	64	36	06700	06700	067	067	067	06700
6,80	8	114	76	64	36	06800	06800	068	068	068	06800
6,90	8	114	76	64	36	06900	06900	069	069	069	06900
7,00	8	114	76	64	36	07000	07000	070	070	070	07000
7,10	8	114	76	64	36	07100	07100	071	071	071	07100
7,20	8	114	76	64	36	07200	07200	072	072	072	07200
7,30	8	114	76	64	36	07300	07300	073	073	073	07300
7,40	8	114	76	64	36	07400	07400	074	074	074	07400
7,50	8	114	76	64	36	07500	07500	075	075	075	07500
7,60	8	114	76	64	36	07600	07600	076	076	076	07600
7,70	8	114	76	64	36	07700	07700	077	077	077	07700
7,80	8	114	76	64	36	07800	07800	078	078	078	07800
7,90	8	114	76	64	36	07900	07900	079	079	079	07900
8,00	8	114	76	64	36	08000	08000	080	080	080	08000
8,10	10	142	95	80	40	08100	08100	081	081	081	08100
8,20	10	142	95	80	40	08200	08200	082	082	082	08200
8,30	10	142	95	80	40	08300	08300	083	083	083	08300
8,40	10	142	95	80	40	08400	08400	084	084	084	08400
8,50	10	142	95	80	40	08500	08500	085	085	085	08500
8,60	10	142	95	80	40	08600	08600	086	086	086	08600
8,70	10	142	95	80	40	08700	08700	087	087	087	08700
8,80	10	142	95	80	40	08800	08800	088	088	088	08800
8,90	10	142	95	80	40	08900	08900	089	089	089	08900
9,00	10	142	95	80	40	09000	09000	090	090	090	09000
9,10	10	142	95	80	40	09100	09100	091	091	091	09100

Steel	●	●	●	●	●	●
Stainless steel	●	●				
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys						
Hardened materials		○				○

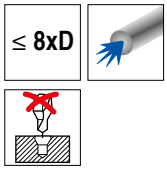
→ v_c Page 97–104

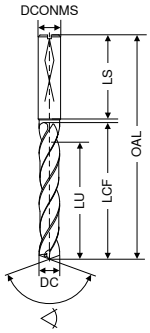
Ø DC_{m7} for Type UNI, Feed UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, factory standard

≤ 8xD





Feed UNI = Three Cutting Edges

Feed UNI	Speed UNI	UNI	UNI	UNI	Quattro 4F
DPX74S	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



HA	HA	HA	HB	HE	HA
135°	145°	135°	135°	135°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
NEW	NEW				NEW
Article no. 10 794 ...	Article no. 10 782 ...	Article no. 11 789 ...	Article no. 11 790 ...	Article no. 11 788 ...	Article no. 10 736 ...

DC $_{m7/h7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS						
mm	mm	mm	mm	mm	mm						
9,20	10	142	95	80	40	09200	09200	092	092	092	09200
9,30	10	142	95	80	40	09300	09300	093	093	093	09300
9,40	10	142	95	80	40	09400	09400	094	094	094	09400
9,50	10	142	95	80	40	09500	09500	095	095	095	09500
9,60	10	142	95	80	40	09600	09600	096	096	096	09600
9,70	10	142	95	80	40	09700	09700	097	097	097	09700
9,80	10	142	95	80	40	09800	09800	098	098	098	09800
9,90	10	142	95	80	40	09900	09900	099	099	099	09900
10,00	10	142	95	80	40	10000	10000	100	100	100	10000
10,10	12	162	114	96	45	10100	10100	101	101	101	10100
10,20	12	162	114	96	45	10200	10200	102	102	102	10200
10,30	12	162	114	96	45	10300	10300	103	103	103	10300
10,40	12	162	114	96	45	10400	10400	104	104	104	10400
10,50	12	162	114	96	45	10500	10500	105	105	105	10500
10,60	12	162	114	96	45	10600	10600	106	106	106	10600
10,70	12	162	114	96	45	10700	10700	107	107	107	10700
10,80	12	162	114	96	45	10800	10800	108	108	108	10800
10,90	12	162	114	96	45	10900	10900	109	109	109	10900
11,00	12	162	114	96	45	11000	11000	110	110	110	11000
11,10	12	162	114	96	45	11100	11100	111	111	111	11100
11,20	12	162	114	96	45	11200	11200	112	112	112	11200
11,30	12	162	114	96	45	11300	11300	113	113	113	11300
11,40	12	162	114	96	45	11400	11400	114	114	114	11400
11,50	12	162	114	96	45	11500	11500	115	115	115	11500
11,60	12	162	114	96	45	11600	11600	116	116	116	11600
11,70	12	162	114	96	45	11700	11700	117	117	117	11700
11,80	12	162	114	96	45	11800	11800	118	118	118	11800
11,90	12	162	114	96	45	11900	11900	119	119	119	11900
12,00	12	162	114	96	45	12000	12000	120	120	120	12000
12,50	14	178	133	112	45	12500	12500		125	125	12500
12,50	14	178	131	112	45			125			
12,80	14	178	133	112	45	12800	12800		128	128	12800
12,80	14	178	131	112	45			128			
13,00	14	178	133	112	45	13000	13000		130	130	13000
13,00	14	178	131	112	45			130			
13,50	14	178	131	112	45			135			

Steel	●	●	●	●	●	●
Stainless steel	●	●				
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys						
Hardened materials		○				○

→ v_c Page 97–104

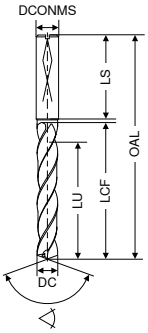
Ø DC$_{m7}$ for Type UNI, Feed UNI and Quattro 4F/ **Ø DC$_{h7}$** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, factory standard

≤ 8xD





Feed UNI = Three Cutting Edges

	Feed UNI	Speed UNI	UNI	UNI	UNI	Quattro 4F
	DPX74S	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	HA	HA	HA	HB	HE	HA
	135°	145°	135°	135°	135°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	NEW	NEW				NEW
	Article no. 10 794 ...	Article no. 10 782 ...	Article no. 11 789 ...	Article no. 11 790 ...	Article no. 11 788 ...	Article no. 10 736 ...

DC m7/h7	DCONMS h6	OAL	LCF	LU	LS						
mm	mm	mm	mm	mm	mm						
13,50	14	178	133	112	45	13500	13500		135	135	13500
13,80	14	178	133	112	45	13800	13800		138	138	13800
13,80	14	178	131	112	45			138			
14,00	14	178	133	112	45	14000	14000		140	140	14000
14,00	14	178	131	112	45			140			
14,50	16	203	152	128	48	14500	14500	145	145	145	14500
14,80	16	203	152	128	48	14800	14800	148	148	148	14800
15,00	16	203	152	128	48	15000	15000	150	150	150	15000
15,50	16	203	152	128	48	15500	15500	155	155	155	15500
15,80	16	203	152	128	48	15800	15800	158	158	158	15800
16,00	16	203	152	128	48	16000	16000	160	160	160	16000
16,50	18	222	171	144	48	16500	16500	165	165	165	16500
16,80	18	222	171	144	48	16800	16800	168	168	168	16800
17,00	18	222	171	144	48	17000	17000	170	170	170	17000
17,50	18	222	171	144	48	17500	17500	175	175	175	17500
17,80	18	222	171	144	48	17800	17800	178	178	178	17800
18,00	18	222	171	144	48	18000	18000	180	180	180	18000
18,50	20	243	190	160	50	18500	18500	185	185	185	18500
18,80	20	243	190	160	50	18800	18800	188	188	188	18800
19,00	20	243	190	160	50	19000	19000	190	190	190	19000
19,50	20	243	190	160	50	19500	19500	195	195	195	19500
19,80	20	243	190	160	50	19800	19800	198	198	198	19800
20,00	20	243	190	160	50	20000	20000	200	200	200	20000

Steel	●	●	●	●	●	●
Stainless steel	●	●				
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys						
Hardened materials		○				○

→ v_c Page 97–104

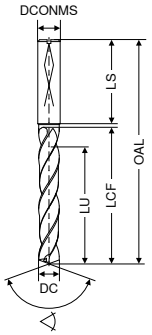
Ø DC_{m7} for Type UNI, Feed UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

WPC – High Performance Drill, factory standard

≤ 8xD

UNI

TiAlN





135°
Solid carbide

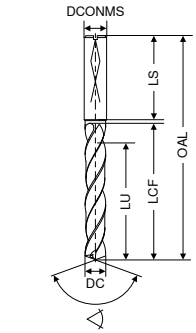
DC h7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 612 ...
mm	mm	mm	mm	mm	mm	
3,0	6	72	34	29	36	030
3,1	6	72	34	29	36	031
3,2	6	72	34	29	36	032
3,3	6	72	34	29	36	033
3,4	6	72	34	29	36	034
3,5	6	72	34	29	36	035
3,6	6	72	34	29	36	036
3,7	6	72	34	29	36	037
3,8	6	81	43	36	36	038
3,9	6	81	43	36	36	039
4,0	6	81	43	36	36	040
4,1	6	81	43	36	36	041
4,2	6	81	43	36	36	042
4,3	6	81	43	36	36	043
4,4	6	81	43	36	36	044
4,5	6	81	43	36	36	045
4,6	6	81	43	36	36	046
4,7	6	81	43	36	36	047
4,8	6	95	57	48	36	048
4,9	6	95	57	48	36	049
5,0	6	95	57	48	36	050
5,1	6	95	57	48	36	051
5,2	6	95	57	48	36	052
5,3	6	95	57	48	36	053
5,5	6	95	57	48	36	055
5,8	6	95	57	48	36	058
5,9	6	95	57	48	36	059
6,0	6	95	57	48	36	060
6,1	8	114	76	64	36	061
6,2	8	114	76	64	36	062
6,3	8	114	76	64	36	063
6,5	8	114	76	64	36	065
6,6	8	114	76	64	36	066
6,8	8	114	76	64	36	068
7,0	8	114	76	64	36	070
7,4	8	114	76	64	36	074
7,5	8	114	76	64	36	075
7,7	8	114	76	64	36	077
7,8	8	114	76	64	36	078
7,9	8	114	76	64	36	079
8,0	8	114	76	64	36	080
8,1	10	142	95	80	40	081
8,2	10	142	95	80	40	082
8,3	10	142	95	80	40	083
8,5	10	142	95	80	40	085
8,6	10	142	95	80	40	086
8,7	10	142	95	80	40	087
8,8	10	142	95	80	40	088
9,0	10	142	95	80	40	090
9,1	10	142	95	80	40	091
9,2	10	142	95	80	40	092
9,3	10	142	95	80	40	093
9,4	10	142	95	80	40	094
9,5	10	142	95	80	40	095
9,7	10	142	95	80	40	097
9,8	10	142	95	80	40	098
9,9	10	142	95	80	40	099
10,0	10	142	95	80	40	100
10,2	12	162	114	96	45	102
10,5	12	162	114	96	45	105
10,8	12	162	114	96	45	108
11,0	12	162	114	96	45	110
11,2	12	162	114	96	45	112
11,5	12	162	114	96	45	115
11,8	12	162	114	96	45	118
12,0	12	162	114	96	45	120
12,5	14	178	131	112	45	125
13,0	14	178	131	112	45	130
13,5	14	178	131	112	45	135
14,0	14	178	131	112	45	140
14,5	16	203	152	128	48	145
15,0	16	203	152	128	48	150
15,5	16	203	152	128	48	155
16,0	16	203	152	128	48	160
16,5	18	222	171	144	48	165
17,0	18	222	171	144	48	170
17,5	18	222	171	144	48	175
18,0	18	222	171	144	48	180
18,5	20	243	190	160	50	185
19,0	20	243	190	160	50	190
20,0	20	243	190	160	50	200

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	

→ v_c Page 118

WTX – High Performance Drill, factory standard

≤ 8xD



Type GG = Straight Fluted



140° Solid carbide | 130° Solid carbide | 135° Solid carbide

NEW

DC $_{h7/m7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	Article no. 10 770 ...	Article no. 10 753 ...	Article no. 10 792 ...
mm	mm	mm	mm	mm	mm			
3,0	6	72	34	29	36	030	030	03000
3,1	6	72	34	29	36	031	031	03100
3,2	6	72	34	29	36	032	032	03200
3,3	6	72	34	29	36	033	033	03300
3,4	6	72	34	29	36	034	034	03400
3,5	6	72	34	29	36	035	035	03500
3,6	6	72	34	29	36	036	036	03600
3,7	6	72	34	29	36	037	037	03700
3,8	6	81	43	36	36	038	038	03800
3,9	6	81	43	36	36	039	039	03900
4,0	6	81	43	36	36	040	040	04000
4,1	6	81	43	36	36	041	041	04100
4,2	6	81	43	36	36	042	042	04200
4,3	6	81	43	36	36	043	043	04300
4,4	6	81	43	36	36	044	044	04400
4,5	6	81	43	36	36	045	045	04500
4,6	6	81	43	36	36	046	046	04600
4,7	6	81	43	36	36	047	047	04700
4,8	6	95	57	48	36	048	048	04800
4,9	6	95	57	48	36	049	049	04900
5,0	6	95	57	48	36	050	050	05000
5,1	6	95	57	48	36	051	051	05100
5,2	6	95	57	48	36	052	052	05200
5,3	6	95	57	48	36	053	053	05300
5,4	6	95	57	48	36	054	054	05400
5,5	6	95	57	48	36	055	055	05500
5,6	6	95	57	48	36	056	056	05600
5,7	6	95	57	48	36	057	057	05700
5,8	6	95	57	48	36	058	058	05800
5,9	6	95	57	48	36	059	059	05900
6,0	6	95	57	48	36	060	060	06000
6,1	8	114	76	64	36	061	061	06100
6,2	8	114	76	64	36	062	062	06200
6,3	8	114	76	64	36	063	063	06300
6,4	8	114	76	64	36	064	064	06400
6,5	8	114	76	64	36	065	065	06500
6,6	8	114	76	64	36	066	066	06600
6,7	8	114	76	64	36	067	067	06700
6,8	8	114	76	64	36	068	068	06800
6,9	8	114	76	64	36	069	069	06900
7,0	8	114	76	64	36	070	070	07000
7,1	8	114	76	64	36	071	071	07100
7,2	8	114	76	64	36	072	072	07200
7,3	8	114	76	64	36	073	073	07300
7,4	8	114	76	64	36	074	074	07400

Steel	○		
Stainless steel	●		
Cast iron	○	●	○
Non ferrous metals	●	●	●
Heat resistant alloys	○		

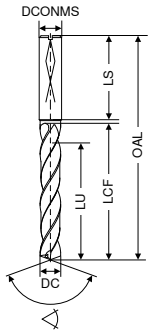
→ v_c Page 103–108

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

Continued on next page

WTX – High Performance Drill, factory standard

≤ 8xD



Type GG = Straight Fluted



NEW

DC h7/m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 10 770 ...	Article no. 10 753 ...	Article no. 10 792 ...
mm	mm	mm	mm	mm	mm			
7,5	8	114	76	64	36	075	075	07500
7,6	8	114	76	64	36	076	076	07600
7,7	8	114	76	64	36	077	077	07700
7,8	8	114	76	64	36	078	078	07800
7,9	8	114	76	64	36	079	079	07900
8,0	8	114	76	64	36	080	080	08000
8,1	10	142	95	80	40	081	081	08100
8,2	10	142	95	80	40	082	082	08200
8,3	10	142	95	80	40	083	083	08300
8,4	10	142	95	80	40	084	084	08400
8,5	10	142	95	80	40	085	085	08500
8,6	10	142	95	80	40	086	086	08600
8,7	10	142	95	80	40	087	087	08700
8,8	10	142	95	80	40	088	088	08800
8,9	10	142	95	80	40	089	089	08900
9,0	10	142	95	80	40	090	090	09000
9,1	10	142	95	80	40	091	091	09100
9,2	10	142	95	80	40	092	092	09200
9,3	10	142	95	80	40	093	093	09300
9,4	10	142	95	80	40	094	094	09400
9,5	10	142	95	80	40	095	095	09500
9,6	10	142	95	80	40	096	096	09600
9,7	10	142	95	80	40	097	097	09700
9,8	10	142	95	80	40	098	098	09800
9,9	10	142	95	80	40	099	099	09900
10,0	10	142	95	80	40	100	100	10000
10,1	12	162	114	96	45	101	101	
10,2	12	162	114	96	45	102	102	10200
10,3	12	162	114	96	45	103	103	10300
10,4	12	162	114	96	45	104	104	10400
10,5	12	162	114	96	45	105	105	10500
10,6	12	162	114	96	45	106	106	
10,7	12	162	114	96	45	107	107	10700
10,8	12	162	114	96	45	108	108	10800
10,9	12	162	114	96	45	109	109	
11,0	12	162	114	96	45	110	110	11000
11,1	12	162	114	96	45	111	111	
11,2	12	162	114	96	45	112	112	11200
11,3	12	162	114	96	45	113	113	
11,4	12	162	114	96	45	114	114	
11,5	12	162	114	96	45	115	115	11500
11,6	12	162	114	96	45	116	116	11600
11,7	12	162	114	96	45	117	117	
11,8	12	162	114	96	45	118	118	11800
11,9	12	162	114	96	45	119	119	

Steel	○		
Stainless steel	●		
Cast iron	○	●	○
Non ferrous metals	●	●	●
Heat resistant alloys	○		

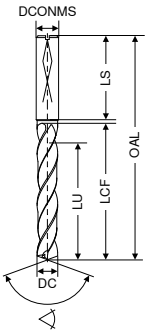
→ v_c Page 103–108

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

Continued on next page

WTX – High Performance Drill, factory standard

≤ 8xD



Type GG = Straight Fluted



140° Solid carbide | 130° Solid carbide | 135° Solid carbide

NEW

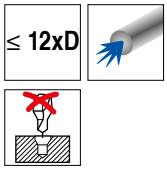
DC h7/m7	DCONMS h6	OAL	LCF	LU	LS	Article no. 10 770 ...	Article no. 10 753 ...	Article no. 10 792 ...
mm	mm	mm	mm	mm	mm			
12,0	12	162	114	96	45	120	120	12000
12,2	14	178	131	112	45			12200
12,5	14	178	133	112	45	125	125	
12,5	14	178	131	112	45			12500
12,8	14	178	131	112	45			12800
12,8	14	178	133	112	45	128	128	
13,0	14	178	131	112	45			13000
13,0	14	178	133	112	45	130	130	
13,2	14	178	131	112	45			13200
13,5	14	178	131	112	45			13500
13,5	14	178	133	112	45	135	135	
13,8	14	178	131	112	45			13800
13,8	14	178	133	112	45	138	138	
14,0	14	178	133	112	45	140	140	
14,0	14	178	131	112	45			14000
14,2	16	203	152	128	48			14200
14,5	16	203	152	128	48	145	145	14500
14,8	16	203	152	128	48	148	148	14800
15,0	16	203	152	128	48	150	150	15000
15,2	16	203	152	128	48			15200
15,5	16	203	152	128	48	155	155	15500
15,8	16	203	152	128	48	158	158	15800
16,0	16	203	152	128	48	160	160	16000
16,2	18	222	171	144	48			16200
16,5	18	222	171	144	48	165	165	16500
16,8	18	222	171	144	48	168	168	16800
17,0	18	222	171	144	48	170	170	17000
17,2	18	222	171	144	48			17200
17,5	18	222	171	144	48	175	175	17500
17,8	18	222	171	144	48	178	178	17800
18,0	18	222	171	144	48	180	180	18000
18,2	20	243	190	160	50			18200
18,5	20	243	190	160	50	185	185	18500
18,8	20	243	190	160	50	188	188	18800
19,0	20	243	190	160	50	190	190	19000
19,1	20	243	190	160	50			19100
19,2	20	243	190	160	50			19200
19,5	20	243	190	160	50	195	195	19500
19,8	20	243	190	160	50	198	198	19800
20,0	20	243	190	160	50	200	200	20000

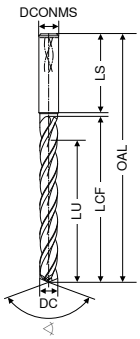
Steel	○		
Stainless steel	●		
Cast iron	○	●	○
Non ferrous metals	●	●	●
Heat resistant alloys	○		

→ v_c Page 103–108

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

WTX – High Performance Drill, factory standard







DC $_{h7/m7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	NEW Article no. 10 796 ...	NEW Article no. 10 737 ...	NEW Article no. 10 793 ...
mm	mm	mm	mm	mm	mm			
3,0	6	92	54	48	36		03000	03000
3,1	6	92	54	48	36		03100	03100
3,2	6	92	54	48	36		03200	03200
3,3	6	92	54	48	36		03300	03300
3,4	6	92	54	48	36		03400	03400
3,5	6	92	54	48	36		03500	03500
3,6	6	92	54	48	36		03600	03600
3,7	6	92	54	48	36		03700	03700
3,8	6	102	64	58	36		03800	03800
3,9	6	102	64	58	36		03900	03900
4,0	6	102	64	58	36	04000	04000	04000
4,1	6	102	64	58	36	04100	04100	04100
4,2	6	102	64	58	36	04200	04200	04200
4,3	6	102	64	58	36	04300	04300	04300
4,4	6	102	64	58	36	04400	04400	04400
4,5	6	102	64	58	36	04500	04500	04500
4,6	6	102	64	58	36	04600	04600	04600
4,7	6	102	64	58	36	04700	04700	04700
4,8	6	116	78	70	36	04800	04800	04800
4,9	6	116	78	70	36	04900	04900	04900
5,0	6	116	78	70	36	05000	05000	05000
5,1	6	116	78	70	36	05100	05100	05100
5,2	6	116	78	70	36	05200	05200	05200
5,3	6	116	78	70	36	05300	05300	05300
5,4	6	116	78	70	36	05400	05400	05400
5,5	6	116	78	70	36	05500	05500	05500
5,6	6	116	78	70	36	05600	05600	05600
5,7	6	116	78	70	36	05700	05700	05700
5,8	6	116	78	70	36	05800	05800	05800
5,9	6	116	78	70	36	05900	05900	05900
6,0	6	116	78	70	36	06000	06000	06000
6,1	8	146	108	94	36	06100	06100	06100
6,2	8	146	108	94	36	06200	06200	06200
6,3	8	146	108	94	36	06300	06300	06300
6,4	8	146	108	94	36	06400	06400	06400
6,5	8	146	108	94	36	06500	06500	06500
6,6	8	146	108	94	36	06600	06600	06600
6,7	8	146	108	94	36	06700	06700	06700
6,8	8	146	108	94	36	06800	06800	06800
6,9	8	146	108	94	36	06900	06900	06900
7,0	8	146	108	94	36	07000	07000	07000
7,1	8	146	108	94	36	07100	07100	07100
7,2	8	146	108	94	36	07200	07200	07200

Steel	●	●	
Stainless steel	●		
Cast iron	●	●	○
Non ferrous metals	○	○	●
Heat resistant alloys			

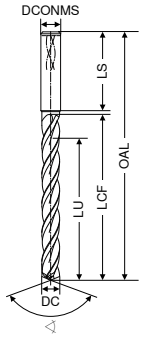
→ v_c Page 99–107

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

Continued on next page

WTX – High Performance Drill, factory standard

≤ 12xD









DC $_{h7/m7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	NEW Article no. 10 796 ...	NEW Article no. 10 737 ...	NEW Article no. 10 793 ...
mm	mm	mm	mm	mm	mm			
7,3	8	146	108	94	36	07300	07300	07300
7,4	8	146	108	94	36	07400	07400	07400
7,5	8	146	108	94	36	07500	07500	07500
7,6	8	146	108	94	36	07600	07600	07600
7,7	8	146	108	94	36	07700	07700	07700
7,8	8	146	108	94	36	07800	07800	07800
7,9	8	146	108	94	36	07900	07900	07900
8,0	8	146	108	94	36	08000	08000	08000
8,1	10	162	120	110	40	08100	08100	08100
8,2	10	162	120	110	40	08200	08200	08200
8,3	10	162	120	110	40	08300	08300	08300
8,4	10	162	120	110	40	08400	08400	08400
8,5	10	162	120	110	40	08500	08500	08500
8,6	10	162	120	110	40	08600	08600	08600
8,7	10	162	120	110	40	08700	08700	08700
8,8	10	162	120	110	40	08800	08800	08800
8,9	10	162	120	110	40	08900	08900	08900
9,0	10	162	120	110	40	09000	09000	09000
9,1	10	162	120	110	40	09100	09100	09100
9,2	10	162	120	110	40	09200	09200	09200
9,3	10	162	120	110	40	09300	09300	09300
9,4	10	162	120	110	40	09400	09400	09400
9,5	10	162	120	110	40	09500	09500	09500
9,6	10	162	120	110	40	09600	09600	09600
9,7	10	162	120	110	40	09700	09700	09700
9,8	10	162	120	110	40	09800	09800	09800
9,9	10	162	120	110	40	09900	09900	09900
10,0	10	162	120	110	40	10000	10000	10000
10,1	12	204	156	142	45	10100	10100	
10,2	12	204	156	142	45	10200	10200	10200
10,3	12	204	156	142	45	10300	10300	
10,4	12	204	156	142	45	10400	10400	
10,5	12	204	156	142	45	10500	10500	10500
10,6	12	204	156	142	45	10600	10600	
10,7	12	204	156	142	45	10700	10700	10700
10,8	12	204	156	142	45	10800	10800	10800
10,9	12	204	156	142	45	10900	10900	
11,0	12	204	156	142	45	11000	11000	11000
11,1	12	204	156	142	45	11100	11100	
11,2	12	204	156	142	45	11200	11200	11200
11,3	12	204	156	142	45	11300	11300	11300
11,4	12	204	156	142	45	11400	11400	
11,5	12	204	156	142	45	11500	11500	11500

Steel	●	●	
Stainless steel	●		
Cast iron	●	●	○
Non ferrous metals	○	○	●
Heat resistant alloys			

→ v_c Page 99–107

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

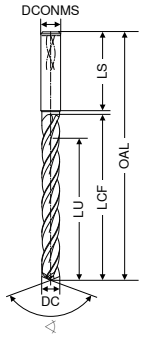
Continued on next page

WTX – High Performance Drill, factory standard

≤ 12xD







Feed UNI | DPX74S | DRAGONSKIN



Solid carbide

Quattro 4F | DPX74S | DRAGONSKIN



Solid carbide

AL | DLC



Solid carbide

DC $_{h7/m7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	NEW Article no. 10 796 ...	NEW Article no. 10 737 ...	NEW Article no. 10 793 ...
mm	mm	mm	mm	mm	mm			
11,6	12	204	156	142	45	11600	11600	
11,7	12	204	156	142	45	11700	11700	
11,8	12	204	156	142	45	11800	11800	11800
11,9	12	204	156	142	45	11900	11900	
12,0	12	204	156	142	45	12000	12000	12000
12,1	14	230	182	166	45			12100
12,2	14	230	182	166	45			12200
12,5	14	230	182	166	45	12500	12500	12500
12,8	14	230	182	166	45	12800	12800	12800
13,0	14	230	182	166	45	13000	13000	13000
13,2	14	230	182	166	45			13200
13,5	14	230	182	166	45	13500	13500	13500
13,8	14	230	182	166	45	13800	13800	13800
14,0	14	230	182	166	45	14000	14000	14000
14,2	16	260	208	192	48			14200
14,5	16	260	208	192	48	14500	14500	14500
14,7	16	260	208	192	48			14700
14,8	16	260	208	192	48	14800	14800	14800
15,0	16	260	208	192	48	15000	15000	15000
15,2	16	260	208	192	48			15200
15,5	16	260	208	192	48	15500	15500	15500
15,7	16	260	208	192	48			15700
15,8	16	260	208	192	48	15800	15800	15800
16,0	16	260	208	192	48	16000	16000	16000
16,2	18	285	234	216	48			16200
16,5	18	285	234	216	48	16500	16500	16500
16,8	18	285	234	216	48	16800	16800	16800
17,0	18	285	234	216	48	17000	17000	17000
17,2	18	285	234	216	48			17200
17,5	18	285	234	216	48	17500	17500	17500
17,8	18	285	234	216	48	17800	17800	17800
18,0	18	285	234	216	48	18000	18000	18000
18,2	20	310	258	240	50			18200
18,5	20	310	258	240	50	18500	18500	18500
18,7	20	310	258	240	50			18700
18,8	20	310	258	240	50	18800	18800	18800
19,0	20	310	258	240	50	19000	19000	19000
19,2	20	310	258	240	50			19200
19,5	20	310	258	240	50	19500	19500	19500
19,8	20	310	258	240	50	19800	19800	19800
20,0	20	310	258	240	50	20000	20000	20000
Steel						●	●	
Stainless steel						●		
Cast iron						●	●	○
Non ferrous metals						○	○	●
Heat resistant alloys								

→ v_c Page 99–107

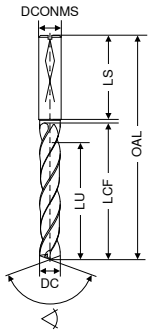
Ø DC_{m7} for Type Feed UNI and Quattro 4F / **Ø DC_{h7}** for Type AL

WPC – High Performance Drill, factory standard

≤ 12xD

UNI

TiAlN





HA

135°

Solid carbide

DC h7	DCONMS h6	OAL	LCF	LU	LS	Article no. 11 615 ...
mm	mm	mm	mm	mm	mm	
3,0	6	92	54	48	36	030
3,1	6	92	54	48	36	031
3,2	6	92	54	48	36	032
3,3	6	92	54	48	36	033
3,4	6	92	54	48	36	034
3,5	6	92	54	48	36	035
3,6	6	92	54	48	36	036
3,7	6	92	54	48	36	037
3,8	6	102	64	58	36	038
3,9	6	102	64	58	36	039
4,0	6	102	64	58	36	040
4,1	6	102	64	58	36	041
4,2	6	102	64	58	36	042
4,3	6	102	64	58	36	043
4,4	6	102	64	58	36	044
4,5	6	102	64	58	36	045
4,6	6	102	64	58	36	046
4,7	6	102	64	58	36	047
4,8	6	116	78	70	36	048
4,9	6	116	78	70	36	049
5,0	6	116	78	70	36	050
5,5	6	116	78	70	36	055
5,8	6	116	78	70	36	058
6,0	6	116	78	70	36	060
6,3	8	146	108	94	36	063
6,5	8	146	108	94	36	065
6,6	8	146	108	94	36	066
6,8	8	146	108	94	36	068
7,0	8	146	108	94	36	070
7,5	8	146	108	94	36	075
7,8	8	146	108	94	36	078
8,0	8	146	108	94	36	080
8,2	10	162	120	110	40	082
8,5	10	162	120	110	40	085
9,0	10	162	120	110	40	090
9,5	10	162	120	110	40	095
9,8	10	162	120	110	40	098
10,0	10	162	120	110	40	100
10,5	12	204	156	142	45	105
11,0	12	204	156	142	45	110
11,5	12	204	156	142	45	115
12,0	12	204	156	142	45	120
13,0	14	230	182	166	45	130
14,0	14	230	182	166	45	140
15,0	16	260	208	192	48	150
16,0	16	260	208	192	48	160
18,0	18	285	234	216	48	180

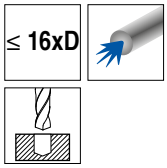
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	

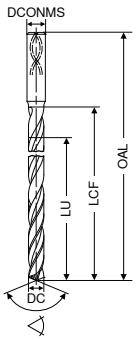
→ v_c Page 118

WTX – High performance deep hole drills

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

≤ 16xD





TB 16 UNI | TiAlN



TB 16 ALU | DLC



HA

135°

Solid carbide

DC h7	DCONMS h5	OAL	LCF	LU	Article no. 11 016 ...	Article no. 11 017 ...
mm	mm	mm	mm	mm		
2,0	4	84	42	39	020	020
2,2	4	84	42	39	022	022
2,3	4	84	42	39	023	023
2,4	4	96	54	50	024	024
2,5	4	96	54	50	025	025
2,7	4	96	54	50	027	027
2,8	4	96	54	50	028	028
3,0	6	100	60	55	030	030
3,2	6	100	60	55	032	032
3,3	6	100	60	55	033	033
3,5	6	100	60	55	035	035
3,8	6	115	75	69	038	038
4,0	6	115	75	69	040	040
4,2	6	115	75	69	042	042
4,5	6	130	90	83	045	045
4,8	6	130	90	83	048	048
5,0	6	130	90	83	050	050
5,5	6	150	108	99	055	055
5,8	6	150	108	99	058	058
6,0	6	150	108	99	060	060
6,5	8	165	125	115	065	065
6,8	8	165	125	115	068	068
7,0	8	165	125	115	070	070
7,5	8	180	140	128	075	075
7,8	8	180	140	128	078	078
8,0	8	180	140	128	080	080
8,5	10	205	160	147	085	085
8,8	10	205	160	147	088	088
9,0	10	205	160	147	090	090
9,8	10	225	180	165	098	098
10,0	10	225	180	165	100	100
10,2	12	240	190	174	102	102
10,8	12	240	190	174	108	108
11,8	12	265	215	197	118	118
12,0	12	265	215	197	120	120

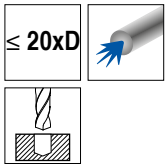
Steel	●	
Stainless steel	●	
Cast iron	●	
Non ferrous metals		●
Heat resistant alloys		

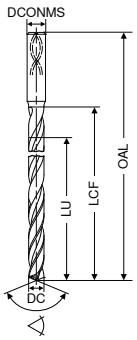
→ v_c Page 122+124
→ Machining information: Page 134

WTX – High performance deep hole drills

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

≤ 20xD





TB 20 UNI | TiAlN



TB 20 ALU | DLC



HA

135°

Solid carbide

DC h7	DCONMS h5	OAL	LCF	LU	Article no. 11 020 ...	Article no. 11 021 ...
mm	mm	mm	mm	mm		
2,0	4	92	50	47	020	020
2,2	4	92	50	47	022	022
2,3	4	92	50	47	023	023
2,4	4	112	70	66	024	024
2,5	4	112	70	66	025	025
2,7	4	112	70	66	027	027
2,8	4	112	70	66	028	028
3,0	6	120	80	75	030	030
3,2	6	120	80	75	032	032
3,3	6	120	80	75	033	033
3,5	6	120	80	75	035	035
3,8	6	130	90	84	038	038
4,0	6	130	90	84	040	040
4,2	6	160	110	103	042	042
4,5	6	160	110	103	045	045
4,8	6	160	120	113	048	048
5,0	6	160	120	113	050	050
5,5	6	185	140	131	055	055
5,8	6	185	140	131	058	058
6,0	6	185	140	131	060	060
6,5	8	210	160	150	065	065
6,8	8	210	160	150	068	068
7,0	8	210	160	150	070	070
7,5	8	230	180	168	075	075
7,8	8	230	180	168	078	078
8,0	8	230	180	168	080	080
8,5	10	260	195	182	085	085
8,8	10	290	230	216	088	088
9,0	10	290	230	216	090	090
9,8	10	290	230	216	098	098
10,0	10	290	230	216	100	100
10,2	12	315	268	251	102	102
10,8	12	315	268	251	108	108
11,8	12	315	268	251	118	118
12,0	12	315	268	251	120	120

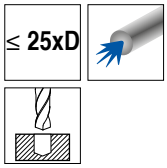
Steel	●	
Stainless steel	●	
Cast iron	●	
Non ferrous metals		●
Heat resistant alloys		

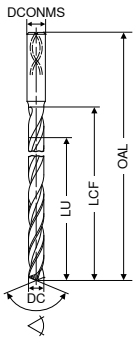
→ v_c Page 122+124
→ Machining information: Page 134

WTX – High performance deep hole drills

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

≤ 25xD





TB 25 UNI | TiAlN



Solid carbide

TB 25 ALU | DLC



Solid carbide

DC h7	DCONMS h5	OAL	LCF	LU	Article no. 11 025 ...	Article no. 11 026 ...
mm	mm	mm	mm	mm		
2,0	4	104	60	57	020	020
2,2	4	104	60	57	022	022
2,3	4	104	60	57	023	023
2,4	4	125	80	76	024	024
2,5	4	125	80	76	025	025
2,7	4	125	80	76	027	027
2,8	4	125	80	76	028	028
3,0	6	135	98	93	030	030
3,2	6	135	98	93	032	032
3,3	6	150	110	105	033	033
3,5	6	150	110	105	035	035
3,8	6	160	120	114	038	038
4,0	6	160	120	114	040	040
4,2	6	160	120	114	042	042
4,5	6	180	135	128	045	045
4,8	6	180	135	128	048	048
5,0	6	180	135	128	050	050
5,5	6	205	168	159	055	055
5,8	6	205	168	159	058	058
6,0	6	205	168	159	060	060
6,5	8	240	200	190	065	065
6,8	8	240	200	190	068	068
7,0	8	240	200	190	070	070
7,5	8	260	220	208	075	075
7,8	8	260	220	208	078	078
8,0	8	260	220	208	080	080
8,5	10	285	240	227	085	085
8,8	10	310	268	254	088	088
9,0	10	310	268	254	090	090
9,8	10	310	268	254	098	098
10,0	10	310	268	254	100	100
10,2	12	375	325	308	102	102
10,8	12	375	325	308	108	108
11,8	12	375	325	308	118	118
12,0	12	375	325	308	120	120

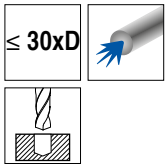
Steel	●	
Stainless steel	●	
Cast iron	●	
Non ferrous metals		●
Heat resistant alloys		

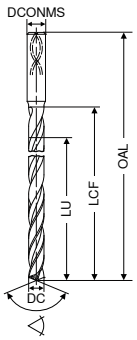
→ v_c Page 122+124
→ Machining information: Page 134

WTX – High performance deep hole drills

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

≤ 30xD





TB 30 UNI | TiAlN



Solid carbide

TB 30 ALU | DLC



Solid carbide

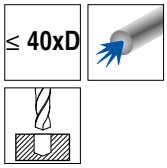
DC h7	DCONMS h5	OAL	LCF	LU	Article no. 11 030 ...	Article no. 11 031 ...
mm	mm	mm	mm	mm		
2,0	4	115	70	67	020	020
2,2	4	115	70	67	022	022
2,3	4	115	70	67	023	023
2,4	4	138	90	86	024	024
2,5	4	138	90	86	025	025
2,7	4	138	90	86	027	027
2,8	4	138	90	86	028	028
3,0	6	150	105	100	030	030
3,2	6	150	105	100	032	032
3,3	6	185	135	130	033	033
3,5	6	185	135	130	035	035
3,8	6	185	135	130	038	038
4,0	6	185	135	130	040	040
4,2	6	185	135	130	042	042
4,5	6	215	165	158	045	045
4,8	6	215	165	158	048	048
5,0	6	215	165	158	050	050
5,5	6	230	180	171	055	055
5,8	6	230	180	171	058	058
6,0	6	230	180	171	060	060
6,5	8	280	215	205	065	065
6,8	8	280	230	220	068	068
7,0	8	280	230	220	070	070
7,5	8	280	230	220	075	075
7,8	8	315	265	253	078	078
8,0	8	315	265	253	080	080
8,5	10	350	295	282	085	085
8,8	10	380	330	316	088	088
9,0	10	380	330	316	090	090
9,8	10	380	330	316	098	098
10,0	10	380	330	316	100	100
10,2	12	430	380	365	102	102
10,8	12	430	380	365	108	108
11,8	12	430	380	365	118	118
12,0	12	430	380	365	120	120

Steel	●	
Stainless steel	●	
Cast iron	●	
Non ferrous metals		●
Heat resistant alloys		

→ v_c Page 122+124
→ Machining information: Page 134

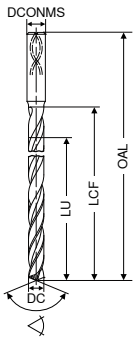
WTX – High performance deep hole drills

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



TB 40 UNI

TiAlN





135°

Solid carbide

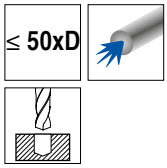
DC fg6	DCONMS h5	OAL	LCF	LU	Article no. 11 040 ...
mm	mm	mm	mm	mm	
3,0	6	195	150	146	030
4,0	6	220	175	169	040
4,2	6	245	200	194	042
4,5	6	245	200	194	045
4,8	6	275	230	223	048
5,0	6	275	230	223	050
5,5	6	305	260	251	055
5,8	6	305	260	251	058
6,0	6	305	260	251	060
6,5	8	345	300	290	065
6,8	8	345	300	290	068
7,0	8	345	300	290	070
7,5	8	385	340	328	075
7,8	8	385	340	328	078
8,0	8	385	340	328	080
8,5	10	430	380	367	085
8,8	10	430	380	367	088
9,0	10	430	380	367	090

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	
Heat resistant alloys	

→ v_c Page 123
→ Machining information: Page 134

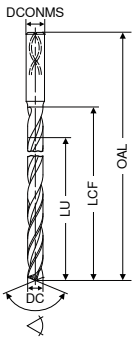
WTX – High performance deep hole drills

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



TB 50 UNI

TiAlN





135°

Solid carbide

DC fg6	DCONMS h5	OAL	LCF	LU	Article no. 11 050 ...
mm	mm	mm	mm	mm	
3,0	6	220	175	170	030
4,0	6	265	220	214	040
4,2	6	290	245	238	042
4,5	6	290	245	238	045
4,8	6	320	275	268	048
5,0	6	320	275	268	050
5,5	6	355	310	302	055
5,8	6	355	315	306	058
6,0	6	355	315	306	060
6,5	8	395	350	340	065
6,8	8	425	380	370	068

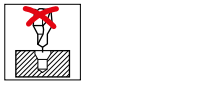
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	
Heat resistant alloys	

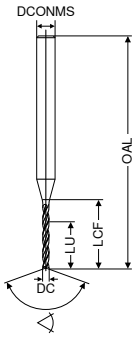
→ v_c Page 123
→ Machining information: Page 134

WTX – High Performance Drills

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

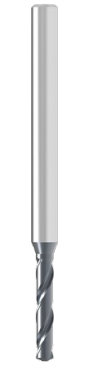
≤ 5xD





MINI

TiAlN



140°

Solid carbide

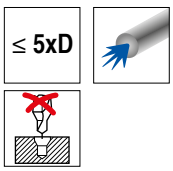
DC +0,004 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	Article no. 11 770 ...
0,10	3	38	1,2	1,0	00100
0,15	3	38	2,0	1,7	00150
0,20	3	38	3,5	3,0	00200
0,25	3	38	3,5	3,0	00250
0,30	3	38	5,5	5,0	00300
0,35	3	38	5,5	5,0	00350
0,40	3	38	7,0	6,0	00400
0,45	3	38	7,0	6,0	00450
0,50	3	38	7,0	6,0	00500
0,55	3	38	7,0	6,0	00550
0,60	3	38	7,0	6,0	00600
0,65	3	38	7,0	6,0	00650
0,70	3	38	10,5	8,0	00700
0,75	3	38	10,5	8,0	00750
0,80	3	38	10,5	8,0	00800
0,85	3	38	10,5	8,0	00850
0,90	3	38	10,5	8,0	00900
0,95	3	38	10,5	8,0	00950
0,97	3	38	10,5	8,0	00970
0,98	3	38	10,5	8,0	00980
0,99	3	38	10,5	8,0	00990
1,00	3	38	10,5	8,0	01000
1,01	3	38	10,5	8,0	01010
1,02	3	38	10,5	8,0	01020
1,03	3	38	10,5	8,0	01030
1,05	3	38	10,5	8,0	01050
1,10	3	38	10,5	8,0	01100
1,15	3	38	10,5	8,0	01150
1,20	3	38	10,5	8,0	01200
1,25	3	38	10,5	8,0	01250
1,30	3	38	10,5	8,0	01300
1,35	3	38	10,5	8,0	01350
1,40	3	38	10,5	8,0	01400
1,45	3	38	10,5	8,0	01450
1,47	3	38	10,5	8,0	01470
1,48	3	38	10,5	8,0	01480
1,49	3	38	10,5	8,0	01490
1,50	3	38	10,5	8,0	01500
1,51	3	38	10,5	8,0	01510
1,52	3	38	10,5	8,0	01520
1,53	3	38	10,5	8,0	01530
1,55	3	38	10,5	8,0	01550
1,60	3	38	10,5	8,0	01600
1,65	3	38	10,5	8,0	01650
1,70	3	38	10,5	8,0	01700
1,75	3	38	10,5	8,0	01750
1,80	3	38	10,5	8,0	01800
1,85	3	38	12,0	8,0	01850
1,90	3	38	12,0	8,0	01900
1,95	3	38	12,0	8,0	01950
1,97	3	38	12,0	8,0	01970
1,98	3	38	12,0	8,0	01980
1,99	3	38	12,0	8,0	01990
2,00	3	42	13,0	9,0	02000
2,01	3	42	13,0	9,0	02010
2,02	3	42	13,0	9,0	02020
2,03	3	42	13,0	9,0	02030
2,05	3	42	13,0	9,0	02050
2,10	3	42	13,0	9,0	02100
2,15	3	42	13,0	9,0	02150
2,20	3	46	15,0	10,0	02200
2,25	3	46	15,0	10,0	02250
2,30	3	46	15,0	10,0	02300
2,35	3	46	15,0	10,0	02350
2,40	3	46	15,0	10,0	02400
2,45	3	46	15,0	10,0	02450
2,47	3	46	15,0	10,0	02470
2,48	3	46	15,0	10,0	02480
2,49	3	46	15,0	10,0	02490
2,50	3	46	15,0	10,0	02500
2,51	3	46	15,0	10,0	02510
2,52	3	46	15,0	10,0	02520
2,53	3	46	15,0	10,0	02530
2,60	3	46	15,0	10,0	02600
2,70	3	46	15,0	10,0	02700
2,80	3	46	15,0	10,0	02800
2,90	3	46	15,0	10,0	02900

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○

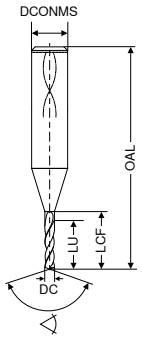
→ v_c Page 110

WTX – High Performance Drill, factory standard

- ▲ WTX flute geometry, optimises swarf control and chip evacuation
- ▲ all diameters with standard shank 3 mm









Solid carbide

DC +0,004 mm	DCONMS -0,002/-0,005 mm	OAL mm	LCF mm	LU mm	Article no. 10 775 ...
1,0	3	55	8	5	010
1,1	3	55	12	8	011
1,2	3	55	12	8	012
1,3	3	55	12	8	013
1,4	3	55	12	8	014
1,5	3	55	12	8	015
1,6	3	68	16	11	016
1,7	3	68	16	11	017
1,8	3	68	16	11	018
1,9	3	68	16	11	019
2,0	3	68	16	11	020
2,1	3	74	20	14	021
2,2	3	74	20	14	022
2,3	3	74	20	14	023
2,4	3	74	20	14	024
2,5	3	74	20	14	025
2,6	3	81	23	16	026
2,7	3	81	23	16	027
2,8	3	81	23	16	028
2,9	3	81	23	16	029

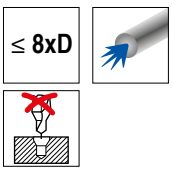
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●

→ v_c Page 109

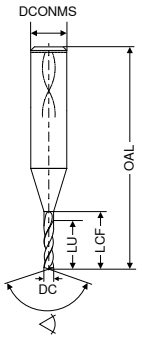
Coolant pressure 20–50 bar

WTX – High Performance Drill, factory standard

- ▲ WTX flute geometry, optimises swarf control and chip evacuation
- ▲ all diameters with standard shank 3 mm









Solid carbide

DC +0,004 mm	DCONMS -0,002/-0,005 mm	OAL mm	LCF mm	LU mm	Article no. 10 778 ...
1,0	3	55	11	8	010
1,1	3	55	17	13	011
1,2	3	55	17	13	012
1,3	3	55	17	13	013
1,4	3	55	17	13	014
1,5	3	55	17	13	015
1,6	3	68	22	17	016
1,7	3	68	22	17	017
1,8	3	68	22	17	018
1,9	3	68	22	17	019
2,0	3	68	22	17	020
2,1	3	74	28	22	021
2,2	3	74	28	22	022
2,3	3	74	28	22	023
2,4	3	74	28	22	024
2,5	3	74	28	22	025
2,6	3	81	32	25	026
2,7	3	81	32	25	027
2,8	3	81	32	25	028
2,9	3	81	32	25	029

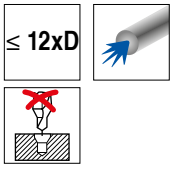
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●

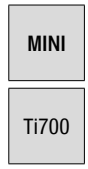
→ v_c Page 109

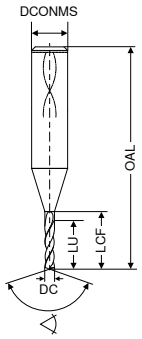
Coolant pressure 20–50 bar

WTX – High Performance Drill, factory standard

- ▲ WTX flute geometry guarantees optimum swarf control and chip evacuation
- ▲ all diameters with standard shank 3 mm









Solid carbide

DC +0,004 mm	DCONMS -0,002/-0,005 mm	OAL mm	LCF mm	LU mm	Article no. 10 779 ...
1,0	3	55	15	12	010
1,1	3	55	23	19	011
1,2	3	55	23	19	012
1,3	3	55	23	19	013
1,4	3	55	23	19	014
1,5	3	55	23	19	015
1,6	3	68	30	25	016
1,7	3	68	30	25	017
1,8	3	68	30	25	018
1,9	3	68	30	25	019
2,0	3	68	30	25	020
2,1	3	74	38	32	021
2,2	3	74	38	32	022
2,3	3	74	38	32	023
2,4	3	74	38	32	024
2,5	3	74	38	32	025
2,6	3	81	44	37	026
2,7	3	81	44	37	027
2,8	3	81	44	37	028
2,9	3	81	44	37	029

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	

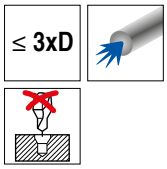
→ v_c Page 109

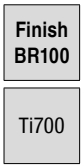
Coolant pressure 20–50 bar

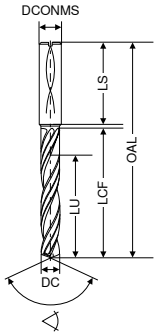
2

WTX – Drill-Reamer -1/100

- solid carbide high-performance drill-reaming tool
- drilling and reaming in one operation
- 2 drilling edges
- 4 reaming edges
- high feed rates
- good surface quality
- for blind holes and through holes









Solid carbide

DC ±0,003	DCONMS h6	OAL	LCF	LU	LS	Article no. 10 761 ...
mm	mm	mm	mm	mm	mm	
3,97	6	66	24	17	36	03970
3,98	6	66	24	17	36	03980
3,99	6	66	24	17	36	03990
4,00	6	66	24	17	36	04000
4,01	6	66	24	17	36	04010
4,02	6	66	24	17	36	04020
4,97	6	66	24	17	36	04970
4,98	6	66	24	17	36	04980
4,99	6	66	24	17	36	04990
5,00	6	79	34	24	36	05000
5,01	6	79	34	24	36	05010
5,02	6	79	34	24	36	05020
5,97	6	79	34	24	36	05970
5,98	6	79	34	24	36	05980
5,99	6	79	34	24	36	05990
6,00	6	79	34	24	36	06000
6,01	6	79	34	24	36	06010
6,02	6	79	34	24	36	06020
7,97	8	79	34	24	36	07970
7,98	8	79	34	24	36	07980
7,99	8	79	34	24	36	07990
8,00	8	79	34	24	36	08000
8,01	8	79	34	24	36	08010
8,02	8	79	34	24	36	08020
9,97	10	89	47	35	40	09970
9,98	10	89	47	35	40	09980
9,99	10	89	47	35	40	09990
10,00	10	89	47	35	40	10000
10,01	10	89	47	35	40	10010
10,02	10	89	47	35	40	10020
11,97	12	102	55	40	45	11970
11,98	12	102	55	40	45	11980
11,99	12	102	55	40	45	11990
12,00	12	102	55	40	45	12000
12,01	12	102	55	40	45	12010
12,02	12	102	55	40	45	12020

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	

→ v_c Page 112

Tolerances e.g. Ø 8 F7 = 8.02 mm						
Ø 4	3,97	U 7	**X 7**			
	3,98	**N 10**	**N 11**	R 7		
	3,99	M 8	**N 7**	**N 8**	**N 9**	
	4,00	**J 7**	**J 8**	JS 7	JS 8	JS 9
	4,01	**G 7**	**H 8**			
	4,02	**F 8**	**H 9**			
Ø 5	4,97	U 7	**X 7**			
	4,98	**N 10**	**N 11**	R 7		
	4,99	M 8	**N 7**	**N 8**	**N 9**	
	5,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	5,01	**G 7**	**H 8**			
	5,02	**F 8**	**H 9**			
Ø 6	5,97	U 7	**X 7**			
	5,98	**N 10**	**N 11**	R 7		
	5,99	M 8	**N 7**	**N 8**	**N 9**	
	6,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	6,01	**G 7**	**H 8**			
	6,02	**F 8**	**H 9**			
Ø 8	7,97	S 7	**U 7**			
	7,98	N 8	**N 10**	**N 11**	P 7	R 7
	7,99	K 8	M 6	M 7	**M 8**	N 9
	8,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	8,01	G 7	**H 8**			
	8,02	**F 7**	F 8	**H 9**		
Ø 10	9,97	S 7	**U 7**			
	9,98	N 8	**N 10**	**N 11**	P 7	R 7
	9,99	K 8	M 6	M 7	**M 8**	N 9
	10,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	10,01	G 7	**H 8**			
	10,02	**F 7**	F 8	H 9		
Ø 12	11,97	N 11	R 7	**S 7**		
	11,98	N 8	**N 9**	**N 10**	**P 7**	
	11,99	K 8	**M 6**	**M 7**	**M 8**	N 7
	12,00	**J 7**	**J 8**	**JS 7**	**JS 8**	
	12,01	G 6	**H 7**	H 8	**JS 9**	
	12,02	F 7				

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

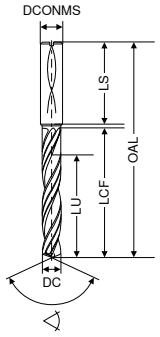
WTX – Drill-Reamer

- solid carbide high-performance drill-reaming tool
- drilling and reaming to tolerance H7 in one operation
- 2 drilling edges
- 4 reaming edges
- high feed rates
- good surface quality
- for blind holes and through holes
- optimum roundness – tolerance H7

≤ 3xD

Finish BR

Ti700





140°
Solid carbide

DC H7	DCONMS h6	OAL	LCF	LU	LS	Article no. 10 760 ...
mm	mm	mm	mm	mm	mm	
4	6	66	24	17	36	040
5	6	79	34	24	36	050
6	6	79	34	24	36	060
8	8	79	34	24	36	080
10	10	89	47	35	40	100
12	12	102	55	40	45	120
14	14	107	60	43	45	140
16	16	115	65	45	48	160

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	

→ v_c Page 112

Special dimensions available upon request

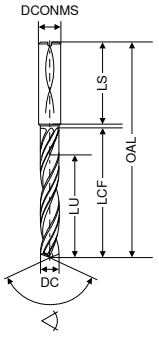
WTX – Drill-Reamer

- solid carbide high-performance drill-reaming tool
- drilling and reaming to tolerance H7 in one operation
- 2 drilling edges
- 4 reaming edges
- high feed rates
- good surface quality
- for blind holes and through holes
- optimum roundness – tolerance H7

≤ 5xD

Finish BR

Ti700





140°
Solid carbide

DC H7	DCONMS h6	OAL	LCF	LU	LS	Article no. 10 762 ...
mm	mm	mm	mm	mm	mm	
4	6	74	36	29	36	040
5	6	91	53	43	36	050
6	6	91	53	43	36	060
8	8	91	53	43	36	080
10	10	103	61	49	40	100
12	12	118	71	56	45	120
14	14	124	77	60	45	140
16	16	133	83	63	48	160
18	18	143	93	71	48	180
20	20	153	101	77	50	200

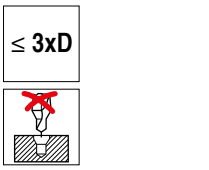
Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	

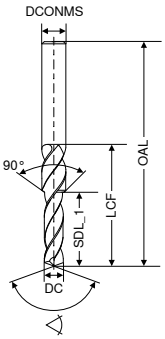
→ v_c Page 113

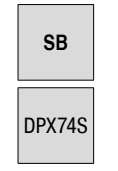
Special dimensions available upon request

WTX – Short 90° step drill

▲ for core hole plus countersink for thread cutting









140°

Solid carbide

NEW

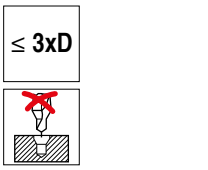
For threads	DC m7	DCONMS h6	OAL	SDL_1	LCF	Article no. 10 767 ...
	mm	mm	mm	mm	mm	
M3	2,5	6	62	8,8	20	02500
M4	3,3	6	62	11,4	24	03300
M5	4,2	6	66	13,6	28	04200
M6	5,0	8	79	16,5	34	05000
M8	6,8	10	89	21,0	47	06800
M10	8,5	12	102	25,5	55	08500
M12	10,2	14	107	30,0	60	10200
M14	12,0	16	115	34,5	65	12000
M16	14,0	18	123	38,5	73	14000

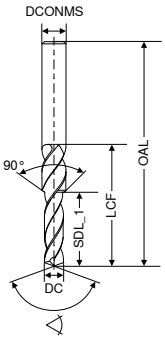
Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	

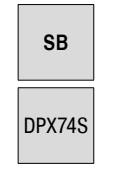
→ v_c Page 110

WTX – Short 90° step drill

▲ for core hole plus countersink for thread forming









140°

Solid carbide

NEW

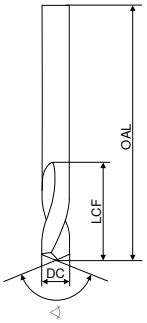
For threads	DC m7	DCONMS h6	OAL	SDL_1	LCF	Article no. 10 772 ...
	mm	mm	mm	mm	mm	
M3	2,80	6	62	8,8	20	02800
M4	3,70	6	62	11,4	24	03700
M5	4,65	6	66	13,6	28	04650
M6	5,55	8	79	16,5	34	05550
M8	7,45	10	89	21,0	47	07450
M10	9,30	12	102	25,5	55	09300
M12	11,20	14	107	30,0	60	11200
M14	13,00	16	115	34,5	65	13000
M16	15,00	18	123	38,5	73	15000

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	

→ v_c Page 110

NC Spot Drill, factory standard

▲ spiral flute



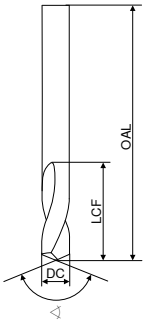
			NC-A	NC-A TiAIN	NC-A	NC-A TiAIN	NC-A	NC-A TiAIN				
												
			HA	HB	HA	HB	HA	HB				
			90°	90°	120°	120°	142°	142°				
			Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide				
DC_{h5}	OAL	LCF	Article no. 10 702 ...		Article no. 10 716 ...		Article no. 10 703 ...		Article no. 10 717 ...		Article no. 10 704 ...		Article no. 10 718 ...	
mm	mm	mm												
2	32	6	**002**		**002**	[1]	**002**		**002**	[1]	**002**		**002**	[1]
3	32	8	**003**		**003**	[1]	**003**		**003**	[1]	**003**		**003**	[1]
4	40	10	**004**		**004**	[1]	**004**		**004**	[1]	**004**		**004**	[1]
5	50	13	**005**		**005**	[1]	**005**		**005**	[1]	**005**		**005**	[1]
6	50	13	**006**		**006**		**006**		**006**		**006**		**006**	
8	60	23	**008**		**008**		**008**		**008**		**008**		**008**	
10	70	24	**010**		**010**		**010**		**010**		**010**		**010**	
12	70	24	**012**		**012**		**012**		**012**		**012**		**012**	
14	75	26	**014**		**014**		**014**		**014**		**014**		**014**	
16	75	29	**016**		**016**		**016**		**016**		**016**		**016**	
18	100	35	**018**		**018**		**018**		**018**		**018**		**018**	
20	100	35	**020**		**020**		**020**		**020**		**020**		**020**	
Steel			●		●		●		●		●		●	
Stainless steel														
Cast iron			●		●		●		●		●		●	
Non ferrous metals			●				●				●			
Heat resistant alloys														

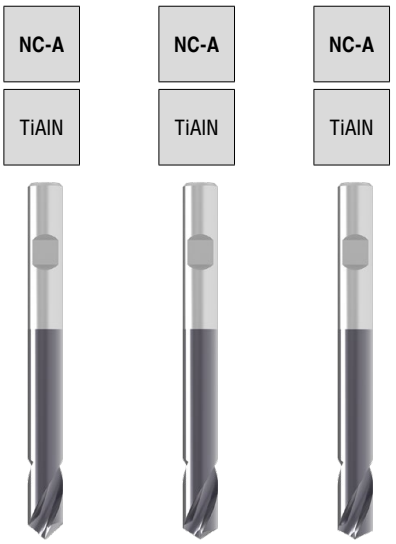
1) DIN 6535 HA Shank

→ v_c Page 125+126

NC Spot Drill, factory standard, long

▲ spiral flutes





DC h5	OAL	LCF	90° Solid carbide	120° Solid carbide	142° Solid carbide
			Article no. 10 724 ...	Article no. 10 726 ...	Article no. 10 727 ...
mm	mm	mm			
3	66	8	003 [1]	003 [1]	003 [1]
4	74	10	004 [1]	004 [1]	004 [1]
6	82	13	006	006	006
8	91	23	008	008	008
10	103	24	010	010	010
12	118	24	012	012	012
16	133	29	016	016	016
Steel			●	●	●
Stainless steel					
Cast iron			●	●	●
Non ferrous metals					
Heat resistant alloys					

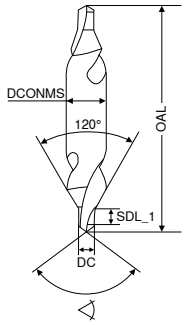
1) DIN 6535 HA Shank

→ v_c Page 126

Centre drills, DIN 333, form A

▲ spiral flutes

ZB





120°
Solid carbide

DC k13	DCONMS h6	OAL	SDL_1	Article no. 10 708 ...
mm	mm	mm	mm	
0,50	3,15	20,0	0,76	**050** 1)
0,80	3,15	20,0	1,07	**080** 1)
1,00	3,15	31,5	1,31	**100**
1,25	3,15	31,5	1,54	**125**
1,60	4,00	35,5	1,94	**160**
2,00	5,00	40,0	2,32	**200**
2,50	6,30	45,0	2,88	**250**
3,15	8,00	50,0	3,49	**315**
4,00	10,00	56,0	4,45	**400**
5,00	12,50	63,0	5,46	**500**
6,30	16,00	71,0	6,78	**630**

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	

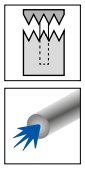
1) Single ended

→ v_c Page 125

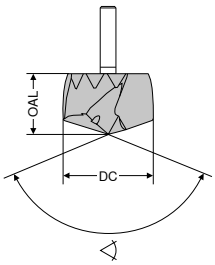
WTX – Drilling Head for Exchangeable drills

▲ extra long head type
▲ three-edged

Scope of supply:
Drill head incl. differential screw



Change Feed UNI
Ti750





140°
Solid carbide

DC m7	OAL	Article no. 10 925 ...
mm	mm	
14,0	13,5	140
14,1	13,5	141
14,2	13,5	142
14,3	13,5	143
14,4	13,5	144
14,5	14,0	145
14,6	14,0	146
14,7	14,0	147
14,8	14,0	148
14,9	14,0	149
15,0	14,4	150
15,1	14,4	151
15,2	14,4	152
15,3	14,4	153
15,4	14,4	154
15,5	15,4	155
15,6	15,4	156
15,7	15,4	157
15,8	15,4	158
15,9	15,4	159
16,0	15,4	160
16,1	15,4	161
16,2	15,4	162
16,3	15,4	163
16,4	15,4	164
16,5	16,3	165
16,6	16,3	166
16,7	16,3	167
16,8	16,3	168
16,9	16,3	169
17,0	16,3	170
17,1	16,3	171
17,2	16,3	172
17,3	16,3	173
17,4	16,3	174
17,5	17,2	175
17,6	17,2	176
17,7	17,2	177
17,8	17,2	178
17,9	17,2	179
18,0	17,2	180
18,1	17,2	181
18,2	17,2	182
18,3	17,2	183
18,4	17,2	184
18,5	18,2	185
18,6	18,2	186
18,7	18,2	187
18,8	18,2	188
18,9	18,2	189
19,0	18,2	190
19,1	18,2	191
19,2	18,2	192
19,3	18,2	193
19,4	18,2	194
19,5	19,1	195
19,6	19,1	196
19,7	19,1	197
19,8	19,1	198
19,9	19,1	199
20,0	19,1	200
20,1	19,1	201
20,2	19,1	202
20,3	19,1	203
20,4	19,1	204
20,5	20,0	205
20,6	20,0	206
20,7	20,0	207
20,8	20,0	208
20,9	20,0	209
21,0	20,0	210
21,1	20,0	211
21,2	20,0	212
21,3	20,0	213
21,4	20,0	214
21,5	21,0	215
21,6	21,0	216
21,7	21,0	217
21,8	21,0	218
21,9	21,0	219
22,0	21,0	220
22,1	21,0	221
22,2	21,0	222
22,3	21,0	223
22,4	21,0	224
22,5	21,9	225
22,6	21,9	226
22,7	21,9	227
22,8	21,9	228
22,9	21,9	229
23,0	21,9	230
23,1	21,9	231
23,2	21,9	232
23,3	21,9	233
23,4	21,9	234
23,5	22,8	235
23,6	22,8	236
23,7	22,8	237
23,8	22,8	238
23,9	22,8	239
24,0	22,8	240
24,1	22,8	241
24,2	22,8	242
24,3	22,8	243
24,4	22,8	244
24,5	23,8	245
24,6	23,8	246
24,7	23,8	247
24,8	23,8	248
24,9	23,8	249
25,0	23,8	250

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	
Heat resistant alloys	

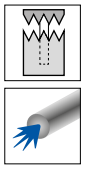
→ v_c Page 127

Continued on next page

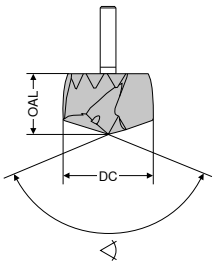
WTX – Drilling Head for Exchangeable drills

▲ extra long head type
▲ three-edged

Scope of supply:
Drill head incl. differential screw



Change Feed UNI
Ti750





140°
Solid carbide

DC m7	OAL	Article no. 10 925 ...
mm	mm	
25,1	23,8	251
25,2	23,8	252
25,3	23,8	253
25,4	23,8	254
25,5	24,7	255
25,6	24,7	256
25,7	24,7	257
25,8	24,7	258
25,9	24,7	259
26,0	24,7	260
26,1	24,7	261
26,2	24,7	262
26,3	24,7	263
26,4	24,7	264
26,5	25,6	265
26,6	25,6	266
26,7	25,6	267
26,8	25,6	268
26,9	25,6	269
27,0	25,6	270
27,1	25,6	271
27,2	25,6	272
27,3	25,6	273
27,4	25,6	274
27,5	26,6	275
27,6	26,6	276
27,7	26,6	277
27,8	26,6	278
27,9	26,6	279
28,0	26,6	280
28,1	26,6	281
28,2	26,6	282
28,3	26,6	283
28,4	26,6	284
28,5	27,5	285
28,6	27,5	286
28,7	27,5	287
28,8	27,5	288
28,9	27,5	289
29,0	27,5	290
29,1	27,5	291
29,2	27,5	292
29,3	27,5	293
29,4	27,5	294
29,5	28,4	295
29,6	28,4	296
29,7	28,4	297
29,8	28,4	298
29,9	28,4	299
30,0	28,4	300
30,1	28,4	301
30,2	28,4	302
30,3	28,4	303
30,4	28,4	304
30,5	29,3	305
30,6	29,3	306
30,7	29,3	307
30,8	29,3	308
30,9	29,3	309
31,0	29,3	310
31,1	29,3	311
31,2	29,3	312
31,3	29,3	313
31,4	29,3	314
31,5	30,3	315
31,6	30,3	316
31,7	30,3	317
31,8	30,3	318
31,9	30,3	319
32,0	30,3	320

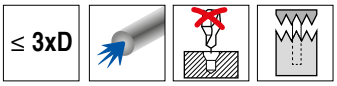
Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	
Heat resistant alloys	

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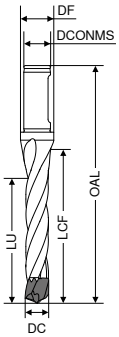
WTX – Holder for Exchangeable drills

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

≤ 3xD



Change Feed





DC	DCONMS h6	OAL	LCF	LU	DF	torque moment	Article no. 10 914 ...
mm	mm	mm	mm	mm	mm	Nm	
14,00 - 14,49	16	120	72	48	20	0,7	140
14,50 - 14,99	16	122	74	49	20	0,7	145
15,00 - 15,49	16	124	76	51	25	0,7	150
15,50 - 16,49	20	131	81	54	25	0,7	155
16,50 - 17,49	20	135	85	58	25	0,7	165
17,50 - 18,49	20	140	90	61	25	1,3	175
18,50 - 19,49	25	150	94	64	31	1,3	185
19,50 - 20,49	25	155	99	68	31	2,0	195
20,50 - 21,49	25	159	103	71	31	2,0	205
21,50 - 22,49	25	164	108	74	31	2,0	215
22,50 - 23,49	25	168	112	78	31	2,0	225
23,50 - 24,49	25	173	117	81	31	2,0	235
24,50 - 25,49	32	182	122	84	38	3,1	245
25,50 - 26,49	32	186	126	87	38	3,1	255
26,50 - 27,49	32	191	131	91	38	3,1	265
27,50 - 28,49	32	195	135	94	38	3,1	275
28,50 - 29,49	32	200	140	97	38	5,6	285
29,50 - 30,49	32	204	144	101	38	5,6	295
30,50 - 31,49	32	209	149	104	38	5,6	305
31,50 - 32,49	32	213	153	107	38	5,6	315

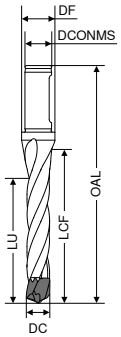
WTX – Holder for Exchangeable drills

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

≤ 5xD



Change Feed





DC	DCONMS h6	OAL	LCF	LU	DF	torque moment	Article no. 10 916 ...
mm	mm	mm	mm	mm	mm	Nm	
14,00 - 14,49	16	149	101	77	20	0,7	140
14,50 - 14,99	16	152	104	79	20	0,7	145
15,00 - 15,49	16	155	107	82	25	0,7	150
15,50 - 16,49	20	164	114	87	25	0,7	155
16,50 - 17,49	20	170	120	93	25	0,7	165
17,50 - 18,49	20	177	127	98	25	1,3	175
18,50 - 19,49	25	189	133	103	31	1,3	185
19,50 - 20,49	25	196	140	109	31	2,0	195
20,50 - 21,49	25	202	146	114	31	2,0	205
21,50 - 22,49	25	209	153	119	31	2,0	215
22,50 - 23,49	25	215	159	124	31	2,0	225
23,50 - 24,49	25	222	166	130	31	2,0	235
24,50 - 25,49	32	233	173	135	38	3,1	245
25,50 - 26,49	32	239	179	140	38	3,1	255
26,50 - 27,49	32	246	186	146	38	3,1	265
27,50 - 28,49	32	252	192	151	38	3,1	275
28,50 - 29,49	32	259	199	156	38	5,6	285
29,50 - 30,49	32	265	205	162	38	5,6	295
30,50 - 31,49	32	272	212	167	38	5,6	305
31,50 - 32,49	32	278	218	172	38	5,6	315

Interchangeable blade



Blade holder


Torque handle

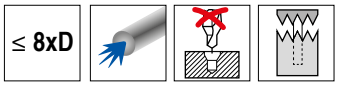

Differential screw

Spare parts DC	Article no. 80 022 ...	Article no. 80 020 ...	Article no. 80 023 ...	Article no. 10 950 ...
14,00 - 14,49	007	025	012	064
14,50 - 14,99	007	025	012	064
15,00 - 15,49	007	025	012	064
15,50 - 16,49	007	025	012	064
16,50 - 17,49	007	025	012	064
17,50 - 18,49	008	025	060	065
18,50 - 19,49	008	025	060	065
19,50 - 20,49	010	025	060	066
20,50 - 21,49	010	025	060	066
21,50 - 22,49	010	025	060	066
22,50 - 23,49	010	025	060	066
23,50 - 24,49	010	025	060	066
24,50 - 25,49	015	025	060	067
25,50 - 26,49	015	025	060	067
26,50 - 27,49	015	025	060	067
27,50 - 28,49	015	025	060	067
28,50 - 29,49	015	025	060	068
29,50 - 30,49	015	025	060	068
30,50 - 31,49	015	025	060	068
31,50 - 32,49	015	025	060	068

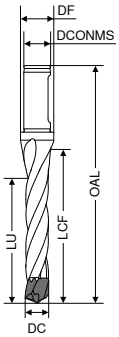
WTX – Holder for Exchangeable drills

Scope of supply:

Holder incl. blade holder and interchangeable blade









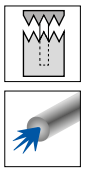
DC	DCONMS $_{h6}$	OAL	LCF	LU	DF	torque moment	NEW Article no. 10 917 ...
mm	mm	mm	mm	mm	mm	Nm	
14,00 - 14,49	16	192	121	116	20	0,7	**14000**
14,50 - 14,99	16	197	125	120	20	0,7	**14500**
15,00 - 15,49	16	202	129	124	25	0,7	**15000**
15,50 - 16,49	20	213	137	132	25	0,7	**15500**
16,50 - 17,49	20	223	146	140	25	0,7	**16500**
17,50 - 18,49	20	232	154	148	25	1,3	**17500**
18,50 - 19,49	25	248	162	156	31	1,3	**18500**
19,50 - 20,49	25	257	171	164	31	2,0	**19500**
20,50 - 21,49	25	267	179	172	31	2,0	**20500**
21,50 - 22,49	25	276	187	180	31	2,0	**21500**
22,50 - 23,49	25	286	195	188	31	2,0	**22500**
23,50 - 24,49	25	295	204	196	31	2,0	**23500**
24,50 - 25,49	32	309	212	204	38	3,1	**24500**
25,50 - 26,49	32	319	220	212	38	3,1	**25500**
26,50 - 27,49	32	328	229	220	38	3,1	**26500**
27,50 - 28,49	32	338	237	228	38	3,1	**27500**
28,50 - 29,49	32	342	245	236	38	5,6	**28500**
29,50 - 30,49	32	352	254	244	38	5,6	**29500**
30,50 - 31,49	32	361	262	252	38	5,6	**30500**
31,50 - 32,49	32	371	270	260	38	5,6	**31500**

Spare parts DC	Interchangeable blade Article no. 80 022 ...	 Blade holder Article no. 80 020 ...	 Torque handle Article no. 80 023 ...	 Differential screw Article no. 10 950 ...
14,00 - 14,49	**007**	**025**	**012**	**064**
14,50 - 14,99	**007**	**025**	**012**	**064**
15,00 - 15,49	**007**	**025**	**012**	**064**
15,50 - 16,49	**007**	**025**	**012**	**064**
16,50 - 17,49	**007**	**025**	**012**	**064**
17,50 - 18,49	**008**	**025**	**060**	**065**
18,50 - 19,49	**008**	**025**	**060**	**065**
19,50 - 20,49	**010**	**025**	**060**	**066**
20,50 - 21,49	**010**	**025**	**060**	**066**
21,50 - 22,49	**010**	**025**	**060**	**066**
22,50 - 23,49	**010**	**025**	**060**	**066**
23,50 - 24,49	**010**	**025**	**060**	**066**
24,50 - 25,49	**015**	**025**	**060**	**067**
25,50 - 26,49	**015**	**025**	**060**	**067**
26,50 - 27,49	**015**	**025**	**060**	**067**
27,50 - 28,49	**015**	**025**	**060**	**067**
28,50 - 29,49	**015**	**025**	**060**	**068**
29,50 - 30,49	**015**	**025**	**060**	**068**
30,50 - 31,49	**015**	**025**	**060**	**068**
31,50 - 32,49	**015**	**025**	**060**	**068**

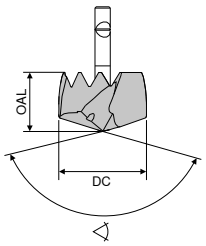
WTX – Drilling Head for Exchangeable drills

▲ extra long head type

2



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





		140° Solid carbide NEW	138° Solid carbide	138° Solid carbide	140° Solid carbide	140° Solid carbide
DC h7/m7	OAL	Article no. 10 919 ...	Article no. 10 923 ...	Article no. 10 921 ...	Article no. 10 924 ...	Article no. 10 922 ...
mm	mm					
12,0	10,7	12000	120	120	120	120
12,1	10,7	12100	121	121	121	121
12,2	10,7	12200	122	122	122	122
12,3	10,7	12300	123	123	123	123
12,4	10,7	12400	124	124	124	124
12,5	10,7	12500	125	125	125	125
12,6	10,7	12600	126	126	126	126
12,7	10,7	12700	127	127	127	127
12,8	10,7	12800	128	128	128	128
12,9	10,7	12900	129	129	129	129
13,0	10,7	13000	130	130	130	130
13,1	10,7	13100	131	131	131	131
13,2	10,7	13200	132	132	132	132
13,3	10,7	13300	133	133	133	133
13,4	10,7	13400	134	134	134	134
13,5	11,3	13500	135	135	135	135
13,6	11,3	13600	136	136	136	136
13,7	11,3	13700	137	137	137	137
13,8	11,3	13800	138	138	138	138
13,9	11,3	13900	139	139	139	139
14,0	11,3	14000	140	140	140	140
14,1	11,3	14100	141	141	141	141
14,2	11,3	14200	142	142	142	142
14,3	11,3	14300	143	143	143	143
14,4	11,3	14400	144	144	144	144
14,5	11,3	14500	145	145	145	145
14,6	11,3	14600	146	146	146	146
14,7	11,3	14700	147	147	147	147
14,8	11,3	14800	148	148	148	148
14,9	11,3	14900	149	149	149	149
15,0	11,3	15000	150	150	150	150
15,1	11,3	15100	151	151	151	151
15,2	11,3	15200	152	152	152	152
15,3	11,3	15300	153	153	153	153
15,4	11,3	15400	154	154	154	154
15,5	11,9	15500	155	155	155	155
15,6	11,9	15600	156	156	156	156
15,7	11,9	15700	157	157	157	157

Steel	●	●	○		
Stainless steel			●		
Cast iron	●	●	○	●	
Non ferrous metals					●
Heat resistant alloys					

→ v_c Page 128–131

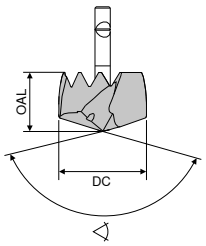
Ø DC_{m7} for Type UNI, P, GG und AL / **Ø DC_{h7}** for Type VA

Continued on next page

WTX – Drilling Head for Exchangeable drills

▲ extra long head type

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





		140° Solid carbide NEW	138° Solid carbide	138° Solid carbide	140° Solid carbide	140° Solid carbide
DC h7/m7	OAL	Article no. 10 919 ...	Article no. 10 923 ...	Article no. 10 921 ...	Article no. 10 924 ...	Article no. 10 922 ...
mm	mm					
15,8	11,9	15800	158	158	158	158
15,9	11,9	15900	159	159	159	159
16,0	11,9	16000	160	160	160	160
16,1	11,9	16100	161	161	161	161
16,2	11,9	16200	162	162	162	162
16,3	11,9	16300	163	163	163	163
16,4	11,9	16400	164	164	164	164
16,5	13,4	16500	165	165	165	165
16,6	13,4	16600	166	166	166	166
16,7	13,4	16700	167	167	167	167
16,8	13,4	16800	168	168	168	168
16,9	13,4	16900	169	169	169	169
17,0	13,4	17000	170	170	170	170
17,1	13,4	17100	171	171	171	171
17,2	13,4	17200	172	172	172	172
17,3	13,4	17300	173	173	173	173
17,4	13,4	17400	174	174	174	174
17,5	13,4	17500	175	175	175	175
17,6	13,4	17600	176	176	176	176
17,7	13,4	17700	177	177	177	177
17,8	13,4	17800	178	178	178	178
17,9	13,4	17900	179	179	179	179
18,0	13,4	18000	180	180	180	180
18,1	13,4	18100	181	181	181	181
18,2	13,4	18200	182	182	182	182
18,3	13,4	18300	183	183	183	183
18,4	13,4	18400	184	184	184	184
18,5	13,4	18500	185	185	185	185
18,6	13,4	18600	186	186	186	186
18,7	13,4	18700	187	187	187	187
18,8	13,4	18800	188	188	188	188
18,9	13,4	18900	189	189	189	189
19,0	13,4	19000	190	190	190	190
19,1	13,4	19100	191	191	191	191
19,2	13,4	19200	192	192	192	192
19,3	13,4	19300	193	193	193	193
19,4	13,4	19400	194	194	194	194
19,5	13,4	19500	195	195	195	195
Steel		●	●	○		
Stainless steel				●		
Cast iron		●	●	○	●	
Non ferrous metals						●
Heat resistant alloys						

→ v_c Page 128–131

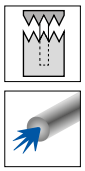
Ø DC_{m7} for Type UNI, P, GG und AL / **Ø DC_{h7}** for Type VA

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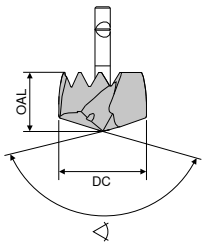
WTX – Drilling Head for Exchangeable drills

▲ extra long head type

2



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





		140° Solid carbide NEW	138° Solid carbide	138° Solid carbide	140° Solid carbide	140° Solid carbide
DC h7/m7	OAL	Article no. 10 919 ...	Article no. 10 923 ...	Article no. 10 921 ...	Article no. 10 924 ...	Article no. 10 922 ...
mm	mm					
19,6	13,4	19600	196	196	196	196
19,7	13,4	19700	197	197	197	197
19,8	13,4	19800	198	198	198	198
19,9	13,4	19900	199	199	199	199
20,0	13,4	20000	200	200	200	200
20,1	13,4	20100	201	201	201	201
20,2	13,4	20200	202	202	202	202
20,3	13,4	20300	203	203	203	203
20,4	13,4	20400	204	204	204	204
20,5	15,4	20500	205	205	205	205
20,6	15,4	20600	206	206	206	206
20,7	15,4	20700	207	207	207	207
20,8	15,4	20800	208	208	208	208
20,9	15,4	20900	209	209	209	209
21,0	15,4	21000	210	210	210	210
21,1	15,4	21100	211	211	211	211
21,2	15,4	21200	212	212	212	212
21,3	15,4	21300	213	213	213	213
21,4	15,4	21400	214	214	214	214
21,5	15,4	21500	215	215	215	215
21,6	15,4	21600	216	216	216	216
21,7	15,4	21700	217	217	217	217
21,8	15,4	21800	218	218	218	218
21,9	15,4	21900	219	219	219	219
22,0	15,4	22000	220	220	220	220
22,1	15,4	22100	221	221	221	221
22,2	15,4	22200	222	222	222	222
22,3	15,4	22300	223	223	223	223
22,4	15,4	22400	224	224	224	224
22,5	15,4	22500	225	225	225	225
22,6	15,4	22600	226	226	226	226
22,7	15,4	22700	227	227	227	227
22,8	15,4	22800	228	228	228	228
22,9	15,4	22900	229	229	229	229
23,0	15,4	23000	230	230	230	230
23,1	15,4	23100	231	231	231	231
23,2	15,4	23200	232	232	232	232
23,3	15,4	23300	233	233	233	233
Steel		●	●	○		
Stainless steel				●		
Cast iron		●	●	○	●	
Non ferrous metals						●
Heat resistant alloys						

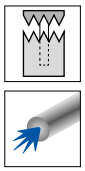
→ v_c Page 128–131

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

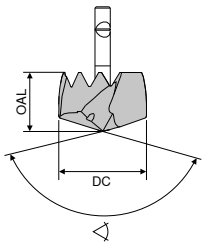
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WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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





		140° Solid carbide NEW	138° Solid carbide	138° Solid carbide	140° Solid carbide	140° Solid carbide
DC h7/m7	OAL	Article no. 10 919 ...	Article no. 10 923 ...	Article no. 10 921 ...	Article no. 10 924 ...	Article no. 10 922 ...
mm	mm					
23,4	15,4	23400	234	234	234	234
23,5	15,4	23500	235	235	235	235
23,6	15,4	23600	236	236	236	236
23,7	15,4	23700	237	237	237	237
23,8	15,4	23800	238	238	238	238
23,9	15,4	23900	239	239	239	239
24,0	15,4	24000	240	240	240	240
24,1	15,4	24100	241	241	241	241
24,2	15,4	24200	242	242	242	242
24,3	15,4	24300	243	243	243	243
24,4	15,4	24400	244	244	244	244
24,5	17,4	24500	245	245	245	245
24,6	17,4	24600	246	246	246	246
24,7	17,4	24700	247	247	247	247
24,8	17,4	24800	248	248	248	248
24,9	17,4	24900	249	249	249	249
25,0	17,4	25000	250	250	250	250
25,1	17,4	25100	251	251	251	251
25,2	17,4	25200	252	252	252	252
25,3	17,4	25300	253	253	253	253
25,4	17,4	25400	254	254	254	254
25,5	17,4	25500	255	255	255	255
25,6	17,4	25600	256	256	256	256
25,7	17,4	25700	257	257	257	257
25,8	17,4	25800	258	258	258	258
25,9	17,4	25900	259	259	259	259
26,0	17,4	26000	260	260	260	260
26,1	17,4	26100	261	261	261	261
26,2	17,4	26200	262	262	262	262
26,3	17,4	26300	263	263	263	263
26,4	17,4	26400	264	264	264	264
26,5	17,4	26500	265	265	265	265
26,6	17,4	26600	266	266	266	266
26,7	17,4	26700	267	267	267	267
26,8	17,4	26800	268	268	268	268
26,9	17,4	26900	269	269	269	269
27,0	17,4	27000	270	270	270	270
27,1	17,4	27100	271	271	271	271
Steel		●	●	○		
Stainless steel				●		
Cast iron		●	●	○	●	
Non ferrous metals						●
Heat resistant alloys						

→ v_c Page 128–131

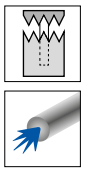
Ø DC_{m7} for Type UNI, P, GG und AL / **Ø DC_{h7}** for Type VA

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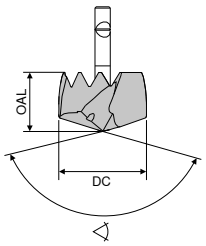
WTX – Drilling Head for Exchangeable drills

▲ extra long head type

2



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





		140° Solid carbide NEW	138° Solid carbide	138° Solid carbide	140° Solid carbide	140° Solid carbide
$DC_{h7/m7}$	OAL	Article no. 10 919 ...	Article no. 10 923 ...	Article no. 10 921 ...	Article no. 10 924 ...	Article no. 10 922 ...
mm	mm					
27,2	17,4	27200	272	272	272	272
27,3	17,4	27300	273	273	273	273
27,4	17,4	27400	274	274	274	274
27,5	17,4	27500	275	275	275	275
27,6	17,4	27600	276	276	276	276
27,7	17,4	27700	277	277	277	277
27,8	17,4	27800	278	278	278	278
27,9	17,4	27900	279	279	279	279
28,0	17,4	28000	280	280	280	280
28,1	17,4	28100	281	281	281	281
28,2	17,4	28200	282	282	282	282
28,3	17,4	28300	283	283	283	283
28,4	17,4	28400	284	284	284	284
28,5	18,4	28500	285	285	285	285
28,6	18,4	28600	286	286	286	286
28,7	18,4	28700	287	287	287	287
28,8	18,4	28800	288	288	288	288
28,9	18,4	28900	289	289	289	289
29,0	18,4	29000	290	290	290	290
29,1	18,4	29100	291	291	291	291
29,2	18,4	29200	292	292	292	292
29,3	18,4	29300	293	293	293	293
29,4	18,4	29400	294	294	294	294
29,5	18,4	29500	295	295	295	295
29,6	18,4	29600	296	296	296	296
29,7	18,4	29700	297	297	297	297
29,8	18,4	29800	298	298	298	298
29,9	18,4	29900	299	299	299	299
30,0	18,4	30000	300	300	300	300
30,1	18,4	30100	301	301	301	301
30,2	18,4	30200	302	302	302	302
30,3	18,4	30300	303	303	303	303
30,4	18,4	30400	304	304	304	304
30,5	18,4	30500	305	305	305	305
30,6	18,4	30600	306	306	306	306
30,7	18,4	30700	307	307	307	307
30,8	18,4	30800	308	308	308	308
30,9	18,4	30900	309	309	309	309

Steel	●	●	○		
Stainless steel			●		
Cast iron	●	●	○	●	
Non ferrous metals					●
Heat resistant alloys					

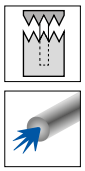
→ v_c Page 128–131

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

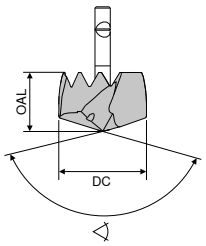
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WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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





DC h7/m7	OAL	140° Solid carbide NEW	138° Solid carbide	138° Solid carbide	140° Solid carbide	140° Solid carbide
		Article no. 10 919 ...	Article no. 10 923 ...	Article no. 10 921 ...	Article no. 10 924 ...	Article no. 10 922 ...
mm	mm					
31,0	18,4	31000	310	310	310	310
31,1	18,4	31100	311	311	311	311
31,2	18,4	31200	312	312	312	312
31,3	18,4	31300	313	313	313	313
31,4	18,4	31400	314	314	314	314
31,5	18,4	31500	315	315	315	315
31,6	18,4	31600	316	316	316	316
31,7	18,4	31700	317	317	317	317
31,8	18,4	31800	318	318	318	318
31,9	18,4	31900	319	319	319	319
32,0	18,4	32000	320	320	320	320
32,5	24,3	32500	325			
33,0	24,3	33000	330			
33,5	24,3	33500	335			
34,0	24,3	34000	340			
34,5	24,3	34500	345			
35,0	24,3	35000	350			
35,5	26,3	35500	355			
36,0	26,3	36000	360			
36,5	26,3	36500	365			
37,0	26,3	37000	370			
37,5	26,3	37500	375			
38,0	26,3	38000	380			
38,5	26,3	38500	385			
39,0	26,3	39000	390			
39,5	26,3	39500	395			
40,0	26,3	40000	400			
40,5	26,3	40500	405			
41,0	26,3	41000	410			
Steel		●	●	○		
Stainless steel				●		
Cast iron		●	●	○	●	
Non ferrous metals						●
Heat resistant alloys						

→ v_c Page 128–131

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

2

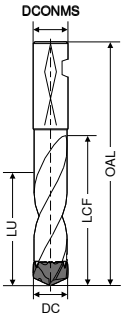
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:

Holder incl. screw driver

≤ 1xD | Change





HB

DC	DCONMS h6	OAL	LCF	LU	torque moment	Article no. 10 911 ...
mm	mm	mm	mm	mm	Nm	
12,00 - 12,49	14	81	29	12,5	1,0	120
12,50 - 12,99	14	81	29	13,0	1,0	125
13,00 - 13,49	14	81	31	13,5	1,0	130
13,50 - 13,99	16	86	32	14,0	1,3	135
14,00 - 14,49	16	86	33	14,5	1,3	140
14,50 - 14,99	16	91	34	15,0	1,3	145
15,00 - 15,49	16	91	36	15,5	1,3	150
15,50 - 16,49	18	92	38	16,5	1,3	160
15,50 - 16,49	20	97	38	16,5	1,3	161
16,50 - 17,49	18	94	40	17,5	3,5	165
16,50 - 17,49	20	99	40	17,5	3,5	166
17,50 - 18,49	18	99	43	18,5	3,5	175
17,50 - 18,49	20	104	43	18,5	3,5	176
18,50 - 19,49	20	99	45	19,5	3,5	185
19,50 - 20,49	20	104	47	20,5	3,5	195
20,50 - 21,49	25	111	49	21,5	3,5	205
21,50 - 22,49	25	116	52	22,5	3,5	215
22,50 - 23,49	25	116	54	23,5	3,5	225
23,50 - 24,49	25	121	56	24,5	4,0	235
24,50 - 25,49	25	123	59	25,5	4,0	245
25,50 - 26,49	25	123	61	26,5	4,0	255
26,50 - 27,49	25	128	63	27,5	4,0	265
27,50 - 28,49	25	128	66	28,5	4,0	275
28,50 - 29,49	32	134	68	29,5	4,0	285
29,50 - 30,49	32	139	70	30,5	4,0	295
30,50 - 31,49	32	139	75	31,5	4,0	305
31,50 - 32,49	32	139	75	32,5	4,0	315
32,50 - 33,49	32	150	78	33,5	6,0	325
33,50 - 34,49	32	150	79	34,5	6,0	335
34,50 - 35,49	32	150	82	35,5	6,0	345
35,50 - 37,49	32	152	86	37,5	6,0	355
37,50 - 39,49	32	157	91	39,5	6,0	375
39,50 - 41,00	32	167	95	41,5	6,0	395

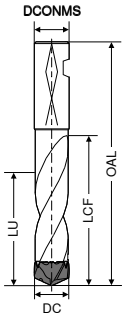
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:

Holder incl. screw driver

≤ 3xD | Change





HB

DC	DCONMS h6	OAL	LCF	LU	torque moment	Article no. 10 913 ...
mm	mm	mm	mm	mm	Nm	
12,00 - 12,49	14	100	53	38,0	1,0	120
12,50 - 12,99	14	105	55	39,0	1,0	125
13,00 - 13,49	14	105	57	40,0	1,0	130
13,50 - 13,99	16	110	59	42,0	1,3	135
14,00 - 14,49	16	115	61	43,0	1,3	140
14,50 - 14,99	16	115	63	45,0	1,3	145
15,00 - 15,49	16	115	65	46,0	1,3	150
15,50 - 16,49	18	120	70	50,0	1,3	160
15,50 - 16,49	20	125	70	50,0	1,3	161
16,50 - 17,49	18	125	74	53,0	3,5	165
16,50 - 17,49	20	130	74	50,0	3,5	166
17,50 - 18,49	18	130	78	55,0	3,5	175
17,50 - 18,49	20	135	78	50,0	3,5	176
18,50 - 19,49	20	135	82	58,0	3,5	185
19,50 - 20,49	20	140	87	62,0	3,5	195
20,50 - 21,49	25	150	91	65,0	3,5	205
21,50 - 22,49	25	155	95	67,0	3,5	215
22,50 - 23,49	25	160	99	70,0	3,5	225
23,50 - 24,49	25	165	103	73,0	3,5	235
24,50 - 25,49	25	165	108	77,0	4,0	245
25,50 - 26,49	25	175	112	80,0	4,0	255
26,50 - 27,49	25	175	116	82,0	4,0	265
27,50 - 28,49	25	180	120	85,0	4,0	275
28,50 - 29,49	32	190	124	88,0	4,0	285
29,50 - 30,49	32	195	129	92,0	4,0	295
30,50 - 31,49	32	195	133	94,0	4,0	305
31,50 - 32,49	32	200	137	97,0	4,0	315
32,50 - 33,49	32	210	144	100,5	6,0	325
33,50 - 34,49	32	215	148	103,5	6,0	335
34,50 - 35,49	32	220	153	106,5	6,0	345
35,50 - 37,49	32	227	161	112,5	6,0	355
37,50 - 39,49	32	237	170	118,5	6,0	375
39,50 - 41,00	32	247	178	124,5	6,0	395



Screw driver



Grub screw

Spare parts for Exchangeable Head Drill-Ø	Screw driver Article no. 80 950 ...		Grub screw Article no. 10 950 ...	
12,00 - 12,49	SW 1,3	132	M2,5 x 0,45 x 5	025
12,50 - 13,49	SW 1,3	132	M2,5 x 0,45 x 6	026
13,50 - 14,49	SW 1,5	133	M3 x 0,5 x 6	031
14,50 - 16,49	SW 1,5	133	M3 x 0,5 x 7	030
16,50 - 20,49	SW 2	134	M4 x 0,5 x 7,5	040
20,50 - 24,49	SW 2	134	M4 x 0,5 x 10	041
24,50 - 28,49	SW 2,5	135	M5 x 0,5 x 11	050
28,50 - 32,49	SW 2,5	135	M5 x 0,5 x 14	051
32,50 - 35,49	SW 3	136	M6 x 0,5 x 16	060
35,50 - 39,49	SW 3	136	M6 x 0,5 x 18	061
39,50 - 41,00	SW 3	136	M6 x 0,5 x 20	062

WTX – Holder for Exchangeable drills

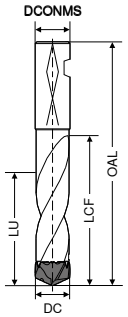
▲ with radial teeth

Scope of supply:

Holder incl. screw driver

≤ 5xD

Change





DC	DCONMS h6	OAL	LCF	LU	torque moment	Article no. 10 915 ...
mm	mm	mm	mm	mm	Nm	
12,00 - 12,49	14	125	78	62,0	1,0	120
12,50 - 12,99	14	130	81	65,0	1,0	125
13,00 - 13,49	14	130	84	67,0	1,0	130
13,50 - 13,99	16	140	88	70,0	1,3	135
14,00 - 14,49	16	140	90	72,0	1,3	140
14,50 - 14,99	16	145	94	75,0	1,3	145
15,00 - 15,49	16	145	96	77,0	1,3	150
15,50 - 16,49	18	155	103	82,0	1,3	160
15,50 - 16,49	20	160	103	82,0	1,3	161
16,50 - 17,49	18	160	109	87,0	3,5	165
16,50 - 17,49	20	165	109	87,0	3,5	166
17,50 - 18,49	18	165	115	92,0	3,5	175
17,50 - 18,49	20	170	115	92,0	3,5	176
18,50 - 19,49	20	175	121	97,0	3,5	185
19,50 - 20,49	20	180	128	102,0	3,5	195
20,50 - 21,49	25	195	134	107,0	3,5	205
21,50 - 22,49	25	200	140	112,0	3,5	215
22,50 - 23,49	25	205	146	117,0	3,5	225
23,50 - 24,49	25	210	152	122,0	3,5	235
24,50 - 25,49	25	220	159	127,0	4,0	245
25,50 - 26,49	25	225	165	132,0	4,0	255
26,50 - 27,49	25	230	171	137,0	4,0	265
27,50 - 28,49	25	240	177	142,0	4,0	275
28,50 - 29,49	32	250	183	146,0	4,0	285
29,50 - 30,49	32	255	190	152,0	4,0	295
30,50 - 31,49	32	260	196	157,0	4,0	305
31,50 - 32,49	32	265	202	162,0	4,0	315
32,50 - 33,49	32	275	210	167,5	6,0	325
33,50 - 34,49	32	285	217	172,5	6,0	335
34,50 - 35,49	32	290	224	177,5	6,0	345
35,50 - 37,49	32	302	236	187,5	6,0	355
37,50 - 39,49	32	317	249	197,5	6,0	375
39,50 - 41,00	32	327	261	207,5	6,0	395

WTX – Holder for Exchangeable drills

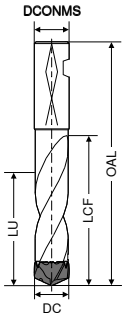
▲ with radial teeth

Scope of supply:

Holder incl. screw driver

≤ 8xD

Change





DC	DCONMS h6	OAL	LCF	LU	torque moment	Article no. 10 918 ...
mm	mm	mm	mm	mm	Nm	
12,00 - 12,49	14	165	116	100	1,0	120
12,50 - 12,99	14	170	121	104	1,0	125
13,00 - 13,49	14	175	126	108	1,0	130
13,50 - 13,99	16	180	129	111	1,3	135
14,00 - 14,49	16	185	134	115	1,3	140
14,50 - 14,99	16	190	139	120	1,3	145
15,00 - 15,49	16	195	144	124	1,3	150
15,50 - 16,49	18	205	152	131	1,3	160
15,50 - 16,49	20	210	152	131	1,3	161
16,50 - 17,49	18	215	161	138	3,5	165
16,50 - 17,49	20	220	161	138	3,5	166
17,50 - 18,49	18	220	171	147	3,5	175
17,50 - 18,49	20	225	171	147	3,5	176
18,50 - 19,49	20	235	180	155	3,5	185
19,50 - 20,49	20	240	189	163	3,5	195
20,50 - 21,49	25	260	198	170	3,5	205
21,50 - 22,49	25	270	207	178	3,5	215
22,50 - 23,49	25	275	217	187	3,5	225
23,50 - 24,49	25	285	226	194	3,5	235
24,50 - 25,49	25	295	235	202	4,0	245
25,50 - 26,49	25	305	244	210	4,0	255
26,50 - 27,49	25	315	253	218	4,0	265
27,50 - 28,49	25	325	263	226	4,0	275
28,50 - 29,49	32	340	272	234	4,0	285
29,50 - 30,49	32	345	281	242	4,0	295
30,50 - 31,49	32	355	290	249	4,0	305
31,50 - 32,00	32	360	299	257	4,0	315



Screw driver

Article no. 80 950 ...



Grub screw

Article no. 10 950 ...

Spare parts for Exchangeable Head Drill-Ø

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

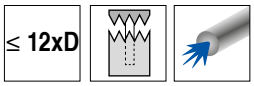
WTX – Holder for Exchangeable drills

2

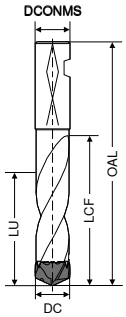
▲ with radial teeth

Scope of supply:

Holder incl. screw driver











DC	DCONMS h6	OAL	LCF	LU	torque moment	NEW Article no. 10 912 ...
mm	mm	mm	mm	mm	Nm	
12,00 - 12,49	14	210	162	150	1,0	12000
12,50 - 12,99	14	216	168	156	1,0	12500
13,00 - 13,49	14	223	175	162	1,0	13000
13,50 - 13,99	16	235	182	168	1,3	13500
14,00 - 14,49	16	242	189	174	1,3	14000
14,50 - 14,99	16	248	195	180	1,3	14500
15,00 - 15,49	16	255	202	186	1,3	15000
15,50 - 16,49	18	262	209	198	1,3	15500
16,50 - 17,49	18	275	222	210	3,5	16500
17,50 - 18,49	18	289	236	222	3,5	17500
18,50 - 19,49	20	304	249	234	3,5	18500
19,50 - 20,49	20	318	236	246	3,5	19500
20,50 - 21,49	25	337	276	258	3,5	20500
21,50 - 22,49	25	351	290	270	3,5	21500
22,50 - 23,49	25	364	303	282	3,5	22500
23,50 - 24,49	25	378	317	294	3,5	23500
24,50 - 25,49	25	391	330	306	4,0	24500
25,50 - 26,49	25	405	344	318	4,0	25500
26,50 - 27,49	25	418	357	330	4,0	26500
27,50 - 28,49	25	432	371	342	4,0	27500
28,50 - 29,49	32	449	384	354	4,0	28500
29,50 - 30,49	32	463	398	366	4,0	29500
30,50 - 31,49	32	476	411	378	4,0	30500
31,50 - 32,00	32	490	425	390	4,0	31500



Screw driver



Grub screw

Spare parts for Exchangeable Head Drill-Ø		Article no. 80 950 ...		Article no. 10 950 ...
12,00 - 12,49	SW 1,3	132	M2,5 x 0,45 x 5	025
12,50 - 13,49	SW 1,3	132	M2,5 x 0,45 x 6	026
13,50 - 14,49	SW 1,5	133	M3 x 0,5 x 6	031
14,50 - 16,49	SW 1,5	133	M3 x 0,5 x 7	030
16,50 - 20,49	SW 2	134	M4 x 0,5 x 7,5	040
20,50 - 24,49	SW 2	134	M4 x 0,5 x 10	041
24,50 - 28,49	SW 2,5	135	M5 x 0,5 x 11	050
28,50 - 32,49	SW 2,5	135	M5 x 0,5 x 14	051
32,50 - 35,49	SW 3	136	M6 x 0,5 x 16	060
35,50 - 39,49	SW 3	136	M6 x 0,5 x 18	061
39,50 - 41,00	SW 3	136	M6 x 0,5 x 20	062

MultiChange Programme Overview

The highly stable „MultiChange“ exchangeable head system enables an extremely fast tool change. Designed to be durable and for a very high radial run-out accuracy, this exchangeable head system is probably the most stable and precise exchangeable head system on the market. The following chapters contain suitable exchangeable heads for almost every application.

Reaming and countersinking

- Through hole reamers
  Ø 8–30,2 mm incl. special diameters / ZEFP* 4–6
- Blind hold reamers
  Ø 12,2–30,2 mm incl. special diameters / ZEFP* 6

→ **Chapter 4, Reaming and countersinking**

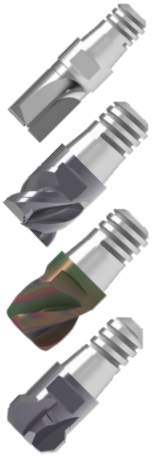


*ZEFP = Number of teeth

Solid carbide milling cutters

- PCD shoulder mills
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 2
- Solid carbide shoulder mills
  Type N, PCR-UNI, PCR-ALU / Ø 8, 10, 12, 16, 20 mm / ZEFP* 3+4
- Solid carbide rough and finish milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 4–6
- Solid carbide finish milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 6
- Solid carbide high-feed cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 6
- Solid carbide ball-nosed end mills
  Ø 10, 12, 16, 20 mm / ZEFP* 4
- Solid carbide torus bull nose milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 3+4
- Solid carbide quarter round cutter
  Ø 8, 10, 12, 16, 20 mm
- Solid carbide deburring cutters
  Ø 10, 12, 16, 20 mm / ZEFP* 4+6

→ **Chapter 14, Solid carbide milling cutters**



*ZEFP = Number of teeth

Tool holder



- Steel holder, extra short
  Cylindrical / Tapered 87°
  Length 60–90 mm
  for KLG: 8, 10, 12, 16, 20 mm



- Short holder steel/Solid carbide
  Cylindrical
  Length 85–120 mm
  for KLG: 8, 10, 12, 16, 20 mm



- Holder steel/Solid carbide, short
  87° taper
  Length 85–120 mm
  for KLG: 8, 10, 12, 16, 20 mm



- Solid carbide holder, medium
  Cylindrical / Tapered 87°
  Length 110–150 mm
  for KLG: 8, 10, 12, 16, 20 mm



- Holder steel/Solid carbide, long
  Cylindrical
  Length 150–200 mm
  for KLG: 8, 10, 12, 16, 20 mm



- Holder steel/Solid carbide, long
  87° taper
  Length 150–200 mm
  for KLG: 8, 10, 12, 16, 20 mm

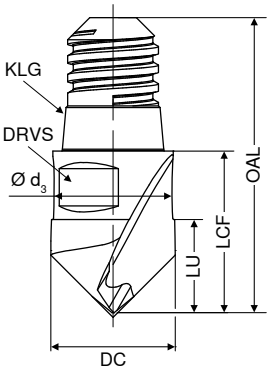


- Steel/Solid carbide holder, extra long
  Cylindrical
  Length 200–250 mm
  for KLG: 16 and 20 mm

→ **Chapter 17, Accessories**

MultiChange – NC Spot Drill

- ▲ KLG = Coupling Size
- ▲ TQX = Torque Moment
- ▲ NOF = No. of cutting edges





DC mm	KLG	LU mm	d_3 mm	LCF mm	OAL mm	NOF	DRVS mm	TQX Nm	$a_{p\,max}$ mm	◁ 90° Solid carbide Article no. 10 709 ...	◁ 120° Solid carbide Article no. 10 712 ...	◁ 142° Solid carbide Article no. 10 714 ...
8	06	6,0	7,8	11	20,4	2	6	5,0	4	**080**	**080**	**080**
10	08	7,5	9,8	13	26,9	2	8	12,5	5	**100**	**100**	**100**
12	10	9,0	11,8	16	30,1	2	10	15,0	6	**120**	**120**	**120**
16	12	12,0	15,8	20	37,3	2	13	20,0	8	**160**	**160**	**160**
20	16	15,0	19,8	25	47,2	2	16	25,0	10	**200**	**200**	**200**
Steel										●	●	●
Stainless steel										●	●	●
Cast iron										●	●	●
Non ferrous metals										●	●	●
Heat resistant alloys												

→ v_c Page 125

Torque wrench should be used for coupling sizes 06 and 08.

For unstable applications, the cutting data should be reduced.

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data standard values – WTX – Ti

Index	Drilling depth 3xD Ti 10 786 ...						Drilling depth 5xD Ti 10 787 ...					
	v_c m/min with through coolant	Ø 4–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min with through coolant	Ø 4–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
1.1												
1.2												
1.3												
1.4												
1.5												
1.6												
1.7												
1.8												
1.9												
1.10												
1.11												
1.12												
1.13												
1.14												
1.15												
1.16												
2.1	**75**	0,08	0,12	0,15	0,2	0,25	75	0,08	0,12	0,15	0,2	0,25
2.2	**75**	0,08	0,12	0,15	0,2	0,25	75	0,08	0,12	0,15	0,2	0,25
2.3	**65**	0,08	0,12	0,15	0,2	0,25	65	0,08	0,12	0,15	0,2	0,25
2.4	**65**	0,08	0,12	0,15	0,2	0,25	65	0,08	0,12	0,15	0,2	0,25
2.5	**70**	0,08	0,12	0,15	0,2	0,25	70	0,08	0,12	0,15	0,2	0,25
2.6	**70**	0,08	0,12	0,15	0,2	0,25	70	0,08	0,12	0,15	0,2	0,25
2.7	**40**	0,04	0,08	0,12	0,16	0,2	40	0,04	0,08	0,12	0,16	0,2
3.1												
3.2												
3.3												
3.4												
3.5												
3.6												
3.7												
3.8												
4.1												
4.2												
4.3												
4.4												
4.5												
4.6												
4.7												
4.8												
4.9												
4.10												
4.11												
4.12												
4.13												
4.14												
4.15												
4.16												
4.17												
4.18												
4.19												
5.1	**35**	0,04	0,08	0,12	0,16	0,2	**35**	0,04	0,08	0,12	0,16	0,2
5.2	**35**	0,04	0,08	0,12	0,16	0,2	**35**	0,04	0,08	0,12	0,16	0,2
5.3	**35**	0,04	0,08	0,12	0,16	0,2	**35**	0,04	0,08	0,12	0,16	0,2
5.4	**35**	0,04	0,08	0,12	0,16	0,2	**35**	0,04	0,08	0,12	0,16	0,2
5.5	**35**	0,04	0,08	0,12	0,16	0,2	**35**	0,04	0,08	0,12	0,16	0,2
5.6	**35**	0,04	0,08	0,12	0,16	0,2	**35**	0,04	0,08	0,12	0,16	0,2
5.7	**35**	0,04	0,08	0,12	0,16	0,2	**35**	0,04	0,08	0,12	0,16	0,2
5.8	**35**	0,04	0,08	0,12	0,16	0,2	**35**	0,04	0,08	0,12	0,16	0,2
5.9	**45**	0,04	0,08	0,12	0,16	0,2	**45**	0,04	0,08	0,12	0,16	0,2
5.10	**40**	0,04	0,08	0,12	0,16	0,2	**40**	0,04	0,08	0,12	0,16	0,2
5.11	**35**	0,04	0,08	0,12	0,16	0,2	**35**	0,04	0,08	0,12	0,16	0,2
6.1												
6.2												
6.3												
6.4												
6.5												

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

Cutting data standard values – WTX – Speed

Index	Drilling depth 3xD Speed UNI 10 781 ...						Drilling depth 5xD Speed UNI 10 771 ...					
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
1.1	**200**	0,15	0,20	0,26	0,31	0,35	**200**	0,14	0,19	0,24	0,29	0,32
1.2	**240**	0,25	0,33	0,42	0,50	0,56	**240**	0,23	0,30	0,38	0,46	0,52
1.3	**200**	0,19	0,25	0,33	0,39	0,44	**200**	0,18	0,23	0,30	0,36	0,40
1.4	**160**	0,17	0,22	0,29	0,35	0,39	**160**	0,15	0,20	0,26	0,32	0,36
1.5	**180**	0,19	0,25	0,33	0,39	0,44	**180**	0,18	0,23	0,30	0,36	0,40
1.6	**160**	0,17	0,22	0,29	0,35	0,39	**160**	0,15	0,20	0,26	0,32	0,36
1.7	**160**	0,17	0,22	0,29	0,35	0,39	**160**	0,15	0,20	0,26	0,32	0,36
1.8	**120**	0,14	0,18	0,23	0,28	0,31	**120**	0,13	0,17	0,22	0,26	0,29
1.9	**180**	0,19	0,25	0,33	0,39	0,44	**180**	0,18	0,23	0,30	0,36	0,40
1.10	**120**	0,14	0,18	0,23	0,28	0,31	**120**	0,13	0,17	0,22	0,26	0,29
1.11	**100**	0,12	0,16	0,21	0,25	0,28	**100**	0,11	0,15	0,19	0,23	0,26
1.12	**120**	0,14	0,18	0,23	0,28	0,31	**120**	0,13	0,17	0,22	0,26	0,29
1.13	**120**	0,14	0,18	0,23	0,28	0,31	**120**	0,13	0,17	0,22	0,26	0,29
1.14	**100**	0,12	0,16	0,21	0,25	0,28	**100**	0,11	0,15	0,19	0,23	0,26
1.15	**100**	0,14	0,18	0,23	0,28	0,31	**100**	0,13	0,17	0,22	0,26	0,29
1.16	**100**	0,14	0,18	0,23	0,28	0,31	**100**	0,13	0,17	0,22	0,26	0,29
2.1	**65**	0,09	0,12	0,15	0,19	0,23	**65**	0,09	0,12	0,15	0,19	0,23
2.2	**65**	0,09	0,12	0,15	0,19	0,23	**65**	0,09	0,12	0,15	0,19	0,23
2.3	**65**	0,09	0,12	0,15	0,19	0,23	**65**	0,09	0,12	0,15	0,19	0,23
2.4	**65**	0,09	0,12	0,15	0,19	0,23	**65**	0,09	0,12	0,15	0,19	0,23
2.5	**60**	0,08	0,10	0,13	0,16	0,20	**60**	0,08	0,10	0,13	0,16	0,20
2.6	**65**	0,09	0,12	0,15	0,19	0,23	**65**	0,09	0,12	0,15	0,19	0,23
2.7	**60**	0,08	0,10	0,13	0,16	0,20	**60**	0,08	0,10	0,13	0,16	0,20
3.1	**140**	0,24	0,31	0,39	0,47	0,54	**140**	0,24	0,31	0,39	0,47	0,54
3.2	**100**	0,21	0,27	0,35	0,42	0,47	**100**	0,21	0,27	0,35	0,42	0,47
3.3	**120**	0,27	0,35	0,45	0,54	0,60	**120**	0,27	0,35	0,45	0,54	0,60
3.4	**75**	0,21	0,27	0,35	0,42	0,47	**75**	0,21	0,27	0,35	0,42	0,47
3.5	**170**	0,30	0,39	0,49	0,59	0,67	**170**	0,30	0,39	0,49	0,59	0,67
3.6	**140**	0,27	0,35	0,45	0,54	0,60	**140**	0,27	0,35	0,45	0,54	0,60
3.7	**170**	0,27	0,35	0,45	0,54	0,60	**170**	0,27	0,35	0,45	0,54	0,60
3.8	**140**	0,21	0,27	0,35	0,42	0,47	**140**	0,21	0,27	0,35	0,42	0,47
4.1												
4.2												
4.3												
4.4												
4.5												
4.6												
4.7												
4.8												
4.9												
4.10												
4.11	200	0,24	0,31	0,39	0,47	0,54	200	0,24	0,31	0,39	0,47	0,54
4.12	200	0,21	0,27	0,35	0,42	0,47	200	0,21	0,27	0,35	0,42	0,47
4.13												
4.14												
4.15												
4.16												
4.17												
4.18												
4.19												
5.1												
5.2												
5.3												
5.4												
5.5												
5.6												
5.7												
5.8												
5.9												
5.10												
5.11												
6.1	50	0,10	0,13	0,17	0,20	0,23	50	0,09	0,12	0,15	0,19	0,21
6.2	40	0,06	0,08	0,11	0,13	0,15	40	0,06	0,08	0,10	0,12	0,13
6.3												
6.4												
6.5												

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

Index	Drilling depth 8xD Speed UNI 10 782 ...					
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
1.1	**170**	0,13	0,17	0,22	0,26	0,30
1.2	**205**	0,23	0,30	0,38	0,46	0,52
1.3	**170**	0,18	0,23	0,30	0,36	0,40
1.4	**135**	0,15	0,20	0,26	0,32	0,36
1.5	**155**	0,18	0,23	0,30	0,36	0,40
1.6	**135**	0,15	0,20	0,26	0,32	0,36
1.7	**135**	0,15	0,20	0,26	0,32	0,36
1.8	**100**	0,13	0,17	0,22	0,26	0,29
1.9	**155**	0,18	0,23	0,30	0,36	0,40
1.10	**100**	0,13	0,17	0,22	0,26	0,29
1.11	**85**	0,11	0,15	0,19	0,23	0,26
1.12	**100**	0,13	0,17	0,22	0,26	0,29
1.13	**100**	0,13	0,17	0,22	0,26	0,29
1.14	**85**	0,11	0,15	0,19	0,23	0,26
1.15	**85**	0,13	0,17	0,22	0,26	0,29
1.16	**85**	0,13	0,17	0,22	0,26	0,29
2.1	**65**	0,09	0,12	0,15	0,19	0,23
2.2	**65**	0,09	0,12	0,15	0,19	0,23
2.3	**65**	0,09	0,12	0,15	0,19	0,23
2.4	**65**	0,09	0,12	0,15	0,19	0,23
2.5	**60**	0,08	0,10	0,13	0,16	0,20
2.6	**65**	0,09	0,12	0,15	0,19	0,23
2.7	**60**	0,08	0,10	0,13	0,16	0,20
3.1	**125**	0,24	0,31	0,39	0,47	0,54
3.2	**100**	0,21	0,27	0,35	0,42	0,47
3.3	**120**	0,27	0,35	0,45	0,54	0,60
3.4	**75**	0,21	0,27	0,35	0,42	0,47
3.5	**170**	0,30	0,39	0,49	0,59	0,67
3.6	**140**	0,27	0,35	0,45	0,54	0,60
3.7	**170**	0,27	0,35	0,45	0,54	0,60
3.8	**140**	0,21	0,27	0,35	0,42	0,47
4.1						
4.2						
4.3						
4.4						
4.5						
4.6						
4.7						
4.8						
4.9						
4.10						
4.11	200	0,24	0,31	0,39	0,47	0,54
4.12	200	0,21	0,27	0,35	0,42	0,47
4.13						
4.14						
4.15						
4.16						
4.17						
4.18						
4.19						
5.1						
5.2						
5.3						
5.4						
5.5						
5.6						
5.7						
5.8						
5.9						
5.10						
5.11						
6.1	40	0,10	0,13	0,17	0,20	0,23
6.2	30	0,06	0,08	0,11	0,13	0,15
6.3						
6.4						
6.5						

Drilling depth 5xD Speed VA 10 773 ...					
v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
200	0,10	0,13	0,17	0,20	0,23
240	0,17	0,21	0,27	0,33	0,37
200	0,13	0,17	0,21	0,26	0,29
160	0,11	0,14	0,19	0,23	0,25
180	0,13	0,17	0,21	0,26	0,29
160	0,11	0,14	0,19	0,23	0,25
160	0,11	0,14	0,19	0,23	0,25
120	0,09	0,12	0,15	0,18	0,21
180	0,13	0,17	0,21	0,26	0,29
120	0,09	0,12	0,15	0,18	0,21
100	0,08	0,11	0,14	0,16	0,18
120	0,09	0,12	0,15	0,18	0,21
120	0,09	0,12	0,15	0,18	0,21
100	0,08	0,11	0,14	0,16	0,18
100	0,09	0,12	0,15	0,18	0,21
100	0,09	0,12	0,15	0,18	0,21
90	0,10	0,13	0,17	0,20	0,23
75	0,08	0,11	0,14	0,18	0,20
90	0,08	0,10	0,13	0,16	0,18
60	0,08	0,10	0,13	0,16	0,18
65	0,08	0,10	0,13	0,16	0,18
75	0,08	0,11	0,14	0,18	0,20
50	0,07	0,09	0,12	0,14	0,16
140	0,17	0,22	0,28	0,34	0,38
100	0,15	0,20	0,25	0,30	0,34
120	0,19	0,25	0,32	0,38	0,43
75	0,15	0,20	0,25	0,30	0,34
170	0,22	0,28	0,35	0,42	0,48
140	0,19	0,25	0,32	0,38	0,43
170	0,19	0,25	0,32	0,38	0,43
140	0,15	0,20	0,25	0,30	0,34
200	0,24	0,31	0,39	0,47	0,54
200	0,21	0,27	0,35	0,42	0,47
50	0,06	0,08	0,10	0,12	0,13
25	0,06	0,08	0,10	0,12	0,13
25	0,06	0,08	0,10	0,12	0,13
25	0,06	0,08	0,10	0,12	0,13
25	0,06	0,08	0,10	0,12	0,13
25	0,06	0,08	0,10	0,12	0,13
50	0,06	0,08	0,10	0,12	0,13
15	0,06	0,08	0,10	0,12	0,13
50	0,12	0,16	0,20	0,25	0,28
40	0,15	0,19	0,25	0,31	0,35
40	0,12	0,16	0,20	0,25	0,28

Cutting data standard values – WTX – Feed

		Drilling depth 5xD Feed UNI 10 789 ...							
Index	v_c m/min with through coolant	Ø 4–6 f mm/rev.	Ø 6–7 f mm/rev.	Ø 7–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–15 f mm/rev.	Ø 15–17 f mm/rev.	Ø 17–20 f mm/rev.
1.1	**100**	0,27	0,31	0,35	0,40	0,44	0,49	0,54	0,56
1.2	**120**	0,45	0,51	0,57	0,64	0,71	0,78	0,86	0,90
1.3	**100**	0,35	0,40	0,44	0,50	0,55	0,61	0,67	0,70
1.4	**80**	0,30	0,35	0,39	0,44	0,49	0,54	0,59	0,62
1.5	**90**	0,35	0,40	0,44	0,50	0,55	0,61	0,67	0,70
1.6	**80**	0,30	0,35	0,39	0,44	0,49	0,54	0,59	0,62
1.7	**80**	0,30	0,35	0,39	0,44	0,49	0,54	0,59	0,62
1.8	**60**	0,25	0,28	0,32	0,36	0,40	0,44	0,48	0,50
1.9	**90**	0,35	0,40	0,44	0,50	0,55	0,61	0,67	0,70
1.10	**60**	0,25	0,28	0,32	0,36	0,40	0,44	0,48	0,50
1.11	**50**	0,22	0,25	0,28	0,32	0,35	0,39	0,43	0,45
1.12	**60**	0,25	0,28	0,32	0,36	0,40	0,44	0,48	0,50
1.13	**60**	0,25	0,28	0,32	0,36	0,40	0,44	0,48	0,50
1.14	**50**	0,22	0,25	0,28	0,32	0,35	0,39	0,43	0,45
1.15	**50**	0,25	0,28	0,32	0,36	0,40	0,44	0,48	0,50
1.16	**50**	0,25	0,28	0,32	0,36	0,40	0,44	0,48	0,50
2.1	**65**	0,14	0,16	0,18	0,21	0,23	0,26	0,28	0,30
2.2	**55**	0,12	0,14	0,16	0,18	0,20	0,22	0,25	0,27
2.3	**65**	0,11	0,13	0,14	0,17	0,18	0,20	0,23	0,24
2.4	**45**	0,11	0,13	0,14	0,17	0,18	0,20	0,23	0,24
2.5	**40**	0,11	0,13	0,14	0,17	0,18	0,20	0,23	0,24
2.6	**55**	0,12	0,14	0,16	0,18	0,20	0,22	0,25	0,27
2.7	**40**	0,10	0,12	0,13	0,15	0,17	0,18	0,20	0,21
3.1	**120**	0,38	0,42	0,47	0,53	0,59	0,65	0,71	0,76
3.2	**85**	0,33	0,38	0,42	0,48	0,52	0,58	0,64	0,67
3.3	**110**	0,43	0,48	0,54	0,61	0,67	0,74	0,81	0,86
3.4	**75**	0,33	0,38	0,42	0,48	0,52	0,58	0,64	0,67
3.5	**140**	0,47	0,53	0,59	0,67	0,73	0,81	0,89	0,95
3.6	**115**	0,43	0,48	0,54	0,61	0,67	0,74	0,81	0,86
3.7	**140**	0,43	0,48	0,54	0,61	0,67	0,74	0,81	0,86
3.8	**115**	0,33	0,38	0,42	0,48	0,52	0,58	0,64	0,67
4.1	300	0,32	0,34	0,36	0,42	0,46	0,50	0,55	0,60
4.2	300	0,32	0,34	0,36	0,42	0,46	0,50	0,55	0,60
4.3	250	0,40	0,44	0,48	0,54	0,58	0,65	0,71	0,79
4.4	220	0,40	0,44	0,48	0,54	0,58	0,65	0,71	0,79
4.5	180	0,40	0,44	0,48	0,54	0,58	0,65	0,71	0,79
4.6									
4.7									
4.8	120	0,29	0,31	0,35	0,40	0,44	0,48	0,52	0,58
4.9	200	0,38	0,48	0,56	0,66	0,72	0,78	0,84	1,00
4.10	200	0,38	0,48	0,56	0,66	0,72	0,78	0,84	1,00
4.11	200	0,38	0,48	0,56	0,66	0,72	0,78	0,84	1,00
4.12	200	0,38	0,48	0,56	0,66	0,72	0,78	0,84	1,00
4.13									
4.14									
4.15									
4.16									
4.17									
4.18									
4.19									
5.1									
5.2									
5.3									
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5.7									
5.8									
5.9									
5.10									
5.11									
6.1									
6.2									
6.3									
6.4									
6.5									

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

Index	v_c m/min with through coolant	Hole depth 8xD and 12xD Feed UNI 10 794 ..., 10 796 ... Ø 4–6 f mm/rev.	Ø 6–7 f mm/rev.	Ø 7–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–15 f mm/rev.	Ø 15–17 f mm/rev.	Ø 17–20 f mm/rev.
1.1	**90**	0,27	0,31	0,35	0,40	0,44	0,49	0,54	0,56
1.2	**110**	0,45	0,51	0,57	0,64	0,71	0,78	0,86	0,90
1.3	**90**	0,35	0,40	0,44	0,50	0,55	0,61	0,67	0,70
1.4	**70**	0,30	0,35	0,39	0,44	0,49	0,54	0,59	0,62
1.5	**80**	0,35	0,40	0,44	0,50	0,55	0,61	0,67	0,70
1.6	**70**	0,30	0,35	0,39	0,44	0,49	0,54	0,59	0,62
1.7	**70**	0,30	0,35	0,39	0,44	0,49	0,54	0,59	0,62
1.8	**55**	0,25	0,28	0,32	0,36	0,40	0,44	0,48	0,50
1.9	**80**	0,35	0,40	0,44	0,50	0,55	0,61	0,67	0,70
1.10	**55**	0,25	0,28	0,32	0,36	0,40	0,44	0,48	0,50
1.11	**45**	0,22	0,25	0,28	0,32	0,35	0,39	0,43	0,45
1.12	**55**	0,25	0,28	0,32	0,36	0,40	0,44	0,48	0,50
1.13	**55**	0,25	0,28	0,32	0,36	0,40	0,44	0,48	0,50
1.14	**45**	0,22	0,25	0,28	0,32	0,35	0,39	0,43	0,45
1.15	**45**	0,25	0,28	0,32	0,36	0,40	0,44	0,48	0,50
1.16	**45**	0,25	0,28	0,32	0,36	0,40	0,44	0,48	0,50
2.1	**60**	0,14	0,16	0,18	0,21	0,23	0,26	0,28	0,30
2.2	**50**	0,12	0,14	0,16	0,18	0,20	0,22	0,25	0,27
2.3	**60**	0,11	0,13	0,14	0,17	0,18	0,20	0,23	0,24
2.4	**40**	0,11	0,13	0,14	0,17	0,18	0,20	0,23	0,24
2.5	**35**	0,11	0,13	0,14	0,17	0,18	0,20	0,23	0,24
2.6	**50**	0,12	0,14	0,16	0,18	0,20	0,22	0,25	0,27
2.7	**35**	0,10	0,12	0,13	0,15	0,17	0,18	0,20	0,21
3.1	**110**	0,38	0,42	0,47	0,53	0,59	0,65	0,71	0,76
3.2	**75**	0,33	0,38	0,42	0,48	0,52	0,58	0,64	0,67
3.3	**100**	0,43	0,48	0,54	0,61	0,67	0,74	0,81	0,86
3.4	**65**	0,33	0,38	0,42	0,48	0,52	0,58	0,64	0,67
3.5	**130**	0,47	0,53	0,59	0,67	0,73	0,81	0,89	0,95
3.6	**110**	0,43	0,48	0,54	0,61	0,67	0,74	0,81	0,86
3.7	**130**	0,43	0,48	0,54	0,61	0,67	0,74	0,81	0,86
3.8	**110**	0,33	0,38	0,42	0,48	0,52	0,58	0,64	0,67
4.1	300	0,32	0,34	0,36	0,42	0,46	0,50	0,55	0,60
4.2	300	0,32	0,34	0,36	0,42	0,46	0,50	0,55	0,60
4.3	250	0,40	0,44	0,48	0,54	0,58	0,65	0,71	0,79
4.4	220	0,40	0,44	0,48	0,54	0,58	0,65	0,71	0,79
4.5	180	0,40	0,44	0,48	0,54	0,58	0,65	0,71	0,79
4.6									
4.7									
4.8	120	0,29	0,31	0,35	0,40	0,44	0,48	0,52	0,58
4.9	200	0,38	0,48	0,56	0,66	0,72	0,78	0,84	1,00
4.10	200	0,38	0,48	0,56	0,66	0,72	0,78	0,84	1,00
4.11	200	0,38	0,48	0,56	0,66	0,72	0,78	0,84	1,00
4.12	200	0,38	0,48	0,56	0,66	0,72	0,78	0,84	1,00
4.13									
4.14									
4.15									
4.16									
4.17									
4.18									
4.19									
5.1									
5.2									
5.3									
5.4									
5.5									
5.6									
5.7									
5.8									
5.9									
5.10									
5.11									
6.1									
6.2									
6.3									
6.4									
6.5									

Cutting data standard values – WTX – UNI

Index	Drilling depth 3xD UNI 11 776 ..., 11 777 ..., 11 778 ..., 11 779 ..., 11 780 ..., 11 781 ...							
	v_c m/min without through coolant	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	Ø 20–25 f mm/rev.
1.1	**110**	**125**	0,14	0,17	0,22	0,26	0,30	0,32
1.2	**130**	**150**	0,23	0,28	0,35	0,42	0,48	0,51
1.3	**110**	**125**	0,18	0,21	0,28	0,33	0,37	0,40
1.4	**90**	**100**	0,15	0,19	0,24	0,29	0,33	0,35
1.5	**100**	**115**	0,18	0,21	0,28	0,33	0,37	0,40
1.6	**90**	**100**	0,15	0,19	0,24	0,29	0,33	0,35
1.7	**90**	**100**	0,15	0,19	0,24	0,29	0,33	0,35
1.8	**65**	**75**	0,12	0,15	0,20	0,24	0,27	0,28
1.9	**100**	**115**	0,18	0,21	0,28	0,33	0,37	0,40
1.10	**65**	**75**	0,12	0,15	0,20	0,24	0,27	0,28
1.11	**55**	**65**	0,11	0,14	0,18	0,21	0,24	0,26
1.12	**65**	**75**	0,12	0,15	0,20	0,24	0,27	0,28
1.13	**65**	**75**	0,12	0,15	0,20	0,24	0,27	0,28
1.14	**55**	**65**	0,11	0,14	0,18	0,21	0,24	0,26
1.15	**55**	**65**	0,12	0,15	0,20	0,24	0,27	0,28
1.16	**55**	**65**	0,12	0,15	0,20	0,24	0,27	0,28
2.1		50	0,10	0,12	0,15	0,19	0,21	0,23
2.2		45	0,08	0,10	0,13	0,16	0,19	0,21
2.3		45	0,07	0,09	0,12	0,15	0,17	0,18
2.4		35	0,07	0,09	0,12	0,15	0,17	0,18
2.5		35	0,07	0,09	0,12	0,15	0,17	0,18
2.6		50	0,08	0,10	0,13	0,16	0,19	0,21
2.7		35	0,07	0,08	0,11	0,13	0,15	0,16
3.1	**70**	**90**	0,20	0,24	0,31	0,37	0,42	0,46
3.2	**50**	**60**	0,18	0,21	0,28	0,33	0,37	0,40
3.3	**60**	**80**	0,23	0,28	0,35	0,42	0,48	0,51
3.4	**45**	**55**	0,18	0,21	0,28	0,33	0,37	0,40
3.5	**90**	**110**	0,25	0,30	0,39	0,46	0,53	0,58
3.6	**75**	**90**	0,23	0,28	0,35	0,42	0,48	0,51
3.7	**90**	**110**	0,23	0,28	0,35	0,42	0,48	0,51
3.8	**75**	**90**	0,18	0,21	0,28	0,33	0,37	0,40
4.1								
4.2								
4.3								
4.4								
4.5								
4.6								
4.7								
4.8								
4.9								
4.10								
4.11	120	200	0,18	0,22	0,28	0,34	0,38	0,42
4.12	120	200	0,16	0,20	0,25	0,30	0,34	0,36
4.13								
4.14								
4.15								
4.16								
4.17	240		0,12	0,15	0,20	0,24	0,27	0,29
4.18								
4.19								
5.1								
5.2								
5.3								
5.4								
5.5								
5.6								
5.7								
5.8								
5.9								
5.10								
5.11								
6.1	40	55	0,09	0,11	0,14	0,17	0,19	0,21
6.2	25	35	0,06	0,08	0,10	0,12	0,13	0,14
6.3								
6.4								
6.5								

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

Index	Drilling depth 5xD UNI 11 782 ..., 11 783 ..., 11 784 ..., 11 785 ..., 11 786 ..., 11 787 ...								Drilling depth 8xD UNI 11 788 ..., 11 789 ..., 11 790 ...					
	v_c m/min without through coolant	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	Ø 20–25 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
1.1	**90**	**125**	0,13	0,17	0,22	0,26	0,30	0,32	**110**	0,13	0,17	0,22	0,26	0,30
1.2	**110**	**150**	0,21	0,28	0,35	0,42	0,48	0,51	**130**	0,21	0,28	0,35	0,42	0,48
1.3	**90**	**125**	0,16	0,21	0,28	0,33	0,37	0,40	**110**	0,16	0,21	0,28	0,33	0,37
1.4	**75**	**100**	0,14	0,19	0,24	0,29	0,33	0,35	**90**	0,14	0,19	0,24	0,29	0,33
1.5	**80**	**115**	0,16	0,21	0,28	0,33	0,37	0,40	**100**	0,16	0,21	0,28	0,33	0,37
1.6	**75**	**100**	0,14	0,19	0,24	0,29	0,33	0,35	**90**	0,14	0,19	0,24	0,29	0,33
1.7	**75**	**100**	0,14	0,19	0,24	0,29	0,33	0,35	**90**	0,14	0,19	0,24	0,29	0,33
1.8	**55**	**75**	0,12	0,15	0,20	0,24	0,27	0,28	**65**	0,12	0,15	0,20	0,24	0,27
1.9	**80**	**115**	0,16	0,21	0,28	0,33	0,37	0,40	**100**	0,16	0,21	0,28	0,33	0,37
1.10	**55**	**75**	0,12	0,15	0,20	0,24	0,27	0,28	**65**	0,12	0,15	0,20	0,24	0,27
1.11	**45**	**65**	0,10	0,14	0,18	0,21	0,24	0,26	**55**	0,10	0,14	0,18	0,21	0,24
1.12	**55**	**75**	0,12	0,15	0,20	0,24	0,27	0,28	**65**	0,12	0,15	0,20	0,24	0,27
1.13	**55**	**75**	0,12	0,15	0,20	0,24	0,27	0,28	**65**	0,12	0,15	0,20	0,24	0,27
1.14	**45**	**65**	0,10	0,14	0,18	0,21	0,24	0,26	**55**	0,10	0,14	0,18	0,21	0,24
1.15	**45**	**65**	0,12	0,15	0,20	0,24	0,27	0,28	**55**	0,12	0,15	0,20	0,24	0,27
1.16	**45**	**65**	0,12	0,15	0,20	0,24	0,27	0,28	**55**	0,12	0,15	0,20	0,24	0,27
2.1		50	0,09	0,12	0,15	0,19	0,21	0,23						
2.2		45	0,08	0,10	0,13	0,16	0,19	0,21						
2.3		45	0,07	0,09	0,12	0,15	0,17	0,18						
2.4		35	0,07	0,09	0,12	0,15	0,17	0,18						
2.5		35	0,07	0,09	0,12	0,15	0,17	0,18						
2.6		50	0,08	0,10	0,13	0,16	0,19	0,21						
2.7		35	0,06	0,08	0,11	0,13	0,15	0,16						
3.1	**75**	**90**	0,17	0,22	0,28	0,34	0,38	0,42	**80**	0,17	0,22	0,28	0,34	0,38
3.2	**55**	**60**	0,15	0,20	0,25	0,30	0,34	0,36	**55**	0,15	0,20	0,25	0,30	0,34
3.3	**70**	**80**	0,19	0,25	0,32	0,38	0,43	0,47	**70**	0,19	0,25	0,32	0,38	0,43
3.4	**45**	**55**	0,15	0,20	0,25	0,30	0,34	0,36	**50**	0,15	0,20	0,25	0,30	0,34
3.5	**90**	**110**	0,22	0,28	0,35	0,42	0,48	0,52	**95**	0,22	0,28	0,35	0,42	0,48
3.6	**75**	**90**	0,19	0,25	0,32	0,38	0,43	0,47	**80**	0,19	0,25	0,32	0,38	0,43
3.7	**90**	**110**	0,19	0,25	0,32	0,38	0,43	0,47	**95**	0,19	0,25	0,32	0,38	0,43
3.8	**75**	**90**	0,15	0,20	0,25	0,30	0,34	0,36	**80**	0,15	0,20	0,25	0,30	0,34
4.1														
4.2														
4.3														
4.4														
4.5														
4.6														
4.7														
4.8														
4.9														
4.10														
4.11	100	200	0,17	0,22	0,28	0,34	0,38	0,42	200	0,17	0,22	0,28	0,34	0,38
4.12	100	200	0,15	0,20	0,25	0,30	0,34	0,36	200	0,15	0,20	0,25	0,30	0,34
4.13														
4.14														
4.15														
4.16														
4.17														
4.18														
4.19														
5.1														
5.2														
5.3														
5.4														
5.5														
5.6														
5.7														
5.8														
5.9														
5.10														
5.11														
6.1		55	0,08	0,11	0,14	0,17	0,19	0,21						
6.2														
6.3														
6.4														
6.5														

Cutting data standard values – WTX – VA

Index	Drilling depth 3xD VA 10 731 ..., 10 732 ..., 10 733 ..., 10 734 ...							Drilling depth 5xD VA 10 740 ..., 10 741 ..., 10 745 ..., 10 746 ...						
	v_c m/min without through coolant	v_c m/min with through coolant	Ø 2–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min without through coolant	v_c m/min with through coolant	Ø 2–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
1.1	90	90	0,09	0,12	0,16	0,19	0,22	90	90	0,09	0,12	0,16	0,19	0,22
1.2	105	105	0,15	0,20	0,26	0,31	0,35	105	105	0,15	0,20	0,26	0,31	0,35
1.3	90	90	0,11	0,16	0,20	0,24	0,27	90	90	0,11	0,16	0,20	0,24	0,27
1.4	70	70	0,10	0,14	0,18	0,21	0,24	70	70	0,10	0,14	0,18	0,21	0,24
1.5	80	80	0,11	0,16	0,20	0,24	0,27	80	80	0,11	0,16	0,20	0,24	0,27
1.6	70	70	0,10	0,14	0,18	0,21	0,24	70	70	0,10	0,14	0,18	0,21	0,24
1.7	70	70	0,10	0,14	0,18	0,21	0,24	70	70	0,10	0,14	0,18	0,21	0,24
1.8	55	55	0,08	0,11	0,14	0,17	0,19	55	55	0,08	0,11	0,14	0,17	0,19
1.9	80	80	0,11	0,16	0,20	0,24	0,27	80	80	0,11	0,16	0,20	0,24	0,27
1.10	55	55	0,08	0,11	0,14	0,17	0,19	55	55	0,08	0,11	0,14	0,17	0,19
1.11	45	45	0,07	0,10	0,13	0,15	0,17	45	45	0,07	0,10	0,13	0,15	0,17
1.12	55	55	0,08	0,11	0,14	0,17	0,19	55	55	0,08	0,11	0,14	0,17	0,19
1.13	55	55	0,08	0,11	0,14	0,17	0,19	55	55	0,08	0,11	0,14	0,17	0,19
1.14	45	45	0,07	0,10	0,13	0,15	0,17	45	45	0,07	0,10	0,13	0,15	0,17
1.15	45	45	0,08	0,11	0,14	0,17	0,19	45	45	0,08	0,11	0,14	0,17	0,19
1.16	45	45	0,08	0,11	0,14	0,17	0,19	45	45	0,08	0,11	0,14	0,17	0,19
2.1	**30**	**60**	0,08	0,11	0,14	0,17	0,19	**30**	**60**	0,08	0,11	0,14	0,17	0,19
2.2	**25**	**50**	0,06	0,09	0,12	0,15	0,17	**25**	**50**	0,06	0,09	0,12	0,15	0,17
2.3	**30**	**60**	0,06	0,08	0,11	0,13	0,15	**30**	**60**	0,06	0,08	0,11	0,13	0,15
2.4	**20**	**40**	0,06	0,08	0,11	0,13	0,15	**20**	**40**	0,06	0,08	0,11	0,13	0,15
2.5	**18**	**35**	0,06	0,08	0,11	0,13	0,15	**18**	**35**	0,06	0,08	0,11	0,13	0,15
2.6	**25**	**50**	0,06	0,09	0,12	0,15	0,17	**25**	**50**	0,06	0,09	0,12	0,15	0,17
2.7	**18**	**35**	0,05	0,08	0,10	0,12	0,13	**18**	**35**	0,05	0,08	0,10	0,12	0,13
3.1	90	100	0,16	0,22	0,28	0,34	0,38	80	100	0,16	0,22	0,28	0,34	0,38
3.2	65	70	0,14	0,20	0,25	0,30	0,34	60	70	0,14	0,20	0,25	0,30	0,34
3.3	80	90	0,18	0,25	0,32	0,38	0,43	70	90	0,18	0,25	0,32	0,38	0,43
3.4	50	60	0,14	0,20	0,25	0,30	0,34	50	60	0,14	0,20	0,25	0,30	0,34
3.5	110	120	0,20	0,28	0,35	0,42	0,48	100	120	0,20	0,28	0,35	0,42	0,48
3.6	90	100	0,18	0,25	0,32	0,38	0,43	80	100	0,18	0,25	0,32	0,38	0,43
3.7	110	120	0,18	0,25	0,32	0,38	0,43	95	120	0,18	0,25	0,32	0,38	0,43
3.8	90	100	0,14	0,20	0,25	0,30	0,34	80	100	0,14	0,20	0,25	0,30	0,34
4.1	**240**	**320**	0,11	0,15	0,20	0,24	0,27	**160**	**320**	0,11	0,15	0,20	0,24	0,27
4.2	**180**	**240**	0,11	0,15	0,20	0,24	0,27	**120**	**240**	0,11	0,15	0,20	0,24	0,27
4.3	**150**	**200**	0,14	0,20	0,25	0,30	0,34	**100**	**200**	0,14	0,20	0,25	0,30	0,34
4.4	**120**	**160**	0,11	0,15	0,20	0,24	0,27	**80**	**160**	0,11	0,15	0,20	0,24	0,27
4.5	**90**	**120**	0,10	0,14	0,18	0,22	0,24	**60**	**120**	0,10	0,14	0,18	0,22	0,24
4.6	**240**	**320**	0,10	0,14	0,18	0,22	0,24	**200**	**320**	0,10	0,14	0,18	0,22	0,24
4.7	**210**	**280**	0,10	0,14	0,18	0,22	0,24	**175**	**280**	0,10	0,14	0,18	0,22	0,24
4.8	**120**	**160**	0,10	0,14	0,18	0,22	0,24	**100**	**160**	0,10	0,14	0,18	0,22	0,24
4.9	**150**	**200**	0,10	0,14	0,18	0,22	0,24	**125**	**200**	0,10	0,14	0,18	0,22	0,24
4.10	**120**	**160**	0,10	0,14	0,18	0,22	0,24	**100**	**160**	0,10	0,14	0,18	0,22	0,24
4.11	**120**	**160**	0,16	0,22	0,28	0,34	0,38	**120**	**160**	0,16	0,22	0,28	0,34	0,38
4.12	**120**	**160**	0,14	0,20	0,25	0,30	0,34	**120**	**160**	0,14	0,20	0,25	0,30	0,34
4.13	**80**	**120**	0,05	0,08	0,10	0,12	0,13	**60**	**120**	0,05	0,08	0,10	0,12	0,13
4.14	**100**	**150**	0,09	0,12	0,16	0,19	0,22	**75**	**150**	0,09	0,12	0,16	0,19	0,22
4.15	**80**	**120**	0,09	0,12	0,16	0,19	0,22	**60**	**120**	0,09	0,12	0,16	0,19	0,22
4.16	**150**	**300**	0,11	0,15	0,20	0,24	0,27		**300**	0,11	0,15	0,20	0,24	0,27
4.17	400		0,11	0,15	0,20	0,24	0,27	400		0,11	0,15	0,20	0,24	0,27
4.18		**40**	0,06	0,09	0,12	0,15	0,17		**40**	0,06	0,09	0,12	0,15	0,17
4.19		**40**	0,05	0,08	0,10	0,12	0,13		**40**	0,05	0,08	0,10	0,12	0,13
5.1		40	0,05	0,08	0,10	0,12	0,13		40	0,05	0,08	0,10	0,12	0,13
5.2		20	0,05	0,08	0,10	0,12	0,13		20	0,05	0,08	0,10	0,12	0,13
5.3		20	0,05	0,08	0,10	0,12	0,13		20	0,05	0,08	0,10	0,12	0,13
5.4		20	0,05	0,08	0,10	0,12	0,13		20	0,05	0,08	0,10	0,12	0,13
5.5		20	0,05	0,08	0,10	0,12	0,13		20	0,05	0,08	0,10	0,12	0,13
5.6		18	0,05	0,08	0,10	0,12	0,13		18	0,05	0,08	0,10	0,12	0,13
5.7		15	0,05	0,08	0,10	0,12	0,13		15	0,05	0,08	0,10	0,12	0,13
5.8		10	0,05	0,08	0,10	0,12	0,13		10	0,05	0,08	0,10	0,12	0,13
5.9		20	0,05	0,08	0,10	0,12	0,13		20	0,05	0,08	0,10	0,12	0,13
5.10		25	0,05	0,08	0,10	0,12	0,13		25	0,05	0,08	0,10	0,12	0,13
5.11		20	0,05	0,08	0,10	0,12	0,13		20	0,05	0,08	0,10	0,12	0,13
6.1	30		0,05	0,08	0,10	0,10	0,10	20		0,05	0,08	0,10	0,10	0,10
6.2	22		0,04	0,06	0,07	0,07	0,07	15		0,04	0,06	0,07	0,07	0,07
6.3														
6.4														
6.5														

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

Index	Drilling depth 8xD VA 10 770 ...					
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
1.1	75	0,09	0,12	0,16	0,19	0,22
1.2	90	0,15	0,20	0,26	0,31	0,35
1.3	75	0,11	0,16	0,20	0,24	0,27
1.4	60	0,10	0,14	0,18	0,21	0,24
1.5	70	0,11	0,16	0,20	0,24	0,27
1.6	60	0,10	0,14	0,18	0,21	0,24
1.7	60	0,10	0,14	0,18	0,21	0,24
1.8	45	0,08	0,11	0,14	0,17	0,19
1.9	70	0,11	0,16	0,20	0,24	0,27
1.10	45	0,08	0,11	0,14	0,17	0,19
1.11	40	0,07	0,10	0,13	0,15	0,17
1.12	45	0,08	0,11	0,14	0,17	0,19
1.13	45	0,08	0,11	0,14	0,17	0,19
1.14	40	0,07	0,10	0,13	0,15	0,17
1.15	40	0,08	0,11	0,14	0,17	0,19
1.16	40	0,08	0,11	0,14	0,17	0,19
2.1	**50**	0,08	0,11	0,14	0,17	0,19
2.2	**45**	0,06	0,09	0,12	0,15	0,17
2.3	**50**	0,06	0,08	0,11	0,13	0,15
2.4	**35**	0,06	0,08	0,11	0,13	0,15
2.5	**30**	0,06	0,08	0,11	0,13	0,15
2.6	**45**	0,06	0,09	0,12	0,15	0,17
2.7	**30**	0,05	0,08	0,10	0,12	0,13
3.1	85	0,16	0,22	0,28	0,34	0,38
3.2	60	0,14	0,20	0,25	0,30	0,34
3.3	75	0,18	0,25	0,32	0,38	0,43
3.4	50	0,14	0,20	0,25	0,30	0,34
3.5	100	0,20	0,28	0,35	0,42	0,48
3.6	85	0,18	0,25	0,32	0,38	0,43
3.7	100	0,18	0,25	0,32	0,38	0,43
3.8	85	0,14	0,20	0,25	0,30	0,34
4.1	**270**	0,11	0,15	0,20	0,24	0,27
4.2	**205**	0,11	0,15	0,20	0,24	0,27
4.3	**170**	0,14	0,20	0,25	0,30	0,34
4.4	**135**	0,11	0,15	0,20	0,24	0,27
4.5	**100**	0,10	0,14	0,18	0,22	0,24
4.6	**270**	0,10	0,14	0,18	0,22	0,24
4.7	**240**	0,10	0,14	0,18	0,22	0,24
4.8	**135**	0,10	0,14	0,18	0,22	0,24
4.9	**170**	0,10	0,14	0,18	0,22	0,24
4.10	**135**	0,10	0,14	0,18	0,22	0,24
4.11	**135**	0,16	0,22	0,28	0,34	0,38
4.12	**135**	0,14	0,20	0,25	0,30	0,34
4.13	**100**	0,05	0,08	0,10	0,12	0,13
4.14	**130**	0,09	0,12	0,16	0,19	0,22
4.15	**100**	0,09	0,12	0,16	0,19	0,22
4.16	**255**	0,11	0,15	0,20	0,24	0,27
4.17						
4.18	**35**	0,06	0,09	0,12	0,15	0,17
4.19	**35**	0,05	0,08	0,10	0,12	0,13
5.1	35	0,05	0,08	0,10	0,12	0,13
5.2	15	0,05	0,08	0,10	0,12	0,13
5.3	15	0,05	0,08	0,10	0,12	0,13
5.4	15	0,05	0,08	0,10	0,12	0,13
5.5	15	0,05	0,08	0,10	0,12	0,13
5.6	15	0,05	0,08	0,10	0,12	0,13
5.7	15	0,05	0,08	0,10	0,12	0,13
5.8	10	0,05	0,08	0,10	0,12	0,13
5.9	15	0,05	0,08	0,10	0,12	0,13
5.10	20	0,05	0,08	0,10	0,12	0,13
5.11	15	0,05	0,08	0,10	0,12	0,13
6.1						
6.2						
6.3						
6.4						
6.5						

Cutting data standard values – WTX – Quattro 4F

Index	Drilling depth 5xD Quattro 4F 10 730 ..., 10 735...							Drilling depth 8xD Quattro 4F 10 736 ...					
	v_c m/min without through coolant	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
1.1	**90**	**125**	0,13	0,17	0,22	0,26	0,30	**110**	0,13	0,17	0,22	0,26	0,30
1.2	**110**	**150**	0,21	0,28	0,35	0,42	0,48	**130**	0,21	0,28	0,35	0,42	0,48
1.3	**90**	**125**	0,16	0,21	0,28	0,33	0,37	**110**	0,16	0,21	0,28	0,33	0,37
1.4	**75**	**100**	0,14	0,19	0,24	0,29	0,33	**90**	0,14	0,19	0,24	0,29	0,33
1.5	**80**	**115**	0,16	0,21	0,28	0,33	0,37	**100**	0,16	0,21	0,28	0,33	0,37
1.6	**75**	**100**	0,14	0,19	0,24	0,29	0,33	**90**	0,14	0,19	0,24	0,29	0,33
1.7	**75**	**100**	0,14	0,19	0,24	0,29	0,33	**90**	0,14	0,19	0,24	0,29	0,33
1.8	**55**	**75**	0,12	0,15	0,20	0,24	0,27	**65**	0,12	0,15	0,20	0,24	0,27
1.9	**80**	**115**	0,16	0,21	0,28	0,33	0,37	**100**	0,16	0,21	0,28	0,33	0,37
1.10	**55**	**75**	0,12	0,15	0,20	0,24	0,27	**65**	0,12	0,15	0,20	0,24	0,27
1.11	**45**	**65**	0,10	0,14	0,18	0,21	0,24	**55**	0,10	0,14	0,18	0,21	0,24
1.12	**55**	**75**	0,12	0,15	0,20	0,24	0,27	**65**	0,12	0,15	0,20	0,24	0,27
1.13	**55**	**75**	0,12	0,15	0,20	0,24	0,27	**65**	0,12	0,15	0,20	0,24	0,27
1.14	**45**	**65**	0,10	0,14	0,18	0,21	0,24	**55**	0,10	0,14	0,18	0,21	0,24
1.15	**45**	**65**	0,12	0,15	0,20	0,24	0,27	**55**	0,12	0,15	0,20	0,24	0,27
1.16	**45**	**65**	0,12	0,15	0,20	0,24	0,27	**55**	0,12	0,15	0,20	0,24	0,27
2.1		50	0,09	0,12	0,15	0,19	0,21						
2.2		45	0,08	0,10	0,13	0,16	0,19						
2.3		45	0,07	0,09	0,12	0,15	0,17						
2.4		35	0,07	0,09	0,12	0,15	0,17						
2.5		35	0,07	0,09	0,12	0,15	0,17						
2.6		50	0,08	0,10	0,13	0,16	0,19						
2.7		35	0,06	0,08	0,11	0,13	0,15						
3.1	**75**	**90**	0,17	0,22	0,28	0,34	0,38	**80**	0,17	0,22	0,28	0,34	0,38
3.2	**55**	**60**	0,15	0,20	0,25	0,30	0,34	**55**	0,15	0,20	0,25	0,30	0,34
3.3	**70**	**80**	0,19	0,25	0,32	0,38	0,43	**70**	0,19	0,25	0,32	0,38	0,43
3.4	**45**	**55**	0,15	0,20	0,25	0,30	0,34	**50**	0,15	0,20	0,25	0,30	0,34
3.5	**90**	**110**	0,22	0,28	0,35	0,42	0,48	**95**	0,22	0,28	0,35	0,42	0,48
3.6	**75**	**90**	0,19	0,25	0,32	0,38	0,43	**80**	0,19	0,25	0,32	0,38	0,43
3.7	**90**	**110**	0,19	0,25	0,32	0,38	0,43	**95**	0,19	0,25	0,32	0,38	0,43
3.8	**75**	**90**	0,15	0,20	0,25	0,30	0,34	**80**	0,15	0,20	0,25	0,30	0,34
4.1													
4.2													
4.3													
4.4													
4.5													
4.6													
4.7													
4.8													
4.9													
4.10													
4.11	120	200	0,17	0,22	0,28	0,34	0,38	200	0,17	0,22	0,28	0,34	0,38
4.12	120	200	0,15	0,20	0,25	0,30	0,34	200	0,15	0,20	0,25	0,30	0,34
4.13													
4.14													
4.15													
4.16													
4.17	240		0,12	0,15	0,20	0,24	0,27						
4.18													
4.19													
5.1													
5.2													
5.3													
5.4													
5.5													
5.6													
5.7													
5.8													
5.9													
5.10													
5.11													
6.1	40	55	0,08	0,11	0,14	0,17	0,19	55	0,08	0,11	0,14	0,17	0,19
6.2	20	35	0,06	0,08	0,10	0,12	0,13						
6.3													
6.4													
6.5													

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

		Drilling depth 12xD Quattro 4F 10 737 ...				
Index	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
1.1	100	0,12	0,15	0,20	0,24	0,27
1.2	120	0,19	0,25	0,32	0,38	0,43
1.3	100	0,15	0,20	0,25	0,30	0,34
1.4	80	0,13	0,17	0,22	0,27	0,30
1.5	90	0,15	0,20	0,25	0,30	0,34
1.6	80	0,13	0,17	0,22	0,27	0,30
1.7	80	0,13	0,17	0,22	0,27	0,30
1.8	60	0,10	0,14	0,18	0,22	0,24
1.9	90	0,15	0,20	0,25	0,30	0,34
1.10	60	0,10	0,14	0,18	0,22	0,24
1.11	50	0,09	0,12	0,16	0,19	0,22
1.12	60	0,10	0,14	0,18	0,22	0,24
1.13	60	0,10	0,14	0,18	0,22	0,24
1.14	50	0,09	0,12	0,16	0,19	0,22
1.15	50	0,10	0,14	0,18	0,22	0,24
1.16	50	0,10	0,14	0,18	0,22	0,24
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
3.1	80	0,17	0,22	0,28	0,34	0,38
3.2	55	0,15	0,20	0,25	0,30	0,34
3.3	70	0,19	0,25	0,32	0,38	0,43
3.4	50	0,15	0,20	0,25	0,30	0,34
3.5	95	0,22	0,28	0,35	0,42	0,48
3.6	80	0,19	0,25	0,32	0,38	0,43
3.7	95	0,19	0,25	0,32	0,38	0,43
3.8	80	0,15	0,20	0,25	0,30	0,34
4.1						
4.2						
4.3						
4.4						
4.5						
4.6						
4.7						
4.8						
4.9						
4.10						
4.11	200	0,17	0,22	0,28	0,34	0,38
4.12	200	0,15	0,20	0,25	0,30	0,34
4.13						
4.14						
4.15						
4.16						
4.17						
4.18						
4.19						
5.1						
5.2						
5.3						
5.4						
5.5						
5.6						
5.7						
5.8						
5.9						
5.10						
5.11						
6.1						
6.2						
6.3						
6.4						
6.5						

Cutting data standard values – WTX – AL

Index	Drilling depth 5xD AL 10 791 ...						Drilling depth 8xD AL 10 792 ...					
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
1.1												
1.2												
1.3												
1.4												
1.5												
1.6												
1.7												
1.8												
1.9												
1.10												
1.11												
1.12												
1.13												
1.14												
1.15												
1.16												
2.1												
2.2												
2.3												
2.4												
2.5												
2.6												
2.7												
3.1	105	0,23	0,33	0,42	0,52	0,58	105	0,23	0,33	0,42	0,52	0,58
3.2	100	0,23	0,33	0,42	0,52	0,58	100	0,23	0,33	0,42	0,52	0,58
3.3	105	0,2	0,25	0,35	0,4	0,46	105	0,2	0,25	0,35	0,4	0,46
3.4	100	0,2	0,25	0,35	0,4	0,46	100	0,2	0,25	0,35	0,4	0,46
3.5	105	0,2	0,25	0,35	0,4	0,46	105	0,2	0,25	0,35	0,4	0,46
3.6	100	0,2	0,25	0,35	0,4	0,46	100	0,2	0,25	0,35	0,4	0,46
3.7	105	0,2	0,25	0,35	0,4	0,46	105	0,2	0,25	0,35	0,4	0,46
3.8	100	0,2	0,25	0,35	0,4	0,46	100	0,2	0,25	0,35	0,4	0,46
4.1	**360**	0,3	0,4	0,5	0,6	0,65	**330**	0,3	0,4	0,5	0,6	0,65
4.2	**400**	0,3	0,4	0,5	0,6	0,65	**360**	0,3	0,4	0,5	0,6	0,65
4.3	**360**	0,35	0,45	0,55	0,65	0,7	**330**	0,35	0,45	0,55	0,65	0,7
4.4	**350**	0,3	0,4	0,5	0,6	0,65	**320**	0,3	0,4	0,5	0,6	0,65
4.5	**300**	0,3	0,4	0,5	0,6	0,65	**300**	0,3	0,4	0,5	0,6	0,65
4.6	**160**	0,23	0,3	0,38	0,45	0,52	**130**	0,23	0,3	0,38	0,45	0,52
4.7	**200**	0,23	0,3	0,38	0,45	0,52	**170**	0,23	0,3	0,38	0,45	0,52
4.8												
4.9												
4.10												
4.11	**200**	0,23	0,3	0,38	0,45	0,52	**170**	0,23	0,3	0,38	0,45	0,52
4.12	**160**	0,23	0,3	0,38	0,45	0,52	**130**	0,23	0,3	0,38	0,45	0,52
4.13												
4.14												
4.15												
4.16												
4.17												
4.18												
4.19												
5.1												
5.2												
5.3												
5.4												
5.5												
5.6												
5.7												
5.8												
5.9												
5.10												
5.11												
6.1												
6.2												
6.3												
6.4												
6.5												

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

Index	Drilling depth 12xD AL 10 793 ...					
	v_c m/min with through coolant	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
1.10						
1.11						
1.12						
1.13						
1.14						
1.15						
1.16						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
3.1	105	0,23	0,33	0,42	0,52	0,58
3.2	100	0,23	0,33	0,42	0,52	0,58
3.3	105	0,2	0,25	0,35	0,4	0,46
3.4	100	0,2	0,25	0,35	0,4	0,46
3.5	105	0,2	0,25	0,35	0,4	0,46
3.6	100	0,2	0,25	0,35	0,4	0,46
3.7	105	0,2	0,25	0,35	0,4	0,46
3.8	100	0,2	0,25	0,35	0,4	0,46
4.1	**330**	0,3	0,4	0,5	0,6	0,65
4.2	**360**	0,3	0,4	0,5	0,6	0,65
4.3	**330**	0,35	0,45	0,55	0,65	0,7
4.4	**320**	0,3	0,4	0,5	0,6	0,65
4.5	**300**	0,3	0,4	0,5	0,6	0,65
4.6	**130**	0,23	0,3	0,38	0,45	0,52
4.7	**170**	0,23	0,3	0,38	0,45	0,52
4.8						
4.9						
4.10						
4.11	**170**	0,23	0,3	0,38	0,45	0,52
4.12	**130**	0,23	0,3	0,38	0,45	0,52
4.13						
4.14						
4.15						
4.16						
4.17						
4.18						
4.19						
5.1						
5.2						
5.3						
5.4						
5.5						
5.6						
5.7						
5.8						
5.9						
5.10						
5.11						
6.1						
6.2						
6.3						
6.4						
6.5						

Cutting data standard values – WTX – GG

Index	Drilling depth 5xD GG 10 749 ...						Drilling depth 8xD GG 10 753 ...					
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
1.1												
1.2												
1.3												
1.4												
1.5												
1.6												
1.7												
1.8												
1.9												
1.10												
1.11												
1.12												
1.13												
1.14												
1.15												
1.16												
2.1												
2.2												
2.3												
2.4												
2.5												
2.6												
2.7												
3.1	**100**	0,15	0,18	0,25	0,30	0,34	**100**	0,14	0,16	0,22	0,27	0,31
3.2	**70**	0,13	0,16	0,23	0,27	0,30	**70**	0,12	0,14	0,20	0,24	0,27
3.3	**90**	0,17	0,21	0,29	0,35	0,39	**90**	0,16	0,18	0,26	0,31	0,35
3.4	**60**	0,13	0,16	0,23	0,27	0,30	**60**	0,12	0,14	0,20	0,24	0,27
3.5	**120**	0,19	0,23	0,32	0,38	0,43	**120**	0,17	0,20	0,28	0,34	0,38
3.6	**100**	0,17	0,21	0,29	0,35	0,39	**100**	0,16	0,18	0,26	0,31	0,35
3.7	**120**	0,17	0,21	0,29	0,35	0,39	**120**	0,16	0,18	0,26	0,31	0,35
3.8	**100**	0,13	0,16	0,23	0,27	0,30	**100**	0,12	0,14	0,20	0,24	0,27
4.1												
4.2	**300**	0,12	0,14	0,20	0,24	0,27	**300**	0,12	0,14	0,20	0,24	0,27
4.3	**250**	0,15	0,18	0,25	0,30	0,34	**250**	0,15	0,18	0,25	0,30	0,34
4.4	**200**	0,12	0,14	0,20	0,24	0,27	**200**	0,12	0,14	0,20	0,24	0,27
4.5	**150**	0,10	0,13	0,18	0,22	0,24	**150**	0,10	0,13	0,18	0,22	0,24
4.6												
4.7												
4.8	**200**	0,10	0,13	0,18	0,22	0,24	**200**	0,10	0,13	0,18	0,22	0,24
4.9	**250**	0,10	0,13	0,18	0,22	0,24	**250**	0,10	0,13	0,18	0,22	0,24
4.10	**200**	0,10	0,13	0,18	0,22	0,24	**200**	0,10	0,13	0,18	0,22	0,24
4.11	**200**	0,17	0,20	0,28	0,34	0,38	**200**	0,17	0,20	0,28	0,34	0,38
4.12	**200**	0,15	0,18	0,25	0,30	0,34	**200**	0,15	0,18	0,25	0,30	0,34
4.13	**120**	0,06	0,07	0,10	0,12	0,13	**120**	0,06	0,07	0,10	0,12	0,13
4.14	**150**	0,09	0,11	0,16	0,19	0,22	**150**	0,09	0,11	0,16	0,19	0,22
4.15	**120**	0,09	0,11	0,16	0,19	0,22	**120**	0,09	0,11	0,16	0,19	0,22
4.16	**300**	0,12	0,14	0,20	0,24	0,27	**300**	0,12	0,14	0,20	0,24	0,27
4.17	**400**	0,12	0,14	0,20	0,24	0,27	**400**	0,12	0,14	0,20	0,24	0,27
4.18												
4.19												
5.1												
5.2												
5.3												
5.4												
5.5												
5.6												
5.7												
5.8												
5.9												
5.10												
5.11												
6.1												
6.2												
6.3												
6.4												
6.5												

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

Cutting data standard values – WTX – Mini

Index	Drilling depth 5xD MINI 10 775 ...				Drilling depth 8xD MINI 10 778 ...				Drilling depth 12xD MINI 10 779 ...			
	v_c m/min with through coolant	Ø 1,0–1,5 f mm/rev.	Ø 1,6–2,0 f mm/rev.	Ø 2,1–2,9 f mm/rev.	v_c m/min with through coolant	Ø 1,0–1,5 f mm/rev.	Ø 1,6–2,0 f mm/rev.	Ø 2,1–2,9 f mm/rev.	v_c m/min with through coolant	Ø 1,0–1,5 f mm/rev.	Ø 1,6–2,0 f mm/rev.	Ø 2,1–2,9 f mm/rev.
1.1	80	0,07	0,08	0,09	80	0,06	0,07	0,08	70	0,06	0,06	0,07
1.2	95	0,12	0,14	0,16	95	0,11	0,12	0,14	85	0,10	0,11	0,13
1.3	90	0,09	0,10	0,12	90	0,08	0,09	0,11	70	0,07	0,08	0,10
1.4	65	0,08	0,09	0,10	65	0,07	0,08	0,09	60	0,06	0,07	0,08
1.5	70	0,09	0,10	0,12	70	0,08	0,09	0,11	65	0,07	0,08	0,10
1.6	65	0,08	0,09	0,10	65	0,07	0,08	0,09	55	0,06	0,07	0,08
1.7	65	0,08	0,09	0,10	65	0,07	0,08	0,09	55	0,06	0,07	0,08
1.8	50	0,06	0,07	0,08	50	0,06	0,06	0,07	40	0,05	0,06	0,07
1.9	70	0,09	0,10	0,12	70	0,08	0,09	0,11	60	0,07	0,08	0,10
1.10	50	0,06	0,07	0,08	50	0,06	0,06	0,07	40	0,05	0,06	0,07
1.11	40	0,06	0,06	0,07	40	0,05	0,06	0,07	35	0,04	0,05	0,06
1.12	50	0,06	0,07	0,08	50	0,06	0,06	0,07	40	0,05	0,06	0,07
1.13	50	0,06	0,07	0,08	50	0,06	0,06	0,07	40	0,05	0,06	0,07
1.14	40	0,06	0,06	0,07	40	0,05	0,06	0,07	35	0,04	0,05	0,06
1.15	40	0,06	0,07	0,08	40	0,06	0,06	0,07	35	0,05	0,06	0,07
1.16	40	0,06	0,07	0,08	40	0,06	0,06	0,07	35	0,05	0,06	0,07
2.1	50	0,05	0,06	0,06	50	0,04	0,05	0,06				
2.2	40	0,04	0,05	0,06	40	0,04	0,04	0,05				
2.3	50	0,04	0,04	0,05	50	0,03	0,04	0,05				
2.4	32	0,04	0,04	0,05	32	0,03	0,04	0,05				
2.5	28	0,04	0,04	0,05	28	0,03	0,04	0,05				
2.6	40	0,04	0,05	0,06	40	0,04	0,04	0,05				
2.7	28	0,03	0,04	0,05	28	0,03	0,04	0,04				
3.1	90	0,11	0,12	0,14	90	0,10	0,11	0,13	80	0,09	0,10	0,11
3.2	65	0,09	0,10	0,12	65	0,08	0,09	0,11	55	0,07	0,08	0,10
3.3	80	0,12	0,14	0,16	80	0,11	0,12	0,14	70	0,10	0,11	0,13
3.4	55	0,09	0,10	0,12	55	0,08	0,09	0,11	50	0,07	0,08	0,10
3.5	100	0,14	0,16	0,18	100	0,13	0,14	0,16	95	0,11	0,13	0,14
3.6	90	0,12	0,14	0,16	90	0,11	0,12	0,14	80	0,10	0,11	0,13
3.7	105	0,12	0,14	0,16	105	0,11	0,12	0,14	95	0,10	0,11	0,13
3.8	90	0,09	0,10	0,12	90	0,08	0,09	0,11	80	0,07	0,08	0,10
4.1												
4.2	180	0,07	0,08	0,09	180	0,06	0,07	0,08	180	0,06	0,06	0,07
4.3	150	0,09	0,10	0,12	150	0,08	0,09	0,11	150	0,07	0,08	0,10
4.4	120	0,07	0,08	0,09	120	0,06	0,07	0,08	120	0,06	0,06	0,07
4.5	90	0,06	0,07	0,08	90	0,06	0,06	0,07	90	0,05	0,06	0,07
4.6												
4.7												
4.8	120	0,06	0,07	0,08	120	0,06	0,06	0,07	120	0,05	0,06	0,07
4.9	150	0,06	0,07	0,08	150	0,06	0,06	0,07	150	0,05	0,06	0,07
4.10	120	0,06	0,07	0,08	120	0,06	0,06	0,07	120	0,05	0,06	0,07
4.11	120	0,11	0,12	0,14	120	0,10	0,11	0,13	160	0,09	0,10	0,11
4.12	120	0,09	0,10	0,12	120	0,08	0,09	0,11	160	0,07	0,08	0,10
4.13	100	0,03	0,04	0,05	100	0,03	0,04	0,04	96	0,03	0,03	0,04
4.14	125	0,06	0,06	0,07	125	0,05	0,06	0,07	120	0,04	0,05	0,06
4.15	120	0,06	0,06	0,07	110	0,05	0,06	0,07	95	0,04	0,05	0,06
4.16	180	0,07	0,08	0,09	180	0,06	0,07	0,08	180	0,06	0,06	0,07
4.17									320	0,06	0,06	0,07
4.18	30	0,04	0,05	0,06	30	0,04	0,04	0,05				
4.19	32	0,03	0,04	0,05	32	0,03	0,04	0,04				
5.1	35	0,03	0,04	0,05	35	0,03	0,04	0,04				
5.2	16	0,03	0,04	0,05	16	0,03	0,04	0,04				
5.3	16	0,03	0,04	0,05	16	0,03	0,04	0,04				
5.4	16	0,03	0,04	0,05	16	0,03	0,04	0,04				
5.5	16	0,03	0,04	0,05	16	0,03	0,04	0,04				
5.6	15	0,03	0,04	0,05	15	0,03	0,04	0,04				
5.7	12	0,03	0,04	0,05	12	0,03	0,04	0,04				
5.8	8	0,03	0,04	0,05	8	0,03	0,04	0,04				
5.9	16	0,03	0,04	0,05	16	0,03	0,04	0,04				
5.10	20	0,03	0,04	0,05	20	0,03	0,04	0,04				
5.11	16	0,03	0,04	0,05	16	0,03	0,04	0,04				
6.1												
6.2												
6.3												
6.4												
6.5												

Coolant pressure 20–50 bar. High coolant pressure can lead to stiffening of the tool and may result in tool breakage with minimum radial force. The coolant system should be operated with a filter of 20–25 microns in order to avoid a possible blockage of the coolant channels. The cutting values are highly dependent on the external conditions, the material and the machine. The values shown represent possible cutting data which may have to be corrected up or down depending on application.

Cutting data standard values – WTX – Mini, WTX – SB

Index	Drilling depth 5xD Mini 11 770 ...				
	v_c m/min without through coolant	< Ø 1,0	> Ø 1,0–1,5	> Ø 1,5–2,0	> Ø 2,0–2,9
		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
1.1	**70**	0,01	0,015	0,03	0,05
1.2	**70**	0,01	0,015	0,03	0,05
1.3	**75**	0,01	0,015	0,03	0,05
1.4	**65**	0,01	0,015	0,03	0,05
1.5	**65**	0,02	0,03	0,04	0,06
1.6	**65**	0,01	0,015	0,03	0,05
1.7	**65**	0,02	0,03	0,04	0,06
1.8	**50**	0,01	0,015	0,03	0,05
1.9					
1.10	**65**	0,01	0,015	0,03	0,05
1.11	**65**	0,01	0,015	0,03	0,05
1.12	**50**	0,01	0,015	0,03	0,05
1.13					
1.14					
1.15	**50**	0,01	0,015	0,03	0,05
1.16	**50**	0,01	0,015	0,03	0,05
2.1					
2.2					
2.3					
2.4					
2.5					
2.6					
2.7					
3.1	**70**	0,01	0,015	0,03	0,05
3.2	**70**	0,01	0,015	0,03	0,05
3.3	**70**	0,01	0,015	0,03	0,05
3.4	**70**	0,01	0,015	0,03	0,05
3.5	**70**	0,01	0,015	0,03	0,05
3.6	**70**	0,01	0,015	0,03	0,05
3.7	**70**	0,01	0,015	0,03	0,05
3.8	**70**	0,01	0,015	0,03	0,05
4.1	200	0,01	0,015	0,03	0,05
4.2	200	0,01	0,015	0,03	0,05
4.3	160	0,01	0,015	0,03	0,05
4.4	130	0,01	0,015	0,03	0,05
4.5	130	0,01	0,015	0,03	0,05
4.6	100	0,01	0,015	0,03	0,05
4.7	100	0,01	0,015	0,03	0,05
4.8					
4.9					
4.10					
4.11	70	0,01	0,015	0,03	0,05
4.12	120	0,01	0,015	0,03	0,05
4.13					
4.14					
4.15					
4.16	200	0,01	0,015	0,03	0,05
4.17					
4.18					
4.19					
5.1					
5.2					
5.3					
5.4					
5.5					
5.6					
5.7					
5.8					
5.9	30	0,01	0,015	0,03	0,05
5.10	20	0,01	0,015	0,03	0,05
5.11	20	0,01	0,015	0,03	0,05
6.1					
6.2					
6.3					
6.4					
6.5					

Index	Drilling depth 3xD SB 10 767 ..., 10 772 ...				
	v_c m/min without through coolant	Ø 2–5	Ø 5–8	Ø 8–12	Ø 12–16
		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
1.1	**100**	0,11	0,15	0,20	0,24
1.2	**120**	0,19	0,25	0,32	0,38
1.3	**100**	0,14	0,20	0,25	0,30
1.4	**80**	0,12	0,17	0,22	0,27
1.5	**90**	0,14	0,20	0,25	0,30
1.6	**80**	0,12	0,17	0,22	0,27
1.7	**80**	0,12	0,17	0,22	0,27
1.8	**60**	0,10	0,14	0,18	0,22
1.9	**90**	0,14	0,20	0,25	0,30
1.10	**60**	0,10	0,14	0,18	0,22
1.11	**50**	0,09	0,12	0,16	0,19
1.12	**60**	0,10	0,14	0,18	0,22
1.13	**60**	0,10	0,14	0,18	0,22
1.14	**50**	0,09	0,12	0,16	0,19
1.15	**50**	0,10	0,14	0,18	0,22
1.16	**50**	0,10	0,14	0,18	0,22
2.1					
2.2					
2.3					
2.4					
2.5					
2.6					
2.7					
3.1	**70**	0,17	0,22	0,28	0,34
3.2	**50**	0,14	0,20	0,25	0,30
3.3	**60**	0,19	0,25	0,32	0,38
3.4	**45**	0,14	0,20	0,25	0,30
3.5	**90**	0,21	0,28	0,35	0,42
3.6	**75**	0,19	0,25	0,32	0,38
3.7	**90**	0,19	0,25	0,32	0,38
3.8	**75**	0,14	0,20	0,25	0,30
4.1					
4.2					
4.3					
4.4					
4.5					
4.6					
4.7					
4.8					
4.9					
4.10					
4.11	120	0,17	0,22	0,28	0,34
4.12	120	0,14	0,20	0,25	0,30
4.13					
4.14					
4.15					
4.16					
4.17	240	0,11	0,15	0,20	0,24
4.18					
4.19					
5.1					
5.2					
5.3					
5.4					
5.5					
5.6					
5.7					
5.8					
5.9					
5.10					
5.11					
6.1					
6.2					
6.3					
6.4					
6.5					

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

Cutting data standard values – WTX – H

Index	Drilling depth 3xD H 10 776 ...								Drilling depth 3xD H 10 777 ...							
	v_c m/min with through coolant	Ø 2–3 f mm/rev.	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	v_c m/min without through coolant	Ø 2–3 f mm/rev.	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.
1.1	120	0,1	0,14	0,18	0,21	0,24	0,3	0,35								
1.2	120	0,1	0,14	0,18	0,21	0,24	0,3	0,35								
1.3	120	0,1	0,14	0,18	0,21	0,24	0,3	0,35								
1.4	100	0,09	0,13	0,16	0,19	0,22	0,28	0,34								
1.5	110	0,09	0,13	0,16	0,19	0,22	0,28	0,34								
1.6	100	0,08	0,12	0,15	0,18	0,21	0,27	0,32								
1.7	100	0,09	0,13	0,16	0,19	0,22	0,28	0,34								
1.8	85	0,08	0,12	0,15	0,18	0,21	0,27	0,32								
1.9																
1.10	100	0,08	0,12	0,15	0,18	0,21	0,27	0,32								
1.11	100	0,08	0,12	0,15	0,18	0,21	0,27	0,32								
1.12																
1.13	30	0,045	0,06	0,08	0,1	0,12	0,15	0,2								
1.14																
1.15	60	0,045	0,06	0,08	0,1	0,12	0,15	0,2								
1.16	80	0,08	0,12	0,15	0,18	0,21	0,27	0,32								
2.1																
2.2																
2.3																
2.4																
2.5																
2.6																
2.7																
3.1	115	0,15	0,19	0,23	0,27	0,335	0,425	0,52								
3.2	95	0,15	0,19	0,23	0,27	0,335	0,425	0,52								
3.3	95	0,125	0,155	0,18	0,2	0,25	0,35	0,4								
3.4	90	0,125	0,155	0,18	0,2	0,25	0,35	0,4								
3.5	95	0,125	0,155	0,18	0,2	0,25	0,35	0,4								
3.6	90	0,125	0,155	0,18	0,2	0,25	0,35	0,4								
3.7	95	0,125	0,155	0,18	0,2	0,25	0,35	0,4								
3.8	90	0,125	0,155	0,18	0,2	0,25	0,35	0,4								
4.1																
4.2																
4.3																
4.4																
4.5																
4.6																
4.7																
4.8																
4.9																
4.10																
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4.18																
4.19																
5.1																
5.2																
5.3																
5.4																
5.5																
5.6																
5.7																
5.8																
5.9																
5.10																
5.11																
6.1	**28**	**0,02**	**0,03**	**0,04**	**0,055**	**0,08**	**0,12**	**0,16**	**28**	**0,05**	**0,06**	**0,07**	**0,08**	**0,09**	**0,11**	**0,13**
6.2	**20**	**0,02**	**0,03**	**0,04**	**0,055**	**0,08**	**0,12**	**0,16**	**28**	**0,05**	**0,06**	**0,07**	**0,08**	**0,09**	**0,11**	**0,13**
6.3	20	0,02	0,03	0,04	0,055	0,08	0,12	0,16	**20**	**0,05**	**0,06**	**0,07**	**0,08**	**0,09**	**0,11**	**0,13**
6.4									**16**	**0,04**	**0,04**	**0,049**	**0,055**	**0,065**	**0,075**	**0,09**
6.5									**10**	**0,04**	**0,04**	**0,049**	**0,055**	**0,065**	**0,075**	**0,09**

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

Cutting data standard values – WTX – BR

		Drilling depth 3xD BR 10 760 ..., 10 761 ...							
Index	v_c m/min with through coolant	Ø 4 f mm/rev.	Ø 5 f mm/rev.	Ø 6 f mm/rev.	Ø 8 f mm/rev.	Ø 10 f mm/rev.	Ø 12 f mm/rev.	Ø 14 f mm/rev.	Ø 16 f mm/rev.
1.1									
1.2	**90**	0,13	0,16	0,19	0,23	0,26	0,28	0,31	0,33
1.3	**75**	0,10	0,12	0,15	0,18	0,20	0,22	0,24	0,26
1.4	**60**	0,09	0,11	0,13	0,15	0,18	0,20	0,21	0,23
1.5	**70**	0,10	0,12	0,15	0,18	0,20	0,22	0,24	0,26
1.6	**60**	0,09	0,11	0,13	0,15	0,18	0,20	0,21	0,23
1.7	**60**	0,09	0,11	0,13	0,15	0,18	0,20	0,21	0,23
1.8	**45**	0,07	0,09	0,11	0,13	0,14	0,16	0,17	0,18
1.9	**70**	0,10	0,12	0,15	0,18	0,20	0,22	0,24	0,26
1.10	**45**	0,07	0,09	0,11	0,13	0,14	0,16	0,17	0,18
1.11	**40**	0,06	0,08	0,09	0,11	0,13	0,14	0,15	0,16
1.12	**45**	0,07	0,09	0,11	0,13	0,14	0,16	0,17	0,18
1.13	**45**	0,07	0,09	0,11	0,13	0,14	0,16	0,17	0,18
1.14	**35**	0,06	0,08	0,09	0,11	0,13	0,14	0,15	0,16
1.15	**35**	0,07	0,09	0,11	0,13	0,14	0,16	0,17	0,18
1.16	**35**	0,07	0,09	0,11	0,13	0,14	0,16	0,17	0,18
2.1									
2.2									
2.3									
2.4									
2.5									
2.6									
2.7									
3.1	**80**	0,11	0,14	0,17	0,20	0,22	0,25	0,27	0,29
3.2	**55**	0,10	0,12	0,15	0,18	0,20	0,22	0,24	0,26
3.3	**70**	0,13	0,16	0,19	0,23	0,26	0,28	0,31	0,33
3.4	**50**	0,10	0,12	0,15	0,18	0,20	0,22	0,24	0,26
3.5	**90**	0,14	0,18	0,21	0,25	0,28	0,31	0,34	0,36
3.6	**80**	0,13	0,16	0,19	0,23	0,26	0,28	0,31	0,33
3.7	**95**	0,13	0,16	0,19	0,23	0,26	0,28	0,31	0,33
3.8	**80**	0,10	0,12	0,15	0,18	0,20	0,22	0,24	0,26
4.1									
4.2									
4.3	125	0,10	0,12	0,15	0,18	0,20	0,22	0,24	0,26
4.4	100	0,08	0,10	0,12	0,14	0,16	0,18	0,19	0,21
4.5	75	0,07	0,09	0,11	0,13	0,14	0,16	0,17	0,18
4.6									
4.7									
4.8	100	0,07	0,09	0,11	0,13	0,14	0,16	0,17	0,18
4.9	125	0,07	0,09	0,11	0,13	0,14	0,16	0,17	0,18
4.10	100	0,07	0,09	0,11	0,13	0,14	0,16	0,17	0,18
4.11	100	0,11	0,14	0,17	0,20	0,22	0,25	0,27	0,29
4.12									
4.13									
4.14									
4.15									
4.16									
4.17									
4.18									
4.19									
5.1									
5.2									
5.3									
5.4									
5.5									
5.6									
5.7									
5.8									
5.9									
5.10									
5.11									
6.1									
6.2									
6.3									
6.4									
6.5									

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

		Drilling depth 5xD BR 10 762 ...									
Index	v_c m/min with through coolant	Ø 4 f mm/rev.	Ø 5 f mm/rev.	Ø 6 f mm/rev.	Ø 8 f mm/rev.	Ø 10 f mm/rev.	Ø 12 f mm/rev.	Ø 14 f mm/rev.	Ø 16 f mm/rev.	Ø 18 f mm/rev.	Ø 20 f mm/rev.
1.1											
1.2	90	0,13	0,15	0,18	0,23	0,26	0,28	0,31	0,33	0,36	0,40
1.3	75	0,11	0,13	0,15	0,18	0,20	0,22	0,24	0,26	0,27	0,30
1.4	60	0,09	0,10	0,12	0,15	0,18	0,20	0,21	0,23	0,24	0,27
1.5	70	0,11	0,13	0,15	0,18	0,20	0,22	0,24	0,26	0,27	0,30
1.6	60	0,09	0,10	0,12	0,15	0,18	0,20	0,21	0,23	0,24	0,27
1.7	60	0,09	0,10	0,12	0,15	0,18	0,20	0,21	0,23	0,24	0,27
1.8	45	0,08	0,09	0,11	0,13	0,14	0,16	0,17	0,18	0,19	0,21
1.9	70	0,11	0,13	0,15	0,18	0,20	0,22	0,24	0,26	0,27	0,30
1.10	45	0,08	0,09	0,11	0,13	0,14	0,16	0,17	0,18	0,19	0,21
1.11	40	0,07	0,08	0,09	0,11	0,13	0,14	0,15	0,16	0,16	0,18
1.12	45	0,08	0,09	0,11	0,13	0,14	0,16	0,17	0,18	0,19	0,21
1.13	45	0,08	0,09	0,11	0,13	0,14	0,16	0,17	0,18	0,19	0,21
1.14	35	0,07	0,08	0,09	0,11	0,13	0,14	0,15	0,16	0,16	0,18
1.15	35	0,08	0,09	0,11	0,13	0,14	0,16	0,17	0,18	0,19	0,21
1.16	35	0,08	0,09	0,11	0,13	0,14	0,16	0,17	0,18	0,19	0,21
2.1											
2.2											
2.3											
2.4											
2.5											
2.6											
2.7											
3.1	80	0,12	0,13	0,16	0,20	0,22	0,25	0,27	0,29	0,31	0,34
3.2	55	0,11	0,13	0,15	0,18	0,20	0,22	0,24	0,26	0,27	0,30
3.3	70	0,13	0,15	0,18	0,23	0,26	0,28	0,31	0,33	0,36	0,40
3.4	50	0,11	0,13	0,15	0,18	0,20	0,22	0,24	0,26	0,27	0,30
3.5	90	0,13	0,15	0,18	0,25	0,28	0,31	0,34	0,36	0,39	0,43
3.6	80	0,13	0,15	0,18	0,23	0,26	0,28	0,31	0,33	0,36	0,40
3.7	95	0,13	0,15	0,18	0,23	0,26	0,28	0,31	0,33	0,36	0,40
3.8	80	0,11	0,13	0,15	0,18	0,20	0,22	0,24	0,26	0,27	0,30
4.1											
4.2											
4.3	125	0,11	0,13	0,15	0,18	0,20	0,22	0,24	0,26	0,27	0,30
4.4	100	0,09	0,10	0,12	0,14	0,16	0,18	0,19	0,21	0,23	0,25
4.5	75	0,08	0,09	0,11	0,13	0,14	0,16	0,17	0,18	0,19	0,21
4.6											
4.7											
4.8	100	0,08	0,09	0,11	0,13	0,14	0,16	0,17	0,18	0,19	0,21
4.9	125	0,08	0,09	0,11	0,13	0,14	0,16	0,17	0,18	0,19	0,21
4.10	100	0,08	0,09	0,11	0,13	0,14	0,16	0,17	0,18	0,19	0,21
4.11	100	0,12	0,13	0,16	0,20	0,22	0,25	0,27	0,29	0,31	0,34
4.12											
4.13											
4.14											
4.15											
4.16											
4.17											
4.18											
4.19											
5.1											
5.2											
5.3											
5.4											
5.5											
5.6											
5.7											
5.8											
5.9											
5.10											
5.11											
6.1											
6.2											
6.3											
6.4											
6.5											

Cutting data standard values – WTX – 180

Index	v_c m/min with through coolant	Drilling depth 3xD Type 180 10 720 ... Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	Ø 20–25 f mm/rev.
1.1	**100**	0,12	0,15	0,20	0,24	0,27	0,29
1.2	**120**	0,21	0,25	0,32	0,38	0,43	0,47
1.3	**100**	0,16	0,20	0,25	0,30	0,34	0,36
1.4	**80**	0,14	0,17	0,22	0,27	0,30	0,32
1.5	**90**	0,16	0,20	0,25	0,30	0,34	0,36
1.6	**80**	0,14	0,17	0,22	0,27	0,30	0,32
1.7	**80**	0,14	0,17	0,22	0,27	0,30	0,32
1.8	**60**	0,11	0,14	0,18	0,22	0,24	0,26
1.9	**90**	0,16	0,20	0,25	0,30	0,34	0,36
1.10	**60**	0,11	0,14	0,18	0,22	0,24	0,26
1.11	**50**	0,10	0,12	0,16	0,19	0,22	0,23
1.12	**60**	0,11	0,14	0,18	0,22	0,24	0,26
1.13	**60**	0,11	0,14	0,18	0,22	0,24	0,26
1.14	**50**	0,10	0,12	0,16	0,19	0,22	0,23
1.15	**50**	0,11	0,14	0,18	0,22	0,24	0,26
1.16	**50**	0,11	0,14	0,18	0,22	0,24	0,26
2.1	60	0,09	0,11	0,14	0,17	0,19	0,21
2.2	50	0,07	0,09	0,12	0,15	0,17	0,19
2.3	60	0,07	0,08	0,11	0,13	0,15	0,17
2.4	40	0,07	0,08	0,11	0,13	0,15	0,17
2.5	35	0,07	0,08	0,11	0,13	0,15	0,17
2.6	50	0,07	0,09	0,12	0,15	0,17	0,19
2.7	35	0,06	0,08	0,10	0,12	0,13	0,14
3.1	**90**	0,18	0,22	0,28	0,34	0,38	0,42
3.2	**65**	0,16	0,20	0,25	0,30	0,34	0,36
3.3	**80**	0,21	0,25	0,32	0,38	0,43	0,47
3.4	**55**	0,16	0,20	0,25	0,30	0,34	0,36
3.5	**110**	0,23	0,28	0,35	0,42	0,48	0,52
3.6	**90**	0,21	0,25	0,32	0,38	0,43	0,47
3.7	**110**	0,21	0,25	0,32	0,38	0,43	0,47
3.8	**90**	0,16	0,20	0,25	0,30	0,34	0,36
4.1							
4.2							
4.3							
4.4							
4.5							
4.6							
4.7							
4.8							
4.9							
4.10							
4.11	160	0,18	0,22	0,28	0,34	0,38	0,42
4.12	160	0,16	0,20	0,25	0,30	0,34	0,36
4.13							
4.14							
4.15							
4.16							
4.17							
4.18							
4.19							
5.1							
5.2							
5.3							
5.4							
5.5							
5.6							
5.7							
5.8							
5.9							
5.10							
5.11							
6.1	50	0,07	0,09	0,11	0,14	0,15	0,17
6.2	30	0,05	0,06	0,08	0,10	0,11	0,12
6.3							
6.4							
6.5							

Index	v_c m/min with through coolant	Drilling depth 5xD Type 180 10 721 ... Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
1.1	90	0,09	0,12	0,16	0,19	0,22
1.2	110	0,16	0,20	0,26	0,31	0,35
1.3	90	0,12	0,16	0,20	0,24	0,27
1.4	75	0,10	0,14	0,18	0,21	0,24
1.5	80	0,12	0,16	0,20	0,24	0,27
1.6	75	0,10	0,14	0,18	0,21	0,24
1.7	75	0,10	0,14	0,18	0,21	0,24
1.8	55	0,08	0,11	0,14	0,17	0,19
1.9	85	0,12	0,16	0,20	0,24	0,27
1.10	60	0,08	0,11	0,14	0,17	0,19
1.11	50	0,07	0,10	0,13	0,15	0,17
1.12	60	0,08	0,11	0,14	0,17	0,19
1.13	60	0,08	0,11	0,14	0,17	0,19
1.14	50	0,07	0,10	0,13	0,15	0,17
1.15	50	0,08	0,11	0,14	0,17	0,19
1.16	50	0,08	0,11	0,14	0,17	0,19
2.1	60	0,07	0,09	0,11	0,14	0,15
2.2	50	0,06	0,07	0,10	0,12	0,14
2.3	60	0,05	0,07	0,09	0,11	0,12
2.4	40	0,05	0,07	0,09	0,11	0,12
2.5	35	0,05	0,07	0,09	0,11	0,12
2.6	50	0,06	0,07	0,10	0,12	0,14
2.7	35	0,05	0,06	0,08	0,10	0,11
3.1	90	0,14	0,18	0,22	0,27	0,31
3.2	65	0,12	0,16	0,20	0,24	0,27
3.3	80	0,16	0,20	0,26	0,31	0,35
3.4	55	0,12	0,16	0,20	0,24	0,27
3.5	110	0,17	0,22	0,28	0,34	0,38
3.6	90	0,16	0,20	0,26	0,31	0,35
3.7	110	0,16	0,20	0,26	0,31	0,35
3.8	90	0,12	0,16	0,20	0,24	0,27
4.1						
4.2						
4.3						
4.4						
4.5						
4.6						
4.7						
4.8						
4.9						
4.10						
4.11	160	0,17	0,22	0,28	0,34	0,38
4.12	160	0,15	0,20	0,25	0,30	0,34
4.13						
4.14						
4.15						
4.16						
4.17						
4.18						
4.19						
5.1						
5.2						
5.3						
5.4						
5.5						
5.6						
5.7						
5.8						
5.9						
5.10						
5.11						
6.1	50	0,06	0,08	0,10	0,12	0,13
6.2	30	0,04	0,05	0,07	0,08	0,09
6.3						
6.4						
6.5						

Application Note:

Spot drilling with reduced feedrate

1. Feedrate f [mm/U] should be multiplied by correction factor A_k
2. Drill with reduced feed rate until tool is fully engaged in workpiece by approximately 0,25xD
3. Retract from the hole at double the feed rate f in mm/U – only with inclined surfaces

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

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

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

Cutting data standard values – WPC – UNI

Index	v_c m/min without through coolant	v_c m/min with through coolant	Drilling depth 3xD UNI 11 600 ..., 11 601 ..., 11 603 ..., 11 604 ... Ø 1–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
1.1	**100**	**100**	0,05	0,06	0,08	0,12	0,17	0,22	0,26	0,28
1.2	**120**	**120**	0,10	0,11	0,14	0,19	0,27	0,35	0,42	0,45
1.3	**100**	**100**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
1.4	**80**	**80**	0,05	0,07	0,09	0,13	0,18	0,24	0,29	0,31
1.5	**90**	**90**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
1.6	**80**	**80**	0,05	0,07	0,09	0,13	0,18	0,24	0,29	0,31
1.7	**80**	**80**	0,05	0,07	0,09	0,13	0,18	0,24	0,29	0,31
1.8	**60**	**60**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
1.9	**90**	**90**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
1.10	**60**	**60**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
1.11	**50**	**50**	0,04	0,05	0,06	0,09	0,13	0,18	0,21	0,22
1.12	**60**	**60**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
1.13	**60**	**60**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
1.14	**50**	**50**	0,04	0,05	0,06	0,09	0,13	0,18	0,21	0,22
1.15	**50**	**50**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
1.16	**50**	**50**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
2.1		45	0,04	0,04	0,06	0,08	0,12	0,16	0,18	0,20
2.2		40	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
2.3		45	0,03	0,03	0,04	0,06	0,09	0,12	0,15	0,16
2.4		30	0,03	0,03	0,04	0,06	0,09	0,12	0,15	0,16
2.5		25	0,03	0,03	0,04	0,06	0,09	0,12	0,15	0,16
2.6		40	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
2.7		25	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
3.1	**70**	**80**	0,09	0,10	0,13	0,17	0,24	0,31	0,37	0,40
3.2	**50**	**55**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
3.3	**60**	**70**	0,10	0,11	0,14	0,19	0,27	0,35	0,42	0,45
3.4	**45**	**50**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
3.5	**90**	**95**	0,11	0,13	0,16	0,21	0,30	0,39	0,46	0,49
3.6	**75**	**80**	0,10	0,11	0,14	0,19	0,27	0,35	0,42	0,45
3.7	**90**	**95**	0,10	0,11	0,14	0,19	0,27	0,35	0,42	0,45
3.8	**75**	**80**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
4.1										
4.2										
4.3										
4.4										
4.5										
4.6										
4.7										
4.8										
4.9										
4.10										
4.11	120	200	0,09	0,10	0,13	0,17	0,24	0,31	0,37	0,40
4.12	120	200	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
4.13										
4.14										
4.15										
4.16										
4.17	240		0,05	0,06	0,08	0,12	0,17	0,22	0,26	0,28
4.18										
4.19										
5.1										
5.2										
5.3										
5.4										
5.5										
5.6										
5.7										
5.8										
5.9										
5.10										
5.11										
6.1										
6.2										
6.3										
6.4										
6.5										

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

		Drilling depth 5xD UNI 11 606 ..., 11 607 ..., 11 609 ..., 11 610 ...									
	Index	v_c m/min without through coolant	v_c m/min with through coolant	Ø 1–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
	1.1	**80**	**100**	0,05	0,06	0,08	0,12	0,17	0,22	0,26	0,28
	1.2	**96**	**120**	0,10	0,11	0,14	0,19	0,27	0,35	0,42	0,45
	1.3	**80**	**100**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
	1.4	**64**	**80**	0,05	0,07	0,09	0,13	0,18	0,24	0,29	0,31
	1.5	**72**	**90**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
	1.6	**64**	**80**	0,05	0,07	0,09	0,13	0,18	0,24	0,29	0,31
	1.7	**64**	**80**	0,05	0,07	0,09	0,13	0,18	0,24	0,29	0,31
	1.8	**48**	**60**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
	1.9	**72**	**90**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
	1.10	**48**	**60**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
	1.11	**40**	**50**	0,04	0,05	0,06	0,09	0,13	0,18	0,21	0,22
	1.12	**48**	**60**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
	1.13	**48**	**60**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
	1.14	**40**	**50**	0,04	0,05	0,06	0,09	0,13	0,18	0,21	0,22
	1.15	**40**	**50**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
	1.16	**40**	**50**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
	2.1		45	0,04	0,04	0,06	0,08	0,12	0,16	0,18	0,20
	2.2		40	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
	2.3		45	0,03	0,03	0,04	0,06	0,09	0,12	0,15	0,16
	2.4		30	0,03	0,03	0,04	0,06	0,09	0,12	0,15	0,16
	2.5		25	0,03	0,03	0,04	0,06	0,09	0,12	0,15	0,16
	2.6		40	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
	2.7		25	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
	3.1	**65**	**80**	0,09	0,10	0,13	0,17	0,24	0,31	0,37	0,40
	3.2	**46**	**55**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
	3.3	**59**	**70**	0,10	0,11	0,14	0,19	0,27	0,35	0,42	0,45
	3.4	**40**	**50**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
	3.5	**78**	**95**	0,11	0,13	0,16	0,21	0,30	0,39	0,46	0,49
	3.6	**65**	**80**	0,10	0,11	0,14	0,19	0,27	0,35	0,42	0,45
	3.7	**78**	**95**	0,10	0,11	0,14	0,19	0,27	0,35	0,42	0,45
	3.8	**65**	**80**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
	4.1										
	4.2										
	4.3										
	4.4										
	4.5										
	4.6										
	4.7										
	4.8										
	4.9										
	4.10										
	4.11	100	200	0,09	0,10	0,13	0,17	0,24	0,31	0,37	0,40
	4.12	100	200	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
	4.13										
	4.14										
	4.15										
	4.16										
	4.17	240		0,05	0,06	0,08	0,12	0,17	0,22	0,26	0,28
	4.18										
	4.19										
	5.1										
	5.2										
	5.3										
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	5.10										
	5.11										
	6.1										
	6.2										
	6.3										
	6.4										
	6.5										

Cutting data standard values – WPC – UNI

Index	Drilling depth 8xD UNI 11 612 ...						Drilling depth 12xD UNI 11 615 ...					
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–18 f mm/rev.
1.1	**90**	0,10	0,14	0,18	0,22	0,24	**80**	0,10	0,14	0,18	0,22	0,24
1.2	**110**	0,17	0,23	0,29	0,35	0,39	**100**	0,17	0,23	0,29	0,35	0,38
1.3	**90**	0,13	0,18	0,23	0,27	0,30	**80**	0,13	0,18	0,23	0,27	0,30
1.4	**70**	0,12	0,15	0,20	0,24	0,27	**65**	0,12	0,15	0,20	0,24	0,26
1.5	**80**	0,13	0,18	0,23	0,27	0,30	**70**	0,13	0,18	0,23	0,27	0,30
1.6	**70**	0,12	0,15	0,20	0,24	0,27	**65**	0,12	0,15	0,20	0,24	0,26
1.7	**70**	0,12	0,15	0,20	0,24	0,27	**65**	0,12	0,15	0,20	0,24	0,26
1.8	**55**	0,09	0,13	0,16	0,19	0,22	**50**	0,09	0,13	0,16	0,19	0,21
1.9	**80**	0,13	0,18	0,23	0,27	0,30	**70**	0,13	0,18	0,23	0,27	0,30
1.10	**55**	0,09	0,13	0,16	0,19	0,22	**50**	0,09	0,13	0,16	0,19	0,21
1.11	**45**	0,08	0,11	0,14	0,17	0,19	**40**	0,08	0,11	0,14	0,17	0,19
1.12	**55**	0,09	0,13	0,16	0,19	0,22	**50**	0,09	0,13	0,16	0,19	0,21
1.13	**55**	0,09	0,13	0,16	0,19	0,22	**50**	0,09	0,13	0,16	0,19	0,21
1.14	**45**	0,08	0,11	0,14	0,17	0,19	**40**	0,08	0,11	0,14	0,17	0,19
1.15	**45**	0,09	0,13	0,16	0,19	0,22	**40**	0,09	0,13	0,16	0,19	0,21
1.16	**45**	0,09	0,13	0,16	0,19	0,22	**40**	0,09	0,13	0,16	0,19	0,21
2.1	45	0,07	0,10	0,13	0,15	0,17	40	0,07	0,10	0,13	0,15	0,17
2.2	40	0,06	0,08	0,11	0,13	0,15	35	0,06	0,08	0,11	0,13	0,15
2.3	45	0,06	0,08	0,10	0,12	0,14	40	0,06	0,08	0,10	0,12	0,13
2.4	30	0,06	0,08	0,10	0,12	0,14	25	0,06	0,08	0,10	0,12	0,13
2.5	25	0,06	0,08	0,10	0,12	0,14	25	0,06	0,08	0,10	0,12	0,13
2.6	40	0,06	0,08	0,11	0,13	0,15	35	0,06	0,08	0,11	0,13	0,15
2.7	25	0,05	0,07	0,09	0,11	0,12	25	0,05	0,07	0,09	0,11	0,12
3.1	**80**	0,15	0,20	0,25	0,30	0,34	**70**	0,15	0,20	0,25	0,30	0,33
3.2	**55**	0,13	0,18	0,23	0,27	0,30	**50**	0,13	0,18	0,23	0,27	0,30
3.3	**70**	0,17	0,23	0,29	0,35	0,39	**65**	0,17	0,23	0,29	0,35	0,38
3.4	**50**	0,13	0,18	0,23	0,27	0,30	**45**	0,13	0,18	0,23	0,27	0,30
3.5	**95**	0,19	0,25	0,32	0,38	0,43	**85**	0,19	0,25	0,32	0,38	0,42
3.6	**80**	0,17	0,23	0,29	0,35	0,39	**70**	0,17	0,23	0,29	0,35	0,38
3.7	**95**	0,17	0,23	0,29	0,35	0,39	**85**	0,17	0,23	0,29	0,35	0,38
3.8	**80**	0,13	0,18	0,23	0,27	0,30	**70**	0,13	0,18	0,23	0,27	0,30
4.1												
4.2												
4.3												
4.4												
4.5												
4.6												
4.7												
4.8												
4.9												
4.10												
4.11	200	0,17	0,22	0,28	0,34	0,38	180	0,17	0,22	0,28	0,34	0,37
4.12	200	0,15	0,20	0,25	0,30	0,34	180	0,15	0,20	0,25	0,30	0,33
4.13												
4.14												
4.15												
4.16												
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Recommended application for WPC 8xD and 12xD

The following application notes should be observed for optimum machining results.

1. For 8xD and 12xD tools a pilot hole is recommended. The pilot hole can be drilled with the WPC 3xD drills. The tolerance of the 3xD drill (m7) and the tolerance of the 8xD and 12xD drill (h7) are matched accordingly.

2. Alternatively, with cutting speed and feedrate both reduced by 50 % the 8xD and 12xD tool can drill to a depth of 1xD.
Then, with normal feed and speed values continue drilling.
Note: when accelerating to normal speed, the spindle must not stop for gear changes!

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

Cutting data standard values – Type N – Twist drills

Index	Drilling depth 3xD Type N (similar DIN 1897) 10 700 ...							Drilling depth 5xD Type N (similar DIN 338) 10 710 ...					
	v_c m/min without through coolant	Ø 0,5–3 f mm/rev.	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min without through coolant	Ø 0,5–3 f mm/rev.	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.
1.1	**40–60**	0,01–0,06	0,05–0,08	0,08–0,13	0,1–0,15	0,15–0,2	0,15–0,2	**40–60**	0,01–0,06	0,05–0,08	0,08–0,13	0,1–0,15	0,15–0,2
1.2	**40–60**	0,01–0,06	0,05–0,08	0,08–0,13	0,1–0,15	0,15–0,2	0,15–0,2	**40–60**	0,01–0,06	0,05–0,08	0,08–0,13	0,1–0,15	0,15–0,2
1.3	**40–60**	0,01–0,06	0,05–0,08	0,08–0,13	0,1–0,15	0,15–0,2	0,15–0,2	**40–60**	0,01–0,06	0,05–0,08	0,08–0,13	0,1–0,15	0,15–0,2
1.4	**40–60**	0,01–0,06	0,05–0,08	0,08–0,13	0,1–0,15	0,15–0,2	0,15–0,2	**40–60**	0,01–0,06	0,05–0,08	0,08–0,13	0,1–0,15	0,15–0,2
1.5	**40–60**	0,01–0,06	0,05–0,08	0,08–0,13	0,1–0,15	0,15–0,2	0,15–0,2	**40–60**	0,01–0,06	0,05–0,08	0,08–0,13	0,1–0,15	0,15–0,2
1.6	**40–60**	0,01–0,06	0,05–0,08	0,08–0,13	0,1–0,15	0,15–0,2	0,15–0,2	**40–60**	0,01–0,06	0,05–0,08	0,08–0,13	0,1–0,15	0,15–0,2
1.7	**40–60**	0,01–0,06	0,05–0,08	0,08–0,13	0,1–0,15	0,15–0,2	0,15–0,2	**40–60**	0,01–0,06	0,05–0,08	0,08–0,13	0,1–0,15	0,15–0,2
1.8													
1.9													
1.10													
1.11													
1.12													
1.13	**25**	0,01–0,03	0,02–0,05	0,04–0,06	0,05–0,08	0,08–0,1	0,08–0,1	**25**	0,01–0,03	0,02–0,05	0,04–0,06	0,05–0,08	0,08–0,1
1.14													
1.15													
1.16													
2.1	20–30	0,01–0,05	0,04–0,06	0,05–0,1	0,08–0,12	0,1–0,16	0,1–0,16	20–30	0,01–0,05	0,04–0,06	0,05–0,1	0,08–0,12	0,1–0,16
2.2	20–30	0,01–0,05	0,04–0,06	0,05–0,1	0,08–0,12	0,1–0,16	0,1–0,16	20–30	0,01–0,05	0,04–0,06	0,05–0,1	0,08–0,12	0,1–0,16
2.3	20–30	0,01–0,05	0,04–0,06	0,05–0,1	0,08–0,12	0,1–0,16	0,1–0,16	20–30	0,01–0,05	0,04–0,06	0,05–0,1	0,08–0,12	0,1–0,16
2.4	20–30	0,01–0,05	0,04–0,06	0,05–0,1	0,08–0,12	0,1–0,16	0,1–0,16	20–30	0,01–0,05	0,04–0,06	0,05–0,1	0,08–0,12	0,1–0,16
2.5	20–30	0,01–0,05	0,04–0,06	0,05–0,1	0,08–0,12	0,1–0,16	0,1–0,16	20–30	0,01–0,05	0,04–0,06	0,05–0,1	0,08–0,12	0,1–0,16
2.6	20–30	0,01–0,05	0,04–0,06	0,05–0,1	0,08–0,12	0,1–0,16	0,1–0,16	20–30	0,01–0,05	0,04–0,06	0,05–0,1	0,08–0,12	0,1–0,16
2.7	20–30	0,01–0,05	0,04–0,06	0,05–0,1	0,08–0,12	0,1–0,16	0,1–0,16	20–30	0,01–0,05	0,04–0,06	0,05–0,1	0,08–0,12	0,1–0,16
3.1	40–80	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2	0,15–0,2	40–80	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2
3.2	40–80	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2	0,15–0,2	40–80	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2
3.3	40–80	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2	0,15–0,2	40–80	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2
3.4	40–80	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2	0,15–0,2	40–80	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2
3.5	40–60	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2	0,15–0,2	40–60	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2
3.6	40–60	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2	0,15–0,2	40–60	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2
3.7	40–60	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2	0,15–0,2	40–60	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2
3.8	40–60	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2	0,15–0,2	40–60	0,01–0,06	0,05–0,07	0,06–0,12	0,1–0,16	0,15–0,2
4.1	**200**	0,01	0,03	0,07	0,11	0,15	0,2	**200**	0,01	0,03	0,07	0,11	0,15
4.2	**200**	0,01	0,03	0,07	0,11	0,15	0,2	**200**	0,01	0,03	0,07	0,11	0,15
4.3	**180**	0,01	0,03	0,07	0,11	0,15	0,2	**180**	0,01	0,03	0,07	0,11	0,15
4.4	**160**	0,01	0,03	0,07	0,11	0,15	0,2	**160**	0,01	0,03	0,07	0,11	0,15
4.5	**130**	0,01	0,03	0,07	0,11	0,15	0,2	**130**	0,01	0,03	0,07	0,11	0,15
4.6	**100**	0,007	0,02	0,06	0,11	0,16	0,2	**100**	0,007	0,02	0,06	0,11	0,16
4.7	**120**	0,007	0,02	0,06	0,11	0,16	0,2	**120**	0,007	0,02	0,06	0,11	0,16
4.8													
4.9													
4.10													
4.11	**160**	0,007	0,02	0,06	0,11	0,16	0,2	**160**	0,007	0,02	0,06	0,11	0,16
4.12	**120**	0,007	0,02	0,06	0,11	0,16	0,2	**120**	0,007	0,02	0,06	0,11	0,16
4.13	**50**	0,013	0,04	0,08	0,12	0,16	0,2	**50**	0,013	0,04	0,08	0,12	0,16
4.14	**70**	0,013	0,04	0,08	0,12	0,16	0,2	**70**	0,013	0,04	0,08	0,12	0,16
4.15													
4.16	**200**	0,01	0,03	0,07	0,11	0,15	0,2	**200**	0,01	0,03	0,07	0,11	0,15
4.17													
4.18													
4.19													
5.1													
5.2													
5.3													
5.4													
5.5													
5.6													
5.7													
5.8													
5.9	30	0,003	0,01	0,03	0,06	0,08	0,1	30	0,003	0,01	0,03	0,06	0,08
5.10	20	0,003	0,01	0,03	0,06	0,08	0,1	20	0,003	0,01	0,03	0,06	0,08
5.11	20	0,003	0,01	0,03	0,06	0,08	0,1	20	0,003	0,01	0,03	0,06	0,08
6.1													
6.2													
6.3													
6.4													
6.5													

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

Cutting data standard values – WPC – VA

Index	Drilling depth 3xD VA 11 620 ..., 11 621 ..., 11 623 ..., 11 624 ...									
	v_c m/min without through coolant	v_c m/min with through coolant	Ø 1–1,5	Ø 1,5–2	Ø 2–3	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
			f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
1.1	90	90	0,04	0,05	0,06	0,09	0,13	0,18	0,21	0,22
1.2	105	105	0,08	0,09	0,11	0,15	0,22	0,28	0,33	0,36
1.3	90	90	0,06	0,07	0,09	0,12	0,17	0,22	0,26	0,28
1.4	70	70	0,04	0,06	0,07	0,10	0,15	0,19	0,23	0,25
1.5	80	80	0,06	0,07	0,09	0,12	0,17	0,22	0,26	0,28
1.6	70	70	0,04	0,06	0,07	0,10	0,15	0,19	0,23	0,25
1.7	70	70	0,04	0,06	0,07	0,10	0,15	0,19	0,23	0,25
1.8	55	55	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,20
1.9	80	80	0,06	0,07	0,09	0,12	0,17	0,22	0,26	0,28
1.10	55	55	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,20
1.11	45	45	0,03	0,04	0,05	0,07	0,11	0,14	0,17	0,18
1.12	55	55	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,20
1.13	55	55	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,20
1.14	45	45	0,03	0,04	0,05	0,07	0,11	0,14	0,17	0,18
1.15	45	45	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,20
1.16	45	45	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,20
2.1	**30**	**60**	0,04	0,04	0,06	0,08	0,12	0,16	0,18	0,20
2.2	**25**	**50**	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
2.3	**30**	**60**	0,03	0,03	0,04	0,06	0,09	0,12	0,15	0,16
2.4	**20**	**40**	0,03	0,03	0,04	0,06	0,09	0,12	0,15	0,16
2.5	**18**	**35**	0,03	0,03	0,04	0,06	0,09	0,12	0,15	0,16
2.6	**25**	**50**	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
2.7	**18**	**35**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
3.1	90	100	0,09	0,10	0,13	0,17	0,24	0,31	0,37	0,40
3.2	65	70	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
3.3	80	90	0,10	0,11	0,14	0,19	0,27	0,35	0,42	0,45
3.4	50	60	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
3.5	110	120	0,11	0,13	0,16	0,21	0,30	0,39	0,46	0,49
3.6	90	100	0,10	0,11	0,14	0,19	0,27	0,35	0,42	0,45
3.7	110	120	0,10	0,11	0,14	0,19	0,27	0,35	0,42	0,45
3.8	90	100	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
4.1	**240**	**320**	0,05	0,06	0,08	0,12	0,17	0,22	0,26	0,28
4.2	**180**	**240**	0,05	0,06	0,08	0,12	0,17	0,22	0,26	0,28
4.3	**150**	**200**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
4.4	**120**	**160**	0,05	0,06	0,08	0,12	0,17	0,22	0,26	0,28
4.5	**90**	**120**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
4.6	**240**	**320**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
4.7	**210**	**280**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
4.8	**120**	**160**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
4.9	**150**	**200**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
4.10	**120**	**160**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
4.11	**120**	**160**	0,09	0,10	0,13	0,17	0,24	0,31	0,37	0,40
4.12	**120**	**160**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
4.13	**80**	**120**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
4.14	**100**	**150**	0,04	0,05	0,06	0,09	0,13	0,18	0,21	0,22
4.15	**80**	**120**	0,04	0,05	0,06	0,09	0,13	0,18	0,21	0,22
4.16	**150**	**300**	0,05	0,06	0,08	0,12	0,17	0,22	0,26	0,28
4.17	**400**		0,05	0,06	0,08	0,12	0,17	0,22	0,26	0,28
4.18		**40**	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
4.19		**40**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.1		**40**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.2		**20**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.3		**20**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.4		**20**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.5		**20**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.6		**18**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.7		**15**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.8		**10**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.9		**20**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.10		**25**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.11		**20**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
6.1	30		0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
6.2	22		0,02	0,02	0,03	0,04	0,06	0,08	0,09	0,10
6.3										
6.4										
6.5										

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

Cutting data standard values – WPC – VA

Index	v_c m/min with through coolant	Drilling depth 5xD VA 11 629 ..., 11 630 ... Ø 1–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
1.1	90	0,04	0,05	0,06	0,09	0,13	0,18	0,21	0,22
1.2	105	0,08	0,09	0,11	0,15	0,22	0,28	0,33	0,36
1.3	90	0,06	0,07	0,09	0,12	0,17	0,22	0,26	0,28
1.4	70	0,04	0,06	0,07	0,10	0,15	0,19	0,23	0,25
1.5	80	0,06	0,07	0,09	0,12	0,17	0,22	0,26	0,28
1.6	70	0,04	0,06	0,07	0,10	0,15	0,19	0,23	0,25
1.7	70	0,04	0,06	0,07	0,10	0,15	0,19	0,23	0,25
1.8	55	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,20
1.9	80	0,06	0,07	0,09	0,12	0,17	0,22	0,26	0,28
1.10	55	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,20
1.11	45	0,03	0,04	0,05	0,07	0,11	0,14	0,17	0,18
1.12	55	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,20
1.13	55	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,20
1.14	45	0,03	0,04	0,05	0,07	0,11	0,14	0,17	0,18
1.15	45	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,20
1.16	45	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,20
2.1	**60**	0,04	0,04	0,06	0,08	0,12	0,16	0,18	0,20
2.2	**50**	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
2.3	**60**	0,03	0,03	0,04	0,06	0,09	0,12	0,15	0,16
2.4	**40**	0,03	0,03	0,04	0,06	0,09	0,12	0,15	0,16
2.5	**35**	0,03	0,03	0,04	0,06	0,09	0,12	0,15	0,16
2.6	**50**	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
2.7	**35**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
3.1	100	0,09	0,10	0,13	0,17	0,24	0,31	0,37	0,40
3.2	70	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
3.3	90	0,10	0,11	0,14	0,19	0,27	0,35	0,42	0,45
3.4	60	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
3.5	120	0,11	0,13	0,16	0,21	0,30	0,39	0,46	0,49
3.6	100	0,10	0,11	0,14	0,19	0,27	0,35	0,42	0,45
3.7	120	0,10	0,11	0,14	0,19	0,27	0,35	0,42	0,45
3.8	100	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
4.1	**320**	0,05	0,06	0,08	0,12	0,17	0,22	0,26	0,28
4.2	**240**	0,05	0,06	0,08	0,12	0,17	0,22	0,26	0,28
4.3	**200**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
4.4	**160**	0,05	0,06	0,08	0,12	0,17	0,22	0,26	0,28
4.5	**120**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
4.6	**320**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
4.7	**280**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
4.8	**160**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
4.9	**200**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
4.10	**160**	0,04	0,06	0,07	0,10	0,15	0,20	0,24	0,25
4.11	**160**	0,09	0,10	0,13	0,17	0,24	0,31	0,37	0,40
4.12	**160**	0,07	0,09	0,11	0,15	0,21	0,28	0,33	0,35
4.13	**120**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
4.14	**150**	0,04	0,05	0,06	0,09	0,13	0,18	0,21	0,22
4.15	**120**	0,04	0,05	0,06	0,09	0,13	0,18	0,21	0,22
4.16	**300**	0,05	0,06	0,08	0,12	0,17	0,22	0,26	0,28
4.17	**300**	0,05	0,06	0,08	0,12	0,17	0,22	0,26	0,28
4.18	**40**	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
4.19	**40**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.1	**40**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.2	**20**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.3	**20**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.4	**20**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.5	**20**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.6	**18**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.7	**15**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.8	**10**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.9	**20**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.10	**25**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
5.11	**20**	0,02	0,03	0,04	0,06	0,08	0,11	0,13	0,14
6.1									
6.2									
6.3									
6.4									
6.5									

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

Cutting data standard values – WTX – TB UNI

	WTX–TB16 UNI	WTX–TB20 UNI	WTX–TB25 UNI	WTX–TB30 UNI	Hole depth TB UNI 11 016 ..., 11 020 ..., 11 025 ..., 11 030 ...			
Index	v_c m/min	v_c m/min	v_c m/min	v_c m/min	Ø 2–3 f mm/rev.	Ø > 3–5 f mm/rev.	Ø > 5–8 f mm/rev.	Ø > 8–12 f mm/rev.
1.1	**100**	**95**	**85**	**80**	0,075	0,1	0,15	0,2
1.2	**100**	**95**	**85**	**80**	0,075	0,1	0,15	0,2
1.3	**105**	**100**	**90**	**85**	0,1	0,14	0,2	0,275
1.4	**95**	**90**	**80**	**75**	0,075	0,1	0,15	0,2
1.5	**95**	**90**	**80**	**75**	0,1	0,14	0,2	0,275
1.6	**95**	**90**	**80**	**75**	0,075	0,1	0,15	0,2
1.7	**95**	**90**	**80**	**75**	0,1	0,14	0,2	0,275
1.8	**75**	**70**	**65**	**60**	0,075	0,1	0,15	0,2
1.9	**75**	**70**	**65**	**60**	0,075	0,1	0,15	0,2
1.10	**95**	**90**	**80**	**75**	0,075	0,1	0,15	0,2
1.11	**95**	**90**	**80**	**75**	0,075	0,1	0,15	0,2
1.12	**75**	**70**	**65**	**60**	0,075	0,1	0,15	0,2
1.13								
1.14								
1.15								
1.16	**75**	**70**	**65**	**60**	0,075	0,1	0,15	0,2
2.1	**75**	**70**	**65**	**60**	0,05	0,08	0,12	0,15
2.2	**75**	**70**	**65**	**60**	0,05	0,08	0,12	0,15
2.3	**50**	**45**	**45**	**40**	0,05	0,08	0,12	0,15
2.4	**50**	**45**	**45**	**40**	0,05	0,08	0,12	0,15
2.5	**55**	**50**	**50**	**45**	0,05	0,08	0,12	0,15
2.6	**55**	**50**	**50**	**45**	0,05	0,08	0,12	0,15
2.7								
3.1	**105**	**100**	**90**	**85**	0,15	0,23	0,335	0,425
3.2	**100**	**95**	**85**	**80**	0,15	0,23	0,335	0,425
3.3	**105**	**100**	**90**	**85**	0,125	0,2	0,25	0,35
3.4	**100**	**95**	**85**	**80**	0,125	0,2	0,25	0,35
3.5	**105**	**100**	**90**	**85**	0,125	0,2	0,25	0,35
3.6	**100**	**95**	**85**	**80**	0,125	0,2	0,25	0,35
3.7	**105**	**100**	**90**	**85**	0,125	0,2	0,25	0,35
3.8	**100**	**95**	**85**	**80**	0,125	0,2	0,25	0,35
4.1								
4.2								
4.3								
4.4								
4.5								
4.6								
4.7								
4.8								
4.9								
4.10								
4.11								
4.12								
4.13								
4.14								
4.15								
4.16								
4.17								
4.18								
4.19								
5.1								
5.2								
5.3								
5.4								
5.5								
5.6								
5.7								
5.8								
5.9								
5.10								
5.11								
6.1								
6.2								
6.3								
6.4								
6.5								

Cutting data standard values – WTX – TB UNI

Index	WTX–TB40 UNI	WTX–TB50 UNI	Hole depth 40xD / 50xD TB UNI 11 040 ..., 11 050 ...			
	v_c m/min	v_c m/min	Ø 2–3	Ø > 3–5	Ø > 5–8	Ø > 8–9
			f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
1.1	65	55	0,05	0,08	0,12	0,15
1.2	65	55	0,05	0,08	0,12	0,15
1.3	70	60	0,075	0,1	0,15	0,2
1.4	60	50	0,05	0,08	0,12	0,15
1.5	60	50	0,075	0,1	0,15	0,2
1.6	60	50	0,05	0,08	0,12	0,15
1.7	60	50	0,075	0,1	0,15	0,2
1.8	50	45	0,05	0,08	0,12	0,15
1.9	50	55	0,05	0,08	0,12	0,15
1.10	60	50	0,05	0,08	0,12	0,15
1.11	60	50	0,05	0,08	0,12	0,15
1.12	50	45	0,05	0,08	0,12	0,15
1.13						
1.14						
1.15						
1.16	50	45	0,05	0,08	0,12	0,15
2.1	50	45	0,04	0,06	0,09	0,11
2.2	50	45	0,04	0,06	0,09	0,11
2.3	35	30	0,04	0,06	0,09	0,11
2.4	35	30	0,04	0,06	0,09	0,11
2.5	40	35	0,04	0,06	0,09	0,11
2.6	40	35	0,04	0,06	0,09	0,11
2.7						
3.1	70	60	0,125	0,2	0,25	0,35
3.2	65	55	0,125	0,2	0,25	0,35
3.3	70	60	0,1	0,14	0,2	0,275
3.4	65	55	0,1	0,14	0,2	0,275
3.5	70	60	0,1	0,14	0,2	0,275
3.6	65	55	0,1	0,14	0,2	0,275
3.7	70	60	0,1	0,14	0,2	0,275
3.8	65	55	0,1	0,14	0,2	0,275
4.1						
4.2						
4.3						
4.4						
4.5						
4.6						
4.7						
4.8						
4.9						
4.10						
4.11						
4.12						
4.13						
4.14						
4.15						
4.16						
4.17						
4.18						
4.19						
5.1						
5.2						
5.3						
5.4						
5.5						
5.6						
5.7						
5.8						
5.9						
5.10						
5.11						
6.1						
6.2						
6.3						
6.4						
6.5						

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

All solid carbide WTX deep hole drills must be used with a pilot bore. The tool must never be run at high speed while not engaged in a material. Please refer to the strategy for the production of deep holes on → **Page 134**

Cutting data standard values – WTX – TB ALU

	WTX-TB16 ALU	WTX-TB20 ALU	WTX-TB25 ALU	Hole depth 16xD / 20xD / 25xD TB ALU 11 017 ..., 11 021 ..., 11 026 ...				WTX-TB30 ALU	Hole depth TB ALU 11 031 ...			
Index	v_c m/min	v_c m/min	v_c m/min	Ø 2–3 f mm/rev.	Ø > 3–5 f mm/rev.	Ø > 5–8 f mm/rev.	Ø > 8–12 f mm/rev.	v_c m/min	Ø 2–3 f mm/rev.	Ø > 3–5 f mm/rev.	Ø > 5–8 f mm/rev.	Ø > 8–12 f mm/rev.
1.1												
1.2												
1.3												
1.4												
1.5												
1.6												
1.7												
1.8												
1.9												
1.10												
1.11												
1.12												
1.13												
1.14												
1.15												
1.16												
2.1												
2.2												
2.3												
2.4												
2.5												
2.6												
2.7												
3.1												
3.2												
3.3												
3.4												
3.5												
3.6												
3.7												
3.8												
4.1	**160**	**150**	**130**	0,125	0,2	0,25	0,35	**120**	0,08	0,15	0,21	0,27
4.2	**160**	**150**	**130**	0,125	0,2	0,25	0,35	**120**	0,08	0,15	0,21	0,27
4.3	**160**	**150**	**130**	0,15	0,23	0,3	0,38	**120**	0,15	0,23	0,3	0,38
4.4	**140**	**130**	**120**	0,125	0,2	0,25	0,35	**110**	0,08	0,15	0,21	0,27
4.5	**140**	**130**	**120**	0,125	0,2	0,25	0,35	**110**	0,08	0,15	0,21	0,27
4.6	**90**	**80**	**75**	0,125	0,2	0,25	0,35	**70**	0,08	0,15	0,21	0,27
4.7	**90**	**80**	**75**	0,125	0,2	0,25	0,35	**70**	0,08	0,15	0,21	0,27
4.8												
4.9												
4.10												
4.11	**115**	**100**	**90**	0,125	0,2	0,25	0,35	**80**	0,08	0,15	0,21	0,27
4.12	**115**	**100**	**90**	0,125	0,2	0,25	0,35	**80**	0,08	0,15	0,21	0,27
4.13												
4.14												
4.15												
4.16												
4.17												
4.18												
4.19												
5.1												
5.2												
5.3												
5.4												
5.5												
5.6												
5.7												
5.8												
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The cutting data depends extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced according to the application conditions.

All solid carbide WTX deep hole drills must be used with a pilot bore.
The tool must never be run at high speed while not engaged in a material.
Please refer to the strategy for the production of deep holes on
→ **Page 134**

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

Index	Solid Carbide NC Spot Drills MultiChange 10 709 ..., 10 712 ..., 10 714 ...					
	v_c m/min	Ø 8	Ø 10	Ø 12	Ø 16	Ø 20
		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
1.1	40–130	0,180	0,200	0,220	0,280	0,300
1.2	40–130	0,215	0,235	0,260	0,330	0,355
1.3	40–130	0,180	0,200	0,220	0,280	0,300
1.4	40–130	0,165	0,180	0,200	0,255	0,275
1.5	40–130	0,195	0,220	0,240	0,305	0,325
1.6	40–130	0,165	0,180	0,200	0,255	0,275
1.7	40–130	0,195	0,220	0,240	0,305	0,325
1.8	40–130	0,130	0,145	0,160	0,205	0,220
1.9	40–130	0,180	0,200	0,220	0,280	0,300
1.10	40–130	0,130	0,145	0,160	0,205	0,220
1.11	40–130	0,115	0,125	0,140	0,180	0,190
1.12	40–130	0,130	0,145	0,160	0,205	0,220
1.13	40–130	0,130	0,145	0,160	0,205	0,220
1.14	40–130	0,000	0,000	0,000	0,000	0,000
1.15	40–130	0,115	0,125	0,140	0,180	0,190
1.16	40–130	0,115	0,125	0,140	0,180	0,190
2.1	20–40	0,145	0,165	0,180	0,230	0,245
2.2	20–40	0,130	0,145	0,160	0,205	0,220
2.3	20–40	0,130	0,145	0,160	0,205	0,220
2.4	20–40	0,100	0,110	0,120	0,155	0,165
2.5	20–40	0,115	0,125	0,140	0,180	0,190
2.6	20–40	0,115	0,125	0,140	0,180	0,190
2.7	20–40	0,100	0,110	0,120	0,155	0,165
3.1	60–80	0,215	0,235	0,260	0,330	0,355
3.2	60–80	0,180	0,200	0,220	0,280	0,300
3.3	60–80	0,195	0,220	0,240	0,305	0,325
3.4	60–80	0,165	0,180	0,200	0,255	0,275
3.5	60–80	0,195	0,220	0,240	0,305	0,325
3.6	60–80	0,180	0,200	0,220	0,280	0,300
3.7	60–80	0,195	0,220	0,240	0,305	0,325
3.8	60–80	0,165	0,180	0,200	0,255	0,275
4.1	90–300	0,310	0,345	0,380	0,485	0,520
4.2	90–300	0,310	0,345	0,380	0,485	0,520
4.3	90–300	0,295	0,325	0,360	0,460	0,490
4.4	90–300	0,280	0,310	0,340	0,435	0,465
4.5	90–300	0,245	0,275	0,300	0,380	0,410
4.6	90–300	0,195	0,220	0,240	0,305	0,325
4.7	90–300	0,180	0,200	0,220	0,280	0,300
4.8	90–300	0,145	0,165	0,180	0,230	0,245
4.9	90–300	0,115	0,125	0,140	0,180	0,190
4.10	90–300	0,115	0,125	0,140	0,180	0,190
4.11	90–300	0,215	0,235	0,260	0,330	0,355
4.12	90–300	0,215	0,235	0,260	0,330	0,355
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Solid Carbide NC Spot Drills ZB & NC-A 10 708 ..., 10 704 ..., 10 703 ..., 10 702 ...				
v_c m/min without through coolant	Ø 2–5	Ø 5–8	Ø 8–12	Ø 12–20
	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
80	0,14	0,2	0,27	0,35
80	0,14	0,2	0,27	0,35
75	0,14	0,2	0,27	0,35
70	0,14	0,2	0,27	0,35
65	0,14	0,2	0,27	0,35
65	0,1	0,15	0,2	0,26
65	0,14	0,2	0,27	0,35
65	0,1	0,15	0,2	0,26
65	0,1	0,15	0,2	0,26
65	0,1	0,15	0,2	0,26
50	0,1	0,15	0,2	0,26
50	0,1	0,15	0,2	0,26
70	0,12	0,17	0,22	0,3
70	0,1	0,15	0,2	0,26
70	0,1	0,15	0,2	0,26
70	0,1	0,15	0,2	0,26
70	0,1	0,15	0,2	0,26
70	0,1	0,15	0,2	0,26
70	0,1	0,15	0,2	0,26
70	0,1	0,15	0,2	0,26
200	0,03	0,07	0,11	0,15
200	0,03	0,07	0,11	0,15
180	0,03	0,07	0,11	0,15
160	0,03	0,07	0,11	0,15
130	0,03	0,07	0,11	0,15
100	0,02	0,06	0,11	0,15
120	0,02	0,06	0,11	0,15
160	0,02	0,06	0,11	0,15
120	0,02	0,06	0,11	0,15

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

Cutting data standard values – Solid Carbide NC-A TiAlN

Index	Solid Carbide NC Spot Drill Type NC-A TiAlN 10 716 ..., 10 717 ..., 10 718 ...					Solid Carbide NC Spot Drills, long Type NC-A TiAlN 10 724 ..., 10 726 ..., 10 727 ...				
	v_c m/min	> Ø 2–5 f mm/rev.	> Ø 5–8 f mm/rev.	> Ø 8–12 f mm/rev.	> Ø 12–20 f mm/rev.	v_c m/min	> Ø 2–5 f mm/rev.	> Ø 5–8 f mm/rev.	> Ø 8–12 f mm/rev.	> Ø 12–20 f mm/rev.
1.1	**70**	0,1	0,15	0,2	0,26	**70**	0,1	0,15	0,2	0,26
1.2	**70**	0,1	0,15	0,2	0,26	**70**	0,1	0,15	0,2	0,26
1.3	**75**	0,14	0,2	0,275	0,35	**75**	0,14	0,2	0,275	0,35
1.4	**65**	0,14	0,2	0,275	0,35	**65**	0,14	0,2	0,275	0,35
1.5	**65**	0,14	0,2	0,275	0,35	**65**	0,14	0,2	0,275	0,35
1.6	**65**	0,1	0,15	0,2	0,26	**65**	0,1	0,15	0,2	0,26
1.7	**65**	0,14	0,2	0,275	0,35	**65**	0,14	0,2	0,275	0,35
1.8	**50**	0,1	0,15	0,2	0,26	**50**	0,1	0,15	0,2	0,26
1.9										
1.10	**65**	0,1	0,15	0,2	0,26	**65**	0,1	0,15	0,2	0,26
1.11	**65**	0,1	0,15	0,2	0,26	**65**	0,1	0,15	0,2	0,26
1.12	**50**	0,1	0,15	0,2	0,26	**50**	0,1	0,15	0,2	0,26
1.13										
1.14										
1.15	**50**	0,1	0,15	0,2	0,26	**50**	0,1	0,15	0,2	0,26
1.16	**50**	0,1	0,15	0,2	0,26	**50**	0,1	0,15	0,2	0,26
2.1										
2.2										
2.3										
2.4										
2.5										
2.6										
2.7										
3.1	**70**	0,125	0,175	0,225	0,3	**70**	0,125	0,175	0,225	0,3
3.2	**70**	0,1	0,15	0,2	0,26	**70**	0,1	0,15	0,2	0,26
3.3	**70**	0,1	0,15	0,2	0,26	**70**	0,1	0,15	0,2	0,26
3.4	**70**	0,1	0,15	0,2	0,26	**70**	0,1	0,15	0,2	0,26
3.5	**70**	0,1	0,15	0,2	0,26	**70**	0,1	0,15	0,2	0,26
3.6	**70**	0,1	0,15	0,2	0,26	**70**	0,1	0,15	0,2	0,26
3.7	**70**	0,1	0,15	0,2	0,26	**70**	0,1	0,15	0,2	0,26
3.8	**70**	0,1	0,15	0,2	0,26	**70**	0,1	0,15	0,2	0,26
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The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions!

Cutting data standard values – WTX – Change Feed

Index	v_c m/min with through coolant	v_c m/min With external coolant	v_c m/min MMS	Change Feed UNI 10 925 ... > Ø 14,0 f mm/rev.	>Ø 17,5 f mm/rev.	>Ø 21,5 f mm/rev.	>Ø 26,0 f mm/rev.	Ø 32,0 f mm/rev.
1.1	90	80	80	0,42	0,46	0,51	0,54	0,55
1.2	90	80	80	0,42	0,46	0,51	0,54	0,55
1.3	90	80	80	0,42	0,46	0,51	0,54	0,55
1.4	90	75	75	0,49	0,55	0,60	0,64	0,66
1.5	90	80	80	0,42	0,46	0,51	0,54	0,55
1.6	80	70	70	0,52	0,58	0,64	0,68	0,69
1.7	90	75	75	0,49	0,55	0,60	0,64	0,66
1.8	65	55	55	0,39	0,43	0,48	0,50	0,51
1.9	90	75	75	0,49	0,55	0,60	0,64	0,66
1.10	90	75	75	0,49	0,55	0,60	0,64	0,66
1.11	65	55	55	0,39	0,43	0,48	0,50	0,51
1.12	70	60	60	0,44	0,49	0,54	0,58	0,59
1.13	55	50	50	0,36	0,40	0,44	0,47	0,48
1.14	55	50	50	0,36	0,40	0,44	0,47	0,48
1.15	55	50	50	0,36	0,40	0,44	0,47	0,48
1.16	70	60	60	0,44	0,49	0,54	0,58	0,59
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2.2								
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2.7								
3.1	110	75	75	0,69	0,77	0,85	0,91	0,93
3.2	90	70	70	0,55	0,61	0,67	0,72	0,73
3.3	145	90	110	0,64	0,71	0,78	0,83	0,85
3.4	90	70	70	0,55	0,61	0,67	0,72	0,73
3.5	80	70	70	0,59	0,66	0,72	0,77	0,78
3.6	70	65	65	0,47	0,52	0,57	0,61	0,62
3.7	80	70	70	0,59	0,66	0,72	0,77	0,78
3.8	70	65	65	0,47	0,52	0,57	0,61	0,62
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The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions!

Cutting data standard values – WTX – Change

Index	v_c m/min	Change UNI 10 919 ... > Ø 12–15,7 f mm/rev.	> Ø 15,7–20 f mm/rev.	> Ø 20–25 f mm/rev.	> Ø 25–32 f mm/rev.	> Ø 32–41 f mm/rev.
1.1	100	0,22	0,26	0,29	0,32	0,40
1.2	120	0,35	0,41	0,47	0,51	0,64
1.3	100	0,28	0,32	0,36	0,40	0,50
1.4	80	0,24	0,28	0,32	0,35	0,44
1.5	90	0,28	0,32	0,36	0,40	0,50
1.6	80	0,24	0,28	0,32	0,35	0,44
1.7	80	0,24	0,28	0,32	0,35	0,44
1.8	60	0,20	0,23	0,26	0,28	0,35
1.9	90	0,28	0,32	0,36	0,40	0,50
1.10	60	0,20	0,23	0,26	0,28	0,35
1.11	50	0,18	0,21	0,23	0,26	0,32
1.12	60	0,20	0,23	0,26	0,28	0,35
1.13	60	0,20	0,23	0,26	0,28	0,35
1.14	50	0,18	0,21	0,23	0,26	0,32
1.15	50	0,20	0,23	0,26	0,28	0,35
1.16	50	0,20	0,23	0,26	0,28	0,35
2.1						
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2.6						
2.7						
3.1	90	0,34	0,40	0,46	0,51	0,64
3.2	60	0,30	0,35	0,40	0,44	0,55
3.3	80	0,39	0,45	0,51	0,57	0,71
3.4	55	0,30	0,35	0,40	0,44	0,55
3.5	110	0,43	0,50	0,58	0,63	0,78
3.6	90	0,39	0,45	0,51	0,57	0,71
3.7	110	0,39	0,45	0,51	0,57	0,71
3.8	90	0,30	0,35	0,40	0,44	0,55
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The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions!

		Change P 10 923 ...				
Index	v_c m/min	> Ø 12–15,7 f mm/rev.	> Ø 15,7–20 f mm/rev.	> Ø 20–25 f mm/rev.	> Ø 25–32 f mm/rev.	> Ø 32–41 f mm/rev.
1.1	110	0,25	0,28	0,33	0,40	0,46
1.2	130	0,40	0,45	0,54	0,64	0,73
1.3	110	0,32	0,35	0,41	0,49	0,57
1.4	90	0,28	0,31	0,37	0,44	0,50
1.5	100	0,32	0,35	0,41	0,49	0,57
1.6	90	0,28	0,31	0,37	0,44	0,50
1.7	90	0,28	0,31	0,37	0,44	0,50
1.8	65	0,23	0,25	0,30	0,35	0,40
1.9	100	0,32	0,35	0,41	0,49	0,57
1.10	65	0,23	0,25	0,30	0,35	0,40
1.11	55	0,21	0,23	0,26	0,31	0,37
1.12	65	0,23	0,25	0,30	0,35	0,40
1.13	65	0,23	0,25	0,30	0,35	0,40
1.14	55	0,21	0,23	0,26	0,31	0,37
1.15	55	0,21	0,23	0,26	0,31	0,37
1.16	55	0,21	0,23	0,26	0,31	0,37
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
3.1	100	0,37	0,42	0,51	0,60	0,70
3.2	65	0,33	0,37	0,44	0,52	0,60
3.3	90	0,43	0,47	0,56	0,67	0,78
3.4	60	0,33	0,37	0,44	0,52	0,60
3.5	120	0,47	0,53	0,64	0,76	0,86
3.6	100	0,43	0,47	0,56	0,67	0,78
3.7	120	0,43	0,47	0,56	0,67	0,78
3.8	100	0,33	0,37	0,44	0,52	0,60
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For through holes, the feed must be reduced by approx. 30 % when exiting the hole. For more accurate positioning, precentre with a 142° NC spot drill.
With Type VA 5xD and 8xD, enter the hole with reduced feed of 0,05–0,06 mm/revolution.

Cutting data standard values – WTX – Change

	Change VA 10 921 ...					Change GG 10 924 ...				
Index	v_c m/min	> Ø 12–15,7 f mm/rev.	> Ø 15,7–20 f mm/rev.	> Ø 20–25 f mm/rev.	> Ø 25–32 f mm/rev.	v_c m/min	> Ø 12–15,7 f mm/rev.	> Ø 15,7–20 f mm/rev.	> Ø 20–25 f mm/rev.	> Ø 25–32 f mm/rev.
1.1	100	0,22	0,26	0,29	0,32					
1.2	120	0,35	0,41	0,47	0,51					
1.3	100	0,28	0,32	0,36	0,40					
1.4	80	0,24	0,28	0,32	0,35					
1.5	90	0,28	0,32	0,36	0,40					
1.6	80	0,24	0,28	0,32	0,35					
1.7	80	0,24	0,28	0,32	0,35					
1.8	60	0,20	0,23	0,26	0,28					
1.9	90	0,28	0,32	0,36	0,40					
1.10	60	0,20	0,23	0,26	0,28					
1.11	50	0,18	0,21	0,23	0,26					
1.12	60	0,20	0,23	0,26	0,28					
1.13	60	0,20	0,23	0,26	0,28					
1.14	50	0,18	0,21	0,23	0,26					
1.15	50	0,20	0,23	0,26	0,28					
1.16	50	0,20	0,23	0,26	0,28					
2.1	**60**	0,17	0,19	0,23	0,27					
2.2	**50**	0,15	0,17	0,20	0,24					
2.3	**60**	0,13	0,15	0,18	0,22					
2.4	**40**	0,13	0,15	0,18	0,22					
2.5	**35**	0,13	0,15	0,18	0,22					
2.6	**50**	0,15	0,17	0,20	0,24					
2.7	**35**	0,12	0,13	0,16	0,19					
3.1	90	0,34	0,40	0,46	0,51	**110**	0,44	0,49	0,60	0,71
3.2	60	0,30	0,35	0,40	0,44	**75**	0,39	0,43	0,52	0,62
3.3	80	0,39	0,45	0,51	0,57	**100**	0,51	0,56	0,66	0,79
3.4	55	0,30	0,35	0,40	0,44	**70**	0,39	0,43	0,52	0,62
3.5	110	0,43	0,50	0,58	0,63	**135**	0,56	0,62	0,75	0,89
3.6	90	0,39	0,45	0,51	0,57	**110**	0,51	0,56	0,66	0,79
3.7	110	0,39	0,45	0,51	0,57	**135**	0,51	0,56	0,66	0,79
3.8	90	0,30	0,35	0,40	0,44	**110**	0,39	0,43	0,52	0,62
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4.12										
4.13										
4.14										
4.15										
4.16										
4.17										
4.18										
4.19										
5.1										
5.2										
5.3										
5.4										
5.5										
5.6										
5.7										
5.8										
5.9										
5.10										
5.11										
6.1										
6.2										
6.3										
6.4										
6.5										

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

Index	v_c m/min	Change AL 10 922 ... > Ø 12–15,7 f mm/rev.	> Ø 15,7–20 f mm/rev.	> Ø 20–25 f mm/rev.	> Ø 25–32 f mm/rev.
1.1					
1.2					
1.3					
1.4					
1.5					
1.6					
1.7					
1.8					
1.9					
1.10					
1.11					
1.12					
1.13					
1.14					
1.15					
1.16					
2.1					
2.2					
2.3					
2.4					
2.5					
2.6					
2.7					
3.1					
3.2					
3.3					
3.4					
3.5					
3.6					
3.7					
3.8					
4.1	350	0,30	0,37	0,50	0,65
4.2	300	0,30	0,37	0,50	0,65
4.3	250	0,37	0,46	0,63	0,82
4.4	200	0,30	0,37	0,50	0,65
4.5	150	0,27	0,33	0,45	0,59
4.6	180	0,27	0,33	0,45	0,59
4.7	140	0,27	0,33	0,45	0,59
4.8	140	0,27	0,33	0,45	0,59
4.9	130	0,27	0,33	0,45	0,59
4.10	120	0,27	0,33	0,45	0,59
4.11	200	0,42	0,52	0,71	0,93
4.12	200	0,37	0,46	0,63	0,82
4.13					
4.14					
4.15					
4.16					
4.17					
4.18					
4.19					
5.1					
5.2					
5.3					
5.4					
5.5					
5.6					
5.7					
5.8					
5.9					
5.10					
5.11					
6.1					
6.2					
6.3					
6.4					
6.5					

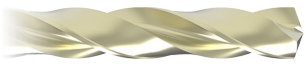
With through-holes the feedrate should be reduced at the break out by approx. 30 %. Use 142° NC Spot Drill to ensure positional accuracy.
Use reduced feedrate of 0,05–0,06 mm/U when using type VA 5xD and 8xD drill.

Type overview – WTX high performance drilling tools

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

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

UNI DRAGONSKIN



- high-performance solid carbide drill for universal application, for all materials up to 1200 N/mm²

Feed UNI DRAGONSKIN



- solid carbide high feed drills with 3 cutting edges
- very good positional accuracy

Speed UNI DRAGONSKIN



- for double the cutting speed
- asymetric point geometry permits performance improvement when drilling steel and cast iron by up to 60 %

Quattro 4F DRAGONSKIN



- with additional guide land for best alignment accuracy, concentricity and positional accuracy

180



- for inclined surfaces up to 45° and flat bottom holes

TB



- solid carbide deep hole drill, up to 50xD without peck drilling
- 4 or 6 facet head geometry for excellent alignment accuracy

VA



- first choice for corrosion and acid resistant seels
- for volume production

AL



- solid carbide high performance drill specailly for the machining of aluminium, copper and brass
- 6 facet geometry for excellent hole quality

GG



- for cast materials to 250 HB
- straight flutes

Ti DRAGONSKIN



- specialist for cost effective machining of Titanium, Titanium Alloys and Heat Resistant Alloys

H DRAGONSKIN



- high-performance drill for hardened steels from 45 to 70 HRC

MINI



- solid carbide micro drill for the precise manufacture of very small holes from Ø 0,1 mm to 2,9 mm

Change



- replaceable head drills with the performance level of a solid carbide drill, from Ø 12,0 mm to 41,0 mm

BR



- solid carbide high performance drill reamer
- drill and ream in one operation

Change Feed



- exchangeable head drill with three cutting edges for even greater performance, from Ø 14.0 mm to 32.0 mm

SB DRAGONSKIN



- core hole plus countersink for tapping and thread forming

Important application criteria for WTX drills

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

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

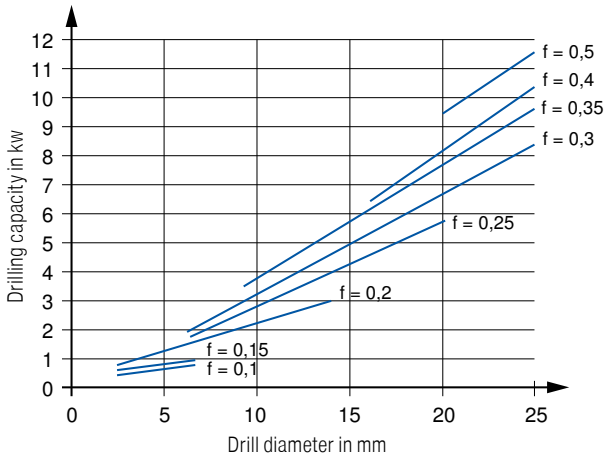
With internally cooled tools the coolant pressure should be min. 20 bar – see diagram bottom right
High-quality semi-synthetic or emulsion coolants with min. 10 % oil content and EP additives are recommended. This allows better life, and achieves higher tolerance accuracy and better surface quality.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

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

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

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

Feed rate f in mm/rev.
Drilling capacity relative to the diameter: v_c = 80 m/min.
Tensile strength of the material = 600 N/mm²



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

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

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

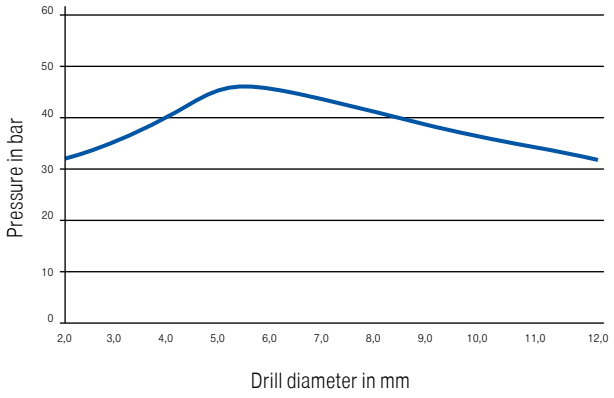
Workpiece clamping
To avoid tool breakages, care must be taken to ensure a proper workpiece clamping without vibration or workpiece deflection.

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

Machine Requirements
Please note the performance diagram (below left)

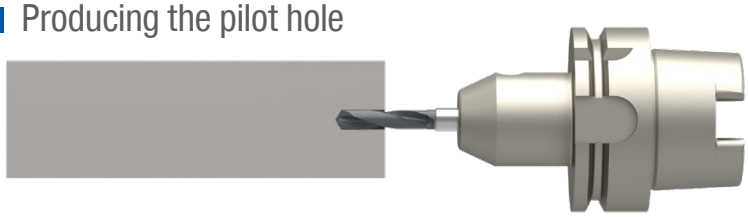
Cutting data table
To control the chip length (comma chip) the feed rates should be no lower than the lower limits quoted in the cutting data table.

Coolant pressure



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

1 Producing the pilot hole



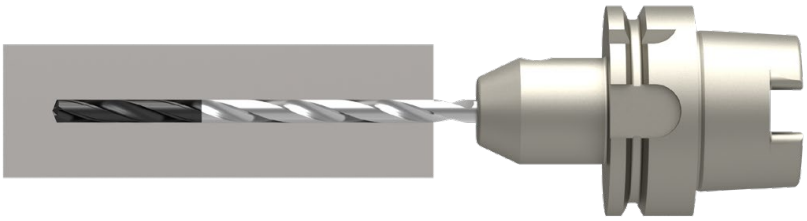
- For the pilot hole, we recommend a WTX drill 3xD / 5xD with the same nominal diameter
- The pilot hole should be 0,01–0,03 mm larger in diameter and at least 3xD deep.
- From a hole depth of 40xD, we recommend a pilot hole of 12xD with our WTX Quattro 4F.

2 Movement of the deep hole drill into the pilot hole



- Move the WTX deep hole drill without coolant pressure and with reduced speed (n = 200–300 rpm) into the pilot hole at a feed of v_f = 1000 mm/min
- Approx. 2 mm before reaching the bottom of the hole (end of the pilot hole), stop the feed, switch on the coolant and wait for a short time until the recommended pressure is reached. Then increase the spindle speed to the recommended speed as smoothly as possible.

3 Drilling to required depth without pecking



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

4 Retracting the drill



- Retract the drill to approximately the depth of the pilot hole.
- Reduce the rpm to a low speed (n = 200–300 U/min).
- Use normal rapid feed (V_f = 3000 mm/min) when exiting the hole.

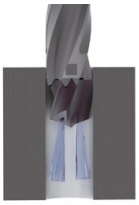
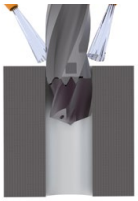
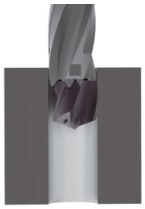
For horizontal deep drilling operations from 40xD, move the deep hole drill into the hole counter-clockwise at 200 rpm. This prevents sagging of the deep hole drill.

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

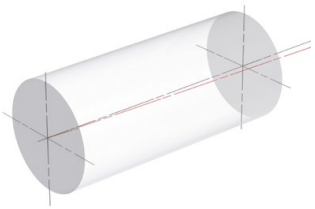
Application notes for WTX – Change Feed and WTX – Change exchangeable head drills

Coolant conditions

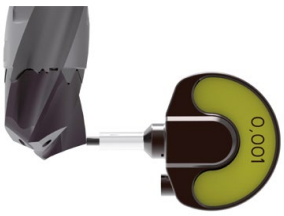
Coolant pressure dependent on drilling depth:

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

Runout accuracy

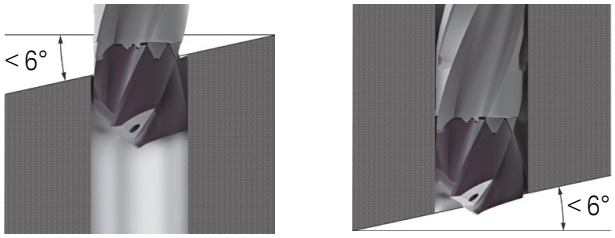


max. 0,02 mm



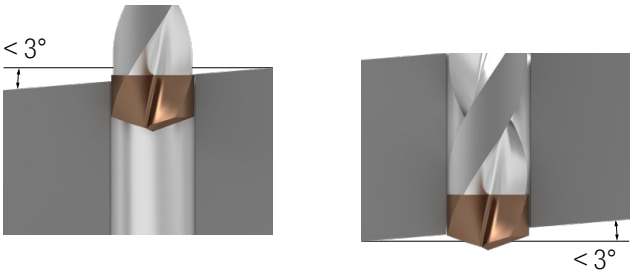
max. 0,04 mm

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



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

Max. entry and exit angle for the WTX – Change



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

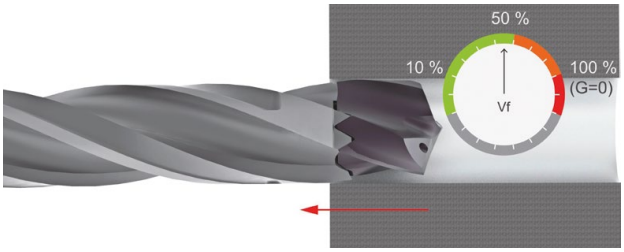
Exiting a through hole

▲ WTX Change Feed and WTX Change

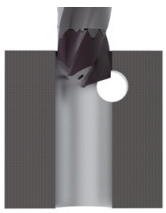
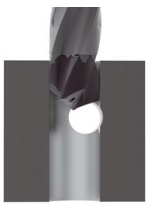
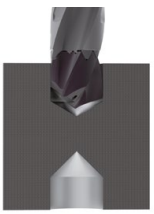
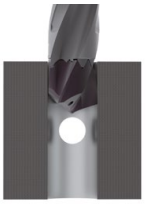
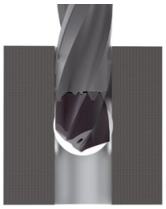
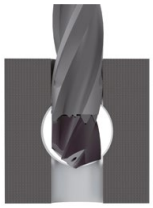


Do not retract at rapid feedrate

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



Machining situations

Offset cross hole point is engaged	*Offset cross hole point is not engaged*	*Breakthrough at counterbore*	*Hole on centre and smaller Ø*	*Hole on centre and same Ø*	*Hole on centre and larger Ø*
					
WTX – Change Feed ✓	*WTX – Change Feed* ✗	*WTX – Change Feed* ✓	*WTX – Change Feed* ✓	*WTX – Change Feed* ✗	*WTX – Change Feed* ✗
WTX – Change ✓	*WTX – Change* ✗	*WTX – Change* ✗	*WTX – Change* ✓	*WTX – Change* ✗	*WTX – Change* ✗

Recommendations for solid carbide drilling operations

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

Coatings

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

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

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

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

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

Ti1050
- Ti multilayer coating
- HV0.005 = 3300
- Coefficient of friction (against steel) = 0.3–0.5
- Maximum application temperature: 900 °C

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

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

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

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

DPX64S DRAGONSKIN
- TiAlN monolayer coating
- Perfected for hardened materials
- Optimised coating and surface structure
- Maximum application temperature: 800 °C

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

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

New products for machining technicians

NEW KUB Pentron



- Ø 14–46 mm
- Cyl. shank, ABS, PSC
- 2xD, 3xD, 4xD, 5xD

6–18

NEW KUB 100



- Ø 14–27 mm
- Cyl. shank
- 3xD

27

NEW KUB Trigon



- Ø 14–44 mm
- Combi shank, ABS
- 2xD, 3xD, 4xD

29–34

NEW Indexable inserts for KUB Pentron



BK8425

- Universal PVD grade



BK6115

- Wear resistant
  CVD-coated indexable insert

19

NEW Indexable inserts for KUB Trigon



BK8425

- Universal PVD grade



BK6115

- Wear resistant
  CVD-coated indexable insert

35

Programme Extension

MaxiDrill 900



- Expansion to include intermediate Ø for 4xD and 5xD

20–26



Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut
11 Grooving Tools
12 Miniature turning tools

Milling

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

Tool Clamping

16 Adapters
17 Accessories

18 Material examples and article no. index

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Problems / possible causes / solutions	55
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KOMET \ Performance

Premium quality tools for high performance.

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

KOMET \ Standard

Quality tools for standard applications.

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

Symbol explanation

Shank

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

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

ABS Drill with ABS connection
The ABS connection from Komet is a modular coupling system for rotating tools and stationary tools, and offers a number of advantages, such as improved force transmission

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



Version



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

Designation		Pages
Adjuster with ABS connection		38

Adapters can be found in → **Chapter 16 Adapters.**

Application tips – eccentric sleeves

Users of rotating tools can now enjoy greater flexibility.
Using the eccentric sleeves, you can vary and adjust the diameter of the hole by +/- 0.3 mm with ease.

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



Eccentric sleeve for indexable insert drill adapter



Eccentric sleeve for Weldon adapter

Designation		Pages
Eccentric sleeves for indexable insert drill adapters		37
Eccentric sleeves for Weldon adapters		37



Toolfinder

● = **Main Application**
○ = Extended application
- = Not possible

KUB Pentron

The specialist for large hole depths



- ▲ The all-rounder for process-secure drilling under a wide variety of conditions
- ▲ Ideal for extreme machining situations

Boring depth	Drilling through a transverse hole	Stack plate drilling	Drilling on uneven surfaces	Drilling	Spot drilling an edge	Spot drilling a convex surface	Spot drilling angled surfaces	Spot drilling a pointed contour	Chain drilling	Drilling through a centre or pre-op
2xD	●	●	●	○	●	●	●	●	●	●
3xD	●	●	●	○	●	●	●	●	●	●
4xD	●	○	○	-	●	●	●	●	○	●
5xD	●	○	○	-	●	○	●	○	-	○
3xD	●	●	●	○	●	●	●	●	●	●
4xD	●	○	○	-	●	●	●	●	○	●
5xD	●	○	○	-	●	○	●	○	-	○
3xD	●	●	●	○	●	●	●	●	●	●

MaxiDrill 900

The specialist for high productivity in rough machining



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

2xD	●	●	●	○	●	●	●	●	○	●
3xD	●	●	●	○	●	●	●	●	○	●
4xD	●	○	○	○	●	●	●	●	○	●
5xD	●	○	○	○	●	●	●	●	○	●

KUB 100

Ideal for robust machining situations



- ▲ The high performance all-rounder for outstanding productivity and reliability
- ▲ Offers consistent hole quality and a constant diameter across all materials and feed rates

3xD	●	●	●	○	●	●	●	●	●	●

KUB Trigon

The solution for unstable conditions and high accuracy



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

2xD	●	-	●	○	○	●	●	○	●	○
3xD	○	-	○	○	○	○	○	○	○	○
4xD	○	-	○	-	-	○	○	-	○	○
2xD	●	-	●	○	○	●	●	○	●	○
3xD	○	-	○	○	○	○	○	○	○	○
4xD	○	-	○	-	-	○	○	-	○	○

MaxiDrill Classic

The drilling tool for universal application



- ▲ Ideal for use on machines with limited power
- ▲ Suitable for use under unstable conditions

2xD	●	-	●	-	-	○	○	-	-	●
3xD	●	-	●	-	-	○	○	-	-	●
4xD	●	-	●	-	-	○	○	-	-	●

Shank	Diameter Ø	KOMET \ Performance	KOMET \ Standard	Insert type		No. of cutting edges	Grade	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant alloys	Hardened materials	KOMET \ Performance
		Pages												Pages
C	14–46	6+7			SOGX	4	-01 BK6115	●		●			○	19
C	14–46	8+9			SOGX	4	-01 BK8425	●	●	●				19
C	14–46	10+11			SOGX	4	-01 BK7935	●	●	○	○	○		🛒
C	14–46	12+13			SOGX	4	-01 BK7710				●	○		🛒
ABS	14–30	14												
ABS	14–30	15												
ABS	14–30	16			SOGX	4	-01 BK6425	●	●	○				🛒
PSC	14–30	17+18												
C	12–63	20+21			SONT	2 / 4	-M30 CTCP420 -M30 DCX1420	●	○	●				28
C	12–63	22+23												
C	12–54	24+25			SONT	2 / 4	-M30 CTPP430 -M30 CCN1430	●	●	○	○	○		28
C	12–41	26												
					SONT	2 / 4	-M30 CTCP420 -M30 DCX1420	●	○	●				28
C	14–27	27												
					SONT	2 / 4	-M30 CTPP430 -M30 CCN1430	●	●	○	○	○		28
K	14–44	29			WOEX	3	-01 BK8425	●	●	●				35
K	14–44	30			WOEX	3	-03 BK8425	●	●	●				35
K	14–35	31			WOEX	3	-13 BK8425	●	●	●				35
ABS	14–44	32			WOEX	3	-01 BK6115	●		●			○	35
ABS	14–44	33			WOEX	3	-01 BK7935	●	●	○	○	○		🛒
ABS	14–44	34			WOEX	3	-01 BK62			●			○	🛒
					WOEX	3	-11 BK77				●	●		🛒
C	14–53		🛒											
C	14–50		🛒											
C	18–50		🛒											

🛒 MaxiDrill Classic and specialised indexable inserts can be found in our online shop at cuttingtools.ceratizit.com

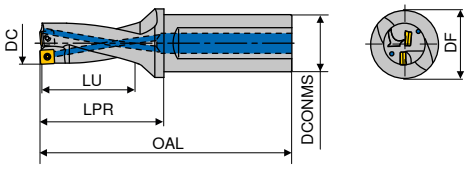
KUB Pentron

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 2xD

C





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 872 ...
KUB-P.2D.140.R.04-C20	U4201400	14,0	20	30	91	28	41	0,38	SOGX 040204	14001
KUB-P.2D.145.R.04-C20	U4201450	14,5	20	30	94	30	44	0,38	SOGX 040204	14501
KUB-P.2D.150.R.04-C20	U4201500	15,0	20	30	94	30	44	0,38	SOGX 040204	15001
KUB-P.2D.155.R.04-C20	U4201550	15,5	20	30	98	32	48	0,38	SOGX 040204	15501
KUB-P.2D.160.R.04-C20	U4201600	16,0	20	30	98	32	48	0,38	SOGX 040204	16001
KUB-P.2D.165.R.05-C20	U4201650	16,5	20	30	101	34	51	0,62	SOGX 050204	16501
KUB-P.2D.170.R.05-C20	U4201700	17,0	20	30	101	34	51	0,62	SOGX 050204	17001
KUB-P.2D.175.R.05-C25	U4211750	17,5	25	30	109	36	53	0,62	SOGX 050204	17502
KUB-P.2D.180.R.05-C25	U4211800	18,0	25	30	109	36	53	0,62	SOGX 050204	18002
KUB-P.2D.185.R.06-C25	U4211850	18,5	25	30	112	38	56	1,01	SOGX 060206	18502
KUB-P.2D.190.R.06-C25	U4211900	19,0	25	30	112	38	56	1,01	SOGX 060206	19002
KUB-P.2D.195.R.06-C25	U4211950	19,5	25	30	114	40	58	1,01	SOGX 060206	19502
KUB-P.2D.200.R.06-C25	U4212000	20,0	25	30	114	40	58	1,01	SOGX 060206	20002
KUB-P.2D.205.R.07-C25	U4212050	20,5	25	30	117	42	61	1,01	SOGX 07T208	20502
KUB-P.2D.210.R.07-C25	U4212100	21,0	25	30	117	42	61	1,01	SOGX 07T208	21002
KUB-P.2D.215.R.07-C25	U4212150	21,5	25	30	119	44	63	1,01	SOGX 07T208	21502
KUB-P.2D.220.R.07-C25	U4212200	22,0	25	30	119	44	63	1,01	SOGX 07T208	22002
KUB-P.2D.225.R.07-C25	U4212250	22,5	25	30	122	46	66	1,01	SOGX 07T208	22502
KUB-P.2D.230.R.07-C25	U4212300	23,0	25	30	122	46	66	1,01	SOGX 07T208	23002
KUB-P.2D.235.R.08-C32	U4222350	23,5	32	39	128	48	68	1,28	SOGX 080308	23503
KUB-P.2D.240.R.08-C32	U4222400	24,0	32	39	128	48	68	1,28	SOGX 080308	24003
KUB-P.2D.245.R.08-C32	U4222450	24,5	32	39	131	50	71	1,28	SOGX 080308	24503
KUB-P.2D.250.R.08-C32	U4222500	25,0	32	39	131	50	71	1,28	SOGX 080308	25003
KUB-P.2D.255.R.08-C32	U4222550	25,5	32	39	133	52	73	1,28	SOGX 080308	25503
KUB-P.2D.260.R.08-C32	U4222600	26,0	32	39	133	52	73	1,28	SOGX 080308	26003
KUB-P.2D.265.R.09-C32	U4222650	26,5	32	39	136	54	76	2,25	SOGX 09T308	26503
KUB-P.2D.270.R.09-C32	U4222700	27,0	32	39	136	54	76	2,25	SOGX 09T308	27003
KUB-P.2D.275.R.09-C32	U4222750	27,5	32	39	138	56	78	2,25	SOGX 09T308	27503
KUB-P.2D.280.R.09-C32	U4222800	28,0	32	39	138	56	78	2,25	SOGX 09T308	28003
KUB-P.2D.285.R.09-C32	U4222850	28,5	32	39	141	58	81	2,25	SOGX 09T308	28503
KUB-P.2D.290.R.09-C32	U4222900	29,0	32	39	141	58	81	2,25	SOGX 09T308	29003
KUB-P.2D.295.R.09-C32	U4222950	29,5	32	39	143	60	83	2,25	SOGX 09T308	29503
KUB-P.2D.300.R.09-C32	U4223000	30,0	32	39	143	60	83	2,25	SOGX 09T308	30003
KUB-P.2D.310.R.10-C40	U4233100	31,0	40	50	154	62	86	2,8	SOGX 100408	31004
KUB-P.2D.320.R.10-C40	U4233200	32,0	40	50	156	64	88	2,8	SOGX 100408	32004
KUB-P.2D.330.R.10-C40	U4233300	33,0	40	50	159	66	91	2,8	SOGX 100408	33004
KUB-P.2D.340.R.11-C40	U4233400	34,0	40	50	161	68	93	2,8	SOGX 110408	34004
KUB-P.2D.350.R.11-C40	U4233500	35,0	40	50	164	70	96	2,8	SOGX 110408	35004
KUB-P.2D.360.R.11-C40	U4233600	36,0	40	50	166	72	98	2,8	SOGX 110408	36004
KUB-P.2D.370.R.11-C40	U4233700	37,0	40	50	169	74	101	2,8	SOGX 110408	37004
KUB-P.2D.380.R.12-C40	U4233800	38,0	40	50	171	76	103	6,25	SOGX 120408	38004
KUB-P.2D.390.R.12-C40	U4233900	39,0	40	50	174	78	106	6,25	SOGX 120408	39004
KUB-P.2D.400.R.12-C40	U4234000	40,0	40	50	176	80	108	6,25	SOGX 120408	40004
KUB-P.2D.410.R.12-C40	U4234100	41,0	40	50	179	82	111	6,25	SOGX 120408	41004
KUB-P.2D.420.R.12-C40	U4234200	42,0	40	50	181	84	113	6,25	SOGX 120408	42004

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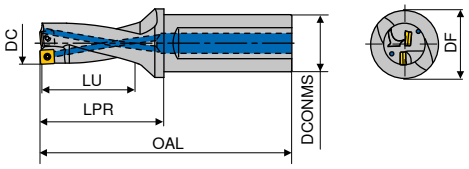
KUB Pentron

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD



C





3

Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 872 ...
KUB-P.2D.430.R.13-C40	U4234300	43,0	40	50	184	86	116	6,25	SOGX 130508	**43004**
KUB-P.2D.440.R.13-C40	U4234400	44,0	40	50	186	88	118	6,25	SOGX 130508	**44004**
KUB-P.2D.450.R.13-C40	U4234500	45,0	40	50	189	90	121	6,25	SOGX 130508	**45004**
KUB-P.2D.460.R.13-C40	U4234600	46,0	40	50	191	92	123	6,25	SOGX 130508	**46004**


Screwdriver


Key D


Clamping screw

Spare parts DC	Article no. 80 950 ...		Article no. 80 950 ...		Article no. 10 950 ...	
14 - 16	T05 - IP	**057**			M1,8x3,8 - 05IP	**10100**
16,5 - 18			T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
18,5 - 23			T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
23,5 - 26			T08 - IP	**125**	M2,5x6,3 - 08IP	**10800**
26,5 - 30			T08 - IP	**125**	M3,0x7,6 - 08IP	**10200**
31 - 37			T15 - IP	**128**	M3,5x7,5 - 15IP	**10300**
38 - 46			T20 - IP	**129**	M4,5x10,0 - 20IP	**10400**

Suitable adapters can be found in → **Chapter 16 Adapters.**

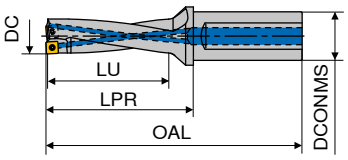
KUB Pentron

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD



C





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 873 ...
KUB-P.3D.140.R.04-C20	U4301400	14,0	20	30	105	42	55	0,38	SOGX 040204	14001
KUB-P.3D.145.R.04-C20	U4301450	14,5	20	30	109	45	59	0,38	SOGX 040204	14501
KUB-P.3D.150.R.04-C20	U4301500	15,0	20	30	109	45	59	0,38	SOGX 040204	15001
KUB-P.3D.155.R.04-C20	U4301550	15,5	20	30	114	48	64	0,38	SOGX 040204	15501
KUB-P.3D.160.R.04-C20	U4301600	16,0	20	30	114	48	64	0,38	SOGX 040204	16001
KUB-P.3D.165.R.05-C20	U4301650	16,5	20	30	118	51	68	0,62	SOGX 050204	16501
KUB-P.3D.170.R.05-C20	U4301700	17,0	20	30	118	51	68	0,62	SOGX 050204	17001
KUB-P.3D.175.R.05-C25	U4311750	17,5	25	30	127	54	71	0,62	SOGX 050204	17501
KUB-P.3D.180.R.05-C25	U4311800	18,0	25	30	127	54	71	0,62	SOGX 050204	18001
KUB-P.3D.185.R.06-C25	U4311850	18,5	25	30	131	57	75	1,01	SOGX 060206	18501
KUB-P.3D.190.R.06-C25	U4311900	19,0	25	30	131	57	75	1,01	SOGX 060206	19001
KUB-P.3D.195.R.06-C25	U4311950	19,5	25	30	134	60	78	1,01	SOGX 060206	19501
KUB-P.3D.200.R.06-C25	U4312000	20,0	25	30	134	60	78	1,01	SOGX 060206	20001
KUB-P.3D.205.R.07-C25	U4312050	20,5	25	30	138	63	82	1,01	SOGX 07T208	20501
KUB-P.3D.210.R.07-C25	U4312100	21,0	25	30	138	63	82	1,01	SOGX 07T208	21001
KUB-P.3D.215.R.07-C25	U4312150	21,5	25	30	141	66	85	1,01	SOGX 07T208	21501
KUB-P.3D.220.R.07-C25	U4312200	22,0	25	30	141	66	85	1,01	SOGX 07T208	22002
KUB-P.3D.225.R.07-C25	U4312250	22,5	25	30	145	69	89	1,01	SOGX 07T208	22502
KUB-P.3D.230.R.07-C25	U4312300	23,0	25	30	145	69	89	1,01	SOGX 07T208	23002
KUB-P.3D.235.R.08-C32	U4322350	23,5	32	39	152	72	92	1,28	SOGX 080308	23503
KUB-P.3D.240.R.08-C32	U4322400	24,0	32	39	152	72	92	1,28	SOGX 080308	24003
KUB-P.3D.245.R.08-C32	U4322450	24,5	32	39	156	75	96	1,28	SOGX 080308	24503
KUB-P.3D.250.R.08-C32	U4322500	25,0	32	39	156	75	96	1,28	SOGX 080308	25003
KUB-P.3D.255.R.08-C32	U4322550	25,5	32	39	159	78	99	1,28	SOGX 080308	25503
KUB-P.3D.260.R.08-C32	U4322600	26,0	32	39	159	78	99	1,28	SOGX 080308	26003
KUB-P.3D.265.R.09-C32	U4322650	26,5	32	39	163	81	103	2,25	SOGX 09T308	26503
KUB-P.3D.270.R.09-C32	U4322700	27,0	32	39	163	81	103	2,25	SOGX 09T308	27003
KUB-P.3D.275.R.09-C32	U4322750	27,5	32	39	166	84	106	2,25	SOGX 09T308	27503
KUB-P.3D.280.R.09-C32	U4322800	28,0	32	39	166	84	106	2,25	SOGX 09T308	28003
KUB-P.3D.285.R.09-C32	U4322850	28,5	32	39	170	87	110	2,25	SOGX 09T308	28503
KUB-P.3D.290.R.09-C32	U4322900	29,0	32	39	170	87	110	2,25	SOGX 09T308	29003
KUB-P.3D.295.R.09-C32	U4322950	29,5	32	39	173	90	113	2,25	SOGX 09T308	29503
KUB-P.3D.300.R.09-C32	U4323000	30,0	32	39	173	90	113	2,25	SOGX 09T308	30003
KUB-P.3D.310.R.10-C40	U4333100	31,0	40	50	185	93	117	2,8	SOGX 100408	31004
KUB-P.3D.320.R.10-C40	U4333200	32,0	40	50	188	96	120	2,8	SOGX 100408	32004
KUB-P.3D.330.R.10-C40	U4333300	33,0	40	50	192	99	124	2,8	SOGX 100408	33004
KUB-P.3D.340.R.11-C40	U4333400	34,0	40	50	195	102	127	2,8	SOGX 110408	34004
KUB-P.3D.350.R.11-C40	U4333500	35,0	40	50	199	105	131	2,8	SOGX 110408	35004
KUB-P.3D.360.R.11-C40	U4333600	36,0	40	50	202	108	134	2,8	SOGX 110408	36004
KUB-P.3D.370.R.11-C40	U4333700	37,0	40	50	206	111	138	2,8	SOGX 110408	37004
KUB-P.3D.380.R.12-C40	U4333800	38,0	40	50	209	114	141	6,25	SOGX 120408	38004
KUB-P.3D.390.R.12-C40	U4333900	39,0	40	50	213	117	145	6,25	SOGX 120408	39004
KUB-P.3D.400.R.12-C40	U4334000	40,0	40	50	216	120	148	6,25	SOGX 120408	40004
KUB-P.3D.410.R.12-C40	U4334100	41,0	40	50	220	123	152	6,25	SOGX 120408	41004
KUB-P.3D.420.R.12-C40	U4334200	42,0	40	50	223	126	155	6,25	SOGX 120408	42004

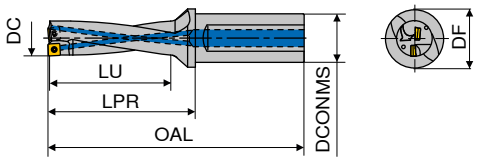
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KUB Pentron

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD

C





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 873 ...
KUB-P.3D.430.R.13-C40	U4334300	43,0	40	50	227	129	159	6,25	SOGX 130508	**43004**
KUB-P.3D.440.R.13-C40	U4334400	44,0	40	50	230	132	162	6,25	SOGX 130508	**44004**
KUB-P.3D.450.R.13-C40	U4334500	45,0	40	50	234	135	166	6,25	SOGX 130508	**45004**
KUB-P.3D.460.R.13-C40	U4334600	46,0	40	50	237	138	169	6,25	SOGX 130508	**46004**


Screwdriver


Key D


Clamping screw

Spare parts DC	Article no. 80 950 ...		Article no. 80 950 ...		Article no. 10 950 ...	
14 - 16	T05 - IP	**057**			M1,8x3,8 - 05IP	**10100**
16,5 - 18			T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
18,5 - 23			T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
23,5 - 26			T08 - IP	**125**	M2,5x6,3 - 08IP	**10800**
26,5 - 30			T08 - IP	**125**	M3,0x7,6 - 08IP	**10200**
31 - 37			T15 - IP	**128**	M3,5x7,5 - 15IP	**10300**
38 - 46			T20 - IP	**129**	M4,5x10,0 - 20IP	**10400**

Suitable adapters can be found in → **Chapter 16 Adapters.**

KUB Pentron

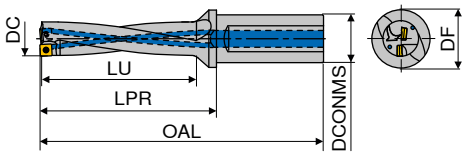
Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 4xD



C





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 874 ...
KUB-P.4D.140.R.04-C20	U4401400	14,0	20	30	119	56	69	0,38	SOGX 040204	14001
KUB-P.4D.145.R.04-C20	U4401450	14,5	20	30	124	60	74	0,38	SOGX 040204	14501
KUB-P.4D.150.R.04-C20	U4401500	15,0	20	30	124	60	74	0,38	SOGX 040204	15001
KUB-P.4D.155.R.04-C20	U4401550	15,5	20	30	130	64	80	0,38	SOGX 040204	15501
KUB-P.4D.160.R.04-C20	U4401600	16,0	20	30	130	64	80	0,38	SOGX 040204	16001
KUB-P.4D.165.R.05-C20	U4401650	16,5	20	30	135	68	85	0,62	SOGX 050204	16501
KUB-P.4D.170.R.05-C20	U4401700	17,0	20	30	135	68	85	0,62	SOGX 050204	17001
KUB-P.4D.175.R.05-C25	U4411750	17,5	25	30	145	72	89	0,62	SOGX 050204	17502
KUB-P.4D.180.R.05-C25	U4411800	18,0	25	30	145	72	89	0,62	SOGX 050204	18002
KUB-P.4D.185.R.06-C25	U4411850	18,5	25	30	150	76	94	1,01	SOGX 060206	18502
KUB-P.4D.190.R.06-C25	U4411900	19,0	25	30	150	76	94	1,01	SOGX 060206	19002
KUB-P.4D.195.R.06-C25	U4411950	19,5	25	30	154	80	98	1,01	SOGX 060206	19502
KUB-P.4D.200.R.06-C25	U4412000	20,0	25	30	154	80	98	1,01	SOGX 060206	20002
KUB-P.4D.205.R.07-C25	U4412050	20,5	25	30	159	84	103	1,01	SOGX 07T208	20502
KUB-P.4D.210.R.07-C25	U4412100	21,0	25	30	159	84	103	1,01	SOGX 07T208	21002
KUB-P.4D.215.R.07-C25	U4412150	21,5	25	30	163	88	107	1,01	SOGX 07T208	21502
KUB-P.4D.220.R.07-C25	U4412200	22,0	25	30	163	88	107	1,01	SOGX 07T208	22002
KUB-P.4D.225.R.07-C25	U4412250	22,5	25	30	168	92	112	1,01	SOGX 07T208	22502
KUB-P.4D.230.R.07-C25	U4412300	23,0	25	30	168	92	112	1,01	SOGX 07T208	23002
KUB-P.4D.235.R.08-C32	U4422350	23,5	32	39	176	96	116	1,28	SOGX 080308	23503
KUB-P.4D.240.R.08-C32	U4422400	24,0	32	39	176	96	116	1,28	SOGX 080308	24003
KUB-P.4D.245.R.08-C32	U4422450	24,5	32	39	181	100	121	1,28	SOGX 080308	24503
KUB-P.4D.250.R.08-C32	U4422500	25,0	32	39	181	100	121	1,28	SOGX 080308	25003
KUB-P.4D.255.R.08-C32	U4422550	25,5	32	39	185	104	125	1,28	SOGX 080308	25503
KUB-P.4D.260.R.08-C32	U4422600	26,0	32	39	185	104	125	1,28	SOGX 080308	26003
KUB-P.4D.265.R.09-C32	U4422650	26,5	32	39	190	108	130	2,25	SOGX 09T308	26503
KUB-P.4D.270.R.09-C32	U4422700	27,0	32	39	190	108	130	2,25	SOGX 09T308	27003
KUB-P.4D.275.R.09-C32	U4422750	27,5	32	39	194	112	134	2,25	SOGX 09T308	27503
KUB-P.4D.280.R.09-C32	U4422800	28,0	32	39	194	112	134	2,25	SOGX 09T308	28003
KUB-P.4D.285.R.09-C32	U4422850	28,5	32	39	199	116	139	2,25	SOGX 09T308	28503
KUB-P.4D.290.R.09-C32	U4422900	29,0	32	39	199	116	139	2,25	SOGX 09T308	29003
KUB-P.4D.295.R.09-C32	U4422950	29,5	32	39	203	120	143	2,25	SOGX 09T308	29503
KUB-P.4D.300.R.09-C32	U4423000	30,0	32	39	203	120	143	2,25	SOGX 09T308	30003
KUB-P.4D.310.R.10-C40	U4433100	31,0	40	50	216	124	148	2,8	SOGX 100408	31004
KUB-P.4D.320.R.10-C40	U4433200	32,0	40	50	220	128	152	2,8	SOGX 100408	32004
KUB-P.4D.330.R.10-C40	U4433300	33,0	40	50	225	132	157	2,8	SOGX 100408	33004
KUB-P.4D.340.R.11-C40	U4433400	34,0	40	50	229	136	161	2,8	SOGX 110408	34004
KUB-P.4D.350.R.11-C40	U4433500	35,0	40	50	234	140	166	2,8	SOGX 110408	35004
KUB-P.4D.360.R.11-C40	U4433600	36,0	40	50	238	144	170	2,8	SOGX 110408	36004
KUB-P.4D.370.R.11-C40	U4433700	37,0	40	50	243	148	175	2,8	SOGX 110408	37004
KUB-P.4D.380.R.12-C40	U4433800	38,0	40	50	247	152	179	6,25	SOGX 120408	38004
KUB-P.4D.390.R.12-C40	U4433900	39,0	40	50	252	156	184	6,25	SOGX 120408	39004
KUB-P.4D.400.R.12-C40	U4434000	40,0	40	50	256	160	188	6,25	SOGX 120408	40004
KUB-P.4D.410.R.12-C40	U4434100	41,0	40	50	261	164	193	6,25	SOGX 120408	41004
KUB-P.4D.420.R.12-C40	U4434200	42,0	40	50	265	168	197	6,25	SOGX 120408	42004

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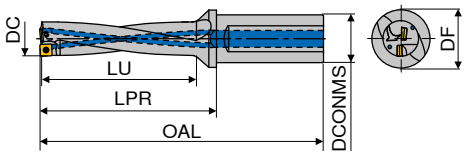
KUB Pentron

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



C





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 874 ...
KUB-P.4D.430.R.13-C40	U4434300	43,0	40	50	270	172	202	6,25	SOGX 130508	**43004**
KUB-P.4D.440.R.13-C40	U4434400	44,0	40	50	274	176	206	6,25	SOGX 130508	**44004**
KUB-P.4D.450.R.13-C40	U4434500	45,0	40	50	279	180	211	6,25	SOGX 130508	**45004**
KUB-P.4D.460.R.13-C40	U4434600	46,0	40	50	283	184	215	6,25	SOGX 130508	**46004**


Screwdriver


Key D


Clamping screw

Spare parts DC	Article no. 80 950 ...		Article no. 80 950 ...		Article no. 10 950 ...	
14 - 16	T05 - IP	**057**			M1,8x3,8 - 05IP	**10100**
16,5 - 18			T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
18,5 - 23			T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
23,5 - 26			T08 - IP	**125**	M2,5x6,3 - 08IP	**10800**
26,5 - 30			T08 - IP	**125**	M3,0x7,6 - 08IP	**10200**
31 - 37			T15 - IP	**128**	M3,5x7,5 - 15IP	**10300**
38 - 46			T20 - IP	**129**	M4,5x10,0 - 20IP	**10400**

Suitable adapters can be found in → **Chapter 16 Adapters.**

KUB Pentron

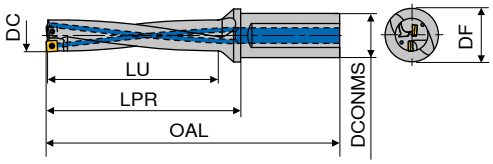
Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 5xD



C





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 875 ...
KUB-P.5D.140.R.04-C20	U4501400	14,0	20	30	133	70	83	0,38	SOGX 040204	14001
KUB-P.5D.145.R.04-C20	U4501450	14,5	20	30	139	75	89	0,38	SOGX 040204	14501
KUB-P.5D.150.R.04-C20	U4501500	15,0	20	30	139	75	89	0,38	SOGX 040204	15001
KUB-P.5D.155.R.04-C20	U4501550	15,5	20	30	146	80	96	0,38	SOGX 040204	15501
KUB-P.5D.160.R.04-C20	U4501600	16,0	20	30	146	80	96	0,38	SOGX 040204	16001
KUB-P.5D.165.R.05-C20	U4501650	16,5	20	30	152	85	102	0,62	SOGX 050204	16501
KUB-P.5D.170.R.05-C20	U4501700	17,0	20	30	152	85	102	0,62	SOGX 050204	17001
KUB-P.5D.175.R.05-C25	U4511750	17,5	25	30	163	90	107	0,62	SOGX 050204	17502
KUB-P.5D.180.R.05-C25	U4511800	18,0	25	30	163	90	107	0,62	SOGX 050204	18002
KUB-P.5D.185.R.06-C25	U4511850	18,5	25	30	169	95	113	1,01	SOGX 060206	18502
KUB-P.5D.190.R.06-C25	U4511900	19,0	25	30	169	95	113	1,01	SOGX 060206	19002
KUB-P.5D.195.R.06-C25	U4511950	19,5	25	30	174	100	118	1,01	SOGX 060206	19502
KUB-P.5D.200.R.06-C25	U4512000	20,0	25	30	174	100	118	1,01	SOGX 060206	20002
KUB-P.5D.205.R.07-C25	U4512050	20,5	25	30	180	105	124	1,01	SOGX 07T208	20502
KUB-P.5D.210.R.07-C25	U4512100	21,0	25	30	180	105	124	1,01	SOGX 07T208	21002
KUB-P.5D.215.R.07-C25	U4512150	21,5	25	30	185	110	129	1,01	SOGX 07T208	21502
KUB-P.5D.220.R.07-C25	U4512200	22,0	25	30	185	110	129	1,01	SOGX 07T208	22002
KUB-P.5D.225.R.07-C25	U4512250	22,5	25	30	191	115	135	1,01	SOGX 07T208	22502
KUB-P.5D.230.R.07-C25	U4512300	23,0	25	30	191	115	135	1,01	SOGX 07T208	23002
KUB-P.5D.235.R.08-C32	U4522350	23,5	32	39	200	120	140	1,28	SOGX 080308	23503
KUB-P.5D.240.R.08-C32	U4522400	24,0	32	39	200	120	140	1,28	SOGX 080308	24003
KUB-P.5D.245.R.08-C32	U4522450	24,5	32	39	206	125	146	1,28	SOGX 080308	24503
KUB-P.5D.250.R.08-C32	U4522500	25,0	32	39	206	125	146	1,28	SOGX 080308	25003
KUB-P.5D.255.R.08-C32	U4522550	25,5	32	39	211	130	151	1,28	SOGX 080308	25503
KUB-P.5D.260.R.08-C32	U4522600	26,0	32	39	211	130	151	1,28	SOGX 080308	26003
KUB-P.5D.265.R.09-C32	U4522650	26,5	32	39	217	135	157	2,25	SOGX 09T308	26503
KUB-P.5D.270.R.09-C32	U4522700	27,0	32	39	217	135	157	2,25	SOGX 09T308	27003
KUB-P.5D.275.R.09-C32	U4522750	27,5	32	39	222	140	162	2,25	SOGX 09T308	27503
KUB-P.5D.280.R.09-C32	U4522800	28,0	32	39	222	140	162	2,25	SOGX 09T308	28003
KUB-P.5D.285.R.09-C32	U4522850	28,5	32	39	228	145	168	2,25	SOGX 09T308	28503
KUB-P.5D.290.R.09-C32	U4522900	29,0	32	39	228	145	168	2,25	SOGX 09T308	29003
KUB-P.5D.295.R.09-C32	U4522950	29,5	32	39	233	150	173	2,25	SOGX 09T308	29503
KUB-P.5D.300.R.09-C32	U4523000	30,0	32	39	233	150	173	2,25	SOGX 09T308	30003
KUB-P.5D.310.R.10-C40	U4533100	31,0	40	50	247	155	179	2,8	SOGX 100408	31004
KUB-P.5D.320.R.10-C40	U4533200	32,0	40	50	252	160	184	2,8	SOGX 100408	32004
KUB-P.5D.330.R.10-C40	U4533300	33,0	40	50	258	165	190	2,8	SOGX 100408	33004
KUB-P.5D.340.R.11-C40	U4533400	34,0	40	50	263	170	195	2,8	SOGX 110408	34004
KUB-P.5D.350.R.11-C40	U4533500	35,0	40	50	269	175	201	2,8	SOGX 110408	35004
KUB-P.5D.360.R.11-C40	U4533600	36,0	40	50	274	180	206	2,8	SOGX 110408	36004
KUB-P.5D.370.R.11-C40	U4533700	37,0	40	50	280	185	212	2,8	SOGX 110408	37004
KUB-P.5D.380.R.12-C40	U4533800	38,0	40	50	285	190	217	6,25	SOGX 120408	38004
KUB-P.5D.390.R.12-C40	U4533900	39,0	40	50	291	195	223	6,25	SOGX 120408	39004
KUB-P.5D.400.R.12-C40	U4534000	40,0	40	50	296	200	228	6,25	SOGX 120408	40004
KUB-P.5D.410.R.12-C40	U4534100	41,0	40	50	302	205	234	6,25	SOGX 120408	41004
KUB-P.5D.420.R.12-C40	U4534200	42,0	40	50	307	210	239	6,25	SOGX 120408	42004

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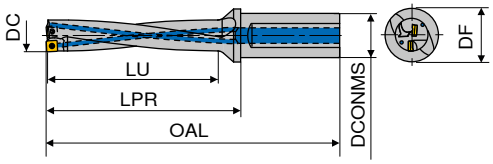
KUB Pentron

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 5xD



C





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 875 ...
KUB-P.5D.430.R.13-C40	U4534300	43,0	40	50	313	215	245	6,25	SOGX 130508	**43004**
KUB-P.5D.440.R.13-C40	U4534400	44,0	40	50	318	220	250	6,25	SOGX 130508	**44004**
KUB-P.5D.450.R.13-C40	U4534500	45,0	40	50	324	225	256	6,25	SOGX 130508	**45004**
KUB-P.5D.460.R.13-C40	U4534600	46,0	40	50	329	230	261	6,25	SOGX 130508	**46004**


Screwdriver


Key D


Clamping screw

Spare parts DC	Article no. 80 950 ...		Article no. 80 950 ...		Article no. 10 950 ...	
14 - 16	T05 - IP	**057**			M1,8x3,8 - 05IP	**10100**
16,5 - 18			T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
18,5 - 23			T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
23,5 - 26			T08 - IP	**125**	M2,5x6,3 - 08IP	**10800**
26,5 - 30			T08 - IP	**125**	M3,0x7,6 - 08IP	**10200**
31 - 37			T15 - IP	**128**	M3,5x7,5 - 15IP	**10300**
38 - 46			T20 - IP	**129**	M4,5x10,0 - 20IP	**10400**

Suitable adapters can be found in → **Chapter 16 Adapters.**

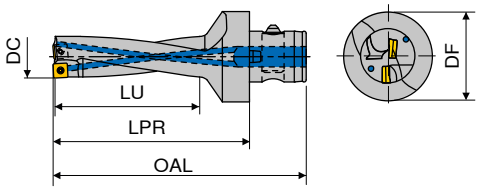
KUB Pentron

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD



ABS





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 873 ...
KUB-P.3D.140.R.04-ABS50	U4351400	14,0	50	100	42	69	0,38	SOGX 040204	14095
KUB-P.3D.145.R.04-ABS50	U4351450	14,5	50	104	45	73	0,38	SOGX 040204	14595
KUB-P.3D.150.R.04-ABS50	U4351500	15,0	50	104	45	73	0,38	SOGX 040204	15095
KUB-P.3D.155.R.04-ABS50	U4351550	15,5	50	109	48	78	0,38	SOGX 040204	15595
KUB-P.3D.160.R.04-ABS50	U4351600	16,0	50	109	48	78	0,38	SOGX 040204	16095
KUB-P.3D.165.R.05-ABS50	U4351650	16,5	50	113	51	82	0,62	SOGX 050204	16595
KUB-P.3D.170.R.05-ABS50	U4351700	17,0	50	113	51	82	0,62	SOGX 050204	17095
KUB-P.3D.175.R.05-ABS50	U4351750	17,5	50	116	54	85	0,62	SOGX 050204	17595
KUB-P.3D.180.R.05-ABS50	U4351800	18,0	50	116	54	85	0,62	SOGX 050204	18095
KUB-P.3D.185.R.06-ABS50	U4351850	18,5	50	120	57	89	1,01	SOGX 060206	18595
KUB-P.3D.190.R.06-ABS50	U4351900	19,0	50	120	57	89	1,01	SOGX 060206	19095
KUB-P.3D.195.R.06-ABS50	U4351950	19,5	50	123	60	92	1,01	SOGX 060206	19595
KUB-P.3D.200.R.06-ABS50	U4352000	20,0	50	123	60	92	1,01	SOGX 060206	20095
KUB-P.3D.205.R.07-ABS50	U4352050	20,5	50	126	63	95	1,01	SOGX 07T208	20595
KUB-P.3D.210.R.07-ABS50	U4352100	21,0	50	126	63	95	1,01	SOGX 07T208	21095
KUB-P.3D.215.R.07-ABS50	U4352150	21,5	50	129	66	98	1,01	SOGX 07T208	21595
KUB-P.3D.220.R.07-ABS50	U4352200	22,0	50	129	66	98	1,01	SOGX 07T208	22095
KUB-P.3D.225.R.07-ABS50	U4352250	22,5	50	132	69	101	1,01	SOGX 07T208	22595
KUB-P.3D.230.R.07-ABS50	U4352300	23,0	50	132	69	101	1,01	SOGX 07T208	23095
KUB-P.3D.235.R.08-ABS50	U4352350	23,5	50	135	72	104	1,28	SOGX 080308	23595
KUB-P.3D.240.R.08-ABS50	U4352400	24,0	50	135	72	104	1,28	SOGX 080308	24095
KUB-P.3D.245.R.08-ABS50	U4352450	24,5	50	139	75	108	1,28	SOGX 080308	24595
KUB-P.3D.250.R.08-ABS50	U4352500	25,0	50	139	75	108	1,28	SOGX 080308	25095
KUB-P.3D.255.R.08-ABS50	U4352550	25,5	50	142	78	111	1,28	SOGX 080308	25595
KUB-P.3D.260.R.08-ABS50	U4352600	26,0	50	142	78	111	1,28	SOGX 080308	26095
KUB-P.3D.265.R.09-ABS50	U4352650	26,5	50	146	81	115	2,25	SOGX 09T308	26595
KUB-P.3D.270.R.09-ABS50	U4352700	27,0	50	146	81	115	2,25	SOGX 09T308	27095
KUB-P.3D.275.R.09-ABS50	U4352750	27,5	50	149	84	118	2,25	SOGX 09T308	27595
KUB-P.3D.280.R.09-ABS50	U4352800	28,0	50	149	84	118	2,25	SOGX 09T308	28095
KUB-P.3D.285.R.09-ABS50	U4352850	28,5	50	153	87	122	2,25	SOGX 09T308	28595
KUB-P.3D.290.R.09-ABS50	U4352900	29,0	50	153	87	122	2,25	SOGX 09T308	29095
KUB-P.3D.295.R.09-ABS50	U4352950	29,5	50	156	90	125	2,25	SOGX 09T308	29595
KUB-P.3D.300.R.09-ABS50	U4353000	30,0	50	156	90	125	2,25	SOGX 09T308	30095


Screwdriver


Key D


Clamping screw

Spare parts DC		Article no. 80 950 ...		Article no. 80 950 ...		Article no. 10 950 ...
14 - 16	T05 - IP	057			M1,8x3,8 - 05IP	10100
16,5 - 18			T06 - IP	123	M2,0x4,3 - 06IP	10000
18,5 - 23			T06 - IP	123	M2,2x5,5 - 06IP	10700
23,5 - 26			T08 - IP	125	M2,5x6,3 - 08IP	10800
26,5 - 30			T08 - IP	125	M3,0x7,6 - 08IP	10200

Suitable adapters can be found in → **Chapter 16 Adapters.**

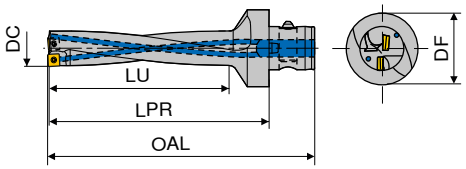
KUB Pentron

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



ABS





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 874 ...
KUB-P.4D.140.R.04-ABS50	U4451400	14,0	50	114	56	83	0,38	SOGX 040204	14095
KUB-P.4D.145.R.04-ABS50	U4451450	14,5	50	119	60	88	0,38	SOGX 040204	14595
KUB-P.4D.150.R.04-ABS50	U4451500	15,0	50	119	60	88	0,38	SOGX 040204	15095
KUB-P.4D.155.R.04-ABS50	U4451550	15,5	50	125	64	94	0,38	SOGX 040204	15595
KUB-P.4D.160.R.04-ABS50	U4451600	16,0	50	125	64	94	0,38	SOGX 040204	16095
KUB-P.4D.165.R.05-ABS50	U4451650	16,5	50	130	68	99	0,62	SOGX 050204	16595
KUB-P.4D.170.R.05-ABS50	U4451700	17,0	50	130	68	99	0,62	SOGX 050204	17095
KUB-P.4D.175.R.05-ABS50	U4451750	17,5	50	134	72	103	0,62	SOGX 050204	17595
KUB-P.4D.180.R.05-ABS50	U4451800	18,0	50	134	72	103	0,62	SOGX 050204	18095
KUB-P.4D.185.R.06-ABS50	U4451850	18,5	50	139	76	108	1,01	SOGX 060206	18595
KUB-P.4D.190.R.06-ABS50	U4451900	19,0	50	139	76	108	1,01	SOGX 060206	19095
KUB-P.4D.195.R.06-ABS50	U4451950	19,5	50	143	80	112	1,01	SOGX 060206	19595
KUB-P.4D.200.R.06-ABS50	U4452000	20,0	50	143	80	112	1,01	SOGX 060206	20095
KUB-P.4D.205.R.07-ABS50	U4452050	20,5	50	147	84	116	1,01	SOGX 07T208	20595
KUB-P.4D.210.R.07-ABS50	U4452100	21,0	50	147	84	116	1,01	SOGX 07T208	21095
KUB-P.4D.215.R.07-ABS50	U4452150	21,5	50	151	88	120	1,01	SOGX 07T208	21595
KUB-P.4D.220.R.07-ABS50	U4452200	22,0	50	151	88	120	1,01	SOGX 07T208	22095
KUB-P.4D.225.R.07-ABS50	U4452250	22,5	50	155	92	124	1,01	SOGX 07T208	22595
KUB-P.4D.230.R.07-ABS50	U4452300	23,0	50	155	92	124	1,01	SOGX 07T208	23095
KUB-P.4D.235.R.08-ABS50	U4452350	23,5	50	159	96	128	1,28	SOGX 080308	23595
KUB-P.4D.240.R.08-ABS50	U4452400	24,0	50	159	96	128	1,28	SOGX 080308	24095
KUB-P.4D.245.R.08-ABS50	U4452450	24,5	50	164	100	133	1,28	SOGX 080308	24595
KUB-P.4D.250.R.08-ABS50	U4452500	25,0	50	164	100	133	1,28	SOGX 080308	25095
KUB-P.4D.255.R.08-ABS50	U4452550	25,5	50	168	104	137	1,28	SOGX 080308	25595
KUB-P.4D.260.R.08-ABS50	U4452600	26,0	50	168	104	137	1,28	SOGX 080308	26095
KUB-P.4D.265.R.09-ABS50	U4452650	26,5	50	173	108	142	2,25	SOGX 09T308	26595
KUB-P.4D.270.R.09-ABS50	U4452700	27,0	50	173	108	142	2,25	SOGX 09T308	27095
KUB-P.4D.275.R.09-ABS50	U4452750	27,5	50	177	112	146	2,25	SOGX 09T308	27595
KUB-P.4D.280.R.09-ABS50	U4452800	28,0	50	177	112	146	2,25	SOGX 09T308	28095
KUB-P.4D.285.R.09-ABS50	U4452850	28,5	50	182	116	151	2,25	SOGX 09T308	28595
KUB-P.4D.290.R.09-ABS50	U4452900	29,0	50	182	116	151	2,25	SOGX 09T308	29095
KUB-P.4D.295.R.09-ABS50	U4452950	29,5	50	186	120	155	2,25	SOGX 09T308	29595
KUB-P.4D.300.R.09-ABS50	U4453000	30,0	50	186	120	155	2,25	SOGX 09T308	30095



Screwdriver



Key D



Clamping screw

Spare parts DC		Article no. 80 950 ...		Article no. 80 950 ...		Article no. 10 950 ...
14 - 16	T05 - IP	057			M1,8x3,8 - 05IP	10100
16,5 - 18			T06 - IP	123	M2,0x4,3 - 06IP	10000
18,5 - 23			T06 - IP	123	M2,2x5,5 - 06IP	10700
23,5 - 26			T08 - IP	125	M2,5x6,3 - 08IP	10800
26,5 - 30			T08 - IP	125	M3,0x7,6 - 08IP	10200

Suitable adapters can be found in → **Chapter 16 Adapters.**

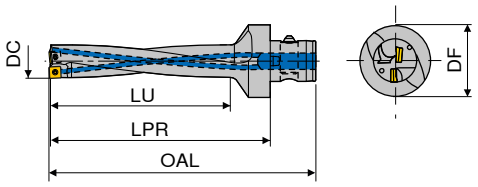
KUB Pentron

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 5xD



ABS





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 875 ...
KUB-P.5D.140.R.04-ABS50	U4551400	14,0	50	128	70	97	0,38	SOGX 040204	14095
KUB-P.5D.145.R.04-ABS50	U4551450	14,5	50	134	75	103	0,38	SOGX 040204	14595
KUB-P.5D.150.R.04-ABS50	U4551500	15,0	50	134	75	103	0,38	SOGX 040204	15095
KUB-P.5D.155.R.04-ABS50	U4551550	15,5	50	141	80	110	0,38	SOGX 040204	15595
KUB-P.5D.160.R.04-ABS50	U4551600	16,0	50	141	80	110	0,38	SOGX 040204	16095
KUB-P.5D.165.R.05-ABS50	U4551650	16,5	50	147	85	116	0,62	SOGX 050204	16595
KUB-P.5D.170.R.05-ABS50	U4551700	17,0	50	147	85	116	0,62	SOGX 050204	17095
KUB-P.5D.175.R.05-ABS50	U4551750	17,5	50	152	90	121	0,62	SOGX 050204	17595
KUB-P.5D.180.R.05-ABS50	U4551800	18,0	50	152	90	121	0,62	SOGX 050204	18095
KUB-P.5D.185.R.06-ABS50	U4551850	18,5	50	158	95	127	1,01	SOGX 060206	18595
KUB-P.5D.190.R.06-ABS50	U4551900	19,0	50	158	95	127	1,01	SOGX 060206	19095
KUB-P.5D.195.R.06-ABS50	U4551950	19,5	50	163	100	132	1,01	SOGX 060206	19595
KUB-P.5D.200.R.06-ABS50	U4552000	20,0	50	163	100	132	1,01	SOGX 060206	20095
KUB-P.5D.205.R.07-ABS50	U4552050	20,5	50	168	105	137	1,01	SOGX 07T208	20595
KUB-P.5D.210.R.07-ABS50	U4552100	21,0	50	168	105	137	1,01	SOGX 07T208	21095
KUB-P.5D.215.R.07-ABS50	U4552150	21,5	50	173	110	142	1,01	SOGX 07T208	21595
KUB-P.5D.220.R.07-ABS50	U4552200	22,0	50	173	110	142	1,01	SOGX 07T208	22095
KUB-P.5D.225.R.07-ABS50	U4552250	22,5	50	178	115	147	1,01	SOGX 07T208	22595
KUB-P.5D.230.R.07-ABS50	U4552300	23,0	50	178	115	147	1,01	SOGX 07T208	23095
KUB-P.5D.235.R.08-ABS50	U4552350	23,5	50	183	120	152	1,28	SOGX 080308	23595
KUB-P.5D.240.R.08-ABS50	U4552400	24,0	50	183	120	152	1,28	SOGX 080308	24095
KUB-P.5D.245.R.08-ABS50	U4552450	24,5	50	189	125	158	1,28	SOGX 080308	24595
KUB-P.5D.250.R.08-ABS50	U4552500	25,0	50	189	125	158	1,28	SOGX 080308	25095
KUB-P.5D.255.R.08-ABS50	U4552550	25,5	50	194	130	163	1,28	SOGX 080308	25595
KUB-P.5D.260.R.08-ABS50	U4552600	26,0	50	194	130	163	1,28	SOGX 080308	26095
KUB-P.5D.265.R.09-ABS50	U4552650	26,5	50	200	135	169	2,25	SOGX 09T308	26595
KUB-P.5D.270.R.09-ABS50	U4552700	27,0	50	200	135	169	2,25	SOGX 09T308	27095
KUB-P.5D.275.R.09-ABS50	U4552750	27,5	50	205	140	174	2,25	SOGX 09T308	27595
KUB-P.5D.280.R.09-ABS50	U4552800	28,0	50	205	140	174	2,25	SOGX 09T308	28095
KUB-P.5D.285.R.09-ABS50	U4552850	28,5	50	211	145	180	2,25	SOGX 09T308	28595
KUB-P.5D.290.R.09-ABS50	U4552900	29,0	50	211	145	180	2,25	SOGX 09T308	29095
KUB-P.5D.295.R.09-ABS50	U4552950	29,5	50	216	150	185	2,25	SOGX 09T308	29595
KUB-P.5D.300.R.09-ABS50	U4553000	30,0	50	216	150	185	2,25	SOGX 09T308	30095


Screwdriver


Key D


Clamping screw

Spare parts DC		Article no. 80 950 ...		Article no. 80 950 ...		Article no. 10 950 ...
14 - 16	T05 - IP	057			M1,8x3,8 - 05IP	10100
16,5 - 18			T06 - IP	123	M2,0x4,3 - 06IP	10000
18,5 - 23			T06 - IP	123	M2,2x5,5 - 06IP	10700
23,5 - 26			T08 - IP	125	M2,5x6,3 - 08IP	10800
26,5 - 30			T08 - IP	125	M3,0x7,6 - 08IP	10200

Suitable adapters can be found in → **Chapter 16 Adapters.**

KUB Pentron

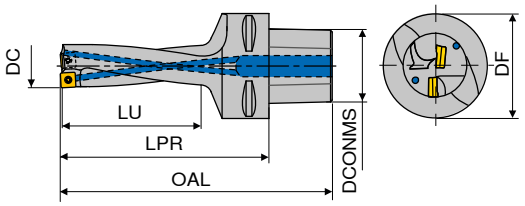
Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 3xD



PSC





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 873 ...
KUB-P.3D.140.R.04-PSC50	U4061400	14,0	24,25	50	103	42	73	0,38	SOGX 040204	14055
KUB-P.3D.145.R.04-PSC50	U4061450	14,5	24,25	50	107	45	77	0,38	SOGX 040204	14555
KUB-P.3D.150.R.04-PSC50	U4061500	15,0	24,25	50	107	45	77	0,38	SOGX 040204	15055
KUB-P.3D.155.R.04-PSC50	U4061550	15,5	24,25	50	112	48	82	0,38	SOGX 040204	15555
KUB-P.3D.160.R.04-PSC50	U4061600	16,0	24,25	50	112	48	82	0,38	SOGX 040204	16055
KUB-P.3D.160.R.04-PSC63	U4071600	16,0	30,30	63	124	48	86	0,38	SOGX 040204	16056
KUB-P.3D.165.R.05-PSC50	U4061650	16,5	24,25	50	116	51	86	0,62	SOGX 050204	16555
KUB-P.3D.170.R.05-PSC50	U4061700	17,0	24,25	50	116	51	86	0,62	SOGX 050204	17055
KUB-P.3D.175.R.05-PSC50	U4061750	17,5	24,25	50	119	54	89	0,62	SOGX 050204	17555
KUB-P.3D.180.R.05-PSC50	U4061800	18,0	24,25	50	119	54	89	0,62	SOGX 050204	18055
KUB-P.3D.165.R.05-PSC63	U4071650	16,5	30,30	63	128	51	90	0,62	SOGX 050204	16556
KUB-P.3D.170.R.05-PSC63	U4071700	17,0	30,30	63	128	51	90	0,62	SOGX 050204	17056
KUB-P.3D.175.R.05-PSC63	U4071750	17,5	30,30	63	131	54	93	0,62	SOGX 050204	17556
KUB-P.3D.180.R.05-PSC63	U4071800	18,0	30,30	63	131	54	93	0,62	SOGX 050204	18056
KUB-P.3D.185.R.06-PSC50	U4061850	18,5	24,25	50	123	57	93	1,01	SOGX 060206	18555
KUB-P.3D.190.R.06-PSC50	U4061900	19,0	24,25	50	123	57	93	1,01	SOGX 060206	19055
KUB-P.3D.195.R.06-PSC50	U4061950	19,5	24,25	50	126	60	96	1,01	SOGX 060206	19555
KUB-P.3D.200.R.06-PSC50	U4062000	20,0	24,25	50	126	60	96	1,01	SOGX 060206	20055
KUB-P.3D.185.R.06-PSC63	U4071850	18,5	30,30	63	135	57	97	1,01	SOGX 060206	18556
KUB-P.3D.190.R.06-PSC63	U4071900	19,0	30,30	63	135	57	97	1,01	SOGX 060206	19056
KUB-P.3D.195.R.06-PSC63	U4071950	19,5	30,30	63	138	60	100	1,01	SOGX 060206	19556
KUB-P.3D.200.R.06-PSC63	U4072000	20,0	30,30	63	138	60	100	1,01	SOGX 060206	20056
KUB-P.3D.205.R.07-PSC50	U4062050	20,5	24,25	50	130	63	100	1,01	SOGX 07T208	20555
KUB-P.3D.210.R.07-PSC50	U4062100	21,0	24,25	50	130	63	100	1,01	SOGX 07T208	21055
KUB-P.3D.215.R.07-PSC50	U4062150	21,5	24,25	50	133	66	103	1,01	SOGX 07T208	21555
KUB-P.3D.220.R.07-PSC50	U4062200	22,0	24,25	50	133	66	103	1,01	SOGX 07T208	22055
KUB-P.3D.225.R.07-PSC50	U4062250	22,5	24,25	50	137	69	107	1,01	SOGX 07T208	22555
KUB-P.3D.230.R.07-PSC50	U4062300	23,0	24,25	50	137	69	107	1,01	SOGX 07T208	23055
KUB-P.3D.205.R.07-PSC63	U4072050	20,5	30,30	63	142	63	104	1,01	SOGX 07T208	20556
KUB-P.3D.210.R.07-PSC63	U4072100	21,0	30,30	63	142	63	104	1,01	SOGX 07T208	21056
KUB-P.3D.215.R.07-PSC63	U4072150	21,5	30,30	63	145	66	107	1,01	SOGX 07T208	21556
KUB-P.3D.220.R.07-PSC63	U4072200	22,0	30,30	63	145	66	107	1,01	SOGX 07T208	22056
KUB-P.3D.225.R.07-PSC63	U4072250	22,5	30,30	63	149	69	111	1,01	SOGX 07T208	22556
KUB-P.3D.230.R.07-PSC63	U4072300	23,0	30,30	63	149	69	111	1,01	SOGX 07T208	23056
KUB-P.3D.235.R.08-PSC50	U4062350	23,5	24,25	50	140	72	110	1,28	SOGX 080308	23555
KUB-P.3D.240.R.08-PSC50	U4062400	24,0	24,25	50	140	72	110	1,28	SOGX 080308	24055
KUB-P.3D.245.R.08-PSC50	U4062450	24,5	24,25	50	144	75	114	1,28	SOGX 080308	24555
KUB-P.3D.250.R.08-PSC50	U4062500	25,0	24,25	50	144	75	114	1,28	SOGX 080308	25055
KUB-P.3D.255.R.08-PSC50	U4062550	25,5	24,25	50	147	78	117	1,28	SOGX 080308	25555
KUB-P.3D.260.R.08-PSC50	U4062600	26,0	24,25	50	147	78	117	1,28	SOGX 080308	26055
KUB-P.3D.235.R.08-PSC63	U4072350	23,5	30,30	63	152	72	114	1,28	SOGX 080308	23556
KUB-P.3D.240.R.08-PSC63	U4072400	24,0	30,30	63	152	72	114	1,28	SOGX 080308	24056
KUB-P.3D.245.R.08-PSC63	U4072450	24,5	30,30	63	156	75	118	1,28	SOGX 080308	24556
KUB-P.3D.250.R.08-PSC63	U4072500	25,0	30,30	63	156	75	118	1,28	SOGX 080308	25056
KUB-P.3D.255.R.08-PSC63	U4072550	25,5	30,30	63	159	78	121	1,28	SOGX 080308	25556
KUB-P.3D.260.R.08-PSC63	U4072600	26,0	30,30	63	159	78	121	1,28	SOGX 080308	26056
KUB-P.3D.265.R.09-PSC50	U4062650	26,5	24,25	50	151	81	121	2,25	SOGX 09T308	26555
KUB-P.3D.270.R.09-PSC50	U4062700	27,0	24,25	50	151	81	121	2,25	SOGX 09T308	27055
KUB-P.3D.275.R.09-PSC50	U4062750	27,5	24,25	50	154	84	124	2,25	SOGX 09T308	27555

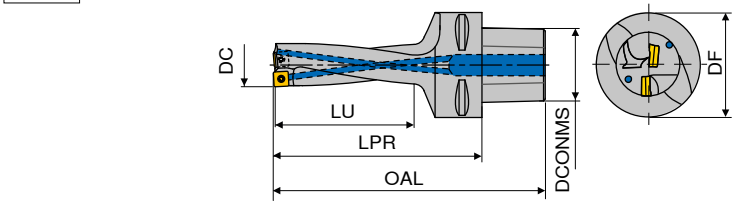
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KUB Pentron

Scope of supply:
Indexable Insert Drill incl. clamping screws

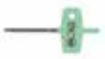
≤ 3xD

PSC





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 873 ...
KUB-P.3D.280.R.09-PSC50	U4062800	28,0	24,25	50	154	84	124	2,25	SOGX 09T308	28055
KUB-P.3D.285.R.09-PSC50	U4062850	28,5	24,25	50	158	87	128	2,25	SOGX 09T308	28555
KUB-P.3D.290.R.09-PSC50	U4062900	29,0	24,25	50	158	87	128	2,25	SOGX 09T308	29055
KUB-P.3D.295.R.09-PSC50	U4062950	29,5	24,25	50	161	90	131	2,25	SOGX 09T308	29555
KUB-P.3D.300.R.09-PSC50	U4063000	30,0	24,25	50	161	90	131	2,25	SOGX 09T308	30055
KUB-P.3D.265.R.09-PSC63	U4072650	26,5	30,30	63	163	81	125	2,25	SOGX 09T308	26556
KUB-P.3D.270.R.09-PSC63	U4072700	27,0	30,30	63	163	81	125	2,25	SOGX 09T308	27056
KUB-P.3D.275.R.09-PSC63	U4072750	27,5	30,30	63	166	84	128	2,25	SOGX 09T308	27556
KUB-P.3D.280.R.09-PSC63	U4072800	28,0	30,30	63	166	84	128	2,25	SOGX 09T308	28056
KUB-P.3D.285.R.09-PSC63	U4072850	28,5	30,30	63	170	87	132	2,25	SOGX 09T308	28556
KUB-P.3D.290.R.09-PSC63	U4072900	29,0	30,30	63	170	87	132	2,25	SOGX 09T308	29056
KUB-P.3D.295.R.09-PSC63	U4072950	29,5	30,30	63	173	90	135	2,25	SOGX 09T308	29556
KUB-P.3D.300.R.09-PSC63	U4073000	30,0	30,30	63	173	90	135	2,25	SOGX 09T308	30056


Screwdriver

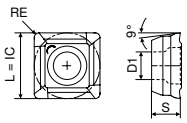

Key D


Clamping screw

Spare parts DC		Article no. 80 950 ...		Article no. 80 950 ...		Article no. 10 950 ...
14 - 16	T05 - IP	057			M1,8x3,8 - 05IP	10100
16,5 - 18			T06 - IP	123	M2,0x4,3 - 06IP	10000
18,5 - 23			T06 - IP	123	M2,2x5,5 - 06IP	10700
23,5 - 26			T08 - IP	125	M2,5x6,3 - 08IP	10800
26,5 - 30			T08 - IP	125	M3,0x7,6 - 08IP	10200

SOGX

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



3

SOGX

			-01 BK8425	-01 BK6115
			 SOGX	 SOGX
			NEW Article no. 10 820 ...	NEW Article no. 10 820 ...
ISO	KOMET no.	RE mm		
040204	W8010010.046115	0,4		40401
040204	W8010010.048425	0,4	30401	
050204	W8012010.046115	0,4		40501
050204	W8012010.048425	0,4	30501	
060206	W8018010.066115	0,6		40601
060206	W8018010.068425	0,6	30601	
07T208	W8020010.086115	0,8		40701
07T208	W8020010.088425	0,8	30701	
080308	W8024010.086115	0,8		40801
080308	W8024010.088425	0,8	30801	
09T308	W8028010.086115	0,8		40901
09T308	W8028010.088425	0,8	30901	
100408	W8032010.086115	0,8		41001
100408	W8032010.088425	0,8	31001	
110408	W8038010.086115	0,8		41101
110408	W8038010.088425	0,8	31101	
120408	W8042010.086115	0,8		41201
120408	W8042010.088425	0,8	31201	
130508	W8046010.086115	0,8		41301
130508	W8046010.088425	0,8	31301	
Steel			●	●
Stainless steel			●	
Cast iron			●	●
Non ferrous metals				
Heat resistant alloys				
hardened materials				○

→ v_c/f_z Page 40–42

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

Specialised indexable inserts for machining aluminium or stainless steels (BK7935, BK7710, BK6425) can be found in our online shop at cuttingtools.ceratizit.com

MaxiDrill 900

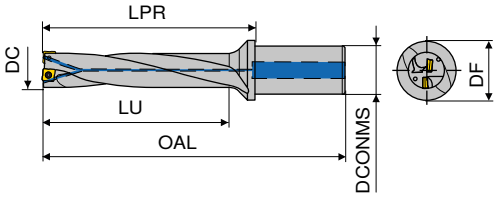
Scope of supply:

Indexable Insert Drill including clamping screws and key

≤ 2xD



C





Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	Article no. 10 852 ...
MD900.2D.120.R.03-C20	12,0	20	28	90	24	40	0,4	SONT 031804	120
MD900.2D.125.R.03-C20	12,5	20	28	91	25	41	0,4	SONT 031804	125
MD900.2D.130.R.03-C20	13,0	20	28	92	26	42	0,4	SONT 031804	130
MD900.2D.135.R.03-C20	13,5	20	28	93	27	43	0,4	SONT 031804	135
MD900.2D.140.R.04-C20	14,0	20	30	96	28	46	0,7	SONT 042105	140
MD900.2D.145.R.04-C20	14,5	20	30	97	29	47	0,7	SONT 042105	145
MD900.2D.150.R.04-C20	15,0	20	30	98	30	48	0,7	SONT 042105	150
MD900.2D.155.R.04-C20	15,5	20	30	99	31	49	0,7	SONT 042105	155
MD900.2D.160.R.05-C20	16,0	20	30	100	32	50	0,7	SONT 052306	160
MD900.2D.165.R.05-C20	16,5	20	30	101	33	51	0,7	SONT 052306	165
MD900.2D.170.R.05-C20	17,0	20	30	102	34	52	0,7	SONT 052306	170
MD900.2D.175.R.05-C20	17,5	20	30	103	35	53	0,7	SONT 052306	175
MD900.2D.180.R.06-C25	18,0	25	32	111	36	55	1	SONT 062506	180
MD900.2D.185.R.06-C25	18,5	25	32	112	37	56	1	SONT 062506	185
MD900.2D.190.R.06-C25	19,0	25	32	113	38	57	1	SONT 062506	190
MD900.2D.195.R.06-C25	19,5	25	32	114	39	58	1	SONT 062506	195
MD900.2D.200.R.06-C25	20,0	25	32	115	40	59	1	SONT 062506	200
MD900.2D.205.R.06-C25	20,5	25	32	116	41	60	1	SONT 062506	205
MD900.2D.210.R.07-C25	21,0	25	32	118	42	62	1	SONT 072907	210
MD900.2D.220.R.07-C25	22,0	25	32	120	44	64	1	SONT 072907	220
MD900.2D.230.R.07-C25	23,0	25	32	122	46	66	1	SONT 072907	230
MD900.2D.240.R.08-C32	24,0	32	40	132	48	72	1,2	SONT 083308	240
MD900.2D.250.R.08-C32	25,0	32	40	134	50	74	1,2	SONT 083308	250
MD900.2D.260.R.08-C32	26,0	32	40	136	52	76	1,2	SONT 083308	260
MD900.2D.270.R.08-C32	27,0	32	40	138	54	78	1,2	SONT 083308	270
MD900.2D.280.R.09-C32	28,0	32	40	140	56	80	2,2	SONT 093808	280
MD900.2D.290.R.09-C32	29,0	32	40	142	58	82	2,2	SONT 093808	290
MD900.2D.300.R.09-C32	30,0	32	40	144	60	84	2,2	SONT 093808	300
MD900.2D.310.R.09-C32	31,0	32	40	146	62	86	2,2	SONT 093808	310
MD900.2D.320.R.09-C32	32,0	32	40	148	64	88	2,2	SONT 093808	320
MD900.2D.330.R.10-C40	33,0	40	50	163	66	93	3,2	SONT 104408	330
MD900.2D.340.R.10-C40	34,0	40	50	165	68	95	3,2	SONT 104408	340
MD900.2D.350.R.10-C40	35,0	40	50	167	70	97	3,2	SONT 104408	350
MD900.2D.360.R.10-C40	36,0	40	50	169	72	99	3,2	SONT 104408	360
MD900.2D.370.R.12-C40	37,0	40	56	174	74	104	3,2	SONT 124810	370
MD900.2D.380.R.12-C40	38,0	40	56	176	76	106	3,2	SONT 124810	380
MD900.2D.390.R.12-C40	39,0	40	56	178	78	108	3,2	SONT 124810	390
MD900.2D.400.R.12-C40	40,0	40	56	180	80	110	3,2	SONT 124810	400
MD900.2D.410.R.12-C40	41,0	40	56	182	82	112	3,2	SONT 124810	410

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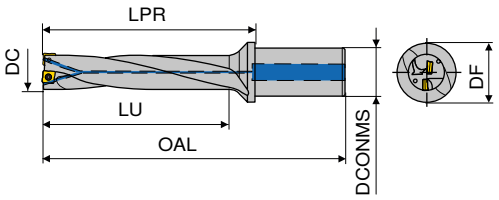
MaxiDrill 900

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

≤ 2xD



C





Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	Article no. 10 852 ...
MD900.2D.420.R.13-C40	42,0	40	60	187	84	117	5	SONT 135012	420
MD900.2D.430.R.13-C40	43,0	40	60	189	86	119	5	SONT 135012	430
MD900.2D.440.R.13-C40	44,0	40	60	191	88	121	5	SONT 135012	440
MD900.2D.450.R.13-C40	45,0	40	60	193	90	123	5	SONT 135012	450
MD900.2D.460.R.13-C40	46,0	40	60	195	92	125	5	SONT 135012	460
MD900.2D.470.R.15-C40	47,0	40	60	198	94	128	5	SONT 155312	470
MD900.2D.480.R.15-C40	48,0	40	60	200	96	130	5	SONT 155312	480
MD900.2D.490.R.15-C40	49,0	40	60	202	98	132	5	SONT 155312	490
MD900.2D.500.R.15-C40	50,0	40	60	204	100	134	5	SONT 155312	500
MD900.2D.520.R.15-C40	51,0	40	60	206	102	136	5	SONT 155312	510
MD900.2D.510.R.15-C40	52,0	40	60	208	104	138	5	SONT 155312	520
MD900.2D.530.R.15-C40	53,0	40	60	210	106	140	5	SONT 155312	530
MD900.2D.540.R.15-C40	54,0	40	60	212	108	142	5	SONT 155312	540
MD900.2D.550.R.17-C40	55,0	40	60	215	110	145	5	SONT 175612	550
MD900.2D.560.R.17-C40	56,0	40	60	217	112	147	5	SONT 175612	560
MD900.2D.570.R.17-C40	57,0	40	60	219	114	149	5	SONT 175612	570
MD900.2D.580.R.17-C40	58,0	40	60	221	116	151	5	SONT 175612	580
MD900.2D.590.R.17-C40	59,0	40	60	223	118	153	5	SONT 175612	590
MD900.2D.600.R.17-C40	60,0	40	62	225	120	155	5	SONT 175612	600
MD900.2D.610.R.17-C40	61,0	40	62	227	122	157	5	SONT 175612	610
MD900.2D.620.R.17-C40	62,0	40	64	229	124	159	5	SONT 175612	620
MD900.2D.630.R.17-C40	63,0	40	64	231	126	161	5	SONT 175612	630



Key D



Clamping screw

Spare parts DC		Article no. 80 950 ...		Article no. 70 950 ...
12 - 13,5	T06 - IP	123	M1,8x3,6 - IP	862
14 - 17,5	T06 - IP	123	M2x4,3 - IP	863
18 - 23	T07 - IP	124	M2,2x5 - IP	856
24 - 27	T08 - IP	125	M2,5x6 - IP	857
28 - 32	T09 - IP	126	M3x7 - IP	819
33 - 41	T15 - IP	128	M3,5x8,6 - IP	859
42 - 63	T20 - IP	129	M4,5x10,5 - IP	864

Suitable adapters can be found in → **Chapter 16 Adapters.**

MaxiDrill 900

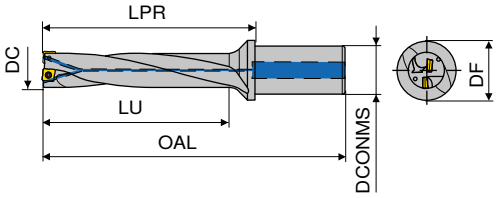
Scope of supply:

Indexable Insert Drill including clamping screws and key

≤ 3xD



C





Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	Article no. 10 853 ...
MD900.3D.120.R.03-C20	12,0	20	28	102	36,0	52	0,4	SONT 031804	120
MD900.3D.125.R.03-C20	12,5	20	28	104	37,5	54	0,4	SONT 031804	125
MD900.3D.130.R.03-C20	13,0	20	28	105	39,0	55	0,4	SONT 031804	130
MD900.3D.135.R.03-C20	13,5	20	28	107	40,5	57	0,4	SONT 031804	135
MD900.3D.140.R.04-C20	14,0	20	30	109	42,0	59	0,7	SONT 042105	140
MD900.3D.145.R.04-C20	14,5	20	30	111	44,0	61	0,7	SONT 042105	145
MD900.3D.150.R.04-C20	15,0	20	30	112	45,0	62	0,7	SONT 042105	150
MD900.3D.155.R.04-C20	15,5	20	30	114	47,0	64	0,7	SONT 042105	155
MD900.3D.160.R.05-C20	16,0	20	30	115	48,0	65	0,7	SONT 052306	160
MD900.3D.165.R.05-C20	16,5	20	30	117	50,0	67	0,7	SONT 052306	165
MD900.3D.170.R.05-C20	17,0	20	30	118	51,0	68	0,7	SONT 052306	170
MD900.3D.175.R.05-C20	17,5	20	30	120	53,0	70	0,7	SONT 052306	175
MD900.3D.180.R.06-C25	18,0	25	32	128	54,0	72	1	SONT 062506	180
MD900.3D.185.R.06-C25	18,5	25	32	130	56,0	74	1	SONT 062506	185
MD900.3D.190.R.06-C25	19,0	25	32	131	57,0	75	1	SONT 062506	190
MD900.3D.195.R.06-C25	19,5	25	32	133	59,0	77	1	SONT 062506	195
MD900.3D.200.R.06-C25	20,0	25	32	134	60,0	78	1	SONT 062506	200
MD900.3D.205.R.06-C25	20,5	25	32	136	62,0	80	1	SONT 062506	205
MD900.3D.210.R.07-C25	21,0	25	32	138	63,0	82	1	SONT 072907	210
MD900.3D.215.R.07-C25	21,5	25	32	140	65,0	84	1	SONT 072907	215
MD900.3D.220.R.07-C25	22,0	25	32	141	66,0	85	1	SONT 072907	220
MD900.3D.225.R.07-C25	22,5	25	32	143	68,0	87	1	SONT 072907	225
MD900.3D.230.R.07-C25	23,0	25	32	144	69,0	88	1	SONT 072907	230
MD900.3D.235.R.07-C25	23,5	25	32	146	71,0	90	1	SONT 072907	235
MD900.3D.240.R.08-C32	24,0	32	40	155	72,0	95	1,2	SONT 083308	240
MD900.3D.245.R.08-C32	24,5	32	40	157	74,0	97	1,2	SONT 083308	245
MD900.3D.250.R.08-C32	25,0	32	40	158	75,0	98	1,2	SONT 083308	250
MD900.3D.255.R.08-C32	25,5	32	40	160	77,0	100	1,2	SONT 083308	255
MD900.3D.260.R.08-C32	26,0	32	40	161	78,0	101	1,2	SONT 083308	260
MD900.3D.265.R.08-C32	26,5	32	40	163	80,0	103	1,2	SONT 083308	265
MD900.3D.270.R.08-C32	27,0	32	40	164	81,0	104	1,2	SONT 083308	270
MD900.3D.275.R.08-C32	27,5	32	40	166	83,0	106	1,2	SONT 083308	275
MD900.3D.280.R.09-C32	28,0	32	40	167	84,0	107	2,2	SONT 093808	280
MD900.3D.285.R.09-C32	28,5	32	40	169	86,0	109	2,2	SONT 093808	285
MD900.3D.290.R.09-C32	29,0	32	40	170	87,0	110	2,2	SONT 093808	290
MD900.3D.295.R.09-C32	29,5	32	40	172	89,0	112	2,2	SONT 093808	295
MD900.3D.300.R.09-C32	30,0	32	40	173	90,0	113	2,2	SONT 093808	300
MD900.3D.305.R.09-C32	30,5	32	40	175	92,0	115	2,2	SONT 093808	305
MD900.3D.310.R.09-C32	31,0	32	40	176	93,0	116	2,2	SONT 093808	310
MD900.3D.315.R.09-C32	31,5	32	40	178	95,0	118	2,2	SONT 093808	315
MD900.3D.320.R.09-C32	32,0	32	40	179	96,0	119	2,2	SONT 093808	320
MD900.3D.325.R.10-C40	32,5	40	50	192	98,0	124	3,2	SONT 104408	325
MD900.3D.330.R.10-C40	33,0	40	50	193	99,0	125	3,2	SONT 104408	330
MD900.3D.335.R.10-C40	33,5	40	50	195	101,0	127	3,2	SONT 104408	335
MD900.3D.340.R.10-C40	34,0	40	50	196	102,0	128	3,2	SONT 104408	340
MD900.3D.345.R.10-C40	34,5	40	50	198	104,0	130	3,2	SONT 104408	345
MD900.3D.350.R.10-C40	35,0	40	50	199	105,0	131	3,2	SONT 104408	350

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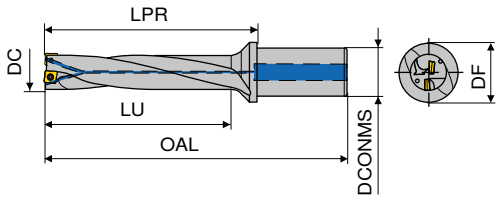
MaxiDrill 900

Scope of supply:

Indexable Insert Drill including clamping screws and key

≤ 3xD

C





3

Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	Article no. 10 853 ...
MD900.3D.355.R.10-C40	35,5	40	50	201	107,0	133	3,2	SONT 104408	355
MD900.3D.360.R.10-C40	36,0	40	50	202	108,0	134	3,2	SONT 104408	360
MD900.3D.365.R.10-C40	36,5	40	50	204	110,0	136	3,2	SONT 104408	365
MD900.3D.370.R.12-C40	37,0	40	56	211	111,0	141	3,2	SONT 124810	370
MD900.3D.380.R.12-C40	38,0	40	56	214	114,0	144	3,2	SONT 124810	380
MD900.3D.390.R.12-C40	39,0	40	56	217	117,0	147	3,2	SONT 124810	390
MD900.3D.400.R.12-C40	40,0	40	56	220	120,0	150	3,2	SONT 124810	400
MD900.3D.410.R.12-C40	41,0	40	56	223	123,0	153	3,2	SONT 124810	410
MD900.3D.420.R.13-C40	42,0	40	60	229	126,0	159	5	SONT 135012	420
MD900.3D.430.R.13-C40	43,0	40	60	232	129,0	162	5	SONT 135012	430
MD900.3D.440.R.13-C40	44,0	40	60	235	132,0	165	5	SONT 135012	440
MD900.3D.450.R.13-C40	45,0	40	60	238	135,0	168	5	SONT 135012	450
MD900.3D.460.R.13-C40	46,0	40	60	241	138,0	171	5	SONT 135012	460
MD900.3D.470.R.15-C40	47,0	40	60	245	141,0	175	5	SONT 155312	470
MD900.3D.480.R.15-C40	48,0	40	60	248	144,0	178	5	SONT 155312	480
MD900.3D.490.R.15-C40	49,0	40	60	251	147,0	181	5	SONT 155312	490
MD900.3D.500.R.15-C40	50,0	40	60	254	150,0	184	5	SONT 155312	500
MD900.3D.510.R.15-C40	51,0	40	60	257	153,0	187	5	SONT 155312	510
MD900.3D.520.R.15-C40	52,0	40	60	260	156,0	190	5	SONT 155312	520
MD900.3D.530.R.15-C40	53,0	40	60	263	159,0	193	5	SONT 155312	530
MD900.3D.540.R.15-C40	54,0	40	60	266	162,0	196	5	SONT 155312	540
MD900.3D.550.R.17-C40	55,0	40	60	270	165,0	200	5	SONT 175612	550
MD900.3D.560.R.17-C40	56,0	40	60	273	168,0	203	5	SONT 175612	560
MD900.3D.570.R.17-C40	57,0	40	60	276	171,0	206	5	SONT 175612	570
MD900.3D.580.R.17-C40	58,0	40	60	279	174,0	209	5	SONT 175612	580
MD900.3D.590.R.17-C40	59,0	40	60	282	177,0	212	5	SONT 175612	590
MD900.3D.600.R.17-C40	60,0	40	62	285	180,0	215	5	SONT 175612	600
MD900.3D.610.R.17-C40	61,0	40	62	288	183,0	218	5	SONT 175612	610
MD900.3D.620.R.17-C40	62,0	40	64	291	186,0	221	5	SONT 175612	620
MD900.3D.630.R.17-C40	63,0	40	64	294	189,0	224	5	SONT 175612	630



Key D



Clamping screw

Spare parts DC	Article no. 80 950 ...		Article no. 70 950 ...	
12 - 13,5	T06 - IP	123	M1,8x3,6 - IP	862
14 - 17,5	T06 - IP	123	M2x4,3 - IP	863
18 - 23,5	T07 - IP	124	M2,2x5 - IP	856
24 - 27,5	T08 - IP	125	M2,5x6 - IP	857
28 - 32	T09 - IP	126	M3x7 - IP	819
32,5 - 41	T15 - IP	128	M3,5x8,6 - IP	859
42 - 63	T20 - IP	129	M4,5x10,5 - IP	864

Suitable adapters can be found in → **Chapter 16 Adapters.**

MaxiDrill 900

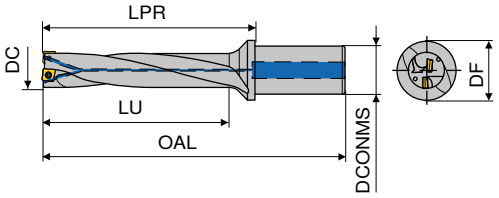
Scope of supply:

Indexable Insert Drill including clamping screws and key

≤ 4xD



C





Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	Article no. 10 854 ...
MD900.4D.120.R.03-C20	12,0	20	28	114	48	64	0,4	SONT 031804	120
MD900.4D.125.R.03-C20	12,5	20	28	116	50	66	0,4	SONT 031804	125
MD900.4D.130.R.03-C20	13,0	20	28	118	52	68	0,4	SONT 031804	130
MD900.4D.135.R.03-C20	13,5	20	28	120	54	70	0,4	SONT 031804	135
MD900.4D.140.R.04-C20	14,0	20	30	123	56	73	0,7	SONT 042105	140
MD900.4D.145.R.04-C20	14,5	20	30	125	58	75	0,7	SONT 042105	145
MD900.4D.150.R.04-C20	15,0	20	30	127	60	77	0,7	SONT 042105	150
MD900.4D.155.R.04-C20	15,5	20	30	129	62	79	0,7	SONT 042105	155
MD900.4D.160.R.05-C20	16,0	20	30	131	64	81	0,7	SONT 052306	160
MD900.4D.165.R.05-C20	16,5	20	30	133	66	83	0,7	SONT 052306	165
MD900.4D.170.R.05-C20	17,0	20	30	135	68	85	0,7	SONT 052306	170
MD900.4D.175.R.05-C20	17,5	20	30	137	70	87	0,7	SONT 052306	175
MD900.4D.180.R.06-C25	18,0	25	32	146	72	90	1	SONT 062506	180
MD900.4D.185.R.06-C25	18,5	25	32	148	74	92	1	SONT 062506	185
MD900.4D.190.R.06-C25	19,0	25	32	150	76	94	1	SONT 062506	190
MD900.4D.195.R.06-C25	19,5	25	32	152	78	96	1	SONT 062506	195
MD900.4D.200.R.06-C25	20,0	25	32	154	80	98	1	SONT 062506	200
MD900.4D.205.R.06-C25	20,5	25	32	156	82	100	1	SONT 062506	205
MD900.4D.210.R.07-C25	21,0	25	32	159	84	103	1	SONT 072907	210
MD900.4D.220.R.07-C25	22,0	25	32	163	88	107	1	SONT 072907	220
MD900.4D.230.R.07-C25	23,0	25	32	167	92	111	1	SONT 072907	230
MD900.4D.240.R.08-C32	24,0	32	40	179	96	119	1,2	SONT 083308	240
MD900.4D.250.R.08-C32	25,0	32	40	183	100	123	1,2	SONT 083308	250
MD900.4D.260.R.08-C32	26,0	32	40	187	104	127	1,2	SONT 083308	260
MD900.4D.270.R.08-C32	27,0	32	40	191	108	131	1,2	SONT 083308	270
MD900.4D.280.R.09-C32	28,0	32	40	195	112	135	2,2	SONT 093808	280
MD900.4D.290.R.09-C32	29,0	32	40	199	116	139	2,2	SONT 093808	290
MD900.4D.300.R.09-C32	30,0	32	40	203	120	143	2,2	SONT 093808	300
MD900.4D.310.R.09-C32	31,0	32	40	207	124	147	2,2	SONT 093808	310
MD900.4D.320.R.09-C32	32,0	32	40	211	128	151	2,2	SONT 093808	320
MD900.4D.330.R.10-C40	33,0	40	50	228	132	158	3,2	SONT 104408	330
MD900.4D.340.R.10-C40	34,0	40	50	232	136	162	3,2	SONT 104408	340
MD900.4D.350.R.10-C40	35,0	40	50	236	140	166	3,2	SONT 104408	350
MD900.4D.360.R.10-C40	36,0	40	50	240	144	170	3,2	SONT 104408	360
MD900.4D.370.R.12-C40	37,0	40	56	248	148	178	3,2	SONT 124810	370
MD900.4D.380.R.12-C40	38,0	40	56	252	152	182	3,2	SONT 124810	380
MD900.4D.390.R.12-C40	39,0	40	56	256	156	186	3,2	SONT 124810	390
MD900.4D.400.R.12-C40	40,0	40	56	260	160	190	3,2	SONT 124810	400
MD900.4D.410.R.12-C40	41,0	40	56	264	164	194	3,2	SONT 124810	410

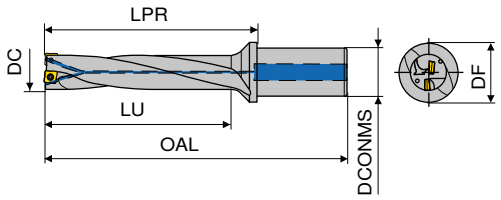
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MaxiDrill 900

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

≤ 4xD

C





Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	Article no. 10 854 ...
MD900.4D.420.R.13-C40	42,0	40	60	271	168	201	5	SONT 135012	420
MD900.4D.430.R.13-C40	43,0	40	60	275	172	205	5	SONT 135012	430
MD900.4D.440.R.13-C40	44,0	40	60	279	176	209	5	SONT 135012	440
MD900.4D.450.R.13-C40	45,0	40	60	283	180	213	5	SONT 135012	450
MD900.4D.460.R.13-C40	46,0	40	60	287	184	217	5	SONT 135012	460
MD900.4D.470.R.15-C40	47,0	40	60	292	188	222	5	SONT 155312	470
MD900.4D.480.R.15-C40	48,0	40	60	296	192	226	5	SONT 155312	480
MD900.4D.490.R.15-C40	49,0	40	60	300	196	230	5	SONT 155312	490
MD900.4D.500.R.15-C40	50,0	40	60	304	200	234	5	SONT 155312	500
MD900.4D.510.R.15-C40	51,0	40	60	308	204	238	5	SONT 155312	510
MD900.4D.520.R.15-C40	52,0	40	60	312	208	242	5	SONT 155312	520
MD900.4D.530.R.15-C40	53,0	40	60	316	212	246	5	SONT 155312	530
MD900.4D.540.R.15-C40	54,0	40	60	320	216	250	5	SONT 155312	540



Key D



Clamping screw

Spare parts DC		Article no. 80 950 ...		Article no. 70 950 ...
12 - 13	T06 - IP	123	M1,8x3,6 - IP	862
14 - 17	T06 - IP	123	M2x4,3 - IP	863
18 - 23	T07 - IP	124	M2,2x5 - IP	856
24 - 27	T08 - IP	125	M2,5x6 - IP	857
28 - 32	T09 - IP	126	M3x7 - IP	819
33 - 41	T15 - IP	128	M3,5x8,6 - IP	859
42 - 54	T20 - IP	129	M4,5x10,5 - IP	864

Suitable adapters can be found in → **Chapter 16 Adapters.**

MaxiDrill 900

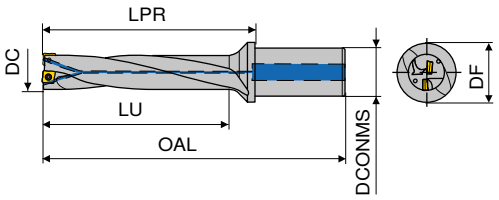
Scope of supply:

Indexable Insert Drill including clamping screws and key

≤ 5xD



C





Designation	DC	DCONMS	DF	OAL	LU	LPR	torque moment	Insert	Article no. 10 855 ...
	mm	mm	mm	mm	mm	mm	Nm		
MD900.5D.120.R.03-C20	12,0	20	28	126	60,0	76,0	0,4	SONT 031804	120
MD900.5D.125.R.03-C20	12,5	20	28	128	62,5	78,0	0,4	SONT 031804	125
MD900.5D.130.R.03-C20	13,0	20	28	131	65,0	81,0	0,4	SONT 031804	130
MD900.5D.135.R.03-C20	13,5	20	28	132	67,5	82,0	0,4	SONT 031804	135
MD900.5D.140.R.04-C20	14,0	20	30	137	70,0	87,0	0,7	SONT 042105	140
MD900.5D.145.R.04-C20	14,5	20	30	139	72,5	89,0	0,7	SONT 042105	145
MD900.5D.150.R.04-C20	15,0	20	30	142	75,0	92,0	0,7	SONT 042105	150
MD900.5D.155.R.04-C20	15,5	20	30	144	77,5	94,5	0,7	SONT 042105	155
MD900.5D.160.R.05-C20	16,0	20	30	147	80,0	97,0	0,7	SONT 052306	160
MD900.5D.165.R.05-C20	16,5	20	30	149	82,5	99,0	0,7	SONT 052306	165
MD900.5D.170.R.05-C20	17,0	20	30	152	85,0	102,0	0,7	SONT 052306	170
MD900.5D.175.R.05-C20	17,5	20	30	154	87,5	104,0	0,7	SONT 052306	175
MD900.5D.180.R.06-C25	18,0	25	32	164	90,0	108,0	1	SONT 062506	180
MD900.5D.185.R.06-C25	18,5	25	32	166	92,5	110,0	1	SONT 062506	185
MD900.5D.190.R.06-C25	19,0	25	32	169	95,0	113,0	1	SONT 062506	190
MD900.5D.195.R.06-C25	19,5	25	32	171	97,5	115,0	1	SONT 062506	195
MD900.5D.200.R.06-C25	20,0	25	32	174	100,0	118,0	1	SONT 062506	200
MD900.5D.205.R.06-C25	20,5	25	32	175	102,5	119,0	1	SONT 062506	205
MD900.5D.210.R.07-C25	21,0	25	32	180	105,0	124,0	1	SONT 072907	210
MD900.5D.220.R.07-C25	22,0	25	32	184	110,0	128,0	1	SONT 072907	220
MD900.5D.230.R.07-C25	23,0	25	32	189	115,0	133,0	1	SONT 072907	230
MD900.5D.240.R.08-C32	24,0	32	40	203	120,0	143,0	1,2	SONT 083308	240
MD900.5D.250.R.08-C32	25,0	32	40	208	125,0	148,0	1,2	SONT 083308	250
MD900.5D.260.R.08-C32	26,0	32	40	212	130,0	152,0	1,2	SONT 083308	260
MD900.5D.270.R.08-C32	27,0	32	40	217	135,0	157,0	1,2	SONT 083308	270
MD900.5D.280.R.09-C32	28,0	32	40	221	140,0	161,0	2,2	SONT 093808	280
MD900.5D.290.R.09-C32	29,0	32	40	226	145,0	166,0	2,2	SONT 093808	290
MD900.5D.300.R.09-C32	30,0	32	40	230	150,0	170,0	2,2	SONT 093808	300
MD900.5D.310.R.09-C32	31,0	32	40	235	155,0	175,0	2,2	SONT 093808	310
MD900.5D.320.R.09-C32	32,0	32	40	239	160,0	179,0	2,2	SONT 093808	320
MD900.5D.330.R.10-C40	33,0	40	50	259	165,0	191,0	3,2	SONT 104408	330
MD900.5D.340.R.10-C40	34,0	40	50	264	170,0	196,0	3,2	SONT 104408	340
MD900.5D.350.R.10-C40	35,0	40	50	269	175,0	201,0	3,2	SONT 104408	350
MD900.5D.360.R.10-C40	36,0	40	50	274	180,0	206,0	3,2	SONT 104408	360
MD900.5D.370.R.12-C40	37,0	40	56	285	185,0	215,0	3,2	SONT 124810	370
MD900.5D.380.R.12-C40	38,0	40	56	290	190,0	220,0	3,2	SONT 124810	380
MD900.5D.390.R.12-C40	39,0	40	56	295	195,0	225,0	3,2	SONT 124810	390
MD900.5D.400.R.12-C40	40,0	40	56	300	200,0	230,0	3,2	SONT 124810	400
MD900.5D.410.R.12-C40	41,0	40	56	305	205,0	235,0	3,2	SONT 124810	410



Key D



Clamping screw

Spare parts DC		Article no. 80 950 ...		Article no. 70 950 ...
12 - 13	T06 - IP	123	M1,8x3,6 - IP	862
14 - 17	T06 - IP	123	M2x4,3 - IP	863
18 - 23	T07 - IP	124	M2,2x5 - IP	856
24 - 27	T08 - IP	125	M2,5x6 - IP	857
28 - 32	T09 - IP	126	M3x7 - IP	819
33 - 41	T15 - IP	128	M3,5x8,6 - IP	859

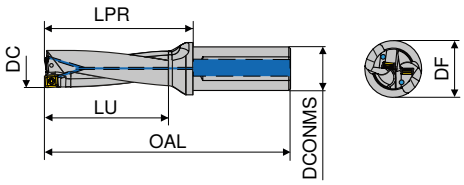
Suitable adapters can be found in → **Chapter 16 Adapters.**

KUB 100

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD

C





Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 881 ...
KUB-100.3D.140.R.04-C20	14,0	20	30	105	42	55	0,7	SONT 042105	99140
KUB-100.3D.150.R.04-C20	15,0	20	30	109	45	59	0,7	SONT 042105	99150
KUB-100.3D.160.R.05-C20	16,0	20	30	114	48	64	0,7	SONT 052306	99160
KUB-100.3D.165.R.05-C20	16,5	20	30	118	51	68	0,7	SONT 052306	99165
KUB-100.3D.170.R.05-C20	17,0	20	30	118	51	68	0,7	SONT 052306	99170
KUB-100.3D.175.R.05-C25	17,5	25	30	127	54	71	0,7	SONT 052306	99175
KUB-100.3D.180.R.06-C25	18,0	25	30	127	54	71	1	SONT 062506	99180
KUB-100.3D.185.R.06-C25	18,5	25	30	131	57	75	1	SONT 062506	99185
KUB-100.3D.190.R.06-C25	19,0	25	30	131	57	75	1	SONT 062506	99190
KUB-100.3D.195.R.06-C25	19,5	25	30	134	60	78	1	SONT 062506	99195
KUB-100.3D.200.R.06-C25	20,0	25	30	134	60	78	1	SONT 062506	99200
KUB-100.3D.210.R.07-C25	21,0	25	30	138	63	82	1	SONT 072907	99210
KUB-100.3D.220.R.07-C25	22,0	25	30	141	66	85	1	SONT 072907	99220
KUB-100.3D.230.R.07-C25	23,0	25	30	145	69	89	1	SONT 072907	99230
KUB-100.3D.240.R.08-C32	24,0	32	39	152	72	92	1,2	SONT 083308	99240
KUB-100.3D.250.R.08-C32	25,0	32	39	156	75	96	1,2	SONT 083308	99250
KUB-100.3D.260.R.08-C32	26,0	32	39	159	78	99	1,2	SONT 083308	99260
KUB-100.3D.270.R.08-C32	27,0	32	39	163	81	103	1,2	SONT 083308	99270


Key D

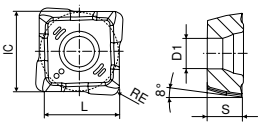

Clamping screw

Spare parts DC	Key D Article no. 80 950 ...		Clamping screw Article no. 70 950 ...	
14 - 17,5	T06 - IP	123	M2x4,3 - IP	863
18 - 23	T07 - IP	124	M2,2x5 - IP	856
24 - 27	T08 - IP	125	M2,5x6 - IP	857

Suitable adapters can be found in → **Chapter 16 Adapters.**

SONT

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



SONT

	-M30 CTPP430	-M30 CTPP430	-M30 CTCP420	-M30 CTCP420
	-M30 CCN1430	-M30 CCN1430	-M30 DCX1420	-M30 DCX1420
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	SONT	SONT	SONT	SONT
ISO	**Article no. 10 830 ...**	**Article no. 10 830 ...**	**Article no. 10 830 ...**	**Article no. 10 830 ...**
RE mm				
031804 0,4	**103** [1]		**703** [1]	
042105 0,5		**104**		**704**
052306 0,6		**105**		**705**
062506 0,6		**106**		**706**
072907 0,7		**107**		**707**
083308 0,8		**108**		**708**
093808 0,8		**109**		**709**
104408 0,8		**110**		**710**
124810 1,0		**112**		**712**
135012 1,2		**113**		**713**
155312 1,2		**115**		**715**
175612 1,2		**117**		**717**
Steel	●	●	●	●
Stainless steel	●	●	○	○
Cast iron	○	○	●	●
Non ferrous metals	○	○		
Heat resistant alloys	○	○		
hardened materials				

1) two usable cutting edges

→ v_c/f_z Page 43–46

CTCP420 -M30 (DCX1420) is exclusively recommended for use on the peripheral cutting edge!

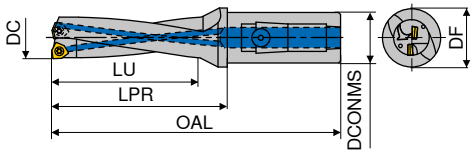
KUB Trigon

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD



K





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 892 ...
KUB-T.2D.140.R.03-K20	V4331404	14	20	30	102	28	52	0,62	WOEX 030204	**14011**
KUB-T.2D.150.R.03-K20	V4331504	15	20	30	104	30	54	0,62	WOEX 030204	**15011**
KUB-T.2D.160.R.03-K20	V4331602	16	20	30	106	32	56	0,62	WOEX 030204	**16011**
KUB-T.2D.170.R.03-K20	V4331702	17	20	30	108	34	58	0,62	WOEX 030204	**17011**
KUB-T.2D.180.R.03-K20	V4331802	18	20	30	110	36	60	0,62	WOEX 030204	**18011**
KUB-T.2D.190.R.03-K20	V4331902	19	20	30	112	38	62	0,62	WOEX 030204	**19011**
KUB-T.2D.200.R.04-K25	V4432002	20	25	30	120	40	64	1,01	WOEX 040304	**20012**
KUB-T.2D.210.R.04-K25	V4432102	21	25	30	122	42	66	1,01	WOEX 040304	**21012**
KUB-T.2D.220.R.04-K25	V4432202	22	25	30	124	44	68	1,01	WOEX 040304	**22012**
KUB-T.2D.230.R.04-K25	V4432302	23	25	30	126	46	70	1,01	WOEX 040304	**23012**
KUB-T.2D.240.R.04-K25	V4432402	24	25	30	128	48	72	1,01	WOEX 040304	**24012**
KUB-T.2D.250.R.05-K32	V4532502	25	32	39	134	50	74	1,28	WOEX 05T304	**25013**
KUB-T.2D.260.R.05-K32	V4532602	26	32	39	136	52	76	1,28	WOEX 05T304	**26013**
KUB-T.2D.270.R.05-K32	V4532702	27	32	39	138	54	78	1,28	WOEX 05T304	**27013**
KUB-T.2D.280.R.05-K32	V4532802	28	32	39	140	56	80	1,28	WOEX 05T304	**28013**
KUB-T.2D.290.R.05-K32	V4532902	29	32	39	142	58	82	1,28	WOEX 05T304	**29013**
KUB-T.2D.300.R.05-K32	V4533002	30	32	39	149	60	89	1,28	WOEX 05T304	**30013**
KUB-T.2D.310.R.05-K32	V4533102	31	32	39	151	62	91	1,28	WOEX 05T304	**31013**
KUB-T.2D.320.R.05-K32	V4533202	32	32	39	153	64	93	1,28	WOEX 05T304	**32013**
KUB-T.2D.330.R.05-K32	V4533302	33	32	39	155	66	95	1,28	WOEX 05T304	**33013**
KUB-T.2D.340.R.05-K32	V4533402	34	32	39	157	68	97	1,28	WOEX 05T304	**34013**
KUB-T.2D.350.R.05-K32	V4533502	35	32	39	159	70	99	1,28	WOEX 05T304	**35013**
KUB-T.2D.360.R.05-K32	V4533602	36	32	39	161	72	101	1,28	WOEX 05T304	**36013**
KUB-T.2D.370.R.06-K32	V4533702	37	32	39	173	74	113	2,8	WOEX 06T304	**37013**
KUB-T.2D.380.R.06-K32	V4533802	38	32	39	175	76	115	2,8	WOEX 06T304	**38013**
KUB-T.2D.390.R.06-K32	V4533902	39	32	39	177	78	117	2,8	WOEX 06T304	**39013**
KUB-T.2D.400.R.06-K32	V4534002	40	32	39	179	80	119	2,8	WOEX 06T304	**40013**
KUB-T.2D.410.R.06-K32	V4534102	41	32	39	181	82	121	2,8	WOEX 06T304	**41013**
KUB-T.2D.420.R.06-K32	V4534202	42	32	39	183	84	123	2,8	WOEX 06T304	**42013**
KUB-T.2D.430.R.06-K32	V4534302	43	32	39	185	86	125	2,8	WOEX 06T304	**43013**
KUB-T.2D.440.R.06-K32	V4534402	44	32	39	187	88	127	2,8	WOEX 06T304	**44013**



Key D



Clamping screw

Spare parts DC	Article no. 80 950 ...		Article no. 10 950 ...	
14 - 19	T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
20 - 24	T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
25 - 36	T08 - IP	**125**	M2,5x7,2 - 10IP	**10500**
37 - 44	T10 - IP	**127**	M3,5x7,3 - 10IP	**10600**

Suitable adapters can be found in → **Chapter 16 Adapters.**

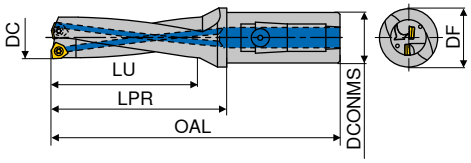
KUB Trigon

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD



K





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 893 ...
KUB-T.3D.140.R.03-K20	V4371404	14	20	30	116	42	66	0,62	WOEX 030204	14011
KUB-T.3D.150.R.03-K20	V4371504	15	20	30	119	45	69	0,62	WOEX 030204	15011
KUB-T.3D.160.R.03-K20	V4371602	16	20	30	122	48	72	0,62	WOEX 030204	16011
KUB-T.3D.170.R.03-K20	V4371702	17	20	30	125	51	75	0,62	WOEX 030204	17011
KUB-T.3D.180.R.03-K20	V4371802	18	20	30	128	54	78	0,62	WOEX 030204	18011
KUB-T.3D.190.R.03-K20	V4371902	19	20	30	131	57	81	0,62	WOEX 030204	19011
KUB-T.3D.200.R.04-K25	V4472002	20	25	30	140	60	84	1,01	WOEX 040304	20012
KUB-T.3D.210.R.04-K25	V4472102	21	25	30	143	63	87	1,01	WOEX 040304	21012
KUB-T.3D.220.R.04-K25	V4472202	22	25	30	146	66	90	1,01	WOEX 040304	22012
KUB-T.3D.230.R.04-K25	V4472302	23	25	30	149	69	93	1,01	WOEX 040304	23012
KUB-T.3D.240.R.04-K25	V4472402	24	25	30	152	72	96	1,01	WOEX 040304	24012
KUB-T.3D.250.R.05-K32	V4572502	25	32	39	159	75	99	1,28	WOEX 05T304	25013
KUB-T.3D.260.R.05-K32	V4572602	26	32	39	162	78	102	1,28	WOEX 05T304	26013
KUB-T.3D.270.R.05-K32	V4572702	27	32	39	165	81	105	1,28	WOEX 05T304	27013
KUB-T.3D.280.R.05-K32	V4572802	28	32	39	168	84	108	1,28	WOEX 05T304	28013
KUB-T.3D.290.R.05-K32	V4572902	29	32	39	171	87	111	1,28	WOEX 05T304	29013
KUB-T.3D.300.R.05-K32	V4573002	30	32	39	179	90	119	1,28	WOEX 05T304	30013
KUB-T.3D.310.R.05-K32	V4573102	31	32	39	182	93	122	1,28	WOEX 05T304	31013
KUB-T.3D.320.R.05-K32	V4573202	32	32	39	185	96	125	1,28	WOEX 05T304	32013
KUB-T.3D.330.R.05-K32	V4573302	33	32	39	188	99	128	1,28	WOEX 05T304	33013
KUB-T.3D.340.R.05-K32	V4573402	34	32	39	191	102	131	1,28	WOEX 05T304	34013
KUB-T.3D.350.R.05-K32	V4573502	35	32	39	194	105	134	1,28	WOEX 05T304	35013
KUB-T.3D.360.R.05-K32	V4573602	36	32	39	197	108	137	1,28	WOEX 05T304	36013
KUB-T.3D.370.R.06-K32	V4573702	37	32	39	210	111	150	2,8	WOEX 06T304	37013
KUB-T.3D.380.R.06-K32	V4573802	38	32	39	213	114	153	2,8	WOEX 06T304	38013
KUB-T.3D.390.R.06-K32	V4573902	39	32	39	216	117	156	2,8	WOEX 06T304	39013
KUB-T.3D.400.R.06-K32	V4574002	40	32	39	219	120	159	2,8	WOEX 06T304	40013
KUB-T.3D.410.R.06-K32	V4574102	41	32	39	222	123	162	2,8	WOEX 06T304	41013
KUB-T.3D.420.R.06-K32	V4574202	42	32	39	225	126	165	2,8	WOEX 06T304	42013
KUB-T.3D.430.R.06-K32	V4574302	43	32	39	228	129	168	2,8	WOEX 06T304	43013
KUB-T.3D.440.R.06-K32	V4574402	44	32	39	231	132	171	2,8	WOEX 06T304	44013


Key D


Clamping screw

Spare parts DC	Article no. 80 950 ...		Article no. 10 950 ...	
14 - 19	T06 - IP	123	M2,0x4,3 - 06IP	10000
20 - 24	T06 - IP	123	M2,2x5,5 - 06IP	10700
25 - 36	T08 - IP	125	M2,5x7,2 - 10IP	10500
37 - 44	T10 - IP	127	M3,5x7,3 - 10IP	10600

Suitable adapters can be found in → **Chapter 16 Adapters.**

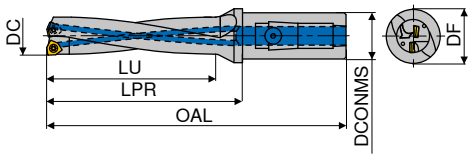
KUB Trigon

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



K





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 894 ...
KUB-T.4D.140.R.03-K20	V4391404	14	20	30	130	56	80	0,62	WOEX 030204	**14011**
KUB-T.4D.150.R.03-K20	V4391504	15	20	30	134	60	84	0,62	WOEX 030204	**15011**
KUB-T.4D.160.R.03-K20	V4391602	16	20	30	138	64	88	0,62	WOEX 030204	**16011**
KUB-T.4D.170.R.03-K20	V4391702	17	20	30	142	68	92	0,62	WOEX 030204	**17011**
KUB-T.4D.180.R.03-K20	V4391802	18	20	30	146	72	96	0,62	WOEX 030204	**18011**
KUB-T.4D.190.R.03-K20	V4391902	19	20	30	150	76	100	0,62	WOEX 030204	**19011**
KUB-T.4D.200.R.04-K25	V4492002	20	25	30	160	80	104	1,01	WOEX 040304	**20012**
KUB-T.4D.210.R.04-K25	V4492102	21	25	30	164	84	108	1,01	WOEX 040304	**21012**
KUB-T.4D.220.R.04-K25	V4492202	22	25	30	168	88	112	1,01	WOEX 040304	**22012**
KUB-T.4D.230.R.04-K25	V4492302	23	25	30	172	92	116	1,01	WOEX 040304	**23012**
KUB-T.4D.240.R.04-K25	V4492402	24	25	30	176	96	120	1,01	WOEX 040304	**24012**
KUB-T.4D.250.R.05-K32	V4592502	25	32	39	184	100	124	1,28	WOEX 05T304	**25013**
KUB-T.4D.260.R.05-K32	V4592602	26	32	39	188	104	128	1,28	WOEX 05T304	**26013**
KUB-T.4D.270.R.05-K32	V4592702	27	32	39	192	108	132	1,28	WOEX 05T304	**27013**
KUB-T.4D.280.R.05-K32	V4592802	28	32	39	196	112	136	1,28	WOEX 05T304	**28013**
KUB-T.4D.290.R.05-K32	V4592902	29	32	39	200	116	140	1,28	WOEX 05T304	**29013**
KUB-T.4D.300.R.05-K32	V4593002	30	32	39	209	120	149	1,28	WOEX 05T304	**30013**
KUB-T.4D.310.R.05-K32	V4593102	31	32	39	213	124	153	1,28	WOEX 05T304	**31013**
KUB-T.4D.320.R.05-K32	V4593202	32	32	39	217	128	157	1,28	WOEX 05T304	**32013**
KUB-T.4D.330.R.05-K32	V4593302	33	32	39	221	132	161	1,28	WOEX 05T304	**33013**
KUB-T.4D.340.R.05-K32	V4593402	34	32	39	225	136	165	1,28	WOEX 05T304	**34013**
KUB-T.4D.350.R.05-K32	V4593502	35	32	39	229	140	169	1,28	WOEX 05T304	**35013**



Key D



Clamping screw

Spare parts DC	Article no. 80 950 ...		Article no. 10 950 ...	
14 - 19	T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
20 - 24	T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
25 - 35	T08 - IP	**125**	M2,5x7,2 - 10IP	**10500**

Suitable adapters can be found in → **Chapter 16 Adapters.**

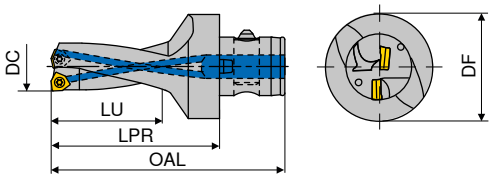
KUB Trigon

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD



ABS





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 892 ...
KUB-T.2D.140.R.03-ABS50	V3031403	14	50	94	28	63	0,62	WOEX 030204	14095
KUB-T.2D.150.R.03-ABS50	V3031503	15	50	96	30	65	0,62	WOEX 030204	15095
KUB-T.2D.160.R.03-ABS50	V3031601	16	50	98	32	67	0,62	WOEX 030204	16095
KUB-T.2D.170.R.03-ABS50	V3031701	17	50	100	34	69	0,62	WOEX 030204	17095
KUB-T.2D.180.R.03-ABS50	V3031801	18	50	102	36	71	0,62	WOEX 030204	18095
KUB-T.2D.190.R.03-ABS50	V3031901	19	50	104	38	73	0,62	WOEX 030204	19095
KUB-T.2D.200.R.04-ABS50	V3032001	20	50	106	40	75	1,01	WOEX 040304	20095
KUB-T.2D.210.R.04-ABS50	V3032101	21	50	108	42	77	1,01	WOEX 040304	21095
KUB-T.2D.220.R.04-ABS50	V3032201	22	50	110	44	79	1,01	WOEX 040304	22095
KUB-T.2D.230.R.04-ABS50	V3032301	23	50	112	46	81	1,01	WOEX 040304	23095
KUB-T.2D.240.R.04-ABS50	V3032401	24	50	114	48	83	1,01	WOEX 040304	24095
KUB-T.2D.250.R.05-ABS50	V3032501	25	50	116	50	85	1,28	WOEX 05T304	25095
KUB-T.2D.260.R.05-ABS50	V3032601	26	50	118	52	87	1,28	WOEX 05T304	26095
KUB-T.2D.270.R.05-ABS50	V3032701	27	50	120	54	89	1,28	WOEX 05T304	27095
KUB-T.2D.280.R.05-ABS50	V3032801	28	50	122	56	91	1,28	WOEX 05T304	28095
KUB-T.2D.290.R.05-ABS50	V3032901	29	50	124	58	93	1,28	WOEX 05T304	29095
KUB-T.2D.300.R.05-ABS50	V3033001	30	50	131	60	100	1,28	WOEX 05T304	30095
KUB-T.2D.310.R.05-ABS50	V3033101	31	50	133	62	102	1,28	WOEX 05T304	31095
KUB-T.2D.320.R.05-ABS50	V3033201	32	50	135	64	104	1,28	WOEX 05T304	32095
KUB-T.2D.330.R.05-ABS50	V3033301	33	50	137	66	106	1,28	WOEX 05T304	33095
KUB-T.2D.340.R.05-ABS50	V3033401	34	50	139	68	108	1,28	WOEX 05T304	34095
KUB-T.2D.350.R.05-ABS50	V3033501	35	50	141	70	110	1,28	WOEX 05T304	35095
KUB-T.2D.360.R.05-ABS50	V3033601	36	50	143	72	112	1,28	WOEX 05T304	36095
KUB-T.2D.370.R.06-ABS50	V3033701	37	50	155	74	124	2,8	WOEX 06T304	37095
KUB-T.2D.380.R.06-ABS50	V3033801	38	50	157	76	126	2,8	WOEX 06T304	38095
KUB-T.2D.390.R.06-ABS50	V3033901	39	50	159	78	128	2,8	WOEX 06T304	39095
KUB-T.2D.400.R.06-ABS50	V3034001	40	50	161	80	130	2,8	WOEX 06T304	40095
KUB-T.2D.410.R.06-ABS50	V3034101	41	50	163	82	132	2,8	WOEX 06T304	41095
KUB-T.2D.420.R.06-ABS50	V3034201	42	50	165	84	134	2,8	WOEX 06T304	42095
KUB-T.2D.430.R.06-ABS50	V3034301	43	50	167	86	136	2,8	WOEX 06T304	43095
KUB-T.2D.440.R.06-ABS50	V3034401	44	50	169	88	138	2,8	WOEX 06T304	44095


Key D


Clamping screw

Spare parts DC	Article no. 80 950 ...		Article no. 10 950 ...	
14 - 19	T06 - IP	123	M2,0x4,3 - 06IP	10000
20 - 24	T06 - IP	123	M2,2x5,5 - 06IP	10700
25 - 36	T08 - IP	125	M2,5x7,2 - 10IP	10500
37 - 44	T10 - IP	127	M3,5x7,3 - 10IP	10600

Suitable adapters can be found in → **Chapter 16 Adapters.**

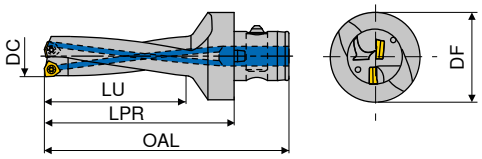
KUB Trigon

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD



ABS





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 893 ...
KUB-T.3D.140.R.03-ABS50	V3071403	14	50	108	42	77	0,62	WOEX 030204	14095
KUB-T.3D.150.R.03-ABS50	V3071503	15	50	111	45	80	0,62	WOEX 030204	15095
KUB-T.3D.160.R.03-ABS50	V3071601	16	50	114	48	83	0,62	WOEX 030204	16095
KUB-T.3D.170.R.03-ABS50	V3071701	17	50	117	51	86	0,62	WOEX 030204	17095
KUB-T.3D.180.R.03-ABS50	V3071801	18	50	120	54	89	0,62	WOEX 030204	18095
KUB-T.3D.190.R.03-ABS50	V3071901	19	50	123	57	92	0,62	WOEX 030204	19095
KUB-T.3D.200.R.04-ABS50	V3072001	20	50	126	60	95	1,01	WOEX 040304	20095
KUB-T.3D.210.R.04-ABS50	V3072101	21	50	129	63	98	1,01	WOEX 040304	21095
KUB-T.3D.220.R.04-ABS50	V3072201	22	50	132	66	101	1,01	WOEX 040304	22095
KUB-T.3D.230.R.04-ABS50	V3072301	23	50	135	69	104	1,01	WOEX 040304	23095
KUB-T.3D.240.R.04-ABS50	V3072401	24	50	138	72	107	1,01	WOEX 040304	24095
KUB-T.3D.250.R.05-ABS50	V3072501	25	50	141	75	110	1,28	WOEX 05T304	25095
KUB-T.3D.260.R.05-ABS50	V3072601	26	50	144	78	113	1,28	WOEX 05T304	26095
KUB-T.3D.270.R.05-ABS50	V3072701	27	50	147	81	116	1,28	WOEX 05T304	27095
KUB-T.3D.280.R.05-ABS50	V3072801	28	50	150	84	119	1,28	WOEX 05T304	28095
KUB-T.3D.290.R.05-ABS50	V3072901	29	50	153	87	122	1,28	WOEX 05T304	29095
KUB-T.3D.300.R.05-ABS50	V3073001	30	50	161	90	130	1,28	WOEX 05T304	30095
KUB-T.3D.310.R.05-ABS50	V3073101	31	50	164	93	133	1,28	WOEX 05T304	31095
KUB-T.3D.320.R.05-ABS50	V3073201	32	50	167	96	136	1,28	WOEX 05T304	32095
KUB-T.3D.330.R.05-ABS50	V3073301	33	50	170	99	139	1,28	WOEX 05T304	33095
KUB-T.3D.340.R.05-ABS50	V3073401	34	50	173	102	142	1,28	WOEX 05T304	34095
KUB-T.3D.350.R.05-ABS50	V3073501	35	50	176	105	145	1,28	WOEX 05T304	35095
KUB-T.3D.360.R.05-ABS50	V3073601	36	50	179	108	148	1,28	WOEX 05T304	36095
KUB-T.3D.370.R.06-ABS50	V3073701	37	50	192	111	161	2,8	WOEX 06T304	37095
KUB-T.3D.380.R.06-ABS50	V3073801	38	50	195	114	164	2,8	WOEX 06T304	38095
KUB-T.3D.390.R.06-ABS50	V3073901	39	50	198	117	167	2,8	WOEX 06T304	39095
KUB-T.3D.400.R.06-ABS50	V3074001	40	50	201	120	170	2,8	WOEX 06T304	40095
KUB-T.3D.410.R.06-ABS50	V3074101	41	50	204	123	173	2,8	WOEX 06T304	41095
KUB-T.3D.420.R.06-ABS50	V3074201	42	50	207	126	176	2,8	WOEX 06T304	42095
KUB-T.3D.430.R.06-ABS50	V3074301	43	50	210	129	179	2,8	WOEX 06T304	43095
KUB-T.3D.440.R.06-ABS50	V3074401	44	50	213	132	182	2,8	WOEX 06T304	44095


Key D


Clamping screw

Spare parts DC		Article no. 80 950 ...		Article no. 10 950 ...
14 - 19	T06 - IP	123	M2,0x4,3 - 06IP	10000
20 - 24	T06 - IP	123	M2,2x5,5 - 06IP	10700
25 - 36	T08 - IP	125	M2,5x7,2 - 10IP	10500
37 - 44	T10 - IP	127	M3,5x7,3 - 10IP	10600

Suitable adapters can be found in → **Chapter 16 Adapters.**

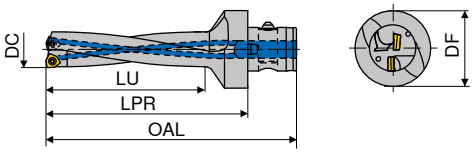
KUB Trigon

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



ABS





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 894 ...
KUB-T.4D.140.R.03-ABS50	V3091403	14	50	122	56	91	0,62	WOEX 030204	14095
KUB-T.4D.150.R.03-ABS50	V3091503	15	50	126	60	95	0,62	WOEX 030204	15095
KUB-T.4D.160.R.03-ABS50	V3091601	16	50	130	64	99	0,62	WOEX 030204	16095
KUB-T.4D.170.R.03-ABS50	V3091701	17	50	134	68	103	0,62	WOEX 030204	17095
KUB-T.4D.180.R.03-ABS50	V3091801	18	50	138	72	107	0,62	WOEX 030204	18095
KUB-T.4D.190.R.03-ABS50	V3091901	19	50	142	76	111	0,62	WOEX 030204	19095
KUB-T.4D.200.R.04-ABS50	V3092001	20	50	146	80	115	1,01	WOEX 040304	20095
KUB-T.4D.210.R.04-ABS50	V3092101	21	50	150	84	119	1,01	WOEX 040304	21095
KUB-T.4D.220.R.04-ABS50	V3092201	22	50	154	88	123	1,01	WOEX 040304	22095
KUB-T.4D.230.R.04-ABS50	V3092301	23	50	158	92	127	1,01	WOEX 040304	23095
KUB-T.4D.240.R.04-ABS50	V3092401	24	50	162	96	131	1,01	WOEX 040304	24095
KUB-T.4D.250.R.05-ABS50	V3092501	25	50	166	100	135	1,28	WOEX 05T304	25095
KUB-T.4D.260.R.05-ABS50	V3092601	26	50	170	104	139	1,28	WOEX 05T304	26095
KUB-T.4D.270.R.05-ABS50	V3092701	27	50	174	108	143	1,28	WOEX 05T304	27095
KUB-T.4D.280.R.05-ABS50	V3092801	28	50	178	112	147	1,28	WOEX 05T304	28095
KUB-T.4D.290.R.05-ABS50	V3092901	29	50	182	116	151	1,28	WOEX 05T304	29095
KUB-T.4D.300.R.05-ABS50	V3093001	30	50	191	120	160	1,28	WOEX 05T304	30095
KUB-T.4D.310.R.05-ABS50	V3093101	31	50	195	124	164	1,28	WOEX 05T304	31095
KUB-T.4D.320.R.05-ABS50	V3093201	32	50	199	128	168	1,28	WOEX 05T304	32095
KUB-T.4D.330.R.05-ABS50	V3093301	33	50	203	132	172	1,28	WOEX 05T304	33095
KUB-T.4D.340.R.05-ABS50	V3093401	34	50	207	136	176	1,28	WOEX 05T304	34095
KUB-T.4D.350.R.05-ABS50	V3093501	35	50	211	140	180	1,28	WOEX 05T304	35095
KUB-T.4D.360.R.05-ABS50	V3093601	36	50	215	144	184	1,28	WOEX 05T304	36095
KUB-T.4D.370.R.06-ABS50	V3093701	37	50	229	148	198	2,8	WOEX 06T304	37095
KUB-T.4D.380.R.06-ABS50	V3093801	38	50	233	152	202	2,8	WOEX 06T304	38095
KUB-T.4D.390.R.06-ABS50	V3093901	39	50	237	156	206	2,8	WOEX 06T304	39095
KUB-T.4D.400.R.06-ABS50	V3094001	40	50	241	160	210	2,8	WOEX 06T304	40095
KUB-T.4D.410.R.06-ABS50	V3094101	41	50	245	164	214	2,8	WOEX 06T304	41095
KUB-T.4D.420.R.06-ABS50	V3094201	42	50	249	168	218	2,8	WOEX 06T304	42095
KUB-T.4D.430.R.06-ABS50	V3094301	43	50	253	172	222	2,8	WOEX 06T304	43095
KUB-T.4D.440.R.06-ABS50	V3094401	44	50	257	176	226	2,8	WOEX 06T304	44095



Key D



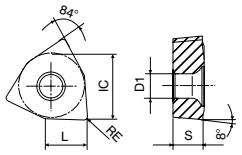
Clamping screw

Spare parts DC		Article no. 80 950 ...		Article no. 10 950 ...
14 - 19	T06 - IP	123	M2,0x4,3 - 06IP	10000
20 - 24	T06 - IP	123	M2,2x5,5 - 06IP	10700
25 - 36	T08 - IP	125	M2,5x7,2 - 10IP	10500
37 - 44	T10 - IP	127	M3,5x7,3 - 10IP	10600

Suitable adapters can be found in → **Chapter 16 Adapters.**

WOEX

Designation	L	IC	S	D1
	mm	mm	mm	mm
WOEX 0302..	3,2	5,00	2,30	2,30
WOEX 0403..	4,1	6,35	3,18	2,55
WOEX 05T3..	5,3	8,00	3,80	2,85
WOEX 06T3..	6,6	10,00	3,80	4,05



WOEX

			-01 BK8425	-03 BK8425	-13 BK8425	-01 BK6115
						
			WOEX	WOEX	WOEX	WOEX
			NEW	NEW	NEW	NEW
ISO	KOMET no.	RE	Article no. 10 821 ...	Article no. 10 821 ...	Article no. 10 821 ...	Article no. 10 821 ...
		mm				
030204	W2910030.048425	0,4		30303		
030204	W2910130.048425	0,4			30313	
030204	W2910010.048425	0,4	30301			
030204	W2910010.046115	0,4				40301
040304	W2918130.048425	0,4			30413	
040304	W2918030.048425	0,4		30403		
040304	W2918010.048425	0,4	30401			
040304	W2918010.046115	0,4				40401
05T304	W2924130.048425	0,4			30513	
05T304	W2924030.048425	0,4		30503		
05T304	W2924010.048425	0,4	30501			
05T304	W2924010.046115	0,4				40501
06T304	W2934130.048425	0,4			30613	
06T304	W2934030.048425	0,4		30603		
06T304	W2934010.048425	0,4	30601			
06T304	W2934010.046115	0,4				40601
Steel			●	●	●	●
Stainless steel			●	●	●	
Cast iron			●	●	●	●
Non ferrous metals						
Heat resistant alloys						
hardened materials						○

→ v_c/f_z Page 47–50

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

Specialised indexable inserts for machining aluminium or stainless steels (BK7935, BK62, BK77) can be found in our online shop at cuttingtools.ceratizit.com

Application tips – eccentric sleeves

Users of rotating tools can now enjoy greater flexibility.
Using the eccentric sleeves, you can vary and adjust the diameter of the hole by +/- 0.3 mm with ease.

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

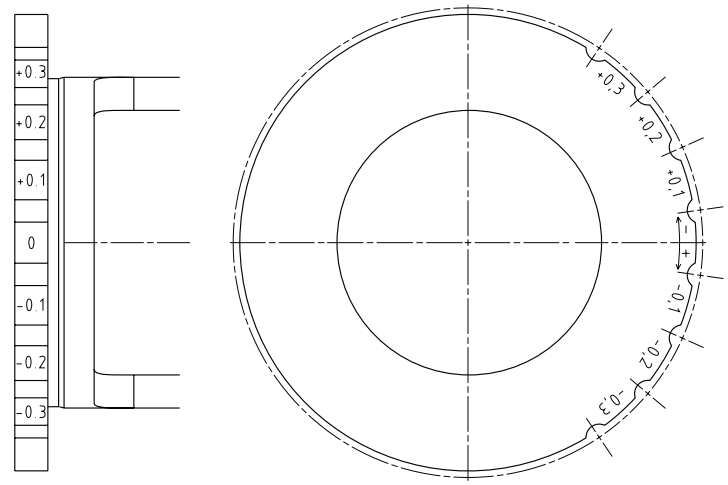


Eccentric sleeve for indexable insert drill adapter



Eccentric sleeve for Weldon adapter

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



Side view *End view*

Instructions for use

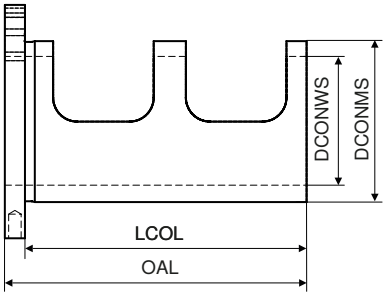
1. Position the sleeve in the respective adapter and insert the indexable insert drill.
2. Set the sleeve to the zero position. → The „0“ must align with the clamping screws on the adapter.
3. Clamp the adapter's clamping screws.
4. Drill.
5. Measure the bore diameter.
6. Loosen the clamping screws.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

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

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

3

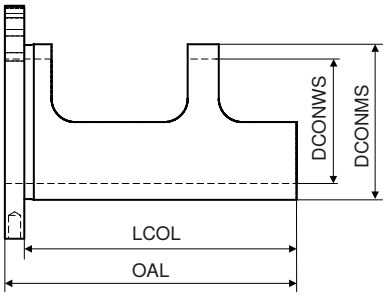
Eccentric sleeve – indexable insert drill adapter





Designation	DCONWS	DCONMS	OAL	LCOL	Article no. 10 870 ...
	mm	mm	mm	mm	
EHB.D20.D25	20	25	61	56	**120**
EHB.D25.D32	25	32	65	60	**125**
EHB.D32.D40	32	40	75	70	**132**
EHB.D40.D50	40	50	85	80	**140**

Eccentric sleeve – standard Weldon adapter



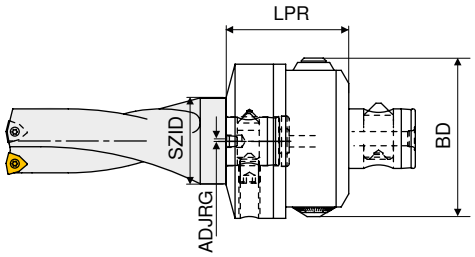


Designation	DCONWS	DCONMS	OAL	LCOL	Article no. 10 871 ...
	mm	mm	mm	mm	
EHW.D20.D25	20	25	61	56	**120**
EHW.D25.D32	25	32	65	60	**125**
EHW.D32.D40	32	40	75	70	**132**
EHW.D40.D50	40	50	85	80	**140**

Application tips for eccentric sleeves can be found on → **Page 36.**

Adjuster with ABS connection

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







AD

Adapter	KOMET no.	BD	LPR	ADJRG	SZID	NEW Article no. 84 210 ...
		mm	mm	mm		
ABS 50	M0100001	70	57	1,5	ABS 50	**05097**

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

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

Index	BK6115	BK8425	C, ABS and PSC											
			Ø 14–15,5 mm	Ø 16–17,5 mm	Ø 18–19,5 mm	Ø 20–21,5 mm	Ø 22–23,5 mm	Ø 24–25,5 mm	Ø 26–27,5 mm	Ø 28–30 mm	Ø 31–33 mm	Ø 34–37 mm	Ø 38–42 mm	Ø 43–46 mm
	v_c in m/min		f in mm/rev.											
1.1	250–350	200–320	0,04–0,1	0,04–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12
1.2	250–350	200–320	0,04–0,1	0,04–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12
1.3	250–300	250–300	0,04–0,1	0,04–0,14	0,1–0,15	0,1–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16
1.4	250–300	250–300	0,04–0,1	0,04–0,14	0,1–0,15	0,1–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16
1.5	250–300	250–300	0,04–0,1	0,04–0,14	0,1–0,15	0,1–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16
1.6	200–280	140–220	0,08–0,16	0,08–0,2	0,11–0,2	0,11–0,2	0,13–0,22	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,25	0,14–0,25	0,14–0,25
1.7	200–280	140–220	0,08–0,16	0,08–0,2	0,11–0,2	0,11–0,2	0,13–0,22	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,25	0,14–0,25	0,14–0,25
1.8	200–280	140–220	0,08–0,16	0,08–0,2	0,11–0,2	0,11–0,2	0,13–0,22	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,25	0,14–0,25	0,14–0,25
1.9	250–300	250–300	0,04–0,1	0,04–0,14	0,1–0,15	0,1–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16
1.10	200–280	140–220	0,08–0,16	0,08–0,2	0,11–0,2	0,11–0,2	0,13–0,22	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,25	0,14–0,25	0,14–0,25
1.11	200–280	140–220	0,08–0,16	0,08–0,2	0,11–0,2	0,11–0,2	0,13–0,22	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,25	0,14–0,25	0,14–0,25
1.12	200–280	140–220	0,08–0,16	0,08–0,2	0,11–0,2	0,11–0,2	0,13–0,22	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,25	0,14–0,25	0,14–0,25
1.13	200–280	140–220	0,08–0,16	0,08–0,2	0,11–0,2	0,11–0,2	0,13–0,22	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,25	0,14–0,25	0,14–0,25
1.14	200–280	140–220	0,08–0,16	0,08–0,2	0,11–0,2	0,11–0,2	0,13–0,22	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,24	0,14–0,25	0,14–0,25	0,14–0,25
1.15	170–230	120–200	0,06–0,12	0,06–0,15	0,1–0,15	0,09–0,2	0,12–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22
1.16	170–230	120–200	0,06–0,12	0,06–0,15	0,1–0,15	0,09–0,2	0,12–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22
2.1		150–210	0,06–0,14	0,08–0,14	0,08–0,14	0,08–0,16	0,1–0,18	0,12–0,18	0,12–0,18	0,1–0,18	0,1–0,18	0,1–0,18	0,1–0,18	0,1–0,18
2.2		150–210	0,06–0,14	0,08–0,14	0,08–0,14	0,08–0,16	0,1–0,18	0,12–0,18	0,12–0,18	0,1–0,18	0,1–0,18	0,1–0,18	0,1–0,18	0,1–0,18
2.3		150–210	0,06–0,14	0,08–0,14	0,08–0,14	0,08–0,16	0,1–0,18	0,12–0,18	0,12–0,18	0,1–0,18	0,1–0,18	0,1–0,18	0,1–0,18	0,1–0,18
2.4		120–200	0,06–0,14	0,08–0,14	0,08–0,14	0,08–0,16	0,1–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18
2.5		110–190	0,06–0,11	0,06–0,1	0,06–0,1	0,06–0,13	0,09–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16
2.6		120–200	0,06–0,14	0,08–0,14	0,08–0,14	0,08–0,16	0,1–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18
2.7		110–190	0,06–0,11	0,06–0,1	0,06–0,1	0,06–0,13	0,09–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16
3.1	160–320	140–220	0,08–0,18	0,1–0,18	0,1–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
3.2	160–320	140–220	0,08–0,18	0,1–0,18	0,1–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
3.3	120–200	140–220	0,08–0,18	0,12–0,18	0,12–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
3.4	100–180	120–180	0,08–0,18	0,12–0,18	0,12–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
3.5	90–150	110–170	0,08–0,18	0,12–0,18	0,12–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
3.6	90–150	110–170	0,08–0,18	0,12–0,18	0,12–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
3.7	90–150	110–170	0,08–0,18	0,12–0,18	0,12–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
3.8	90–150	110–170	0,08–0,18	0,12–0,18	0,12–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
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6.1	50–90		0,02–0,06	0,02–0,06	0,02–0,06	0,02–0,06	0,02–0,06	0,02–0,06	0,02–0,06	0,02–0,06	0,02–0,06	0,02–0,06	0,02–0,06	0,02–0,06
6.2	30–50		0,01–0,03	0,01–0,03	0,01–0,03	0,01–0,03	0,01–0,02	0,01–0,02	0,01–0,02	0,01–0,02	0,01–0,02	0,01–0,02	0,01–0,02	0,01–0,02
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During the drilling operation on through holes a sharp disk will be produced.
Safety precautions must be observed.
A safety guard has to be provided as protection.

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

Cutting data standard values for KUB Pentron – 4xD

Index	BK6115	BK8425	C and ABS											
			Ø 14–15,5 mm	Ø 16–17,5 mm	Ø 18–19,5 mm	Ø 20–21,5 mm	Ø 22–23,5 mm	Ø 24–25,5 mm	Ø 26–27,5 mm	Ø 28–30 mm	Ø 31–33 mm	Ø 34–37 mm	Ø 38–42 mm	Ø 43–46 mm
	v_c in m/min		f in mm/rev.											
1.1	250–350	200–320	0,04–0,08	0,04–0,12	0,06–0,1	0,05–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12
1.2	250–350	200–320	0,04–0,08	0,04–0,12	0,06–0,1	0,05–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12
1.3	250–300	250–300	0,04–0,09	0,04–0,14	0,1–0,15	0,1–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16
1.4	250–300	250–300	0,04–0,09	0,04–0,14	0,1–0,15	0,1–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16
1.5	250–300	250–300	0,04–0,09	0,04–0,14	0,1–0,15	0,1–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16
1.6	200–280	140–220	0,06–0,16	0,08–0,16	0,11–0,16	0,11–0,18	0,13–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22
1.7	200–280	140–220	0,06–0,16	0,08–0,16	0,11–0,16	0,11–0,18	0,13–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22
1.8	200–280	140–220	0,06–0,16	0,08–0,16	0,11–0,16	0,11–0,18	0,13–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22
1.9	250–300	250–300	0,04–0,09	0,04–0,14	0,1–0,15	0,1–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16	0,11–0,16
1.10	200–280	140–220	0,06–0,16	0,08–0,16	0,11–0,16	0,11–0,18	0,13–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22
1.11	200–280	140–220	0,06–0,16	0,08–0,16	0,11–0,16	0,11–0,18	0,13–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22
1.12	200–280	140–220	0,06–0,16	0,08–0,16	0,11–0,16	0,11–0,18	0,13–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22
1.13	200–280	140–220	0,06–0,16	0,08–0,16	0,11–0,16	0,11–0,18	0,13–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22
1.14	200–280	140–220	0,06–0,16	0,08–0,16	0,11–0,16	0,11–0,18	0,13–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22
1.15	170–230	120–200	0,06–0,12	0,06–0,15	0,1–0,15	0,09–0,2	0,12–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22
1.16	170–230	120–200	0,06–0,12	0,06–0,15	0,1–0,15	0,09–0,2	0,12–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,22
2.1		150–210	0,06–0,12	0,08–0,12	0,08–0,12	0,08–0,15	0,1–0,18	0,12–0,18	0,12–0,18	0,1–0,18	0,1–0,18	0,1–0,18	0,1–0,18	0,1–0,18
2.2		150–210	0,06–0,12	0,08–0,12	0,08–0,12	0,08–0,15	0,1–0,18	0,12–0,18	0,12–0,18	0,1–0,18	0,1–0,18	0,1–0,18	0,1–0,18	0,1–0,18
2.3		150–210	0,06–0,12	0,08–0,12	0,08–0,12	0,08–0,15	0,1–0,18	0,12–0,18	0,12–0,18	0,1–0,18	0,1–0,18	0,1–0,18	0,1–0,18	0,1–0,18
2.4		120–200	0,06–0,12	0,08–0,12	0,08–0,12	0,08–0,15	0,1–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18
2.5		110–190	0,06–0,1	0,06–0,1	0,06–0,1	0,06–0,13	0,09–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16
2.6		120–200	0,06–0,12	0,08–0,12	0,08–0,12	0,08–0,15	0,1–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18	0,12–0,18
2.7		110–190	0,06–0,1	0,06–0,1	0,06–0,1	0,06–0,13	0,09–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16
3.1	160–320	140–220	0,08–0,18	0,1–0,18	0,1–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
3.2	160–320	140–220	0,08–0,18	0,1–0,18	0,1–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
3.3	120–200	140–220	0,08–0,18	0,12–0,18	0,12–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
3.4	100–180	120–180	0,08–0,18	0,12–0,18	0,12–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
3.5	90–150	110–170	0,08–0,18	0,12–0,18	0,12–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
3.6	90–150	110–170	0,08–0,18	0,12–0,18	0,12–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
3.7	90–150	110–170	0,08–0,18	0,12–0,18	0,12–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
3.8	90–150	110–170	0,08–0,18	0,12–0,18	0,12–0,18	0,12–0,22	0,14–0,25	0,16–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3
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During the drilling operation on through holes a sharp disk will be produced.
Safety precautions must be observed.
A safety guard has to be provided as protection.

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

3

Cutting data standard values for KUB Pentron – 5xD

Index	BK6115	BK8425	C and ABS											
			Ø 14–15,5 mm	Ø 16–17,5 mm	Ø 18–19,5 mm	Ø 20–21,5 mm	Ø 22–23,5 mm	Ø 24–25,5 mm	Ø 26–27,5 mm	Ø 28–30 mm	Ø 31–33 mm	Ø 34–37 mm	Ø 38–42 mm	Ø 43–46 mm
	v_c in m/min		f in mm/rev.											
1.1	250–350	200–320	0,04–0,09	0,06–0,1	0,06–0,1	0,05–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,08–0,12	0,08–0,12	0,08–0,12	0,08–0,12	0,08–0,12
1.2	250–350	200–320	0,04–0,09	0,06–0,1	0,06–0,1	0,05–0,12	0,06–0,12	0,06–0,12	0,06–0,12	0,08–0,12	0,08–0,12	0,08–0,12	0,08–0,12	0,08–0,12
1.3	250–300	250–300	0,04–0,1	0,06–0,13	0,08–0,13	0,08–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14
1.4	250–300	250–300	0,04–0,1	0,06–0,13	0,08–0,13	0,08–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14
1.5	250–300	250–300	0,04–0,1	0,06–0,13	0,08–0,13	0,08–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14
1.6	200–280	140–220	0,06–0,12	0,06–0,13	0,08–0,13	0,08–0,18	0,13–0,22	0,14–0,22	0,14–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2
1.7	200–280	140–220	0,06–0,12	0,06–0,13	0,08–0,13	0,08–0,18	0,13–0,22	0,14–0,22	0,14–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2
1.8	200–280	140–220	0,06–0,12	0,06–0,13	0,08–0,13	0,08–0,18	0,13–0,22	0,14–0,22	0,14–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2
1.9	250–300	250–300	0,04–0,1	0,06–0,13	0,08–0,13	0,08–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14	0,09–0,14
1.10	200–280	140–220	0,06–0,12	0,06–0,13	0,08–0,13	0,08–0,18	0,13–0,22	0,14–0,22	0,14–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2
1.11	200–280	140–220	0,06–0,12	0,06–0,13	0,08–0,13	0,08–0,18	0,13–0,22	0,14–0,22	0,14–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2
1.12	200–280	140–220	0,06–0,12	0,06–0,13	0,08–0,13	0,08–0,18	0,13–0,22	0,14–0,22	0,14–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2
1.13	200–280	140–220	0,06–0,12	0,06–0,13	0,08–0,13	0,08–0,18	0,13–0,22	0,14–0,22	0,14–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2
1.14	200–280	140–220	0,06–0,12	0,06–0,13	0,08–0,13	0,08–0,18	0,13–0,22	0,14–0,22	0,14–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,2
1.15	170–230	120–200	0,06–0,12	0,08–0,15	0,09–0,15	0,09–0,2	0,12–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,2	0,14–0,2	0,14–0,2	0,14–0,2
1.16	170–230	120–200	0,06–0,12	0,08–0,15	0,09–0,15	0,09–0,2	0,12–0,22	0,14–0,22	0,14–0,22	0,14–0,22	0,14–0,2	0,14–0,2	0,14–0,2	0,14–0,2
2.1		150–210	0,06–0,1	0,06–0,1	0,06–0,1	0,06–0,13	0,09–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16
2.2		150–210	0,06–0,1	0,06–0,1	0,06–0,1	0,06–0,13	0,09–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16
2.3		150–210	0,06–0,1	0,06–0,1	0,06–0,1	0,06–0,13	0,09–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16	0,1–0,16
2.4		120–200	0,06–0,1	0,06–0,1	0,06–0,1	0,06–0,13	0,09–0,16	0,12–0,16	0,12–0,14	0,08–0,14	0,08–0,14	0,08–0,14	0,08–0,14	0,08–0,14
2.5		110–190	0,06–0,1	0,06–0,1	0,06–0,1	0,06–0,11	0,07–0,14	0,1–0,14	0,1–0,14	0,1–0,14	0,1–0,14	0,1–0,14	0,1–0,14	0,1–0,14
2.6		120–200	0,06–0,1	0,06–0,1	0,06–0,1	0,06–0,13	0,09–0,16	0,12–0,16	0,12–0,14	0,08–0,14	0,08–0,14	0,08–0,14	0,08–0,14	0,08–0,14
2.7		110–190	0,06–0,1	0,06–0,1	0,06–0,1	0,06–0,11	0,07–0,14	0,1–0,14	0,1–0,14	0,1–0,14	0,1–0,14	0,1–0,14	0,1–0,14	0,1–0,14
3.1	160–320	140–220	0,08–0,15	0,08–0,16	0,1–0,16	0,1–0,2	0,12–0,23	0,14–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28
3.2	160–320	140–220	0,08–0,15	0,08–0,16	0,1–0,16	0,1–0,2	0,12–0,23	0,14–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28
3.3	120–200	140–220	0,08–0,15	0,08–0,16	0,1–0,16	0,1–0,2	0,12–0,23	0,14–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28
3.4	100–180	120–180	0,08–0,15	0,08–0,16	0,1–0,16	0,1–0,2	0,12–0,23	0,14–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28
3.5	90–150	110–170	0,08–0,15	0,08–0,16	0,1–0,16	0,1–0,2	0,12–0,23	0,14–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28
3.6	90–150	110–170	0,08–0,15	0,08–0,16	0,1–0,16	0,1–0,2	0,12–0,23	0,14–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28
3.7	90–150	110–170	0,08–0,15	0,08–0,16	0,1–0,16	0,1–0,2	0,12–0,23	0,14–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28
3.8	90–150	110–170	0,08–0,15	0,08–0,16	0,1–0,16	0,1–0,2	0,12–0,23	0,14–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28	0,18–0,28
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During the drilling operation on through holes a sharp disk will be produced.
Safety precautions must be observed.
A safety guard has to be provided as protection.

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

Cutting data standard values for MaxiDrill 900 – 2xD

Index	DRAGONSKIN CTCP420 (DCX1420)	DRAGONSKIN CTPP430 (CCN1430)	C Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20,5 mm	Ø 21–23,5 mm	Ø 24–27,5 mm	Ø 28–32 mm	Ø 32,5–36,5 mm	Ø 37–41 mm	Ø 41,5–46 mm	Ø 46,5–63 mm
	v_c in m/min		f in mm/rev.									
1.1	**240–390**	**200–300**	0,04–0,16	0,04–0,17	0,05–0,18	0,06–0,20	0,07–0,22	0,07–0,24	0,07–0,24	0,10–0,25	0,10–0,27	0,10–0,29
1.2	**240–390**	**200–300**	0,04–0,16	0,04–0,17	0,05–0,18	0,06–0,20	0,07–0,22	0,07–0,24	0,07–0,24	0,10–0,25	0,10–0,27	0,10–0,29
1.3	**190–310**	**180–280**	0,04–0,16	0,04–0,17	0,05–0,18	0,06–0,20	0,07–0,22	0,07–0,24	0,07–0,24	0,10–0,25	0,10–0,27	0,10–0,29
1.4	**190–310**	**180–280**	0,04–0,13	0,04–0,14	0,05–0,15	0,05–0,15	0,06–0,17	0,06–0,19	0,06–0,19	0,10–0,21	0,10–0,23	0,10–0,23
1.5	**190–310**	**180–280**	0,04–0,15	0,04–0,15	0,05–0,16	0,05–0,17	0,06–0,19	0,06–0,21	0,06–0,21	0,08–0,22	0,08–0,22	0,09–0,26
1.6	**170–290**	**160–250**	0,04–0,15	0,05–0,16	0,05–0,18	0,06–0,20	0,07–0,22	0,07–0,24	0,07–0,24	0,10–0,25	0,10–0,27	0,10–0,29
1.7	**180–280**	**150–220**	0,04–0,17	0,05–0,18	0,05–0,20	0,06–0,22	0,07–0,23	0,07–0,25	0,07–0,25	0,10–0,27	0,10–0,30	0,10–0,32
1.8	**170–280**	**130–200**	0,04–0,15	0,05–0,16	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,10–0,25	0,10–0,27	0,10–0,29
1.9	**170–280**	**130–200**	0,04–0,17	0,05–0,18	0,05–0,20	0,06–0,22	0,07–0,23	0,07–0,25	0,07–0,25	0,10–0,27	0,10–0,30	0,10–0,32
1.10	**170–280**	**130–200**	0,04–0,15	0,05–0,16	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,08–0,25	0,09–0,27	0,10–0,29
1.11	**170–280**	**130–200**	0,04–0,15	0,05–0,16	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,08–0,25	0,09–0,27	0,10–0,29
1.12	**170–280**	**130–200**	0,04–0,15	0,05–0,16	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,08–0,25	0,09–0,27	0,10–0,29
1.13	**170–280**	**130–200**	0,04–0,16	0,05–0,17	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,10–0,25	0,10–0,27	0,10–0,30
1.14	**170–280**	**130–200**	0,04–0,16	0,05–0,17	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,10–0,25	0,10–0,27	0,10–0,30
1.15	**120–200**	**100–160**	0,04–0,16	0,05–0,17	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,10–0,25	0,10–0,27	0,10–0,30
1.16	**120–200**	**100–160**	0,04–0,16	0,05–0,17	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,10–0,25	0,10–0,27	0,10–0,30
2.1	140–230	**100–180**	0,04–0,11	0,04–0,12	0,05–0,15	0,06–0,15	0,06–0,17	0,06–0,19	0,06–0,19	0,10–0,22	0,10–0,22	0,10–0,22
2.2	140–230	**100–180**	0,04–0,11	0,04–0,12	0,05–0,15	0,06–0,15	0,06–0,17	0,06–0,19	0,06–0,19	0,10–0,22	0,10–0,22	0,10–0,22
2.3		**100–180**	0,04–0,12	0,04–0,13	0,05–0,15	0,05–0,16	0,05–0,18	0,06–0,18	0,06–0,18	0,09–0,23	0,10–0,23	0,10–0,23
2.4		**80–140**	0,04–0,12	0,04–0,13	0,05–0,15	0,05–0,16	0,05–0,18	0,06–0,18	0,06–0,18	0,09–0,23	0,10–0,23	0,10–0,23
2.5		**80–140**	0,04–0,10	0,04–0,11	0,05–0,13	0,05–0,14	0,05–0,15	0,05–0,15	0,05–0,16	0,08–0,20	0,08–0,20	0,08–0,20
2.6	140–230	**100–160**	0,04–0,11	0,04–0,12	0,05–0,14	0,05–0,15	0,06–0,15	0,06–0,16	0,06–0,17	0,10–0,22	0,10–0,22	0,10–0,22
2.7		**80–140**	0,04–0,10	0,04–0,11	0,05–0,13	0,05–0,14	0,05–0,15	0,05–0,15	0,05–0,16	0,08–0,20	0,08–0,20	0,08–0,20
3.1	**190–310**	120–200	0,07–0,20	0,07–0,22	0,08–0,24	0,10–0,25	0,1–0,28	0,1–0,28	0,1–0,30	0,10–0,32	0,10–0,32	0,10–0,34
3.2	**170–290**	100–180	0,07–0,19	0,07–0,20	0,08–0,22	0,10–0,24	0,1–0,26	0,1–0,26	0,1–0,28	0,10–0,30	0,10–0,30	0,10–0,32
3.3	**190–310**	120–200	0,07–0,20	0,07–0,20	0,08–0,22	0,10–0,25	0,1–0,28	0,1–0,28	0,1–0,28	0,10–0,30	0,10–0,30	0,10–0,32
3.4	**170–290**	100–180	0,07–0,18	0,07–0,18	0,08–0,20	0,10–0,23	0,1–0,25	0,1–0,25	0,1–0,25	0,10–0,27	0,10–0,27	0,10–0,29
3.5	**140–230**	80–160	0,07–0,19	0,07–0,20	0,08–0,21	0,10–0,25	0,1–0,28	0,1–0,28	0,1–0,30	0,10–0,32	0,10–0,32	0,10–0,34
3.6	**130–210**	70–150	0,07–0,19	0,07–0,20	0,08–0,21	0,10–0,25	0,1–0,28	0,1–0,28	0,1–0,30	0,10–0,32	0,10–0,32	0,10–0,34
3.7	**140–230**	80–160	0,07–0,19	0,07–0,20	0,08–0,21	0,10–0,25	0,1–0,28	0,1–0,28	0,1–0,30	0,10–0,32	0,10–0,32	0,10–0,34
3.8	**130–210**	70–150	0,07–0,19	0,07–0,20	0,08–0,21	0,10–0,25	0,1–0,28	0,1–0,28	0,1–0,30	0,10–0,32	0,10–0,32	0,10–0,34
4.1		150–500	0,06–0,12	0,07–0,14	0,08–0,15	0,10–0,16	0,10–0,16	0,10–0,17	0,10–0,17	0,10–0,18	0,10–0,18	0,10–0,18
4.2		150–450	0,06–0,12	0,07–0,14	0,08–0,15	0,10–0,18	0,10–0,18	0,10–0,19	0,10–0,19	0,10–0,20	0,10–0,20	0,10–0,20
4.3		150–350	0,06–0,12	0,07–0,14	0,08–0,15	0,10–0,18	0,10–0,18	0,10–0,19	0,10–0,19	0,10–0,20	0,10–0,20	0,10–0,20
4.4		150–300	0,06–0,12	0,07–0,14	0,08–0,15	0,10–0,18	0,10–0,18	0,10–0,19	0,10–0,19	0,10–0,20	0,10–0,20	0,10–0,20
4.5												
4.6		150–300	0,06–0,13	0,07–0,16	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,19	0,10–0,19	0,10–0,19
4.7		150–300	0,06–0,13	0,07–0,16	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,19	0,10–0,19	0,10–0,19
4.8		150–300	0,06–0,13	0,07–0,16	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,19	0,10–0,19	0,10–0,19
4.9		150–300	0,06–0,13	0,07–0,16	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,19	0,10–0,19	0,10–0,19
4.10		150–300	0,06–0,13	0,07–0,16	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,19	0,10–0,19	0,10–0,19
4.11		150–300	0,06–0,15	0,07–0,16	0,08–0,18	0,10–0,18	0,10–0,18	0,10–0,20	0,10–0,20	0,10–0,25	0,10–0,25	0,10–0,25
4.12		150–300	0,06–0,15	0,07–0,16	0,08–0,18	0,10–0,18	0,10–0,18	0,10–0,20	0,10–0,20	0,10–0,25	0,10–0,25	0,10–0,25
4.13												
4.14		50–150	0,04–0,09	0,04–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,05–0,12	0,05–0,12	0,05–0,12	0,05–0,12
4.15		50–140	0,06–0,14	0,07–0,14	0,08–0,15	0,10–0,16	0,10–0,16	0,10–0,16	0,10–0,16	0,10–0,18	0,10–0,18	0,10–0,18
4.16												
4.17												
4.18												
4.19												
5.1		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.2		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.3		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.4		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.5		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.6		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.7		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.8		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.9		40–100	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.10		40–80	0,04–0,10	0,04–0,10	0,07–0,10	0,05–0,12	0,06–0,12	0,07–0,15	0,07–0,15	0,08–0,16	0,08–0,16	0,08–0,18
5.11		40–80	0,04–0,10	0,04–0,10	0,07–0,10	0,05–0,12	0,06–0,12	0,07–0,15	0,07–0,15	0,08–0,16	0,08–0,16	0,08–0,18
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During the drilling operation on through holes a sharp disk will be produced.
Safety precautions must be observed.
A safety guard has to be provided as protection.

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

Cutting data standard values for MaxiDrill 900 + KUB 100 – 3xD

Index	DRAGONSKIN CTCP420 (DCX1420)	DRAGONSKIN CTPP430 (CCN1430)	C Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20,5 mm	Ø 21–23,5 mm	Ø 24–27,5 mm	Ø 28–32 mm	Ø 32,5–36,5 mm	Ø 37–41 mm	Ø 41,5–46 mm	Ø 46,5–63 mm
	v_c in m/min		f in mm/rev.									
1.1	**240–390**	**200–300**	0,04–0,16	0,04–0,17	0,05–0,18	0,06–0,20	0,07–0,22	0,07–0,24	0,07–0,24	0,10–0,25	0,10–0,27	0,10–0,29
1.2	**240–390**	**200–300**	0,04–0,16	0,04–0,17	0,05–0,18	0,06–0,20	0,07–0,22	0,07–0,24	0,07–0,24	0,10–0,25	0,10–0,27	0,10–0,29
1.3	**190–310**	**180–280**	0,04–0,16	0,04–0,17	0,05–0,18	0,06–0,20	0,07–0,22	0,07–0,24	0,07–0,24	0,10–0,25	0,10–0,27	0,10–0,29
1.4	**190–310**	**180–280**	0,04–0,13	0,04–0,14	0,05–0,15	0,05–0,15	0,06–0,17	0,06–0,19	0,06–0,19	0,10–0,21	0,10–0,23	0,10–0,23
1.5	**190–310**	**180–280**	0,04–0,15	0,04–0,15	0,05–0,16	0,05–0,17	0,06–0,19	0,06–0,21	0,06–0,21	0,08–0,22	0,08–0,22	0,09–0,24
1.6	**170–290**	**160–250**	0,04–0,15	0,05–0,16	0,05–0,18	0,06–0,20	0,07–0,22	0,07–0,24	0,07–0,24	0,10–0,25	0,10–0,27	0,10–0,29
1.7	**180–280**	**150–220**	0,04–0,17	0,05–0,18	0,05–0,20	0,06–0,22	0,07–0,23	0,07–0,25	0,07–0,25	0,10–0,27	0,10–0,30	0,10–0,32
1.8	**170–280**	**130–200**	0,04–0,15	0,05–0,16	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,10–0,25	0,10–0,27	0,10–0,29
1.9	**170–280**	**130–200**	0,04–0,17	0,05–0,18	0,05–0,20	0,06–0,22	0,07–0,23	0,07–0,25	0,07–0,25	0,10–0,27	0,10–0,30	0,10–0,32
1.10	**170–280**	**130–200**	0,04–0,15	0,05–0,16	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,08–0,25	0,09–0,27	0,10–0,29
1.11	**170–280**	**130–200**	0,04–0,15	0,05–0,16	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,08–0,25	0,09–0,27	0,10–0,29
1.12	**170–280**	**130–200**	0,04–0,15	0,05–0,16	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,08–0,25	0,09–0,27	0,10–0,29
1.13	**170–280**	**130–200**	0,04–0,16	0,05–0,17	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,10–0,25	0,10–0,27	0,10–0,30
1.14	**170–280**	**130–200**	0,04–0,16	0,05–0,17	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,10–0,25	0,10–0,27	0,10–0,30
1.15	**120–200**	**100–160**	0,04–0,16	0,05–0,17	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,10–0,25	0,10–0,27	0,10–0,30
1.16	**120–200**	**100–160**	0,04–0,16	0,05–0,17	0,05–0,18	0,06–0,20	0,07–0,23	0,07–0,25	0,07–0,25	0,10–0,25	0,10–0,27	0,10–0,30
2.1	140–230	**100–180**	0,04–0,11	0,04–0,12	0,05–0,15	0,06–0,15	0,06–0,17	0,06–0,19	0,06–0,19	0,10–0,22	0,10–0,22	0,10–0,22
2.2	140–230	**100–180**	0,04–0,11	0,04–0,12	0,05–0,15	0,06–0,15	0,06–0,17	0,06–0,19	0,06–0,19	0,10–0,22	0,10–0,22	0,10–0,22
2.3		**100–180**	0,04–0,12	0,04–0,13	0,05–0,15	0,05–0,16	0,05–0,18	0,06–0,18	0,06–0,18	0,09–0,23	0,10–0,23	0,10–0,23
2.4		**80–140**	0,04–0,12	0,04–0,13	0,05–0,15	0,05–0,16	0,05–0,18	0,06–0,18	0,06–0,18	0,09–0,23	0,10–0,23	0,10–0,23
2.5		**80–140**	0,04–0,10	0,04–0,11	0,05–0,13	0,05–0,14	0,05–0,15	0,05–0,15	0,05–0,16	0,08–0,20	0,08–0,20	0,08–0,20
2.6	140–230	**100–160**	0,04–0,11	0,04–0,12	0,05–0,14	0,05–0,15	0,06–0,15	0,06–0,16	0,06–0,17	0,10–0,22	0,10–0,22	0,10–0,22
2.7		**80–140**	0,04–0,10	0,04–0,11	0,05–0,13	0,05–0,14	0,05–0,15	0,05–0,15	0,05–0,16	0,08–0,20	0,08–0,20	0,08–0,20
3.1	**190–310**	120–200	0,07–0,20	0,07–0,22	0,08–0,24	0,10–0,25	0,1–0,28	0,1–0,28	0,1–0,30	0,10–0,32	0,10–0,32	0,10–0,34
3.2	**170–290**	100–180	0,07–0,19	0,07–0,20	0,08–0,22	0,10–0,24	0,1–0,26	0,1–0,26	0,1–0,28	0,10–0,30	0,10–0,30	0,10–0,32
3.3	**190–310**	120–200	0,07–0,20	0,07–0,20	0,08–0,22	0,10–0,25	0,1–0,28	0,1–0,28	0,1–0,28	0,10–0,30	0,10–0,30	0,10–0,32
3.4	**170–290**	100–180	0,07–0,18	0,07–0,18	0,08–0,20	0,10–0,23	0,1–0,25	0,1–0,25	0,1–0,25	0,10–0,27	0,10–0,27	0,10–0,29
3.5	**140–230**	80–160	0,07–0,19	0,07–0,20	0,08–0,21	0,10–0,25	0,1–0,28	0,1–0,28	0,1–0,30	0,10–0,32	0,10–0,32	0,10–0,34
3.6	**130–210**	70–150	0,07–0,19	0,07–0,20	0,08–0,21	0,10–0,25	0,1–0,28	0,1–0,28	0,1–0,30	0,10–0,32	0,10–0,32	0,10–0,34
3.7	**140–230**	80–160	0,07–0,19	0,07–0,20	0,08–0,21	0,10–0,25	0,1–0,28	0,1–0,28	0,1–0,30	0,10–0,32	0,10–0,32	0,10–0,34
3.8	**130–210**	70–150	0,07–0,19	0,07–0,20	0,08–0,21	0,10–0,25	0,1–0,28	0,1–0,28	0,1–0,30	0,10–0,32	0,10–0,32	0,10–0,34
4.1		150–500	0,06–0,12	0,07–0,14	0,08–0,15	0,10–0,16	0,10–0,16	0,10–0,17	0,10–0,17	0,10–0,18	0,10–0,18	0,10–0,18
4.2		150–450	0,06–0,12	0,07–0,14	0,08–0,15	0,10–0,18	0,10–0,18	0,10–0,19	0,10–0,19	0,10–0,20	0,10–0,20	0,10–0,20
4.3		150–350	0,06–0,12	0,07–0,14	0,08–0,15	0,10–0,18	0,10–0,18	0,10–0,19	0,10–0,19	0,10–0,20	0,10–0,20	0,10–0,20
4.4		150–300	0,06–0,12	0,07–0,14	0,08–0,15	0,10–0,18	0,10–0,18	0,10–0,19	0,10–0,19	0,10–0,20	0,10–0,20	0,10–0,20
4.5												
4.6		150–300	0,06–0,13	0,07–0,16	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,19	0,10–0,19	0,10–0,19
4.7		150–300	0,06–0,13	0,07–0,16	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,19	0,10–0,19	0,10–0,19
4.8		150–300	0,06–0,13	0,07–0,16	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,19	0,10–0,19	0,10–0,19
4.9		150–300	0,06–0,13	0,07–0,16	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,19	0,10–0,19	0,10–0,19
4.10		150–300	0,06–0,13	0,07–0,16	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,19	0,10–0,19	0,10–0,19
4.11		150–300	0,06–0,15	0,07–0,16	0,08–0,18	0,10–0,18	0,10–0,18	0,10–0,20	0,10–0,20	0,10–0,25	0,10–0,25	0,10–0,25
4.12		150–300	0,06–0,15	0,07–0,16	0,08–0,18	0,10–0,18	0,10–0,18	0,10–0,20	0,10–0,20	0,10–0,25	0,10–0,25	0,10–0,25
4.13												
4.14		50–150	0,04–0,09	0,04–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,05–0,12	0,05–0,12	0,05–0,12	0,05–0,12
4.15		50–140	0,06–0,14	0,07–0,14	0,08–0,15	0,10–0,16	0,10–0,16	0,10–0,16	0,10–0,16	0,10–0,18	0,10–0,18	0,10–0,18
4.16												
4.17												
4.18												
4.19												
5.1		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.2		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.3		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.4		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.5		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.6		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.7		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.8		20–80	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.9		40–100	0,03–0,07	0,04–0,08	0,04–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,06–0,15
5.10		40–80	0,04–0,10	0,04–0,10	0,07–0,10	0,05–0,12	0,06–0,12	0,07–0,15	0,07–0,15	0,08–0,16	0,08–0,16	0,08–0,18
5.11		40–80	0,04–0,10	0,04–0,10	0,07–0,10	0,05–0,12	0,06–0,12	0,07–0,15	0,07–0,15	0,08–0,16	0,08–0,16	0,08–0,18
6.1												
6.2												
6.3												
6.4												
6.5												

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

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

Cutting data for MaxiDrill 900 indexable insert drill – 4xD

Index	DRAGONSKIN CTCP420 (DCX1420)	DRAGONSKIN CTPP430 (CCN1430)	C									
			Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20 mm	Ø 21–23 mm	Ø 24–27 mm	Ø 28–32 mm	Ø 33–36 mm	Ø 37–41 mm	Ø 41,5–46 mm	Ø 46,5–54 mm
	v_c in m/min		f in mm/rev.									
1.1	**240–390**	**200–300**	0,04–0,14	0,04–0,15	0,05–0,16	0,06–0,18	0,07–0,20	0,07–0,22	0,07–0,22	0,07–0,23	0,07–0,23	0,08–0,25
1.2	**240–390**	**200–300**	0,04–0,14	0,04–0,15	0,05–0,16	0,06–0,18	0,07–0,20	0,07–0,22	0,07–0,22	0,07–0,23	0,07–0,23	0,08–0,25
1.3	**190–310**	**180–280**	0,04–0,14	0,04–0,15	0,05–0,16	0,06–0,18	0,07–0,20	0,07–0,22	0,07–0,22	0,07–0,23	0,07–0,23	0,08–0,25
1.4	**190–310**	**180–280**	0,04–0,11	0,04–0,12	0,05–0,12	0,05–0,13	0,06–0,15	0,06–0,17	0,06–0,17	0,06–0,17	0,06–0,17	0,07–0,17
1.5	**190–310**	**180–280**	0,04–0,13	0,04–0,14	0,05–0,14	0,05–0,15	0,06–0,17	0,06–0,19	0,06–0,19	0,06–0,20	0,06–0,20	0,07–0,22
1.6	**170–290**	**160–250**	0,04–0,14	0,04–0,15	0,05–0,16	0,06–0,18	0,07–0,20	0,07–0,22	0,07–0,22	0,07–0,23	0,07–0,23	0,08–0,25
1.7	**180–280**	**150–220**	0,04–0,17	0,04–0,18	0,05–0,18	0,06–0,20	0,07–0,20	0,07–0,23	0,07–0,23	0,07–0,24	0,07–0,24	0,08–0,26
1.8	**170–280**	**130–200**	0,04–0,14	0,04–0,15	0,05–0,15	0,06–0,17	0,07–0,20	0,07–0,23	0,07–0,23	0,07–0,23	0,07–0,23	0,08–0,25
1.9	**170–280**	**130–200**	0,04–0,17	0,04–0,18	0,05–0,18	0,06–0,20	0,07–0,20	0,07–0,23	0,07–0,23	0,07–0,24	0,07–0,24	0,08–0,26
1.10	**170–280**	**130–200**	0,04–0,14	0,04–0,15	0,05–0,15	0,06–0,17	0,07–0,20	0,07–0,23	0,07–0,23	0,07–0,23	0,07–0,23	0,08–0,25
1.11	**170–280**	**130–200**	0,04–0,14	0,04–0,15	0,05–0,15	0,06–0,17	0,07–0,20	0,07–0,23	0,07–0,23	0,07–0,23	0,07–0,23	0,08–0,25
1.12	**170–280**	**130–200**	0,04–0,14	0,04–0,15	0,05–0,15	0,06–0,17	0,07–0,20	0,07–0,23	0,07–0,23	0,07–0,23	0,07–0,23	0,08–0,25
1.13	**170–280**	**130–200**	0,04–0,14	0,04–0,15	0,05–0,15	0,06–0,17	0,07–0,20	0,07–0,23	0,07–0,23	0,07–0,23	0,07–0,23	0,08–0,25
1.14	**170–280**	**130–200**	0,04–0,14	0,04–0,15	0,05–0,15	0,06–0,18	0,07–0,20	0,07–0,23	0,07–0,23	0,07–0,23	0,07–0,23	0,08–0,25
1.15	**120–200**	**100–160**	0,04–0,14	0,04–0,15	0,05–0,15	0,06–0,18	0,07–0,20	0,07–0,23	0,07–0,23	0,07–0,23	0,07–0,23	0,08–0,25
1.16	**120–200**	**100–160**	0,04–0,14	0,04–0,15	0,05–0,15	0,06–0,18	0,07–0,20	0,07–0,23	0,07–0,23	0,07–0,23	0,07–0,23	0,08–0,25
2.1	140–230	**100–180**	0,04–0,10	0,04–0,10	0,05–0,12	0,06–0,12	0,06–0,15	0,06–0,17	0,06–0,17	0,08–0,20	0,08–0,20	0,08–0,20
2.2	140–230	**100–180**	0,04–0,10	0,04–0,10	0,05–0,12	0,06–0,12	0,06–0,15	0,06–0,17	0,06–0,17	0,08–0,20	0,08–0,20	0,08–0,20
2.3		**100–180**	0,04–0,12	0,04–0,12	0,05–0,15	0,05–0,16	0,05–0,18	0,06–0,16	0,06–0,16	0,08–0,22	0,08–0,22	0,08–0,22
2.4		**80–140**	0,04–0,12	0,04–0,12	0,05–0,15	0,05–0,16	0,05–0,18	0,06–0,16	0,06–0,16	0,08–0,22	0,08–0,22	0,08–0,22
2.5		**80–140**	0,04–0,10	0,04–0,10	0,05–0,10	0,05–0,12	0,05–0,13	0,05–0,13	0,05–0,13	0,07–0,16	0,07–0,16	0,07–0,16
2.6	140–230	**100–160**	0,04–0,10	0,04–0,10	0,05–0,12	0,05–0,13	0,06–0,13	0,06–0,14	0,06–0,14	0,08–0,20	0,08–0,20	0,08–0,20
2.7		**80–140**	0,04–0,10	0,04–0,10	0,05–0,10	0,05–0,12	0,05–0,13	0,05–0,13	0,05–0,13	0,07–0,16	0,07–0,16	0,07–0,16
3.1	**190–310**	120-200	0,07–0,18	0,07–0,20	0,08–0,22	0,10–0,24	0,1–0,25	0,1–0,25	0,1–0,28	0,10–0,30	0,10–0,30	0,10–0,30
3.2	**170–290**	100-180	0,07–0,17	0,07–0,18	0,08–0,20	0,10–0,22	0,1–0,25	0,1–0,25	0,1–0,27	0,10–0,29	0,10–0,29	0,10–0,29
3.3	**190–310**	120-200	0,07–0,18	0,07–0,18	0,08–0,20	0,10–0,24	0,1–0,26	0,1–0,26	0,1–0,26	0,10–0,28	0,10–0,28	0,10–0,28
3.4	**170–290**	100-180	0,07–0,17	0,07–0,18	0,08–0,18	0,10–0,22	0,1–0,22	0,1–0,22	0,1–0,23	0,10–0,25	0,10–0,25	0,10–0,25
3.5	**140–230**	80-160	0,07–0,17	0,07–0,18	0,08–0,18	0,10–0,22	0,1–0,25	0,1–0,25	0,1–0,28	0,10–0,30	0,10–0,30	0,10–0,30
3.6	**130–210**	70-150	0,07–0,17	0,07–0,18	0,08–0,18	0,10–0,22	0,1–0,25	0,1–0,25	0,1–0,28	0,10–0,30	0,10–0,30	0,10–0,30
3.7	**140–230**	80-160	0,07–0,17	0,07–0,18	0,08–0,18	0,10–0,22	0,1–0,25	0,1–0,25	0,1–0,28	0,10–0,30	0,10–0,30	0,10–0,30
3.8	**130–210**	70-150	0,07–0,17	0,07–0,18	0,08–0,18	0,10–0,22	0,1–0,25	0,1–0,25	0,1–0,28	0,10–0,30	0,10–0,30	0,10–0,30
4.1		150-500	0,06–0,12	0,07–0,14	0,08–0,15	0,10–0,16	0,10–0,16	0,10–0,17	0,10–0,17	0,10–0,17	0,10–0,17	0,10–0,17
4.2		150-450	0,06–0,12	0,07–0,14	0,08–0,15	0,10–0,18	0,10–0,18	0,10–0,19	0,10–0,19	0,10–0,20	0,10–0,20	0,10–0,20
4.3		150-350	0,06–0,12	0,07–0,14	0,08–0,15	0,10–0,18	0,10–0,18	0,10–0,19	0,10–0,19	0,10–0,20	0,10–0,20	0,10–0,20
4.4		150-300	0,06–0,12	0,07–0,14	0,08–0,15	0,10–0,18	0,10–0,18	0,10–0,19	0,10–0,19	0,10–0,20	0,10–0,20	0,10–0,20
4.5												
4.6		150-300	0,06–0,13	0,07–0,14	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,18	0,10–0,18	0,10–0,18
4.7		150-300	0,06–0,13	0,07–0,14	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,18	0,10–0,18	0,10–0,18
4.8		150-300	0,06–0,13	0,07–0,14	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,18	0,10–0,18	0,10–0,18
4.9		150-300	0,06–0,13	0,07–0,14	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,18	0,10–0,18	0,10–0,18
4.10		150-300	0,06–0,13	0,07–0,14	0,08–0,15	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,18	0,10–0,18	0,10–0,18
4.11		150-300	0,06–0,15	0,07–0,16	0,08–0,18	0,10–0,18	0,10–0,18	0,10–0,20	0,10–0,20	0,10–0,22	0,10–0,22	0,10–0,22
4.12		150-300	0,06–0,15	0,07–0,16	0,08–0,18	0,10–0,18	0,10–0,18	0,10–0,20	0,10–0,20	0,10–0,22	0,10–0,22	0,10–0,22
4.13												
4.14		50-150	0,04–0,09	0,04–0,10	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,05–0,12	0,05–0,12	0,05–0,12
4.15		50-140	0,06–0,14	0,07–0,14	0,08–0,14	0,10–0,15	0,10–0,16	0,10–0,16	0,10–0,16	0,10–0,18	0,10–0,18	0,10–0,18
4.16												
4.17												
4.18												
4.19												
5.1		20-80	0,03–0,07	0,04–0,07	0,04–0,07	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,10	0,05–0,10
5.2		20-80	0,03–0,07	0,04–0,07	0,04–0,07	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,10	0,05–0,10
5.3		20-80	0,03–0,07	0,04–0,07	0,04–0,07	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,10	0,05–0,10
5.4		20-80	0,03–0,07	0,04–0,07	0,04–0,07	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,10	0,05–0,10
5.5		20-80	0,03–0,07	0,04–0,07	0,04–0,07	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,10	0,05–0,10
5.6		20-80	0,03–0,07	0,04–0,07	0,04–0,07	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,10	0,05–0,10
5.7		20-80	0,03–0,07	0,04–0,07	0,04–0,07	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,10	0,05–0,10
5.8		20-80	0,03–0,07	0,04–0,07	0,04–0,07	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,10	0,05–0,10
5.9		40-100	0,03–0,07	0,04–0,07	0,04–0,07	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,10	0,05–0,10	0,05–0,10	0,05–0,10
5.10		40-80	0,04–0,10	0,04–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,06–0,15	0,07–0,15	0,07–0,15	0,07–0,15	0,07–0,15
5.11		40-80	0,04–0,10	0,04–0,10	0,05–0,10	0,05–0,12	0,05–0,12	0,06–0,15	0,07–0,15	0,07–0,15	0,07–0,15	0,07–0,15
6.1												
6.2												
6.3												
6.4												
6.5												

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

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

3

Cutting data standard values for MaxiDrill 900 – 5xD

	DRAGONSKIN	DRAGONSKIN	C							
Index	CTCP420 (DCX1420)	CTPP430 (CCN1430)	Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20 mm	Ø 21–23 mm	Ø 24–27 mm	Ø 28–32 mm	Ø 33–36 mm	Ø 37–41 mm
	v_c in m/min		f in mm/rev.							
1.1	**240–390**	**200–300**	0,04–0,12	0,04–0,12	0,05–0,12	0,05–0,15	0,07–0,17	0,08–0,19	0,08–0,19	0,10–0,23
1.2	**240–390**	**200–300**	0,04–0,12	0,04–0,12	0,05–0,12	0,05–0,15	0,07–0,17	0,08–0,19	0,08–0,19	0,10–0,23
1.3	**190–310**	**180–280**	0,04–0,12	0,04–0,12	0,05–0,12	0,05–0,15	0,07–0,17	0,08–0,19	0,08–0,19	0,10–0,23
1.4	**190–310**	**180–280**	0,04–0,09	0,04–0,09	0,04–0,08	0,04–0,10	0,06–0,12	0,06–0,14	0,06–0,14	0,08–0,17
1.5	**190–310**	**180–280**	0,04–0,10	0,04–0,10	0,05–0,10	0,05–0,12	0,06–0,14	0,06–0,16	0,06–0,16	0,08–0,20
1.6	**170–290**	**160–250**	0,04–0,10	0,04–0,12	0,05–0,12	0,05–0,15	0,07–0,17	0,08–0,19	0,08–0,19	0,10–0,23
1.7	**180–280**	**150–220**	0,04–0,15	0,04–0,15	0,05–0,15	0,05–0,17	0,07–0,18	0,08–0,20	0,08–0,20	0,10–0,25
1.8	**170–280**	**130–200**	0,04–0,13	0,04–0,14	0,05–0,13	0,05–0,15	0,07–0,17	0,08–0,19	0,08–0,19	0,10–0,23
1.9	**170–280**	**130–200**	0,04–0,15	0,04–0,16	0,05–0,15	0,05–0,17	0,07–0,18	0,08–0,20	0,08–0,20	0,10–0,25
1.10	**170–280**	**130–200**	0,04–0,12	0,04–0,13	0,05–0,13	0,05–0,15	0,07–0,17	0,08–0,19	0,08–0,19	0,10–0,25
1.11	**170–280**	**130–200**	0,04–0,12	0,04–0,13	0,05–0,13	0,05–0,15	0,07–0,17	0,08–0,19	0,08–0,19	0,10–0,25
1.12	**170–280**	**130–200**	0,04–0,12	0,04–0,13	0,05–0,13	0,05–0,15	0,07–0,17	0,08–0,19	0,08–0,19	0,10–0,25
1.13	**170–280**	**130–200**	0,04–0,12	0,04–0,13	0,05–0,13	0,05–0,15	0,07–0,17	0,08–0,19	0,08–0,19	0,10–0,25
1.14	**170–280**	**130–200**	0,04–0,12	0,04–0,13	0,05–0,13	0,05–0,15	0,07–0,17	0,08–0,19	0,08–0,19	0,10–0,25
1.15	**120–200**	**100–160**	0,04–0,12	0,04–0,13	0,05–0,13	0,05–0,15	0,07–0,17	0,08–0,19	0,08–0,19	0,10–0,25
1.16	**120–200**	**100–160**	0,04–0,12	0,04–0,13	0,05–0,13	0,05–0,15	0,07–0,17	0,08–0,19	0,08–0,19	0,10–0,25
2.1	140–230	**100–180**	0,04–0,09	0,04–0,09	0,04–0,08	0,04–0,10	0,06–0,12	0,07–0,15	0,07–0,15	0,08–0,18
2.2	140–230	**100–180**	0,04–0,09	0,04–0,09	0,04–0,08	0,04–0,10	0,06–0,12	0,07–0,15	0,07–0,15	0,08–0,18
2.3		**100–180**	0,04–0,11	0,04–0,11	0,04–0,13	0,05–0,15	0,05–0,16	0,06–0,16	0,06–0,16	0,08–0,20
2.4		**80–140**	0,04–0,11	0,04–0,11	0,04–0,13	0,05–0,15	0,05–0,16	0,06–0,16	0,06–0,16	0,08–0,20
2.5		**80–140**	0,04–0,08	0,04–0,08	0,04–0,09	0,05–0,11	0,05–0,12	0,05–0,12	0,05–0,12	0,08–0,15
2.6	140–230	**100–160**	0,04–0,09	0,04–0,09	0,04–0,09	0,05–0,11	0,05–0,12	0,05–0,12	0,05–0,12	0,08–0,16
2.7		**80–140**	0,04–0,08	0,04–0,08	0,04–0,09	0,05–0,11	0,05–0,12	0,05–0,12	0,05–0,12	0,08–0,15
3.1	**190–310**	120–200	0,07–0,18	0,07–0,20	0,08–0,22	0,10–0,23	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25
3.2	**170–290**	100–180	0,07–0,17	0,07–0,18	0,08–0,18	0,10–0,20	0,10–0,22	0,10–0,22	0,10–0,22	0,10–0,22
3.3	**190–310**	120–200	0,07–0,18	0,07–0,18	0,08–0,18	0,10–0,23	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25
3.4	**170–290**	100–180	0,07–0,17	0,07–0,18	0,08–0,16	0,10–0,20	0,10–0,22	0,10–0,22	0,10–0,22	0,10–0,22
3.5	**140–230**	80–160	0,07–0,17	0,07–0,18	0,08–0,16	0,10–0,20	0,10–0,22	0,10–0,22	0,10–0,22	0,10–0,22
3.6	**130–210**	70–150	0,07–0,17	0,07–0,18	0,08–0,16	0,10–0,20	0,10–0,22	0,10–0,22	0,10–0,22	0,10–0,22
3.7	**140–230**	80–160	0,07–0,17	0,07–0,18	0,08–0,16	0,10–0,20	0,10–0,22	0,10–0,22	0,10–0,22	0,10–0,22
3.8	**130–210**	70–150	0,07–0,17	0,07–0,18	0,08–0,16	0,10–0,20	0,10–0,22	0,10–0,22	0,10–0,22	0,10–0,22
4.1		150–500	0,06–0,12	0,07–0,14	0,08–0,15	0,10–0,16	0,10–0,16	0,10–0,17	0,10–0,17	0,10–0,17
4.2		150–450	0,06–0,12	0,07–0,14	0,08–0,14	0,10–0,18	0,10–0,18	0,10–0,19	0,10–0,19	0,10–0,19
4.3		150–350	0,06–0,12	0,07–0,14	0,08–0,14	0,10–0,18	0,10–0,18	0,10–0,19	0,10–0,19	0,10–0,19
4.4		150–300	0,06–0,12	0,07–0,14	0,08–0,14	0,10–0,18	0,10–0,18	0,10–0,19	0,10–0,19	0,10–0,19
4.5										
4.6		150–300	0,06–0,13	0,07–0,14	0,08–0,14	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,17
4.7		150–300	0,06–0,13	0,07–0,14	0,08–0,14	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,17
4.8		150–300	0,06–0,13	0,07–0,14	0,08–0,14	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,17
4.9		150–300	0,06–0,13	0,07–0,14	0,08–0,14	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,17
4.10		150–300	0,06–0,13	0,07–0,14	0,08–0,14	0,10–0,15	0,10–0,15	0,10–0,17	0,10–0,17	0,10–0,17
4.11		150–300	0,06–0,15	0,07–0,16	0,08–0,16	0,10–0,18	0,10–0,18	0,10–0,20	0,10–0,20	0,10–0,20
4.12		150–300	0,06–0,15	0,07–0,16	0,08–0,16	0,10–0,18	0,10–0,18	0,10–0,20	0,10–0,20	0,10–0,20
4.13										
4.14		50–150	0,04–0,09	0,04–0,10	0,04–0,08	0,05–0,10	0,05–0,10	0,05–0,10	0,05–0,10	0,05–0,10
4.15		50–140	0,06–0,14	0,07–0,14	0,08–0,14	0,10–0,15	0,10–0,15	0,10–0,15	0,10–0,15	0,10–0,15
4.16										
4.17										
4.18										
4.19										
5.1		20–80	0,03–0,06	0,04–0,06	0,04–0,06	0,04–0,06	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,09
5.2		20–80	0,03–0,06	0,04–0,06	0,04–0,06	0,04–0,06	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,09
5.3		20–80	0,03–0,06	0,04–0,06	0,04–0,06	0,04–0,06	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,09
5.4		20–80	0,03–0,06	0,04–0,06	0,04–0,06	0,04–0,06	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,09
5.5		20–80	0,03–0,06	0,04–0,06	0,04–0,06	0,04–0,06	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,09
5.6		20–80	0,03–0,06	0,04–0,06	0,04–0,06	0,04–0,06	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,09
5.7		20–80	0,03–0,06	0,04–0,06	0,04–0,06	0,04–0,06	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,09
5.8		20–80	0,03–0,06	0,04–0,06	0,04–0,06	0,04–0,06	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,09
5.9		40–100	0,03–0,06	0,04–0,06	0,04–0,06	0,04–0,06	0,04–0,07	0,05–0,08	0,05–0,08	0,05–0,09
5.10		40–80	0,04–0,08	0,04–0,08	0,04–0,08	0,05–0,11	0,05–0,11	0,06–0,12	0,07–0,12	0,07–0,12
5.11		40–80	0,04–0,08	0,04–0,08	0,04–0,08	0,05–0,11	0,05–0,11	0,06–0,12	0,07–0,12	0,07–0,12
6.1										
6.2										
6.3										
6.4										
6.5										

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

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

Cutting data standard values KUB Trigon – 2xD

Index	BK6115	BK8425	K and ABS Ø 14–16 mm	Ø 17–19 mm	Ø 20–24 mm	Ø 25–29 mm	Ø 30–36 mm	Ø 37–40 mm	Ø 41–44 mm
	v_c in m/min		f in mm/rev.						
1.1	250–350	200–320	0,04–0,08	0,04–0,1	0,04–0,1	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12
1.2	250–350	200–320	0,04–0,08	0,04–0,1	0,04–0,1	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12
1.3	250–300	250–300	0,04–0,06	0,04–0,08	0,06–0,12	0,07–0,14	0,07–0,14	0,07–0,14	0,08–0,16
1.4	250–300	250–300	0,04–0,06	0,04–0,08	0,06–0,12	0,07–0,14	0,07–0,14	0,07–0,14	0,08–0,16
1.5	250–300	250–300	0,04–0,06	0,04–0,08	0,06–0,12	0,07–0,14	0,07–0,14	0,07–0,14	0,08–0,16
1.6	200–280	140–220	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,14	0,08–0,16	0,08–0,16	0,08–0,16
1.7	200–280	140–220	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,14	0,08–0,16	0,08–0,16	0,08–0,16
1.8	200–280	140–220	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,14	0,08–0,16	0,08–0,16	0,08–0,16
1.9	250–300	250–300	0,04–0,06	0,04–0,08	0,06–0,12	0,07–0,14	0,07–0,14	0,07–0,14	0,08–0,16
1.10	200–280	140–220	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,14	0,08–0,16	0,08–0,16	0,08–0,16
1.11	200–280	140–220	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,14	0,08–0,16	0,08–0,16	0,08–0,16
1.12	200–280	140–220	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,14	0,08–0,16	0,08–0,16	0,08–0,16
1.13	200–280	140–220	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,14	0,08–0,16	0,08–0,16	0,08–0,16
1.14	70–110	50–90	0,03–0,05	0,03–0,06	0,04–0,08	0,06–0,1	0,07–0,1	0,08–0,12	0,08–0,12
1.15	170–230	120–200	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,12	0,08–0,12	0,08–0,12	0,08–0,14
1.16	170–230	120–200	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,12	0,08–0,12	0,08–0,12	0,08–0,14
2.1		150–210	0,04–0,06	0,04–0,08	0,06–0,1	0,08–0,14	0,08–0,14	0,08–0,14	0,08–0,14
2.2		150–210	0,04–0,06	0,04–0,08	0,06–0,1	0,08–0,14	0,08–0,14	0,08–0,14	0,08–0,14
2.3		150–210	0,04–0,06	0,04–0,08	0,06–0,1	0,08–0,14	0,08–0,14	0,08–0,14	0,08–0,14
2.4		120–200	0,04–0,06	0,04–0,06	0,06–0,08	0,08–0,12	0,08–0,12	0,08–0,12	0,08–0,14
2.5		110–190	0,04–0,06	0,04–0,06	0,06–0,08	0,08–0,12	0,08–0,12	0,08–0,12	0,08–0,12
2.6		120–200	0,04–0,06	0,04–0,06	0,06–0,08	0,08–0,12	0,08–0,12	0,08–0,12	0,08–0,14
2.7		110–190	0,04–0,06	0,04–0,06	0,06–0,08	0,08–0,12	0,08–0,12	0,08–0,12	0,08–0,12
3.1	160–320	140–220	0,06–0,1	0,06–0,12	0,08–0,14	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,25
3.2	160–320	140–220	0,06–0,1	0,06–0,12	0,08–0,14	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,25
3.3	120–200	140–220	0,06–0,08	0,06–0,1	0,08–0,14	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,25
3.4	100–180	120–180	0,06–0,08	0,06–0,1	0,08–0,14	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,25
3.5	90–150	110–170	0,06–0,1	0,06–0,12	0,08–0,16	0,1–0,25	0,1–0,25	0,1–0,25	0,1–0,25
3.6	90–150	110–170	0,06–0,1	0,06–0,12	0,08–0,16	0,1–0,25	0,1–0,25	0,1–0,25	0,1–0,25
3.7	90–150	110–170	0,06–0,1	0,06–0,12	0,08–0,16	0,1–0,25	0,1–0,25	0,1–0,25	0,1–0,25
3.8	90–150	110–170	0,06–0,1	0,06–0,12	0,08–0,16	0,1–0,25	0,1–0,25	0,1–0,25	0,1–0,25
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5.11									
6.1	50–90		0,03–0,05	0,03–0,05	0,04–0,08	0,06–0,1	0,06–0,1	0,08–0,12	0,08–0,12
6.2	30–50		0,03–0,05	0,03–0,05	0,04–0,08	0,06–0,1	0,06–0,1	0,06–0,1	0,06–0,1
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During the drilling operation on through holes a sharp disk will be produced.
Safety precautions must be observed.
A safety guard has to be provided as protection.

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

Cutting data standard values KUB Trigon – 3xD

Index	BK6115	BK8425	K and ABS Ø 14–16 mm	Ø 17–19 mm	Ø 20–24 mm	Ø 25–29 mm	Ø 30–36 mm	Ø 37–40 mm	Ø 41–44 mm
	v_c in m/min		f in mm/rev.						
1.1	250–350	200–320	0,04–0,08	0,04–0,1	0,04–0,1	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12
1.2	250–350	200–320	0,04–0,08	0,04–0,1	0,04–0,1	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,12
1.3	250–300	250–300	0,04–0,06	0,04–0,08	0,06–0,12	0,07–0,14	0,07–0,14	0,07–0,14	0,08–0,16
1.4	250–300	250–300	0,04–0,06	0,04–0,08	0,06–0,12	0,07–0,14	0,07–0,14	0,07–0,14	0,08–0,16
1.5	250–300	250–300	0,04–0,06	0,04–0,08	0,06–0,12	0,07–0,14	0,07–0,14	0,07–0,14	0,08–0,16
1.6	200–280	140–220	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,14	0,08–0,16	0,08–0,16	0,08–0,16
1.7	200–280	140–220	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,14	0,08–0,16	0,08–0,16	0,08–0,16
1.8	200–280	140–220	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,14	0,08–0,16	0,08–0,16	0,08–0,16
1.9	250–300	250–300	0,04–0,06	0,04–0,08	0,06–0,12	0,07–0,14	0,07–0,14	0,07–0,14	0,08–0,16
1.10	200–280	140–220	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,14	0,08–0,16	0,08–0,16	0,08–0,16
1.11	200–280	140–220	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,14	0,08–0,16	0,08–0,16	0,08–0,16
1.12	200–280	140–220	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,14	0,08–0,16	0,08–0,16	0,08–0,16
1.13	200–280	140–220	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,14	0,08–0,16	0,08–0,16	0,08–0,16
1.14	70–110	50–90	0,03–0,05	0,03–0,06	0,04–0,08	0,06–0,1	0,07–0,1	0,08–0,12	0,08–0,12
1.15	170–230	120–200	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,12	0,08–0,12	0,08–0,12	0,08–0,14
1.16	170–230	120–200	0,04–0,06	0,04–0,08	0,06–0,1	0,07–0,12	0,08–0,12	0,08–0,12	0,08–0,14
2.1		150–210	0,04–0,06	0,04–0,08	0,06–0,1	0,08–0,14	0,08–0,14	0,08–0,14	0,08–0,14
2.2		150–210	0,04–0,06	0,04–0,08	0,06–0,1	0,08–0,14	0,08–0,14	0,08–0,14	0,08–0,14
2.3		150–210	0,04–0,06	0,04–0,08	0,06–0,1	0,08–0,14	0,08–0,14	0,08–0,14	0,08–0,14
2.4		120–200	0,04–0,06	0,04–0,06	0,06–0,08	0,08–0,12	0,08–0,12	0,08–0,12	0,08–0,14
2.5		110–190	0,04–0,06	0,04–0,06	0,06–0,08	0,08–0,12	0,08–0,12	0,08–0,12	0,08–0,12
2.6		120–200	0,04–0,06	0,04–0,06	0,06–0,08	0,08–0,12	0,08–0,12	0,08–0,12	0,08–0,14
2.7		110–190	0,04–0,06	0,04–0,06	0,06–0,08	0,08–0,12	0,08–0,12	0,08–0,12	0,08–0,12
3.1	160–320	140–220	0,06–0,1	0,06–0,12	0,08–0,14	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,25
3.2	160–320	140–220	0,06–0,1	0,06–0,12	0,08–0,14	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,25
3.3	120–200	140–220	0,06–0,08	0,06–0,1	0,08–0,14	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,25
3.4	100–180	120–180	0,06–0,08	0,06–0,1	0,08–0,14	0,1–0,2	0,1–0,2	0,1–0,2	0,1–0,25
3.5	90–150	110–170	0,06–0,1	0,06–0,12	0,08–0,16	0,1–0,25	0,1–0,25	0,1–0,25	0,1–0,25
3.6	90–150	110–170	0,06–0,1	0,06–0,12	0,08–0,16	0,1–0,25	0,1–0,25	0,1–0,25	0,1–0,25
3.7	90–150	110–170	0,06–0,1	0,06–0,12	0,08–0,16	0,1–0,25	0,1–0,25	0,1–0,25	0,1–0,25
3.8	90–150	110–170	0,06–0,1	0,06–0,12	0,08–0,16	0,1–0,25	0,1–0,25	0,1–0,25	0,1–0,25
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6.1	50–90		0,03–0,05	0,03–0,05	0,04–0,08	0,06–0,1	0,06–0,1	0,08–0,12	0,08–0,12
6.2	30–50		0,03–0,05	0,03–0,05	0,04–0,08	0,06–0,1	0,06–0,1	0,06–0,1	0,06–0,1
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6.5									

During the drilling operation on through holes a sharp disk will be produced.
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Cutting data standard values KUB Trigon – 4xD

Index	BK6115	BK8425	K				
			Ø 14–16 mm	Ø 17–19 mm	Ø 20–24 mm	Ø 25–29 mm	Ø 30–35 mm
	v_c in m/min		f in mm/rev.				
1.1	250–350	200–320	0,04–0,06	0,04–0,08	0,04–0,08	0,05–0,1	0,05–0,1
1.2	250–350	200–320	0,04–0,06	0,04–0,08	0,04–0,08	0,05–0,1	0,05–0,1
1.3	250–300	250–300	0,02–0,04	0,04–0,06	0,04–0,1	0,06–0,12	0,06–0,12
1.4	250–300	250–300	0,02–0,04	0,04–0,06	0,04–0,1	0,06–0,12	0,06–0,12
1.5	250–300	250–300	0,02–0,04	0,04–0,06	0,04–0,1	0,06–0,12	0,06–0,12
1.6	200–280	140–220	0,02–0,04	0,04–0,06	0,06–0,08	0,06–0,12	0,06–0,14
1.7	200–280	140–220	0,02–0,04	0,04–0,06	0,06–0,08	0,06–0,12	0,06–0,14
1.8	200–280	140–220	0,02–0,04	0,04–0,06	0,06–0,08	0,06–0,12	0,06–0,14
1.9	250–300	250–300	0,02–0,04	0,04–0,06	0,04–0,1	0,06–0,12	0,06–0,12
1.10	200–280	140–220	0,02–0,04	0,04–0,06	0,06–0,08	0,06–0,12	0,06–0,14
1.11	200–280	140–220	0,02–0,04	0,04–0,06	0,06–0,08	0,06–0,12	0,06–0,14
1.12	200–280	140–220	0,02–0,04	0,04–0,06	0,06–0,08	0,06–0,12	0,06–0,14
1.13	200–280	140–220	0,02–0,04	0,04–0,06	0,06–0,08	0,06–0,12	0,06–0,14
1.14	70–110	50–90	0,02–0,04	0,03–0,04	0,04–0,06	0,04–0,08	0,04–0,1
1.15	170–230	120–200	0,02–0,04	0,04–0,06	0,06–0,08	0,05–0,1	0,05–0,1
1.16	170–230	120–200	0,02–0,04	0,04–0,06	0,06–0,08	0,05–0,1	0,05–0,1
2.1		150–210	0,02–0,04	0,04–0,06	0,04–0,08	0,06–0,12	0,06–0,12
2.2		150–210	0,02–0,04	0,04–0,06	0,04–0,08	0,06–0,12	0,06–0,12
2.3		150–210	0,02–0,04	0,04–0,06	0,04–0,08	0,06–0,12	0,06–0,12
2.4		120–200	0,02–0,04	0,02–0,04	0,04–0,06	0,06–0,1	0,06–0,1
2.5		110–190	0,02–0,04	0,02–0,04	0,04–0,06	0,06–0,1	0,06–0,1
2.6		120–200	0,02–0,04	0,02–0,04	0,04–0,06	0,06–0,1	0,06–0,1
2.7		110–190	0,02–0,04	0,02–0,04	0,04–0,06	0,06–0,1	0,06–0,1
3.1	160–320	140–220	0,06–0,08	0,06–0,1	0,06–0,12	0,08–0,18	0,08–0,18
3.2	160–320	140–220	0,06–0,08	0,06–0,1	0,06–0,12	0,08–0,18	0,08–0,18
3.3	120–200	140–220	0,04–0,06	0,06–0,08	0,06–0,12	0,08–0,18	0,08–0,18
3.4	100–180	120–180	0,04–0,06	0,06–0,08	0,06–0,12	0,08–0,18	0,08–0,18
3.5	90–150	110–170	0,06–0,08	0,06–0,1	0,08–0,14	0,1–0,23	0,1–0,23
3.6	90–150	110–170	0,06–0,08	0,06–0,1	0,08–0,14	0,1–0,23	0,1–0,23
3.7	90–150	110–170	0,06–0,08	0,06–0,1	0,08–0,14	0,1–0,23	0,1–0,23
3.8	90–150	110–170	0,06–0,08	0,06–0,1	0,08–0,14	0,1–0,23	0,1–0,23
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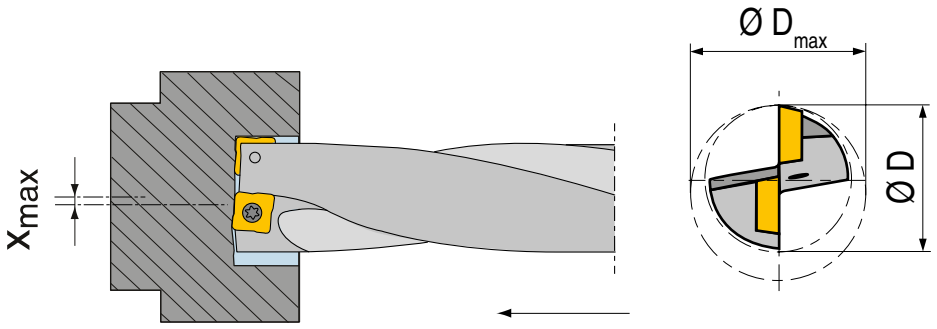
Cutting data standard values KUB Trigon – 4xD

Index	BK6115	BK8425	ABS Ø 14–16 mm	ABS Ø 17–19 mm	ABS Ø 20–24 mm	ABS Ø 25–29 mm	ABS Ø 30–36 mm	ABS Ø 37–40 mm	ABS Ø 41–44 mm
	v_c in m/min		f in mm/rev.						
1.1	250–350	200–320	0,04–0,06	0,04–0,08	0,04–0,08	0,05–0,1	0,05–0,1	0,05–0,1	0,05–0,1
1.2	250–350	200–320	0,04–0,06	0,04–0,08	0,04–0,08	0,05–0,1	0,05–0,1	0,05–0,1	0,05–0,1
1.3	250–300	250–300	0,02–0,04	0,04–0,06	0,04–0,1	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,14
1.4	250–300	250–300	0,02–0,04	0,04–0,06	0,04–0,1	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,14
1.5	250–300	250–300	0,02–0,04	0,04–0,06	0,04–0,1	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,14
1.6	200–280	140–220	0,02–0,04	0,04–0,06	0,06–0,08	0,06–0,12	0,06–0,14	0,06–0,14	0,06–0,14
1.7	200–280	140–220	0,02–0,04	0,04–0,06	0,06–0,08	0,06–0,12	0,06–0,14	0,06–0,14	0,06–0,14
1.8	200–280	140–220	0,02–0,04	0,04–0,06	0,06–0,08	0,06–0,12	0,06–0,14	0,06–0,14	0,06–0,14
1.9	250–300	250–300	0,02–0,04	0,04–0,06	0,04–0,1	0,06–0,12	0,06–0,12	0,06–0,12	0,06–0,14
1.10	200–280	140–220	0,02–0,04	0,04–0,06	0,06–0,08	0,06–0,12	0,06–0,14	0,06–0,14	0,06–0,14
1.11	200–280	140–220	0,02–0,04	0,04–0,06	0,06–0,08	0,06–0,12	0,06–0,14	0,06–0,14	0,06–0,14
1.12	200–280	140–220	0,02–0,04	0,04–0,06	0,06–0,08	0,06–0,12	0,06–0,14	0,06–0,14	0,06–0,14
1.13	200–280	140–220	0,02–0,04	0,04–0,06	0,06–0,08	0,06–0,12	0,06–0,14	0,06–0,14	0,06–0,14
1.14	70–110	50–90	0,02–0,04	0,03–0,04	0,04–0,06	0,04–0,08	0,04–0,1	0,05–0,12	0,05–0,12
1.15	170–230	120–200	0,02–0,04	0,04–0,06	0,06–0,08	0,05–0,1	0,05–0,1	0,05–0,1	0,05–0,12
1.16	170–230	120–200	0,02–0,04	0,04–0,06	0,06–0,08	0,05–0,1	0,05–0,1	0,05–0,1	0,05–0,12
2.1		150–210	0,02–0,04	0,04–0,06	0,04–0,08	0,06–0,12	0,06–0,12	0,06–0,12	0,08–0,12
2.2		150–210	0,02–0,04	0,04–0,06	0,04–0,08	0,06–0,12	0,06–0,12	0,06–0,12	0,08–0,12
2.3		150–210	0,02–0,04	0,04–0,06	0,04–0,08	0,06–0,12	0,06–0,12	0,06–0,12	0,08–0,12
2.4		120–200	0,02–0,04	0,04–0,06	0,04–0,06	0,06–0,1	0,06–0,1	0,06–0,1	0,08–0,12
2.5		110–190	0,02–0,04	0,04–0,06	0,04–0,06	0,06–0,1	0,06–0,1	0,06–0,1	0,08–0,1
2.6		120–200	0,02–0,04	0,04–0,06	0,04–0,06	0,06–0,1	0,06–0,1	0,06–0,1	0,08–0,12
2.7		110–190	0,02–0,04	0,04–0,06	0,04–0,06	0,06–0,1	0,06–0,1	0,06–0,1	0,08–0,1
3.1	160–320	140–220	0,06–0,08	0,06–0,1	0,06–0,12	0,08–0,18	0,08–0,18	0,08–0,18	0,1–0,23
3.2	160–320	140–220	0,06–0,08	0,06–0,1	0,06–0,12	0,08–0,18	0,08–0,18	0,08–0,18	0,1–0,23
3.3	120–200	140–220	0,04–0,06	0,06–0,08	0,06–0,12	0,08–0,18	0,08–0,18	0,08–0,18	0,1–0,23
3.4	100–180	120–180	0,04–0,06	0,06–0,08	0,06–0,12	0,08–0,18	0,08–0,18	0,08–0,18	0,1–0,23
3.5	90–150	110–170	0,06–0,08	0,06–0,1	0,08–0,14	0,1–0,23	0,1–0,23	0,1–0,23	0,1–0,23
3.6	90–150	110–170	0,06–0,08	0,06–0,1	0,08–0,14	0,1–0,23	0,1–0,23	0,1–0,23	0,1–0,23
3.7	90–150	110–170	0,06–0,08	0,06–0,1	0,08–0,14	0,1–0,23	0,1–0,23	0,1–0,23	0,1–0,23
3.8	90–150	110–170	0,06–0,08	0,06–0,1	0,08–0,14	0,1–0,23	0,1–0,23	0,1–0,23	0,1–0,23
4.1									
4.2									
4.3									
4.4									
4.5									
4.6									
4.7									
4.8									
4.9									
4.10									
4.11									
4.12									
4.13									
4.14									
4.15									
4.16									
4.17									
4.18									
4.19									
5.1									
5.2									
5.3									
5.4									
5.5									
5.6									
5.7									
5.8									
5.9									
5.10									
5.11									
6.1									
6.2									
6.3									
6.4									
6.5									

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

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

Maximum adjustment range (X) during solid drilling / from the centre for stationary applications – KUB Pentron



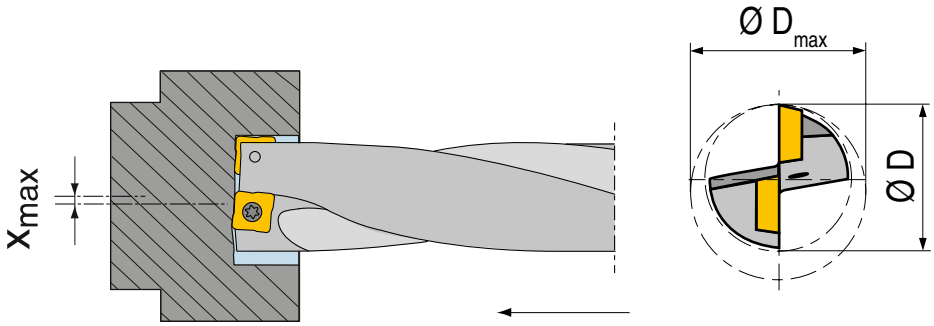
At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20.0 mm, X_{max} = 0.20 mm:
$D_{max} = D + 0.4 = 20.4$ mm

Ø D mm	Insert Size	X_{max} mm	Ø D_{max} mm
14	SOGX 04....	0,25	14,5
14,5		0,25	15,0
15,0		0,25	15,5
15,5		0,25	16,0
16,0		0,25	16,5
16,5	SOGX 05....	0,25	17,0
17,0		0,25	17,5
17,5		0,25	18,0
18,0		0,25	18,5
18,5	SOGX 06....	0,25	19,0
19,0		0,25	19,5
19,5		0,25	20,0
20,0		0,25	20,5
20,5	SOGX 07....	0,25	21,0
21,0		0,25	21,5
21,5		0,25	22,0
22,0		0,25	22,5
22,5		0,25	23,0
23,0		0,25	23,5
23,5	SOGX 08....	0,25	24,0
24,0		0,25	24,5
24,5		0,25	25,0
25,0		0,25	25,5
25,5		0,25	26,0
26,0		0,25	26,5
26,5	SOGX 09....	0,25	27,0
27,0		0,25	27,5
27,5		0,25	28,0
28,0		0,25	28,5
28,5		0,25	29,0
29,0		0,25	29,5
29,5		0,25	30,0
30,0		0,25	30,5
31,0	SOGX 10....	0,25	31,5
32,0		0,25	32,5
33,0		0,25	33,5

Ø D mm	Insert Size	X_{max} mm	Ø D_{max} mm
34,0	SOGX 11....	0,25	34,5
35,0		0,25	35,5
36,0		0,25	36,5
37,0		0,25	37,5
38,0	SOGX 12....	0,25	38,5
39,0		0,25	39,5
40,0		0,25	40,5
41,0		0,25	41,5
42,0		0,25	42,5
43,0	SOGX 13....	0,25	43,5
44,0		0,25	44,5
45,0		0,25	45,5
46,0		0,25	46,5

The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Maximum off set (X) for drilling into full material / with stationary applications – MaxiDrill 900 + KUB 100



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20.0 mm, X_{max} = 0.20 mm:
$D_{max} = D + 0.4 = 20.4$ mm

Ø D mm	Insert Size	X_{max} mm	Ø D_{max} mm
12,0	SONT 03....	0,50	13,0
12,5		0,40	13,3
13,0		0,35	13,7
13,5		0,30	14,1
14,0	SONT 04....	0,35	14,7
14,5		0,25	15,0
15,0		0,20	15,4
15,5		0,15	15,8
16,0	SONT 05....	0,40	16,8
16,5		0,35	17,2
17,0		0,30	17,6
17,5		0,25	18,0
18,0	SONT 06....	0,50	19,0
18,5		0,40	19,3
19,0		0,35	19,7
19,5		0,25	20,0
20,0		0,20	20,4
20,5		0,15	20,8
21,0	SONT 07....	0,35	21,7
21,5		0,30	22,1
22,0		0,25	22,5
22,5		0,15	22,8
23,0		0,15	23,3
23,5		0,10	23,7
24,0	SONT 08....	0,65	25,3
24,5		0,55	25,6
25,0		0,55	26,1
25,5		0,40	26,3
26,0		0,35	26,7
26,5		0,30	27,1
27,0		0,25	27,5
27,5		0,15	27,8
28,0	SONT 09....	0,90	29,8
28,5		0,80	30,1
29,0		0,75	30,5
29,5		0,70	30,9
30,0		0,60	31,2
30,5		0,55	31,6
31,0		0,45	31,9
31,5		0,40	32,3
32,0		0,30	32,6

Ø D mm	Insert Size	X_{max} mm	Ø D_{max} mm
32,5	SONT 10....	0,80	34,1
33,0		0,80	34,6
33,5		0,65	34,8
34,0		0,60	35,2
34,5		0,50	35,5
35,0		0,45	35,9
35,5		0,35	36,2
36,0		0,35	36,7
36,5		0,20	36,9
37,0	SONT 12....	1,00	39,0
38,0		0,85	39,7
39,0		0,70	40,4
40,0		0,50	41,0
41,0		0,35	41,7
42,0	SONT 13....	0,95	43,9
43,0		0,80	44,6
44,0		0,60	45,2
45,0		0,45	45,9
46,0		0,30	46,6
47,0	SONT 15....	1,80	50,6
48,0		1,65	51,3
49,0		1,50	52,0
50,0		1,35	52,7
51,0		1,15	53,3
52,0		0,95	53,9
53,0		0,80	54,6
54,0		0,60	55,2
55,0	SONT 17....	2,10	59,2
56,0		1,90	59,8
57,0		1,75	60,5
58,0		1,55	61,1
59,0		1,35	61,7
60,0		1,15	62,3
61,0		1,00	63,0
62,0		0,85	63,7
63,0		0,65	64,3

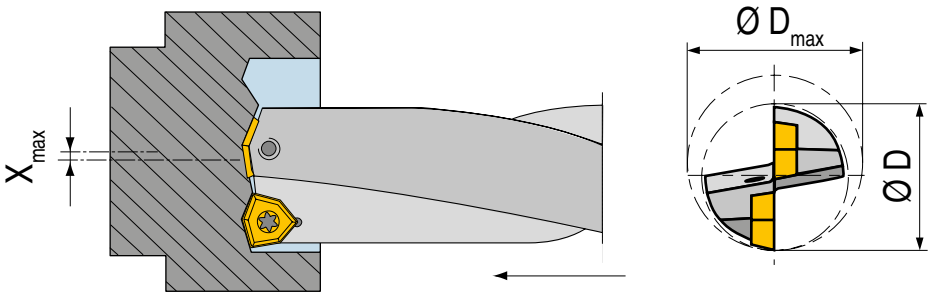
The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Technical data for turning – MaxiDrill 900

Insert Size	$a_{p\,max.}$ in mm	f in mm/rev.
SONT 03	0,40–1,50	0,08–0,22
SONT 04	0,40–1,80	0,09–0,27
SONT 05	0,60–2,40	0,10–0,30
SONT 06	0,60–2,80	0,11–0,34
SONT 07	0,60–3,40	0,13–0,38
SONT 08	0,70–4,20	0,15–0,41

Insert Size	$a_{p\,max.}$ in mm	f in mm/rev.
SONT 09	0,70–4,50	0,16–0,42
SONT 10	0,70–4,80	0,17–0,44
SONT 12	0,90–5,50	0,18–0,45
SONT 13	1,00–6,00	0,20–0,45
SONT 15	1,20–6,40	0,21–0,46
SONT 17	1,20–6,70	0,21–0,47

Maximum adjustment range (X) during solid drilling / from the centre for stationary applications – KUB Trigon



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20.0 mm, X_{max} = 0.20 mm:
$D_{max} = D + 0.4 = 20.4$ mm

Ø D mm	Insert Size	X_{max} mm	Ø D_{max} mm
14,0	WOEX 03....	0,5	15,0
15,0		0,5	16,0
16,0		0,5	17,0
17,0		0,5	18,0
18,0		0,5	19,0
19,0		0,5	20,0
20,0	WOEX 04....	0,5	21,0
21,0		0,5	22,0
22,0		0,5	23,0
23,0		0,5	24,0
24,0		0,5	25,0
25,0	WOEX 05....	0,5	26,0
26,0		1,0	28,0
27,0		1,5	30,0
28,0		1,5	31,0
29,0		1,5	32,0
30,0		1,25	32,5
31,0		1,25	33,5
32,0		1,0	34,0
33,0		0,5	34,0
34,0		0,5	35,0
35,0		0,5	36,0
36,0		0,5	37,0

Ø D mm	Insert Size	X_{max} mm	Ø D_{max} mm
37	WOEX 06....	1,5	40,0
38		1,5	41,0
39		1,5	42,0
40		1,5	43,0
41		1,5	44,0
42		1,5	45,0
43		1,0	45,0
44		0,5	45,0

The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Coding example indexable insert drilling

System	Length	Bore diameter	Direction of rotation	Insert size	Machine connection and size
MD-900	4D	240	R	08	C 32
KUB-T	2D	350	R	05	K 32
KUB-P	3D	215	R	07	ABS 50
KUB-P	3D	290	R	04	PSC 63
KUB-100	3D	300	R	07	C 25

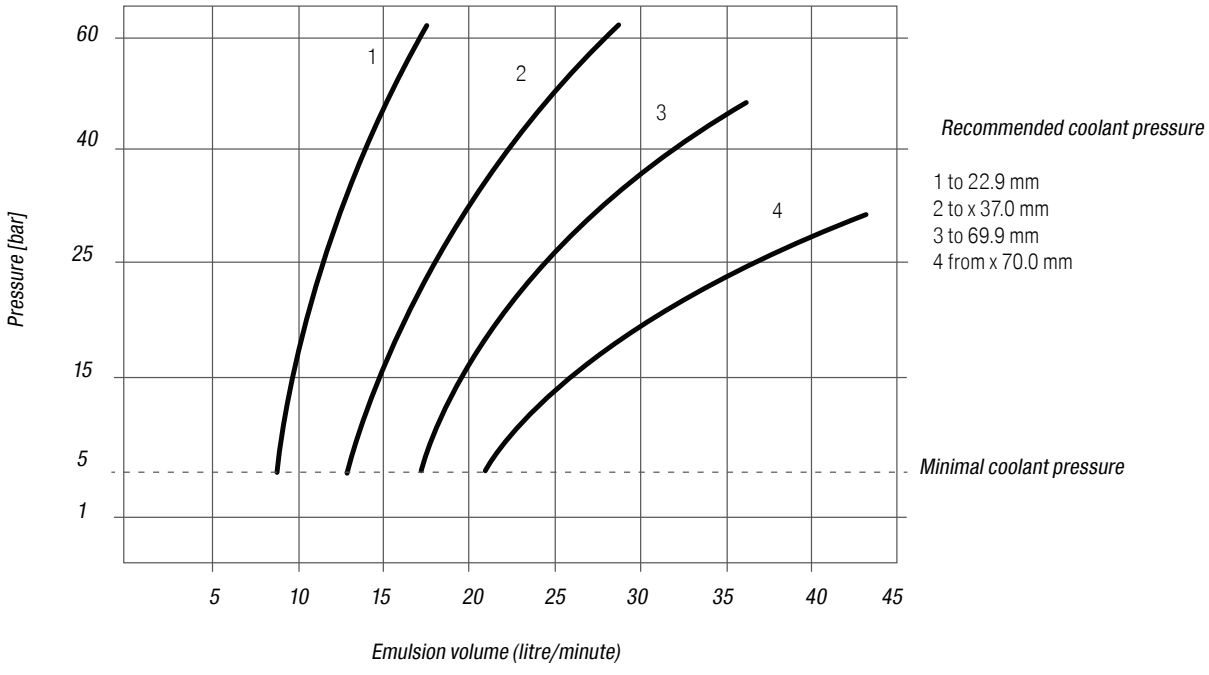
- MD-900 = MaxiDrill 900
- KUB-P = KUB Pentron
- KUB-T = KUB Trigon
- KUB-100 = KUB 100

- 240 = 24.0 mm
- 350 = 35.0 mm
- 215 = 21.5 mm
- 290 = 29,0 mm
- 300 = 30,0 mm

- R = right

- C32 = Cylindrical shank Ø 32.0 mm
- K32 = Cylindrical shank with combi clamping flat Ø 32.0 mm
- ABS50 = ABS adapter size 50
- PSC63 = PSC adapter shank size 63
- C25 = Cylindrical Shank Ø 25.0 mm

Recommended coolant pressure and coolant flow



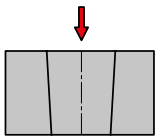
Problems / possible causes / solutions

Rotating and stationary application



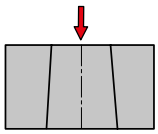
Short service life / types of wear of indexable inserts

- Cutting speed too high → select the correct cutting speed
- Insert grade selection has too little wear resistance → select a wear resistant grade
- Tool overhang too large → if possible, use a shorter tool
- Damaged insert seat → check tool, replace if necessary
- Clamping device stability too low → increase stability



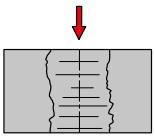
Hole tapers in

- Chip jam on the outer cutting edge → use a different chip breakage geometry, increase the feed if necessary
- Material very soft → increase the cutting speed, reduce the feed
- Use a positive cutting edge geometry



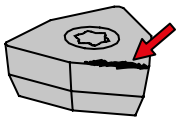
Hole tapers out

- Chip jam on the inner cutting edge → use a different chip breakage geometry, increase the feed if necessary



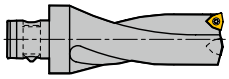
Poor surface quality

- Poor chip evacuation → optimise the cutting parameters: Increase the cutting speed, reduce the feed



Built-up edge

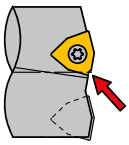
- Cutting speed too low → increase cutting speed
- Indexable insert too negative → use positive geometry
- Unsuitable coating → select the correct coating



Friction marks on the tool shank

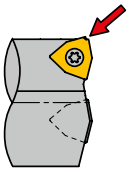
- Bore diameter too small → check the setting
- Chip evacuation problems → optimise the cutting parameters, check the geometry of the indexable insert
- Cutting radius too high → use the correct cutting radius

Stationary application



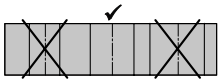
Edge breakage on the inner cutting edge

- Centre height of the tool too high/too low → adjust tool turret/adapter if necessary → Recalibrate the machine
- Indexable insert grades interchanged → use correct indexable insert
- Feed too high → reduce feed
- Indexable insert grade too brittle → use a tougher indexable insert grade
- Incorrect indexable insert geometry → if necessary use a geometry with a chamfered cutting edge



Edge breakage on the outer cutting edge

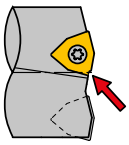
- Feed too high → reduce feed
- Interrupted cut → switch to a tougher grade of indexable insert
- Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large

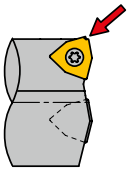
- Machine is not in the X-0 position → move axis to correct position
- Machine axis has been moved → recalibrate the machine

Rotating application



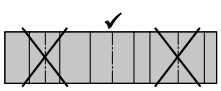
Edge breakage on the inner cutting edge

- Indexable insert grades interchanged → use correct indexable insert
- Feed too high → reduce feed
- Indexable insert grade too brittle → use a tougher indexable insert grade
- Incorrect indexable insert geometry → if necessary use a geometry with a chamfered cutting edge



Edge breakage on the outer cutting edge

- Feed too high → reduce feed
- Interrupted cut → switch to a tougher grade of indexable insert
- Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large when using adjustable tools

- Incorrect cutting radius used → use the correct cutting radius
- Incorrect setting → use the correct tool setting
- Increase cutting fluid supply

Grades Overview

CTPP430
CCN1430

- Carbide, TiAlN-coated
- ISO | **P30** | **M25** | S25 | K30 | N25
- The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

BK8425

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25**
- Universally applicable grade with increased wear resistance thanks to the innovative PVD coating in a multilayer design

CTCP420
DCX1420

- Carbide, TiCN-Al_2O_3-coated
- ISO | **P20** | **K20** | M20
- The wear-resistant solution for steel and cast iron materials at high cutting speeds

BK6115

- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | **P20** | **K20** | H20
- High-quality, surface-treated coating for machining cast iron materials under normal to stable conditions and high cutting speeds

BK7710

- Carbide, TiB_2-coated
- ISO | **N10** | S10
- The wear-resistant grade with optimum cutting characteristics to prevent built-up edge formation for machining aluminium and titanium alloys

BK7935

- Carbide, AlTiN-coated
- ISO | **P35** | **M30** | S30 | K30| N30
- The tough carbide grade for machining stainless steel and acid-resistant steels as well as special alloys

BK6425

- Carbide, TiCN-Al_2O_3-TiN-coated
- ISO | **P25 | M15**| K20
- The extremely wear-resistant grade for machining all steel and stainless materials

BK77

- Carbide, TiN-coated
- ISO | **S10** | **N10**
- The wear-resistant carbide grade for machining aluminum alloys, superalloys and plastics at medium cutting speeds

BK62

- Carbide, TiN-TiCN-Al_2O_3-coated
- ISO | **K15** | H15
- Special carbide grade for machining cast iron materials at high cutting speeds
  Not suitable for machining aluminium materials

Chip breakers

-01

- Universal geometry suitable for a wide range of materials
- Can be used for the center and peripheral insert

-03

- Geometry for chip breaking problems with excellent chip control at low feed rates
- Can only be used for the peripheral insert
- Main application in low alloyed and stainless steels

-11

- Highly positive, minimally rounded chip breaker
- For soft cutting use
- Main application in aluminum

-13

- Very positive geometry for low alloy, stainless and acid-resistant steels
- Can be used for the center and peripheral insert
- Due to the low cutting forces well suited to unstable conditions

Application

Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant alloys S	Hardened materials H
BK6115	HC-P20		●					
	HC-K20				●			
	HC-H20							○
BK8425	HC-P25		●					
	HC-M25			●				
	HC-K25				●			
BK7935	HC-P35		●					
	HC-M30			●				
	HC-S30						○	
	HC-K30				○			
	HC-N30					○		
BK7710	HC-N10					●		
	HC-S10						○	
BK6425	HC-P25		●					
	HC-M15			●				
	HC-K20				○			
CTCP420 DRAGONSKIN (DCX1420)	HC-P20		●					
	HC-K20				●			
	HC-M20			○				
CTPP430 DRAGONSKIN (CCN1430)	HC-P30		●					
	HC-M25			●				
	HC-S25						○	
	HC-N25					○		
	HC-K30				○			
BK62	HC-K15				●			
	HC-H15							○
BK77	HC-N10					●		
	HC-S10						●	

ISO application range: 01 05 10 15 20 25 30 35 40 45 50

● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c– tough

New products for machining technicians

NEW REAMAX TS



- maximum flexibility and efficiency up to Ø 65.00 mm
- up to 5xD
- can be adjusted for the smallest tolerances and for wear compensation

---

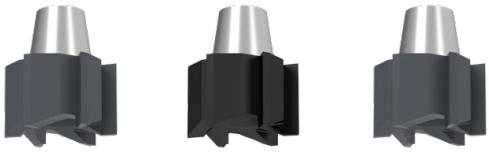
NEW Fullmax high-performance reamers



- solid carbide high-performance reamers
- type UNI, VA, K, ALU and H
- maximum efficiency in all materials
- available as standard H7, as 1/100, and as configurable version

---

NEW REAMAX extension

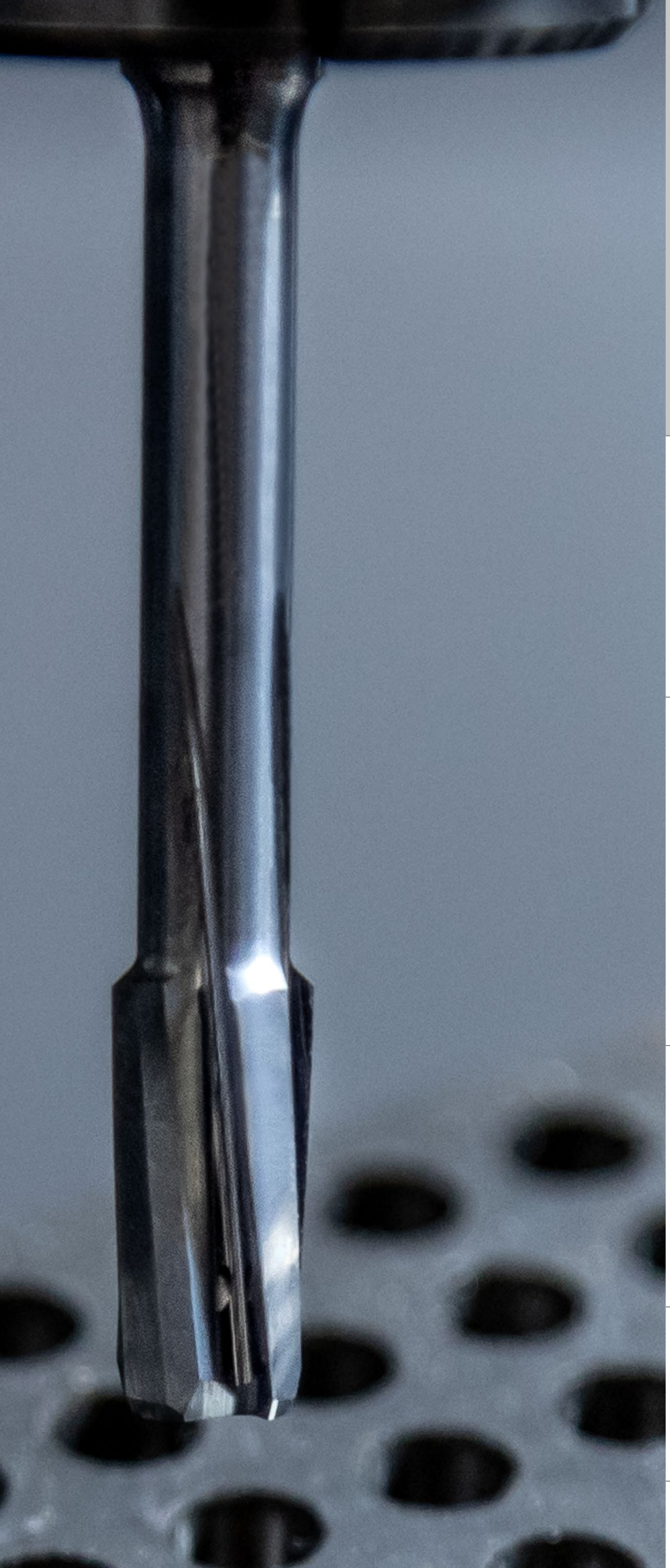


- extension of the proven REAMAX reaming system
- new cutting edge geometries and coatings

NEW Monomax extension



- extension of the proven Monomax reamers
- new grades and cutting edge geometries



Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut
11 Grooving Tools
12 Miniature turning tools

Milling

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

Tool Clamping

16 Adapters
17 Accessories

18 Material examples and article no. index

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Reamers Toolfinder	4+5
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Product range – Reamers	
Solid carbide – High speed reamers	7–28
Solid carbide – Reamers	29–31
HSS – Reamers	32–39
Product range – Countersinks	40–49
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REAMAX TS assembly and operating instructions	71+72
Problems / possible causes / solutions	73
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KOMET \ Performance

Premium quality tools for high performance.

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

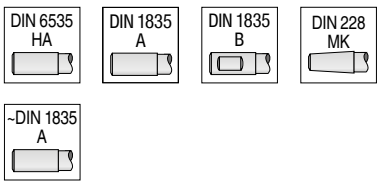
KOMET \ Standard

Quality tools for standard applications.

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

Symbol explanation

Shank





Version



Central internal coolant



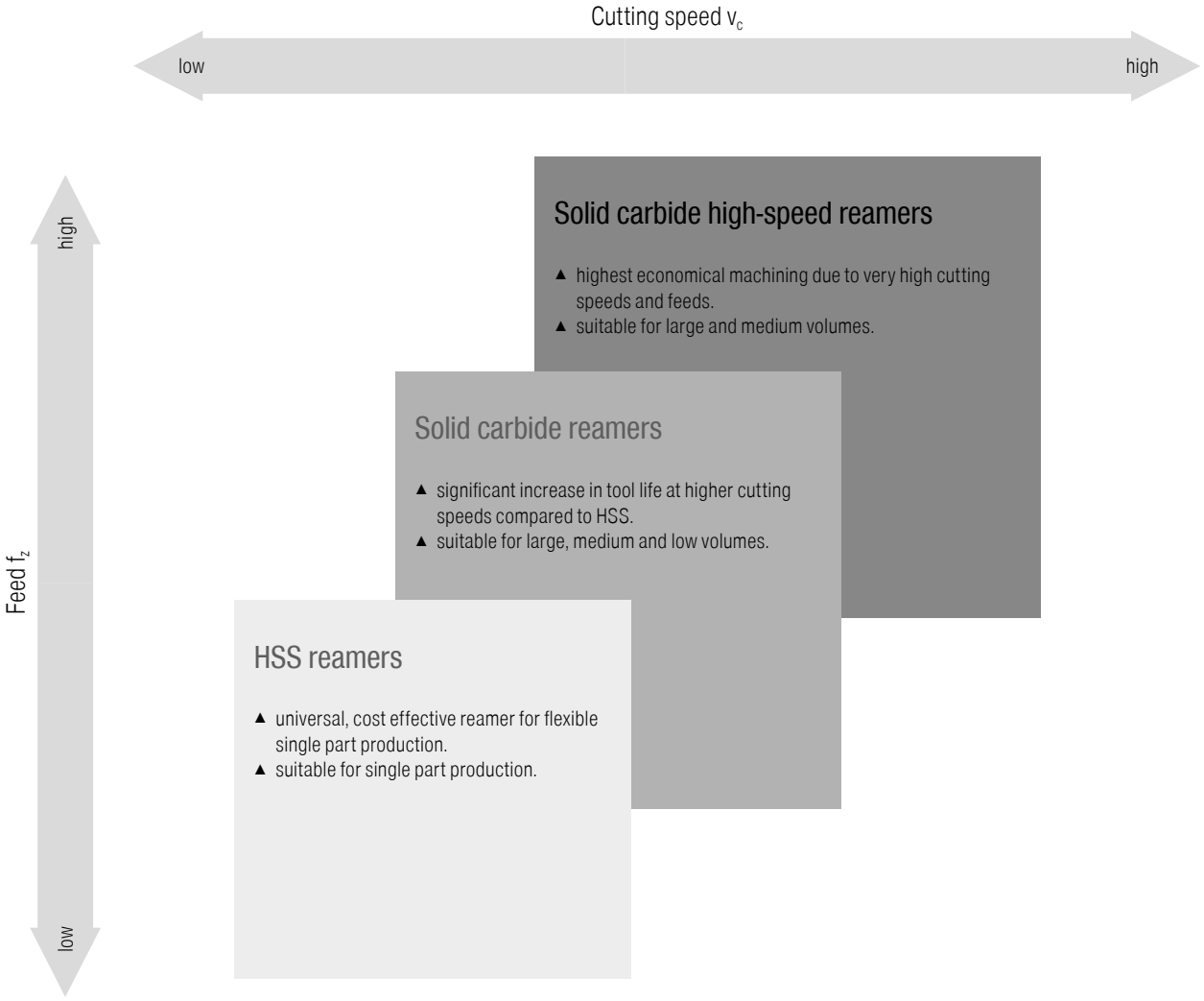
Lateral internal coolant

ZEFP = Number of teeth

● = **Main Application**

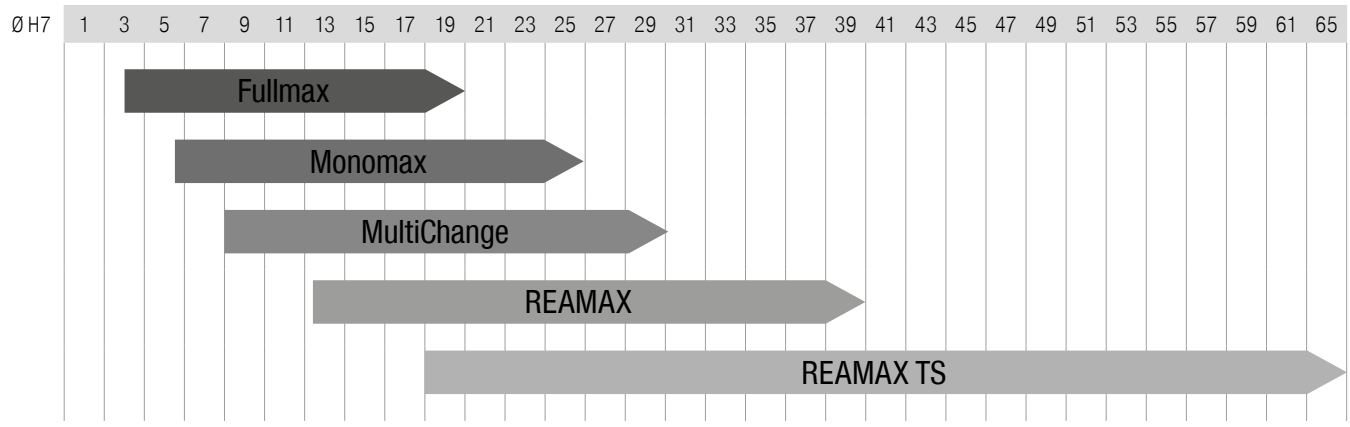
○ = Extended application

Toolfinder – Reamers



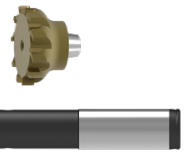
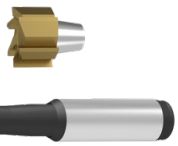
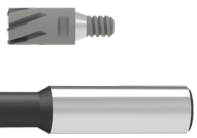
4

Overview of solid carbide high-speed reamers



	mono	modular
fixed	Fullmax	MultiChange REAMAX
adjustable	Monomax	REAMAX TS

Toolfinder – Reamers

Solid carbide – High speed reamers	REAMAX TS			▲ highly flexible and economical replaceable head system ▲ all common materials ▲ can be adjusted in µm range
				▲ holder available in 3xD and 5xD ▲ holder type DAH Zero available in 3xD and 5xD
	REAMAX			▲ exchange head system, optimised for use with air mist coolant (MMS) ▲ face and taper contact giving run out accuracy ≤ 2 µm
				▲ holder available in 3xD and 5xD
	MultiChange			▲ flexible quick change system for reaming, countersinking and chamfering ▲ face and taper contact giving run out accuracy ≤ 5 µm
				▲ stable holder in solid carbide and steel, from short to long
	Monomax			▲ adjustable monoblock reamer in 3xD and 5xD ▲ regrinding and re-tipping on the base body
	Fullmax UNI			▲ high-speed reamer for universal use ▲ extremely irregular pitch ▲ standard shank ~ DIN 6535 HA
	Fullmax VA			▲ high speed reamer for corrosion and acid resistant steels ▲ extremely irregular pitch ▲ DIN 6535 HA shank
	Fullmax K			▲ high-speed reamer for use on cast iron materials ▲ extremely irregular pitch ▲ standard shank ~ DIN 6535 HA
	Fullmax ALU			▲ high-speed reamer for use on aluminium ▲ extremely irregular pitch ▲ standard shank ~ DIN 6535 HA
	Fullmax H			▲ high speed reamer for hardened material to 63 HRC ▲ extremely irregular pitch ▲ DIN 6535 HA shank
Solid carbide – Reamers	NC	NC 100		▲ universal solid carbide reamer without thro' coolant ▲ extremely irregular pitch ▲ DIN 6535 HA shank
	N			▲ universal solid carbide reamer without thro' coolant ▲ extremely irregular pitch
HSS – Reamers	NC	NC 100		▲ HSS-E NC machine reamer ▲ DIN 1835 A shank
	N	N 100		▲ HSS-E machine reamer
	S			▲ HSS-E spiral machine reamer DIN 212
	AR	AR 100		▲ HSS-E automatic machine reamer DIN 8089
	N			▲ HSS-e machine reamer DIN 208 ▲ with morse taper
	H			▲ HSS hand reamer with cylindrical shank DIN 206

4

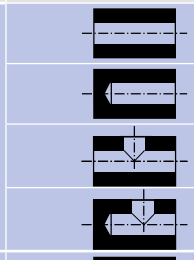
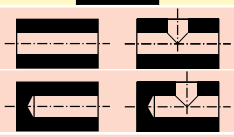
Hole diameter in mm Ø DC	Standard tolerance	Through hole	Blind hole	Int. coolant supply	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials	KOMET \ Performance	KOMET \ Standard
18,00–65,00	H7 1/100	✓	✓	✓	●	●	●	●			7–9	
				✓							10+11	
12,50–40,00	H7 1/100	✓	✓	✓	●	●	●	●			12+13	
				✓							14	
8,00–30,20	H7 1/100	✓	✓	✓	●	●	●	●	○		16+17	
				✓							→ Chapter 17, Accessories	
5,60–25,89	H7 1/100	✓	✓	✓	●	●	●				18–22	
4,00–16,00 2,96–20,05	H7 1/100	✓	✓	✓	●		●				23–28	
4,00–16,00 2,96–20,05	H7 1/100	✓	✓	✓		●					23–28	
2,96–20,05	1/100	✓	✓	✓			●				25–28	
4,00–16,00 2,96–20,05	H7 1/100	✓	✓	✓				●			23–28	
2,96–20,05	1/100	✓	✓	✓						●	25–28	
2,00–30,00 0,59–12,05	H7 1/100	✓			●		●	●	○		29+30	
2,00–12,00	H7	✓			●		●	●	○			31
1,50–20,00 0,95–12,00	H7 1/100	✓			●	○	●	●	○		32+33	
1,00–20,00 0,95–12,00	H7 1/100	✓			●	○	●	●	○			34–36
1,00–20,00	H7	✓			●			●				37
4,00–20,00 3,76–12,00	H7 1/100	✓			●	○	●	●	○			37+38
16,00–50,00	H7	✓			●	○	●	●	○			39
1,00–40,00	H7	✓			●	○	●	●	○			39

Countersinks Overview

	Tool type	Coating	Hole diameter in mm Ø DC	Point angle	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials	KOMET \ Performance	KOMET \ Standard
Indexable Insert Counterbore Tool												
	WPS		15,0–33,0		●	○	●	●	○			40
HSS – Counterbores												
	N		6,0–20,0		●	●	●	●	○			42
Solid Carbide Countersinks												
	N	TPX76S	6,3–31,0	90°	●	○	●	●	○	○	43	
	N		12,5–25,0	60°	●	○	●	●	○			44
	N		10,4–31,0	90°	●	○	●	●	○			44
HSS Countersinks												
	N		6,3–25,0	60°	●	○	●	●	○			47
	N		16,0–80,0	60°	●	○	●	●	○			47
	N	Ti50	4,3–31,0	90°	●	○	●	●	○		45	
	N		4,3–31,0	90°	●	○	●	●	○			46
	N	TiN	5,0–31,0	90°	●	○	●	●	○			46
	N	TiAlN	5,0–31,0	90°	●	○	●	●	○			46
	VA	TiAlN	6,3–31,0	90°		●						46
	AL		6,3–31,0	90°				●				46
	N		16,5–80,0	90°	●	○	●	●	○			48
	N		6,3–25,0	120°	●	○	●	●	○			48
HSS – Hand deburrer												
	N		12,4–25,0	90°								49
Deburring Countersink												
	N		6,3–35,0	90°	●		●	●				49
	N	TiN	6,3–35,0	90°	●		●	●				49

REAMAX TS – Selection guide

Ø 18–65 mm

	KOMET no.	75J.93	75J.65	75H.65	75J.17	75H.17	75H.93	75H.65	75H.71	75J.93
	Lead	ASG4000	ASG0106	ASG0106	ASG0706	ASG0706	ASG3000	ASG3000	ASG3000	ASG3000
	Lead angle	25°	45°	45°	45°/8°	45°/8°	45°	45°	45°	45°
	Grade / coating	DST	DBG-P	DBG-P	DBC	DBC	DST	DBG-P	TiN	DST
	Article no.	40 597 ...	40 521 ...	40 571 ...	40 526 ...	40 580 ...	40 539 ...	40 585 ...	40 535 ...	40 544 ...
	Application	Through hole	Through hole	Blind hole	Through hole	Blind hole	Blind hole	Blind hole	Blind hole	Through hole
Material	Preferred type available	✓	✓	✓			✓			✓
Steel up to 1000 N/mm²		●								●
							●	○	○	
								○	○	
								●	○	
Steel > 1000 N/mm²			●							
				●					○	
			●							
				●					○	
Stainless steel			●							
				●						
			●							
				●						
Grey cast iron / alloyed nodular cast iron (0.7661) and vermicular cast iron (5.2200)								○		
								●		
Nodular cast iron		○								●
							●	○		
								○		
								●		
Copper, brass, bronze										●
									○	
									○	
									●	
Aluminium					●					
						●				
					●					
						●				

Applications:

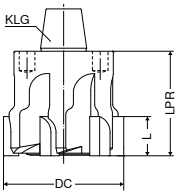
Main application	●
Additional range of application	○

4

REAMAX TS – Replaceable reaming heads

- ▲ up to tolerance class IT 6 with absolute process security, from the first hole
- ▲ precise repeatability < 3 µm
- ▲ high precision grind for maximum quality
- ▲ can be adjusted for the smallest hole tolerances
- ▲ interface enables head change in the machine
- ▲ retraction from the hole at 3–4 times the cutting feed rate
- ▲ KLG = coupling size





	DST	DBG-P	DBC	DST
				
	75J.93 ◁ 25° ASG4000 CERMET Through hole	75J.65 ◁ 45° ASG0106 HM Through hole	75J.17 ◁ 45/8° ASG0706 HM Through hole	75J.93 ◁ 45° ASG3000 CERMET Through hole
	NEW	NEW	NEW	NEW
DC H7 mm	Article no. 40 597 ...	Article no. 40 521 ...	Article no. 40 526 ...	Article no. 40 544 ...
18,00	6 20 6 1	18000	18000	18000	18000
18,01 - 19,99	6 20 6 1	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
20,00	6 20 6 2	20000	20000	20000	20000
20,01 - 21,99	6 20 6 2	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
22,00	6 20 6 3	22000	22000	22000	22000
22,01 - 23,99	6 20 6 3	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
24,00	6 20 6 3	24000	24000	24000	24000
24,01 - 24,99	6 20 6 3	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
25,00	6 20 6 3	25000	25000	25000	25000
25,01 - 25,99	6 20 6 3	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
26,00	6 20 6 3	26000	26000	26000 2)	26000
26,01 - 26,99	6 20 6 3	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
27,00 - 27,99	6 25 6 4	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
28,00	6 25 6 4	28000	28000	28000	28000
28,01 - 29,99	6 25 6 4	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
30,00	6 25 6 4	30000	30000	30000	30000
30,01 - 31,79	6 25 6 4	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
31,80 - 31,99	6 25 8 4	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
32,00	6 25 8 4	32000	32000	32000	32000
32,01 - 34,99	6 25 8 4	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
35,00	6 25 8 5	35000	35000	35000	35000
35,01 - 39,99	6 25 8 5	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
40,00	6 25 8 5	40000	40000	40000	40000
40,01 - 41,99	6 25 8 5	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
42,00	6 30 8 6	42000	42000	42000 2)	42000
42,01 - 49,99	6 30 8 6	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
50,00	6 30 8 6	50000	50000	50000	50000
50,01 - 51,99	6 30 8 6	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
52,00 - 53,99	8 35 10 7	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
54,00	8 35 10 7	54000	54000	54000 2)	54000
54,01 - 65,00	8 35 10 7	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
Steel		●	●		●
Stainless steel			●		
Cast iron		●			●
Non ferrous metals				●	○
Heat resistant alloys					
Hardened materials					

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 51–53

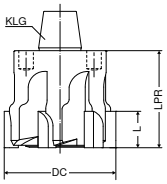
For xxxx when ordering please specifiy the required Ø in H7 (eg Ø 24,12 H7 → Article no. 40 597 2412)!
All other diameters and tolerance classes are also possible (eg 18,5 $^{+0.025}$ or 18 N7)!

Assembly instructions can be found on → **Page 71**

REAMAX TS – Replaceable reaming heads

- ▲ up to tolerance class IT 6 with absolute process security, from the first hole
- ▲ precise repeatability < 3 µm
- ▲ high precision grind for maximum quality
- ▲ can be adjusted for the smallest hole tolerances
- ▲ interface enables head change in the machine
- ▲ retraction from the hole at 3–4 times the cutting feed rate
- ▲ KLG = coupling size





DST	DBG-P	DBC	DBG-P	TiN
				
75H.93 ◁ 45° ASG3000 CERMET Blind hole	75H.65 ◁ 45° ASG0106 HM Blind hole	75H.17 ◁ 45/8° ASG0706 HM Blind hole	75H.65 ◁ 45° ASG3000 HM Blind hole	75H.71 ◁ 45° ASG3000 HM Blind hole
NEW Article no. 40 539 ...	NEW Article no. 40 571 ...	NEW Article no. 40 580 ...	NEW Article no. 40 585 ...	NEW Article no. 40 535 ...

DC H7 mm	L mm	LPR mm	ZEFP	KLG									
18,00	6	20	6	1	18000		18000		18000 2)		18000 1)		18000 1)
18,01 - 19,99	6	20	6	1	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
20,00	6	20	6	2	20000		20000		20000 2)		20000 1)		20000 1)
20,01 - 21,99	6	20	6	2	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
22,00	6	20	6	3	22000		22000		22000 2)		22000 1)		22000 1)
22,01 - 23,99	6	20	6	3	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
24,00	6	20	6	3	24000		24000		24000 2)		24000 1)		24000 1)
24,01 - 24,99	6	20	6	3	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
25,00	6	20	6	3	25000		25000		25000 2)		25000 1)		25000 1)
25,01 - 25,99	6	20	6	3	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
26,00	6	20	6	3	26000		26000		26000 2)		26000 1)		26000 1)
26,01 - 26,99	6	20	6	3	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
27,00 - 27,99	6	25	6	4	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
28,00	6	25	6	4	28000		28000		28000 2)		28000 1)		28000 1)
28,01 - 29,99	6	25	6	4	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
30,00	6	25	6	4	30000		30000		30000 2)		30000 1)		30000 1)
30,01 - 31,79	6	25	6	4	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
31,80 - 31,99	6	25	8	4	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
32,00	6	25	8	4	32000		32000		32000 2)		32000 1)		32000 1)
32,01 - 34,99	6	25	8	4	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
35,00	6	25	8	5	35000		35000		35000 2)		35000 1)		35000 1)
35,01 - 39,99	6	25	8	5	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
40,00	6	25	8	5	40000		40000		40000 2)		40000 1)		40000 1)
40,01 - 41,99	6	25	8	5	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
42,00	6	30	8	6	42000		42000		42000 2)		42000 1)		42000 1)
42,01 - 49,99	6	30	8	6	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
50,00	6	30	8	6	50000		50000		50000 2)		50000 1)		50000 1)
50,01 - 51,99	6	30	8	6	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
52,00 - 53,99	8	35	10	7	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)
54,00	8	35	10	7	54000		54000		54000 2)		54000 1)		54000 1)
54,01 - 65,00	8	35	10	7	xxxx 1)		xxxx 1)		xxxx 2)		xxxx 1)		xxxx 1)

Steel	●	●		●	○
Stainless steel		●			
Cast iron	●			●	
Non ferrous metals	○		●		●
Heat resistant alloys					
Hardened materials					

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 51–53

For xxxx when ordering please specifiy the required Ø in H7 (eg Ø 24,12 H7 → Article no. 40 539 2412)!
All other diameters and tolerance classes are also possible (eg 18,5 $^{+0.025}$ or 18 N7)!

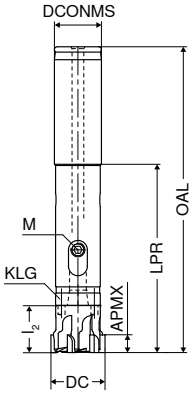
Assembly instructions can be found on → **Page 71**

REAMAX TS – Holder

▲ KLG = Coupling Size

Supply details:

Complete holder incl. pull stud but without exchangeable head







DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	APMX mm	DCONMS $_{h6}$ mm	M Nm	NEW Article no. 40 501 ...	NEW Article no. 40 503 ...
18,00 - 19,99	75A.40.13010	1	130	20	80	6	20	1,5	02099	
18,00 - 19,99	75A.40.15010	1	190	20	140	6	20	1,5		02099
20,00 - 21,99	75A.40.13020	2	130	20	80	6	20	2,5	02299	
20,00 - 21,99	75A.40.15020	2	190	20	140	6	20	2,5		02299
22,00 - 26,99	75A.40.13030	3	130	20	80	6	20	4	02799	
22,00 - 26,99	75A.40.15030	3	210	20	160	6	20	4		02799
27,00 - 34,99	75A.40.13040	4	176	25	120	6	25	5	03599	
27,00 - 34,99	75A.40.15040	4	236	25	180	6	25	5		03599
35,00 - 41,99	75A.40.13050	5	176	25	120	6	25	6	04299	
35,00 - 41,99	75A.40.15050	5	256	25	200	6	25	6		04299
42,00 - 51,99	75A.40.13060	6	180	30	120	6	32	10	05299	
42,00 - 51,99	75A.40.15060	6	280	30	220	6	30	10		05299
52,00 - 65,00	75A.40.13070	7	180	30	120	8	32	13	06599	
52,00 - 65,00	75A.40.15070	7	280	30	220	8	30	13		06599

Do not heat shrink tools!



Reamax TS pull stud



Clamping key – T



Key D

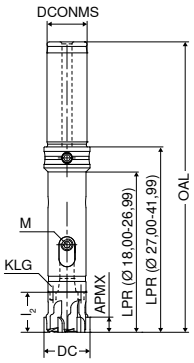
Spare parts DC	Article no. 40 900 ...		Article no. 80 397 ...		Article no. 80 950 ...	
18,00 - 19,99	00100				T08 - IP	039
20,00 - 21,99	00200	SW2,5	025			
22,00 - 26,99	00300	SW3	030			
27,00 - 34,99	00400	SW3	030			
35,00 - 41,99	00500	SW3	030			
42,00 - 51,99	00500	SW4	040			
52,00 - 65,00	00700	SW5	050			

Assembly instructions can be found on → **Page 71**

REAMAX TS – Holder

- KLG = Coupling size
- adjustment inside the machine
- alignable DAH Zero holder for correction of concentricity error
- DAH Zero holder is pre-loaded and set to a runout of < 0.005 mm

Supply details:
Complete holder incl. pull stud but without exchangeable head



DAH Zero



~A
≤ 3xD

DAH Zero



~A
≤ 5xD

DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	APMX mm	DCONMS $_{h6}$ mm	M Nm	NEW Article no. 40 504 ...	NEW Article no. 40 506 ...
18,00 - 19,99	75A.41.13010	1	145	20	80	6	20	1,5	**02099**	
18,00 - 19,99	75A.41.15010	1	205	20	140	6	20	1,5		**02099**
20,00 - 21,99	75A.41.13020	2	145	20	80	6	20	2,5	**02299**	
20,00 - 21,99	75A.41.15020	2	205	20	140	6	20	2,5		**02299**
22,00 - 26,99	75A.41.13030	3	145	20	80	6	20	4	**02799**	
22,00 - 26,99	75A.41.15030	3	225	20	160	6	20	4		**02799**
27,00 - 34,99	75A.41.13040	4	145	25	120	6	25	5	**03599**	
27,00 - 34,99	75A.41.15040	4	236	25	180	6	25	5		**03599**
35,00 - 41,99	75A.41.13050	5	176	25	120	6	25	6	**04299**	
35,00 - 41,99	75A.41.15050	5	236	25	200	6	25	6		**04299**

Do not heat shrink tools!



Reamax TS pull stud



Clamping key – T

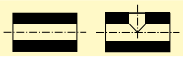
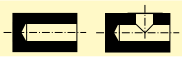
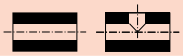
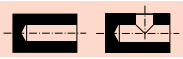


Key D

Spare parts DC	Article no. 40 900 ...		Article no. 80 397 ...		Article no. 80 950 ...
18,00 - 19,99	**00100**			T08 - IP	**039**
20,00 - 21,99	**00200**	SW2,5	**025**		
22,00 - 26,99	**00300**	SW3	**030**		
27,00 - 34,99	**00400**	SW3	**030**		
35,00 - 41,99	**00500**	SW3	**030**		

Assembly instructions can be found on → **Page 71**

REAMAX – Selection guide

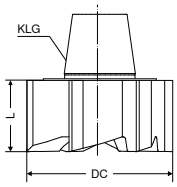
Ø 12,5–40 mm	**KOMET no.**	640.93	640.65	640.27	640.93	640.65	640.71
	Lead	ASG4000	ASG0106	ASG0706	ASG3000	ASG3000	ASG3000
	Lead angle	25°	45°	45°/8°	45°	45°	45°
	New grade / coating	DST	DBG-P	DBC	DST	DBG-P	TiN
	Old grade / coating	CWC10	TiALN	DLC	CWC10	TiALN	CWN10
	Article no.	40 536 ...	40 551 ...	40 570 ...	40 525 ...	40 560 ...	40 505 ...
	Application	Through hole	Through hole-Blind hole				
Material	**Preferred type available**	✓	✓	✓	✓	✓	✓
Steel up to 1000 N/mm²		●			●	○	○
					●	○	○
						●	○
						●	○
Steel > 1000 N/mm²			●		●		
			●				
			●				
			●				
Stainless steel			●				
			●				
Grey cast iron / alloyed nodular cast iron (0.7661) and vermicular cast iron (5.2200)						●	
						●	
Nodular cast iron		○			●	○	
					●	○	
						●	
						●	
Copper, brass, bronze					○		●
					○		●
							●
							●
Aluminium				●			
				●			
				●			
				●			
Tempered steel			●				
			●				
			●				
			●				

Applications:	Main application	●
	Additional range of application	○

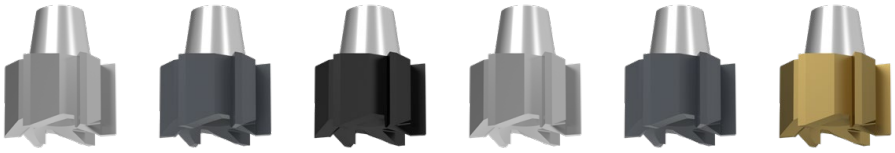
REAMAX – Replaceable reaming heads

- ▲ up to tolerance zone IT 7 with absolute process safety, from the first hole
- ▲ precise repeatability < 2 µm
- ▲ maximum radial run-out accuracy thanks to precision ground taper location
- ▲ no Ø adjustment necessary
- ▲ optimised for application with minimum quantity lubrication (MMS)
- ▲ retraction from the hole at 3–4 times the cutting feed rate
- ▲ KLG = coupling size





DST	DBG-P	DBC	DST	DBG-P	TiN
CWC10	TiAlN	DLC	CWC10	TiAlN	CWN10



640.93 ◁ 25° ASG4000 CERMET Through hole	640.65 ◁ 45° ASG0106 HM Through hole + Blind hole	640.27 ◁ 45° ASG0706 HM Through hole + Blind hole	640.93 ◁ 45° ASG3000 CERMET Through hole + Blind hole	640.65 ◁ 45° ASG3000 HM Through hole + Blind hole	640.71 ◁ 45° ASG3000 HM Through hole + Blind hole
	NEW	NEW		NEW	

DC_{H7} mm	L mm	ZEFP	KLG	Article no. 40 536 ...	Article no. 40 551 ...	Article no. 40 570 ...	Article no. 40 525 ...	Article no. 40 560 ...	Article no. 40 505 ...
12,50 - 14,99	9	6	1	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)	xxxx 1)
15,00	9	6	1	15000 2)	15000 1)	15000 1)	15000 2)	15000	150
15,01 - 15,99	9	6	1	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)	xxxx 1)
16,00	9	6	2	160	16000 1)	16000 1)	160	16000	160
16,01 - 17,99	9	6	2	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)	xxxx 1)
18,00	9	6	2	180	18000 1)	18000 1)	180	18000	180
18,01 - 19,99	9	6	2	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)	xxxx 1)
20,00	9	6	2	200	20000 1)	20000 1)	200	20000	200
20,01 - 21,99	9	6	2	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)	xxxx 1)
22,00	9	8	3	220	22000 1)	22000 1)	220	22000	220
22,01 - 23,99	9	8	3	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)	xxxx 1)
24,00	9	8	3	24000 2)	24000 1)	24000 1)	24000 2)	24000	240
24,01 - 24,99	9	8	3	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)	xxxx 1)
25,00	9	8	3	250	25000 1)	25000 1)	250	25000	250
25,01 - 25,99	9	8	3	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)	xxxx 1)
26,00 - 27,99	9	8	4	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)	xxxx 1)
28,00	9	8	4	280	28000 1)	28000 1)	280	28000	280
28,01 - 29,99	9	8	4	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)	xxxx 1)
30,00	9	8	4	300	30000 1)	30000 1)	300	30000	300
30,01 - 32,00	9	8	4	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)	xxxx 1)
32,01 - 39,99	9	8	5	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)	xxxx 1)
40,00	9	8	5	400	40000 1)	40000 1)	400	40000	400

Steel	●	●		●	●	○
Stainless steel		●				
Cast iron	○			●	●	
Non ferrous metals			●	○		●
Heat resistant alloys						
Hardened materials		●				

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

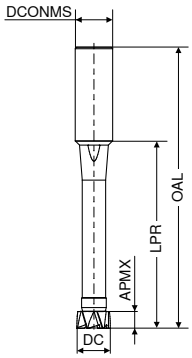
→ v_c Page 55-57

For xxxx when ordering please specifiy the required Ø in H7 (eg Ø 15.12 H7 → Article no. 40 525 1512)!
All other diameters and tolerance classes are also possible (eg 18.5 $^{+0.025}$ or 18 N7)!

REAMAX – Holder

▲ KLG = Coupling size

Supply details:
Tool holder fitted with clamp and hexagonal key, but without replaceable head





DC mm	KOMET no.	KLG	OAL mm	LPR mm	APMX mm	DCONMS $_{h6}$ mm	M Nm	Article no. 40 590 ...	Article no. 40 591 ...
12,50 - 15,99	640.01.001	1	107	59	9	16	4 - 5	016	
12,50 - 15,99	640.81.001	1	137	89	9	16	4 - 5		016
16,00 - 21,99	640.01.002	2	119	69	9	20	6 - 7	022	
16,00 - 21,99	640.81.002	2	169	119	9	20	6 - 7		022
22,00 - 25,99	640.01.003	3	140	84	9	25	10 - 12	026	
22,00 - 25,99	640.81.003	3	196	140	9	25	10 - 12		026
26,00 - 32,00	640.01.005	4	160	104	9	25	18 - 20	032	
26,00 - 32,00	640.81.005	4	226	170	9	25	18 - 20		032
32,01 - 40,00	640.01.006	5	199	139	9	32	26 - 28	040	
32,01 - 40,00	640.81.006	5	270	210	9	32	26 - 28		040

Do not heat shrink tools!


Draw bolt 5xD

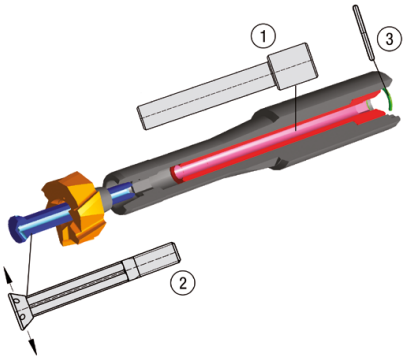

Draw bolt 3xD


Draw bar


Circlip

Spare parts DC	DCONMS $_{h6}$	Article no. 40 950 ...	Article no. 40 950 ...	Article no. 40 950 ...	Article no. 40 950 ...
12,50 - 15,99	16		101	001	301
12,50 - 15,99	16	107		001	301
16,00 - 21,99	20	108		002	302
16,00 - 21,99	20		102	002	302
22,00 - 25,99	25		103	003	303
22,00 - 25,99	25	109		003	303
26,00 - 32,00	25		104	004	303
26,00 - 32,00	25	110		004	303
32,01 - 40,00	32	112		005	304
32,01 - 40,00	32		106	005	304

1. Draw bolt
2. Draw bar
3. Circlip



MultiChange Programme Overview

The highly stable „MultiChange“ exchangeable head system enables an extremely fast tool change. Designed to be durable and for a very high radial run-out accuracy, this exchangeable head system is probably the most stable and precise exchangeable head system on the market. The following chapters contain suitable exchangeable heads for almost every application.

Solid carbide drilling

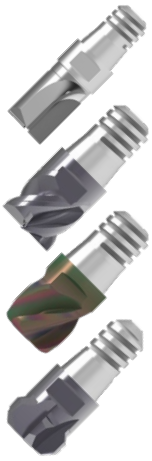


- Solid carbide NC Spot Drill
  ◁ 90°, 120°, 142° / Ø 8, 10, 12, 16, 20 mm / ZEFP* 2

→ **Chapter 2, Solid carbide drilling**

*ZEFP = Number of teeth

Solid carbide milling cutters



- PCD shoulder mills
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 2
- Solid carbide shoulder mills
  Type N, PCR-UNI, PCR-ALU / Ø 8, 10, 12, 16, 20 mm / ZEFP 3+4
- Solid carbide rough and finish milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 4–6
- Solid carbide finish milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 6
- Solid carbide high-feed cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 6
- Solid carbide ball-nosed end mills
  Ø 10, 12, 16, 20 mm / ZEFP* 4
- Solid carbide torus bull nose milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 3+4
- Solid carbide quarter round cutter
  Ø 8, 10, 12, 16, 20 mm
- Solid carbide deburring cutters
  Ø 10, 12, 16, 20 mm / ZEFP* 4+6

→ **Chapter 14, Solid carbide milling cutters**

*ZEFP = Number of teeth

Tool holder



- Steel holder extra short
  Cylindrical / Tapered 87°
  Length 60–90 mm
  for KLG 8, 10, 12, 16, 20 mm



- Short holder steel/Solid carbide
  Cylindrical
  Length 85–120 mm
  for KLG 8, 10, 12, 16, 20 mm



- Holder steel /Solid carbide, short
  87° Taper
  Length 85–120 mm
  for KLG 8, 10, 12, 16, 20 mm



- Solid carbide holder, medium
  Cylindrical / Tapered 87°
  Length 110–150 mm
  for KLG 8, 10, 12, 16, 20 mm



- Holder steel/Solid carbide, long
  Cylindrical
  Length 150–200 mm
  for KLG 8, 10, 12, 16, 20 mm



- Holder steel/Solid carbide, long
  87° Taper
  Length 150–200 mm
  for KLG 8, 10, 12, 16, 20 mm



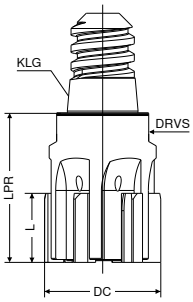
- Steel/Solid carbide holder, extra long
  Cylindrical
  Length 200–250 mm
  for Ø 16 and 20 mm

→ **Chapter 17, Accessories**

MultiChange – Reaming head, for thro' holes

- ▲ to tolerance zone IT 7 with absolute process security – from the first hole
- ▲ high-speed reaming heads
- ▲ irregular pitch for highest concentricity
- ▲ repeatability ≤ 5 µm
- ▲ KLG = coupling size





	CWC10	TiAIN	TiAIN	K10	PDC
					
	Left Hand Helix ◁ 30° CERMET Through hole	Left Hand Helix ◁ 30° HM Through hole	straight flute ◁ 45° HM Through hole	straight flute ◁ 45° Solid carbide Through hole	straight flute ◁ 45° PDC Through hole

DC H7 mm	KLG	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm	Article no. 40 210 ...	Article no. 40 220 ...	Article no. 40 230 ...	Article no. 40 240 ...	Article no. 40 245 ...
8,00	06	8	18	4	6	5,0	080	080	080	080 1)	080 1)
8,01 - 9,70	06	8	18	4	6	5,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
9,71 - 9,99	06	8	18	6	8	5,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
10,00	06	8	18	6	8	5,0	100	100	100	100 1)	100 1)
10,01 - 10,70	06	8	18	6	8	5,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
10,71 - 11,99	08	8	20	6	8	12,5	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
12,00	08	8	20	6	8	12,5	120	120	120	120 1)	120 1)
12,01 - 12,70	08	8	20	6	8	12,5	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
12,71 - 13,99	10	8	22	6	10	15,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
14,00	10	8	22	6	10	15,0	140	140	140	140 1)	140 1)
14,01 - 15,99	10	8	22	6	10	15,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
16,00	10	8	22	6	10	15,0	160	160	160	160 1)	160 1)
16,01 - 16,20	10	8	22	6	10	15,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
16,21 - 17,20	10	8	22	6	13	15,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
17,21 - 17,99	12	12	26	6	13	20,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
18,00	12	12	26	6	13	20,0	180	180	180	180 1)	180 1)
18,01 - 19,20	12	12	26	6	13	20,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
19,21 - 19,99	12	12	26	6	16	20,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
20,00	12	12	26	6	16	20,0	200	200	200	200 1)	200 1)
20,01 - 20,20	12	12	26	6	16	20,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
20,21 - 21,20	12	12	26	6	16	20,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
21,21 - 21,99	16	12	26	6	16	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
22,00	16	12	26	6	16	25,0	220	220	220	220 1)	220 1)
22,01 - 23,99	16	12	26	6	16	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
24,00	16	12	26	6	16	25,0	240	240	240	240 1)	240 1)
24,01 - 24,20	16	12	26	6	16	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
24,21 - 24,99	16	12	26	6	19	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
25,00	16	12	26	6	19	25,0	250	250	250	250 1)	250 1)
25,01 - 25,99	16	12	26	6	19	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
26,00	16	12	26	6	19	25,0	260	260	260	260 1)	260 1)
26,01 - 26,20	16	12	26	6	19	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
26,21 - 27,99	16	12	26	6	21	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
28,00	16	12	26	6	21	25,0	280	280	280	280 1)	280 1)
28,01 - 28,20	16	12	26	6	21	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
28,21 - 29,20	16	12	26	6	24	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
29,21 - 29,99	16	12	26	8	24	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
30,00	16	12	26	8	24	25,0	300	300	300	300 1)	300 1)
30,01 - 30,20	16	12	26	8	24	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)

Steel	●				
Stainless steel		●			
Cast iron			●		
Non ferrous metals		○		●	●
Heat resistant alloys		●			
Hardened materials					

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 23 working days / Minimum order 2 pieces

→ v_c Page 58+59

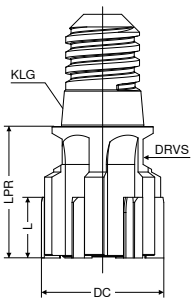
For xxxx please indicate in the order the required diameter to H7 (e.g Ø 10.89 H7 → article no. 40 230 1089)!
All other diameters and tolerances are also possible (e.g. 8.5 $^{+0.025}$ or 11 N7).

Holders and accessories can be found in → **Chapter 17, Accessories**.

MultiChange – Reaming head, for blind holes

- ▲ to tolerance zone IT 7 with absolute process security – from the first hole
- ▲ hgh-speed reaming heads
- ▲ irregular pitch for highest concentricity
- ▲ repeatability ≤ 5 µm
- ▲ KLG = coupling size





	CWC10	TiAIN	TiAIN	K10	PDC
					
	straight flute ◁ 60° CERMET Blind hole	straight flute ◁ 60° HM Blind hole	straight flute ◁ 60° HM Blind hole	straight flute ◁ 60° Solid carbide Blind hole	straight flute ◁ 75° PDC Blind hole

DC H7 mm	KLG	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm	Article no. 40 211 ...	Article no. 40 221 ...	Article no. 40 231 ...	Article no. 40 241 ...	Article no. 40 246 ...
12,20 - 12,70	06	8	20	6	6	5,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
12,71 - 13,99	06	8	22	6	6	5,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
14,00	06	8	22	6	6	5,0	140	140	140	140 1)	140 1)
14,01 - 14,20	06	8	22	6	6	5,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
14,21 - 15,99	08	8	22	6	8	12,5	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
16,00	08	8	22	6	8	12,5	160	160	160	160 1)	160 1)
16,01 - 16,20	08	8	22	6	8	12,5	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
16,21 - 17,20	10	8	22	6	10	15,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
17,21 - 17,99	10	12	26	6	10	15,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
18,00	10	12	26	6	10	15,0	180	180	180	180 1)	180 1)
18,01 - 19,99	10	12	26	6	10	15,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
20,00	10	12	26	6	10	15,0	200	200	200	200 1)	200 1)
20,01 - 20,20	10	12	26	6	10	15,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
20,21 - 21,99	12	12	26	6	13	20,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
22,00	12	12	26	6	13	20,0	220	220	220	220 1)	220 1)
22,01 - 23,99	12	12	26	6	13	20,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
24,00	12	12	26	6	13	20,0	240	240	240	240 1)	240 1)
24,01 - 24,20	12	12	26	6	13	20,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
24,21 - 24,99	16	12	26	6	16	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
25,00	16	12	26	6	16	25,0	250	250	250	250 1)	250 1)
25,01 - 25,99	16	12	26	6	16	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
26,00	16	12	26	6	16	25,0	260	260	260	260 1)	260 1)
26,01 - 27,99	16	12	26	6	16	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
28,00	16	12	26	6	16	25,0	280	280	280	280 1)	280 1)
28,01 - 28,20	16	12	26	6	16	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
28,21 - 29,20	16	12	26	6	16	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
29,21 - 29,99	16	12	26	8	16	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
30,00	16	12	26	8	16	25,0	300	300	300	300 1)	300 1)
30,01 - 30,20	16	12	26	8	16	25,0	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)

Steel	●				
Stainless steel		●			
Cast iron			●		
Non ferrous metals		○		●	●
Heat resistant alloys		●			
Hardened materials					

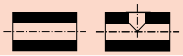
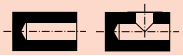
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 23 working days / Minimum order 2 pieces

→ v_c Page 58+59

For xxxx please indicate in the order the required diameter to H7 (e.g Ø 12.89 H7 – article no. 40 231 1289)!
All other diameters and tolerances are also possible (e.g. 18.5 $^{+0.025}$ or 15 N7).

Holders and accessories can be found in → **Chapter 17, Accessories**.

Monomax – Selection guide

Ø 5,60–25,89	**KOMET no. (3xD)**	56J.93	56J.65	56H.65	56J.17	56H.17	56J.93	56H.65	56J.71
	KOMET no. (5xD)	56R.93	56R.65	56Q.65	56R.17	56Q.17	56R.93	56Q.65	56R.71
	Lead	ASG4000	ASG0106	ASG0106	ASG0706	ASG0706	ASG3000	ASG3000	ASG3000
	Lead angle	25°	45°	45°	45°/8°	45°/8°	45°	45°	45°
	New grade / coating	DST	DBG-P	DBG-P	DBC	DBC	DST	DBG-P	TIN
	Old grade / coating	CWC10	TiALN	TiALN	DLC	DLC	CWC10	TiALN	CWN10
	Article no. (3xD)	40 635 ...	40 652 ...	40 644 ...	40 648 ...	40 640 ...	40 625 ...	40 657 ...	40 605 ...
	Article no. (5xD)	40 636 ...	40 653 ...	40 645 ...	40 649 ...	40 641 ...	40 626 ...	40 665 ...	40 606 ...
	Application	Through hole	Through hole	Blind hole	Through hole	Blind hole	Through hole	Blind hole	Through hole
Material	**Preferred type available**	✓	✓				✓		✓
Steel up to 900 N/mm²		●					●		○
								●	
									○
								●	
Steel > 900 N/mm²			●						
			○	●					
			●						
			○	●					
Stainless steel			●						
			○	●					
			●						
			○	●					
Grey cast iron / alloyed nodular cast iron (0.7661) and vermicular cast iron (5.2200)								○	○
								●	
Nodular cast iron		●					●	○	○
							○	●	
								○	○
								●	
Copper, brass, bronze							○		●
									
									●
									
Aluminium					●				
					○	●			
					●				
					○	●			

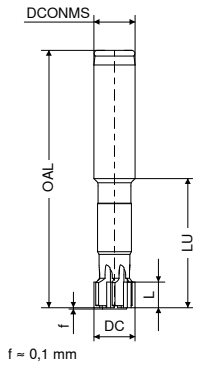
Applications:

Main application	●
Additional range of application	○

Monomax – High-speed reamers, short

- adjustable for smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole





DST	DBC	DBG-P	DST	TiN
CWC10	DLC	TiAlN	CWC10	CWN10



56J.93
≤ 3xD
∢ 45°
ASG3000
CERMET
Through hole

56J.17
≤ 3xD
∢ 45/8°
ASG0706
HM
Through hole

56J.65
≤ 3xD
∢ 45°
ASG0106
HM
Through hole

56J.93
≤ 3xD
∢ 25°
ASG4000
CERMET
Through hole

56J.71
≤ 3xD
∢ 45°
ASG3000
HM
Through hole

DC H7	OAL	LU	L	DCONMS h6	ZEFP	Article no. 40 625 ...	NEW Article no. 40 648 ...	NEW Article no. 40 652 ...	Article no. 40 635 ...	Article no. 40 605 ...
mm	mm	mm	mm	mm						
5,60 - 5,99	85	40	10	12	4	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
6,00	85	40	10	12	4	060	06000 1)	06000	060	060
6,01 - 7,99	85	40	10	12	4	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
8,00	85	40	10	12	4	080	08000 1)	08000	080	080
8,01 - 8,89	85	40	10	12	4	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
8,90 - 9,89	95	50	10	12	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
9,90 - 9,99	95	50	10	12	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
10,00	95	50	10	12	6	100	10000 1)	10000	100	100
10,01 - 11,99	95	50	10	12	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
12,00	95	50	10	12	6	120	12000 1)	12000	120	120
12,01 - 13,99	95	50	10	12	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
14,00	95	50	10	12	6	140	14000 1)	14000	140	140
14,01 - 14,99	95	50	10	12	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
15,00	95	50	10	12	6	150	15000 1)	15000	150	150
15,01 - 15,89	95	50	10	12	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
15,90 - 15,99	100	50	10	16	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
16,00	100	50	10	16	6	160	16000 1)	16000	160	160
16,01 - 17,99	100	50	10	16	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
18,00	100	50	10	16	6	180	18000 1)	18000	180	180
18,01 - 18,89	100	50	10	16	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
18,90 - 19,99	120	60	10	20	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
20,00	120	60	10	20	6	200	20000 1)	20000	200	200
20,01 - 25,89	120	60	10	20	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
Steel						●		●	●	○
Stainless steel								●		
Cast iron						●				
Non ferrous metals							●			●
Heat resistant alloys										
Hardened materials										

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

→ v_c Page 60–63

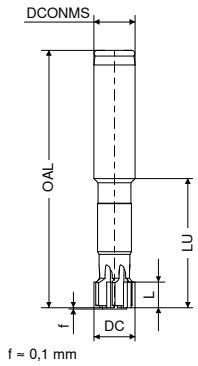
Do not heat shrink tools!

For xxxx when ordering please specifiy the required Ø in H7 (eg Ø 15.89 H7 → Article no. 40 635 1589)!
All other diameters and tolerance classes are also possible (eg 18.5 $^{+0.025}$ or 18 N7)!

Monomax – High-speed reamers, short

- adjustable for smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole





f ≈ 0,1 mm

DBG-P	DBC	DBG-P
TiAlN	DLC	TiAlN
		
56H.65 ≤ 3xD ◁ 45° ASG0106 HM Blind hole	56H.17 ≤ 3xD ◁ 45/8° ASG0706 HM Blind hole	56H.65 ≤ 3xD ◁ 45° ASG3000 HM Blind hole
NEW Article no. 40 644 ...	NEW Article no. 40 640 ...	NEW Article no. 40 657 ...

DC H7 mm	OAL mm	LU mm	L mm	DCONMS h6 mm	ZEFP			
5,60 - 5,99	85	40	10	12	4	xxxx 1)	xxxx 1)	xxxx 1)
6,00	85	40	10	12	4	06000 1)	06000 1)	06000 1)
6,01 - 7,99	85	40	10	12	4	xxxx 1)	xxxx 1)	xxxx 1)
8,00	85	40	10	12	4	08000 1)	08000 1)	08000 1)
8,01 - 8,89	85	40	10	12	4	xxxx 1)	xxxx 1)	xxxx 1)
8,90 - 9,89	95	50	10	12	6	xxxx 1)	xxxx 1)	xxxx 1)
9,90 - 9,99	95	50	10	12	6	xxxx 1)	xxxx 1)	xxxx 1)
10,00	95	50	10	12	6	10000 1)	10000 1)	10000 1)
10,01 - 11,99	95	50	10	12	6	xxxx 1)	xxxx 1)	xxxx 1)
12,00	95	50	10	12	6	12000 1)	12000 1)	12000 1)
12,01 - 13,99	95	50	10	12	6	xxxx 1)	xxxx 1)	xxxx 1)
14,00	95	50	10	12	6	14000 1)	14000 1)	14000 1)
14,01 - 14,99	95	50	10	12	6	xxxx 1)	xxxx 1)	xxxx 1)
15,00	95	50	10	12	6	15000 1)	15000 1)	15000 1)
15,01 - 15,89	95	50	10	12	6	xxxx 1)	xxxx 1)	xxxx 1)
15,90 - 15,99	100	50	10	16	6	xxxx 1)	xxxx 1)	xxxx 1)
16,00	100	50	10	16	6	16000 1)	16000 1)	16000 1)
16,01 - 17,99	100	50	10	16	6	xxxx 1)	xxxx 1)	xxxx 1)
18,00	100	50	10	16	6	18000 1)	18000 1)	18000 1)
18,01 - 18,89	100	50	10	16	6	xxxx 1)	xxxx 1)	xxxx 1)
18,90 - 19,99	120	60	10	20	6	xxxx 1)	xxxx 1)	xxxx 1)
20,00	120	60	10	20	6	20000 1)	20000 1)	20000 1)
20,01 - 25,89	120	60	10	20	6	xxxx 1)	xxxx 1)	xxxx 1)

Steel	●		●
Stainless steel	●		
Cast iron			●
Non ferrous metals		●	
Heat resistant alloys			
Hardened materials			

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 60–63

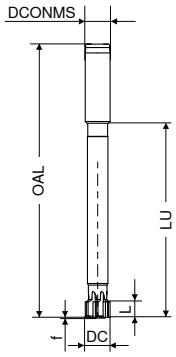
Do not heat shrink tools!

For xxxx when ordering please specifiy the required Ø in H7 (eg Ø 15.89 H7 → Article no. 40 644 1589)!
All other diameters and tolerance classes are also possible (eg 18.5 $^{+0.025}$ or 18 N7)!

Monomax – High-speed reamers, long

- adjustable for the smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole





f ≈ 0,1 mm

	DST	DBC	DBG-P	DST	TiN
	CWC10	DLC	TiAlN	CWC10	CWN10
					
	56R.93 ≤ 5xD ∢ 45° ASG3000 CERMET Through hole	56R.17 ≤ 5xD ∢ 45/8° ASG0706 HM Through hole	56R.65 ≤ 5xD ∢ 45° ASG0106 HM Through hole	56R.93 ≤ 5xD ∢ 25° ASG4000 CERMET Through hole	56R.71 ≤ 5xD ∢ 45° ASG3000 HM Through hole
		NEW	NEW		
DC H7 mm	OAL mm	LU mm	L mm	DCONMS h6 mm	ZEFP	Article no. 40 626 ...	Article no. 40 649 ...	Article no. 40 653 ...	Article no. 40 636 ...	Article no. 40 606 ...
5,60 - 5,99	130	85	10	12	4	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
6,00	130	85	10	12	4	060	06000 1)	06000	060	060
6,01 - 7,99	130	85	10	12	4	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
8,00	130	85	10	12	4	080	08000 1)	08000	080	080
8,01 - 8,89	130	85	10	12	4	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
8,90 - 9,89	130	85	10	12	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
9,90 - 9,99	160	115	10	12	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
10,00	160	115	10	12	6	100	10000 1)	10000	100	100
10,01 - 11,99	160	115	10	12	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
12,00	160	115	10	12	6	120	12000 1)	12000	120	120
12,01 - 13,99	160	115	10	12	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
14,00	160	115	10	12	6	140	14000 1)	14000	140	140
14,01 - 14,99	160	115	10	12	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
15,00	160	115	10	12	6	150	15000 1)	15000	150	150
15,01 - 15,89	160	115	10	12	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
15,90 - 15,99	180	130	10	16	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
16,00	180	130	10	16	6	160	16000 1)	16000	160	160
16,01 - 17,99	180	130	10	16	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
18,00	180	130	10	16	6	180	18000 1)	18000	180	180
18,01 - 18,89	180	130	10	16	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
18,90 - 19,99	200	140	10	20	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
20,00	200	140	10	20	6	200	20000 1)	20000	200	200
20,01 - 25,89	200	140	10	20	6	xxxx 2)	xxxx 1)	xxxx 1)	xxxx 2)	xxxx 1)
Steel						●		●	●	○
Stainless steel								●		
Cast iron						●				
Non ferrous metals							●			●
Heat resistant alloys										
Hardened materials										

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

→ v_c Page 60–63

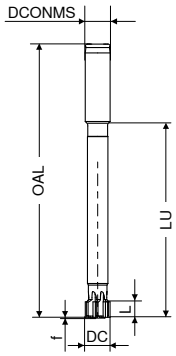
Do not heat shrink tools!

For xxxx when ordering please specifiy the required Ø in H7 (eg Ø 15.89 H7 → Article no. 40 636 1589)!
All other diameters and tolerance classes are also possible (eg 18.5 $^{+0.025}$ or 18 N7)!

Monomax – High-speed reamers, long

- adjustable for the smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole





f ≈ 0,1 mm

DBG-P	DBC	DBG-P
TiAlN	DLC	TiAlN







56Q.65
≤ 5xD
∢ 45°
ASG0106
HM
Blind hole

56Q.17
≤ 5xD
∢ 45/8°
ASG0706
HM
Blind hole

56Q.65
≤ 5xD
∢ 45°
ASG3000
HM
Blind hole

DC H7	OAL	LU	L	DCONMS h6	ZEFP	NEW Article no. 40 645 ...	NEW Article no. 40 641 ...	NEW Article no. 40 665 ...
mm	mm	mm	mm	mm				
5,60 - 5,99	130	85	10	12	4	xxxx 1)	xxxx 1)	xxxx 1)
6,00	130	85	10	12	4	06000 1)	06000 1)	06000 1)
6,01 - 7,99	130	85	10	12	4	xxxx 1)	xxxx 1)	xxxx 1)
8,00	130	85	10	12	4	08000 1)	08000 1)	08000 1)
8,01 - 8,89	130	85	10	12	4	xxxx 1)	xxxx 1)	xxxx 1)
8,90 - 9,89	130	85	10	12	6	xxxx 1)	xxxx 1)	xxxx 1)
9,90 - 9,99	160	115	10	12	6	xxxx 1)	xxxx 1)	xxxx 1)
10,00	160	115	10	12	6	10000 1)	10000 1)	10000 1)
10,01 - 11,99	160	115	10	12	6	xxxx 1)	xxxx 1)	xxxx 1)
12,00	160	115	10	12	6	12000 1)	12000 1)	12000 1)
12,01 - 13,99	160	115	10	12	6	xxxx 1)	xxxx 1)	xxxx 1)
14,00	160	115	10	12	6	14000 1)	14000 1)	14000 1)
14,01 - 14,99	160	115	10	12	6	xxxx 1)	xxxx 1)	xxxx 1)
15,00	160	115	10	12	6	15000 1)	15000 1)	15000 1)
15,01 - 15,89	160	115	10	12	6	xxxx 1)	xxxx 1)	xxxx 1)
15,90 - 15,99	180	130	10	16	6	xxxx 1)	xxxx 1)	xxxx 1)
16,00	180	130	10	16	6	16000 1)	16000 1)	16000 1)
16,01 - 17,99	180	130	10	16	6	xxxx 1)	xxxx 1)	xxxx 1)
18,00	180	130	10	16	6	18000 1)	18000 1)	18000 1)
18,01 - 18,89	180	130	10	16	6	xxxx 1)	xxxx 1)	xxxx 1)
18,90 - 19,99	200	140	10	20	6	xxxx 1)	xxxx 1)	xxxx 1)
20,00	200	140	10	20	6	20000 1)	20000 1)	20000 1)
20,01 - 25,89	200	140	10	20	6	xxxx 1)	xxxx 1)	xxxx 1)

Steel	●		●
Stainless steel	●		
Cast iron			●
Non ferrous metals		●	
Heat resistant alloys			
Hardened materials			

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 60–63

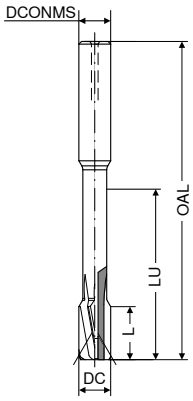
Do not heat shrink tools!

For xxxx when ordering please specifiy the required Ø in H7 (eg Ø 15.89 H7 → Article no. 40 645 1589)!
All other diameters and tolerance classes are also possible (eg 18.5 $^{+0.025}$ or 18 N7)!

Fullmax – High-performance machine reamers

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings





	Fullmax UNI	Fullmax VA	Fullmax ALU
	DBG-U	DBQ	DBC-N
			
	52P.57	52S.44	52N.17
	HA	HA	HA
	Left Hand Helix	Left Hand Helix	straight flute
	◁ 30°	◁ 30°	◁ 30°
	ASG2210	ASG2231	ASG2270
	Solid carbide	Solid carbide	Solid carbide
	Through hole	Through hole	Through hole
	NEW	NEW	NEW
	Article no. 40 484 ...	Article no. 40 401 ...	Article no. 40 471 ...

DC $_{H7}$	OAL	L	LU	DCONMS $_{h6}$	ZEFP			
mm	mm	mm	mm	mm				
4	60	12	32	4	4	**04000**	**04000**	**04000**
5	76	12	40	6	4	**05000**	**05000**	**05000**
6	76	12	40	6	4	**06000**	**06000**	**06000**
7	101	16	65	8	6	**07000**	**07000**	**07000**
8	101	16	65	8	6	**08000**	**08000**	**08000**
9	108	16	68	10	6	**09000**	**09000**	**09000**
10	108	16	68	10	6	**10000**	**10000**	**10000**
11	130	20	85	12	6	**11000**	**11000**	**11000**
12	130	20	85	12	6	**12000**	**12000**	**12000**
16	150	20	102	16	6	**16000**	**16000**	**16000**

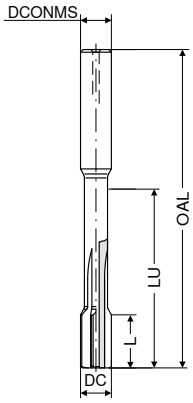
Steel	●		
Stainless steel	●	●	
Cast iron	●		
Non ferrous metals	○		●
Heat resistant alloys	○		
Hardened materials	○		

→ v_c Page 64+65

Fullmax – High-performance machine reamers

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings





	Fullmax UNI	Fullmax VA	Fullmax ALU
	DBG-U	DBQ	DBC-N
			
	52M.57	52T.45	52Q.17
	HA	HA	HA
	straight flute	straight flute	straight flute
	◁ 60°	◁ 45°	◁ 60°
	ASG2110	ASG2131	ASG2170
	Solid carbide	Solid carbide	Solid carbide
	Blind hole	Blind hole	Blind hole
	NEW	NEW	NEW
	Article no. 40 485 ...	Article no. 40 402 ...	Article no. 40 472 ...

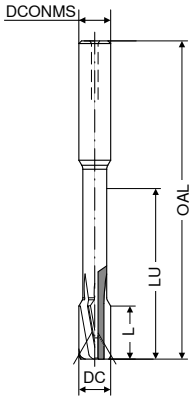
DC $_{H7}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP			
4	60	12	32	4	4	04000	04000	04000
5	76	12	40	6	4	05000	05000	05000
6	76	12	40	6	4	06000	06000	06000
7	101	16	65	8	6	07000	07000	07000
8	101	16	65	8	6	08000	08000	08000
9	108	16	68	10	6	09000	09000	09000
10	108	16	68	10	6	10000	10000	10000
11	130	20	85	12	6	11000	11000	11000
12	130	20	85	12	6	12000	12000	12000
16	150	20	102	16	6	16000	16000	16000

Steel	●		
Stainless steel	●	●	
Cast iron	●		
Non ferrous metals	○		●
Heat resistant alloys	○		
Hardened materials	○		

→ v_c Page 64+65

Fullmax – High-performance machine reamers

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96–5,03 mm = +0,004 mm
- ▲ tolerance: Ø 5,97–12,03 mm = +0,005 mm



Fullmax UNI	Fullmax VA	Fullmax K	Fullmax ALU	Fullmax H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A
				
52P.57	52S.44	52J.65	52N.17	52G.55
HA	HA	HA	HA	HA
Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
◁ 30°	◁ 30°	◁ 30°	◁ 30°	◁ 30°
ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole	Through hole	Through hole
NEW	NEW	NEW	NEW	NEW
Article no. 40 486 ...	Article no. 40 403 ...	Article no. 40 477 ...	Article no. 40 473 ...	Article no. 40 475 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP					
2,96 - 3,96	60	12	32	4	4	xxxxx[1]	xxxxx[2]	xxxxx[1]	xxxxx[1]	xxxxx[1]
3,97	60	12	32	4	4	03970	03970	03970[1]	03970[1]	03970[1]
3,98	60	12	32	4	4	03980	03980	03980[1]	03980[1]	03980[1]
3,99	60	12	32	4	4	03990	03990	03990[1]	03990[1]	03990[1]
4,00	60	12	32	4	4	04000	04000	04000[1]	04000[1]	04000[1]
4,01	60	12	32	4	4	04010	04010	04010[1]	04010[1]	04010[1]
4,02	60	12	32	4	4	04020	04020	04020[1]	04020[1]	04020[1]
4,03	60	12	32	4	4	04030	04030	04030[1]	04030[1]	04030[1]
4,04 - 4,05	60	12	32	4	4	xxxxx[1]	xxxxx[2]	xxxxx[1]	xxxxx[1]	xxxxx[1]
4,06 - 4,96	76	12	40	6	4	xxxxx[1]	xxxxx[2]	xxxxx[1]	xxxxx[1]	xxxxx[1]
4,97	76	12	40	6	4	04970	04970	04970[1]	04970[1]	04970[1]
4,98	76	12	40	6	4	04980	04980	04980[1]	04980[1]	04980[1]
4,99	76	12	40	6	4	04990	04990	04990[1]	04990[1]	04990[1]
5,00	76	12	40	6	4	05000	05000	05000[1]	05000[1]	05000[1]
5,01	76	12	40	6	4	05010	05010	05010[1]	05010[1]	05010[1]
5,02	76	12	40	6	4	05020	05020	05020[1]	05020[1]	05020[1]
5,03	76	12	40	6	4	05030	05030	05030[1]	05030[1]	05030[1]
5,04 - 5,96	76	12	40	6	4	xxxxx[1]	xxxxx[2]	xxxxx[1]	xxxxx[1]	xxxxx[1]
5,97	76	12	40	6	4	05970	05970	05970[1]	05970[1]	05970[1]
5,98	76	12	40	6	4	05980	05980	05980[1]	05980[1]	05980[1]
5,99	76	12	40	6	4	05990	05990	05990[1]	05990[1]	05990[1]
6,00	76	12	40	6	4	06000	06000	06000[1]	06000[1]	06000[1]
6,01	76	12	40	6	4	06010	06010	06010[1]	06010[1]	06010[1]
6,02	76	12	40	6	4	06020	06020	06020[1]	06020[1]	06020[1]
6,03	76	12	40	6	4	06030	06030	06030[1]	06030[1]	06030[1]
6,04 - 6,05	76	12	40	6	4	xxxxx[1]	xxxxx[2]	xxxxx[1]	xxxxx[1]	xxxxx[1]
6,06 - 7,96	101	16	65	8	6	xxxxx[1]	xxxxx[2]	xxxxx[1]	xxxxx[1]	xxxxx[1]
7,97	101	16	65	8	6	07970	07970	07970[1]	07970[1]	07970[1]
7,98	101	16	65	8	6	07980	07980	07980[1]	07980[1]	07980[1]

Steel	●				
Stainless steel	●	●			
Cast iron	●		●		
Non ferrous metals	○			●	
Heat resistant alloys	○				
Hardened materials	○				●

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 64+65

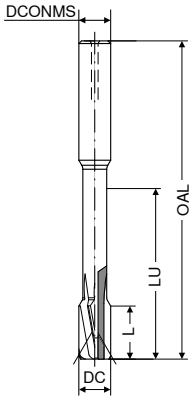
This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **Page 75**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

Continued on next page

Fullmax – High-performance machine reamers

- ▲ extremely irregular pitch
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- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96–5,03 mm = +0,004 mm
- ▲ tolerance: Ø 5,97–12,03 mm = +0,005 mm





Fullmax UNI	Fullmax VA	Fullmax K	Fullmax ALU	Fullmax H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A
				
52P.57	52S.44	52J.65	52N.17	52G.55
HA	HA	HA	HA	HA
Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
◁ 30°	◁ 30°	◁ 30°	◁ 30°	◁ 30°
ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole	Through hole	Through hole
NEW	NEW	NEW	NEW	NEW
Article no. 40 486 ...	Article no. 40 403 ...	Article no. 40 477 ...	Article no. 40 473 ...	Article no. 40 475 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP					
7,99	101	16	65	8	6	07990	07990	07990 1)	07990 1)	07990 1)
8,00	101	16	65	8	6	08000	08000	08000 1)	08000 1)	08000 1)
8,01	101	16	65	8	6	08010	08010	08010 1)	08010 1)	08010 1)
8,02	101	16	65	8	6	08020	08020	08020 1)	08020 1)	08020 1)
8,03	101	16	65	8	6	08030	08030	08030 1)	08030 1)	08030 1)
8,04 - 8,05	101	16	65	8	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)
8,06 - 9,96	108	16	68	10	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)
9,97	108	16	68	10	6	09970	09970	09970 1)	09970 1)	09970 1)
9,98	108	16	68	10	6	09980	09980	09980 1)	09980 1)	09980 1)
9,99	108	16	68	10	6	09990	09990	09990 1)	09990 1)	09990 1)
10,00	108	16	68	10	6	10000	10000	10000 1)	10000 1)	10000 1)
10,01	108	16	68	10	6	10010	10010	10010 1)	10010 1)	10010 1)
10,02	108	16	68	10	6	10020	10020	10020 1)	10020 1)	10020 1)
10,03	108	16	68	10	6	10030	10030	10030 1)	10030 1)	10030 1)
10,04 - 10,05	108	16	68	10	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)
10,06 - 11,96	130	20	85	12	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)
11,97	130	20	85	12	6	11970	11970	11970 1)	11970 1)	11970 1)
11,98	130	20	85	12	6	11980	11980	11980 1)	11980 1)	11980 1)
11,99	130	20	85	12	6	11990	11990	11990 1)	11990 1)	11990 1)
12,00	130	20	85	12	6	12000	12000	12000 1)	12000 1)	12000 1)
12,01	130	20	85	12	6	12010	12010	12010 1)	12010 1)	12010 1)
12,02	130	20	85	12	6	12020	12020	12020 1)	12020 1)	12020 1)
12,03	130	20	85	12	6	12030	12030	12030 1)	12030 1)	12030 1)
12,04 - 12,05	130	20	85	12	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)
12,06 - 14,05	130	20	85	14	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)
14,06 - 16,05	150	20	102	16	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)
16,06 - 18,05	150	20	102	18	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)
18,06 - 20,05	160	20	110	20	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)

Steel	●				
Stainless steel	●	●			
Cast iron	●		●		
Non ferrous metals	○			●	
Heat resistant alloys	○				
Hardened materials	○				●

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

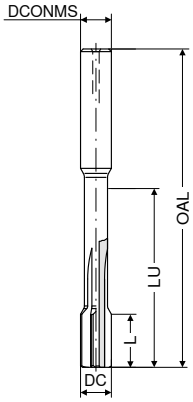
→ v_c Page 64+65

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **Page 75**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

Fullmax – High-performance machine reamers

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96–5,03 mm = +0,004 mm
- ▲ tolerance: Ø 5,97–12,03 mm = +0,005 mm





Fullmax UNI	Fullmax VA	Fullmax K	Fullmax ALU	Fullmax H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A
				
52M.57	52T.45	52K.65	52Q.17	52H.55
HA	HA	HA	HA	HA
straight flute	straight flute	straight flute	straight flute	straight flute
◁ 60°	◁ 45°	◁ 30°	◁ 60°	◁ 30°
ASG2110	ASG2131	ASG2350	ASG2170	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Blind hole	Blind hole	Blind hole	Blind hole	Blind hole
NEW	NEW	NEW	NEW	NEW
Article no. 40 487 ...	Article no. 40 404 ...	Article no. 40 478 ...	Article no. 40 474 ...	Article no. 40 476 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP					
2,96 - 3,96	60	12	32	4	4	xxxxx[1]	xxxxx[2]	xxxxx[2]	xxxxx[1]	xxxxx[1]
3,97	60	12	32	4	4	03970	03970	03970[2]	03970[1]	03970[1]
3,98	60	12	32	4	4	03980	03980	03980[2]	03980[1]	03980[1]
3,99	60	12	32	4	4	03990	03990	03990[2]	03990[1]	03990[1]
4,00	60	12	32	4	4	04000	04000	04000[2]	04000[1]	04000[1]
4,01	60	12	32	4	4	04010	04010	04010[2]	04010[1]	04010[1]
4,02	60	12	32	4	4	04020	04020	04020[2]	04020[1]	04020[1]
4,03	60	12	32	4	4	04030	04030	04030[2]	04030[1]	04030[1]
4,04 - 4,05	60	12	32	4	4	xxxxx[1]	xxxxx[2]	xxxxx[2]	xxxxx[1]	xxxxx[1]
4,06 - 4,96	76	12	40	6	4	xxxxx[1]	xxxxx[2]	xxxxx[1]	xxxxx[1]	xxxxx[1]
4,97	76	12	40	6	4	04970	04970	04970[2]	04970[1]	04970[1]
4,98	76	12	40	6	4	04980	04980	04980[2]	04980[1]	04980[1]
4,99	76	12	40	6	4	04990	04990	04990[2]	04990[1]	04990[1]
5,00	76	12	40	6	4	05000	05000	05000[2]	05000[1]	05000[1]
5,01	76	12	40	6	4	05010	05010	05010[2]	05010[1]	05010[1]
5,02	76	12	40	6	4	05020	05020	05020[2]	05020[1]	05020[1]
5,03	76	12	40	6	4	05030	05030	05030[2]	05030[1]	05030[1]
5,04 - 5,96	76	12	40	6	4	xxxxx[1]	xxxxx[2]	xxxxx[2]	xxxxx[1]	xxxxx[1]
5,97	76	12	40	6	4	05970	05970	05970[2]	05970[1]	05970[1]
5,98	76	12	40	6	4	05980	05980	05980[2]	05980[1]	05980[1]
5,99	76	12	40	6	4	05990	05990	05990[2]	05990[1]	05990[1]
6,00	76	12	40	6	4	06000	06000	06000[2]	06000[1]	06000[1]
6,01	76	12	40	6	4	06010	06010	06010[2]	06010[1]	06010[1]
6,02	76	12	40	6	4	06020	06020	06020[2]	06020[1]	06020[1]
6,03	76	12	40	6	4	06030	06030	06030[2]	06030[1]	06030[1]
6,04 - 6,05	76	12	40	6	4	xxxxx[1]	xxxxx[2]	xxxxx[2]	xxxxx[1]	xxxxx[1]
6,06 - 7,96	101	16	65	8	6	xxxxx[1]	xxxxx[2]	xxxxx[1]	xxxxx[1]	xxxxx[1]
7,97	101	16	65	8	6	07970	07970	07970[2]	07970[1]	07970[1]
7,98	101	16	65	8	6	07980	07980	07980[2]	07980[1]	07980[1]

Steel	●				
Stainless steel	●	●			
Cast iron	●		●		
Non ferrous metals	○			●	
Heat resistant alloys	○				
hardened materials	○				●

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 64+65

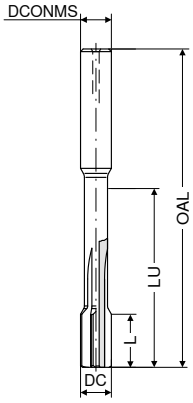
This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **Page 75**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

Continued on next page

Fullmax – High-performance machine reamers

- extremely irregular pitch
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- tolerance: Ø 2,96–5,03 mm = +0,004 mm
- tolerance: Ø 5,97–12,03 mm = +0,005 mm





Fullmax UNI	Fullmax VA	Fullmax K	Fullmax ALU	Fullmax H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A
				
52M.57	52T.45	52K.65	52Q.17	52H.55
HA	HA	HA	HA	HA
straight flute	straight flute	straight flute	straight flute	straight flute
◁ 60°	◁ 45°	◁ 30°	◁ 60°	◁ 30°
ASG2110	ASG2131	ASG2350	ASG2170	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Blind hole	Blind hole	Blind hole	Blind hole	Blind hole
NEW	NEW	NEW	NEW	NEW
Article no. 40 487 ...	Article no. 40 404 ...	Article no. 40 478 ...	Article no. 40 474 ...	Article no. 40 476 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP					
7,99	101	16	65	8	6	07990	07990	07990 2)	07990 1)	07990 1)
8,00	101	16	65	8	6	08000	08000	08000 2)	08000 1)	08000 1)
8,01	101	16	65	8	6	08010	08010	08010 2)	08010 1)	08010 1)
8,02	101	16	65	8	6	08020	08020	08020 2)	08020 1)	08020 1)
8,03	101	16	65	8	6	08030	08030	08030 2)	08030 1)	08030 1)
8,04 - 8,05	101	16	65	8	6	xxxxx 1)	xxxxx 2)	xxxxx 2)	xxxxx 1)	xxxxx 1)
8,06 - 9,96	108	16	68	10	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)
9,97	108	16	68	10	6	09970	09970	09970 2)	09970 1)	09970 1)
9,98	108	16	68	10	6	09980	09980	09980 2)	09980 1)	09980 1)
9,99	108	16	68	10	6	09990	09990	09990 2)	09990 1)	09990 1)
10,00	108	16	68	10	6	10000	10000	10000 2)	10000 1)	10000 1)
10,01	108	16	68	10	6	10010	10010	10010 2)	10010 1)	10010 1)
10,02	108	16	68	10	6	10020	10020	10020 2)	10020 1)	10020 1)
10,03	108	16	68	10	6	10030	10030	10030 2)	10030 1)	10030 1)
10,04 - 10,05	108	16	68	10	6	xxxxx 1)	xxxxx 2)	xxxxx 2)	xxxxx 1)	xxxxx 1)
10,06 - 11,96	130	20	85	12	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)
11,97	130	20	85	12	6	11970	11970	11970 2)	11970 1)	11970 1)
11,98	130	20	85	12	6	11980	11980	11980 2)	11980 1)	11980 1)
11,99	130	20	85	12	6	11990	11990	11990 2)	11990 1)	11990 1)
12,00	130	20	85	12	6	12000	12000	12000 2)	12000 1)	12000 1)
12,01	130	20	85	12	6	12010	12010	12010 2)	12010 1)	12010 1)
12,02	130	20	85	12	6	12020	12020	12020 2)	12020 1)	12020 1)
12,03	130	20	85	12	6	12030	12030	12030 2)	12030 1)	12030 1)
12,04 - 12,05	130	20	85	12	6	xxxxx 1)	xxxxx 2)	xxxxx 2)	xxxxx 1)	xxxxx 1)
12,06 - 14,05	130	20	85	14	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)
14,06 - 16,05	150	20	102	16	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)
16,06 - 18,05	150	20	102	18	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)
18,06 - 20,05	160	20	110	20	6	xxxxx 1)	xxxxx 2)	xxxxx 1)	xxxxx 1)	xxxxx 1)

Steel	●				
Stainless steel	●	●			
Cast iron	●		●		
Non ferrous metals	○			●	
Heat resistant alloys	○				
hardened materials	○				●

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 64+65

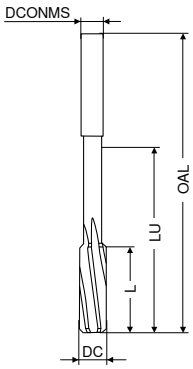
This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **Page 75**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

NC machine reamers, DIN 8093-2B

- ▲ extremely irregular pitch
- ▲ Ø 2–3.5 mm with centres both ends
- ▲ Ø 4–13 mm with protected centres
- ▲ from Ø 22 mm, similar to DIN 8093-2B

NC

TiAlN





~HA
Left Hand Helix
Solid carbide

~HA
Left Hand Helix
Solid carbide

DC $_{H7}$	OAL	L	LU	DCONMS $_{h6}$	ZEFP	Article no. 40 420 ...	Article no. 40 421 ...
mm	mm	mm	mm	mm			
2,0	50	12	18,5	3	4	**020**	**020**
2,5	60	16	29,0	3	4	**025**	**025**
3,0	65	17	33,0	4	6	**030**	**030**
3,2	65	18	33,0	4	6	**032**	**032**
3,5	75	18	43,0	4	6	**035**	**035**
4,0	75	19	43,0	4	6	**040**	**040**
4,5	80	21	39,0	6	6	**045**	**045**
5,0	93	23	52,0	6	6	**050**	**050**
5,5	93	26	53,0	6	6	**055**	**055**
6,0	93	26	53,0	6	6	**060**	**060**
6,5	101	28	61,0	6	6	**065**	**065**
7,0	109	31	68,0	8	6	**070**	**070**
7,5	109	31	68,0	8	6	**075**	**075**
8,0	117	33	77,0	8	6	**080**	**080**
8,5	117	33	77,0	8	6	**085**	**085**
9,0	125	36	80,0	10	6	**090**	**090**
9,5	125	36	80,0	10	6	**095**	**095**
10,0	133	38	88,0	10	6	**100**	**100**
10,5	133	38	88,0	10	6	**105**	**105**
11,0	142	41	97,0	10	6	**110**	**110**
12,0	151	44	100,0	12	6	**120**	**120**
13,0	151	44	100,0	12	6	**130**	**130**
14,0	160	47	106,0	16	6	**140** [1]	**140** [1]
15,0	162	50	108,0	16	6	**150** [1]	**150** [1]
16,0	170	52	116,0	16	6	**160** [1]	**160** [1]
17,0	175	52	121,0	18	6	**170** [1]	**170** [1]
18,0	182	52	128,0	18	6	**180** [1]	**180** [1]
19,0	189	52	133,0	20	6	**190** [1]	**190** [1]
20,0	195	52	139,0	20	6	**200** [1]	**200** [1]
22,0	160	25	105,0	20	6	**220** [1]	
24,0	180	25	125,0	20	8	**240** [1]	
25,0	180	25	125,0	20	8	**250** [1]	
26,0	180	25	125,0	20	8	**260** [1]	
28,0	180	25	119,0	25	8	**280** [1]	
30,0	200	25	139,0	25	8	**300** [1]	

Steel	●	●
Stainless steel		
Cast iron	○	●
Non ferrous metals	●	
Heat resistant alloys	○	
Hardened materials		

1) with carbide cutting edges

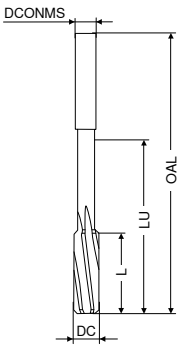
→ v_c Page 66+67

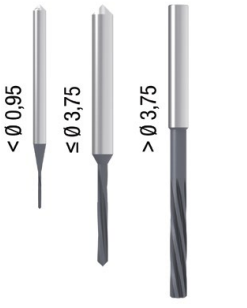
NC machine reamers, DIN 8093-2B

- ▲ 0,01 mm steps
- ▲ extremely irregular pitch
- ▲ Ø 0,59–0,95 mm similar to DIN 8093-B
- ▲ Ø 0,96–3,75 mm with centres both ends
- ▲ Ø 3,76–12,05 mm with protected centres

NC 100

TiAlN





Left Hand Helix
Solid carbide

Left Hand Helix
Solid carbide

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	Article no. 40 430 ...	Article no. 40 431 ...
0,59 - 0,64	45	5	7,5	3	4	xxxxx[2]	
0,65 - 0,74	45	5	7,5	3	4	xxxxx[2]	
0,75 - 0,84	45	6	8,0	3	4	xxxxx[2]	
0,85 - 0,95	45	6	8,0	3	4	xxxxx[2]	
0,96	50	6	17,5	3	3	00960[2]	
0,97	50	6	17,5	3	3	00970[2]	
0,98	50	6	17,5	3	3	00980[1]	
0,99	50	6	17,5	3	3	00990[1]	
1,00	50	6	17,5	3	3	01000[1]	01000[1]
1,01	50	6	17,5	3	3	01010[1]	01010[1]
1,02	50	6	17,5	3	3	01020[1]	01020[1]
1,03	50	6	17,5	3	3	01030[1]	01030[1]
1,04 - 1,06	50	6	17,5	3	3	xxxxx[1]	xxxxx[1]
1,07 - 1,18	50	9	17,5	3	3	xxxxx[1]	xxxxx[1]
1,19 - 1,32	50	9	17,5	3	3	xxxxx[1]	xxxxx[1]
1,33 - 1,50	50	9	18,0	3	3	xxxxx[1]	xxxxx[1]
1,51 - 1,70	50	10	18,0	3	3	xxxxx[1]	xxxxx[1]
1,71 - 1,90	50	11	18,5	3	4	xxxxx[1]	xxxxx[1]
1,91 - 1,97	50	12	18,5	3	4	xxxxx[1]	xxxxx[1]
1,98	50	12	18,5	3	4	01980	01980
1,99	50	12	18,5	3	4	01990	01990
2,00	50	12	18,5	3	4	02000	02000
2,01	50	12	18,5	3	4	02010	02010
2,02	50	12	18,5	3	4	02020	02020
2,03	50	12	18,5	3	4	02030	02030
2,04 - 2,12	50	12	18,5	3	4	xxxxx[1]	xxxxx[1]
2,13 - 2,36	50	12	18,5	3	4	xxxxx[1]	xxxxx[1]
2,37 - 2,47	60	16	29,0	3	4	xxxxx[1]	xxxxx[1]
2,48	60	16	29,0	3	4	02480	02480
2,49	60	16	29,0	3	4	02490	02490
2,50	60	16	29,0	3	4	02500	02500
2,51	60	16	29,0	3	4	02510	02510
2,52	60	16	29,0	3	4	02520	02520
2,53	60	16	29,0	3	4	02530	02530
2,54 - 2,65	60	16	29,0	3	4	xxxxx[1]	xxxxx[1]
2,66 - 2,80	65	17	33,0	4	6	xxxxx[1]	xxxxx[1]
2,81 - 2,96	65	17	33,0	4	6	xxxxx[1]	xxxxx[1]
2,97	65	17	33,0	4	6	02970	02970
2,98	65	17	33,0	4	6	02980	02980
2,99	65	17	33,0	4	6	02990	02990
3,00	65	17	33,0	4	6	03000	03000
3,01	65	17	33,0	4	6	03010	03010
3,02	65	17	33,0	4	6	03020	03020
3,03	65	17	33,0	4	6	03030	03030
3,04 - 3,35	65	18	33,0	4	6	xxxxx[1]	xxxxx[1]
3,36 - 3,75	75	18	43,0	4	6	xxxxx[1]	xxxxx[1]
3,76 - 3,96	75	19	43,0	4	6	xxxxx[1]	xxxxx[1]
3,97	75	19	43,0	4	6	03970	03970
3,98	75	19	43,0	4	6	03980	03980
3,99	75	19	43,0	4	6	03990	03990
4,00	75	19	43,0	4	6	04000	04000
4,01	75	19	43,0	4	6	04010	04010
4,02	75	19	43,0	4	6	04020	04020
4,03	75	19	43,0	4	6	04030	04030
4,04 - 4,25	75	19	43,0	4	6	xxxxx[1]	xxxxx[1]
4,26 - 4,75	80	21	39,0	6	6	xxxxx[1]	xxxxx[1]
4,76 - 4,96	93	23	52,0	6	6	xxxxx[1]	xxxxx[1]
4,97	93	23	52,0	6	6	04970	04970
4,98	93	23	52,0	6	6	04980	04980
4,99	93	23	52,0	6	6	04990	04990
5,00	93	23	52,0	6	6	05000	05000
5,01	93	23	52,0	6	6	05010	05010
5,02	93	23	52,0	6	6	05020	05020
5,03	93	23	52,0	6	6	05030	05030
5,04 - 5,30	93	23	52,0	6	6	xxxxx[1]	xxxxx[1]
5,31 - 5,96	93	26	53,0	6	6	xxxxx[1]	xxxxx[1]
5,97	93	26	53,0	6	6	05970	05970
5,98	93	26	53,0	6	6	05980	05980
5,99	93	26	53,0	6	6	05990	05990
6,00	93	26	53,0	6	6	06000	06000
6,01	93	26	53,0	6	6	06010	06010
6,02	93	26	53,0	6	6	06020	06020
6,03	93	26	53,0	6	6	06030	06030
6,04 - 6,70	101	28	61,0	6	6	xxxxx[1]	xxxxx[1]
6,71 - 7,50	109	31	68,0	8	6	xxxxx[1]	xxxxx[1]
7,51 - 7,96	117	33	77,0	8	6	xxxxx[1]	xxxxx[1]
7,97	117	33	77,0	8	6	07970	07970
7,98	117	33	77,0	8	6	07980	07980
7,99	117	33	77,0	8	6	07990	07990
8,00	117	33	77,0	8	6	08000	08000
8,01	117	33	77,0	8	6	08010	08010
8,02	117	33	77,0	8	6	08020	08020
8,03	117	33	77,0	8	6	08030	08030
8,04	117	33	77,0	8	6	08040	08040
8,05 - 8,50	117	33	77,0	8	6	xxxxx[1]	xxxxx[1]
8,51 - 9,04	125	36	80,0	10	6	xxxxx[1]	xxxxx[1]
9,05 - 9,50	125	36	80,0	10	6	xxxxx[1]	xxxxx[1]
9,51 - 9,96	133	38	88,0	10	6	xxxxx[1]	xxxxx[1]
9,97	133	38	88,0	10	6	09970	09970
9,98	133	38	88,0	10	6	09980	09980
9,99	133	38	88,0	10	6	09990	09990
10,00	133	38	88,0	10	6	10000	10000
10,01	133	38	88,0	10	6	10010	10010
10,02	133	38	88,0	10	6	10020	10020
10,03	133	38	88,0	10	6	10030	10030
10,04	133	38	88,0	10	6	10040	10040
10,05	133	38	88,0	10	6	10050	10050
10,06 - 10,60	133	38	88,0	10	6	xxxxx[1]	xxxxx[1]
10,61 - 11,80	142	41	97,0	10	6	xxxxx[1]	xxxxx[1]
11,81 - 11,96	151	44	100,0	12	6	xxxxx[1]	xxxxx[1]
11,97	151	44	100,0	12	6	11970	11970
11,98	151	44	100,0	12	6	11980	11980
11,99	151	44	100,0	12	6	11990	11990
12,00	151	44	100,0	12	6	12000	12000
12,01	151	44	100,0	12	6	12010	12010
12,02	151	44	100,0	12	6	12020	12020
12,03	151	44	100,0	12	6	12030	12030
12,04	151	44	100,0	12	6	12040	12040
12,05	151	44	100,0	12	6	12050	12050

	Article no. 40 430 ...	Article no. 40 431 ...
Steel	●	●
Stainless steel		
Cast iron	○	●
Non ferrous metals	●	
Heat resistant alloys	○	
Hardened materials		

→ v_c Page 66+67

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

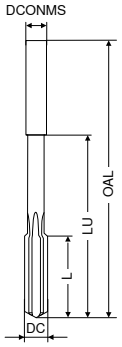
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days / Minimum order 3 pieces

This tool concept permits numerous tolerances.
Please refer to the table on → **Page 75** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8,05 mm → Article no. 40 430 08050)!

Machine reamers, similar to DIN 8093-A / -B

▲ extremely irregular pitch

N





Left Hand Helix
Solid carbide



straight flute
Solid carbide

DC $_{H7}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h7}$ mm	ZEFP	Article no. 40 410 ...	Article no. 40 400 ...
2,0	49	11	31	2,0	4	020	020
2,1	49	11	31	2,0	4	021	021
2,2	53	12	35	2,2	4	022	022
2,3	53	12	35	2,2	4	023	023
2,4	57	14	34	2,5	4	024	024
2,5	57	14	34	2,5	4	025	025
2,6	57	14	34	2,5	4	026	026
2,7	61	15	36	3,0	4	027	027
2,8	61	15	36	3,0	4	028	028
2,9	61	15	36	3,0	4	029	029
3,0	61	15	36	3,0	4	030	030
3,1	61	15	36	3,0	4	031	031
3,2	70	18	40	3,5	4	032	032
3,3	70	18	40	3,5	4	033	033
3,4	70	18	40	3,5	4	034	034
3,5	70	18	40	3,5	4	035	035
3,6	70	18	40	3,5	4	036	036
3,7	70	18	40	3,5	4	037	037
3,8	75	19	43	4,0	4	038	038
3,9	75	19	43	4,0	4	039	039
4,0	75	19	43	4,0	4	040	040
4,1	75	19	43	4,0	4	041	041
4,2	75	19	43	4,0	4	042	042
4,3	75	21	42	4,5	4	043	043
4,4	75	21	42	4,5	4	044	044
4,5	75	21	42	4,5	4	045	045
4,6	75	21	42	4,5	4	046	046
4,7	75	21	42	4,5	4	047	047
4,8	86	23	52	5,0	4	048	048
4,9	86	23	52	5,0	4	049	049
5,0	86	23	52	5,0	4	050	050
5,1	86	23	52	5,0	4	051	051
5,2	86	23	52	5,0	4	052	052
5,3	86	23	52	5,0	6	053	053
5,4	93	26	57	5,6	6	054	054
5,5	93	26	57	5,6	6	055	055
5,6	93	26	57	5,6	6	056	056
5,7	93	26	57	5,6	6	057	057
5,8	93	26	57	5,6	6	058	058
5,9	93	26	57	5,6	6	059	059
6,0	93	26	57	5,6	6	060	060
6,1	93	26	57	5,6	6	061	061
6,2	93	26	57	5,6	6	062	062
6,3	101	28	63	6,3	6	063	063
6,4	101	28	63	6,3	6	064	064
6,5	101	28	63	6,3	6	065	065
6,6	101	28	63	6,3	6	066	066
6,7	101	28	63	6,3	6	067	067
6,8	109	31	69	7,1	6	068	068
6,9	109	31	69	7,1	6	069	069
7,0	109	31	69	7,1	6	070	070
7,1	109	31	69	7,1	6	071	071
7,2	109	31	69	7,1	6	072	072
7,3	109	31	69	7,1	6	073	073
7,4	109	31	69	7,1	6	074	074
7,5	109	31	69	7,1	6	075	075
7,6	117	33	75	8,0	6	076	076
7,7	117	33	75	8,0	6	077	077
7,8	117	33	75	8,0	6	078	078
7,9	117	33	75	8,0	6	079	079
8,0	117	33	75	8,0	6	080	080
8,1	117	33	75	8,0	6	081	081
8,2	117	33	75	8,0	6	082	082
8,3	117	33	75	8,0	6	083	083
8,4	117	33	75	8,0	6	084	084
8,5	117	33	75	8,0	6	085	085
8,6	125	36	81	9,0	6	086	086
8,7	125	36	81	9,0	6	087	087
8,8	125	36	81	9,0	6	088	088
8,9	125	36	81	9,0	6	089	089
9,0	125	36	81	9,0	6	090	090
9,1	125	36	81	9,0	6	091	091
9,2	125	36	81	9,0	6	092	092
9,3	125	36	81	9,0	6	093	093
9,4	125	36	81	9,0	6	094	094
9,5	125	36	81	9,0	6	095	095
9,6	133	38	87	10,0	6	096	096
9,7	133	38	87	10,0	6	097	097
9,8	133	38	87	10,0	6	098	098
9,9	133	38	87	10,0	6	099	099
10,0	133	38	87	10,0	6	100	100
10,1	133	38	87	10,0	6	101	101
10,2	133	38	87	10,0	6	102	102
10,3	133	38	87	10,0	6	103	103
10,4	133	38	87	10,0	6	104	104
10,5	133	38	87	10,0	6	105	105
10,6	133	38	87	10,0	6	106	106
10,7	142	41	96	10,0	6	107	107
10,8	142	41	96	10,0	6	108	108
10,9	142	41	96	10,0	6	109	109
11,0	142	41		10,0	6	110	110
11,1	142	41		10,0	6	111	111
11,2	142	41		10,0	6	112	112
11,3	142	41		10,0	6	113	113
11,4	142	41		10,0	6	114	114
11,5	142	41		10,0	6	115	115
11,6	142	41		10,0	6	116	116
11,7	142	41		10,0	6	117	117
11,8	142	41		10,0	6	118	118
11,9	151	44		10,0	6	119	119
12,0	151	44		10,0	6	120	120

Steel	●	●
Stainless steel		
Cast iron	○	○
Non ferrous metals	●	●
Heat resistant alloys	○	○
Hardened materials		

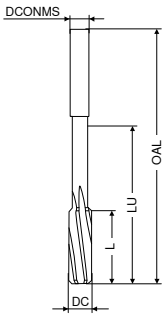
→ v_c Page 66+67

4

NC machine reamers, DIN 212-3-B

▲ maximum radial run-out accuracy

NC





Left Hand Helix
HSS-E

DC H7	OAL	L	LU	DCONMS h6	ZEFP	Article no. 40 110 ...
mm	mm	mm	mm	mm		
1,5	40	8	15,5	2	3	015
1,6	43	9	16,0	2	3	016
1,7	43	9	16,0	2	3	017
1,8	46	10	19,0	2	4	018
1,9	46	10	19,0	2	4	019
2,0	49	11	21,0	2	4	020
2,1	49	11	21,0	2	4	021
2,2	53	12	22,0	3	4	022
2,3	53	12	22,0	3	4	023
2,4	57	14	26,0	3	4	024
2,5	57	14	26,0	3	4	025
2,6	57	14	26,0	3	4	026
2,7	61	15	30,0	3	6	027
2,8	61	15	30,0	3	6	028
2,9	61	15	30,0	3	6	029
3,0	61	15	30,0	3	6	030
3,1	65	16	34,0	4	6	031
3,2	65	16	34,0	4	6	032
3,3	65	16	34,0	4	6	033
3,4	70	18	39,0	4	6	034
3,5	70	18	39,0	4	6	035
3,6	70	18	39,0	4	6	036
3,7	70	18	39,0	4	6	037
3,8	75	19	44,0	4	6	038
3,9	75	19	44,0	4	6	039
4,0	75	19	44,0	4	6	040
4,1	75	19	44,0	4	6	041
4,2	75	19	44,0	4	6	042
4,3	80	21	48,0	5	6	043
4,4	80	21	48,0	5	6	044
4,5	80	21	48,0	5	6	045
4,6	80	21	48,0	5	6	046
4,7	80	21	48,0	5	6	047
4,8	86	23	54,0	5	6	048
4,9	86	23	54,0	5	6	049
5,0	86	23	54,0	5	6	050
5,1	86	23	54,0	5	6	051
5,2	86	23	54,0	5	6	052
5,3	86	23	54,0	5	6	053
5,4	93	26	53,0	6	6	054
5,5	93	26	53,0	6	6	055
5,6	93	26	53,0	6	6	056
5,7	93	26	53,0	6	6	057
5,8	93	26	53,0	6	6	058
5,9	93	26	53,0	6	6	059
6,0	93	26	53,0	6	6	060
6,1	101	28	61,0	6	6	061
6,2	101	28	61,0	6	6	062
6,3	101	28	61,0	6	6	063
6,4	101	28	61,0	6	6	064
6,5	101	28	61,0	6	6	065
6,6	101	28	61,0	6	6	066
6,7	101	28	61,0	6	6	067
6,8	109	31	69,0	8	6	068
6,9	109	31	69,0	8	6	069
7,0	109	31	69,0	8	6	070
7,1	109	31	69,0	8	6	071
7,2	109	31	69,0	8	6	072
7,3	109	31	69,0	8	6	073
7,4	109	31	69,0	8	6	074
7,5	109	31	69,0	8	6	075
7,6	117	33	77,0	8	6	076
7,7	117	33	77,0	8	6	077
7,8	117	33	77,0	8	6	078
7,9	117	33	77,0	8	6	079
8,0	117	33	77,0	8	6	080
8,1	117	33	77,0	8	6	081
8,2	117	33	77,0	8	6	082
8,3	117	33	77,0	8	6	083
8,4	117	33	77,0	8	6	084
8,5	117	33	77,0	8	6	085
8,6	125	36	81,0	10	6	086
8,7	125	36	81,0	10	6	087
8,8	125	36	81,0	10	6	088
8,9	125	36	81,0	10	6	089
9,0	125	36	81,0	10	6	090
9,1	125	36	81,0	10	6	091
9,2	125	36	81,0	10	6	092
9,3	125	36	81,0	10	6	093
9,4	125	36	81,0	10	6	094
9,5	125	36	81,0	10	6	095
9,6	133	38	89,0	10	6	096
9,7	133	38	89,0	10	6	097
9,8	133	38	89,0	10	6	098
9,9	133	38	89,0	10	6	099
10,0	133	38	89,0	10	6	100
11,0	142	41	98,0	10	6	110
12,0	151	44	106,0	10	6	120
13,0	151	44	106,0	10	6	130
14,0	160	47	110,0	14	8	140
15,0	162	50	112,0	14	8	150
16,0	170	52	120,0	14	8	160
17,0	175	54	125,0	14	8	170
18,0	182	56	132,0	14	8	180
19,0	189	58	136,0	16	8	190
20,0	195	60	142,0	16	8	200

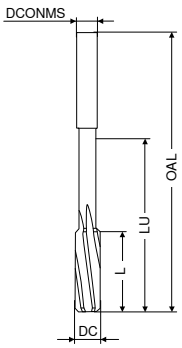
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

NC machine reamers, DIN 212-3-B

- 0,01 mm steps
- tolerance: Ø 0,95–5,50 mm = +0,004 mm
- tolerance: Ø 5,51–12,00 mm = +0,005 mm

NC 100





Left Hand Helix
HSS-E

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	Article no. 40 115 ...
0,95 - 0,99	34	5,5	12,5	1	3	xxxxx[1]
1,00	34	5,5	12,5	1	3	01000
1,01	34	5,5	12,5	1	3	01010
1,02	34	5,5	12,5	1	3	01020
1,03 - 1,06	34	5,5	12,5	1	3	xxxxx[1]
1,07 - 1,18	36	6,5	13,0	1	3	xxxxx[1]
1,19 - 1,32	38	7,5	14,0	2	3	xxxxx[1]
1,33 - 1,41	40	8,0	15,5	2	3	xxxxx[1]
1,42 - 1,49	40	8,0	15,5	2	3	xxxxx[1]
1,50	40	8,0	15,5	2	3	01500
1,51	43	9,0	16,0	2	3	01510
1,52	43	9,0	16,0	2	3	01520
1,53 - 1,70	43	9,0	16,0	2	3	xxxxx[1]
1,71 - 1,90	46	10,0	19,0	2	4	xxxxx[1]
1,91 - 1,96	49	11,0	21,0	2	4	xxxxx[1]
1,97	49	11,0	21,0	2	4	01970
1,98	49	11,0	21,0	2	4	01980
1,99	49	11,0	21,0	2	4	01990
2,00	49	11,0	21,0	2	4	02000
2,01	49	11,0	21,0	2	4	02010
2,02	49	11,0	21,0	2	4	02020
2,03 - 2,12	49	11,0	21,0	2	4	xxxxx[1]
2,13 - 2,36	53	12,0	22,0	3	4	xxxxx[1]
2,37 - 2,47	57	14,0	26,0	3	4	xxxxx[1]
2,48	57	14,0	26,0	3	4	02480
2,49	57	14,0	26,0	3	4	02490
2,50	57	14,0	26,0	3	4	02500
2,51	57	14,0	26,0	3	4	02510
2,52	57	14,0	26,0	3	4	02520
2,53 - 2,65	57	14,0	26,0	3	4	xxxxx[1]
2,66 - 2,96	61	15,0	30,0	3	6	xxxxx[1]
2,97	61	15,0	30,0	3	6	02970
2,98	61	15,0	30,0	3	6	02980
2,99	61	15,0	30,0	3	6	02990
3,00	61	15,0	30,0	3	6	03000
3,01	61	15,0	30,0	3	6	03010
3,02	61	15,0	30,0	3	6	03020
3,03	61	15,0	30,0	3	6	03030[1]
3,04 - 3,35	65	16,0	34,0	4	6	xxxxx[1]
3,36 - 3,75	70	18,0	39,0	4	6	xxxxx[1]
3,76 - 3,96	75	19,0	44,0	4	6	xxxxx[1]
3,97	75	19,0	44,0	4	6	03970
3,98	75	19,0	44,0	4	6	03980
3,99	75	19,0	44,0	4	6	03990
4,00	75	19,0	44,0	4	6	04000
4,01	75	19,0	44,0	4	6	04010
4,02	75	19,0	44,0	4	6	04020
4,03 - 4,25	75	19,0	44,0	4	6	xxxxx[1]
4,26 - 4,75	80	21,0	48,0	5	6	xxxxx[1]
4,76 - 4,96	86	23,0	54,0	5	6	xxxxx[1]
4,97	86	23,0	54,0	5	6	04970
4,98	86	23,0	54,0	5	6	04980
4,99	86	23,0	54,0	5	6	04990
5,00	86	23,0	54,0	5	6	05000
5,01	86	23,0	54,0	5	6	05010
5,02	86	23,0	54,0	5	6	05020
5,03 - 5,30	86	23,0	54,0	5	6	xxxxx[1]
5,31 - 5,60	93	26,0	53,0	6	6	xxxxx[1]
5,61 - 5,96	93	26,0	53,0	6	6	xxxxx[1]
5,97	93	26,0	53,0	6	6	05970
5,98	93	26,0	53,0	6	6	05980
5,99	93	26,0	53,0	6	6	05990
6,00	93	26,0	53,0	6	6	06000
6,01	93	26,0	53,0	6	6	06010
6,02	93	26,0	53,0	6	6	06020
6,03	93	26,0	53,0	6	6	06030[1]
6,04 - 6,70	101	28,0	61,0	6	6	xxxxx[1]
6,71 - 7,20	109	31,0	69,0	8	6	xxxxx[1]
7,21 - 7,50	109	31,0	69,0	8	6	xxxxx[1]
7,51 - 7,96	117	33,0	77,0	8	6	xxxxx[1]
7,97	117	33,0	77,0	8	6	07970
7,98	117	33,0	77,0	8	6	07980
7,99	117	33,0	77,0	8	6	07990
8,00	117	33,0	77,0	8	6	08000
8,01	117	33,0	77,0	8	6	08010
8,02	117	33,0	77,0	8	6	08020
8,03 - 8,20	117	33,0	77,0	8	6	xxxxx[1]
8,21 - 8,50	117	33,0	77,0	8	6	xxxxx[1]
8,51 - 8,99	125	36,0	81,0	10	6	xxxxx[1]
9,00	125	36,0	81,0	10	6	09000
9,01	125	36,0	81,0	10	6	09010
9,02	125	36,0	81,0	10	6	09020
9,03 - 9,20	125	36,0	81,0	10	6	xxxxx[1]
9,21 - 9,50	125	36,0	81,0	10	6	xxxxx[1]
9,51 - 9,96	133	38,0	89,0	10	6	xxxxx[1]
9,97	133	38,0	89,0	10	6	09970
9,98	133	38,0	89,0	10	6	09980
9,99	133	38,0	89,0	10	6	09990
10,00	133	38,0	89,0	10	6	10000
10,01	133	38,0	89,0	10	6	10010
10,02	133	38,0	89,0	10	6	10020
10,03 - 10,20	133	38,0	89,0	10	6	xxxxx[1]
10,21 - 10,60	133	38,0	89,0	10	6	xxxxx[1]
10,61 - 11,20	142	41,0	98,0	10	6	xxxxx[1]
11,21 - 11,80	142	41,0	98,0	10	6	xxxxx[1]
11,81 - 11,96	151	44,0	106,0	10	6	xxxxx[1]
11,97	151	44,0	106,0	10	6	11970
11,98	151	44,0	106,0	10	6	11980
11,99	151	44,0	106,0	10	6	11990
12,00	151	44,0	106,0	10	6	12000

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

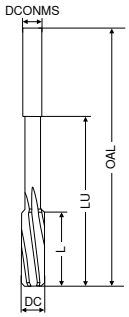
→ v_c Page 68+69

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days / Minimum order 5 pieces

This tool concept permits numerous tolerances.
Please refer to the table on → **Page 75** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8,03 mm → Article no. 40 115 08030)!

Machine reamers, DIN 212-B

N





Left Hand Helix
HSS-E

DC H7	OAL	L	LU	DCONMS h9	ZEFP	Article no. 40 150 ...
mm	mm	mm	mm	mm		
1,0	34	5,5	15,0	1,0	3	010
1,1	36	6,5	15,5	1,1	3	011
1,2	38	7,5	16,5	1,2	3	012
1,3	38	7,5	16,5	1,2	3	013
1,4	40	8,0	18,0	1,4	3	014
1,5	40	8,0	18,0	1,5	3	015
1,6	43	9,0	20,0	1,6	3	016
1,7	43	9,0	20,0	1,6	3	017
1,8	46	10,0	22,0	1,8	4	018
1,9	46	10,0	22,0	1,8	4	019
2,0	49	11,0	24,0	2,0	4	020
2,1	49	11,0	24,0	2,0	4	021
2,2	53	12,0	25,0	2,2	4	022
2,3	53	12,0	25,0	2,2	4	023
2,4	57	14,0	29,0	2,5	4	024
2,5	57	14,0	29,0	2,5	4	025
2,6	57	14,0	29,0	2,5	4	026
2,7	61	15,0	33,0	2,8	6	027
2,8	61	15,0	33,0	2,8	6	028
2,9	61	15,0	36,0	3,0	6	029
3,0	61	15,0	36,0	3,0	6	030
3,1	65	16,0	36,0	3,2	6	031
3,2	65	16,0	36,0	3,2	6	032
3,3	65	16,0	36,0	3,2	6	033
3,4	70	18,0	41,0	3,5	6	034
3,5	70	18,0	41,0	3,5	6	035
3,6	70	18,0	41,0	3,5	6	036
3,7	70	18,0	41,0	3,5	6	037
3,8	75	19,0	44,0	4,0	6	038
3,9	75	19,0	44,0	4,0	6	039
4,0	75	19,0	44,0	4,0	6	040
4,1	75	19,0	44,0	4,0	6	041
4,2	75	19,0	44,0	4,0	6	042
4,3	80	21,0	48,0	4,5	6	043
4,4	80	21,0	48,0	4,5	6	044
4,5	80	21,0	48,0	4,5	6	045
4,6	80	21,0	48,0	4,5	6	046
4,7	80	21,0	48,0	4,5	6	047
4,8	86	23,0	53,0	5,0	6	048
4,9	86	23,0	53,0	5,0	6	049
5,0	86	23,0	53,0	5,0	6	050
5,1	86	23,0	53,0	5,0	6	051
5,2	86	23,0	53,0	5,0	6	052
5,3	86	23,0	53,0	5,0	6	053
5,4	93	26,0	58,0	5,6	6	054
5,5	93	26,0	58,0	5,6	6	055
5,6	93	26,0	58,0	5,6	6	056
5,7	93	26,0	58,0	5,6	6	057
5,8	93	26,0	58,0	5,6	6	058
5,9	93	26,0	58,0	5,6	6	059
6,0	93	26,0	58,0	5,6	6	060
6,1	101	28,0	64,0	6,3	6	061
6,2	101	28,0	64,0	6,3	6	062
6,3	101	28,0	64,0	6,3	6	063
6,4	101	28,0	64,0	6,3	6	064
6,5	101	28,0	64,0	6,3	6	065
6,6	101	28,0	64,0	6,3	6	066
6,7	101	28,0	64,0	6,3	6	067
6,8	109	31,0	70,0	7,1	6	068
6,9	109	31,0	70,0	7,1	6	069
7,0	109	31,0	70,0	7,1	6	070
7,1	109	31,0	70,0	7,1	6	071
7,2	109	31,0	70,0	7,1	6	072
7,3	109	31,0	70,0	7,1	6	073
7,4	109	31,0	70,0	7,1	6	074
7,5	109	31,0	70,0	7,1	6	075
7,6	117	33,0	76,0	8,0	6	076
7,7	117	33,0	76,0	8,0	6	077
7,8	117	33,0	76,0	8,0	6	078
7,9	117	33,0	76,0	8,0	6	079
8,0	117	33,0	76,0	8,0	6	080
8,1	117	33,0	76,0	8,0	6	081
8,2	117	33,0	76,0	8,0	6	082
8,3	117	33,0	76,0	8,0	6	083
8,4	117	33,0	76,0	8,0	6	084
8,5	117	33,0	76,0	8,0	6	085
8,6	125	36,0	82,0	9,0	6	086
8,7	125	36,0	82,0	9,0	6	087
8,8	125	36,0	82,0	9,0	6	088
8,9	125	36,0	82,0	9,0	6	089
9,0	125	36,0	82,0	9,0	6	090
9,1	125	36,0	82,0	9,0	6	091
9,2	125	36,0	82,0	9,0	6	092
9,3	125	36,0	82,0	9,0	6	093
9,4	125	36,0	82,0	9,0	6	094
9,5	125	36,0	82,0	9,0	6	095
9,6	133	38,0	88,0	10,0	6	096
9,7	133	38,0	88,0	10,0	6	097
9,8	133	38,0	88,0	10,0	6	098
9,9	133	38,0	88,0	10,0	6	099
10,0	133	38,0	88,0	10,0	6	100
11,0	142	41,0	97,0	10,0	6	110
12,0	151	44,0	106,0	10,0	6	120
13,0	151	44,0	106,0	10,0	6	130
14,0	160	47,0	111,0	12,5	8	140
15,0	162	50,0	113,0	12,5	8	150
16,0	170	52,0	121,0	12,5	8	160
17,0	175	54,0	124,0	14,0	8	170
18,0	182	56,0	131,0	14,0	8	180
19,0	189	58,0	132,0	16,0	8	190
20,0	195	60,0	136,0	16,0	8	200

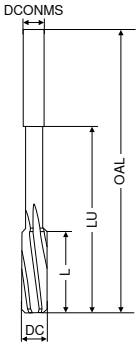
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

Machine reamers, DIN 212-B

- 0,01 mm steps
- tolerance: Ø 0,95–5,50 mm = +0,004 mm
- tolerance: Ø 5,51–12,00 mm = +0,005 mm

N 100





Left Hand Helix
HSS-E

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	Article no. 40 140 ...
0,95 - 1,06	34	5,5	15,0	1,0	3	xxxxx 1)
1,07 - 1,18	36	6,5	15,5	1,1	3	xxxxx 1)
1,19 - 1,32	38	7,5	16,5	1,2	3	xxxxx 1)
1,33 - 1,39	40	8,0	18,0	1,4	3	xxxxx 1)
1,40 - 1,47	40	8,0	18,0	1,4	3	xxxxx 1)
1,48	40	8,0	18,0	1,4	3	01480
1,49	40	8,0	18,0	1,4	3	01490
1,50	40	8,0	18,0	1,4	3	01500
1,51 - 1,70	43	9,0	20,0	1,6	3	xxxxx 1)
1,71 - 1,90	46	10,0	22,0	1,8	4	xxxxx 1)
1,91 - 1,97	49	11,0	24,0	2,0	4	xxxxx 1)
1,98	49	11,0	24,0	2,0	4	01980
1,99	49	11,0	24,0	2,0	4	01990
2,00	49	11,0	24,0	2,0	4	02000
2,01	49	11,0	24,0	2,0	4	02010
2,02	49	11,0	24,0	2,0	4	02020
2,03	49	11,0	24,0	2,0	4	02030
2,04	49	11,0	24,0	2,0	4	02040
2,05	49	11,0	24,0	2,0	4	02050
2,06 - 2,09	49	11,0	24,0	2,0	4	xxxxx 1)
2,10 - 2,12	49	11,0	24,0	2,0	4	xxxxx 1)
2,13 - 2,36	53	12,0	25,0	2,2	4	xxxxx 1)
2,37 - 2,49	57	14,0	29,0	2,5	4	xxxxx 1)
2,50 - 2,59	57	14,0	29,0	2,5	4	xxxxx 1)
2,60 - 2,65	57	14,0	29,0	2,5	4	xxxxx 1)
2,66 - 2,80	61	15,0	33,0	2,8	6	xxxxx 1)
2,81 - 2,94	61	15,0	36,0	3,0	6	xxxxx 1)
2,95	61	15,0	36,0	3,0	6	02950
2,96	61	15,0	36,0	3,0	6	02960
2,97	61	15,0	36,0	3,0	6	02970
2,98	61	15,0	36,0	3,0	6	02980
2,99	61	15,0	36,0	3,0	6	02990
3,00	61	15,0	36,0	3,0	6	03000
3,01	65	16,0	36,0	3,2	6	03010
3,02	65	16,0	36,0	3,2	6	03020
3,03	65	16,0	36,0	3,2	6	03030
3,04	65	16,0	36,0	3,2	6	03040
3,05	65	16,0	36,0	3,2	6	03050
3,06	65	16,0	36,0	3,2	6	03060
3,07	65	16,0	36,0	3,2	6	03070
3,08 - 3,09	65	16,0	36,0	3,2	6	xxxxx 1)
3,10 - 3,35	65	16,0	36,0	3,2	6	xxxxx 1)
3,36 - 3,49	70	18,0	41,0	3,5	6	xxxxx 1)
3,50 - 3,59	70	18,0	41,0	3,5	6	xxxxx 1)
3,60 - 3,75	70	18,0	41,0	3,5	6	xxxxx 1)
3,76 - 3,81	75	19,0	44,0	4,0	6	xxxxx 1)
3,82 - 3,94	75	19,0	44,0	4,0	6	xxxxx 1)
3,95	75	19,0	44,0	4,0	6	03950
3,96	75	19,0	44,0	4,0	6	03960
3,97	75	19,0	44,0	4,0	6	03970
3,98	75	19,0	44,0	4,0	6	03980
3,99	75	19,0	44,0	4,0	6	03990
4,00	75	19,0	44,0	4,0	6	04000
4,01	75	19,0	44,0	4,0	6	04010
4,02	75	19,0	44,0	4,0	6	04020
4,03	75	19,0	44,0	4,0	6	04030
4,04	75	19,0	44,0	4,0	6	04040
4,05	75	19,0	44,0	4,0	6	04050
4,06	75	19,0	44,0	4,0	6	04060
4,07	75	19,0	44,0	4,0	6	04070
4,08	75	19,0	44,0	4,0	6	04080
4,09 - 4,20	75	19,0	44,0	4,0	6	xxxxx 1)
4,21 - 4,25	75	19,0	44,0	4,0	6	xxxxx 1)
4,26 - 4,75	80	21,0	48,0	4,5	5	xxxxx 1)
4,76 - 4,95	86	23,0	53,0	5,0	6	xxxxx 1)
4,96	86	23,0	53,0	5,0	6	04960
4,97	86	23,0	53,0	5,0	6	04970
4,98	86	23,0	53,0	5,0	6	04980
4,99	86	23,0	53,0	5,0	6	04990
5,00	86	23,0	53,0	5,0	6	05000
5,01	86	23,0	53,0	5,0	6	05010
5,02	86	23,0	53,0	5,0	6	05020
5,03	86	23,0	53,0	5,0	6	05030
5,04	86	23,0	53,0	5,0	6	05040
5,05	86	23,0	53,0	5,0	6	05050
5,06	86	23,0	53,0	5,0	6	05060
5,07	86	23,0	53,0	5,0	6	05070
5,08 - 5,20	86	23,0	53,0	5,0	6	xxxxx 1)
5,21 - 5,30	86	23,0	53,0	5,0	6	xxxxx 1)
5,31 - 5,94	93	26,0	58,0	5,6	6	xxxxx 1)
5,95	93	26,0	58,0	5,6	6	05950
5,96	93	26,0	58,0	5,6	6	05960
5,97	93	26,0	58,0	5,6	6	05970
5,98	93	26,0	58,0	5,6	6	05980
5,99	93	26,0	58,0	5,6	6	05990

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

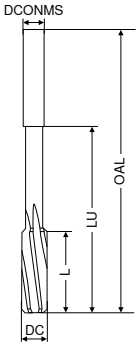
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **Page 75**.
For xxxxx please indicate requested Ø in the order
(e.g. Ø 10,06 mm → Article no. 40 140 10060)!

Machine reamers, DIN 212-B

- ▲ 0,01 mm steps
- ▲ tolerance: Ø 0,95–5,50 mm = +0,004 mm
- ▲ tolerance: Ø 5,51–12,00 mm = +0,005 mm

N 100





Left Hand Helix
HSS-E

DC	OAL	L	LU	DCONMS $_{h9}$	ZEFP	Article no. 40 140 ...
mm	mm	mm	mm	mm		
6,00	93	26	58	5,6	6	06000
6,01	101	28	64	6,3	6	06010
6,02	101	28	64	6,3	6	06020
6,03	101	28	64	6,3	6	06030
6,04	101	28	64	6,3	6	06040
6,05	101	28	64	6,3	6	06050
6,06 - 6,11	101	28	64	6,3	6	xxxxx [1]
6,12 - 6,34	101	28	64	6,3	6	xxxxx [1]
6,35	101	28	64	6,3	6	06350
6,36	101	28	64	6,3	6	06360 [1]
6,71 - 6,94	109	31	70	7,1	6	xxxxx [1]
6,95	109	31	70	7,1	6	06950
6,96	109	31	70	7,1	6	06960
6,97	109	31	70	7,1	6	06970
6,98	109	31	70	7,1	6	06980
6,99	109	31	70	7,1	6	06990
7,00	109	31	70	7,1	6	07000
7,01	109	31	70	7,1	6	07010
7,02	109	31	70	7,1	6	07020
7,03	109	31	70	7,1	6	07030
7,04 - 7,50	109	31	70	7,1	6	xxxxx [1]
7,51 - 7,63	109	31	76	7,1	6	xxxxx [1]
7,64 - 7,94	117	33	76	8,0	6	xxxxx [1]
7,95	117	33	76	8,0	6	07950
7,96	117	33	76	8,0	6	07960
7,97	117	33	76	8,0	6	07970
7,98	117	33	76	8,0	6	07980
7,99	117	33	76	8,0	6	07990
8,00	117	33	76	8,0	6	08000
8,01	117	33	76	8,0	6	08010
8,02	117	33	76	8,0	6	08020
8,03	117	33	76	8,0	6	08030
8,04	117	33	76	8,0	6	08040
8,05	117	33	76	8,0	6	08050
8,06 - 8,20	117	33	76	8,0	6	xxxxx [1]
8,21 - 8,50	117	33	76	8,0	6	xxxxx [1]
8,51 - 8,63	117	33	82	8,0	6	xxxxx [1]
8,64 - 8,95	125	36	82	9,0	6	xxxxx [1]
8,96	125	36	82	9,0	6	08960
8,97	125	36	82	9,0	6	08970
8,98	125	36	82	9,0	6	08980
8,99	125	36	82	9,0	6	08990
9,00	125	36	82	9,0	6	09000
9,01	125	36	82	9,0	6	09010
9,02	125	36	82	9,0	6	09020
9,03 - 9,50	125	36	82	9,0	6	xxxxx [1]
9,51 - 9,63	125	36	88	9,0	6	xxxxx [1]
9,64 - 9,95	133	38	88	10,0	6	xxxxx [1]
9,96	133	38	88	10,0	6	09960
9,97	133	38	88	10,0	6	09970
9,98	133	38	88	10,0	6	09980
9,99	133	38	88	10,0	6	09990
10,00	133	38	88	10,0	6	10000
10,01	133	38	88	10,0	6	10010
10,02	133	38	88	10,0	6	10020
10,03	133	38	88	10,0	6	10030
10,04	133	38	88	10,0	6	10040
10,05	133	38	88	10,0	6	10050
10,06 - 10,09	133	38	88	10,0	6	xxxxx [1]
10,10	133	38	88	10,0	6	10100
10,11 - 10,19	133	38	88	10,0	6	xxxxx [1]
10,20	133	38	88	10,0	6	10200
10,21 - 10,69	133	38	88	10,0	6	xxxxx [1]
10,70 - 11,20	142	41	97	10,0	6	xxxxx [1]
11,21 - 11,80	142	41	97	10,0	6	xxxxx [1]
11,81 - 11,95	151	44	106	10,0	6	xxxxx [1]
11,96	151	44	106	10,0	6	11960
11,97	151	44	106	10,0	6	11970
11,98	151	44	106	10,0	6	11980
11,99	151	44	106	10,0	6	11990
12,00	151	44	106	10,0	6	12000

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

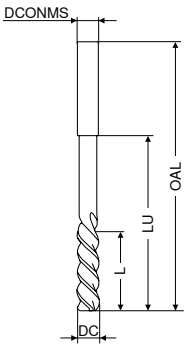
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **Page 75**.
For xxxxx please indicate requested Ø in the order
(e.g. Ø 10,06 mm → Article no. 40 140 10060)!

Quick spiral machine reamers, DIN 212-C

- with 45° left-hand helix and conical chamfer
- for reaming through holes in long chipping materials
- not suitable for blind holes
- the reaming allowance should be for at least 50 % greater and the feed up to 100 % higher than the normal values for reamers. This gives a clean, chatter-free surface, high roundness of the bore and a longer service life.

S





Left Hand Helix
HSS-E
Through hole

DC $_{H7}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h9}$ mm	ZEFP	Article no. 40 155 ...
1,0	34	5,5	15	1,0	2	010 1)
1,5	40	8,0	18	1,5	2	015 1)
1,8	46	10,0	22	1,8	2	018 1)
2,0	49	11,0	24	2,0	3	020 1)
2,2	53	12,0	25	2,2	3	022 1)
2,5	57	14,0	29	2,5	3	025 1)
2,8	61	15,0	33	2,8	3	028 1)
3,0	61	15,0	36	3,0	3	030 1)
3,2	65	16,0	36	3,2	3	032 1)
3,5	70	18,0	41	3,5	3	035 1)
4,0	75	19,0	44	4,0	3	040
4,5	80	21,0	48	4,5	3	045
5,0	86	23,0	53	5,0	3	050
6,0	93	26,0	58	5,6	3	060
6,5	101	28,0	64	6,3	3	065
7,0	109	31,0	70	7,1	3	070
8,0	117	33,0	76	8,0	3	080
9,0	125	36,0	82	9,0	3	090
10,0	133	38,0	88	10,0	3	100
11,0	142	41,0	97	10,0	3	110
12,0	151	44,0	106	10,0	3	120
13,0	151	44,0	106	10,0	3	130
14,0	160	47,0	111	12,5	3	140
15,0	162	50,0	113	12,5	3	150
16,0	170	52,0	121	12,5	3	160
17,0	175	54,0	124	14,0	3	170
18,0	182	56,0	131	14,0	3	180
19,0	189	58,0	132	16,0	3	190
20,0	195	60,0	136	16,0	3	200

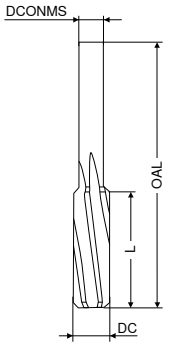
Steel	●
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
Hardened materials	

→ v_c Page 68+69

1) not standardised

Stub reamers, DIN 8089-B

AR





Left Hand Helix
HSS-E
Through hole

DC $_{H7}$ mm	OAL mm	L mm	DCONMS $_{h8}$ mm	ZEFP	Article no. 40 145 ...
4,0	56	20	3,55	6	040
4,5	63	22	4,00	6	045
5,0	63	22	4,00	6	050
5,5	63	22	5,00	6	055
6,0	63	22	5,00	6	060
6,5	63	22	5,00	6	065
7,0	71	25	6,30	6	070
8,0	71	25	6,30	6	080
9,0	71	25	8,00	6	090
10,0	71	25	8,00	6	100
11,0	80	28	10,00	6	110
12,0	80	28	10,00	6	120
13,0	80	28	10,00	6	130
14,0	90	32	12,50	8	140
15,0	90	32	12,50	8	150
16,0	90	32	12,50	8	160
17,0	90	32	12,50	8	170
18,0	100	36	16,00	8	180
19,0	100	36	16,00	8	190
20,0	100	36	16,00	8	200

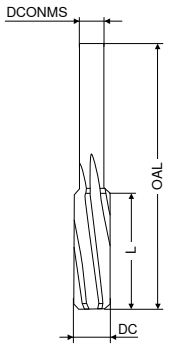
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

Stub reamers, DIN 8089-B

- 0,01 mm steps
- tolerance: Ø 3,76–5,50 mm = +0,004 mm
- tolerance: Ø 5,51–12,00 mm = +0,005 mm

AR 100





Left Hand Helix
HSS-E

DC +0,004/+0,005 mm	OAL mm	L mm	DCONMS h8 mm	ZEFP	Article no. 40 139 ...
3,76 - 3,81	56	20	3,55	6	xxxxx 1)
3,82 - 3,94	56	20	3,55	6	xxxxx 1)
3,95	56	20	3,55	6	03950
3,96	56	20	3,55	6	03960
3,97	56	20	3,55	6	03970
3,98	56	20	3,55	6	03980
3,99	56	20	3,55	6	03990
4,00	56	20	3,55	6	04000
4,01	56	20	3,55	6	04010
4,02	56	20	3,55	6	04020
4,03 - 4,20	56	20	3,55	6	xxxxx 1)
4,21 - 4,25	56	20	3,55	6	xxxxx 1)
4,26 - 4,75	63	22	4,00	6	xxxxx 1)
4,76 - 4,94	63	22	4,00	6	xxxxx 1)
4,95	63	22	4,00	6	04950
4,96	63	22	4,00	6	04960
4,97	63	22	4,00	6	04970
4,98	63	22	4,00	6	04980
4,99	63	22	4,00	6	04990
5,00	63	22	4,00	6	05000
5,01	63	22	4,00	6	05010
5,02	63	22	4,00	6	05020
5,03	63	22	4,00	6	05030
5,04	63	22	4,00	6	05040
5,05	63	22	4,00	6	05050
5,06 - 5,20	63	22	4,00	6	xxxxx 1)
5,21 - 5,30	63	22	4,00	6	xxxxx 1)
5,31 - 5,70	63	22	5,00	6	xxxxx 1)
5,71 - 5,94	63	22	5,00	6	xxxxx 1)
5,95	63	22	5,00	6	05950
5,96	63	22	5,00	6	05960
5,97	63	22	5,00	6	05970
5,98	63	22	5,00	6	05980
5,99	63	22	5,00	6	05990
6,00	63	22	5,00	6	06000
6,01	63	22	5,00	6	06010
6,02	63	22	5,00	6	06020
6,03 - 6,11	63	22	5,00	6	xxxxx 1)
6,12 - 6,70	63	22	5,00	6	xxxxx 1)
6,71 - 6,94	71	25	6,30	6	xxxxx 1)
6,95	71	25	6,30	6	06950
6,96	71	25	6,30	6	06960
6,97	71	25	6,30	6	06970
6,98	71	25	6,30	6	06980
6,99	71	25	6,30	6	06990
7,00	71	25	6,30	6	07000
7,01	71	25	6,30	6	07010
7,02	71	25	6,30	6	07020
7,03 - 7,25	71	25	6,30	6	xxxxx 1)
7,26 - 7,94	71	25	6,30	6	xxxxx 1)
7,95	71	25	6,30	6	07950
7,96	71	25	6,30	6	07960
7,97	71	25	6,30	6	07970
7,98	71	25	6,30	6	07980
7,99	71	25	6,30	6	07990
8,00	71	25	6,30	6	08000
8,01	71	25	6,30	6	08010
8,02	71	25	6,30	6	08020
8,03	71	25	6,30	6	08030
8,04	71	25	6,30	6	08040
8,05 - 8,20	71	25	6,30	6	xxxxx 1)
8,21 - 8,50	71	25	6,30	6	xxxxx 1)
8,51 - 8,94	71	25	8,00	6	xxxxx 1)
8,95	71	25	8,00	6	08950
8,96	71	25	8,00	6	08960
8,97	71	25	8,00	6	08970
8,98	71	25	8,00	6	08980
8,99	71	25	8,00	6	08990
9,00	71	25	8,00	6	09000
9,01	71	25	8,00	6	09010 1)
9,02	71	25	8,00	6	09020
9,03 - 9,25	71	25	8,00	6	xxxxx
9,26 - 9,94	71	25	8,00	6	xxxxx 1)
9,95	71	25	8,00	6	09950
9,96	71	25	8,00	6	09960
9,97	71	25	8,00	6	09970
9,98	71	25	8,00	6	09980
9,99	71	25	8,00	6	09990
10,00	71	25	8,00	6	10000
10,01	71	25	8,00	6	10010
10,02	71	25	8,00	6	10020
10,03 - 10,20	71	25	8,00	6	xxxxx 1)
10,21 - 10,60	71	25	8,00	6	xxxxx 1)
10,61 - 11,20	80	28	10,00	6	xxxxx 1)
11,21 - 11,25	80	28	10,00	6	xxxxx 1)
11,26 - 11,94	80	28	10,00	6	xxxxx 1)
11,95	80	28	10,00	6	11950
11,96	80	28	10,00	6	11960
11,97	80	28	10,00	6	11970
11,98	80	28	10,00	6	11980
11,99	80	28	10,00	6	11990
12,00	80	28	10,00	6	12000

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

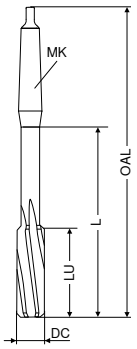
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **Page 75**.
For xxxxx please indicate required diameter in the order
(e.g. Ø 3.82 mm → Article no. 40 139 03820)!

Machine reamers HSS-E, DIN 208

▲ the circular land on the cutting edge burnishes the hole and guides the reamer

N





Left Hand Helix
HSS-E
Through hole

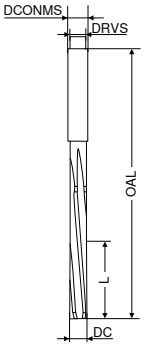
DC H7	OAL	L	LU	MK	ZEFP	Article no. 40 160 ...
mm	mm	mm	mm			
16	210	52	130	2	8	160
17	214	54	134	2	8	170
18	219	56	139	2	8	180
19	223	58	143	2	8	190
20	228	60	148	2	8	200
21	232	62	152	2	8	210
22	237	64	157	2	8	220
23	241	66	161	2	8	230
24	268	68	169	3	8	240
25	268	68	169	3	8	250
26	273	70	174	3	8	260
27	277	71	178	3	10	270
28	277	71	178	3	10	280
29	281	73	182	3	10	290
30	281	73	182	3	10	300
32	317	77	193	4	10	320
34	321	78	197	4	10	340
35	321	78	197	4	10	350
36	325	79	201	4	10	360
38	329	81	205	4	10	380
40	329	81	205	4	10	400
42	333	82	209	4	12	420
44	336	83	212	4	12	440
45	336	83	212	4	12	450
46	340	84	216	4	12	460
47	340	84	216	4	12	470
48	344	86	220	4	12	480
50	344	86	220	4	12	500

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c Page 68+69

Hand reamers, DIN 206-B

H





Left Hand Helix
HSS

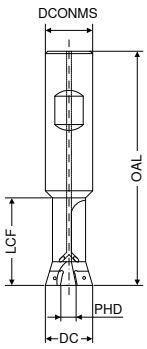
DC H7	OAL	L	DRVS	DCONMS	ZEFP	Article no. 40 100 ...
mm	mm	mm	mm	mm		
1,0	34	13		1,0	3	010
1,2	38	17		1,2	3	012
1,3	38	17		1,3	3	013
1,4	41	20	1,12	1,4	3	014
1,5	41	20	1,12	1,5	3	015
1,6	44	21	1,25	1,6	3	016
1,8	47	23	1,40	1,8	4	018
2,0	50	25	1,60	2,0	4	020
2,2	54	27	1,80	2,2	4	022
2,5	58	29	2,00	2,5	4	025
2,8	62	31	2,24	2,8	6	028
3,0	62	31	2,24	3,0	6	030
3,2	66	33	25,00	3,2	6	032
3,5	71	35	2,80	3,5	6	035
4,0	76	38	3,15	4,0	6	040
4,5	81	41	3,55	4,5	6	045
5,0	87	44	4,00	5,0	6	050
5,5	93	47	4,50	5,5	6	055
6,0	93	47	4,50	6,0	6	060
7,0	107	54	5,60	7,0	6	070
8,0	115	58	6,30	8,0	6	080
9,0	124	62	7,10	9,0	6	090
10,0	133	66	8,00	10,0	6	100
11,0	142	71	9,00	11,0	6	110
12,0	152	76	10,00	12,0	6	120
13,0	152	76	10,00	13,0	6	130
14,0	163	81	11,20	14,0	8	140
15,0	163	81	11,20	15,0	8	150
16,0	175	87	12,50	16,0	8	160
17,0	175	87	14,00	17,0	8	170
18,0	188	93	14,00	18,0	8	180
19,0	188	93	14,00	19,0	8	190
20,0	201	100	16,00	20,0	8	200
22,0	215	107	18,00	22,0	8	220
24,0	231	115	20,00	24,0	8	240
25,0	231	115	20,00	25,0	8	250
26,0	231	115	20,00	26,0	8	260
28,0	247	124	22,40	28,0	10	280
30,0	247	124	22,40	30,0	10	300
32,0	265	133	25,00	32,0	10	320
34,0	284	142	28,00	34,0	10	340
35,0	284	142	28,00	35,0	10	350
36,0	284	142	28,00	36,0	10	360
38,0	305	152	31,50	38,0	10	380
40,0	305	152	31,50	40,0	10	400

Insert Countersink

- ▲ 2 cutting edges, right-hand cutting for countersinking according to DIN 974-1
- ▲ for countersinking of hexagon socket screws ISO 1207, ISO 4762 (DIN 912), DIN 6912, DIN 7984
- ▲ for sinking cap screws the recommended inserts are specified

Supply details:
Indexable insert countersink including clamping screws

WPS





B

for screws	DC	PHD	DCONMS h6	OAL	LCF	Insert	Article no. 30 195 ...
	mm	mm	mm	mm	mm		
M8	15	4,0	16	90	25	CC.T 060204	**015**
M10	18	7,0	16	90	31	CC.T 060204	**018**
M12	20	9,0	20	100	40	CC.T 060204	**020**
M16	26	8,5	25	110	52	CC.T 09T304	**026**
M20	33	15,5	32	130	66	CC.T 09T304	**033**

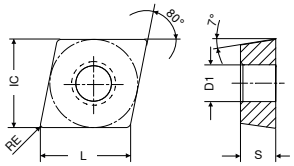

Key D


Clamping screw

Spare parts		Article no. 80 950 ...		Article no. 70 950 ...
Insert				
CC.T 060204	T08	**110**	M2,5x6	**112**
CC.T 09T304	T15	**113**	M3,5x7,2	**110**

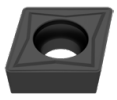
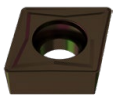
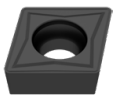
CCMT / CCGT

Designation	L	S	D1	IC
	mm	mm	mm	mm
CC.T 0602..	6,4	2,38	2,8	6,35
CC.T 09T3..	9,7	3,97	4,4	9,52

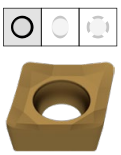
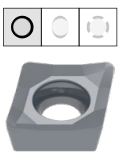


4

CCMT

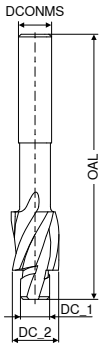
	-SM CTCP125	-SM CTCP135	-SM CTC2135	-SM CTCK110
	-ZM HCX1125	-ZM HCR1135	-ZM CWN2135	-ZM DCX3110
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN
				
	M CCMT	M CCMT	M CCMT	M CCMT
ISO / RE mm	Article no. 76 252 ...	Article no. 76 252 ...	Article no. 70 252 ...	Article no. 70 252 ...
060204EN / 060208EN 0,4	504	704	670	004
060208EN 0,8		706		006
09T304EN / 09T308EN / 09T312EN 0,4	516	716	674	016
09T308EN 0,8	518	718	676	018
09T312EN 1,2				020
Steel	●	●	○	●
Stainless steel	○	○	●	○
Cast iron	○			●
Non ferrous metals				
Heat resistant alloys		○	●	
Hardened materials				

CCGT

	-27 H10T	-27 CWN15	-27 AMZ
	-AL CWK15	-AL CWN15	-AL AMZ
			
	M CCGT	M CCGT	M CCGT
ISO / RE mm	Article no. 70 254 ...	Article no. 70 254 ...	Article no. 70 254 ...
060202FN 0,2	600	300	450
060204FN 0,4	602	302	452
09T302FN 0,2	604	304	454
09T304FN 0,4	606	306	456
09T308FN 0,8	608	308	458
Steel			○
Stainless steel		○	○
Cast iron	○		○
Non ferrous metals	●	●	●
Heat resistant alloys	○		
Hardened materials			

Counterbore, DIN 373

- with fixed pilot
- with 3 cutting edges, right-hand flutes for counterbores according to DIN 74
- for countersinking to suit hexagon socket screws according to DIN 912, DIN 6912, DIN 7984 and cap screws according to DIN 84





HSS
Core hole



fine
HSS
Through hole



medium
HSS
Through hole

Thread	DC_2 z9	DCONMS h9	OAL	DC_1 e8	Article no. 30 192 ...	Article no. 30 190 ...	Article no. 30 191 ...
	mm	mm	mm	mm			
M3	6	5,0	71	2,5	030		
M3	6	5,0	71	3,2		030 1)	
M3	6	5,0	71	3,4			030 1)
M4	8	5,0	71	3,3	040		
M4	8	5,0	71	4,3		040 1)	
M4	8	5,0	71	4,5			040 1)
M5	10	8,0	80	4,2	050		
M5	10	8,0	80	5,3		050 1)	
M5	10	8,0	80	5,5			050 1)
M6	11	8,0	80	5,0	060		
M6	11	8,0	80	6,4		060 1)	
M6	11	8,0	80	6,6			060 1)
M8	15	12,5	100	6,8	080		
M8	15	12,5	100	8,4		080 1)	
M8	15	12,5	100	9,0			080 1)
M10	18	12,5	100	8,5	100		
M10	18	12,5	100	10,5		100 1)	
M10	18	12,5	100	11,0			100 1)
M12	20	12,5	100	10,2	120		
M12	20	12,5	100	13,0		120	
M12	20	12,5	100	13,5			120

1) included in the set

Counterbore, DIN 373 – Set

Scope of supply:
Counterbores M3; M4; M5; M6; M8; M10 in case



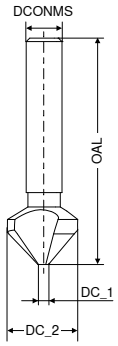
Article no. 30 190 ...	Article no. 30 191 ...
999	999

Countersink 90° with irregular pitch, DIN 335-C

- ▲ all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
- ▲ special TPX76S coating
- ▲ for very high tool life in almost all materials
- ▲ greatly reduced axial and radial forces
- ▲ for countersinking to DIN 7991

N

TPX76S





90°
Solid carbide

DC_2 z9	DC_1	DCONMS h6	OAL	DIN 7991	Article no. 30 116 ...
mm	mm	mm	mm		
6,3	1,5	5	45	M3	**063**
8,3	2,0	6	50	M4	**083**
10,4	2,5	6	50	M5	**104**
12,4	2,8	8	56	M6	**124**
16,5	3,2	10	60	M8	**165**
20,5	3,5	10	63	M10	**205**
25,0	3,8	10	67	M12	**250**
31,0	4,2	12	71	M16	**310**

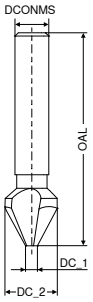
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	○

→ v_c Page 70

Countersink 60°, factory standard-C

▲ with 3 cutting edges for countersinking and deburring in high-tensile steels, grey cast iron, aluminium alloys containing silicon and corrosion resistant steels

N





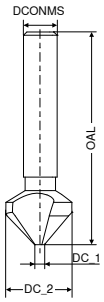
◁ 60°
Solid carbide

DC_2 z9	DC_1	DCONMS h9	OAL	Article no. 30 160 ...
mm	mm	mm	mm	
12,5	3,2	8	56	**125**
16,0	4,0	10	63	**160**
20,0	5,0	10	67	**200**
25,0	6,3	10	71	**250**

Countersink 90°, factory standard-C

▲ with 3 cutting edges for countersinking and deburring in high-tensile steels, grey cast iron, alumínium alloys containing silicon and corrosion resistant steels
▲ from Ø 12,4 mm with solid carbide head

N





◁ 90°
Solid carbide

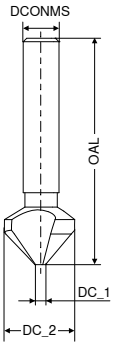
DC_2 z9	DC_1	DCONMS h9	OAL	DIN ISO 7721	DIN 7991	Article no. 30 115 ...
mm	mm	mm	mm			
10,4	2,5	8	46	M5		**100**
12,4	2,8	8	56		M6	**124**
15,0	3,2	10	60	M8		**150**
16,5	3,2	10	60		M8	**165**
20,5	3,5	10	63		M10	**205**
25,0	3,8	10	67		M12	**250**
31,0	4,2	12	71		M16	**310**

Countersink 90° with irregular pitch, DIN 335-C

- ▲ all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
- ▲ special Ti50 coating
- ▲ for very high tool life in almost all materials
- ▲ greatly reduced axial and radial forces
- ▲ for countersinking to DIN ISO 7721 and DIN 7991

N

Ti50





90°
HSS

DC_2 z9 mm	DC_1 mm	DCONMS mm	OAL mm	DIN ISO 7721	DIN 7991	Article no. 30 140 ...	
4,3	1,3	4	40	M2		**043**	
6,0	1,5	5	45	M3		**060**	
6,3	1,5	5	45		M3	**063**	
8,0	2,0	6	50	M4		**080**	
8,3	2,0	6	50		M4	**083**	
10,0	2,5	6	50	M5		**100**	
10,4	2,5	6	50		M5	**104**	1)
11,5	2,8	8	56	M6		**115**	
12,4	2,8	8	56		M6	**124**	
15,0	3,2	10	60	M8		**150**	
16,5	3,2	10	60		M8	**165**	1)
19,0	3,5	10	63	M10		**190**	
20,5	3,5	10	63		M10	**205**	
23,0	3,8	10	67	M12		**230**	
25,0	3,8	10	67		M12	**250**	1)
31,0	4,2	12	71		M16	**310**	

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

1) included in the set

→ v_c Page 70

Countersink 90° with irregular pitch, DIN 335-C – Set

Scope of supply:

Countersinks Ø 10,4 / 16,5 / 25,0 mm in storage case

N

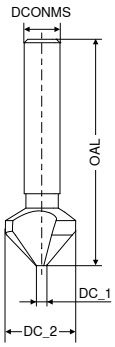


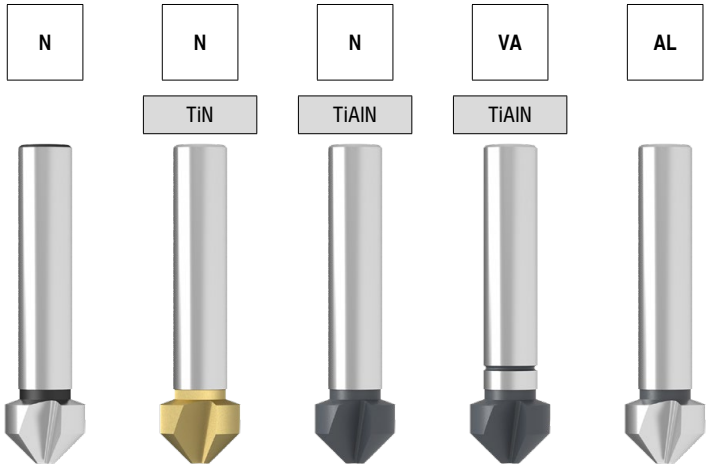
Ti50

Article no. 30 140 ...	
999	

Countersink 90°, DIN 335-C

- 3 cutting edges to avoid burrs and chatter marks when countersinking and deburring in virtually all materials. Particularly suitable for DIN screws according to DIN ISO 7721 and 7991, as the countersink diameters are matched to the heads of these screws.
- the TiN version makes high cutting rates possible; very long tool life and very good friction resistance properties in order to avoid material sticking.
- TiAlN version shows considerably improved performance compared to TiN version. Particularly suitable for all abrasive materials (cast iron, AlSi) and/or at high temperature.





DC_2 z9	DC_1	DCONMS	OAL	DIN ISO 7721	DIN 7991	Article no. 30 100 ...	Article no. 30 110 ...	Article no. 30 130 ...	Article no. 30 132 ...	Article no. 30 102 ...
mm	mm	mm	mm							
4,3	1,3	4	40	M2		043				
5,0	1,5	4	40	M2,5		050	050	050		
6,0	1,5	5	45	M3		060				
6,3	1,5	5	45		M3	063 [1]	063 [1]	063	063	063
7,0	1,8	6	50	M3,5		070				
8,0	2,0	6	50	M4		080	080	080		
8,3	2,0	6	50		M4	083 [1]	083 [1]	083	083	083
9,4	2,2	6	50			094				
10,0	2,5	6	50	M5		100	100	100		
10,4	2,5	6	50		M5	104 [1]	104 [1]	104	104	104
11,5	2,8	8	56	M6		115				
12,4	2,8	8	56		M6	124 [1]	124 [1]	124	124	124
13,4	2,9	8	56			134				
15,0	3,2	10	60	M8		150	150	150	150	150
16,5	3,2	10	60		M8	165 [1]	165 [1]	165	165	165
19,0	3,5	10	63	M10		190				
20,5	3,5	10	63		M10	205 [1]	205 [1]	205	205	205
23,0	3,8	10	67	M12		230				
25,0	3,8	10	67		M12	250	250	250	250	250
31,0	4,2	12	71		M16	310	310	310	310	
31,0	4,2	12	67		M16					310

1) included in the set

Countersink 90°, DIN 335-C – set

Scope of supply:
Countersinks Ø 6,3; 8,3; 10,4; 12,4; 16,5; 20,5 in case

N

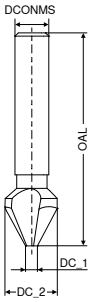


TiN

Article no. 30 100 ...	Article no. 30 110 ...
999	999

Countersink 60°, DIN 334-C

▲ 3 cutting edges for countersinking and deburring in virtually all materials



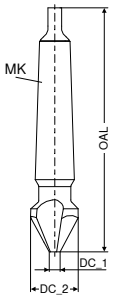


DC_2 z9	DC_1	DCONMS h9	OAL	Article no. 30 150 ...	
mm	mm	mm	mm		
6,3	1,6	5	45	**063**	1)
8,0	2,0	6	50	**080**	1)
10,0	2,5	6	52	**100**	1)
12,5	3,2	8	56	**125**	1)
16,0	4,0	10	63	**160**	1)
20,0	5,0	10	67	**200**	1)
25,0	6,3	10	71	**250**	

1) included in the set

Countersink 60°, DIN 334-D

▲ 3 cutting edges for countersinking and deburring in virtually all materials





DC_2 z9	DC_1	OAL	MK	Article no. 30 155 ...
mm	mm	mm		
16,0	4,0	90	1	**160**
20,0	5,0	106	2	**200**
25,0	6,3	112	2	**250**
31,5	10,0	118	2	**315**
40,0	12,5	150	3	**400**
50,0	16,0	160	3	**500**
63,0	20,0	190	4	**630**
80,0	25,0	200	4	**800**

Countersink 60°, DIN 334-C – set

Scope of supply:

Countersinks Ø 6,3; 8,0; 10,0; 12,5; 16,0; 20,0 in case

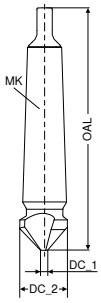


Article no. 30 150 ...
999

Countersink 90°, DIN 335-C

▲ 3 cutting edges to avoid burrs and chatter marks when countersinking and deburring in virtually all materials. Particularly suitable for DIN screws according to DIN ISO 7721 and 7991, as the countersink diameters are matched to the heads of these screws.

N

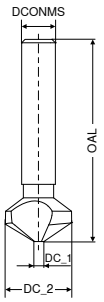




DC_2 z9	DC_1	OAL	MK	Article no. 30 105 ...
mm	mm	mm		
16,5	3,2	85	1	**165**
19,0	3,2	100	2	**190**
20,5	3,5	100	2	**205**
23,0	3,8	106	2	**230**
25,0	3,8	106	2	**250**
26,0	3,8	106	2	**260**
28,0	4,0	112	2	**280**
30,0	4,2	112	2	**300**
31,0	4,2	112	2	**310**
34,0	4,5	118	2	**340**
37,0	4,8	118	2	**370**
40,0	10,0	140	3	**400**
50,0	14,0	150	3	**500**
63,0	16,0	180	4	**630**
80,0	22,0	190	4	**800**

Countersink 120°, factory standard-C

▲ 3 cutting edges for countersinking and deburring in virtually all materials

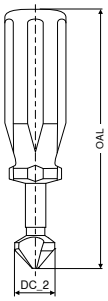




DC_2 z9	DC_1	DCONMS h9	OAL	Article no. 30 170 ...
mm	mm	mm	mm	
6,3	1,5	5	45	**063**
8,3	2,0	6	50	**083**
10,4	2,5	6	50	**104**
12,4	2,8	8	56	**124**
16,5	3,2	10	60	**165**
20,5	3,5	10	60	**205**
25,0	3,8	10	63	**250**

Hand deburring tool 90°

- 3 cutting edges and non-slip plastic handle
- for countersinking and deburring on all materials



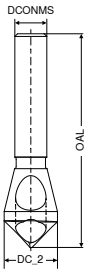


90°
HSS

DC_2	OAL	Article no. 30 125 ...
mm	mm	
12,4	135	124
15,0	135	150
16,5	135	165
20,5	135	205
25,0	135	250

Deburring countersink 90°, factory standard-A

- with angled hole to avoid burrs and chattermarks when countersinking and deburring in soft long-chipping materials, e.g. aluminium, plastics etc.





90°
HSS-E

TiN



90°
HSS-E

DC_2	D_{min} - D_{max}	DCONMS $_{h9}$	OAL	Article no. 30 120 ...	Article no. 30 121 ...
mm	mm	mm	mm		
6,3	1 - 4	6,3	45	040 [1]	040 [1]
10,0	2 - 5	6,0	45	050	050
14,0	5 - 10	8,0	48	101	101
21,0	10 - 15	10,0	65	150	150
28,0	15 - 20	12,0	85	200	200
35,0	20 - 25	15,0	102	250	250

1) can be used in both directions

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data standard values for REAMAX TS

	Grade / coating	HM-DBG-P / Ti700				HM-DBG-P / Ti700				
	Article no. / type	40 585 ... / 75H.65 – ASG3000				40 521 ..., 40 571 ... / 75J.65, 75H.65 – ASG0106				
	Nominal Ø in mm	18–21,999	22–31,799	31,8–51,999	52–65	18–21,999	22–31,799	31,8–51,999	52–65	
	Reaming allowance Ø	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50	
	Number of teeth	6	6	8	10	6	6	8	10	
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
1.1	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.2	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.3	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.4	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.5	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.6	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.7	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.8	80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00						
1.9	80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00						
1.10	80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00						
1.11							80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.12							60–100	60–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.13							60–100	60–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.14							40–60	40–60	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.15							40–60	40–60	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.16							40–60	40–60	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
2.1							45–60	40–50	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
2.2							45–60	40–50	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
2.3							30–50	30–40	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
2.4							30–50	30–40	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
2.5							30–50	30–40	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
2.6							45–60	40–50	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
2.7							30–50	30–40	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
3.1	150–220	120–150	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
3.2	150–220	120–150	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
3.3	175–300	150–180	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
3.4	120–180	120–150	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
3.5	150–250	120–160	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
3.6	150–250	120–160	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
3.7	120–180	120–150	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
3.8	120–180	120–150	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

4

Cutting data standard values for REAMAX TS

	Grade / coating	HM-TiN / CWN10				HM-DBC / CWN10			
	Article no. / type	40 535 ... / 75H.71 – ASG3000				40 526 ..., 40 580 ... / 75J.17, 75H.17 – ASG0706			
	Nominal Ø in mm	18–21,999	22–31,799	31,8–51,999	52–65	18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of teeth	6	6	8	10	6	6	8	10
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
1.1	100–140	80–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.2	100–140	80–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.3	100–140	80–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.4	100–140	80–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.5	100–140	80–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.6	100–140	80–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.7	100–140	80–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
1.8	30–45	30–45	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00						
1.9	30–45	30–45	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00						
1.10	30–45	30–45	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00						
1.11												
1.12												
1.13												
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3.6												
3.7												
3.8												
4.1							**150–300**	**150–200**	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
4.2							**150–300**	**150–200**	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
4.3							**200–300**	**150–200**	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
4.4							**200–300**	**150–200**	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
4.5							**200–300**	**150–200**	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
4.6	**80–150**	**80–120**	0,70–1,10	0,90–1,40	1,20–1,90	1,70–2,60						
4.7	**120–200**	**120–150**	0,70–1,10	0,90–1,40	1,20–1,90	1,70–2,60						
4.8												
4.9												
4.10												
4.11	**120–200**	**120–200**	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
4.12	**80–150**	**80–120**	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
4.13												
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6.5												

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

Cutting data standard values for REAMAX TS

	Grade / coating	DST / CWC10				DST / CWC10				
	Article no. / type	40 539 ... / 75H.93 – ASG3000				40 597 ... / 75J.93 – ASG4000				
	Nominal Ø in mm	18–21,999	22–31,799	31,8–51,999	52–65	18–21,999	22–31,799	31,8–51,999	52–65	
	Reaming allowance Ø	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50	
	Number of teeth	6	6	8	10	6	6	8	10	
Index	v_c m/min		f	f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
1.1	**150–200**	**120–160**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150–200**	**120–160**	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
1.2	**150–200**	**120–160**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150–200**	**120–160**	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
1.3	**150–200**	**120–160**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150–200**	**120–160**	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
1.4	**150–200**	**120–160**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150–200**	**120–160**	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
1.5	**150–200**	**120–160**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150–200**	**120–160**	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
1.6	**150–200**	**120–160**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150–200**	**120–160**	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
1.7	**150–200**	**120–160**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150–200**	**120–160**	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
1.8												
1.9	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.10	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.11	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.12	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00	**80–120**	**80–100**	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
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3.3	**175–300**	**150–180**	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40	225–300	180–240	1,20–1,60	1,50–2,00	2,00–2,70	2,90–4,10
3.4	**120–150**	**100–120**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	120–150	100–120	1,20–1,60	1,50–2,00	2,00–2,70	2,90–4,10
3.5	**150–250**	**120–200**	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
3.6	**150–250**	**120–200**	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
3.7	**120–180**	**120–150**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	120–180	120–150	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
3.8	**120–180**	**120–150**	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	120–180	120–150	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
4.1												
4.2												
4.3												
4.4												
4.5												
4.6	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10						
4.7	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10						
4.8												
4.9												
4.10												
4.11	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10						
4.12	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10						
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

4

Cutting data standard values for REAMAX TS

	Grade / coating		DST / CWC10			
	Article no. / type		40 544 ... / 75J.93 – ASG3000			
	Nominal Ø in mm		18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø		0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of teeth		6	6	8	10
Index	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
	3xD	5xD				
1.1	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
1.2	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
1.3	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
1.4	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
1.5	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
1.6	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
1.7	150–200	120–160	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
1.8						
1.9	80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.10	80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.11	80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
1.12	80–120	80–100	0,50–0,80	0,70–1,00	0,90–1,30	1,30–2,00
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1.16						
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3.2						
3.3	175–300	150–180	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
3.4	120–150	100–120	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
3.5	150–250	120–200	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
3.6	150–250	120–200	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
3.7	120–180	120–150	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
3.8	120–180	120–150	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
4.1						
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4.3						
4.4						
4.5						
4.6	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
4.7	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
4.8						
4.9						
4.10						
4.11	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
4.12	150–320	150–200	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values for REAMAX

	Grade / coating	HM-TiN / CWN 10			HM-DBC		
	Article no. / type	40 505 ... / 640.71 – ASG3000			40 570 ... / 640.27 – ASG0706		
	Nominal Ø in mm	12–21,999	22–32,000	32,001–40	12–21,999	22–32,000	32,001–40
	Reaming allowance Ø	0,10–0,30	0,20–0,40	0,20–0,40	0,10–0,30	0,20–0,40	0,20–0,40
	Number of teeth	6	8	8	6	8	8
Index	v_c m/min		f	f	v_c m/min		f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.
1.1	100–140	80–120	0,90–1,20	1,50–2,00	1,50–2,00					
1.2	100–140	80–120	0,90–1,20	1,50–2,00	1,50–2,00					
1.3	100–140	80–120	0,90–1,20	1,50–2,00	1,50–2,00					
1.4	100–140	80–120	0,90–1,20	1,50–2,00	1,50–2,00					
1.5	100–140	80–120	0,90–1,20	1,50–2,00	1,50–2,00					
1.6	100–140	80–120	0,90–1,20	1,50–2,00	1,50–2,00					
1.7	100–140	80–120	0,90–1,20	1,50–2,00	1,50–2,00					
1.8	30–45	30–45	0,60–0,80	1,00–1,40	1,00–1,40					
1.9	30–45	30–45	0,60–0,80	1,00–1,40	1,00–1,40					
1.10	30–45	30–45	0,60–0,80	1,00–1,40	1,00–1,40					
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4.1						**150–300**	**150–300**	1,00–1,40	1,70–2,40	1,70–2,40
4.2						**150–300**	**150–300**	1,00–1,40	1,70–2,40	1,70–2,40
4.3						**200–300**	**150–300**	1,00–1,40	1,70–2,40	1,70–2,40
4.4						**200–300**	**150–300**	1,00–1,40	1,70–2,40	1,70–2,40
4.5						**200–300**	**150–300**	1,00–1,40	1,70–2,40	1,70–2,40
4.6	**80–150**	**80–120**	0,80–1,20	1,40–2,00	1,40–2,00					
4.7	**120–200**	**120–150**	1,00–1,40	1,70–2,40	1,70–2,40					
4.8										
4.9										
4.10										
4.11	**120–200**	**120–200**	1,00–1,40	1,70–2,40	1,70–2,40					
4.12	**120–200**	**120–200**	1,00–1,40	1,70–2,40	1,70–2,40					
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

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Cutting data standard values for REAMAX

	Grade / coating	DST / CWC 10				DST / CWC 10				
	Article no. / type	40 525 ... / 640.93 – ASG3000				40 536 ... / 640.93 – ASG4000				
	Nominal Ø in mm	12–21,999	22–32,000	32,001–40		12–21,999	22–32,000	32,001–40		
	Reaming allowance Ø	0,10–0,30	0,20–0,40	0,20–0,40		0,10–0,30	0,20–0,40	0,20–0,40		
	Number of teeth	6	8	8		6	8	8		
Index	v_c m/min		f	f	f	v_c m/min		f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.
1.1	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00	150–200	120–160	1,10–1,40	1,80–2,40	1,80–2,40
1.2	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00	150–200	120–160	1,10–1,40	1,80–2,40	1,80–2,40
1.3	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00	150–200	120–160	1,10–1,40	1,80–2,40	1,80–2,40
1.4	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00	150–200	120–160	1,10–1,40	1,80–2,40	1,80–2,40
1.5	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00	150–200	120–160	1,10–1,40	1,80–2,40	1,80–2,40
1.6	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00	150–200	120–160	1,10–1,40	1,80–2,40	1,80–2,40
1.7	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00	150–200	120–160	1,10–1,40	1,80–2,40	1,80–2,40
1.8										
1.9	80–120	80–120	0,90–1,20	1,50–2,00	1,50–2,00	80–120	80–120	1,10–1,40	1,80–2,40	1,80–2,40
1.10	80–120	80–120	0,90–1,20	1,50–2,00	1,50–2,00	80–120	80–120	1,10–1,40	1,80–2,40	1,80–2,40
1.11	80–120	80–120	0,90–1,20	1,50–2,00	1,50–2,00	80–120	80–120	1,10–1,40	1,80–2,40	1,80–2,40
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3.3	175–300	150–180	1,00–1,40	1,80–2,40	1,80–2,40	175–300	150–180	1,20–1,60	1,50–2,00	2,00–2,70
3.4	150–250	120–160	1,00–1,40	1,80–2,40	1,80–2,40	120–180	120–150	1,20–1,60	1,50–2,00	2,00–2,70
3.5	150–250	120–160	1,00–1,40	1,80–2,40	1,80–2,40					
3.6	150–250	120–160	1,00–1,40	1,80–2,40	1,80–2,40					
3.7	120–180	120–150	0,90–1,20	1,50–2,00	1,50–2,00	120–180	120–150	1,00–1,30	1,20–1,70	1,70–2,30
3.8	120–180	120–150	0,90–1,20	1,50–2,00	1,50–2,00	120–180	120–150	1,00–1,30	1,20–1,70	1,70–2,30
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4.5										
4.6	150–300	150–200	1,00–1,40	1,70–2,40	1,70–2,40					
4.7	150–300	150–200	1,00–1,40	1,70–2,40	1,70–2,40					
4.8										
4.9										
4.10										
4.11	150–300	150–200	1,00–1,40	1,70–2,40	1,70–2,40					
4.12	150–300	150–200	1,00–1,40	1,70–2,40	1,70–2,40					
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values for REAMAX

	Grade / coating	HM-DBG-P / Ti700			HM-DBG-P / Ti700				
	Article no. / type	40 560 ... / 640.65 – ASG3000			40 551 ... / 640.65 – ASG0106				
	Nominal Ø in mm	12–21,999	22–32,000	32,001–40	12–21,999	22–32,000	32,001–40		
	Reaming allowance Ø	0,10–0,30	0,20–0,40	0,20–0,40	0,10–0,30	0,20–0,40	0,20–0,40		
	Number of teeth	6	8	8	6	8	8		
Index	v_c m/min		f	f	f	v_c m/min		f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.
1.1	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00					
1.2	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00					
1.3	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00					
1.4	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00					
1.5	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00					
1.6	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00					
1.7	150–200	120–160	0,90–1,20	1,50–2,00	1,50–2,00					
1.8	80–120	80–100	0,70–1,00	0,90–1,30	0,90–1,30					
1.9	80–120	80–100	0,70–1,00	0,90–1,30	0,90–1,30					
1.10	80–120	80–100	0,70–1,00	0,90–1,30	0,90–1,30					
1.11						80–120	80–100	0,70–1,00	0,90–1,30	0,90–1,30
1.12						60–100	60–100	0,70–1,00	0,90–1,30	0,90–1,30
1.13						60–100	60–100	0,70–1,00	0,90–1,30	0,90–1,30
1.14						40–60	40–60	0,60–0,80	0,90–1,10	0,90–1,10
1.15						40–60	40–60	0,60–0,80	0,90–1,10	0,90–1,10
1.16						40–60	40–60	0,60–0,80	0,90–1,10	0,90–1,10
2.1						45–60	40–50	0,70–0,90	1,20–1,60	1,20–1,60
2.2						45–60	40–50	0,70–0,90	1,20–1,60	1,20–1,60
2.3						30–50	30–40	0,70–0,90	1,20–1,60	1,20–1,60
2.4						30–50	30–40	0,70–0,90	1,20–1,60	1,20–1,60
2.5						30–50	30–40	0,70–0,90	1,20–1,60	1,20–1,60
2.6						45–60	40–50	0,70–0,90	1,20–1,60	1,20–1,60
2.7						30–50	30–40	0,70–0,90	1,20–1,60	1,20–1,60
3.1	200–250	160–200	1,00–1,40	1,30–1,90	1,30–1,90					
3.2	200–250	160–200	1,00–1,40	1,30–1,90	1,30–1,90					
3.3	225–300	180–240	1,00–1,40	1,30–1,90	1,30–1,90					
3.4	120–150	100–120	0,90–1,20	1,20–1,60	1,20–1,60					
3.5	150–250	120–200	0,90–1,20	1,20–1,60	1,20–1,60					
3.6	150–250	120–200	0,90–1,20	1,20–1,60	1,20–1,60					
3.7	120–150	100–120	0,90–1,20	1,20–1,60	1,20–1,60					
3.8	120–150	100–120	0,90–1,20	1,20–1,60	1,20–1,60					
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5.11										
6.1						40–60	40–60	0,40–0,80	0,60–1,00	0,60–1,00
6.2						40–60	40–60	0,40–0,80	0,60–1,00	0,60–1,00
6.3						30–50	30–50	0,40–0,80	0,60–1,00	0,60–1,00
6.4						30–50	30–50	0,40–0,80	0,60–1,00	0,60–1,00
6.5										

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

4

Cutting data for MultiChange exchange head reamers

	Coating	CWC 10			TiAlN			TiAlN		
	Article no.	40 210 ... / 40 211 ...			40 220 ... / 40 221 ...			40 230 ... / 40 231 ...		
	Nominal Ø in mm	8,0–12,59	12,6–29,99	30,0–30,20	8,0–12,59	12,6–29,99	30,0–30,20	8,0–12,59	12,6–18,59	18,6–30,20
	Reaming allowance Ø	0,15–0,3	0,2–0,4	0,2–0,4	0,15–0,3	0,15–0,3	0,15–0,3	0,15–0,4	0,2–0,5	0,2–0,5
	Number of teeth	4/6	6	8	4/6	6	8	4/6	6	8
Index	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
1.1	120–200	0,60–1,00	0,90–1,50	1,20–2,00						
1.2	120–200	0,60–1,00	0,90–1,50	1,20–2,00						
1.3	120–200	0,60–1,00	0,90–1,50	1,20–2,00						
1.4	120–200	0,60–1,00	0,90–1,50	1,20–2,00						
1.5	120–200	0,60–1,00	0,90–1,50	1,20–2,00						
1.6	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.7	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.8	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.9	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.10	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.11	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.12	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.13	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.14	100–160	0,60–1,00	0,90–1,50	1,20–2,00						
1.15	80–140	0,60–1,00	0,90–1,50	1,20–2,00						
1.16	80–140	0,60–1,00	0,90–1,50	1,20–2,00						
2.1	20–40				0,32–0,60	0,48–0,90	0,64–1,20			
2.2	20–40				0,32–0,60	0,48–0,90	0,64–1,20			
2.3	20–40				0,32–0,60	0,48–0,90	0,64–1,20			
2.4	10–30				0,32–0,60	0,48–0,90	0,64–1,20			
2.5	20–40				0,32–0,60	0,48–0,90	0,64–1,20			
2.6	20–40				0,32–0,60	0,48–0,90	0,64–1,20			
2.7	10–20				0,32–0,60	0,48–0,90	0,64–1,20			
3.1	80–120							0,40–0,80	0,90–1,50	0,90–2,40
3.2	80–120							0,40–0,80	0,90–1,50	0,90–2,40
3.3	80–120							0,40–0,80	0,90–1,50	0,90–2,40
3.4	60–100							0,32–0,48	0,60–1,20	0,60–1,20
3.5	80–120							0,40–0,80	0,60–1,20	0,60–1,20
3.6	80–120							0,40–0,80	0,60–1,20	0,60–1,20
3.7	80–120							0,40–0,80	0,60–1,20	0,60–1,20
3.8	60–100							0,32–0,48	0,60–1,20	0,60–1,20
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4.6										
4.7										
4.8										
4.9										
4.10										
4.11										
4.12	80–120				0,40–1,00	0,60–1,50	0,80–2,00			
4.13										
4.14										
4.15										
4.16										
4.17	10–30				0,24–0,72	0,36–1,08	0,48–1,44			
4.18										
4.19										
5.1	10–30				0,60–1,40	0,90–1,80	1,20–2,00			
5.2	10–30				0,60–1,50	0,90–1,80	1,20–2,00			
5.3	10–30				0,60–1,60	0,90–1,80	1,20–2,00			
5.4	10–30				0,60–1,70	0,90–1,80	1,20–2,00			
5.5	10–25				0,60–1,80	0,90–1,80	1,20–2,00			
5.6	10–25				0,60–1,90	0,90–1,80	1,20–2,00			
5.7	10–20				0,20–0,48	0,30–0,72	0,40–0,96			
5.8	10–20				0,20–0,48	0,30–0,72	0,40–0,96			
5.9	10–30				0,20–0,48	0,30–0,48	0,48–1,00			
5.10	10–30				0,20–0,48	0,30–0,48	0,48–1,00			
5.11	10–30				0,20–0,48	0,30–0,48	0,48–1,00			
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6.5										

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

Cutting data for MultiChange exchange head reamers

	Coating	K10				PDC		
	Article no.	40 240 ... / 40 241 ...				40 245 ... / 40 246 ...		
	Nominal Ø in mm	8,0–12,59	12,6–29,99	30,0–30,20		8,0–12,59	12,6–29,99	30,0–30,20
	Reaming allowance Ø	0,15–0,5	0,15–0,5	0,15–0,5		0,15–0,5	0,15–0,5	0,15–0,5
	Number of teeth	4/6	6	8		4/6	6	8
Index	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.
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3.8								
4.1	**100–300**	0,40–1,20	0,60–1,80	0,80–2,40	**100–500**	0,40–1,20	0,90–2,10	1,20–2,80
4.2	**100–300**	0,40–0,80	0,60–1,20	1,20–2,00	**100–500**	0,40–1,20	0,90–2,10	1,20–2,80
4.3	**100–300**	0,40–0,80	0,60–1,20	1,20–2,00				
4.4	**100–300**	0,40–0,80	0,60–1,20	1,20–2,00				
4.5					**100–200**	0,40–1,20	0,90–2,10	1,20–2,80
4.6	**50–100**	0,40–1,00	0,60–1,50	0,80–2,00				
4.7	**50–150**	0,40–1,00	0,60–1,50	0,80–2,00				
4.8								
4.9								
4.10	**15–40**	0,48–1,00	0,72–1,50	0,96–2,00				
4.11	**15–40**	0,48–1,00	0,72–1,50	0,96–2,00				
4.12								
4.13								
4.14								
4.15					**10–40**	0,10–0,32	0,15–0,48	0,20–0,64
4.16	**25–50**	0,40–1,00	0,60–1,50	0,80–2,00	**100–250**	0,10–0,25	0,60–1,50	0,80–2,00
4.17								
4.18	**10–25**	0,60–1,00	0,90–1,50	1,20–2,00				
4.19	**10–25**	0,60–1,00	0,90–1,50	1,20–2,00				
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values for Monomax

	Grade / coating	DBC						DBC			
	Article no. / type	40 648 ..., 40 649 ... / 56J.17, 56R.17 – ASG0706				40 640..., 40 641... / 56H.17, 56Q.17 – ASG0706			
	Nominal Ø in mm	5,60–8,89	8,90–12,00	12,01–22,00	22,01–25,89	5,60–8,89	8,90–12,00	12,01–22,00	22,01–25,89
	Reaming allowance Ø	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
	Number of teeth	4	6	6	6	4	6	6	6
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
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4.1	150–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50	150–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
4.2	150–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50	150–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
4.3	200–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50	200–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
4.4	200–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50	200–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
4.5	200–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50	200–300	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
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The cutting data depends on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values for Monomax

	Grade / coating	HM-DBG-P / Ti700				HM-DBG-P / Ti700				
	Article no. / type	40 657 ... , 40 665 ... / 56H.65, 56Q.65 – ASG3000				40 652 ..., 40 653 ... / 56J.65, 56R.65 – ASG0106				
	Nominal Ø in mm	5,60–8,89	8,90–12,00	12,01–22,00	22,01–25,89	5,60–8,89	8,90–12,00	12,01–22,00	22,01–25,89	
	Reaming allowance Ø	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	
	Number of teeth	4	6	6	6	4	6	6	6	
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
1.1	150–200	120–160	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
1.2	150–200	120–160	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
1.3	150–200	120–160	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
1.4	150–200	120–160	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
1.5	150–200	120–160	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
1.6	150–200	120–160	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
1.7	150–200	120–160	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
1.8	80–120	80–100	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90						
1.9	80–120	80–100	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90						
1.10	80–120	80–100	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90						
1.11							80–120	80–100	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.12							60–100	60–100	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.13							60–100	60–100	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.14							40–60	40–60	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.15							40–60	40–60	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.16							40–60	40–60	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
2.1							45–60	40–50	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
2.2							45–60	40–50	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
2.3							30–50	30–40	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
2.4							30–50	30–40	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
2.5							30–50	30–40	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
2.6							45–60	40–50	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
2.7							30–50	30–40	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
3.1	150–220	120–150	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
3.2	150–220	120–150	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
3.3	175–300	150–180	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
3.4	120–180	120–150	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
3.5	150–250	120–160	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
3.6	150–250	120–160	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
3.7	120–180	120–150	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
3.8	120–180	120–150	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
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The cutting data greatly depends on the external conditions, the material and the machine.
The indicated values are possible cutting data, which may need to be increased or decreased according to the conditions.

4

Cutting data standard values for Monomax

	Grade / coating	DST / CWC 10						DST / CWC 10					
	Article no. / type	40 625 ..., 40 626 ... / 56J.93, 56R.93 – ASG3000						40 635 ... , 40 636 ... / 56J.93, 56R.93 – ASG4000					
	Nominal Ø in mm	5,60–8,89		8,90–12,00	12,01–22,00	22,01–25,89		5,60–8,89		8,90–12,00	12,01–22,00	22,01–25,89	
	Reaming allowance Ø	0,10–0,20		0,10–0,30	0,20–0,30	0,20–0,40		0,10–0,20		0,10–0,30	0,20–0,30	0,20–0,40	
	Number of teeth	4		6	6	6		4		6	6	6	
Index	v_c m/min		f	f	f	f	v_c m/min		f	f	f	f	
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	
1.1	**150–200**	**120–160**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150–200**	**120–160**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.2	**150–200**	**120–160**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150–200**	**120–160**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.3	**150–200**	**120–160**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150–200**	**120–160**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.4	**150–200**	**120–160**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150–200**	**120–160**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.5	**150–200**	**120–160**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150–200**	**120–160**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.6	**150–200**	**120–160**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150–200**	**120–160**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.7	**150–200**	**120–160**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150–200**	**120–160**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.8													
1.9	**80–120**	**80–100**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	**80–120**	**80–100**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.10	**80–120**	**80–100**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	**80–120**	**80–100**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
1.11	**80–120**	**80–100**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	**80–120**	**80–100**	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50	
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3.3	**175–300**	**150–180**	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	**175–300**	**150–180**	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	
3.4	**120–150**	**100–120**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**120–180**	**120–150**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	
3.5	**150–250**	**120–200**	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50							
3.6	**150–250**	**120–200**	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50							
3.7	**120–180**	**120–150**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**120–180**	**120–150**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	
3.8	**120–180**	**120–150**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**120–180**	**120–150**	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	
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4.6	150–320	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50							
4.7	150–320	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50							
4.8													
4.9													
4.10													
4.11	150–320	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50							
4.12	150–320	150–200	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50							
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The cutting data greatly depends on the external conditions, the material and the machine.
The indicated values are possible cutting data, which may need to be increased or decreased according to the conditions.

Cutting data standard values for Monomax

	Grade / coating	HM-DBG-P / Ti700				HM-TiN / CWN 10				
	Article no. / type	40 644 ..., 40 645 ... / 56H.65, 56Q.65 – ASG0106				40 605 ..., 40 606 ... / 56J.71, 56R.71 – ASG3000				
	Nominal Ø in mm	5,60–8,89	8,90–12,00	12,01–22,00	22,01–25,89	5,60–8,89	8,90–12,00	12,01–22,00	22,01–25,89	
	Reaming allowance Ø	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	
	Number of teeth	4	6	6	6	4	6	6	6	
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
1.1							100–140	80–120	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
1.2							100–140	80–120	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
1.3							100–140	80–120	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
1.4							100–140	80–120	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
1.5							100–140	80–120	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
1.6							100–140	80–120	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
1.7							100–140	80–120	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
1.8							30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.9							30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.10							30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.11	**80–120**	**80–100**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.12	**60–100**	**60–100**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.13	**60–100**	**60–100**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.14	**40–60**	**40–60**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.15	**40–60**	**40–60**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
1.16	**40–60**	**40–60**	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	30–45	30–45	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
2.1	**45–60**	**40–50**	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
2.2	**45–60**	**40–50**	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
2.3	**30–50**	**30–40**	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
2.4	**30–50**	**30–40**	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
2.5	**30–50**	**30–40**	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
2.6	**45–60**	**40–50**	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
2.7	**30–50**	**30–40**	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
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4.6							**80–150**	**80–120**	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
4.7							**120–200**	**120–150**	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
4.8												
4.9												
4.10												
4.11							**120–200**	**120–200**	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
4.12							**80–150**	**80–120**	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
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The cutting data greatly depends on the external conditions, the material and the machine.
The indicated values are possible cutting data, which may need to be increased or decreased according to the conditions.

4

Cutting data standard values for Fullmax

Type UNI		40 484 ... / 40 485 ... / 40 486 ... / 40 487 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
Number of teeth		4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
1.1	180–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
1.2	180–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
1.3	180–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
1.4	180–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
1.5	180–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
1.6	180–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
1.7	180–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
1.8	80–120	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
1.9	80–120	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
1.10	80–120	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
1.11	80–120	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
1.12	60–100	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
1.13	60–100	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
1.14													
1.15	40–60	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
1.16	40–60	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
2.1	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
2.2	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
2.3	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
2.4	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
2.5	15–30	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
2.6	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
2.7	15–30	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
3.1	120–180	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
3.2	120–180	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
3.3	200–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
3.4	120–150	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
3.5	200–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
3.6	200–250	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
3.7	120–150	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
3.8	120–150	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
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4.11	150–250	0,50–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,40	0,20	1,40–1,70	0,20	1,60–1,90	0,20–0,30	1,90–2,20	0,30
4.12	100–150	0,40–0,60	0,10–0,20	0,60–0,80	0,10–0,20	1,00–1,30	0,20	1,20–1,40	0,20	1,30–1,60	0,20–0,30	1,60–1,80	0,30
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5.4	40–60	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
5.5	40–60	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
5.6													
5.7													
5.8	40–60	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
5.9	30–60	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
5.10	30–60	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
5.11	30–60	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
6.1	40–60	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
6.2	40–60	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
6.3	30–50	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
6.4	30–50	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
6.5													

The cutting data greatly depends on the external conditions, the material and the machine.
The indicated values are possible cutting data, which may need to be increased or decreased according to the conditions.

Cutting data standard values for Fullmax

Type K		40 477 ... / 40 478 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
Number of teeth		6		6		8		8		8		8	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
3.1	200–250	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
3.2	200–250	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
3.3	225–300	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
3.4	120–150	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
3.5	225–300	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
3.6	225–300	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
3.7	120–150	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
3.8	120–150	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30

Type VA		40 401 ... / 40 402 ... / 40 403 ... / 40 404 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
Number of teeth		4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
2.1	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,6	0,20	0,48–0,6	0,20	0,6–0,72	0,20–0,30	0,6–0,72	0,30
2.2	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,6	0,20	0,48–0,6	0,20	0,6–0,72	0,20–0,30	0,6–0,72	0,30
2.3	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,6	0,20	0,48–0,6	0,20	0,6–0,72	0,20–0,30	0,6–0,72	0,30
2.4	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,6	0,20	0,48–0,6	0,20	0,6–0,72	0,20–0,30	0,6–0,72	0,30
2.5	15–30	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,6	0,20	0,48–0,6	0,20	0,6–0,72	0,20–0,30	0,6–0,72	0,30
2.6	20–40	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,6	0,20	0,48–0,6	0,20	0,6–0,72	0,20–0,30	0,6–0,72	0,30
2.7	15–30	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,6	0,20	0,48–0,6	0,20	0,6–0,72	0,20–0,30	0,6–0,72	0,30

Type ALU		40 471 ... / 40 472 ... / 40 473 ... / 40 474 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
Number of teeth		4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
4.1	200–300	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
4.2	200–300	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
4.3	200–300	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
4.4	200–250	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
4.5	200–250	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30

Type H		40 475 ... / 40 476 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
Number of teeth		4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
6.1	40–60	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
6.2	40–60	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
6.3	30–50	0,20–0,30	0,10	0,20–0,30	0,10	0,40–0,60	0,10	0,50–0,60	0,10	0,50–0,70	0,20	0,60–0,80	0,20
6.4	30–50	0,20–0,30	0,10	0,20–0,30	0,10	0,40–0,60	0,10	0,50–0,60	0,10	0,50–0,70	0,20	0,60–0,80	0,20

4

The cutting data greatly depends on the external conditions, the material and the machine.
The indicated values are possible cutting data, which may need to be increased or decreased according to the conditions.

Cutting data standard values for solid carbide reamers

	40 430 ...			40 420 ... / 40 421 ... / 40 430 ... / 40 431 ... / 40 410 ... / 40 400 ...							
	uncoated	to Ø 0,94 mm		uncoated	TiAlN	to Ø 5 mm		to Ø 8 mm		to Ø 10 mm	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	v_c m/min	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
1.1											
1.2	10–15	0,1–0,15	0,03–0,05	15–20	25–35	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.3											
1.4	8–12	0,1–0,15	0,03–0,05	12–15	20–30	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.5	10–15	0,1–0,15	0,03–0,05	15–20	25–35	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.6	8–12	0,1–0,15	0,03–0,05	12–15	20–30	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.7	10–15	0,1–0,15	0,03–0,05	15–20	25–35	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.8	8–12	0,1–0,15	0,03–0,05	12–15	20–30	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.9	10–15	0,1–0,15	0,03–0,05	15–20	25–35	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.10	8–12	0,1–0,15	0,03–0,05	12–15	20–30	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.11											
1.12											
1.13	6–8	0,1–0,15	0,03–0,05	8–12	12–20	0,1–0,15	0,1	0,15	0,1–0,2	0,15	0,1–0,2
1.14											
1.15											
1.16											
2.1											
2.2											
2.3											
2.4											
2.5											
2.6											
2.7											
3.1	10–15	0,1–0,15	0,03–0,05	12–20	20–35	0,1–0,15	0,1	0,15–0,2	0,1–0,2	0,15–0,2	0,1–0,2
3.2											
3.3	8–12	0,1–0,15	0,03–0,05	12–15	20–30	0,1–0,15	0,1	0,15–0,2	0,1–0,2	0,15–0,2	0,1–0,2
3.4	8–10	0,1–0,15	0,03–0,05	10–15	15–20	0,1–0,15	0,1	0,15–0,2	0,1–0,2	0,15–0,2	0,1–0,2
3.5											
3.6	10–15	0,1–0,15	0,03–0,05	12–20	20–35	0,1–0,15	0,1	0,15–0,2	0,1–0,2	0,15–0,2	0,1–0,2
3.7											
3.8											
4.1											
4.2	10–30	0,12–0,16	0,03–0,05	20–60		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2
4.3											
4.4	10–15	0,12–0,16	0,03–0,05	20–30		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2
4.5											
4.6	10–30	0,12–0,16	0,03–0,05	20–80		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2
4.7	10–25	0,12–0,16	0,03–0,05	25–60		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2
4.8											
4.9	8–15	0,12–0,16	0,03–0,05	15–30		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2
4.10											
4.11											
4.12	10–25	0,12–0,16	0,03–0,05	20–50		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2
4.13											
4.14											
4.15	6–10	0,12–0,16	0,03–0,05	10–15		0,12–0,16	0,1–0,15	0,15–0,2	0,15–0,2	0,15–0,2	0,15–0,2
4.16	6–10	0,06–0,1	0,03–0,05	15–20		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
4.17	5–10	0,06–0,1	0,03–0,05	10–20		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
4.18	5–8	0,06–0,1	0,03–0,05	7–12		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
4.19	5–8										
5.1											
5.2	8–12	0,06–0,1	0,03–0,05	10–20		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
5.3											
5.4											
5.5				8–10		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
5.6	5–8	0,06–0,1	0,03–0,05								
5.7				6–10		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
5.8	3–5	0,06–0,1	0,03–0,05	5–8		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
5.9	5–8	0,06–0,1	0,03–0,05	6–10		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
5.10											
5.11	3–5	0,06–0,1	0,03–0,05	6–8		0,06–0,1	0,05–0,1	0,1	0,1	0,15	0,1
6.1											
6.2											
6.3											
6.4											
6.5											

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

Cutting data standard values for solid carbide reamers

	40 420 ... / 40 421 ... / 40 430 ... / 40 431 ... / 40 410 ... / 40 400 ...											
	uncoated	TiAlN	to Ø 12 mm		to Ø 15 mm		to Ø 20 mm		to Ø 25 mm		to Ø 30 mm	
Index	v_c m/min	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
1.1												
1.2	15–20	25–35	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.3												
1.4	12–15	20–30	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.5	15–20	25–35	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.6	12–15	20–30	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.7	15–20	25–35	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.8	12–15	20–30	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.9	15–20	25–35	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.10	12–15	20–30	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.11												
1.12												
1.13	8–12	12–20	0,15–0,2	0,1–0,2	0,2–0,25	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3	0,3–0,5	0,3–0,4
1.14												
1.15												
1.16												
2.1												
2.2												
2.3												
2.4												
2.5												
2.6												
2.7												
3.1												
3.2	12–20	20–35	0,15–0,3	0,15–0,25	0,2–0,3	0,2–0,3	0,2–0,4	0,2–0,4	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
3.3	12–15	20–30	0,15–0,3	0,15–0,25	0,2–0,3	0,2–0,3	0,2–0,4	0,2–0,4	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
3.4	10–15	15–20	0,15–0,3	0,15–0,25	0,2–0,3	0,2–0,3	0,2–0,4	0,2–0,4	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
3.5												
3.6												
3.7	12–20	20–35	0,15–0,3	0,15–0,25	0,2–0,3	0,2–0,3	0,2–0,4	0,2–0,4	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
3.8												
4.1												
4.2	20–60		0,15–0,25	0,15–0,2	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
4.3												
4.4	20–30		0,15–0,25	0,15–0,2	0,2–0,3	0,2–0,3	0,2–0,3	0,2–0,3	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
4.5												
4.6	20–80		0,15–0,3	0,15–0,2	0,25–0,35	0,2–0,3	0,2–0,4	0,2–0,3	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
4.7	25–60		0,15–0,3	0,15–0,2	0,25–0,35	0,2–0,3	0,2–0,4	0,2–0,3	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
4.8												
4.9	15–30		0,15–0,3	0,15–0,2	0,25–0,35	0,2–0,3	0,2–0,4	0,2–0,3	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
4.10												
4.11												
4.12												
4.13	20–50		0,15–0,3	0,15–0,2	0,25–0,35	0,2–0,3	0,2–0,4	0,2–0,3	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
4.14												
4.15	10–15		0,15–0,3	0,15–0,2	0,25–0,35	0,2–0,3	0,2–0,4	0,2–0,3	0,3–0,4	0,3–0,4	0,3–0,5	0,3–0,5
4.16	15–20		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
4.17	10–20		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
4.18	7–12		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
4.19												
5.1												
5.2	10–20		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
5.3												
5.4												
5.5	8–10		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
5.6												
5.7	6–10		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
5.8	5–8		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
5.9	6–10		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
5.10												
5.11	6–8		0,15–0,2	0,15	0,2–0,25	0,2	0,2–0,3	0,2	0,25–0,35	0,3	0,3–0,35	0,3
6.1												
6.2												
6.3												
6.4												
6.5												

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

4

Cutting data for HSS-E reamers

		40 110 ... / 40 115 ... / 40 139 ... / 40 140 ... 40 145 ... / 40 150 ... / 40 155 ... / 40 160 ...									
		to Ø 5 mm		to Ø 8 mm		to Ø 12 mm		to Ø 15 mm		to Ø 20 mm	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
1.1	18	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
1.2	15	0,1–0,15	0,1	0,2–0,3	0,2–0,3	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
1.3											
1.4	12	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
1.5											
1.6											
1.7											
1.8	10	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
1.9	14	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
1.10	12	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
1.11	10	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
1.12											
1.13											
1.14											
1.15											
1.16											
2.1	10	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
2.2	8	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
2.3											
2.4											
2.5											
2.6											
2.7											
3.1	14	0,1–0,15	0,1	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
3.2											
3.3	12	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
3.4	10	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
3.5	12	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
3.6	10	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
3.7	12	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
3.8	10	0,1–0,15	0,1	0,2	0,2	0,2–0,3	0,2	0,2–0,3	0,2	0,2–0,3	0,2
4.1	20	0,15	0,1	0,2	0,2	0,3	0,2	0,3	0,2	0,3	0,2
4.2											
4.3											
4.4	18	0,15	0,1	0,2	0,2	0,3	0,2	0,3	0,2	0,3	0,2
4.5	16	0,15	0,1	0,2	0,2	0,3	0,2	0,3	0,2	0,3	0,2
4.6	20	0,15	0,1	0,2	0,2	0,3	0,2	0,3	0,2	0,3	0,2
4.7											
4.8											
4.9											
4.10											
4.11											
4.12											
4.13	14	0,15	0,1	0,2	0,2	0,3	0,2	0,3	0,2	0,3	0,2
4.14											
4.15	10	0,15	0,1	0,2	0,2	0,3	0,2	0,3	0,2	0,3	0,2
4.16	22	0,15	0,1	0,2	0,2	0,3	0,2	0,3	0,2	0,3	0,2
4.17											
4.18											
4.19											
5.1	6	0,1–0,15	0,1	0,2	0,2	0,25	0,2	0,3	0,2	0,4	0,3
5.2											
5.3											
5.4											
5.5	5	0,1–0,15	0,1	0,2	0,2	0,25	0,25	0,3	0,2	0,4	0,3
5.6											
5.7											
5.8											
5.9											
5.10	3	0,1	0,1	0,1	0,2	0,12	0,2	0,15	0,2	0,2	0,2
5.11											
6.1											
6.2											
6.3											
6.4											
6.5											

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

Cutting data for HSS-E reamers

		40 110 ... / 40 115 ... / 40 139 ... / 40 140 ... 40 145 ... / 40 150 ... / 40 155 ... / 40 160 ...							
		to Ø 25 mm		to Ø 30 mm		to Ø 40 mm		to Ø 50 mm	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
1.1	18	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
1.2	15	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
1.3									
1.4	12	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
1.5									
1.6									
1.7									
1.8	10	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
1.9	14	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
1.10	12	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
1.11	10	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
1.12									
1.13									
1.14									
1.15									
1.16									
2.1	10	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
2.2	8	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
2.3									
2.4									
2.5									
2.6									
2.7									
3.1	14	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
3.2									
3.3	12	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
3.4	10	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
3.5	12	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
3.6	10	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
3.7	12	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
3.8	10	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4	0,3–0,5	0,4
4.1	20	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
4.2									
4.3									
4.4	18	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
4.5	16	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
4.6	20	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
4.7									
4.8									
4.9									
4.10									
4.11									
4.12									
4.13	14	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
4.14									
4.15	10	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
4.16	22	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
4.17									
4.18									
4.19									
5.1	6	0,5	0,4	0,5	0,4	0,6	0,4	0,8	0,4
5.2									
5.3									
5.4									
5.5	5	0,5	0,4	0,5	0,4	0,6	0,4	0,8	0,4
5.6									
5.7									
5.8									
5.9									
5.10	3	0,25	0,3	0,25	0,3	0,3	0,4	0,3	0,4
5.11									
6.1									
6.2									
6.3									
6.4									
6.5									

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

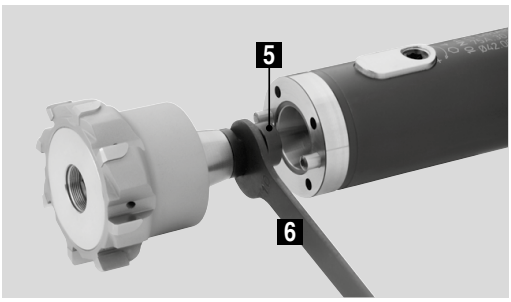
4

Cutting data for countersinks with irregular pitch

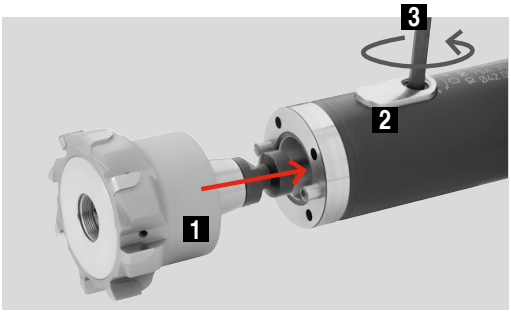
		30 116 ... TPX76S						30 140 ... Ti50					
		Ø 4,3–8,0 mm	Ø 8,00–12,4 mm	Ø 12,40–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm	Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.				
1.1	**60**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**36**	0,08	0,10	0,12	0,14	0,18	0,22
1.2	**60**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**36**	0,08	0,10	0,12	0,14	0,18	0,22
1.3	**60**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**36**	0,08	0,1	0,12	0,14	0,18	0,22
1.4	**50**	**0,06**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**36**	0,08	0,1	0,12	0,14	0,18	0,22
1.5	**50**	**0,06**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**36**	0,08	0,1	0,12	0,14	0,18	0,22
1.6	**50**	**0,06**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**36**	0,08	0,1	0,12	0,14	0,18	0,22
1.7	**50**	**0,06**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**30**	0,06	0,08	0,1	0,12	0,14	0,18
1.8	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	**30**	0,06	0,08	0,1	0,12	0,14	0,18
1.9	**50**	**0,06**	**0,08**	**0,1**	**0,12**	**0,14**	**0,18**	**36**	0,08	0,1	0,12	0,14	0,18	0,22
1.10	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	**36**	0,08	0,1	0,12	0,14	0,18	0,22
1.11	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	**36**	0,08	0,1	0,12	0,14	0,18	0,22
1.12	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	**30**	0,06	0,08	0,1	0,12	0,14	0,18
1.13	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	8	0,04	0,05	0,06	0,08	0,10	0,12
1.14	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	12	0,04	0,05	0,06	0,08	0,10	0,12
1.15	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	12	0,04	0,05	0,06	0,08	0,10	0,12
1.16	**40**	**0,04**	**0,05**	**0,06**	**0,1**	**0,12**	**0,16**	12	0,04	0,05	0,06	0,08	0,10	0,12
2.1	30	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
2.2	30	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
2.3	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
2.4	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
2.5	30	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
2.6	30	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
2.7	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
3.1	**50**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**14**	0,1	0,12	0,14	0,18	0,2	0,25
3.2	**45**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**14**	0,1	0,12	0,14	0,18	0,2	0,25
3.3	**45**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**14**	0,1	0,12	0,14	0,18	0,2	0,25
3.4	**45**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**12**	0,1	0,12	0,14	0,18	0,2	0,25
3.5	**35**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**14**	0,1	0,12	0,14	0,18	0,2	0,25
3.6	**35**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**14**	0,1	0,12	0,14	0,18	0,2	0,25
3.7	**35**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**14**	0,1	0,12	0,14	0,18	0,2	0,25
3.8	**35**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**	**14**	0,1	0,12	0,14	0,18	0,2	0,25
4.1	**80**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**0,26**	42	0,08	0,1	0,12	0,14	0,18	0,22
4.2	**80**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**0,26**	42	0,08	0,1	0,12	0,14	0,18	0,22
4.3	**80**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**0,26**	42	0,08	0,1	0,12	0,14	0,18	0,22
4.4	**60**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**0,26**							
4.5	**60**	**0,1**	**0,12**	**0,14**	**0,18**	**0,22**	**0,26**							
4.6	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,1	0,12	0,14	0,18	0,2	0,24
4.7	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,1	0,12	0,14	0,18	0,2	0,24
4.8	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,1	0,12	0,14	0,18	0,2	0,24
4.9	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,1	0,12	0,14	0,18	0,2	0,24
4.10	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,1	0,12	0,14	0,18	0,2	0,24
4.11	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,1	0,12	0,14	0,18	0,2	0,24
4.12	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,1	0,12	0,14	0,18	0,2	0,24
4.13	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,3**	42	0,12	0,14	0,18	0,20	0,24	0,30
4.14	**70**	**0,12**	**0,14**	**0,18**	**0,2**	**0,24**	**0,30**	42	0,12	0,14	0,18	0,20	0,24	0,30
4.15	**25**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**							
4.16														
4.17	**25**	**0,1**	**0,12**	**0,14**	**0,18**	**0,2**	**0,25**							
4.18	**15**	**0,05**	**0,06**	**0,07**	**0,08**	**0,09**	**0,12**							
4.19	**15**	**0,05**	**0,06**	**0,07**	**0,08**	**0,09**	**0,12**							
5.1	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.2	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.3	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.4	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.5	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.6	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.7	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.8	25	0,05	0,06	0,07	0,08	0,09	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
5.9	25	0,05	0,06	0,07	0,08	0,09	0,12							
5.10	15	0,05	0,06	0,07	0,08	0,09	0,12							
5.11	15	0,05	0,06	0,07	0,08	0,09	0,12							
6.1	12	0,05	0,06	0,07	0,08	0,09	0,12							
6.2	8	0,05	0,06	0,07	0,08	0,09	0,12							
6.3	8	0,05	0,06	0,07	0,08	0,09	0,12							
6.4	8	0,05	0,06	0,07	0,08	0,09	0,12							
6.5														

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

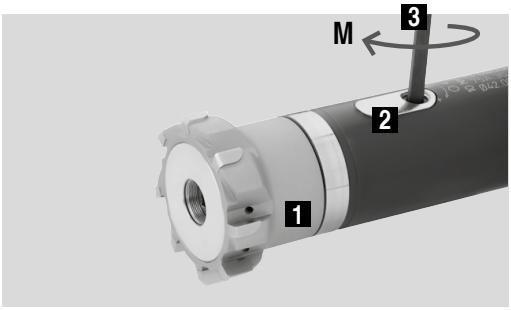
REAMAX TS – Assembly instructions



Clean the Morse taper adapter/face contact → grease-free.
Screw the pull stud (5) into the reaming head and tighten using the open-ended spanner (6).

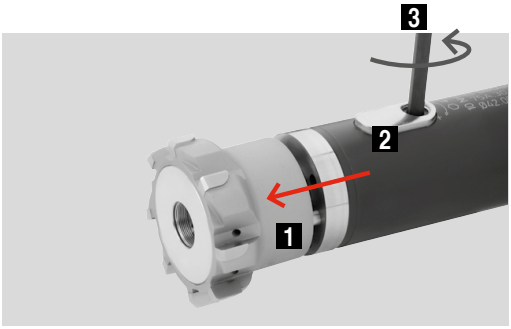


Use key (3) to open jaws (2), but do not fully release, and insert reaming head (1).

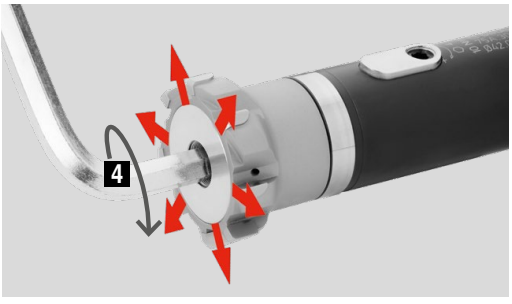


Use the key (3) to close the jaws (2), observe the recommended tightening torque. When inserting the reaming head (1), this is pulled into its final position when the jaws (2) are closed.

x Range	Tightening torque (M)
18,000 – 19,999	1,5 Nm
20,000 – 21,999	2,5 Nm
22,000 – 26,999	4 Nm
27,000 – 34,999	5 Nm
35,000 – 41,999	6 Nm
42,000 – 51,999	10 Nm
52,000 – 70,000	13 Nm



When removing the reamer head (1), this is pressed out of its position by the jaws (2) and can thus be easily removed from the holder:
Use key (3) to open the jaws (2) but do not fully release, and remove reamer head (1).



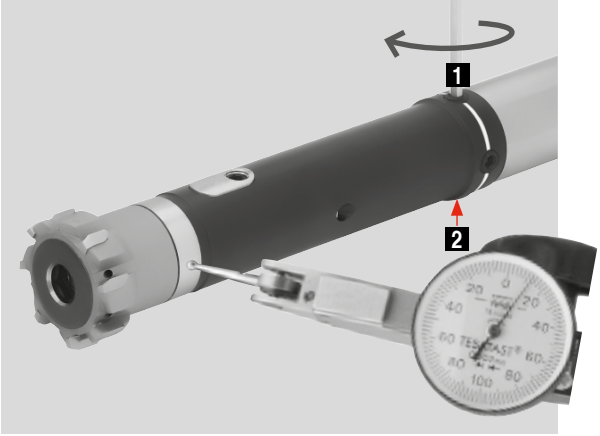
Adjustment for wear compensation:
The smallest drilling tolerances up to IT 4 can be achieved through adjustment with the hex key (4).

REAMAX TS – Operating instructions

Aligning the DAH Zero holder

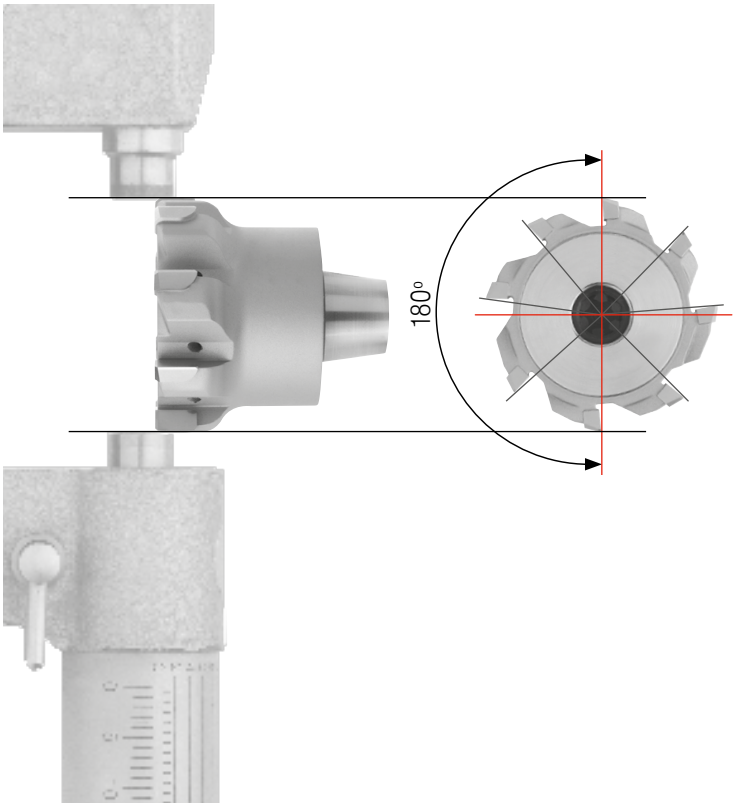
The tool is recommended for radial alignment of max. 20 µm.

1. Loosen all adjustment screws and pre-load with 1 Nm (new tools are already supplied like this).
2. Place dial gauge with µm display on the ground bezel diameter.
3. Turn the tool to determine the point with the largest runout error using the dial gauge.
4. Adjust the corresponding adjustment screw with the hex key clockwise (1) until half the runout error has been corrected. In doing so, over-tighten by approx. 5 µm.
5. Release the opposite adjustment screw (2) by the over-tightened amount.
6. Adjust all 4 adjustment screws until the runout is < 2 µm.

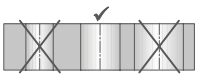


Please note:
- the runout must be checked and if necessary re-aligned after an adapter changeover, change of application, after any adjustment for wear compensation and before every re-commissioning, using adjustment steps 1 to 6
- adjustment screws must always be tightened during usage with at least 1 Nm
- the max. re-adjustment torque is 4,5 Nm

Caution!
- uneven angle distribution!
- there are 2 cutting edges 180° opposite each other = measuring teeth
- measure the diameter at the front on the cutting edge (due to back taper, see diagram)
- avoid damage to the cutting edge

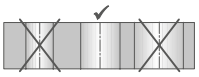


Problems / possible causes / solutions



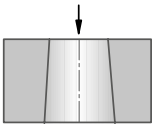
Hole too large

- runout error for reamer in the spindle → use DAH compensation system and correct runout
- inaccurate alignment, reamer back-cuts → correct alignment and use DPS floating holder
- built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant
- reamer too large → have reamer adapted



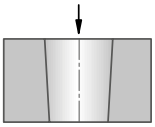
Hole too small

- worn reamer → have reamer adjusted, replaced or repaired
- reaming allowance too small → increase reaming allowance
- cutting force too high → reduce feed or select other lead geometry (ASG)
- reamer too small → have reamer adjusted, replaced or repaired



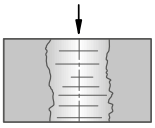
Conical hole, tapered backwards

- inaccurate alignment → correct alignment and use DPS floating holder
- misalignment between headstock and turret → correct turret and use DPS floating holder



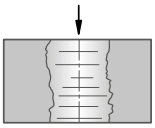
Conical hole, tapered forwards

- poor alignment, cutting edges push initially → correct alignment and use DPS floating holder



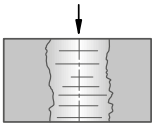
Hole is not round

- reamer runout error too large → correct the runout with DAH compensation system
- alignment error → correct alignment error and use DPS floating holder
- asymmetric initial cutting through angled entry surface → countersink hole
- workpiece tensioning → correct clamping of the workpieces
- poor pre-machining → optimise pre-machining
- feed too high → reduce feed



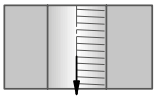
Hole exhibits chatter marks

- cutting speed v_c too high → reduce cutting speed
- OAL to DC ratio too high→ reduce the speed of entry, pilot the bore or select other lead geometry (ASG)



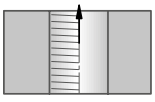
Non clean-up

- built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant
- cutting edge worn→ have cutting edge repaired or replace the tool
- reamer runout error → correct the runout with DAH compensation system
- no or insufficient cooling, chips are getting trapped → use thro' coolant supply and increase coolant pressure
- unsuitable coolant → increase the oil content of the coolant
- incorrect cutting data→ use data according to catalogue recommendation



Grooves in the hole "feed marking"

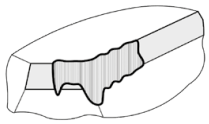
- faulty cutting edge (edge breakage) → have reamer replaced or repaired
- built-up edges → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant



Grooves in the hole "retraction marking"

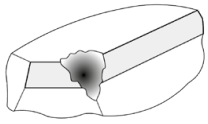
- cutting edges moved too far out of the hole → move no more than lead length + 2 mm out of the hole
- material springs back → do not retract at high speed but with increased (2-3 times) feed rate

Types of wear



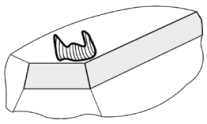
Wear on clearance face

Reduce the cutting speed and select a more wear resistant cutting material or coating.



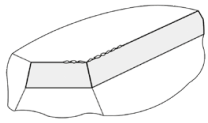
Cutting edge breakage

Reduce feed and reaming allowance. In the case of interrupted holes, use coated carbide instead of DST.



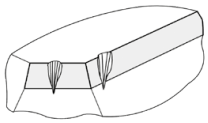
Cratering

Reduce the cutting speed and use a positive cutting edge geometry.



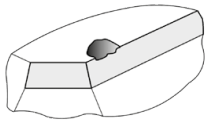
Edge breakages

Increase the cutting speed and use larger rake angle.



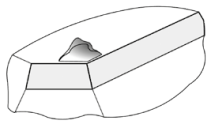
Notch wear

Reduce the cutting speed and select a more wear resistant cutting material or coating.



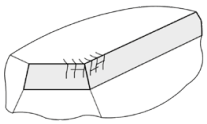
Fatigue fracture

Reduce feed, increase reamer stability.



Built-up edge

Use positive cutting edge geometry, increase the oil content of the coolant, reduce the cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material.



Cracks at right angles to the cutting edge

Use sufficient coolant and thro' coolant, reduce the cutting speed.

Tolerance classes covered with 1/100 reamer

The most common tolerance is H7, so most reamers configured for an H7 fit tolerance.
With the 1/100 reamers, increments of 0,01 mm can be covered, but are also suitable for various other dimensions.
For example, a 1/100 reamer diameter 8,02 mm can be used for a 8,0 fit F7.
Other fit sizes shown in the table.

Tolerance zone	Nominal Ø in mm											
	1,0	2,0	3,0	4,0	5,0	6,0	7,0	8,0	9,0	10,0	11,0	12,0
A9				4,29	5,29	6,29	7,30	8,30	9,30	10,30	11,32	12,32
A11	1,31	2,31	3,31	4,32	5,32	6,32	7,35	8,35	9,35	10,35	11,37	12,37
B8				4,15	5,15	6,15	7,16	8,16	9,16	10,16		
B9				4,16	5,16	6,16	7,17	8,17	9,17	10,17	11,18	12,18
B10	1,17	2,17	3,17	4,17	5,17	6,17	7,19	8,19	9,19	10,19	11,20	12,20
B11	1,18	2,18	3,18	4,19	5,19	6,19	7,22	8,22	9,22	10,22	11,23	12,23
C8				4,08	5,08	6,08	7,09	8,09	9,09	10,09	11,11	12,11
C9	1,07	2,07	3,07	4,09	5,09	6,09	7,10	8,10	9,10	10,10	11,12	12,12
C10	1,09	2,09	3,09	4,10	5,10	6,10	7,12	8,12	9,12	10,12	11,14	12,14
C11	1,10	2,10	3,10	4,12	5,12	6,12	7,15	8,15	9,15	10,15	11,18	12,18
D7											11,06	12,06
D8				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
D9				4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
D10	1,05	2,05	3,05	4,06	5,06	6,06	7,08	8,08	9,08	10,08	11,10	12,10
D11	1,06	2,06	3,06	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
E7							7,03	8,03	9,03	10,03	11,04	12,04
E8	1,02	2,02	3,02	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
E9	1,03	2,03	3,03	4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
F7	1,01	2,01	3,01				7,02	8,02	9,02	10,02	11,02	12,02
F8	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
F9	1,02	2,02	3,02	4,03	5,03	6,03	7,03	8,03	9,03	10,03	11,04	12,04
F10				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,07	12,07
G7				4,01	5,01	6,01	7,01	8,01	9,01	10,01		
H7										10,01	11,01	12,01
H8				4,01	5,01	6,01	7,01	8,01	9,01	10,01	11,02	12,02
H9	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
H10	1,03	2,03	3,03	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
H11	1,04	2,04	3,04	4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
H12	1,07	2,07	3,07	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
H13	1,11	2,11	3,11	4,14	5,14	6,14	7,18	8,18	9,18	10,18	11,22	12,22
J6				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS9	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,01	12,01
K8	0,99	1,99	2,99				6,99	7,99	8,99	9,99	10,99	11,99
M6							6,99	7,99	8,99	9,99	10,99	11,99
M7							6,99	7,99	8,99	9,99	10,99	11,99
M8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N6				3,99	4,99	5,99						
N7	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N9	0,98	1,98	2,98	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N10	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,98	11,98
N11	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,97	11,97
P6	0,99	1,99	2,99								10,98	11,98
P7	0,99	1,99	2,99				6,98	7,98	8,98	9,98	10,98	11,98
P8	0,99	1,99	2,99	3,98	4,98	5,98					10,97	11,97
R6							6,98	7,98	8,98	9,98		
R7				3,98	4,98	5,98	6,98	7,98	8,98	9,98	10,97	11,97
S6				3,98	4,98	5,98					10,97	11,97
S7	0,98	1,98	2,98	3,98	4,98	5,98	6,97	7,97	8,97	9,97	10,97	11,97
U6							6,97	7,97	8,97	9,97		
U7				3,97	4,97	5,97	6,97	7,97	8,97	9,97		
X7				3,97	4,97	5,97						
X8	0,97	1,97	2,97				6,96	7,96	8,96	9,96	10,95	11,95
X9	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95		
Z7	0,97	1,97	2,97	3,96	4,96	5,96	6,96	7,96	8,96	9,96	10,95	11,95
Z8	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95	10,94	11,94
Z9				3,95	4,95	5,95						
Z10	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94	10,93	11,93
ZA7	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94		
ZA8							6,94	7,94	8,94	9,94	10,93	11,93
ZB8	0,95	1,95	2,95	3,94	4,94	5,94					10,90	11,90
ZB9	0,95	1,95	2,95	3,94	4,94	5,94	6,92	7,92	8,92	9,92	10,90	11,90

Coatings

AlTiN
- ▲ AlTiN nanolayer coating
- ▲ maximum application temperature: 1100 °C

Ti700
- ▲ TiAlN multilayer coating
- ▲ maximum application temperature: 1100 °C

DBC
DLC
- ▲ diamond-like carbon coating
- ▲ specially for machining non-ferrous metals
- ▲ maximum application temperature: 400 °C

DBG-P
TiAlN
- ▲ TiAlN multilayer coating
- ▲ maximum application temperature: 900 °C

Ti50
- ▲ TiN multilayer coating
- ▲ maximum application temperature: 400 °C

TiN
CWN10
- ▲ TiN coating
- ▲ maximum application temperature: 450 °C

TPX76S
- ▲ TiN-TiAlN-ZrN Monolayer coating
- ▲ maximum application temperature: 800 °C

Type

AMZ
- ▲ carbide, TiAlN-coated
- ▲ ISO | P10 | K10 | **N10** | S10
- ▲ the coated carbide grade for aluminium machining

CWN15
- ▲ carbide, TiN-coated
- ▲ ISO | **K15**
- ▲ special carbide grade for abrasive aluminium alloys

DST
CWC10
- ▲ cermet, uncoated
- ▲ ISO | **P15** | **M10** | K10
- ▲ the uncoated cermet grade for finish machining stainless and hardened steel
- ▲ particularly wear resistant thanks to high heat resistance

CWN 2135
- ▲ carbide, TiCN-TiNB-coated
- ▲ ISO | P35 | **M30** | S35
- ▲ the turning grade for general stainless machining

CWK10
- ▲ carbide, uncoated
- ▲ ISO | **K10**
- ▲ the uncoated carbide grade for universal application

DCX3110
- ▲ carbide, TiCN-Al_2O_3-coated
- ▲ ISO | P05 | **K10**
- ▲ the wear-resistant grade for machining cast iron materials at high cutting speeds in a continuous cut

CWK15
- ▲ carbide, uncoated
- ▲ ISO | **K15** | **N15**
- ▲ the uncoated carbide grade for machining aluminium and other non-ferrous metals

HCR1135
- ▲ carbide, TiCN-Al_2O_3-coated
- ▲ ISO | **P35** | M25 | S25
- ▲ the tough alternative for heavily interrupted cut and unstable conditions

TiN
CWN10
- ▲ carbide, TiN-coated
- ▲ ISO | **K10**
- ▲ the carbide grade for machining steels, stainless steels and non-ferrous metals

HCX1125
- ▲ carbide, TiCN-Al_2O_3-coated
- ▲ ISO | P25 | M20 | **K30**
- ▲ the first choice for universal machining of steels



New products for machining technicians

NEW BluFlex 2



It gets even better

As well as its unbeatable, innovative and highly precise characteristics, the BluFlex 2 system also boasts a modern high contrast OLED display. The MicroKom BluFlex 2 app and the Bluetooth-capable precision adjustment head ensure incredibly simple handling.

NEW hi.flex



The hi.flex system distinguishes itself with its high flexibility. With just a single adjustable head, a variety of boring bars and intelligently designed adapter solutions, it covers the entire diameter range from 6 to 365 mm.



Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut
11 Grooving Tools
12 Miniature turning tools

Milling

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

Tool Clamping

16 Adapters
17 Accessories

18 Material examples and article no. index

Table of contents

Symbol explanation	2
Toolfinder	3
Contents Overview Accessories	4
Product programme	5–48
Technical Information	
Cutting Data	49–53
Maximum Speeds and Scale Accuracy	54
Maximum overhang length LTA	55
Coatings	55

KOMET \ Performance

Premium quality tools for high performance.

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

Symbol explanation

F	Fine Machining
M	Medium Machining
R	Rough Machining

	Smooth cut
	Irregular cutting depth
	Interrupted cut

	Central internal coolant
	Axial coolant (Form AD)
	Coolant supply either via the flange or centrally

ABS	**KOMET ABS** – modular coupling system for rotating and stationary tools
STM	Modular SpinTools interface
ER 32	System-independent ER 32 interface

Micron-precise display resolution: 0.001 mm in diameter

Universal ABS interface

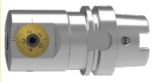
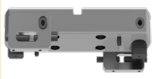


Modern, high contrast OLED display on the precision adjustment head itself

Absolute position measuring system

Additional Bluetooth Low Energy interface for easy display on any conventional smartphone

Toolfinder

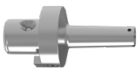
		System		Diameter range per head in mm	Digital	Analogue	ABS Modular	STM Modular	ER 32 Modular	Monoblock	Through spindle	Comments	Pages
Machining	Finishing	BluFlex 2 – precision adjustment head	 6,0–125 mm	6,0–125	✓		✓				✓	Through spindle larger head diameters	5–8
		hi.flex – precision adjustment head	 6,0–125 mm	6,0–125		✓	✓				✓	Through spindle larger head diameters	5–8
		Micro Boring Head	 0,3–19,1 mm	0,3–7,1 | 0,3–19,1	✓	✓							12+13
		Fine boring head	 14,7–24,1 mm	14,7–17,1 | 16,7–20,1 | 19,7–24,1		✓					✓		14+15
		Multi-Head – Fine boring head	 3,0–320 mm	3,0–320		✓		✓		✓	✓	Through spindle larger head diameters	16+17
		Single point boring head	 3,0–88,1 mm	3,0–88,1	✓	✓		✓	✓		✓	Through spindle larger head diameters	18–26
		Single point finish boring heads	 23,9–116,1 mm	23,9–31,1 | 30,9–40,1 | 39,9–51,1 | 50,9–67,1 | 66,9–87,1 | 86,9–116,1	✓	✓		✓			✓		27–29
		Vario-Head – boring and fine boring head	 3–152 mm	3–152	✓			✓					30+31
		Single point finish boring heads	 86–402 mm	86–402		✓		✓			✓		32+33
		Console tool with baseplate	 150–655 mm	150–205 | 200–255 | 250–305 | 300–355 | 350–405 | 150–205 | 200–255 | 250–305 | 300–355 | 350–405		✓					✓	also available with roughing head	
		Console tool with slide	 650–2205 mm	650–1105 | 1100–1655 | 1650–2205		✓					✓	also available with roughing head	
	Roughing - Finishing	Twin edged rough / fine boring head	 29,5–115,5 mm	29,5–40,1 | 39,5–50,5 | 49,5–66,5 | 65,5–87,5 | 86,5–115,5		✓		✓			✓		34+35
	Roughing	Twin rough boring head	 23,5–153,0 mm	23,5–30,5 | 29,5–40,1 | 39,5–50,5 | 49,5–66,5 | 65,5–87,5 | 86,5–115,5 | 114,5–153,0		✓		✓			✓		36–38

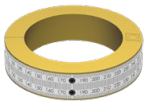
This article can be found in our online shop at cuttingtools.ceratizit.com

Overview of base adapters and accessories

System			DIN 69871	MAS-BT	HSK-A	Cylindrical shank
Base adapter		ABS	ABS base adapters can be found in → **Chapter 16, Adapters.**			
Base adapter		STM	40	41	42	43

Accessories

Extension		STM	46
Reduction		STM	44+45
Collet Chuck		STM	39
Shell mill adapter		STM	39

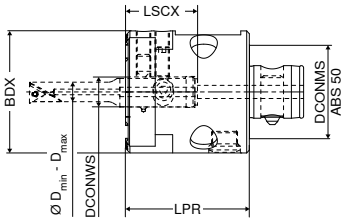
General		
Balancing rings		24
Insert		9–11 47+48

MicroKom – BluFlex 2 – precision spindle head

▲ Via the App, the MicroKom BluFlex 2 display in the head can also be transferred to a standard smartphone (62 840 16097)

Scope of supply:
incl. Battery

ABS





D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	BDX mm	LPR mm	LSCX mm	without Bluetooth NEW Article no. 62 820 ...	with Bluetooth NEW Article no. 62 840 ...
6 - 125	M0430100	ABS 50	16	28	65	71	38	**16097**	
6 - 125	M0430000	ABS 50	16	28	65	71	38		**16097**


Clamping screw


Clamping screw


Clamping screw


Clamping sleeve


Battery cover

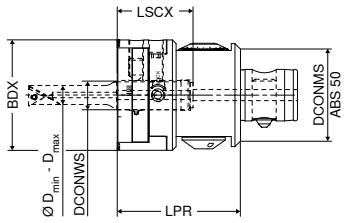
Spare parts		Article no. 62 950 ...		Article no. 62 950 ...		Article no. 62 950 ...	Article no. 62 950 ...	Article no. 62 950 ...
for Article no.								
62 820 16097	M8x1x12/SW4	**13989**	M8x1x20/SW4	**13700**	M5x14/SW4	**18600**	**18500**	**18400**
62 840 16097	M8x1x12/SW4	**13989**	M8x1x20/SW4	**13700**	M5x14/SW4	**18600**	**18500**	**18400**

Suitable ABS adapters can be found in → **Chapter 16, Adapters.**

MicroKom – hi.flex – precision adjustment head

- **For boring bars Ø 16 mm and bridges**
- With internal coolant supply
- LSCX = Boring depth

ABS





D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	BDX mm	LPR mm	LSCX mm	NEW Article no. 62 800 ...
6 - 125	M0501000	ABS 50	16	28	60	67	39,7	**16097**


Clamping screw


Clamping screw

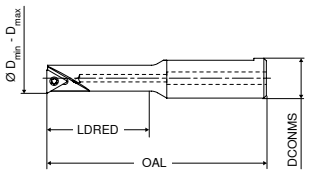

Clamping screw

Spare parts	Article no. 62 950 ...	Article no. 62 950 ...	Article no. 62 950 ...
for Article no.			
62 800 16097	M8x1x12/SW4 **13989**	M8x8/SW4 **14700**	M8x1x20/SW4 **13700**

Suitable ABS adapters can be found in → **Chapter 16, Adapters.**

MicroKom – Steel boring bar for hi.flex, BluFlex 2

▲ With internal coolant supply





D_{min} - D_{max} mm	KOMET no.	OAL mm	LDRED mm	DCONMS $_{h6}$ mm	Insert	NEW Article no. 62 850 ...
6 - 8	B0520100	71,7	21,0	16	WO.. 02T0	00600
8 - 12	B0520120	77,4	28,0	16	TO.. 06T1	00800
10 - 14	B0520140	81,8	34,0	16	TO.. 0902	01000
12 - 18	B0520160	88,2	42,0	16	TO.. 0902	01200
14 - 18	B0520180	94,4	50,0	16	TO.. 0902	01400
18 - 25	B0520220	100,0	60,0	16	TO.. 0902	01800
22 - 26	B0520260	108,0	68,5	16	TO.. 1403	02200

Suitable inserts can be found on → **Page 9–11**.



Spare parts	Article no. 62 950 ...
Insert	
TO.. 06T1	12800
TO.. 0902	12000
TO.. 1403	12600
WO.. 02T0	11800

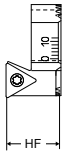
MicroKom – Insert holder for serrated body hi.flex, BluFlex 2

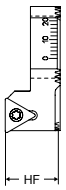
▲ With internal coolant supply

Scope of supply:

▲ without inserts

▲ incl. mounting screws







for	KOMET no.	HF mm	Insert	NEW Article no. 62 863 ...
62 861 06300	M0520101	13,5	TO.. 06T1	04400
62 861 06300 / 62 860 12500	M0520151	13,5	TO.. 0902	12500

Suitable inserts can be found on → **Page 10+11**.



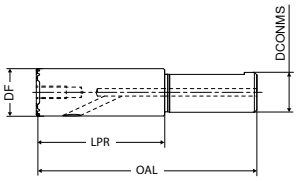
Spare parts	Article no. 62 950 ...
for Article no.	
62 863 04400	09700
62 863 12500	09900

MicroKom – Serrated body for hi.flex, BluFlex 2

▲ With internal coolant supply

Scope of supply:

without insert holder





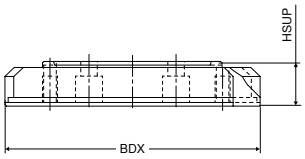
D_{min} - D_{max} mm	KOMET no.	DCONMS mm	OAL mm	LPR mm	DF mm	NEW Article no. 62 861 ...
25 - 63	M0590100	16	88,5	65	19	06300





Spare parts	Article no. 62 950 ...	Article no. 62 950 ...
for Article no.		
62 861 06300	00000	19100

MicroKom – Bridge for hi.flex, BluFlex 2





D_{min} - D_{max} mm	KOMET no.	BDX mm	HSUP mm	WT kg	NEW Article no. 62 860 ...
90 - 125	M0580101	85	12	0,147	12500

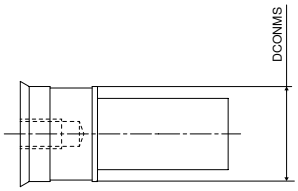




Spare parts	Article no. 62 950 ...	Article no. 62 950 ...
for Article no.		
62 860 12500	00000	19100

5

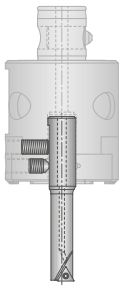
MicroKom – Filling piece for hi.flex, BluFlex 2

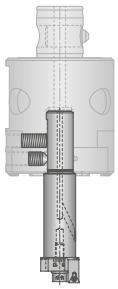


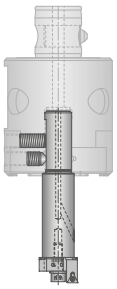


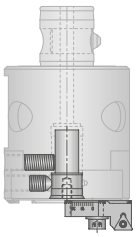
DCONMS mm	KOMET no.	NEW Article no. 62 862 ...
16	M0590501	09300

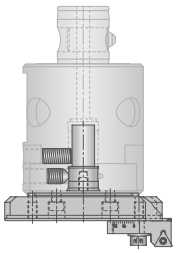
Overview of diameters available







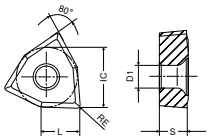




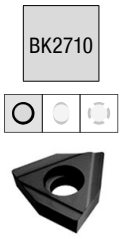
Ø 6–25	Ø 25–44	Ø 44–63	Ø 63–93	Ø 90–125
Boring Bar	Serrated body	Serrated body	Filling piece	Filling piece
62 850 ...	62 861 06300	62 861 06300	62 862 09300	62 862 09300
	+	+	+	+
	Insert holder	Insert holder	Insert holder	Bridge
	62 863 04400	62 863 12500	62 863 12500	62 860 12500
				+
				Insert holder
				62 863 12500

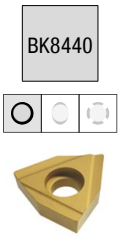
WOHX

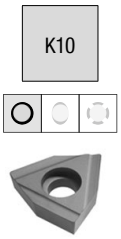
Designation	L	S	D1	IC
	mm	mm	mm	mm
WOHX 02T0..	2,6	1,20	2	4



WOHX





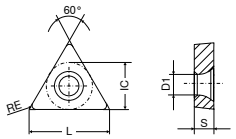


ISO	KOMET no.	RE	F WOHX NEW Article no. 62 600 ...	F WOHX NEW Article no. 62 600 ...	F WOHX NEW Article no. 62 600 ...
		mm			
02T001	W0004120.018440	0,1		**00102**	
02T001	W0004120.012710	0,1	**10102**		
02T001	W0004120.0121	0,1			**20102**
Steel			●	●	
Stainless steel			●	●	
Cast iron			●		
Non ferrous metals					●
Heat resistant alloys					●
Hardened materials					

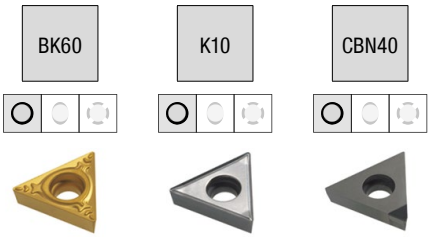
→ v_c Page 50

TOGX

Designation	L	S	D1	IC
	mm	mm	mm	mm
TOGX 06T1..	6,64	1,80	2,2	4,0
TOGX 0902..	9,12	2,50	2,8	5,6
TOGX 1403..	13,62	3,00	3,8	8,2



TOGX

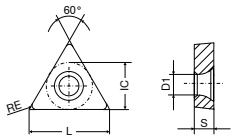


ISO	KOMET no.	RE	F TOGX NEW Article no. 62 601 ...	F TOGX NEW Article no. 62 601 ...	F TOGX NEW Article no. 62 601 ...
		mm			
06T102	W5704120.0223	0,2		**50206**	
06T102	W5704140.0260	0,2	**90206**		
06T102	W3004990.0240	0,2			**60206**
090204	W5714120.0423	0,4		**50409**	
090204	W5714140.0460	0,4	**70409**		
090204	W3014990.0440	0,4			**60409**
140304	W5726120.0423	0,4		**50414**	
140304	W5726140.0460	0,4	**70414**		
Steel			●		
Stainless steel					
Cast iron					
Non ferrous metals				●	
Heat resistant alloys				●	
Hardened materials					●

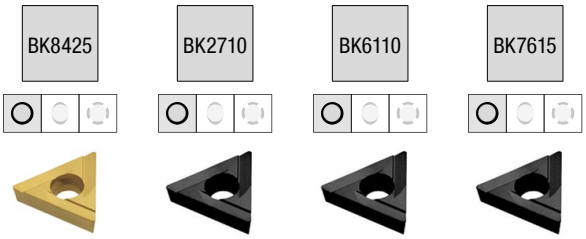
→ v_c Page 50

TOHX

Designation	L	S	D1	IC
	mm	mm	mm	mm
TOHX 06T1..	6,50	1,80	2,2	4,0
TOHX 0902..	9,12	2,50	2,8	5,6
TOHX 1403..	13,62	3,00	3,8	8,2



TOHX



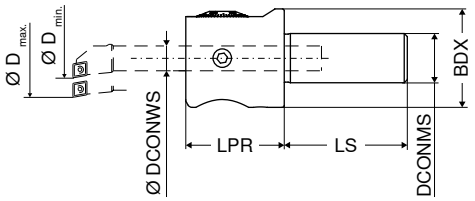
F TOHX | F TOHX | F TOHX | F TOHX

ISO	KOMET no.	RE	NEW Article no. 62 602 ...	NEW Article no. 62 602 ...	NEW Article no. 62 602 ...	NEW Article no. 62 602 ...
		mm				
06T103	W3004060.032710	0,3		**10606**		
06T103	W3004060.036110	0,3			**40606**	
06T103	W3004420.038425	0,3	**30606**			
06T103	W3004060.037615	0,3				**80606**
090204	W3014060.046110	0,4			**40409**	
090204	W3014060.042710	0,4		**10409**		
090204	W3014060.047615	0,4				**80409**
140304	W3026060.046110	0,4			**40414**	
Steel			●	●	○	
Stainless steel			●	●		
Cast iron			●	●	●	●
Non ferrous metals						
Heat resistant alloys						
Hardened materials						

→ v_c Page 50

SpinTools – Micro-Boring Head

▲ max. speed 30,000 U/min





D_{min} - D_{max} mm	BDX mm	DCONWS mm	DCONMS mm	LPR mm	LS mm	Digital Article no. 62 386 ...	Analogue Article no. 62 382 ...
0,3 - 7,1	25	4	10	25	25	025	025
0,3 - 19,1	32	7	16	32	40	032	032

SpinTools – Digital Stick

▲ suitable for all SpinTools Digital Heads

Scope of supply:
incl. AAA Battery



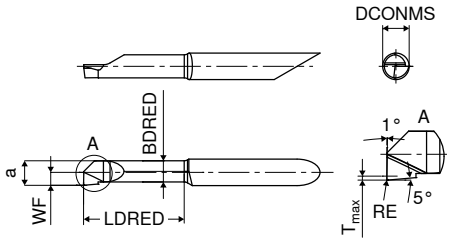
Article no. 62 309 ...
000


Clamping screw ST


Locking screw

Spare parts for Article no.		Article no. 62 950 ...		Article no. 62 950 ...
62 382 025 / 62 386 025	M5x4	214	M4x8	228
62 382 032 / 62 386 032	M6x5	215	M6x10	229

SpinTools – Solid carbide boring bar



TiN

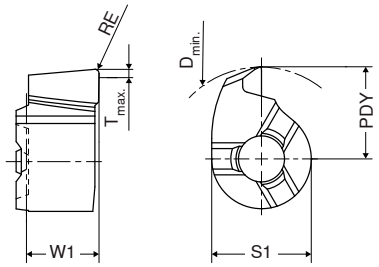


D_{min} - D_{max} mm	DCONMS mm	LDRED mm	RE mm	a mm	BDRED mm	WF mm	$T_{max.}$ mm	Article no. 62 383 ...
0,3 - 0,7	4	1,2		0,25	0,15	0,15	0,03	**003**
0,6 - 1,1	4	2,5		0,55	0,46	0,30	0,05	**006**
1,0 - 2,3	4	4,0	0,05	0,95	0,65	0,50	0,10	**010**
2,2 - 3,3	4	6,0	0,05	2,00	1,55	1,10	0,20	**022**
3,2 - 4,3	4	10,2	0,05	3,00	2,55	1,60	0,20	**032**
3,9 - 7,1	4	15,2	0,05	3,70	3,45	1,95	0,30	**039**
5,2 - 6,3	7	20,3	0,05	5,00	4,25	2,60	0,50	**052**
6,2 - 7,3	7	20,3	0,05	6,00	5,25	3,10	0,50	**062**
6,9 - 12,1	7	25,4	0,20	6,70	6,25	3,45	0,50	**069**

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	○

→ v_c Page 53

SpinTools – Carbide inserts



TiN

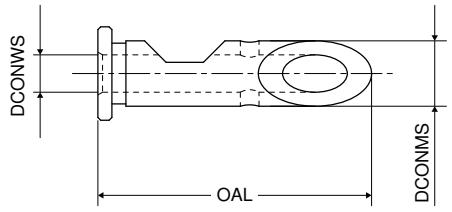


D_{min} - D_{max} mm	RE mm	PDY mm	S1 mm	W1 mm	$T_{max.}$ mm	Article no. 62 384 ...
6,9 - 8,1	0,2	3,45	4,8	3,5	1	**069**
7,9 - 9,1	0,2	3,95	4,8	3,5	1	**079**
8,9 - 10,1	0,2	4,45	4,8	3,5	1	**089**
9,9 - 12,1	0,2	4,95	7,0	3,9	1	**099**
11,9 - 14,1	0,2	5,95	7,0	3,9	1	**119**
13,9 - 19,1	0,2	6,95	7,0	3,9	1	**139**

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	○

→ v_c Page 53

SpinTools – Adapter



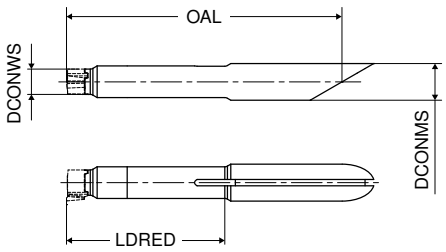


DCONMS mm	DCONWS mm	OAL mm	Article no. 62 335 ...
7	4	30	**407**

SpinTools – Toolholder for carbide inserts

▲ with thro' coolant

▲ appropriate inserts for article no. 62 384 ... can be found in the table above





DCONMS mm	LDRED mm	DCONWS mm	OAL mm	Article no. 62 385 ...
7	30	4,8	56	**330**
7	35	7,0	61	**350**



TORX® Screws



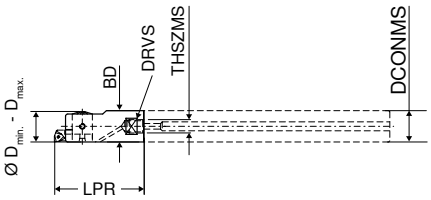
Key D

Spare parts for Article no.	Article no. 62 950 ...	Article no. 80 950 ...
62 385 330	**007**	**124**
62 385 350	**094**	**126**

SpinTools – Precision boring head

▲ With internal coolant supply

Scope of supply:
Fine boring head without shank, without insert holder





BD mm	D_{min} - D_{max} mm	THSZMS	DCONMS mm	LPR mm	DRVS mm	Article no. 62 304 ...
14	14,7 - 17,1	M6	14	40	12	017
16	16,7 - 20,1	M10	16	40	14	020
19	19,7 - 24,1	M10	18	40	16	024


TORX® Screws


Key D

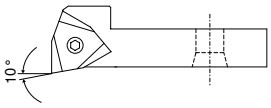

Clamping screw ST

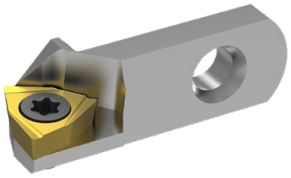
Spare parts for Article no.		Article no. 62 950 ...		Article no. 80 950 ...		Article no. 62 950 ...
62 304 017	M2,5x6	022	T07	109	M3x2	017
62 304 020	M2,5x6	022	T07	109	M3x2,5	018
62 304 024	M2,5x6	022	T07	109	M3x4	019

Information on the working length can be found on → **Page 55.**

SpinTools – Insert holder, 90°

Scope of supply:
without insert





for boring head	Insert	Article no. 62 317 ...
62 304 ...	WC.. 0201..	024

Suitable inserts can be found on → **Page 47.**


TORX® Screws

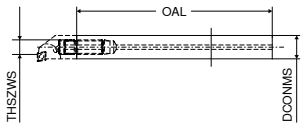

Key D

Spare parts Insert		Article no. 62 950 ...		Article no. 80 950 ...	
WC.. 0201..	M2x3,7	021	T06	108	

SpinTools – High-speed carbide boring bars

- with threaded mounting stud made of high quality steel
- with thro' coolant
- Shank clamping length 35 mm
- Boring shanks with DCONMS Ø 18 mm are for use in collet chuck or hydraulic chuck

Scope of supply:
boring shank, without boring head



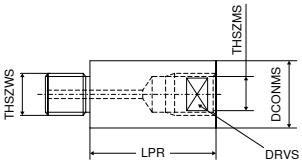


DCONMS h6	OAL	THSZWS	Article no. 62 353 ...
mm	mm		
14	110	M6	014
16	120	M10	016
18	100	M10	018
18	180	M10	218
18	140	M10	118

Information on the working length can be found on → **Page 55.**

SpinTools – Shank extensions (tempered steel)

- with thro' coolant





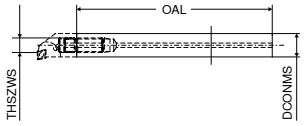
DCONMS h9	LPR	THSZWS	THSZMS	DRVS	Article no. 62 349 ...
mm	mm			mm	
16	32	M10	M10	14	732
16	64	M10	M10	14	764

5

SpinTools – High Speed Steel Extension

- with thro' coolant
- Boring shanks with DCONMS Ø 18 mm are for use in collet chuck or hydraulic chuck

Scope of supply:
boring shank, without boring head



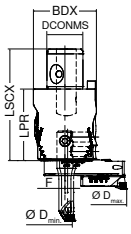


DCONMS h6	OAL	THSZWS	Article no. 62 329 ...
mm	mm		
14	60	M6	660
16	70	M10	770
18	80	M10	880

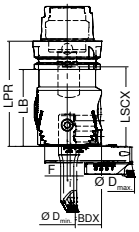
SpinTools – Multi-Head – boring and fine boring head

- **For boring bars Ø 16 mm and bridges**
- With internal coolant supply
- LSCX = Boring depth

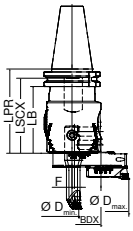
Scope of supply:
without boring bar, bridge and insert holder



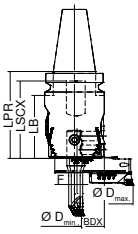
STM Modular



HSK-A 63



SK 40



MAS-BT 40


STM Modular

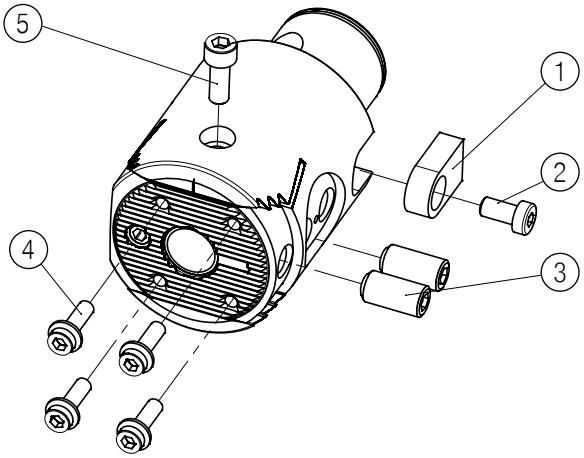

HSK-A


SK


MAS-BT

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	LPR mm	LB mm	LSCX mm	F mm	Article no. 62 372 ...	Article no. 62 373 ...	Article no. 62 373 ...	Article no. 62 373 ...
3 - 320	STM 36	36	63	71,6		111,6	0 - 2,7	653			
3 - 320	HSK-A 63		63	96,6	70,6	73,0	0 - 2,7		653		
3 - 320	SK 40		63	91,6	72,5	81,6	0 - 2,7			153	
3 - 320	BT 40		63	91,6	69,0	81,6	0 - 2,7				453

Suitable base adapters can be found on → **page onwards 40.**



1. *Drive dogs*
2. *Carrier screw*
3. *Clamping screw*
4. *Flange screw*
5. *Clamping screw MH*


Driver


Clamping screw MH


Flange screw

Spare parts		Article no. 62 950 ...		Article no. 62 950 ...		Article no. 62 950 ...
D_{min} - D_{max}						
3 - 320	16x26,5x8	040	M6x16	226	M5x16	225


Clamping screw


Screw for drivers

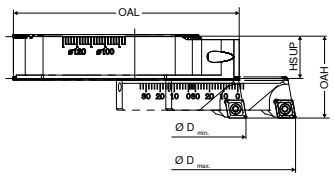
Spare parts		Article no. 62 950 ...		Article no. 62 950 ...
D_{min} - D_{max}				
3 - 320	M6x16	227	M6x12	167

SpinTools – Bridge for Multi-Head

- Ø adjustable
- With internal coolant supply

Scope of supply:

- without tool holder
- including fixation screws



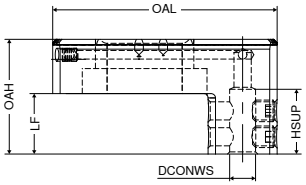


D_{min} - D_{max}	OAL	HSUP	OAH	Article no. 62 376 ...
mm	mm	mm	mm	
86 - 164	80	15	29	164
162 - 320	158	15	29	320

Insert holders can be found on → **Page 19.**

SpinTools – Axial groving holder for UltraMini

- With internal coolant supply





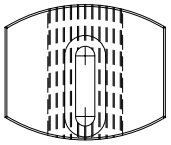
DCONWS	OAL	OAH	HSUP	LF	WT	Article no. 62 358 ...
mm	mm	mm	mm	mm	kg	
6	52	26,58	15	14	0,092	006
7	52	26,58	15	14	0,091	007
8	52	26,58	20	14	0,088	008

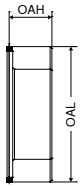
Suitable inserts for axial grooving can be found in
→ **Chapter 12, Miniature Turning Tools**

SpinTools – Counterweight

Scope of supply:

Including fixation screw







for	OAL	OAH	Article no. 62 378 ...
	mm	mm	
62 376 ...	38	12	320



Clamping screw ST

Spare parts DCONWS	Article no. 62 950 ...
6	214
7	214
8	214

SpinTools – Multi-Head – Boring and Fine Boring Head Set

- suitable for Ø 3 – Ø 320 mm

Scope of supply:

- **1 Tool Kit**
- **1 Multi-Head-Boring- and Fine Boring Head (depending on selection)**
- **4 Boring bars**
  - 62 345 015 Ø 9.75 – Ø 15.1 mm
  - 62 345 020 Ø 14.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 25.1 mm
  - 62 345 029 Ø 24.75 – Ø 30.1 mm
- **2 Boring tools, adjustable**
  - 62 375 048 Ø 29.75 – Ø 48.1 mm
  - 62 375 088 Ø 47.75 – Ø 88.1 mm
- **incl. insert holder**
  - 62 377 048 CC.. 0602
  - 62 377 088 CC.. 0602
- **1 Bridge**
  - 62 376 164 Ø 86 – Ø 164 mm
- **1 Torx-Key – T7**
- **1 6-adjustment key – SW5**

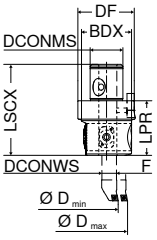


D_{min} - D_{max}	Adapter	STM Modular	HSK-A	SK	MAS-BT
mm		Article no. 62 374 ...	Article no. 62 379 ...	Article no. 62 379 ...	Article no. 62 379 ...
9,75 - 164	STM 36	999			
9,75 - 164	HSK-A 63		996		
9,75 - 164	SK 40			990	
9,75 - 164	BT 40				993

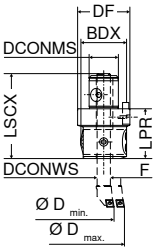
SpinTools – Single point boring heads – Modular system

▲ LSCX = Boring depth
▲ With internal coolant supply

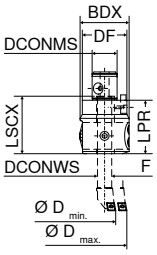
STM



Digital with collar



with flange



without flange



Digital with collar STM Modular



with flange STM Modular



without flange STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	DCONWS mm	LPR mm	LSCX mm	F mm	WT kg	Article no. 62 326 ...	Article no. 62 332 ...	Article no. 62 332 ...
3,0 - 88,1	STM 28	28	55	50	16	60	62	0 - 2,7	0,98			**553**
3,0 - 88,1	STM 36	36	55	63	16	60	101	0 - 2,7	1,26		**653**	
3,0 - 88,1	STM 36	36	55	63	16	60	106	0 - 2,7	0,43	**036**		

SpinTools – Digital Stick

▲ suitable for all SpinTools Digital Heads

Scope of supply:
incl. AAA Battery



	Article no. 62 309 ...
	000



Clamping screw



Screw for drivers



Driver



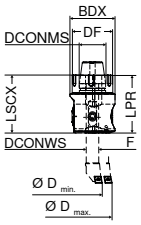
Clamping screw ST

Spare parts		Article no. 62 950 ...		Article no. 62 950 ...		Article no. 62 950 ...		Article no. 62 950 ...
for Article no.								
62 332 553	M10x16	**047**	M5x10	**166**	12x20x6	**039**	M10x8	**046**
62 332 653	M10x16	**047**	M6x12	**167**	16x26,5x8	**040**	M10x8	**046**
62 326 036	M10x16	**047**	M6x12	**167**	16x26,5x8	**040**	M10x8	**046**

SpinTools – Single point boring heads

- Interface for use on ER32 collet chucks
- LSCX = Recess depth of boring bar
- with thro' coolant supply
- Suitable for Ø 3.0 – Ø 88.1 mm

ER 32




ER 32

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	DCONWS mm	LPR mm	LSCX mm	F mm	Article no. 62 332 ...
3,0 - 88,1	ER 32	32	55	49,5	16	60	86,5	0 - 2,7	**732**

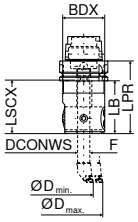

Clamping screw


Clamping screw ST

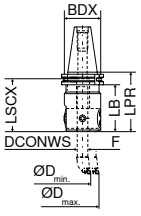
Spare parts		Article no. 62 950 ...		Article no. 62 950 ...
for Article no.				
62 332 732	M10x16	**047**	M10x8	**046**

SpinTools – Single Point Boring Head – Monoblock

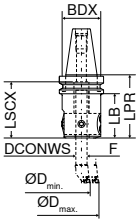
- LSCX = Boring depth
- With internal coolant supply



HSK-A 63



SK 40



MAS-BT 40


HSK-A


SK


MAS-BT

D_{min} - D_{max} mm	Adapter	BDX mm	DCONWS mm	LPR mm	LB mm	LSCX mm	F mm	WT kg	HSK-A Article no. 62 333 ...	SK Article no. 62 333 ...	MAS-BT Article no. 62 333 ...
3,0 - 88,1	HSK-A 63	55	16	95	69	70	0 - 2,7	1,66	**653**		
3,0 - 88,1	SK 40	55	16	90	70	80	0 - 2,7	1,83		**153**	
3,0 - 88,1	BT 40	55	16	90	63	80	0 - 2,7	1,90			**453**

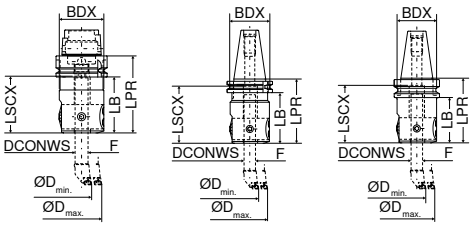

Clamping screw


Clamping screw ST

Spare parts		Article no. 62 950 ...		Article no. 62 950 ...
for Article no.				
62 333 653	M10x16	**047**	M10x8	**046**
62 333 153	M10x16	**047**	M10x8	**046**
62 333 453	M10x16	**047**	M10x8	**046**

SpinTools – Single Point Boring Head – Monoblock

▲ LSCX = Boring depth
▲ With internal coolant supply



HSK-A 63 | SK 40 | MAS-BT 40



Digital HSK-A | Digital SK | Digital MAS-BT

D_{min} - D_{max} mm	Adapter	BDX mm	DCONWS mm	LPR mm	LB mm	LSCX mm	F mm	Article no. 62 363 ...	Article no. 62 363 ...	Article no. 62 363 ...
3,0 - 88,1	HSK-A 63	55	16	95	70	70	0 - 2,7	**688**		
3,0 - 88,1	SK 40	55	16	90	71	80	0 - 2,7		**188**	
3,0 - 88,1	BT 40	55	16	90	59	80	0 - 2,7			**488**

SpinTools – Digital Stick

▲ suitable for all SpinTools Digital Heads

Scope of supply:
incl. AAA Battery



	Article no. 62 309 ...
	000



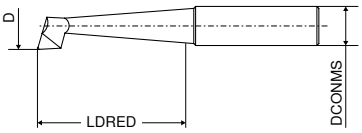
Clamping screw



Clamping screw ST

Spare parts		Article no. 62 950 ...		Article no. 62 950 ...
for Article no.				
62 363 488 / 62 363 188	M10x16	**047**	M10x8	**046**

SpinTools – Boring tools with carbide cutting edge





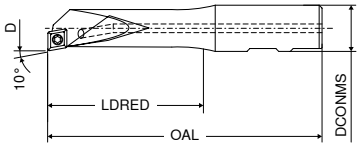
D_{min} - D_{max} mm	LDRED mm	DCONMS $_{h6}$ mm	Article no. 62 346 ...
3,0 - 8,0	20	10	008
4,0 - 9,0	23	10	009
5,0 - 10,0	25	10	010
6,0 - 11,0	25	10	011
7,0 - 12,0	31	10	012

Steel	●
Stainless steel	○
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	
Hardened materials	

→ v_c Page 52

SpinTools – Steel boring bars

▲ With internal coolant supply





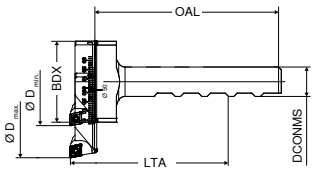
D_{min} - D_{max} mm	OAL mm	LDRED mm	DCONMS $_{h6}$ mm	Insert	Article no. 62 345 ...
9,75 - 15,1	75	30	16	CC.. 0602	015
11,75 - 17,1	80	37	16	CC.. 0602	017
13,75 - 19,1	85	43	16	CC.. 0602	019
14,75 - 20,1	90	51	16	CC.. 0602	020
15,75 - 21,1	95	57	16	CC.. 0602	021
17,75 - 23,1	100	67	16	CC.. 0602	023
19,75 - 25,1	105	72	16	CC.. 0602	024
19,75 - 25,1	105	72	16	CC.. 09T3	025
21,75 - 27,1	110	77	16	CC.. 09T3	027
24,75 - 30,1	115	82	16	CC.. 0602	029
24,75 - 30,1	115	82	16	CC.. 09T3	030
27,75 - 33,1	115	82	16	CC.. 09T3	033
31,75 - 37,1	115	82	16	CC.. 09T3	037
34,75 - 40,1	115	82	16	CC.. 09T3	040
38,75 - 44,1	115	82	16	CC.. 09T3	044
42,75 - 48,1	115	82	16	CC.. 09T3	048
47,75 - 53,1	115	82	16	CC.. 09T3	053

Suitable inserts can be found on → **Page 48.**

SpinTools – Adjustable boring bar bridge

▲ With internal coolant supply

Scope of supply:
without insert holder



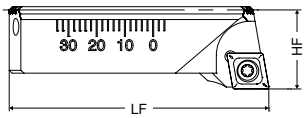


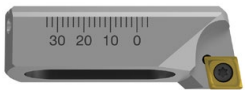
D_{min} - D_{max} mm	OAL mm	BDX mm	LTA mm	DCONMS mm	Article no. 62 375 ...
29,75 - 48,1	103	25	85	16	048
47,75 - 88,1	101	44	85	16	088

SpinTools – Tool holder for boring bar and bridge Multi-Head

▲ With internal coolant supply

Scope of supply:
▲ without inserts
▲ incl. mounting screws





for	LF mm	HF mm	Insert	Article no. 62 377 ...
62 375 048	28,2	12	CC.. 0602	048
62 375 088 / 62 376 ...	46,0	14	CC.. 0602	088
62 375 088 / 62 376 ...	46,0	14	CC.. 09T3	089

Suitable inserts can be found on → **Page 48.**


TORX® Screws


Key D

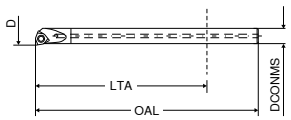

Flange screw

Spare parts for Article no.	Article no. 62 950 ...	Article no. 80 950 ...	Article no. 62 950 ...
62 377 048	022	109	225
62 377 088	022	109	225
62 377 089	023	113	225

5

SpinTools – Boring bars with carbide shank

▲ With internal coolant supply
▲ LTA = max. overhang





D_{min} - D_{max}	DCONMS $_{h6}$	OAL	LTA	Insert	Article no. 62 341 ...
mm	mm	mm	mm		
5,8 - 11,2	5	80	45	WC.. 0201..	011
7,8 - 13,2	6	100	60	WC.. 0201..	013

Suitable inserts can be found on → **Page 47.**

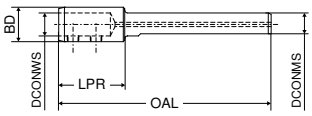

TORX® Screws


Key D

Spare parts	Article no. 62 950 ...	Article no. 80 950 ...
Insert		
WC.. 0201..	021	108

SpinTools – Boring tool extensions

▲ with thro' coolant





DCONWS	DCONMS	BD	OAL	LPR	Article no. 62 337 ...
mm	mm	mm	mm	mm	
10	16	16	128		128
16	16	24	148	44	148


Clamping screw

Spare parts	Article no. 62 950 ...
for Article no.	
62 337 128	048
62 337 148	049

SpinTools – Reduction sleeves

▲ for boring bars and boring tools



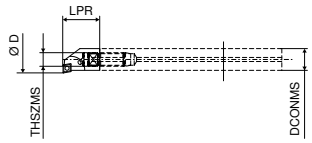


DCONMS	DCONWS	OAL	Article no. 62 335 ...
mm	mm	mm	
16	4	37	104
16	5	37	105
16	6	37	106
16	8	37	108
16	9	37	109
16	10	37	110
16	11	37	111
16	12	37	112
16	13	37	113
16	14	37	114

SpinTools – High-speed boring head

- for overturning holder and high speed carbide shank
- With internal coolant supply
- $D_{max.}$ = using a head with fine adjustment 0 – 2,7 mm

Scope of supply:
Boring head without boring shank, without inserts





D_{min} - D_{max} mm	LPR mm	THSZMS	DCONMS $_{h6}$ mm	Insert	Article no. 62 361 ...
8,75 - 14,1	18	M5	8	CC.. 0602	014
9,75 - 15,1	18	M5	9	CC.. 0602	015
10,75 - 16,1	23	M6	10	CC.. 0602	016
11,75 - 17,1	23	M6	11	CC.. 0602	017
12,75 - 18,1	23	M6	12	CC.. 0602	018
13,75 - 19,1	23	M6	13	CC.. 0602	019
14,75 - 20,1	23	M6	14	CC.. 0602	020
15,75 - 21,1	23	M6	14	CC.. 0602	021
16,75 - 22,1	27	M10	16	CC.. 0602	022
17,75 - 23,1	27	M10	16	CC.. 0602	023
19,75 - 25,1	27	M10	16	CC.. 0602	025
21,75 - 27,1	27	M10	16	CC.. 0602	027
24,75 - 30,1	27	M10	16	CC.. 0602	030
27,75 - 33,1	27	M10	16	CC.. 0602	033
31,75 - 37,1	27	M10	16	CC.. 0602	037
34,75 - 40,1	27	M10	16	CC.. 0602	040

Suitable inserts can be found on → **Page 48.**


TORX® Screws

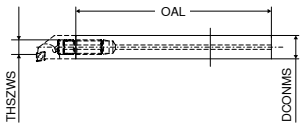

Key D

Spare parts	Article no. 62 950 ...	Article no. 80 950 ...
Insert		
CC.. 0602	022	109

SpinTools – High-speed carbide boring bars

- with threaded mounting stud made of high quality steel
- with thro' coolant
- Shank clamping length 35 mm
- Boring shanks with DCONMS Ø 18 mm are for use in collet chuck or hydraulic chuck

Scope of supply:
boring shank, without boring head





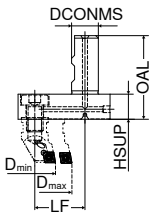
DCONMS $_{h6}$ mm	OAL mm	THSZWS	Article no. 62 353 ...
8	73	M5	008
9	80	M5	009
10	82	M6	010
11	89	M6	011
12	96	M6	012
13	103	M6	013
14	110	M6	014
16	120	M10	016

Information on the working length can be found on → **Page 55.**

SpinTools – Over turning holder for boring head

- With internal coolant supply

Scope of supply:
without boring head and insert



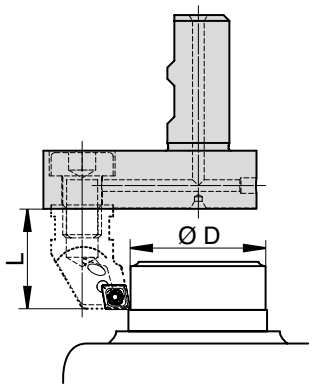


D_{min} - D_{max} mm	DCONMS $_{h6}$ mm	LF mm	HSUP mm	OAL mm	Article no. 62 404 ...
5,3 - 28,6	16	20	15	50	028
25,3 - 48,6	16	30	15	50	048

5

Help me choose the correct over-turning adapter

- ▲ for the combination of overturning with high speed boring heads
- ▲ the length L can be extended with shank extensions



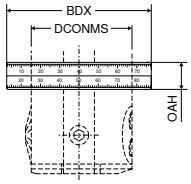
Boring range Ø $D_{min.}$ – Ø $D_{max.}$ mm	Tool holder 62 404 ...	L mm	Boring Head 62 361 ...	Pages
5,3 – 10,6	028	27	040	23
8,3 – 13,6	028	27	037	
12,3 – 17,6	028	27	033	
15,3 – 20,6	028	27	030	
18,3 – 23,6	028	27	027	
20,3 – 25,6	028	27	025	
22,3 – 27,6	028	27	023	
23,3 – 28,6	028	27	022	
25,3 – 30,6	048	27	040	
28,3 – 33,6	048	27	037	
32,3 – 37,6	048	27	033	
35,3 – 40,6	048	27	030	
38,3 – 43,6	048	27	027	
40,3 – 45,6	048	27	025	
42,3 – 47,6	048	27	023	
43,3 – 48,6	048	27	022	

SpinTools – Balancing rings

- ▲ For balancing the tools without dynamic balancing machine

Scope of supply:

CD-ROM with application data and setting values





DCONMS mm	BDX mm	OAH mm	WT kg	Article no. 62 300 ...
32	50	16	0,08	**032**
40	58	16	0,09	**040**
50	70	16	0,13	**050**
55	75	16	0,14	**055**
63	84	16	0,16	**063**



Clamping screw

Spare parts DCONMS	Article no. 62 950 ...
32 - 63	**009**

SpinTools – Single point boring heads Set 1

- suitable for Ø 3 – Ø 88.1 mm
- supplied with Ø 9.75 – Ø 30.1 or Ø 9.75 – Ø 40.1 mm
- with thro' coolant

Scope of supply:

- **1 Tool Kit**
- **1 single point boring head (depending on selection)**
- **4 Boring bars (SK40- and MAS-BT-Set)**
  - 62 345 015 Ø 9,75 – Ø 15,1 mm
  - 62 345 020 Ø 14,75 – Ø 20,1 mm
  - 62 345 024 Ø 19,75 – Ø 25,1 mm
  - 62 345 029 Ø 24,75 – Ø 30,1 mm
- **8 Boring bars (Modular-Set)**
  - 62 345 015 Ø 9,75 – Ø 15,1 mm
  - 62 345 019 Ø 13,75 – Ø 19,1 mm
  - 62 345 023 Ø 17,75 – Ø 23,1 mm
  - 62 345 027 Ø 21,75 – Ø 27,1 mm
  - 62 345 030 Ø 24,75 – Ø 30,1 mm
  - 62 345 033 Ø 27,75 – Ø 33,1 mm
  - 62 345 037 Ø 31,75 – Ø 37,1 mm
  - 62 345 040 Ø 34,75 – Ø 40,1 mm
- **1 6-adjustment key – SW5**
- **1 Torx-Key – T7**



D_{min} - D_{max} mm	Adapter	STM Modular Article no. 62 334 ...	SK Article no. 62 345 ...	MAS-BT Article no. 62 345 ...
9,75 - 40,1	STM 36	**999**		
9,75 - 30,1	SK 40		**990**	
9,75 - 30,1	BT 40			**993**

SpinTools – Single point boring heads Set 2

- suitable for Ø 3 – Ø 88.1 mm
- Supplied with Ø 9.75 – Ø 88.1 mm
- with thro' coolant

Scope of supply:

- **1 Tool Kit**
- **1 Fine boring head (depending on selection) (depending on selection)**
- **4 Boring bars**
  - 62 345 015 Ø 9.75 – Ø 15.1 mm
  - 62 345 020 Ø 14.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 25.1 mm
  - 62 345 029 Ø 24.75 – Ø 30.1 mm
- **2 Boring tools, adjustable**
  - 62 375 048 Ø 29.75 – Ø 48.1 mm
  - 62 375 088 Ø 47.75 – Ø 88.1 mm
- **incl. insert holder**
  - 62 377 048 CC.. 0602
  - 62 377 088 CC.. 0602
- **1 Torx key – T7**
- **1 6-adjustment key – SW5**



D_{min} - D_{max} mm	Adapter	STM Modular Article no. 62 334 ...	HSK-A Article no. 62 345 ...	SK Article no. 62 345 ...	MAS-BT Article no. 62 345 ...
9,75 - 88,1	STM 36	**997**			
9,75 - 88,1	HSK-A 63		**997**		
9,75 - 88,1	SK 40			**998**	
9,75 - 88,1	BT 40				**999**

SpinTools – Single point boring heads ER32 Set

- Suitable for Ø 3.0 – Ø 88.1 mm
- Scope of supply Ø 9.75 – Ø 30.1 mm
- with thro' coolant supply

Scope of supply:

- **1 tool kit**
- **1 single point boring head (62332732)**
- **4 boring bars**
  - 62 345 015 Ø 9.75 – Ø 15.1 mm
  - 62 345 020 Ø 14.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 25.1 mm
  - 62 345 029 Ø 24.75 – Ø 30.1 mm
- **1 Torx Key – T7**
- **1 Allen Key – SW5**



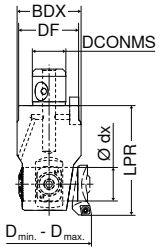
D_{min} - D_{max} mm	Adapter	Article no. 62 332 ...
9,75 - 30,1	ER 32	999

SpinTools – Single point finish boring heads

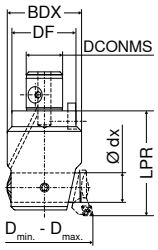
▲ With internal coolant supply

Scope of supply:
without insert holder and inserts

STM



Digital



Analogue



Digital
STM Modular



Analogue
STM Modular

5

D_{min} - D_{max} mm	D_{min} - D_{max} extended mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	Ø dx mm	WT kg	Article no. 62 308 ...	Article no. 62 303 ...
23,9 - 31,1	29,9 - 37,1	STM 11	11	20	20	40	11	0,08	**031**	**031**
30,9 - 40,1	37,9 - 47,1	STM 14	14	25	25	45	13	0,15	**040**	**040**
39,9 - 51,1	47,9 - 59,1	STM 18	18	32	32	65	17	0,38	**051**	**051**
50,9 - 67,1	64,9 - 81,1	STM 22	22	42	40	72	22	0,70	**067**	**067**
66,9 - 87,1	84,9 - 105,1	STM 28	28	55	50	82	30	1,32	**087**	**087**
86,9 - 116,1	104,9 - 134,1 (124,9 - 154,1)	STM 36	36	72	63	105	30	3,15	**116**	**116**

For optimal stability when fine boring the main insert holder ranges are preferred over the extended range.

SpinTools – Digital Stick

▲ suitable for all SpinTools Digital Heads

Scope of supply:
incl. AAA Battery



	Article no. 62 309 ...
	000



Screw for drivers



Driver



Fillister-head screw

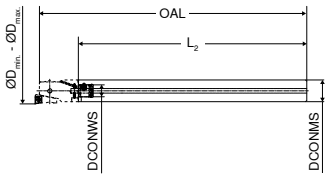


Clamping screw ST

Spare parts for Article no.		Article no. 62 950 ...		Article no. 62 950 ...		Article no. 62 950 ...		Article no. 62 950 ...
62 303 031 / 62 308 031	M2x2,5	**162**	5x8,5x3	**035**	M4x6	**287**	M4x3	**213**
62 303 040 / 62 308 040	M2,5x6	**163**	6x10,3x4	**036**	M5x8	**288**	M5x4	**214**
62 303 051 / 62 308 051	M3x8	**164**	8x15x5	**037**	M6x10	**289**	M6x5	**215**
62 303 067 / 62 308 067	M4x10	**165**	10x18,1x6	**038**	M8x12	**290**	M8x6	**216**
62 303 087 / 62 308 087	M5x10	**166**	12x20x6	**039**	M10x16	**291**	M10x10	**217**
62 303 116 / 62 308 116	M6x12	**167**	16x26,5x8	**040**	M10x16	**291**	M10x18	**218**

SpinTools – High-speed carbide boring tools

▲ for single point finish boring heads Article no. 62 303 ..., 62 308 ...
▲ with thro' coolant



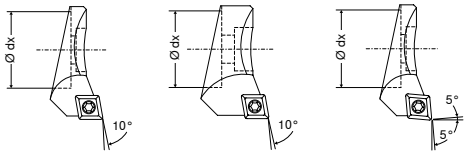


D_{min} - D_{max} mm	DCONWS mm	DCONMS $_{h5}$ mm	OAL mm	L_2 mm	WT kg	Article no. 62 354 ...
23,9 - 31,1	11	20	250	210	0,81	**020**
30,9 - 40,1	14	25	306	261	1,54	**025**
39,9 - 51,1	18	32	380	315	3,03	**032**

SpinTools – Insert holder, 90° and 95°

▲ for single point finish boring heads Article no. 62 303 ..., 62 308 ...

Scope of supply:
incl. Torx clamping screw for inserts, without fixing bolt for holder



90° Extended 90° 95°



90° 90° extended 95°

Ø dx mm	Insert	Article no. 62 318 ...	Article no. 62 318 ...	Article no. 62 320 ...
11	CC.. 0602	**031**	**037**	**031**
13	CC.. 0602	**040**	**047**	**040**
17	CC.. 0602	**051**	**059**	**051**
22	CC.. 0602	**067**	**081**	**067**
30	CC.. 0602	**087**	**105**	
30	CC.. 09T3	**116**	**134**	**087**
30	CC.. 09T3		**154**	

Suitable inserts can be found on → **Page 48.**


TORX® Screws

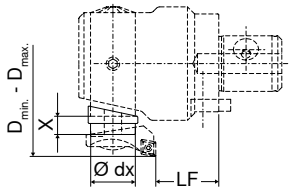

Key D

Spare parts		Article no. 62 950 ...		Article no. 80 950 ...
Insert				
CC.. 0602	M2,5x6	**022**	T07	**109**
CC.. 09T3	M4x9	**023**	T15	**113**

SpinTools – Reverse adapter for back boring

▲ For insert holder article no. 62 318 ... / 62 320 ...

Scope of supply:
Adapter including fixing bolt





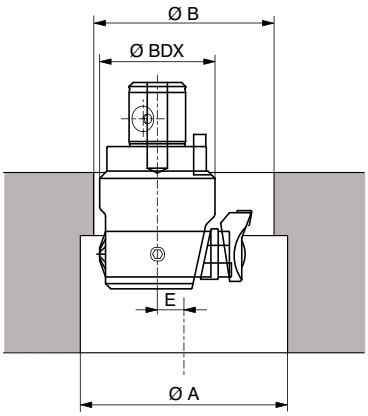
X mm	Ø dx mm	LF mm	Ø D_{min} - D_{max} mm	Article no. 62 321 ...
6,5	11	13,0	37 - 44	**044**
8,0	11	13,0	40 - 47	**051**
6,5	13	12,6	44 - 53	**053**
10,0	13	12,6	51 - 60	**060**
6,5	17	31,3	53 - 64	**064**
10,0	17	31,3	60 - 71	**071**
6,5	22	31,2	68 - 80	**080**
12,0	22	31,2	75 - 91	**091**
10,0	30	29,0	87 - 107	**107**

Note left hand direction of spindle rotation when in use


Fillister-head screw

Spare parts for Article no.	Article no. 62 950 ...
62 321 044	**278**
62 321 051	**279**
62 321 053	**280**
62 321 060	**281**
62 321 064	**282**
62 321 071	**283**
62 321 080	**284**
62 321 091	**285**
62 321 107	**286**

Minimum diameter (Ø B) during retraction for back boring



Minimum diameter (Ø B) of the entry bore

$$Ø\,B = \frac{Ø\,BDX + Ø\,A}{2} + 1^*$$

Minimum offset (E) for starting

$$E = \frac{Ø\,A - Ø\,B}{2} + 0{,}5^*$$

*Safety margin

Example:
Boring head = 62 303 031
Insert Holder= 62 318 031
Reverse adapter = 62 321 044
Ø BDX = 20 mm
Ø A ≙ Amin. = 37 mm
*Safety margin = 1 mm

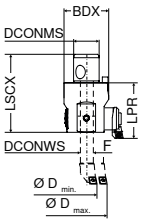
$$Ø\,B = \frac{20 + 37}{2} = 28{,}5 + 1 = 29{,}5\ mm$$

5

SpinTools – Vario-Head – boring and fine boring head

- For boring bars with a diameter of 16 mm and insert holders
- with thro' coolant supply
- LSCX = Recess depth of boring bar

Scope of supply:
Without boring bar and insert holder
Incl. coolant insert





Digital
STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DCONWS mm	LPR mm	LSCX mm	F mm	Article no. 62 364 ...
3 - 125	STM 36	36	63	16	76,5	110	0 - 6,5	101

SpinTools – Digital Stick

- suitable for all SpinTools Digital Heads

Scope of supply:
incl. AAA Battery



Article no. 62 309 ...
000



Coolant insert



Clamping screw VH



Grubscrew

Spare parts for Article no.	Article no. 62 366 ...		Article no. 62 950 ...		Article no. 62 950 ...
62 364 101	002	M10X12	341	M5X16	340



Cylindrical screw



Clamping screw

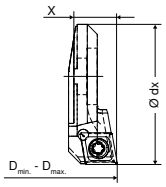
Spare parts for Article no.			Article no. 62 950 ...		Article no. 62 950 ...
62 364 101		M10x25	343	M10X18	342

SpinTools – Insert holder, 90°

▲ for Vario-Head boring and fine boring head 62 364 101

Scope of supply:

incl. Torx clamping screw for inserts, without fixing bolt for holder

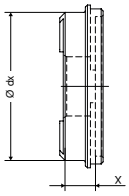




X mm	Ø dx mm	Insert	Ø D_{min} - D_{max} mm	D_{min} - D_{max} extended mm	90° Article no. 62 365 ...
13,05	30	CC.. 09T3	87,75 - 101,1	101,1 - 105,75	**101**
22,05	30	CC.. 09T3	105,75 - 119,1	119,1 - 125,75	**119**
32,05	30	CC.. 09T3	125,75 - 139,1	139,1 - 152	**139**

SpinTools – Spacer

▲ For insert holder article no. 62 365 ...





X mm	Ø dx mm	Article no. 62 366 ...
6,5	30	**001**

5

SpinTools – Vario Digital single point boring head (set)

▲ Suitable for Ø 3 – Ø 152 mm
▲ supplied with Ø 9.75 – Ø 101.1 mm
▲ with thro' coolant supply

Scope of supply:

- ▲ **1 tool kit**
- ▲ **1 single point finish boring head**
  - 62 364 101
- ▲ **2 boring bars**
  - 62 345 015 Ø 9.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 30.1 mm
- ▲ **Boring bars, adjustable**
  - 62 375 048 Ø 29.75 – Ø 48.1 mm
  - 62 377 088 Ø 47.75 – Ø 88.1 mm
- ▲ **3 insert holders**
  - 62 377 048 Ø 29.75 – Ø 48.1 mm
  - 62 375 088 Ø 47.75 – Ø 88.1 mm
  - 62 365 101 Ø 87.75 – Ø 101.1 mm
- ▲ **1 coolant insert 62 366 002**
- ▲ **1 digital display unit 62 309 000**
- ▲ **4 Allen keys – SW2.5/4/5/8**
- ▲ **2 Torx keys – T7/15**



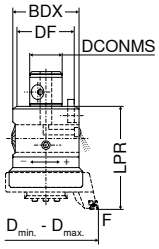
D_{min} - D_{max} mm	Adapter	STM Modular Article no. 62 364 ...
9,75 - 101,1	STM 36	**999**

SpinTools – Single point finish boring heads

▲ With internal coolant supply
▲ extremely stable connection between insert holder and boring head

Scope of supply:
Boring head, without insert holder, pressure plate and support

STM





STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	F mm	WT kg	Article no. 62 305 ...
86 - 402	STM 36	36	72	63	120	± 1,25	2,94	**302**


Cylindrical screw


Screw for drivers


Driver

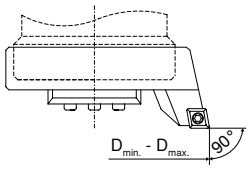

Clamping screw ST

Spare parts for Article no.	Article no. 62 950 ...	Article no. 62 950 ...	Article no. 62 950 ...	Article no. 62 950 ...
62 305 302	M8x45 **292**	M6x12 **167**	16x26,5x8 **040**	M8x60 **011**

SpinTools – Tool holder

▲ for single point finish boring heads
▲ Approach angle 90°

Scope of supply:
incl. cover plate and support





Ø D_{min} - D_{max} mm	Insert	Article no. 62 438 ...
86 - 138	CC.. 09T3	**138**
86 - 138	CC.. 1204	**238**
136 - 220	CC.. 09T3	**220**
136 - 220	CC.. 1204	**320**
188 - 302	CC.. 09T3	**302**
242 - 402	CC.. 09T3	**402**

Suitable inserts can be found on → **Page 48.**

Spare parts – insert holder


TORX® Screws


Key D


Pressure plate


Support

Spare parts		Article no. 62 950 ...		Article no. 80 950 ...	Article no. 62 950 ...	Article no. 62 950 ...
for Article no.						
62 438 138	M4x9	**023**	T15	**113**	**152**	**149**
62 438 238	M5x10	**232**	T20	**114**	**152**	**149**
62 438 220	M4x9	**023**	T15	**113**	**153**	**150**
62 438 320	M5x10	**232**	T20	**114**	**153**	**150**
62 438 302	M4x9	**023**	T15	**113**	**153**	**150**
62 438 402	M4x9	**023**	T15	**113**	**153**	**150**

5

SpinTools – Boring set

- suitable for Ø 86 – Ø 402 mm
- supplied with Ø 86 – Ø 302 mm
- with thro' coolant

Scope of supply:

- **1 Case**
- **1 single point finish boring head**
  - 62 305 302
- **3 insert holders**
  - 62 438 138 Ø 86 – Ø 138 mm
  - 62 438 220 Ø 136 – Ø 220 mm
  - 62 438 302 Ø 188 – Ø 302 mm
- **2 pressure plates and 2 supports**
  - 62 950 149
  - 62 950 150
  - 62 950 152
  - 62 950 153
- **1 Allen Key – SW5**
- **1 Torx Key – T15**



D_{min} - D_{max} mm	Adapter	STM Modular Article no. 62 439 ...
86 - 302	STM 36	**999**

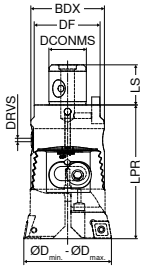
SpinTools – Twin edged Rough / Finish Boring Head

▲ Adjustable tools with through coolant
▲ each line on the adjustment scale equivalent to 0.01 mm on diameter

Scope of supply:

Boring head with spindle adjustment, carrier, stop pin, 2 screws, 2 lock washers

STM





STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	LS mm	DRVS mm	WT kg	Article no. 62 380 ...
29,5 - 40,1	STM 14	14	25	25	55	16	2,5	0,12	**040**
39,5 - 50,5	STM 18	18	32	32	65	20	2,5	0,24	**050**
49,5 - 66,5	STM 22	22	42	40	82	24	3,0	0,48	**066**
65,5 - 87,5	STM 28	28	55	50	100	30	3,0	0,94	**087**
86,5 - 115,5	STM 36	36	72	63	125	40	3,0	1,89	**115**



Fillister-head screw



Spring ring



Location Pin

Spare parts for Article no.		Article no. 62 950 ...		Article no. 62 950 ...	Article no. 62 950 ...
62 380 040	M5x12	**293**	Ø 5,3/9,3	**312**	**231**
62 380 050	M6x16	**294**	Ø 6.4/10,2	**313**	**231**
62 380 066	M8x20	**295**	Ø 8,4/14,0	**314**	**234**
62 380 087	M10x25	**296**	Ø 10,5/17,0	**315**	**234**
62 380 115	M12x25	**297**	Ø 13,0/21,0	**316**	**234**



Screw for drivers



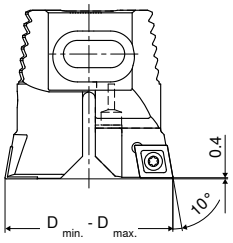
Driver

Spare parts for Article no.		Article no. 62 950 ...		Article no. 62 950 ...
62 380 040	M2,5x6	**163**	6x10,3x4	**036**
62 380 050	M3x8	**164**	8x15x5	**037**
62 380 066	M4x10	**165**	10x18,1x6	**038**
62 380 087	M5x10	**166**	12x20x6	**039**
62 380 115	M6x12	**167**	16x26,5x8	**040**

SpinTools – Pair of Roughing / Finishing Insert Holders, 90°

- ▲ the insert holder for the finishing process is set back axially by 0.4 mm
- ▲ the insert holder for the finishing process is moved by the adjustable spindle
- ▲ the finishing insert must be mounted in the holder without radial adjustment screw
- ▲ machining allowance for the finishing insert holder approximately 0.3 mm in diameter

Scope of supply:
pair of insert holders, 1 adjusting screw, 2 WSP-clamping screws, 1 Grub screw





5

Ø D_{min} - D_{max} mm	Insert	Article no. 62 381 ...
29,5 - 40,1	CC.. 0602	**040**
39,5 - 50,5	CC.. 09T3	**050**
49,5 - 66,5	CC.. 09T3	**066**
65,5 - 87,5	CC.. 1204	**087**
86,5 - 115,5	CC.. 1204	**115**

Suitable inserts can be found on → **Page 48.**


TORX® Screws


Key D


Adjustment screw


Adjustment screw

Spare parts for Article no.		Article no. 62 950 ...		Article no. 80 950 ...		Article no. 62 950 ...		Article no. 62 950 ...
62 381 040	M2,5x6	**022**	T07	**109**	M3x8 - SW1,5	**015**	M4x0,5x9,5	**239**
62 381 050	M4x9	**023**	T15	**113**	M3x8 - SW1,5	**015**	M4x0,5x13	**240**
62 381 066	M4x9	**023**	T15	**113**	M3x8 - SW1,5	**015**	M6x14	**241**
62 381 087	M5x10	**232**	T20	**114**	M3x8 - SW1,5	**015**	M6x20	**242**
62 381 115	M5x10	**232**	T20	**114**	M3x8 - SW1,5	**015**	M6x30	**333**

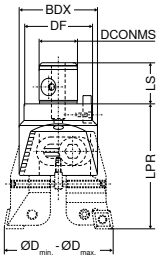
SpinTools – Boring heads for roughing with 2 cutting edges

▲ With internal coolant supply

Scope of supply:

Boring head, Drive dogs, Mounting screws and Spring rings

STM





STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	LS mm	WT kg	Article no. 62 295 ...
23,5 - 30,5	STM 11	11	20	20	40	13	0,05	**030**
29,5 - 40,1	STM 14	14	25	25	45	16	0,09	**040**
39,5 - 50,5	STM 18	18	32	32	65	20	0,25	**050**
49,5 - 66,5	STM 22	22	42	40	72	24	0,38	**066**
65,5 - 87,5	STM 28	28	55	50	82	30	0,59	**087**
86,5 - 115,5	STM 36	36	72	63	105	40	1,23	**115**
114,5 - 153,0	STM 36	36	94	94	140	40	2,80	**153**



Fillister-head screw



Spring ring

Location Pin

Spare parts for Article no.		Article no. 62 950 ...		Article no. 62 950 ...	Article no. 62 950 ...
62 295 030	M4x8	**298**	Ø 4,3/7,3	**311**	**231**
62 295 040	M5x12	**293**	Ø 5,3/9,3	**312**	**231**
62 295 050	M6x16	**294**	Ø 6.4/10,2	**313**	**231**
62 295 066	M8x20	**295**	Ø 8,4/14,0	**314**	**234**
62 295 087	M10x25	**296**	Ø 10,5/17,0	**315**	**234**
62 295 115	M12x25	**297**	Ø 13,0/21,0	**316**	**234**
62 295 153	M16x35	**299**	Ø 17,0/34,0	**317**	**234**



Screw for drivers

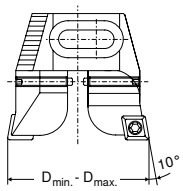


Driver

Spare parts for Article no.		Article no. 62 950 ...		Article no. 62 950 ...
62 295 030	M2x2,5	**162**	5x8,5x3	**035**
62 295 040	M2,5x6	**163**	6x10,3x4	**036**
62 295 050	M3x8	**164**	8x15x5	**037**
62 295 066	M4x10	**165**	10x18,1x6	**038**
62 295 087	M5x10	**166**	12x20x6	**039**
62 295 115	M6x12	**167**	16x26,5x8	**040**
62 295 153	M6x12	**167**	16x26,5x8	**040**

SpinTools – Pair of tool holders, standard, 90°

Scope of supply:
Adjustment screws, positioning pin, insert clamping screws

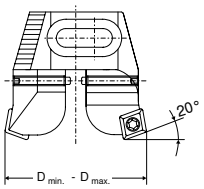




Ø D_{min} - D_{max} mm	Insert	Article no. 62 296 ...
23,5 - 30,5	CC.. 0602	030
29,5 - 40,1	CC.. 0602	040
39,5 - 50,5	CC.. 09T3	050
49,5 - 66,5	CC.. 09T3	066
65,5 - 87,5	CC.. 1204	087
65,5 - 87,5	CN.. 1204	088
86,5 - 115,5	CC.. 1204	115
86,5 - 115,5	CN.. 1606	116
114,5 - 153	CC.. 1204	153
114,5 - 153	CN.. 1606	154

SpinTools – Pair of tool holders, standard, 70°

Scope of supply:
Adjustment screws, positioning pin, insert clamping screws





Ø D_{min} - D_{max} mm	Insert	Article no. 62 299 ...
23,5 - 30,5	CC.. 0602	030
29,5 - 40,1	CC.. 0602	040
39,5 - 50,5	CC.. 09T3	050
49,5 - 66,5	CC.. 09T3	066
65,5 - 87,5	CC.. 1204	087
65,5 - 87,5	CN.. 1204	088
86,5 - 115,5	CC.. 1204	115
86,5 - 115,5	CN.. 1606	116
114,5 - 153	CN.. 1606	154

Suitable inserts can be found on → **Page 48.**


TORX® Screws

Key D

Adjustment screw

Spare parts			Article no. 62 950 ...		Article no. 80 950 ...		Article no. 62 950 ...
Ø D_{min} - D_{max}	Insert						
114,5 - 153	CC.. 1204	M5x10	232	T20	114	M6x40	335
23,5 - 30,5	CC.. 0602	M2,5x6	022	T07	109	M4x0,5x7	238
29,5 - 40,1	CC.. 0602	M2,5x6	022	T07	109	M4x0,5x9,5	239
39,5 - 50,5	CC.. 09T3	M4x9	023	T15	113	M4x0,5x13	240
49,5 - 66,5	CC.. 09T3	M4x9	023	T15	113	M6x14	241
65,5 - 87,5	CC.. 1204	M5x10	232	T20	114	M6x20	242
86,5 - 115,5	CC.. 1204	M5x10	232	T20	114	M6x30	333


Shim


Elbow lever screw


Lever

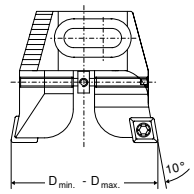

Carbide type C

Adjustment screw

Spare parts			Article no. 62 950 ...	Article no. 62 950 ...	Article no. 62 950 ...	Article no. 62 950 ...		Article no. 62 950 ...
Ø D_{min} - D_{max}	Insert							
114,5 - 153	CN.. 1606		177	180	179	178	M8x40	334
65,5 - 87,5	CN.. 1204		096	136	125	117	M6x20	242
86,5 - 115,5	CN.. 1606		177	180	179	178	M6x30	333

SpinTools – Pair of tool holders, 'Synchro', 90°

Scope of supply:
Insert clamping screws, synchronization screw

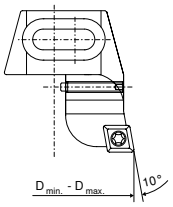




Ø D_{min} - D_{max} mm	Insert	Article no. 62 297 ...
23,5 - 30,5	CC.. 0602	030
29,5 - 40,1	CC.. 0602	040
39,5 - 50,5	CC.. 09T3	050
49,5 - 66,5	CC.. 09T3	066
65,5 - 87,5	CC.. 1204	087
86,5 - 115,5	CC.. 1204	115
114,5 - 153	CC.. 1204	153

SpinTools – Tool holder 90°, axial offset 0.4 mm

Scope of supply:
2 adjustment screws, 1 positioning pin, insert clamping screw





Ø D_{min} - D_{max} mm	Insert	Article no. 62 298 ...
23,5 - 30,5	CC.. 0602	030
29,5 - 40,1	CC.. 0602	040
39,5 - 50,5	CC.. 09T3	050
49,5 - 66,5	CC.. 09T3	066
65,5 - 87,5	CC.. 1204	087
86,5 - 115,5	CC.. 1204	115
114,5 - 153	CC.. 1204	153

Suitable inserts can be found on → **Page 48.**


TORX® Screws


Synchronization screw


Key D

Adjustment screw

Spare parts for Article no.		Article no. 62 950 ...		Article no. 62 950 ...		Article no. 80 950 ...		Article no. 62 950 ...
62 297 030	M2,5x6	022	M4x0,5x18	207	T07	109	M4x0,5x7	238
62 297 040	M2,5x6	022	M4x0,5x23	208	T07	109	M4x0,5x9,5	239
62 297 050	M4x9	023	M4x0,5x30	209	T15	113	M4x0,5x13	240
62 297 066	M4x9	023	M6x40	210	T15	113	M6x14	241
62 297 087	M5x10	232	M6x52	211	T20	114	M6x20	242
62 297 115	M5x10	232	M6x68	212	T20	114	M6x30	333
62 297 153	M5x10	232	M6x90	220	T20	114	M6x40	335

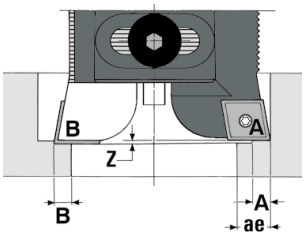

TORX® Screws


Key D

Adjustment screw

Spare parts for Article no.		Article no. 62 950 ...		Article no. 80 950 ...		Article no. 62 950 ...
62 298 030	M2,5x6	022	T07	109	M4x0,5x7	238
62 298 040	M2,5x6	022	T07	109	M4x0,5x9,5	239
62 298 050	M4x9	023	T15	113	M4x0,5x13	240
62 298 066	M4x9	023	T15	113	M6x14	241
62 298 087	M5x10	232	T20	114	M6x20	242
62 298 115	M5x10	232	T20	114	M6x30	333
62 298 153	M5x10	232	T20	114	M6x40	335

Asynchronous machining (divided cut)



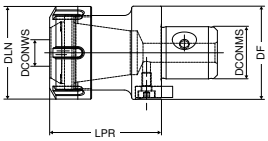
Asynchronous boring is possible using a tool holder (A) with offset 0.4mm. This tool holder is black finished and characterized by 3 dots, and must be in the outer position (with regard to the 2 tool holders)

SpinTools – ER collet chuck

- ▲ for ER clamping to DIN 6499
- ▲ With internal coolant supply

Scope of supply:
axial tool length adjustment and lock nut

STM





5

DCONWS	SZID	DCONMS	DF	DLN	LPR	for collet	WT	STM Modular Article no. 62 306 ...
mm		mm	mm	mm	mm		kg	
1 - 20	STM 28	28	50	50	60	470E (ER32)	0,644	032

Spare parts	 Y clamping key	 Screw for drivers	 Driver	 Driver	 Stop screw IK
for Article no.	Article no. 83 357 ...	Article no. 62 950 ...	Article no. 62 950 ...	Article no. 83 950 ...	Article no. 62 950 ...
62 306 032	132	166	039	121	406

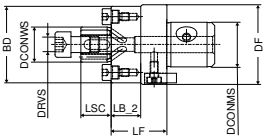
Suitable collets can be found in → **Chapter 16, Adapters**

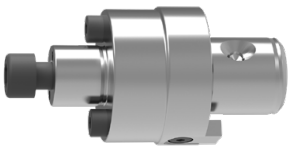
SpinTools – Shell mill adapter

- ▲ for use on mills with parallel or transverse slot to ISO 3937
- ▲ With internal coolant supply

Scope of supply:
drive dogs, drive key and clamping bolt

STM



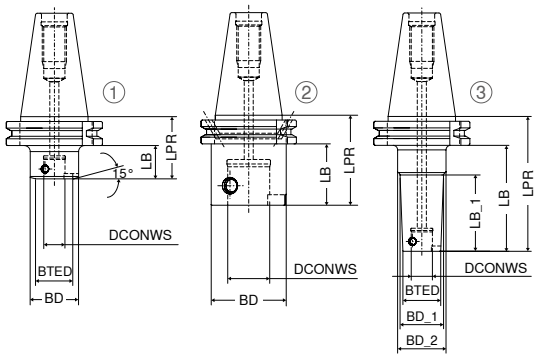


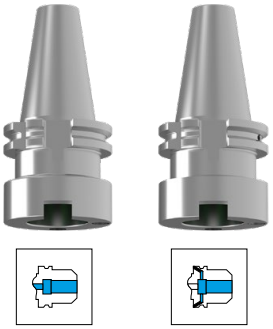
DCONWS	SZID	DCONMS	BD	DF	LSC	LB_2	LF	DRVS	WT	STM Modular Article no. 62 307 ...
mm		mm	mm	mm	mm	mm	mm	mm	kg	
16	STM 22	22	38	40	17	17,1	30	6	0,363	016
22	STM 28	28	48	50	19	19,1	35	8	0,685	022

Spare parts	 Parallel key	 Screw for drivers	 Drive dogs	 Driver	 clamping screw
for Article no.	Article no. 83 950 ...	Article no. 62 950 ...	Article no. 62 950 ...	Article no. 62 950 ...	Article no. 83 950 ...
62 307 016	284	165	442	038	113
62 307 022	285	166	443	039	124

SpinTools – Base adapters DIN 69871

STM





AD SK | AD/B SK

	Adapter	Fig.	SZID	DCONWS	BTED	BD	BD_1	BD_2	LPR	LB	LB_1	WT	Article no. 62 107 ...	Article no. 62 108 ...
				mm	mm	mm	mm	mm	mm	mm	mm	kg		
short	SK 30	2	STM 28	28		50			55	35,9		0,62	328	
short	SK 40	1	STM 11	11	20	32			40	20,9		0,91	111 [1]	
short	SK 40	1	STM 14	14	25	32			40	20,9		0,93	114 [1]	
short	SK 40	2	STM 18	18		32			40	20,9		0,89	118	
short	SK 40	2	STM 22	22		40			50	30,9		1,02	122	
short	SK 40	2	STM 28	28		50			50	30,9		1,11	128	128
short	SK 40	2	STM 36	36		63			60	40,9		1,27	136	136
short	SK 50	2	STM 28	28		50			50	30,9		2,92	428	428
short	SK 50	2	STM 36	36		63			63	43,9		3,27	436	436
long	SK 40	3	STM 11	11	20		23	32	80	60,9	40,9	1,04	211 [1]	
long	SK 40	3	STM 14	14	25		28	32	80	60,9	40,9	1,07	214 [1]	
long	SK 40	2	STM 18	18		32			80	60,9		1,13	218	
long	SK 40	2	STM 22	22		40			100	80,9		1,47	222	
long	SK 40	2	STM 28	28		50			100	80,9		1,84	228	
long	SK 40	2	STM 36	36		63			120	100,9		2,68	236	236
long	SK 50	2	STM 36	36		63			120	100,9		4,60	536	536

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!



O-Ring



Clamping screw ST

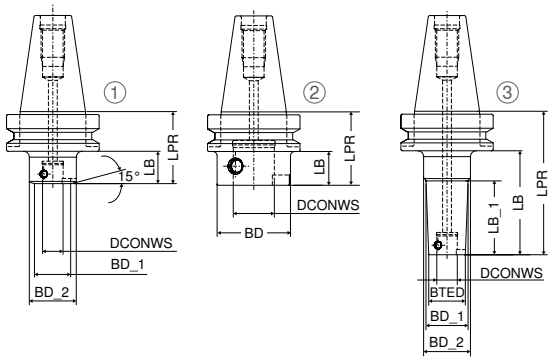
Spare parts DCONWS		Article no. 62 950 ...		Article no. 62 950 ...
11	9x1,5	254	M4x0,5x6	026
14	12x1,5	255	M5x0,5x7,5	027
18	16x1,5	256	M6x0,75x9,5	028
22	19x2	257	M8x0,75x12	029
28	25x2	258	M10x1x14,2	030
36	33x2	259	M12x1x18	031

Suitable pull studs can be found in → **Chapter 16, Adapters**

SpinTools – Base adapters JIS B 6339 (MAS-BT)

▲ form B available upon request

STM







AD
MAS-BT

	Adapter	Fig.	SZID	DCONWS	BTED	BD	BD_1	BD_2	LPR	LB	LB_1	WT	Article no. 62 112 ...
				mm	mm	mm	mm	mm	mm	mm	mm	kg	
short	BT 30	2	STM 28	28		50			55			0,64	328
	BT 40	1	STM 11	11	20	32			50	23		1,09	111 [1]
	BT 40	1	STM 14	14	25	32			50	23		1,08	114 [1]
	BT 40	2	STM 18	18		32			50	23		1,06	118
	BT 40	2	STM 22	22		40			50	23		1,10	122
	BT 40	2	STM 28	28		50			50	23		1,14	128
	BT 40	2	STM 36	36		63			60	33		1,38	136
	BT 50	2	STM 28	28		50			63	25		3,75	428
	BT 50	2	STM 36	36		63			63	25		3,78	436
long	BT 40	3	STM 11	11	20		23	32	90	63	43	1,20	211 [1]
	BT 40	3	STM 14	14	25		28	32	90	63	43	1,24	214 [1]
	BT 40	2	STM 18	18		32			90	63		1,30	218
	BT 40	2	STM 22	22		40			100	73		1,57	222
	BT 40	2	STM 28	28		50			100	73		1,87	228
	BT 40	2	STM 36	36		63			120	93		2,78	236
	BT 50	2	STM 36	36		63			120	82		5,18	536

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!



O-Ring



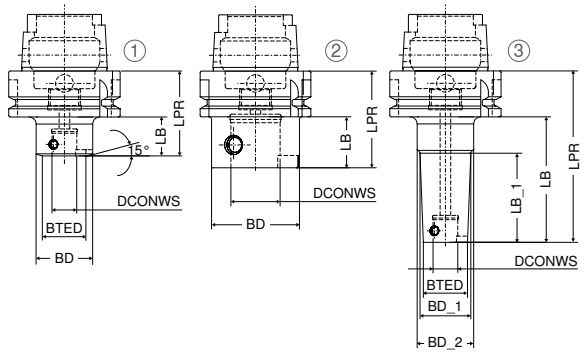
Clamping screw ST

Spare parts DCONWS		**Article no. 62 950 ...**		**Article no. 62 950 ...**
11	9x1,5	254	M4x0,5x6	026
14	12x1,5	255	M5x0,5x7,5	027
18	16x1,5	256	M6x0,75x9,5	028
22	19x2	257	M8x0,75x12	029
28	25x2	258	M10x1x14,2	030
36	33x2	259	M12x1x18	031

Suitable pull studs can be found in → **Chapter 16, Adapters**

SpinTools – Base adapters HSK-A ISO 12164-1 (DIN 69893-1)

STM







AD
HSK-A

	Adapter	Fig.	SZID	DCONWS	BTED	BD	BD_1	BD_2	LPR	LB	LB_1	WT	Article no. 62 122 ...
				mm	mm	mm	mm	mm	mm	mm	mm	kg	
short	HSK-A 63	1	STM 11	11	20	32			50	24		0,77	111 1)
	HSK-A 63	1	STM 14	14	25	32			50	24		0,76	114 1)
	HSK-A 63	2	STM 18	18		32			50	24		0,74	118
	HSK-A 63	2	STM 22	22		40			50	24		0,79	122
	HSK-A 63	2	STM 28	28		50			55	24		0,91	128
	HSK-A 63	2	STM 36	36		63			65	34		1,10	136
	HSK-A 100	2	STM 28	28		50			63	34		2,32	428
	HSK-A 100	2	STM 36	36		63			70	34		2,61	436
long	HSK-A 63	3	STM 11	11	20		23	32	90	64	44	0,87	211 1)
	HSK-A 63	3	STM 14	14	25		28	32	90	64	44	0,93	214 1)
	HSK-A 63	2	STM 18	18		32			90	64		0,98	218
	HSK-A 63	2	STM 22	22		40			100	74		1,26	222
	HSK-A 63	2	STM 28	28		50			100	74		1,58	228
	HSK-A 63	2	STM 36	36		63			120	94		2,41	236
	HSK-A 100	2	STM 36	36		63			120	91		3,77	536

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!



O-Ring



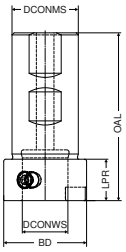
Clamping screw ST

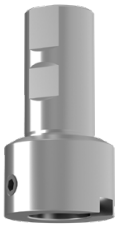
Spare parts DCONWS	Article no. 62 950 ...		Article no. 62 950 ...	
11	9x1,5	254	M4x0,5x6	026
14	12x1,5	255	M5x0,5x7,5	027
18	16x1,5	256	M6x0,75x9,5	028
22	19x2	257	M8x0,75x12	029
28	25x2	258	M10x1x14,2	030
36	33x2	259	M12x1x18	031

SpinTools – Adapters to DIN 1835-B

▲ with thro' coolant

STM



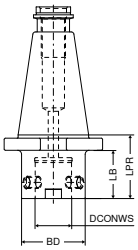


DIN 1835-B

DCONMS	BD	SZID	DCONWS	LPR	OAL	WT	Article no. 62 104 ...
mm	mm		mm	mm	mm	kg	
25	25	STM 14	14	15	72	0,24	**014**
32	32	STM 18	18	15	76	0,42	**018**
32	50	STM 28	28	35	96	0,72	**028**
32	63	STM 36	36	45	106	1,05	**036**

SpinTools – Base adapter DIN 2080

STM





short
SK

Adapter	SZID	DCONWS	BD	LPR	LB	WT	Article no. 62 109 ...
		mm	mm	mm	mm	kg	
SK 40	STM 36	36	63	60	48,4	1,52	**136**
SK 50	STM 36	36	63	63	47,8	3,33	**436**



O-Ring



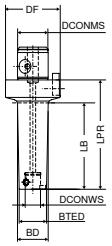
Clamping screw
ST

Spare parts DCONWS	O-Ring Article no. 62 950 ...		Clamping screw ST Article no. 62 950 ...	
14	12x1,5	**255**	M5x0,5x7,5	**027**
18	16x1,5	**256**	M6x0,75x9,5	**028**
28	25x2	**258**	M10x1x14,2	**030**
36	33x2	**259**	M12x1x18	**031**

SpinTools – Reductions

▲ With internal coolant supply

STM





STM Modular

Adapter	LPR	SZID	DCONMS	DCONWS	DF	BTED	BD	LB	WT	Article no. 62 357 ...
	mm		mm	mm	mm	mm	mm	mm	kg	
STM 11	30	STM 14	14	11	25	20	23	15	0,04	**111**
STM 11	30	STM 18	18	11	32	20	23	17	0,14	**211**
STM 14	30	STM 18	18	14	32	25	28	17	0,16	**214**
STM 11	30	STM 22	22	11	40	20	23	15	0,21	**311**
STM 14	30	STM 22	22	14	40	25	28	15	0,22	**314**
STM 18	30	STM 22	22	18	40	32	37	15	0,25	**318**
STM 11	40	STM 28	28	11	50	20	23	20	0,44	**411**
STM 14	40	STM 28	28	14	50	25	28	20	0,49	**414**
STM 18	40	STM 28	28	18	50	32	37	20	0,45	**418**
STM 22	40	STM 28	28	22	50	40	46	20	0,55	**422**
STM 11	40	STM 36	36	11	63	20	22	16	0,82	**511**
STM 11	70	STM 36	36	11	63	20	23	42	0,90	**811**
STM 11	95	STM 36	36	11	63	20	23	71	0,98	**611**
STM 11	115	STM 36	36	11	63	20	23	87	1,02	**911**
STM 11	135	STM 36	36	11	63	20	23	111	1,08	**711**
STM 14	40	STM 36	36	14	63	25	27	16	0,84	**514**
STM 14	80	STM 36	36	14	63	25	28	52	1,00	**814**
STM 14	120	STM 36	36	14	63	25	28	96	1,16	**614**
STM 14	145	STM 36	36	14	63	25	28	117	1,27	**914**
STM 14	170	STM 36	36	14	63	25	28	146	1,38	**714**
STM 18	40	STM 36	36	18	63	32	37	16	0,85	**518**
STM 18	100	STM 36	36	18	63	32	38	74	1,24	**818**
STM 18	150	STM 36	36	18	63	32	38	126	1,66	**918**
STM 18	207	STM 36	36	18	63	32	38	183	2,07	**618**
STM 22	40	STM 36	36	22	63	40	46	16	0,89	**522**
STM 22	120	STM 36	36	22	63	40	48	95	1,76	**822**
STM 22	183	STM 36	36	22	63	40	48	159	2,52	**622**
STM 22	263	STM 36	36	22	63	40	48	239	3,44	**722**
STM 28	40	STM 36	36	28	63	50	58	21	1,03	**528**
STM 28	140	STM 36	36	28	63	50	60	117	2,70	**828**
STM 28	233	STM 36	36	28	63	50	60	209	4,41	**628**
STM 28	333	STM 36	36	28	63	50	60	309	6,25	**728**

Reductions – Spare Parts



O-Ring



Screw for drivers



Driver



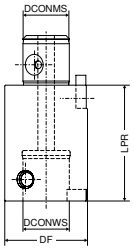
Clamping screw ST

Spare parts		Article no. 62 950 ...		Article no. 62 950 ...		Article no. 62 950 ...		Article no. 62 950 ...
for Article no.								
62 357 111	9x1,5	254	M2,5x6	163	6x10,3x4	036	M4x0,5x6	026
62 357 211	9x1,5	254	M3x8	164	8x15x5	037	M4x0,5x6	026
62 357 214	12x1,5	255	M3x8	164	8x15x5	037	M5x0,5x7,5	027
62 357 311	9x1,5	254	M4x10	165	10x18,1x6	038	M4x0,5x6	026
62 357 314	12x1,5	255	M4x10	165	10x18,1x6	038	M5x0,5x7,5	027
62 357 318	16x1,5	256	M4x10	165	10x18,1x6	038	M6x0,75x9,5	028
62 357 411	9x1,5	254	M5x10	166	12x20x6	039	M4x0,5x6	026
62 357 414	12x1,5	255	M5x10	166	12x20x6	039	M5x0,5x7,5	027
62 357 418	16x1,5	256	M5x10	166	12x20x6	039	M6x0,75x9,5	028
62 357 422	19x2	257	M5x10	166	12x20x6	039	M8x0,75x12	029
62 357 511	9x1,5	254	M6x12	167	16x26,5x8	040	M4x0,5x6	026
62 357 811	9x1,5	254	M6x12	167	16x26,5x8	040	M4x0,5x6	026
62 357 611	9x1,5	254	M6x12	167	16x26,5x8	040	M4x0,5x6	026
62 357 911	9x1,5	254	M6x12	167	16x26,5x8	040	M4x0,5x6	026
62 357 711	9x1,5	254	M6x12	167	16x26,5x8	040	M4x0,5x6	026
62 357 514	12x1,5	255	M6x12	167	16x26,5x8	040	M5x0,5x7,5	027
62 357 814	12x1,5	255	M6x12	167	16x26,5x8	040	M5x0,5x7,5	027
62 357 614	12x1,5	255	M6x12	167	16x26,5x8	040	M5x0,5x7,5	027
62 357 914	12x1,5	255	M6x12	167	16x26,5x8	040	M5x0,5x7,5	027
62 357 714	12x1,5	255	M6x12	167	16x26,5x8	040	M5x0,5x7,5	027
62 357 518	16x1,5	256	M6x12	167	16x26,5x8	040	M6x0,75x9,5	028
62 357 818	16x1,5	256	M6x12	167	16x26,5x8	040	M6x0,75x9,5	028
62 357 918	16x1,5	256	M6x12	167	16x26,5x8	040	M6x0,75x9,5	028
62 357 618	16x1,5	256	M6x12	167	16x26,5x8	040	M6x0,75x9,5	028
62 357 522	19x2	257	M6x12	167	16x26,5x8	040	M8x0,75x12	029
62 357 822	19x2	257	M6x12	167	16x26,5x8	040	M8x0,75x12	029
62 357 622	19x2	257	M6x12	167	16x26,5x8	040	M8x0,75x12	029
62 357 722	19x2	257	M6x12	167	16x26,5x8	040	M8x0,75x12	029
62 357 528	25x2	258	M6x12	167	16x26,5x8	040	M10x1x14,2	030
62 357 828	25x2	258	M6x12	167	16x26,5x8	040	M10x1x14,2	030
62 357 628	25x2	258	M6x12	167	16x26,5x8	040	M10x1x14,2	030
62 357 728	25x2	258	M6x12	167	16x26,5x8	040	M10x1x14,2	030

SpinTools – Extensions

▲ With internal coolant supply

STM





STM Modular

Adapter	LPR	SZID	DCONWS	DF	DCONMS	WT	Article no. 62 351 ...
	mm		mm	mm	mm	kg	
STM 11	25	STM 11	11	20	11	0,06	**111**
STM 11	35	STM 11	11	20	11	0,09	**211**
STM 14	30	STM 14	14	25	14	0,11	**114**
STM 14	45	STM 14	14	25	14	0,17	**214**
STM 18	40	STM 18	18	32	18	0,23	**118**
STM 18	60	STM 18	18	32	18	0,35	**218**
STM 22	50	STM 22	22	40	22	0,45	**122**
STM 22	80	STM 22	22	40	22	0,73	**222**
STM 28	50	STM 28	28	50	28	0,71	**128**
STM 28	75	STM 28	28	50	28	1,07	**228**
STM 28	100	STM 28	28	50	28	1,44	**328**
STM 36	60	STM 36	36	63	36	1,33	**136**
STM 36	90	STM 36	36	63	36	2,02	**236**
STM 36	120	STM 36	36	63	36	2,72	**336**



O-Ring



Screw for drivers



Driver

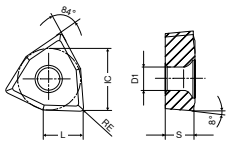


Clamping screw ST

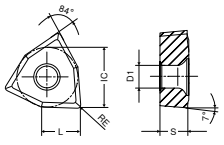
Spare parts DCONWS		Article no. 62 950 ...		Article no. 62 950 ...		Article no. 62 950 ...		Article no. 62 950 ...
11	9x1,5	**254**	M2x2,5	**162**	5x8,5x3	**035**	M4x0,5x6	**026**
14	12x1,5	**255**	M2,5x6	**163**	6x10,3x4	**036**	M5x0,5x7,5	**027**
18	16x1,5	**256**	M3x8	**164**	8x15x5	**037**	M6x0,75x9,5	**028**
22	19x2	**257**	M4x10	**165**	10x18,1x6	**038**	M8x0,75x12	**029**
28	25x2	**258**	M5x10	**166**	12x20x6	**039**	M10x1x14,2	**030**
36	33x2	**259**	M6x12	**167**	16x26,5x8	**040**	M12x1x18	**031**

WCMT / WCGT

Designation	L	S	D1	IC
	mm	mm	mm	mm
WCGT 0201..	2,71	1,59	2,1	3,97
WCMT 0201..	4,34	1,59	2,1	3,97

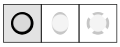
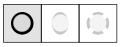
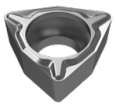
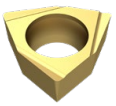


WCMT



WCGT

WCMT / WCGT

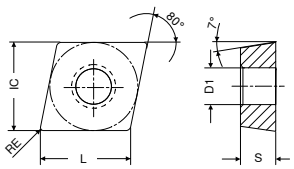
	CWC06	CWN10	CWP25
			
			
	F	**F**	**F**
	CERMET		
	WCMT	WCGT	WCGT
ISO RE mm	**Article no. 70 294 ...**	**Article no. 70 295 ...**	**Article no. 70 295 ...**
020102 0,2	**850**	**850**	**500**
020104 0,4		**852**	
Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●	●	○
Non ferrous metals	●	●	●
Heat resistant alloys	○	●	
hardened materials		●	

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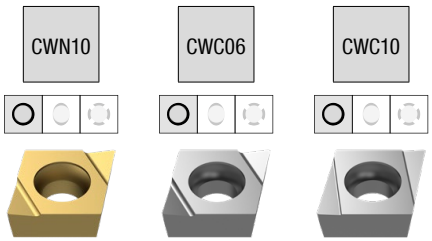
Additional inserts can be found in → **Chapter 9, Turning Tools**

CCGT

Designation	L	S	D1	IC
	mm	mm	mm	mm
CCGT 06..	6,4	2,38	2,8	6,35
CCGT 09..	9,7	3,97	4,4	9,52



CCGT



		F	F	F
			CERMET	CERMET
		CCGT	CCGT	CCGT
ISO	RE	Article no. 70 296 ...	Article no. 70 296 ...	Article no. 70 300 ...
	mm			
060202L	0,2	300	850	903
060204L	0,4	302	852	905
09T302L	0,2	304	854	911
09T304L	0,4	306	856	913
Steel		●	●	●
Stainless steel		●	○	●
Cast iron		●	●	●
Non ferrous metals		●	●	
Heat resistant alloys		●	○	
hardened materials		●		

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Additional inserts can be found in → **Chapter 9, Turning Tools**

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

5

Cutting data standard values for precision adjustment heads

Fine machining with depth of cut a_p = 0.1 - 0.2 mm

	Insert								Tool diameter	● 1st choice ○ suitable		
	BK8440	BK8425	BK2710	K10	BK60	BK6110	BK7615	CBN40	Ø 6-125	Emulsion	Compressed air	MMS
Index	v_c m/min	v_c m/min	v_c m/min	v_c m/min	v_c m/min	v_c m/min	v_c m/min	v_c m/min	f (mm/U)			
1.1	**150–220**	**150–240**	**150–240**		**150–240**	150-240			0,04-0,12	●	○	
1.2	**150–220**	**150–240**	**150–240**		**150–240**	150-240			0,04-0,12	●	○	
1.3	**150–220**	**150–240**	**150–240**		**150–240**	150-240			0,04-0,10	●	○	
1.4	**150–220**	**150–240**	**150–240**		**150–240**	150-240			0,04-0,10	●	○	
1.5	**150–220**	**150–240**	**150–240**		**150–240**	150-240			0,04-0,10	●	○	
1.6	**150–220**	**150–240**	**150–240**		**150–240**	150-240			0,04-0,10	●	○	
1.7	**150–220**	**150–240**	**150–240**		**150–240**	150-240			0,04-0,10	●	○	
1.8	**150–220**	**150–240**	**150–240**		**150–240**	150-240			0,04-0,10	○	●	
1.9	**150–220**	**150–240**	**150–240**		**150–240**	150-240			0,04-0,10	○	●	
1.10	**150–220**	**150–240**	**150–240**		**150–240**	150-240			0,04-0,10	○	●	
1.11	**150–220**	**150–240**	**150–240**		**150–240**	150-240			0,04-0,10	○	●	
1.12	**150–220**	**150–240**	**150–240**		**150–240**	150-240			0,04-0,10	○	●	
1.13	**150–220**	**150–240**	**150–240**		**150–240**	150-240			0,04-0,10	○	●	
1.14	**60–120**	**60–120**	**60–120**		**60–120**	60-120			0,02-0,08	○	●	
1.15	**60–120**	**60–150**	**60–150**		**60–150**	60-150			0,03-0,10	○	●	
1.16	**100–150**	**100–150**	**100–150**		**100–150**	100-150			0,03-0,10	○	●	
2.1	**100–150**	**100–150**	**100–150**						0,01-0,10	●		
2.2	**100–150**	**100–150**	**100–150**						0,01-0,10	●		
2.3	**100–150**	**100–150**	**100–150**						0,01-0,10	●		
2.4	**100–120**	**100–120**	**100–120**						0,01-0,10	●		
2.5	**100–140**	**100–140**	**100–140**						0,01-0,10	●		
2.6	**100–140**	**100–140**	**100–140**						0,01-0,10	●		
2.7	**80–100**	**80–100**	**80–100**						0,01-0,10	●		
3.1		**120–180**	**120–180**			**120–180**	**120–180**		0,03-0,15	○	●	
3.2		**120–180**	**120–180**			**120–180**	**120–180**		0,03-0,15	○	●	
3.3		**120–180**	**120–180**			**120–180**	**120–180**		0,03-0,15	○	●	
3.4		**120–180**	**120–180**			**120–180**	**120–180**		0,03-0,15	○	●	
3.5		**120–180**	**120–180**			**120–180**	**120–180**		0,03-0,15	○	●	
3.6		**120–180**	**120–180**			**120–180**	**120–180**		0,03-0,15	○	●	
3.7		**120–180**	**120–180**			**120–180**	**120–180**		0,03-0,15	○	●	
3.8		**120–180**	**120–180**			**120–180**	**120–180**		0,03-0,15	○	●	
4.1				**0–500**					0,02-0,12	●		
4.2				**0–500**					0,02-0,12	●		
4.3				**0–500**					0,02-0,12	●		
4.4				**0–500**					0,02-0,12	●		
4.5				**0–500**					0,02-0,12	●		
4.6				**0–500**					0,02-0,12	●		
4.7				**0–500**					0,02-0,12	●		
4.8												
4.9												
4.10												
4.11				**0–500**					0,02-0,12	●		
4.12				**0–500**					0,02-0,12	●		
4.13												
4.14												
4.15												
4.16												
4.17												
4.18												
4.19												
5.1												
5.2												
5.3												
5.4												
5.5				**20–50**					0,01-0,08	●		
5.6												
5.7				**20–50**					0,01-0,08	●		
5.8												
5.9				**15–30**					0,01-0,08	●		
5.10				**15–30**					0,01-0,08	●		
5.11				**15–30**					0,01-0,08	●		
6.1								**80**	0,04-0,08		●	
6.2								**60**	0,04-0,08		●	
6.3								**60**	0,04-0,08		●	
6.4											●	
6.5												

Cutting data values for rough boring heads

Depth of cut a_p = 2.5 – 7 mm

	Insert					Tool Ø (mm)				● 1st choice ○ suitable		
	CTCP125 (HCX1125)	CTCP115 (HCX1115)	CTCP135 (HCR1135)	CTC2135 (CWN2135)	H10T (CWK15)	Ø 23,5–40,5	Ø 40,5–66,5	Ø 66,5–87,5	Ø 87,5–153	Emulsion	Compressed air	MMS
Index	v_c m/min	v_c m/min	v_c m/min	v_c m/min	v_c m/min	f (mm/U)	f (mm/U)	f (mm/U)	f (mm/U)			
1.1	**180–240**	**150–190**	**160–200**	160–210		0,3–0,4	0,4–0,5	0,5–0,7	0,6–0,8	●	○	○
1.2	**230–280**	**170–220**	**170–220**	180–230		0,3–0,4	0,4–0,5	0,5–0,7	0,6–0,8	●	○	○
1.3	**240–290**	**170–210**	**150–190**	150–190		0,3–0,4	0,4–0,5	0,5–0,7	0,6–0,8	●	○	○
1.4	**180–250**	**160–200**	**160–200**	150–190		0,3–0,5	0,4–0,6	0,5–0,7	0,6–0,8	●	○	○
1.5	**200–240**	**170–230**	**140–190**	140–190		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	●	○	○
1.6	**190–240**	**160–240**	**150–210**	150–210		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	●	○	○
1.7	**180–280**	**130–190**	**150–190**	150–200		0,3–0,5	0,4–0,6	0,5–0,7	0,6–0,8	●	○	○
1.8	**150–210**	**130–180**	**130–170**	130–170		0,3–0,5	0,4–0,6	0,5–0,7	0,6–0,8	○	●	
1.9	**140–200**	**150–210**	**150–180**	160–190		0,3–0,5	0,4–0,6	0,5–0,7	0,6–0,8	○	●	
1.10	**170–220**	**160–200**	**130–180**	130–170		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	○	●	
1.11	**160–220**	**150–200**	**120–160**	130–170		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	○	●	
1.12	**170–240**	**170–210**	**140–190**	160–190		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	○	●	
1.13	**160–230**	**130–190**	**120–170**	120–180		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	○	●	
1.14	**150–190**	**150–200**	**110–150**	120–170		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	○	●	
1.15	**150–210**	**130–200**	**100–140**	100–150		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	○	●	
1.16	**150–190**	**130–200**	**100–140**	100–150		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	○	●	
2.1	200–280		140–200	**140–220**		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	●		
2.2	200–260		140–190	**160–240**		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	●		
2.3	190–260		110–190	**130–200**		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	●		
2.4	190–240		100–180	**120–190**		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	●		
2.5			80–150	**100–160**		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	●		
2.6			55–75	**90–120**		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	●		
2.7			55–75	**90–120**		0,3–0,4	0,4–0,5	0,4–0,6	0,6–0,8	●		
3.1	130–160	150–220			120–160	0,3–0,5	0,4–0,6	0,6–0,8	0,6–1,0	○	●	
3.2	120–170	130–220			90–140	0,3–0,5	0,4–0,6	0,6–0,8	0,6–1,0	○	●	
3.3	130–180	200–360			130–170	0,3–0,5	0,4–0,6	0,6–0,8	0,6–1,0	○	●	
3.4	100–180	180–220			90–130	0,3–0,5	0,4–0,6	0,6–0,8	0,6–1,0	○	●	
3.5	150–200	160–350			140–200	0,3–0,5	0,4–0,6	0,6–0,8	0,6–1,0	○	●	
3.6	130–160	160–260			120–160	0,3–0,5	0,4–0,6	0,6–0,8	0,6–1,0	○	●	
3.7	150–200	180–350			140–200	0,3–0,5	0,4–0,6	0,6–0,8	0,6–1,0	○	●	
3.8	130–180	180–350			120–160	0,3–0,5	0,4–0,6	0,6–0,8	0,6–1,0	○	●	
4.1					**300–2500**	0,3–0,5	0,4–0,7	0,5–0,7	0,6–0,8	●		○
4.2					**200–2500**	0,3–0,5	0,4–0,7	0,5–0,7	0,6–0,8	●		○
4.3					**400–2000**	0,3–0,5	0,4–0,7	0,5–0,7	0,6–0,8	●		○
4.4					**400–1600**	0,3–0,5	0,4–0,7	0,5–0,7	0,6–0,8	●		○
4.5					**200–1000**	0,3–0,5	0,4–0,7	0,5–0,7	0,6–0,8	●		○
4.6					**150–300**	0,3–0,5	0,4–0,7	0,5–0,7	0,6–0,8	●		○
4.7					**250–600**	0,3–0,5	0,4–0,7	0,5–0,7	0,6–0,8	●		○
4.8					**150–400**							
4.9					**150–400**							
4.10					**150–400**							
4.11					**150–300**	0,3–0,5	0,4–0,7	0,5–0,7	0,6–0,8	●		○
4.12					**130–350**	0,3–0,5	0,4–0,7	0,5–0,7	0,6–0,8	●		○
4.13					**100–200**							
4.14					**80–160**							
4.15					**60–150**							
4.16												
4.17												
4.18					**60–140**					●		
4.19												
5.1			20–40	**20–40**						●		
5.2		15–40	20–40	**20–40**						●		
5.3		15–40	8–25	**15–35**						●		
5.4		15–40	8–25	**15–35**						●		
5.5		15–30	4–15	**8–25**						●		
5.6		15–30	4–15	**4–15**						●		
5.7		15–30	4–15	**4–15**						●		
5.8		15–30	4–12	**4–15**						●		
5.9			80–130	**80–130**	60–120					●		
5.10			15–35	**15–35**	30–80					●		
5.11			15–35	**15–35**	30–80					●		
6.1						0,05–0,16	0,05–0,16	0,05–0,16	0,05–0,16		●	
6.2						0,05–0,16	0,05–0,16	0,05–0,16	0,05–0,16		●	
6.3						0,05–0,16	0,05–0,16	0,05–0,16	0,05–0,16		●	
6.4						0,05–0,16	0,05–0,16	0,05–0,16	0,05–0,16		●	
6.5												

5

Cutting data values for fine and rough boring heads

Fine machining with depth of cut a_p = 0.1 – 0.4 mm

	Insert			Boring tools with carbide cutting edge	Tool diameter		● 1st choice ○ suitable		
	CWN10 CWP25	CWC06	CWC10	K10	Ø 3–200	Ø 200–655	Emulsion	Compressed air	MMS
Index	v_c m/min	v_c m/min	v_c m/min	v_c m/min	f (mm/U)	f (mm/U)			
1.1	150–220	**200–300**	**100–250**	150–200	0,05–0,16	0,08–0,2	●	○	○
1.2	150–220	**200–300**	**100–250**	150–200	0,05–0,16	0,08–0,2	●	○	○
1.3	150–220	**200–300**	**100–250**	150–200	0,05–0,16	0,08–0,2	●	○	○
1.4	150–220	**200–300**	**100–250**	150–200	0,05–0,16	0,08–0,2	●	○	○
1.5	150–220	**200–300**	**80–200**	150–200	0,05–0,16	0,08–0,2	●	○	○
1.6	150–220	**200–300**	**80–200**	150–200	0,05–0,16	0,08–0,2	●	○	○
1.7	150–220	**200–300**	**80–200**	150–200	0,05–0,16	0,08–0,2	●	○	○
1.8	150–220	**200–300**	**80–200**	150–200	0,05–0,16	0,08–0,2	○	●	
1.9	150–220	**200–300**	**80–150**	150–200	0,05–0,16	0,08–0,2	○	●	
1.10	150–220	**200–300**	**100–250**	150–200	0,05–0,16	0,08–0,2	○	●	
1.11	150–220	**200–250**	**100–250**	80–120	0,05–0,16	0,08–0,2	○	●	
1.12	150–220	**200–250**	**80–200**	80–120	0,05–0,16	0,08–0,2	○	●	
1.13	120–150	**150–180**	**80–200**	50–80	0,05–0,16	0,08–0,2	○	●	
1.14	120–150	**150–180**	**80–200**	50–80	0,05–0,16	0,08–0,2	○	●	
1.15	120–150	**150–180**	**80–200**	50–80	0,05–0,16	0,08–0,2	○	●	
1.16	120–150	**150–180**	**80–200**	50–80	0,05–0,16	0,08–0,2	○	●	
2.1	100–140	100–140	**100–140**	80–120	0,05–0,16	0,08–0,2	●		
2.2	100–140	100–140	**100–140**	80–120	0,05–0,16	0,08–0,2	●		
2.3	100–140	100–140	**100–140**	80–120	0,05–0,16	0,08–0,2	●		
2.4	80–120	80–120	**100–120**	60–80	0,05–0,16	0,08–0,2	●		
2.5	100–140	100–140	**100–140**	80–120	0,05–0,16	0,08–0,2	●		
2.6	100–140	100–140	**100–140**	80–120	0,05–0,16	0,08–0,2	●		
2.7	80–100	80–100	**100–140**	40–60	0,05–0,16	0,08–0,2	●		
3.1	140–180	**140–180**	**200–250**	120–150	0,05–0,16	0,08–0,2	○	●	
3.2	140–180	**140–180**	**200–250**	120–150	0,05–0,16	0,08–0,2	○	●	
3.3	140–180	**140–180**	**100–150**	120–150	0,05–0,16	0,08–0,2	○	●	
3.4	120–160	**120–160**	**100–150**	100–130	0,05–0,16	0,08–0,2	○	●	
3.5	140–180	**140–180**	**200–250**	120–150	0,05–0,16	0,08–0,2	○	●	
3.6	120–160	**120–160**	**100–150**	100–130	0,05–0,16	0,08–0,2	○	●	
3.7	140–180	**140–180**	**200–250**	120–150	0,05–0,16	0,08–0,2	○	●	
3.8	120–160	**120–160**	**100–150**	100–130	0,05–0,16	0,08–0,2	○	●	
4.1	0–800	**0–800**		0–500	0,05–0,16	0,08–0,2	●		○
4.2	0–800	**0–800**		0–500	0,05–0,16	0,08–0,2	●		○
4.3	0–800	**0–800**		0–500	0,05–0,16	0,08–0,2	●		○
4.4	0–800	**0–800**		0–500	0,05–0,16	0,08–0,2	●		○
4.5	0–800	**0–800**		0–500	0,05–0,16	0,08–0,2	●		○
4.6	0–800	**0–800**		0–500	0,05–0,16	0,08–0,2	●		○
4.7	0–800	**0–800**		0–500	0,05–0,16	0,08–0,2	●		○
4.8						0,08–0,2			
4.9						0,08–0,2			
4.10						0,08–0,2			
4.11	0–800	**0–800**		0–500	0,05–0,16	0,08–0,2	●		○
4.12	0–800	**0–800**		0–500	0,05–0,16	0,08–0,2	●		○
4.13									
4.14									
4.15									
4.16									
4.17									
4.18									
4.19									
5.1	30–80*								
5.2	30–80*								
5.3	30–80*								
5.4	30–80*								
5.5	30–80*								
5.6	30–80*								
5.7	30–80*								
5.8	30–80*								
5.9	30–80*								
5.10	30–80*								
5.11	30–80*								
6.1	120–220*				0,05–0,16	0,05–0,16		●	
6.2	70–180*				0,05–0,16	0,05–0,16		●	
6.3	50–150*				0,05–0,16	0,05–0,16		●	
6.4	40–120*				0,05–0,16	0,05–0,16		●	
6.5									

Correction factor (Kf v_c) for the cutting speed (v_c) depending on overhang:

Kf v_c = 1,0 to 4xD
Kf v_c = 0,8 to 5xD
Kf v_c = 0,6 to 6xD

* Only CWN10

Cutting data values for Micro boring heads

	Boring bars / inserts		● 1st choice ○ suitable		
	TiN		Emulsion	Compressed air	MMS
Index	v_c m/min	f (mm/U)			
1.1	**190**	**0,02**	●		
1.2	**210**	**0,02**	●		
1.3	**190**	**0,02**	●		
1.4	**170**	**0,02**	●		
1.5	**180**	**0,02**	●		
1.6	**180**	**0,02**	●		
1.7	**170**	**0,02**	●		
1.8	**170**	**0,02**	●		
1.9	**110**	**0,02**	●		
1.10	**120**	**0,02**	●		
1.11	**100**	**0,02**	●		
1.12	**160**	**0,02**	●		
1.13	**140**	**0,02**	●		
1.14	**60**	**0,02**	●		
1.15	**100**	**0,02**	●		
1.16	**110**	**0,02**	●		
2.1	**80**	**0,02**	●		
2.2	**85**	**0,02**	●		
2.3	**75**	**0,02**	●		
2.4	**70**	**0,02**	●		
2.5	**75**	**0,02**	●		
2.6	**75**	**0,02**	●		
2.7	**70**	**0,02**	●		
3.1	**200**	**0,02**	●		
3.2	**150**	**0,02**	●		
3.3	**120**	**0,02**	●		
3.4	**110**	**0,02**	●		
3.5	**180**	**0,02**	●		
3.6	**150**	**0,02**	●		
3.7	**180**	**0,02**	●		
3.8	**150**	**0,02**	●		
4.1	**300**	**0,02**	●		
4.2	**240**	**0,02**	●		
4.3	**240**	**0,02**	●		
4.4	**180**	**0,02**	●		
4.5	**180**	**0,02**	●		
4.6	**290**	**0,02**	●		
4.7	**290**	**0,02**	●		
4.8	**240**	**0,02**	●		
4.9	**230**	**0,02**	●		
4.10	**210**	**0,02**	●		
4.11	**290**	**0,02**	●		
4.12	**290**	**0,02**	●		
4.13	**300**	**0,02**	●		
4.14	**280**	**0,02**	●		
4.15	**250**	**0,02**	●		
4.16	**220**	**0,02**	●		
4.17	**300**	**0,02**	●		
4.18	**60**	**0,02**	●		
4.19	**60**	**0,02**	●		
5.1	**60**	**0,02**	●		
5.2	**40**	**0,02**	●		
5.3	**30**	**0,02**	●		
5.4	**20**	**0,02**	●		
5.5	**20**	**0,02**	●		
5.6	**20**	**0,02**	●		
5.7	**20**	**0,02**	●		
5.8	**20**	**0,02**	●		
5.9	**30**	**0,02**	●		
5.10	**40**	**0,02**	●		
5.11	**25**	**0,02**	●		
6.1	120	0,02	●		
6.2	110	0,02	●		
6.3	95	0,02	●		
6.4	70	0,02	●		
6.5	50	0,02	●		

Maximum Speeds and Scale Accuracy

Maximum speeds for fine boring heads Ø 3–88.1 mm

Boring range	Offset X = ≤ 0,5 mm n_{max} in $1/_{min}$	Offset X = > 0,5 mm n_{max} in $1/_{min}$
Ø 3–20 mm	16000	6000
Ø 20–48 mm	12000	4000
Ø 48–88 mm	8000	2000



Maximum speeds for rough boring heads Ø 23.5–153 mm

Boring range	Maximum speed n_{max} in $1/_{min}$
Ø 24–31 mm	12000
Ø 31–40 mm	10000
Ø 40–51 mm	8000
Ø 51–68 mm	6500
Ø 67–87 mm	5000
Ø 87–116 mm	4000
Ø 116–153 mm	3000



The specified maximum speeds refer to an overhang length of up to 4xD.

For longer overhangs the maximum speeds should be reduced as follows:

5xD = 80 % n_{max}
6xD = 60 % n_{max}

> 6xD n_{max} identify with caution

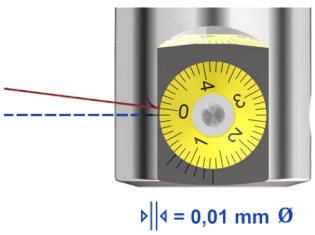
Maximum spindle speed for single point boring heads Ø 24–154 mm

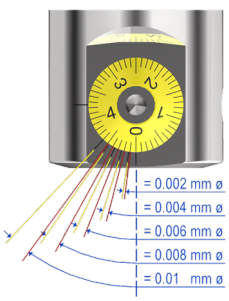
Boring range	Maximum speed with unbalanced system n_{max} in $1/_{min}$	Maximum speed with Balanced System n_{max} in $1/_{min}$
Ø 24–31 mm	9000	12000
Ø 31–40 mm	7500	10000
Ø 40–51 mm	5250	8000
Ø 51–67 mm	4000	6500
Ø 67– 87 mm	3000	5000
Ø 87–116 mm	2500	4000
Ø 116–153 mm	1750	3000



Large scale with 0.002 mm adjustment

How it works:

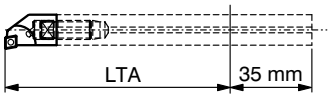




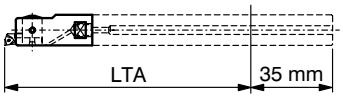
Maximum overhang length LTA

▲ Clamping length 35 mm

Boring bar		High Speed Boring Head 62 361 ...																Fine boring head 62 304 ...		
62 353 ...		014	015	016	017	018	019	020	021	022	023	025	027	030	033	037	040	017	020	024
008	LTA mm	**56**																		
009			**63**																	
010				**70**																
011					**77**															
012						**84**														
013							**91**													
014								**98**	**98**									**115**		
016										**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**		**125**	
018																				**105**
118																				**145**
218																				**185**



High Speed Boring Head 62 361 ...



Fine boring head 62 304 ...

5

Coatings

K10

- ▲ Carbide, uncoated
- ▲ ISO | **K10**
- ▲ Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

BK2710

- ▲ Carbide, TiAlN-coated
- ▲ ISO | P10 | M10 | **K10**
- ▲ Extremely wear-resistant carbide grade for machining stainless steels, structural steels and tool steels as well as cast iron materials

BK8440

- ▲ Carbide, TiCN-TiN-coated
- ▲ ISO | **P35** | M10
- ▲ Very tough carbide grade for medium cutting speeds and interrupted cut

BK7615

- ▲ Carbide, TiCN-Al_2O_3-coated
- ▲ ISO | **K15**
- ▲ Highly productive grade with extreme edge stability for wet and dry machining of all cast iron materials

TiN

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

CWN10

- ▲ Carbide, TiN-coated
- ▲ ISO | **K10**
- ▲ The carbide grade for machining steels, stainless steels and non-ferrous metals

CWC10

- ▲ Cermet, uncoated
- ▲ ISO | **P15** | **M10** | K10
- ▲ The uncoated cermet grade for finish machining stainless and hardened steel
- ▲ Particularly wear resistant thanks to high heat resistance

BK60

- ▲ Carbide, TiC-TiCN-TiN-coated
- ▲ ISO | P25 | **M10**
- ▲ Multi-layer coating for long service life even in the upper cutting speed range

CBN40

- ▲ Cubic boron nitride, uncoated
- ▲ ISO | **H05**
- ▲ Uncoated cutting material made of cubic boron nitride for machining hardened steels over 45 HRC, heat-resistant nickel-based or cobalt-based alloys

BK8425

- ▲ Carbide, TiAlN/TiN-coated
- ▲ ISO | **P25** | **M25** | **K25**
- ▲ Universal grade with greater wear resistance thanks to innovative PVD multi-layer coating

BK6110

- ▲ Carbide, TiCN-TiN-Al_2O_3-coated
- ▲ ISO | P10 | **K10**
- ▲ Wear-resistant carbide for machining cast iron and steel materials

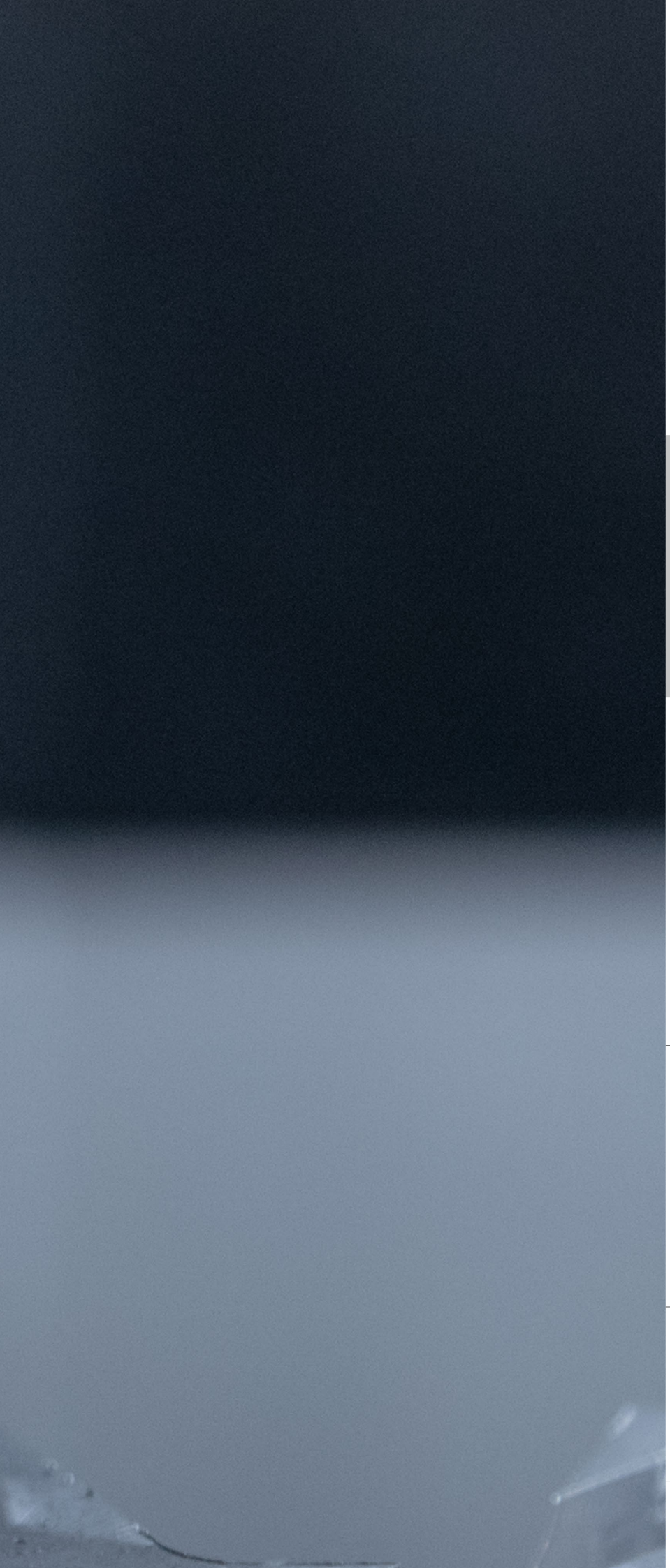
CWC06

- ▲ Cermet, TiC/TiN-coated
- ▲ ISO | **P10** | M10 | **K10** | N10
- ▲ Coated cermet grade for fine boring at high cutting speed and with a uniform cut

CWP25

- ▲ Carbide, uncoated
- ▲ ISO | **P25** | **M25** | K25 | **N25** | S25
- ▲ Uncoated carbide grade for fine boring with large hole depths and small machining allowances





Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut
11 Grooving Tools
12 Miniature turning tools

Milling

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

Tool clamping

16 Adapters
17 Accessories

18 Material examples and article no. index

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WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Chamfer form

B 4–5	Form B (with spiral point, 4 – 5 cutting leads)
C 2–3	Form C (without spiral point, 2 – 3 cutting leads)
D 4–5	Form D (without spiral point, 4 – 5 cutting leads)
E 1,5–2	Form E (without spiral point, 1,5 – 2 cutting leads)

Helix angle

◁ 42°	Example: helix angle 42°

Tolerances

ISO 2 6H	Explanation of the tolerances can be found on → **Page 114.**

Tensile strength

≤ 1100 N/mm²	Example up to 1100 N/mm²



Tap Material

HSS	High-speed steel
HSS-E	High-performance high speed steel
HSS-PM	High-performance sintered high-speed steel
VHM	Solid carbide

Coloured rings

WNT \ Performance

An explanation of the coloured rings can be found on → **Page 117.**

Thread types

M	Explanation of the thread types can be found on → **Page 3.**

Version

	Int. coolant supply

Tap types

Tool type

WNT \ Performance

Stabil	for through holes to 4xD	**Salo-Rex**	for blind holes up to 3xD, high helix angle for secure chip evacuation	**TWIN**	straight flutes for through and blind holes up 2xD
DL	left hand helix for through holes up to 4xD	**SL**	for blind holes up to 2xD, 15°, 25° or 30° helix angle	**Spanlos**	thread former for through and blind holes up to 3xD

A detailed explanation of the types of tools can be found on → **Page 113**.

Application range

WNT \ Performance

UNI	for universal application	**ST**	for good quality free machining steel	**VG**	for tempered and heat-resistant steels < 1100 N/mm²
HR	for high-tensile steels < 1400 N/mm²	**GG**	for cast iron	**VA**	for stainless and acid-resistant steels up to 1100 N/mm²
NW	for aluminium	**Soft**	for soft materials	**Ms**	for short chipping brass
Ti	for titanium and titanium alloys	**Ni**	special for Inconel 718	**AMPCO**	for Ampco alloys
HT	for hardened steel and chilled iron up to 55 HRc	**EC**	Spanlos – thread former for universal application	**NEO**	Spanlos – thread former for heat resistant alloys
ERGO	hand taps for stainless, heat-resistant and heat-treated steels up to 1100 N/mm²	**ERGO F.T.**	hand tap for steel up to 1400 N/mm², wolfram, chilled iron	**FE**	dies for steel

WNT \ Standard

UNI	for universal application up to 1000 N/mm²	**FE**	for steel to 850 N/mm²	**FE-HF**	for high-tensile steel to 1100 N/mm ²
VA	for corrosion and acid-resistant steels	**GG**	for cast iron	**AL**	for aluminium and aluminium alloys

Special Features

CNC	for synchronised CNC machining with minimum length compensation chuck	**NC**	for synchronised CNC machining with minimum length compensation chuck	**NCW**	with Weldon flat for synchronised CNC machining without length compensation chuck
AZ	with intermittent teeth, reduces friction	**S**	with back taper, for deep threads	**DRY**	for dry machining or minimum quantity lubrication (MMS)
TS	for high-speed machining, up to 100 m/min.	**LH**	for left hand threads	**EL**	extra long, with double overall length
AUT	short version for automatic use	**SN**	thread formers with lubrication grooves	**ES**	extra short
MMB	machine taps	**R_z=1**	lapped dies		

Thread types

M	ISO metric coarse thread DIN 13	**UNF**	Unified fine thread ASME – B1.1	**NPTF**	American taper pipe thread with sealing (1:16) ANSI/ASME – B1.20.3
EG M	ISO Metric coarse thread for wire inserts DIN 8140-2	**EG UNF**	EG Unified fine thread for wire inserts ASME – B18.29.1	**Rp**	Cyl. Whitworth coarse thread DIN EN 10226-1 (ISO7-1)
MF	ISO Metric fine thread DIN 13	**UNJC**	Unified coarse thread ASME – B1.15 and ISO 3161	**Rc**	Whitworth taper pipe thread (1:16) DIN EN 10226-2 (ISO7-1)
G	Whitworth pipe thread DIN EN ISO 228	**UNJF**	Unified fine thread ASME – B1.15 and ISO 3161	**Tr**	ISO metric trapezoidal thread DIN 103
UNC	Unified coarse thread ASME – B1.1	**BSW**	Whitworth thread BS84		
EG UNC	EG Unified coarse thread for wire inserts ASME – B18.29.1	**NPT**	American taper pipe thread with sealing (1:16) ANSI/ASME – B1.20.1		

The thread types BSW, NPTF, Rp and Rc as well as hand taps and dies are now available in the online shop.

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Toolfinder – WNT Performance

Thread formers

for cold-formable materials

HSS taps

-  Through hole – Blind hole

for universal application up to 1100 N/mm²

-  Through hole
-  Blind hole

for steel up to 750 N/mm²

-  Through hole
-  Blind hole
-  Through hole – Blind hole

for steel up to 1400 N/mm²

-  Through hole
-  Blind hole
-  Through hole – Blind hole

for corrosion and acid-resistant steels

-  Through hole
-  Blind hole

for cast iron materials

-  Through hole – Blind hole

for heat-resistant materials

-  Through hole
-  Blind hole
-  Through hole – Blind hole

for aluminium and non-ferrous metal

-  Through hole
-  Blind hole

Hard materials

-  Through hole – Blind hole

For tools for other applications, refer to the taps overview on → **Pages 8–20.**

Shank extensions for taps and thread-cutting oils can be found in our online shop at cuttingtools.ceratizit.com

WNT \ Performance

Tool type	Application range	M	EG M	MF	G	UNC	EG UNC	UNJC	UNF	EG UNF	UNJF	BSW	NPT	NPTF	Rp	Rc	Tr
Spanlos	EC	59–61		81	89	94			103								
Stabil	UNI	21–23	63	65+66	83	90	95		98	104		🛒					
Salo-Rex	UNI	35–38	64	69	85	92	96		100	105		🛒	🛒				
Stabil	ST	24+25		66	83												109
Salo-Rex	ST	39–41		71+72	86												
TWIN	ST	52+53 56		78–80	88								108	🛒	🛒	🛒	
Stabil	HR	25															
Salo-Rex	HR	39–41															
TWIN	HR	52+53		78+79	88												
Stabil	VA	26			83	90											
Salo-Rex	VA	42		74	86	92			100				106				
TWIN	GG	54		79													
Stabil	Ti	27				90			98		🛒						
SL	Ti	44				🛒		97	101		🛒						
TWIN	AMPCO	52															
Stabil	NW	26															
Salo-Rex	NW	43		74													
TWIN	HT	55		78													

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Toolfinder – WNT Standard

Thread formers

for cold-formable materials

-  Through hole – Blind hole

HSS taps

for universal application up to 1000 N/mm²

-  Through hole
-  Blind hole

for steel to 850 N/mm²

-  Through hole
-  Blind hole

for high-tensile steels up to 1100 N/mm²

-  Through hole
-  Blind hole

for corrosion and acid-resistant steels

-  Through hole
-  Blind hole

for cast iron materials

-  Through hole – Blind hole

for aluminium and non-ferrous metal

-  Through hole
-  Blind hole

For tools for other applications, refer to the taps overview on → **Pages 8–20.**

Shank extensions for taps and thread-cutting oils can be found in our online shop at cuttingtools.ceratizit.com

Application range	WNT \ Standard M	MF	G	UNC	UNF
UNI	62	82			
UNI	31+32	67+68	84	91	99
UNI	49+50	75+76	87	93	102
FE	32+34	68		91	99
FE	50	76		93	102
FE-HF	32	68		91	
FE-HF	50	76		93	
VA	33	68		91	99
VA	50+51	77		93	102
GG	58				
AL	33				
AL	51				

Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Universal				Stabil	UNI	ISO 2 6H ISO 3 6G 7G	HSS-E	■			21+22	
Universal					UNI	ISO 2 6H	HSS-E HSS-PM	■				31
Universal				Stabil	UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck	23	
Universal					UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck		32
Universal				Stabil	UNI DRY	ISO 2X 6HX	HSS-E	■		for dry machining or minimum quantity lubrication (MMS)	🛒	
Universal				Stabil	UNI CNC	ISO 2X 6HX ISO 3X 6GX 7GX	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	23	
Universal					UNI NC	ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		32
Universal				Stabil	UNI EL	ISO 2 6H	HSS-E	■		extra long, with double overall length	29	
Steel				Stabil	ST	ISO 2 6H	HSS-E		□		24	
Steel				Stabil	ST	ISO 1 4H ISO 3 6G	HSS-E		□		🛒	
Steel					FE	ISO 2 6H	HSS-E		□			32
Steel					FE ES	ISO 2 6H	HSS-E		□	extra short		34
Steel				Stabil	ST AZ	ISO 2 6H	HSS-E		□	with intermittent teeth, reduces friction	24	
Steel				Stabil	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	24	
Steel				Stabil	ST TS	ISO 2X 6HX	HSS-E	■		for high-speed machining, up to 100 m/min.	25	
Steel				Stabil	HR	ISO 2X 6HX	HSS-PM	■			25	
Steel				Stabil	VG	ISO 2X 6HX	HSS-E	■			25	
Steel					FE-HF	ISO 2 6H	HSS-E	■				32
Steel				Stabil	VG AZ	ISO 2 6H	HSS-E	■		with intermittent teeth, reduces friction	🛒	

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Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Steel	✓			Stabil	ST EL	ISO 2 6H	HSS-E		□	extra long, with double overall length	29	
	✓				ST MMB	ISO 2 6H	HSS-E		□	Machine taps	30	
Stainless steel	✓			Stabil	VA	ISO 2 6H	HSS-E	■			26	
	✓				VA	ISO 2 6H	HSS-PM HSS-E	■	□			33
Non-ferrous metals	✓			Stabil	NW	ISO 2 6H	HSS-E	■			26	
	✓				AL	ISO 2 6H	HSS-E	■	□			33
	✓			Stabil	Soft	ISO 2 6H	HSS-E	■			🛒	
Heat-resistant	✓			Stabil	Ti	ISO 1X 4HX ISO 2X 6HX	HSS-PM	■			27	
	✓			DL	Ti	ISO 2X 6HX	HSS-E	■			28	
	✓			DL	Ni	ISO 2X 6HX	HSS-E	■			28	
Universal		✓		Salo-Rex	UNI	ISO 2 6H 7G	HSS-E	■		with thro' coolant	35+36	
		✓		Salo-Rex	UNI	ISO 1 4H ISO 3 6G	HSS-E	■			🛒	
		✓			UNI	ISO 2 6H	HSS-E HSS-PM	■				49
		✓		Salo-Rex	UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck	36	
		✓			UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck		50
		✓		Salo-Rex	UNI CNC	ISO 2X 6HX ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck, with thro' coolant	37	
		✓		Salo-Rex	UNI CNC	ISO 3 6G, 7G	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	🛒	
		✓			UNI NC	ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		49
		✓		Salo-Rex	UNI DRY	ISO 2 6H	HSS-E	■		for dry machining or minimum quantity lubrication (MMS), with thro' coolant	38	

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Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Universal				Salo-Rex	UNI S	ISO 2 6H	HSS-E	■		with back taper, for deep threads	🛒	
				Salo-Rex	UNI ES	ISO 2 6H	HSS-E	■		extra short	45	
				Salo-Rex	UNI EL	ISO 2 6H	HSS-E	■		extra long, with double overall length	47	
				SL	UNI	ISO 2 6H	HSS-E		□		🛒	
Steel				SL	ST	ISO 2 6H	HSS-E		□		🛒	
				SL	ST CNC	ISO 2X 6HX	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck, with thro' coolant	39	
				SL	ST TS	ISO 2 6H	HSS-PM	■		for high-speed machining, up to 100 m/min.	🛒	
				SL	ST TS	ISO 2X 6HX	HSS-E	■		for high-speed machining, up to 100 m/min.	39	
				SL	ST ES	ISO 2 6H	HSS-E		□	extra short	46	
				SL	ST AUT/ES	ISO 2 6H	HSS-E		□	short version for automatic use; extra short	46	
				SL	ST EL	ISO 2 6H	HSS-E		□	extra long, with double overall length	48	
				SL	HR	ISO 2 6H	HSS-PM		□		39	
				Salo-Rex	ST	ISO 2 6H	HSS-E	■	□		40	
				Salo-Rex	ST	ISO 1 4H ISO 3 6G	HSS-E	■	□		🛒	
					FE	ISO 2 6H	HSS-E		□			50
					FE-HF	ISO 2 6H	HSS-E	■				50
				Salo-Rex	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	40	
				Salo-Rex	ST ES	ISO 2 6H	HSS-E		□	extra short	🛒	
				Salo-Rex	ST EL	ISO 2 6H	HSS-E		□	extra long, with double overall length	47	

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Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Steel		✓		Salo-Rex	HR	ISO 2 6H	HSS-PM	■	□		41	
		✓		Salo-Rex	ST TS	ISO 2 6H	HSS-E	■		with thro' coolant	41	
Stainless steel		✓		Salo-Rex	VA	ISO 2 6H	HSS-E	■		with thro' coolant	42	
		✓			VA	ISO 2 6H	HSS-E HSS-PM	■	□			50+51
		✓		Salo-Rex	VA S	ISO 2 6H	HSS-E	■		with back taper, for deep threads	🛒	
Non-ferrous metals		✓		Salo-Rex	Soft	ISO 2 6H	HSS-E	■	□		43	
		✓		Salo-Rex	NW	ISO 2 6H	HSS-E	■			43	
		✓			AL	ISO 2 6H	HSS-E	■	□			51
Heat-resistant		✓		SL	Ti	ISO 2X	HSS-PM	■			44	
		✓		SL	Ni	ISO 2X ISO 2 6H	HSS-PM	■			44	
Steel			✓	TWIN	ST	ISO 2X 6HX	HSS-E		□		52	
			✓	TWIN	ST AZ	ISO 2X 6HX	HSS-E		□	with intermittent teeth, reduces friction	🛒	
			✓	TWIN	ST ES	ISO 2X 6HX	HSS-E		□	extra short	56	
			✓	TWIN	ST LH/ES	ISO 2X 6HX	HSS-E		□	for left hand threads; extra short	🛒	
			✓	TWIN	HR	ISO 2X 6HX	HSS-E	■			🛒	
			✓	TWIN	HR EL	ISO 2X 6HX	HSS-E	■		extra long, with double overall length	57	
Cast iron			✓	TWIN	GG	ISO 2X 6HX	HSS-E	■		with thro' coolant	54	
			✓		GG	ISO 2X 6HX	HSS-E	■				58
Non-ferrous metals			✓	TWIN	Ms	ISO 2X 6HX	HSS-E		□		🛒	

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Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Heat-resistant				TWIN	AMPCO	ISO 2X 6HX	HSS-PM		□		52	
Tempered steel				TWIN	HT	ISO 2X 6HX	VHM HSS-PM	■			55	
Machine thread formers				Spanlos	EC	ISO 2X 6HX	HSS-E HSS-PM	■			59	
				Spanlos	EC SN	ISO 2X 6HX ISO 3X 6GX	HSS-E HSS-PM	■		Thread formers with oil grooves and thro' coolant	60+61	
				Spanlos	NEO SN	ISO 2X 6HX	HSS-PM	■		Thread formers with oil grooves and thro' coolant	61	
					UNI	ISO 2X 6HX	HSS-E	■				62
					UNI SN	ISO 2X 6HX	HSS-E	■		Thread formers with lubrication grooves		62
Hand taps					ST	ISO 2X 6HX	HSS-E VHM		□		🛒	
					ERGO	ISO 2X 6HX	HSS-E		□		🛒	
					ERGO F.T.	ISO 2X 6HX	HSS-E	■			🛒	
Dies					FE	ISO 6g ISO 6e	HSS		□		🛒	
					FE	ISO 6g	HSS		□			🛒
					FE R_z=1	ISO 6g	HSS		□	Lapped Dies	🛒	
					FE LH	ISO 6g	HSS		□	for left hand threads	🛒	
					VA	ISO 6g	HSS-E		□		🛒	
					VA R_z=1	ISO 6g	HSS-E		□	Lapped Dies	🛒	
					Ms R_z=1	ISO 6g	HSS		□	Lapped Dies	🛒	

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Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Metric ISO standard thread for wire thread inserts												
Universal	✓			Stabil	UNI	6H mod	HSS-E	■			63	
Universal		✓		Salo-Rex	UNI	6H mod	HSS-E	■			64	
Non-ferrous metals		✓		Salo-Rex	Soft	6H mod	HSS-E	■			64	
MF – Metric ISO Fine Thread												
Universal	✓			Stabil	UNI	ISO 2 6H	HSS-E	■			65+66	
Universal	✓			Stabil	UNI	ISO 3 6G	HSS-E	■			🛒	
Universal	✓				UNI	ISO 2 6H	HSS-PM HSS-E	■				67+68
Universal	✓			Stabil	UNI DRY	ISO 2X 6HX	HSS-E	■		for dry machining or minimum quantity lubrication (MMS)	🛒	
Steel	✓			Stabil	ST	ISO 2 6H	HSS-E		□		🛒	
Steel	✓				FE	ISO 2 6H	HSS-E		□			68
Steel	✓				FE-HF	ISO 2 6H	HSS-E	■				68
Steel	✓			Stabil	ST TS	ISO 2X 6HX	HSS-E	■		for high-speed machining, up to 100 m/min.	66	
Steel	✓			Stabil	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	66	
Steel	✓			Stabil	VG	ISO 2X 6HX	HSS-E	■			65+66	
Stainless steel	✓			Stabil	VA	ISO 2 6H	HSS-E	■			🛒	
Stainless steel	✓				VA	ISO 2 6H	HSS-E	■				68
Universal		✓		Salo-Rex	UNI	ISO 2 6H ISO 3 6G	HSS-E	■		with thro' coolant	69+70	
Universal		✓			UNI	ISO 2 6H	HSS-E HSS-PM	■				75+76
Universal		✓		Salo-Rex	UNI CNC	ISO 3 6G	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	🛒	

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Taps Overview

MF – Metric ISO Fine Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Universal				Salo-Rex	UNI CNC	7G ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	70	
					UNI NC	ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		76
Steel				Salo-Rex	ST	ISO 2 6H	HSS-E		□		71	
				Salo-Rex	ST	ISO 1 4H	HSS-E		□			
					FE	ISO 2 6H	HSS-E		□			76
					FE-HF	ISO 2 6H	HSS-E	■				76
				Salo-Rex	ST TS	ISO 2 6H	HSS-E	■		for high-speed machining, up to 100 m/min.		
				Salo-Rex	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	71	
				SL	ST	ISO 2 6H	HSS-E		□		72	
				SL	ST CNC	ISO 2X 6HX	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		
Stainless steel				Salo-Rex	VA	ISO 2 6H	HSS-E	■			74	
					VA	ISO 2 6H	HSS-E HSS-PM	■	□			77
Non-ferrous metals				Salo-Rex	NW	ISO 2 6H	HSS-E	■			74	
Steel				TWIN	ST	ISO 2X 6HX	HSS-E		□		78	
				TWIN	ST ES	ISO 2X 6HX	HSS-E		□	extra short	80	
				TWIN	ST LH/ES	ISO 2X 6HX	HSS-E		□	for left hand threads	80	
				TWIN	HR	ISO 2X 6HX	HSS-E	■			78+79	
Cast iron				TWIN	GG	ISO 2X 6HX	HSS-E	■			79	
Tempered steel				TWIN	HT	ISO 2X 6HX	VHM	■			78	

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Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
MF – Metric ISO Fine Thread												
Machine thread formers			●	Spanlos	EC	ISO 2X 6HX	HSS-E	■			81	
Machine thread formers			●	Spanlos	EC SN	ISO 2X 6HX	HSS-E	■		Thread formers with lubrication grooves	81	
Machine thread formers			●		UNI	ISO 2X 6HX	HSS-E	■				82
Machine thread formers			●		UNI SN	ISO 2X 6HX	HSS-E	■		Thread formers with lubrication grooves		82
Hand taps					ST	ISO 2X 6HX	HSS-E		□		🛒	
Dies					FE	ISO 6g	HSS		□		🛒	
Dies					FE	ISO 6g	HSS		□			🛒
Dies					FE LH	ISO 6g	HSS		□	for left hand threads	🛒	
Dies					VA	ISO 6g	HSS-E		□		🛒	
G – Whitworth Pipe Thread												
Universal	●			Stabil	UNI	ISO 228	HSS-E	■			83	
Universal	●				UNI	ISO 228	HSS-E	■				84
Steel	●			Stabil	ST	ISO 228	HSS-E		□		83	
Steel	●				FE	ISO 228	HSS-E		□			🛒
Stainless steel	●			Stabil	VA	ISO 228	HSS-E	■			83	
Universal		●		Salo-Rex	UNI	ISO 228 ISO 228 +0,05	HSS-E	■			85	
Universal		●			UNI	ISO 228	HSS-E	■				87
Universal		●		Salo-Rex	UNI CNC	ISO 228	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	86	

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Taps Overview

G – Whitworth Pipe Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated	uncoated	Comments	WNT \ Performance	WNT \ Standard
Steel		●		Salo-Rex	ST	ISO 228	HSS-E		□		86	
		●		SL	ST	ISO 228	HSS-E		□		🛒	
Stainless steel		●		Salo-Rex	VA	ISO 228	HSS-E	■			86	
Steel			●	TWIN	ST	ISO 228X	HSS-E		□		88	
			●	TWIN	HR	ISO 228X	HSS-E	■			88	
Cast iron			●	TWIN	GG	ISO 228X	HSS-E	■			🛒	
Machine thread formers			●	Spanlos	EC	ISO 228	HSS-E	■			89	
			●	Spanlos	EC SN	ISO 228	HSS-E	■		Thread formers with lubrication grooves	89	
Hand taps					ERGO	ISO 228	HSS-E		□		🛒	
Dies					FE	ISO 228A	HSS		□		🛒	

UNC – Unified Coarse Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated	uncoated	Comments	WNT \ Performance	WNT \ Standard
Universal	●			Stabil	UNI	3B	HSS-E	■			🛒	
	●			Stabil	UNI	2B	HSS-E	■			90	
	●				UNI	2B	HSS-E	■				91
Steel	●			Stabil	ST	2B	HSS-E		□		🛒	
	●				FE	2B	HSS-E		□			91
	●				FE-HF	2B	HSS-E	■				91
Stainless steel	●			Stabil	VA	2B	HSS-E	■			90	
	●				VA	2B	HSS-E	■				91

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

UNC – Unified Coarse Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Heat-resistant				Stabil	Ti	2BX	HSS-PM	■			90	
Universal				Salo-Rex	UNI	2B	HSS-E	■			92	
				Salo-Rex	UNI	2B +0,05	HSS-E	■				
					UNI	2B	HSS-E	■				93
Steel				Salo-Rex	ST	2B	HSS-E		□			
					FE	2B	HSS-E		□			93
					FE-HF	2B	HSS-E	■				93
Stainless steel				Salo-Rex	VA	2B	HSS-E	■			92	
					VA	2B	HSS-E		□			93
Heat-resistant				SL	Ti	2BX	HSS-PM	■				
Cast iron				TWIN	GG	2BX	HSS-E	■				
Machine thread formers				Spanlos	EC	2BX	HSS-E	■			94	
				Spanlos	EC SN	2BX	HSS-E	■		Thread formers with lubrication grooves	94	
Hand taps					ERGO	2BX	HSS-E		□			
Dies					FE	2A	HSS-E		□			

EG UNC – Unified coarse thread for wire inserts

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Universal				Stabil	UNI	2B	HSS-E	■			95	
				Salo-Rex	UNI	2B	HSS-E	■			96	

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Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
UNJC – Unified Coarse Thread												
Heat-resistant		●		SL	Ti	3BX	HSS-E	■			97	
UNF – Unified Fine Thread												
Universal	●			Stabil	UNI	2B	HSS-E	■			98	
	●				UNI	2B	HSS-E	■				99
Steel	●			Stabil	ST	2B	HSS-E		□		🛒	
	●				FE	2B	HSS-E		□			99
Stainless steel	●				VA	2B	HSS-E	■				99
Heat-resistant	●			Stabil	Ti	2BX	HSS-PM	■			98	
Universal		●		Salo-Rex	UNI	2B 2B +0,05	HSS-E	■			100	
		●			UNI	2B	HSS-E	■				102
Steel		●			FE	2B	HSS-E		□			102
Stainless steel		●		Salo-Rex	VA	2B	HSS-E	■			100	
		●			VA	2B	HSS-E		□			102
Heat-resistant		●		SL	Ti	2BX 3BX	HSS-PM	■			101	
Cast iron			●	TWIN	GG	2BX	HSS-E	■			🛒	
Thread formers			●	Spanlos	EC SN	2BX	HSS-E	■		Thread formers with lubrication grooves	103	
Dies			●		FE	2A	HSS		□		🛒	

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Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
EG UNF – Unified fine thread for wire inserts												
Universal				**Stabil**	**UNI**	2B	HSS-E	■			104	
				**Salo-Rex**	**UNI**	2B	HSS-E	■			105	
UNJF – Unified Extra Fine Thread												
Heat-resistant				**DL**	**Ti**	3BX	HSS-E	■			🛒	
				**SL**	**Ti**	3BX	HSS-E	■			🛒	
BSW – Whitworth Thread												
Universal				**Stabil**	**UNI**	med.	HSS-E	■			🛒	
				**Salo-Rex**	**UNI**	med.	HSS-E	■			🛒	
NPT – American Tapered Pipe Thread												
Stainless steel				**Salo-Rex**	**VA**		HSS-E	■			106	
Steel				**TWIN**	**ST AZ**		HSS-E		□	with intermittent teeth, reduces friction	🛒	
				**TWIN**	**VG**		HSS-E		□		107	
				**TWIN**	**VG AZ**		HSS-E		□	with intermittent teeth, reduces friction	🛒	
				**TWIN**	**ST ES**		HSS-E		□	extra short	108	
Dies					**FE**		HSS-E		□		🛒	

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Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tap Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
NPTF – American Tapered Pipe Thread												
Steel				TWIN	ST		HSS-E		□		🛒	
Steel				TWIN	VG		HSS-E		□		🛒	
Steel				TWIN	ST ES		HSS-E		□	extra short	🛒	
Rp – Cylindrical Whitworth Pipe Thread												
Steel				TWIN	ST	X	HSS-E		□		🛒	
Rc – Tapered Whitworth Pipe Thread												
Steel				TWIN	ST		HSS-E		□		🛒	
Tr – Metric ISO Trapezoidal Thread												
Steel					ST	7H	HSS-E		□		109	

Accessories

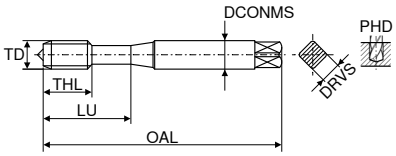
Shank extensions for taps		🛒
Tapping Oil, Chlorine Free		🛒

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Through hole – Machine taps, right hand

M	Stabil

UNI	UNI	UNI	UNI	UNI
B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 3 6G	7G
nitr. + vap.	TiN	TiCN	nitr. + vap.	nitr. + vap.



DIN 371 with reinforced shank

HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
◁ 0° ≤ 1100 N/mm² ≤ 4xD	◁ 0° ≤ 1100 N/mm² ≤ 4xD	◁ 0° ≤ 1100 N/mm² ≤ 4xD	◁ 0° ≤ 1100 N/mm² ≤ 4xD	◁ 0° ≤ 1100 N/mm² ≤ 4xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 501 ...	Article no. 22 503 ...	Article no. 22 505 ...	Article no. 22 508 ...	Article no. 22 510 ...
	mm	mm	mm	mm	mm	mm	mm						
M1	0,25	40	2,5	2,1	0,75	5	13	2	**010** [1]				
M1,2	0,25	40	2,5	2,1	0,95	5	13	2	**012** [1]				
M1,4	0,30	40	2,5	2,1	1,10	7	13	3	**014** [1]				
M1,6	0,35	40	2,5	2,1	1,25	8	11	3	**016**				
M1,7	0,35	40	2,5	2,1	1,35	6	11	2	**017**				
M1,8	0,35	40	2,5	2,1	1,45	6	11	2	**018**				
M2	0,40	45	2,8	2,1	1,60	7	12	2		**020**		**020**	**020**
M2	0,40	45	2,8	2,1	1,60	8	8	3	**020**				
M2,2	0,45	45	2,8	2,1	1,75	7	12	2	**022**				
M2,5	0,45	50	2,8	2,1	2,05	9	14	2	**025**			**025**	**025**
M3	0,50	56	3,5	2,7	2,50	11	18	3	**030**	**030**	**030**	**030**	**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	**035**			**035**	
M4	0,70	63	4,5	3,4	3,30	13	21	3	**040**	**040**	**040**	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	**050**	**050**	**050**	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	**060**	**060**	**060**	**060**	**060**
M7	1,00	80	7,0	5,5	6,00	17	30	3	**070**				
M8	1,25	90	8,0	6,2	6,80	20	35	3	**080**	**080**	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	**100**	**100**	**100**	**100**	**100**
M12	1,75	110	12,0	9,0	10,20	24	44	3	**120**				

Steel	**6-20**	**6-25**	**6-25**	**6-20**	**6-20**
Stainless steel	**4-8**	**5-10**	**5-10**	**4-8**	**4-8**
Cast iron	**6-15**	**10-20**	**10-20**	**6-15**	**6-15**
Non ferrous metals		**12-25**	**12-25**		
Heat resistant alloys					
Hardened materials					

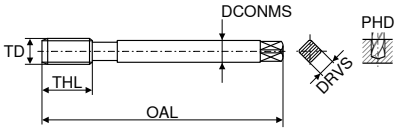
1) Tol. ISO 1 4H ≤ M1.4

DIN 376 can be found on the next page

6

Through hole – Machine taps, right hand

M | Stabil



DIN 376 with reduced shank

UNI	UNI	UNI	UNI
B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2 6H	ISO 3 6G	7G
nitr. + vap.	TiN	nitr. + vap.	nitr. + vap.



HSS-E	HSS-E	HSS-E	HSS-E
0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD
Article no. 22 502 ...	Article no. 22 504 ...	Article no. 22 509 ...	Article no. 22 511 ...

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes							
	mm	mm	mm	mm	mm	mm								
M3	0,50	56	2,2		2,5	11	3	**030**						
M4	0,70	63	2,8	2,1	3,3	13	3	**040**						
M5	0,80	70	3,5	2,7	4,2	15	3	**050**						
M6	1,00	80	4,5	3,4	5,0	17	3	**060**						
M8	1,25	90	6,0	4,9	6,8	20	3	**080**						
M10	1,50	100	7,0	5,5	8,5	22	3	**100**						
M12	1,75	110	9,0	7,0	10,2	24	3	**120**		**120**		**120**		**120**
M14	2,00	110	11,0	9,0	12,0	26	3	**140**		**140**				**140**
M16	2,00	110	12,0	9,0	14,0	27	3	**160**		**160**		**160**		**160**
M18	2,50	125	14,0	11,0	15,5	30	3	**180**		**180**				
M20	2,50	140	16,0	12,0	17,5	32	3	**200**		**200**		**200**		
M22	2,50	140	18,0	14,5	19,5	32	3	**220**		**220**				
M24	3,00	160	18,0	14,5	21,0	34	3	**240**		**240**				
M27	3,00	160	20,0	16,0	24,0	36	3	**270**						
M30	3,50	180	22,0	18,0	26,5	40	4	**300**						
M33	3,50	180	25,0	20,0	29,5	40	4	**330**						
M36	4,00	200	28,0	22,0	32,0	50	4	**360**						
M42	4,50	200	32,0	24,0	37,5	56	4	**420**						
M48	5,00	250	36,0	29,0	43,0	65	4	**480**						

Steel	**6-20**	**6-25**	**6-20**	**6-20**
Stainless steel	**4-8**	**5-10**	**4-8**	**4-8**
Cast iron	**6-15**	**10-20**	**6-15**	**6-15**
Non ferrous metals		**12-25**		
Heat resistant alloys				
Hardened materials				

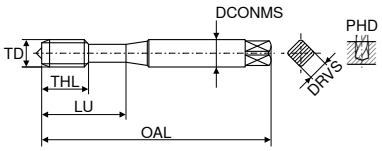
Through hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

M	Stabil

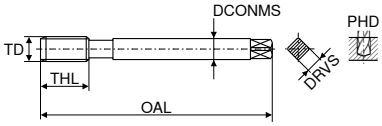
UNI NCW	UNI CNC	UNI CNC	UNI CNC
B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2X 6HX	ISO 3X 6GX	7GX
TiN	TiN GS	TiN GS	TiN GS



DIN 371 with reinforced shank

	HSS-PM	HSS-E	HSS-E	HSS-E
	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 148 ...	Article no. 22 542 ...	Article no. 22 596 ...	Article no. 22 592 ...
	mm	mm	mm	mm	mm	mm	mm					
M3	0,50	70	6,0	4,9	2,5	6	18	3	030			
M3	0,50	56	3,5	2,7	2,5	6	18	3		030		
M4	0,70	70	6,0	4,9	3,3	7	21	3	040			
M4	0,70	63	4,5	3,4	3,3	7	21	3		040	040	040
M5	0,80	70	6,0	4,9	4,2	8	25	3	050	050	050	050
M6	1,00	80	6,0	4,9	5,0	10	30	3	060	060	060	060
M8	1,25	90	8,0	6,2	6,8	14	35	3	080			
M8	1,25	90	8,0	6,2	6,8	14	35	4		080	080	080
M10	1,50	100	10,0	8,0	8,5	16	39	3	100			
M10	1,50	100	10,0	8,0	8,5	16	39	4		100	100	100
M12	1,75	110	10,0	8,0	10,2	18		3	120			
M16	2,00	110	12,0	9,0	14,0	22		3	160			



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 543 ...	Article no. 22 597 ...	Article no. 22 593 ...
	mm	mm	mm	mm	mm	mm				
M12	1,75	110	9	7	10,2	18	4	120	120	120
M14	2,00	110	11	9	12,0	20	4	140		
M16	2,00	110	12	9	14,0	22	4	160		
M20	2,50	140	16	12	17,5	25	4	200		

Steel	6-25	6-25	6-25	6-25
Stainless steel	5-10	5-10	5-10	5-10
Cast iron	10-20	10-20	10-20	10-20
Non ferrous metals	12-25	12-25	12-25	12-25
Heat resistant alloys				
Hardened materials				

6

Through hole – Machine taps, right/left hand

▲ AZ = with intermittent teeth, reduces friction

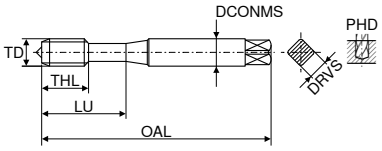
▲ LH = for left hand threads

M	Stabil

ST	ST AZ	ST LH
B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2 6H	ISO 2 6H



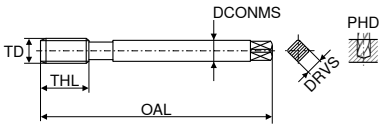




DIN 371 with reinforced shank

	HSS-E	HSS-E	HSS-E
	◁ 0° ≤ 750 N/mm² ≤ 4xD	◁ 0° ≤ 750 N/mm² ≤ 4xD	◁ 0° ≤ 750 N/mm² ≤ 4xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 020 ...	Article no. 22 022 ...	Article no. 22 127 ...
	mm	mm	mm	mm	mm	mm	mm				
M2	0,40	45	2,8	2,1	1,60	7	12	2	**020**	**020**	
M2,3	0,40	45	2,8	2,1	1,90	7	12	2	**023**		
M2,5	0,45	50	2,8	2,1	2,05	9	14	2	**025**		
M2,6	0,45	50	2,8	2,1	2,15	9	14	2	**026**		
M3	0,50	56	3,5	2,7	2,50	11	18	3	**030**	**030**	**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	**035**		
M4	0,70	63	4,5	3,4	3,30	13	21	3	**040**	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	**050**	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	**060**	**060**	**060**
M8	1,25	90	8,0	6,2	6,80	20	35	3	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	**100**	**100**	**100**
M12	1,75	110	12,0	9,0	10,20	24	44	3	**120**		



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 021 ...	Article no. 22 023 ...	Article no. 22 147 ...
	mm	mm	mm	mm	mm	mm				
M3	0,50	56	2,2		2,5	11	3	**030**		
M4	0,70	63	2,8	2,1	3,3	13	3	**040**		
M5	0,80	70	3,5	2,7	4,2	15	3	**050**		
M6	1,00	80	4,5	3,4	5,0	17	3	**060**		
M8	1,25	90	6,0	4,9	6,8	20	3	**080**		
M10	1,50	100	7,0	5,5	8,5	22	3	**100**		
M12	1,75	110	9,0	7,0	10,2	24	3	**120**	**120**	**120**
M14	2,00	110	11,0	9,0	12,0	26	3	**140**		
M16	2,00	110	12,0	9,0	14,0	27	3	**160**	**160**	**160**
M18	2,50	125	14,0	11,0	15,5	30	3	**180**		
M20	2,50	140	16,0	12,0	17,5	32	3	**200**	**200**	**200**
M22	2,50	140	18,0	14,5	19,5	32	3	**220**		
M24	3,00	160	18,0	14,5	21,0	34	3	**240**		
M27	3,00	160	20,0	16,0	24,0	36	3	**270**		
M30	3,50	180	22,0	18,0	26,5	40	4	**300**		

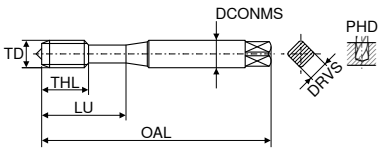
Steel	**10-20**	**10-20**	**10-20**
Stainless steel			
Cast iron			
Non ferrous metals	**10-20**	**10-20**	**10-20**
Heat resistant alloys			
Hardened materials			

Through hole – Machine taps, right hand

▲ TS = for high-speed machining, up to 100 m/min.

M	Stabil

ST TS	HR	HR	VG
B 4–5	B 4–5	B 4–5	B 4–5
ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
TiN	nitr.	TiN	TiN

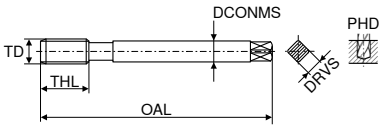




DIN 371 with reinforced shank

	HSS-E	HSS-PM	HSS-PM	HSS-E
	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1400 N/mm² ≤ 4xD	0° ≤ 1400 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 092 ...	Article no. 22 053 ...	Article no. 22 055 ...	Article no. 22 120 ...
	mm	mm	mm	mm	mm	mm	mm					
M2	0,40	45	2,8	2,1	1,60	8	9,5	2		020		
M2	0,40	45	2,8	2,1	1,60	4	12,0	2	020			020
M2,2	0,45	45	2,8	2,1	1,75	7	12,0	2		022		
M2,5	0,45	50	2,8	2,1	2,05	9	14,0	2		025		
M2,5	0,45	50	2,8	2,1	2,05	5	15,0	2	025			025
M3	0,50	56	3,5	2,7	2,50	11	18,0	2		030	030	
M3	0,50	56	3,5	2,7	2,50	6	18,0	3	030			030
M3,5	0,60	56	4,0	3,0	2,90	12	20,0	2		035		
M4	0,70	63	4,5	3,4	3,30	13	21,0	2		040	040	
M4	0,70	63	4,5	3,4	3,30	7	21,0	3	040			040
M5	0,80	70	6,0	4,9	4,20	15	25,0	2		050	050	
M5	0,80	70	6,0	4,9	4,20	8	25,0	3	050			050
M6	1,00	80	6,0	4,9	5,00	17	30,0	3		060	060	
M6	1,00	80	6,0	4,9	5,00	10	30,0	3	060			060
M8	1,25	90	8,0	6,2	6,80	20	35,0	3		080	080	
M8	1,25	90	8,0	6,2	6,80	14	35,0	4	080			080
M10	1,50	100	10,0	8,0	8,50	22	39,0	3		100	100	
M10	1,50	100	10,0	8,0	8,50	16	39,0	4	100			100
M12	1,75	110	12,0	9,0	10,20	24	44,0	3		120		



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 093 ...	Article no. 22 121 ...
	mm	mm	mm	mm	mm	mm			
M12	1,75	110	9	7	10,2	18	4	120	120
M16	2,00	110	12	9	14,0	22	4	160	160
M20	2,50	140	16	12	17,5	25	4	200	200

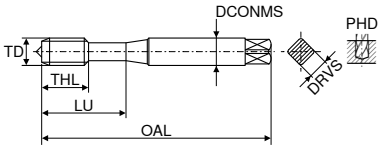
Steel	20-100	2-6	2-6	6-15
Stainless steel				5-10
Cast iron	20-60			
Non ferrous metals	20-100			10-20
Heat resistant alloys	10-25	3-5	3-5	
Hardened materials				

6

Through hole – Machine taps, right hand

M	Stabil

VA	VA	NW	NW
B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
nitr.	TiN GS	vap.	HCr

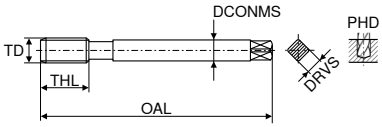


DIN 371 with reinforced shank



HSS-E	HSS-E	HSS-E	HSS-E
0° ≤ 900 N/mm² ≤ 4xD	0° ≤ 900 N/mm² ≤ 4xD	0° ≤ 500 N/mm² ≤ 4xD	0° ≤ 500 N/mm² ≤ 4xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 056 ...	Article no. 22 038 ...	Article no. 22 058 ...	Article no. 22 060 ...
	mm	mm	mm	mm	mm	mm	mm					
M1,6	0,35	40	2,5	2,1	1,25	6	11	2		016		
M2	0,40	45	2,8	2,1	1,60	7	12	2	020	020	020	020
M2,3	0,40	45	2,8	2,1	1,90	7	12	2			023	023
M2,5	0,45	50	2,8	2,1	2,05	9	14	2	025	025	025	025
M2,6	0,45	50	2,8	2,1	2,15	9	14	2			026	026
M3	0,50	56	3,5	2,7	2,50	11	18	3	030	030	030	030
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	035		035	035
M4	0,70	63	4,5	3,4	3,30	13	21	3	040	040	040	040
M5	0,80	70	6,0	4,9	4,20	15	25	3	050	050	050	050
M6	1,00	80	6,0	4,9	5,00	17	30	3	060	060	060	060
M8	1,25	90	8,0	6,2	6,80	20	35	3	080	080	080	080
M10	1,50	100	10,0	8,0	8,50	22	39	3	100	100	100	100



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 057 ...	Article no. 22 039 ...	Article no. 22 059 ...	Article no. 22 061 ...
	mm	mm	mm	mm	mm	mm					
M12	1,75	110	9	7,0	10,2	24	3	120	120	120	120
M14	2,00	110	11	9,0	12,0	26	3	140	140		
M16	2,00	110	12	9,0	14,0	27	3	160	160	160	160
M18	2,50	125	14	11,0	15,5	30	3	180			
M20	2,50	140	16	12,0	17,5	32	3	200	200		
M22	2,50	140	18	14,5	19,5	32	3	220			
M24	3,00	160	18	14,5	21,0	34	3	240			
M27	3,00	160	20	16,0	24,0	36	3	270			
M30	3,50	180	22	18,0	26,5	40	4	300			

Steel		5-12		
Stainless steel	5-10	5-10		
Cast iron				
Non ferrous metals			10-20	12-25
Heat resistant alloys				
Hardened materials				

Through hole – Machine taps, right hand

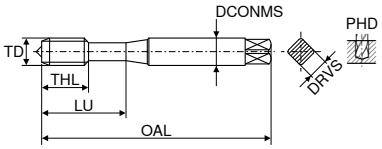
M | Stabil

Ti | Ti | Ti

B 4–5 | B 4–5 | B 4–5

ISO 1X 4HX | ISO 2X 6HX | ISO 2X 6HX

TiN | vap. | TiN



DIN 371 with reinforced shank

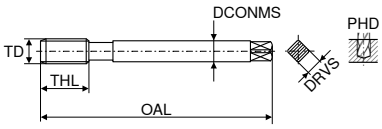


HSS-PM | HSS-PM | HSS-PM

0° | 0° | 0°

≤ 44 HRC ≤ 4xD | ≤ 1400 N/mm² ≤ 4xD | ≤ 44 HRC ≤ 4xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 081 ...	Article no. 22 075 ...	Article no. 22 077 ...
	mm	mm	mm	mm	mm	mm	mm				
M1	0,25	40	2,5	2,1	0,75	5	6,5	2	**010**		
M1,6	0,35	40	2,5	2,1	1,25	8	9,5	3		**016**	
M2	0,40	45	2,8	2,1	1,60	8	9,5	3	**020**	**020**	
M2,5	0,45	50	2,8	2,1	2,05	9	14,0	3		**025**	
M3	0,50	56	3,5	2,7	2,50	11	18,0	3	**030**	**030**	**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20,0	3		**035**	
M4	0,70	63	4,5	3,4	3,30	13	21,0	3	**040**	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	15	25,0	3	**050**	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	17	30,0	3	**060**	**060**	**060**
M8	1,25	90	8,0	6,2	6,80	20	35,0	3	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	22	39,0	3		**100**	**100**



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 140 ...	Article no. 22 142 ...
	mm	mm	mm	mm	mm	mm			
M12	1,75	110	9	7	10,2	24	3	**120**	**120**

Steel	**2-5**	**2-5**	**2-5**
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys	**2-6**	**2-6**	**2-6**
Hardened materials			

6

Through hole – Machine taps, right hand

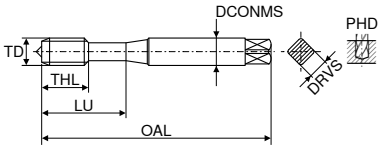
M | DL

Ti | Ni

D 4–5 | D 4–5

ISO 2X 6HX | ISO 2X 6HX

TiCN | TiCN





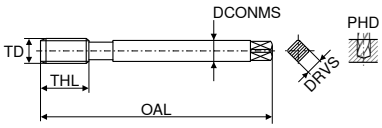


DIN 371 with reinforced shank

HSS-E
◁ 15°
≤ 1200 N/mm²
≤ 4xD

HSS-E
◁ 15°
≤ 1600 N/mm²
≤ 4xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 159 ...	Article no. 22 297 ...
	mm	mm	mm	mm	mm	mm	mm			
M3	0,50	56	3,5	2,7	2,5	11	18	2	**030**	**030**
M4	0,70	63	4,5	3,4	3,3	13	21	3	**040**	**040**
M5	0,80	70	6,0	4,9	4,2	15	25	3	**050**	**050**
M6	1,00	80	6,0	4,9	5,0	17	30	3	**060**	**060**
M8	1,25	90	8,0	6,2	6,8	20	35	3	**080**	**080**
M10	1,50	100	10,0	8,0	8,5	22	39	3	**100**	**100**



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 160 ...	Article no. 22 298 ...
	mm	mm	mm	mm	mm	mm			
M12	1,75	110	9	7,0	10,2	24	3	**120**	**120**
M14	2,00	110	11	9,0	12,0	26	3		**140**
M16	2,00	110	12	9,0	14,0	27	3	**160**	**160**
M20	2,50	140	16	12,0	17,5	32	3	**200**	**200**
M24	3,00	160	18	14,5	21,0	34	3	**240**	

Steel	**6-8**	
Stainless steel	**4-10**	
Cast iron		
Non ferrous metals	**10-12**	
Heat resistant alloys	**4-6**	**2-20**
Hardened materials		

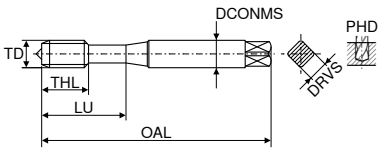
Through hole – Machine taps, right hand

▲ EL = extra long, with double overall length

M | Stabil

UNI EL | B 4–5 | ISO 2 6H | nitr. + vap.

ST EL | B 4–5 | ISO 2 6H





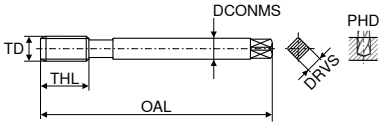


DIN 371 with reinforced shank

HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

HSS-E
0°
≤ 950 N/mm²
≤ 4xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 514 ...	Article no. 22 233 ...
	mm	mm	mm	mm	mm	mm	mm			
M3	0,50	100	3,5	2,7	2,5	11	18	3	030	030
M4	0,70	125	4,5	3,4	3,3	13	21	3	040	040
M5	0,80	140	6,0	4,9	4,2	15	25	3	050	050
M6	1,00	160	6,0	4,9	5,0	17	30	3	060	060
M8	1,25	180	8,0	6,2	6,8	20	35	3	080	080



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 515 ...	Article no. 22 234 ...
	mm	mm	mm	mm	mm	mm			
M6	1,00	160	4,5	3,4	5,0	17	3	060	060
M8	1,25	180	6,0	4,9	6,8	20	3	080	080
M10	1,50	200	7,0	5,5	8,5	22	3	100	100
M12	1,75	224	9,0	7,0	10,2	24	3	120	120
M14	2,00	224	11,0	9,0	12,0	26	3	140	140
M16	2,00	224	12,0	9,0	14,0	27	3	160	160
M18	2,50	250	14,0	11,0	15,5	30	3	180	180
M20	2,50	280	16,0	12,0	17,5	32	3	200	200

Steel	6-20	5-25
Stainless steel	4-8	
Cast iron	6-15	10-20
Non ferrous metals		10-40
Heat resistant alloys		
Hardened materials		

6

Through hole – Machine taps, right hand

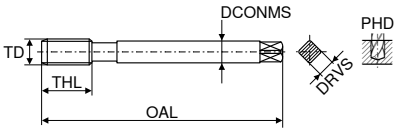
▲ MMB = Nut taps

M

ST
MMB

≈ 20

ISO 2
6H





DIN 357 with reduced shank

HSS-E
0°
≤ 850 N/mm²
≤ 1xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 098 ...
	mm	mm	mm	mm	mm	mm		
M3	0,50	70	2,2		2,5	16	3	**030**
M4	0,70	90	2,8	2,1	3,3	22	3	**040**
M5	0,80	100	3,5	2,7	4,2	24	3	**050**
M6	1,00	110	4,5	3,4	5,0	30	3	**060**
M8	1,25	125	6,0	4,9	6,8	38	3	**080**
M10	1,50	140	7,0	5,5	8,5	45	3	**100**
M12	1,75	180	9,0	7,0	10,2	50	3	**120**
M16	2,00	200	12,0	9,0	14,0	63	3	**160**

Steel	**10-25**
Stainless steel	
Cast iron	
Non ferrous metals	**10-25**
Heat resistant alloys	
Hardened materials	

Through hole – Machine taps, right hand

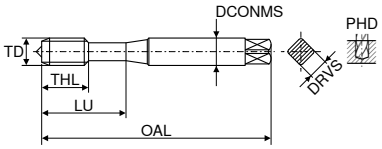
M

UNI | UNI | UNI

B 4–5 | B 4–5 | B 4–5

ISO 2 6H | ISO 2 6H | ISO 2 6H

nitr. + vap. | TiN | TiN



DIN 371 with reinforced shank

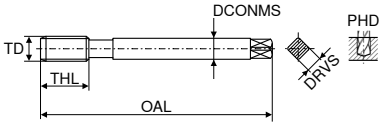


HSS-E | HSS-E | HSS-PM

0° | 0° | 0°

≤ 1000 N/mm² ≤ 3xD | ≤ 1000 N/mm² ≤ 3xD | ≤ 1000 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 110 ...	Article no. 23 112 ...	Article no. 23 010 ...
	mm	mm	mm	mm	mm	mm	mm				
M2	0,40	45	2,8	2,1	1,60	7	12,0	2	020	020	
M2	0,40	45	2,8	2,1	1,60	4	13,5	2			020
M2,5	0,45	50	2,8	2,1	2,05	9	14,0	2	025	025	
M3	0,50	56	3,5	2,7	2,50	11	18,0	3	030	030	030
M4	0,70	63	4,5	3,4	3,30	13	21,0	3	040	040	040
M5	0,80	70	6,0	4,9	4,20	15	25,0	3	050	050	050
M6	1,00	80	6,0	4,9	5,00	17	30,0	3	060	060	060
M8	1,25	90	8,0	6,2	6,80	20	35,0	3	080	080	080
M10	1,50	100	10,0	8,0	8,50	22	39,0	3	100	100	100



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 111 ...	Article no. 23 113 ...	Article no. 23 021 ...
	mm	mm	mm	mm	mm	mm				
M3	0,50	56	2,2		2,5	11	3	030		
M4	0,70	63	2,8	2,1	3,3	13	3	040		
M5	0,80	70	3,5	2,7	4,2	15	3	050		
M6	1,00	80	4,5	3,4	5,0	17	3	060		
M8	1,25	90	6,0	4,9	6,8	20	3	080		
M10	1,50	100	7,0	5,5	8,5	22	3	100		
M12	1,75	110	9,0	7,0	10,2	24	3	120	120	120
M14	2,00	110	11,0	9,0	12,0	26	3	140	14000	
M14	2,00	110	11,0	9,0	12,0	20	4			140
M16	2,00	110	12,0	9,0	14,0	27	3	160	160	160
M18	2,50	125	14,0	11,0	15,5	30	3		18000	
M18	2,50	125	14,0	11,0	15,5	25	4			180
M20	2,50	140	16,0	12,0	17,5	32	3	200	200	200
M22	2,50	140	18,0	14,5	19,5	32	3		22000	
M24	3,00	160	18,0	14,5	21,0	34	3		240	
M27	3,00	160	20,0	16,0	24,0	36	3		27000	
M30	3,50	180	22,0	18,0	26,5	40	4		30000	
M33	3,50	180	25,0	20,0	29,5	40	4		33000	
M36	4,00	200	28,0	22,0	32,0	50	4		36000	

Steel	2-25	5-45	10-20
Stainless steel	2-8	5-15	8-15
Cast iron	5-20	10-25	20-25
Non ferrous metals	10-20	15-40	20-25
Heat resistant alloys			
hardened materials			

6

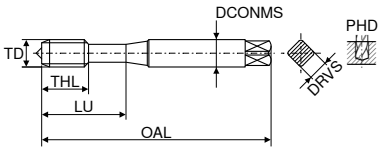
Through hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

▲ NC = for synchronised CNC machining with minimum length compensation chuck

M

UNI NC	UNI NCW	FE	FE-HF
B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
TiN GS	TiCN		TiCN

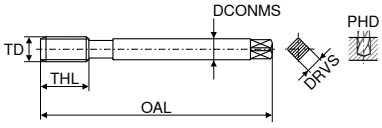


DIN 371 with reinforced shank



HSS-E	HSS-PM	HSS-E	HSS-E
0° ≤ 1000 N/mm² ≤ 3xD	0° ≤ 1000 N/mm² ≤ 3xD	0° ≤ 850 N/mm² ≤ 3xD	0° ≤ 1100 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 114 ...	Article no. 23 116 ...	Article no. 23 212 ...	Article no. 23 310 ...
	mm	mm	mm	mm	mm	mm	mm					
M1,6	0,35	40	2,5	2,1	1,25	6	11	2			016	
M2	0,40	45	2,8	2,1	1,60	7	12	2			020	
M2,5	0,45	50	2,8	2,1	2,05	9	14	2			025	
M3	0,50	70	6,0	4,9	2,50	6	18	3		030		
M3	0,50	56	3,5	2,7	2,50	11	18	3	030		030	030
M3,5	0,60	56	4,0	3,0	2,90	12	20	3			035	
M4	0,70	70	6,0	4,9	3,30	7	21	3		040		
M4	0,70	63	4,5	3,4	3,30	13	21	3	040		040	040
M5	0,80	70	6,0	4,9	4,20	15	25	3	050		050	050
M5	0,80	70	6,0	4,9	4,20	8	25	3		050		
M6	1,00	80	6,0	4,9	5,00	17	30	3	060		060	060
M6	1,00	80	6,0	4,9	5,00	10	30	3		060		
M8	1,25	90	8,0	6,2	6,80	20	35	3	080		080	080
M8	1,25	90	8,0	6,2	6,80	14	35	3		080		
M10	1,50	100	10,0	8,0	8,50	22	39	3	100		100	100
M10	1,50	100	10,0	8,0	8,50	16	39	3		100		



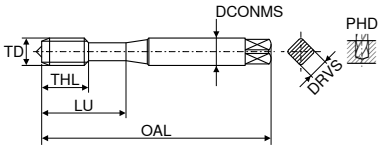
DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 115 ...	Article no. 23 117 ...	Article no. 23 213 ...	Article no. 23 311 ...
	mm	mm	mm	mm	mm	mm					
M12	1,75	110	10	8	10,2	18	3		120		
M12	1,75	110	9	7	10,2	24	3	120		120	120
M14	2,00	110	11	9	12,0	26	3			140	
M16	2,00	110	12	9	14,0	22	3		160		
M16	2,00	110	12	9	14,0	27	3	160		160	160
M20	2,50	140	16	12	17,5	32	3	200		200	200

Steel	**5-45**	**5-45**	**5-25**	**5-45**
Stainless steel	**5-15**	**5-15**		
Cast iron	**10-25**	**10-25**		
Non ferrous metals	**15-40**	**15-40**		
Heat resistant alloys		**5-8**		
hardened materials				

Through hole – Machine taps, right hand

M



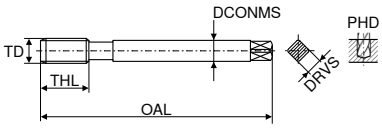
DIN 371 with reinforced shank

VA	VA	VA	AL	AL
B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
nitr.	nitr.	TiN		CrN



HSS-PM	HSS-E	HSS-E	HSS-E	HSS-E
◁ 0° ≤ 1200 N/mm² ≤ 3xD	◁ 0° ≤ 1200 N/mm² ≤ 3xD	◁ 0° ≤ 1200 N/mm² ≤ 3xD	◁ 0° ≤ 500 N/mm² ≤ 3xD	◁ 0° ≤ 500 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 450 ...	Article no. 23 410 ...	Article no. 23 412 ...	Article no. 23 610 ...	Article no. 23 612 ...
	mm	mm	mm	mm	mm	mm	mm						
M2	0,40	45	2,8	2,1	1,60	7	12	2		020	020		
M2,5	0,45	50	2,8	2,1	2,05	9	14	2		025	025		
M3	0,50	56	3,5	2,7	2,50	11	18	3	030	030	030	030	030
M4	0,70	63	4,5	3,4	3,30	13	21	3	040	040	040	040	040
M5	0,80	70	6,0	4,9	4,20	15	25	3	050	050	050	050	050
M6	1,00	80	6,0	4,9	5,00	17	30	3	060	060	060	060	060
M8	1,25	90	8,0	6,2	6,80	20	35	3	080	080	080	080	080
M10	1,50	100	10,0	8,0	8,50	22	39	3	100	100	100	100	100



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 451 ...	Article no. 23 411 ...	Article no. 23 413 ...	Article no. 23 611 ...	Article no. 23 613 ...
	mm	mm	mm	mm	mm	mm						
M12	1,75	110	9	7,0	10,2	24	3	120	120	120	120	120
M14	2,00	110	11	9,0	12,0	26	3	140				
M16	2,00	110	12	9,0	14,0	27	3	160	160	160		
M20	2,50	140	16	12,0	17,5	32	3	200	200	200		
M24	3,00	160	18	14,5	21,0	34	3		240			

Steel					
Stainless steel	5-10	3-10	8-20		
Cast iron					
Non ferrous metals				10-20	15-40
Heat resistant alloys					
hardened materials					

6

Through hole – Machine taps, right hand

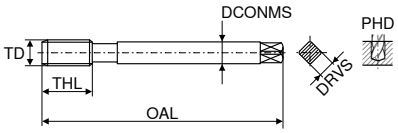
▲ ES = extra short

M

FE
ES

B
4–5

ISO 2
6H



DIN 376 with reduced shank



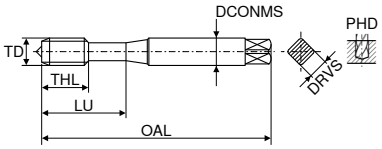
HSS-E
0°
≤ 850 N/mm²
≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 210 ...
	mm	mm	mm	mm	mm	mm		
M2	0,40	36	2,8	2,1	1,60	8	2	**020**
M2,5	0,45	40	2,8	2,1	2,05	9	2	**025**
M3	0,50	40	3,5	2,7	2,50	10	3	**030**
M4	0,70	45	4,5	3,4	3,30	12	3	**040**
M5	0,80	50	6,0	4,9	4,20	14	3	**050**
M6	1,00	56	6,0	4,9	5,00	16	3	**060**
M8	1,25	63	6,0	4,9	6,80	20	3	**080**
M10	1,50	70	7,0	5,5	8,50	22	3	**100**
M12	1,75	75	9,0	7,0	10,20	24	3	**120**
M16	2,00	80	12,0	9,0	14,00	27	3	**160**

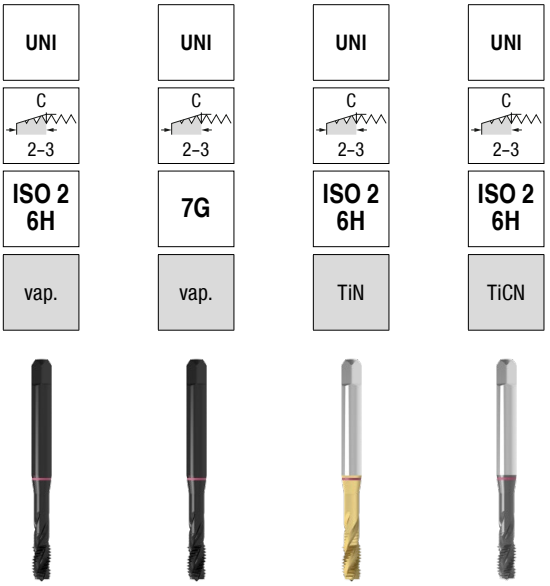
Steel	**5-25**
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
hardened materials	

Blind hole – Machine taps, right hand

M | Salo-Rex

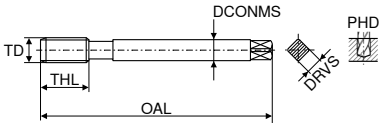


DIN 371 with reinforced shank



HSS-E
◁ 42°
≤ 1100 N/mm²
≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 518 ...	Article no. 22 532 ...	Article no. 22 520 ...	Article no. 22 522 ...
	mm	mm	mm	mm	mm	mm	mm					
M2	0,40	45	2,8	2,1	1,60	4,0	12	2	020		020	
M2,2	0,45	45	2,8	2,1	1,75	4,5	12	2	022			
M2,3	0,40	45	2,8	2,1	1,90	4,5	12	2	023			
M2,5	0,45	50	2,8	2,1	2,05	5,0	15	2	025			
M2,6	0,45	50	2,8	2,1	2,15	5,0	15	2	026			
M3	0,50	56	3,5	2,7	2,50	6,0	18	3	030	030	030	030
M3,5	0,60	56	4,0	3,0	2,90	7,0	20	3	035			
M4	0,70	63	4,5	3,4	3,30	7,0	21	3	040	040	040	040
M5	0,80	70	6,0	4,9	4,20	8,0	25	3	050	050	050	050
M6	1,00	80	6,0	4,9	5,00	10,0	30	3	060	060	060	060
M7	1,00	80	7,0	5,5	6,00	10,0	30	3	070			
M8	1,25	90	8,0	6,2	6,80	14,0	35	3	080	080	080	080
M10	1,50	100	10,0	8,0	8,50	16,0	39	3	100	100	100	100
M12	1,75	110	12,0	9,0	10,20	18,0	44	3	120		120	120



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 519 ...	Article no. 22 533 ...	Article no. 22 521 ...	Article no. 22 523 ...
	mm	mm	mm	mm	mm	mm					
M3	0,50	56	2,2		2,5	6	3	030			
M4	0,70	63	2,8	2,1	3,3	7	3	040			
M5	0,80	70	3,5	2,7	4,2	8	3	050			
M6	1,00	80	4,5	3,4	5,0	10	3	060			
M8	1,25	90	6,0	4,9	6,8	14	3	080			
M10	1,50	100	7,0	5,5	8,5	16	3	100			
M12	1,75	110	9,0	7,0	10,2	18	3	120	120	120	120
M14	2,00	110	11,0	9,0	12,0	20	3	140		140	140
M16	2,00	110	12,0	9,0	14,0	22	3	160	160	160	160
M18	2,50	125	14,0	11,0	15,5	25	3	180		180	180
M20	2,50	140	16,0	12,0	17,5	25	3	200	200	200	200
M22	2,50	140	18,0	14,5	19,5	27	4	220		220	
M24	3,00	160	18,0	14,5	21,0	30	4	240		240	
M27	3,00	160	20,0	16,0	24,0	30	4	270			
M30	3,50	180	22,0	18,0	26,5	35	4	300			
M33	3,50	180	25,0	20,0	29,5	35	4	330			
M36	4,00	200	28,0	22,0	32,0	40	4	360			

Steel	6-20	6-20	6-25	6-25
Stainless steel	4-8	4-8	5-10	5-10
Cast iron	6-15	6-15	10-20	10-20
Non ferrous metals			12-25	12-25
Heat resistant alloys				
Hardened materials				

6

Blind hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

M | Salo-Rex

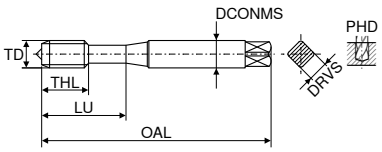
UNI NCW | UNI | UNI | UNI

C 2–3 | E 1,5–2 | E 1,5–2 | E 1,5–2

ISO 2 6H | ISO 2 6H | ISO 2 6H | ISO 2 6H

TiN | vap. | vap. | TiN



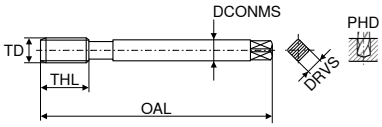


DIN 371 with reinforced shank

HSS-PM | HSS-E | HSS-E | HSS-E

∢ 42° ≤ 1100 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 149 ...	Article no. 22 524 ...	Article no. 22 534 ...	Article no. 22 526 ...
	mm	mm	mm	mm	mm	mm	mm					
M3	0,50	70	6,0	4,9	2,5	6	18	3	030			
M3	0,50	56	3,5	2,7	2,5	6	18	3		030		030
M4	0,70	63	4,5	3,4	3,3	7	21	3		040		040
M4	0,70	70	6,0	4,9	3,3	7	21	3	040			
M5	0,80	70	6,0	4,9	4,2	8	25	3	050	050	050	050
M6	1,00	80	6,0	4,9	5,0	10	30	3	060	060	060	060
M8	1,25	90	8,0	6,2	6,8	14	35	3	080	080	080	080
M10	1,50	100	10,0	8,0	8,5	16	39	3	100	100	100	100



DIN 376 with reduced shank

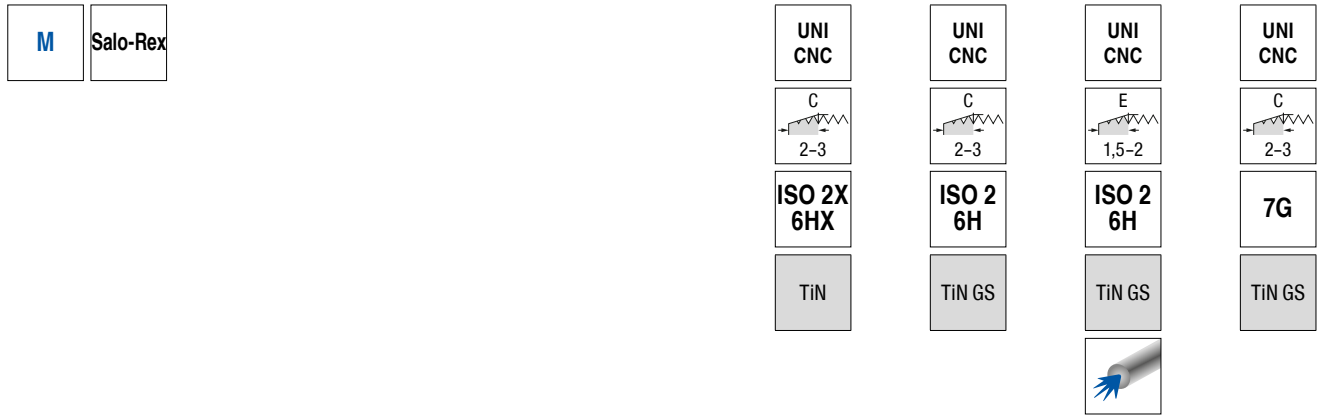
TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 149 ...	Article no. 22 525 ...	Article no. 22 535 ...	Article no. 22 527 ...
	mm	mm	mm	mm	mm	mm					
M12	1,75	110	10	8,0	10,2	18	3	120			
M12	1,75	110	9	7,0	10,2	18	4		120	120	120
M14	2,00	110	11	9,0	12,0	20	4		140	140	
M16	2,00	110	12	9,0	14,0	22	3	160			
M16	2,00	110	12	9,0	14,0	22	4		160	160	160
M18	2,50	125	14	11,0	15,5	25	4		180		
M20	2,50	140	16	12,0	17,5	25	4		200	200	200
M22	2,50	140	18	14,5	19,5	27	5		220		
M24	3,00	160	18	14,5	21,0	30	5		240		

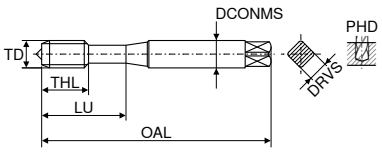
Steel	6-25	6-20	6-20	6-25
Stainless steel	5-10	4-8	4-8	5-10
Cast iron	10-20	6-15	6-15	10-20
Non ferrous metals	12-25			12-25
Heat resistant alloys				
Hardened materials				

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

M | Salo-Rex

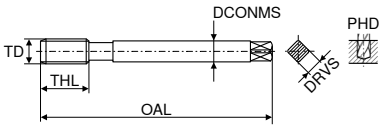




DIN 371 with reinforced shank

HSS-E ◁ 50° ≤ 1100 N/mm² ≤ 3xD | HSS-E ◁ 45° ≤ 1100 N/mm² ≤ 3xD | HSS-E ◁ 45° ≤ 1100 N/mm² ≤ 3xD | HSS-E ◁ 45° ≤ 1100 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 416 ...	Article no. 22 544 ...	Article no. 22 546 ...	Article no. 22 594 ...
	mm	mm	mm	mm	mm	mm	mm					
M3	0,50	56	3,5	2,7	2,5	6	18	3	030	030		030
M4	0,70	63	4,5	3,4	3,3	7	21	3	040	040		040
M5	0,80	70	6,0	4,9	4,2	8	25	3	050	050	050	050
M6	1,00	80	6,0	4,9	5,0	10	30	3	060	060	060	060
M8	1,25	90	8,0	6,2	6,8	14	35	3	080	080	080	080
M10	1,50	100	10,0	8,0	8,5	16	39	3	100	100	100	100



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 417 ...	Article no. 22 545 ...		Article no. 22 595 ...
	mm	mm	mm	mm	mm	mm					
M12	1,75	110	9	7	10,2	18	3	120			
M12	1,75	110	9	7	10,2	18	4		120		120
M14	2,00	110	11	9	12,0	20	3	140			
M14	2,00	110	11	9	12,0	20	4		140		140
M16	2,00	110	12	9	14,0	22	3	160			
M16	2,00	110	12	9	14,0	22	4		160		160
M20	2,50	140	16	12	17,5	25	3	200			
M20	2,50	140	16	12	17,5	25	4		200		200

Steel	2-25	6-25	6-25	6-25
Stainless steel	1-10	5-10	5-10	5-10
Cast iron		10-20	10-20	10-20
Non ferrous metals	2-20	12-25	12-25	12-25
Heat resistant alloys				
Hardened materials				

6

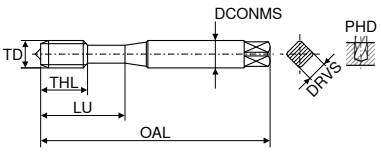
Blind hole – Machine taps, right hand

▲ DRY = for dry machining or minimum quantity lubrication (MMS)

M | Salo-Rex

UNI DRY | C 2–3 | ISO 2 6H | TiN GS

UNI DRY | C 2–3 | ISO 2 6H | TiN



DIN 371 with reinforced shank

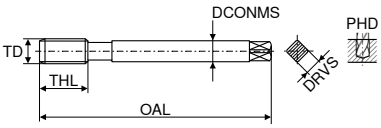




HSS-E
∢ 42°
≤ 1100 N/mm²
≤ 3xD

HSS-E
∢ 42°
≤ 1100 N/mm²
≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 566 ...	Article no. 22 449 ...
	mm	mm	mm	mm	mm	mm	mm			
M3	0,50	56	3,5	2,7	2,5	6	18	3	**030**	
M4	0,70	63	4,5	3,4	3,3	7	21	3	**040**	
M5	0,80	70	6,0	4,9	4,2	8	25	3	**050**	**050**
M6	1,00	80	6,0	4,9	5,0	10	30	3	**060**	**060**
M8	1,25	90	8,0	6,2	6,8	14	35	3	**080**	**080**
M10	1,50	100	10,0	8,0	8,5	16	39	3	**100**	**100**



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 567 ...	Article no. 22 450 ...
	mm	mm	mm	mm	mm	mm			
M12	1,75	110	9	7	10,2	18	4	**120**	**120**
M16	2,00	110	12	9	14,0	22	4	**160**	**160**
M20	2,50	140	16	12	17,5	25	4	**200**	**200**

Steel	**6-25**	**5-45**
Stainless steel	**5-10**	**5-20**
Cast iron		
Non ferrous metals		**20-60**
Heat resistant alloys		
Hardened materials		

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

▲ TS = for high-speed machining, up to 100 m/min.

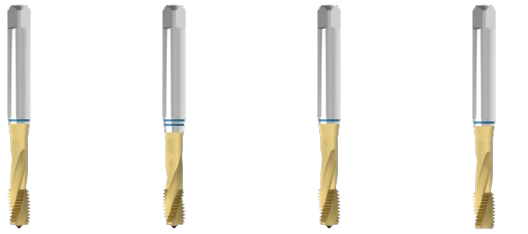
M | SL

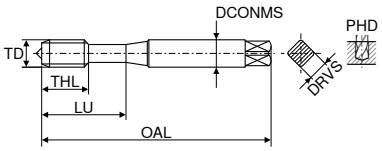
ST TS | HR | ST CNC | ST CNC

C 2–3

ISO 2X 6HX | ISO 2 6H | ISO 2X 6HX | ISO 2X 6HX

TiN | TiN | TiN | TiN





DIN 371 with reinforced shank

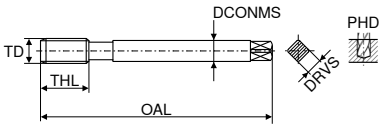
HSS-E | HSS-PM | HSS-E | HSS-E

15° | 25° | 15° | 15°

≤ 1050 N/mm² | ≤ 1400 N/mm² | ≤ 1100 N/mm² | ≤ 1100 N/mm²

≤ 2xD | ≤ 2xD | ≤ 2xD | ≤ 2xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 406 ...	Article no. 22 072 ...	Article no. 22 328 ...	Article no. 22 443 ...
	mm	mm	mm	mm	mm	mm	mm					
M3	0,50	56	3,5	2,7	2,5	6	18	2	030		030	
M3	0,50	56	3,5	2,7	2,5	11	18	3		030		
M4	0,70	63	4,5	3,4	3,3	13	21	3		040		
M4	0,70	63	4,5	3,4	3,3	7	21	3	040		040	
M5	0,80	70	6,0	4,9	4,2	15	25	3		050		
M5	0,80	70	6,0	4,9	4,2	8	25	3	050		050	050
M6	1,00	80	6,0	4,9	5,0	17	30	3		060		
M6	1,00	80	6,0	4,9	5,0	10	30	3	060		060	060
M8	1,25	90	8,0	6,2	6,8	20	35	3		080		
M8	1,25	90	8,0	6,2	6,8	14	35	3	080		080	080
M10	1,50	100	10,0	8,0	8,5	22	39	3		100		
M10	1,50	100	10,0	8,0	8,5	16	39	3	100		100	100
M12	1,75	110	12,0	9,0	10,2	24	44	3		120		



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 407 ...		Article no. 22 329 ...	Article no. 22 444 ...
	mm	mm	mm	mm	mm	mm					
M12	1,75	110	9	7	10,2	18	3	120		120	120
M16	2,00	110	12	9	14,0	22	3	160		160	160
M20	2,50	140	16	12	17,5	25	3	200		200	

Steel	20-100	2-6	5-45	5-45
Stainless steel				
Cast iron	20-60		10-30	10-30
Non ferrous metals	20-100		5-30	5-30
Heat resistant alloys	10-25	3-5		
Hardened materials				

Blind hole – Machine taps, right/left hand

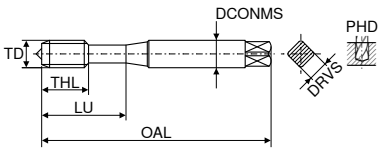
▲ LH = for left hand threads

M | Salo-Rex

ST | C 2–3 | ISO 2 6H

ST | C 2–3 | ISO 2 6H | TiN

ST LH | C 2–3 | ISO 2 6H

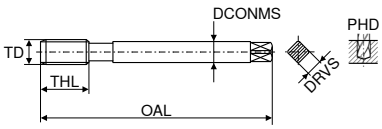


DIN 371 with reinforced shank



HSS-E
∢ 42°
≤ 750 N/mm²
≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 082 ...	Article no. 22 084 ...	Article no. 22 138 ...
	mm	mm	mm	mm	mm	mm	mm				
M2	0,40	45	2,8	2,1	1,60	4,0	12	2	020	020	
M2,3	0,40	45	2,8	2,1	1,90	4,5	12	2	023		
M2,5	0,45	50	2,8	2,1	2,05	5,0	15	2	025		
M3	0,50	56	3,5	2,7	2,50	6,0	18	3	030	030	030
M3,5	0,60	56	4,0	3,0	2,90	7,0	20	3	035		
M4	0,70	63	4,5	3,4	3,30	7,0	21	3	040	040	040
M5	0,80	70	6,0	4,9	4,20	8,0	25	3	050	050	050
M6	1,00	80	6,0	4,9	5,00	10,0	30	3	060	060	060
M8	1,25	90	8,0	6,2	6,80	14,0	35	3	080	080	080
M10	1,50	100	10,0	8,0	8,50	16,0	39	3	100	100	100
M12	1,75	110	12,0	9,0	10,20	18,0	44	3	120		



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 083 ...	Article no. 22 085 ...	Article no. 22 139 ...
	mm	mm	mm	mm	mm	mm				
M3	0,50	56	2,2		2,5	6	3	030		
M4	0,70	63	2,8	2,1	3,3	7	3	040		
M5	0,80	70	3,5	2,7	4,2	8	3	050		
M6	1,00	80	4,5	3,4	5,0	10	3	060		
M8	1,25	90	6,0	4,9	6,8	14	3	080		
M10	1,50	100	7,0	5,5	8,5	16	3		100	
M12	1,75	110	9,0	7,0	10,2	18	3	120	120	120
M14	2,00	110	11,0	9,0	12,0	20	3	140		
M16	2,00	110	12,0	9,0	14,0	22	3	160	160	160
M18	2,50	125	14,0	11,0	15,5	25	3	180		
M20	2,50	140	16,0	12,0	17,5	25	3	200	200	200
M22	2,50	140	18,0	14,5	19,5	27	4	220		
M24	3,00	160	18,0	14,5	21,0	30	4	240		
M30	3,50	180	22,0	18,0	26,5	35	4	300		
M33	3,50	180	25,0	20,0	29,5	35	4	330		
M36	4,00	200	28,0	22,0	32,0	40	4	360		

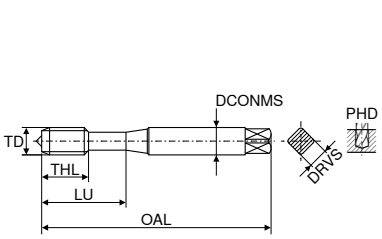
Steel	10-20	10-25	10-20
Stainless steel			
Cast iron			
Non ferrous metals	10-20	10-25	10-20
Heat resistant alloys			
Hardened materials			

Blind hole – Machine taps, right hand

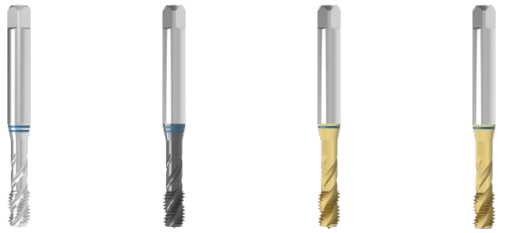
▲ TS = for high-speed machining, up to 100 m/min.

M | Salo-Rex

HR | C 2–3 | ISO 2 6H
HR | C 2–3 | ISO 2 6H | OSM
ST TS | C 2–3 | ISO 2 6H | TiN
ST TS | C 2–3 | ISO 2 6H | TiN

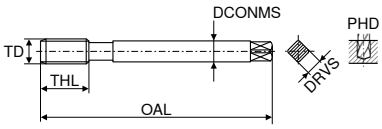


DIN 371 with reinforced shank



HSS-PM | ◁ 42° | ≤ 1400 N/mm² | ≤ 3xD
HSS-PM | ◁ 42° | ≤ 1400 N/mm² | ≤ 3xD
HSS-E | ◁ 40° | ≤ 1100 N/mm² | ≤ 2xD
HSS-E | ◁ 40° | ≤ 1100 N/mm² | ≤ 2xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 498 ...	Article no. 22 499 ...	Article no. 22 044 ...	Article no. 22 046 ...
	mm	mm	mm	mm	mm	mm	mm					
M3	0,50	56	3,5	2,7	2,5	6	18	3	**030**	**030**		
M4	0,70	63	4,5	3,4	3,3	7	21	3	**040**	**040**	**040**	
M5	0,80	70	6,0	4,9	4,2	8	25	3	**050**	**050**	**050**	**050**
M6	1,00	80	6,0	4,9	5,0	10	30	3	**060**	**060**	**060**	**060**
M8	1,25	90	8,0	6,2	6,8	14	35	3	**080**	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	8,5	16	39	3	**100**	**100**	**100**	**100**



DIN 376 with reduced shank

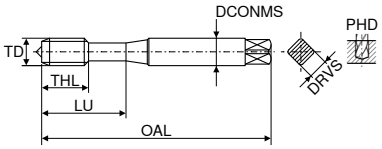
TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 045 ...	Article no. 22 047 ...
	mm	mm	mm	mm	mm	mm			
M12	1,75	110	9	7	10,2	18	4	**120**	**120**
M16	2,00	110	12	9	14,0	22	4	**160**	**160**

Steel	**4-12**	**4-12**	**20-100**	**20-100**
Stainless steel	**6-8**	**6-8**		
Cast iron			**20-60**	**20-60**
Non ferrous metals			**20-100**	**20-100**
Heat resistant alloys	**3-5**	**3-5**	**10-25**	**10-25**
Hardened materials				

6

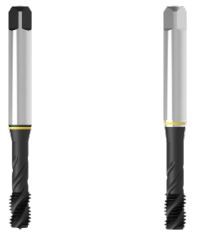
Blind hole – Machine taps, right hand

M | Salo-Rex



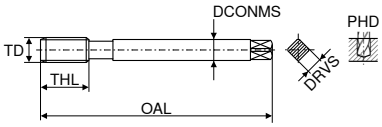
DIN 371 with reinforced shank

	VA	VA	VA
	C 2–3	E 1,5–2	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H
	vap.	TiN GS	TiN GS



HSS-E ◁ 42° ≤ 900 N/mm² ≤ 3xD | HSS-E ◁ 45° ≤ 900 N/mm² ≤ 3xD | HSS-E ◁ 45° ≤ 900 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 090 ...	Article no. 22 042 ...	Article no. 22 040 ...
	mm	mm	mm	mm	mm	mm	mm				
M1,6	0,35	40	2,5	2,1	1,25	4	11	2			016
M2	0,40	45	2,8	2,1	1,60	4	12	2	020		020
M2,5	0,45	50	2,8	2,1	2,05	5	15	2	025		
M2,5	0,45	50	2,8	2,1	2,05	5	15	3			025
M3	0,50	56	3,5	2,7	2,50	6	18	3	030		030
M4	0,70	63	4,5	3,4	3,30	7	21	3	040		040
M5	0,80	70	6,0	4,9	4,20	8	25	3	050	050	050
M6	1,00	80	6,0	4,9	5,00	10	30	3	060	060	060
M8	1,25	90	8,0	6,2	6,80	14	35	3	080	080	080
M10	1,50	100	10,0	8,0	8,50	16	39	3	100	100	100



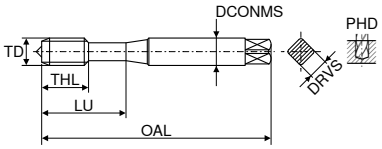
DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 091 ...	Article no. 22 041 ...
	mm	mm	mm	mm	mm	mm			
M12	1,75	110	9	7,0	10,2	18	4	120	120
M14	2,00	110	11	9,0	12,0	20	4	140	140
M16	2,00	110	12	9,0	14,0	22	4	160	160
M20	2,50	140	16	12,0	17,5	25	4	200	200
M22	2,50	140	18	14,5	19,5	27	5	220	
M24	3,00	160	18	14,5	21,0	30	5	240	
M30	3,50	180	22	18,0	26,5	35	5	300	

Steel		5-12	5-12
Stainless steel	5-10	5-10	5-10
Cast iron			
Non ferrous metals			
Heat resistant alloys			
Hardened materials			

Blind hole – Machine taps, right hand

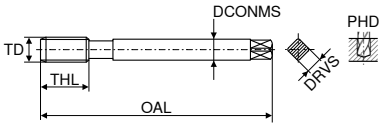
M | Salo-Rex



DIN 371 with reinforced shank

	Soft	Soft	NW	NW
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
		CH	vap.	HCr
				
	HSS-E ◁ 42° ≤ 500 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 500 N/mm² ≤ 3xD	HSS-E ◁ 38° ≤ 500 N/mm² ≤ 3xD	HSS-E ◁ 38° ≤ 500 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 326 ...	Article no. 22 324 ...	Article no. 22 086 ...	Article no. 22 088 ...
	mm	mm	mm	mm	mm	mm	mm					
M2	0,40	45	2,8	2,1	1,60	4	12	2	020	020	020	020
M2,5	0,45	50	2,8	2,1	2,05	5	15	2	025	025	025	025
M3	0,50	56	3,5	2,7	2,50	6	18	2	030	030		
M3	0,50	56	3,5	2,7	2,50	6	18	3			030	030
M4	0,70	63	4,5	3,4	3,30	7	21	2	040	040		
M4	0,70	63	4,5	3,4	3,30	7	21	3			040	040
M5	0,80	70	6,0	4,9	4,20	8	25	2	050	050		
M5	0,80	70	6,0	4,9	4,20	8	25	3			050	050
M6	1,00	80	6,0	4,9	5,00	10	30	2	060	060		
M6	1,00	80	6,0	4,9	5,00	10	30	3			060	060
M8	1,25	90	8,0	6,2	6,80	14	35	2	080	080		
M8	1,25	90	8,0	6,2	6,80	14	35	3			080	080
M10	1,50	100	10,0	8,0	8,50	16	39	2	100	100		
M10	1,50	100	10,0	8,0	8,50	16	39	3			100	100



DIN 376 with reduced shank

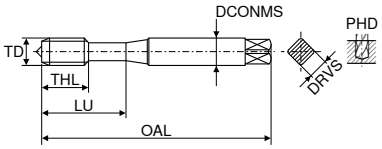
TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 087 ...	Article no. 22 089 ...
	mm	mm	mm	mm	mm	mm			
M12	1,75	110	9	7	10,2	18	3	120	120
M16	2,00	110	12	9	14,0	22	3	160	160

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	15-40	15-40	10-20	12-25
Heat resistant alloys				
Hardened materials				

6

Blind hole – Machine taps, right hand

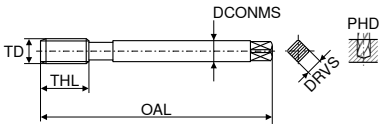
M | SL



DIN 371 with reinforced shank

	Ti	Ti	Ni	Ni
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2 6H	ISO 2X 6HX
	TiN	TiCN	TiCN	TiCN
				
	HSS-PM ◁ 30° ≤ 1400 N/mm² ≤ 1,5xD	HSS-PM ◁ 15° ≤ 1200 N/mm² ≤ 2xD	HSS-PM ◁ 15° ≤ 1600 N/mm² ≤ 1,5xD	HSS-PM ◁ 15° ≤ 1600 N/mm² ≤ 2xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 076 ...	Article no. 22 163 ...	Article no. 22 073 ...	Article no. 22 424 ...
	mm	mm	mm	mm	mm	mm	mm					
M3	0,50	56	3,5	2,7	2,5	11	18	2		030		030
M3	0,50	56	3,5	2,7	2,5	11	18	3			030	
M3	0,50	56	3,5	2,7	2,5	6	18	3	030			
M3,5	0,60	56	4,0	3,0	2,9	12	20	3		035		
M4	0,70	63	4,5	3,4	3,3	7	21	3	040			
M4	0,70	63	4,5	3,4	3,3	13	21	3		040	040	040
M5	0,80	70	6,0	4,9	4,2	8	25	3	050			
M5	0,80	70	6,0	4,9	4,2	15	25	3		050	050	050
M6	1,00	80	6,0	4,9	5,0	10	30	3	060			
M6	1,00	80	6,0	4,9	5,0	17	30	3		060	060	060
M8	1,25	90	8,0	6,2	6,8	14	35	3	080			
M8	1,25	90	8,0	6,2	6,8	20	35	3		080	080	080
M10	1,50	100	10,0	8,0	8,5	16	39	3	100			
M10	1,50	100	10,0	8,0	8,5	22	39	3		100	100	100
M12	1,75	110	12,0	9,0	10,2	18	44	3	120			



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 164 ...	Article no. 22 124 ...	Article no. 22 425 ...
	mm	mm	mm	mm	mm	mm				
M12	1,75	110	9	7,0	10,2	24	3	120		120
M12	1,75	110	9	7,0	10,2	24	4		120	
M14	2,00	110	11	9,0	12,0	26	3			140
M14	2,00	110	11	9,0	12,0	26	4		140	
M16	2,00	110	12	9,0	14,0	27	3	160		160
M16	2,00	110	12	9,0	14,0	27	5		160	
M20	2,50	140	16	12,0	17,5	32	3	200		200
M24	3,00	160	18	14,5	21,0	34	3	240		

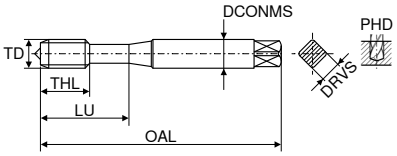
Steel	2-5	6-8		
Stainless steel		4-10		
Cast iron				
Non ferrous metals		10-12		
Heat resistant alloys	2-6	4-6	2-4	2-4
Hardened materials				

Blind hole – Machine taps, right hand

▲ ES = extra short

M | Salo-Rex

UNI ES | E 1,5–2 | ISO 2 6H | vap.



DIN 352 with reinforced shank



HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 500 ...
	mm	mm	mm	mm	mm	mm	mm		
M3	0,50	40	3,5	2,7	2,5	6	18	3	**030**
M3,5	0,60	45	4,0	3,0	2,9	7	20	3	**035**
M4	0,70	45	4,5	3,4	3,3	7	22	3	**040**
M5	0,80	50	6,0	4,9	4,2	9	25	3	**050**
M6	1,00	56	6,0	4,9	5,0	10	28	3	**060**
M8	1,25	63	6,0	4,9	6,8	14		3	**080**
M10	1,50	70	7,0	5,5	8,5	16		3	**100**
M12	1,75	75	9,0	7,0	10,2	18		4	**120**
M16	2,00	80	12,0	9,0	14,0	22		4	**160**

Steel	**6-20**
Stainless steel	**4-8**
Cast iron	**6-15**
Non ferrous metals	
Heat resistant alloys	
Hardened materials	

Blind hole – Machine taps, right hand

▲ AUT = short version for automatic use

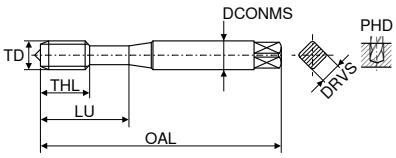
▲ ES = extra short

M | SL

ST ES | ST AUT/ES

C 2–3 | E 1,5–2

ISO 2 6H | ISO 2 6H







DIN 352 with reinforced shank

HSS-E
◁ 15°
≤ 750 N/mm²
≤ 2xD

HSS-E
◁ 15°
≤ 750 N/mm²
≤ 2xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 016 ...		Article no. 22 001 ...	
	mm	mm	mm	mm	mm	mm	mm					
M3	0,50	40	3,5	2,7	2,5	10	18	2		**030**		**030**
M4	0,70	45	4,5	3,4	3,3	12	22	3		**040**		**040**
M5	0,80	50	6,0	4,9	4,2	14	25	3		**050**		**050**
M6	1,00	56	6,0	4,9	5,0	16	28	3		**060**		**060**
M8	1,25	63	6,0	4,9	6,8	20		3		**080**		**080**
M10	1,50	70	7,0	5,5	8,5	22		3		**100**		**100**
M12	1,75	75	9,0	7,0	10,2	24		3		**120**		
M14	2,00	80	11,0	9,0	12,0	26		3		**140**		
M16	2,00	80	12,0	9,0	14,0	27		3		**160**		
M20	2,50	95	16,0	12,0	17,5	32		3		**200**		

Steel	**10-20**	**10-20**
Stainless steel		
Cast iron		
Non ferrous metals	**10-20**	**10-20**
Heat resistant alloys		
Hardened materials		

Blind hole – Machine taps, right hand

▲ EL = extra long, with double overall length

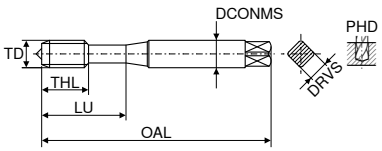
M | Salo-Rex

UNI EL | ST EL

C 2–3 | C 2–3

ISO 2 6H | ISO 2 6H

vap.





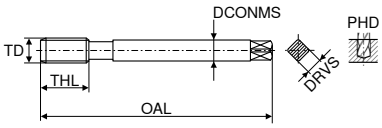


DIN 371 with reinforced shank

HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD

HSS-E ◁ 42° ≤ 750 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 538 ...	Article no. 22 422 ...
	mm	mm	mm	mm	mm	mm	mm			
M3	0,50	100	3,5	2,7	2,5	6	18	3	**030**	**030**
M4	0,70	125	4,5	3,4	3,3	7	21	3	**040**	**040**
M5	0,80	140	6,0	4,9	4,2	8	25	3	**050**	**050**
M6	1,00	160	6,0	4,9	5,0	10	30	3	**060**	**060**
M8	1,25	180	8,0	6,2	6,8	14	35	3	**080**	**080**



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 539 ...	Article no. 22 423 ...
	mm	mm	mm	mm	mm	mm			
M6	1,00	160	4,5	3,4	5,0	10	3	**060**	**060**
M8	1,25	180	6,0	4,9	6,8	14	3	**080**	**080**
M10	1,50	200	7,0	5,5	8,5	16	3	**100**	**100**
M12	1,75	224	9,0	7,0	10,2	18	3	**120**	**120**
M14	2,00	224	11,0	9,0	12,0	20	3	**140**	**140**
M16	2,00	224	12,0	9,0	14,0	22	3	**160**	**160**
M18	2,50	250	14,0	11,0	15,5	25	3	**180**	**180**
M20	2,50	280	16,0	12,0	17,5	25	3	**200**	**200**

Steel	**6-20**	**5-25**
Stainless steel	**4-8**	
Cast iron	**6-15**	
Non ferrous metals		**10-40**
Heat resistant alloys		
Hardened materials		

6

Blind hole – Machine taps, right hand

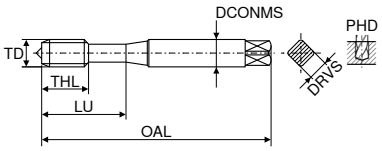
▲ EL = extra long, with double overall length

M | SL

ST
EL

E
1,5–2

ISO 2
6H

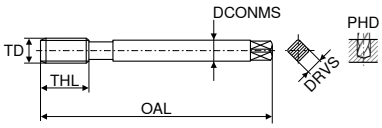


DIN 371 with reinforced shank



HSS-E
15°
≤ 750 N/mm²
≤ 2xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 078 ...
	mm	mm	mm	mm	mm	mm	mm		
M3	0,50	100	3,5	2,7	2,5	11	18	2	**030**
M4	0,70	125	4,5	3,4	3,3	13	21	3	**040**
M5	0,80	140	6,0	4,9	4,2	15	25	3	**050**
M6	1,00	160	6,0	4,9	5,0	17	30	3	**060**
M8	1,25	180	8,0	6,2	6,8	20	35	3	**080**



DIN 376 with reduced shank

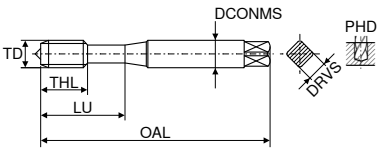
TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 080 ...
	mm	mm	mm	mm	mm	mm		
M6	1,00	160	4,5	3,4	5,0	17	3	**060**
M8	1,25	180	6,0	4,9	6,8	20	3	**080**
M10	1,50	200	7,0	5,5	8,5	22	3	**100**
M12	1,75	224	9,0	7,0	10,2	24	3	**120**
M14	2,00	224	11,0	9,0	12,0	26	3	**140**
M16	2,00	224	12,0	9,0	14,0	27	3	**160**
M20	2,50	280	16,0	12,0	17,5	32	3	**200**

Steel	**10-20**
Stainless steel	
Cast iron	
Non ferrous metals	**10-20**
Heat resistant alloys	
Hardened materials	

Blind hole – Machine taps, right hand

▲ NC = for synchronised CNC machining with minimum length compensation chuck

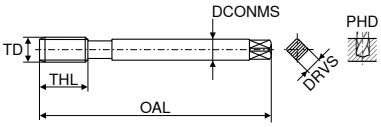
M



DIN 371 with reinforced shank

	UNI	UNI	UNI	UNI	UNI NC
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	vap.	TiN	TiN	TiCN	TiN GS
					
	HSS-E ◁ 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E ◁ 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-PM ◁ 50° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E ◁ 45° ≤ 1000 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 1000 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 118 ...	Article no. 23 120 ...	Article no. 23 026 ...	Article no. 23 122 ...	Article no. 23 124 ...
	mm	mm	mm	mm	mm	mm	mm						
M2	0,40	45	2,8	2,1	1,60	4	12	2	020	020			
M2,5	0,45	50	2,8	2,1	2,05	5	14	2	025	025			
M3	0,50	56	3,5	2,7	2,50	6	18	3	030	030	030	030	030
M4	0,70	63	4,5	3,4	3,30	7	21	3	040	040	040	040	040
M5	0,80	70	6,0	4,9	4,20	8	25	3	050	050	050	050	050
M6	1,00	80	6,0	4,9	5,00	10	30	3	060	060	060	060	060
M8	1,25	90	8,0	6,2	6,80	14	35	3	080	080	080	080	080
M10	1,50	100	10,0	8,0	8,50	16	39	3	100	100	100	100	100



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 119 ...	Article no. 23 121 ...	Article no. 23 027 ...	Article no. 23 123 ...	Article no. 23 125 ...
	mm	mm	mm	mm	mm	mm						
M3	0,50	56	2,2		2,5	6	3	030				
M4	0,70	63	2,8	2,1	3,3	7	3	040				
M5	0,80	70	3,5	2,7	4,2	8	3	050				
M6	1,00	80	4,5	3,4	5,0	10	3	060				
M8	1,25	90	6,0	4,9	6,8	14	3	080				
M10	1,50	100	7,0	5,5	8,5	16	3	100				
M12	1,75	110	9,0	7,0	10,2	18	3	120	120			
M12	1,75	110	9,0	7,0	10,2	18	4			120	120	120
M14	2,00	110	11,0	9,0	12,0	20	3		14000			
M14	2,00	110	11,0	9,0	12,0	20	4			140		
M16	2,00	110	12,0	9,0	14,0	22	3	160	160			
M16	2,00	110	12,0	9,0	14,0	22	4			160	160	160
M18	2,50	125	14,0	11,0	15,5	25	3		18000			
M20	2,50	140	16,0	12,0	17,5	25	3	200	200	200		
M20	2,50	140	16,0	12,0	17,5	25	4				200	200
M22	2,50	140	18,0	14,5	19,5	27	4		22000			
M24	3,00	160	18,0	14,5	21,0	34	4		240			
M27	3,00	160	20,0	16,0	24,0	30	4		27000			
M30	3,50	180	22,0	18,0	26,5	35	4		30000			
M33	3,50	180	25,0	20,0	29,5	35	4		33000			
M36	4,00	200	28,0	22,0	32,0	40	4		36000			

Steel	2-25	5-45	10-20	5-45	5-45
Stainless steel	2-8	5-15	8-15	5-15	5-15
Cast iron	5-20	10-25	20-25	10-25	10-25
Non ferrous metals	10-20	15-40	20-25	15-40	15-40
Heat resistant alloys					
Hardened materials					

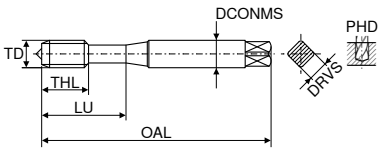
6

Blind hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

M

UNI NCW	FE	FE-HF	VA
C 2–3	C 2–3	C 2–3	C 2–3
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
TiCN		TiCN	

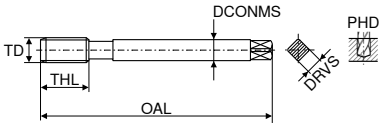


DIN 371 with reinforced shank



	HSS-PM	HSS-E	HSS-E	HSS-E
	◁ 35° ≤ 1000 N/mm² ≤ 2,5xD	◁ 35° ≤ 850 N/mm² ≤ 2,5xD	◁ 35° ≤ 1100 N/mm² ≤ 2,5xD	◁ 35° ≤ 1200 N/mm² ≤ 2,5xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 126 ...	Article no. 23 216 ...	Article no. 23 312 ...	Article no. 23 414 ...
	mm	mm	mm	mm	mm	mm	mm					
M2	0,40	45	2,8	2,1	1,60	4	12	2		020		020
M2,5	0,45	50	2,8	2,1	2,05	5	14	2		025		025
M3	0,50	56	3,5	2,7	2,50	6	18	3		030	030	030
M3	0,50	70	6,0	4,9	2,50	6	18	3	030			
M4	0,70	63	4,5	3,4	3,30	7	21	3		040	040	040
M4	0,70	70	6,0	4,9	3,30	7	21	3	040			
M5	0,80	70	6,0	4,9	4,20	8	25	3	050	050	050	050
M6	1,00	80	6,0	4,9	5,00	10	30	3	060	060	060	060
M8	1,25	90	8,0	6,2	6,80	14	35	3	080	080	080	080
M10	1,50	100	10,0	8,0	8,50	16	39	3	100	100	100	100



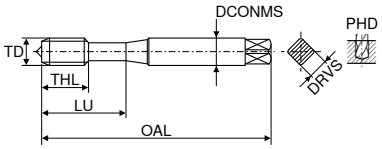
DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 127 ...	Article no. 23 217 ...	Article no. 23 313 ...	Article no. 23 415 ...
	mm	mm	mm	mm	mm	mm					
M12	1,75	110	10	8,0	10,2	18	3	120			
M12	1,75	110	9	7,0	10,2	18	3		120	120	120
M14	2,00	110	11	9,0	12,0	20	3		140		
M16	2,00	110	12	9,0	14,0	22	3	160	160	160	160
M20	2,50	140	16	12,0	17,5	25	3		200	200	200
M24	3,00	160	18	14,5	21,0	30	4				240

Steel	**5-45**	**5-25**	**5-45**	
Stainless steel	**5-15**			**3-10**
Cast iron	**10-25**			
Non ferrous metals	**15-40**			
Heat resistant alloys	**5-8**			
Hardened materials				

Blind hole – Machine taps, right hand

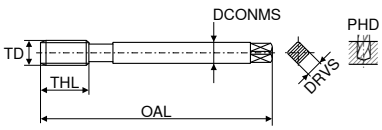
M



DIN 371 with reinforced shank

	VA	VA	VA	AL	AL
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN		TiN		CrN
					
	HSS-E	HSS-PM	HSS-PM	HSS-E	HSS-E
	◁ 45° ≤ 1200 N/mm² ≤ 3xD	◁ 40° ≤ 1200 N/mm² ≤ 2,5xD	◁ 40° ≤ 1200 N/mm² ≤ 2,5xD	◁ 35° ≤ 500 N/mm² ≤ 2,5xD	◁ 35° ≤ 500 N/mm² ≤ 2,5xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 416 ...	Article no. 23 426 ...	Article no. 23 456 ...	Article no. 23 616 ...	Article no. 23 614 ...
	mm	mm	mm	mm	mm	mm	mm						
M2	0,40	45	2,8	2,1	1,60	4	12	2	**020**				
M2,5	0,45	50	2,8	2,1	2,05	5	14	2	**025**				
M3	0,50	56	3,5	2,7	2,50	6	18	3	**030**	**030**	**030**	**030**	**030**
M4	0,70	63	4,5	3,4	3,30	7	21	3	**040**	**040**	**040**	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	8	25	3	**050**	**050**	**050**	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	10	30	3	**060**	**060**	**060**	**060**	**060**
M8	1,25	90	8,0	6,2	6,80	14	35	3	**080**	**080**	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	16	39	3	**100**	**100**	**100**	**100**	**100**



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 417 ...	Article no. 23 427 ...	Article no. 23 457 ...	Article no. 23 617 ...	Article no. 23 615 ...
	mm	mm	mm	mm	mm	mm						
M12	1,75	110	9	7,0	10,2	18	3		**120**	**120**	**120**	**120**
M12	1,75	110	9	7,0	10,2	18	4	**120**				
M14	2,00	110	11	9,0	12,0	20	4		**140**			
M16	2,00	110	12	9,0	14,0	22	3		**160**	**160**		
M16	2,00	110	12	9,0	14,0	22	4	**160**				
M20	2,50	140	16	12,0	17,5	25	3		**200**	**200**		
M20	2,50	140	16	12,0	17,5	25	4	**200**				
M24	3,00	160	18	14,5	21,0	30	4		**240**			

Steel						
Stainless steel	**8-20**	**5-10**	**8-20**			
Cast iron						
Non ferrous metals				**10-20**	**15-40**	
Heat resistant alloys						
Hardened materials						

6

Through hole / Blind hole – Machine taps, right hand

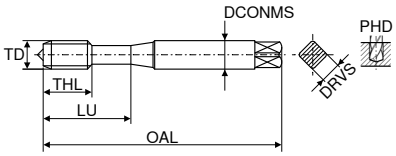
M | TWIN

ST | HR | AMPCO

C 2–3

ISO 2X 6HX

nitr.



DIN 371 with reinforced shank





	HSS-E	HSS-E	HSS-PM
	0° ≤ 750 N/mm² ≤ 2xD	0° ≤ 1400 N/mm² ≤ 2xD	0° ≤ 800 N/mm² ≤ 2xD
TD	Article no. 22 028 ...	Article no. 22 006 ...	Article no. 22 030 ...

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes				
	mm	mm	mm	mm	mm	mm	mm					
M1,2	0,25	40	2,5	2,1	0,95	5	13	2	**012** [1]			
M1,4	0,30	40	2,5	2,1	1,10	6	13	2	**014** [1]			
M1,6	0,35	40	2,5	2,1	1,25	6	11	2	**016**			
M1,7	0,35	40	2,5	2,1	1,35	6	11	2	**017**			
M1,8	0,35	40	2,5	2,1	1,45	6	11	2	**018**			
M2	0,40	45	2,8	2,1	1,60	7	12	3	**020**			
M2,2	0,45	45	2,8	2,1	1,75	7	12	3	**022**			
M2,3	0,40	45	2,8	2,1	1,90	7	12	3	**023**			
M2,5	0,45	50	2,8	2,1	2,05	9	14	3	**025**			
M2,6	0,45	50	2,8	2,1	2,15	9	14	3	**026**			
M3	0,50	56	3,5	2,7	2,50	11	18	3	**030**		**030**	**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	**035**			
M4	0,70	63	4,5	3,4	3,30	13	21	3	**040**		**040**	**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	**050**		**050**	**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	**060**		**060**	**060**
M7	1,00	80	7,0	5,5	6,00	17	30	3	**070**			
M8	1,25	90	8,0	6,2	6,80	20	35	3	**080**		**080**	**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	**100**		**100**	**100**
M12	1,75	110	12,0	9,0	10,20	24	44	3	**120**			

Steel	**10-20**	**6-15**	
Stainless steel			
Cast iron		**6-15**	
Non ferrous metals	**10-20**		
Heat resistant alloys		**3-5**	**3-5**
Hardened materials			

1) Tol. 4H/5H ≤ M1.4

DIN 376 can be found on the next page

Through hole / Blind hole – Machine taps, right hand

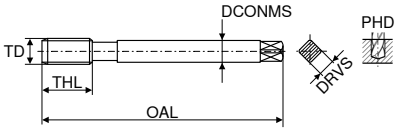
M | TWIN

ST | HR | AMPCO

C 2–3

ISO 2X 6HX

nitr.



DIN 376 with reduced shank





HSS-E
0°
≤ 750 N/mm²
≤ 2xD

HSS-E
0°
≤ 1400 N/mm²
≤ 2xD

HSS-PM
0°
≤ 800 N/mm²
≤ 2xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 029 ...	Article no. 22 007 ...	Article no. 22 031 ...
	mm	mm	mm	mm	mm	mm				
M4	0,70	63	2,8	2,1	3,3	13	3	**040**		
M5	0,80	70	3,5	2,7	4,2	15	3	**050**		
M6	1,00	80	4,5	3,4	5,0	17	3	**060**		
M8	1,25	90	6,0	4,9	6,8	20	3	**080**		
M10	1,50	100	7,0	5,5	8,5	22	3	**100**		
M12	1,75	110	9,0	7,0	10,2	24	3	**120**	**120**	
M12	1,75	110	9,0	7,0	10,2	24	4			**120**
M14	2,00	110	11,0	9,0	12,0	26	3	**140**		
M16	2,00	110	12,0	9,0	14,0	27	3	**160**	**160**	
M16	2,00	110	12,0	9,0	14,0	27	4			**160**
M18	2,50	125	14,0	11,0	15,5	30	4	**180**		
M20	2,50	140	16,0	12,0	17,5	32	4	**200**		**200**
M22	2,50	140	18,0	14,5	19,5	32	4	**220**		
M24	3,00	160	18,0	14,5	21,0	34	4	**240**		**240**
M33	3,50	180	25,0	20,0	29,5	40	4	**330**		

Steel	**10-20**	**6-15**	
Stainless steel			
Cast iron		**6-15**	
Non ferrous metals	**10-20**		
Heat resistant alloys		**3-5**	**3-5**
Hardened materials			

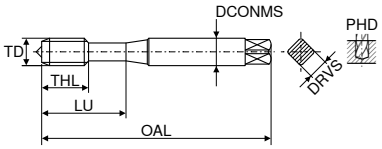
6

Through hole / Blind hole – Machine taps, right hand

M | TWIN

GG | C 2–3 | ISO 2X 6HX | nitr.

GG | C 2–3 | ISO 2X 6HX | nitr.





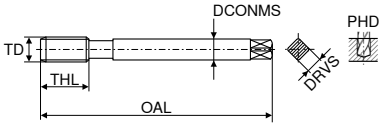


DIN 371 with reinforced shank

HSS-E
0°
≤ 1050 N/mm²
≤ 2xD

HSS-E
0°
≤ 1050 N/mm²
≤ 2xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 032 ...	Article no. 22 036 ...
	mm	mm	mm	mm	mm	mm	mm			
M2	0,40	45	2,8	2,1	1,60	7	12	3	020	
M2,5	0,45	50	2,8	2,1	2,05	9	14	3	025	
M3	0,50	56	3,5	2,7	2,50	11	18	3	030	
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	035	
M4	0,70	63	4,5	3,4	3,30	13	21	3	040	
M5	0,80	70	6,0	4,9	4,20	15	25	3	050	050
M6	1,00	80	6,0	4,9	5,00	17	30	3	060	060
M8	1,25	90	8,0	6,2	6,80	20	35	3	080	080
M10	1,50	100	10,0	8,0	8,50	22	39	3	100	100



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 033 ...	Article no. 22 037 ...
	mm	mm	mm	mm	mm	mm			
M4	0,70	63	2,8	2,1	3,3	13	3	040	
M5	0,80	70	3,5	2,7	4,2	15	3	050	
M6	1,00	80	4,5	3,4	5,0	17	3	060	
M8	1,25	90	6,0	4,9	6,8	20	3	080	
M10	1,50	100	7,0	5,5	8,5	22	3	100	
M12	1,75	110	9,0	7,0	10,2	24	3	120	120
M14	2,00	110	11,0	9,0	12,0	26	3	140	140
M16	2,00	110	12,0	9,0	14,0	27	3	160	160
M18	2,50	125	14,0	11,0	15,5	30	4	180	
M20	2,50	140	16,0	12,0	17,5	32	4	200	200
M22	2,50	140	18,0	14,5	19,5	32	4	220	
M24	3,00	160	18,0	14,5	21,0	34	4	240	

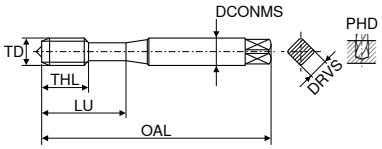
Steel		
Stainless steel		
Cast iron	10-20	10-20
Non ferrous metals		
Heat resistant alloys		
Hardened materials		

Through hole / Blind hole – Machine taps, right hand

M | TWIN

HT | D 4–5 | ISO 2X 6HX | OSM

HT | C 2–3 | ISO 2X 6HX | TiCN





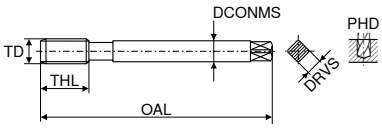


DIN 371 with reinforced shank

Solid carbide
0°
≤ 63 HRC
≤ 1,5xD

HSS-PM
0°
44 - 52 HRC
≤ 1,5xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 806 ...	Article no. 22 227 ...
	mm	mm	mm	mm	mm	mm	mm			
M3	0,50	63	4,5	3,4	2,55	6	18	4	**030**	
M4	0,70	63	4,5	3,4	3,40	8	20	4	**040**	
M5	0,80	70	6,0	4,9	4,30	10	26	4	**050**	
M6	1,00	80	6,0	4,9	5,00	10	30	4		**060**
M6	1,00	80	6,0	4,9	5,10	12	28	4	**060**	
M8	1,25	90	8,0	6,2	6,80	14	35	5		**080**
M8	1,25	90	8,0	6,2	6,90	15	35	5	**080**	
M10	1,50	100	10,0	8,0	8,50	18	38	5	**100**	
M10	1,50	100	10,0	8,0	8,50	16	39	5		**100**
M12	1,75	110	12,0	9,0	10,40	21	41	5	**120**	
M16	2,00	110	16,0	12,0	14,20	24	44	6	**160**	



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 228 ...
	mm	mm	mm	mm	mm	mm		
M12	1,75	110	9	7	10,4	18	5	**120**
M16	2,00	110	12	9	14,2	22	6	**160**

Steel		
Stainless steel		
Cast iron		
Non ferrous metals		
Heat resistant alloys		
Hardened materials	**1-3**	**1-3**

6

Through hole / Blind hole – Machine taps, right hand

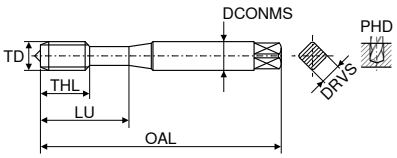
▲ ES = extra short

M | TWIN

ST
ES

C
2–3

ISO 2X
6HX





DIN 352 with reinforced shank

HSS-E
0°
≤ 750 N/mm²
≤ 2xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 018 ...
	mm	mm	mm	mm	mm	mm	mm		
M2	0,40	36	2,8	2,1	1,60	8		3	**020**
M2,5	0,45	40	2,8	2,1	2,05	9		3	**025**
M3	0,50	40	3,5	2,7	2,50	10	18	3	**030**
M4	0,70	45	4,5	3,4	3,30	12	22	3	**040**
M5	0,80	50	6,0	4,9	4,20	14	25	3	**050**
M6	1,00	56	6,0	4,9	5,00	16	28	3	**060**
M8	1,25	63	6,0	4,9	6,80	20		3	**080**
M10	1,50	70	7,0	5,5	8,50	22		3	**100**
M12	1,75	75	9,0	7,0	10,20	24		3	**120**

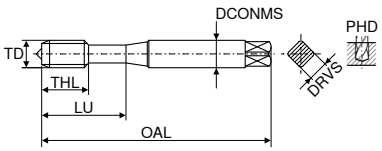
Steel	**10-20**
Stainless steel	
Cast iron	
Non ferrous metals	**10-20**
Heat resistant alloys	
Hardened materials	

Through hole / Blind hole – Machine taps, right hand

▲ EL = extra long, with double overall length

M | TWIN

HR EL | C 2–3 | ISO 2X 6HX | nitr.

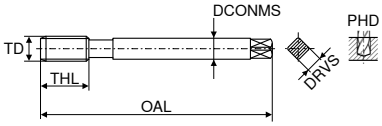


DIN 371 with reinforced shank



HSS-E
0°
≤ 1400 N/mm²
≤ 2xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 122 ...
	mm	mm	mm	mm	mm	mm	mm		
M3	0,50	100	3,5	2,7	2,5	11	18	3	**030**
M4	0,70	125	4,5	3,4	3,3	13	21	3	**040**
M5	0,80	140	6,0	4,9	4,2	15	25	3	**050**
M6	1,00	160	6,0	4,9	5,0	17	30	3	**060**
M8	1,25	180	8,0	6,2	6,8	20	35	3	**080**



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 123 ...
	mm	mm	mm	mm	mm	mm		
M10	1,50	200	7	5,5	8,5	22	3	**100**
M12	1,75	224	9	7,0	10,2	24	3	**120**
M16	2,00	224	12	9,0	14,0	27	3	**160**
M20	2,50	280	16	12,0	17,5	32	4	**200**

Steel	**6-15**
Stainless steel	
Cast iron	**6-15**
Non ferrous metals	
Heat resistant alloys	**3-5**
Hardened materials	

Through hole / Blind hole – Machine taps, right hand

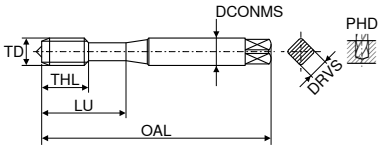
M

GG

C
2–3

ISO 2X
6HX

TiCN

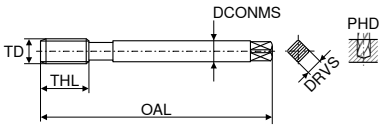


DIN 371 with reinforced shank



HSS-E
0°
≤ 900 N/mm²
≤ 2xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 512 ...
	mm	mm	mm	mm	mm	mm	mm		
M3	0,50	56	3,5	2,7	2,5	11	18	3	**030**
M4	0,70	63	4,5	3,4	3,3	13	21	3	**040**
M5	0,80	70	6,0	4,9	4,2	15	25	3	**050**
M6	1,00	80	6,0	4,9	5,0	17	30	3	**060**
M8	1,25	90	8,0	6,2	6,8	20	35	3	**080**
M10	1,50	100	10,0	8,0	8,5	22	39	3	**100**



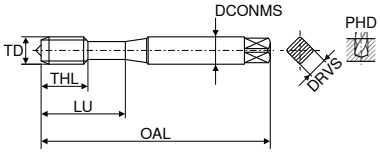
DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 513 ...
	mm	mm	mm	mm	mm	mm		
M12	1,75	110	9	7	10,2	24	3	**120**

Steel	
Stainless steel	
Cast iron	**10-30**
Non ferrous metals	
Heat resistant alloys	
Hardened materials	

Through hole / Blind hole – Machine thread formers, right hand

M | Spanlos

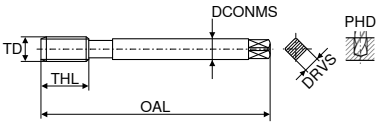


DIN 2174 with reinforced shank

	EC	EC	EC	EC
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
	Ti200	HCr	TiN GS	TiN
				
	HSS-PM ≤ 1400 N/mm² ≤ 1,5xD	HSS-E ≤ 1100 N/mm² ≤ 1,5xD	HSS-E ≤ 1100 N/mm² ≤ 1,5xD	HSS-E ≤ 1100 N/mm² ≤ 1,5xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Article no. 22 112 ...	Article no. 22 128 ...	Article no. 22 136 ...	Article no. 22 100 ...
	mm	mm	mm	mm	mm	mm	mm				
M1	0,25	40	2,5	2,1	0,90	5	6,5				010 [1]
M1,2	0,25	40	2,5	2,1	1,10	5	6,5				012 [1]
M1,4	0,30	40	2,5	2,1	1,28	6	9,0				014 [1]
M1,6	0,35	40	2,5	2,1	1,47	6	9,0				016
M1,7	0,35	40	2,5	2,1	1,57	6	9,0				017
M2	0,40	45	2,8	2,1	1,85	7	10,0		020		020
M2,5	0,45	50	2,8	2,1	2,30	9	14,0			025	
M2,5	0,45	50	2,8	2,1	2,33	9	14,0		025		025
M2,6	0,45	50	2,8	2,1	2,43	9	14,0				026
M3	0,50	56	3,5	2,7	2,80	6	18,0	030			
M3	0,50	56	3,5	2,7	2,80	11	18,0		030	030	030
M3,5	0,60	56	4,0	3,0	3,25	12	20,0				035
M4	0,70	63	4,5	3,4	3,70	13	21,0		040	040	040
M4	0,70	63	4,5	3,4	3,70	7	21,0	040			
M5	0,80	70	6,0	4,9	4,65	15	25,0		050	050	050
M5	0,80	70	6,0	4,9	4,65	8	25,0	050			
M6	1,00	80	6,0	4,9	5,60	10	30,0	060			
M6	1,00	80	6,0	4,9	5,60	17	30,0		060	060	060
M8	1,25	90	8,0	6,2	7,40	20	35,0				080
M8	1,25	90	8,0	6,2	7,45	20	35,0		080	080	
M8	1,25	90	8,0	6,2	7,45	14	35,0	080			
M10	1,50	100	10,0	8,0	9,35	16	39,0	100			
M10	1,50	100	10,0	8,0	9,35	22	39,0		100	100	100

1) Tol. ISO 1X 4HX ≤ M1.4



DIN 2174 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Article no. 22 101 ...
	mm	mm	mm	mm	mm	mm	
M12	1,75	110	9	7	11,25	24	120
M16	2,00	110	12	9	15,10	27	160

Steel	8-30	8-25	8-30	8-30
Stainless steel	8-15		8-15	8-15
Cast iron				
Non ferrous metals	12-25	10-30	12-25	12-25
Heat resistant alloys				
Hardened materials				

6

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

M | Spanlos

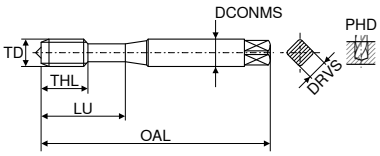
EC SN | C 2–3 | ISO 2X 6HX | nitr.

EC SN | C 2–3 | ISO 2X 6HX | HCr

EC SN | C 2–3 | ISO 3X 6GX | TiN

EC SN | C 2–3 | ISO 2X 6HX | TiN GS

EC SN | C 2–3 | ISO 2X 6HX | TiN

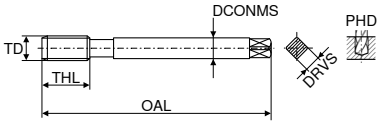


DIN 2174 with reinforced shank



HSS-E ≤ 1100 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 104 ...	Article no. 22 107 ...	Article no. 22 108 ...	Article no. 22 154 ...	Article no. 22 105 ...
	mm	mm	mm	mm	mm	mm	mm						
M2	0,40	45	2,8	2,1	1,85	7	10	3					**020**
M2,5	0,45	50	2,8	2,1	2,33	9	14	3					**025**
M3	0,50	56	3,5	2,7	2,80	11	18	3			**030**	**030**	
M3	0,50	56	3,5	2,7	2,80	11	18	4	**030**	**030**			**030**
M3,5	0,60	56	4,0	3,0	3,25	12	20	3					**035**
M4	0,70	63	4,5	3,4	3,70	13	21	4			**040**	**040**	
M4	0,70	63	4,5	3,4	3,70	13	21	5	**040**	**040**			**040**
M5	0,80	70	6,0	4,9	4,65	15	25	4			**050**	**050**	
M5	0,80	70	6,0	4,9	4,65	15	25	5	**050**	**050**			**050**
M6	1,00	80	6,0	4,9	5,60	17	30	4			**060**	**060**	
M6	1,00	80	6,0	4,9	5,60	17	30	5	**060**	**060**			**060**
M8	1,25	90	8,0	6,2	7,45	20	35	6	**080**	**080**	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	9,35	22	39	6	**100**	**100**	**100**	**100**	**100**



DIN 2174 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 106 ...
	mm	mm	mm	mm	mm	mm		
M12	1,75	110	9	7	11,25	24	6	**120**
M14	2,00	110	11	9	13,10	26	5	**140**
M16	2,00	110	12	9	15,10	27	7	**160**

Steel	**8-30**	**8-30**	**8-30**	**8-30**	**8-30**
Stainless steel	**8-15**	**8-15**	**8-15**	**8-15**	**8-15**
Cast iron					
Non ferrous metals	**10-30**	**10-30**	**12-25**	**12-25**	**12-25**
Heat resistant alloys					
Hardened materials					

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

M | Spanlos

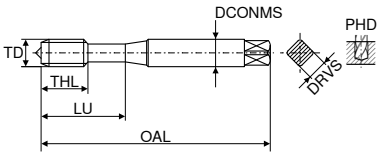
EC SN | EC SN | NEO SN | NEO SN

C 2–3

ISO 2X 6HX

Ti200 | Ti200 | TiN | TiN

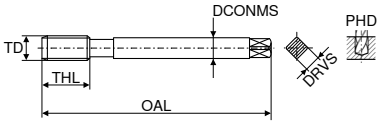




DIN 2174 with reinforced shank

HSS-PM ≤ 1400 N/mm² ≤ 3xD | HSS-PM ≤ 1400 N/mm² ≤ 3xD | HSS-PM ≤ 1100 N/mm² ≤ 3xD | HSS-PM ≤ 1100 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 114 ...	Article no. 22 118 ...	Article no. 22 452 ...	Article no. 22 453 ...
	mm	mm	mm	mm	mm	mm	mm					
M2	0,40	45	2,8	2,1	1,85	4	12	3	020			
M2,5	0,45	50	2,8	2,1	2,33	5	14	3	025			
M3	0,50	56	3,5	2,7	2,80	6	18	3	030			
M3	0,50	56	3,5	2,7	2,80	11	18	4			030	
M4	0,70	63	4,5	3,4	3,70	13	21	4			040	
M4	0,70	63	4,5	3,4	3,70	7	21	4	040			
M5	0,80	70	6,0	4,9	4,65	8	25	4	050	050		
M5	0,80	70	6,0	4,9	4,65	15	25	4			050	050
M6	1,00	80	6,0	4,9	5,60	10	30	4	060	060		
M6	1,00	80	6,0	4,9	5,60	17	30	5			060	060
M8	1,25	90	8,0	6,2	7,45	20	35	5			080	080
M8	1,25	90	8,0	6,2	7,45	14	35	5	080	080		
M10	1,50	100	10,0	8,0	9,35	22	39	5			100	100
M10	1,50	100	10,0	8,0	9,35	16	39	5	100	100		



DIN 2174 with reduced shank

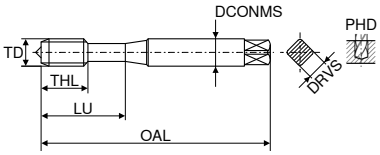
TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 115 ...	Article no. 22 452 ...	Article no. 22 454 ...
	mm	mm	mm	mm	mm	mm				
M12	1,75	110	9	7	11,25	18	5	120		
M12	1,75	110	9	7	11,25	24	6		120	120
M16	2,00	110	12	9	15,10	27	6		160	160

Steel	8-30	8-30	5-30	5-30
Stainless steel	8-15	8-15	5-15	5-15
Cast iron				
Non ferrous metals	12-25	12-25	5-10	5-10
Heat resistant alloys			5-20	5-20
Hardened materials				

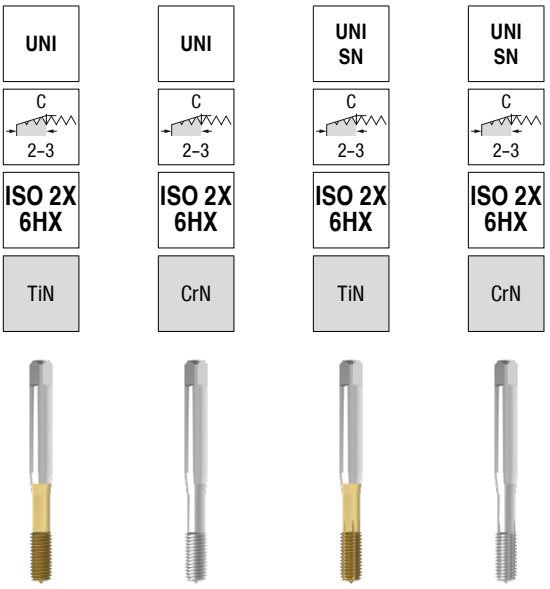
Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

M



DIN 2174 with reinforced shank



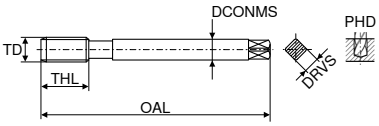
HSS-E
∢ 0°
≤ 850 N/mm²
≤ 3xD

HSS-E
∢ 0°
≤ 850 N/mm²
≤ 3xD

HSS-E
∢ 0°
≤ 850 N/mm²
≤ 3xD

HSS-E
∢ 0°
≤ 850 N/mm²
≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 810 ...	Article no. 23 812 ...	Article no. 23 814 ...	Article no. 23 816 ...
	mm	mm	mm	mm	mm	mm	mm					
M2	0,40	45	2,8	2,1	1,85	7	12		020	020		
M2	0,40	45	2,8	2,1	1,85	7	12	3			020	020
M2,5	0,45	50	2,8	2,1	2,33	9	14	3			025	025
M2,5	0,45	50	2,8	2,1	2,33	9	14		025	025		
M3	0,50	56	3,5	2,7	2,80	11	18	3			030	030
M3	0,50	56	3,5	2,7	2,80	11	18		030	030		
M4	0,70	63	4,5	3,4	3,70	13	21	4			040	040
M4	0,70	63	4,5	3,4	3,70	13	21		040	040		
M5	0,80	70	6,0	4,9	4,65	15	25	4			050	050
M5	0,80	70	6,0	4,9	4,65	15	25		050	050		
M6	1,00	80	6,0	4,9	5,60	17	30	4			060	060
M6	1,00	80	6,0	4,9	5,60	17	30		060	060		
M8	1,25	90	8,0	6,2	7,45	20	35	5			080	080
M8	1,25	90	8,0	6,2	7,45	20	35		080	080		
M10	1,50	100	10,0	8,0	9,35	22	39	5			100	100
M10	1,50	100	10,0	8,0	9,35	22	39		100	100		



DIN 2174 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 811 ...	Article no. 23 813 ...	Article no. 23 815 ...	Article no. 23 817 ...
	mm	mm	mm	mm	mm	mm					
M12	1,75	110	9	7,0	11,25	24		120	120		
M12	1,75	110	9	7,0	11,25	24	5			120	120
M16	2,00	110	12	9,0	15,10	27	6			160	160
M16	2,00	110	12	9,0	15,10	27		160	160		
M18	2,50	125	14	11,0	16,80	30	6			18000	
M20	2,50	140	16	12,0	18,80	32	6			20000	
M24	3,00	160	18	14,5	22,60	34	6			24000	

Steel	10-50	10-50	10-50	10-50
Stainless steel	5-20	5-20	5-20	5-20
Cast iron				
Non ferrous metals	10-50	10-50	10-50	10-50
Heat resistant alloys	5-15	5-15	5-15	5-15
Hardened materials				

Through hole – machine taps for wire thread inserts, right hand

EG M | **Stabil**

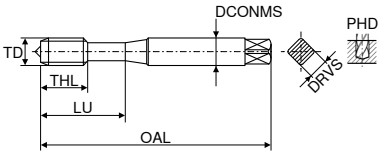
UNI

B
4–5

6H mod

nitr. + vap.

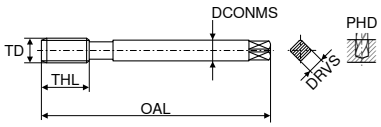




DIN 40435 with reinforced shank

HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 662 ...
	mm	mm	mm	mm	mm	mm	mm		
EG-M2,5	0,45	56	3,5	2,7	2,65	11	18	3	**025**
EG-M3	0,50	63	4,5	3,4	3,15	10	21	3	**030**
EG-M4	0,70	70	6,0	4,9	4,20	12	25	3	**040**
EG-M5	0,80	80	6,0	4,9	5,25	13	30	3	**050**
EG-M6	1,00	90	8,0	6,2	6,30	17	35	3	**060**
EG-M8	1,25	100	10,0	8,0	8,40	18	39	3	**080**



DIN 40435 with reduced shank

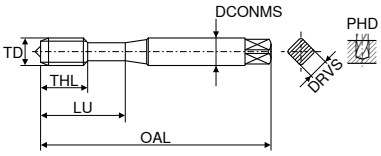
TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 663 ...
	mm	mm	mm	mm	mm	mm		
EG-M10	1,50	100	9	7,0	10,50	22	3	**100**
EG-M12	1,75	110	11	9,0	12,50	26	3	**120**
EG-M16	2,00	125	14	11,0	16,50	27	3	**160**
EG-M20	2,50	160	18	14,5	20,75	34	3	**200**

Steel	**6-20**
Stainless steel	**4-8**
Cast iron	**6-15**
Non ferrous metals	
Heat resistant alloys	
Hardened materials	

Blind hole – machine taps for wire thread inserts, right hand

EG M | Salo-Rex

Soft	UNI
C 2–3	C 2–3
6H mod	6H mod
CH	vap.



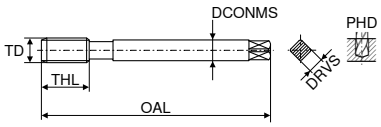
DIN 40435 with reinforced shank




HSS-E
42°
≤ 500 N/mm²
≤ 3xD

HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 280 ...	Article no. 22 664 ...
	mm	mm	mm	mm	mm	mm	mm			
EG-M2,5	0,45	56	3,5	2,7	2,65	5	18	2	025	
EG-M2,5	0,45	56	3,5	2,7	2,65	5	18	3		025
EG-M3	0,50	63	4,5	3,4	3,15	5	21	2	030	
EG-M3	0,50	63	4,5	3,4	3,15	5	21	3		030
EG-M4	0,70	70	6,0	4,9	4,20	8	25	2	040	
EG-M4	0,70	70	6,0	4,9	4,20	8	25	3		040
EG-M5	0,80	80	6,0	4,9	5,25	8	30	2	050	
EG-M5	0,80	80	6,0	4,9	5,25	8	30	3		050
EG-M6	1,00	90	8,0	6,2	6,30	10	35	2	060	
EG-M6	1,00	90	8,0	6,2	6,30	10	35	3		060
EG-M8	1,25	100	10,0	8,0	8,40	16	39	2	080	
EG-M8	1,25	100	10,0	8,0	8,40	16	39	3		080



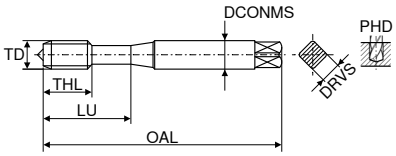
DIN 40435 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 665 ...
	mm	mm	mm	mm	mm	mm		
EG-M10	1,50	100	9	7,0	10,50	15	5	100
EG-M12	1,75	110	11	9,0	12,50	20	4	120
EG-M16	2,00	125	14	11,0	16,50	20	5	160
EG-M20	2,50	160	18	14,5	20,75	30	4	200

Steel		6-20
Stainless steel		4-8
Cast iron		6-15
Non ferrous metals	15-40	
Heat resistant alloys		
Hardened materials		

Through hole – Machine taps, right hand

MF | Stabil



DIN 371 with reinforced shank

UNI	UNI	VG
B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2 6H	ISO 2X 6HX
nitr. + vap.	TiN	TiN





HSS-E	HSS-E	HSS-E
0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 590 ...	Article no. 22 550 ...	Article no. 22 587 ...
	mm	mm	mm	mm	mm	mm	mm				
M4x0,5	0,50	63	4,5	3,4	3,5	10	21	3	**040**	**040**	
M4x0,5	0,50	63	4,5	3,4	3,5	5	21	3			**040**
M5x0,5	0,50	70	6,0	4,9	4,5	11	25	3	**050**	**050**	
M6x0,5	0,50	80	6,0	4,9	5,5	13	30	3	**060**	**060**	
M6x0,75	0,75	80	6,0	4,9	5,2	13	30	3	**062**	**062**	
M6x0,75	0,75	80	6,0	4,9	5,2	8	30	3			**062**
M6x0,5	0,50	80	6,0	4,9	5,5	5	30	3			**060**
M5x0,5	0,50	70	6,0	4,9	4,5	5	25	3			**050**
M8x1	1,00	90	8,0	6,2	7,0	17	35	3	**084**	**080**	
M10x1	1,00	90	10,0	8,0	9,0	18	35	4	**102**	**100**	

Steel	**6-20**	**6-25**	**6-15**
Stainless steel	**4-8**	**5-10**	**5-10**
Cast iron	**6-15**	**10-20**	
Non ferrous metals		**12-25**	**10-20**
Heat resistant alloys			
hardened materials			

DIN 374 can be found on the next page

6

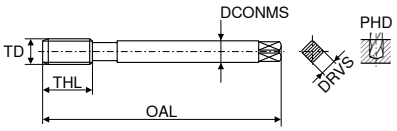
Through hole – Machine taps, right/left hand

▲ TS = for high-speed machining, up to 100 m/min.

▲ LH = for left hand threads

MF	Stabil

ST LH	ST TS	UNI	UNI	VG
B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2X 6HX	ISO 2 6H	ISO 2 6H	ISO 2X 6HX
	TiN	nitr. + vap.	TiN	TiN



DIN 374 with reduced shank



HSS-E
0°
≤ 750 N/mm²
≤ 4xD

HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 210 ...	Article no. 22 193 ...	Article no. 22 551 ...	Article no. 22 552 ...	Article no. 22 570 ...
	mm	mm	mm	mm	mm	mm						
M6x0,75	0,75	80	4,5	3,4	5,2	13	3			062		
M6x0,5	0,50	80	4,5	3,4	5,5	13	3			060		
M8x0,75	0,75	80	6,0	4,9	7,2	14	3	082		082		
M8x1	1,00	90	6,0	4,9	7,0	17	3	084		084	080	
M8x1	1,00	90	6,0	4,9	7,0	10	4		080			080
M10x1	1,00	90	7,0	5,5	9,0	18	4	102		102	100	
M10x0,75	0,75	90	7,0	5,5	9,2	18	4			100		
M10x1,25	1,25	100	7,0	5,5	8,8	16	4					102
M10x1,25	1,25	100	7,0	5,5	8,8	22	3			104		
M10x1	1,00	90	7,0	5,5	9,0	10	4		100			100
M12x1	1,00	100	9,0	7,0	11,0	18	4	120		120	121	
M12x1,5	1,50	100	9,0	7,0	10,5	22	3	124		124	120	
M12x1,25	1,25	100	9,0	7,0	10,8	22	3			122		
M12x1,5	1,50	100	9,0	7,0	10,5	15	4		120			120
M14x1,5	1,50	100	11,0	9,0	12,5	22	3	144		144	140	
M14x1	1,00	100	11,0	9,0	13,0	18	4			140		
M14x1,5	1,50	100	11,0	9,0	12,5	15	4		140			140
M16x1,5	1,50	100	12,0	9,0	14,5	22	3	162		162	160	
M16x1,5	1,50	100	12,0	9,0	14,5	15	4		160			160
M18x1	1,00	110	14,0	11,0	17,0	20	5			180		
M18x1,5	1,50	110	14,0	11,0	16,5	25	4	182		182		
M18x2	2,00	125	14,0	11,0	16,0	26	3			184		
M18x1,5	1,50	110	14,0	11,0	16,5	17	4		180			180
M20x1,5	1,50	125	16,0	12,0	18,5	25	4	202		202	200	
M20x1	1,00	125	16,0	12,0	19,0	20	5			200		
M20x1,5	1,50	125	16,0	12,0	18,5	17	4		200			200
M22x1,5	1,50	125	18,0	14,5	20,5	25	4			222	220	
M26x1,5	1,50	140	18,0	14,5	24,5	28	4			260		
M24x2	2,00	140	18,0	14,5	22,0	27	4			244		
M25x1,5	1,50	140	18,0	14,5	23,5	28	4			250		
M24x1,5	1,50	140	18,0	14,5	22,5	27	4			242		
M27x2	2,00	140	20,0	16,0	25,0	28	4			272		
M28x1,5	1,50	140	20,0	16,0	26,5	28	5			280		
M30x1,5	1,50	150	22,0	18,0	28,5	28	5			302		

Steel	10-20	20-100	6-20	6-25	6-15
Stainless steel			4-8	5-10	5-10
Cast iron		20-60	6-15	10-20	
Non ferrous metals	10-20	20-100		12-25	10-20
Heat resistant alloys		10-25			
hardened materials					

Through hole – Machine taps, right hand

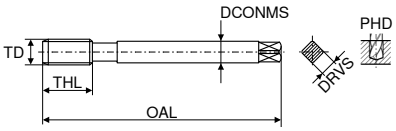
MF

UNI

B
4–5

ISO 2
6H

TiN





DIN 374 with reduced shank

HSS-PM
0°
≤ 1000 N/mm²
≤ 3xD

6

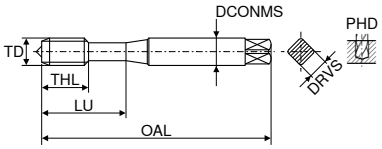
TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 041 ...
	mm	mm	mm	mm	mm	mm		
M8x1	1,00	90	6	4,9	7,0	17	3	**081**
M10x1	1,00	90	7	5,5	9,0	18	4	**102**
M10x1,25	1,25	100	7	5,5	8,8	22	3	**104**
M12x1	1,00	100	9	7,0	11,0	18	4	**120**
M12x1,25	1,25	100	9	7,0	10,8	22	3	**122**
M12x1,5	1,50	100	9	7,0	10,5	22	3	**121**
M14x1,5	1,50	100	11	9,0	12,5	22	3	**144**
M14x1,25	1,25	100	11	9,0	12,8	22	3	**142**
M16x1,5	1,50	100	12	9,0	14,5	22	3	**162**
M18x1,5	1,50	110	14	11,0	16,5	17	4	**182**
M20x1,5	1,50	125	16	12,0	18,5	17	4	**202**
M24x1,5	1,50	140	18	14,5	22,5	27	4	**242**
M24x2	2,00	140	18	14,5	22,0	27	4	**244**
M22x1,5	1,50	125	18	14,5	20,5	25	4	**222**

Steel	**10-20**
Stainless steel	**8-15**
Cast iron	**20-25**
Non ferrous metals	**20-25**
Heat resistant alloys	
hardened materials	

Through hole – Machine taps, right hand

MF

UNI	UNI	FE	FE-HF	VA
B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
nitr. + vap.	TiN		TiCN	TiN

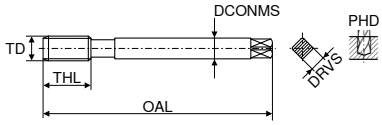




DIN 371 with reinforced shank

	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 0° ≤ 1000 N/mm² ≤ 3xD	◁ 0° ≤ 1000 N/mm² ≤ 3xD	◁ 0° ≤ 850 N/mm² ≤ 3xD	◁ 0° ≤ 1100 N/mm² ≤ 4xD	◁ 0° ≤ 1200 N/mm² ≤ 4xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 140 ...	Article no. 23 142 ...	Article no. 23 240 ...	Article no. 23 340 ...	Article no. 23 440 ...
	mm	mm	mm	mm	mm	mm	mm						
M4x0,5	0,50	63	4,5	3,4	3,5	10	21	3	**040**	**040**	**040**		
M6x0,75	0,75	80	6,0	4,9	5,2	13	30	3	**062**	**062**	**062**	**062**	**062**
M6x0,5	0,50	80	6,0	4,9	5,5	13	30	3	**060**	**060**	**060**		
M5x0,5	0,50	70	6,0	4,9	4,5	11	25	3	**050**	**050**	**050**	**050**	**050**



DIN 374 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 141 ...	Article no. 23 143 ...	Article no. 23 241 ...	Article no. 23 341 ...	Article no. 23 441 ...
	mm	mm	mm	mm	mm	mm						
M8x0,75	0,75	80	6	4,9	7,0	14	3				**082**	
M8x0,5	0,50	80	6	8,0	7,5	14	3			**080**		
M8x1	1,00	90	6	4,9	7,0	17	3	**084**		**084**	**084**	**084**
M8x1	1,00	90	6	4,9	7,0	17	4		**084**			
M8x0,75	0,75	80	6	4,9	7,2	14	3	**082**	**082**	**082**		**082**
M10x0,75	0,75	90	7	5,5	9,2	18	4	**100**	**100**	**100**		
M10x1,25	1,25	100	7	5,5	8,8	22	3	**104**	**104**	**104**		
M10x1	1,00	90	7	5,5	9,0	18	4	**102**	**102**	**102**	**102**	**102**
M12x1,5	1,50	100	9	7,0	10,5	22	3	**124**	**124**	**124**	**124**	**124**
M12x1,25	1,25	100	9	7,0	10,8	22	3	**122**	**122**	**122**		
M12x1	1,00	100	9	7,0	11,0	18	4	**120**	**120**	**120**	**120**	**120**
M14x1	1,00	100	11	9,0	13,0	18	4	**140**	**140**	**140**		
M14x1,5	1,50	100	11	9,0	12,5	22	3	**144**	**144**	**144**	**144**	**144**
M16x1	1,00	100	12	9,0	15,0	18	4	**160**	**160**	**160**		
M16x1,5	1,50	100	12	9,0	14,5	22	3	**162**	**162**	**162**	**162**	**162**
M18x1	1,00	110	14	11,0	17,0	20	5			**180**		
M18x1,5	1,50	110	14	11,0	16,5	25	4	**182**	**182**	**182**		
M20x1,5	1,50	125	16	12,0	18,5	25	4	**202**	**202**	**202**		
M20x1	1,00	125	16	12,0	19,0	20	5			**200**		
M26x1,5	1,50	140	18	14,5	24,5	28	4			**260**		
M24x1,5	1,50	140	18	14,5	22,5	27	4	**242**	**242**	**242**		
M22x1,5	1,50	125	18	14,5	20,5	25	4	**222**	**222**	**222**		
M28x1,5	1,50	140	20	16,0	26,5	28	5			**280**		
M30x1,5	1,50	150	22	18,0	28,5	28	5			**300**		

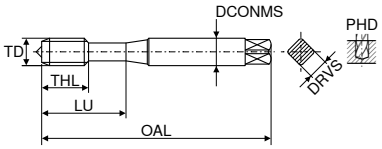
Steel	**2-25**	**5-45**	**5-25**	**5-45**	
Stainless steel	**2-8**	**5-15**			**8-20**
Cast iron	**5-20**	**10-25**			
Non ferrous metals	**10-20**	**15-40**			
Heat resistant alloys					
hardened materials					

Blind hole – Machine taps, right hand

MF | Salo-Rex

UNI	UNI	UNI	UNI
E 1,5–2	E 1,5–2	E 1,5–2	E 1,5–2
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 3 6G
vap.	TiN	vap.	vap.

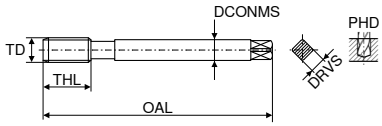




DIN 371 with reinforced shank

HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD | HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD | HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD | HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 441 ...
	mm	mm	mm	mm	mm	mm	mm		
M4x0,5	0,50	63	4,5	3,4	3,50	5	21	3	**040**
M6x0,75	0,75	80	6,0	4,9	5,25	8	30	3	**062**
M5x0,5	0,50	70	6,0	4,9	4,50	5	25	3	**050**



DIN 374 with reduced shank

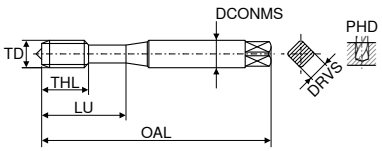
TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 555 ...	Article no. 22 556 ...	Article no. 22 491 ...	Article no. 22 490 ...
	mm	mm	mm	mm	mm	mm					
M8x1	1,0	90	6	4,9	7,0	10	3	**080**	**080**		**080**
M10x1	1,0	90	7	5,5	9,0	10	4	**100**	**100**		**100**
M12x1,5	1,5	100	9	7,0	10,5	15	5	**120**	**120**	**120**	**120**
M14x1,5	1,5	100	11	9,0	12,5	15	5	**140**	**140**	**140**	**140**
M16x1,5	1,5	100	12	9,0	14,5	15	5	**160**	**160**	**160**	**160**
M18x1,5	1,5	110	14	11,0	16,5	17	5				**180**
M20x1,5	1,5	125	16	12,0	18,5	17	5			**200**	**200**
Steel								**6-20**	**6-25**	**6-20**	**6-20**
Stainless steel								**4-8**	**5-10**	**4-8**	**4-8**
Cast iron								**6-15**	**10-20**	**6-15**	**6-15**
Non ferrous metals									**12-25**		
Heat resistant alloys											
hardened materials											

Blind hole – Machine taps, right hand

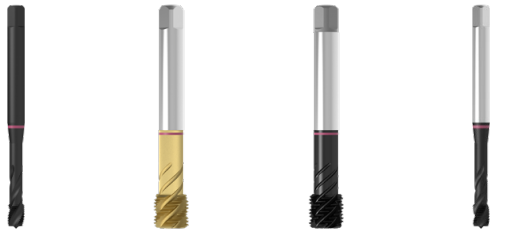
▲ CNC = for synchronised CNC machining with minimum length compensation chuck

MF	Salo-Rex

UNI	UNI	UNI CNC	UNI CNC
C 2–3	C 2–3	E 1,5–2	E 1,5–2
ISO 2 6H	ISO 2 6H	7G	ISO 2 6H
vap.	TiN	TiN GS	TiN GS

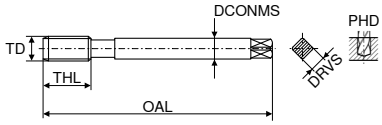


DIN 371 with reinforced shank



HSS-E	HSS-E	HSS-E	HSS-E
42° ≤ 1100 N/mm² ≤ 3xD	42° ≤ 1100 N/mm² ≤ 3xD	45° ≤ 1100 N/mm² ≤ 3xD	45° ≤ 1100 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 202 ...	Article no. 22 548 ...
	mm	mm	mm	mm	mm	mm	mm			
M4x0,5	0,50	63	4,5	3,4	3,5	5	21	3	040	
M5x0,5	0,50	70	6,0	4,9	4,5	5	25	3	050	050
M6x0,75	0,75	80	6,0	4,9	5,2	8	30	3	062	062
M6x0,5	0,50	80	6,0	4,9	5,5	5	30	3	060	060



DIN 374 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 553 ...	Article no. 22 554 ...	Article no. 22 563 ...	Article no. 22 549 ...
	mm	mm	mm	mm	mm	mm					
M6x0,75	0,75	80	4,5	3,4	5,2	8	3	062			
M8x0,75	0,75	80	6,0	4,9	7,2	8	3	080			082
M8x1	1,00	90	6,0	4,9	7,0	10	3	082	080	084	084
M10x0,75	0,75	90	7,0	5,5	9,2	10	4	101			
M10x1	1,00	90	7,0	5,5	9,0	10	3	100	100		
M10x1	1,00	90	7,0	5,5	9,0	10	4			102	102
M10x1,25	1,25	100	7,0	5,5	8,8	16	3	102			
M12x1	1,00	100	9,0	7,0	11,0	11	4	120	121		120
M12x1,25	1,25	100	9,0	7,0	10,8	15	4	122			
M12x1,5	1,50	100	9,0	7,0	10,5	15	4	124	120		
M12x1,5	1,50	100	9,0	7,0	10,5	15	5			124	124
M14x1,5	1,50	100	11,0	9,0	12,5	15	5			144	144
M14x1,5	1,50	100	11,0	9,0	12,5	15	4	140	140		
M16x1,5	1,50	100	12,0	9,0	14,5	15	4	160	160		
M16x1,5	1,50	100	12,0	9,0	14,5	15	5			162	162
M18x1,5	1,50	110	14,0	11,0	16,5	17	5				182
M18x1,5	1,50	110	14,0	11,0	16,5	17	4	180	182		
M20x1,5	1,50	125	16,0	12,0	18,5	17	5			202	202
M20x1,5	1,50	125	16,0	12,0	18,5	17	4	200	202		
M22x1,5	1,50	125	18,0	14,5	20,5	17	4	220			
M26x1,5	1,50	140	18,0	14,5	24,5	20	5	260			
M24x1,5	1,50	140	18,0	14,5	22,5	20	5	240			
M28x1,5	1,50	140	20,0	16,0	26,5	20	5	280			
M30x1,5	1,50	150	22,0	18,0	28,5	22	6	300			

Steel	6-20	6-25	6-25	6-25
Stainless steel	4-8	5-10	5-10	5-10
Cast iron	6-15	10-20	10-20	10-20
Non ferrous metals		12-25	12-25	12-25
Heat resistant alloys				
hardened materials				

Blind hole – Machine taps, right/left hand

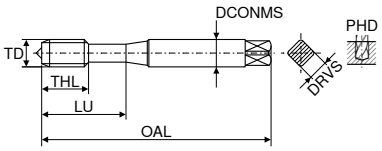
▲ LH = for left hand threads

MF | Salo-Rex

ST LH | ST

C 2–3 | C 2–3

ISO 2 6H | ISO 2 6H





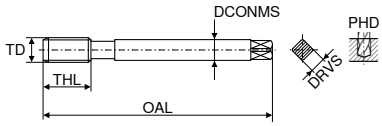


DIN 371 with reinforced shank

HSS-E
∢ 42°
≤ 750 N/mm²
≤ 3xD

HSS-E
∢ 42°
≤ 750 N/mm²
≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 238 ...
	mm	mm	mm	mm	mm	mm	mm		
M2,5x0,35	0,35	50	2,8	2,1	2,15	5,0	15	2	**025**
M3x0,35	0,35	56	3,5	2,7	2,65	4,5	18	3	**030**
M3,5x0,35	0,35	56	4,0	3,0	3,15	5,0	20	3	**035**
M4x0,5	0,50	63	4,5	3,4	3,50	5,0	21	3	**040**
M5x0,5	0,50	70	6,0	4,9	4,50	5,0	25	3	**050**
M6x0,75	0,75	80	6,0	4,9	5,20	8,0	30	3	**060**
M8x0,75	0,75	80	8,0	6,2	7,20	8,0	30	3	**080**
M8x1	1,00	90	8,0	6,2	7,00	10,0	35	3	**082**



DIN 374 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 601 ...	Article no. 22 186 ...
	mm	mm	mm	mm	mm	mm			
M6x0,75	0,75	80	4,5	3,4	5,2	8	3		**060**
M8x0,75	0,75	80	6,0	4,9	7,2	8	3		**080**
M8x1	1,00	90	6,0	4,9	7,0	10	3	**082**	**082**
M10x1	1,00	90	7,0	5,5	9,0	10	3	**100**	**100**
M12x1,5	1,50	100	9,0	7,0	10,5	15	4		**122**
M12x1	1,00	100	9,0	7,0	11,0	11	4	**120**	**120**
M14x1,5	1,50	100	11,0	9,0	12,5	15	4	**140**	**140**
M16x1,5	1,50	100	12,0	9,0	14,5	15	4	**160**	**160**
M18x1,5	1,50	110	14,0	11,0	16,5	17	4	**180**	**180**
M20x1,5	1,50	125	16,0	12,0	18,5	17	4	**200**	**200**
M22x1,5	1,50	125	18,0	14,5	20,5	17	4		**220**
M26x1,5	1,50	140	18,0	14,5	24,5	20	5		**260**
M24x1,5	1,50	140	18,0	14,5	22,5	20	5		**240**

Steel	**10-20**	**10-20**
Stainless steel		
Cast iron		
Non ferrous metals	**10-20**	**10-20**
Heat resistant alloys		
hardened materials		

6

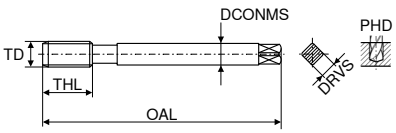
Blind hole – Machine taps, right hand

MF | SL

ST

C
2–3

ISO 2
6H



DIN 374 with reduced shank



HSS-E
15°
≤ 750 N/mm²
≤ 2xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 182 ...
	mm	mm	mm	mm	mm	mm		
M6x0,75	0,75	80	4,5	3,4	5,2	13	3	**062**
M8x0,75	0,75	80	6,0	4,9	7,2	14	3	**082**
M8x1	1,00	90	6,0	4,9	7,0	17	3	**084**
M10x1	1,00	90	7,0	5,5	9,0	18	3	**102**
M10x0,75	0,75	90	7,0	5,5	9,2	18	3	**100**
M10x1,25	1,25	100	7,0	5,5	8,8	22	3	**104**
M9x1	1,00	90	7,0	5,5	8,0	17	3	**090**
M11x1	1,00	90	8,0	6,2	10,0	18	3	**110**
M12x1,25	1,25	100	9,0	7,0	10,8	22	3	**122**
M12x1,5	1,50	100	9,0	7,0	10,5	22	3	**124**
M12x1	1,00	100	9,0	7,0	11,0	18	3	**120**
M14x1	1,00	100	11,0	9,0	13,0	18	4	**140**
M14x1,5	1,50	100	11,0	9,0	12,5	22	3	**144**
M16x1	1,00	100	12,0	9,0	15,0	18	4	**160**
M16x1,5	1,50	100	12,0	9,0	14,5	22	3	**162**
M15x1	1,00	100	12,0	9,0	14,0	18	4	**150**
M18x1,5	1,50	110	14,0	11,0	16,5	25	4	**182**
M18x2	2,00	125	14,0	11,0	16,0	26	3	**184**
M18x1	1,00	110	14,0	11,0	17,0	20	4	**180**
M20x1	1,00	125	16,0	12,0	19,0	20	4	**200**
M20x2	2,00	140	16,0	12,0	18,0	27	3	**204**
M20x1,5	1,50	125	16,0	12,0	18,5	25	4	**202**
M22x2	2,00	140	18,0	14,5	20,0	27	4	**224**
M24x1,5	1,50	140	18,0	14,5	22,5	27	4	**242**
M24x1	1,00	140	18,0	14,5	23,0	20	5	**240**
M24x2	2,00	140	18,0	14,5	22,0	27	4	**244**
M22x1,5	1,50	125	18,0	14,5	20,5	25	4	**222**
M25x1,5	1,50	140	18,0	14,5	23,5	28	4	**252**
M22x1	1,00	125	18,0	14,5	21,0	20	4	**220**
M27x1,5	1,50	140	20,0	16,0	25,5	28	4	**270**
M28x2	2,00	140	20,0	16,0	26,0	28	4	**282**
M27x2	2,00	140	20,0	16,0	25,0	28	4	**272**
M30x1,5	1,50	150	22,0	18,0	28,5	28	5	**302**
M32x1,5	1,50	150	22,0	18,0	30,5	28	6	**320**
M30x2	2,00	150	22,0	18,0	28,0	28	4	**304**
M33x2	2,00	160	25,0	20,0	31,0	30	4	**332**
M36x2	2,00	170	28,0	22,0	34,0	30	5	**362**
M36x3	3,00	200	28,0	22,0	33,0	42	4	**364**
M34x1,5	1,50	170	28,0	22,0	32,5	30	6	**340**

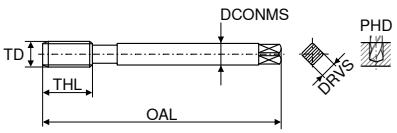
Steel	**10-20**
Stainless steel	
Cast iron	
Non ferrous metals	**10-20**
Heat resistant alloys	
hardened materials	

Continued on next page

Blind hole – Machine taps, right hand

MF | SL

ST | C 2–3 | ISO 2 6H





DIN 374 with reduced shank

HSS-E
15°
≤ 750 N/mm²
≤ 2xD

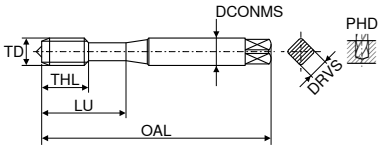
TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 182 ...
	mm	mm	mm	mm	mm	mm		
M40x1,5	1,50	170	32,0	24,0	38,5	30	6	**400**
M42x3	3,00	200	32,0	24,0	39,0	45	4	**424**
M42x2	2,00	170	32,0	24,0	40,0	30	6	**422**
M45x1,5	1,50	180	36,0	29,0	43,5	32	6	**450**
M48x2	2,00	190	36,0	29,0	46,0	32	6	**482**
M48x3	3,00	225	36,0	29,0	45,0	50	5	**484**
M48x1,5	1,50	190	36,0	29,0	46,5	32	6	**480**
M45x3	3,00	200	36,0	29,0	42,0	45	5	**454**
M52x2	2,00	190	40,0	32,0	50,0	32	6	**522**

Steel	**10-20**
Stainless steel	
Cast iron	
Non ferrous metals	**10-20**
Heat resistant alloys	
hardened materials	

Blind hole – Machine taps, right hand

MF | Salo-Rex

NW	VA	VA
C	E	E
2–3	1,5–2	1,5–2
ISO 2 6H	ISO 2 6H	ISO 2 6H
vap.	vap.	TiN GS

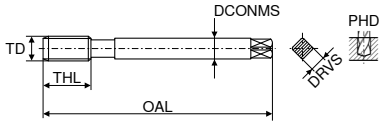


DIN 371 with reinforced shank



HSS-E	HSS-E	HSS-E
◁ 42°	◁ 42°	◁ 45°
≤ 500 N/mm²	≤ 750 N/mm²	≤ 900 N/mm²
≤ 3xD	≤ 3xD	≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 176 ...
	mm	mm	mm	mm	mm	mm	mm		
M4x0,5	0,50	63	4,5	3,4	3,5	5	21	3	**040**
M6x0,75	0,75	80	6,0	4,9	5,2	8	30	3	**062**
M6x0,5	0,50	80	6,0	4,9	5,5	5	30	3	**060**
M5x0,5	0,50	70	6,0	4,9	4,5	5	25	3	**050**



DIN 374 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 188 ...	Article no. 22 189 ...	Article no. 22 177 ...
	mm	mm	mm	mm	mm	mm				
M8x1	1,00	90	6	4,9	7,0	10	3	**081**	**082**	**084**
M8x0,75	0,75	80	6	4,9	7,2	8	3			**082**
M10x1	1,00	90	7	5,5	9,0	10	4		**100**	**102**
M10x1	1,00	90	7	5,5	9,0	10	3	**100**		
M12x1	1,00	100	9	7,0	11,0	11	4	**120**	**121**	**120**
M12x1,5	1,50	100	9	7,0	10,5	15	4	**122**		
M12x1,5	1,50	100	9	7,0	10,5	15	5		**120**	**124**
M14x1,5	1,50	100	11	9,0	12,5	15	5		**140**	**144**
M14x1,5	1,50	100	11	9,0	12,5	15	4	**140**		
M16x1,5	1,50	100	12	9,0	14,5	15	4	**160**		
M16x1,5	1,50	100	12	9,0	14,5	15	5		**160**	**162**
M18x1,5	1,50	110	14	11,0	16,5	17	5			**182**
M18x1,5	1,50	110	14	11,0	16,5	17	4	**180**		
M20x1,5	1,50	125	16	12,0	18,5	17	4	**200**		
M20x1,5	1,50	125	16	12,0	18,5	17	5		**200**	**202**
M26x1,5	1,50	140	18	14,5	24,5	20	6		**260**	
M28x1,5	1,50	140	20	16,0	26,5	20	6		**280**	
M30x1,5	1,50	150	22	18,0	28,5	22	6		**300**	

Steel			**5-12**
Stainless steel		**5-10**	**5-10**
Cast iron			
Non ferrous metals	**10-20**		
Heat resistant alloys			
Hardened materials			

Blind hole – Machine taps, right hand

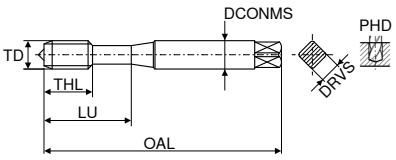
MF

UNI

C
2–3

ISO 2
6H

TiN





DIN 374 with reinforced shank

HSS-PM
40°
≤ 1000 N/mm²
≤ 2,5xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 047 ...
	mm	mm	mm	mm	mm	mm	mm		
M8x1	1,00	90	6	4,9	7,0	10	35	3	**081**
M10x1	1,00	90	7	5,5	9,0	10	35	4	**102**
M10x1,25	1,25	100	7	5,5	8,8	16	39	4	**104**
M12x1	1,00	100	9	7,0	11,0	11	40	4	**120**
M12x1,25	1,25	100	9	7,0	10,8	15	40	5	**122**
M12x1,5	1,50	100	9	7,0	10,5	15	40	5	**121**
M14x1	1,00	100	11	9,0	12,8	11	40	4	**140**
M14x1,5	1,50	100	11	9,0	12,5	15	40	5	**144**
M16x1,5	1,50	100	12	9,0	14,5	15	44	5	**162**
M18x1,5	1,50	110	14	11,0	16,5	17	44	5	**182**
M20x1,5	1,50	125	16	12,0	18,5	17	44	5	**202**
M22x1,5	1,50	125	18	14,5	20,5	17	44	5	**222**
M24x1,5	1,50	140	18	14,5	22,5	20	48	5	**242**
M24x2	2,00	140	18	14,5	22,0	20	48	5	**244**

Steel	**10-20**
Stainless steel	**8-15**
Cast iron	**20-25**
Non ferrous metals	**20-25**
Heat resistant alloys	
Hardened materials	

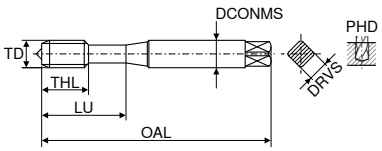
6

Blind hole – Machine taps, right hand

▲ NC = for synchronised CNC machining with minimum length compensation chuck

MF

UNI	UNI	UNI NC	FE	FE-HF
C 2–3	C 2–3	E 1,5–2	C 2–3	C 2–3
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
vap.	TiN	TiN GS		TiCN

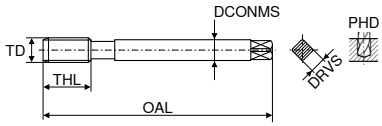




DIN 371 with reinforced shank

HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
◁ 35° ≤ 1000 N/mm² ≤ 2,5xD	◁ 35° ≤ 1000 N/mm² ≤ 2,5xD	◁ 45° ≤ 1000 N/mm² ≤ 3xD	◁ 35° ≤ 850 N/mm² ≤ 2,5xD	◁ 35° ≤ 1100 N/mm² ≤ 2,5xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 144 ...	Article no. 23 146 ...	Article no. 23 148 ...	Article no. 23 242 ...	Article no. 23 342 ...
	mm	mm	mm	mm	mm	mm	mm						
M4x0,5	0,50	63	4,5	3,4	3,5	5	21	3	040	040		040	
M6x0,75	0,75	80	6,0	4,9	5,2	8	30	3	062	062	062	062	062
M6x0,5	0,50	80	6,0	4,9	5,5	5	30	3	060	060	060	060	
M5x0,5	0,50	70	6,0	4,9	4,5	5	25	3	050	050	050	050	050



DIN 374 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 145 ...	Article no. 23 147 ...	Article no. 23 149 ...	Article no. 23 243 ...	Article no. 23 343 ...
	mm	mm	mm	mm	mm	mm						
M4x0,5	0,50	63	2,8	2,1	3,5	5	3	040				
M5x0,5	0,50	70	3,5	2,7	4,5	5	3	050				
M6x0,75	0,75	80	4,5	3,4	5,2	8	3	062				
M8x0,75	0,75	80	6,0	4,9	7,2	8	3	082	082	082	082	
M8x1	1,00	90	6,0	4,9	7,0	10	3	084	084	084	084	084
M8x0,5	0,50	80	6,0	8,0	7,5	6	3				080	
M8x0,75	0,75	80	6,0	4,9	7,0	8	3					082
M10x1,25	1,25	100	7,0	5,5	8,8	16	3	104	104		104	
M10x0,75	0,75	90	7,0	5,5	9,2	10	4	100	100		100	
M10x1	1,00	90	7,0	5,5	9,0	10	4			102		
M10x1	1,00	90	7,0	5,5	9,0	10	3	102	102		102	102
M12x1,25	1,25	100	9,0	7,0	10,8	15	4	122	122		122	
M12x1,5	1,50	100	9,0	7,0	10,5	15	4	124	124		124	124
M12x1,5	1,50	100	9,0	7,0	10,5	15	5			124		
M12x1	1,00	100	9,0	7,0	11,0	11	4	120	120	120	120	120
M14x1	1,00	100	11,0	9,0	13,0	11	4	140	140		140	
M14x1,5	1,50	100	11,0	9,0	12,5	15	5			144		
M14x1,5	1,50	100	11,0	9,0	12,5	15	4	144	144		144	144
M16x1	1,00	100	12,0	9,0	15,0	12	4	160	160		160	
M16x1,5	1,50	100	12,0	9,0	14,5	15	5			162		
M16x1,5	1,50	100	12,0	9,0	14,5	15	4	162	162		162	162
M18x1,5	1,50	110	14,0	11,0	16,5	17	4	182	182		182	
M18x1,5	1,50	110	14,0	11,0	16,5	17	5			182		
M20x1,5	1,50	125	16,0	12,0	18,5	17	4	202	202		202	
M20x1,5	1,50	125	16,0	12,0	18,5	17	5			202		
M24x1,5	1,50	140	18,0	14,5	22,5	20	5	242	242		242	
M22x1,5	1,50	125	18,0	14,5	20,5	17	4	222	222		222	

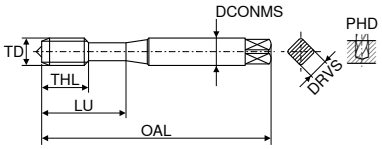
Steel	2-25	5-45	5-45	5-25	5-45
Stainless steel	2-8	5-15	5-15		
Cast iron	5-20	10-25	10-25		
Non ferrous metals	10-20	15-40	15-40		
Heat resistant alloys					
Hardened materials					

Blind hole – Machine taps, right hand

MF

VA
C
2–3
ISO 2
6H

VA
E
1,5–2
ISO 2
6H
TiN



DIN 371 with reinforced shank

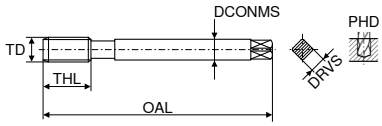




HSS-PM
∢ 40°
≤ 1200 N/mm²
≤ 2,5xD

HSS-E
∢ 45°
≤ 1200 N/mm²
≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 442 ...
	mm	mm	mm	mm	mm	mm	mm		
M6x0,75	0,75	80	6	4,9	5,2	8	30	3	**062**
M5x0,5	0,50	70	6	4,9	4,5	5	25	3	**050**



DIN 374 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 447 ...	Article no. 23 443 ...
	mm	mm	mm	mm	mm	mm			
M8x1	1,00	90	6	4,9	7,0	10	3	**084**	**084**
M8x0,75	0,75	80	6	4,9	7,2	8	3		**082**
M10x1	1,00	90	7	5,5	9,0	10	4	**102**	**102**
M12x1,5	1,50	100	9	7,0	10,5	15	5	**124**	**124**
M12x1	1,00	100	9	7,0	11,0	11	4	**120**	**120**
M14x1,5	1,50	100	11	9,0	12,5	15	5	**144**	**144**
M16x1,5	1,50	100	12	9,0	14,5	15	5	**162**	**162**
M18x1,5	1,50	110	14	11,0	16,5	17	5	**182**	
M20x1,5	1,50	125	16	12,0	18,5	17	5	**202**	

Steel		
Stainless steel	**5-10**	**8-20**
Cast iron		
Non ferrous metals		
Heat resistant alloys		
Hardened materials		

6

Through hole / Blind hole – Machine taps, right hand

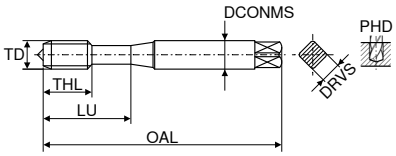
MF | TWIN

ST | HR | HT

C 2–3 | C 2–3 | D 4–5

ISO 2X 6HX | ISO 2X 6HX | ISO 2X 6HX

nitr. | OSM







DIN 371 with reinforced shank

HSS-E | HSS-E | Solid carbide

∢ 0° | ∢ 0° | ∢ 0°

≤ 750 N/mm² | ≤ 1400 N/mm² | ≤ 63 HRC

≤ 2xD | ≤ 2xD | ≤ 1,5xD

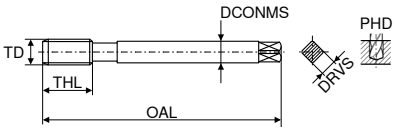
TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 144 ...	Article no. 22 146 ...	Article no. 22 817 ...
	mm	mm	mm	mm	mm	mm	mm				
M3x0,35	0,35	56	3,5	2,7	2,65	8	18	3	**030**		
M4x0,5	0,50	63	4,5	3,4	3,50	10	21	3	**040**	**040**	
M5x0,5	0,50	70	6,0	4,9	4,50	11	25	3	**050**	**050**	
M6x0,5	0,50	80	6,0	4,9	5,50	13	30	3	**060**	**060**	
M6x0,75	0,75	80	6,0	4,9	5,20	13	30	3	**062**	**062**	
M8x1	1,00	90	8,0	6,2	7,00	17	35	3	**084**		
M8x1	1,00	90	8,0	6,2	7,10	15	35	5			**080**
M10x1	1,00	100	10,0	8,0	9,10	18	38	5			**100**
M10x1	1,00	90	10,0	8,0	9,00	18	35	4	**104**		
M12x1,5	1,50	110	12,0	9,0	10,60	21	41	5			**120**
M14x1,5	1,50	110	14,0	11,0	12,60	24	44	6			**140**
M16x1,5	1,50	110	16,0	12,0	14,60	24	44	6			**160**

Steel	**10-20**	**6-15**	
Stainless steel			
Cast iron		**6-15**	
Non ferrous metals	**10-20**		
Heat resistant alloys		**3-5**	
Hardened materials			**1-3**

DIN 374 can be found on the next page

Through hole / Blind hole – Machine taps, right hand

MF | TWIN



DIN 374 with reduced shank

ST	HR	GG
C 2–3	C 2–3	C 2–3
ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
	nitr.	nitr.



HSS-E
∢ 0°
≤ 750 N/mm²
≤ 2xD

HSS-E
∢ 0°
≤ 1400 N/mm²
≤ 2xD

HSS-E
∢ 0°
≤ 1050 N/mm²
≤ 2xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 171 ...	Article no. 22 209 ...	Article no. 22 173 ...
	mm	mm	mm	mm	mm	mm				
M4x0,5	0,50	63	2,8	2,1	3,5	10	3	042		
M5x0,5	0,50	70	3,5	2,7	4,5	11	3	050		050
M6x0,75	0,75	80	4,5	3,4	5,2	13	3	062		062
M6x0,5	0,50	80	4,5	3,4	5,5	13	3	060		060
M8x0,75	0,75	80	6,0	4,9	7,2	14	3	082		080
M8x1	1,00	90	6,0	4,9	7,0	17	3	084	082	082
M10x1	1,00	90	7,0	5,5	9,0	18	4	104	100	100
M10x1,25	1,25	100	7,0	5,5	8,8	22	3	106		
M10x0,75	0,75	90	7,0	5,5	9,2	18	4	102		
M11x1	1,00	90	8,0	6,2	10,0	18	4	110		
M12x1	1,00	100	9,0	7,0	11,0	18	4	122		120
M12x1,25	1,25	100	9,0	7,0	10,8	22	4	124		
M12x1,5	1,50	100	9,0	7,0	10,5	22	4	126	120	124
M14x1	1,00	100	11,0	9,0	13,0	18	4	140		140
M14x1,25	1,25	100	11,0	9,0	12,8	22	4	142		
M14x1,5	1,50	100	11,0	9,0	12,5	22	4	144	140	142
M16x1	1,00	100	12,0	9,0	15,0	18	5	160		
M16x1,5	1,50	100	12,0	9,0	14,5	22	4	162	160	160
M18x1	1,00	110	14,0	11,0	17,0	20	5	180		
M18x2	2,00	125	14,0	11,0	16,0	26	4	184		
M18x1,5	1,50	110	14,0	11,0	16,5	25	4	182	180	180
M20x1	1,00	125	16,0	12,0	19,0	20	5	200		
M20x2	2,00	140	16,0	12,0	18,0	27	4	204		
M20x1,5	1,50	125	16,0	12,0	18,5	25	4	202	200	200
M24x2	2,00	140	18,0	14,5	22,0	27	4	244		
M22x2	2,00	140	18,0	14,5	20,0	27	4	224		
M22x1	1,00	125	18,0	14,5	21,0	20	5	220		
M24x1	1,00	140	18,0	14,5	23,0	20	6	240		
M26x1,5	1,50	140	18,0	14,5	24,5	28	4	260		260
M24x1,5	1,50	140	18,0	14,5	22,5	27	4	242		240
M25x1,5	1,50	140	18,0	14,5	23,5	28	4	250		
M22x1,5	1,50	125	18,0	14,5	20,5	25	4	222		220
M28x1,5	1,50	140	20,0	16,0	26,5	28	5			280
M27x2	2,00	140	20,0	16,0	25,0	28	4	274		
M27x1,5	1,50	140	20,0	16,0	25,5	28	5	272		
M30x2	2,00	150	22,0	18,0	28,0	28	4	302		
M32x2	2,00	150	22,0	18,0	30,0	28	5	322		
M32x1,5	1,50	150	22,0	18,0	30,5	28	6	320		
M30x1,5	1,50	150	22,0	18,0	28,5	28	5	300		300
M33x2	2,00	160	25,0	20,0	31,0	30	5	332		
M36x2	2,00	170	28,0	22,0	34,0	30	5	362		
M36x1,5	1,50	170	28,0	22,0	34,5	30	6	360		
M35x1,5	1,50	170	28,0	22,0	33,5	30	6	350		
M42x1,5	1,50	170	32,0	24,0	40,5	30	6	420		
M42x3	3,00	200	32,0	24,0	39,0	45	5	424		
M40x2	2,00	170	32,0	24,0	38,0	30	6	402		
M50x1,5	1,50	190	36,0	29,0	48,5	32	8	500		
M52x1,5	1,50	190	40,0	32,0	50,5	32	8	520		

Steel	10-20	6-15	
Stainless steel			
Cast iron		6-15	10-20
Non ferrous metals	10-20		
Heat resistant alloys		3-5	
Hardened materials			

6

Through hole / Blind hole – Machine taps, right/left hand

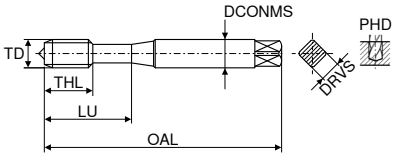
▲ ES = extra short

▲ LH = for left hand threads

MF | TWIN

ST ES | C 2–3 | ISO 2X 6HX

ST LH/ES | C 2–3 | ISO 2X 6HX



DIN 2181 with reinforced shank





HSS-E
0°
≤ 750 N/mm²
≤ 2xD

HSS-E
0°
≤ 750 N/mm²
≤ 2xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 179 ...	Article no. 22 200 ...
	mm	mm	mm	mm	mm	mm	mm			
M2,5x0,35	0,35	40	2,8	2,1	2,15	9		3	025	
M3x0,35	0,35	40	3,5	2,7	2,65	8	18	3	030	
M4x0,35	0,35	45	4,5	3,4	3,65	9	22	3	040	
M4x0,5	0,50	45	4,5	3,4	3,50	9	22	3	042	
M4,5x0,5	0,50	50	6,0	4,9	4,00	10	24	3	045	
M5x0,5	0,50	50	6,0	4,9	4,50	11	25	3	050	
M6x0,5	0,50	56	6,0	4,9	5,50	12	27	3	060	
M6x0,75	0,75	56	6,0	4,9	5,20	12	27	3	062	062
M7x0,75	0,75	56	6,0	4,9	6,20	14		3	070	
M8x0,5	0,50	56	6,0	4,9	7,50	14		4	080	
M8x0,75	0,75	56	6,0	4,9	7,20	14		3	082	
M8x1	1,00	63	6,0	4,9	7,00	17		3	084	084
M9x1	1,00	63	7,0	5,5	8,00	17		4	090	
M10x0,75	0,75	63	7,0	5,5	9,20	18		4	100	
M10x1	1,00	63	7,0	5,5	9,00	18		4	102	102
M10x1,25	1,25	70	7,0	5,5	8,80	22		3	104	
M11x1	1,00	63	8,0	6,2	10,00	18		4	110	
M12x1	1,00	70	9,0	7,0	11,00	18		4	120	120
M12x1,25	1,25	70	9,0	7,0	10,80	20		4	122	
M12x1,5	1,50	70	9,0	7,0	10,50	20		4	124	124
M13x1	1,00	70	11,0	9,0	12,00	18		4	130	
M14x1	1,00	70	11,0	9,0	13,00	18		4	140	
M14x1,25	1,25	70	11,0	9,0	12,80	20		4	142	
M14x1,5	1,50	70	11,0	9,0	12,50	20		4	144	144
M15x1	1,00	70	12,0	9,0	14,00	18		5	150	
M16x1	1,00	70	12,0	9,0	15,00	18		5	160	
M16x1,5	1,50	70	12,0	9,0	14,50	20		4	162	162
M18x1	1,00	80	14,0	11,0	17,00	18		5	180	
M18x1,5	1,50	80	14,0	11,0	16,50	22		4	182	182
M18x2	2,00	80	14,0	11,0	16,00	22		4	184	
M20x1,5	1,50	80	16,0	12,0	18,50	22		4	202	202
M20x2	2,00	80	16,0	12,0	18,00	22		4	204	

Steel	10-20	10-20
Stainless steel		
Cast iron		
Non ferrous metals	10-20	10-20
Heat resistant alloys		
Hardened materials		

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

MF | Spanlos

EC | EC SN

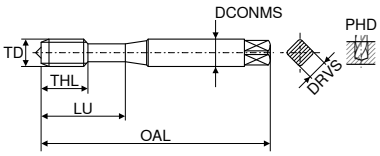


ISO 2X 6HX

TiN





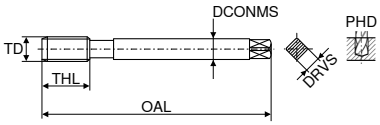


DIN 2174 with reinforced shank

HSS-E
≤ 1100 N/mm²
≤ 1,5xD

HSS-E
≤ 1100 N/mm²
≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 204 ...	Article no. 22 205 ...
	mm	mm	mm	mm	mm	mm	mm			
M4x0,5	0,50	63	4,5	3,4	3,8	10	21		**040**	
M4x0,5	0,50	63	4,5	3,4	3,8	10	21	4		**040**
M5x0,5	0,50	70	6,0	4,9	4,8	11	25		**050**	
M5x0,5	0,50	70	6,0	4,9	4,8	11	25	4		**050**
M6x0,5	0,50	80	6,0	4,9	5,8	13	30		**060**	
M6x0,5	0,50	80	6,0	4,9	5,8	13	30	5		**060**
M6x0,75	0,75	80	6,0	4,9	5,7	13	30		**062**	
M6x0,75	0,75	80	6,0	4,9	5,7	13	30	4		**062**
M8x0,75	0,75	80	8,0	6,2	7,7	14	30		**080**	
M8x0,75	0,75	80	8,0	6,2	7,7	14	30	5		**080**
M8x1	1,00	90	8,0	6,2	7,6	17	35		**082**	
M8x1	1,00	90	8,0	6,2	7,6	17	35	5		**082**
M10x1	1,00	90	10,0	8,0	9,6	18	35		**100**	
M10x1	1,00	90	10,0	8,0	9,6	18	35	5		**100**



DIN 2174 with reduced shank

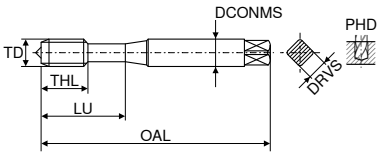
TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 196 ...	Article no. 22 197 ...
	mm	mm	mm	mm	mm	mm			
M12x1	1,0	100	9	7	11,60	18		**120**	
M12x1	1,0	100	9	7	11,60	18	6		**120**
M12x1,5	1,5	100	9	7	11,35	22		**124**	
M12x1,5	1,5	100	9	7	11,35	22	6		**124**
M14x1,5	1,5	100	11	9	13,35	22		**140**	
M14x1,5	1,5	100	11	9	13,35	22	6		**140**
M16x1,5	1,5	100	12	9	15,35	22		**160**	
M16x1,5	1,5	100	12	9	15,35	22	6		**160**
M20x1,5	1,5	125	16	12	19,35	25		**200**	
M20x1,5	1,5	125	16	12	19,35	25	6		**200**

Steel	**8-30**	**8-30**
Stainless steel	**8-15**	**8-15**
Cast iron		
Non ferrous metals	**12-25**	**12-25**
Heat resistant alloys		
Hardened materials		

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

MF



DIN 2174 with reinforced shank

UNI



ISO 2X 6HX

TiN



HSS-E
≤ 850 N/mm²
≤ 3xD

UNI SN



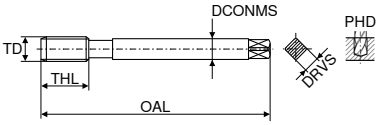
ISO 2X 6HX

TiN



HSS-E
≤ 850 N/mm²
≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 840 ...	Article no. 23 842 ...
	mm	mm	mm	mm	mm	mm	mm			
M4x0,5	0,50	63	4,5	3,4	3,80	10	21		**040**	
M4x0,5	0,50	63	4,5	3,4	3,80	10	21	4		**040**
M5x0,5	0,50	70	6,0	4,9	4,80	11	25		**050**	
M5x0,5	0,50	70	6,0	4,9	4,80	11	25	4		**050**
M6x0,5	0,50	80	6,0	4,9	5,80	13	30		**060**	
M6x0,5	0,50	80	6,0	4,9	5,80	13	30	5		**060**
M8x1	1,00	90	8,0	6,2	7,60	17	35		**084**	
M8x1	1,00	90	8,0	6,2	7,60	17	35	5		**084**
M10x1	1,00	90	10,0	8,0	9,60	18	35		**102**	
M10x1	1,00	90	10,0	8,0	9,60	18	35	5		**102**
M10x1,25	1,25	100	10,0	8,0	9,45	18	39		**104**	
M10x1,25	1,25	100	10,0	8,0	9,45	18	39	5		**104**



DIN 2174 with reduced shank

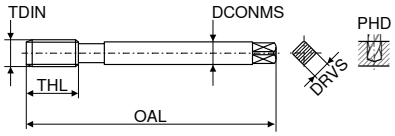
TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 841 ...	Article no. 23 843 ...
	mm	mm	mm	mm	mm	mm			
M12x1,25	1,25	100	9	7	11,45	22		**122**	
M12x1,25	1,25	100	9	7	11,45	22	6		**122**
M12x1,5	1,50	100	9	7	11,35	22		**124**	
M12x1,5	1,50	100	9	7	11,35	22	6		**124**
M14x1,5	1,50	100	11	9	13,35	22		**144**	
M14x1,5	1,50	100	11	9	13,35	22	6		**144**
M16x1,5	1,50	100	12	9	15,35	22		**162**	
M16x1,5	1,50	100	12	9	15,35	22	6		**162**

Steel	**10-50**	**10-50**
Stainless steel	**5-20**	**5-20**
Cast iron		
Non ferrous metals	**10-50**	**10-50**
Heat resistant alloys	**5-15**	**5-15**
Hardened materials		

Through hole – Machine taps, right hand

G	Stabil

UNI	UNI	ST	VA
B 4–5	B 4–5	B 4–5	B 4–5
ISO 228	ISO 228	ISO 228	ISO 228
nitr. + vap.	TiN		nitr.



DIN 5156 with reduced shank

HSS-E	HSS-E	HSS-E	HSS-E
0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 750 N/mm² ≤ 4xD	0° ≤ 900 N/mm² ≤ 4xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 632 ...	Article no. 22 630 ...	Article no. 22 346 ...	Article no. 22 352 ...
	mm	mm	mm	mm	mm	mm					
1/8-28	0,907	90	7	5,5	8,80	18	3	**012**	**012**	**012**	**012**
1/4-19	1,337	100	11	9,0	11,80	22	3	**025**	**025**	**025**	**025**
3/8-19	1,337	100	12	9,0	15,25	22	3	**037**	**037**	**037**	**037**
1/2-14	1,814	125	16	12,0	19,00	25	4	**050**	**050**	**050**	**050**
3/4-14	1,814	140	20	16,0	24,50	28	4	**075**		**075**	**075**
1-11	2,309	160	25	20,0	30,75	30	4	**100**		**100**	**100**

Steel	**6-20**	**6-25**	**10-20**	
Stainless steel	**4-8**	**5-10**		**5-10**
Cast iron	**6-15**	**10-20**		
Non ferrous metals		**12-25**	**10-20**	
Heat resistant alloys				
Hardened materials				

6

Through hole – Machine taps, right hand

G

UNI

B
4–5

ISO 228

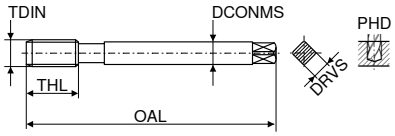
nitr. + vap.

UNI

B
4–5

ISO 228

TiN



DIN 5156 with reduced shank





HSS-E
0°
≤ 1100 N/mm²
≤ 3xD

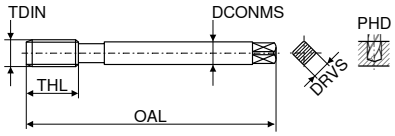
HSS-E
0°
≤ 1100 N/mm²
≤ 3xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 161 ...	Article no. 23 160 ...
	mm	mm	mm	mm	mm	mm			
1/8-28	0,907	90	7	5,5	8,80	18	3	**012**	**012**
1/4-19	1,337	100	11	9,0	11,80	22	3	**025**	**025**
3/8-19	1,337	100	12	9,0	15,25	22	3	**037**	**037**
1/2-14	1,814	125	16	12,0	19,00	25	4	**050**	**050**
3/4-14	1,814	140	20	16,0	24,50	28	4	**075**	**075**
1-11	2,309	160	25	20,0	30,75	30	4	**100**	**100**

Steel	**2-25**	**5-45**
Stainless steel	**2-8**	**5-15**
Cast iron	**5-20**	**10-25**
Non ferrous metals	**10-20**	**15-40**
Heat resistant alloys		
Hardened materials		

Blind hole – Machine taps, right hand

G | Salo-Rex



DIN 5156 with reduced shank

UNI	UNI	UNI	UNI	UNI
C 2–3	C 2–3	E 1,5–2	E 1,5–2	E 1,5–2
ISO 228	ISO 228	ISO 228	ISO 228	ISO 228 +0,05
vap.	TiN	vap.	TiN	vap.



HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 633 ...	Article no. 22 634 ...	Article no. 22 635 ...	Article no. 22 636 ...	Article no. 22 639 ...
	mm	mm	mm	mm	mm	mm						
1/8-28	0,907	90	7	5,5	8,80	10	3	012	012			
1/8-28	0,907	90	7	5,5	8,80	10	4			012	012	012
1/4-19	1,337	100	11	9,0	11,80	15	4	025	025			
1/4-19	1,337	100	11	9,0	11,80	15	5			025	025	025
3/8-19	1,337	100	12	9,0	15,25	15	4	037	037			
3/8-19	1,337	100	12	9,0	15,25	15	5			037	037	037
1/2-14	1,814	125	16	12,0	19,00	17	4	050	050			
1/2-14	1,814	125	16	12,0	19,00	17	5			050	050	050
5/8-14	1,814	125	18	14,5	21,00	17	4	062				
5/8-14	1,814	125	18	14,5	21,00	17	5				062	
3/4-14	1,814	140	20	16,0	24,50	20	4	075				
3/4-14	1,814	140	20	16,0	24,50	20	5					075
7/8-14	1,814	150	22	18,0	28,25	22	5	087				
1-11	2,309	160	25	20,0	30,75	24	5	100				
1-11	2,309	160	25	20,0	30,75	24	6					100
1 1/4-11	2,309	170	32	24,0	39,50	25	6	125				
1 1/2-11	2,309	190	36	29,0	45,25	27	6	150				

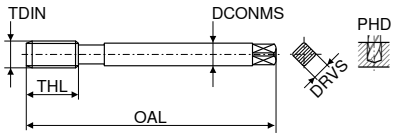
Steel	6-20	6-25	6-25	6-25	6-25
Stainless steel	4-8	5-10	4-10	4-10	4-10
Cast iron	6-15	10-20	6-20	6-20	6-20
Non ferrous metals		12-25	12-25	12-25	12-25
Heat resistant alloys					
Hardened materials					

6

Blind hole – Machine taps, right hand

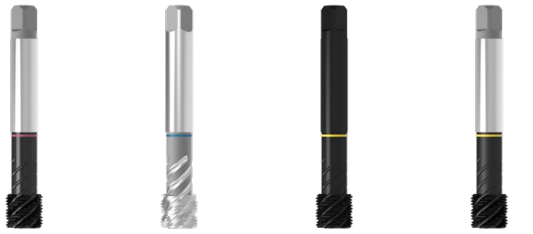
▲ CNC = for synchronised CNC machining with minimum length compensation chuck

G | Salo-Rex



DIN 5156 with reduced shank

UNI CNC	ST	VA	VA
E 1,5–2	C 2–3	E 1,5–2	E 1,5–2
ISO 228	ISO 228	ISO 228	ISO 228
TiN GS		vap.	TiN GS



HSS-E
∢ 45°
≤ 1100 N/mm²
≤ 3xD

HSS-E
∢ 42°
≤ 750 N/mm²
≤ 3xD

HSS-E
∢ 42°
≤ 900 N/mm²
≤ 3xD

HSS-E
∢ 45°
≤ 900 N/mm²
≤ 3xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 624 ...	Article no. 22 354 ...	Article no. 22 355 ...	Article no. 22 358 ...
	mm	mm	mm	mm	mm	mm					
1/8-28	0,907	90	7	5,5	8,80	10	3		012		012
1/8-28	0,907	90	7	5,5	8,80	10	4	012		012	
1/4-19	1,337	100	11	9,0	11,80	15	4		025		
1/4-19	1,337	100	11	9,0	11,80	15	5	025		025	025
3/8-19	1,337	100	12	9,0	15,25	15	4		037		
3/8-19	1,337	100	12	9,0	15,25	15	5	037		037	037
1/2-14	1,814	125	16	12,0	19,00	17	4		050		
1/2-14	1,814	125	16	12,0	19,00	17	5	050		050	050
5/8-14	1,814	125	18	14,5	21,00	17	5			062	
3/4-14	1,814	140	20	16,0	24,50	20	4		075		
3/4-14	1,814	140	20	16,0	24,50	20	5			075	
1-11	2,309	160	25	20,0	30,75	24	5		100		
1-11	2,309	160	25	20,0	30,75	24	6			100	

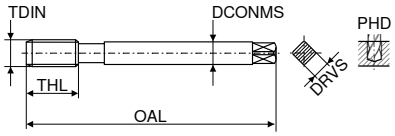
Steel	6-25	10-20		5-12
Stainless steel	5-10		5-10	5-10
Cast iron	10-20			
Non ferrous metals	12-25	10-20		
Heat resistant alloys				
Hardened materials				

Blind hole – Machine taps, right hand

G

UNI
C
2–3
ISO 228
vap.

UNI
C
2–3
ISO 228
TiN



DIN 5156 with reduced shank





HSS-E
◁ 35°
≤ 1100 N/mm²
≤ 2,5xD

HSS-E
◁ 35°
≤ 1100 N/mm²
≤ 2,5xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 163 ...	Article no. 23 162 ...
	mm	mm	mm	mm	mm	mm			
1/8-28	0,907	90	7	5,5	8,80	10	3	**012**	**012**
1/4-19	1,337	100	11	9,0	11,80	15	4	**025**	**025**
3/8-19	1,337	100	12	9,0	15,25	15	4	**037**	**037**
1/2-14	1,814	125	16	12,0	19,00	17	4	**050**	**050**
3/4-14	1,814	140	20	16,0	24,50	20	4	**075**	**075**
1-11	2,309	160	25	20,0	30,75	24	5	**100**	**100**

Steel	**2-25**	**5-45**
Stainless steel	**2-8**	**5-15**
Cast iron	**5-20**	**10-25**
Non ferrous metals	**10-20**	**15-40**
Heat resistant alloys		
Hardened materials		

6

Through hole / Blind hole – Machine taps, right hand

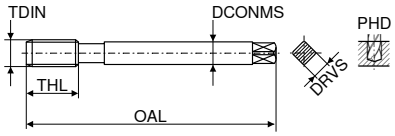
G | TWIN

ST | HR

C 2–3 | C 2–3

ISO 228 X | ISO 228 X

nitr.







DIN 5156 with reduced shank

HSS-E
0°
≤ 750 N/mm²
≤ 2xD

HSS-E
0°
≤ 1400 N/mm²
≤ 2xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 347 ...	Article no. 22 339 ...
	mm	mm	mm	mm	mm	mm			
1/16-28	0,907	90	6	4,9	6,80	17	3	**006**	
1/8-28	0,907	90	7	5,5	8,80	18	4	**012**	**012**
1/4-19	1,337	100	11	9,0	11,80	22	4	**025**	**025**
3/8-19	1,337	100	12	9,0	15,25	22	4	**037**	**037**
1/2-14	1,814	125	16	12,0	19,00	25	4	**050**	**050**
3/4-14	1,814	140	20	16,0	24,50	28	4	**075**	**075**
1-11	2,309	160	25	20,0	30,75	30	5	**100**	**100**
1 1/8-11	2,309	170	28	22,0	35,50	30	5	**112**	**112**
1 1/4-11	2,309	170	32	24,0	39,50	30	6	**125**	**125**
1 3/8-11	2,309	180	36	29,0	41,75	32	6	**137**	**137**
1 1/2-11	2,309	190	36	29,0	45,25	32	6	**150**	**150**
1 3/4-11	2,309	190	40	32,0	51,00	32	6		**175**

Steel	**10-20**	**6-15**
Stainless steel		
Cast iron		**6-15**
Non ferrous metals	**10-20**	
Heat resistant alloys		**3-5**
Hardened materials		

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

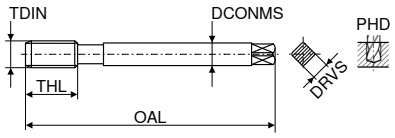
G | Spanlos

EC | EC SN

C 2–3 | C 2–3

ISO 228 | ISO 228

TiN | TiN



DIN 2189 with reduced shank





HSS-E
≤ 1100 N/mm²
≤ 1,5xD

HSS-E
≤ 1100 N/mm²
≤ 3xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 360 ...	Article no. 22 359 ...
	mm	mm	mm	mm	mm	mm			
1/8-28	0,907	90	7	5,5	9,25	18		**012**	
1/8-28	0,907	90	7	5,5	9,25	18	5		**012**
1/4-19	1,337	100	11	9,0	12,55	22		**025**	
1/4-19	1,337	100	11	9,0	12,55	22	6		**025**
3/8-19	1,337	100	12	9,0	16,05	22		**037**	
3/8-19	1,337	100	12	9,0	16,05	22	6		**037**
1/2-14	1,814	125	16	12,0	20,10	25		**050**	
1/2-14	1,814	125	16	12,0	20,10	25	6		**050**

Steel	**8-30**	**8-30**
Stainless steel	**8-15**	**8-15**
Cast iron		
Non ferrous metals	**12-25**	**12-25**
Heat resistant alloys		
Hardened materials		

6

Through hole – Machine taps, right hand

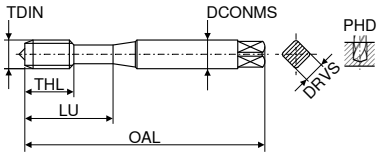
UNC | Stabil

UNI | VA | Ti

B 4–5 | B 4–5 | B 4–5

2B | 2B | 2BX

nitr. + vap. | nitr. | TiN



DIN 371 with reinforced shank

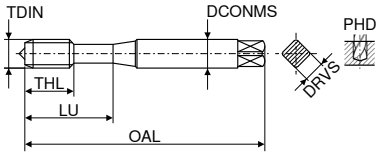


HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

HSS-E
0°
≤ 900 N/mm²
≤ 4xD

HSS-PM
0°
≤ 44 HRC
≤ 4xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 572 ...	Article no. 22 250 ...	Article no. 22 269 ...
	mm	mm	mm	mm	mm	mm	mm				
Nr. 2-56	0,454	45	2,8	2,1	1,85	7	12	2	**002**		
Nr. 4-40	0,635	56	3,5	2,7	2,35	11	18	2	**004**		
Nr. 4-40	0,635	56	3,5	2,7	2,35	11	18	3			**004**
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3	**006**	**006**	**006**
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3	**008**	**008**	**008**
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3	**010**	**010**	**010**
Nr. 12-24	1,058	80	6,0	4,9	4,50	16	30	3	**012**		
1/4-20	1,270	80	7,0	5,5	5,10	17	30	3	**025**	**025**	**025**
5/16-18	1,411	90	8,0	6,2	6,60	20	35	3	**031**	**031**	**031**
3/8-16	1,588	100	10,0	8,0	8,00	22	39	3	**037**	**037**	**037**



DIN 371 with reinforced shank

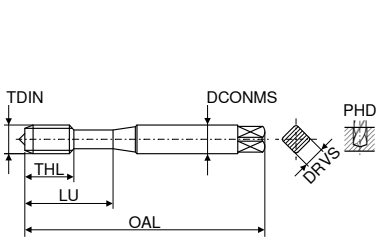
TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 573 ...
	mm	mm	mm	mm	mm	mm		
1/2-13	1,954	110	9	7,0	10,80	25	3	**050**
5/8-11	2,309	110	12	9,0	13,50	27	3	**062**
3/4-10	2,540	125	14	11,0	16,50	30	3	**075**
7/8-9	2,822	140	18	14,5	19,50	32	3	**087**
1-8	3,175	160	18	14,5	22,25	36	3	**100**

Steel	**6-20**		**2-5**
Stainless steel	**4-8**	**5-10**	
Cast iron	**6-15**		
Non ferrous metals			
Heat resistant alloys			**2-6**
Hardened materials			

Through hole – Machine taps, right hand

UNC

UNI	FE	FE-HF	VA
B 4–5	B 4–5	B 4–5	B 4–5
2B	2B	2B	2B
TiN		TiCN	nitr.

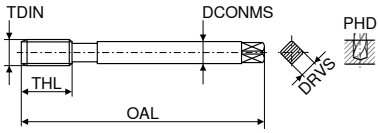


DIN 371 with reinforced shank



HSS-E	HSS-E	HSS-E	HSS-E
0° ≤ 1000 N/mm² ≤ 3xD	0° ≤ 850 N/mm² ≤ 3xD	0° ≤ 1100 N/mm² ≤ 3xD	0° ≤ 1000 N/mm² ≤ 3xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 170 ...	Article no. 23 270 ...	Article no. 23 370 ...	Article no. 23 470 ...
	mm	mm	mm	mm	mm	mm	mm					
Nr. 4-40	0,635	56	3,5	2,7	2,30	11	18	2	**004**	**004**	**004**	**004**
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3	**006**	**006**	**006**	**006**
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3	**008**	**008**	**008**	**008**
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3	**010**	**010**	**010**	**010**
1/4-20	1,270	80	7,0	5,5	5,20	17	30	3	**025**	**025**	**025**	**025**
5/16-18	1,411	90	8,0	6,2	6,60	20	35	3	**031**	**031**	**031**	**031**
3/8-16	1,588	100	10,0	8,0	8,00	22	39	3	**037**	**037**	**037**	**037**



DIN 376 with reduced shank

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 171 ...	Article no. 23 271 ...	Article no. 23 371 ...	Article no. 23 471 ...
	mm	mm	mm	mm	mm	mm					
7/16-14	1,814	100	8	6,2	9,40	22	3	**043**	**043**	**043**	**043**
1/2-13	1,954	110	9	7,0	10,75	25	3	**050**	**050**	**050**	**050**
5/8-11	2,309	110	12	9,0	13,50	27	3	**062**	**062**	**062**	**062**
3/4-10	2,540	125	14	11,0	16,50	30	3	**075**	**075**	**075**	**075**

Steel	**5-45**	**5-25**	**5-45**	
Stainless steel	**5-15**			**3-10**
Cast iron	**10-25**			
Non ferrous metals	**15-40**			
Heat resistant alloys				
Hardened materials				

6

Blind hole – Machine taps, right hand

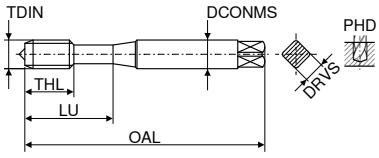
UNC | Salo-Rex

UNI | VA

C 2–3

2B

vap.



DIN 371 with reinforced shank

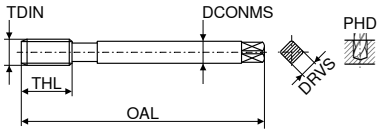




HSS-E
◁ 42°
≤ 1100 N/mm²
≤ 3xD

HSS-E
◁ 42°
≤ 900 N/mm²
≤ 3xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 582 ...	Article no. 22 266 ...
	mm	mm	mm	mm	mm	mm	mm			
Nr. 2-56	0,454	45	2,8	2,1	1,85	4,5	12	2	**002**	
Nr. 4-40	0,635	56	3,5	2,7	2,35	6,0	18	2	**004**	
Nr. 6-32	0,794	56	4,0	3,0	2,85	7,0	20	3	**006**	**006**
Nr. 8-32	0,794	63	4,5	3,4	3,50	8,0	21	3	**008**	**008**
Nr. 10-24	1,058	70	6,0	4,9	3,90	10,0	25	3	**010**	**010**
1/4-20	1,270	80	7,0	5,5	5,10	13,0	30	3	**025**	**025**
5/16-18	1,411	90	8,0	6,2	6,60	14,0	35	3	**031**	**031**
3/8-16	1,588	100	10,0	8,0	8,00	16,0	39	3	**037**	**037**



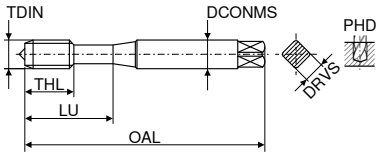
DIN 376 with reduced shank

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 583 ...	Article no. 22 267 ...
	mm	mm	mm	mm	mm	mm			
7/16-14	1,814	100	8	6,2	9,40	18	3	**043**	
7/16-14	1,814	100	8	6,2	9,40	18	4		**043**
1/2-13	1,954	110	9	7,0	10,80	20	3	**050**	
1/2-13	1,954	110	9	7,0	10,80	20	4		**050**
9/16-12	2,117	110	11	9,0	12,25	20	3	**056**	
5/8-11	2,309	110	12	9,0	13,50	22	3	**062**	
5/8-11	2,309	110	12	9,0	13,50	22	4		**062**
3/4-10	2,540	125	14	11,0	16,50	25	3	**075**	
3/4-10	2,540	125	14	11,0	16,50	25	4		**075**
7/8-9	2,822	140	18	14,5	19,50	27	4	**087**	
1-8	3,175	160	18	14,5	22,25	30	4	**100**	
1-8	3,175	160	18	14,5	22,25	30	5		**100**

Steel	**6-20**	
Stainless steel	**4-8**	**5-10**
Cast iron	**6-15**	
Non ferrous metals		
Heat resistant alloys		
Hardened materials		

Blind hole – Machine taps, right hand

UNC



DIN 371 with reinforced shank

UNI	FE	FE-HF	VA
C 2–3	C 2–3	C 2–3	C 2–3
2B	2B	2B	2B
TiN		TiCN	



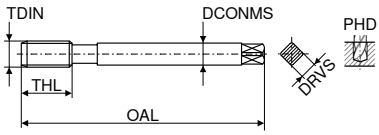
HSS-E
◁ 35°
≤ 1000 N/mm²
≤ 2,5xD

HSS-E
◁ 35°
≤ 850 N/mm²
≤ 2,5xD

HSS-E
◁ 35°
≤ 1100 N/mm²
≤ 2,5xD

HSS-E
◁ 35°
≤ 1000 N/mm²
≤ 2,5xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 172 ...	Article no. 23 272 ...	Article no. 23 372 ...	Article no. 23 472 ...
	mm	mm	mm	mm	mm	mm	mm					
Nr. 4-40	0,635	56	3,5	2,7	2,30	11	18	2			**004**	
Nr. 4-40	0,635	56	3,5	2,7	2,30	6	18	2	**004**	**004**		**004**
Nr. 6-32	0,794	56	4,0	3,0	2,85	7	20	3	**006**	**006**		**006**
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3			**006**	
Nr. 8-32	0,794	63	4,5	3,4	3,50	8	21	3	**008**	**008**		**008**
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3			**008**	
Nr. 10-24	1,058	70	6,0	4,9	3,90	10	25	3	**010**	**010**		**010**
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3			**010**	
1/4-20	1,270	80	7,0	5,5	5,20	13	30	3	**025**	**025**		**025**
1/4-20	1,270	80	7,0	5,5	5,20	17	30	3			**025**	
5/16-18	1,411	90	8,0	6,2	6,60	14	35	3	**031**	**031**		**031**
5/16-18	1,411	90	8,0	6,2	6,60	20	35	3			**031**	
3/8-16	1,588	100	10,0	8,0	8,00	16	39	3	**037**	**037**		**037**
3/8-16	1,588	100	10,0	8,0	8,00	22	39	3			**037**	



DIN 376 with reduced shank

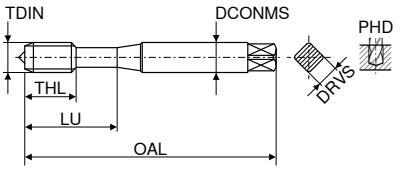
TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 173 ...	Article no. 23 273 ...	Article no. 23 373 ...	Article no. 23 473 ...
	mm	mm	mm	mm	mm	mm					
7/16-14	1,814	100	8	6,2	9,40	22	3			**043**	
7/16-14	1,814	100	8	6,2	9,40	18	3	**043**	**043**		**043**
1/2-13	1,954	110	9	7,0	10,75	20	3	**050**	**050**		**050**
1/2-13	1,954	110	9	7,0	10,75	25	3			**050**	
5/8-11	2,309	110	12	9,0	13,50	22	3	**062**	**062**		**062**
5/8-11	2,309	110	12	9,0	13,50	27	3			**062**	
3/4-10	2,540	125	14	11,0	16,50	25	3	**075**	**075**		**075**
3/4-10	2,540	125	14	11,0	16,50	30	3			**075**	

Steel	**5-45**	**5-25**	**5-45**		
Stainless steel	**5-15**				**3-10**
Cast iron	**10-25**				
Non ferrous metals	**15-40**				
Heat resistant alloys					
Hardened materials					

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

UNC | Spanlos



DIN 2174 with reduced shank

	EC	EC SN
	C 2–3	C 2–3
	2BX	2BX
	TiN	TiN
		
	HSS-E ≤ 1100 N/mm² ≤ 1,5xD	HSS-E ≤ 1100 N/mm² ≤ 3xD

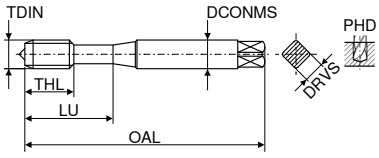
TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 270 ...	Article no. 22 271 ...
	mm	mm	mm	mm	mm	mm	mm			
Nr. 4-40	0,635	56	3,5	2,7	2,55	11	18		**004**	
Nr. 4-40	0,635	56	3,5	2,7	2,55	11	18	3		**004**
Nr. 6-32	0,794	56	4,0	3,0	3,15	12	20		**006**	
Nr. 6-32	0,794	56	4,0	3,0	3,15	12	20	3		**006**
Nr. 8-32	0,794	63	4,5	3,4	3,80	13	21		**008**	
Nr. 8-32	0,794	63	4,5	3,4	3,80	13	21	4		**008**
Nr. 10-24	1,058	70	6,0	4,9	4,35	15	25		**010**	
Nr. 10-24	1,058	70	6,0	4,9	4,35	15	25	4		**010**
1/4-20	1,270	80	7,0	5,5	5,75	17	30		**025**	
1/4-20	1,270	80	7,0	5,5	5,75	17	30	4		**025**
5/16-18	1,411	90	8,0	6,2	7,30	20	35		**031**	
5/16-18	1,411	90	8,0	6,2	7,30	20	35	5		**031**
3/8-16	1,588	100	10,0	8,0	8,80	22	39		**037**	
3/8-16	1,588	100	10,0	8,0	8,80	22	39	5		**037**

Steel	**8-30**	**8-30**
Stainless steel	**8-15**	**8-15**
Cast iron		
Non ferrous metals	**12-25**	**12-25**
Heat resistant alloys		
Hardened materials		

Through hole – machine taps for wire thread inserts, right hand

EG UNC | Stabil

UNI | B 4–5 | 2B | nitr. + vap.

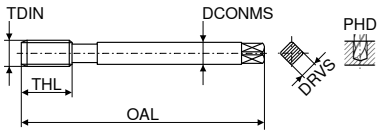


DIN 371 with reinforced shank



HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 668 ...
	mm	mm	mm	mm	mm	mm	mm		
EG Nr. 4-40	0,635	63	4,5	3,4	3,1	13	21	3	**004**
EG Nr. 6-32	0,794	70	6,0	4,9	3,8	14	25	3	**006**
EG Nr. 8-32	0,794	80	6,0	4,9	4,4	16	30	3	**008**
EG Nr. 10-24	1,058	80	7,0	5,5	5,2	17	30	3	**010**
EG 1/4-20	1,270	90	8,0	6,2	6,7	20	35	3	**025**
EG 5/16-18	1,411	100	10,0	8,0	8,4	22	39	3	**031**



DIN 376 with reduced shank

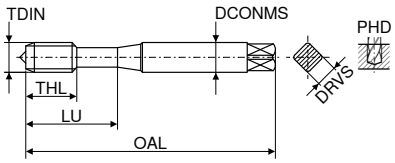
TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 670 ...
	mm	mm	mm	mm	mm	mm		
EG 3/8-16	1,588	100	9	7,0	10,00	22	3	**037**
EG 7/16-14	1,814	110	11	9,0	11,60	26	3	**043**
EG 1/2-13	1,954	110	12	9,0	13,30	27	3	**050**
EG 5/8-11	2,309	125	14	11,0	16,50	30	3	**062**
EG 3/4-10	2,540	140	18	14,5	19,75	32	3	**075**

Steel	**6-20**
Stainless steel	**4-8**
Cast iron	**6-15**
Non ferrous metals	
Heat resistant alloys	
Hardened materials	

Blind hole – machine taps for wire thread inserts, right hand

EG UNC | Salo-Rex

UNI | E 1,5–2 | 2B | vap.





DIN 371 with reinforced shank

HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

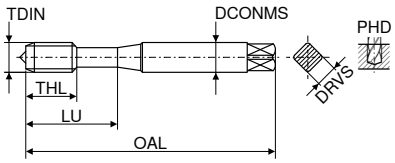
TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 672 ...
	mm	mm	mm	mm	mm	mm	mm		
EG Nr. 4-40	0,635	63	4,5	3,4	3,1	7	21	3	**004**
EG Nr. 6-32	0,794	70	6,0	4,9	3,8	8	25	3	**006**
EG Nr. 8-32	0,794	80	6,0	4,9	4,4	8	30	3	**008**
EG Nr. 10-24	1,058	80	7,0	5,5	5,2	10	30	3	**010**
EG 1/4-20	1,270	90	8,0	6,2	6,7	14	35	3	**025**
EG 5/16-18	1,411	100	10,0	8,0	8,4	16	39	3	**031**

Steel	**6-20**
Stainless steel	**4-8**
Cast iron	**6-15**
Non ferrous metals	
Heat resistant alloys	
Hardened materials	

Blind hole – Machine taps, right hand

UNJC | SL

Ti | C 2–3 | 3BX | TiCN



DIN 371 with reinforced shank



HSS-E
◁ 15°
≤ 1200 N/mm²
≤ 2xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 166 ...
	mm	mm	mm	mm	mm	mm	mm		
Nr. 4-40	0,635	56	3,5	2,7	2,30	11	18	2	**004**
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3	**006**
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3	**008**
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3	**010**
1/4-20	1,270	80	7,0	5,5	5,25	17	30	3	**025**
3/8-16	1,588	100	10,0	8,0	8,10	22	39	3	**037**

Steel	**6-8**
Stainless steel	**4-10**
Cast iron	
Non ferrous metals	**10-12**
Heat resistant alloys	**4-6**
Hardened materials	

Through hole – Machine taps, right hand

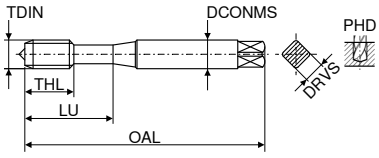
UNF | Stabil

UNI | Ti

B 4–5 | B 4–5

2B | 2BX

nitr. + vap. | TiN



DIN 371 with reinforced shank

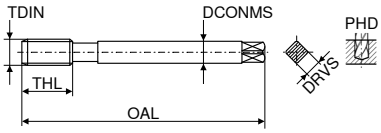




HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

HSS-PM
0°
≤ 44 HRC
≤ 4xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 602 ...	Article no. 22 317 ...
	mm	mm	mm	mm	mm	mm	mm			
Nr. 4-48	0,529	56	3,5	2,7	2,40	11	18	2	**004**	
Nr. 4-48	0,529	56	3,5	2,7	2,40	11	18	3		**004**
Nr. 5-44	0,577	56	3,5	2,7	2,70	11	18	3		**005**
Nr. 6-40	0,635	56	4,0	3,0	2,95	12	20	3	**006**	**006**
Nr. 8-36	0,706	63	4,5	3,4	3,50	13	21	3	**008**	**008**
Nr. 10-32	0,794	70	6,0	4,9	4,10	15	25	3	**010**	**010**
1/4-28	0,907	80	7,0	5,5	5,50	17	30	3	**025**	**025**
5/16-24	1,058	90	8,0	6,2	6,90	17	35	3	**031**	**031**
3/8-24	1,058	90	10,0	8,0	8,50	18	35	3		**037**



DIN 374 with reduced shank

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 603 ...	Article no. 22 421 ...
	mm	mm	mm	mm	mm	mm			
7/16-20	1,270	100	8	6,2	9,90	22	3	**043**	
1/2-20	1,270	100	9	7,0	11,50	22	3	**050**	**050**
9/16-18	1,411	100	11	9,0	12,90	22	3	**056**	
5/8-18	1,411	100	12	9,0	14,50	22	3	**062**	
3/4-16	1,588	110	14	11,0	17,50	25	4	**075**	
7/8-14	1,814	125	18	14,5	20,50	25	4	**087**	
1-12	2,117	140	18	14,5	23,25	28	4	**100**	
1 1/8-12	2,117	150	22	18,0	26,50	28	4	**112**	
1 1/4-12	2,117	150	22	18,0	29,75	28	4	**125**	
1 3/8-12	2,117	170	28	22,0	33,00	30	5	**137**	

Steel	**6-20**	**2-5**
Stainless steel	**4-8**	
Cast iron	**6-15**	
Non ferrous metals		
Heat resistant alloys		**2-6**
Hardened materials		

Through hole – Machine taps, right hand

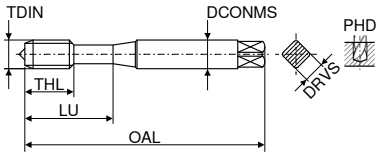
UNF

UNI | FE | VA

B 4–5

2B

TiN | | nitr.



DIN 371 with reinforced shank

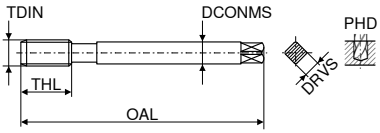


HSS-E
0°
≤ 1100 N/mm²
≤ 3xD

HSS-E
0°
≤ 850 N/mm²
≤ 3xD

HSS-E
0°
≤ 1100 N/mm²
≤ 3xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 180 ...	Article no. 23 280 ...	Article no. 23 480 ...
	mm	mm	mm	mm	mm	mm	mm				
Nr. 10-32	0,794	70	6	4,9	4,1	15	25	3	**010**	**010**	**010**
1/4-28	0,907	80	7	5,5	5,5	17	30	3	**025**	**025**	**025**
5/16-24	1,058	90	8	6,2	6,9	17	35	3	**031**	**031**	**031**
3/8-24	1,058	90	10	8,0	8,5	18	35	4	**037**	**037**	**037**



DIN 374 with reduced shank

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 181 ...	Article no. 23 281 ...	Article no. 23 481 ...
	mm	mm	mm	mm	mm	mm				
7/16-20	1,270	100	8	6,2	9,9	22	3	**043**	**043**	**043**
1/2-20	1,270	100	9	7,0	11,5	22	3	**050**	**050**	**050**
9/16-18	1,411	100	11	9,0	12,9	22	3	**056**	**056**	**056**
5/8-18	1,411	100	12	9,0	14,5	22	3	**062**	**062**	**062**
3/4-16	1,588	110	14	11,0	17,5	25	4	**075**	**075**	**075**

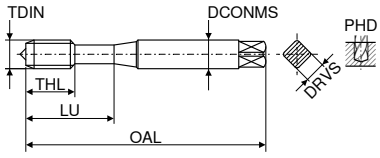
Steel	**5-45**	**5-25**	
Stainless steel	**5-15**		**3-10**
Cast iron	**10-25**		
Non ferrous metals	**15-40**		
Heat resistant alloys			
Hardened materials			

6

Blind hole – Machine taps, right hand

UNF | Salo-Rex

VA	UNI	UNI
E 1,5–2	C 2–3	E 1,5–2
2B	2B	2B +0,05
vap.	vap.	vap.

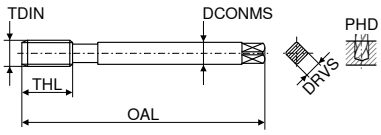


DIN 371 with reinforced shank



HSS-E ◁ 42° ≤ 900 N/mm² ≤ 3xD | HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD | HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 308 ...	Article no. 22 606 ...	Article no. 22 307 ...
	mm	mm	mm	mm	mm	mm	mm				
Nr. 2-64	0,397	45	2,8	2,1	1,85	4,5	12	2	002		
Nr. 4-48	0,529	56	3,5	2,7	2,40	6,0	18	2	004	004	
Nr. 6-40	0,635	56	4,0	3,0	2,95	7,0	20	3	006	006	
Nr. 6-40	0,635	56	4,0	3,0	3,00	7,0	20	3			006
Nr. 8-36	0,706	63	4,5	3,4	3,50	8,0	21	3	008	008	
Nr. 10-32	0,794	70	6,0	4,9	4,10	10,0	25	3	010	010	
Nr. 10-32	0,794	70	6,0	4,9	4,15	10,0	25	3			010
1/4-28	0,907	80	7,0	5,5	5,50	10,0	30	3	025	025	
1/4-28	0,907	80	7,0	5,5	5,55	10,0	30	3			025
5/16-24	1,058	90	8,0	6,2	6,90	10,0	35	3	031	031	
5/16-24	1,058	90	8,0	6,2	6,95	10,0	35	3			031
3/8-24	1,058	90	10,0	8,0	8,50	10,0	35	3	037		
3/8-24	1,058	90	10,0	8,0	8,55	10,0	35	3			037



DIN 374 with reduced shank

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 607 ...	Article no. 22 409 ...
	mm	mm	mm	mm	mm	mm			
7/16-20	1,270	100	8	6,2	9,90	13	3	043	
7/16-20	1,270	100	8	6,2	9,95	13	4		043
1/2-20	1,270	100	9	7,0	11,50	13	4	050	
1/2-20	1,270	100	9	7,0	11,55	13	5		050
9/16-18	1,411	100	11	9,0	12,90	15	4	056	
9/16-18	1,411	100	11	9,0	12,95	15	5		056
5/8-18	1,411	100	12	9,0	14,50	15	4	062	
5/8-18	1,411	100	12	9,0	14,55	15	5		062
3/4-16	1,588	110	14	11,0	17,50	17	4	075	
3/4-16	1,588	110	14	11,0	17,55	17	5		075
7/8-14	1,814	125	18	14,5	20,50	17	4	087	
1-12	2,117	140	18	14,5	23,25	20	4	100	
1-12	2,117	140	18	14,5	23,30	20	5		100
1 1/8-12	2,117	150	22	18,0	26,50	22	4	112	
1 1/4-12	2,117	150	22	18,0	29,75	22	5	125	
1 3/8-12	2,117	170	28	22,0	33,00	24	5	137	

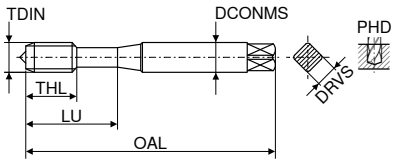
Steel		6-20	6-20
Stainless steel	5-10	4-8	4-8
Cast iron		6-15	6-15
Non ferrous metals			
Heat resistant alloys			
Hardened materials			

Blind hole – Machine taps, right hand

UNF | SL

Ti | C 2–3 | 2BX | vap.

Ti | C 2–3 | 3BX | vap.



DIN 371 with reinforced shank





HSS-PM
◁ 30°
≤ 1400 N/mm²
≤ 1,5xD

HSS-PM
◁ 30°
≤ 1400 N/mm²
≤ 1,5xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 302 ...	Article no. 22 303 ...
	mm	mm	mm	mm	mm	mm	mm			
Nr. 10-32	0,794	70	6	4,9	4,1	10	25	3	**010**	**010**
1/4-28	0,907	80	7	5,5	5,5	10	30	3	**025**	**025**
5/16-24	1,058	90	8	6,2	6,9	10	35	3	**031**	**031**
3/8-24	1,058	90	10	8,0	8,5	10	35	3	**037**	**037**

Steel	**2-5**	**2-5**
Stainless steel		
Cast iron		
Non ferrous metals		
Heat resistant alloys	**2-6**	**2-6**
Hardened materials		

6

Blind hole – Machine taps, right hand

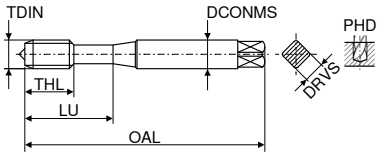
UNF

UNI | FE | VA

C 2–3

2B

TiN



DIN 371 with reinforced shank

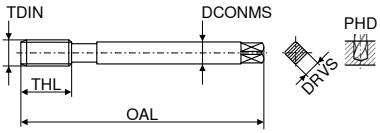


HSS-E
◁ 35°
≤ 1100 N/mm²
≤ 2,5xD

HSS-E
◁ 35°
≤ 850 N/mm²
≤ 2,5xD

HSS-E
◁ 35°
≤ 1100 N/mm²
≤ 2,5xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 23 182 ...	Article no. 23 282 ...	Article no. 23 482 ...
	mm	mm	mm	mm	mm	mm	mm				
Nr. 10-32	0,794	70	6	4,9	4,1	10	25	3	**010**	**010**	**010**
1/4-28	0,907	80	7	5,5	5,5	10	30	3	**025**	**025**	**025**
5/16-24	1,058	90	8	6,2	6,9	10	35	3	**031**	**031**	**031**
3/8-24	1,058	90	10	8,0	8,5	10	35	3	**037**	**037**	**037**



DIN 374 with reduced shank

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 23 183 ...	Article no. 23 283 ...	Article no. 23 483 ...
	mm	mm	mm	mm	mm	mm				
7/16-20	1,270	100	8	6,2	9,9	13	3	**043**	**043**	**043**
1/2-20	1,270	100	9	7,0	11,5	13	4	**050**	**050**	**050**
9/16-18	1,411	100	11	9,0	12,9	15	4	**056**	**056**	**056**
5/8-18	1,411	100	12	9,0	14,5	15	4	**062**	**062**	**062**
3/4-16	1,588	110	14	11,0	17,5	17	4	**075**	**075**	**075**

Steel	**5-45**	**5-25**	
Stainless steel	**5-15**		**3-10**
Cast iron	**10-25**		
Non ferrous metals	**15-40**		
Heat resistant alloys			
Hardened materials			

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

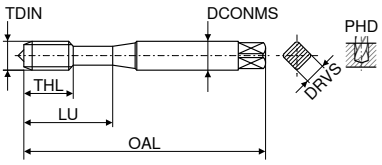
UNF | Spanlos

EC
SN

C
2–3

2BX

TiN

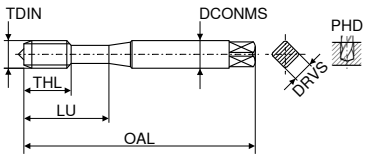


DIN 2174 with reduced shank



HSS-E
≤ 1100 N/mm²
≤ 3xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 312 ...
	mm	mm	mm	mm	mm	mm	mm		
Nr. 4-48	0,529	56	3,5	2,7	2,62	11	18	3	**004**
Nr. 6-40	0,635	56	4,0	3,0	3,22	12	20	3	**006**
Nr. 8-36	0,706	63	4,5	3,4	3,85	13	21	4	**008**
Nr. 10-32	0,794	70	6,0	4,9	4,45	15	25	4	**010**
1/4-28	0,907	80	7,0	5,5	5,95	17	30	4	**025**



DIN 2174 with reduced shank

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 313 ...
	mm	mm	mm	mm	mm	mm		
7/16-20	1,27	100	8	6,2	10,55	22	6	**043**
1/2-20	1,27	100	9	7,0	12,15	22	6	**050**

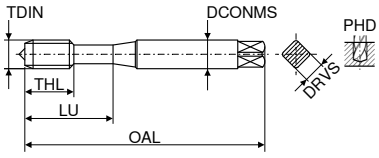
Steel	**8-30**
Stainless steel	**8-15**
Cast iron	
Non ferrous metals	**12-25**
Heat resistant alloys	
Hardened materials	

6

Through hole – machine taps for wire thread inserts, right hand

EG UNF | Stabil

UNI | B 4–5 | 2B | nitr. + vap.

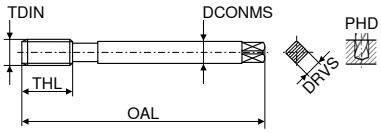


DIN 371 with reinforced shank



HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 676 ...
	mm	mm	mm	mm	mm	mm	mm		
EG Nr. 4-48	0,529	56	4	3,0	3,0	9	20	3	**004**
EG Nr. 6-40	0,635	70	6	4,9	3,7	11	25	3	**006**
EG Nr. 8-36	0,706	80	6	4,9	4,4	13	30	3	**008**
EG Nr. 10-32	0,794	80	6	4,9	5,1	13	30	3	**010**
EG 1/4-28	0,907	90	8	6,2	6,6	17	35	3	**025**



DIN 374 with reduced shank

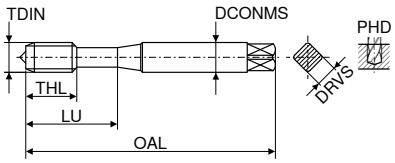
TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 677 ...
	mm	mm	mm	mm	mm	mm		
EG 3/8-24	1,058	90	8	6,2	9,80	18	4	**037**
EG 7/16-20	1,270	100	9	7,0	11,50	22	3	**043**
EG 1/2-20	1,270	100	11	9,0	13,10	22	3	**050**
EG 5/8-18	1,411	110	14	11,0	16,25	25	4	**062**
EG 3/4-16	1,588	125	16	12,0	19,50	25	4	**075**

Steel	**6-20**
Stainless steel	**4-8**
Cast iron	**6-15**
Non ferrous metals	
Heat resistant alloys	
Hardened materials	

Blind hole – machine taps for wire thread inserts, right hand

EG UNF | Salo-Rex

UNI | E 1,5–2 | 2B | vap.



DIN 371 with reinforced shank



HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

6

TDIN	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	Article no. 22 680 ...
	mm	mm	mm	mm	mm	mm	mm		
EG Nr. 4-48	0,529	56	4	3,0	3,0	7	20	3	**004**
EG Nr. 6-40	0,635	70	6	4,9	3,7	8	25	3	**006**
EG Nr. 8-36	0,706	80	6	4,9	4,4	8	30	3	**008**
EG Nr. 10-32	0,794	80	6	4,9	5,1	8	30	3	**010**
EG 1/4-28	0,907	90	8	6,2	6,6	10	35	3	**025**

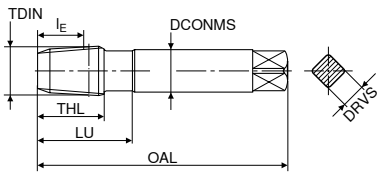
Steel	**6-20**
Stainless steel	**4-8**
Cast iron	**6-15**
Non ferrous metals	
Heat resistant alloys	
Hardened materials	

Blind hole – Machine taps, right hand

NPT | Salo-Rex

VA | C | 2–3 | vap.

VA | C | 2–3 | TiN



DIN 371 with reinforced shank

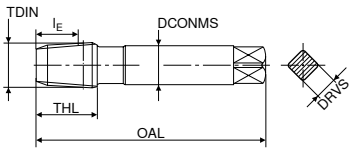




HSS-E
◁ 35°
≤ 900 N/mm²

HSS-E
◁ 42°
≤ 1100 N/mm²

TDIN	TP	OAL	DCONMS	DRVS	l_E	THL	LU	Flutes	Article no. 22 364 ...	Article no. 22 365 ...
	mm	mm	mm	mm	mm	mm	mm			
1/16-27	0,941	90	8	6,2	9,24	13,0	26,0	3	**006**	
1/8-27	0,941	90	10	8,0	9,28	13,0	26,0	3	**012**	
1/8-27	0,941	90	10	8,0	9,28	12,0	26,0	4		**012**
1/4-18	1,411	100	14	11,0	13,55	19,5	34,5	3	**025**	
1/4-18	1,411	100	14	11,0	13,55	18,0	34,5	4		**025**



DIN 374 with reduced shank

TDIN	TP	OAL	DCONMS	DRVS	l_E	THL	Flutes	Article no. 22 371 ...	Article no. 22 372 ...
	mm	mm	mm	mm	mm	mm			
3/8-18	1,411	110	14	11	13,86	19,5	3	**037**	
3/8-18	1,411	110	14	11	13,86	18,0	5		**037**
1/2-14	1,814	140	16	12	18,11	25,0	5	**050**	
1/2-14	1,814	140	16	12	18,11	23,0	5		**050**
3/4-14	1,814	150	20	16	18,59	26,0	5	**075**	
1-11,5	2,209	170	25	20	22,31	32,0	5	**100**	

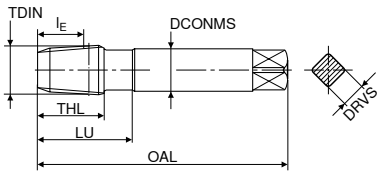
Steel		**2-4**
Stainless steel	**2-4**	**2-4**
Cast iron		
Non ferrous metals		
Heat resistant alloys		
Hardened materials		

Through hole / Blind hole – Machine taps, right hand

NPT | TWIN

VG

C
2–3



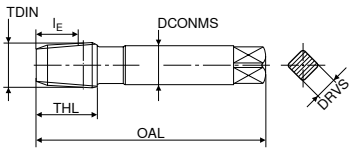
DIN 371 with reinforced shank



HSS-E
0°
≤ 1100 N/mm²

6

TDIN	TP	OAL	DCONMS	DRVS	l_E	THL	LU	Flutes	Article no. 22 374 ...
	mm	mm	mm	mm	mm	mm	mm		
1/16-27	0,941	90	8	6,2	9,24	13,0	26,0	3	**006**
1/8-27	0,941	90	10	8,0	9,28	13,0	26,0	3	**012**
1/4-18	1,411	100	14	11,0	13,55	19,5	34,5	3	**025**



DIN 374 with reduced shank

TDIN	TP	OAL	DCONMS	DRVS	l_E	THL	Flutes	Article no. 22 375 ...
	mm	mm	mm	mm	mm	mm		
3/8-18	1,411	110	14	11	13,86	19,5	3	**037**
1/2-14	1,814	140	16	12	18,11	25,0	5	**050**
3/4-14	1,814	150	20	16	18,59	26,0	5	**075**
1-11,5	2,209	170	25	20	22,31	30,0	5	**100**

Steel	**2-6**
Stainless steel	
Cast iron	**4-6**
Non ferrous metals	**4-6**
Heat resistant alloys	
Hardened materials	

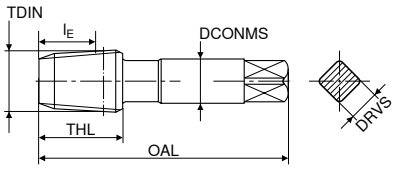
Through hole / Blind hole – Machine taps, right hand

▲ ES = extra short

NPT | TWIN

ST
ES

C
2–3





DIN 2181 with reduced shank

HSS-E
0°
≤ 750 N/mm²

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes	Article no. 22 361 ...
1/16-27	0,941	63	6	4,9	9,24	13,0	4	**006**
1/8-27	0,941	63	7	5,5	9,28	13,0	5	**012**
1/4-18	1,411	63	11	9,0	13,55	19,5	5	**025**
3/8-18	1,411	70	12	9,0	13,86	19,5	5	**037**
1/2-14	1,814	80	16	12,0	18,11	23,0	5	**050**
3/4-14	1,814	100	20	16,0	18,59	26,0	6	**075**
1-11,5	2,209	110	25	20,0	22,31	32,0	6	**100**
2-11,5	2,209	160	45	35,0	23,22	36,0	7	**200**

Steel	**4-6**
Stainless steel	
Cast iron	
Non ferrous metals	**4-6**
Heat resistant alloys	
Hardened materials	

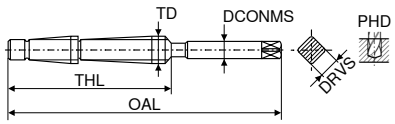
Through hole – Machine taps, right hand

- single finishing trapezoidal taps (2 steps)
- do not reverse

Tr

ST

7H





Factory standard

HSS-E

5°
≤ 900 N/mm²
≤ 2xD

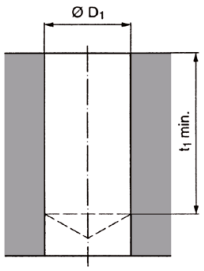
6

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	Article no. 22 402 ...
	mm	mm	mm	mm	mm	mm		
Tr 8	1,5	105	6	4,9	6,60	55	3	**080**
Tr 9	2,0	130	7	5,5	7,20	70	3	**090**
Tr 10	2,0	130	7	5,5	8,20	70	3	**102**
Tr 10	3,0	155	7	5,5	7,25	95	3	**103**
Tr 12	3,0	160	9	7,0	9,25	95	3	**123**
Tr 14	3,0	170	10	8,0	11,25	100	3	**143**
Tr 14	4,0	195	10	8,0	10,25	125	3	**144**
Tr 16	4,0	225	12	9,0	12,25	130	3	**164**
Tr 18	4,0	225	14	11,0	14,25	116	3	**184**
Tr 20	4,0	225	16	12,0	16,25	130	3	**204**
Tr 22	5,0	260	16	12,0	17,25	160	3	**225**
Tr 24	5,0	285	18	14,5	19,25	165	3	**245**

Steel	●
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
Hardened materials	

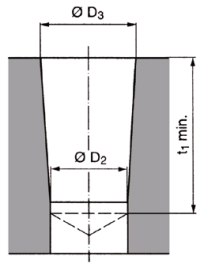
Core hole diameters for taper threads (taper 1:16)

Pre-drilling of cylindrical holes without reamer



		NPT		NPTF				Rc	
Ø D_1 inch	Pitch Gg/1"	Ø D_1 mm	t_1 min. mm	Ø D_1 mm	t_1 min. mm	Ø D_1 inch	Pitch Gg/1"	Ø D_1 mm	t_1 min. mm
1/16	27	6,15	12	6,1	12	1/16	28	6,2	11,9
1/8	27	8,5	12	8,45	12	1/8	28	8,2	11,9
1/4	18	11	17,5	10,9	17,5	1/4	19	10,85	16,3
3/8	18	14,5	17,6	14,3	17,6	3/8	19	14,5	18,1
1/2	14	17,85	22,9	17,6	22,9	1/2	14	18	24
3/4	14	23,2	23	23	23	3/4	14	23,5	25,3
1	11½	29,5	27,4	28,75	27,4	1	11	29,5	30,6
1¼	11½	37,8	28,1	37,5	28,1				
1½	11½	44	28,4	43,75	28,4				
2	11½	56	28,4	55,75	28,4				

Pre-drilling of cylindrical holes and conical boring with reamer

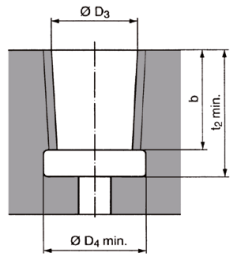


Taper 1:16

		NPT			NPTF		
Ø D_1 inch	Pitch Gg/1"	Ø D_2 mm	Ø D_3 mm	t_1 min. mm	Ø D_2 mm	Ø D_3 mm	t_1 min. mm
1/16	27	5,95	6,39	12	5,95	6,41	12
1/8	27	8,25	8,74	12	8,25	8,76	12
1/4	18	10,75	11,36	17,5	10,75	11,4	17,5
3/8	18	14,1	14,8	17,6	14,1	14,84	17,6
1/2	14	17,5	18,32	22,9	17,5	18,33	22,9
3/4	14	22,7	23,67	23	22,7	23,68	23
1	11½	28,6	29,69	27,4	28,6	29,72	27,4
1¼	11½	37,3	38,45	28,1	37,3	38,48	28,1
1½	11½	43,4	44,52	28,4	43,4	44,5	28,4
2	11½	55,5	56,56	28,4	55,5	56,59	28,4

		Rc		
Ø D_1 inch	Pitch Gg/1"	Ø D_2 mm	Ø D_3 mm	t_1 min. mm
1/16	28	6,1	6,56	11,9
1/8	28	8,1	8,57	11,9
1/4	19	10,75	11,45	17,7
3/8	19	14,25	14,95	18,1
1/2	14	17,75	18,63	24
3/4	14	23	24,12	25,3
1	11	29	30,29	30,6

Recommendation for the pre-drilling of blind hole threads



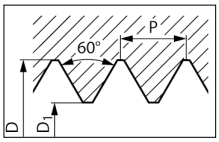
Taper 1:16

		NPT				NPTF			
Ø D_1 inch	Pitch Gg/1"	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 mm	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 min. mm
1/16	27	6,39	7	10	7,6	6,41	8	11	7,4
1/8	27	8,74	7	10	10	8,76	8	11	9,8
1/4	18	11,36	10,2	14,5	13,1	11,4	11,6	15,5	12,9
3/8	18	14,8	10,6	15	16,5	14,84	12	16	16,3
1/2	14	18,32	13,8	19	20,5	18,33	15,6	20,5	20,3
3/4	14	23,67	14,2	20	25,8	23,68	16	21,5	25,6
1	11½	29,69	17	24	32,2	29,72	19,2	26	32
1¼	11½	38,45	17,5	24,5	41	38,48	19,7	26,5	40,8
1½	11½	44,52	17,5	24,5	47,2	44,5	19,7	26,5	47
2	11½	56,56	18	25	59,2	56,59	20,2	27	59

		Rc			
Ø D_1 inch	Pitch Gg/1"	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 min. mm
1/16	28	6,56	5,6	9,5	7,6
1/8	28	8,57	5,6	9,5	9,6
1/4	19	11,45	8,4	14	13
3/8	19	14,95	8,8	14,4	16,5
1/2	14	18,63	11,4	19	20,6
3/4	14	24,12	12,7	20,3	26
1	11	30,29	14,5	24,3	32,8

Tapped hole pilot diameter

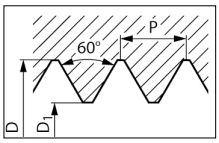
M ISO metric coarse threads 6H to DIN 13 and DIN ISO 965-1 (M1–M1,4 = 5H)



Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M1	0,25	0,729	0,785	0,75
M1,1	0,25	0,829	0,885	0,85
M1,2	0,25	0,929	0,985	0,95
M1,4	0,3	1,075	1,142	1,1
M1,6	0,35	1,221	1,321	1,25
M1,8	0,35	1,421	1,521	1,45
M2	0,4	1,567	1,679	1,6
M2,2	0,45	1,713	1,838	1,75
M2,5	0,45	2,013	2,138	2,05
M3	0,5	2,459	2,599	2,5
M3,5	0,6	2,850	3,010	2,9
M4	0,7	3,242	3,422	3,3
M4,5	0,75	3,688	3,878	3,7
M5	0,8	4,134	4,334	4,2
M6	1,0	4,917	5,153	5
M7	1,0	5,917	6,153	6
M8	1,25	6,647	6,912	6,8
M9	1,25	7,647	7,912	7,8
M10	1,5	8,376	8,676	8,5
M11	1,5	9,376	9,676	9,5

Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M12	1,75	10,106	10,441	10,2
M14	2,0	11,835	12,210	12
M16	2,0	13,835	14,210	14
M18	2,5	15,294	15,744	15,5
M20	2,5	17,294	17,744	17,5
M22	2,5	19,294	19,744	19,5
M24	3,0	20,752	21,252	21
M27	3,0	23,752	24,252	24
M30	3,5	26,211	26,771	26,5
M33	3,5	29,211	29,771	29,5
M36	4,0	31,670	32,270	32
M39	4,0	34,670	35,270	35
M42	4,5	37,129	37,799	37,5
M45	4,5	40,129	40,799	40,5
M48	5,0	42,587	43,297	43
M52	5,0	46,587	47,297	47
M56	5,5	50,046	50,796	50,5
M60	5,5	54,046	54,796	54,5
M64	6,0	57,505	58,305	58
M68	6,0	61,505	62,305	62

MF ISO metric fine threads 6H to DIN 13 and DIN ISO 965-1



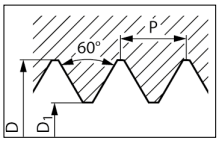
Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M2	x	0,25	1,729	1,774	1,75
M2,2	x	0,25	1,929	1,974	1,95
M2,5	x	0,35	2,121	2,221	2,15
M3	x	0,35	2,621	2,721	2,65
M3,5	x	0,35	3,121	3,221	3,15
M4	x	0,35	3,621	3,721	3,65
M4	x	0,5	3,459	3,599	3,5
M4,5	x	0,5	3,959	4,099	4
M5	x	0,5	4,459	4,599	4,5
M6	x	0,5	5,459	5,599	5,5
M6	x	0,75	5,188	5,378	5,2
M8	x	0,75	7,188	7,378	7,2
M8	x	1,0	6,917	7,153	7
M10	x	0,75	9,188	9,378	9,2
M10	x	1,0	8,917	9,153	9
M10	x	1,25	8,647	8,912	8,8
M12	x	1,0	10,917	11,153	11
M12	x	1,5	10,376	10,676	10,5
M14	x	1,25	12,647	12,912	12,8
M16	x	1,0	14,917	15,153	15
M16	x	1,5	14,376	14,676	14,5

Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M20	x	1,0	18,917	19,153	19
M20	x	1,5	18,376	18,676	18,5
M20	x	2,0	17,835	18,210	18
M24	x	1,5	22,376	22,676	22,5
M30	x	2,0	27,835	28,210	28
M36	x	1,5	34,376	34,676	34,5
M36	x	3,0	32,752	33,252	33
M42	x	2,0	39,835	40,210	40
M48	x	1,5	46,376	46,676	46,5
M48	x	3,0	44,752	45,252	45
M48	x	4,0	43,670	44,270	44
M56	x	1,5	54,376	54,676	54,5
M56	x	2,0	53,835	54,210	54
M56	x	3,0	52,752	53,252	53
M56	x	4,0	51,670	52,270	52
M64	x	3,0	60,752	61,252	61
M64	x	4,0	59,670	60,270	60
M72	x	4,0	67,670	68,270	68
M80	x	6,0	73,505	74,305	74
M95	x	6,0	88,505	89,305	89
M110	x	6,0	103,505	104,305	104

Dimensions in mm; P = Pitch

Thread former pilot hole diameter

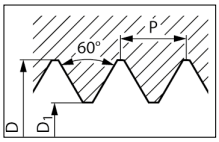
M ISO metric coarse threads 6H to DIN 13 and DIN ISO 965-1 (M1–M1,4 = 5H)



Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M1	0,25	0,89		0,9
M1,2	0,25	1,09		1,1
M1,4	0,3	1,26		1,26
M1,6	0,35	1,45		1,45
M1,8	0,35	1,65		1,65
M2	0,4	1,83	1,86	1,85
M2,2	0,45	2,00	2,04	2,0
M2,5	0,45	2,30	2,34	2,3
M3	0,5	2,77	2,82	2,8
M3,5	0,6	3,23	3,28	3,25
M4	0,7	3,68	3,73	3,7
M4,5	0,75	4,15	4,21	4,15
M5	0,8	4,63	4,68	4,65

Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M6	1	5,51	5,59	5,55
M7	1	6,51	6,59	6,55
M8	1,25	7,39	7,48	7,4
M9	1,25	8,39	8,48	8,4
M10	1,5	9,25	9,35	9,3
M11	1,5	10,25	10,35	10,3
M12	1,75	11,12	11,25	11,2
M14	2	13,00	13,15	13,0
M16	2	15,00	15,15	15,0
M18	2,5	16,72	16,90	16,8
M20	2,5	18,72	18,90	18,8
M22	2,5	20,72	20,9	20,8
M24	3	22,46	22,7	22,5

MF ISO metric fine threads 6H to DIN 13 and DIN ISO 965-1



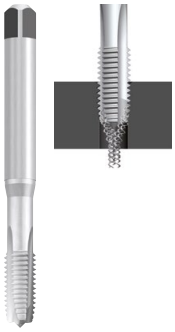
Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M2	x	0,25	1,89		1,9
M2,2	x	0,25	2,09		2,1
M2,5	x	0,25	2,39		2,4
M2,5	x	0,35	2,35		2,35
M3	x	0,25	2,89		2,9
M3	x	0,35	2,85		2,85
M3,5	x	0,35	3,35		3,35
M3,5	x	0,5	3,27	3,32	3,3
M4	x	0,35	3,85		3,85
M4	x	0,5	3,77	3,82	3,8
M4,5	x	0,5	4,27	4,32	4,3
M5	x	0,5	4,77	4,82	4,8
M5	x	0,75	4,65	4,71	4,65
M5,5	x	0,5	5,27	5,32	5,3
M6	x	0,5	5,78	5,83	5,8
M6	x	0,75	5,65	5,71	5,65
M7	x	0,5	6,78	6,83	6,8
M7	x	0,75	6,65	6,71	6,65
M8	x	0,5	7,78	7,83	7,8
M8	x	0,75	7,65	7,71	7,65
M8	x	1,0	7,51	7,59	7,55
M9	x	0,5	8,78	8,83	8,8
M9	x	0,75	8,65	8,71	8,65
M9	x	1,0	8,51	8,59	8,55
M10	x	0,5	9,78	9,83	9,8
M10	x	0,75	9,65	9,71	9,65
M10	x	1,0	9,51	9,59	9,55
M10	x	1,25	9,39	9,48	9,4
M11	x	0,75	10,65	10,71	10,7
M11	x	1,0	10,51	10,59	10,5
M12	x	0,75	11,66	11,72	11,7

Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M12	x	1,0	11,52	11,6	11,5
M12	x	1,25	11,4	11,49	11,4
M12	x	1,5	11,26	11,36	11,3
M13	x	0,75	12,66	12,72	12,7
M13	x	1,0	12,52	12,6	12,5
M13	x	1,5	12,26	12,36	12,3
M14	x	0,75	13,66	13,72	13,7
M14	x	1,0	13,52	13,6	13,5
M14	x	1,25	13,4	13,49	13,4
M14	x	1,5	13,26	13,36	13,3
M15	x	0,75	14,66	14,72	14,7
M15	x	1,0	14,52	14,6	14,5
M15	x	1,5	14,26	14,36	14,3
M16	x	0,75	15,66	15,72	15,7
M16	x	1,0	15,52	15,6	15,5
M16	x	1,5	15,26	15,36	15,3
M18	x	1,0	17,52	17,6	17,5
M18	x	1,5	17,26	17,36	17,3
M18	x	2,0	17	17,15	17
M20	x	1,0	19,52	19,6	19,5
M20	x	1,5	19,26	19,36	19,3
M20	x	2,0	19	19,15	19
M22	x	1,5	21,26	21,36	21,3
M22	x	2,0	21	21,15	21
M24	x	1,5	23,26	23,38	23,3
M24	x	2,0	23,01	23,16	23
M25	x	1,5	24,26	24,38	24,3
M26	x	1,5	25,26	25,38	25,3
M27	x	2,0	26,01	26,16	26
M28	x	1,5	27,26	27,38	27,25
M30	x	1,5	29,26	29,38	29,25
M30	x	2,0	29,01	29,16	29

Dimensions in mm; P = Pitch

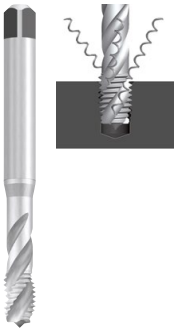
Tap Type Explanation

Stabil
Through hole tap type Stabil



- for through holes up to 4xD
- lead form B: 3,5–5 cutting leads, with spiral point
- straight Flutes
- also suitable for synchronised machining, with Wedlon flat and with extra long version
- due to the special geometry of the flutes, the chips are removed in the direction of cut

Salo-Rex
Blind hole tap type Salo-Rex



- for blind holes up to 3xD
- lead form C: 2–3 cutting leads, without spiral point
- lead form E: 1,5–2 cutting leads, without spiral point
- (35°, 42°, 45°, 50°) right hand helix
- also suitable for syncronised machining, with Weldon flat, with extra long version and through coolant
- the high helix angle ensures chips are discharged effectively against the direction of cut

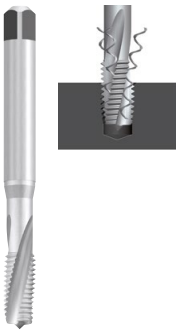
6

TWIN
Through and blind hole tap type TWIN



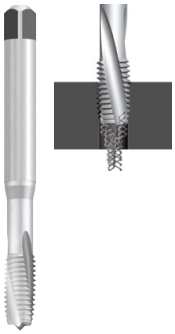
- for blind and through holes up to 2xD
- lead form C: 2–3 cutting leads, without spiral point
- lead form D: 3,5–5 cutting leads, without spiral point
- lead form E: 1,5–2 cutting leads, without spiral point
- straight Flutes
- for steel, short chipping and hardened materials to 55 (62) HRc
- also with extra long version and through coolant

SL
Blind hole tap type SL



- for blind holes up to 2xD
- lead form C: 2–3 cutting leads, without spiral point
- lead form E: 1,5–2 cutting leads, without spiral point
- (15°, 25°, 30°) slow right hand helix
- for steel, titanium alloys and Inconel 718
- also suitable for synchronised machining, with extra long version and through coolant
- also suitable for difficult operating conditions such as cross holes

DL
Through hole tap type DL



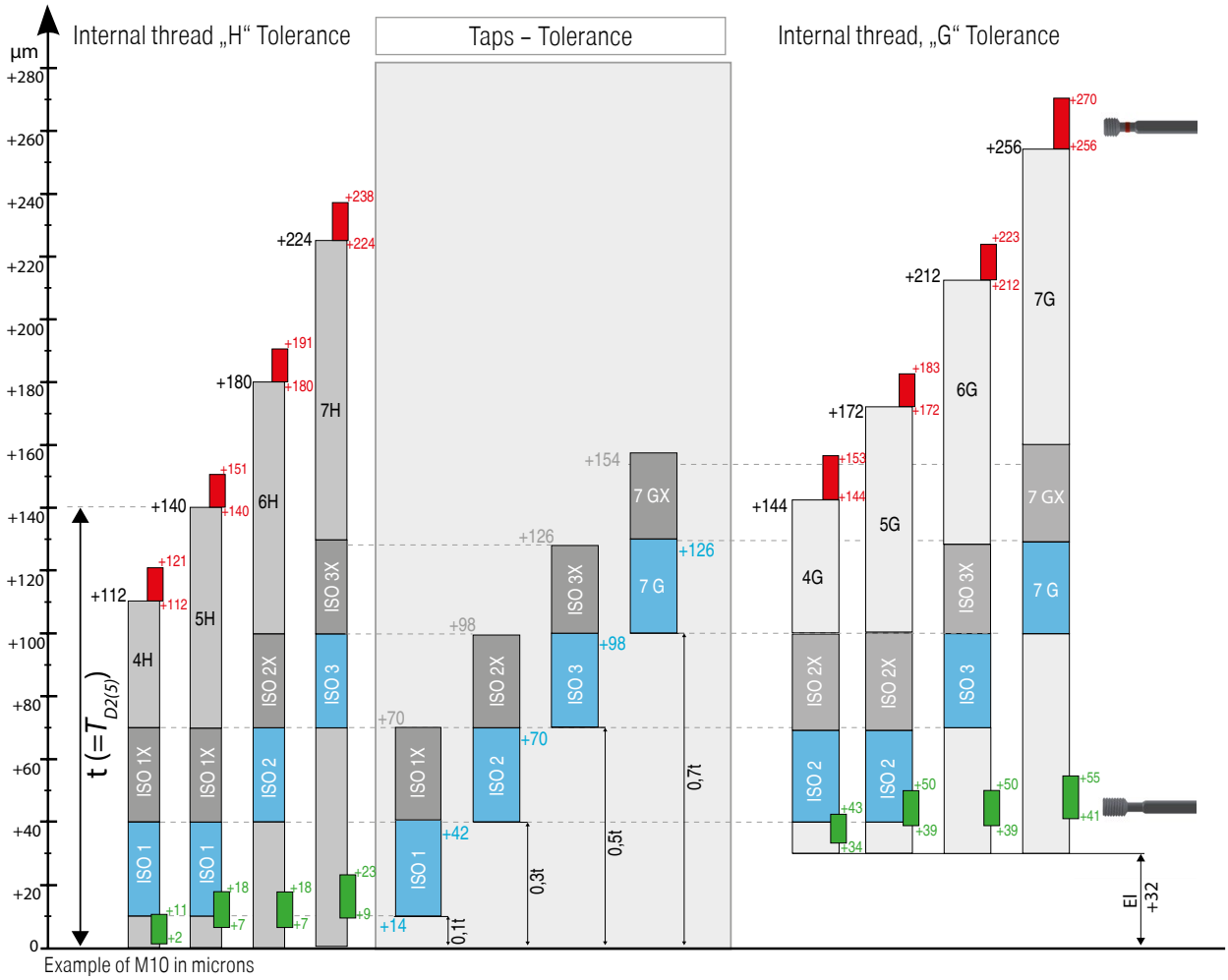
- for through holes up to 4xD
- lead form C: 3,5–5 cutting leads, without spiral point
- 15° left hand helix
- suitable for steel, titanium alloys and Inconel 718
- the chips are discharged in the direction of cut

Spanlos
Thread former type Spanlos



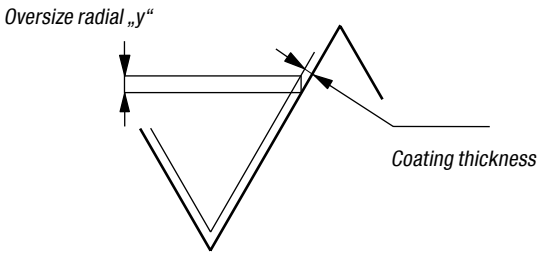
- for blind and through holes up to 3xD
- lead form C: 2–3 cutting leads, without spiral point
- for cold formable materials up to 1400 N/mm^2
- suitable for synchronised machining, with lubrication grooves and internal cooling

Thread tolerances and recommended manufacturing tolerances



Workpieces to be plated require oversize taps.
The interference depends on the coating thickness and the flank angle.

at	60° Flank angle	Oversize ≙ 4 x coating thickness
	55° Flank angle	Oversize ≙ 4.331 x coating thickness
	30° Flank angle	Oversize ≙ 7.727 x coating thickness

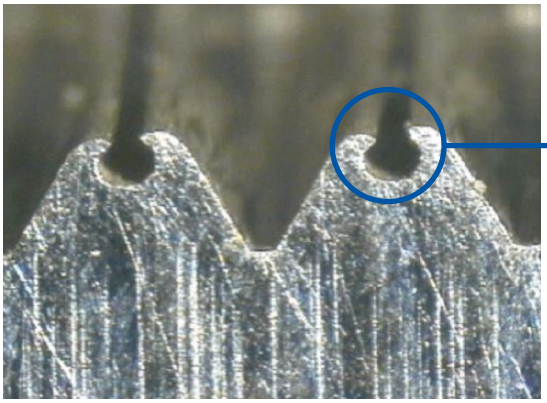


Application class of the tap designation according to		Tolerance class of the internal thread to be cut				
DIN	ISO					
4H	ISO1	4H	5H	–	–	–
6H	ISO2	4G	5G	6H	–	–
6G	ISO3	–	(4E)	6G	7H	8H
7G	–	–	–	(6E)	7G	8G

For special applications, e.g. abrasive cast iron materials or plastics other dimensions have to be chosen which are determined on previous experience. In such cases an „X“ is added to the short designation of the tolerance, e.g. ISO 2X, however the tolerance zone assignment may be limited (6HX for tolerance zone 6H and 5G). In addition it should be taken into account that the dimensions of the internal thread do not only depend on the dimensions of the tap but on the material to be machined and all production conditions. For first taps and intermediate taps no thread dimensions are determined.

Thread formers

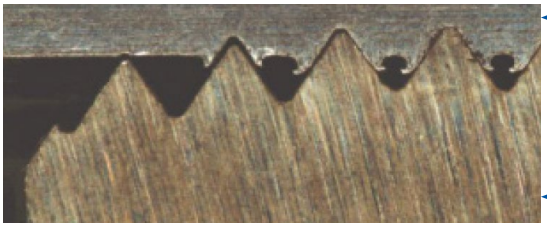
Spanlos thread forming taps for cold-formable materials up to 1400 N/mm² or at least 5 % elongation. The thread is produced by plastic deformation. The molded thread has very high strength.



Prior to forming a thread, you should ensure that a molded thread is acceptable. In certain sectors, the forming of a thread is **not** permitted. Dirt or bacteria can settle in the formed crown.

Important

Incremental pressure forming



Workpiece

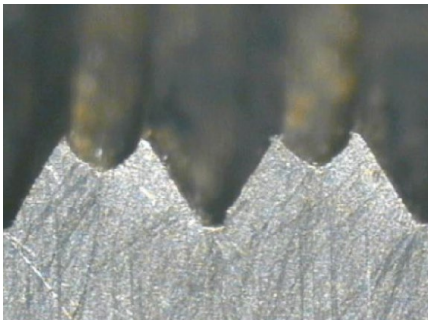
Thread formers



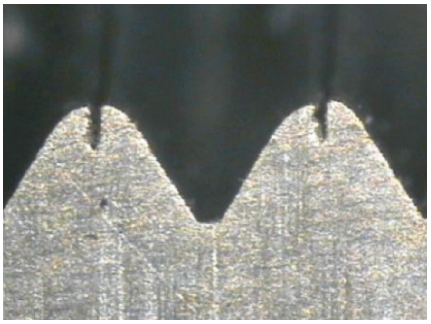
The thread profile is pressed gradually into the material via the start (leading edge) of the tap.

Properties

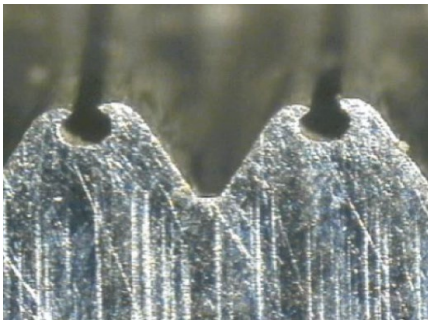
- one type can be used in different materials
- for through and blind holes
- very good thread surface quality
- high static and dynamic strength thread
- secure machining of deep and counterbored threads
- short machining times
- no chip problems
- no swarf
- high process security
- HSS-E and HSS-PM taps for materials up to 33 HRC with a minimum elongation of 5 %



Underformed – core hole too large



Overformed – core hole too small



Perfect form – core hole correct

Troubleshooting

Poor tool life

Cause

- overload fractures of the cutting edge on the lead
- hardness or tool material not suitable for the application
- core hole too small, or work hardened
- insufficient lubrication or incorrect application parameters

Remedy

- a longer lead or more flutes for the same lead length, giving a greater number of cutting teeth
- in reground tools the hardness can be reduced, apply correct parameters for regrinding
- increase frequency of changes or regrinding of the drill
- use the correct operating parameters for drilling
- select the correct lubricant and ensure adequate supply

Axial thread error

Cause

- selected geometry is not suitable
- spindle speed is wrong compared with feed (synchronisation error)
- blind hole taps are used with high feed pressure
- through hole taps are used with low feed pressure

Remedy

- check programming and pitch control or machine synchronisation
- use tapping chuck with length compensation
- increase retraction feed pessure
- increase feed pessure

Oversize thread

Cause

- thread tolerances of tool and thread gauge do not match
- burred tool edges after regrinding
- cold pressure welding

Remedy

- check the correct tolerances for tool and thread gauge
- carefully deburr
- use appropriate (positive) geometry
- reduce cutting speed
- use different surface treatment or coating
- use tapping chuck with length compensation
- use appropriate lubricant

Broken tool

Cause

- tool is worn
- tool has hit the bottom of the hole
- weld deposits
- core hole too small
- chip trapping
- incorrect cutting speed
- chip trapping in the flute
- insufficient cooling / lubrication

Remedy

- employ set taps
- use a tool with lower helix
- use tools with a shorter / longer lead
- check the pre-drilling depth and the thread depth
- drill core hole deeper
- correct cutting speed
- use a different coating or surface treatment
- use tool holder with length compensation
- use suitable lubricant
- use correct core hole
- change geometry and / or flute type
- note chip shape and chip formation

Coatings

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

nitr.
- nitrided
- nitriding increases wear resistance and offers low friction properties

vap. + nitr.
- vaporized + nitrated
- combination of increased surface hardness and lubricant carrier

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

TiN GS
- titanium nitride low friction layer
- high wear resistance with low friction properties
- maximum application temperature: 450 °C

TiCN
- TiCN multilayer coating
- maximum application temperature: 450 °C

Ti200
- TiN coating
- well suited for high cutting speeds during thread forming
- maximum application temperature: 450 °C

OSM
- hard material layer and anti-friction layer
- for use in high-strength steels

CH
- amorphous carbon layer
- for use in non-ferrous metals or aluminum
- reduces the material adhesion

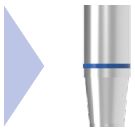
HCr
- hard chromed
- for use in non-ferrous metals or aluminum
- very low surface roughness

CrN
- chromium-nitrogen coating
- very wear-resistant coating
- especially suitable for use in aluminum, but also for P, M and S materials

6

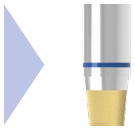
Coloured rings – overview

WNT \ Performance



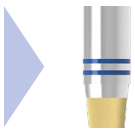
for steel up to 750 N/mm²

Type ST uncoated tap for steel up to 750 N/mm² tensile strength



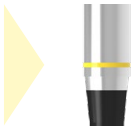
for steel to 1100 N/mm²

Type ST and VG coated tap for steel up to 1100 N/mm² tensile strength



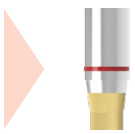
for steel up to 1400 N/mm²

Type HR for steel up to 1400 N/mm² tensile strength



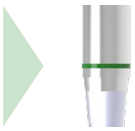
for corrosion and acid-resistant steels

Type VA for stainless steel



for cast iron materials

Type GG for cast iron



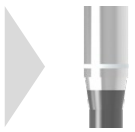
for aluminium and non-ferrous metal

Type NW, Soft and Ms for aluminium, short-chipping brass and soft materials



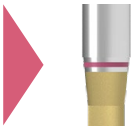
for heat resistant alloys

Type Ti, Ni and AMPCO for heat-resistant steel, titanium and Inconel



for hardened steels

Type HT for hard machining



for universal application up to 1100 N/mm²

Type UNI for the all-purpose use

New products for machining technicians

NEW Circular Thread Milling Cutter – Type H



▲ Specialist for thread production in hardened and difficult-to-machine materials



Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut
11 Grooving Tools
12 Miniature turning tools

Milling

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

Tool Clamping

16 Adapters
17 Accessories

18 Material examples and article no. index

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Overview Circular and Thread Milling Cutters	3
Toolfinder	4+5
Product programme	6–66
Technical Information	
Cutting Data	67–71
Milling Procedures	72
Calculation of cutting data for thread milling	73
Thread type – Tool type – Coatings	74

WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Version


No drilling required


Central internal coolant


Lateral internal coolant


Coolant supply either via the flange or centrally

VHM — Solid carbide

Shank







Thread / Flank angle

M — Explanation of the types of thread can be found on → **Page 74.**



Flank angle 60°

Applications



Circlip grooves


Full radius slot milling


Slot milling


Multipurpose milling


Chamfering and deburring


Gear milling



IR = internal right, IL = internal left



ER = external right, EL = external left


IR/IL + ER/EL

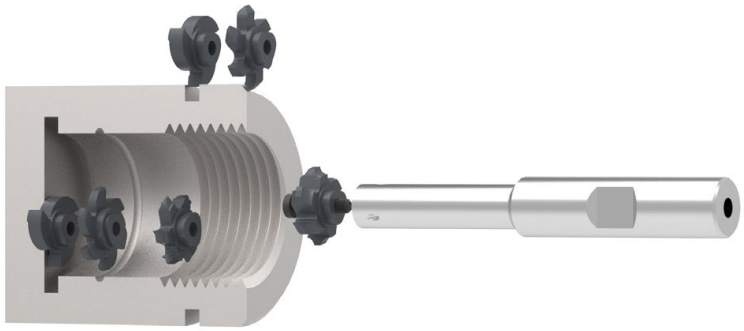
● = **Main application**

○ = Extended application

Overview Circular and Thread Milling Cutters

Modular Circular Milling Cutters with Carbide Indexable Inserts

- the perfect tool for every application
- various holders, depending on overhang
- the same threading insert for different pitches and diameters
- highest flexibility and stability
- in addition to circular thread milling, circular and linear milling operations can also be carried out



1st choice for small batch sizes
and large threads

Thread Milling Cutters with Indexable Carbide Inserts

- exchange of the insert for different threads
- same threading insert for different diameters



Solid Carbide Thread Milling Cutters

- short machining times, ideal for volume production
- one tool for all thread types
- one thread milling cutter for different diameters with the same pitch



MicroMill



SGF



UNI

Toolfinder

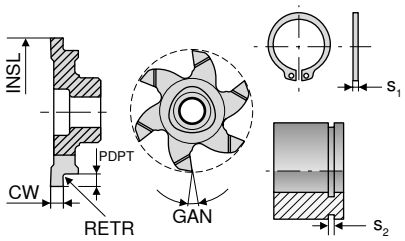
			from bore diameter in mm
Modular Circular Milling Cutters with Carbide Indexable Inserts	Polygon	▲ high power transmission through polygon connection ▲ 3 and 6 edged inserts ▲ stable holders in solid carbide and steel	9,6
	Mini Mill	▲ three interlocking rib location ▲ compatible with popular manufacturer systems ▲ 3 and 6 edged inserts ▲ stable holders in solid carbide and steel	9,6
	System 300	▲ proven circular milling tool ▲ 3 edged inserts	7,9
Thread Milling Cutters with Indexable Carbide Inserts	MWN	▲ multi tooth thread milling cutter ▲ double sided inserts ▲ exclusively for thread production ▲ holder for tapered threads	9,0
	GZD	▲ multi tooth drilling and thread milling cutter ▲ for thread milling in solid material ▲ core hole and thread with one tool	14,0
	GZG	▲ multi tooth thread milling cutter ▲ exclusively for thread production	18,5
	EAW	▲ single point thread milling cutter ▲ inserts with 2 or 4 cutting edges ▲ exclusively for thread production ▲ insert holder with cylindrical shank DIN 1835	17,5
	EWM	▲ single point thread milling cutter ▲ inserts with 2 or 4 cutting edges ▲ exclusively for thread production ▲ integral insert holder to DIN 69871	43,0
Solid Carbide Thread Milling Cutters	Micro Mill	▲ solid carbide circular milling cutter for small diameters	1,25
	UNI	▲ circular hole and thread milling cutter ▲ core hole, countersink and thread with one tool ▲ up to 3xD in short or long chipping materials	4,5
	H	▲ circular thread milling cutters ▲ core hole, countersink and thread with one tool ▲ specifically for hardened materials, up to 2xD	2,3
	HR	▲ single point thread milling cutter ▲ exclusively for thread production ▲ up to 3xD in materials up to 63 HRC	4,0
	SFSE	▲ solid carbide thread milling cutter with chamfering facet ▲ only one tool for threading and chamfering	2,4
	SGF	▲ solid carbide thread milling cutter without chamfering facet ▲ exclusively for thread production	3,15

Thread / Flank angle								Applications					Tool holder
60° M MF	55° G	55° BSW BSF	60° UN	60° UNC UNF	80° Pg	60° NPT	30° Tr	DIN 471/472					
11+12	13	13		15			14	6+7	8+9	10	10	16+17	18+19
27+28	28							20+21	22+23 24	23	25		29+30
34	35	35						31+32	33		33		36
37	38		38		39	39							40+41
42	42												43
44	45		46		45								47
48	48		48										49
50	50		50										51
53									52		52		
54													
55				55									
56													
57+59	57+59			58+60		58+60							
61+63 66	62+63	64		64+65									

7

Milling inserts for circlip grooves without chamfer

Polygon | DIN 471/472



Ti500



Solid carbide

Size	$s_{2\ H13}$ mm	INSL mm	CW $_{-0,03}$ mm	PDPT mm	RETR mm	GAN °	s_1 mm	NOF	Article no. 50 880 ...
6	0,90	9,6	0,98	1,20	0,3	6	0,80	3	292
	1,10	11,7	1,18	1,00	0,3	6	1,00	3	294
	1,30	11,7	1,38	1,00	0,3	6	1,20	3	296
	1,60	11,7	1,68	1,00	0,3	6	1,50	3	298
7	1,10	16,0	1,18	0,90	0,3	6	1,00	6	301
	1,30	16,0	1,38	1,10	0,3	6	1,20	6	302
	1,60	16,0	1,68	1,25	0,3	6	1,50	6	304
	1,85	16,0	1,93	1,25	0,3	6	1,75	6	306
	1,10	17,7	1,18	0,90	0,3	6	1,00	6	308
	1,30	17,7	1,38	1,10	0,3	6	1,20	6	309
	1,60	17,7	1,68	1,25	0,3	6	1,50	6	310
	1,85	17,7	1,93	1,25	0,3	6	1,75	6	311
9	1,10	20,0	1,18	0,90	0,3	6	1,00	6	313
	1,30	20,0	1,38	1,10	0,3	6	1,20	6	314
	1,60	20,0	1,68	1,25	0,3	6	1,50	6	315
	1,85	20,0	1,93	1,25	0,3	6	1,75	6	316
	1,60	21,7	1,68	1,25	0,3	6	1,50	6	318
	1,85	21,7	1,93	1,25	0,3	6	1,75	6	319
	2,15	21,7	2,23	1,75	0,3	6	2,00	6	320
	2,65	21,7	2,73	1,75	0,3	6	2,50	6	321
10	1,30	26,0	1,38	1,10	0,3	6	1,20	6	322
	1,60	26,0	1,68	1,25	0,3	6	1,50	6	324
	1,85	26,0	1,93	1,25	0,3	6	1,75	6	326
	2,15	26,0	2,23	1,75	0,3	6	2,00	6	328
	2,65	26,0	2,73	1,75	0,3	6	2,20	6	330
	3,15	26,0	3,23	2,20	0,3	6	3,00	6	332

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

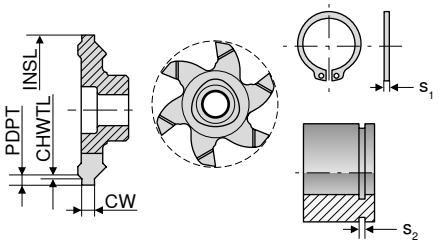
→ v_c/f_z Page 70

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Milling inserts for circlip grooves with chamfer

▲ both edges chamfered 0,1x45°

Polygon | DIN 471/472



Ti500



Solid carbide

Size	$s_{2\ H13}$ mm	INSL mm	CW $_{-0,03}$ mm	PDPT mm	CHWTL mm	s_1 mm	NOF	Article no. 50 879 ...
7	1,10	16,0	1,18	0,50	0,10	1,00	6	292
	1,30	16,0	1,38	0,85	0,15	1,20	6	302
	1,60	16,0	1,68	1,00	0,15	1,50	6	304
	1,85	16,0	1,93	1,25	0,20	1,75	6	306
9	1,10	20,0	1,18	0,50	0,10	1,00	6	307
	1,30	20,0	1,38	0,85	0,15	1,20	6	308
	1,60	20,0	1,68	1,00	0,15	1,50	6	309
	1,60	21,7	1,68	1,00	0,15	1,50	6	312
	1,85	20,0	1,93	1,25	0,20	1,75	6	310
	1,85	21,7	1,93	1,25	0,20	1,75	6	314
	2,15	21,7	2,23	1,50	0,20	2,00	6	316
	2,65	21,7	2,73	1,75	0,20	2,50	6	318
10	1,30	26,0	1,38	0,85	0,15	1,20	6	322
	1,60	26,0	1,68	1,00	0,15	1,50	6	324
	1,85	26,0	1,93	1,25	0,20	1,75	6	326
	2,15	26,0	2,23	1,50	0,20	2,00	6	328
	2,65	26,0	2,73	1,75	0,20	2,50	6	330
	3,15	26,0	3,23	1,75	0,20	3,00	6	332

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

→ v_c/f_z Page 70

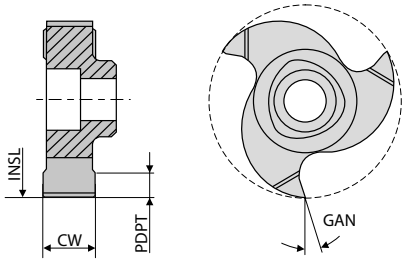
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

7

Milling insert without profile

- ▲ with double sided edge break of 0,1x45°
- ▲ size 7: from 5,0 mm groove width with ground chip breaker
- ▲ size 10: from 6,5 mm groove width with ground chip breaker

Polygon



Ti500



Solid carbide

Size	CW +/-0,02 mm	INSL mm	PDPT mm	GAN °	NOF	Article no. 50 875 ...
6	1,5	11,7	2,25	6	3	302
	2,0	11,7	2,25	6	3	304
	2,5	11,7	2,25	6	3	306
	3,0	11,7	2,25	6	3	308
7	3,5	16,0	3,50	0	3	310
	3,5	16,0	3,50	8	3	312
	3,5	16,0	3,50	12	3	314
	5,0	16,0	3,50	0	3	316
	5,0	16,0	3,50	8	3	318
	5,0	16,0	3,50	12	3	320
10	4,0	25,0	5,70	0	3	330
	4,0	25,0	5,70	8	3	332
	4,0	25,0	5,70	12	3	334
	5,0	25,0	5,70	8	3	337
	6,5	25,0	5,70	0	3	340
	6,5	25,0	5,70	8	3	342
	6,5	25,0	5,70	12	3	344
	8,0	25,0	5,70	0	3	350
	8,0	25,0	5,70	8	3	352
	8,0	25,0	5,70	12	3	354

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

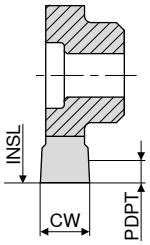
→ v_c/f_z Page 70

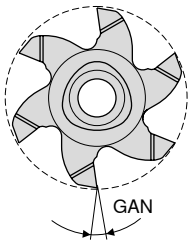
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Milling insert without profile

▲ both edges chamfered 0,1x45°

Polygon





Ti500



Solid carbide

Size	CW +/-0,02 mm	INSL mm	PDPT mm	GAN °	NOF	Article no. 50 876 ...
7	1,5	17,7	4,0	6	6	307
	2,0	17,7	4,0	6	6	308
	2,5	17,7	4,0	6	6	309
	3,0	16,0	3,5	6	6	302
	4,0	16,0	3,5	6	6	304
	5,0	16,0	3,5	6	6	306
9	1,5	21,7	5,0	6	6	314
	2,0	21,7	5,0	6	6	315
	2,5	21,7	5,0	6	6	316
	3,0	21,7	5,0	6	6	317
	3,0	20,0	4,2	6	6	311
	4,0	20,0	4,2	6	6	312
	5,0	20,0	4,2	6	6	313
10	1,5	27,7	6,8	6	6	330
	2,0	27,7	6,8	6	6	332
	2,5	27,7	6,8	6	6	334
	3,0	26,0	6,2	6	6	322
	3,0	27,7	6,8	6	6	336
	4,0	26,0	6,2	6	6	324
	5,0	26,0	6,2	6	6	326
	6,5	26,0	6,2	6	6	328

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

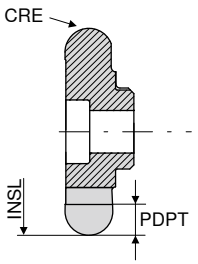
→ v_c/f_z Page 70

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

7

Milling inserts for radius milling

Polygon



Ti500



Solid carbide

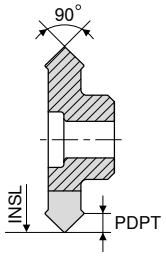
Size	CRE mm	INSL mm	PDPT mm	NOF	Article no. 50 886 ...
6	1,100	9,6	1,20	3	702
	0,788	11,7	2,25	3	704
	1,100	11,7	2,25	3	708
	1,190	11,7	2,25	3	706
7	0,788	17,7	4,20	6	712
	1,100	17,7	4,20	6	714
9	0,785	21,7	5,00	6	720
	1,000	21,7	5,00	6	722
	1,200	21,7	5,00	6	724
	1,400	21,7	5,00	6	726
	1,500	21,7	5,00	6	728

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

→ v_c/f_z Page 70

Milling inserts for chamfering and deburring

Polygon



Ti500



Solid carbide

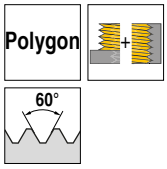
Size	PDPT mm	INSL mm	NOF	Article no. 50 884 ...
6	1,2	9,6	3	292
	1,5	11,7	3	294
7	1,9	16,0	6	302
	1,3	17,7	6	304
9	1,9	20,0	6	312
	1,6	21,7	6	314
10	2,1	26,0	6	322

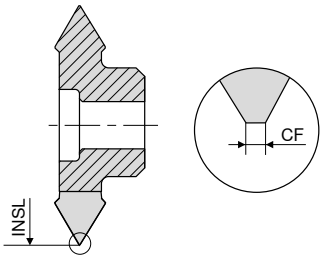
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

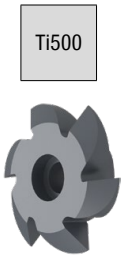
→ v_c/f_z Page 70

Thread milling insert – Partial profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!







Solid carbide

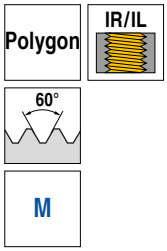
Size	TP mm	INSL mm	CF mm	NOF	Article no. 50 882 ...
6	1 - 3	11,7	0,10	3	292
7	1 - 3	17,7	0,10	6	306
	1 - 4	16,0	0,10	6	302
	2,5 - 4	16,0	0,25	6	304
9	1 - 2	21,7	0,10	6	314
	1 - 3	20,0	0,10	6	312
	2 - 4	21,7	0,15	6	316
10	1 - 3	26,0	0,10	6	322
	2,5 - 5	26,0	0,25	6	324

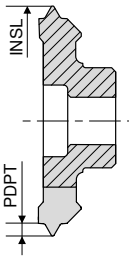
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

→ v_c/f_z Page 70

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Thread milling insert – Full profile







Solid carbide

Size	TP mm	INSL mm	PDPT mm	NOF	Article no. 50 881 ...
6	1	9,6	0,572	3	292
	1,5	9,6	0,875	3	293
	2	10,5	1,157	3	296
7	1,5	16,0	0,875	6	302
	2	16,0	1,157	6	304
	2,5	16,0	1,430	6	306
	3	16,0	1,702	6	310
	M20x2,5	16,0	1,430	6	308 1)
9	1,5	20,0	0,875	6	312
	2	20,0	1,157	6	314
	M24x3	20,0	1,702	6	316 1)
10	1,5	26,0	0,875	6	322
	2	26,0	1,157	6	324
	3	26,0	1,702	6	330
	3,5	26,0	1,982	6	332
	4	26,0	2,263	6	334
	4,5	26,0	2,553	6	336
	5	26,0	2,836	6	337
	M30x3,5	24,0	1,982	6	331 1)
	M36x4	26,0	2,263	6	335 1)

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

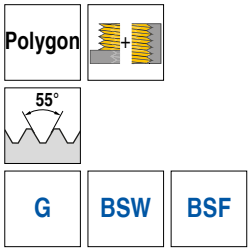
1) profile corrected

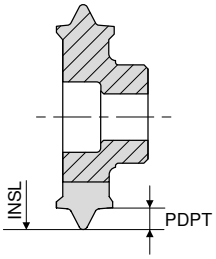
→ v_c/f_z Page 70

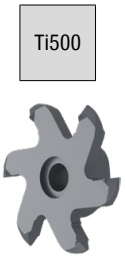
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Thread milling insert – Full profile

▲ 50 883 322 for threads > 1"







Solid carbide

Size	TPI 1/"	TP mm	INSL mm	PDPT mm	NOF	Article no. 50 883 ...
6	19	1,337	9,6	0,871	3	292
7	14	1,814	17,7	1,177	6	308
	14	1,814	16,0	1,177	6	304
	11	2,309	16,0	1,494	6	302
	10	2,540	16,0	1,646	6	306
9	14	1,814	20,0	1,177	6	316
	11	2,309	20,0	1,494	6	314
10	11	2,309	26,0	1,494	6	322

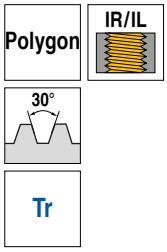
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

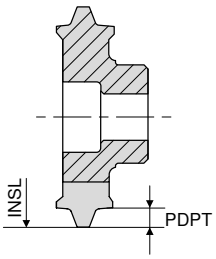
→ v_c/f_z Page 70

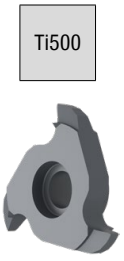
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Thread milling insert – Full profile

▲ DIN 103







Solid carbide

Size	TP mm	INSL mm	PDPT mm	NOF	Thread	Article no. 50 872 ...
6	2	11,7	1,25	3	Tr 16x2 - Tr 20x2	292
	3	11,0	1,75	3	Tr 18x3 - Tr 20x3	294
	4	12,0	2,25	3	Tr 20x4	296 1)
7	3	14,0	1,75	3	Tr 24x3 - Tr 32x3	302 2)
	5	15,3	2,75	3	Tr 28x5 - Tr 36x5	306 3)
	5	15,3	2,75	3	Tr 26x5	304 3)
	6	16,2	3,50	3	Tr 34x6 - Tr 42x6	310 2)
	6	16,2	3,50	3	Tr 30x6 - Tr 32x6	308 2)
10	5	25,0	2,75	3	Tr 44x5 - Tr 48x5	322 4)
	7	22,0	3,75	3	Tr 38x7 - Tr 42x7	324 4)
	7	22,0	3,75	3	Tr 44x7	326 1)
	8	25,0	4,50	3	Tr 46x8 - Tr 48x8	328 4)
	8	25,0	4,50	3	Tr 50x8 - Tr 52x8	330 4)
	9	25,0	5,00	3	Tr 55x9 - Tr 60x9	332 4)
	10	25,0	5,50	3	Tr 65x10 - Tr 80x10	334 4)

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

1) profile corrected
2) Not suitable for the 50 805 011 and 50 805 010 holders
3) Not suitable for the 50 805 011 and 50 805 010 holders / profile corrected
4) Not suitable for the 50 805 026, 50 805 025 and 50 805 024 holders

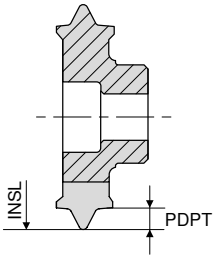
→ v_c/f_z Page 70

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Thread milling insert – Full profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!

Polygon | IR/IL | 60° | UNC



Ti500



Solid carbide

Size	TPI 1/"	INSL mm	PDPT mm	NOF	Article no. 50 886 ...
6	12,0	9,6	1,228	3	202
	11,0	10,5	1,355	3	204
	10,0	11,7	1,485	3	206
7	9,0	16,0	1,577	6	212
9	8,0	18,0	1,809	6	222
	7,0	20,0	2,043	6	224
10	6,0	24,0	2,454	6	232
	5,0	26,0	2,979	6	234
	4,5	26,0	3,289	6	236

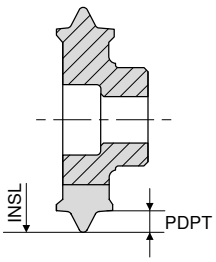
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

→ v_c/f_z Page 70

Thread milling insert – Full profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!

Polygon | IR/IL | 60° | UNF



Ti500



Solid carbide

Size	Thread	INSL mm	PDPT mm	NOF	Article no. 50 886 ...
6	1/2 - 20	9,6	0,733	3	302
	9/16 - 18	10,5	0,827	3	304
	3/4 - 16	11,7	0,945	3	306
7	7/8 - 14	17,7	1,071	6	312
9	1 - 12	20,0	1,228	6	322

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

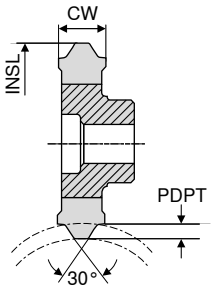
→ v_c/f_z Page 70

Gear cutters, DIN 5480

▲ Z_W = Tooth Number Wave

Polygon

Ti500





Solid carbide

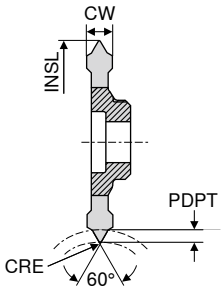
Size	Wave	Module	Z_w	CW mm	INSL mm	PDPT mm	NOF	Article no. 50 874 ...
7	W11	0,80	12	3	15,85	0,80	6	011
	W14	0,80	16	3	16,00	0,80	6	014
	W16	0,80	18	3	16,00	0,80	6	016
	W20	0,80	24	3	16,00	0,80	6	020
	W24	1,25	18	4	16,00	1,25	6	024
	W25	2,00	11	7	16,00	2,00	3	025
	W30	1,25	22	4	16,00	1,25	6	031
	W30	1,25	20	5	16,00	1,25	6	030
	W35	2,00	16	5	16,00	2,00	6	035
	W42	1,25	32	4	16,00	1,25	6	042
	W50	2,00	24	5	16,00	2,00	6	050

Gear cutters, DIN 5481

▲ Z_W = Tooth Number Wave

Polygon

Ti500





Solid carbide

Size	Wave	Z_w	CW mm	INSL mm	CRE mm	PDPT mm	NOF	Article no. 50 874 ...
10	26 x 30	35	3	26	0,3	1,638	6	126
	40 x 44	38	3	26	0,4	1,940	6	140

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

→ v_c/f_z Page 70

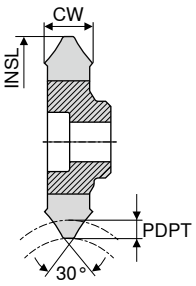
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Gear cutters, DIN 5482

▲ Z_W = Tooth Number Wave

Polygon





Ti500



Solid carbide

Size	Wave	Module	Z_w	CW mm	INSL mm	PDPT mm	NOF	Article no. 50 874 ...
7	15 x 12	1,60	8	3,0	16	1,50	6	215
	17 x 14	1,60	9	5,0	16	1,50	6	217
	20 x 17	1,60	12	5,0	16	1,50	6	220
	25 x 22	1,60	14	5,0	16	1,65	6	225
10	35 x 31	1,75	18	6,5	26	2,00	6	235
	55 x 50	2,00	26	6,5	26	2,75	6	255

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

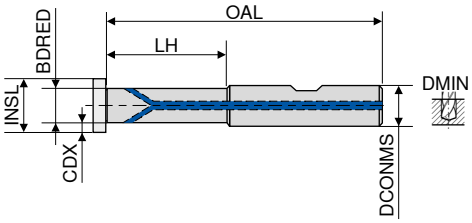
→ v_c/f_z Page 70

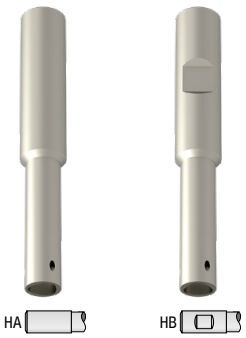
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Polygon circular end milling cutter

- ▲ for maximum machining depth, note insert width (CW)
- ▲ size 6 = for INSL 9,6; 10,5; 11,7; 12
- ▲ size 7 = for INSL 16; 17,7
- ▲ size 9 = for INSL 18; 20; 21,7
- ▲ size 10 = for INSL 24; 25; 26; 27,7







Size	LH	CDX	DCONMS $_{h6}$	OAL	BDRED	DMIN	torque moment	HM	HM
	mm	mm	mm	mm	mm	mm	Nm	Article no. 50 805 ...	Article no. 50 805 ...
6	20,00	2,25	12	67,5	7,0	12	1,0		050 [1]
	20,00	2,25	12	67,5	7,0	12	1,0		051
	20,00	2,25	12	67,5	7,0	12	1,0	052	
	30,00	2,25	12	80,0	7,0	12	1,0		053
	30,00	2,25	12	80,0	7,0	12	1,0	054	
	40,00	2,25	12	100,0	7,0	12	1,0		055
	40,00	2,25	12	100,0	7,0	12	1,0	056	
7	20,90	4,00	12	67,4	9,0	18	1,1		002 [1]
	21,00	4,00	12	67,4	9,0	18	1,1		004
	21,00	4,00	12	67,4	9,0	18	1,1	005	
	36,00	4,00	12	82,4	9,0	18	1,1		008
	36,00	4,00	12	82,4	9,0	18	1,1	085	
		4,00	12	122,5	12,0	18	1,1	010	
		4,00	12	82,4	12,0	18	1,1	011	
9	29,75	5,00	16	80,0	11,5	22	3,8		070 [1]
	30,00	5,00	16	80,0	11,5	22	3,8		071
	30,00	5,00	16	80,0	11,5	22	3,8	072	
	50,00	5,00	16	100,0	11,5	22	3,8		073
	50,00	5,00	16	100,0	11,5	22	3,8	074	
10	20,50	5,70	16	105,0	15,5	28	5,5	025	
	20,50	6,80	16	149,7	15,5	28	5,5	024	
	20,50	6,80	20	175,4	15,5	28	5,5	026	
	30,40	6,80	16	79,6	13,6	28	5,5		012 [1]
	30,50	6,80	16	79,6	13,6	28	5,5	015	
	30,50	6,80	16	79,6	13,6	28	5,5		014
	45,50	6,80	16	94,6	13,6	28	5,5	021	
	45,50	6,80	16	94,6	13,6	28	5,5		020
	60,50	6,80	16	109,6	13,6	28	5,5		022
	60,50	6,80	16	109,6	13,6	28	5,5	023	

1) Steel version


Key D

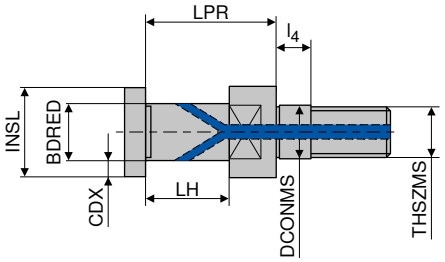

Clamping screw

Spare parts		Article no. 80 950 ...		Article no. 70 960 ...
Size				
6	T08 - IP	125	M2,5x7	246
7	T08 - IP	125	M3x13	231
9	T15 - IP	128	M4x13	236
10	T20 - IP	129	M5x13,5	243

Polygon circular screw-in milling cutter

- size 7 = for INSL 16; 17,7
- size 10 = for INSL 25; 26
- steel version

Polygon





Size	CDX	LH	DCONMS $_{h6}$	LPR	THSZMS	TQX	BDRED	l_4	torque moment	Article no. 50 799 ...
	mm	mm	mm	mm		Nm	mm	mm	Nm	
7	3,5	16,0	8,5	26,0	M8	25	9,0	5,5	1,1	002
10	5,7	25,5	12,5	38,5	M12	60	13,6	5,0	5,5	012


Key D


Clamping screw

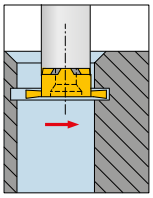
Spare parts		Article no. 80 950 ...		Article no. 70 960 ...
Size				
7	T08 - IP	125	M3x13	231
10	T20 - IP	129	M5x13,5	243

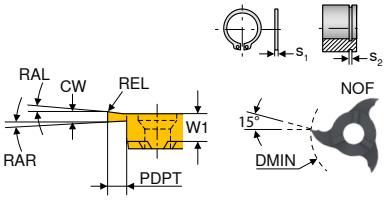
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

MiniMill – Milling insert for circlip grooves

Mini Mill | ≥ Ø 10 mm | DIN 471/472

CWX500







Size	DMIN mm	$s_{2\ H13}$ mm	CW $_{-0,02}$ mm	PDPT mm	W1 mm	RAR °	REL mm	s_1 mm	NOF	Article no. 53 006 ...
10	10	0,70	0,74	1,5	3,50	1		0,60	3	070
	10	0,80	0,84	1,5	3,50	1		0,70	3	080
	10	0,90	0,94	1,5	3,50	1		0,80	3	090
	10	1,10	1,21	1,5	3,50	3		1,00	3	110
	10	1,30	1,41	1,5	3,50	3	0,10	1,20	3	130
	10	1,60	1,71	1,5	3,50	3	0,10	1,50	3	160
	12	1,10	1,21	2,5	3,50	3		1,00	3	112
	12	1,30	1,41	2,5	3,50	3	0,10	1,20	3	132
	12	1,60	1,71	2,5	3,50	3	0,10	1,50	3	162
18	18	0,70	0,74	1,5	5,75	1		0,60	3	270
	18	0,80	0,84	1,7	5,75	1		0,70	3	280
	18	0,90	0,94	1,9	5,75	1		0,80	3	290
	18	1,10	1,21	3,5	5,75	3		1,00	3	310
	18	1,30	1,41	3,5	5,75	3	0,10	1,20	3	330
	18	1,60	1,71	3,5	5,75	3	0,10	1,50	3	360
22	22	0,70	0,74	1,5	5,70	1		0,60	3	470
	22	0,80	0,84	1,7	5,70	1		0,70	3	480
	22	0,90	0,94	1,9	5,70	1		0,80	3	490
	22	1,00	1,04	2,1	5,70	1		0,90	3	500
	22	1,10	1,21	2,5	5,70	1		1,00	3	510
	22	1,30	1,41	4,5	5,70	3	0,10	1,20	3	530
	22	1,60	1,71	4,5	5,70	3	0,10	1,50	3	560
	22	1,85	1,96	4,5	5,70	3	0,15	1,75	3	585
	22	2,15	2,26	4,5	5,70	3	0,15	2,00	3	615
	22	2,65	2,76	4,5	5,70	3	0,15	2,50	3	665
	22	3,15	3,26	4,5	5,70	3	0,20	3,00	3	415
	22	4,15	4,26	4,5	5,70	3	0,20	4,00	3	515
	22	5,15	5,26	4,5	5,70	3	0,20	5,00	3	605

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	○

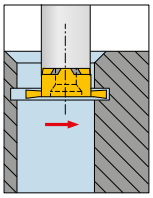
→ v_c/f_z Page 71

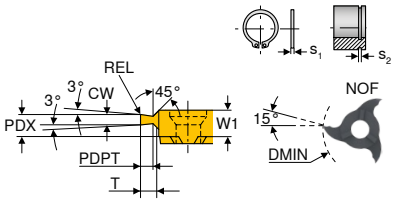
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

MiniMill – Milling insert for circlip grooves with chamfer facet

Mini Mill | ≥ Ø 22 mm | DIN 471/472

CWX500







Size	DMIN mm	$s_{2\ H13}$ mm	CW $_{-0,02}$ mm	T mm	PDPT mm	W1 mm	PDX mm	REL mm	s_1 mm	NOF	Article no. 53 006 ...
22	22	1,10	1,21	0,50	0,49	5,85	5,07		1,00	3	805
	22	1,30	1,41	0,70	0,67	5,85	5,17		1,20	3	807
	22	1,30	1,41	0,85	0,83	5,85	5,17		1,20	3	808
	22	1,60	1,71	0,85	0,83	5,85	5,07		1,50	3	809
	22	1,60	1,71	1,00	0,97	5,85	5,07		1,50	3	810
	22	1,85	1,96	1,25	1,23	5,85	5,19	0,15	1,75	3	812
	22	2,15	2,26	1,50	1,47	5,85	5,34	0,15	2,00	3	815
	22	2,65	2,76	1,75	1,72	5,85	5,09	0,15	2,50	3	817
	22	2,65	2,76	1,50	1,47	5,85	5,09	0,15	2,50	3	816
	22	3,15	3,26	1,75	1,72	5,85	5,34	0,20	3,00	3	818
	22	4,15	4,26	2,50	2,47	5,85	5,34	0,20	4,00	3	825
	22	4,15	4,26	2,00	1,97	5,85	5,34	0,20	4,00	3	820

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	○

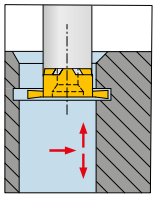
→ v_c/f_z Page 71

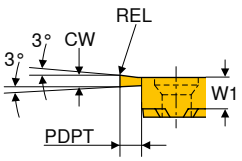
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

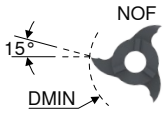
7

MiniMill – Milling insert for groove milling

Mini Mill | ≥ Ø 10 mm | CWX500









Size	DMIN mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	NOF	Article no. 53 007 ...
10	10	1,0	1,5	3,50		3	010
	10	1,5	1,5	3,50	0,2	3	015
	10	2,0	1,5	3,50	0,2	3	020
	10	2,5	1,5	3,50	0,2	3	025
	12	1,5	2,0	3,50	0,2	6	114
	12	1,5	2,5	3,50	0,2	3	115
	12	2,0	2,0	3,50	0,2	6	119
	12	2,0	2,5	3,50	0,2	3	120
	12	2,5	2,5	3,50	0,2	3	125
14	14	1,0	2,5	4,50		3	210
	14	1,5	2,5	4,50	0,2	3	215
	14	2,0	2,5	4,50	0,2	3	220
	14	2,5	2,5	4,50	0,2	3	225
	16	1,5	3,5	4,50	0,2	3	315
	16	2,0	3,5	4,50	0,2	3	320
	16	2,5	3,5	4,50	0,2	3	325
18	18	1,5	3,5	5,75	0,1	6	414
	18	1,5	3,5	5,75	0,2	3	415
	18	2,0	3,5	5,75	0,2	6	419
	18	2,0	3,5	5,75	0,2	3	420
	18	2,5	3,5	5,75	0,2	6	424
	18	2,5	3,5	5,75	0,2	3	425
	18	3,0	3,5	5,75	0,2	6	429
	18	3,0	3,5	5,75	0,2	3	430
	18	4,0	3,5	5,75	0,2	3	440
22	22	1,0	4,5	6,20	0,1	6	810
	22	1,5	4,5	6,20	0,1	6	815
	22	1,5	4,5	5,70	0,2	3	515
	22	2,0	4,5	5,70	0,2	3	520
	22	2,0	4,5	6,20	0,2	6	820
	22	2,5	4,5	5,70	0,2	3	525
	22	2,5	4,5	6,20	0,2	6	825
	22	3,0	4,5	5,70	0,2	3	530
	22	3,0	4,5	6,20	0,2	6	830
	22	3,5	4,5	5,70	0,2	3	535
	22	4,0	4,5	5,70	0,2	3	540
	22	4,0	4,5	6,20	0,2	6	840
28	25	2,0	5,0	6,50	0,2	3	620
	25	2,5	5,0	6,50	0,2	3	625
	25	3,0	5,0	6,50	0,2	3	630
	25	3,5	5,0	6,50	0,2	3	635
	25	4,0	5,0	6,50	0,2	3	640
	28	1,0	6,5	6,25	0,1	6	610
	28	1,5	6,5	6,25	0,1	6	615
	28	1,5	6,5	6,50	0,2	3	715
	28	2,0	6,5	6,25	0,2	6	721
	28	2,0	6,5	6,50	0,2	3	720
	28	2,5	6,5	6,25	0,2	6	726
	28	2,5	6,5	6,50	0,2	3	725
	28	3,0	6,5	6,50	0,2	3	730
	28	3,0	6,5	6,25	0,2	6	731
	28	3,5	6,5	6,50	0,2	3	735
	28	4,0	6,5	6,25	0,2	6	741
	28	4,0	6,5	6,50	0,2	3	740
	28	5,0	6,5	6,50	0,2	3	750
	28	6,0	6,5	6,50	0,2	3	760

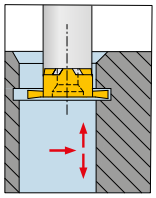
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	○

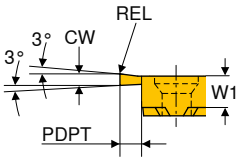
→ v_c/f_z Page 71

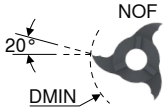
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

MiniMill – Milling insert for groove milling (specialist for aluminium)

Mini Mill | ≥ Ø 32 mm | CWX500









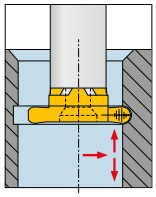
Size	DMIN mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	NOF	Article no. 53 007 ...
28	32	2,0	8,5	6,5	0,2	3	920
	32	2,5	8,5	6,5	0,2	3	925
	32	3,0	8,5	6,5	0,2	3	930

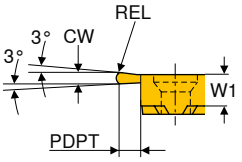
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
Hardened materials	

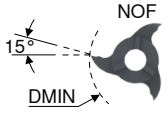
→ v_c/f_z Page 71

MiniMill – Milling insert for groove milling with full radius

Mini Mill | ≥ Ø 22 mm | CWX500









Size	DMIN mm	CW +0,03 mm	PDPT mm	W1 mm	REL mm	NOF	Article no. 53 008 ...
10	12	2,2	2,5	3,50	1,1	3	011
14	16	2,2	3,5	4,60	1,1	3	111
18	18	2,2	3,5	5,75	1,1	3	211
22	22	1,0	4,5	5,75	0,5	3	305
	22	1,6	4,5	5,75	0,8	3	308
	22	2,0	4,5	5,75	1,0	3	310
	22	2,4	4,5	5,75	1,2	3	312
	22	2,8	4,5	5,75	1,4	3	314
	22	3,0	4,5	5,75	1,5	3	315
	22	4,0	4,5	5,75	2,0	3	320
	22	4,4	4,5	5,75	2,2	3	322
	22	5,0	4,5	5,75	2,5	3	325

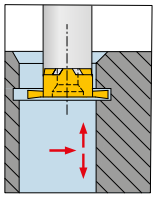
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	○

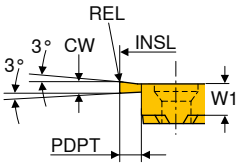
→ v_c/f_z Page 71

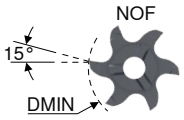
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

MiniMill – Milling insert for groove milling, cross-pitched

Mini Mill | ≥ Ø 22 mm | CWX500









Size	DMIN mm	INSL mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	NOF	Article no. 53 015 ...
10	12	11,7	1,5	2,0	3,5	0,2	6	114
	12	11,7	2,0	2,0	3,5	0,2	6	119
14	16	15,7	1,5	2,5	4,5	0,2	6	314
	16	15,7	2,0	2,5	4,5	0,2	6	319
	16	15,7	2,5	2,5	4,5	0,2	6	324
18	18	17,7	2,0	4,0	5,8	0,2	6	419
	18	17,7	2,5	4,0	5,8	0,2	6	424
	18	17,7	3,0	4,0	5,8	0,2	6	429
	20	19,7	2,0	5,0	5,8	0,2	6	469
	20	19,7	2,5	5,0	5,8	0,2	6	474
	20	19,7	3,0	5,0	5,8	0,2	6	479
22	22	21,7	2,0	4,5	6,2	0,2	6	820
	22	21,7	2,5	4,5	6,2	0,2	6	825
	22	21,7	3,0	4,5	6,2	0,2	6	830
	22	21,7	4,0	4,5	6,2	0,2	6	840
	37	36,7	1,5	12,0	6,2	0,1	6	865
	37	36,7	2,0	12,0	6,2	0,2	6	870
28	25	24,8	2,5	5,0	6,4	0,2	6	626
	25	24,8	3,0	5,0	6,4	0,2	6	631
	25	24,8	4,0	5,0	6,4	0,2	6	641
	25	24,8	5,0	5,0	6,4	0,2	6	651
	25	24,8	6,0	5,0	6,4	0,2	6	661
	28	27,7	2,5	6,5	6,2	0,2	6	726
	28	27,7	3,0	6,5	6,2	0,2	6	731
	28	27,7	4,0	6,5	6,2	0,2	6	741
	28	27,7	5,0	6,5	6,2	0,2	6	751
	28	27,7	6,0	6,5	6,2	0,2	6	761
	35	34,7	2,0	10,0	6,2	0,2	6	770
	35	34,7	2,5	10,0	6,2	0,2	6	775
	35	34,7	3,0	10,0	6,2	0,2	6	780

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	○

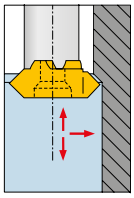
→ v_c/f_z Page 71

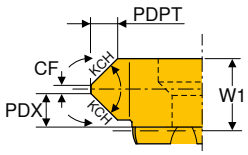
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

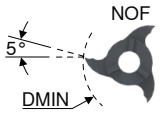
MiniMill – Milling insert for groove milling and chamfering

Mini Mill | ≥ Ø 10 mm

CWX500









Size	DMIN mm	CF +0,03 mm	PDPT mm	W1 mm	KCH °	PDX mm	NOF	Article no. 53 009 ...
10	10	0,2	0,35	3,60	15	1,80	6	015
	10	0,2	0,45	3,60	20	1,80	6	020
	10	0,2	0,70	3,60	30	1,80	6	030
	10	0,2	1,20	3,60	45	1,80	6	045
	12	1,2	0,80	3,50	45	1,20	3	035
14	16	1,4	1,20	4,50	45	1,60	3	145
18	18	2,5	1,40	5,85	45	1,70	3	258
	18	0,2	2,20	5,75	45	3,00	6	259
22	22	2,0	1,70	5,85	45	2,00	3	358
	22	0,2	2,50	6,40	45	3,90	6	463
	22	3,0	3,00	9,40	45	3,25	3	394 1)
28	28	0,2	1,90	6,05	45	3,75	6	560

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	○

1) use clamping screw 73 082 006

→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

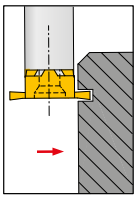
7

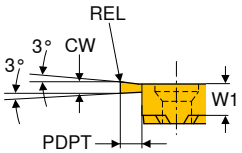
MiniMill – Milling insert for part-off

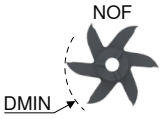
▲ PDPT = 12,0 mm in combination with holder 53 003 624
▲ reduce feed rate by 50 %

Mini Mill | ≥ Ø 37 mm

CWX500









Size	DMIN mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	NOF	Article no. 53 013 ...
22	37	0,5	12	5,6		6	705 1)
	37	0,6	12	5,7		6	706 1)
	37	0,8	12	6,0		6	708 1)
	37	1,0	12	6,2	0,1	6	710
	37	1,5	12	6,2	0,1	6	715

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○

1) the end face is not ground free to the center

→ v_c/f_z Page 71

MiniMill – Set for cut off

▲ size 22

Mini Mill

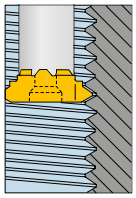


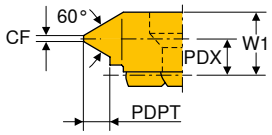
Tool	Designation	Article no.	Hole-Ø mm	Piece	Article no. 53 014 ...
Inserts	Milling inserts for separating	53 013 715	37	2	990
Tool holder	Endmill short	53 003 624		1	
Screw	M5 x 12	73 082 005		1	
Tightening Key	T20			1	

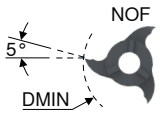
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

MiniMill – Milling insert for internal thread milling – Partial profile

Mini Mill | ≥ M12 | 60° | CWX500









Size	Thread$_{min}$	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	NOF	Article no. 53 010 ...
10	M12	1,0 - 1,75	9,8	0,13	1,08	3,20	2,4	6	017
	M14	1,0 - 1,75	11,7	0,13	1,08	3,60	2,8	3	010
	M14	1,0 - 2,0	10,1	0,13	1,25	3,20	2,2	6	021
	M14	1,0 - 2,0	11,7	0,13	1,25	3,60	2,8	3	020
	M16	1,5 - 2,75	11,0	0,19	1,67	3,20	2,0	6	027
	M16	1,5 - 2,75	11,7	0,19	1,67	3,60	2,4	3	015
	M16	2,0 - 3,0	11,1	0,25	1,78	3,20	1,9	6	029
	M16	2,0 - 3,0	11,7	0,25	1,78	3,60	2,2	3	030
14	M18	1,0 - 1,75	15,7	0,12	1,08	4,60	3,8	3	210
	M18	1,0 - 2,0	15,7	0,12	1,25	4,60	3,5	3	220
	M20	1,5 - 2,75	15,7	0,18	1,67	4,60	3,5	3	215
	M22	2,5 - 3,0	15,7	0,31	1,78	4,60	3,4	3	230
18	M22	1,0 - 1,75	17,7	0,12	1,03	5,85	5,0	3	410
	M22	1,0 - 2,0	17,7	0,12	1,19	5,85	4,7	3	412
	M22	1,0 - 2,0	17,7	0,12	1,19	5,85	5,0	6	416
	M22	1,5 - 2,75	17,7	0,19	1,62	5,85	4,6	3	415
	M24	2,0 - 3,0	17,7	0,25	1,73	5,85	4,4	3	425
	M24	2,0 - 3,5	17,7	0,25	2,06	5,85	4,2	3	455
	M24	2,0 - 3,5	17,7	0,25	2,06	5,85	4,3	6	434
	M24	2,0 - 3,75	17,7	0,25	2,22	5,85	4,2	3	420
	M24	2,5 - 5,0	17,7	0,31	2,98	5,85	3,8	3	430
	M24	3,0 - 5,5	17,7	0,38	3,25	5,85	4,2	3	435
22	M27	1,0 - 2,0	21,7	0,12	1,19	5,85	4,6	3	610
	M27	1,0 - 2,0	21,7	0,12	1,19	6,20	5,0	6	710
	M27	1,5 - 2,75	21,7	0,18	1,62	5,85	4,5	3	615
	M27	2,0 - 3,75	21,7	0,25	2,22	5,85	4,2	3	620
	M27	2,5 - 4,5	21,7	0,25	2,70	5,85	3,7	3	655
	M27	2,0 - 4,5	21,7	0,25	2,70	6,05	4,2	6	755
	M30	2,5 - 5,0	21,7	0,31	2,98	5,85	3,8	3	630
	M30	3,5 - 6,0	21,7	0,44	3,52	5,85	3,4	3	640
	M30	3,5 - 6,5	21,7	0,44	3,84	5,85	3,2	3	645
28	M33	1,0 - 2,0	27,7	0,12	1,20	6,60	4,5	3	820
	M33	1,5 - 2,5	27,7	0,18	1,49	6,60	4,3	3	825
	M33	1,5 - 2,5	27,7	0,19	1,60	6,10	5,0	6	826
	M36	2,5 - 5,0	27,7	0,38	2,93	6,10	2,3	6	850
	M36	2,5 - 5,0	27,7	0,37	2,93	6,60	4,0	3	840
	M39	4,0 - 6,0	27,7	0,62	3,37	6,60	3,6	3	860

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○

→ v_c/f_z Page 71

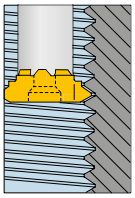
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

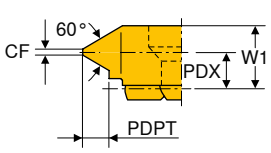
7

MiniMill – Milling insert for internal thread milling – Full profile

Mini Mill	≥ M22
60°	M

CWX500







Size	Thread$_{min}$	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	NOF	Article no. 53 011 ...
18	M22	1,50	17,7	0,18	0,81	5,85	4,8	3	415
	M22	1,75	17,7	0,20	0,95	5,85	4,7	3	417
	M22	2,00	17,7	0,25	1,08	5,85	4,6	3	420
	M24	2,50	17,7	0,31	1,35	5,85	4,4	3	425
	M27	3,00	17,7	0,37	1,62	5,85	4,3	3	430
	M27	3,50	17,7	0,43	1,89	5,85	4,0	3	435
22	M24	1,50	21,7	0,19	0,81	5,85	4,8	3	615
	M24	1,50	21,7	0,19	0,81	6,20	5,3	6	715
	M27	1,75	21,7	0,22	0,95	6,20	5,2	6	717
	M27	1,75	21,7	0,22	0,95	5,85	4,7	3	617
	M27	2,00	21,7	0,25	1,08	5,85	4,6	3	620
	M27	2,00	21,7	0,25	1,08	6,20	5,0	6	720
	M30	3,00	21,7	0,37	1,62	5,85	4,3	3	630
	M30	3,00	21,7	0,37	1,62	6,20	4,8	6	730
	M30	3,50	21,7	0,43	1,89	5,85	4,0	3	635
	M33	4,00	21,7	0,50	2,16	5,85	3,9	3	640
	M33	4,00	21,7	0,50	2,16	6,20	4,4	6	740
	M33	4,50	21,7	0,56	2,43	5,85	3,7	3	645

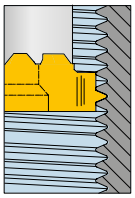
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○

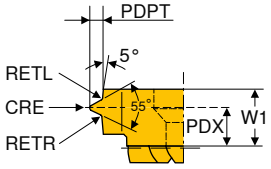
→ v_c/f_z Page 71

MiniMill – Milling insert for internal thread milling – Full profile

Mini Mill	≥ G 3/8"
55°	G

CWX500







Size	Thread$_{min}$	TP mm	DMIN mm	TPI 1/"	W1 mm	PDX mm	PDPT mm	CRE mm	RETL mm	RETR mm	NOF	Article no. 53 012 ...
10	G 3/8"	1,34	11,7	19	3,60	2,5	0,860	0,18	0,18	0,18	3	113
	G 1/2"	1,81	11,7	14	3,60	2,3	1,160	0,24	0,24	0,24	3	118
	G 1"	2,31	11,7	11	3,60	2,0	1,480	0,31	0,31	0,31	3	123
18	-	1,34	17,7	19	5,85	4,9	0,856	0,18	0,18	0,18	3	219
	G 3/4"	1,81	17,7	14	5,85	4,6	1,160	0,24	0,24	0,24	3	214
	G 1"	2,31	17,7	11	5,85	4,4	1,480	0,31	0,31	0,31	3	211
22	G 1"	2,31	21,7	11	5,85	4,0	1,480	0,31	0,31	0,31	3	311
	-	3,17	21,7	8	5,85	3,5	2,030	0,43	0,43	0,43	3	308
	BSW 1 1/2"	4,23	21,7	6	5,85	3,1	2,710	0,58	0,58	0,58	3	306

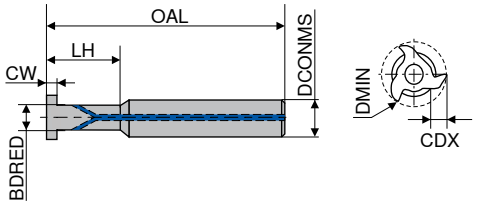
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○

→ v_c/f_z Page 71

MiniMill – Circular milling cutter, extra short

▲ steel Version

Mini Mill





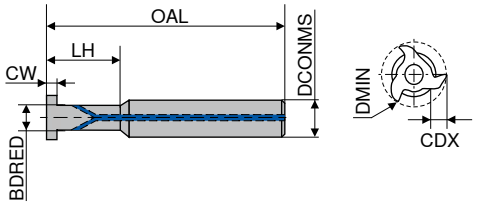
Steel

Size	DCONMS h6	BDRED	OAL	LH	DMIN	CW	CDX	torque moment	Article no. 53 004 ...
	mm	mm	mm	mm	mm	mm	mm	Nm	
10	10	6,0	60	15,2	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	015
14	10	8,0	60	17,7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	217
	13	8,0	70	25,7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	225
18	10	9,0	60	17,0	17,7	≤5,6	3,5	4,5	417
	13	9,0	70	25,0	17,7	≤5,6	3,5	4,5	425
22	10	11,3	60	10,7	21,7	≤9,15	4,5	7,0	610
	13	11,3	70	25,7	21,7	≤9,15	4	7,0	625
28	13	14,0	70	10,7	27,7	≤10	6,5	7,0	810
	20	14,0	100	35,7	27,7	≤10	6,5	7,0	835

MiniMill – Circular milling cutter, short

▲ steel Version

Mini Mill





Steel Steel

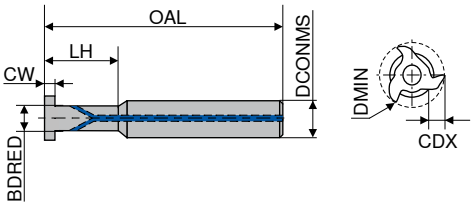
Size	DCONMS h6	BDRED	OAL	LH	DMIN	CW	CDX	torque moment	Article no. 53 002 ...	Article no. 53 003 ...
	mm	mm	mm	mm	mm	mm	mm	Nm		
10	16	6	80	12,0	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	012	012
14	16	8	80	16,0	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	216	216
18	16	9	80	18,0	17,7	≤5,6	3,5	4,5	418	418
22	16	12	80	24,0	21,7	≤9,15	4,5	7,0	624	624
28	20	14	100	35,7	27,7	≤10	6,5	7,0		835

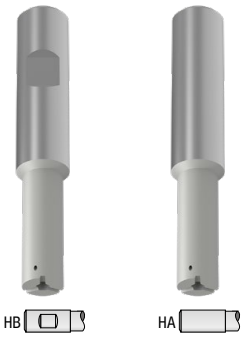
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

7

MiniMill – Circular milling cutter, vibration-damped

Mini Mill





HM HM

Size	DCONMS h6	BDRED	OAL	LH	DMIN	CW	CDX	torque moment	Article no. 53 001 ...	Article no. 53 000 ...
	mm	mm	mm	mm	mm	mm	mm	Nm		
10	12	6,0	80	21	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	021	021
	12	6,0	90	30	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	030	030
	12	6,0	100	42	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	042	042
	12	7,3	90	30	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0	130	130
	16	7,3	100	25	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0	025	025
14	12	8,0	95	29	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	229	229
	12	8,0	110	42	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	242	242
	12	8,0	120	56	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	256	256
	12	9,5	110	42	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5	342	342
	16	9,5	110	33	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5	233	233
18	12	9,0	100	32	17,7	≤5,6	3,5	4,5	432	432
	12	9,0	100	45	17,7	≤5,6	3,5	4,5	445	445
	12	9,0	120	64	17,7	≤5,6	3,5	4,5	464	464
	16	9,0	93	25	17,7	≤5,6	3,5	4,5	425	425
	16	9,0	100	32	17,7	≤5,6	3,5	4,5	532	532
	16	9,0	110	45	17,7	≤5,6	3,5	4,5	545	545
	16	9,0	130	64	17,7	≤5,6	3,5	4,5	564	564
	16	13,0	110	64	17,7	≤5,6	1,5	4,5	465	465
	16	13,0	130	66	17,7	≤5,6	1,5	4,5	466	466
22	12		100	42	21,7	≤9,15	4,5	7,0	642	642
	12		130	60	21,7	≤9,15	4,5	7,0	660	660
	16	11,5	90	30	21,7	≤9,15	4,5	7,0	630	630
	16	12,0	100	42	21,7	≤9,15	4,5	7,0	742	742
	16	12,0	130	60	21,7	≤9,15	4,5	7,0	760	760
	16	12,0	160	85	21,7	≤9,15	4,5	7,0	685	685
	20	16,0	110	45	21,7	≤9,15	2,5	7,0	645	645
	20	16,0	130	65	21,7	≤9,15	2,5	7,0	665	665
28	16	14,3	100	42	27,7 / 24,8	≤10	6,5 / 5	7,0	842	842
	16	14,3	130	60	27,7 / 24,8	≤10	6,5 / 5	7,0	860	860
	16	14,3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0	885	885
	20	13,5	104	35	27,7 / 24,8	≤10	6,5 / 5	7,0	835	835
	20	14,3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0	985	985


Key D


Clamping screw


Clamping screw

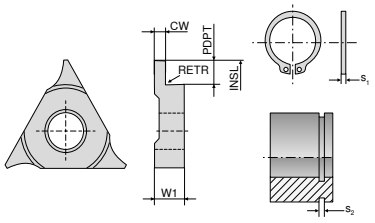
Spare parts		Article no. 80 950 ...		Article no. 73 082 ...		Article no. 73 082 ...
Size						
10	T08	110			M2,6	002
14	T10	112			M3,5	003
18	T15	113			M4	004
22	T20	114	M5	006	M5	005
28	T20	114			M5	005

Clamping screw 73 082 006 only for insert 53 009 394.

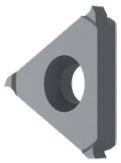
Milling inserts for circlip grooves without chamfer

System 300

DIN 471/472



Ti500



Solid carbide

Size	$s_{2\ H13}$ mm	INSL mm	W1 mm	$CW_{-0,03}$ mm	PDPT mm	RETR mm	s_1 mm	Article no. 50 853 ...
04	0,90	7,9	2,34	0,98	0,70	0,3	0,80	300
03	0,90	10,6	2,34	0,98	0,70	0,3	0,80	302
	1,10	10,6	2,34	1,18	0,90	0,3	1,00	304
	1,30	10,6	2,34	1,38	1,10	0,3	1,20	306
	1,60	10,6	2,34	1,68	1,25	0,3	1,50	308
	1,85	10,6	2,34	1,93	1,25	0,3	1,75	310
02	0,90	17,5	3,50	0,98	0,70	0,3	0,80	312
	1,10	17,5	3,50	1,18	0,90	0,3	1,00	314
	1,30	17,5	3,50	1,38	1,10	0,3	1,20	316
	1,60	17,5	3,50	1,68	1,25	0,3	1,50	318
	1,85	17,5	3,50	1,93	1,25	0,3	1,75	320
	2,15	17,5	3,50	2,23	1,75	0,3	2,00	322
	2,65	17,5	3,50	2,73	1,75	0,3	2,50	324
	3,15	17,5	3,50	3,23	2,20	0,3	3,00	326
01	0,90	23,0	4,00	0,98	0,70	0,3	0,80	328
	1,10	23,0	4,00	1,18	0,90	0,3	1,00	330
	1,30	23,0	4,00	1,38	1,10	0,3	1,20	332
	1,60	23,0	4,00	1,68	1,25	0,3	1,50	334
	1,85	23,0	4,00	1,93	1,25	0,3	1,75	336
	2,15	23,0	4,00	2,23	1,75	0,3	2,00	338
	2,65	23,0	4,00	2,73	1,75	0,3	2,50	340
	3,15	23,0	4,00	3,23	2,20	0,3	3,00	342

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	○

→ v_c/f_z Page 70

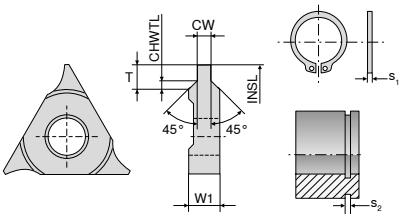
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

7

Milling inserts for circlip grooves with chamfer

System 300

DIN 471/472



Ti500



Solid carbide

Size	$s_{2\ H13}$ mm	INSL mm	W1 mm	$CW_{-0,03}$ mm	T mm	CHWTL mm	s_1 mm	Article no. 50 852 ...
03	1,10	10,6	2,34	1,18	0,50	0,10	1,00	302
02	1,10	17,5	3,50	1,18	0,50	0,10	1,00	312
	1,30	17,5	3,50	1,38	0,85	0,15	1,20	314
	1,60	17,5	3,50	1,68	1,00	0,15	1,50	316
	1,85	17,5	3,50	1,93	1,25	0,20	1,75	317
	2,15	17,5	3,50	2,23	1,50	0,20	2,00	318
	2,65	17,5	3,50	2,73	1,50	0,20	2,50	319
01	1,10	23,0	4,00	1,18	0,50	0,10	1,00	320
	1,30	23,0	4,00	1,38	0,70	0,15	1,20	321
	1,30	23,0	4,00	1,38	0,85	0,15	1,20	322
	1,60	23,0	4,00	1,68	1,00	0,15	1,50	324
	1,60	23,0	4,00	1,68	0,85	0,15	1,50	323
	1,85	23,0	4,00	1,93	1,25	0,20	1,75	325
	2,15	23,0	4,00	2,23	1,50	0,20	2,00	326
	2,65	23,0	4,00	2,73	1,75	0,20	2,50	328
	2,65	23,0	4,00	2,73	1,50	0,20	2,50	327
	3,15	23,0	4,00	3,32	1,75	0,20	3,00	329

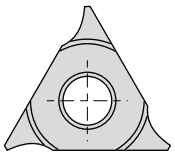
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	○

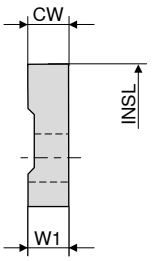
→ v_c/f_z Page 70

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Milling inserts without profile, ground ready-for-use

System 300





Ti500



Solid carbide

Size	CW +0,02 mm	INSL mm	W1 mm	Article no. 50 851 ...
04	2,00	7,9	2,34	302
03	2,34	10,6	2,34	304
	3,00	10,6	3,00	306
02	3,50	17,5	3,50	312
	5,00	17,5	5,00	314
	6,00	17,5	6,00	316
01	4,00	23,0	4,00	322 1)
	6,50	23,0	6,50	324 1)

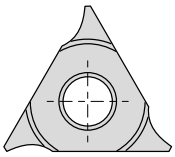
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	○

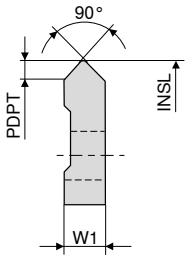
1) with circular milling cutter 50 800 090 PDPT = 3,0 mm

→ v_c/f_z Page 70

Milling inserts for chamfering and deburring

System 300





Ti500



Solid carbide

Size	PDPT mm	INSL mm	W1 mm	Article no. 50 857 ...
03	1,50	10,6	3,0	304
02	2,50	17,5	5,0	314
01	3,25	23,0	6,5	322 1)

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	○

1) with circular milling cutter 50 800 090 PDPT = 3,0 mm

→ v_c/f_z Page 70

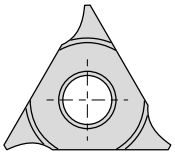
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

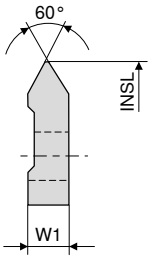
7

Thread milling insert – Partial profile

System 300

60°





Ti500



Solid carbide

Size	TP	INSL	W1	Article no. 50 855 ...
	mm	mm	mm	
02	1 - 3,5	17,5	3,5	314
01	1 - 4,0	23,0	4,0	324

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	○

→ v_c/f_z Page 70

Thread milling insert – Full profile

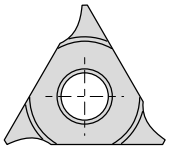
System 300

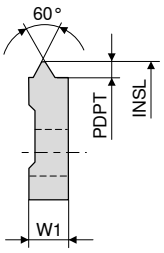
IR/IL

60°

M

MF





Ti500



Solid carbide

Size	TP	INSL	W1	PDPT	Article no. 50 859 ...
	mm	mm	mm	mm	
03	1,0	10,6	2,34	0,578	304
	1,5	10,6	2,34	0,864	308
	2,0	10,6	2,34	1,159	310
02	1,0	17,5	3,50	0,578	311
	1,5	17,5	3,50	0,864	312
	2,0	17,5	3,50	1,159	314
	2,5	16,0	3,50	1,444	317 1)
	2,5	17,5	3,50	1,444	316
	3,0	17,5	3,50	1,728	318
01	1,0	23,0	4,00	0,578	320
	1,5	23,0	4,00	0,864	322
	2,0	23,0	4,00	1,159	324
	2,5	23,0	4,00	1,444	326
	3,0	23,0	4,00	1,728	328
	3,5	23,0	4,00	2,023	330
	4,0	23,0	4,00	2,308	332
	4,5	23,0	6,50	2,602	334
	5,0	23,0	6,50	2,887	336
	6,0	23,0	6,50	3,467	338 2)

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	○

1) M20x2,5 – profile corrected

2) with circular milling cutter 50 800 090 PDPT = 3,0 mm

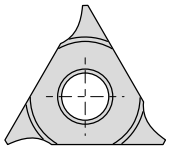
→ v_c/f_z Page 70

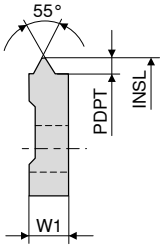
Thread milling insert – Full profile

System 300

55°

G BSW BSF





Ti500



Solid carbide

Size	TP mm	TPI 1/"	INSL mm	W1 mm	PDPT mm	Article no. 50 858 ...
02	1,814	14	17,5	3,5	1,162	314
	2,309	11	17,5	3,5	1,494	312
01	2,309	11	23,0	4,0	1,494	322

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	○

→ v_c/f_z Page 70

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

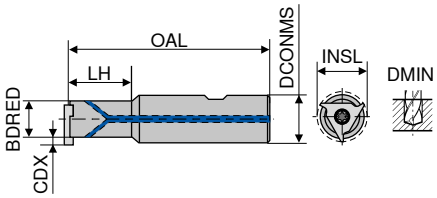
7

Circular milling cutter

▲ size refers to milling inserts

System 300







HB 

Size	INSL	CDX	LH	DCONMS $_{h6}$	OAL	BDRED	DMIN	torque moment	Article no. 50 800 ...
	mm	mm	mm	mm	mm	mm	mm	Nm	
04	7,9	0,35	17,2	10	57,20	7,1	8	0,9	015 [1]
03	10,6	1,60	17,2	10	57,20	7,4	11	0,9	020 [1]
	10,6	1,60	34,2	10	74,20	7,4	11	0,9	025 [2]
02	17,5	2,60	28,7	12	74,05	12,0	20	3,8	030
	17,5	2,60	63,7	12	108,70	12,0	20	3,8	045 [2]
01	23,0	3,45	38,5	16	87,00	16,1	25	5,5	050
	23,0	3,45	67,5	16	116,00	16,1	25	5,5	070
	23,0	3,00	88,5	16	137,00	17,0	25	5,5	090 [2]

1) without through coolant
2) carbide version



Key D



Clamping screw

Spare parts for Article no.	Article no. 80 950 ...		Article no. 70 960 ...	
50 800 050	T20 - IP	129	M5x15	234
50 800 070	T20 - IP	129	M5x15	234
50 800 090	T20 - IP	129	M5x15	234
50 800 030	T15 - IP	128	M4x12,3	233
50 800 045	T15 - IP	128	M4x12,3	233
50 800 020	T06 - IP	123	M2x9	232
50 800 025	T06 - IP	123	M2x9	232
50 800 015	T06 - IP	123	M2x9	232

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

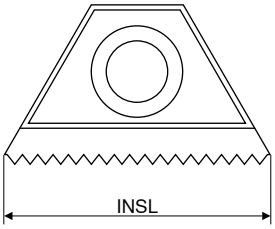
Thread milling insert

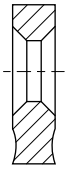
▲ can be used on both sides (except for INSL 10,4)

MWN

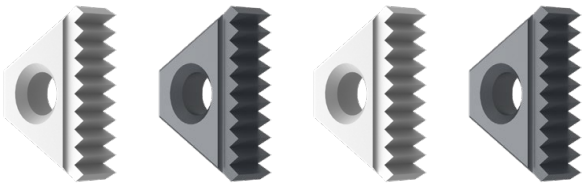
60°

M | MF





IR/IL | IR/IL TiAlN | ER/EL | ER/EL TiAlN



INSL	TP	Solid carbide	Solid carbide	Solid carbide	Solid carbide
		Article no. 50 890 ...	Article no. 50 890 ...	Article no. 50 891 ...	Article no. 50 891 ...
mm	mm				
10,4	0,50	100			
	0,75	101			
	1,00	102	302		
	1,25	103			
	1,50	104	304		
11,0	0,50	120			
	0,75	121			
	1,00	122	322		
	1,25	123			
	1,50	124	324		
16,0	0,50	140			
	0,75	141			
	1,00	142	342	142	342
	1,25	143		143	
	1,50	144	344	144	344
	1,75	145		145	
	2,00	146	346	146	346
27,0	1,00	162	362	162	362
	1,25	163		163	
	1,50	164	364	164	364
	1,75	165			
	2,00	166	366	166	366
	2,50	167		167	
	3,00	168	368	168	368
	3,50	169		169	
	4,00	170		170	
Steel		●	●	●	●
Stainless steel			●		●
Cast iron		●	●	●	●
Non ferrous metals		●	●	●	●
Heat resistant alloys					
Hardened materials					

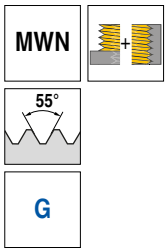
→ v_c/f_z Page 69

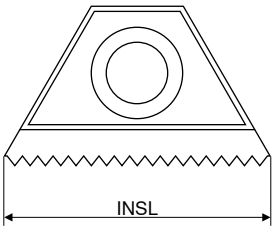
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

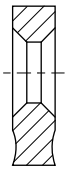
7

Thread milling insert

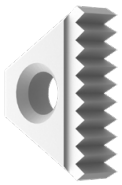
▲ can be used on both sides (except for INSL 10,4)



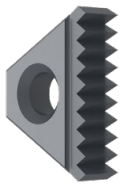




TiAlN



Solid carbide



Solid carbide

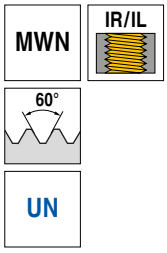
INSL mm	TPI 1/"	TP mm	Article no. 50 895 ...	Article no. 50 895 ...
10,4	19	1,337	100	300
16,0	14	1,814	142	342
	11	2,309	144	344
27,0	11	2,309	166	366

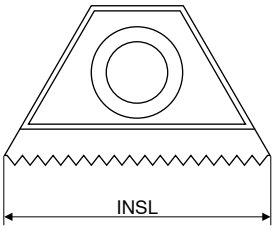
Steel	●	●
Stainless steel		●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys		
Hardened materials		

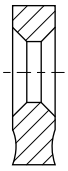
→ v_c/f_z Page 69

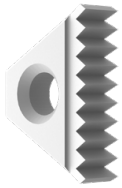
Thread milling insert

▲ can be used on both sides (except for INSL 10,4)









Solid carbide

INSL mm	TPI 1/"	TP mm	Article no. 50 892 ...
10,4	20	1,270	100
	18	1,411	102
16,0	16	1,588	144
	12	2,117	146
27,0	12	2,117	166
	8	3,175	168

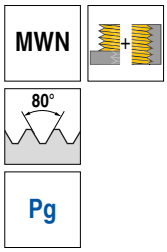
Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
Hardened materials	

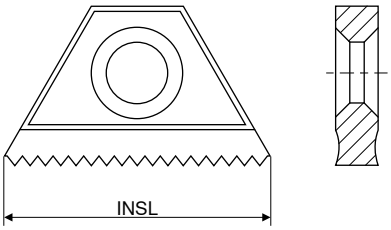
→ v_c/f_z Page 69

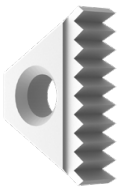
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Thread milling insert

▲ double sided







Solid carbide

INSL mm	TPI 1/"	TP mm	Article no. 50 896 ...
11	18	1,411	122
16	18	1,411	142
	16	1,588	144

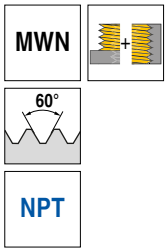
Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
Hardened materials	

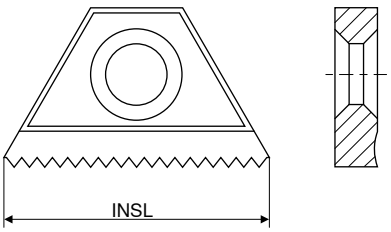
→ v_c/f_z Page 69

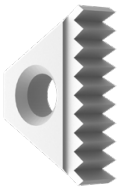
7

Thread milling insert

▲ double sided







Solid carbide

INSL mm	TPI 1/"	TP mm	Article no. 50 897 ...
16	14,0	1,814	142
	11,5	2,209	144
27	11,5	2,209	164
	8,0	3,175	166

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
Hardened materials	

→ v_c/f_z Page 69

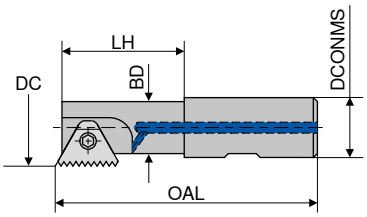
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Note! Thread milling inserts are marked R (right-hand thread) and L (left-hand thread). The standard tool holder cannot be used to produce a left-hand thread! Tool holder for left-hand thread available on special request.

Circular milling cutter

▲ INSL refers to milling inserts

MWN





B

INSL mm	BD mm	LH mm	DCONMS h6 mm	OAL mm	DC mm	torque moment Nm	Article no. 50 843 ...
10,4	6,8	12	12	69	9,0	0,9	101
	6,8	17	20	84	9,0	0,9	102
11,0	8,9	12	12	70	11,5	1,2	111
	8,9	20	20	85	11,5	1,2	112
16,0	13,6	22	16	90	17,0	2,5	161
	16,6	43	20	95	20,0	2,5	162
	18,6	25	25	125	22,0	2,5	163
27,0	24,0	52	25	110	30,0	9,0	271
	31,0	58	32	120	37,0	9,0	273
	24,0	92	25	150	30,0	9,0	272
	31,0	98	32	160	37,0	9,0	274

Pilot hole diameter for circular end mill 50 843 ...

BD	TP in mm									
	0,5 mm 48 G/"	0,75 mm 32 G/"	1,0 mm 24 G/"	1,25 mm 20 G/"	1,5 mm 16 G/"	2,0 mm 12 G/"	2,5 mm 10 G/"	3,0 mm 8 G/"	3,5 mm 7 G/"	4,0 mm 6 G/"
6,8	9,5	10	10,7	11,4	12					
8,9	12	12,5	13,2	13,9	14,5					
13,6	17,6	18,2	19	19,6	20	21				
16,6	20,7	21,4	22	22,6	23	24				
18,6	22,7	23,4	24	24,6	25	26				
24,0	30,7	31,4	32	32,8	33,5	34,6	36,6	39	42	45
31,0	38	38,6	39,5	40,4	41	42	44	46,5	49	52



Key D



Clamping screw

Spare parts INSL		Article no. 80 950 ...		Article no. 70 950 ...
10,4	T07	109	M2,2x5,0	200
11	T08	110	M2,6x6,5	201
16	T10	112	UNC5-40 x 8	202
27	T25	115	M5x15	203

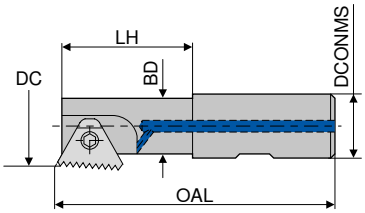
Circular milling cutter NPT

▲ INSL refers to milling inserts

MWN



NPT







INSL mm	BD mm	Thread	LH mm	DCONMS $_{h6}$ mm	OAL mm	DC mm	torque moment Nm	Article no. 50 844 ...
16	12,5	NPT 1/2	22	16	90	15,5	2,5	161
	15,0	NPT 3/4 - 1 1/4	23	20	85	19,0	2,5	162
27	24,0	NPT 1 1/2 - 2	52	25	110	30,0	9,0	271
	31,0	NPT > 2	58	32	120	37,0	9,0	272



Key D

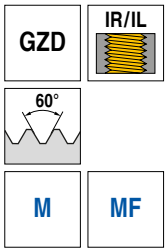


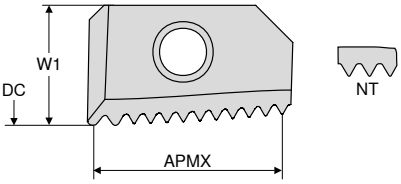
Clamping screw

Spare parts INSL		Article no. 80 950 ...		Article no. 70 950 ...
16	T10	112	UNC5-40 x 8	202
27	T25	115	M5x15	203

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Thread milling insert







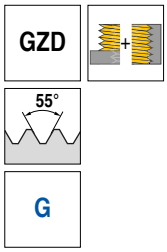
Solid carbide

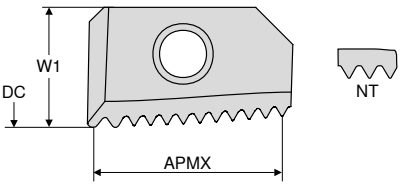
DC mm	TP mm	W1 mm	APMX mm	NT	Article no. 50 863 ...
12	1,0	7,5	12,0	13	300
	1,5	7,5	10,5	8	302
17	1,0	11,0	16,0	17	310
	1,5	11,0	16,5	12	312
	2,0	11,0	16,0	9	314
20	1,0	7,5	12,0	13	320
	1,5	7,5	10,5	8	322
25	1,0	11,0	16,0	17	330
	1,5	11,0	16,5	12	332
	2,0	11,0	16,0	9	334

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 70

Thread milling insert







Solid carbide

DC mm	TPI 1/"	W1 mm	APMX mm	NT	Article no. 50 864 ...
12	14	7,5	9,07	6	300
17	14	11,0	16,33	10	312 [1]
	14	11,0	16,33	10	314 [2]
	11	11,0	16,16	8	310
25	14	11,0	16,33	10	332
	11	11,0	16,16	8	330

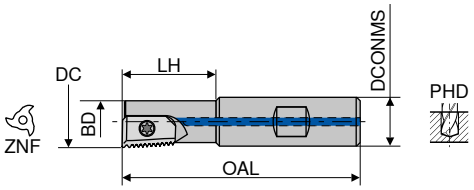
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

1) Thread: 5/8 – 3/4 – 7/8
2) 1/2" Profile corrected

→ v_c/f_z Page 70

Circular milling cutter







B

DC	LH	DCONMS $_{h6}$	OAL	BD	ZNF	PHD	torque moment	Article no. 50 842 ...
mm	mm	mm	mm	mm		mm	Nm	
12	18	16	74,0	9,4	1	14	1,1	121
17	30	16	79,0	13,7	1	19	3,8	171
20	32	20	83,0	17,5	3	22	1,1	201
25	50	25	107,6	21,7	3	26	3,8	251
	85	25	142,6	21,7	3	26	3,8	252 1)

1) heavy metal version with mounted head



Key D



Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 960 ...	
50 842 121	T08 - IP	125	M2,5x6,5	244
50 842 171	T15 - IP	128	M4x7,5	245
50 842 201	T08 - IP	125	M2,5x6,5	244
50 842 251	T15 - IP	128	M4x7,5	245
50 842 252	T15 - IP	128	M4x7,5	245

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

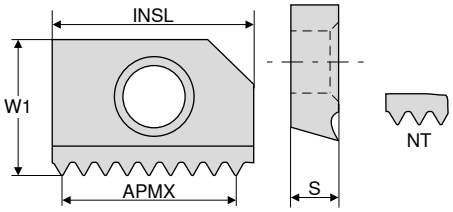
7

Thread milling insert

GZG

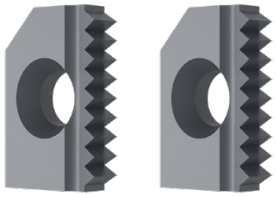
60°

M MF



ER/EL Ti500

IR/IL Ti500



INSL	TP	W1	APMX	S	NT	Solid carbide Article no. 50 887 ...	Solid carbide Article no. 50 885 ...
mm	mm	mm	mm	mm			
14,5	0,50	10,0	13,50	3,18	28		350
	0,75	10,0	13,50	3,18	19		352
	1,00	10,0	13,00	3,18	14	304	354
	1,25	10,0	12,50	3,18	11		356
	1,50	10,0	12,00	3,18	9	308	358
	1,75	10,0	12,25	3,18	8		360
	2,00	10,0	12,00	3,18	7	312	362
	2,50	10,0	10,00	3,18	5		364
	2,50	10,0	10,00	3,18	5		366 [1]
15,0	3,00	10,5	12,00	3,18	5		370
	3,50	10,5	10,50	3,18	4		372
21,0	1,00	10,0	19,00	3,18	20		380
	1,50	10,0	19,50	3,18	14		382
	1,50	10,0	18,00	3,18	13	320	
	2,00	10,0	18,00	3,18	10		384
26,0	1,50	15,0	24,00	5,00	17		390
	2,00	15,0	24,00	5,00	13		392
	3,00	15,0	21,00	5,00	8		396
	3,50	15,0	20,00	5,00	7		398
	4,00	15,0	20,00	5,00	6		400

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys		
Hardened materials		

1) M20x2,5 – profile corrected

→ v_c/f_z Page 70

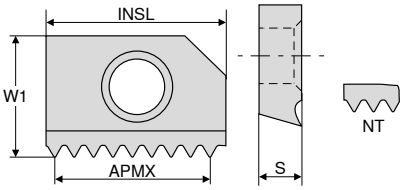
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Thread milling insert

GZG

55°

G



Ti500



Solid carbide

INSL	TPI	TP	W1	APMX	S	NT	Article no. 50 888 ...
mm	1/"	mm	mm	mm	mm		
14,5	18	1,411	10	11,28	3,18	9	310
	16	1,587	10	11,11	3,18	8	312
	14	1,814	10	12,69	3,18	8	314
	12	2,116	10	10,58	3,18	6	316
	11	2,309	10	11,54	3,18	6	318
21,0	14	1,814	10	18,14	3,18	11	320
	11	2,309	10	18,47	3,18	9	322
26,0	11	2,309	15	23,09	5,00	11	330

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
Hardened materials	

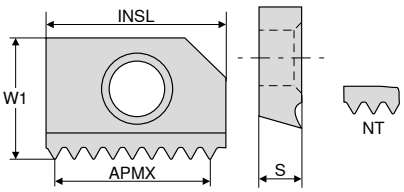
→ v_c/f_z Page 70

Thread milling insert

GZG

80°

Pg



Ti500



Solid carbide

INSL	TPI	TP	W1	APMX	S	NT	Article no. 50 894 ...
mm	1/"	mm	mm	mm	mm		
14,5	18	1,411	10	12,69	3,18	10	302
	16	1,587	10	11,11	3,18	8	304

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
Hardened materials	

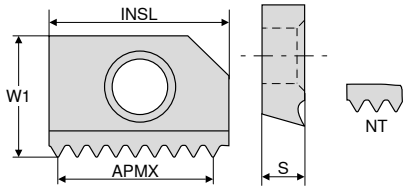
→ v_c/f_z Page 70

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

7

Thread milling insert

GZG | IR/IL | 60° | UN



Ti500



Solid carbide

INSL	TPI	TP	W1	APMX	S	NT	Article no. 50 889 ...
mm	1/"	mm	mm	mm	mm		
14,5	18	1,411	10	12,69	3,18	10	310
	16	1,587	10	12,70	3,18	9	312
21,0	16	1,587	10	19,05	3,18	13	320
	14	1,814	10	18,14	3,18	11	322
	12	2,116	10	18,04	3,18	10	324

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
Hardened materials	

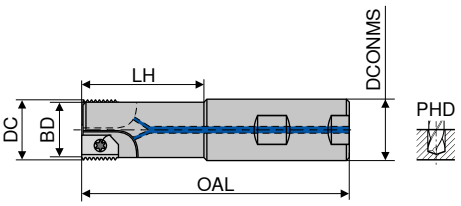
→ v_c/f_z Page 70

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Circular milling cutter

▲ INSL refers to milling inserts

GZG





B

INSL	DC	LH	DCONMS $_{h6}$	OAL	BD	ZNP	PHD	torque moment	Article no. 50 841 ...
mm	mm	mm	mm	mm	mm		mm	Nm	
	16	30,0	16	78	12,7	1	18,5	3,8	016
	16	50,0	16	98	12,7	1	18,5	3,8	017 [1]
14,5	20	60,0	20	110	16,8	1	23,0	3,8	020
	25	48,2	25	106	21,5	2	30,0	3,8	025
	25	92,2	25	150	21,5	2	30,0	3,8	026 [1]
	22	30,0	16	79	12,7	1	20,0	3,8	218
15,0	27	48,2	25	106	21,5	2	32,0	3,8	227
	27	60,0	20	110	16,8	1	26,0	3,8	222
	16	31,3	20	85	12,7	1	18,5	3,8	316
	22	32,8	25	92	18,7	1	26,0	3,8	322
21,0	22	62,8	25	122	18,7	1	26,0	3,8	323 [1]
	28	38,3	32	102	24,7	2	35,0	3,8	328
	28	78,3	32	142	24,5	2	35,0	3,8	327 [1]
26,0	18	48,5	25	107	20,0	1	30,0	3,8	125

1) heavy metal version



Key D



Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 960 ...
50 841 016	T15 - IP	128	M4x6,9	237
50 841 017	T15 - IP	128	M4x6,9	237
50 841 020	T15 - IP	128	M4x7,5	245
50 841 025	T15 - IP	128	M4x8	242
50 841 026	T15 - IP	128	M4x8	242
50 841 218	T15 - IP	128	M4x6,9	237
50 841 227	T15 - IP	128	M4x8	242
50 841 222	T15 - IP	128	M4x6,9	237
50 841 316	T15 - IP	128	M4x6,9	237
50 841 322	T15 - IP	128	M4x6,9	237
50 841 323	T15 - IP	128	M4x8	242
50 841 328	T15 - IP	128	M4x8	242
50 841 327	T15 - IP	128	M4x8	242
50 841 125	T15 - IP	128	M4x11,5	241

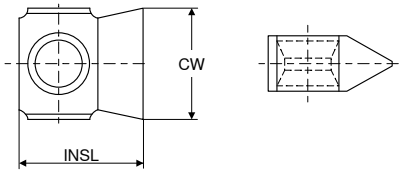
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Thread milling insert – Partial profile

EAW

60°

M UN



TiN



Solid carbide

DC	TP	TPI	CW	INSL	Article no. 50 867 ...
mm	mm	1/"	mm	mm	
16,5	1,5 - 3,0	16 - 10	5	7,0	115
18	2,5 - 3,5	10 - 7	5	7,8	225

55°

G

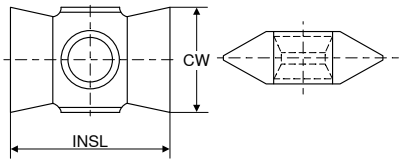
DC	TP	TPI	CW	INSL	Article no. 50 868 ...
mm	mm	1/"	mm	mm	
16,5	1,814	14	5	7	114

Thread milling insert – Partial profile

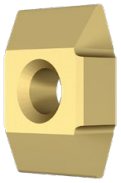
EAW

60°

M UN



TiN



Solid carbide

DC	TP	TPI	CW	INSL	Article no. 50 860 ...
mm	mm	1/"	mm	mm	
23,85	1,5 - 2,5	16 - 10	6,35	9,52	315
23,85	2,5 - 4,0	10 - 6	6,35	9,52	325
32,85	1,5 - 2,5	16 - 10	8,50	13,50	415
32,85	2,5 - 5,5	10 - 4,5	8,50	13,50	425

55°

G

DC	TP	TPI	CW	INSL	Article no. 50 861 ...
mm	mm	1/"	mm	mm	
23,85	2,309	11	6,35	9,52	311
32,85	2,309	11	8,50	13,50	411

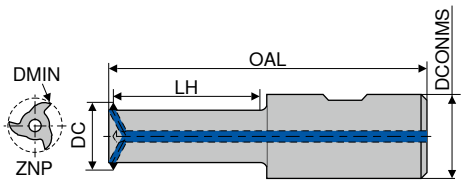
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	

→ v_c/f_z Page 69

Circular milling cutter

Scope of supply:
including key







DC	DMIN	TP	TPI	LH	DCONMS $_{h6}$	OAL	ZNP	torque moment	Article no. 50 848 ...
mm	mm	mm	1/"	mm	mm	mm		Nm	
16,5 / 18,0	17,5 / 19,0	1,5 - 3,0	16 - 10	60	20	114	2	0,9	**020**
23,85	25,5	1,5 - 4,0	24 - 6	90	32	154	3	0,9	**030**
32,85	35,0	1,5 - 5,5	16 - 4,5	115	32	179	3	2,5	**040**


Key D


Clamping screw

Spare parts		Article no. 80 950 ...		Article no. 70 950 ...
for Article no.				
50 848 020	T07 - IP	**124**	M2,5x8,5	**739**
50 848 030	T07 - IP	**124**	M2,5x8,5	**739**
50 848 040	T09 - IP	**126**	M3x11	**740**

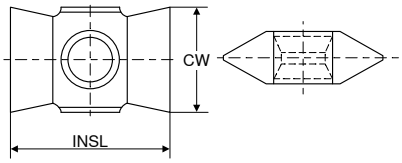
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Thread milling insert – Partial profile

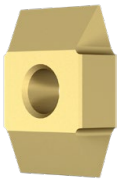
EWM

60°

M | UN



TiN



Solid carbide

DC	TP	TPI	CW	INSL	Article no. 50 870 ...
mm	mm	1/"	mm	mm	
40,25	1,5 - 3,0	16 - 9	9,5	15,50	**515**
40,25	3,0 - 6,0	9 - 4	9,5	15,50	**530**
52,55 / 66,55	1,5 - 3,0	16 - 9	12,5	19,00	**615**
52,55 / 66,55	3,0 - 6,0	9 - 4	12,5	19,00	**630**
92	6,0 - 8,0	4	14,3	28,58	**760**

55°

G

DC	TP	TPI	CW	INSL	Article no. 50 871 ...
mm	mm	1/"	mm	mm	
40,25	2,309	11	9,5	15,5	**511**
52,55	2,309	11	12,5	19,0	**611**

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	

→ v_c/f_z Page 69

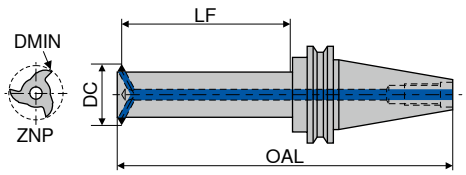
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Circular milling cutter

Scope of supply:

including key

EWM | IR/IL







DIN 69871

DC	DMIN	TP	TPI	LF	OAL	Adapter	ZNP	torque moment	Article no. 50 849 ...
mm	mm	mm	1/"	mm	mm			Nm	
40,25	43,0	1,5 - 6,0	16 - 4,0	145	280,5	SK 50	4	5,5	**148**
40,25	43,0	1,5 - 6,0	16 - 4,0	145	247,0	SK 40	4	5,5	**048**
52,55	56,0	1,5 - 6,0	16 - 4,0	195	279,6	SK 40	4	8,0	**064**
52,55	56,0	1,5 - 6,0	16 - 4,0	195	331,0	SK 50	4	8,0	**164**
66,55	70,5	1,5 - 6,0	16 - 4,0	260	398,0	SK 50	7	8,0	**080**
92,00	100,0	6,0 - 8,0	4,0	360	497,0	SK 50	7	8,0	**115**



Key D



Clamping screw

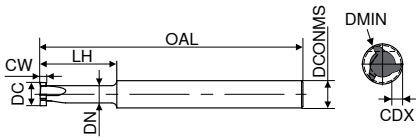
Spare parts DC		Article no. 80 950 ...		Article no. 70 950 ...
40,25	T15 - IP	**128**	M4x13	**741**
52,55	T20 - IP	**129**	M5x15	**742**
66,55	T20 - IP	**129**	M5x15	**742**
92	T20 - IP	**129**	M5x15	**742**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

MicroMill – Solid Carbide Circular End Milling Cutter

Micro Mill

CWX500





HA

Solid carbide

DC	CW ±0,02	CDX	LH	OAL	DN	DCONMS h6	ZEFP	DMIN	Article no. 53 050 ...
mm	mm	mm	mm	mm	mm	mm		mm	
5,8	0,7	0,8	15,2	58	3,8	6	3	6	070
	0,8	0,8	15,2	58	3,8	6	3	6	080
	0,9	0,8	15,2	58	3,8	6	3	6	090
	1,0	0,8	15,2	58	3,8	6	3	6	100
	1,5	0,8	15,2	58	3,8	6	3	6	150
7,8	0,7	1,2	25,4	68	5,0	8	3	8	170
	0,8	1,2	25,4	68	5,0	8	3	8	180
	0,9	1,2	25,4	68	5,0	8	3	8	190
	1,0	1,2	25,4	68	5,0	8	3	8	200
	1,5	1,2	25,4	68	5,0	8	3	8	250
	2,0	1,2	25,4	68	5,0	8	3	8	300

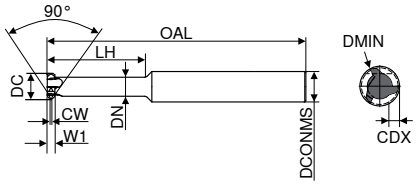
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

→ v_c/f_z Page 71

MicroMill – Solid Carbide Circular End Milling Cutter

Micro Mill

CWX500





HA

Solid carbide

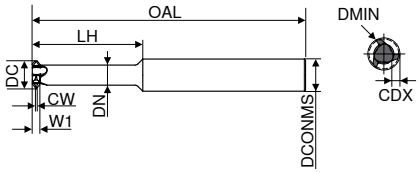
DC	W1	CW	CDX	LH	OAL	DN	DCONMS h6	ZEFP	DMIN	Article no. 53 051 ...
mm	mm	mm	mm	mm	mm	mm	mm		mm	
5,8	2	0,2	0,8	15	58	4,2	6	3	6	010
	2	0,2	0,8	25	68	4,2	6	3	6	020
7,8	2	0,2	1,2	25	68	5,0	8	3	8	110
	2	0,2	1,2	35	78	5,0	8	3	8	120

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

→ v_c/f_z Page 71

MicroMill – Solid Carbide Circular Thread Milling Cutter – Full profile

Micro Mill | IR/IL | 60° | M



CWX500



HA

Solid carbide

Thread	TP	DC	W1	CW	CDX	LH	OAL	DN	DCONMS $_{h6}$	ZEFP	DMIN	Article no. 53 052 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm		mm	
M1,6	0,35	1,18	0,40	0,04	0,19	4,0	32	0,64	3	3	1,38	**160**
M1,8	0,35	1,38	0,50	0,04	0,19	5,0	32	0,70	3	3	1,58	**180**
M2	0,40	1,50	0,56	0,05	0,22	5,0	32	0,90	3	4	1,70	**200**
M2,5	0,45	1,95	0,60	0,06	0,25	6,0	32	1,15	3	4	2,15	**250**
M3	0,50	2,40	0,60	0,06	0,27	7,0	32	1,60	3	4	2,60	**300**
M3,5	0,60	2,80	0,74	0,08	0,33	8,0	32	1,80	3	4	3,00	**350**
M4	0,70	3,10	0,82	0,09	0,38	9,0	44	1,98	5	4	3,30	**400**
M5	0,80	3,60	0,98	0,10	0,43	10,0	44	2,20	5	4	3,80	**500**
M6	1,00	4,10	0,98	0,13	0,54	12,2	44	2,70	5	4	4,30	**600**

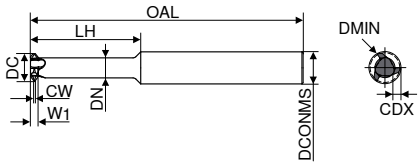
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

→ v_c/f_z Page 71

7

MicroMill – Solid Carbide Circular Thread Milling Cutter – Partial profile

Micro Mill | IR/IL | 60°



CWX500



HA

Solid carbide

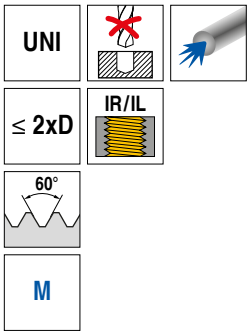
TP	DC	W1	CW	CDX	LH	OAL	DN	DCONMS $_{h6}$	ZEFP	DMIN	Article no. 53 053 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm		mm	
0,5 - 1,5	5,8	2	0,06	0,91	15,2	58	3,5	6	3	6	**010**
0,5 - 1,5	7,8	2	0,06	0,91	25,4	68	5,5	8	3	8	**110**
1,0 - 2,0	7,8	2	0,12	1,19	25,4	68	5,0	8	3	8	**120**

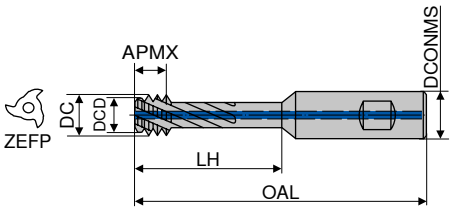
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Circular Thread Milling Cutter







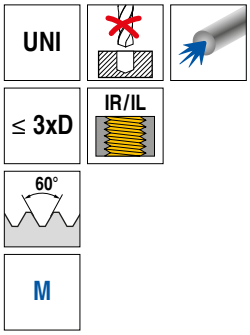
Solid carbide

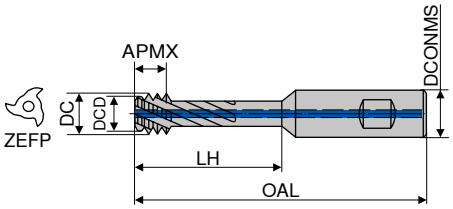
DC mm	Thread	TP mm	APMX mm	LH mm	DCONMS h6 mm	DCD mm	OAL mm	ZEFP	Article no. 50 815 ...
4,51	M6x1 - M7x1	1,00	4,1	16	8	3,41	60	3	060
6,23	M8x1,25 - M9x1,25	1,25	5,1	21	10	4,91	71	4	080
7,75	M10x1,5 - M11x1,5	1,50	6,0	26	10	6,11	76	4	100
9,16	M12x1,75	1,75	7,0	31	12	7,21	86	4	120

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

→ v_c/f_z Page 68

Circular Thread Milling Cutter







Solid carbide

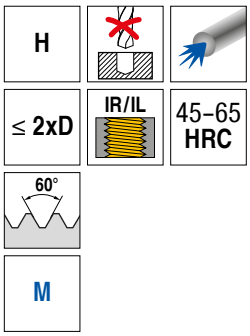
DC mm	Thread	TP mm	APMX mm	LH mm	DCONMS h6 mm	DCD mm	OAL mm	ZEFP	Article no. 50 821 ...
4,51	M6x1 - M7x1	1,00	4,1	23	8	3,41	65	3	060
6,23	M8x1,25 - M9x1,25	1,25	5,1	30	10	4,91	80	4	080
7,75	M10x1,5 - M11x1,5	1,50	6,0	37	10	6,11	85	4	100
9,16	M12x1,75	1,75	7,0	43	12	7,21	100	4	120
11,08	M14x2 - M16x2	2,00	8,1	57	16	8,91	113	4	140
14,38	M18x2,5 - M20x2,5	2,50	10,0	71	20	11,71	129	5	180

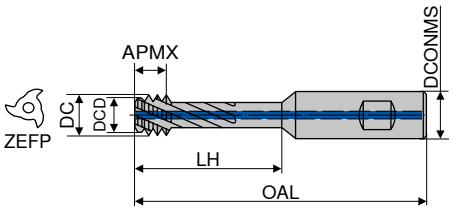
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
Hardened materials	

→ v_c/f_z Page 68

Circular Thread Milling Cutter

▲ note: left-hand cutting (M04)







Solid carbide

DC mm	Thread	TP mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	DCD mm	OAL mm	ZEFP	NEW Article no. 50 840 ...
2,3	M3x0,5	0,50	2,0	7,0	6	2,10	51	4	**030** 1)
3,0	M4x0,7	0,70	2,8	9,4	6	2,60	51	4	**040** 1)
3,8	M5x0,8	0,80	3,2	11,6	6	3,40	51	4	**050** 1)
4,6	M6x1 - M7x1	1,00	4,0	14,0	8	4,10	60	4	**060** 1)
6,2	M8x1,25 - M10x1,25	1,25	5,0	19,0	10	5,60	71	4	**080**
7,8	M10x1,5 - M12x1,5	1,50	6,0	25,0	10	7,00	76	4	**100**
9,2	M12x1,75	1,75	7,0	31,0	12	8,30	86	4	**120**
11,1	M14x2 - M16x2	2,00	8,0	36,0	16	10,04	98	4	**140**

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	○
Hardened materials	●

1) without through coolant

→ v_c/f_z Page 68

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Caution: left-hand cutting (M04) → spindle rotation left!

Thread Milling Cutter

▲ available on request: M1 / M1,1 / M1,2 / M1,4 / M1,6 / M1,7 / M1,8 / M2 / M2,2 / M2,3 / M2,5 / M2,6 / M3

HR

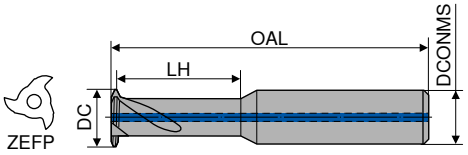


IR/IL

≤ 3xD

60°

M



OSM



HA

Solid carbide

OSM



HB

Solid carbide

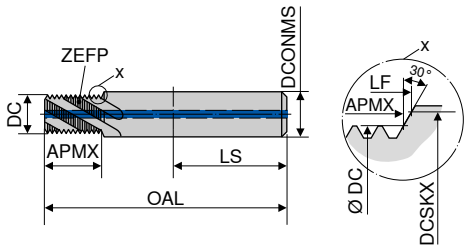
DC mm	Thread	TP mm	LH mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	Article no. 50 846 ...	Article no. 50 847 ...
3,15	M4	0,70	9	6	55	3	**040**	**040**
4,00	M5	0,80	11	6	55	3	**050**	**050**
4,80	M6 - M7	1,00	16	8	60	3	**060**	**060**
6,40	M8 - M9	1,25	22	10	71	4	**080**	**080**
8,00	M10 - M12	1,50	26	10	76	4	**100**	**100**
9,60	M12	1,75	27	12	86	4	**120**	**120**

Steel	●	●
Stainless steel	●	●
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys	●	●
Hardened materials	●	●

→ v_c/f_z Page 68

Thread Milling Cutter with Chamfer Facet

SFSE | IR/IL | ≤ 2xD | 60° | M | TiAlN





Solid carbide

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	Article no. 50 811 ...
4,0	M5	0,80	62	11	36	8	5,3	11,16	3	050
4,7	M6	1,00	62	13	36	8	6,3	13,93	3	060
6,5	M8	1,25	74	18	40	10	8,3	18,62	3	080
8,0	M10	1,50	74	22	40	10			3	100 1)
10,0	M12	1,75	90	26	45	14	12,3	26,47	4	120
12,5	M16	2,00	100	35	48	16			4	160 2)

1) without chamfer
2) chamfer section at the front of the tool

60° | MF

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	Article no. 50 816 ...
6,5	M8x1	1,00	74	18	40	10	8,3	18,00	3	082
8,0	M10x1	1,00	74	22	40	10			3	102 1)
8,0	M10x1,25	1,25	74	22	40	10			3	103 1)
10,0	M12x1,25	1,25	90	26	45	14	12,3	26,61	4	123
10,0	M12x1,5	1,50	90	26	45	14	12,3	27,30	4	124
11,0	M14x1	1,00	100	31	48	16	14,3	32,70	4	142
11,0	M14x1,5	1,50	100	31	48	16	14,3	32,08	4	144
12,5	M16x1,5	1,50	100	35	48	16			4	164 2)

1) without chamfer
2) chamfer section at the front of the tool

55° | G

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	Article no. 50 818 ...
7,6	G 1/8-28	0,907	80	20	45	12	10,0	20,97	3	018
11,0	G 1/4-19	1,337	100	27	48	16	13,5	28,39	4	014
13,0	G 3/8-19	1,337	100	34	48	16			4	038 1)
16,0	G1/2-14	1,814	110	44	50	20			5	012 1)

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	

1) chamfer section at the front of the tool

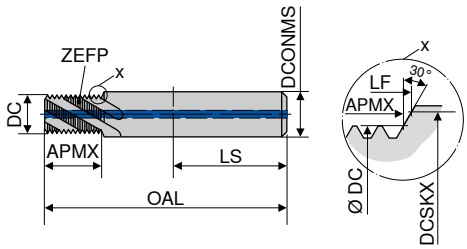
→ v_c/f_z Page 69

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

7

Thread Milling Cutter with Chamfer Facet

SFSE | IR/IL | ≤ 2xD | 60° | UNC | TiAlN





Solid carbide

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	Article no. 50 823 ...
4,7	UNC 1/4-20	1,270	62	14	36	8	6,65	15,14	3	014
6,1	UNC 5/16-18	1,411	74	17	40	10	8,25	18,23	3	516
7,6	UNC 3/8-16	1,588	80	21	45	12	9,83	22,05	3	038
8,8	UNC 7/16-14	1,814	90	24	45	14	11,43	25,21	3	716
10,1	UNC 1/2-13	1,954	90	26	45	14	13,00	27,67	4	012
11,4	UNC 9/16-12	2,117	100	31	48	16	14,61	32,15	4	916
12,7	UNC 5/8-11	2,309	100	34	48	16			4	058 1)
15,2	UNC 3/4-10	2,540	110	42	50	20	19,35	43,74	5	034

1) chamfer section at the front of the tool

60° | UNF

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	Article no. 50 824 ...
4,7	UNF 1/4-28	0,907	62	14	36	8	6,65	15,59	3	014
6,1	UNF 5/16-24	1,058	74	17	40	10	8,25	18,05	3	516
7,6	UNF 3/8-24	1,058	80	21	45	12	9,83	22,30	3	038
8,8	UNF 7/16-20	1,270	90	24	45	14	11,43	25,49	3	716
10,1	UNF 1/2-20	1,270	90	26	45	14	13,00	28,46	4	012
11,4	UNF 9/16-18	1,411	100	31	48	16	14,61	33,03	4	916
12,7	UNF 5/8-18	1,411	100	34	48	16			4	058 1)
15,2	UNF 3/4-16	1,588	110	42	50	20	19,35	43,69	5	034

1) chamfer section at the front of the tool

60° | NPT

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	ZEFP	Article no. 50 819 ...
5,8	NPT 1/16-27	0,941	62	10	36	8	3	116 1)
7,6	NPT 1/8-27	0,941	74	10	40	10	3	018 1)
10,1	NPT 1/4-18	1,411	90	15	45	14	3	014 1)
16,0	NPT 1/2-14	1,814	110	19	50	20	5	012 1)

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	

1) without chamfer

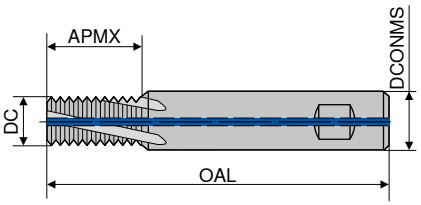
→ v_c/f_z Page 69

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Thread Milling Cutter with Chamfer Facet

- ▲ profile-corrected
- ▲ hard machining to Ø DC = 4 mm possible
- ▲ chamfer section at end of shank

SFSE | IR/IL | ≤ 2xD | 60° | M



Ti500



HB

Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	Article no. 54 801 ...
4,00	M5	0,80	11	8	62	3	050 [1]
4,80	M6	1,00	13	8	62	3	060 [1]
6,50	M8	1,25	18	10	74	3	080
7,95	M10	1,50	22	12	80	3	100
9,90	M12	1,75	26	14	90	4	120
11,60	M14	2,00	31	16	100	4	140
11,95	M16	2,00	35	12	90	4	160 [2]
13,95	M18	2,50	39	20	110	4	180
15,95	M20	2,50	44	16	100	4	200 [2]

1) without through coolant
2) chamfer section at the front of the tool

60° | MF

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	Article no. 54 803 ...
6,0	M8x1	1,00	18	10	74	3	080
8,0	M10x1	1,00	22	12	80	3	100
8,0	M10x1,25	1,25	22	12	80	3	101
9,9	M12x1	1,00	26	14	90	4	120
9,9	M12x1,25	1,25	26	14	90	4	121
9,9	M12x1,5	1,50	26	14	90	4	122
11,6	M14x1	1,00	31	16	100	4	140
11,6	M14x1,5	1,50	31	16	100	4	141
12,0	M16x1,5	1,50	35	12	90	4	160 [1]
14,0	M18x1,5	1,50	39	20	110	4	180
16,0	M20x1,5	1,50	44	16	100	4	200 [1]

1) chamfer section at the front of the tool

55° | G

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	Article no. 54 805 ...
6,00	G 1/16-28	0,907	16	10	74	3	116
7,95	G 1/8-28	0,907	20	12	80	3	018
9,90	G 1/4-19	1,337	27	16	100	4	014
13,95	G 3/8-19	1,337	34	14	90	4	038 [1]
15,95	G 1/2-14	1,814	43	16	100	4	012 [1]
17,95	G 5/8-14	1,814	47	18	110	4	058 [1]

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	●

1) chamfer section at the front of the tool

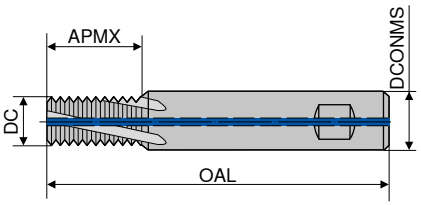
→ v_c/f_z Page 71

7

Thread Milling Cutter with Chamfer Facet

- ▲ profile-corrected
- ▲ hard machining to Ø DC = 4 mm possible
- ▲ chamfer section at end of shank

SFSE | IR/IL | ≤ 2xD | 60° | UNC | Ti500





HB

Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	Article no. 54 811 ...	
4,80	UNC 1/4-20	1,270	14	8	62	3	014	1)
5,95	UNC 5/16-18	1,411	18	10	74	3	516	
7,95	UNC 3/8-16	1,588	22	12	80	3	038	
7,95	UNC 7/16-14	1,814	22	14	90	3	716	
9,90	UNC 1/2-13	1,954	27	14	90	4	012	
11,80	UNC 9/16-12	2,117	31	16	100	4	916	
12,70	UNC 5/8-11	2,309	34	14	90	4	058	2)
15,20	UNC 3/4-10	2,540	38	20	110	5	034	

1) without through coolant
2) chamfer section at the front of the tool

60° | UNF

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	Article no. 54 813 ...	
4,80	UNF 1/4-28	0,907	14	8	62	3	014	1)
5,95	UNF 5/16-24	1,058	18	10	74	3	516	
7,60	UNF 3/8-24	1,058	21	12	80	3	038	
7,95	UNF 7/16-20	1,270	22	14	90	3	716	
9,90	UNF 1/2-20	1,270	26	14	90	4	012	
12,00	UNF 9/16-18	1,411	30	16	100	4	916	
13,50	UNF 5/8-18	1,411	33	14	90	4	058	2)
17,00	UNF 3/4-16	1,588	38	20	110	5	034	

1) without through coolant
2) chamfer section at the front of the tool

60° | NPT

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	Article no. 54 809 ...	
10,1	NPT 1/4-18	1,411	15	14	90	3	014	1)
12,8	NPT 3/8-18	1,411	15	16	100	4	038	1)
16,0	NPT 1/2-14	1,814	19	20	110	5	012	1)
18,5	NPT 3/4-14	1,814	19	20	110	5	034	1)

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	●

1) chamfer section at the front of the tool

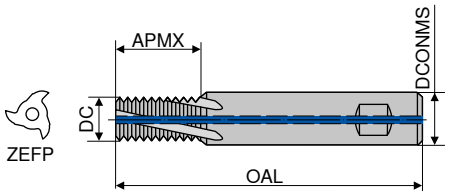
→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Thread Milling Cutter

▲ available on request: M30, M36, M42, M48, M56, M64

SGF | IR/IL | ≤ 2xD | 60° | M



TiAlN



Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	Article no. 50 825 ...
2,40	M3	0,50	6	4	42	3	030 [1]
3,15	M4	0,70	8	6	55	3	040
4,00	M5	0,80	10	6	55	3	050
4,80	M6	1,00	12	6	55	3	060
6,00	M8	1,25	16	6	63	3	080
8,00	M10	1,50	20	8	70	3	100
9,90	M12	1,75	24	10	80	4	120
11,60	M14	2,00	28	12	90	4	140
12,00	M16	2,00	32	12	90	4	160
14,00	M18	2,50	36	14	90	4	180
14,00	M22	2,50	44	14	95	4	220
14,00	M20	2,50	40	14	90	4	200

1) without through coolant

60° | MF

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	Article no. 50 826 ...
3,35	M4x0,5	0,50	8	6	55	3	040
4,20	M5x0,5	0,50	10	6	55	3	050
5,00	M6x0,75	0,75	12	6	55	3	061
6,00	M8x0,75	0,75	16	6	63	3	081
6,00	M8x1	1,00	16	6	63	3	082
8,00	M10x1	1,00	20	8	70	3	102
10,00	M12x1	1,00	24	10	80	4	122
10,00	M12x1,5	1,50	24	10	80	4	124
10,00	M14x1,5	1,50	28	10	80	4	144
12,00	M16x1,5	1,50	32	12	90	4	164
14,00	M18x1,5	1,50	36	14	90	4	184
14,00	M20x1,5	1,50	40	14	90	4	204
14,00	M22x1,5	1,50	44	14	95	4	224
16,00	M24x1,5	1,50	36	16	90	5	244

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	

→ v_c/f_z Page 69

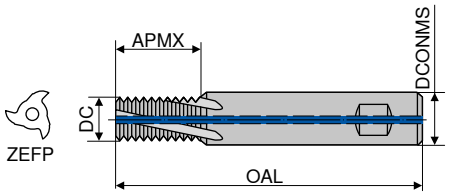
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

7

Thread Milling Cutter

▲ available on request: M30, M36, M42, M48, M56, M64

SGF | IR/IL | ≤ 2xD | 55° | G



TiAlN



HA

Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	Article no. 50 827 ...
8	G 1/8-28	0,907	19,5	8	70	3	**018**
11	G 1/4-19	1,337	26,5	12	90	4	**014**
12	G 3/8-19	1,337	33,0	12	90	4	**038**
14	G 1/2-14	1,814	42,0	14	95	4	**012**
16	G 3/4-14	1,814	34,0	16	90	5	**034**
16	G 1-11	2,309	33,0	16	90	5	**100**
16	G 5/8-14	1,814	34,0	16	90	5	**058**

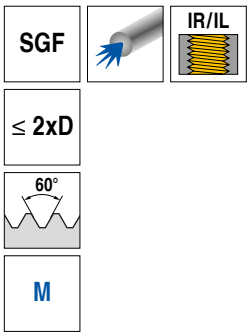
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	

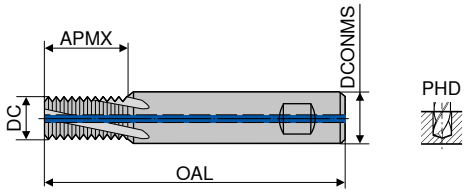
→ v_c/f_z Page 69

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Thread Milling Cutter

▲ profile corrected
▲ hard machining to Ø DC = 4 mm possible



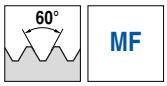




Solid carbide

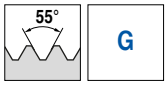
DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	Article no. 54 800 ...
2,40	M3	0,50	6,5	4	42	2	2,50	030 1)
3,15	M4	0,70	9,0	6	55	3	3,30	040 2)
4,00	M5	0,80	11,0	6	55	3	4,20	050 2)
4,80	M6	1,00	13,0	6	55	3	5,00	060 2)
6,00	M8	1,25	18,0	6	60	3	6,75	080
8,00	M10	1,50	21,0	8	70	3	8,50	100
9,90	M12	1,75	26,0	10	75	4	10,25	120
11,60	M14	2,00	30,0	12	85	4	12,00	140
12,00	M16	2,00	34,0	12	85	4	14,00	160
14,00	M18	2,50	40,0	14	90	4	15,50	180
16,00	M20	2,50	42,0	16	90	4	17,50	200

1) DIN 6535 HA shank / without through coolant
2) without through coolant



DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	Article no. 54 802 ...
4,0	M5	0,50	11	6	55	3	4,50	050 1)
4,8	M6	0,75	13	6	55	3	5,25	060 1)
6,0	M8	1,00	18	6	60	3	7,00	080
8,0	M10	1,25	21	8	70	3	8,75	100
9,9	M12	1,00	26	10	75	4	11,00	120
9,9	M12	1,25	26	10	75	4	10,75	121
9,9	M12	1,50	26	10	75	4	10,50	122
11,6	M14	1,00	30	12	85	4	13,00	140
11,6	M14	1,50	30	12	85	4	12,50	141
12,0	M16	1,50	34	12	85	4	14,50	160
14,0	M18	1,50	40	14	90	4	16,50	180
16,0	M20	1,50	42	16	90	4	18,50	200

1) DIN 6535 HA shank / without through coolant



DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	Article no. 54 804 ...
8,0	G 1/8-28	0,907	21	8	70	3	8,80	018
9,9	G 1/4-19	1,337	26	10	75	4	11,80	014
14,0	G 3/8-19	1,337	40	14	90	4	15,25	038
16,0	G 1/2-14	1,814	42	16	90	4	19,00	012

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

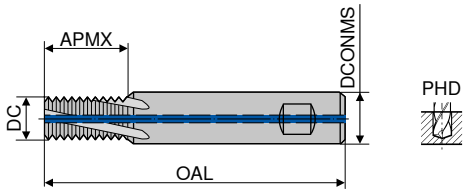
→ v_c/f_z Page 71

7

Thread Milling Cutter

▲ profile corrected

SGF | IR/IL | ≤ 2xD | 55° | BSW



Ti500



HB

Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	Article no. 54 806 ...
6,0	BSW 5/16 - 18	1,411	18	6	60	3	6,50	516
6,0	BSW 3/8 - 16	1,588	18	6	60	3	7,90	038
8,0	BSW 7/16 - 14	1,814	21	8	70	3	9,25	716
8,0	BSW 1/2 - 12	2,117	21	8	70	3	10,50	012
9,9	BSW 5/8 - 11	2,309	26	10	75	4	13,50	058

55° | BSF

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	Article no. 54 808 ...
6,0	BSF 5/16 - 22	1,155	18	6	60	3	6,8	516
6,0	BSF 3/8 - 20	1,270	18	6	60	3	8,3	038
8,0	BSF 7/16 - 18	1,411	21	8	70	3	9,7	716
8,0	BSF 1/2 - 16	1,588	21	8	70	3	11,1	012
9,9	BSF 5/8 - 14	1,814	26	10	75	4	14,0	058

60° | UNC

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	Article no. 54 810 ...
4,80	UNC 1/4-20	1,270	13	6	55	3	5,1	014 [1]
6,00	UNC 5/16-18	1,411	18	6	60	3	6,6	516
7,95	UNC 3/8-16	1,588	21	8	70	3	8,0	038
7,95	UNC 7/16-14	1,814	21	8	70	3	9,4	716
9,90	UNC 1/2-13	1,954	26	10	75	4	10,8	012

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

1) DIN 6535 HA shank / without through coolant

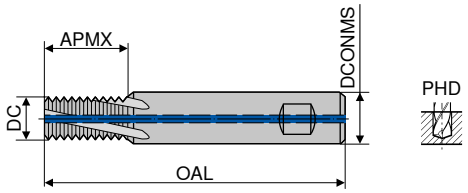
→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Thread Milling Cutter

▲ profile corrected

SGF | IR/IL | ≤ 2xD | 60° | UNF



Ti500



HB

Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	Article no. 54 812 ...
4,8	UNF 1/4-28	0,907	13	6	55	3	5,5	**014** [1]
6,0	UNF 5/16-24	1,058	18	6	60	3	6,9	**516**
8,0	UNF 3/8-24	1,058	21	8	70	3	8,5	**038**
8,0	UNF 7/16-20	1,270	21	8	70	3	9,9	**716**
9,9	UNF 1/2-20	1,270	26	10	75	4	11,5	**012**

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

1) without through coolant

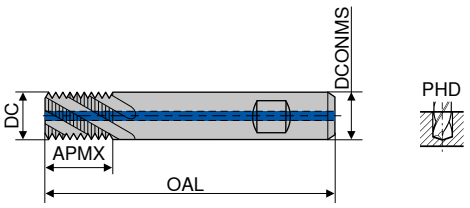
→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

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Thread Milling Cutter

SGF | IR/IL | ≤ 2xD | 60° | M



Ti500



HB

Solid carbide

DC	TP	APMX	DCONMS $_{h6}$	OAL	ZEFP	PHD	Article no. 54 832 ...
mm	mm	mm	mm	mm		mm	
8	0,50	12	8	70	3	10	**008**
8	0,75	12	8	70	3	11	**080**
10	1,00	16	10	75	4	14	**100**
10	1,50	16	10	75	4	14	**101**
12	1,00	20	12	85	4	16	**120**
12	1,50	20	12	85	4	16	**121**
12	2,00	20	12	85	4	18	**122**
16	1,00	25	16	90	5	22	**160**
16	1,50	25	16	90	5	22	**161**
16	2,00	25	16	90	5	22	**162**
16	3,00	25	16	90	5	24	**164**

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	●

→ v_c/f_z Page 70

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 72+73.**

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

7

Cutting data appoximate values

	UNI VHM OSM 2xD 50 815 ...			UNI VHM OSM 3xD 50 821 ...			H VHM 2xD 50 840 ...				HR VHM 50 846 ..., 50 847 ...		
Index	v_c m/min	Ø 6–10 f_z	Ø 12–20 f_z	v_c m/min	Ø 6–10 f_z	Ø 12–20 f_z	v_c m/min	Ø 3–5 f_z	Ø 6–10 f_z	Ø 12–16 f_z	v_c m/min	< 10 f_z	> 10 f_z
1.1	**200–250**	0,04–0,06	0,07–0,10	**150–200**	0,04–0,06	0,07–0,10							
1.2	**200–250**	0,04–0,06	0,07–0,10	**150–200**	0,04–0,06	0,07–0,10							
1.3	**200–250**	0,04–0,06	0,07–0,10	**150–200**	0,04–0,06	0,07–0,10							
1.4	**100–200**	0,02–0,04	0,04–0,07	**100–130**	0,02–0,04	0,04–0,07					**120–220**	0,02–0,04	0,04–0,07
1.5	**100–200**	0,02–0,04	0,04–0,07	**100–130**	0,02–0,04	0,04–0,07					**120–220**	0,02–0,04	0,04–0,07
1.6	**100–200**	0,02–0,04	0,04–0,07	**100–130**	0,02–0,04	0,04–0,07					**120–220**	0,02–0,04	0,04–0,07
1.7	**100–200**	0,02–0,04	0,04–0,07	**100–130**	0,02–0,04	0,04–0,07					**120–220**	0,02–0,04	0,04–0,07
1.8	**100–200**	0,02–0,04	0,04–0,07								**120–220**	0,02–0,04	0,04–0,07
1.9	**200–250**	0,04–0,06	0,07–0,10	**150–200**	0,04–0,06	0,07–0,10							
1.10	**100–200**	0,02–0,04	0,04–0,07	**100–130**	0,02–0,04	0,04–0,07					**120–220**	0,02–0,04	0,04–0,07
1.11	**100–200**	0,02–0,04	0,04–0,07								**120–220**	0,02–0,04	0,04–0,07
1.12	**100–200**	0,02–0,04	0,04–0,07								**120–220**	0,02–0,04	0,04–0,07
1.13	**100–200**	0,02–0,04	0,04–0,07								**120–220**	0,02–0,04	0,04–0,07
1.14	**100–200**	0,02–0,04	0,04–0,07								**120–220**	0,02–0,04	0,04–0,07
1.15	**100–200**	0,02–0,04	0,04–0,07								**120–220**	0,02–0,04	0,04–0,07
1.16	**100–200**	0,02–0,04	0,04–0,07								**120–220**	0,02–0,04	0,04–0,07
2.1	**100–200**	0,02–0,03	0,04–0,05	**80–160**	0,02–0,03	0,04–0,05					**60–120**	0,015–0,03	0,03–0,06
2.2	**100–200**	0,02–0,03	0,04–0,05	**80–160**	0,02–0,03	0,04–0,05					**60–120**	0,015–0,03	0,03–0,06
2.3	**100–200**	0,02–0,03	0,04–0,05								**60–120**	0,015–0,03	0,03–0,06
2.4	**100–200**	0,02–0,03	0,04–0,05								**60–120**	0,015–0,03	0,03–0,06
2.5	**100–200**	0,02–0,03	0,04–0,05	**80–160**	0,02–0,03	0,04–0,05					**60–120**	0,015–0,03	0,03–0,06
2.6	**100–200**	0,02–0,03	0,04–0,05	**80–160**	0,02–0,03	0,04–0,05					**60–120**	0,015–0,03	0,03–0,06
2.7	**100–200**	0,02–0,03	0,04–0,05								**60–120**	0,015–0,03	0,03–0,06
3.1	**200–300**	0,05–0,07	0,07–0,12	**160–240**	0,05–0,07	0,07–0,12							
3.2	**200–300**	0,05–0,07	0,07–0,12	**160–240**	0,05–0,07	0,07–0,12							
3.3	**200–300**	0,05–0,07	0,07–0,12	**160–240**	0,05–0,07	0,07–0,12							
3.4	**200–300**	0,05–0,07	0,07–0,12	**160–240**	0,05–0,07	0,07–0,12							
3.5	**150–220**	0,03–0,05	0,06–0,08	**120–160**	0,03–0,05	0,06–0,08							
3.6	**150–220**	0,03–0,05	0,06–0,08	**120–160**	0,03–0,05	0,06–0,08							
3.7	**150–220**	0,03–0,05	0,06–0,08	**120–160**	0,03–0,05	0,06–0,08							
3.8	**150–220**	0,03–0,05	0,06–0,08	**120–160**	0,03–0,05	0,06–0,08							
4.1													
4.2													
4.3													
4.4													
4.5	**220–250**	0,05–0,07	0,06–0,08	**180–200**	0,05–0,07	0,06–0,08							
4.6													
4.7													
4.8													
4.9											**60–80**	0,02–0,04	0,03–0,05
4.10											**60–80**	0,02–0,04	0,03–0,05
4.11	**250–300**	0,05–0,07	0,06–0,08	**200–240**	0,05–0,07	0,06–0,08							
4.12													
4.13													
4.14													
4.15	**250–300**	0,05–0,07	0,06–0,08	**180–200**	0,05–0,07	0,06–0,08					**400–500**	0,05–0,08	0,07–0,10
4.16	**250–300**	0,05–0,07	0,06–0,08	**180–200**	0,05–0,07	0,06–0,08							
4.17													
4.18	**50–80**	0,015–0,025	0,020–0,035								**40–60**	0,015–0,025	0,020–0,035
4.19	**100–200**	0,02–0,04	0,04–0,07								**120–220**	0,02–0,04	0,04–0,07
5.1	**200–250**	0,04–0,06	0,07–0,10	150–200	0,04–0,06	0,07–0,10							
5.2											**60–80**	0,02–0,03	0,03–0,04
5.3											**60–80**	0,02–0,03	0,03–0,04
5.4							40–80	0,005–0,015	0,015–0,03	0,02–0,05	**30–60**	0,01–0,02	0,02–0,03
5.5							40–80	0,005–0,015	0,015–0,03	0,02–0,05	**30–60**	0,01–0,02	0,02–0,03
5.6							60–100	0,005–0,015	0,02–0,04	0,03–0,06	**30–60**	0,01–0,02	0,02–0,03
5.7	**70–100**	0,02–0,03	0,04–0,05				80–120	0,005–0,015	0,02–0,04	0,03–0,06	**40–60**	0,01–0,02	0,02–0,03
5.8							40–80	0,005–0,015	0,015–0,03	0,02–0,05	**30–60**	0,01–0,02	0,02–0,03
5.9											**60–80**	0,02–0,03	0,03–0,04
5.10											**60–80**	0,02–0,03	0,03–0,04
5.11							40–80	0,005–0,015	0,015–0,03	0,02–0,05	**60–80**	0,02–0,03	0,03–0,04
6.1	**80–120**	0,02–0,04	0,04–0,06				**80–120**	0,005–0,015	0,03–0,06	0,03–0,06	**60–100**	0,02–0,04	0,03–0,06
6.2	**80–120**	0,02–0,04	0,04–0,06				**60–100**	0,005–0,015	0,02–0,04	0,02–0,04	**60–100**	0,02–0,04	0,03–0,06
6.3	**50–80**	0,015–0,025	0,020–0,035				**30–60**	0,005–0,01	0,01–0,03	0,01–0,03	**40–60**	0,015–0,025	0,020–0,035
6.4	**50–80**	0,015–0,025	0,020–0,035				**30–60**	0,005–0,01	0,005–0,015	0,005–0,02	**40–60**	0,015–0,025	0,020–0,035
6.5													

Cutting data appoximate values

	SFSE VHM TiAlN 50 811 ..., 50 816 ..., 50 818 ..., 50 819 ..., 50 823 ..., 50 824 ...			SGF VHM TiAlN 50 825 ..., 50 826 ..., 50 827 ...			MWN uncoated 50 890 ..., 50 891 ..., 50 892 ..., 50 895 ..., 50 896 ..., 50 897 ...		MWN TiAlN 50 890 ..., 50 891 ..., 50 895 ...		EAW / EWM 50 860 ..., 50 861 ..., 50 867 ..., 50 868 ..., 50 870 ..., 50 871 ...		
Index	v_c m/min	Ø 6–10 f_z	Ø 12–20 f_z	v_c m/min	Ø 6–10 f_z	Ø 12–20 f_z	v_c m/min	f_z	v_c m/min	f_z	v_c m/min	EAW f_z	EWM f_z
1.1	**100–200**	0,04–0,08	0,06–0,12	**80–150**	0,03–0,07	0,06–0,10	**50–100**	0,10–0,20	**100–200**	0,10–0,20	**250–500**	0,10–0,20	0,10–0,20
1.2	**100–200**	0,04–0,08	0,06–0,12	**80–150**	0,03–0,07	0,06–0,10	**50–100**	0,10–0,20	**100–200**	0,10–0,20	**250–500**	0,10–0,20	0,10–0,20
1.3	**100–200**	0,04–0,08	0,06–0,12	**80–150**	0,03–0,07	0,06–0,10	**50–100**	0,10–0,20	**100–200**	0,10–0,20	**250–500**	0,10–0,20	0,10–0,20
1.4	**40–80**	0,01–0,03	0,03–0,05	**40–60**	0,01–0,03	0,02–0,04	**40–70**	0,05–0,10	**80–140**	0,05–0,10	**150–250**	0,06–0,12	0,06–0,12
1.5	**40–80**	0,01–0,03	0,03–0,05	**40–60**	0,01–0,03	0,02–0,04	**40–70**	0,05–0,10	**80–140**	0,05–0,10	**150–250**	0,06–0,12	0,06–0,12
1.6	**40–80**	0,01–0,03	0,03–0,05	**40–60**	0,01–0,03	0,02–0,04	**40–70**	0,05–0,10	**80–140**	0,05–0,10	**150–250**	0,06–0,12	0,06–0,12
1.7	**40–80**	0,01–0,03	0,03–0,05	**40–60**	0,01–0,03	0,02–0,04	**40–70**	0,05–0,10	**80–140**	0,05–0,10	**150–250**	0,06–0,12	0,06–0,12
1.8	**40–80**	0,01–0,03	0,03–0,05										
1.9	**100–200**	0,04–0,08	0,06–0,12	**80–150**	0,03–0,07	0,06–0,10	**50–100**	0,10–0,20	**100–200**	0,10–0,20	**250–500**	0,10–0,20	0,10–0,20
1.10	**40–80**	0,01–0,03	0,03–0,05	**40–60**	0,01–0,03	0,02–0,04	**40–70**	0,05–0,10	**80–140**	0,05–0,10	**150–250**	0,06–0,12	0,06–0,12
1.11	**40–80**	0,01–0,03	0,03–0,05								**150–250**	0,06–0,12	0,06–0,12
1.12	**40–80**	0,01–0,03	0,03–0,05								**150–250**	0,06–0,12	0,06–0,12
1.13	**40–80**	0,01–0,03	0,03–0,05								**150–250**	0,06–0,12	0,06–0,12
1.14	**40–80**	0,01–0,03	0,03–0,05								**150–250**	0,06–0,12	0,06–0,12
1.15	**40–80**	0,01–0,03	0,03–0,05								**150–250**	0,06–0,12	0,06–0,12
1.16	**40–80**	0,01–0,03	0,03–0,05								**150–250**	0,06–0,12	0,06–0,12
2.1	**60–100**	0,02–0,06	0,05–0,08	**60–100**	0,02–0,06	0,05–0,08			**100–200**	0,02–0,05	**60–120**	0,03–0,09	0,03–0,09
2.2	**60–100**	0,02–0,06	0,05–0,08	**60–100**	0,02–0,06	0,05–0,08			**100–200**	0,02–0,05	**60–120**	0,03–0,09	0,03–0,09
2.3	**60–100**	0,02–0,06	0,05–0,08	**60–100**	0,02–0,06	0,05–0,08			**100–200**	0,02–0,05	**60–120**	0,03–0,09	0,03–0,09
2.4	**60–100**	0,02–0,06	0,05–0,08	**60–100**	0,02–0,06	0,05–0,08			**100–200**	0,02–0,05	**60–120**	0,03–0,09	0,03–0,09
2.5	**60–100**	0,02–0,06	0,05–0,08	**60–100**	0,02–0,06	0,05–0,08			**100–200**	0,02–0,05	**60–120**	0,03–0,09	0,03–0,09
2.6	**60–100**	0,02–0,06	0,05–0,08	**60–100**	0,02–0,06	0,05–0,08			**100–200**	0,02–0,05	**60–120**	0,03–0,09	0,03–0,09
2.7	**60–100**	0,02–0,06	0,05–0,08	**60–100**	0,02–0,06	0,05–0,08			**100–200**	0,02–0,05	**60–120**	0,03–0,09	0,03–0,09
3.1	**100–200**	0,04–0,08	0,08–0,14	**100–200**	0,04–0,08	0,08–0,14	**70–120**	0,10–0,15	**100–180**	0,10–0,15	**200–350**	0,10–0,20	0,10–0,20
3.2	**100–200**	0,04–0,08	0,08–0,14	**100–200**	0,04–0,08	0,08–0,14	**70–120**	0,10–0,15	**100–180**	0,10–0,15	**200–350**	0,10–0,20	0,10–0,20
3.3	**100–200**	0,04–0,08	0,08–0,14	**100–200**	0,04–0,08	0,08–0,14	**70–120**	0,10–0,15	**100–180**	0,10–0,15	**200–350**	0,10–0,20	0,10–0,20
3.4	**100–200**	0,04–0,08	0,08–0,14	**100–200**	0,04–0,08	0,08–0,14	**70–120**	0,10–0,15	**100–180**	0,10–0,15	**200–350**	0,10–0,20	0,10–0,20
3.5	**80–150**	0,03–0,06	0,05–0,08	**80–150**	0,03–0,06	0,05–0,08	**50–100**	0,08–0,12	**80–150**	0,08–0,12	**150–250**	0,04–0,12	0,04–0,12
3.6	**80–150**	0,03–0,06	0,05–0,08	**80–150**	0,03–0,06	0,05–0,08	**50–100**	0,08–0,12	**80–150**	0,08–0,12	**150–250**	0,04–0,12	0,04–0,12
3.7	**80–150**	0,03–0,06	0,05–0,08	**80–150**	0,03–0,06	0,05–0,08	**50–100**	0,08–0,12	**80–150**	0,08–0,12	**150–250**	0,04–0,12	0,04–0,12
3.8	**80–150**	0,03–0,06	0,05–0,08	**80–150**	0,03–0,06	0,05–0,08	**50–100**	0,08–0,12	**80–150**	0,08–0,12	**150–250**	0,04–0,12	0,04–0,12
4.1	**275–300**	0,06–0,09	0,08–0,10	**275–300**	0,06–0,09	0,08–0,10	**100–200**	0,10–0,20	**200–250**	0,10–0,20	**400–500**	0,08–0,15	0,08–0,15
4.2	**275–300**	0,06–0,09	0,08–0,10	**275–300**	0,06–0,09	0,08–0,10	**100–200**	0,10–0,20	**200–250**	0,10–0,20	**400–500**	0,08–0,15	0,08–0,15
4.3	**225–275**	0,05–0,07	0,06–0,08	**225–275**	0,05–0,07	0,06–0,08	**100–200**	0,10–0,20	**200–250**	0,10–0,20	**400–500**	0,08–0,15	0,08–0,15
4.4	**200–225**	0,04–0,06	0,05–0,07	**200–225**	0,04–0,06	0,05–0,07	**100–200**	0,10–0,20	**200–250**	0,10–0,20	**300–400**	0,06–0,10	0,06–0,10
4.5	**180–200**	0,03–0,05	0,04–0,06	**180–200**	0,03–0,05	0,04–0,06			**150–200**	0,08–0,10	**300–400**	0,06–0,10	0,06–0,10
4.6	**275–300**	0,06–0,09	0,08–0,10	**275–300**	0,06–0,09	0,08–0,10	**100–200**	0,12–0,15	**200–250**	0,12–0,15	**400–500**	0,08–0,15	0,08–0,15
4.7	**275–300**	0,06–0,09	0,08–0,10	**275–300**	0,06–0,09	0,08–0,10	**100–200**	0,12–0,15	**200–250**	0,12–0,15	**400–500**	0,08–0,15	0,08–0,15
4.8	**275–300**	0,06–0,09	0,08–0,10	**275–300**	0,06–0,09	0,08–0,10			**200–250**	0,03–0,06	**400–500**	0,08–0,15	0,08–0,15
4.9	**60–80**	0,02–0,03	0,03–0,04	**50–70**	0,02–0,03	0,03–0,04			**40–80**	0,12–0,15	**150–200**	0,08–0,12	0,08–0,12
4.10	**60–80**	0,02–0,03	0,03–0,04	**50–70**	0,02–0,03	0,03–0,04			**40–80**	0,12–0,15	**150–200**	0,08–0,12	0,08–0,12
4.11	**200–225**	0,04–0,06	0,05–0,07	**200–225**	0,04–0,06	0,05–0,07	**70–120**	0,04–0,08	**100–150**	0,04–0,08	**400–500**	0,08–0,15	0,08–0,15
4.12	**275–300**	0,06–0,09	0,08–0,10	**275–300**	0,06–0,09	0,08–0,10	**90–180**	0,08–0,10	**150–200**	0,08–0,10	**400–500**	0,08–0,15	0,08–0,15
4.13	**350–450**	0,10–0,13	0,12–0,15	**350–450**	0,10–0,13	0,12–0,15	**180–250**	0,15–0,20	**250–300**	0,15–0,20	**600–800**	0,15–0,25	0,15–0,25
4.14	**300–400**	0,10–0,13	0,12–0,15	**300–400**	0,10–0,13	0,12–0,15	**100–200**	0,12–0,15	**200–250**	0,12–0,15	**600–800**	0,15–0,25	0,15–0,25
4.15	**180–200**	0,04–0,06	0,05–0,07	**180–200**	0,04–0,06	0,05–0,07			**100–150**	0,04–0,08	**150–200**	0,08–0,12	0,08–0,12
4.16	**200–225**	0,04–0,06	0,05–0,07	**200–225**	0,04–0,06	0,05–0,07			**100–130**	0,04–0,08	**400–500**	0,08–0,15	0,08–0,15
4.17	**100–200**	0,04–0,08	0,08–0,14	**100–200**	0,04–0,08	0,08–0,14							
4.18													
4.19	**40–80**	0,01–0,03	0,03–0,05								**150–250**	0,08–0,12	0,08–0,12
5.1	**100–200**	0,04–0,08	0,06–0,12	**80–150**	0,03–0,07	0,06–0,10					**250–500**	0,10–0,20	0,10–0,20
5.2	**50–80**	0,02–0,04	0,03–0,05	**50–80**	0,02–0,04	0,03–0,05					**50–100**	0,02–0,08	0,02–0,08
5.3	**50–80**	0,02–0,04	0,03–0,05								**50–100**	0,02–0,08	0,02–0,08
5.4													
5.5													
5.6													
5.7													
5.8													
5.9	**50–80**	0,02–0,04	0,03–0,05	**50–80**	0,02–0,04	0,03–0,05					**50–100**	0,02–0,08	0,02–0,08
5.10	**50–80**	0,02–0,04	0,03–0,05	**50–80**	0,02–0,04	0,03–0,05					**50–100**	0,02–0,08	0,02–0,08
5.11	**50–80**	0,02–0,04	0,03–0,05	**50–80**	0,02–0,04	0,03–0,05					**50–100**	0,02–0,08	0,02–0,08
6.1													
6.2													
6.3													
6.4													
6.5													

Cutting data appoximate values

	SGF VHM Ti500			GZG / GZD				Polygon		System 300		
	54 832 ...			50 863 ..., 50 864 ..., 50 887 ..., 50 885 ..., 50 888 ..., 50 889 ..., 50 894 ...				50 872 ..., 50 874 ..., 50 875 ..., 50 876 ..., 50 879 ..., 50 880 ..., 50 881 ..., 50 882 ..., 50 883 ..., 50 884 ..., 50 886 ...		50 851 ..., 50 852 ..., 50 853 ..., 50 855 ..., 50 857 ..., 50 858 ..., 50 859 ...		
	Ti500	size		uncoated	Ti500	size		Ti500		uncoated	Ti500	
Index	v_c m/min	8 mm f_z	10–16 mm f_z	v_c m/min	v_c m/min	12–17 mm f_z	20–26 mm f_z	v_c m/min	f_z	v_c m/min	v_c m/min	f_z
1.1	80–250	0,04–0,07	0,05–0,15		180–260	0,1–0,3	0,05–0,3	150–200	0,05–0,25		120–180	0,05–0,12
1.2	80–250	0,04–0,07	0,05–0,15		180–260	0,1–0,3	0,05–0,3	150–200	0,05–0,25		120–180	0,05–0,12
1.3	80–250	0,04–0,07	0,05–0,15		180–260	0,1–0,3	0,05–0,3	100–150	0,05–0,25		120–180	0,05–0,12
1.4	60–120	0,04–0,07	0,05–0,10		180–220	0,1–0,3	0,05–0,3	100–150	0,05–0,25		100–120	0,05–0,12
1.5	60–100	0,04–0,07	0,05–0,10		180–260	0,1–0,3	0,05–0,3	150–200	0,05–0,25		120–180	0,05–0,12
1.6	60–120	0,04–0,07	0,05–0,10		180–220	0,1–0,3	0,05–0,3	100–150	0,05–0,25		100–120	0,05–0,12
1.7	80–200	0,04–0,07	0,05–0,10		180–260	0,1–0,3	0,05–0,3	100	0,05–0,25		120–180	0,05–0,12
1.8	40–100	0,03–0,05	0,04–0,06		100–150	0,1–0,2	0,05–0,2	100	0,05–0,25		80–100	0,05–0,12
1.9	60–100	0,04–0,07	0,05–0,10		180–260	0,1–0,3	0,05–0,3	100	0,05–0,25		100–120	0,05–0,12
1.10	60–120	0,04–0,07	0,05–0,10		100–150	0,1–0,2	0,05–0,2	120	0,05–0,25		100–120	0,05–0,12
1.11	40–100	0,03–0,05	0,04–0,06		100–150	0,1–0,2	0,05–0,2	100	0,05–0,25		80–100	0,05–0,12
1.12	40–100	0,03–0,05	0,04–0,06		100–150	0,1–0,2	0,05–0,2	100	0,05–0,25		80–100	0,05–0,12
1.13	40–100	0,03–0,05	0,04–0,06		100–150	0,1–0,2	0,05–0,2	100	0,05–0,25		80–100	0,05–0,12
1.14	40–100	0,03–0,05	0,04–0,06		100–120	0,1–0,2	0,05–0,2	100	0,05–0,25		80–100	0,05–0,12
1.15	40–100	0,03–0,05	0,04–0,06		100–150	0,1–0,2	0,05–0,2	100	0,05–0,25		80–100	0,05–0,12
1.16	40–100	0,03–0,05	0,04–0,06		100–150	0,1–0,2	0,05–0,2	100	0,05–0,25		80–100	0,05–0,12
2.1	50–150	0,04–0,07	0,05–0,12		130–180	0,1–0,3	0,05–0,3				120–150	0,05–0,12
2.2	50–150	0,04–0,07	0,05–0,12		130–180	0,1–0,3	0,05–0,3				120–150	0,05–0,12
2.3	50–150	0,04–0,07	0,05–0,12		130–180	0,1–0,3	0,05–0,3	120	0,05–0,25		100–120	0,05–0,12
2.4	50–150	0,04–0,07	0,05–0,12		130–180	0,1–0,3	0,05–0,3	120	0,05–0,25		100–120	0,05–0,12
2.5	50–150	0,04–0,07	0,05–0,12		130–180	0,1–0,3	0,05–0,3	120	0,05–0,25		120–180	0,05–0,12
2.6	50–150	0,04–0,07	0,05–0,12		130–180	0,1–0,3	0,05–0,3	180	0,05–0,25		120–180	0,05–0,12
2.7	50–150	0,04–0,07	0,05–0,12		130–180	0,1–0,3	0,05–0,3				80–100	0,05–0,12
3.1	80–200	0,04–0,07	0,05–0,15	100–150	130–200	0,1–0,3	0,05–0,3	180	0,05–0,25	80–120	120–180	0,05–0,12
3.2	80–200	0,04–0,07	0,05–0,15	80–120	130–200	0,1–0,3	0,05–0,3	120	0,05–0,25	80–120	120–180	0,05–0,12
3.3	80–200	0,04–0,07	0,05–0,15		130–200	0,1–0,3	0,05–0,3	180	0,05–0,25	80–120	120–180	0,05–0,12
3.4	80–200	0,04–0,07	0,05–0,15		130–200	0,1–0,3	0,05–0,3	180	0,05–0,25	80–120	120–180	0,05–0,12
3.5	80–160	0,04–0,07	0,05–0,15		130–200	0,1–0,3	0,05–0,3	180	0,05–0,25	80–120	120–180	0,05–0,12
3.6	80–160	0,04–0,07	0,05–0,15		130–200	0,1–0,3	0,05–0,3	120	0,05–0,25	80–120	120–180	0,05–0,12
3.7	80–160	0,04–0,07	0,05–0,15		130–200	0,1–0,3	0,05–0,3	180	0,05–0,25	80–120	120–180	0,05–0,12
3.8	80–160	0,04–0,07	0,05–0,15		130–200	0,1–0,3	0,05–0,3	120	0,05–0,25	80–120	120–180	0,05–0,12
4.1	250–500	0,05–0,08	0,07–0,2	300–400	400–600	0,1–0,3	0,05–0,3	400	0,15–0,4	400–500		0,05–0,25
4.2	250–500	0,05–0,08	0,07–0,2	300–400	400–600	0,1–0,3	0,05–0,3	400	0,15–0,4	300–400		0,05–0,25
4.3	250–500	0,05–0,08	0,07–0,2					300	0,15–0,4			
4.4	250–500	0,05–0,08	0,07–0,2					250	0,15–0,4			
4.5	180–250	0,05–0,07	0,06–0,12									
4.6	250–300	0,05–0,07	0,06–0,08					500	0,15–0,4		300–500	0,05–0,25
4.7												
4.8								120	0,05–0,15			
4.9												
4.10												
4.11	250–300	0,05–0,07	0,06–0,08					400	0,15–0,4		200–300	0,05–0,25
4.12								400	0,15–0,4			
4.13	350–450	0,08–0,1						500	0,15–0,4		300–500	0,05–0,25
4.14	80–400	0,05–0,1	0,08–0,25					500	0,15–0,4		300–500	0,05–0,25
4.15	180–200	0,02–0,04	0,03–0,04									
4.16												
4.17								500	0,15–0,4		300–500	0,05–0,25
4.18												
4.19												
5.1												
5.2								120	0,05–0,25		80–120	0,05–0,12
5.3								120	0,05–0,25		80–120	0,05–0,12
5.4												
5.5												
5.6												
5.7												
5.8												
5.9												
5.10								80	0,01–0,08		70–100	0,01–0,05
5.11	40–60	0,03–0,05	0,04–0,1					60	0,01–0,08		60–90	0,01–0,05
6.1	40–60	0,03–0,05	0,04–0,1								80–100	0,03–0,1
6.2	40–60	0,03–0,05	0,04–0,1					100	0,05–0,15		80	0,03–0,1
6.3								100	0,05–0,10			
6.4												
6.5												

Cutting data appoximate values

	SFSE / SGF VHM Ti500 54 800 ..., 54 801 ..., 54 802 ..., 54 803 ..., 54 804 ..., 54 805 ..., 54 806 ..., 54 808 ..., 54 809 ..., 54 810 ..., 54 811 ..., 54 812 ..., 54 813 ...				MiniMill 53 006 ..., 53 007 ..., 53 008 ..., 53 009 ..., 53 010 ..., 53 011 ..., 53 012 ..., 53 013 ..., 53 015 ...			MicroMill 53 050 ..., 53 051 ..., 53 052 ..., 53 053 ...	
Index	v_c m/min	Ø 2,4 + 3,15 f_z	Ø 4 f_z	Ø 4,8–16 f_z	v_c m/min	f_z (drilling)	f_z (threading)	v_c m/min	f_z (drilling)
1.1	**80–250**	0,03–0,04	0,03–0,06	0,05–0,15	**80–200**	0,03–0,10	0,10–0,25	**60–200**	0,02–0,05
1.2	**80–250**	0,03–0,04	0,03–0,06	0,05–0,15	**80–200**	0,03–0,10	0,10–0,25	**60–200**	0,02–0,05
1.3	**80–250**	0,03–0,04	0,03–0,06	0,05–0,15	**80–200**	0,03–0,10	0,10–0,25	**60–200**	0,02–0,05
1.4	**60–120**	0,01–0,02	0,01–0,03	0,05–0,10	**60–180**	0,03–0,08	0,10–0,15	**60–160**	0,01–0,04
1.5	**60–120**	0,01–0,02	0,01–0,03	0,05–0,10	**60–180**	0,03–0,08	0,10–0,15	**60–160**	0,02–0,05
1.6	**60–120**	0,01–0,02	0,01–0,03	0,05–0,10	**60–180**	0,03–0,08	0,10–0,15	**60–160**	0,01–0,04
1.7	**80–200**	0,03–0,04	0,03–0,06	0,05–0,10	**60–160**	0,03–0,10	0,10–0,20	**50–140**	0,02–0,05
1.8	**40–100**	0,01–0,02	0,03–0,05	0,04–0,06	**60–160**	0,02–0,07	0,10–0,20	**50–140**	0,007–0,03
1.9	**60–120**	0,01–0,02	0,04–0,07	0,05–0,10	**60–160**	0,03–0,10	0,10–0,20	**50–140**	0,02–0,05
1.10	**60–120**	0,01–0,02	0,04–0,07	0,05–0,10	**60–160**	0,03–0,10	0,10–0,20	**50–140**	0,01–0,04
1.11	**40–100**	0,01–0,02	0,03–0,05	0,04–0,06	**60–160**	0,02–0,08	0,10–0,20	**50–140**	0,007–0,03
1.12	**40–100**	0,01–0,02	0,03–0,05	0,04–0,06	**30–100**	0,02–0,07	0,10–0,20	**10–60**	0,007–0,03
1.13	**40–100**	0,01–0,02	0,03–0,05	0,04–0,06	**30–100**	0,02–0,07	0,10–0,20	**10–60**	0,007–0,03
1.14	**40–100**	0,01–0,02	0,03–0,05	0,04–0,06	**30–100**	0,02–0,07	0,10–0,20	**10–60**	0,007–0,03
1.15	**40–100**	0,01–0,02	0,03–0,05	0,04–0,06	**30–100**	0,02–0,07	0,10–0,20	**10–60**	0,007–0,03
1.16	**40–100**	0,01–0,02	0,03–0,05	0,04–0,06	**30–100**	0,02–0,07	0,10–0,20	**10–60**	0,007–0,03
2.1	**50–150**	0,03–0,04	0,03–0,04	0,05–0,12	**80–120**	0,03–0,08	0,10–0,25	**60–120**	0,01–0,04
2.2	**50–150**	0,03–0,04	0,03–0,04	0,05–0,12	**80–120**	0,03–0,10	0,10–0,25	**60–120**	0,02–0,05
2.3	**50–150**	0,03–0,04	0,03–0,04	0,05–0,12	**80–120**	0,02–0,07	0,10–0,25	**60–120**	0,007–0,03
2.4	**50–150**	0,03–0,04	0,03–0,04	0,05–0,12	**80–120**	0,02–0,07	0,10–0,25	**60–120**	0,007–0,03
2.5	**50–150**	0,03–0,04	0,03–0,04	0,05–0,12	**80–120**	0,02–0,07	0,10–0,25	**60–120**	0,007–0,03
2.6	**50–150**	0,03–0,04	0,03–0,04	0,05–0,12	**80–120**	0,02–0,07	0,10–0,25	**60–120**	0,007–0,03
2.7	**50–150**	0,03–0,04	0,03–0,04	0,05–0,12	**80–120**	0,02–0,07	0,10–0,25	**60–120**	0,007–0,03
3.1	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08	**100–170**	0,03–0,10	0,2–0,3	**70–170**	0,02–0,05
3.2	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08	**100–170**	0,03–0,10	0,2–0,3	**70–170**	0,02–0,05
3.3	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08	**100–170**	0,03–0,10	0,2–0,3	**70–170**	0,02–0,05
3.4	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08	**100–170**	0,03–0,10	0,2–0,3	**70–170**	0,02–0,05
3.5	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08	**100–170**	0,03–0,10	0,2–0,3	**70–170**	0,02–0,05
3.6	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08	**100–170**	0,03–0,10	0,2–0,3	**70–170**	0,02–0,05
3.7	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08	**100–170**	0,03–0,10	0,2–0,3	**70–170**	0,02–0,05
3.8	**100–200**	0,03–0,07	0,03–0,07	0,04–0,08	**100–170**	0,03–0,10	0,2–0,3	**70–170**	0,02–0,05
4.1	**250–500**	0,05–0,07	0,05–0,07	0,06–0,12	**250–800**	0,04–0,15	0,05–0,2	**100–600**	0,02–0,07
4.2	**250–500**	0,05–0,07	0,05–0,07	0,06–0,12	**250–800**	0,04–0,15	0,05–0,2	**100–600**	0,02–0,07
4.3	**250–500**	0,05–0,07	0,05–0,07	0,06–0,12	**250–800**	0,04–0,15	0,05–0,2	**100–600**	0,02–0,07
4.4	**250–500**	0,05–0,07	0,05–0,07	0,06–0,12	**250–800**	0,04–0,15	0,05–0,2	**100–600**	0,02–0,07
4.5	**180–250**	0,05–0,07	0,05–0,07	0,06–0,12	**250–800**	0,04–0,15	0,05–0,2	**100–600**	0,02–0,07
4.6	**250–300**	0,05–0,07	0,05–0,07	0,06–0,08	**200–500**	0,04–0,15	0,05–0,2	**100–300**	0,02–0,07
4.7					**200–500**	0,04–0,15	0,05–0,2	**100–300**	0,02–0,07
4.8					**200–500**	0,04–0,15	0,05–0,2	**100–300**	0,02–0,07
4.9					**200–500**	0,04–0,15	0,05–0,2	**100–300**	0,02–0,07
4.10					**200–500**	0,04–0,15	0,05–0,2	**100–300**	0,02–0,07
4.11	**250–300**	0,05–0,07	0,05–0,07	0,06–0,08	**150–180**	0,04–0,15	0,05–0,2	**120–180**	0,02–0,07
4.12					**150–180**	0,04–0,15	0,05–0,2	**120–180**	0,02–0,07
4.13	**350–450**	0,08–0,1	0,08–0,1	0,1–0,12	**20–100**	0,04–0,15	0,05–0,2	**10–50**	0,02–0,1
4.14	**300–400**	0,08–0,1	0,08–0,1	0,1–0,12	**20–100**	0,04–0,15	0,05–0,2	**10–50**	0,02–0,1
4.15	**180–200**	0,02–0,04	0,02–0,04	0,03–0,04	**20–100**	0,04–0,15	0,05–0,2	**10–50**	0,02–0,07
4.16					**20–100**	0,02–0,10	0,05–0,2	**10–50**	0,02–0,05
4.17					**20–100**	0,04–0,15	0,05–0,2	**10–50**	0,02–0,07
4.18					**20–100**	0,02–0,10	0,05–0,2	**10–50**	0,02–0,05
4.19					**20–100**	0,02–0,10	0,05–0,2	**10–50**	0,02–0,05
5.1					10–100	0,005–0,05	0,05–0,1	**10–60**	0,007–0,02
5.2					10–100	0,005–0,05	0,05–0,1	**10–60**	0,007–0,02
5.3	**60–80**	0,02–0,04	0,02–0,04	0,03–0,04	10–100	0,005–0,05	0,05–0,1	**10–60**	0,007–0,02
5.4					10–100	0,005–0,05	0,05–0,1	**10–60**	0,007–0,02
5.5					10–100	0,005–0,05	0,05–0,1	**10–60**	0,007–0,02
5.6					10–100	0,005–0,05	0,05–0,1	**10–60**	0,007–0,02
5.7					10–100	0,005–0,05	0,05–0,1	**10–60**	0,007–0,02
5.8					10–100	0,005–0,05	0,05–0,1	**10–60**	0,007–0,02
5.9					10–100	0,005–0,05	0,05–0,1	**10–60**	0,007–0,02
5.10					10–100	0,005–0,05	0,05–0,1	**10–60**	0,007–0,02
5.11	**50–80**	0,01–0,03	0,01–0,03	0,01–0,03	10–100	0,005–0,05	0,05–0,1	**10–60**	0,007–0,02
6.1	**40–60**		0,03–0,05	0,03–0,05	10–60	0,002–0,05		**10–40**	0,007–0,02
6.2	**40–50**		0,03–0,05	0,03–0,05	10–60	0,002–0,05		**10–40**	0,007–0,02
6.3	**30–40**		0,02–0,04	0,02–0,04	10–60	0,002–0,05		**10–40**	0,007–0,02
6.4								**10–40**	0,007–0,02
6.5									

7

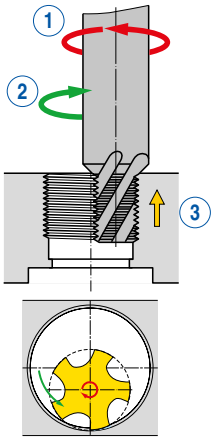
Milling Procedures

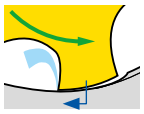
Climb milling

Characteristics:

1. Tool rotation direction „right“
2. Toolpath counter clockwise
3. Feed direction „outwards“

Right hand thread





When climb milling, the chip thickness at the end of cut is always 0 (h = 0)

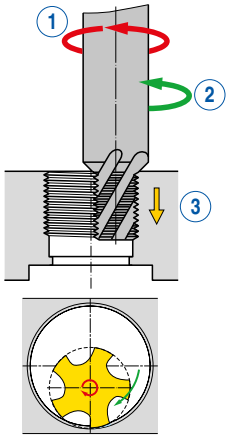
h = 0

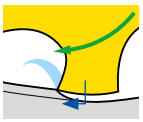
Conventional milling

Characteristics:

1. Tool rotation direction „right“
2. Toolpath clockwise
3. Feed direction „inwards“

Right hand thread

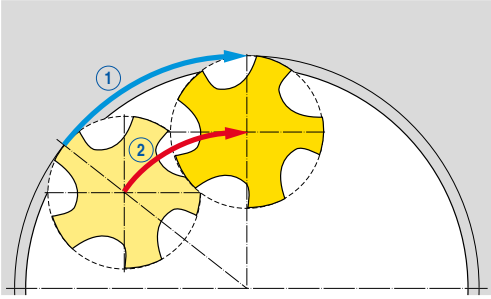




When conventional milling, the chip thickness at the end of cut is always at maximum (h = max)

h = max

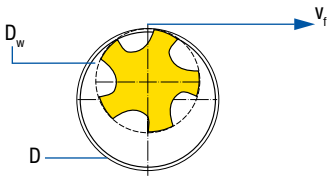
Feed rate calculation



1. Peripheral feedrate v_f
2. Centerline feedrate v_{fm}

Peripheral feedrate v_f

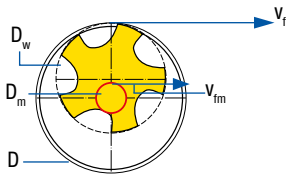
$$v_f = n \cdot f_z \cdot z \quad \text{mm/min.}$$



D_w = Effective diameter in mm
n = RPM in min^{-1}
f_z = Feed per tooth in mm

Centerline feedrate v_{fm}

$$v_{fm} = \frac{v_f \cdot (D - D_w)}{D} \quad \text{mm/min.}$$



z = Number of cutting edges (radial)
D = Nominal thread diameter = external profile diameter in mm
D_m = Centre path diameter ($D - D_w$) in mm

Tips for the User

With thread milling there are two different programme possibilities with the feed motion of the tool.

On the one hand the machine controls the feed at the diameter of the tool, on the other hand the feed control is the tool center line.
In order to ascertain which method the machine control uses, the following method should be employed:

- enter the thread milling routine into the control
- enter a safety margin into the program, so that the tool runs in air
- run the program through and check the operating time
- compare the actual time with the calculated theoretical time

If the time is longer than the calculated time the feed is controlling the tool center line.
If the time is shorter than the calculated time the feed is controlling the diameter of the tool.

Numeric calculation of cutting data for thread milling

$$n = \frac{v_c \cdot 1000}{d \cdot \pi}$$

$$v_c = \frac{d \cdot \pi \cdot n}{1000}$$

$$v_f = f_z \cdot z \cdot n$$

$$n = \frac{v_f}{f_z \cdot z}$$

$$f_z = \frac{v_f}{z \cdot n}$$

Milling – external contour

$$v_{fm} = \frac{v_f \cdot (D + d)}{D}$$

$$v_f = \frac{D \cdot v_{fm}}{(D + d)}$$

Milling – internal contour

$$v_{fm} = \frac{v_f \cdot (D - d)}{D}$$

$$v_f = \frac{D \cdot v_{fm}}{(D - d)}$$

Helical plunging

$$U_{arc} = 0{,}25 \cdot v_{fm}$$

n	=	rpm	rev./min.
v_c	=	cutting speed	m/min
d	=	tool diameter	mm
D	=	nominal thread-Ø	mm
v_f	=	feed rate at the diameter	mm/min.

Ramping in the arc

$$U_{arc} = v_{fm}$$

v_{fm}	=	feed rate at the centre	mm/min.
U_{arc}	=	programmed ramping feed rate	mm/min.
f_z	=	feed per tooth	mm
z	=	number of cutting edges of the cutter	piece

7

Correction values for the internal thread milling

The cutting edge diameter of the thread milling cutter which is entered into the machine control, can be calculated as follows:

half the cutter Ø – 0,05 x pitch p

Example: M30x3
Cutter-Ø: 20 mm

$$Ø\,\frac{20}{2} - (0{,}05 \cdot 3) = \underline{9{,}85\ mm}$$

9,85 mm is the cutting radius to be entered into the machine control

Thread types

M	Metric ISO standard thread
MF	Metric ISO fine thread
G	Whitworth thread
UNF	Unified fine thread
NPT	American taper pipe thread
BSF	Whitworth fine thread
BSW	Whitworth thread
Pg	Steel conduit thread
UN	Unified thread
Tr	Trapezoidal thread

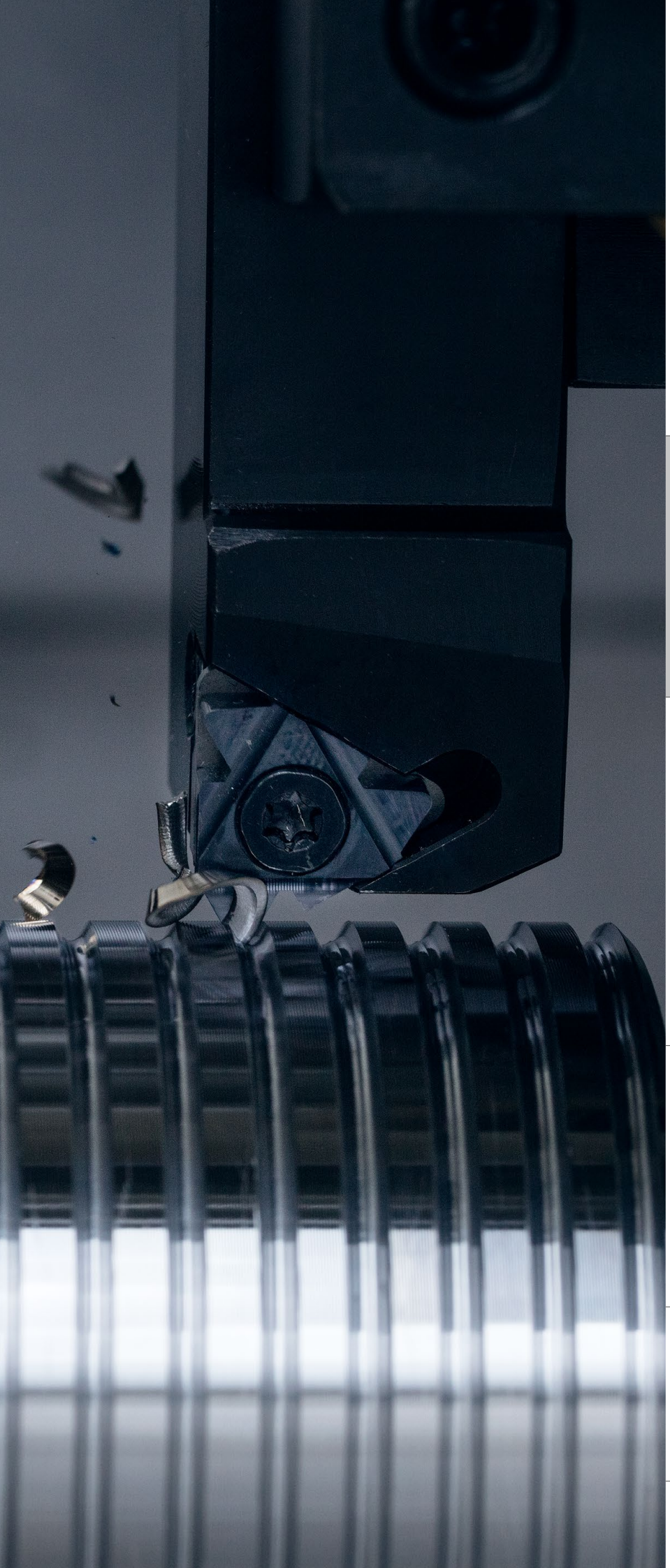
Tool types

EAW	Thread milling cutter with solid carbide inserts and weldon flat
EWM	Thread milling cutter with solid carbide inserts and SK adaptor
GZD	Thread milling cutter with carbide inserts and Weldon flat
GZG	Thread milling cutter with carbide inserts and Weldon flat
HR	Single point thread milling cutter
SFSE	Thread milling cutter with chamfer facet
Mini Mill	Circular milling cutter with solid carbide insert
MWN	Thread milling cutter with carbide inserts and Weldon flat
Polygon	Circular milling cutter with polygon insert seat
SGF	Thread milling cutter
Micro Mill	Solid Carbide Circular End Milling Cutter
System 300	Circular milling cutter with solid carbide insert
UNI	Thread milling cutter for universal application

Coatings

TiN	▲ TiN coating ▲ maximum application temperature: 450 °C
TiAlN	▲ TiAlN multilayer coating ▲ maximum application temperature: 900 °C
Ti500	▲ TiAlN-coating ▲ maximum application temperature: 500 °C
CWX500	▲ carbide, TiAlN-coated ▲ ISO | **K30** ▲ the universal carbide grade for almost all materials
OSM	▲ hard material layer and anti-friction layer ▲ for use in high-strength steels
TiCN	▲ TiCN multilayer coating ▲ maximum application temperature: 450 °C





Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut
11 Grooving Tools
12 Miniature turning tools

Milling

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

Tool Clamping

16 Adapters
17 Accessories

18 Material examples and article no. index

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WNT \ Performance

Premium quality tools for high performance.

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

Toolfinder

TC threading system (external thread)

M	BSW
Full profile Partial profile	Full profile Partial profile

→ Chapter 11 – Grooving tools

TC threading system (internal thread)

M	BSW
Full profile Partial profile	Full profile Partial profile

→ Chapter 11 – Grooving tools

MiniCut

M	G	Tr
Full profile Partial profile	Partial profile	Partial profile

→ Chapter 12 – Miniature turning tools

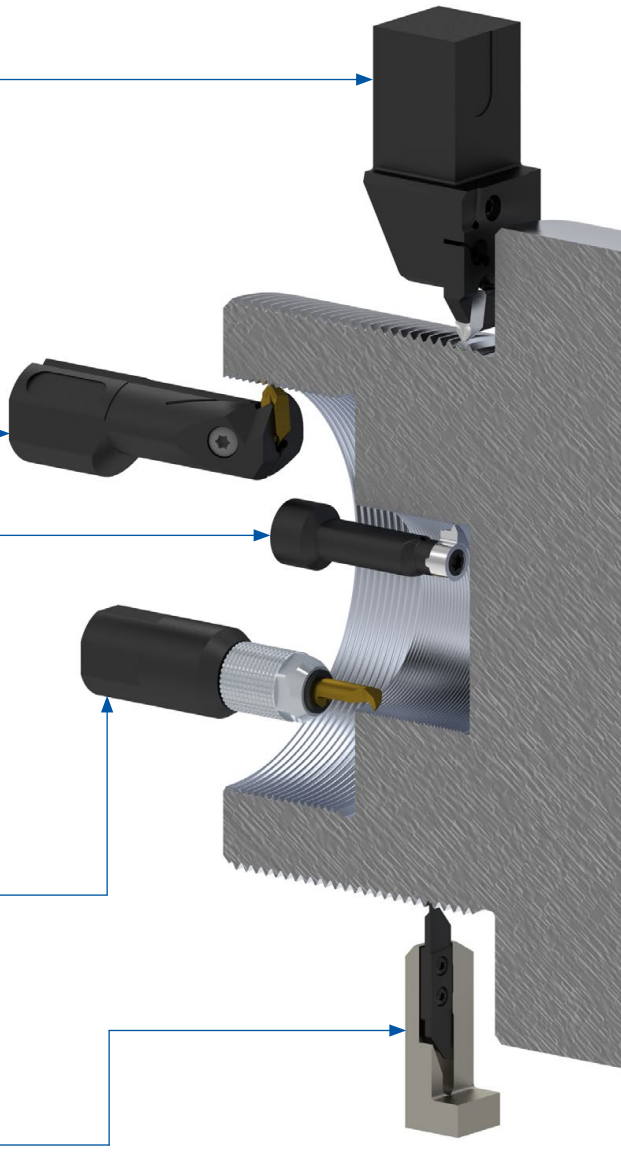
UltraMini

M	MF	G	Tr
Full profile Partial profile	Full profile Partial profile	Partial profile	Partial profile

→ Chapter 12 – Miniature turning tools

VertiClamp/System 25

→ Sliding head tooling catalogue, Chapter 3 – Turning



Symbol explanation

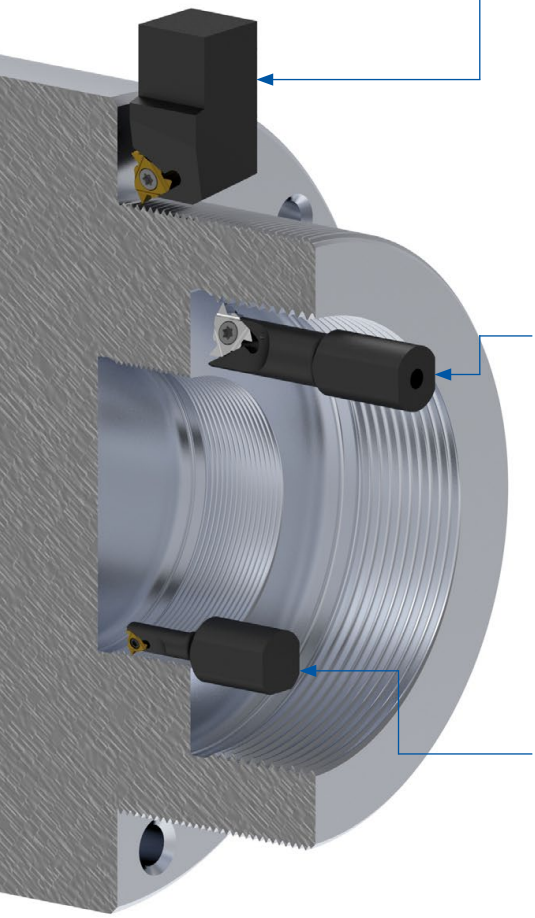
Flank angle

- 30° — Flank angle 30° (Trapezoidal thread)
- 30° — Flank angle 30° (Round thread)
- 55° — Flank angle 55°
- 60° — Flank angle 60°
- 80° — Flank angle 80° (Conduit thread)

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

Threading

- **M** — ISO metric coarse thread DIN 13
- **MF** — ISO Metric fine thread DIN 13
- **MJ** — Metric thread for the aerospace industry DIN ISO 5855
- **BSW** — British Whitworth thread BS 84
- **UN** — American unified thread BS 1580 (ASME B 1.1)
- **UNC** — American unified thread (coarse) BS 1580 (ASME B 1.1)
- **UNF** — American unified thread (fine) BS 1580 (ASME B 1.1)
- **UNEF** — American unified thread (extra fine) BS 1580 (ASME B 1.1)
- **NPT** — American pipe thread ANSI/ASME B 1.20.3
- **Tr** — Trapezoidal thread DIN 103
- **Rd** — Round Thread DIN 405
- **Pg** — Conduit Threads DIN 40430



Standard external thread turning

Full profile

M	MJ	BSW	UN	UNC	UNF	UNEF	NPT	Tr	Rd	Pg
4+5	9	11+12	15+16	15+16	15+16	15+16	19	21	23	25

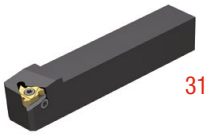
Partial profile

60°	55°
27	29

Multi-cutting edge

M
8

Suitable holder



31

Standard internal thread turning

Full profile

M	MJ	BSW	UN	UNC	UNF	UNEF	NPT	Tr	Rd	Pg
6+7	10	13+14	17+18	17+18	17+18	17+18	20	22	24	26

Partial profile

60°	55°
28	30

Suitable holder



32+33

Mini 06

Full profile

M	BSW
34	34

Partial profile

60°	55°
35	35

Mini 08

Full profile

M
36

Partial profile

60°	55°
36	37

Suitable holder



38

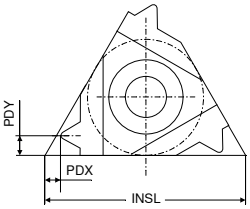
Information on the different thread profiles can be found on → **Page 46.**

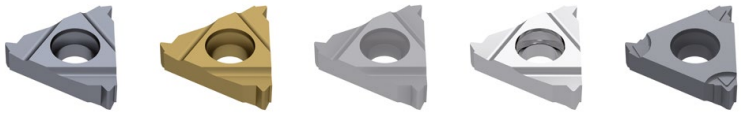
Right hand external thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

M | MF | 60°

CCN20 | CWN1525 | HCN2525 | CWK20 | CCN7525





Designation	TP mm	INSL mm	PDX mm	PDY mm	ER Article no. 71 220 ...	ER Article no. 71 220 ...	ER Article no. 71 220 ...	ER Article no. 71 220 ...	ER Article no. 71 220 ...
11 ER 0,35	0,35	11	0,8	0,4	**204**			**604**	
11 ER 0,4	0,40	11	0,7	0,4	**206**			**606**	
11 ER 0,45	0,45	11	0,7	0,4	**208**			**608**	
11 ER 0,5	0,50	11	0,6	0,6	**209**			**609**	
11 ER 0,6	0,60	11	0,6	0,6	**210**			**610**	
11 ER 0,7	0,70	11	0,6	0,6	**211**			**611**	
11 ER 0,75	0,75	11	0,6	0,6	**212**			**612**	
11 ER 0,8	0,80	11	0,6	0,6	**213**			**613**	
11 ER 1,0	1,00	11	0,7	0,7	**214**			**614**	
11 ER 1,25	1,25	11	0,8	0,9	**216**			**616**	
11 ER 1,5	1,50	11	0,8	1,0	**218**			**618**	
11 ER 1,75	1,75	11	0,8	1,1	**220**			**620**	
16 ER 0,35	0,35	16	0,8	0,4	**234**		**734**	**634**	
16 ER 0,4	0,40	16	0,7	0,4	**236**		**736**	**636**	
16 ER 0,45	0,45	16	0,7	0,4	**238**			**638**	
16 ER 0,5	0,50	16	0,6	0,6	**240**	**140**	**740**	**640**	**940**
16 ER 0,7	0,70	16	0,6	0,6	**241**	**141**	**741**	**641**	
16 ER 0,75	0,75	16	0,6	0,6	**242**	**142**	**742**	**642**	**942**
16 ER 0,8	0,80	16	0,6	0,6	**243**	**143**	**743**	**643**	**943**
16 ER 1,0	1,00	16	0,7	0,7	**244**	**144**	**744**	**644**	**944**
16 ER 1,25	1,25	16	0,8	0,9	**246**	**146**	**746**	**646**	**946**
16 ER 1,5	1,50	16	0,8	1,0	**248**	**148**	**748**	**648**	**948**
16 ER 1,75	1,75	16	0,9	1,2	**250**	**150**	**750**	**650**	
16 ER 2,0	2,00	16	1,0	1,3	**252**	**152**	**752**	**652**	**952**
16 ER 2,5	2,50	16	1,1	1,5	**254**	**154**	**754**	**654**	**954**
16 ER 3,0	3,00	16	1,2	1,6	**256**	**156**	**756**	**656**	**956**
22 ER 3,5	3,50	22	1,6	2,3	**270**	**170**	**770**	**670**	
22 ER 4,0	4,00	22	1,6	2,3	**272**	**172**	**772**	**672**	
22 ER 4,5	4,50	22	1,7	2,4	**274**	**174**	**774**	**674**	
22 ER 5,0	5,00	22	1,7	2,5	**276**	**176**	**776**	**676**	
22 ER 5,5	5,50	22	1,7	2,6		**178**			
22 ER 5,5	5,50	22	1,9	2,7	**278**			**678**	
22 EN 5,5	5,50	22	2,3	11,0	**282** [1]			**682** [1]	
22 ER 6,0	6,00	22	1,9	2,7		**180**	**780**		
22 ER 6,0	6,00	22	2,0	2,9	**280**			**680**	
22 EN 6,0	6,00	22	2,6	11,0	**284** [1]			**684** [1]	

Steel	●	●	○		●
Stainless steel	●	○	●		●
Cast iron		●	○	●	●
Non ferrous metals	○	●	○	●	○
Heat resistant alloys			○	○	●

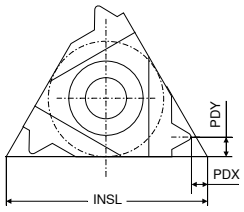
1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 42

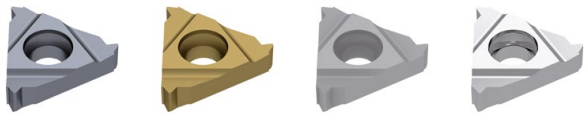
Left hand external thread turning insert

▲ Full profile

M | MF | 60°



CCN20 | CWN1525 | HCN2525 | CWK20



Designation	TP	INSL	PDX	PDY	EL Article no. 71 222 ...	EL Article no. 71 222 ...	EL Article no. 71 222 ...	EL Article no. 71 222 ...
	mm	mm	mm	mm				
11 EL 0,35	0,35	11	0,8	0,4	**204**			**604**
11 EL 0,4	0,40	11	0,7	0,4	**206**			**606**
11 EL 0,45	0,45	11	0,7	0,4	**208**			**608**
11 EL 0,5	0,50	11	0,6	0,6	**209**			**609**
11 EL 0,6	0,60	11	0,6	0,6	**210**			**610**
11 EL 0,7	0,70	11	0,6	0,6	**211**			**611**
11 EL 0,75	0,75	11	0,6	0,6	**212**			**612**
11 EL 0,8	0,80	11	0,6	0,6	**213**			**613**
11 EL 1,0	1,00	11	0,7	0,7	**214**			**614**
11 EL 1,25	1,25	11	0,8	0,9	**216**			**616**
11 EL 1,5	1,50	11	0,8	1,0	**218**			**618**
11 EL 1,75	1,75	11	0,8	1,1	**220**			**620**
16 EL 0,35	0,35	16	0,8	0,4	**234**			**634**
16 EL 0,4	0,40	16	0,7	0,4	**236**			**636**
16 EL 0,45	0,45	16	0,7	0,4	**238**			**638**
16 EL 0,5	0,50	16	0,6	0,6	**240**			**640**
16 EL 0,7	0,70	16	0,6	0,6	**241**			**641**
16 EL 0,75	0,75	16	0,6	0,6	**242**			**642**
16 EL 0,8	0,80	16	0,6	0,6	**243**			**643**
16 EL 1,0	1,00	16	0,7	0,7	**244**	**144**	**744**	**644**
16 EL 1,25	1,25	16	0,8	0,9	**246**	**146**		**646**
16 EL 1,5	1,50	16	0,8	1,0	**248**	**148**	**748**	**648**
16 EL 1,75	1,75	16	0,9	1,2	**250**		**750**	**650**
16 EL 2,0	2,00	16	1,0	1,3	**252**	**152**		**652**
16 EL 2,5	2,50	16	1,1	1,5	**254**			**654**
16 EL 3,0	3,00	16	1,2	1,6	**256**	**156**		**656**
22 EL 3,5	3,50	22	1,6	2,3	**270**			**670**
22 EL 4,0	4,00	22	1,6	2,3	**272**			**672**
22 EL 4,5	4,50	22	1,7	2,4	**274**			**674**
22 EL 5,0	5,00	22	1,7	2,5	**276**			**676**
22 EL 5,5	5,50	22	1,9	2,7	**278**			**678**
22 EL 6,0	6,00	22	2,0	2,9	**280**			**680**

Steel	●	●	○	
Stainless steel	●	○	●	
Cast iron		●	○	●
Non ferrous metals	○	●	○	●
Heat resistant alloys			○	○

→ v_c Page 42

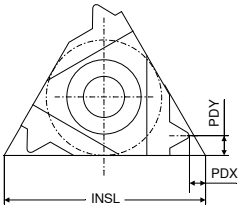
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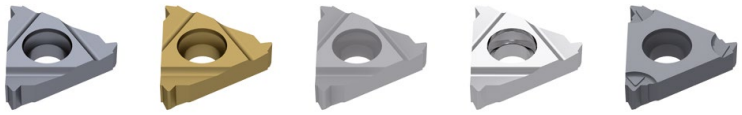
Right hand internal thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

M | MF | 60°

CCN20 | CWN1525 | HCN2525 | CWK20 | CCN7525





Designation	TP	INSL	PDX	PDY	IR Article no. 71 224 ...	IR Article no. 71 224 ...	IR Article no. 71 224 ...	IR Article no. 71 224 ...	IR Article no. 71 224 ...
	mm	mm	mm	mm					
11 IR 0,35	0,35	11	0,8	0,3	**204**			**604**	
11 IR 0,4	0,40	11	0,8	0,4	**206**			**606**	
11 IR 0,45	0,45	11	0,8	0,4	**208**			**608**	
11 IR 0,5	0,50	11	0,6	0,6	**210**			**610**	
11 IR 0,7	0,70	11	0,6	0,6	**211**			**611**	
11 IR 0,75	0,75	11	0,6	0,6	**212**			**612**	**912**
11 IR 0,8	0,80	11	0,6	0,6	**213**		**713**	**613**	
11 IR 1,0	1,00	11	0,6	0,6					**914**
11 IR 1,0	1,00	11	0,6	0,7	**214**	**114**	**714**	**614**	
11 IR 1,25	1,25	11	0,8	0,9	**216**			**616**	
11 IR 1,5	1,50	11	0,8	0,9					**918**
11 IR 1,5	1,50	11	0,8	1,0	**218**	**118**	**718**	**618**	
11 IR 1,75	1,75	11	0,9	1,1	**220**			**620**	
11 IR 2,0	2,00	11	0,8	0,9		**122**	**722**		
11 IR 2,0	2,00	11	0,9	1,1	**222**			**622**	
11 IR 2,5	2,50	11	0,8	1,2		**124**	**724**		
11 IR 2,5	2,50	11	0,9	1,1	**224**			**624**	
16 IR 0,35	0,35	16	0,8	0,4	**234**			**634**	
16 IR 0,4	0,40	16	0,7	0,4	**236**			**636**	
16 IR 0,45	0,45	16	0,7	0,4	**238**			**638**	
16 IR 0,5	0,50	16	0,6	0,6	**240**			**640**	
16 IR 0,7	0,70	16	0,6	0,6	**241**			**641**	
16 IR 0,75	0,75	16	0,6	0,6	**242**	**142**	**742**	**642**	
16 IR 0,8	0,80	16	0,6	0,6	**243**			**643**	
16 IR 1,0	1,00	16	0,6	0,7		**144**	**744**		**944**
16 IR 1,0	1,00	16	0,7	0,7	**244**			**644**	
16 IR 1,25	1,25	16	0,8	0,9	**246**		**746**	**646**	**946**
16 IR 1,5	1,50	16	0,8	1,0	**248**	**148**	**748**	**648**	**948**
16 IR 1,75	1,75	16	0,9	1,2	**250**		**750**	**650**	
16 IR 2,0	2,00	16	1,0	1,3	**252**	**152**	**752**	**652**	**952**
16 IR 2,5	2,50	16	1,1	1,5	**254**	**154**	**754**	**654**	**954**
16 IR 3,0	3,00	16	1,1	1,5	**256**	**156**	**756**	**656**	**956**
22 IR 3,5	3,50	22	1,6	2,3	**270**	**170**	**770**	**670**	
22 IR 4,0	4,00	22	1,6	2,3	**272**	**172**	**772**	**672**	
22 IR 4,5	4,50	22	1,6	2,4		**174**	**774**		
22 IR 4,5	4,50	22	1,7	2,4	**274**			**674**	
22 IR 5,0	5,00	22	1,6	2,3		**176**			
22 IR 5,0	5,00	22	1,7	2,5	**276**			**676**	
22 IR 5,5	5,50	22	1,6	2,3		**178**			
22 IR 5,5	5,50	22	1,9	2,7	**278**			**678**	
22 IN 5,5	5,50	22	2,3	11,0	**282** [1)]			**682** [1)]	
22 IR 6,0	6,00	22	1,6	2,4		**180**			
22 IR 6,0	6,00	22	2,0	2,9	**280**			**680**	
22 IN 6,0	6,00	22	2,6	11,0	**284** [1)]			**684** [1)]	

Steel	●	●	○		●
Stainless steel	●	○	●		●
Cast iron		●	○	●	●
Non ferrous metals	○	●	○	●	○
Heat resistant alloys			○	○	●

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

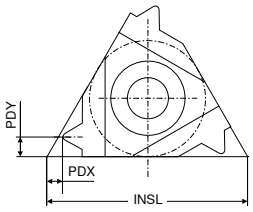
→ v_c Page 42

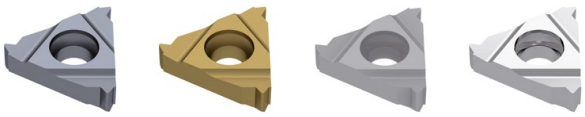
Left hand internal thread turning insert

▲ Full profile

M | MF | 60°

CCN20 | CWN1525 | HCN2525 | CWK20





Designation	TP	INSL	PDX	PDY	IL Article no. 71 226 ...	IL Article no. 71 226 ...	IL Article no. 71 226 ...	IL Article no. 71 226 ...
	mm	mm	mm	mm				
11 IL 0,35	0,35	11	0,8	0,3	**204**			**604**
11 IL 0,4	0,40	11	0,8	0,4	**206**			**606**
11 IL 0,45	0,45	11	0,8	0,4	**208**			**608**
11 IL 0,5	0,50	11	0,6	0,6	**210**			**610**
11 IL 0,7	0,70	11	0,6	0,6	**211**			**611**
11 IL 0,75	0,75	11	0,6	0,6	**212**			**612**
11 IL 0,8	0,80	11	0,6	0,6	**213**			**613**
11 IL 1,0	1,00	11	0,6	0,7	**214**			**614**
11 IL 1,25	1,25	11	0,8	0,9	**216**			**616**
11 IL 1,5	1,50	11	0,8	1,0	**218**			**618**
11 IL 1,75	1,75	11	0,9	1,1	**220**			**620**
11 IL 2,0	2,00	11	0,9	1,1	**222**			**622**
11 IL 2,5	2,50	11	0,9	1,1	**224**			**624**
16 IL 0,35	0,35	16	0,8	0,4	**234**			**634**
16 IL 0,4	0,40	16	0,7	0,4	**236**			**636**
16 IL 0,45	0,45	16	0,7	0,4	**238**			**638**
16 IL 0,5	0,50	16	0,6	0,6	**240**			**640**
16 IL 0,7	0,70	16	0,6	0,6	**241**			**641**
16 IL 0,75	0,75	16	0,6	0,6	**242**			**642**
16 IL 0,8	0,80	16	0,6	0,6	**243**			**643**
16 IL 1,0	1,00	16	0,6	0,7		**144**		
16 IL 1,0	1,00	16	0,7	0,7	**244**			**644**
16 IL 1,25	1,25	16	0,8	0,9	**246**			**646**
16 IL 1,5	1,50	16	0,8	1,0	**248**	**148**	**748**	**648**
16 IL 1,75	1,75	16	0,9	1,2	**250**			**650**
16 IL 2,0	2,00	16	1,0	1,3	**252**	**152**		**652**
16 IL 2,5	2,50	16	1,1	1,5	**254**			**654**
16 IL 3,0	3,00	16	1,2	1,6	**256**			**656**
22 IL 3,5	3,50	22	1,6	2,3	**270**			**670**
22 IL 4,0	4,00	22	1,6	2,3	**272**			**672**
22 IL 4,5	4,50	22	1,7	2,4	**274**			**674**
22 IL 5,0	5,00	22	1,7	2,5	**276**			**676**
22 IL 5,5	5,50	22	1,9	2,7	**278**			**678**
22 IL 6,0	6,00	22	2,0	2,9	**280**			**680**

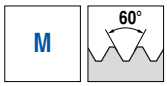
Steel	●	●	○	
Stainless steel	●	○	●	
Cast iron		●	○	●
Non ferrous metals	○	●	○	●
Heat resistant alloys			○	○

→ v_c Page 42

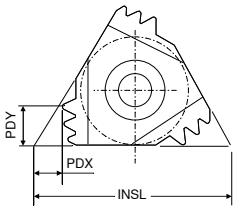
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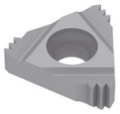
Right hand external thread turning insert

▲ Multi edge insert



HCN2525





Designation	TP	INSL	PDX	PDY	NT	ER Article no. 71 221 ...
	mm	mm	mm	mm		
16 ER 1,0 3M	1,0	16	1,7	2,5	3	**700**
16 ER 1,5 2M	1,5	16	1,5	2,3	2	**702**

Steel	○
Stainless steel	●
Cast iron	○
Non ferrous metals	○
Heat resistant alloys	○

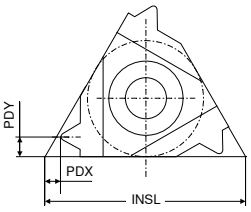
→ v_c Page 42

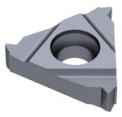
Right hand external thread turning insert

▲ Full profile

MJ 60°

CCN20 CWK20







Designation	TP	INSL	PDX	PDY	ER Article no. 71 286 ...	ER Article no. 71 286 ...
	mm	mm	mm	mm		
11 ER 1,0	1,00	11	0,7	0,8	**214**	**614**
11 ER 1,25	1,25	11	0,8	0,9	**216**	**616**
11 ER 1,5	1,50	11	0,8	1,0	**218**	**618**
11 ER 2,0	2,00	11	0,9	1,0	**222**	**622**
16 ER 1,0	1,00	16	0,7	0,8	**244**	**644**
16 ER 1,25	1,25	16	0,8	0,9	**246**	**646**
16 ER 1,5	1,50	16	0,8	1,0	**248**	**648**
16 ER 2,0	2,00	16	1,0	1,3	**252**	**652**

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

→ v_c Page 42

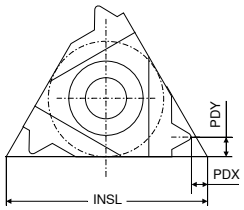
8

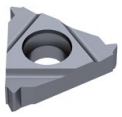
Left hand external thread turning insert

▲ Full profile

MJ 60°

CCN20 CWK20







Designation	TP	INSL	PDX	PDY	EL Article no. 71 287 ...	EL Article no. 71 287 ...
	mm	mm	mm	mm		
11 EL 1,0	1,00	11	0,7	0,8	**214**	**614**
11 EL 1,25	1,25	11	0,8	0,9	**216**	**616**
11 EL 1,5	1,50	11	0,8	1,0	**218**	**618**
11 EL 2,0	2,00	11	0,9	1,0	**222**	**622**
16 EL 1,0	1,00	16	0,7	0,8	**244**	**644**
16 EL 1,25	1,25	16	0,8	0,9	**246**	**646**
16 EL 1,5	1,50	16	0,8	1,0	**248**	**648**
16 EL 2,0	2,00	16	1,0	1,3	**252**	**652**

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

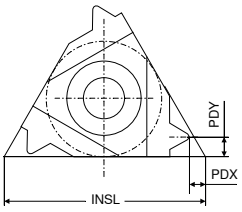
→ v_c Page 42

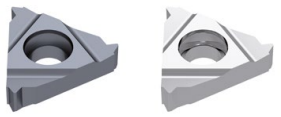
Right hand internal thread turning insert

▲ Full profile

MJ 60°

CCN20 CWK20





Designation	TP mm	INSL mm	PDX mm	PDY mm	IR Article no. 71 284 ...	IR Article no. 71 284 ...
11 IR 1,0	1,00	11	0,7	0,8	**214**	**614**
11 IR 1,25	1,25	11	0,8	0,9	**216**	**616**
11 IR 1,5	1,50	11	0,8	1,0	**218**	**618**
11 IR 2,0	2,00	11	0,9	1,0	**222**	**622**
16 IR 1,0	1,00	16	0,7	0,8	**244**	**644**
16 IR 1,25	1,25	16	0,8	0,9	**246**	**646**
16 IR 1,5	1,50	16	0,8	1,0	**248**	**648**
16 IR 2,0	2,00	16	1,0	1,3	**252**	**652**
Steel					●	
Stainless steel					●	
Cast iron						●
Non ferrous metals					○	●
Heat resistant alloys						○

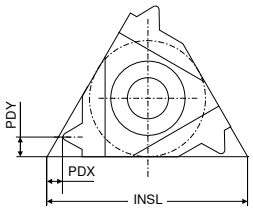
→ v_c Page 42

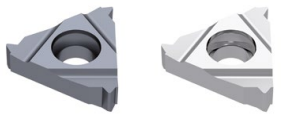
Left hand internal thread turning insert

▲ Full profile

MJ 60°

CCN20 CWK20





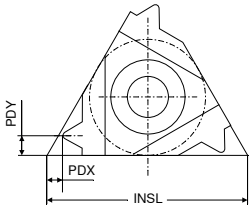
Designation	TP mm	INSL mm	PDX mm	PDY mm	IL Article no. 71 285 ...	IL Article no. 71 285 ...
11 IL 1,0	1,00	11	0,7	0,8	**214**	**614**
11 IL 1,25	1,25	11	0,8	0,9	**216**	**616**
11 IL 1,5	1,50	11	0,8	1,0	**218**	**618**
11 IL 2,0	2,00	11	0,9	1,0	**222**	**622**
16 IL 1,0	1,00	16	0,7	0,8	**244**	**644**
16 IL 1,25	1,25	16	0,8	0,9	**246**	**646**
16 IL 1,5	1,50	16	0,8	1,0	**248**	**648**
16 IL 2,0	2,00	16	1,0	1,3	**252**	**652**
Steel					●	
Stainless steel					●	
Cast iron						●
Non ferrous metals					○	●
Heat resistant alloys						○

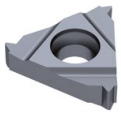
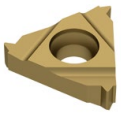
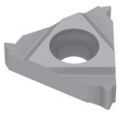
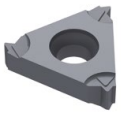
→ v_c Page 42

Right hand external thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

BSW | 55°



	CCN20	CWN1525	HCN2525	CWK20	CCN7525
					
	ER	ER	ER	ER	ER
Designation	Article no. 71 228 ...	Article no. 71 228 ...	Article no. 71 228 ...	Article no. 71 228 ...	Article no. 71 228 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm									
11 ER 72	72,0	11	0,7	4,0	**202**						**602**		
11 ER 60	60,0	11	0,7	4,0	**204**						**604**		
11 ER 56	56,0	11	0,7	4,0	**206**						**606**		
11 ER 48	48,0	11	0,6	0,6	**208**						**608**		
11 ER 40	40,0	11	0,6	0,6	**210**						**610**		
11 ER 36	36,0	11	0,6	0,6	**212**						**612**		
11 ER 32	32,0	11	0,6	0,6	**214**						**614**		
11 ER 28	28,0	11	0,6	0,7	**216**						**616**		
11 ER 26	26,0	11	0,7	0,8	**218**						**618**		
11 ER 24	24,0	11	0,7	0,8	**220**						**620**		
11 ER 22	22,0	11	0,8	0,9	**222**						**622**		
11 ER 20	20,0	11	0,8	0,9	**224**						**624**		
11 ER 19	19,0	11	0,8	1,0	**226**						**626**		
11 ER 18	18,0	11	0,8	1,0	**228**						**628**		
11 ER 16	16,0	11	0,9	1,1	**230**						**630**		
11 ER 14	14,0	11	0,9	1,1	**232**						**632**		
16 ER 40	40,0	16	0,6	0,6	**240**						**640**		
16 ER 36	36,0	16	0,6	0,6	**242**						**642**		
16 ER 32	32,0	16	0,6	0,6	**244**						**644**		
16 ER 28	28,0	16	0,6	0,7	**246**		**146**		**746**		**646**		
16 ER 26	26,0	16	0,7	0,7					**748**				
16 ER 26	26,0	16	0,7	0,8	**248**						**648**		
16 ER 24	24,0	16	0,7	0,8	**250**						**650**		
16 ER 22	22,0	16	0,8	0,9	**252**						**652**		
16 ER 20	20,0	16	0,8	0,9	**254**				**754**		**654**		
16 ER 19	19,0	16	0,8	1,0	**256**		**156**		**756**		**656**		**956**
16 ER 18	18,0	16	0,8	1,0	**258**						**658**		
16 ER 16	16,0	16	0,9	1,1	**260**		**160**		**760**		**660**		
16 ER 14	14,0	16	1,0	1,2	**262**		**162**		**762**		**662**		**962**
16 ER 12	12,0	16	1,1	1,4	**264**		**164**		**764**		**664**		
16 ER 11	11,0	16	1,1	1,5	**266**		**166**		**766**		**666**		**966**
16 ER 10	10,0	16	1,1	1,5	**268**						**668**		
16 ER 9	9,0	16	1,2	1,7	**270**						**670**		
16 ER 8	8,0	16	1,2	1,5	**272**						**672**		
22 ER 7	7,0	22	1,6	2,3	**280**						**680**		
22 ER 6	6,0	22	1,6	2,3	**282**						**682**		
22 ER 5	5,0	22	1,7	2,4	**284**						**684**		
22 EN 4,5	4,5	22	2,3	11,0	**290** [1]						**690** [1]		
22 EN 4	4,0	22	1,8	11,0	**292** [1]						**692** [1]		

Steel	●	●	○		●
Stainless steel	●	○	●		●
Cast iron		●	○	●	●
Non ferrous metals	○	●	○	●	○
Heat resistant alloys			○	○	●

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 42

8

Left hand external thread turning insert

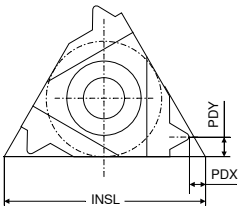
▲ Full profile

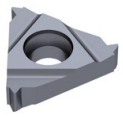
BSW



CCN20

CWK20







Designation	TPI	INSL	PDX	PDY	EL	EL
	1/"	mm	mm	mm	Article no. 71 229 ...	Article no. 71 229 ...
11 EL 72	72	11	0,7	4,0	202	602
11 EL 60	60	11	0,7	4,0	204	604
11 EL 56	56	11	0,7	4,0	206	606
11 EL 48	48	11	0,6	0,6	208	608
11 EL 40	40	11	0,6	0,6	210	610
11 EL 36	36	11	0,6	0,6	212	612
11 EL 32	32	11	0,6	0,6	214	614
11 EL 28	28	11	0,6	0,7	216	616
11 EL 26	26	11	0,7	0,8	218	618
11 EL 24	24	11	0,7	0,8	220	620
11 EL 22	22	11	0,8	0,9	222	622
11 EL 20	20	11	0,8	0,9	224	624
11 EL 19	19	11	0,8	1,0	226	626
11 EL 18	18	11	0,8	1,0	228	628
11 EL 16	16	11	0,9	1,1	230	630
11 EL 14	14	11	0,9	1,1	232	632
16 EL 40	40	16	0,6	0,6	240	640
16 EL 36	36	16	0,6	0,6	242	642
16 EL 32	32	16	0,6	0,6	244	644
16 EL 28	28	16	0,6	0,7	246	646
16 EL 26	26	16	0,7	0,8	248	648
16 EL 24	24	16	0,7	0,8	250	650
16 EL 22	22	16	0,8	0,9	252	652
16 EL 20	20	16	0,8	0,9	254	654
16 EL 19	19	16	0,8	1,0	256	656
16 EL 18	18	16	0,8	1,0	258	658
16 EL 16	16	16	0,9	1,1	260	660
16 EL 14	14	16	1,0	1,2	262	662
16 EL 12	12	16	1,1	1,4	264	664
16 EL 11	11	16	1,1	1,5	266	666
16 EL 10	10	16	1,1	1,5	268	668
16 EL 9	9	16	1,2	1,7	270	670
16 EL 8	8	16	1,2	1,5	272	672
22 EL 7	7	22	1,6	2,3	280	680
22 EL 6	6	22	1,6	2,3	282	682
22 EL 5	5	22	1,7	2,4	284	684

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

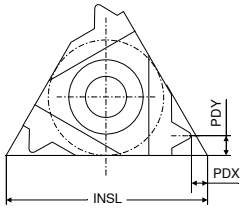
→ v_c Page 42

Right hand internal thread turning insert

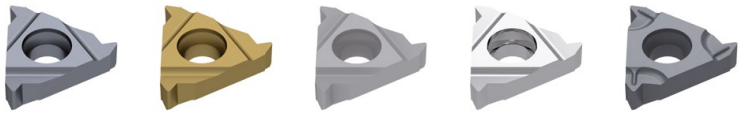
- Full profile
- CCN7525 grade with sintered chip breaker for universal application

BSW





CCN20 | CWN1525 | HCN2525 | CWK20 | CCN7525



Designation	TPI	INSL	PDX	PDY	IR Article no. 71 230 ...	IR Article no. 71 230 ...	IR Article no. 71 230 ...	IR Article no. 71 230 ...	IR Article no. 71 230 ...
	1/"	mm	mm	mm					
11 IR 48	48	11	0,6	0,6	**206**			**606**	
11 IR 40	40	11	0,6	0,6	**208**			**608**	
11 IR 36	36	11	0,6	0,6	**210**			**610**	
11 IR 32	32	11	0,6	0,6	**212**			**612**	
11 IR 28	28	11	0,6	0,7	**214**			**614**	
11 IR 26	26	11	0,7	0,8	**216**			**616**	
11 IR 24	24	11	0,7	0,8	**218**			**618**	
11 IR 22	22	11	0,8	0,9	**220**			**620**	
11 IR 20	20	11	0,8	0,9	**222**			**622**	
11 IR 19	19	11	0,8	0,9					**924**
11 IR 19	19	11	0,8	1,0	**224**	**124**	**724**	**624**	
11 IR 18	18	11	0,8	1,0	**226**			**626**	
11 IR 16	16	11	0,9	1,1	**228**			**628**	
11 IR 14	14	11	0,8	0,9					**930**
11 IR 14	14	11	0,9	1,1	**230**	**130**	**730**	**630**	
16 IR 40	40	16	0,6	0,6	**240**			**640**	
16 IR 36	36	16	0,6	0,6	**242**			**642**	
16 IR 32	32	16	0,6	0,6	**244**			**644**	
16 IR 28	28	16	0,6	0,7	**246**			**646**	
16 IR 26	26	16	0,7	0,8	**248**			**648**	
16 IR 24	24	16	0,7	0,8	**250**			**650**	
16 IR 22	22	16	0,8	0,9	**252**			**652**	
16 IR 20	20	16	0,8	0,9	**254**			**654**	
16 IR 19	19	16	0,8	1,0	**256**			**656**	
16 IR 18	18	16	0,8	1,0	**258**			**658**	
16 IR 16	16	16	0,9	1,1	**260**		**760**	**660**	
16 IR 14	14	16	1,0	1,2	**262**	**162**	**762**	**662**	**962**
16 IR 12	12	16	1,1	1,4	**264**			**664**	
16 IR 11	11	16	1,1	1,5	**266**	**166**	**766**	**666**	**966**
16 IR 10	10	16	1,1	1,5	**268**			**668**	
16 IR 9	9	16	1,2	1,7	**270**			**670**	
16 IR 8	8	16	1,2	1,5	**272**			**672**	
22 IR 7	7	22	1,6	2,3	**280**			**680**	
22 IR 6	6	22	1,6	2,3	**282**			**682**	
22 IR 5	5	22	1,7	2,4	**284**			**684**	

Steel	●	●	○		●
Stainless steel	●	○	●		●
Cast iron		●	○	●	●
Non ferrous metals	○	●	○	●	○
Heat resistant alloys			○	○	●

→ v_c Page 42

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Left hand internal thread turning insert

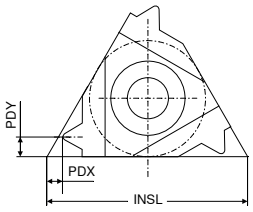
▲ Full profile

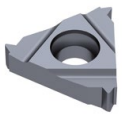
BSW



CCN20

CWK20







Designation	TPI	INSL	PDX	PDY	IL	IL
					Article no. 71 231 ...	Article no. 71 231 ...
	1/"	mm	mm	mm		
11 IL 48	48	11	0,6	0,6	206	606
11 IL 40	40	11	0,6	0,6	208	608
11 IL 36	36	11	0,6	0,6	210	610
11 IL 32	32	11	0,6	0,6	212	612
11 IL 28	28	11	0,6	0,7	214	614
11 IL 26	26	11	0,7	0,8	216	616
11 IL 24	24	11	0,7	0,8	218	618
11 IL 22	22	11	0,8	0,9	220	620
11 IL 20	20	11	0,8	0,9	222	622
11 IL 19	19	11	0,8	1,0	224	624
11 IL 18	18	11	0,8	1,0	226	626
11 IL 16	16	11	0,9	1,1	228	628
11 IL 14	14	11	0,9	1,1	230	630
16 IL 40	40	16	0,6	0,6	240	640
16 IL 36	36	16	0,6	0,6	242	642
16 IL 32	32	16	0,6	0,6	244	644
16 IL 28	28	16	0,6	0,7	246	646
16 IL 26	26	16	0,7	0,8	248	648
16 IL 24	24	16	0,7	0,8	250	650
16 IL 22	22	16	0,8	0,9	252	652
16 IL 20	20	16	0,8	0,9	254	654
16 IL 19	19	16	0,8	1,0	256	656
16 IL 18	18	16	0,8	1,0	258	658
16 IL 16	16	16	0,9	1,1	260	660
16 IL 14	14	16	1,0	1,2	262	662
16 IL 12	12	16	1,1	1,4	264	664
16 IL 11	11	16	1,1	1,5	266	666
16 IL 10	10	16	1,1	1,5	268	668
16 IL 9	9	16	1,2	1,7	270	670
16 IL 8	8	16	1,2	1,5	272	672
22 IL 7	7	22	1,6	2,3	280	680
22 IL 6	6	22	1,6	2,3	282	682
22 IL 5	5	22	1,7	2,4	284	684

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

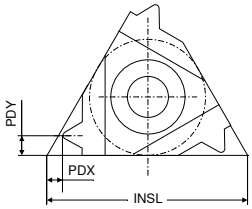
→ v_c Page 42

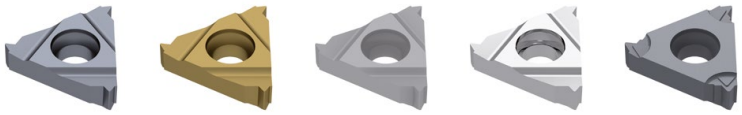
Right hand external thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

UN | UNC | UNF | UNEF | 60°

CCN20 | CWN1525 | HCN2525 | CWK20 | CCN7525





Designation	TPI	INSL	PDX	PDY	ER Article no. 71 264 ...	ER Article no. 71 264 ...	ER Article no. 71 264 ...	ER Article no. 71 264 ...	ER Article no. 71 264 ...
	1/"	mm	mm	mm					
11 ER 72	72,0	11	0,8	0,4	202			602	
11 ER 64	64,0	11	0,8	0,4	204			604	
11 ER 56	56,0	11	0,7	0,4	206			606	
11 ER 48	48,0	11	0,6	0,6	208			608	
11 ER 44	44,0	11	0,6	0,6	210			610	
11 ER 40	40,0	11	0,6	0,6	212			612	
11 ER 36	36,0	11	0,6	0,6	214			614	
11 ER 32	32,0	11	0,6	0,6	216			616	
11 ER 28	28,0	11	0,6	0,7	218			618	
11 ER 27	27,0	11	0,7	0,8	220			620	
11 ER 24	24,0	11	0,7	0,8	222			622	
11 ER 20	20,0	11	0,8	0,9	224			624	
11 ER 18	18,0	11	0,8	1,0	226			626	
11 ER 16	16,0	11	0,9	1,1	228			628	
11 ER 14	14,0	11	0,9	1,1	230			630	
16 ER 72	72,0	16	0,8	0,4	232			632	
16 ER 64	64,0	16	0,8	0,4	234			634	
16 ER 56	56,0	16	0,7	0,4	236			636	
16 ER 48	48,0	16	0,6	0,6	238			638	
16 ER 44	44,0	16	0,6	0,6	240			640	
16 ER 40	40,0	16	0,6	0,6	242			642	
16 ER 36	36,0	16	0,6	0,6	244			644	
16 ER 32	32,0	16	0,6	0,6	246		746	646	
16 ER 28	28,0	16	0,6	0,7	248		748	648	
16 ER 27	27,0	16	0,7	0,8	250			650	
16 ER 24	24,0	16	0,7	0,8	252	152	752	652	
16 ER 20	20,0	16	0,8	0,9	254	154	754	654	954
16 ER 18	18,0	16	0,8	1,0	256	156	756	656	
16 ER 16	16,0	16	0,9	1,1	258	158	758	658	958
16 ER 14	14,0	16	1,0	1,2	260	160	760	660	
16 ER 13	13,0	16	1,0	1,3	262			662	
16 ER 12	12,0	16	1,1	1,4	264	164	764	664	
16 ER 11,5	11,5	16	1,1	1,5	266			666	
16 ER 11	11,0	16	1,1	1,5	268	168		668	
16 ER 10	10,0	16	1,1	1,5	270			670	
16 ER 9	9,0	16	1,2	1,7	272			672	
16 ER 8	8,0	16	1,1	1,1					974
16 ER 8	8,0	16	1,1	1,5		174			
16 ER 8	8,0	16	1,2	1,6	274			674	
22 ER 7	7,0	22	1,6	2,3	276			676	
22 ER 6	6,0	22	1,6	2,3	278			678	
22 ER 5	5,0	22	1,7	2,5	280			680	
22 EN 4,5	4,5	22	2,0	11,0	282 [1)]			682 [1)]	
22 EN 4	4,0	22	2,0	11,0	284 [1)]			684 [1)]	

Steel	●	●	○		●
Stainless steel	●	○	●		●
Cast iron		●	○	●	●
Non ferrous metals	○	●	○	●	○
Heat resistant alloys			○	○	●

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 42

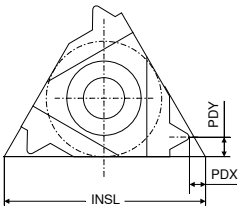
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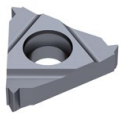
Left hand external thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20 | CWK20







Designation	TPI	INSL	PDX	PDY	EL	EL
	1/"	mm	mm	mm	Article no. 71 266 ...	Article no. 71 266 ...
11 EL 72	72,0	11	0,8	0,4	202	602
11 EL 64	64,0	11	0,8	0,4	204	604
11 EL 56	56,0	11	0,7	0,4	206	606
11 EL 48	48,0	11	0,6	0,6	208	608
11 EL 44	44,0	11	0,6	0,6	210	610
11 EL 40	40,0	11	0,6	0,6	212	612
11 EL 36	36,0	11	0,6	0,6	214	614
11 EL 32	32,0	11	0,6	0,6	216	616
11 EL 28	28,0	11	0,6	0,7	218	618
11 EL 27	27,0	11	0,7	0,8	220	620
11 EL 24	24,0	11	0,7	0,8	222	622
11 EL 20	20,0	11	0,8	0,9	224	624
11 EL 18	18,0	11	0,8	1,0	226	626
11 EL 16	16,0	11	0,9	1,1	228	628
11 EL 14	14,0	11	0,9	1,1	230	630
16 EL 72	72,0	16	0,8	0,4	232	632
16 EL 64	64,0	16	0,8	0,4	234	634
16 EL 56	56,0	16	0,7	0,4	236	636
16 EL 48	48,0	16	0,6	0,6	238	638
16 EL 44	44,0	16	0,6	0,6	240	640
16 EL 40	40,0	16	0,6	0,6	242	642
16 EL 36	36,0	16	0,6	0,6	244	644
16 EL 32	32,0	16	0,6	0,6	246	646
16 EL 28	28,0	16	0,6	0,7	248	648
16 EL 27	27,0	16	0,7	0,8	250	650
16 EL 24	24,0	16	0,7	0,8	252	652
16 EL 20	20,0	16	0,8	0,9	254	654
16 EL 18	18,0	16	0,8	1,0	256	656
16 EL 16	16,0	16	0,9	1,1	258	658
16 EL 14	14,0	16	1,0	1,2	260	660
16 EL 13	13,0	16	1,0	1,3	262	662
16 EL 12	12,0	16	1,1	1,4	264	664
16 EL 11,5	11,5	16	1,1	1,5	266	666
16 EL 11	11,0	16	1,1	1,5	268	668
16 EL 10	10,0	16	1,1	1,5	270	670
16 EL 9	9,0	16	1,2	1,7	272	672
16 EL 8	8,0	16	1,2	1,6	274	674
22 EL 7	7,0	22	1,6	2,3	276	676
22 EL 6	6,0	22	1,6	2,3	278	678
22 EL 5	5,0	22	1,7	2,5	280	680

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

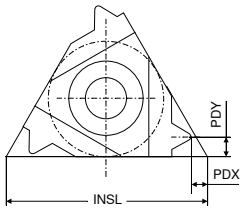
→ v_c Page 42

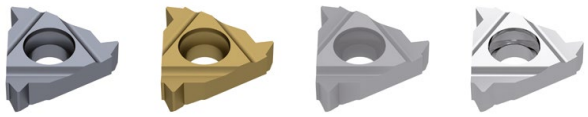
Right hand internal thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20 | CWN1525 | HCN2525 | CWK20





Designation	TPI	INSL	PDX	PDY	IR Article no. 71 268 ...	IR Article no. 71 268 ...	IR Article no. 71 268 ...	IR Article no. 71 268 ...
	1/"	mm	mm	mm				
11 IR 72	72,0	11	0,8	0,3	**202**			**602**
11 IR 64	64,0	11	0,8	0,4	**204**			**604**
11 IR 56	56,0	11	0,7	0,4	**206**			**606**
11 IR 48	48,0	11	0,6	0,6	**208**			**608**
11 IR 44	44,0	11	0,6	0,6	**210**			**610**
11 IR 40	40,0	11	0,6	0,6	**212**			**612**
11 IR 36	36,0	11	0,6	0,6	**214**			**614**
11 IR 32	32,0	11	0,6	0,6	**216**			**616**
11 IR 28	28,0	11	0,6	0,7	**218**			**618**
11 IR 27	27,0	11	0,7	0,8	**220**			**620**
11 IR 24	24,0	11	0,7	0,8	**222**			**622**
11 IR 20	20,0	11	0,8	0,9	**224**			**624**
11 IR 18	18,0	11	0,8	1,0	**226**			**626**
11 IR 16	16,0	11	0,9	1,1	**228**			**628**
11 IR 14	14,0	11	1,0	1,1	**230**			**630**
16 IR 72	72,0	16	0,8	0,3	**232**			**632**
16 IR 64	64,0	16	0,8	0,4	**234**			**634**
16 IR 56	56,0	16	0,7	0,4	**236**			**636**
16 IR 48	48,0	16	0,6	0,6	**238**			**638**
16 IR 44	44,0	16	0,6	0,6	**240**			**640**
16 IR 40	40,0	16	0,6	0,6	**242**			**642**
16 IR 36	36,0	16	0,6	0,6	**244**			**644**
16 IR 32	32,0	16	0,6	0,6	**246**			**646**
16 IR 28	28,0	16	0,6	0,7	**248**			**648**
16 IR 27	27,0	16	0,7	0,8	**250**			**650**
16 IR 24	24,0	16	0,7	0,8	**252**			**652**
16 IR 20	20,0	16	0,8	0,9	**254**			**654**
16 IR 18	18,0	16	0,8	1,0	**256**			**656**
16 IR 16	16,0	16	0,9	1,1	**258**			**658**
16 IR 14	14,0	16	1,0	1,2	**260**		**760**	**660**
16 IR 13	13,0	16	1,0	1,3	**262**			**662**
16 IR 12	12,0	16	1,1	1,4	**264**	**164**	**764**	**664**
16 IR 11,5	11,5	16	1,1	1,5	**266**			**666**
16 IR 11	11,0	16	1,1	1,5	**268**			**668**
16 IR 10	10,0	16	1,1	1,5	**270**			**670**
16 IR 9	9,0	16	1,2	1,7	**272**			**672**
16 IR 8	8,0	16	1,2	1,6	**274**			**674**
16 IR 8	8,0	16	1,1	1,5			**774**	
22 IR 7	7,0	22	1,6	2,3	**276**		**776**	**676**
22 IR 6	6,0	22	1,6	2,3	**278**			**678**
22 IR 5	5,0	22	1,7	2,5	**280**			**680**
22 IN 4,5	4,5	22	2,0	11,0	**282** [1]			**682** [1]
22 IN 4	4,0	22	2,0	11,0	**284** [1]			**684** [1]
Steel					●	●	○	
Stainless steel					●	○	●	
Cast iron						●	○	●
Non ferrous metals					○	●	○	●
Heat resistant alloys							○	○

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 42

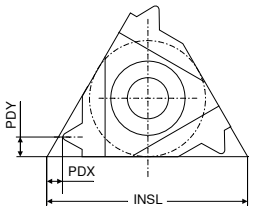
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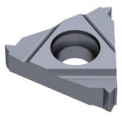
Left hand internal thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20 | CWK20







Designation	TPI	INSL	PDX	PDY	IL Article no. 71 270 ...	IL Article no. 71 270 ...
	1/"	mm	mm	mm		
11 IL 72	72,0	11	0,8	0,3	**202**	**602**
11 IL 64	64,0	11	0,8	0,4	**204**	**604**
11 IL 56	56,0	11	0,7	0,4	**206**	**606**
11 IL 48	48,0	11	0,6	0,6	**208**	**608**
11 IL 44	44,0	11	0,6	0,6	**210**	**610**
11 IL 40	40,0	11	0,6	0,6	**212**	**612**
11 IL 36	36,0	11	0,6	0,6	**214**	**614**
11 IL 32	32,0	11	0,6	0,6	**216**	**616**
11 IL 28	28,0	11	0,6	0,7	**218**	**618**
11 IL 27	27,0	11	0,7	0,8	**220**	**620**
11 IL 24	24,0	11	0,7	0,8	**222**	**622**
11 IL 20	20,0	11	0,8	0,9	**224**	**624**
11 IL 18	18,0	11	0,8	1,0	**226**	**626**
11 IL 16	16,0	11	0,9	1,1	**228**	**628**
11 IL 14	14,0	11	0,9	1,1	**230**	**630**
16 IL 72	72,0	16	0,8	0,3	**232**	**632**
16 IL 64	64,0	16	0,8	0,4	**234**	**634**
16 IL 56	56,0	16	0,7	0,4	**236**	**636**
16 IL 48	48,0	16	0,6	0,6	**238**	**638**
16 IL 44	44,0	16	0,6	0,6	**240**	**640**
16 IL 40	40,0	16	0,6	0,6	**242**	**642**
16 IL 36	36,0	16	0,6	0,6	**244**	**644**
16 IL 32	32,0	16	0,6	0,6	**246**	**646**
16 IL 28	28,0	16	0,6	0,7	**248**	**648**
16 IL 27	27,0	16	0,7	0,8	**250**	**650**
16 IL 24	24,0	16	0,7	0,8	**252**	**652**
16 IL 20	20,0	16	0,8	0,9	**254**	**654**
16 IL 18	18,0	16	0,8	1,0	**256**	**656**
16 IL 16	16,0	16	0,9	1,1	**258**	**658**
16 IL 14	14,0	16	1,0	1,2	**260**	**660**
16 IL 13	13,0	16	1,0	1,3	**262**	**662**
16 IL 12	12,0	16	1,1	1,4	**264**	**664**
16 IL 11,5	11,5	16	1,1	1,5	**266**	**666**
16 IL 11	11,0	16	1,1	1,5	**268**	**668**
16 IL 10	10,0	16	1,1	1,5	**270**	**670**
16 IL 9	9,0	16	1,2	1,7	**272**	**672**
16 IL 8	8,0	16	1,2	1,6	**274**	**674**
22 IL 7	7,0	22	1,6	2,3	**276**	**676**
22 IL 6	6,0	22	1,6	2,3	**278**	**678**
22 IL 5	5,0	22	1,7	2,5	**280**	**680**

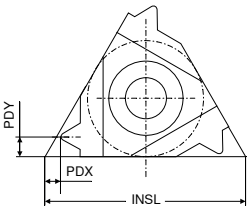
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

→ v_c Page 42

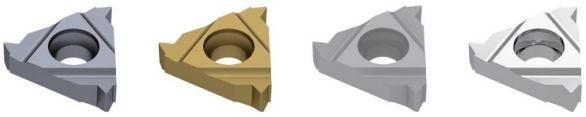
Right hand external thread turning insert

▲ Full profile

NPT 60°



CCN20 | CWN1525 | HCN2525 | CWK20



Designation	TPI	INSL	PDX	PDY	ER Article no. 71 256 ...	ER Article no. 71 256 ...	ER Article no. 71 256 ...	ER Article no. 71 256 ...
	1/"	mm	mm	mm				
16 ER 27	27,0	16	0,7	0,8	**240**			**640**
16 ER 18	18,0	16	0,8	1,0	**242**		**742**	**642**
16 ER 14	14,0	16	0,9	1,2	**244**	**144**	**744**	**644**
16 ER 11,5	11,5	16	1,1	1,5	**246**	**146**	**746**	**646**
16 ER 8	8,0	16	1,3	1,8	**248**			**648**
Steel					●	●	○	
Stainless steel					●	○	●	
Cast iron						●	○	●
Non ferrous metals					○	●	○	●
Heat resistant alloys							○	○

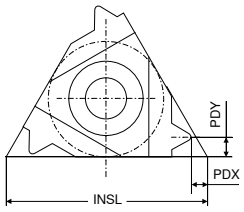
→ v_c Page 42

8

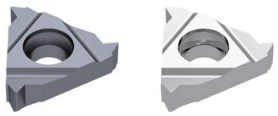
Left hand external thread turning insert

▲ Full profile

NPT 60°



CCN20 | CWK20



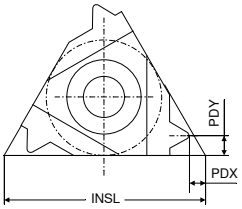
Designation	TPI	INSL	PDX	PDY	EL Article no. 71 258 ...	EL Article no. 71 258 ...
	1/"	mm	mm	mm		
16 EL 27	27,0	16	0,7	0,8	**240**	**640**
16 EL 18	18,0	16	0,8	1,0	**242**	**642**
16 EL 14	14,0	16	0,9	1,2	**244**	**644**
16 EL 11,5	11,5	16	1,1	1,5	**246**	**646**
16 EL 8	8,0	16	1,3	1,8	**248**	**648**
Steel					●	
Stainless steel					●	
Cast iron						●
Non ferrous metals					○	●
Heat resistant alloys						○

→ v_c Page 42

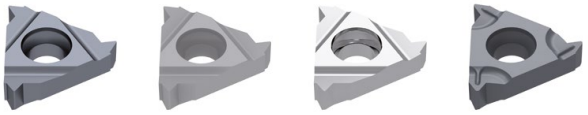
Right hand internal thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

NPT 60°



CCN20 | HCN2525 | CWK20 | CCN7525



Designation	TPI	INSL	PDX	PDY	IR	IR	IR	IR
					Article no. 71 260 ...	Article no. 71 260 ...	Article no. 71 260 ...	Article no. 71 260 ...
	1/"	mm	mm	mm				
11 IR 27	27,0	11	0,7	0,8	**210**		**610**	
11 IR 18	18,0	11	0,8	1,0	**212**		**612**	
11 IR 14	14,0	11	0,9	1,1	**214**		**614**	
16 IR 27	27,0	16	0,7	0,8	**240**		**640**	
16 IR 18	18,0	16	0,8	1,0	**242**		**642**	
16 IR 14	14,0	16	0,9	1,2	**244**	**744**	**644**	**944**
16 IR 11,5	11,5	16	1,1	1,5	**246**		**646**	**946**
16 IR 8	8,0	16	1,3	1,8	**248**		**648**	

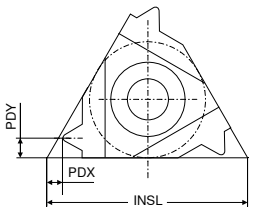
Steel	●	○		●
Stainless steel	●	●		●
Cast iron		○	●	●
Non ferrous metals	○	○	●	○
Heat resistant alloys		○	○	●

→ v_c Page 42

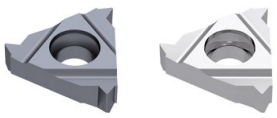
Left hand internal thread turning insert

▲ Full profile

NPT 60°



CCN20 | CWK20



Designation	TPI	INSL	PDX	PDY	IL	IL
					Article no. 71 262 ...	Article no. 71 262 ...
	1/"	mm	mm	mm		
11 IL 27	27,0	11	0,7	0,8	**210**	**610**
11 IL 18	18,0	11	0,8	1,0	**212**	**612**
11 IL 14	14,0	11	0,9	1,1	**214**	**614**
16 IL 27	27,0	16	0,7	0,8	**240**	**640**
16 IL 18	18,0	16	0,8	1,0	**242**	**642**
16 IL 14	14,0	16	0,9	1,2	**244**	**644**
16 IL 11,5	11,5	16	1,1	1,5	**246**	**646**
16 IL 8	8,0	16	1,3	1,8	**248**	**648**

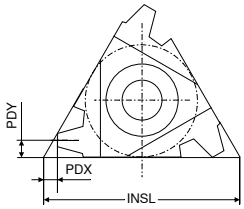
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

→ v_c Page 42

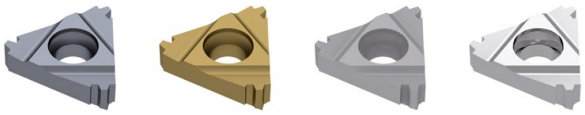
Right hand external thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr | 30°



CCN20 | CWN1525 | HCN2525 | CWK20



Designation	TP mm	INSL mm	PDX mm	PDY mm	ER Article no. 71 232 ...	ER Article no. 71 232 ...	ER Article no. 71 232 ...	ER Article no. 71 232 ...
16 ER 1,5	1,5	16	1,0	1,1	**240**			**640**
16 ER 2,0	2,0	16	1,1	1,3	**242**			**642**
16 ER 2,0	2,0	16	1,0	1,3		**142**	**742**	
16 ER 3,0	3,0	16	1,3	1,5	**244**	**144**		**644**
22 ER 4,0	4,0	22	1,7	1,9	**270**			**670**
22 ER 4,0	4,0	22	1,8	1,9		**170**	**770**	
22 ER 5,0	5,0	22	2,0	2,4		**172**		
22 ER 5,0	5,0	22	2,1	2,5	**272**			**672**
22 ER 6,0	6,0	22	2,3	2,7	**274**			**674**
22 EN 6,0	6,0	22	2,0	11,0	**276** 1)			**676** 1)
22 EN 7,0	7,0	22	2,3	11,0	**278** 1)			**678** 1)
Steel					●	●	○	
Stainless steel					●	○	●	
Cast iron						●	○	●
Non ferrous metals					○	●	○	●
Heat resistant alloys							○	○

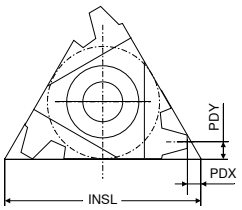
1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 42

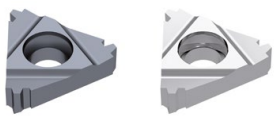
Left hand external thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr | 30°



CCN20 | CWK20



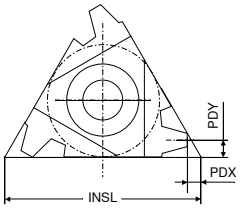
Designation	TP mm	INSL mm	PDX mm	PDY mm	EL Article no. 71 234 ...	EL Article no. 71 234 ...
16 EL 1,5	1,5	16	1,0	1,1	**240**	**640**
16 EL 2,0	2,0	16	1,1	1,3	**242**	**642**
16 EL 3,0	3,0	16	1,3	1,5	**244**	**644**
22 EL 4,0	4,0	22	1,7	1,9	**270**	**670**
22 EL 5,0	5,0	22	2,1	2,5	**272**	**672**
22 EL 6,0	6,0	22	2,3	2,7	**274**	**674**
Steel					●	
Stainless steel					●	
Cast iron						●
Non ferrous metals					○	●
Heat resistant alloys						○

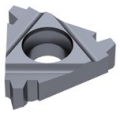
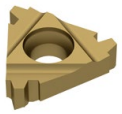
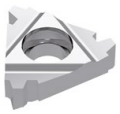
→ v_c Page 42

Right hand internal thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr | 30°



Designation	TP mm	INSL mm	PDX mm	PDY mm	CCN20 IR Article no. 71 236 ...	CWN1525 IR Article no. 71 236 ...	CWK20 IR Article no. 71 236 ...
11 IR 1,5	1,5	11	0,8	0,9	**210**		**610**
16 IR 1,5	1,5	16	1,0	1,1	**240**		**640**
16 IR 2,0	2,0	16	1,1	1,3	**242**		**642**
16 IR 3,0	3,0	16	1,3	1,5	**244**	**144**	**644**
22 IR 4,0	4,0	22	1,8	1,9		**170**	
22 IR 4,0	4,0	22	1,7	1,9	**270**		**670**
22 IR 5,0	5,0	22	2,0	2,4		**172**	
22 IR 5,0	5,0	22	2,1	2,5	**272**		**672**
22 IR 6,0	6,0	22	2,3	2,7	**274**		**674**
22 IN 6,0	6,0	22	2,0	11,0	**276** [1]		**676** [1]
22 IN 7,0	7,0	22	2,3	11,0	**278** [1]		**678** [1]
Steel					●	●	
Stainless steel					●	○	
Cast iron						●	●
Non ferrous metals					○	●	●
Heat resistant alloys							○

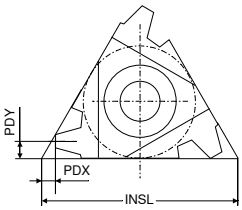
1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

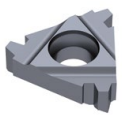
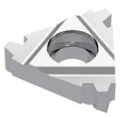
→ v_c Page 42

Left hand internal thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr | 30°



Designation	TP mm	INSL mm	PDX mm	PDY mm	CCN20 IL Article no. 71 238 ...	CWK20 IL Article no. 71 238 ...
11 IL 1,5	1,5	11	0,8	0,9	**210**	**610**
16 IL 1,5	1,5	16	1,0	1,1	**240**	**640**
16 IL 2,0	2,0	16	1,1	1,3	**242**	**642**
16 IL 3,0	3,0	16	1,3	1,5	**244**	**644**
22 IL 4,0	4,0	22	1,7	1,9	**270**	**670**
22 IL 5,0	5,0	22	2,1	2,5	**272**	**672**
22 IL 6,0	6,0	22	2,3	2,7	**274**	**674**
Steel					●	
Stainless steel					●	
Cast iron						●
Non ferrous metals					○	●
Heat resistant alloys						○

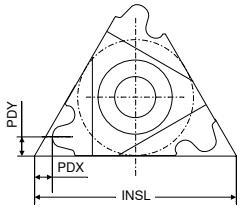
→ v_c Page 42

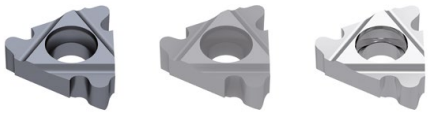
Right hand external thread turning insert

▲ Full profile
▲ Round thread DIN 405

Rd | 30°

CCN20 | HCN2525 | CWK20





Designation	TPI	INSL	PDX	PDY	ER	ER	ER
	1/"	mm	mm	mm	Article no. 71 248 ...	Article no. 71 248 ...	Article no. 71 248 ...
16 ER 10	10	16	1,1	1,2	**240**		**640**
16 ER 8	8	16	1,4	1,3	**242**		**642**
16 ER 6	6	16	1,5	1,7	**246**	**746**	**646**
22 ER 6	6	22	1,5	1,7	**270**		**670**
22 ER 4	4	22	2,2	2,3	**272**		**672**

Steel	●	○	
Stainless steel	●	●	
Cast iron		○	●
Non ferrous metals	○	○	●
Heat resistant alloys		○	○

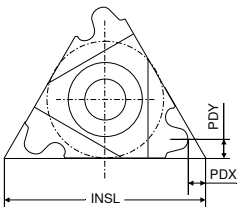
→ v_c Page 42

Left hand external thread turning insert

▲ Full profile
▲ Round thread DIN 405

Rd | 30°

CCN20 | CWK20





Designation	TPI	INSL	PDX	PDY	EL	EL
	1/"	mm	mm	mm	Article no. 71 250 ...	Article no. 71 250 ...
16 EL 10	10	16	1,1	1,2	**240**	**640**
16 EL 8	8	16	1,4	1,3	**242**	**642**
16 EL 6	6	16	1,5	1,7	**246**	**646**
22 EL 6	6	22	1,5	1,7	**270**	**670**
22 EL 4	4	22	2,2	2,3	**272**	**672**

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

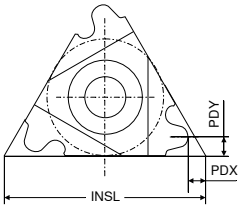
→ v_c Page 42

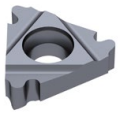
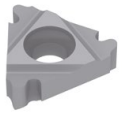
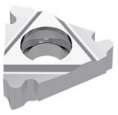
Right hand internal thread turning insert

▲ Full profile
▲ Round thread DIN 405

Rd | 30°

CCN20 | HCN2525 | CWK20



Designation	TPI	INSL	PDX	PDY	IR	IR	IR
					Article no. 71 252 ...	Article no. 71 252 ...	Article no. 71 252 ...
	1/"	mm	mm	mm			
16 IR 10	10	16	1,1	1,2	**240**		**640**
16 IR 8	8	16	1,4	1,4	**242**		**642**
16 IR 6	6	16	1,4	1,5	**246**	**746**	**646**
22 IR 6	6	22	1,5	1,7	**270**		**670**
22 IR 4	4	22	2,2	2,3	**272**		**672**

Steel	●	○	
Stainless steel	●	●	
Cast iron		○	●
Non ferrous metals	○	○	●
Heat resistant alloys		○	○

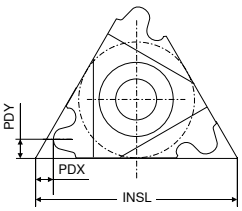
→ v_c Page 42

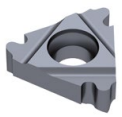
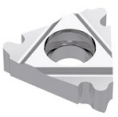
Left hand internal thread turning insert

▲ Full profile
▲ Round thread DIN 405

Rd | 30°

CCN20 | CWK20



Designation	TPI	INSL	PDX	PDY	IL	IL
					Article no. 71 254 ...	Article no. 71 254 ...
	1/"	mm	mm	mm		
16 IL 10	10	16	1,1	1,2	**240**	**640**
16 IL 8	8	16	1,4	1,4	**242**	**642**
16 IL 6	6	16	1,4	1,5	**246**	**646**
22 IL 6	6	22	1,5	1,7	**270**	**670**
22 IL 4	4	22	2,2	2,3	**272**	**672**

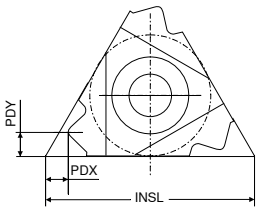
Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

→ v_c Page 42

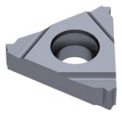
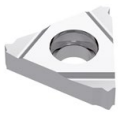
Right hand external thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°



CCN20 | CWK20

Designation	TPI	INSL	PDX	PDY	ER Article no. 71 240 ...	ER Article no. 71 240 ...
	1/"	mm	mm	mm		
16 ER 20	20	16	0,8	0,8	**240**	**640**
16 ER 18	18	16	0,8	0,9	**242**	**642**
16 ER 16	16	16	0,8	1,0	**244**	**644**

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

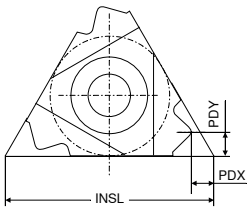
→ v_c Page 42

8

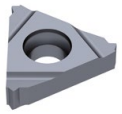
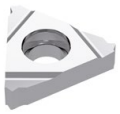
Left hand external thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°



CCN20 | CWK20

Designation	TPI	INSL	PDX	PDY	EL Article no. 71 242 ...	EL Article no. 71 242 ...
	1/"	mm	mm	mm		
16 EL 20	20	16	0,8	0,8	**240**	**640**
16 EL 18	18	16	0,8	0,9	**242**	**642**
16 EL 16	16	16	0,8	1,0	**244**	**644**

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

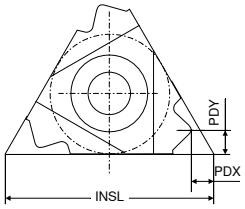
→ v_c Page 42

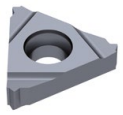
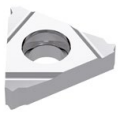
Right hand internal thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°

CCN20 | CWK20



Designation	TPI	INSL	PDX	PDY	IR	IR
	1/"	mm	mm	mm	Article no. 71 244 ...	Article no. 71 244 ...
11 IR 18	18	11	0,8	0,9	**238**	**638**
16 IR 18	18	16	0,8	0,9	**242**	**642**
16 IR 16	16	16	0,8	1,0	**244**	**644**

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

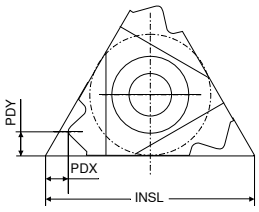
→ v_c Page 42

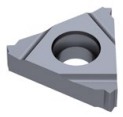
Left hand internal thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°

CCN20 | CWK20






Designation	TPI	INSL	PDX	PDY	IL	IL
	1/"	mm	mm	mm	Article no. 71 246 ...	Article no. 71 246 ...
11 IL 18	18	11	0,8	0,9	**238**	**638**
16 IL 18	18	16	0,8	0,9	**242**	**642**
16 IL 16	16	16	0,8	1,0	**244**	**644**

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

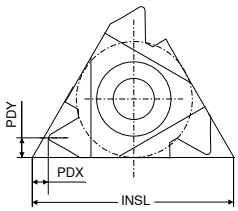
→ v_c Page 42

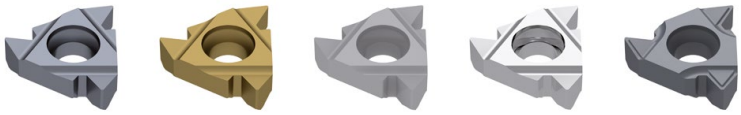
Right hand external thread turning insert

▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application



CCN20 | CWN1525 | HCN2525 | CWK20 | CCN7525





Designation	TP mm	INSL mm	PDX mm	PDY mm	ER Article no. 71 206 ...	ER Article no. 71 206 ...	ER Article no. 71 206 ...	ER Article no. 71 206 ...	ER Article no. 71 206 ...
16 ER A60	0,5 - 1,5	16	0,8	0,9	**240**	**140**	**740**	**640**	**940**
16 ER G60	1,75 - 3	16	1,2	1,7	**242**	**142**	**742**	**642**	**942**
16 ER AG60	0,5 - 3	16	1,2	1,7	**244**	**144**	**744**	**644**	**944**
22 ER N60	3,5 - 5	22	1,7	2,5	**270**	**170**		**670**	
22 EN U60	5,5 - 8	22	0,9	11,0	**272** 1)			**672** 1)	

Steel	●	●	○		●
Stainless steel	●	○	●		●
Cast iron		●	○	●	●
Non ferrous metals	○	●	○	●	○
Heat resistant alloys			○	○	●

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

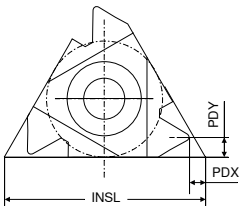
→ v_c Page 42

Left hand external thread turning insert

▲ Partial profile



CCN20 | CWK20





Designation	TP mm	INSL mm	PDX mm	PDY mm	EL Article no. 71 208 ...	EL Article no. 71 208 ...
16 EL A60	0,5 - 1,5	16	0,8	0,9	**240**	**640**
16 EL G60	1,75 - 3	16	1,2	1,7	**242**	**642**
16 EL AG60	0,5 - 3	16	1,2	1,7	**244**	**644**
22 EL N60	3,5 - 5	22	1,7	2,5	**270**	**670**

Steel	●	
Stainless steel	●	
Cast iron		●
Non ferrous metals	○	●
Heat resistant alloys		○

→ v_c Page 42

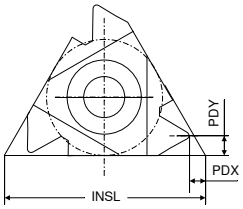
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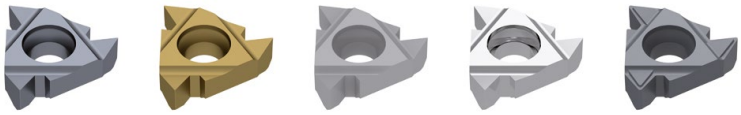
Right hand internal thread turning insert

▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application



CCN20 | CWN1525 | HCN2525 | CWK20 | CCN7525





Designation	TP mm	INSL mm	PDX mm	PDY mm	IR Article no. 71 210 ...	IR Article no. 71 210 ...	IR Article no. 71 210 ...	IR Article no. 71 210 ...	IR Article no. 71 210 ...
11 IR A60	0,5 - 1,5	11	0,8	0,9	**210**	**110**		**610**	
16 IR A60	0,5 - 1,5	16	0,8	0,9	**240**	**140**		**640**	
16 IR G60	1,75 - 3	16	1,2	1,7	**242**	**142**		**642**	
16 IR AG60	0,5 - 3	16	1,2	1,7	**244**	**144**	**744**	**644**	**944**
22 IR N60	3,5 - 5	22	1,7	2,5	**270**	**170**		**670**	
22 IN U60	5,5 - 8	22	0,9	11,0	**272** [1]			**672** [1]	
Steel					●	●	○		●
Stainless steel					●	○	●		●
Cast iron						●	○	●	●
Non ferrous metals					○	●	○	●	○
Heat resistant alloys							○	○	●

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

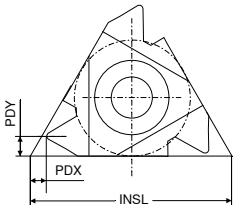
→ v_c Page 42

Left hand internal thread turning insert

▲ Partial profile



CCN20 | CWK20





Designation	TP mm	INSL mm	PDX mm	PDY mm	IL Article no. 71 212 ...	IL Article no. 71 212 ...
11 IL A60	0,5 - 1,5	11	0,8	0,9	**210**	**610**
16 IL A60	0,5 - 1,5	16	0,8	0,9	**240**	**640**
16 IL G60	1,75 - 3	16	1,2	1,7	**242**	**642**
16 IL AG60	0,5 - 3	16	1,2	1,7	**244**	**644**
22 IL N60	3,5 - 5	22	1,7	2,5	**270**	**670**
Steel					●	
Stainless steel					●	
Cast iron						●
Non ferrous metals					○	●
Heat resistant alloys						○

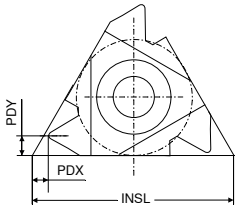
→ v_c Page 42

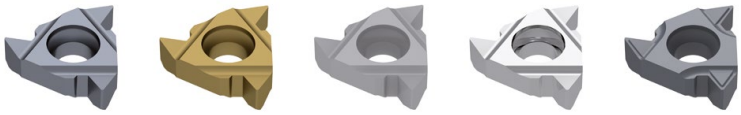
Right hand external thread turning insert

▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application



CCN20 | CWN1525 | HCN2525 | CWK20 | CCN7525





Designation	TPI	INSL	PDX	PDY	ER Article no. 71 200 ...	ER Article no. 71 200 ...	ER Article no. 71 200 ...	ER Article no. 71 200 ...	ER Article no. 71 200 ...
	1/"	mm	mm	mm					
16 ER A55	48 - 16	16	0,8	0,9	**240**	**140**	**740**	**640**	**940**
16 ER AG55	48 - 8	16	1,2	1,7	**244**	**144**	**744**	**644**	**944**
16 ER G55	14 - 8	16	1,2	1,7	**242**	**142**	**742**	**642**	**942**
22 ER N55	7 - 5	22	1,7	2,5	**270**	**170**	**770**	**670**	
22 EN U55	4,5 - 3,25	22	0,9	11,0	**272** [1]			**672** [1]	
Steel					●	●	○		●
Stainless steel					●	○	●		●
Cast iron						●	○	●	●
Non ferrous metals					○	●	○	●	○
Heat resistant alloys							○	○	●

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

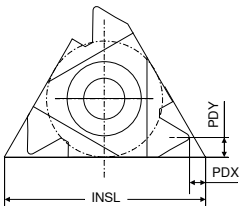
→ v_c Page 42

Left hand external thread turning insert

▲ Partial profile



CCN20 | CWK20





Designation	TPI	INSL	PDX	PDY	EL Article no. 71 202 ...	EL Article no. 71 202 ...
	1/"	mm	mm	mm		
16 EL A55	48 - 16	16	0,8	0,9	**240**	**640**
16 EL AG55	48 - 8	16	1,2	1,7	**244**	**644**
16 EL G55	14 - 8	16	1,2	1,7	**242**	**642**
22 EL N55	7 - 5	22	1,7	2,5	**270**	**670**
Steel					●	
Stainless steel					●	
Cast iron						●
Non ferrous metals					○	●
Heat resistant alloys						○

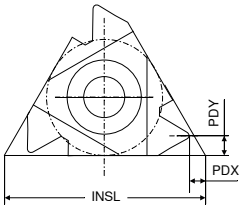
→ v_c Page 42

8

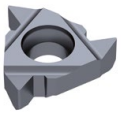
Right hand internal thread turning insert

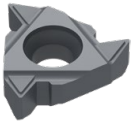
▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application





CCN20 | CWN1525 | CWK20 | CCN7525



Designation	TPI	INSL	PDX	PDY	IR Article no. 71 204 ...	IR Article no. 71 204 ...	IR Article no. 71 204 ...	IR Article no. 71 204 ...
	1/"	mm	mm	mm				
11 IR A55	48 - 16	11	0,8	0,9	**210**		**610**	
16 IR A55	48 - 16	16	0,8	0,9	**240**		**640**	
16 IR AG55	48 - 8	16	1,2	1,7	**244**		**644**	
16 IR G55	14 - 8	16	1,2	1,7	**242**	**142**	**642**	**942**
22 IR N55	7 - 5	22	1,7	2,5	**270**		**670**	
22 IN U55	4,5 - 3,25	22	0,9	11,0	**272** [1]		**672** [1]	
Steel					●	●		●
Stainless steel					●	○		●
Cast iron						●	●	●
Non ferrous metals					○	●	●	○
Heat resistant alloys							○	●

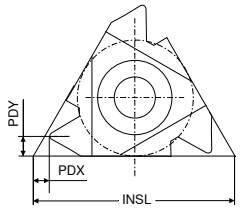
1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 42

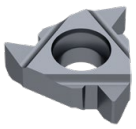
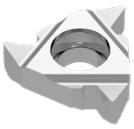
Left hand internal thread turning insert

▲ Partial profile





CCN20 | CWK20

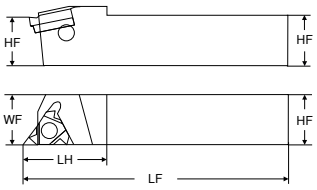



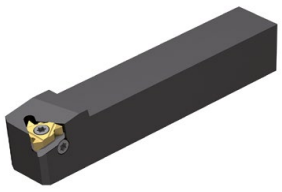
Designation	TPI	INSL	PDX	PDY	IL Article no. 71 203 ...	IL Article no. 71 203 ...
	1/"	mm	mm	mm		
11 IL A55	48 - 16	11	0,8	0,9	**210**	**610**
16 IL A55	48 - 16	16	0,8	0,9	**240**	**640**
16 IL AG55	48 - 8	16	1,2	1,7	**244**	**644**
16 IL G55	14 - 8	16	1,2	1,7	**242**	**642**
22 IL N55	7 - 5	22	1,7	2,5	**270**	**670**
Steel					●	
Stainless steel					●	
Cast iron						●
Non ferrous metals					○	●
Heat resistant alloys						○

→ v_c Page 42

Standard External Thread Turning Holder

▲ Tool Holder with Approach Angle ß = 1,5°





Illustrations show right-hand versions

Designation	HF mm	WF mm	LF mm	LH mm	Insert	Left-hand Article no. 71 281 ...	Right-hand Article no. 71 280 ...
SE R/L 08 08 H11	8	11	100	16	11 ..	908 [2]	908 [2]
SE R/L 10 10 H11	10	12	100	18	11 ..	910 [2]	910 [2]
SE R/L 12 12 K11	12	12	125	20	11 ..	912 [2]	912 [2]
SE R/L 12 12 F16	12	16	80	22	16 ..	012	012
SE R/L 16 16 H16	16	16	100	25	16 ..	016	016
SE R/L 20 20 K16	20	20	125	30	16 ..	020	020
SE R/L 25 25 M16	25	25	150	30	16 ..	025	025
SE R/L 32 32 P16	32	32	170	30	16 ..	032	032
SE R/L 25 25 M22	25	25	150	32	22 ..	125	125
SE R 32 32 P22	32	32	170	34	22 ..		132
SE R 32 32 P22U	32	21	170	32	22 .N		232 [1]

1) Neutral insert indicated by marking (N)
2) without shim


Multi tooth shim


Shim


Screw-U


Key D

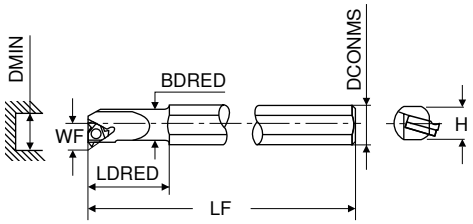

Clamping screw

Spare parts for Article no.		Article no. 71 950 ...		Article no. 71 950 ...	Article no. 71 950 ...		Article no. 80 950 ...	Article no. 71 950 ...
71 280 908 / 71 281 908						T08	110	230
71 280 910 / 71 281 910						T08	110	230
71 280 912 / 71 281 912						T08	110	230
71 280 012	ER 16 / IL 16	101	ER 16 / IL 16	121	234	T10	112	231
71 281 012	EL 16 / IR 16	108	EL 16 / IR 16	129	234	T10	112	231
71 280 016	ER 16 / IL 16	101	ER 16 / IL 16	121	234	T10	112	231
71 281 016	EL 16 / IR 16	108	EL 16 / IR 16	129	234	T10	112	231
71 280 020	ER 16 / IL 16	101	ER 16 / IL 16	121	234	T10	112	231
71 281 020	EL 16 / IR 16	108	EL 16 / IR 16	129	234	T10	112	231
71 280 025	ER 16 / IL 16	101	ER 16 / IL 16	121	234	T10	112	231
71 281 025	EL 16 / IR 16	108	EL 16 / IR 16	129	234	T10	112	231
71 280 032	ER 16 / IL 16	101	ER 16 / IL 16	121	234	T10	112	231
71 281 032	EL 16 / IR 16	108	EL 16 / IR 16	129	234	T10	112	231
71 280 125	ER 22 / IL 22	110	ER 22 / IL 22	137	235	T20	114	232
71 281 125	EL 22 / IR 22	115	EL 22 / IR 22	145	235	T20	114	232
71 280 132			ER 22 / IL 22	137	235	T20	114	232
71 280 232			ER 22U / IL 22U	153	235	T20	114	232

Shims for correction of helix angle see page → **Page 39.**

Standard Internal Thread Turning Holder

▲ Tool Holder with Approach Angle ß = 1,5°

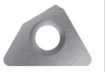




Illustrations show right-hand versions

Designation	H	LF	LDRED	DCONMS	BDRED	WF	DMIN	Insert	Left-hand Article no. 71 283 ...	Right-hand Article no. 71 282 ...
	mm	mm	mm	mm	mm	mm	mm			
SI R 0010 H11	9,0	100	25	10	9,5	7,4	12	11 ..		**011** [1]
SI R/L 0010 K11	14,0	125	25	16	10,0	7,4	12	11 ..	**010** [1]	**010** [1]
SI R 0013 L11	14,0	140	32	16	12,0	8,9	15	11 ..		**013** [1]
SI R/L 0013 M16	14,0	150	32	16	13,0	10,2	16	16 ..	**015** [1]	**015** [1]
SI R/L 0016 P16	18,0	170	40	20	15,0	11,7	19	16 ..	**016** [1]	**016** [1]
SI R/L 0020 P16	18,0	170	40	20	19,5	13,7	24	16 ..	**020**	**020**
SI R 0025 R16	22,6	200	40	25	24,5	16,2	29	16 ..		**026**
SI R/L 0032 S16	28,8	250	50	32	31,5	19,7	36	16 ..	**032**	**032**
SI R 0040 T16	36,0	300	50	40	39,5	23,7	44	16 ..		**040**
SI R 0020 P22	18,0	170	40	20	19,5	15,6	24	22 ..		**120** [1]
SI R/L 0025 R22	22,6	200	40	25	24,5	18,1	29	22 ..	**126**	**126**
SI R 0032 S22	28,8	250	50	32	31,5	21,6	38	22 ..		**132**
SI R 0040 T22	36,0	300	60	40	39,5	25,6	46	22 ..		**140**
SI R 0032 S22U	28,8	250	60	32	31,5	24,4	38	22 .N		**133** [2]

1) without shim
2) Neutral insert indicated by marking (N)


Multi tooth shim


Shim


Screw-U


Key D


Clamping screw

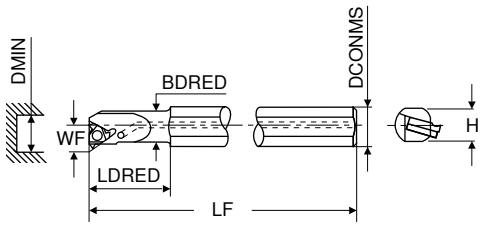
Spare parts for Article no.		Article no. 71 950 ...		Article no. 71 950 ...	Article no. 71 950 ...		Article no. 80 950 ...	Article no. 71 950 ...
71 282 011						T08	110	230
71 282 010 / 71 283 010						T08	110	230
71 282 013						T08	110	230
71 282 015 / 71 283 015						T10	112	236
71 282 016 / 71 283 016						T10	112	236
71 282 020	EL 16 / IR 16	108	EL 16 / IR 16	129	234	T10	112	231
71 283 020	ER 16 / IL 16	101	ER 16 / IL 16	121	234	T10	112	231
71 282 026	EL 16 / IR 16	108	EL 16 / IR 16	129	234	T10	112	231
71 282 032	EL 16 / IR 16	108	EL 16 / IR 16	129	234	T10	112	231
71 283 032	ER 16 / IL 16	101	ER 16 / IL 16	121	234	T10	112	231
71 282 040	EL 16 / IR 16	108	EL 16 / IR 16	129	234	T10	112	231
71 282 120					234	T20	114	237
71 282 126	EL 22 / IR 22	115	EL 22 / IR 22	145	235	T20	114	232
71 283 126	ER 22 / IL 22	110	ER 22 / IL 22	137	235	T20	114	232
71 282 132	EL 22 / IR 22	115	EL 22 / IR 22	145	235	T20	114	232
71 282 140	EL 22 / IR 22	115	EL 22 / IR 22	145	235	T20	114	232

Shims for correction of helix angle see page → **Page 39.**

Standard Internal Thread Turning Holder with thro' coolant

▲ Tool Holder with Approach Angle ß = 1,5°







Illustrations show right-hand versions

Designation	H	LF	LDRED	DCONMS	BDRED	WF	DMIN	Insert	Left-hand Article no. 71 283 ...	Right-hand Article no. 71 282 ...
	mm	mm	mm	mm	mm	mm	mm			
SI R 0010 M11CB	9,0	150	25	10	9,5	7,4	12	11 ..		**510** [2]
SI R 0012 P11CB	11,0	170	30	12	11,5	8,4	15	11 ..		**512** [2]
SI R/L 0010 K11B	14,0	125	25	16	10,0	7,4	12	11 ..	**310**	**310**
SI R/L 0013 M16B	14,0	150	32	16	13,0	10,2	16	16 ..	**315**	**315**
SI R 0016 P16B	18,0	170	40	20	16,0	11,7	19	16 ..		**316**
SI R 0020 P16B	18,0	170	40	20	19,5	13,7	24	16 ..		**320** [1]
SI R/L 0032 S16B	28,8	250	50	32	31,5	19,7	36	16 ..	**332** [1]	**332** [1]

1) with shim seat
2) Carbide version


Multi tooth shim


Shim


Screw-U

Key D


Clamping screw

Spare parts for Article no.		Multi tooth shim Article no. 71 950 ...		Shim Article no. 71 950 ...		Screw-U Article no. 71 950 ...		Key D Article no. 80 950 ...		Clamping screw Article no. 71 950 ...
71 282 510							T08	**110**		**230**
71 282 512							T08	**110**		**230**
71 282 310 / 71 283 310							T08	**110**		**230**
71 282 315 / 71 283 315							T10	**112**		**236**
71 282 316							T10	**112**		**236**
71 282 320	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
71 282 332	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
71 283 332	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**		**234**	T10	**112**		**231**

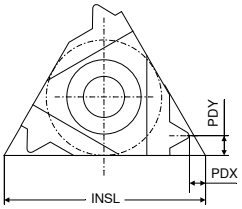
Shims for correction of helix angle see page → **Page 39.**

8

Right hand internal thread turning insert – Mini size 06

▲ Full profile
▲ Thread production from diameter 6mm

M | 60°





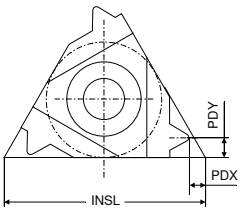
Designation	TP	PDX	PDY	INSL	HSS IR	IR	IR
					CWS80	CCN1525	CWN30
	mm	mm	mm	mm	Article no. 71 276 ...	Article no. 71 271 ...	Article no. 71 276 ...
06 IR 0,5	0,50	0,9	0,5	6	**710**	**110**	**310**
06 IR 0,75	0,75	0,8	0,5	6	**712**	**112**	**312**
06 IR 1,0	1,00	0,7	0,6	6	**714**	**114**	**314**
06 IR 1,25	1,25	0,6	0,6	6	**716**	**116**	**316**
Steel					○	●	●
Stainless steel					●	●	●
Cast iron					○	●	○
Non ferrous metals					○	○	○
Heat resistant alloys							○

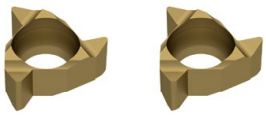
→ v_c Page 42

Right hand internal thread turning insert – Mini size 06

▲ Full profile
▲ Thread production from diameter 6mm

BSW | 55°





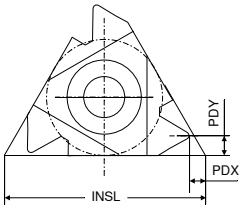
Designation	TPI	PDX	PDY	INSL	HSS IR	IR
					CWS80	CWN30
	1/"	mm	mm	mm	Article no. 71 278 ...	Article no. 71 278 ...
06 IR 26	26	0,6	0,6	6	**716**	**316**
06 IR 22	22	0,6	0,6	6	**720**	**320**
06 IR 20	20	0,6	0,6	6	**722**	**322**
06 IR 19	19	0,6	0,6	6	**724**	**324**
06 IR 18	18	0,6	0,6	6	**726**	**326**
Steel					○	●
Stainless steel					●	●
Cast iron					○	○
Non ferrous metals					○	○
Heat resistant alloys						○

→ v_c Page 42

Right hand internal thread turning insert – Mini size 06

▲ Partial profile
▲ Thread production from diameter 6mm





CWS80 | CCN1525 | CWN30



Designation	TP	INSL	PDX	PDY	HSS IR	IR	IR
	mm	mm	mm	mm	Article no. 71 272 ...	Article no. 71 274 ...	Article no. 71 272 ...
06 IR A60	0,5 - 1,25	6	0,6	0,6	**710**	**210**	**310**
Steel					○	●	●
Stainless steel					●	●	●
Cast iron					○	●	○
Non ferrous metals					○	○	○
Heat resistant alloys							○

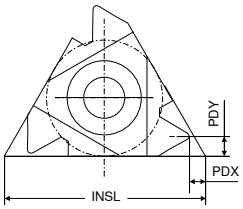
→ v_c Page 42

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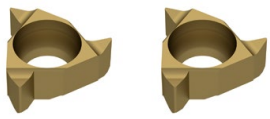
Right hand internal thread turning insert – Mini size 06

▲ Partial profile
▲ Thread production from diameter 6mm





CWS80 | CWN30

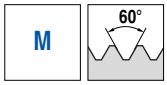


Designation	TPI	INSL	PDX	PDY	HSS IR	IR
	1/"	mm	mm	mm	Article no. 71 274 ...	Article no. 71 274 ...
06 IR A55	48 - 20	6	0,5	0,6	**710**	**310**
Steel					○	●
Stainless steel					●	●
Cast iron					○	○
Non ferrous metals					○	○
Heat resistant alloys						○

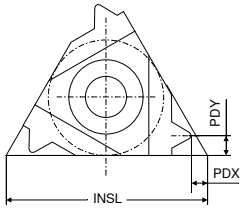
→ v_c Page 42

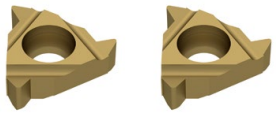
Right hand internal thread turning insert – Mini size 08

▲ Full profile
▲ Thread production from diameter 8mm



CWS80 CWN30





Designation	TP	PDX	PDY	INSL	HSS IR	IR
	mm	mm	mm	mm	Article no. 71 277 ...	Article no. 71 277 ...
08 IR 0,5	0,50	0,6	0,5	8	**710**	**310**
08 IR 0,75	0,75	0,6	0,5	8	**712**	**312**
08 IR 1,0	1,00	0,6	0,6	8	**714**	**314**
08 IR 1,25	1,25	0,6	0,7	8	**716**	**316**
08 IR 1,5	1,50	0,6	0,7	8	**718**	**318**
08 IR 1,75	1,75	0,6	0,8	8	**720**	**320**
08 IN 2,0	2,00	1,0	4,0	8	**784** 1)	**384** 1)

Steel	○	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys		○

1) Neutral version (N)

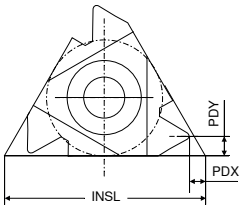
→ v_c Page 42

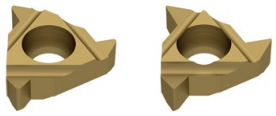
Right hand internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8mm



CWS80 CWN30





Designation	TP	PDX	PDY	INSL	HSS IR	IR
	mm	mm	mm	mm	Article no. 71 273 ...	Article no. 71 273 ...
08 IR A60	0,5 - 1,5	0,6	0,7	8	**710**	**310**
08 IN M60	1,75 - 2,0	0,8	4,0	8	**772** 1)	**372** 1)

Steel	○	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys		○

1) Neutral version (N)

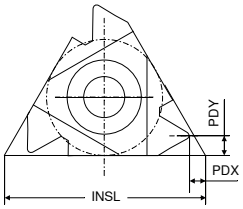
→ v_c Page 42

Right hand internal thread turning insert – Mini size 08

- Partial profile
- Thread production from diameter 8mm



CWS80 CWN30







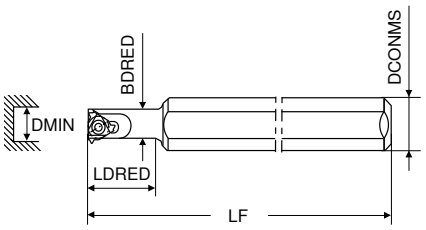
Designation	TPI	INSL	PDX	PDY	HSS IR	IR
	1/"	mm	mm	mm	Article no. 71 275 ...	Article no. 71 275 ...
08 IR A55	48 - 16	8	0,6	0,7	**710**	**310**
08 IN M55	14 - 11	8	0,9	4,0	**772** [1]	**372** [1]
Steel					○	●
Stainless steel					●	●
Cast iron					○	○
Non ferrous metals					○	○
Heat resistant alloys						○

1) Neutral version (N)

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Right Hand Internal Thread Holder – Mini size 06





Designation	LF	LDRED	DCONMS	BDRED	DMIN	Insert	Right-hand Article no. 71 294 ...
	mm	mm	mm	mm	mm		
SI R 0005 H06	100	12	12	5,2	6	06 ..	**005**
SI R 0005 H06 C	100	25	6	5,2	6	06 ..	**105** [1]

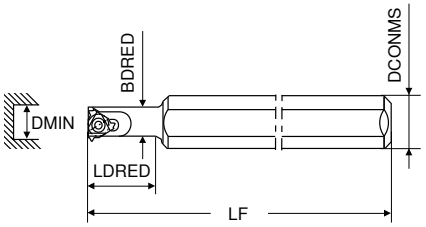
1) Solid Carbide Shank with Thro' Coolant


Key D


Clamping screw

Spare parts for Article no.		Article no. 80 950 ...	Article no. 71 950 ...
71 294 005	T06	**108**	**029**
71 294 105	T06	**108**	**029**

Right Hand Internal Thread Holder – Mini size 08





Designation	LF	LDRED	DCONMS	BDRED	DMIN	Insert	Right-hand Article no. 71 295 ...
	mm	mm	mm	mm	mm		
SI R 0007 K08	125	18	16	6,7	7,8	08 ..	**007**
SI R 0007 K08U	125	21	16	7,5	9,0	08 .N	**008** [1]
SI R 0007 K08C	125	30	8	6,5	7,8	08 ..	**107** [2]

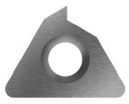
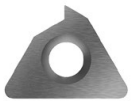
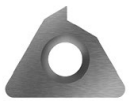
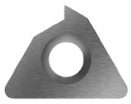
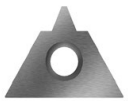
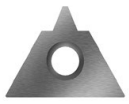
1) Neutral insert indicated by marking (N)
2) Solid Carbide Shank with Thro' Coolant

Key D


Clamping screw

Spare parts for Article no.		Article no. 80 950 ...	Article no. 71 950 ...
71 295 007	T06	**108**	**033**
71 295 008	T06	**108**	**033**
71 295 107	T06	**108**	**033**

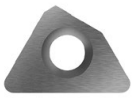
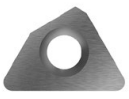
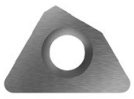
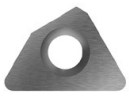
Shims for Standard Threading Inserts

Pitch-angle β	AE 16 ER 16 / IL 16 Article no. 71 950 ...	AI 16 EL 16 / IR 16 Article no. 71 950 ...	AE 22 ER 22 / IL 22 Article no. 71 950 ...	AI 22 EL 22 / IR 22 Article no. 71 950 ...	AE 22 U ER 22 / IL 22 Article no. 71 950 ...	AI 22 U EL 22 / IR 22 Article no. 71 950 ...
+ 4,5°	118	126	134	142	150 [1]	158 [1]
+ 3,5°	119	127	135	143	151 [1]	159 [1]
+ 2,5°	120	128	136	144	152 [1]	160 [1]
+ 1,5°	121	129	137	145	153 [1]	161 [1]
+ 0,5°	122	130	138	146	154 [1]	162 [1]
0°	123	131	139	147		
- 0,5°	124	132	140	148	156 [1]	164 [1]
- 1,5°	125	133	141	149	157 [1]	165 [1]

1) Neutral version for tool holder identified by (U).

Shims for Multi-Tooth Threading Inserts

Pitch-angle β	AE 16 M ER 16 / IL 16 Article no. 71 950 ...	AI 16 M EL 16 / IR 16 Article no. 71 950 ...	AE 22 M ER 22 / IL 22 Article no. 71 950 ...	AI 22 M EL 22 / IR 22 Article no. 71 950 ...
+ 1,5°	101	108	110	115

8

Pitch angle

Important Information about Standard Shims

- the pitch angle should be determined through calculation or by using the chart below
- the standard WNT threading holder is supplied with a 1.5° inclined insert seat and a shim without angular correction.
  Hence the WNT Tool holders are delivered with an angle of inclination β of 1.5°.

Without the appropriate correction of the helix angle, the following may occur

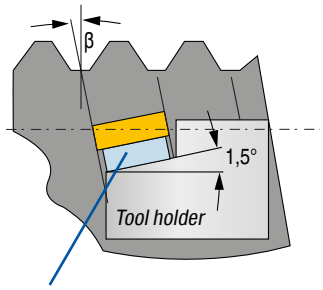
- the profile will be distorted.
- insufficient clearance angle.
- the tool life of the insert is greatly reduced.

Method 1: Calculation

Calculating the helix angle β:

$$\beta = \frac{20 \times TP}{DMIN}$$

20 = constant
β = Helix angle (°)
TP = Pitch (mm)
DMIN = Nominal diameter (mm)



Example calculation

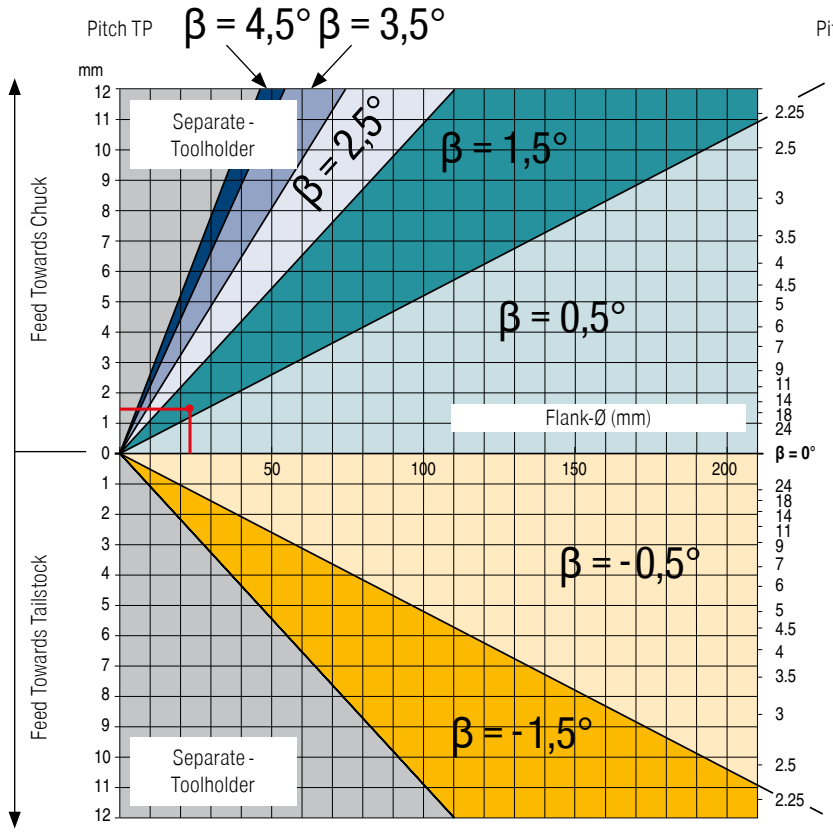
External thread M24 x 1.5
Feed towards chuck
DMIN = Nominal Ø: M24 = 24 mm
TP = Pitch: 1.5 mm

$$\beta = \frac{20 \times 1{,}5 \text{ mm}}{24 \text{ mm}}$$

β = 1,25°

Method 2: Diagram

From the flank Ø in the diagram, a line is drawn vertically upwards until it intersects with the line of the pitch of the thread to be produced. In the color-coded region in which it is now, a horizontal line to the edge of the chart indicates the appropriate factor.



calculated pitch angle β value	Shim
0,0°–0,99°	0,5°
1,0°–1,99°	1,5°
2,0°–2,99°	2,5°
3,0°–3,99°	3,5°
4,0°–4,99°	4,5°
0,0°–(-0,99°)	-0,5°
-1,0°–(-1,99°)	-1,5°

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

8

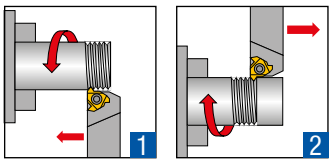
Cutting data appoximate values

	Mini CWN30	Mini CWS80	Mini CCN1525	CWN1525	HCN2525	CCN7525	CCN20	CWK20
Index	v_c in m/min							
1.1	**20–100**	30–50	**80–100**	**120–140**	190–210	**150–170**	**120–180**	
1.2	**20–100**	30–50	**80–100**	**120–140**	190–210	**150–170**	**140–200**	
1.3	**20–100**	30–50	**80–100**	**120–140**	190–210	**150–170**	**110–180**	
1.4	**20–80**	25–40	**60–80**	**70–90**	120–140	**90–110**	**100–155**	
1.5	**20–80**	25–40	**90–110**	**100–120**	160–180	**130–150**	**110–180**	
1.6	**20–80**	25–40	**90–110**	**100–120**	160–180	**130–150**	**100–155**	
1.7	**20–100**	30–50	**50–60**	**50–70**	70–90	**60–80**	**110–180**	
1.8	**20–80**	25–40	**50–60**	**50–70**	70–90	**60–80**	**80–135**	
1.9	**20–100**	25–40	**60–80**	**90–100**	120–140	**100–120**		
1.10	**20–80**	25–40	**50–60**	**50–60**	60–80	**50–70**		
1.11	**20–80**	25–40	**50–60**	**50–60**	60–80	**50–70**		
1.12	**20–80**	25–40	**50–60**	**50–60**	60–80	**50–70**	**80–135**	
1.13		25–40	**50–60**	**50–60**	60–80	**50–70**		
1.14			**50–60**	**50–60**	60–80	**50–70**		
1.15			**50–60**	**50–60**	60–80	**50–70**		
1.16			**50–60**	**50–60**	60–80	**50–70**		
2.1	**20–70**	**10–25**	**40–50**	50–70	**140–160**	**90–110**	**70–120**	
2.2	**20–70**	**10–25**	**40–50**	50–70	**140–160**	**90–110**	**70–120**	
2.3	**20–70**	**10–25**	**40–50**	50–70	**140–160**	**90–110**	**60–95**	
2.4	**20–70**	**10–25**	**40–50**	50–70	**140–160**	**90–110**	**60–95**	
2.5	**20–70**	**10–25**	**40–50**	50–70	**140–160**	**90–110**	**40–90**	
2.6	**20–70**	**10–25**	**40–50**	50–70	**140–160**	**90–110**	**70–100**	
2.7	**20–70**	**10–25**	**40–50**	50–70	**140–160**	**90–110**	**70–100**	
3.1	40–90	20–40	**60–80**	**90–110**	140–150	**120–130**		**70–100**
3.2	40–90	20–40	**60–80**	**90–110**	140–150	**120–130**		**70–100**
3.3	40–90	20–40	**60–80**	**90–110**	140–150	**120–130**		**70–100**
3.4	40–90	20–40	**60–80**	**90–110**	140–150	**120–130**		**70–100**
3.5	40–90	20–40	**50–70**	**80–100**	120–130	**100–110**		**70–100**
3.6	40–90	20–40	**50–70**	**80–100**	120–130	**100–110**		**70–100**
3.7	40–90	20–40	**50–70**	**80–100**	120–130	**100–110**		**70–100**
3.8	40–90	20–40	**50–70**	**80–100**	120–130	**100–110**		**70–100**
4.1	80–180	40–100	550–570	**600–650**	800–900			**100–250**
4.2	80–180	40–100	300–330	**480–520**	800–900			**100–250**
4.3	60–150		300–330	**480–520**	800–900			**100–250**
4.4	60–130		300–330	**480–520**	800–900			**100–250**
4.5	40–120		300–330	**480–520**	800–900			**100–250**
4.6	80–150	40–80	120–150	**200–220**	300–320		80–200	**100–250**
4.7	80–150	40–80	110–130	**180–200**	280–300		80–200	**100–250**
4.8	80–150	40–80	110–130	**160–180**	250–280		80–200	**100–250**
4.9	80–150	40–80	110–130	**160–180**	250–280		80–200	**100–250**
4.10	80–150	40–80	100–120	**150–170**	220–250		80–200	**100–250**
4.11	80–150	40–80	100–120	**180–200**	230–240		80–200	**100–250**
4.12	80–150		100–120	**180–200**	230–240		80–200	**100–250**
4.13			180–200	**250–300**				
4.14			180–200	**250–300**				
4.15			180–200	**250–300**				
4.16			60–80	**80–100**	120–150			**100–250**
4.17			60–80	**80–100**	120–150	100–120		**100–250**
4.18			60–80	**80–100**	120–150			**100–250**
4.19			60–80	**80–100**	120–150			**100–250**
5.1					45–55	**30–40**		
5.2					45–55	**30–40**		20–30
5.3					45–55	**30–40**		20–30
5.4					45–55	**30–40**		20–30
5.5					35–40	**25**		20–30
5.6					35–40	**25–35**		20–30
5.7					35–40	**25–35**		
5.8					35–40	**25–35**		
5.9	20–90				40–50	**35–45**		25–50
5.10	20–90				40–50	**35–45**		20–30
5.11	20–90				40–50	**35–45**		20–30
6.1					50–60	45–55	40–60	
6.2					45–55		40–60	
6.3					40–45			
6.4					35–45			
6.5								

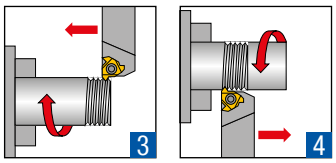
The cutting data depends extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced according to the application conditions.

Thread turning methods

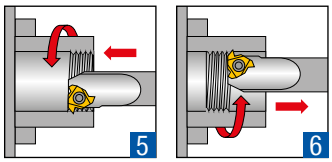
External right-hand thread



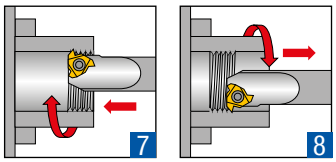
External left-hand thread



Internal right-hand thread



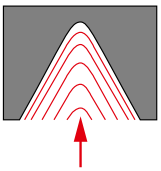
Internal left-hand thread



The machining examples 2, 4, 6 and 8 require negative shims!
These shims can be found on → **Page 39.**

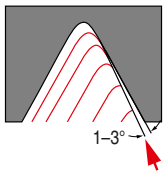
Thread infeed methods

Radial Infeed



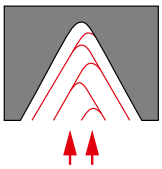
- for pitches less than 1.5 mm
- for short chipping materials
- for machining hardened materials
- simple and quick method

Flank infeed



- for pitches larger than 1.5 mm
- with radial penetration the effective cutting edge length is too large, which may lead to chattering
- with trapezoidal and ACME threads, chip flow on three sides can be problematic

Alternating infeed



- with large pitches
- for long chipping materials
- uniform wear of the cutting edges
- complicated programming process

8

Recommended number of cuts and cutting depths

Standard Threading Inserts

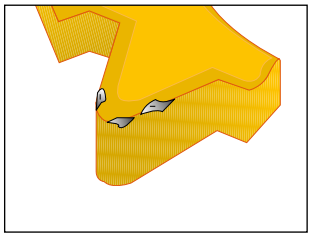
Pitch	**mm**	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,50	3,00	3,50	4,00	4,50	5,00	5,50	6,00	8,00
	TPI	48	32	24	20	16	14	12	10	8	7	6	5.5	5	4.5	4	3
Number of passes		4-6	4-7	4-8	5-9	6-10	7-12	7-12	8-14	9-16	10-18	11-18	11-19	12-20	12-20	12-20	15-24
Number of passes	**(CCN7525)**	3-4	3-4	3-5	4-6	5-6	6-8	6-8	8-10								
Number of passes	**Mini Inserts**	6-9	6-11	6-12	8-14	9-15	11-18	11-18									

Multi edge thread turning insert

Standard	Insert	Insert size		Pitch	Edges	Designation	Passes	Cutting depth per pass		
		IC	L mm					1	2	3
ISO external	M	3/8"	16	1,0 mm	3	3 ER 1.0 ISO 3M	2	0,38	0,25	
ISO external	M	3/8"	16	1,5 mm	2	3 ER 1.5 ISO 2M	3	0,42	0,30	0,20

Troubleshooting

Edge chipping



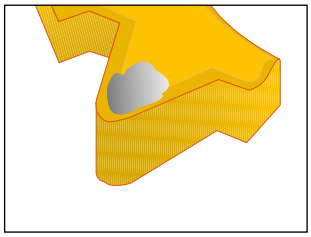
Cause

- Common in stainless materials
- Incorrect grade

Corrective measures

- Minimize tool overhang length
- Check that the insert is clamped
- Minimize vibration
- Use a tougher grade

Cratering



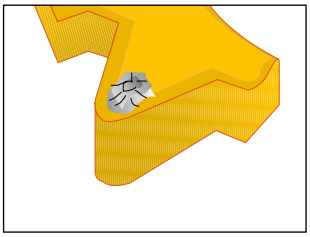
Cause

- Common in stainless materials
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce depth of cut
- Use a harder grade

Built-up edge



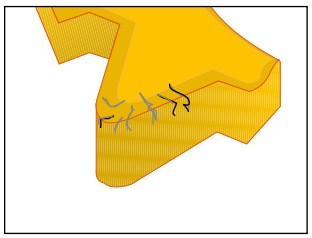
Cause

- Cutting speed too low
- Incorrect grade

Remedy

- Apply coolant
- Increase cutting speed
- Use a tougher grade

Thermal cracking



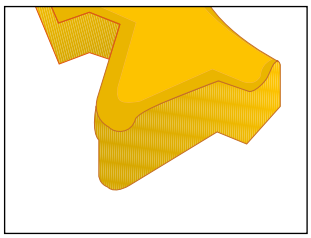
Cause

- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce cutting speed
- Use a tougher grade

Plastic deformation



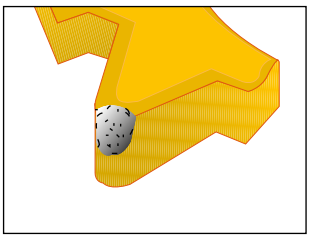
Cause

- Infeed too large
- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce depth of cut
- Reduce cutting speed
- Use a harder grade

Breakage



Cause

- Infeed too large
- Insufficient coolant
- Plastic deformation
- Instability
- Helix angle not appropriate
- Incorrect grade

Remedy

- Reduce depth of cut
- Check machine and tool stability
- Reduce cutting speed
- Check helix angle
- Use a tougher grade

WNT Designation Key

Inserts

16	E	R	AG 60	

Insert size

L	**I.C.**
06	5/32"
08	3/16"
11	1/4"
16	3/8"
22	1/2"

Insert

E	External
I	Internal

Cutting design

R	Right-hand
L	Left-hand
N	Neutral

Pitch

Full profile

	mm	G/Z
	0,35	72–4

Partial profile

	mm	G/Z
A	0,5–1,5	48–16
AG	0,5–3,0	48–8
M	1,7–2,0	14–11
G	1,75–3,0	14–8
N	3,5–5,0	7–5
U	5,5–8,0	4,5–3,5

Flank angle
55°
60°

Number of teeth

2M	Multi-tooth insert with 2 teeth
3M	Multi-tooth insert with 3 teeth

Example

16 ER AG 60
16 mm right hand – external insert with a pitch of 0.5-3.0 mm

Tool holder

SE	R	1212	F	16	

Tool holder

SE	External
SI	Internal

Cutting design

R	Right-hand
L	Left-hand

Shank cross-section

Example	
External holder square shank	1212 = 12 mm x 12 mm
Internal boring bar	0020 = 20 mm Diameter

Overall length

	mm
F	80
H	100
K	125
L	140
M	150
P	170
R	200
S	250
T	300

Insert size

L	**I.C.**
06	5/32"
08	3/16"
11	1/4"
16	3/8"
22	1/2"

Properties

B	Diameter
C	With thro' coolant
U	With carbide shank

Example

SE R 1212 F 16
Right hand holder with 12 x 12 mm square shank, overall length of 80 mm, only suitable for an 16 mm threading insert

Grade description

Universal

CCN7525
- Carbide, TiAlN-coated
- ISO | **P25** | **M25** | **K25** | N25 | **S25**
- The universal carbide grade with sintered chip breaker for medium to high cutting speeds

CWN30
- Carbide, TiN-coated
- ISO | **P30** | **M30**
- The coated carbide grade for machining steels and stainless steels at low cutting speeds

CCN1525
- Carbide, TiN-coated
- ISO | **P25** | **M25**
- The coated carbide grade for machining steels and stainless steels at low cutting speeds

Non-ferrous metals

CWK20
- Carbide, uncoated
- ISO | **N10** | **S10** | K10
- The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

Steel

CCN20
- Carbide, TiAlN-coated
- ISO | **P20** | **M20**
- The all-round carbide grade for machining steels at low cutting speeds

CWN1525
- Carbide, TiN-coated
- ISO | **P25** | M25 | **K25** | **N25**
- The universal carbide grade for machining steels and non-ferrous metals at low cutting speeds

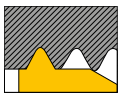
Stainless steel

HCN2525
- Carbide, TiAlN-coated
- ISO | P25 | **M25** | K25 | N25 | S25
- The coated carbide grade for machining stainless steels at high cutting speeds
- Also suitable for exotic materials

CWS80
- HSS, TiN-coated
- ISO | P | **M** | K | N
- The coated HSS grade for stainless machining at low cutting speeds
- Also suitable for exotic materials

Profile Type Description

Full profile



- Thread diameter must not be turned to final thread size
- a minimum infeed of 0.07 mm is necessary
- Insert can only be used only for a specific pitch

Advantages:
- High-quality thread
- No burr formation
- No rework
- In part longer service life

Partial profile



- Core diameter must be premachined to the finished size
- A minimum infeed of 0.07 mm is required

Advantages:
- One threading insert can be used to machine several pitches
- Threading insert can be used for any application
- Reduced stock requirements

Multi-Tooth Thread Turning Insert



- Thread diameter must not be turned to final thread size
- a minimum infeed of 0.07 mm is necessary
- Insert can only be used only for a specific pitch

Advantages:
- Fewer passes required
- Thread production in less time

Attention:
- Check there is sufficient thread run-out

Mini Thread Turning Insert





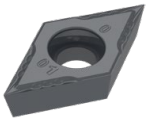
- From a min. core hole diameter of Ø 6 mm or Ø 8 mm

Advantages:
- Special cutting materials for low cutting speeds
- 3 cutting edges for miniature applications



New products for machining technicians

NEW High precision finishing insert in “E” tolerance



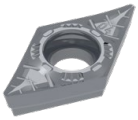
F05 – extremely sharp chip breaker ideal for fine finishing of superalloys and stainless steels.
New universal grade of the X7 line for machining almost all materials.

NEW New CBN grades CTB H15U and CTB H15C

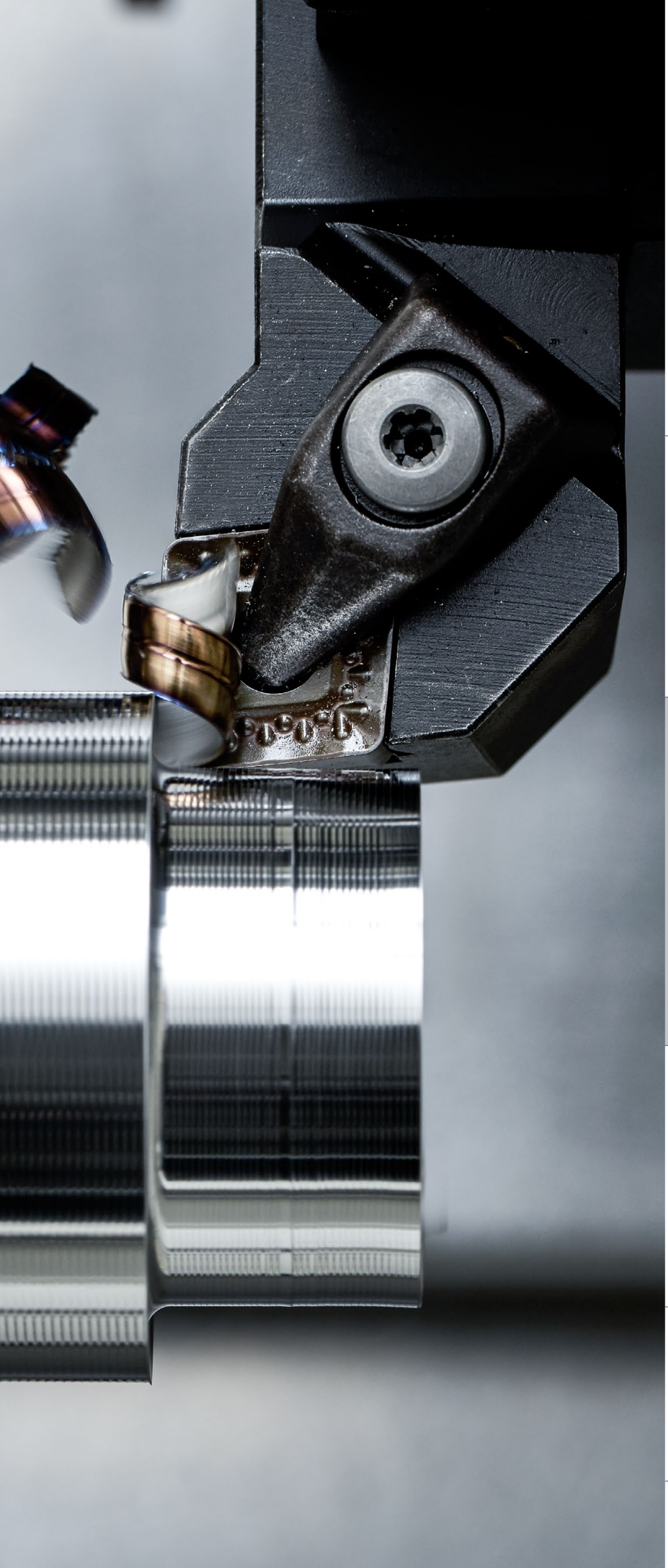


Coated and uncoated CBN grade for smooth cutting from 32 HRC.

NEW Precision sintered insert with -29 chip breaker



Comprehensive aluminum turning insert with -29 chip breaker for medium to rough machining.
Uncoated and with proven AMZ coating.



Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools 9
10 EcoCut
11 Grooving Tools
12 Miniature turning tools

Milling

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

Tool Clamping

16 Adapters
17 Accessories

18 Material examples and article no. index

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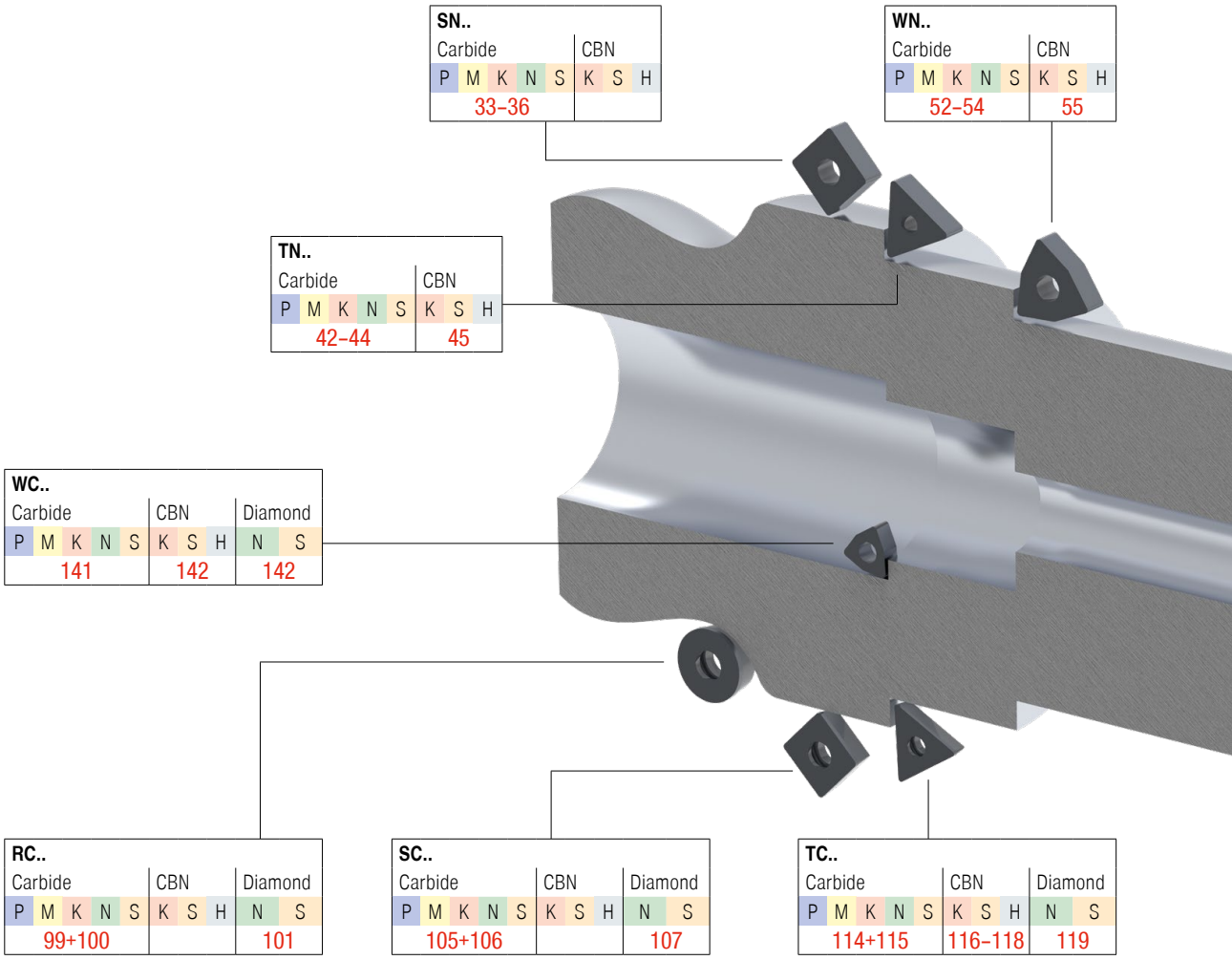
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Product programme	8–143
Technical Information	
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CERATIZIT \ Performance

Premium quality tools for high performance.

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

Toolfinder – Application



Coding of the chip breakers

All new chip breakers are coded according to the following key:

-M50

Inserts - Basic Type	Application range	Material		Chip breaker width
	F = Fine	1 = Steel	5 = Heat Resistant alloys	1 = Narrow
0 | N = Negative Inserts	M = Medium	2 = Stainless steel	6 = Hard	
5 | P = Positive Inserts	R = Rough	3 = Cast Iron	7 = Universal	
		4 = Non Ferrous Metals		9 = Wide

-NM15

Detailed information on the chip breakers can be found in the technical appendix → **pages 168–175**

Symbol explanation

CTCP125

HCX1125

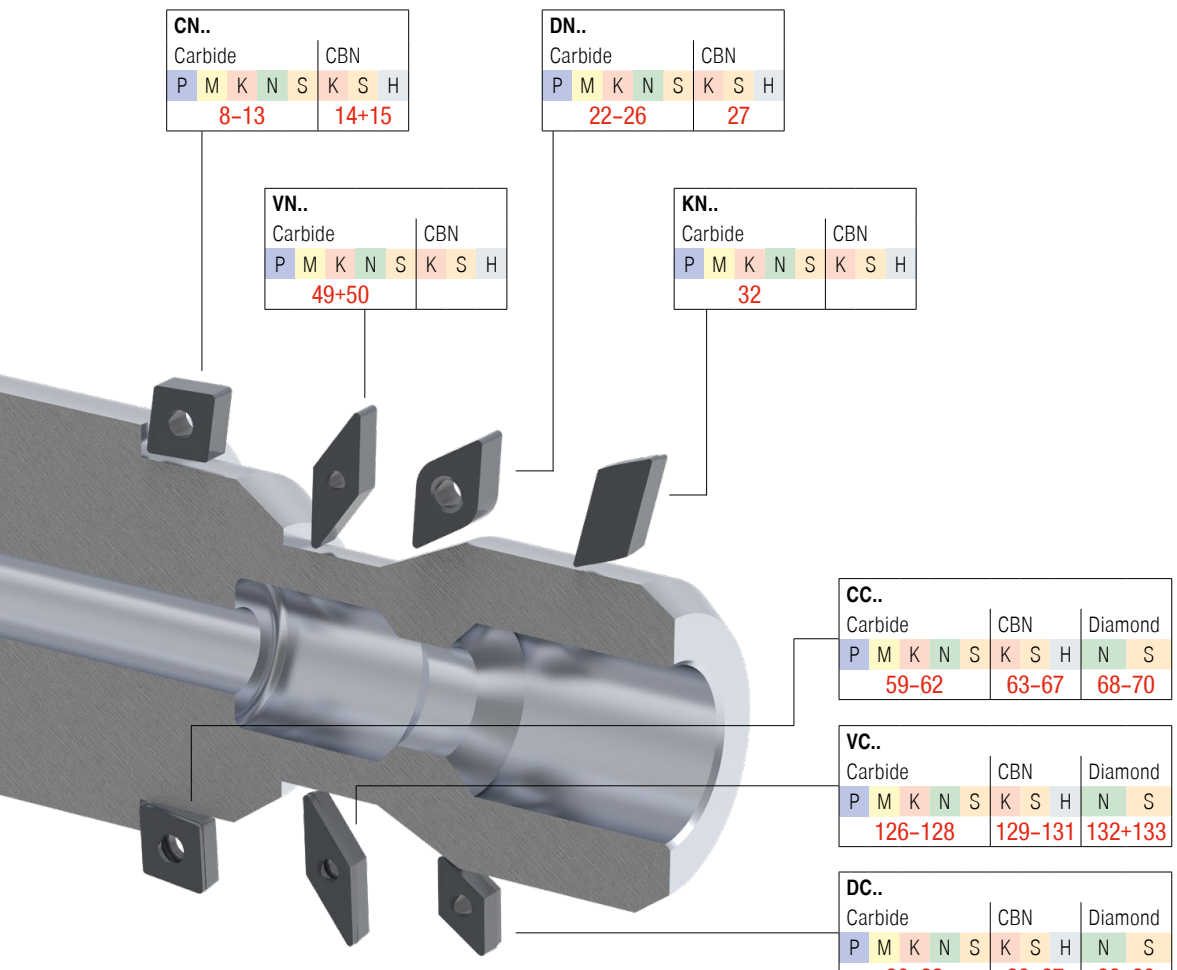
Carbide Grade

F	Fine Machining
M	Medium Machining
R	Rough Machining

	Smooth cut
	Irregular cutting depth
	Interrupted cut

A detailed overview of grades can be found in the technical appendix on → **Page 186**

9



Toolfinder – negative inserts

				Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant alloys S	Geometry CN..	DN..	KN..	SN..	TN..	VN..	WN..
Main application: **Steel and cast iron**	sharp ▲ stable ▼	Fine	-CF / -CF20 (-CF / -NF12)	●	○	○			8	22					52
			-F40	●	○	○								49	
			-F50 (-NF15)	●	○	○		○	8	22		33	42	49	52
			-TFQ	●	○	○			8+9	22+23					52
		Medium	-42	●	○			○	9						
			-XU	●	○	○			9	23				49	53
			-M40	●	○	○								49	
			-M50 (-NM15)	●	○	●		○	9+10	23+24		33	42	49	53
			-TMQ	●	○	○			10	24					53
			-M70 | -11, -12 (-NM19)	●	○	●		○	10+11	24	32	33+34	42+43		53
		Rough	.NMA			●			11	24		34+35	43		54
			-R28 (-NR14)	●	○	○		○	11	24		35	43		
			-R58 (-NR17)	●	○	○		○	12	24+25		35	43		
			-R88 (-NR19)	●	○	○		○	12			36			
Main application: **Stainless**	sharp ▲ stable ▼	Fine	-F30 (-NF23)	○	●				12	25		36	44	49	54
		Medium	-42	○	●			●	13						
			-M30 (-NM23)	○	●			○	13	25		36	44	49	54
			-M42	○	●			●	13	25		36	44		54
			-M60 (-NM26)	○	●			○	13	25		36	44		54
			-M70 (-NM19)	○	●			●	13	25		36	44		54
Main application: **Heat-resistant**	sharp ▲ stable ▼	Fine	-F32		●	○	○	●	13	25				49	
		Medium	-M34		○			●	13	26		36	44	49+50	54
			-M42	○	●	○	○	●	13	26			44		54
			-M52		○	○	○	●	13	26		36	44		54
			Suitable tool holders						16–19	28+29	32	37–40	46+47	51	56
			Suitable boring bars						20+21	30+31		41	48		57+58

Toolfinder – negative inserts

Main application				Cast iron K	Sintered steels P	Heat-resistant S	Hardened H	Geometry CN..	DN..	KN..	SN..	TN..	VN..	WN..
Cast iron, sintered steels, heat resistant, hardened	Fine	CTBS10U (PBC10) CTBS20C (PBC15-S)		●	●	●		14	27			45		55
		CTBH15U CTBH15C	< 32 HRC				●	14	27					
		CTBH21U (PBC25)	52–65 HRC				●	15	27			45		55
		CTBH20C (PBC25-S)	48–62 HRC											
		CTBH40U (PBC40)	54–65 HRC				●	15	27			45		55
		CTBH40C (PBC40-S)	48–65 HRC											
		Suitable tool holders						16–19	28+29			46+47		56
		Suitable boring bars						20+21	30+31			48		57+58

9

Toolfinder – positive inserts

				Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Geometry CC..	DC..	RC..	SC..	SP..	TC..	TP..	VC..	WC..
Main application: **Steel and cast iron**	sharp ↕ stable	Fine	-CF05 (-PF14)	●	○	○			59	80		105		114		126	
		Fine	-SF (-ZF)	●	○	○		○	59+60	80		105		114		126	
		Medium	-CF55 (-PF15)	●	○	○			60	80		105		114		126	
		Medium	-SMF	●	○	●		○	60	80	99	105		114+115		126+127	
		Medium	-SM (-ZM)	●	○	●		○	60	80+81	99	105		115		127	
		Medium	-SMQ	●	○	○			60+61	81							
			EN, EL, ER	●	○	●		○				105	113		123		
Main application: **Stainless**	sharp ↕ stable	Fine	-SF (-ZF)	○	●			●	61	81						127	141
		Fine	-F43	○	●			●	61	81				115			
		Fine	-M81		●		○		61	81						127	
		Medium	-M25 (-PF23)	○	●				61	81				115		127	
		Medium	-SM (-ZM)	○	●			●	61	81		105		115		127	
		Medium	-M55 (-PF26)	○	●				61	81		106		115		127	
Main application: **Non-ferrous metals**	sharp ↕ stable	Fine	-23P			○	●	○	61	82							
		Medium	-25P	○	○	○	●	○	61	82		106				127	
		Medium	-25Q	○	○	○	●	○	61	82						128	
		Medium	-27 (-AL)	○	○	○	●	○	61+62	82	99+100	106		115		128	
		Medium	-29	○	○	○	●	○	62	82						128	
		Diamond	-CB1				●	○	69+70	89+90	101	107		119		133	
		Diamond	-CB2				●	○	69+70	90	101	107		119		133	
		Diamond	-CB3				●	○	70	90		107		119		133	
		Diamond	Smooth				●	○	68+69	88–90				119		132	142
			Suitable tool holders						71–74	91–93	102–104	108–110		120+121	124	134–137	
			Suitable boring bars						75–79	94–98		111+112		122	125	138–140	143

Toolfinder – positive inserts

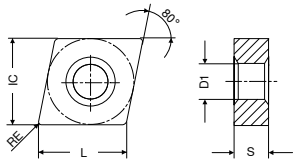
Main application					Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Geometry CC..	DC..	RC..	SC..	SP..	TC..	TP..	VC..	WC..
Main application: **Heat-resistant**	sharp ↕ stable	Fine	-F05 (-F05)		●	●	o	o	●		82						128	
			-F23 (-F23)			●	o	o	●	62	82						128	

Main application					Cast iron K	Sintered steels P	Heat-resistant S	Hardened H	CC..	DC..	RC..	SC..	SP..	TC..	TP..	VC..	WC..
Main application: **Cast iron, sintered steels, heat resistant, hardened**		Fine	CTBS10U (PBC10) CTBS20C (PBC15-S)		●	●	●		63+64	83+84				116		129+130	142
			CTBH15U CTBH15C	< 32 HRC				●	65	85				116–118		129+130	142
			CTBH21U (PBC25)	52–65 HRC				●	66	85–87				117+118		130+131	142
			CTBH20C (PBC25-S)	48–62 HRC													
			CTBH40U (PBC40)	54–65 HRC				●	67	85–87				117+118		130+131	142
			CTBH40C (PBC40-S)	48–65 HRC													
			Suitable tool holders						71–74	91–93	102–104	108–110		120+121	124	134–137	
			Suitable boring bars						75–79	94–98		111+112		122	125	138–140	143

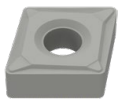
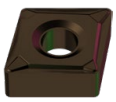
9

CNMG / CNMA / CNMM / CNGP

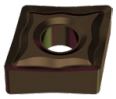
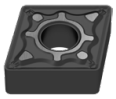
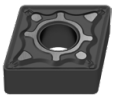
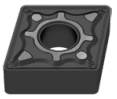
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	mm	mm	mm	mm
CNMG 0903..	9,7	3,18	3,81	9,52
CN.. 1204..	12,9	4,76	5,16	12,70
CNM. 1606..	16,1	6,35	6,35	15,87
CNM. 1906..	19,3	6,35	7,94	19,05
CNMM 2509..	25,8	9,52	9,12	25,40



CNMG

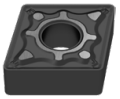
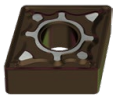
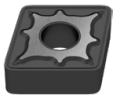
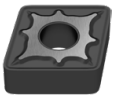
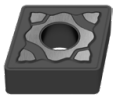
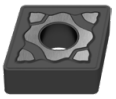
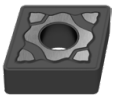
	-CF TCM10	-CF20 CTEP110	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-TFQ CTEP110	-TFQ CTCP115
	-CF CWC10	-NF12 DCC1110	-NF15 HCX1115	-NF15 HCX1125	-NF15 HCR1135	-TFQ DCC1110	-TFQ HCX1115
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET CNMG	CERMET CNMG	CNMG	CNMG	CNMG	CERMET CNMG	CNMG
ISO / RE mm	Article no. 70 101 ...	Article no. 76 101 ...	Article no. 76 132 ...	Article no. 76 132 ...	Article no. 76 132 ...	Article no. 76 110 ...	Article no. 76 110 ...
090304EN 0,4			316	516	716		
090308EN 0,8			318	518	718		
120404EN 0,4	904	028	328	528	728	028	328
120408EN 0,8	908	030	330	530	730	030	330
120412EN 1,2			332	532	732	032	320
Steel	●	●	●	●	●	●	●
Stainless steel		○	○	○	○	○	○
Cast iron	○	○	○	○		○	○
Non ferrous metals							
Heat resistant alloys					○		

CNMG

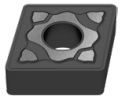
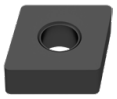
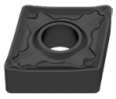
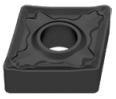
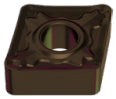
		-TFQ CTCP125	-42 CTCP135	-XU CTCP115	-XU CTCP125	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115
		-TFQ HCX1125	-42 HCR1135	-XU HCX1115	-XU HCX1125	-NM15 DCX3110	-NM15 HCF3120	-NM15 HCX1115
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	M	M	M	M	M	M
		CNMG	CNMG	CNMG	CNMG	CNMG	CNMG	CNMG
ISO	RE mm	Article no. 76 110 ...	Article no. 76 103 ...	Article no. 76 290 ...	Article no. 76 290 ...	Article no. 70 132 ...	Article no. 70 132 ...	Article no. 76 135 ...
120404EN	0,4	528		328	528	028		328
120408EN	0,8	530	730	330	530	030	530	330
120412EN	1,2	532		332	532	032	532	320
120416EN	1,6							334
160608EN	0,8							342
160612EN	1,2							344
160616EN	1,6							346
Steel		●	●	●	●	●	●	●
Stainless steel		○	○	○	○	○		○
Cast iron		○		○	○	●	●	○
Non ferrous metals								
Heat resistant alloys			○					

9

CNMG

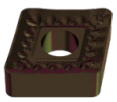
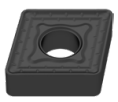
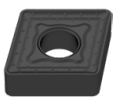
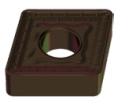
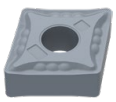
		-M50 CTCP125	-M50 CTCP135	-TMQ CTCP115	-TMQ CTCP125	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115
		-NM15 HCX1125	-NM15 HCR1135	-TMQ HCX1115	-TMQ HCX1125	-NM19 DCX3110	-NM19 HCF3120	-NM19 HCX1115
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	M
		CNMG	CNMG	CNMG	CNMG	CNMG	CNMG	CNMG
ISO	RE mm	Article no. 76 135 ...	Article no. 76 135 ...	Article no. 76 196 ...	Article no. 76 196 ...	Article no. 70 119 ...	Article no. 70 119 ...	Article no. 76 119 ...
120404EN	0,4	528	728					
120408EN	0,8	530	730		530	030	530	330
120412EN	1,2	532	732	320	532	032	532	320
120416EN	1,6	534	734			034	534	334
160608EN	0,8	542	742			042	542	342
160612EN	1,2	544	744			044	544	344
160616EN	1,6	546	746			046	546	346
160624EN	2,4							348
190608EN	0,8							354
190612EN	1,2					056	556	356
190616EN	1,6					058	558	358
190624EN	2,4							360
Steel		●	●	●	●	●	●	●
Stainless steel		○	○	○	○	○		○
Cast iron		○		○	○	●	●	○
Non ferrous metals								
Heat resistant alloys			○					

CNMG / CNMA / CNMM

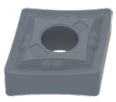
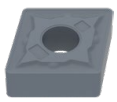
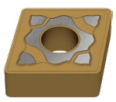
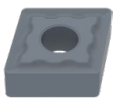
	-M70 CTCP125	-M70 CTCP135	CTCK110	CTCK120	-R28 CTCP115	-R28 CTCP125	-R28 CTCP135
	-NM19 HCX1125	-NM19 HCR1135	DCX3110	HCF3120	-NR14 HCX1115	-NR14 HCX1125	-NR14 HCR1135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M	M	R	R	R	R	R
	CNMG	CNMG	CNMA	CNMA	CNMM	CNMM	CNMM
ISO	RE mm	Article no. 76 119 ...	Article no. 76 119 ...	Article no. 70 100 ...	Article no. 70 100 ...	Article no. 76 114 ...	Article no. 76 114 ...	Article no. 76 114 ...
120404EN	0,4			028	528			
120408EN	0,8	530	730	030	530	330	530	
120412EN	1,2	532	732	032	532	332	532	732
120416EN	1,6	534	734	034	534	334	534	734
160608EN	0,8	542	742	042	542			
160612EN	1,2	544	744	044	544	344	544	744
160616EN	1,6	546	746	046	546	346	546	746
160624EN	2,4	548	748					
190608EN	0,8	554	754					
190612EN	1,2	556	756	056	556	356	556	756
190616EN	1,6	558	758	058	558	358	558	758
190624EN	2,4	560	760			360	560	760
250924EN	2,4					38400	58400	78400
Steel		●	●			●	●	●
Stainless steel		○	○			○	○	○
Cast iron		○		●	●	○	○	
Non ferrous metals								
Heat resistant alloys			○					○

9

CNMM / CNMG

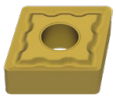
		-R58 CTCP115	-R58 CTCP125	-R58 CTCP135	-R88 CTCP115	-R88 CTCP125	-R88 CTCP135	-F30 CTPM125
		-NR17 HCX1115	-NR17 HCX1125	-NR17 HCR1135	-NR19 HCX1115	-NR19 HCX1125	-NR19 HCR1135	-NF23 HCN2125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	R	R	R	R	R	F
		CNMM	CNMM	CNMM	CNMM	CNMM	CNMM	CNMG
ISO	RE mm	Article no. 76 115 ...	Article no. 76 115 ...	Article no. 76 115 ...	Article no. 76 133 ...	Article no. 76 133 ...	Article no. 76 133 ...	Article no. 75 010 ...
120404EN	0,4							280
120408EN	0,8	330	530	730				230
120412EN	1,2	332	532	732				
120416EN	1,6	334	534	734				
160612EN	1,2	344	544	744				
160616EN	1,6	346	546	746				
160624EN	2,4	348	548	748				
160624SN	2,4				348	548	748	
190612EN	1,2	356	556	756				
190616EN	1,6	358	558	758				
190616SN	1,6				358	558	758	
190624EN	2,4	360	524	760				
190624SN	2,4				360	560	760	
250924EN	2,4	384	584	784				
250924SN	2,4				384	584	784	
Steel		●	●	●	●	●	●	○
Stainless steel		○	○	○	○	○	○	●
Cast iron		○	○		○	○		
Non ferrous metals								
Heat resistant alloys				○			○	

CNMG / CNGP

	-42 CTC2135	-M30 CTPM125	-M42 CTC2135	-M60 CTPM125	-M70 CTC2135	-F32 CTP2120	-M34 CTP5110
	-42 CWN2135	-NM23 HCN2125	-M42 CWN2135	-NM26 HCN2125	-NM19 CWN2135	-F32 CCN2120	-M34 HCN5110
		DRAGONSKIN		DRAGONSKIN			DRAGONSKIN
							
	M CNMG	M CNMG	M CNMG	M CNMG	M CNMG	F CNGP	M CNMG
ISO / RE mm	Article no. 70 103 ...	Article no. 75 011 ...	Article no. 70 130 ...	Article no. 75 012 ...	Article no. 70 119 ...	Article no. 70 102 ...	Article no. 75 003 ...
120402FN 0,2						602	
120404EN 0,4			404				428
120404FN 0,4						604	
120408EN 0,8	462	230	408	230	430		430
120408FN 0,8						608	
120412EN 1,2		232	410	232	432		432
120416EN 1,6		234		234			
160612EN 1,2					442		
190612EN 1,2					456		
190616EN 1,6					458		
Steel	○	○	○	○	○		
Stainless steel	●	●	●	●	●	●	○
Cast iron						○	
Non ferrous metals						○	
Heat resistant alloys	●	○	●	○	●	●	●

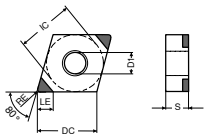
9

CNMG

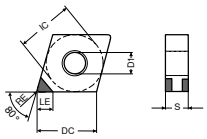
	-M34 CTP5115	-M42 CTP2120	-M52 CTP2120
	-M34 HCN5115	-M42 CCN2120	-M52 CCN2120
	DRAGONSKIN		
			
	M CNMG	M CNMG	M CNMG
ISO / RE mm	Article no. 75 003 ...	Article no. 70 130 ...	Article no. 70 117 ...
120404EN 0,4	528	604	604
120408EN 0,8	530	608	608
120412EN 1,2	532		
120416EN 1,6	534		
Steel			
Stainless steel	○	○	○
Cast iron		○	○
Non ferrous metals		○	○
Heat resistant alloys	●	●	●

CNGA

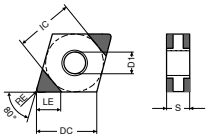
Designation	L	S	D1	IC
	mm	mm	mm	mm
CNGA 1204..	12,9	4,76	5,13	12,7



-B

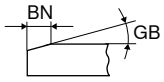


-K (-2SC)



-L (-4SC)

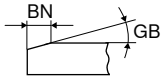
CNGA

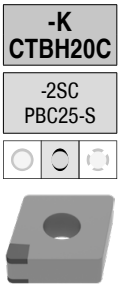


	-K CTBS20C	-L CTBS20C	-B CTBH15C	-B CTBH15C
	-2SC PBC15-S	-4SC PBC15-S		
	F	F	F	F
	CBN CNGA	CBN CNGA	CBN CNGA	CBN CNGA
			NEW	NEW
ISO	Article no. 71 400 ...	Article no. 71 401 ...	Article no. 71 003 ...	Article no. 71 005 ...

ISO	RE mm	GB °	BN mm	LE mm	-K CTBS20C -2SC PBC15-S	-L CTBS20C -4SC PBC15-S	-B CTBH15C	-B CTBH15C
120404SN	0,4	10	0,09	2,8		122		
120404SN	0,4	15	0,09	2,8		132		
120404SN	0,4	15	0,11	2,8	142			
120404SN	0,4	15	0,11	3,0			32814	
120404SN	0,4	20	0,09	2,8		152		
120404SN	0,4	20	0,14	2,8	162			
120404SN	0,4	25	0,13	3,0			32829	
120404SN	0,4	30	0,18	2,8	182	182		
120404RN	0,4			3,0			22800	
120408SN	0,8	10	0,09	2,5		124		
120408SN	0,8	15	0,09	2,5		134		
120408SN	0,8	15	0,11	2,5	144			
120408SN	0,8	15	0,11	2,7			33014	
120408SN	0,8	20	0,09	2,5		154		
120408SN	0,8	20	0,14	2,5	164			
120408SN	0,8	25	0,13	2,7			33029	
120408SN	0,8	30	0,18	2,5	184	184		
120408RN	0,8			2,7			23000	
120412SN	1,2	10	0,09	2,2		126		
120412SN	1,2	15	0,09	2,2		136		
120412SN	1,2	15	0,11	2,2	146			
120412SN	1,2	15	0,11	2,4				33214
120412SN	1,2	20	0,09	2,2		156		
120412SN	1,2	20	0,14	2,2	166			
120412SN	1,2	25	0,13	2,4				33229
120412SN	1,2	30	0,18	2,2	186	186		
120412RN	1,2			2,4				23200
Cast iron					●	●		
Sintered steels					●	●		
Heat resistant alloys					●	●		
hardened < 45 HRC							●	●
hardened 46–55 HRC							●	●
hardened 56–60 HRC							●	●
hardened 61–65 HRC								

CNGA





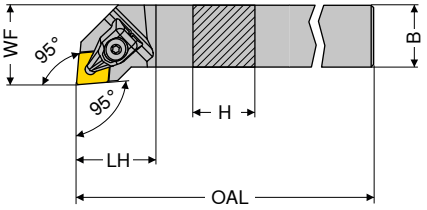
					F CBN CNGA	F CBN CNGA	F CBN CNGA	F CBN CNGA
ISO	RE	GB	BN	LE	Article no. 71 400 ...	Article no. 71 401 ...	Article no. 71 400 ...	Article no. 71 401 ...
	mm	°	mm	mm				
120404TN	0,4	15	0,09	2,8	222			
120404SN	0,4	20	0,09	2,8				332
120404SN	0,4	20	0,11	2,8		242		
120404TN	0,4	25	0,11	2,8	252			
120404SN	0,4	25	0,11	2,8			352	352
120404SN	0,4	25	0,13	2,8		262		
120404FN	0,4			2,8	212			
120404SN	0,4	30	0,14	2,8				372
120404SN	0,4	35	0,14	2,8			382	
120408TN	0,8	15	0,09	2,5	224			
120408TN	0,8	20	0,09	2,5	234			
120408SN	0,8	20	0,09	2,5				334
120408SN	0,8	20	0,11	2,5		244		
120408TN	0,8	25	0,11	2,5	254			
120408SN	0,8	25	0,11	2,5			354	354
120408SN	0,8	25	0,13	2,5		264		364
120408SN	0,8	30	0,14	2,5		274		374
120408SN	0,8	35	0,14	2,5			384	
120408EN	0,8			2,5			314	
120412TN	1,2	15	0,09	2,2	226			
120412SN	1,2	20	0,09	2,2				336
120412SN	1,2	20	0,11	2,2		246		
120412TN	1,2	25	0,11	2,2	256			
120412SN	1,2	25	0,11	2,2			356	356
120412SN	1,2	25	0,13	2,2		266		366
120412SN	1,2	30	0,14	2,2				376
120412SN	1,2	35	0,14	2,2			386	
120412FN	1,2			2,2	216			
Cast iron								
Sintered steels								
Heat resistant alloys								
hardened < 45 HRC								
hardened 46–55 HRC					●	●	●	●
hardened 56–60 HRC					●	●	●	●
hardened 61–65 HRC							●	●

For fast and efficient determination of the most appropriate edge preparation CNGA test inserts are available. → **Page 161**

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MaxiLock-D – DCLN 95° – Toolholder with top clamping







Illustrations show right-hand versions

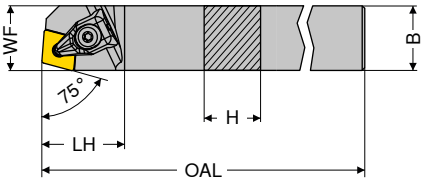
ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 509 ...	Right-hand Article no. 70 508 ...
	mm	mm	mm	mm	mm	Nm			
DCLN R/L 1616 H09	16	16	100	23	20	2	CN.. 0903	**516**	**516**
DCLN R/L 2020 K09	20	20	125	24	25	2	CN.. 0903	**520**	**520**
DCLN R/L 2020 K12	20	20	125	32	25	4	CN.. 1204	**620**	**620**
DCLN R/L 2525 M12	25	25	150	32	32	4	CN.. 1204	**625**	**625**
DCLN R/L 3225 P12	32	25	170	32	32	4	CN.. 1204	**632**	**632**
DCLN R/L 2525 M16	25	25	150	38	32	6,5	CN.. 1606	**725**	**725**
DCLN R/L 3232 P16	32	32	170	36	40	6,5	CN.. 1606	**732**	**732**
DCLN R/L 3232 P19	32	32	170	42	40	6,5	CN.. 1906	**832**	**832**
DCLN R/L 4040 S19	40	40	250	42	50	6,5	CN.. 1906	**940**	**940**
DCLN R/L 4040 S25	40	40	250	60	50	6,5	CN.. 2509	**440**	**440**

Tool holders with HSK-T or PSC interface can be found in → **Chapter 16.**

Spare parts	 XPress type Article no. 70 950 ...	Key D Article no. 80 950 ...	 Clamping screw Article no. 70 950 ...	 Carbide type C Article no. 70 950 ...
for Article no.				
70 508 516 / 70 509 516	**823**	T09 - IP **126**	M3x7 - IP **819**	**848**
70 508 520 / 70 509 520	**823**	T09 - IP **126**	M3x7 - IP **819**	**848**
70 508 620 / 70 509 620	**824**	T15 - IP **128**	M4,5x12 - IP **820**	**810**
70 508 625 / 70 509 625	**824**	T15 - IP **128**	M4,5x12 - IP **820**	**810**
70 508 632 / 70 509 632	**824**	T15 - IP **128**	M4,5x12 - IP **820**	**810**
70 508 725 / 70 509 725	**825**	T20 - IP **129**	M5x14 - IP **821**	**814**
70 508 732 / 70 509 732	**825**	T20 - IP **129**	M5x14 - IP **821**	**814**
70 508 832 / 70 509 832	**826**	T20 - IP **129**	M5x14 - IP **821**	**816**
70 508 940 / 70 509 940	**826**	T20 - IP **129**	M5x14 - IP **821**	**816**
70 508 440 / 70 509 440	**827**	T25 - IP **130**	M6x16 - IP **822**	**625**

MaxiLock-D – DCBN 75° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 501 ...	Right-hand Article no. 70 500 ...
	mm	mm	mm	mm	mm	Nm			
DCBN R/L 2525 M12	25	25	150	32	22	4	CN.. 1204	**825**	**825**


XPress type

Key D

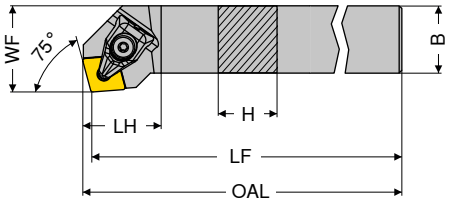

Clamping screw


Carbide type C

Spare parts	Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
for Article no.								
70 501 825 / 70 500 825	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**810**	

MaxiLock-D – DCKN 75° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LF	LH	WF	torque moment	Insert	Left-hand Article no. 70 505 ...	Right-hand Article no. 70 504 ...
	mm	mm	mm	mm	mm	mm	Nm			
DCKN R/L 2525 M12	25	25	152,9	150	28,9	32	4	CN.. 1204	**825**	**825**


XPress type

Key D


Clamping screw

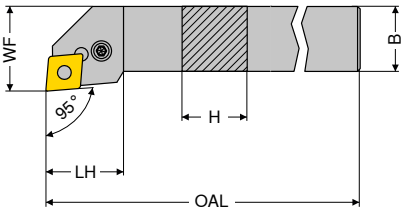

Carbide type C

Spare parts	Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
for Article no.								
70 505 825 / 70 504 825	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**810**	

9

MaxiLock-N – PCLN 95° – Toolholder with lever clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 509 ...	Right-hand Article no. 70 508 ...
	mm	mm	mm	mm	mm	Nm			
PCLN R/L 1616 H12	16	16	100	26,2	20	4	CN.. 1204	**016**	**016**
PCLN R/L 2020 K12	20	20	125	27,5	25	4	CN.. 1204	**020**	**020**
PCLN R/L 2525 M12	25	25	150	28,1	32	4	CN.. 1204	**025**	**025**
PCLN R/L 3225 P12	32	25	170	28,1	32	4	CN.. 1204	**032**	**032**
PCLN R/L 2525 M16	25	25	150	32,7	32	4	CN.. 1606	**125**	**125**
PCLN R/L 3232 P16	32	32	170	32,6	40	4	CN.. 1606	**132**	**132**
PCLN R/L 3232 P19	32	32	170	38,0	40	8	CN.. 1906	**232**	**232**
PCLN R/L 4040 S25	40	40	250	50,0	50	8	CN.. 2509	**340**	**340**


Key I


Shim

Assembly pin


Lever

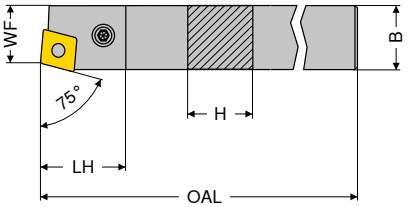

Clamping screw


Carbide type C

Spare parts for Article no.		Key I Article no. 70 950 ...	Shim Article no. 70 950 ...	Assembly pin Article no. 70 950 ...	Lever Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Carbide type C Article no. 70 950 ...
70 508 016 / 70 509 016	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 508 020 / 70 509 020	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 508 025 / 70 509 025	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 508 032 / 70 509 032	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 508 125 / 70 509 125	SW3	**176**	**391**	**394**	**385**	**388**	**380**
70 508 132 / 70 509 132	SW3	**176**	**391**	**394**	**385**	**388**	**380**
70 508 232 / 70 509 232	SW4	**396**	**392**	**395**	**386**	**389**	**381**
70 508 340 / 70 509 340	SW5	**265**	**621**	**623**	**620**	**622**	**624**

MaxiLock-N – PCBN 75° – Toolholder with lever clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 501 ...	Right-hand Article no. 70 500 ...
	mm	mm	mm	mm	mm	Nm			
PCBN R/L 2525 M12	25	25	150	27,70	22	4	CN.. 1204	**025**	**025**
PCBN R 2525 M16	25	25	150	31,81	22	4	CN.. 1606		**125**
PCBN R/L 3232 P19	32	32	170	38,00	27	8	CN.. 1906	**032**	**032**


Key I


Shim

Assembly pin


Lever

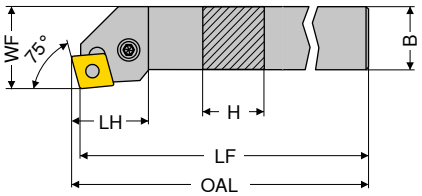

Clamping screw


Carbide type C

Spare parts for Article no.		Key I Article no. 70 950 ...	Shim Article no. 70 950 ...	Assembly pin Article no. 70 950 ...	Lever Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Carbide type C Article no. 70 950 ...
70 500 025 / 70 501 025	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 500 125	SW3	**176**	**391**	**394**	**385**	**388**	**380**
70 500 032 / 70 501 032	SW4	**396**	**392**	**395**	**386**	**389**	**381**

MaxiLock-N – PCKN 75° – Toolholder with lever clamping







Illustrations show right-hand versions

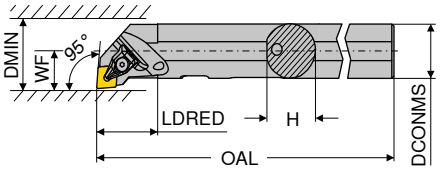
ISO designation	H	B	OAL	LF	LH	WF	torque moment	Insert	Left-hand Article no. 70 505 ...	Right-hand Article no. 70 504 ...
	mm	mm	mm	mm	mm	mm	Nm			
PCKN R/L 2525 M12	25	25	153,07	150	31,4	32	4	CN.. 1204	**025**	**025**

Spare parts for Article no.		 Key I	 Shim	 Assembly pin	 Lever	 Clamping screw	 Carbide type C
		Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
70 505 025 / 70 504 025	SW3	**176**	**198**	**192**	**187**	**209**	**233**

9

MaxiLock-D – DCLN 95° – Boring bar with top clamping







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 557 ...	Right-hand Article no. 70 556 ...
A20Q DCLN R/L 09	20	19	180	35	13	25	2	CN.. 0903	**720**	**720**
A25R DCLN R/L 12	25	24	200	36	17	32	4	CN.. 1204	**825**	**825**
A32S DCLN R/L 12	32	31	250	40	22	40	4	CN.. 1204	**832**	**832**
A40T DCLN R/L 12	40	39	300	45	27	50	4	CN.. 1204	**840**	**840**

Tool holders with HSK-T interface can be found in → **Chapter 16.**


XPress type


Key D


Clamping screw

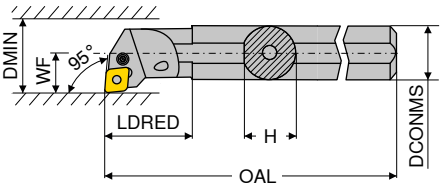

Carbide type C

Spare parts for Article no.	XPress type Article no. 70 950 ...	Key D Article no. 80 950 ...		Clamping screw Article no. 70 950 ...		Carbide type C Article no. 70 950 ...
70 556 720 / 70 557 720	**823**	T09 - IP	**126**	M3x7 - IP	**819**	**848**
70 556 825 / 70 557 825	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	
70 556 832 / 70 557 832	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**
70 556 840 / 70 557 840	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**

MaxiLock-N – PCLN 95° – Boring bar with lever clamping

- A... = with thro' coolant
- S... = without thro' coolant







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 557 ...	Right-hand Article no. 70 556 ...
A25R PCLN R/L 12	25	23	200	36,0	17	32	4	CN.. 1204	**225**	**225**
S25T PCLN R/L 12	25	23	300	22,0	17	32	4	CN.. 1204	**025**	**025**
A32S PCLN R/L 12	32	30	250	50,0	22	40	4	CN.. 1204	**232**	**232**
S32U PCLN R/L 12	32	30	350	24,1	22	40	4	CN.. 1204	**032**	**032**
A40T PCLN R/L 12	40	38	300	60,0	27	50	4	CN.. 1204	**240**	**240**
S40V PCLN R/L 12	40	38	400	24,1	27	50	4	CN.. 1204	**040**	**040**
S50W PCLN R/L 16	50	47	450	31,0	35	63	4	CN.. 1606	**050**	**050**


Key I


Shim


Assembly pin


Lever


Clamping screw

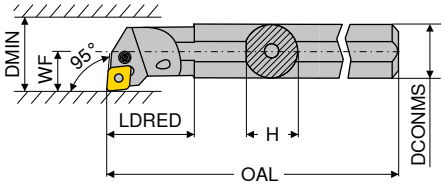

Carbide type C

Spare parts for Article no.		Key I Article no. 70 950 ...		Shim Article no. 70 950 ...		Assembly pin Article no. 70 950 ...		Lever Article no. 70 950 ...		Clamping screw Article no. 70 950 ...		Carbide type C Article no. 70 950 ...
70 556 225 / 70 557 225	SW3	**176**		**198**		**192**		**187**		**205**		**233**
70 556 025 / 70 557 025	SW3	**176**		**198**		**192**		**187**		**205**		**233**
70 556 232 / 70 557 232	SW3	**176**		**198**		**192**		**187**		**205**		**233**
70 556 032 / 70 557 032	SW3	**176**		**198**		**192**		**187**		**205**		**233**
70 556 240 / 70 557 240	SW3	**176**		**198**		**192**		**187**		**209**		**233**
70 556 040 / 70 557 040	SW3	**176**		**198**		**192**		**187**		**209**		**233**
70 556 050 / 70 557 050	SW3	**176**		**391**		**394**		**385**		**388**		**380**

MaxiLock-N – PCLN 95° – Boring bar with lever clamping

▲ with carbide core







Illustrations show right-hand versions

ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	Left-hand Article no. 70 559 ...	Right-hand Article no. 70 558 ...
	mm	mm	mm	mm	mm	mm	Nm			
E-A25R PCLN R/L 12	25	23	200	40	17	31	4	CN.. 1204	**025**	**025**
E-A32S PCLN R/L 12	32	30	250	50	22	39	4	CN.. 1204	**032**	**032**
E-A40T PCLN R/L 12	40	38	300	60	27	48	4	CN.. 1204	**040**	**040**


Key I


Shim


Assembly pin


Lever


Clamping screw

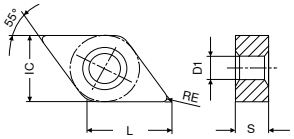

Carbide type C

Spare parts		Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
for Article no.							
70 558 025 / 70 559 025	SW3	**176**	**198**	**192**	**187**	**205**	**233**
70 558 032 / 70 559 032	SW3	**176**	**198**	**192**	**187**	**205**	**233**
70 558 040 / 70 559 040	SW3	**176**	**198**	**192**	**187**	**209**	**233**

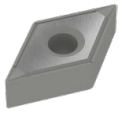
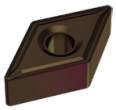
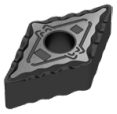
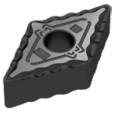
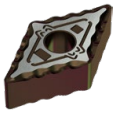
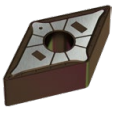
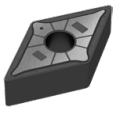
9

DNMG / DNMA / DNMM / DNGP

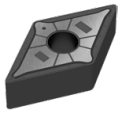
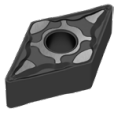
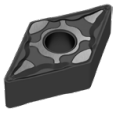
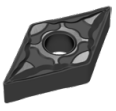
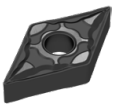
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	mm	mm	mm	mm
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DN.. 1504..	15,5	4,76	5,16	12,70
DN.. 1506..	15,5	6,35	5,16	12,70



DNMG

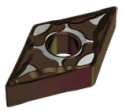
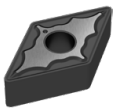
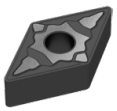
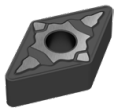
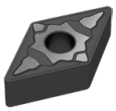
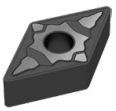
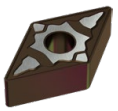
	-CF TCM10	-CF20 CTEP110	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-TFQ CTEP110	-TFQ CTCP115
	-CF CWC10	-NF12 DCC1110	-NF15 HCX1115	-NF15 HCX1125	-NF15 HCR1135	-TFQ DCC1110	-TFQ HCX1115
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET DNMG	CERMET DNMG	DNMG	DNMG	DNMG	CERMET DNMG	DNMG
ISO / RE mm	Article no. 70 155 ...	Article no. 76 102 ...	Article no. 76 134 ...	Article no. 76 134 ...	Article no. 76 134 ...	Article no. 76 153 ...	Article no. 76 153 ...
110402EN 0,2			302	502	702		
110404EN 0,4	904	004	304	504	704		
110408EN 0,8		006	306	506	706		
110412EN 1,2			308	508	708		
150404EN 0,4			316	516	716		
150408EN 0,8			318	518	718		
150412EN 1,2			320	520	720		
150604EN 0,4	914	028	328	528	728	028	32800
150608EN 0,8		030	330	530	730	030	330
150612EN 1,2		032	332	532	732		
Steel	●	●	●	●	●	●	●
Stainless steel		○	○	○	○	○	○
Cast iron	○	○	○	○		○	○
Non ferrous metals							
Heat resistant alloys					○		

DNMG

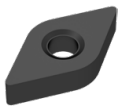
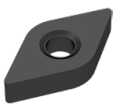
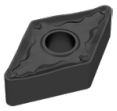
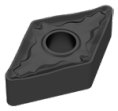
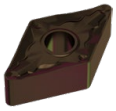
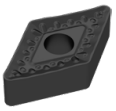
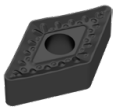
		-TFQ CTCP125	-XU CTCP115	-XU CTCP125	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115	-M50 CTCP125
		-TFQ HCX1125	-XU HCX1115	-XU HCX1125	-NM15 DCX3110	-NM15 HCF3120	-NM15 HCX1115	-NM15 HCX1125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	M	M	M	M	M	M
		DNMG	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
ISO	RE mm	Article no. 76 153 ...	Article no. 76 291 ...	Article no. 76 291 ...	Article no. 70 133 ...	Article no. 70 133 ...	Article no. 76 136 ...	Article no. 76 136 ...
110404EN	0,4						304	504
110408EN	0,8						306	506
110412EN	1,2						308	508
150404EN	0,4						316	514
150408EN	0,8				018	518	318	518
150412EN	1,2				020	520	320	516
150416EN	1,6						322	522
150604EN	0,4	528	328	528			328	528
150608EN	0,8	530	330	530	030	530	330	530
150612EN	1,2		332	532	032	532	332	532
150616EN	1,6						334	534
Steel		●	●	●	●	●	●	●
Stainless steel		○	○	○	○		○	○
Cast iron		○	○	○	●	●	○	○
Non ferrous metals								
Heat resistant alloys								

9

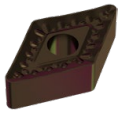
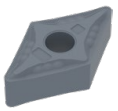
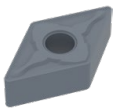
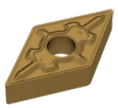
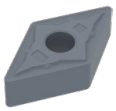
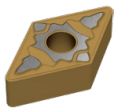
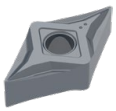
DNMG

	-M50 CTCP135	-TMQ CTCP125	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135
	-NM15 HCR1135	-TMQ HCX1125	-NM19 DCX3110	-NM19 HCF3120	-NM19 HCX1115	-NM19 HCX1125	-NM19 HCR1135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M	M	M	M	M	M	M
	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
ISO / RE mm	Article no. 76 136 ...	Article no. 76 197 ...	Article no. 70 263 ...	Article no. 70 263 ...	Article no. 76 263 ...	Article no. 76 263 ...	Article no. 76 263 ...
110404EN 0,4	704						
110408EN 0,8	706				306	506	706
110412EN 1,2	708				308	508	708
150404EN 0,4	716						
150408EN 0,8	718		018	518	318	518	718
150412EN 1,2	720		020	520	320	520	720
150416EN 1,6	722				322	522	722
150604EN 0,4	728						
150608EN 0,8	730	530	030	530	330	530	730
150612EN 1,2	732	532	032	532	332	532	732
150616EN 1,6	734		034	534	334	534	734
Steel	●	●	●	●	●	●	●
Stainless steel	○	○	○		○	○	○
Cast iron		○	●	●	○	○	
Non ferrous metals							
Heat resistant alloys	○						○

DNMA / DNMM

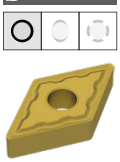
	CTCK110	CTCK120	-R28 CTCP115	-R28 CTCP125	-R28 CTCP135	-R58 CTCP115	-R58 CTCP125
	DCX3110	HCF3120	-NR14 HCX1115	-NR14 HCX1125	-NR14 HCR1135	-NR17 HCX1115	-NR17 HCX1125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	R	R	R	R	R	R	R
	DNMA	DNMA	DNMM	DNMM	DNMM	DNMM	DNMM
ISO / RE mm	Article no. 70 156 ...	Article no. 70 156 ...	Article no. 76 165 ...	Article no. 76 165 ...	Article no. 76 165 ...	Article no. 76 166 ...	Article no. 76 166 ...
150408EN 0,8	018	518					
150412EN 1,2	020	520					
150608EN 0,8	030	530					
150612EN 1,2	032	532	332	532	732	332	532
150616EN 1,6			334	534	734	334	534
Steel			●	●	●	●	●
Stainless steel			○	○	○	○	○
Cast iron	●	●	○	○		○	○
Non ferrous metals							
Heat resistant alloys					○		

DNMM / DNMG / DNGP

	-R58 CTCP135	-F30 CTPM125	-M30 CTPM125	-M42 CTC2135	-M60 CTPM125	-M70 CTC2135	-F32 CTP2120
	-NR17 HCR1135	-NF23 HCN2125	-NM23 HCN2125	-M42 CWN2135	-NM26 HCN2125	-NM19 CWN2135	-F32 CCN2120
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN		
							
	R	F	M	M	M	M	F
	DNMM	DNMG	DNMG	DNMG	DNMG	DNMG	DNGP
ISO	RE mm	Article no. 76 166 ...	Article no. 75 013 ...	Article no. 75 014 ...	Article no. 70 158 ...	Article no. 75 015 ...	Article no. 70 263 ...	Article no. 70 118 ...
110404EN	0,4		204		600			
110408EN	0,8		206	206	602		406	
110412EN	1,2			208				
150402FN	0,2							602
150404EN	0,4				614			
150404FN	0,4							604
150408EN	0,8				618			
150408FN	0,8							608
150602FN	0,2							610
150604EN	0,4		228		620			
150604FN	0,4							612
150608EN	0,8		230	230	622	230		
150608FN	0,8							614
150612EN	1,2	732		232		232		
150616EN	1,6	734						
Steel		●	○	○	○	○	○	
Stainless steel		○	●	●	●	●	●	●
Cast iron								○
Non ferrous metals								○
Heat resistant alloys		○		○	●	○	●	●

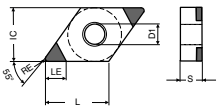
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DNMG

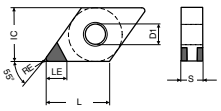
	-M34 CTP5110	-M34 CTP5115	-M42 CTP2120	-M52 CTP2120
	-M34 HCN5110	-M34 HCN5115	-M42 CCN2120	-M52 CCN2120
	DRAGONSKIN	DRAGONSKIN		
				
	M	M	M	M
	DNMG	DNMG	DNMG	DNMG
	Article no. 75 004 ...	Article no. 75 004 ...	Article no. 70 158 ...	Article no. 70 119 ...
ISO / RE mm				
150404EN / 0,4	416	516	604	
150408EN / 0,8	418	518		
150412EN / 1,2	420	520		
150604EN / 0,4			610	612
150608EN / 0,8	430	530	612	614
150612EN / 1,2	432	532		
Steel				
Stainless steel	○	○	○	○
Cast iron			○	○
Non ferrous metals			○	○
Heat resistant alloys	●	●	●	●

DNGA

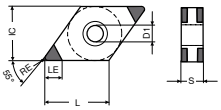
Designation	L	S	D1	IC
	mm	mm	mm	mm
DNGA 1506..	15,5	6,35	5,16	12,7



-B

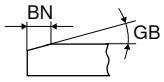


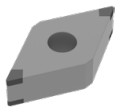
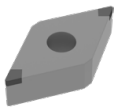
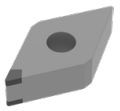
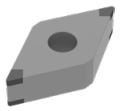
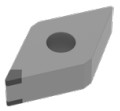
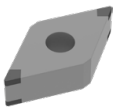
-K (-2SC)



-L (-4SC)

DNGA



	-L CTBS20C	-B CTBH15C	-K CTBH20C	-L CTBH20C	-K CTBH40C	-L CTBH40C
	-4SC PBC15-S		-2SC PBC25-S	-4SC PBC25-S	-2SC PBC40-S	-4SC PBC40-S
						
						
	F	F	F	F	F	F
	CBN DNGA	CBN DNGA	CBN DNGA	CBN DNGA	CBN DNGA	CBN DNGA
		NEW				
	Article no. 71 403 ...	Article no. 71 017 ...	Article no. 71 402 ...	Article no. 71 403 ...	Article no. 71 402 ...	Article no. 71 403 ...

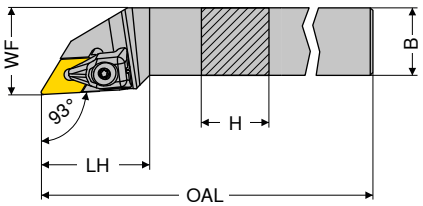
ISO	RE	GB	BN	LE												
	mm	°	mm	mm												
150604SN	0,4	10	0,09	2,8		122										
150604TN	0,4	15	0,09	2,8						222						
150604SN	0,4	15	0,09	2,8		132										
150604SN	0,4	15	0,11	2,8				32814								
150604SN	0,4	20	0,09	2,8		152										332
150604SN	0,4	20	0,11	2,8								242				
150604TN	0,4	25	0,11	2,8						252						
150604SN	0,4	25	0,11	2,8										352		352
150604SN	0,4	25	0,13	2,8				32829				262				
150604FN	0,4			2,8						212						
150604SN	0,4	30	0,14	2,8												372
150604SN	0,4	30	0,18	2,8		182										
150604SN	0,4	35	0,14	2,8										382		
150608FN	0,8			2,6						214						
150608SN	0,8	10	0,09	2,6		124										
150608SN	0,8	15	0,09	2,6		134										
150608TN	0,8	15	0,09	2,6						224						
150608SN	0,8	15	0,11	2,6				33014								
150608SN	0,8	20	0,09	2,6		154										334
150608SN	0,8	20	0,11	2,6								244				
150608TN	0,8	25	0,11	2,6						254						
150608SN	0,8	25	0,11	2,6										354		354
150608SN	0,8	25	0,13	2,6				33029				264				364
150608SN	0,8	30	0,14	2,6								274				374
150608SN	0,8	30	0,18	2,6		184										
150608SN	0,8	35	0,14	2,6										384		
150612SN	1,2	15	0,11	2,8				33214								
150612SN	1,2	25	0,13	2,8				33229								

Cast iron	●					
Sintered steels	●					
Heat resistant alloys	●					
hardened < 45 HRC		●				
hardened 46–55 HRC		●	●	●	●	●
hardened 56–60 HRC		●	●	●	●	●
hardened 61–65 HRC					●	●

9

MaxiLock-D – DDJN 93° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 541 ...	Right-hand Article no. 70 540 ...
	mm	mm	mm	mm	mm	Nm			
DDJN R/L 1616 H11	16	16	100	33	20	2	DN.. 1104	**816**	**816**
DDJN R/L 2020 K11	20	20	125	33	25	2	DN.. 1104	**820**	**820**
DDJN R/L 2525 M11	25	25	150	33	32	2	DN.. 1104	**825**	**825**
DDJN R/L 2020 K15	20	20	125	40	25	4	DN.. 1504 / 1506	**720**	**720**
DDJN R/L 2525 M15	25	25	150	40	32	4	DN.. 1504 / 1506	**725**	**725**
DDJN R/L 3225 P15	32	25	170	40	32	4	DN.. 1504 / 1506	**832**	**832**

Tool holders with HSK-T or PSC interface can be found in → **Chapter 16.**

When using DN.. 1504 indexable inserts, use insert seat article no. 70 950 40000.


XPress type


Key D

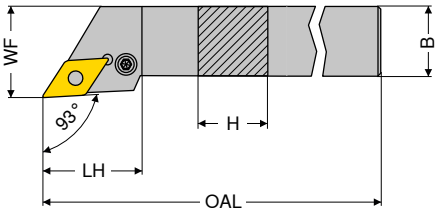

Clamping screw

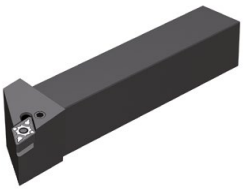

Solid Carbide Seat D

Spare parts for Article no.	Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
70 541 816 / 70 540 816	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**808**	
70 541 820 / 70 540 820	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**808**	
70 541 825 / 70 540 825	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**808**	
70 541 720 / 70 540 720	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**	
70 541 725 / 70 540 725	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**	
70 541 832 / 70 540 832	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**	

MaxiLock-N – PDJN 93° – Toolholder with lever clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 541 ...	Right-hand Article no. 70 540 ...
	mm	mm	mm	mm	mm	Nm			
PDJN R/L 1616 H11	16	16	100	30,0	20	3	DN.. 1104	**116**	**116**
PDJN R/L 2020 K11	20	20	125	30,0	25	3	DN.. 1104	**120**	**120**
PDJN R/L 2525 M11	25	25	150	30,0	32	3	DN.. 1104	**125**	**125**
PDJN R/L 2020 K15	20	20	125	34,9	25	3,2	DN.. 1506	**020**	**020**
PDJN R/L 2525 M15	25	25	150	35,4	32	3,2	DN.. 1506	**025**	**025**
PDJN R/L 3225 P15	32	25	170	35,4	32	3,2	DN.. 1506	**032**	**032**


Key I


Shim


Assembly pin


Lever

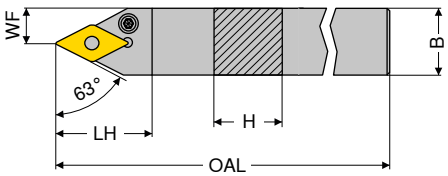

Clamping screw


Solid Carbide Seat D

Spare parts for Article no.		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
70 541 116 / 70 540 116	SW2,5	**175**		**122**		**191**		**121**		**208**	**120**
70 541 120 / 70 540 120	SW2,5	**175**		**122**		**191**		**121**		**208**	**120**
70 541 125 / 70 540 125	SW2,5	**175**		**122**		**191**		**121**		**208**	**120**
70 541 020 / 70 540 020	SW3	**176**		**198**		**192**		**188**		**388**	**236**
70 541 025 / 70 540 025	SW3	**176**		**198**		**192**		**188**		**388**	**236**
70 541 032 / 70 540 032	SW3	**176**		**198**		**192**		**188**		**388**	**236**

MaxiLock-N – PDNN 63° – Toolholder with lever clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 537 ...	Right-hand Article no. 70 536 ...
	mm	mm	mm	mm	mm	Nm			
PDNN R/L 2525 M11	25	25	150	30,0	12,5	3	DN.. 1104	**125**	**125**
PDNN R/L 2525 M15	25	25	150	36,5	12,5	3,2	DN.. 1506	**025**	**025**


Key I


Shim

Assembly pin


Lever

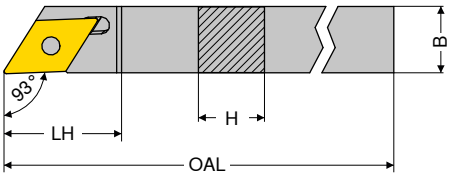

Clamping screw

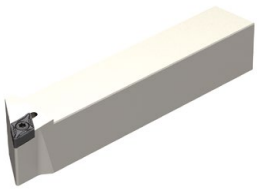

Solid Carbide Seat D

Spare parts for Article no.		Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
70 537 125 / 70 536 125	SW2,5	**175**	**122**	**191**	**121**	**208**	**120**
70 537 025 / 70 536 025	SW3	**176**	**198**	**192**	**188**	**388**	**236**

MaxiLock-S – SDJN 93° – Toolholder with screw clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	torque moment	Insert	Left-hand Article no. 70 699 ...	Right-hand Article no. 70 698 ...
	mm	mm	mm	mm	Nm			
SDJN R/L 1012 H11	10	12	100	21,3	3,2	DNGU 1104	**010**	**010**
SDJN R/L 1212 H11	12	12	100	21,3	3,2	DNGU 1104	**012**	**012**
SDJN R/L 1616 K11	16	16	125	21,3	3,2	DNGU 1104	**016**	**016**
SDJN R/L 2020 K11	20	20	125	21,3	3,2	DNGU 1104	**020**	**020**
SDJN R/L 2525 M11	25	25	150	21,3	3,2	DNGU 1104	**025**	**025**


Key D

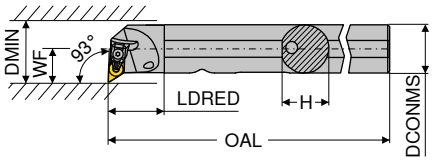

Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 72 950 ...
70 699 010 / 70 698 010	T15 - IP	**128**	M4x11	**007**
70 699 012 / 70 698 012	T15 - IP	**128**	M4x11	**007**
70 699 016 / 70 698 016	T15 - IP	**128**	M4x11	**007**
70 699 020 / 70 698 020	T15 - IP	**128**	M4x11	**007**
70 699 025 / 70 698 025	T15 - IP	**128**	M4x11	**007**

9

MaxiLock-D – DDUN 93° – Boring bar with top clamping







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 569 ...	Right-hand Article no. 70 568 ...
A25R DDUN R/L 11	25	24	200	30	17	32	2	DN.. 1104	**725**	**725**
A32S DDUN R/L 11	32	31	250	40	22	40	2	DN.. 1104	**732**	**732**
A40T DDUN R/L 15	40	39	300	45	27	50	4	DN.. 1506	**840**	**840**

Tool holders with HSK-T interface can be found in → **Chapter 16.**


XPress type


Key D


Clamping screw

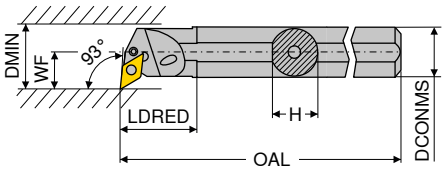

Solid Carbide Seat D

Spare parts for Article no.	Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
70 568 725 / 70 569 725	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**808**	
70 568 732 / 70 569 732	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**808**	
70 568 840 / 70 569 840	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**	

MaxiLock-N – PDUN 93° – Boring bar with lever clamping

- A... = with thro' coolant
- S... = without thro' coolant







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 569 ...	Right-hand Article no. 70 568 ...
A20Q PDUN R/L 11	20	18,5	180	36	16,0	28	3	DN.. 1104	**120**	**120**
A25R PDUN R/L 11	25	23,0	200	36	18,5	32	3	DN.. 1104	**125**	**125**
A32S PDUN R/L 11	32	30,0	250	36	22,0	40	3	DN.. 1104	**132**	**132**
A32S PDUN R/L 15	32	30,0	250	50	22,0	40	3,2	DN.. 1506	**232**	**232**
A40T PDUN R/L 15	40	38,0	300	60	27,0	50	3,2	DN.. 1506	**240**	**240**
S50W PDUN R/L 15	50	47,0	450	31	35,0	63	3,2	DN.. 1506	**050**	**050**


Key I


Shim


Assembly pin


Lever


Clamping screw

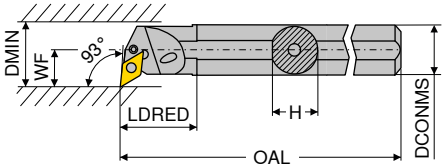

Solid Carbide Seat D

Spare parts for Article no.		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
70 568 120 / 70 569 120	SW2,5	**175**				**125**		**126**			
70 568 125 / 70 569 125	SW2,5	**175**		**122**		**191**		**121**		**208**	
70 568 132 / 70 569 132	SW2,5	**175**		**122**		**191**		**121**		**208**	
70 568 232 / 70 569 232	SW3	**176**		**198**		**192**		**188**		**209**	
70 568 240 / 70 569 240	SW3	**176**		**198**		**192**		**188**		**209**	
70 568 050 / 70 569 050	SW3	**176**		**198**		**192**		**188**		**388**	

MaxiLock-N – PDUN 93° – Boring bar with lever clamping

▲ with carbide core







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 563 ...	Right-hand Article no. 70 562 ...
E-A25R PDUN R/L 11	25	23	200	40	17	31	3	DN.. 1104	**025**	**025**
E-A32S PDUN R/L 15	32	30	250	50	22	39	3,2	DN.. 1506	**032**	**032**
E-A40T PDUN R/L 15	40	38	300	60	27	48	3,2	DN.. 1506	**040**	**040**


Key I


Shim


Assembly pin


Lever


Clamping screw

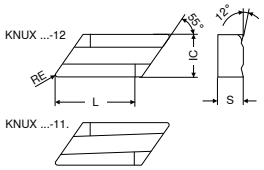

Solid Carbide Seat D

Spare parts for Article no.		Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
70 562 025 / 70 563 025	SW2,5	**175**	**122**	**191**	**121**	**208**	**120**
70 562 032 / 70 563 032	SW3	**176**	**198**	**192**	**188**	**388**	**236**
70 562 040 / 70 563 040	SW3	**176**	**198**	**192**	**188**	**388**	**236**

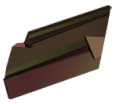
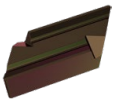
9

KNUX

Designation	L	S	IC
	mm	mm	mm
KNUX 1604..	16	4,76	9,52



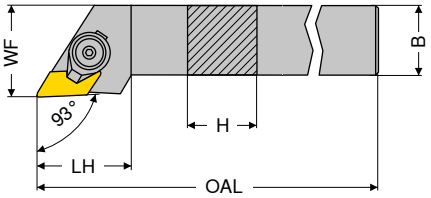
KNUX

	-11 CTCK110	-11 CTCK120	-11 CTCP135	-12 CTCP135
	-11 DCX3110	-11 HCF3120	-11 HCR1135	-12 HCR1135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	F	F	F	M
	KNUX	KNUX	KNUX	KNUX

ISO	RE	Article no. 70 240 ...		Article no. 70 240 ...		Article no. 76 240 ...		Article no. 76 242 ...	
	mm								
160405EL	0,5		002		552		702		702
160405ER	0,5		000		500		700		700
160410EL	1,0						706		706
160410ER	1,0						704		704
Steel			●		●		●		●
Stainless steel			○				○		○
Cast iron			●		●				
Non ferrous metals									
Heat resistant alloys							○		○

Simplex – CKJN 93° – Toolholder with top clamping







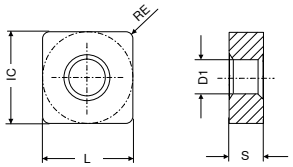
Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 799 ...	Right-hand Article no. 70 798 ...
	mm	mm	mm	mm	mm	Nm			
CKJN R/L 2525 M16	25	25	150	35	32	7	KNUX 1604	025	025

Spare parts	Clamp	Key I	Clamping screw	Countersunk head grooved pin	Carbide type C	Spring pin	Spring washer
							
for Article no.	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
70 798 025	612	396	615	603	613	616	617
70 799 025	618	396	615	603	614	616	617

SNMG / SNMA / SNMM

Designation	L	S	D1	IC
	mm	mm	mm	mm
SNMG 0903..	9,52	3,18	3,81	9,52
SNM. 1204..	12,70	4,76	5,16	12,70
SNM. 1506..	15,87	6,35	6,35	15,87
SNM. 1906..	19,05	6,35	7,94	19,05
SNMM 2507..	25,40	7,94	9,12	25,40
SNMM 2509..	25,40	9,52	9,12	25,40

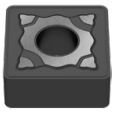


SNMG

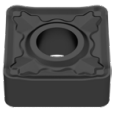
	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-M50 CTCP115	-M50 CTCP125	-M50 CTCP135	-M70 CTCK110
	-NF15 HCX1115	-NF15 HCX1125	-NF15 HCR1135	-NM15 HCX1115	-NM15 HCX1125	-NM15 HCR1135	-NM19 DCX3110
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	M	M	M	M
	SNMG	SNMG	SNMG	SNMG	SNMG	SNMG	SNMG
ISO / RE mm	Article no. 76 140 ...	Article no. 76 140 ...	Article no. 76 140 ...	Article no. 76 137 ...	Article no. 76 137 ...	Article no. 76 137 ...	Article no. 70 225 ...
090308EN 0,8	306	506	706				
120404EN 0,4	316	516	716				
120408EN 0,8	318	518	718	318	518	718	018
120412EN 1,2	320	520	720	320	520	720	020
120416EN 1,6				322	522	722	022
150608EN 0,8				330	530	730	
150612EN 1,2				332	532	732	032
150616EN 1,6				334	534	734	034
190612EN 1,2							044
190616EN 1,6							046
Steel	●	●	●	●	●	●	●
Stainless steel	○	○	○	○	○	○	○
Cast iron	○	○		○	○		●
Non ferrous metals							
Heat resistant alloys			○			○	

9

SNMG / SNMA

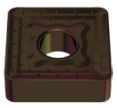
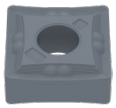
		-M70 CTCK120	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135	CTCP125	CTCP135	CTCK110
		-NM19 HCF3120	-NM19 HCX1115	-NM19 HCX1125	-NM19 HCR1135	HCX1125	HCR1135	DCX3110
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	R
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG	SNMA
ISO	RE mm	Article no. 70 225 ...	Article no. 76 225 ...	Article no. 76 225 ...	Article no. 76 225 ...	Article no. 76 116 ...	Article no. 76 116 ...	Article no. 70 114 ...
090308EN	0,8					506	706	
120408EN	0,8	518	318	518	718			018
120412EN	1,2	520	320	520	720			020
120416EN	1,6	522	322	522	722			022
150612EN	1,2	532	332	532	732			032
150616EN	1,6	534	334	534	734			034
190612EN	1,2	544	344	544	744			044
190616EN	1,6	546	346	546	746			046
190624EN	2,4		348	548	748			
Steel		●	●	●	●	●	●	
Stainless steel			○	○	○	○	○	
Cast iron		●	○	○		○		●
Non ferrous metals								
Heat resistant alloys					○		○	

SNMA / SNMM

		CTCK120	-R28 CTCP115	-R28 CTCP125	-R28 CTCP135	-R58 CTCP115	-R58 CTCP125	-R58 CTCP135
		HCF3120	-NR14 HCX1115	-NR14 HCX1125	-NR14 HCR1135	-NR17 HCX1115	-NR17 HCX1125	-NR17 HCR1135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	R	R	R	R	R	R
		SNMA	SNMM	SNMM	SNMM	SNMM	SNMM	SNMM
ISO	RE mm	Article no. 70 114 ...	Article no. 76 128 ...	Article no. 76 128 ...	Article no. 76 128 ...	Article no. 76 129 ...	Article no. 76 129 ...	Article no. 76 129 ...
120408EN	0,8	518				318	518	718
120412EN	1,2	520				320	520	720
120416EN	1,6	522						
150612EN	1,2	532	332	532	732	332	532	732
150616EN	1,6	534	334	534	734	334	534	734
190612EN	1,2	544				344	544	744
190616EN	1,6	546	346	546	746	346	546	746
190624EN	2,4					348	548	748
250724EN	2,4				760	360	560	760
250924EN	2,4		370	570	770	370	570	770
Steel			●	●	●	●	●	●
Stainless steel			○	○	○	○	○	○
Cast iron		●	○	○		○	○	
Non ferrous metals								
Heat resistant alloys					○			○

9

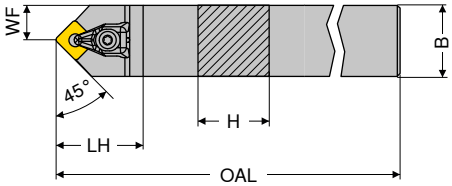
SNMM / SNMG

	-R88 CTCP115	-R88 CTCP125	-R88 CTCP135	-F30 CTPM125	-M30 CTPM125	-M42 CTC2135	-M60 CTPM125
	-NR19 HCX1115	-NR19 HCX1125	-NR19 HCR1135	-NF23 HCN2125	-NM23 HCN2125	-M42 CWN2135	-NM26 HCN2125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN
							
	R	R	R	F	M	M	M
	SNMM	SNMM	SNMM	SNMG	SNMG	SNMG	SNMG
ISO / RE mm	Article no. 76 130 ...	Article no. 76 130 ...	Article no. 76 130 ...	Article no. 75 016 ...	Article no. 75 017 ...	Article no. 70 002 ...	Article no. 75 018 ...
120404EN 0,4				216			
120408EN 0,8				218	218	408	218
120412EN 1,2				220		412	210
120416EN 1,6							220
190616SN 1,6	346	546	746				
190624SN 2,4	348	548	748				
250724SN 2,4	36000	56000	760				
250924SN 2,4	37000	57000	770				
Steel	●	●	●	○	○	○	○
Stainless steel	○	○	○	●	●	●	●
Cast iron	○	○					
Non ferrous metals							
Heat resistant alloys			○		○	●	○

SNMG

	-M70 CTC2135	-M34 CTP5110	-M34 CTP5115	-M52 CTP2120
	-NM19 CWN2135	-M34 HCN5110	-M34 HCN5115	-M52 CCN2120
		DRAGONSKIN	DRAGONSKIN	
				
	M	M	M	M
	SNMG	SNMG	SNMG	SNMG
ISO / RE mm	Article no. 70 225 ...	Article no. 75 005 ...	Article no. 75 005 ...	Article no. 70 129 ...
120408EN 0,8	418	418	518	608
120412EN 1,2	420	420	520	
190616EN 1,6	446			
Steel	○			
Stainless steel	●	○	○	○
Cast iron				○
Non ferrous metals				○
Heat resistant alloys	●	●	●	●

MaxiLock-D – DSDN 45° – Toolholder with top clamping



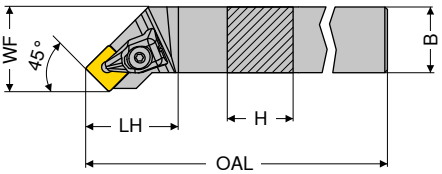


ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Neutral Article no. 70 516 ...
	mm	mm	mm	mm	mm	Nm		
DSDN N 2020 K12	20	20	125	38	10,3	4	SN.. 1204	**620**
DSDN N 2525 M12	25	25	150	38	12,5	4	SN.. 1204	**625**

Tool holders with HSK-T interface can be found in → **Chapter 16.**

	XPress type		Key D		Clamping screw		Solid Carbide support S	
Spare parts	**Article no. 70 950 ...**		**Article no. 80 950 ...**		**Article no. 70 950 ...**		**Article no. 70 950 ...**	
for Article no.								
70 516 620	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**			**813**
70 516 625	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**			**813**

MaxiLock-D – DSSN 45° – Toolholder with top clamping



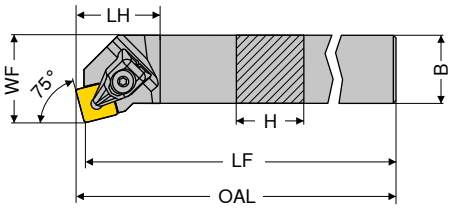


Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 513 ...	Right-hand Article no. 70 512 ...
	mm	mm	mm	mm	mm	Nm			
DSSN R/L 2020 K12	20	20	125	35	25	4	SN.. 1204	**620**	**620**
DSSN R/L 2525 M12	25	25	150	35	32	4	SN.. 1204	**625**	**625**
DSSN R/L 3225 P12	32	25	170	35	32	4	SN.. 1204	**632**	**632**

	XPress type		Key D		Clamping screw		Solid Carbide support S	
Spare parts	**Article no. 70 950 ...**		**Article no. 80 950 ...**		**Article no. 70 950 ...**		**Article no. 70 950 ...**	
for Article no.								
70 512 620 / 70 513 620	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**			**813**
70 512 625 / 70 513 625	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**			**813**
70 512 632 / 70 513 632	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**			**813**

MaxiLock-D – DSKN 75° – Toolholder with top clamping





Illustrations show right-hand versions

ISO designation	H	B	OAL	LF	LH	WF	torque moment	Insert	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	Nm		Article no. 70 525 ...	Article no. 70 524 ...
DSKN R/L 2525 M12	25	25	153,3	150	28	32	4	SN.. 1204	625	625


XPress type

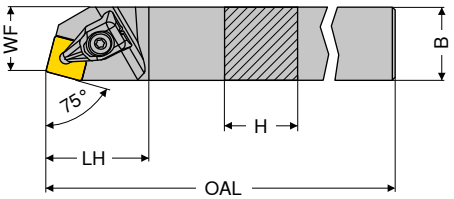
Key D


Clamping screw


Solid Carbide support S

Spare parts	Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
for Article no.								
70 525 625 / 70 524 625	824	T15 - IP	128	M4,5x12 - IP	820		813	

MaxiLock-D – DSBN 75° – Toolholder with top clamping





Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand	Right-hand
	mm	mm	mm	mm	mm	Nm		Article no. 70 521 ...	Article no. 70 520 ...
DSBN R/L 2020 K12	20	20	125	35	17	4	SN.. 1204	620	620
DSBN R/L 2525 M12	25	25	150	35	22	4	SN.. 1204	625	625
DSBN R/L 2525 M15	25	25	150	42	22	6,5	SN.. 1506	725	725
DSBN R/L 3232 P15	32	32	170	42	27	6,5	SN.. 1506	832	832
DSBN R/L 3232 P19	32	32	170	48	27	6,5	SN.. 1906	732	732
DSBN R/L 4040 S19	40	40	250	48	35	6,5	SN.. 1906	840	840
DSBN R/L 4040 S25	40	40	250	57	35	6,5	SN.. 2507 / SN.. 2509	940	940

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40100.


XPress type

Key D

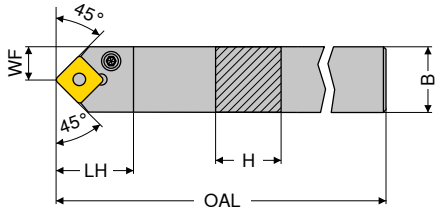

Clamping screw

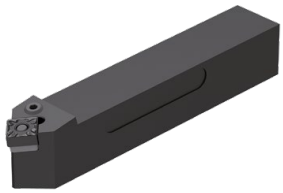

Solid Carbide support S

Spare parts	Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
for Article no.								
70 521 620 / 70 520 620	824	T15 - IP	128	M4,5x12 - IP	820		813	
70 521 625 / 70 520 625	824	T15 - IP	128	M4,5x12 - IP	820		813	
70 521 725 / 70 520 725	825	T20 - IP	129	M5x14 - IP	821		833	
70 521 832 / 70 520 832	825	T20 - IP	129	M5x14 - IP	821		833	
70 521 732 / 70 520 732	826	T20 - IP	129	M5x14 - IP	821		817	
70 521 840 / 70 520 840	826	T20 - IP	129	M5x14 - IP	821		817	
70 521 940 / 70 520 940	827	T25 - IP	130	M6x16 - IP	822		818	

MaxiLock-N – PSDN 45° – Toolholder with lever clamping







ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Neutral Article no. 70 516 ...
	mm	mm	mm	mm	mm	Nm		
PSDN N 1616 H09	16	16	100	21,0	8,3	3	SNM. 0903	016
PSDN N 2020 K12	20	20	125	27,6	10,3	4	SNM. 1204	020
PSDN N 2525 M12	25	25	150	27,6	12,8	4	SNM. 1204	025
PSDN N 3225 P19	32	25	170	40,4	12,5	8	SNM. 1906	03200
PSDN N 4040 S25	40	40	250	48,8	20,0	8	SNM. 2507 / 2509	04000

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.


Key I


Shim


Assembly pin


Lever


Clamping screw

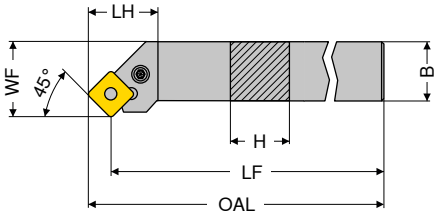

Solid Carbide support S

Spare parts		Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
for Article no.							
70 516 016	SW2,5	175	197	191	185	208	229
70 516 020	SW3	176	198	192	187	209	230
70 516 025	SW3	176	198	192	187	209	230
70 516 03200	SW4	396	392	395	386	389	383
70 516 04000	SW5	265	621	623	620	622	27600

9

MaxiLock-N – PSSN 45° – Toolholder with lever clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LF	LH	WF	torque moment	Insert	Left-hand Article no. 70 513 ...	Right-hand Article no. 70 512 ...
	mm	mm	mm	mm	mm	mm	Nm			
PSSN R/L 1616 H09	16	16	106,7	100	21,2	20	3	SNM. 0903	016	016
PSSN R/L 2020 K12	20	20	134,0	125	29,3	25	4	SNM. 1204	020	020
PSSN R/L 2525 M12	25	25	159,0	150	29,3	32	4	SNM. 1204	025	025
PSSN R/L 3225 P12	32	25	179,0	170	32,0	32	4	SNM. 1204	032	032
PSSN R 2525 M15	25	25	161,2	150	29,3	32	4	SNM. 1506		125
PSSN R 3232 P15	32	32	181,2	170	32,0	40	4	SNM. 1506		132
PSSN R/L 3232 P19	32	32	183,5	170	40,2	40	8	SNM. 1906	232	232
PSSN R 4040 S25	40	40	268,0	250	48,8	50	8	SNM. 2507 / 2509		04000

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.


Key I


Shim


Assembly pin


Lever

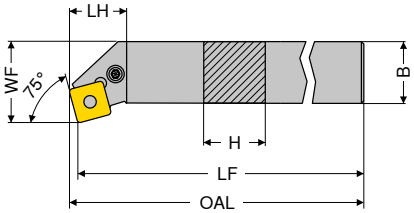

Clamping screw


Solid Carbide support S

Spare parts		Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
for Article no.							
70 512 016 / 70 513 016	SW2,5	175	197	191	185	208	229
70 512 020 / 70 513 020	SW3	176	198	192	187	209	230
70 512 025 / 70 513 025	SW3	176	198	192	187	209	230
70 512 032 / 70 513 032	SW3	176	198	192	187	209	230
70 512 125	SW3	176	391	394	385	388	382
70 512 132	SW3	176	391	394	385	388	382
70 512 232 / 70 513 232	SW4	396	392	395	386	389	383
70 512 04000	SW5	265	621	623	620	622	27600

MaxiLock-N – PSKN 75° – Toolholder with lever clamping







Illustrations show right-hand versions

ISO designation	H	LF	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 525 ...	Right-hand Article no. 70 524 ...
	mm	mm	mm	mm	mm	mm	Nm			
PSKN R/L 1616 H09	16	100	16	102,5	18,7	20	3	SNM. 0903	**016**	**016**
PSKN R/L 2020 K12	20	125	20	128,3	22,7	25	4	SNM. 1204	**020**	**020**
PSKN R/L 2525 M12	25	150	25	153,3	22,7	32	4	SNM. 1204	**025**	**025**


Key I


Shim


Assembly pin


Lever

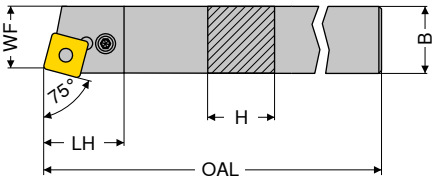

Clamping screw


Solid Carbide support S

Spare parts for Article no.		Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
70 525 016 / 70 524 016	SW2,5	**175**	**197**	**191**	**185**	**208**	**229**
70 525 020 / 70 524 020	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 525 025 / 70 524 025	SW3	**176**	**198**	**192**	**187**	**209**	**230**

MaxiLock-N – PSBN 75° – Toolholder with lever clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 521 ...	Right-hand Article no. 70 520 ...
	mm	mm	mm	mm	mm	Nm			
PSBN R/L 2020 K12	20	20	125	27,5	17	4	SNM. 1204	**020**	**020**
PSBN R/L 2525 M12	25	25	150	27,5	22	4	SNM. 1204	**025**	**025**
PSBN R/L 3225 P12	32	25	170	32,0	22	4	SNM. 1204	**032**	**032**
PSBN R/L 3232 P15	32	32	170	32,0	27	4	SNM. 1506	**132**	**132**
PSBN R/L 3232 P19	32	32	170	39,2	27	8	SNM. 1906	**232**	**232**
PSBN R/L 4040 S19	40	40	250	39,2	35	8	SNM. 1906	**04000**	**04000**
PSBN R/L 4040 S25	40	40	250	48,0	35	8	SNM. 2507 / 2509	**14000**	**14000**

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.

Key I


Shim

Assembly pin

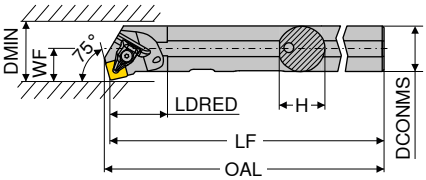

Lever

Clamping screw

Solid Carbide support S

Spare parts for Article no.		Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
70 520 020 / 70 521 020	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 520 025 / 70 521 025	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 520 032 / 70 521 032	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 520 132 / 70 521 132	SW3	**176**	**391**	**394**	**385**	**388**	**382**
70 520 232 / 70 521 232	SW4	**396**	**392**	**395**	**386**	**389**	**383**
70 520 04000 / 70 521 04000	SW4	**396**	**392**	**395**	**386**	**389**	**383**
70 520 14000 / 70 521 14000	SW5	**265**	**621**	**623**	**620**	**622**	**27600**

MaxiLock-D – DSKN 75° – Boring bar with top clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 561 ...	Right-hand Article no. 70 560 ...
A32S DSKN R/L 12	32	31	250	254,2	40	22	40	4	SN.. 1204	**832**	**832**



XPress type

Spare parts	Article no. 70 950 ...
for Article no.	
70 561 832 / 70 560 832	**824**

Key D

Article no. 80 950 ...
128



Clamping screw

Article no. 70 950 ...
820



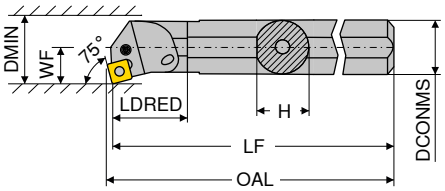
Solid Carbide support S

Article no. 70 950 ...
813

T15 - IP **128**

M4,5x12 - IP **820**

MaxiLock-N – PSKN 75° – Boring bar with lever clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 561 ...	Right-hand Article no. 70 560 ...
A25R PSKN R/L 12	25	23	200	203	15,5	17	32	4	SNM. 1204	**225**	**225**
A32S PSKN R/L 12	32	30	250	253	16,0	22	40	4	SNM. 1204	**232**	**232**
A40T PSKN R/L 12	40	38	300	303	23,0	27	50	4	SNM. 1204	**240**	**240**



Key I

Spare parts		Article no. 70 950 ...
for Article no.		
70 561 225 / 70 560 225	SW3	**176**
70 561 232 / 70 560 232	SW3	**176**
70 561 240 / 70 560 240	SW3	**176**



Shim

Article no. 70 950 ...
198
198
198



Assembly pin

Article no. 70 950 ...
192
192
192



Lever

Article no. 70 950 ...
187
187
187



Clamping screw

Article no. 70 950 ...
205
205
209



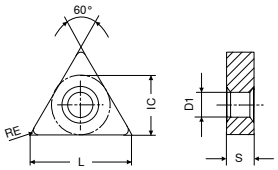
Solid Carbide support S

Article no. 70 950 ...
230
230
230

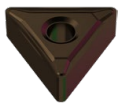
9

TNMG / TNMA / TNMM

Designation	L	S	D1	IC
	mm	mm	mm	mm
TNMG 1103..	11,0	3,18	2,26	6,35
TNM. 1604..	16,5	4,76	3,81	9,52
TNM. 2204..	22,0	4,76	5,16	12,70



TNMG

	-CF20 CTEP110	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-M50 CTCP115	-M50 CTCP125	-M50 CTCP135
	-NF12 DCC1110	-NF15 HCX1115	-NF15 HCX1125	-NF15 HCR1135	-NM15 HCX1115	-NM15 HCX1125	-NM15 HCR1135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	M	M	M
	CERMET TNMG	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
ISO / RE mm	Article no. 76 149 ...	Article no. 76 146 ...	Article no. 76 146 ...	Article no. 76 146 ...	Article no. 76 138 ...	Article no. 76 138 ...	Article no. 76 138 ...
110304EN 0,4		304	504	704			
110308EN 0,8		306	506	706			
160404EN 0,4	016	316	516	716	316	516	716
160408EN 0,8	018	318	518	718	318	518	718
160412EN 1,2	020	320	520	720	320	520	720
220408EN 0,8					330	530	730
220412EN 1,2					332	532	732
Steel	●	●	●	●	●	●	●
Stainless steel	○	○	○	○	○	○	○
Cast iron	○	○	○		○	○	
Non ferrous metals							
Heat resistant alloys				○			○

TNMG

	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135	CTCP125	CTCP135
	-NM19 DCX3110	-NM19 HCF3120	-NM19 HCX1115	-NM19 HCX1125	-NM19 HCR1135	HCX1125	HCR1135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M TNMG	M TNMG	M TNMG	M TNMG	M TNMG	M TNMG	M TNMG
ISO / RE mm	Article no. 70 155 ...	Article no. 70 155 ...	Article no. 76 155 ...	Article no. 76 155 ...	Article no. 76 155 ...	Article no. 76 142 ...	Article no. 76 142 ...
110302EN 0,2							702
160404ER 0,4						516	716
160408EL 0,8						518	
160408EN 0,8	018	518	318	518	718		
160408ER 0,8						517	717
160412EN 1,2	020	520	320	520	720		
220404EN 0,4				528			
220408EN 0,8	030	530	330	530	730		
220412EN 1,2	032	532	332	532	732		
220416EN 1,6	034	534	334	534	734		
Steel	●	●	●	●	●	●	●
Stainless steel	○		○	○	○	○	○
Cast iron	●	●	○	○		○	
Non ferrous metals							
Heat resistant alloys					○		○

TNMA / TNMM

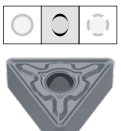
	CTCK110	CTCK120	-R28 CTCP115	-R28 CTCP125	-R28 CTCP135	-R58 CTCP115	-R58 CTCP125
	DCX3110	HCF3120	-NR14 HCX1115	-NR14 HCX1125	-NR14 HCR1135	-NR17 HCX1115	-NR17 HCX1125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	R TNMA	M TNMA	R TNMM	R TNMM	R TNMM	R TNMM	R TNMM
ISO / RE mm	Article no. 70 134 ...	Article no. 70 134 ...	Article no. 76 154 ...	Article no. 76 154 ...	Article no. 76 154 ...	Article no. 76 152 ...	Article no. 76 152 ...
160408EN 0,8	018	518					
160412EN 1,2	020	520					
160416EN 1,6	022	522					
220408EN 0,8	030	530					
220412EN 1,2	032	532				332	532
220416EN 1,6	034	534	334	534	734		
Steel			●	●	●	●	●
Stainless steel			○	○	○	○	○
Cast iron	●	●	○	○		○	○
Non ferrous metals							
Heat resistant alloys					○		

9

TNMM / TNMG

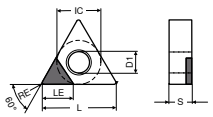
	-R58 CTCP135	-F30 CTPM125	-M30 CTPM125	-M42 CTC2135	-M60 CTPM125	-M70 CTC2135	-M34 CTP5115
	-NR17 HCR1135	-NF23 HCN2125	-NM23 HCN2125	-M42 CWN2135	-NM26 HCN2125	-NM19 CWN2135	-M34 HCN5115
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN
							
	R	F	M	M	M	M	M
	TNMM	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
ISO / RE mm	Article no. 76 152 ...	Article no. 75 019 ...	Article no. 75 020 ...	Article no. 70 148 ...	Article no. 75 021 ...	Article no. 70 155 ...	Article no. 75 006 ...
160404EN 0,4		216		404			
160408EN 0,8		218	218	408	218	418	516
160412EN 1,2			220		220		
220404EN 0,4							528
220408EN 0,8							530
220412EN 1,2	732						
220416EN 1,6							534
Steel	●	○	○	○	○	○	
Stainless steel	○	●	●	●	●	●	○
Cast iron							
Non ferrous metals							
Heat resistant alloys	○		○	●	○	●	●

TNMG

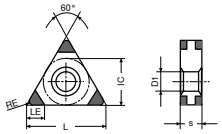
	-M42 CTP2120	-M52 CTP2120
	-M42 CCN2120	-M52 CCN2120
		
	M	M
	TNMG	TNMG
ISO / RE mm	Article no. 70 148 ...	Article no. 70 152 ...
160404EN 0,4		604
160408EN 0,8	608	608
Steel		
Stainless steel	○	○
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●

TNGA

Designation	L	S	D1	IC
	mm	mm	mm	mm
TNGA 1103..	11,0	3,18	2,26	6,35
TNGA 1604..	16,5	4,76	3,81	9,52

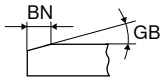


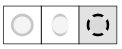
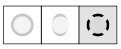
-A



-M (-6SC)

TNGA



	-A CTBH21U	-M CTBH20C	-A CTBH40U	-M CTBH40C
	PBC25	-6SC PBC25-S	PBC40	-6SC PBC40-S
				
				
	F	F	F	F
	CBN TNGA	CBN TNGA	CBN TNGA	CBN TNGA
ISO	Article no. 71 108 ...	Article no. 71 404 ...	Article no. 71 108 ...	Article no. 71 404 ...

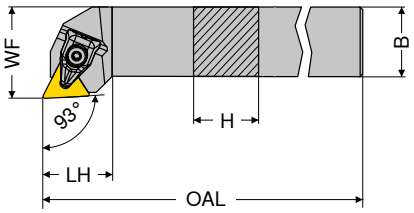
ISO	RE	GB	BN	LE	-A CTBH21U	-M CTBH20C	-A CTBH40U	-M CTBH40C
	mm	°	mm	mm				
110304TN	0,4	20	0,14	2,8	500			
110308FN	0,8			2,5			802 [1]	
110308TN	0,8	20	0,14	2,5	502			
160404FN	0,4			3,5	404 [1]		804 [1]	
160404TN	0,4	15	0,09	2,8		222		
160404SN	0,4	20	0,09	2,8				332
160404SN	0,4	20	0,11	2,8		242		342
160404TN	0,4	20	0,14	3,5	504			
160404SN	0,4	25	0,11	2,8				352
160404TN	0,4	25	0,11	2,8		252		
160404TN	0,4	25	0,12	3,5			904	
160404FN	0,4			2,8		212		
160404SN	0,4	25	0,13	2,8		262		
160404SN	0,4	30	0,14	2,8				372
160404SN	0,4	35	0,14	2,8				382
160408TN	0,8	15	0,09	2,5		224		
160408SN	0,8	15	0,09	2,5				324
160408SN	0,8	20	0,09	2,5				334
160408TN	0,8	20	0,09	2,5		234		
160408SN	0,8	20	0,11	2,5		244		344
160408TN	0,8	20	0,14	3,0	506			
160408SN	0,8	25	0,11	2,5				354
160408TN	0,8	25	0,11	2,5		254		
160408TN	0,8	25	0,12	3,0			906	
160408SN	0,8	25	0,13	2,5		264		364
160408SN	0,8	30	0,14	2,5				374
160408SN	0,8	35	0,14	2,5				384
160408FN	0,8			2,5		214		
160408FN	0,8			3,0	406 [1]			
160408EN	0,8			2,5				314
160412TN	1,2	15	0,09	2,2		226		
160412SN	1,2	20	0,09	2,2				336
160412SN	1,2	20	0,11	2,2		246		346
160412SN	1,2	25	0,11	2,2				356
160412TN	1,2	25	0,11	2,2		256		
160412SN	1,2	25	0,13	2,2		266		366
160412SN	1,2	30	0,14	2,2				376
160412SN	1,2	35	0,14	2,2				386
160412FN	1,2			2,2		216		
Cast iron								
Sintered steels								
Heat resistant alloys								
hardened < 45 HRC								
hardened 46–55 HRC					●	●	●	●
hardened 56–60 HRC					●	●	●	●
hardened 61–65 HRC							●	●

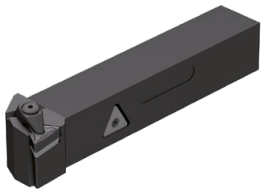
1) Machining to 60 HRC

9

MaxiLock-D – DTJN 93° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 591 ...	Right-hand Article no. 70 590 ...
	mm	mm	mm	mm	mm	Nm			
DTJN R/L 2020 K16	20	20	125	23	25	2	TNM. 1604	**820**	**820**
DTJN R/L 2525 M16	25	25	150	24	32	2	TNM. 1604	**825**	**825**


XPress type

Key D

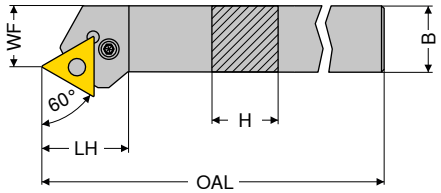

Clamping screw


Solid Carbide Seat T

Spare parts		XPress type Article no. 70 950 ...		Key D Article no. 80 950 ...		Clamping screw Article no. 70 950 ...		Solid Carbide Seat T Article no. 70 950 ...
for Article no.								
70 590 820 / 70 591 820		**823**	T09 - IP	**126**	M3x7 - IP	**819**		**847**
70 590 825 / 70 591 825		**823**	T09 - IP	**126**	M3x7 - IP	**819**		**847**

MaxiLock-N – PTTN 60° – Toolholder with lever clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 529 ...	Right-hand Article no. 70 528 ...
	mm	mm	mm	mm	mm	Nm			
PTTN R/L 2020 K16	20	20	125	25,9	17	3	TNM. 1604	**020**	**020**
PTTN R/L 2525 M22	25	25	150	32,7	22	4	TNM. 2204	**025**	**025**


Key I


Shim

Assembly pin


Lever

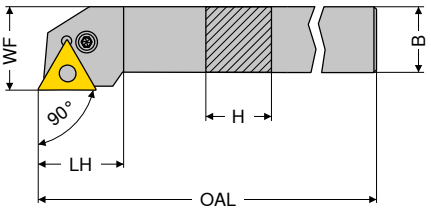

Clamping screw


Solid Carbide Seat T

Spare parts		Key I Article no. 70 950 ...		Shim Article no. 70 950 ...		Assembly pin Article no. 70 950 ...		Lever Article no. 70 950 ...		Clamping screw Article no. 70 950 ...		Solid Carbide Seat T Article no. 70 950 ...
for Article no.												
70 529 020 / 70 528 020	SW2,5	**175**		**197**		**191**		**185**		**208**		**225**
70 529 025 / 70 528 025	SW3	**176**		**198**		**192**		**187**		**209**		**226**

MaxiLock-N – PTGN 90° – Toolholder with lever clamping







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand Article no. 70 533 ...	Right-hand Article no. 70 532 ...
PTGN R/L 1616 H16	16	16	100	20	20	3	TNM. 1604	016	016
PTGN R/L 2020 K16	20	20	125	20	25	3	TNM. 1604	020	020
PTGN R/L 2525 M16	25	25	150	22	32	3	TNM. 1604	025	025
PTGN R/L 3225 P16	32	25	170	22	32	3	TNM. 1604	032	032
PTGN R/L 2525 M22	25	25	150	29	32	4	TNM. 2204	125	125
PTGN R/L 3232 P22	32	32	170	29	40	4	TNM. 2204	132	132


Key I


Shim


Assembly pin


Lever


Clamping screw

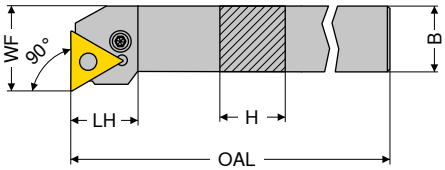

Solid Carbide Seat T

Spare parts for Article no.		Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
70 532 016 / 70 533 016	SW2,5	175	197	191	185	208	225
70 532 020 / 70 533 020	SW2,5	175	197	191	185	208	225
70 532 025 / 70 533 025	SW2,5	175	197	191	185	208	225
70 532 032 / 70 533 032	SW2,5	175	197	191	185	208	225
70 532 125 / 70 533 125	SW3	176	198	192	187	209	226
70 532 132 / 70 533 132	SW3	176	198	192	187	209	226

9

MaxiLock-N – PTFN 90° – Toolholder with lever clamping







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand Article no. 70 535 ...	Right-hand Article no. 70 534 ...
PTFN R/L 1616 H16	16	16	100	19,7	20	3	TNM. 1604	016	016
PTFN R/L 2020 K16	20	20	125	20,2	25	3	TNM. 1604	020	020
PTFN R/L 2525 M16	25	25	150	20,2	32	3	TNM. 1604	025	025
PTFN R/L 2525 M22	25	25	150	25,2	32	4	TNM. 2204	125	125
PTFN R/L 3225 P22	32	25	170	25,2	32	4	TNM. 2204	132	132


Key I


Shim


Assembly pin


Lever


Clamping screw

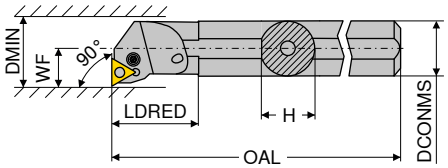

Solid Carbide Seat T

Spare parts for Article no.		Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
70 534 016 / 70 535 016	SW2,5	175	197	191	185	208	225
70 534 020 / 70 535 020	SW2,5	175	197	191	185	208	225
70 534 025 / 70 535 025	SW2,5	175	197	191	185	208	225
70 534 125 / 70 535 125	SW3	176	198	192	187	209	226
70 534 132 / 70 535 132	SW3	176	198	192	187	209	226

MaxiLock-N – PTFN 90° – Boring bar with lever clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant







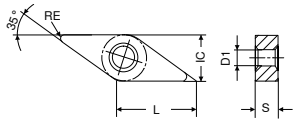
Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 565 ...	Right-hand Article no. 70 564 ...
A16M PTFN R/L 11	16	15,0	150	14,0	11	20	2,2	TNM. 1103	**216**	**216**
A20Q PTFN R/L 11	20	18,5	180	14,0	13	25	2,2	TNM. 1103	**220**	**220**
A25R PTFN R/L 16	25	23,0	200	17,5	17	32	3	TNM. 1604	**225**	**225**
A32S PTFN R/L 16	32	30,0	250	18,0	22	40	3	TNM. 1604	**232**	**232**
A40T PTFN R/L 22	40	38,0	300	27,0	27	50	4	TNM. 2204	**240**	**240**
S50W PTFN R 22	50	47,0	450	35,0	35	63	4	TNM. 2204		**050**

Spare parts for Article no.	 Key I Article no. 70 950 ...	 Shim Article no. 70 950 ...	Assembly pin Article no. 70 950 ...	 Lever Article no. 70 950 ...	 Clamping screw Article no. 70 950 ...	 Solid Carbide Seat T Article no. 70 950 ...
70 564 216 / 70 565 216	**177**			**184**	**207**	
70 564 220 / 70 565 220	**177**			**184**	**207**	
70 564 225 / 70 565 225	**175**	**197**	**191**	**185**	**208**	**225**
70 564 232 / 70 565 232	**175**	**197**	**191**	**185**	**208**	**225**
70 564 240 / 70 565 240	**176**	**198**	**192**	**187**	**209**	**226**
70 564 050	**176**	**198**	**192**	**187**	**209**	**226**

VNMG / VNGP

Designation	L	S	D1	IC
	mm	mm	mm	mm
VN.. 1604..	16,6	4,76	3,81	9,52



VNMG

	-F40 CTCP125	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-XU CTCP115	-XU CTCP125	-M40 CTCP125
	-F40 HCX1125	-NF15 HCX1115	-NF15 HCX1125	-NF15 HCR1135	-XU HCX1115	-XU HCX1125	-M40 HCX1125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	F VNMG	F VNMG	F VNMG	F VNMG	M VNMG	M VNMG	M VNMG
ISO / RE mm	Article no. 76 000 ...	Article no. 76 156 ...	Article no. 76 156 ...	Article no. 76 156 ...	Article no. 76 294 ...	Article no. 76 294 ...	Article no. 76 001 ...
160404EN 0,4	516	316	516	716	316	516	516
160408EN 0,8	518	318	518	718	318	518	518
Steel	●	●	●	●	●	●	●
Stainless steel	○	○	○	○	○	○	○
Cast iron	○	○	○		○	○	○
Non ferrous metals							
Heat resistant alloys				○			

VNMG / VNGP

	-M50 CTCK120	-M50 CTCP115	-M50 CTCP125	-F30 CTPM125	-M30 CTPM125	-F32 CTP2120	-M34 CTP5110
	-NM15 HCF3120	-NM15 HCX1115	-NM15 HCX1125	-NF23 HCN2125	-NM23 HCN2125	-F32 CCN2120	-M34 HCN5110
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN
	M VNMG	M VNMG	M VNMG	F VNMG	M VNMG	F VNGP	M VNMG
ISO / RE mm	Article no. 70 131 ...	Article no. 76 131 ...	Article no. 76 131 ...	Article no. 75 022 ...	Article no. 75 023 ...	Article no. 70 167 ...	Article no. 75 009 ...
160402FN 0,2						602	
160404EN 0,4		316	516	216			416
160404FN 0,4						604	
160408EN 0,8	518	318	518	218	218		418
160412EN 1,2	520	320	520				420
Steel	●	●	●	○	○		
Stainless steel		○	○	●	●	●	○
Cast iron	●	○	○			○	
Non ferrous metals						○	
Heat resistant alloys					○	●	●

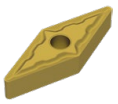
9

VNMG

-M34 CTP5115

-M34 HCN5115

DRAGONSKIN



M

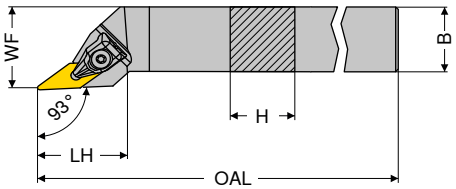
VNMG

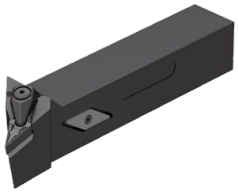
ISO	RE mm	Article no. 75 009 ...
160404EN	0,4	**516**
160408EN	0,8	**518**
160412EN	1,2	**520**

Steel	
Stainless steel	○
Cast iron	
Non ferrous metals	
Heat resistant alloys	●

MaxiLock-D – DVJN 93° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand	Right-hand
	mm	mm	mm	mm	mm	Nm		Article no. 70 503 ...	Article no. 70 502 ...
DVJN R/L 2020 K16	20	20	125	39	25	2	VN.. 1604	620	620
DVJN R/L 2525 M16	25	25	150	39	32	2	VN.. 1604	725	725

Tool holders with HSK-T interface can be found in → **Chapter 16.**


XPress type

Key D

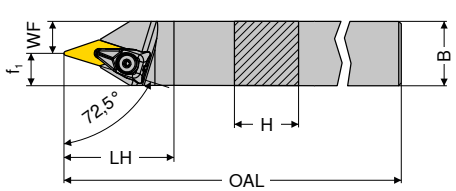

Clamping screw


Solid Carbide Seat V

Spare parts	Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...
for Article no.							
70 502 620 / 70 503 620	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**806**
70 502 725 / 70 503 725	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**806**

MaxiLock-D – DVVN 72.5° – Toolholder with top clamping







ISO designation	H	B	OAL	LH	WF	f_1	torque moment	Insert	Neutral
	mm	mm	mm	mm	mm	mm	Nm		Article no. 70 506 ...
DVVN N 2020 K16	20	20	125	43	7,5	12,5	2	VN.. 1604	620
DVVN N 2525 M16	25	25	150	43	12,5	12,5	2	VN.. 1604	625


XPress type

Key D

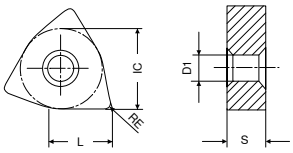

Clamping screw


Solid Carbide Seat V

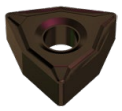
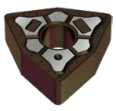
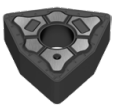
Spare parts	Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...
for Article no.							
70 506 620	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**806**
70 506 625	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**806**

WNMG / WNMA

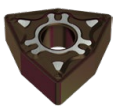
Designation	L	S	D1	IC
	mm	mm	mm	mm
WNMG 0604..	6,5	4,76	3,81	9,52
WNM. 0804..	8,6	4,76	5,16	12,70



WNMG

	-CF20 CTEP110	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-TFQ CTEP110	-TFQ CTCP115	-TFQ CTCP125
	-NF12 DCC1110	-NF15 HCX1115	-NF15 HCX1125	-NF15 HCR1135	-TFQ DCC1110	-TFQ HCX1115	-TFQ HCX1125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET WNMG	WNMG	WNMG	WNMG	CERMET WNMG	WNMG	WNMG
ISO	Article no. 76 171 ...	Article no. 76 157 ...	Article no. 76 157 ...	Article no. 76 157 ...	Article no. 76 177 ...	Article no. 76 177 ...	Article no. 76 177 ...
RE mm							
060404EN 0,4	004	304	504	704		304	514
060408EN 0,8	006	306	506	706	006	306	506
080404EN 0,4		316	516	716	016		
080408EN 0,8	018	318	518	718	018	318	518
080412EN 1,2		320	520	720		320	520
Steel	●	●	●	●	●	●	●
Stainless steel	○	○	○	○	○	○	○
Cast iron	○	○	○		○	○	○
Non ferrous metals							
Heat resistant alloys				○			

WNMG

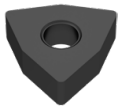
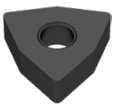
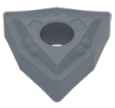
	-XU CTCP115	-XU CTCP125	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115	-M50 CTCP125	-M50 CTCP135
	-XU HCX1115	-XU HCX1125	-NM15 DCX3110	-NM15 HCF3120	-NM15 HCX1115	-NM15 HCX1125	-NM15 HCR1135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M WNMG	M WNMG	M WNMG	M WNMG	M WNMG	M WNMG	M WNMG
ISO / RE mm	Article no. 76 295 ...	Article no. 76 295 ...	Article no. 70 139 ...	Article no. 70 139 ...	Article no. 76 139 ...	Article no. 76 139 ...	Article no. 76 139 ...
060404EN 0,4					304	504	704
060408EN 0,8					306	506	706
060412EN 1,2					308	508	708
080404EN 0,4	316	516			316	516	716
080408EN 0,8	318	518	018	518	318	518	718
080412EN 1,2	320	520	020	520	320	520	720
080416EN 1,6					322	522	722
Steel	●	●	●	●	●	●	●
Stainless steel	○	○	○		○	○	○
Cast iron	○	○	●	●	○	○	
Non ferrous metals							
Heat resistant alloys							○

9

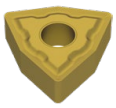
WNMG

	-TMQ CTCP115	-TMQ CTCP125	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135
	-TMQ HCX1115	-TMQ HCX1125	-NM19 DCX3110	-NM19 HCF3120	-NM19 HCX1115	-NM19 HCX1125	-NM19 HCR1135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M WNMG	M WNMG	M WNMG	M WNMG	M WNMG	M WNMG	M WNMG
ISO / RE mm	Article no. 76 198 ...	Article no. 76 198 ...	Article no. 70 273 ...	Article no. 70 273 ...	Article no. 76 273 ...	Article no. 76 273 ...	Article no. 76 273 ...
060408EN 0,8					306	506	706
060412EN 1,2					308	508	708
080408EN 0,8	31800	518	018	518	318	518	718
080412EN 1,2	320	520	020	520	320	520	720
080416EN 1,6			022	522	322	522	722
Steel	●	●	●	●	●	●	●
Stainless steel	○	○	○		○	○	○
Cast iron	○	○	●	●	○	○	
Non ferrous metals							
Heat resistant alloys							○

WNMA / WNMG

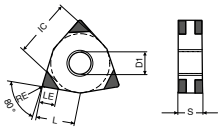
	CTCK110	CTCK120	-F30 CTPM125	-M30 CTPM125	-M42 CTC2135	-M60 CTPM125	-M70 CTC2135
	DCX3110	HCF3120	-NF23 HCN2125	-NM23 HCN2125	-M42 CWN2135	-NM26 HCN2125	-NM19 CWN2135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	
							
	R	R	F	M	M	M	M
	WNMA	WNMA	WNMG	WNMG	WNMG	WNMG	WNMG
ISO / RE mm	Article no. 70 169 ...	Article no. 70 169 ...	Article no. 75 024 ...	Article no. 75 025 ...	Article no. 70 178 ...	Article no. 75 026 ...	Article no. 70 273 ...
060404EN 0,4			204		400		
060408EN 0,8			206	206	402	206	
060412EN 1,2				208		208	
080404EN 0,4			216		404		
080408EN 0,8	018	518	218	218	406	218	418
080412EN 1,2	020	520		220	408	220	
080416EN 1,6	022	522					
Steel			○	○	○	○	○
Stainless steel			●	●	●	●	●
Cast iron	●	●					
Non ferrous metals							
Heat resistant alloys				○	●	○	●

WNMG

	-M34 CTP5110	-M34 CTP5115	-M42 CTP2120	-M52 CTP2120
	-M34 HCN5110	-M34 HCN5115	-M42 CCN2120	-M52 CCN2120
	DRAGONSKIN	DRAGONSKIN		
				
	M	M	M	M
	WNMG	WNMG	WNMG	WNMG
ISO / RE mm	Article no. 75 008 ...	Article no. 75 008 ...	Article no. 70 178 ...	Article no. 70 179 ...
060404EN 0,4				604
060408EN 0,8				608
080404EN 0,4				612
080408EN 0,8	418	518	608	614
080412EN 1,2	420	520		
Steel				
Stainless steel	○	○	○	○
Cast iron			○	○
Non ferrous metals			○	○
Heat resistant alloys	●	●	●	●

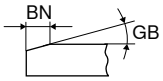
WNGA

Designation	L	S	D1	IC
	mm	mm	mm	mm
WNGA 0804..	8,5	4,76	5,13	12,7



-M (-6SC)

WNGA



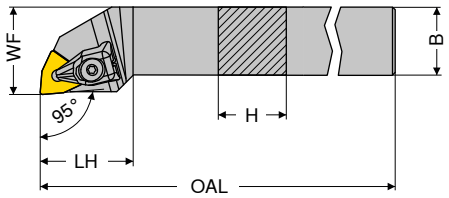
	-M CTBS20C	-M CTBH20C	-M CTBH40C
	-6SC PBC15-S	-6SC PBC25-S	-6SC PBC40-S
	F	F	F
	CBN WNGA	CBN WNGA	CBN WNGA
ISO	Article no. 71 405 ...	Article no. 71 405 ...	Article no. 71 405 ...
080404SN	122		
080404SN	132		
080404SN	152		332
080404SN		242	
080404SN			352
080404SN		262	
080404SN			372
080408SN	124		
080408SN	134		
080408SN	154		334
080408SN		244	
080408SN			354
080408SN		264	364
080408SN	174		
080408SN		274	376

Cast iron	●		
Sintered steels	●		
Heat resistant alloys	●		
hardened < 45 HRC			
hardened 46–55 HRC		●	●
hardened 56–60 HRC		●	●
hardened 61–65 HRC			●

9

MaxiLock-D – DWLN 95° – Toolholder with top clamping







Illustrations show right-hand versions

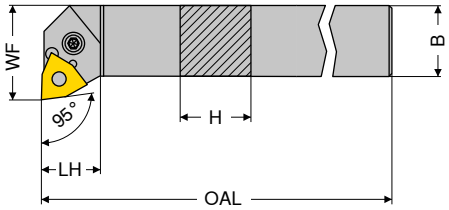
ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 543 ...	Right-hand Article no. 70 542 ...
	mm	mm	mm	mm	mm	Nm			
DWLN R/L 1616 H06	16	16	100	25	20	2	WN.. 0604	716	716
DWLN R/L 2020 K06	20	20	125	27	25	2	WN.. 0604	720	720
DWLN R/L 2525 M06	25	25	150	27	32	2	WN.. 0604	725	725
DWLN R/L 2020 K08	20	20	125	34	25	4	WN.. 0804	620	620
DWLN R/L 2525 M08	25	25	150	34	32	4	WN.. 0804	625	625

Tool holders with HSK-T or PSC interface can be found in → **Chapter 16.**

Spare parts		XPress type Article no. 70 950 ...	Key D Article no. 80 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide Seat W Article no. 70 950 ...
for Article no.					
70 543 716 / 70 542 716		**823**	T09 - IP **126**	M3x7 - IP **819**	**807**
70 543 720 / 70 542 720		**823**	T09 - IP **126**	M3x7 - IP **819**	**807**
70 543 725 / 70 542 725		**823**	T09 - IP **126**	M3x7 - IP **819**	**807**
70 543 620 / 70 542 620		**824**	T15 - IP **128**	M4,5x12 - IP **820**	**812**
70 543 625 / 70 542 625		**824**	T15 - IP **128**	M4,5x12 - IP **820**	**812**

MaxiLock-N – PWLN 95° – Toolholder with lever clamping







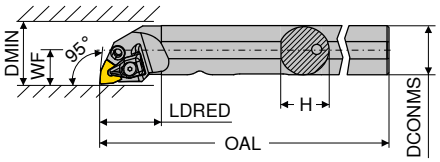
Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 543 ...	Right-hand Article no. 70 542 ...
	mm	mm	mm	mm	mm	Nm			
PWLN R/L 1616 H06	16	16	100	20	22,5	3	WNMG 0604	116	116
PWLN R/L 2020 K06	20	20	125	26	25,0	3	WNMG 0604	120	120
PWLN R/L 2525 M06	25	25	150	19	32,0	3	WNMG 0604	125	125
PWLN R/L 2020 K08	20	20	125	22	25,0	4	WNMG 0804	020	020
PWLN R/L 2525 M08	25	25	150	22	32,0	4	WNMG 0804	025	025
PWLN R/L 3225 P08	32	25	170	22	32,0	4	WNMG 0804	032	032

Spare parts		Key I Article no. 70 950 ...	Shim Article no. 70 950 ...	Assembly pin Article no. 70 950 ...	Lever Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide Seat W Article no. 70 950 ...
for Article no.							
70 542 116 / 70 543 116	SW2,5	**175**	**122**	**191**	**185**	**208**	**127**
70 542 120 / 70 543 120	SW2,5	**175**	**122**	**191**	**185**	**208**	**127**
70 542 125 / 70 543 125	SW2,5	**175**	**122**	**191**	**185**	**208**	**127**
70 542 020 / 70 543 020	SW3	**176**	**198**	**192**	**187**	**209**	**235**
70 542 025 / 70 543 025	SW3	**176**	**198**	**192**	**187**	**209**	**235**
70 542 032 / 70 543 032	SW3	**176**	**198**	**192**	**187**	**209**	**235**

MaxiLock-D – DWLN 95° – Boring bar with top clamping







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 573 ...	Right-hand Article no. 70 572 ...
A25R DWLN R/L 06	25	24	200	32	17	32	2	WN.. 0604	**725**	**725**
A32S DWLN R/L 08	32	31	250	40	22	40	4	WN.. 0804	**732**	**732**
A40T DWLN R 08	40	39	300	45	27	50	4	WN.. 0804		**640**

Tool holders with HSK-T interface can be found in → **Chapter 16.**


XPress type


Key D


Clamping screw


Hydrant

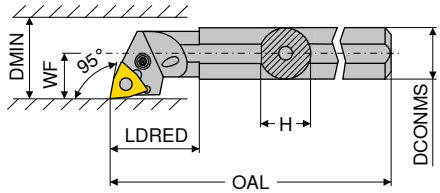

Solid Carbide Seat W

Spare parts for Article no.	XPress type Article no. 70 950 ...	Key D Article no. 80 950 ...	Clamping screw Article no. 70 950 ...	Hydrant Article no. 70 950 ...	Solid Carbide Seat W Article no. 70 950 ...
70 572 725 / 70 573 725	**823**	T09 - IP **126**	M3x7 - IP **819**	**834**	**807**
70 572 732 / 70 573 732	**824**	T15 - IP **128**	M4,5x12 - IP **820**	**834**	**812**
70 572 640	**824**	T15 - IP **128**	M4,5x12 - IP **820**	**834**	**812**

9

MaxiLock-N – PWLN 95° – Boring bar with lever clamping







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 573 ...	Right-hand Article no. 70 572 ...
A16M PWLN R/L 06	16	15	150	20	11	20	3	WNMG 0604	**116**	**116**
A20Q PWLN R/L 06-1	20	19	180	30	13	25	3	WNMG 0604	**121**	**121**
A25R PWLN R/L 06	25	23	200	25	17	32	3	WNMG 0604	**125**	**125**
A32S PWLN R/L 06	32	30	250	50	22	40	3	WNMG 0604	**132**	**132**
A25R PWLN R/L 08	25	23	200	40	17	31	4	WNMG 0804	**225**	**225**
A32S PWLN R/L 08	32	30	250	50	22	40	4	WNMG 0804	**032**	**032**
A40T PWLN R/L 08	40	39	300	60	27	50	4	WNMG 0804	**040**	**040**


Key I


Shim


Assembly pin


Lever


Clamping screw

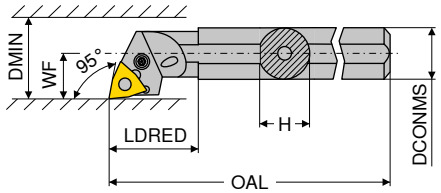

Solid Carbide Seat W

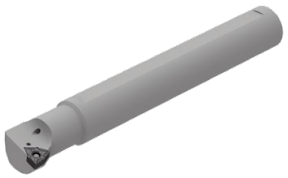
Spare parts for Article no.	Key I Article no. 70 950 ...	Shim Article no. 70 950 ...	Assembly pin Article no. 70 950 ...	Lever Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide Seat W Article no. 70 950 ...
70 572 116 / 70 573 116	SW2 **177**			**129**	**217**	
70 572 121 / 70 573 121	SW2 **177**			**129**	**217**	
70 572 125 / 70 573 125	SW2,5 **175**	**122**	**191**	**185**	**208**	**127**
70 572 132 / 70 573 132	SW2,5 **175**	**122**	**191**	**185**	**208**	**127**
70 572 225 / 70 573 225	SW3 **176**			**187**	**205**	
70 572 032 / 70 573 032	SW3 **176**	**198**	**192**	**187**	**209**	**235**
70 572 040 / 70 573 040	SW3 **176**	**198**	**192**	**187**	**209**	**235**

MaxiLock-N – PWLN 95° – Boring bar with lever clamping

▲ with carbide core







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 567 ...	Right-hand Article no. 70 566 ...
E-A16M PWLN R/L 06	16	15	150	24	11	20	3	WNMG 0604	**016**	**016**
E-A20Q PWLN R/L 06	20	18	180	29	13	27	3	WNMG 0604	**020**	**020**
E-A25R PWLN R/L 06	25	23	200	40	17	31	3	WNMG 0604	**025**	**025**
E-A25R PWLN R/L 08	25	23	200	40	17	31	4	WNMG 0804	**125**	**125**
E-A32S PWLN R/L 08	32	30	250	50	22	39	4	WNMG 0804	**032**	**032**
E-A40T PWLN R/L 08	40	38	300	60	27	48	4	WNMG 0804	**040**	**040**


Key I


Shim


Assembly pin


Lever

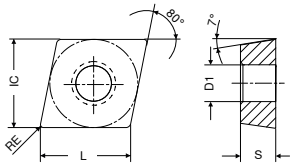

Clamping screw


Solid Carbide Seat W

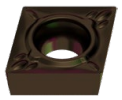
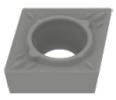
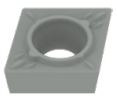
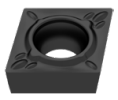
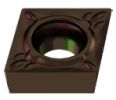
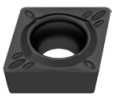
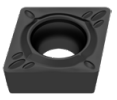
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70 566 016 / 70 567 016	SW2	**177**			**129**	**217**	
70 566 020 / 70 567 020	SW2	**177**			**129**	**217**	
70 566 025 / 70 567 025	SW2,5	**175**	**122**	**191**	**185**	**208**	**127**
70 566 125 / 70 567 125	SW3	**176**			**187**	**209**	
70 566 032 / 70 567 032	SW3	**176**	**198**	**192**	**187**	**209**	**235**
70 566 040 / 70 567 040	SW3	**176**	**198**	**192**	**187**	**209**	**235**

CCGT / CCMT / CCXT

Designation	L	S	D1	IC
	mm	mm	mm	mm
CC.T 0602..	6,4	2,38	2,8	6,35
CC.T 09T3..	9,7	3,97	4,4	9,52
CC.T 1204..	12,9	4,76	5,5	12,70

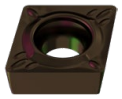
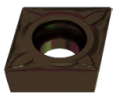
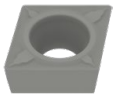
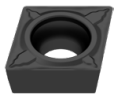
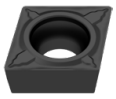
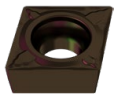
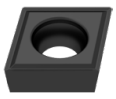


CCGT / CCMT

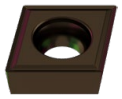
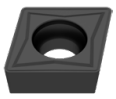
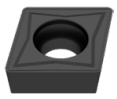
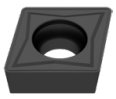
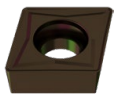
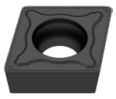
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	-PF14 DCC1110	-ZF CWC10	-ZF CWC407	-ZF HCX1125	-ZF HCR1135	-ZF HCX1115	-ZF HCX1125
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET CCGT	CERMET CCGT	CERMET CCGT	CCGT	CCGT	CCMT	CCMT
ISO / RE mm	Article no. 76 247 ...	Article no. 70 251 ...	Article no. 70 251 ...	Article no. 76 251 ...	Article no. 76 251 ...	Article no. 76 253 ...	Article no. 76 253 ...
060202EN 0,2	002	900	850	502	702		
060204EN 0,4	004	902	852			304	504
09T302EN 0,2	014	904	854				
09T304EN 0,4	016	906				316	516
09T308EN 0,8	018	908				318	518
120404EN 0,4		910					528
120408EN 0,8							530
Steel	●	●	●	●	●	●	●
Stainless steel	○			○	○	○	○
Cast iron	○	○	○	○		○	○
Non ferrous metals							
Heat resistant alloys					○		

9

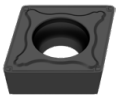
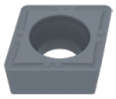
CCMT / CCGT

	-SF CTCP135	-CF55 CTEP110	-SMF TCM10	-SMF CTCP115	-SMF CTCP125	-SMF CTCP135	-SM CTCP125
	-ZF HCR1135	-PF15 DCC1110	-SMF CWC10	-SMF HCX1115	-SMF HCX1125	-SMF HCR1135	-ZM HCX1125
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	M
	CCMT	CERMET CCMT	CERMET CCMT	CCMT	CCMT	CCMT	CCGT
ISO / RE mm	Article no. 76 253 ...	Article no. 76 248 ...	Article no. 70 249 ...	Article no. 76 249 ...	Article no. 76 249 ...	Article no. 76 249 ...	Article no. 76 250 ...
060202EN 0,2							502
060204EN 0,4	704	004	900		504	704	
060208EN 0,8					506		
09T304EN 0,4	716	016	904	316	516	716	
09T308EN 0,8		018	906	318	518		
120404EN 0,4		028			528		
120408EN 0,8				330		730	
Steel	●	●	●	●	●	●	●
Stainless steel	○	○		○	○	○	○
Cast iron		○	○	○	○		○
Non ferrous metals							
Heat resistant alloys	○					○	

CCGT / CCMT

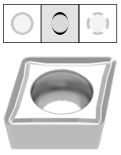
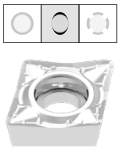
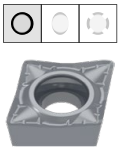
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	-ZM HCR1135	-ZM DCX3110	-ZM HCF3120	-ZM HCX1115	-ZM HCX1125	-ZM HCR1135	-SMQ HCX1115
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M	M	M	M	M	M	F
	CCGT	CCMT	CCMT	CCMT	CCMT	CCMT	CCMT
ISO / RE mm	Article no. 76 250 ...	Article no. 70 252 ...	Article no. 70 252 ...	Article no. 76 252 ...	Article no. 76 252 ...	Article no. 76 252 ...	Article no. 76 194 ...
060202EN 0,2	702						
060204EN 0,4		004	554	304	504	704	
060208EN 0,8		006	506	306		706	
09T304EN 0,4		016	516	316	516	716	31600
09T308EN 0,8		018	518	318	518	718	31800
09T312EN 1,2		020	520				
120404EN 0,4		028	528	328	528	728	32800
120408EN 0,8		030	530	330	530	730	330
120412EN 1,2					532		
Steel	●	●	●	●	●	●	●
Stainless steel	○	○		○	○	○	○
Cast iron		●	●	○	○		○
Non ferrous metals							
Heat resistant alloys	○					○	

CCMT / CCXT

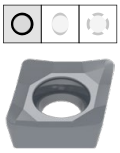
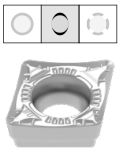
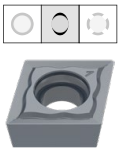
	-SMQ CTCP125	-SF CTC2135	-F43 CTC2135	-M81 CWN2120	-M25 CTPM125	-SM CTC2135	-M55 CTPM125
	-SMQ HCX1125	-ZF CWN2135	-F43 CWN2135		-PF23 HCN2125	-ZM CWN2135	-PF26 HCN2125
	DRAGONSKIN				DRAGONSKIN		DRAGONSKIN
							
	F CCMT	F CCMT	F CCMT	M CCXT	F CCMT	M CCMT	F CCMT
ISO / RE mm	Article no. 76 194 ...	Article no. 70 253 ...	Article no. 70 185 ...	Article no. 70 254 ...	Article no. 75 210 ...	Article no. 70 252 ...	Article no. 75 211 ...
060202FN 0,2				100			
060204EN 0,4		460			204	670	204
060204FN 0,4				102			
09T302FN 0,2				104			
09T304EN 0,4	516	464	460		216	674	216
09T304FN 0,4				106			
09T308EN 0,8	518		462		218	676	218
09T308FN 0,8				108			
120404EN 0,4	528					678	228
120408EN 0,8	530					680	230
Steel	●	○	○		○	○	○
Stainless steel	○	●	●	●	●	●	●
Cast iron	○						
Non ferrous metals				○			
Heat resistant alloys		●	●			●	

9

CCGT

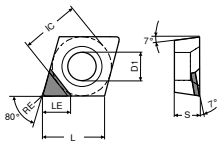
	-23P H216T	-25P H210T	-25P AMZ	-25Q H210T	-25Q AMZ	-27 H10T	-27 CWN15
	-23P CWK26	-25P CWK20	-25P AMZ	-25Q CWK20	-25Q AMZ	-AL CWK15	-AL CWN15
							
	F CCGT	F CCGT	F CCGT	M CCGT	M CCGT	M CCGT	M CCGT
ISO / RE mm	Article no. 70 255 ...	Article no. 70 248 ...	Article no. 70 248 ...	Article no. 70 248 ...	Article no. 70 248 ...	Article no. 70 254 ...	Article no. 70 254 ...
060202FN 0,2	652	636	556			600	300
060204FN 0,4	654	638	558	678	618	602	302
09T302FN 0,2		639	539			604	304
09T304FN 0,4	656	640	560	680	620	606	306
09T308FN 0,8	658	641	541	681	621	608	308
120402FN 0,2		643				610	310
120404FN 0,4		642	562	682	622	612	312
120408FN 0,8		644	564	686	626	614	314
Steel			○		○		
Stainless steel			○		○		○
Cast iron	○	○	○	○	○	○	
Non ferrous metals	●	●	●	●	●	●	●
Heat resistant alloys	○	○		○		○	

CCGT / CCMT

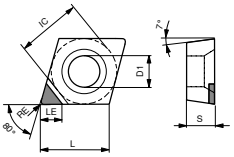
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		M CCGT	M CCMT	M CCMT	F CCGT
			NEW	NEW	
		Article no. 70 254 ...	Article no. 70 245 ...	Article no. 70 245 ...	Article no. 70 191 ...
060200FN	0,0				600
060201FN	0,1				602
060202FN	0,2	450			
060204EN	0,4		60400	40400	
060204FN	0,4	452			
09T300FN	0,0				604
09T301FN	0,1				606
09T302FN	0,2	454			
09T304EN	0,4		61600	41600	
09T304FN	0,4	456			
09T308EN	0,8		61800	41800	
09T308FN	0,8	458			
120402FN	0,2	460			
120404FN	0,4	462			
120408FN	0,8	464			
Steel		○		○	
Stainless steel		○		○	●
Cast iron		○	○	○	○
Non ferrous metals		●	●	●	○
Heat resistant alloys			○		●

CCGW / CCGT

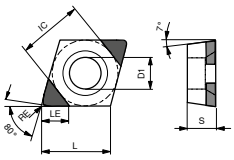
Designation	L	S	D1	IC
	mm	mm	mm	mm
CCG. 0602..	6,40	2,38	2,8	6,35
CCGW 09T3..	9,70	3,97	4,4	9,52
CCGW 1204..	12,90	4,76	5,5	12,70



CCGT -A

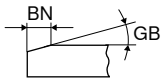


CCGW -A



CCGW-Q-B / -B
(CCGW -2MC / -2Q)

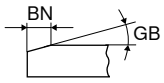
CCGW / CCGT



	-A CTBS10U	-A CTBS10U	-B CTBS20C	-Q-B CTBS20C
	PBC10	PBC10	-2MC PBC15-S	-2Q PBC15-S
	F	F	F	F
	CBN CCGW	CBN CCGT	CBN CCGW	CBN CCGW
ISO	Article no. 71 120 ...	Article no. 71 124 ...	Article no. 71 161 ...	Article no. 71 162 ...
060202SN				120
060202SN				130
060202TN	300			
060202TN				140
060202SN			150	150
060202TN			160	160
060202FN	200	200		
060202EN			110	110
060204SN			121	121
060204SN			131	131
060204TN	302			
060204TN			141	141
060204SN			151	151
060204TN			161	161
060204SN				171
060204FN	202	202		
060208SN			122	
060208SN			132	
060208TN			142	
060208TN			162	
060208SN			172	
060208SN			182	
060208EN			112	
09T302SN			123	
09T302SN			133	
09T302SN			153	
09T302TN			163	
09T302SN			173	
09T302EN			113	
Cast iron	●	●	●	●
Sintered steels	●	●	●	●
Heat resistant alloys	●	●	●	●
hardened < 45 HRC				
hardened 46–55 HRC				
hardened 56–60 HRC				
hardened 61–65 HRC				

9

CCGW / CCGT

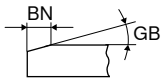


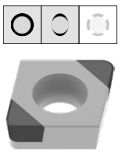
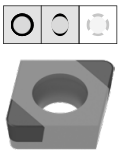
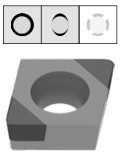
	-A CTBS10U	-A CTBS10U	-B CTBS20C	-Q-B CTBS20C
	PBC10	PBC10	-2MC PBC15-S	-2Q PBC15-S
				
				
	F	F	F	F
	CBN CCGW	CBN CCGT	CBN CCGW	CBN CCGW
ISO	Article no. 71 120 ...	Article no. 71 124 ...	Article no. 71 161 ...	Article no. 71 162 ...

ISO	RE mm	GB °	BN mm	LE mm	71 120 ...	71 124 ...	71 161 ...	71 162 ...
09T304EN	0,4			3,1			114	
09T304SN	0,4	10	0,09	3,1			124	124
09T304SN	0,4	15	0,11	3,1			134	134
09T304TN	0,4	20	0,14	2,8	304			
09T304TN	0,4	20	0,15	3,1			144	144
09T304SN	0,4	20	0,16	3,1			154	154
09T304TN	0,4	25	0,17	3,1			164	164
09T304SN	0,4	25	0,18	3,1			174	174
09T304SN	0,4	30	0,18	3,1			184	
09T304FN	0,4			2,8	204			
09T308SN	0,8	10	0,09	2,8			125	125
09T308SN	0,8	15	0,11	2,8				135
09T308TN	0,8	20	0,14	2,5	306			
09T308TN	0,8	20	0,15	2,8			145	145
09T308SN	0,8	20	0,16	2,8			155	155
09T308TN	0,8	25	0,17	2,8			165	165
09T308SN	0,8	25	0,18	2,8			175	
09T308SN	0,8	30	0,18	2,8			185	
09T308FN	0,8			2,5	206			
09T308EN	0,8			2,8				115
120404FN	0,4			3,1	208			
120404TN	0,4	20	0,14	3,1	308			
120408FN	0,8			2,8	210			
120408TN	0,8	20	0,14	2,8	310			

Cast iron	●	●	●	●
Sintered steels	●	●	●	●
Heat resistant alloys	●	●	●	●
hardened < 45 HRC				
hardened 46–55 HRC				
hardened 56–60 HRC				
hardened 61–65 HRC				

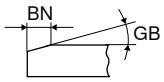
CCGW



					-B CTBH15U	-B CTBH15C	-Q-B CTBH15C
							
					F	F	F
					CBN CCGW	CBN CCGW	CBN CCGW
					NEW	NEW	NEW
ISO	RE	GB	BN	LE	Article no. 71 001 ...	Article no. 71 000 ...	Article no. 71 002 ...
	mm	°	mm	mm			
060202SN	0,2	15	0,11	3,4	30214	30214	
060202EN	0,2			3,4	00200	00200	
060204SN	0,4	15	0,11	3,1	30414	30414	
060204SN	0,4	25	0,13	3,1	30429	30429	
060204EN	0,4			3,1	00400	00400	
060208EN	0,8			2,8	00600	00600	
060208SN	0,8	15	0,11	2,8	30614	30614	
060208SN	0,8	25	0,13	2,8	30629	30629	
09T302SN	0,2	15	0,11	3,4		31414	
09T302SN	0,2	25	0,13	3,4		31429	
09T304SN	0,4	15	0,11	3,1		31614	31614
09T304SN	0,4	25	0,13	3,1		31629	31629
09T308SN	0,8	15	0,11	2,8		31814	31814
09T308SN	0,8	25	0,13	2,8		31829	31829
Cast iron							
Sintered steels							
Heat resistant alloys							
hardened < 45 HRC					●	●	●
hardened 46–55 HRC					●	●	●
hardened 56–60 HRC					●	●	●
hardened 61–65 HRC							

9

CCGW / CCGT



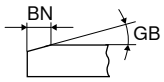
	-A CTBH21U	-A CTBH21U	-B CTBH21U	-Q-B CTBH21U	-B CTBH20C	-Q-B CTBH20C
	PBC25	PBC25	-2S PBC25	-2Q PBC25	-2MC PBC25-S	-2Q PBC25-S
						
	F	F	F	F	F	F
	CBN CCGW	CBN CCGT	CBN CCGW	CBN CCGW	CBN CCGW	CBN CCGW
	Article no. 71 120 ...	Article no. 71 124 ...	Article no. 71 121 ...	Article no. 71 123 ...	Article no. 71 161 ...	Article no. 71 162 ...

ISO	RE mm	GB °	BN mm	LE mm												
060202SN	0,2	10	0,09	3,4									230		230	
060202SN	0,2	15	0,11	3,4											240	
060202SN	0,2	20	0,09	3,4									250			
060202TN	0,2	20	0,14	3,4	500											
060202TN	0,2	25	0,14	3,4									260			
060202EN	0,2			3,4											220	
060202SN	0,2	25	0,15	3,4									270			
060202FN	0,2			3,4	400 1)		400								210	
060204EN	0,4			3,1									221			
060204SN	0,4	10	0,09	3,1									231		231	
060204SN	0,4	15	0,11	3,1									241		241	
060204SN	0,4	20	0,09	3,1									251		251	
060204TN	0,4	20	0,14	3,1	502											
060204TN	0,4	25	0,14	3,1									261		261	
060204FN	0,4			3,1	402 1)		402									
060204SN	0,4	25	0,15	3,1									271			
060208SN	0,8	10	0,09	2,8									232			
060208SN	0,8	20	0,09	2,8									252			
060208TN	0,8	25	0,14	2,8									262			
060208SN	0,8	30	0,18	2,8									282			
060208FN	0,8			2,8									212			
09T302SN	0,2	10	0,09	3,4									233			
09T302SN	0,2	15	0,11	3,4									243			
09T302SN	0,2	20	0,09	3,4									253			
09T302SN	0,2	25	0,15	3,4									273			
09T304SN	0,4	10	0,09	3,1									234			
09T304SN	0,4	15	0,11	3,1									244			
09T304SN	0,4	20	0,09	3,1									254			
09T304TN	0,4	20	0,14	2,8	504											
09T304TN	0,4	20	0,14	3,1				502		502						
09T304TN	0,4	25	0,14	3,1									264			
09T304SN	0,4	25	0,15	3,1									274			
09T304SN	0,4	30	0,18	3,1									284			
09T304EN	0,4			3,1									224			
09T304FN	0,4			3,1				402 1)								
09T304FN	0,4			2,8	404 1)											
09T308SN	0,8	10	0,09	2,8									235		235	
09T308SN	0,8	15	0,11	2,8									245		245	
09T308SN	0,8	20	0,09	2,8											255	
09T308TN	0,8	20	0,14	2,8				504		504						
09T308TN	0,8	20	0,14	2,5	506											
09T308TN	0,8	25	0,14	2,8									265		265	
09T308SN	0,8	25	0,15	2,8									275			
09T308FN	0,8			2,5	406 1)											
09T308EN	0,8			2,8											225	
09T308FN	0,8			2,8				404 1)		404 1)					215	
120404TN	0,4	20	0,14	3,1	508											
120408TN	0,8	20	0,14	2,8	510											

Cast iron						
Sintered steels						
Heat resistant alloys						
hardened < 45 HRC						
hardened 46–55 HRC	●	●	●	●	●	●
hardened 56–60 HRC	●	●	●	●	●	●
hardened 61–65 HRC						

1) Machining to 60 HRC

CCGW / CCGT

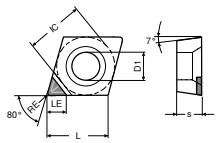


	-A CTBH40U	-A CTBH40U	-B CTBH40U	-Q-B CTBH40U	-B CTBH40C	-Q-B CTBH40C
	PBC40	PBC40	-2S PBC40	-2Q PBC40	-2MC PBC40-S	-2Q PBC40-S
						
	F	F	F	F	F	F
	CBN CCGW	CBN CCGT	CBN CCGW	CBN CCGW	CBN CCGW	CBN CCGW
ISO	Article no. 71 120 ...	Article no. 71 124 ...	Article no. 71 121 ...	Article no. 71 123 ...	Article no. 71 161 ...	Article no. 71 162 ...
RE mm / GB ° / BN mm / LE mm						
060202TN 0,2 20 0,09 3,4					320	
060202SN 0,2 20 0,09 3,4						330
060202SN 0,2 25 0,09 3,4					350	350
060202TN 0,2 25 0,11 3,4					340	340
060202TN 0,2 25 0,12 3,4	900					
060202TN 0,2 30 0,14 3,4					360	360
060202FN 0,2 3,4	800	800				
060204SN 0,4 20 0,09 3,1					331	
060204SN 0,4 25 0,09 3,1					351	351
060204TN 0,4 25 0,11 3,1					341	341
060204TN 0,4 25 0,12 3,1	902					
060204TN 0,4 30 0,14 3,1					361	361
060204SN 0,4 30 0,16 3,1					371	371
060204SN 0,4 35 0,17 3,1					381	381
060204FN 0,4 3,1	802	802				
060208TN 0,8 20 0,09 2,8					322	
060208SN 0,8 25 0,09 2,8					352	
060208TN 0,8 25 0,11 2,8					342	
060208TN 0,8 30 0,14 2,8					362	
060208SN 0,8 30 0,16 2,8					372	
060208SN 0,8 35 0,17 2,8					382	
09T302TN 0,2 20 0,09 3,4					323	
09T302SN 0,2 25 0,09 3,4					353	
09T302TN 0,2 25 0,11 3,4					343	
09T302SN 0,2 30 0,16 3,4					373	
09T302SN 0,2 35 0,17 3,4					383	
09T304SN 0,4 20 0,09 3,1					334	334
09T304TN 0,4 20 0,09 3,1					324	324
09T304SN 0,4 25 0,09 3,1					354	354
09T304TN 0,4 25 0,11 3,1					344	344
09T304TN 0,4 25 0,12 3,1			902	902		
09T304TN 0,4 25 0,12 2,8	904					
09T304TN 0,4 30 0,14 3,1					364	364
09T304SN 0,4 30 0,16 3,1					374	
09T304EN 0,4 3,1					314	
09T304SN 0,4 35 0,17 3,1					384	
09T304FN 0,4 3,1			802	802		
09T304FN 0,4 2,8	804					
09T308SN 0,8 20 0,09 2,8					335	335
09T308TN 0,8 20 0,09 2,8					325	325
09T308SN 0,8 25 0,09 2,8					355	355
09T308TN 0,8 25 0,11 2,8					345	345
09T308TN 0,8 25 0,12 2,8			904	904		
09T308TN 0,8 25 0,12 2,5	906					
09T308TN 0,8 30 0,14 2,8					365	365
09T308SN 0,8 30 0,16 2,8						375
09T308SN 0,8 35 0,17 2,8					385	
09T308FN 0,8 2,8			804	804		
09T308FN 0,8 2,5	806					
09T308EN 0,8 2,8						315
120404FN 0,4 3,1	808					
120404TN 0,4 25 0,12 3,1	908					
120408TN 0,8 25 0,12 2,8	910					
Cast iron						
Sintered steels						
Heat resistant alloys						
hardened < 45 HRC						
hardened 46–55 HRC	●	●	●	●	●	●
hardened 56–60 HRC	●	●	●	●	●	●
hardened 61–65 HRC	●	●	●	●	●	●

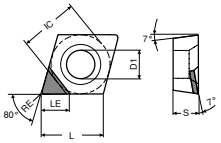
9

CCGW / CCGT

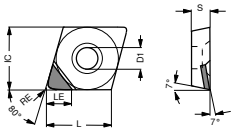
Designation	L	S	D1	IC
	mm	mm	mm	mm
CCG. 0602..	6,45	2,38	2,8	6,35
CCG. 09T3..	9,70	3,97	4,4	9,52
CCG. 1204..	12,90	4,76	5,5	12,70



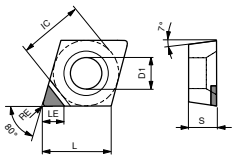
CCGW -Q-A



CCGT -A



CCGT -Q-A



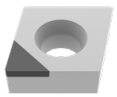
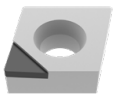
CCGW -A

CCGW / CCGT

	-A CTDMD05	-A CTDPD20	-A CTDPD20	-Q-A CTDPD20	-Q-A CTDPD20
	MDC	PDC	PDC	-2Q PDC	-2Q PDC
	F DIAMOND CCGW	F DIAMOND CCGW	F DIAMOND CCGT	F DIAMOND CCGW	F DIAMOND CCGT
ISO	Article no. 71 120 ...	Article no. 71 120 ...	Article no. 71 124 ...	Article no. 71 125 ...	Article no. 71 126 ...
RE mm / LE mm					
060201FN 0,1 3,4					101
060202FN 0,2 2,5	050				
060202FN 0,2 3,3				102	102
060202FN 0,2 3,4		100	100		
060204FN 0,4 2,5	052				
060204FN 0,4 3,1					104
060204FN 0,4 3,2		102	102	104	
09T301FN 0,1 4,5				111	111
09T302FN 0,2 4,4				112	112
09T304FN 0,4 2,5	054				
09T304FN 0,4 4,2				114	114
09T304FN 0,4 4,3		104	104		
09T308FN 0,8 2,5	056				
09T308FN 0,8 4,1		106	106		
120402FN 0,2 4,4				122	122
120404FN 0,4 4,2				124	124
120404FN 0,4 4,3		108	108		
120408FN 0,8 4,1		110	110		

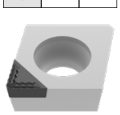
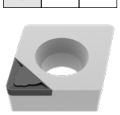
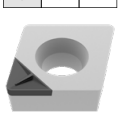
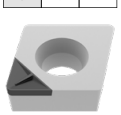
Steel					
Stainless steel					
Cast iron					
Non ferrous metals	●	●	●	●	●
Heat resistant alloys	○				

CCGT / CCGW

			-A-CB1 CTDPD20	-A-CB1 CTDPD20	-Q-A CTDPS30	-Q-A CTDPS30	-A-CB2 CTDPS30	-A-Q-CB2 CTDPS30
			-CB1 PDC	-Q-CB1 PDC	-2Q PDC-S	-2Q PDC-S	-CB2 PDC-S	-Q-CB2 PDC-S
								
			F DIAMOND CCGT	F DIAMOND CCGT	F DIAMOND CCGW	F DIAMOND CCGT	M DIAMOND CCGT	M DIAMOND CCGT
ISO	RE	LE	Article no. 71 300 ...	Article no. 71 305 ...	Article no. 71 125 ...	Article no. 71 126 ...	Article no. 71 301 ...	Article no. 71 306 ...
	mm	mm						
060202FN	0,2	3,3			152	152		
060202EN	0,2	3,3						202
060202EN	0,2	3,4					202	
060202FN	0,2	3,4	102					
060204FN	0,4	3,1		104				
060204EN	0,4	3,1						204
060204EN	0,4	3,2					204	
060204FN	0,4	3,2	104					
060208EN	0,8	3,0					208	
09T302FN	0,2	4,4			162	162		
09T302EN	0,2	4,4						212
09T302EN	0,2	4,5					212	
09T302FN	0,2	4,5	112					
09T304FN	0,4	4,2		114				
09T304EN	0,4	4,2						214
09T304EN	0,4	4,3					214	
09T304FN	0,4	4,3	114					
09T308EN	0,8	4,1					218	
09T308FN	0,8	4,1	118					
120402FN	0,2	4,4				172		
120402EN	0,2	4,4						222
120404EN	0,4	4,2						224
120404FN	0,4	4,2		124		174		
120404EN	0,4	4,3					224	
120404FN	0,4	4,3	124					
120408EN	0,8	4,1					228	
120408FN	0,8	4,1	128					
Steel								
Stainless steel								
Cast iron								
Non ferrous metals			●	●	●	●	●	●
Heat resistant alloys					○	○	○	○

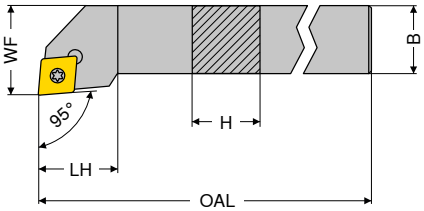
9

CCGT

			-A-CB3 CTDPU20	-A-CB1 CTDCD10	-A-CB2 CTDCD10	-A-Q-CB2 CTDCD10
			-CB3 PDC-S	-CB1 CVD	-CB2 CVD	-Q-CB2 CVD
						
			R DIAMOND CCGT	F DIAMOND CCGT	M DIAMOND CCGT	M DIAMOND CCGT
ISO	RE	LE	Article no. 71 302 ...	Article no. 71 300 ...	Article no. 71 301 ...	Article no. 71 306 ...
	mm	mm				
060202FN	0,2	2,4		302		
060204EN	0,4	2,1				304
060204FN	0,4	2,2		304		
060204EN	0,4	2,2			304	
060204EN	0,4	3,2	204			
09T304EN	0,4	2,1				314
09T304FN	0,4	2,2		314		
09T304EN	0,4	2,2			314	
09T304EN	0,4	4,3	214			
09T308EN	0,8	4,1	218			
120404EN	0,4	2,1				324
120408EN	0,8	2,1			328	
Steel						
Stainless steel						
Cast iron						
Non ferrous metals			●	●	●	●
Heat resistant alloys			○			

MaxiLock-S – SCLC 95° – Toolholder with screw clamping







Illustrations show right-hand versions

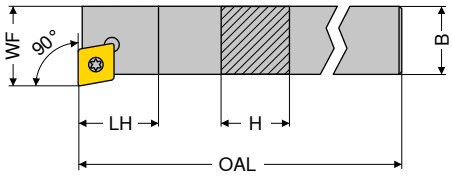
ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 653 ...	Right-hand Article no. 70 652 ...
	mm	mm	mm	mm	mm	Nm			
SCLC R/L 0808 D06	8	8	60	9	10	1,2	CC.. 0602	**008**	**008**
SCLC R/L 1010 E06	10	10	70	9	12	1,2	CC.. 0602	**010**	**010**
SCLC R/L 1212 F09	12	12	80	15	16	3,2	CC.. 09T3	**012**	**012**
SCLC R/L 1616 H09	16	16	100	17	20	3,2	CC.. 09T3	**016**	**016**
SCLC R/L 2020 K09	20	20	125	17	25	3,2	CC.. 09T3	**020**	**020**
SCLC R/L 1616 H12	16	16	100	20	20	5	CC.. 1204	**116**	**116**
SCLC R/L 2020 K12	20	20	125	20	25	5	CC.. 1204	**120**	**120**
SCLC R/L 2525 M12	25	25	150	20	32	5	CC.. 1204	**125**	**125**
SCLC R/L 3225 P12	32	25	170	20	32	5	CC.. 1204	**132**	**132**

Tool holders with HSK-T interface can be found in → **Chapter 16.**

Spare parts	 Key D	 Combination Key	 Clamping screw	 Carbide type C	 Threaded sleeve
	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
for Article no.					
70 653 008 / 70 652 008	**110**		**112**		
70 653 010 / 70 652 010	**110**		**112**		
70 653 012 / 70 652 012	**113**		**113**		
70 653 016 / 70 652 016		**398**	**113**	**165**	**171**
70 653 020 / 70 652 020		**398**	**113**	**165**	**171**
70 653 116 / 70 652 116		**398**	**114**	**166**	**170**
70 653 120 / 70 652 120		**398**	**114**	**166**	**170**
70 653 125 / 70 652 125		**398**	**114**	**166**	**170**
70 653 132 / 70 652 132		**398**	**114**	**166**	**170**

9

MaxiLock-S – SCFC 90° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand	Right-hand
	mm	mm	mm	mm	mm	Nm		Article no. 70 761 ...	Article no. 70 760 ...
SCFC R/L 0808 D06	8	8	60	10	10	1,2	CC.. 0602	008	008
SCFC R/L 1010 E06	10	10	70	10	12	1,2	CC.. 0602	010	010
SCFC R/L 1212 F09	12	12	80	13	16	3,2	CC.. 09T3	012	012
SCFC R/L 1616 H09	16	16	100	13	20	3,2	CC.. 09T3	016	016
SCFC R/L 2020 K12	20	20	125	17	25	5	CC.. 1204	020	020


Key D


Combination Key

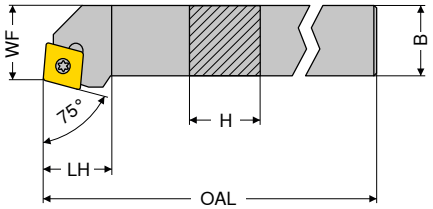

Clamping screw


Carbide type C


Threaded sleeve

Spare parts	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
for Article no.					
70 761 008 / 70 760 008	110		112		
70 761 010 / 70 760 010	110		112		
70 761 012 / 70 760 012	113		113		
70 761 016 / 70 760 016		398	113	165	171
70 761 020 / 70 760 020		398	114	166	170

MaxiLock-S – SCRC 75° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand	Right-hand
	mm	mm	mm	mm	mm	Nm		Article no. 70 649 ...	Article no. 70 648 ...
SCRC R 1010 E06	10	10	70	10	11	1,2	CC.. 0602		010
SCRC R/L 1212 F09	12	12	80	16	13	3,2	CC.. 09T3	012	012
SCRC R/L 1616 H09	16	16	100	17	17	3,2	CC.. 09T3	016	016
SCRC R/L 2020 K09	20	20	125	17	22	3,2	CC.. 09T3	020	020
SCRC R/L 2020 K12	20	20	125	20	22	5	CC.. 1204	120	120
SCRC R/L 2525 M12	25	25	150	20	27	5	CC.. 1204	125	125


Key D


Combination Key

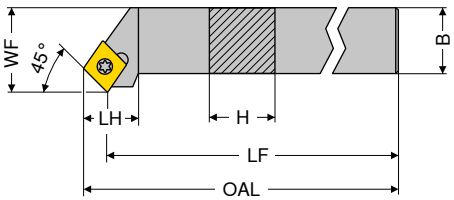

Clamping screw


Carbide type C


Threaded sleeve

Spare parts	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
for Article no.					
70 648 010	110		112		
70 649 012 / 70 648 012	113		113		
70 649 016 / 70 648 016		398	113	165	171
70 649 020 / 70 648 020		398	113	165	171
70 649 120 / 70 648 120		398	114	166	170
70 649 125 / 70 648 125		398	114	166	170

MaxiLock-S – SCSC 45° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H	B	OAL	LF	LH	WF	torque moment	Insert	Left-hand Article no. 70 641 ...	Right-hand Article no. 70 640 ...
	mm	mm	mm	mm	mm	mm	Nm			
SCSC R 1616 H12	16	16	109,1	100	20	20	5	CC.. 1204		**016**
SCSC R/L 2020 K12	20	20	134,1	125	20	25	5	CC.. 1204	**020**	**020**
SCSC R/L 2525 M12	25	25	159,1	150	20	32	5	CC.. 1204	**025**	**025**


Combination Key


Clamping screw

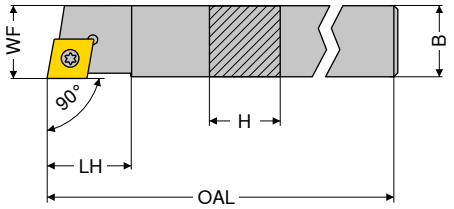

Carbide type C


Threaded sleeve

Spare parts		Combination Key Article no. 70 950 ...		Clamping screw Article no. 70 950 ...	Carbide type C Article no. 70 950 ...		Threaded sleeve Article no. 70 950 ...
for Article no.							
70 640 016	T15/SW	**398**	M4,5x12	**114**	**166**	M4,5	**170**
70 641 020 / 70 640 020	T15/SW	**398**	M4,5x12	**114**	**166**	M4,5	**170**
70 641 025 / 70 640 025	T15/SW	**398**	M4,5x12	**114**	**166**	M4,5	**170**

MaxiLock-S – SCAC 90° – Toolholder with screw clamping

▲ for sliding head lathes





Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 757 ...	Right-hand Article no. 70 756 ...
	mm	mm	mm	mm	mm	Nm			
SCAC R/L 0808 K06	8	8	125	9	8	1,2	CC.. 0602	**108**	**108**
SCAC R/L 0808 D06	8	8	60	9	8	1,2	CC.. 0602	**008**	**008**
SCAC R/L 1010 M06	10	10	150	9	10	1,2	CC.. 0602	**110**	**110**
SCAC R/L 1010 E06	10	10	70	9	10	1,2	CC.. 0602	**010**	**010**
SCAC R/L 1212 M09	12	12	150	13	12	3,2	CC.. 09T3	**112**	**112**
SCAC R/L 1212 F09	12	12	80	13	12	3,2	CC.. 09T3	**012**	**012**
SCAC R/L 1414 M09	14	14	150	13	14	3,2	CC.. 09T3	**114**	**114**
SCAC R/L 1616 H09	16	16	100	13	16	3,2	CC.. 09T3	**116**	**116**
SCAC R/L 2020 K12	20	20	125	17	20	5	CC.. 1204	**120**	**120**


Key D


Combination Key


Clamping screw


Carbide type C

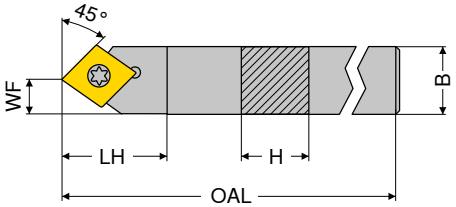

Threaded sleeve

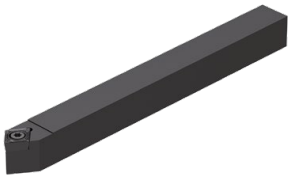
Spare parts	Key D Article no. 80 950 ...	Combination Key Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Carbide type C Article no. 70 950 ...	Threaded sleeve Article no. 70 950 ...
for Article no.					
70 756 108 / 70 757 108	**110**		**112**		
70 756 008 / 70 757 008	**110**		**112**		
70 756 110 / 70 757 110	**110**		**112**		
70 756 010 / 70 757 010	**110**		**112**		
70 756 112 / 70 757 112	**113**		**113**		
70 756 012 / 70 757 012	**113**		**113**		
70 756 114 / 70 757 114	**113**		**113**		
70 756 116 / 70 757 116		**398**	**113**	**165**	**171**
70 756 120 / 70 757 120		**398**	**114**	**166**	**170**

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MaxiLock-S – SCDC 45° – Toolholder with screw clamping







ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral Article no. 70 752 ...
SCDC L 0808 K06	8	8	125	13	4	1,2	CC.. 0602	**008**
SCDC L 1010 M06	10	10	150	13	5	1,2	CC.. 0602	**010**
SCDC L 1212 M09	12	12	150	18	6	3,2	CC.. 09T3	**012**
SCDC L 1414 M09	14	14	150	18	7	3,2	CC.. 09T3	**014**



Key D



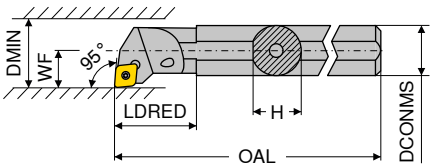
Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 752 008	T08	**110**	M2,5x6	**112**
70 752 010	T08	**110**	M2,5x6	**112**
70 752 012	T15	**113**	M3,5x11	**113**
70 752 014	T15	**113**	M3,5x11	**113**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 717 ...	Right-hand Article no. 70 716 ...
S08H SCLC R/L 06	8	7,2	100		5	11	1,2	CC.. 0602	**008**	**008**
A08F SCLC R/L 06	8	7,6	80	17	5	11	1,2	CC.. 0602	**208**	**208**
A10H SCLC R/L 06	10	9,5	100	19	7	13	1,2	CC.. 0602	**210**	**210**
S10K SCLC R/L 06	10	9,0	125		7	13	1,2	CC.. 0602	**010**	**010**
A12K SCLC R/L 06	12	11,5	125	22	9	16	1,2	CC.. 0602	**212**	**212**
S12Q SCLC R/L 06	12	11,0	180		9	16	1,2	CC.. 0602	**012**	**012**
A16M SCLC R/L 06	16	14,0	150	50	9	18	1,2	CC.. 0602	**116**	**116**
S16R SCLC R/L 09	16	14,5	200		11	20	3,2	CC.. 09T3	**016**	**016**
A16M SCLC R/L 09	16	15,0	150	29	11	20	3,2	CC.. 09T3	**216**	**216**
A20Q SCLC R/L 09	20	18,5	180	32	13	25	3,2	CC.. 09T3	**220**	**220**
S20S SCLC R/L 09	20	18,0	250		13	25	3,2	CC.. 09T3	**020**	**020**
S25T SCLC R/L 09	25	23,0	300		17	32	3,2	CC.. 09T3	**025**	**025**
A25R SCLC R/L 09	25	23,0	200	36	17	32	3,2	CC.. 09T3	**225**	**225**
A32S SCLC R/L 12	32	30,0	250	50	22	40	5	CC.. 1204	**232**	**232**
A40T SCLC R/L 12	40	38,0	300	60	27	50	5	CC.. 1204	**240**	**240**

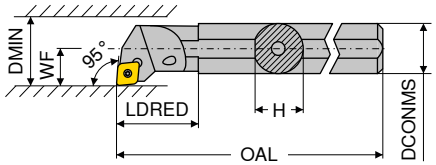
Tool holders with HSK-T or PSC interface can be found in→ **Chapter 16.**

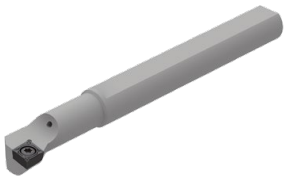
Spare parts for Article no.	Key D Article no. 80 950 ...	Combination Key Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Carbide type C Article no. 70 950 ...	Threaded sleeve Article no. 70 950 ...
70 716 008 / 70 717 008	**110**		**116**		
70 716 208 / 70 717 208	**110**		**116**		
70 716 210 / 70 717 210	**110**		**116**		
70 716 010 / 70 717 010	**110**		**116**		
70 716 212 / 70 717 212	**110**		**116**		
70 716 012 / 70 717 012	**110**		**116**		
70 716 116 / 70 717 116	**110**		**116**		
70 716 016 / 70 717 016	**113**		**110**		
70 716 216 / 70 717 216	**113**		**110**		
70 716 220 / 70 717 220	**113**		**304**		
70 716 020 / 70 717 020	**113**		**110**		
70 716 025 / 70 717 025	**113**		**113**		
70 716 225 / 70 717 225	**113**		**304**		
70 716 232 / 70 717 232		**398**	**114**	**166**	**170**
70 716 240 / 70 717 240		**398**	**114**	**166**	**170**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ with carbide core







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 719 ...	Right-hand Article no. 70 718 ...
E-A08F SCLC R/L 06	8	7,5	80	18	6	12	1,2	CC.. 0602	**208**	**208**
E-A10H SCLC R/L 06	10	9,0	100	20	7	14	1,2	CC.. 0602	**210**	**210**
E-A12K SCLC R/L 06	12	11,0	125	20	9	18	1,2	CC.. 0602	**212**	**212**
E-A16M SCLC R/L 09	16	15,0	150	28	11	22	3,2	CC.. 09T3	**216**	**216**
E-A20Q SCLC R/L 09	20	18,0	180	38	13	26	3,2	CC.. 09T3	**220**	**220**
E-A25R SCLC R/L 09	25	23,0	200	38	17	34	3,2	CC.. 09T3	**225**	**225**
E-A32S SCLC R/L 12	32	30,0	250	43	22	39	5	CC.. 1204	**232**	**232**



Key D



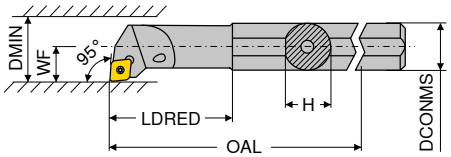
Clamping screw

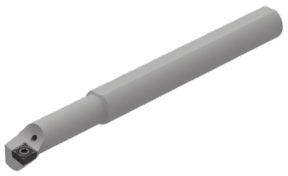
Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 718 208 / 70 719 208	T08	**110**	M2,5x5	**116**
70 718 210 / 70 719 210	T08	**110**	M2,5x5	**116**
70 718 212 / 70 719 212	T08	**110**	M2,5x5	**116**
70 718 216 / 70 719 216	T15	**113**	M4x9,5	**449**
70 718 220 / 70 719 220	T15	**113**	M4x9,5	**449**
70 718 225 / 70 719 225	T15	**113**	M4x9,5	**449**
70 718 232 / 70 719 232	T15	**113**	M4x11	**174**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ with carbide core







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 719 ...	Right-hand Article no. 70 718 ...
E-A0608F SCLC R/L 06	8	7,5	100	25	4	8	1,2	CC.. 0602	**308**	**308**
E-A0810H SCLC R/L 06	10	9,0	110	32	6	12	1,2	CC.. 0602	**310**	**310**
E-A1012K SCLC R/L 06	12	11,0	125	38	7	14	1,2	CC.. 0602	**312**	**312**
E-A1216M SCLC R/L 06	16	15,0	150	50	9	18	1,2	CC.. 0602	**316**	**316**



Key D



Clamping screw

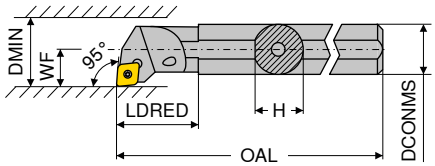
Spare parts for Article no.	Article no. 80 950 ...	Article no. 70 950 ...
70 718 308 / 70 719 308	**110**	**116**
70 718 310 / 70 719 310	**110**	**116**
70 718 312 / 70 719 312	**110**	**116**
70 718 316 / 70 719 316	**110**	**116**

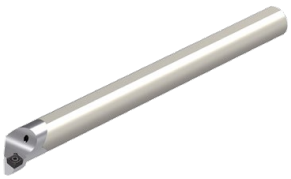
9

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ Type: Solid carbide







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 719 ...	Right-hand Article no. 70 718 ...
E08H SCLC R/L 06	8	7,6	100		5	11	1,2	CC.. 0602	**008**	**008**
E10K SCLC R/L 06	10	9,0	125	22	7	13	1,2	CC.. 0602	**010**	**010**
E12Q SCLC R/L 06	12	11,5	180	26	9	16	1,2	CC.. 0602	**012**	**012**
E16R SCLC R/L 09	16	15,0	200	34	11	20	3,2	CC.. 09T3	**016**	**016**
E20S SCLC R/L 09	20	18,5	250	38	13	25	3,2	CC.. 09T3	**020**	**020**
E25T SCLC R/L 09	25	23,0	300	43	17	32	3,2	CC.. 09T3	**025**	**025**



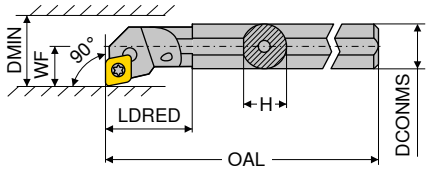
Key D



Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 719 008 / 70 718 008	T08	**110**	M2,5x5	**116**
70 719 010 / 70 718 010	T08	**110**	M2,5x5	**116**
70 719 012 / 70 718 012	T08	**110**	M2,5x5	**116**
70 719 016 / 70 718 016	T15	**113**	M3,5x7,2	**110**
70 719 020 / 70 718 020	T15	**113**	M3,5x8,6	**304**
70 719 025 / 70 718 025	T15	**113**	M3,5x11	**113**

MaxiLock-S – SCFC 90° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 793 ...	Right-hand Article no. 70 792 ...
A08F SCFC R/L 06	8	7,6	80	17	5	11	1,2	CC.. 0602	**208**	**208**
A10H SCFC R/L 06	10	9,5	100	19	7	13	1,2	CC.. 0602	**210**	**210**
A12K SCFC R/L 06	12	11,5	125	22	9	16	1,2	CC.. 0602	**212**	**212**



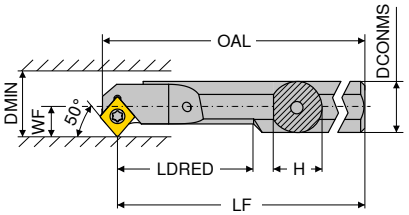
Key D



Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 792 208 / 70 793 208	T08	**110**	M2,5x5	**116**
70 792 210 / 70 793 210	T08	**110**	M2,5x5	**116**
70 792 212 / 70 793 212	T08	**110**	M2,5x5	**116**

MaxiLock-S – SCMC 50° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LF mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 723 ...	Right-hand Article no. 70 722 ...
A08H SCMC R/L 06	8	7	104,15	100	20	5,5	10,5	1,2	CC.. 0602	**208**	**208**
A10H SCMC R/L 06	10	9	114,15	110	26	6,0	11,0	1,2	CC.. 0602	**210**	**210**
A12K SCMC R/L 06	12	11	129,15	125	32	7,0	13,0	1,2	CC.. 0602	**212**	**212**
A16M SCMC R/L 06	16	14	154,15	150	40	9,0	16,0	1,2	CC.. 0602	**216**	**216**



Key D



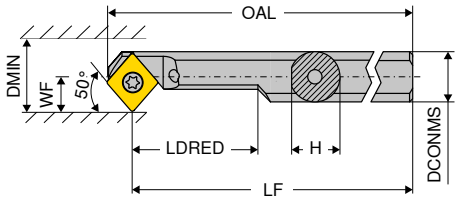
Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 723 208 / 70 722 208	T08	**110**	M2,5x5	**116**
70 723 210 / 70 722 210	T08	**110**	M2,5x5	**116**
70 723 212 / 70 722 212	T08	**110**	M2,5x5	**116**
70 723 216 / 70 722 216	T08	**110**	M2,5x5	**116**

MaxiLock-S – SCMC 50° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LF mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 707 ...	Right-hand Article no. 70 706 ...
E-A0608H SCMC R/L 06	8	7,5	104,15	100	20	5,5	10,5	1,2	CC.. 0602	**008**	**008**
E-A0810H SCMC R/L 06	10	9,0	114,15	110	26	6,0	11,0	1,2	CC.. 0602	**010**	**010**
E-A1012K SCMC R/L 06	12	11,0	129,15	125	32	7,0	13,0	1,2	CC.. 0602	**012**	**012**
E-A1216M SCMC R/L 06	16	15,0	154,15	150	40	9,0	16,0	1,2	CC.. 0602	**016**	**016**



Key D



Clamping screw

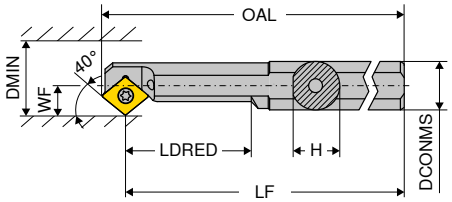
Spare parts for Article no.	Article no. 80 950 ...	Article no. 70 950 ...
70 706 008 / 70 707 008	**110**	**116**
70 706 010 / 70 707 010	**110**	**116**
70 706 012 / 70 707 012	**110**	**116**
70 706 016 / 70 707 016	**110**	**116**

9

MaxiLock-S – SCXC 40° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LF mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 715 ...	Right-hand Article no. 70 714 ...
E-A0608H SCXC R/L 06	8	7,5	105	100	20	5	9,5	1,2	CC.. 0602	**008**	**008**
E-A0810H SCXC R/L 06	10	9,0	115	110	26	6	11,0	1,2	CC.. 0602	**010**	**010**
E-A1012K SCXC R/L 06	12	11,0	130	125	32	7	13,0	1,2	CC.. 0602	**012**	**012**
E-A1216M SCXC R/L 06	16	15,0	155	150	40	9	16,0	1,2	CC.. 0602	**016**	**016**



Key D

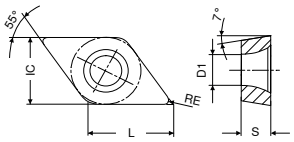


Clamping screw

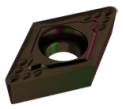
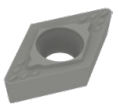
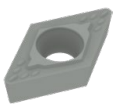
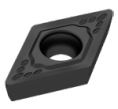
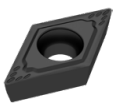
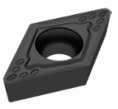
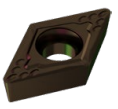
Spare parts for Article no.	Article no. 80 950 ...	Article no. 70 950 ...
70 714 008 / 70 715 008	**110**	**116**
70 714 010 / 70 715 010	**110**	**116**
70 714 012 / 70 715 012	**110**	**116**
70 714 016 / 70 715 016	**110**	**116**

DCGT / DCMT / DCXT / DCET

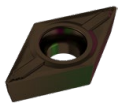
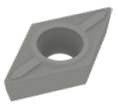
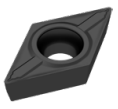
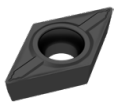
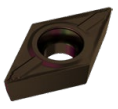
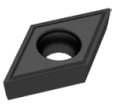
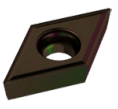
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DC.T 11T3..	11,60	3,97	4,4	9,52



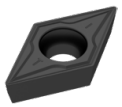
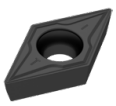
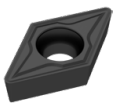
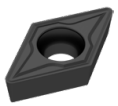
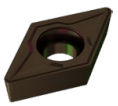
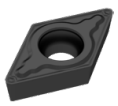
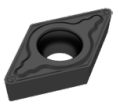
DCGT / DCMT

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	-PF14 DCC1110	-ZF CWC10	-ZF CWC407	-ZF HCX1125	-ZF HCX1115	-ZF HCX1125	-ZF HCR1135
	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	○ ◌ ◌	○ ◌ ◌	○ ◌ ◌	◌ ◠ ◌	○ ◌ ◌	◌ ◠ ◌	◌ ◌ ◌
							
	F	F	F	F	F	F	F
	CERMET DCGT	CERMET DCGT	CERMET DCGT	DCGT	DCMT	DCMT	DCMT
ISO / RE mm	Article no. 76 245 ...	Article no. 70 257 ...	Article no. 70 257 ...	Article no. 76 257 ...	Article no. 76 259 ...	Article no. 76 259 ...	Article no. 76 259 ...
070201EN 0,1		898					
070202EN 0,2	002	900		502			
070204EN 0,4	004	902	852		304	504	704
11T302EN 0,2	014	904	854				
11T304EN 0,4	016	906	856		316	516	716
11T308EN 0,8	018	908	858		318	518	718
Steel	●	●	●	●	●	●	●
Stainless steel	○			○	○	○	○
Cast iron	○	○	○	○	○	○	
Non ferrous metals							
Heat resistant alloys							○

DCMT / DCGT

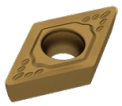
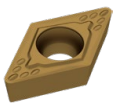
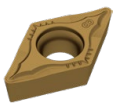
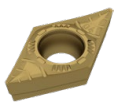
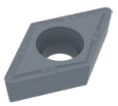
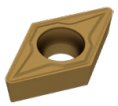
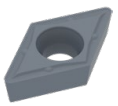
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	-PF15 DCC1110	-SMF CWC10	-SMF HCX1115	-SMF HCX1125	-SMF HCR1135	-ZM HCX1125	-ZM HCR1135
	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	○ ◌ ◌	○ ◌ ◌	○ ◌ ◌	◌ ◠ ◌	◌ ◌ ◌	◌ ◠ ◌	◌ ◌ ◌
							
	F	F	F	F	F	M	M
	CERMET DCMT	CERMET DCMT	DCMT	DCMT	DCMT	DCGT	DCGT
ISO / RE mm	Article no. 76 246 ...	Article no. 70 265 ...	Article no. 76 265 ...	Article no. 76 265 ...	Article no. 76 265 ...	Article no. 76 256 ...	Article no. 76 256 ...
070202EN 0,2	002	898				502	702
070204EN 0,4	004	900		504	704		
070208EN 0,8					706		
11T304EN 0,4	016	904	316	516	716		
11T308EN 0,8	018	906	318	518	718		
Steel	●	●	●	●	●	●	●
Stainless steel	○		○	○	○	○	○
Cast iron	○	○	○	○		○	
Non ferrous metals							
Heat resistant alloys					○		○

DCMT

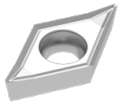
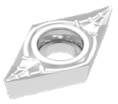
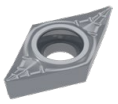
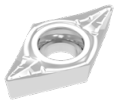
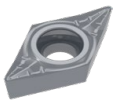
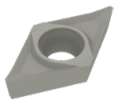
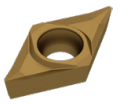
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	-ZM DCX3110	-ZM HCF3120	-ZM HCX1115	-ZM HCX1125	-ZM HCR1135	-SMQ HCX1115	-SMQ HCX1125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M DCMT	M DCMT	M DCMT	M DCMT	M DCMT	M DCMT	M DCMT
ISO / RE mm	Article no. 70 258 ...	Article no. 70 258 ...	Article no. 76 258 ...	Article no. 76 258 ...	Article no. 76 258 ...	Article no. 76 195 ...	Article no. 76 195 ...
070204EN 0,4	004	554	304	504	704	304	504
070208EN 0,8	006	506	306	506	706		
11T304EL 0,4							516
11T304EN 0,4	016	516	316	516	716		515
11T304ER 0,4							517
11T308EN 0,8	018	518	318	518	718		518
11T312EN 1,2				520			
Steel	●	●	●	●	●	●	●
Stainless steel	○		○	○	○	○	○
Cast iron	●	●	○	○		○	○
Non ferrous metals							
Heat resistant alloys					○		

9

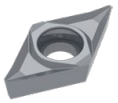
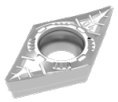
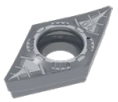
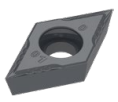
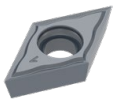
DCGT / DCMT / DCXT

	-SF CTC2135	-SF CTC2135	-F43 CTC2135	-M81 CWN2120	-M25 CTPM125	-SM CTC2135	-M55 CTPM125
	-ZF CWN2135	-ZF CWN2135	-F43 CWN2135		-PF23 HCN2125	-ZM CWN2135	-PF26 HCN2125
					DRAGONSKIN		DRAGONSKIN
							
	F DCGT	F DCMT	F DCMT	M DCXT	F DCMT	M DCMT	F DCMT
ISO / RE mm	Article no. 70 257 ...	Article no. 70 259 ...	Article no. 70 186 ...	Article no. 70 260 ...	Article no. 75 213 ...	Article no. 70 258 ...	Article no. 75 214 ...
070202EN 0,2	440		400		202		
070202FN 0,2				100			
070204EN 0,4		440	402		204	440	204
070204FN 0,4				102			
070208EN 0,8						442	206
11T302EN 0,2			404		214		
11T302FN 0,2				104			
11T304EN 0,4		444	406		216	444	216
11T304FN 0,4				106			
11T308EN 0,8		446	408		218	448	218
11T308FN 0,8				108			
Steel	○	○	○		○	○	○
Stainless steel	●	●	●	●	●	●	●
Cast iron							
Non ferrous metals				○			
Heat resistant alloys	●	●	●			●	

DCGT

	-23P H216T	-25P H210T	-25P AMZ	-25Q H210T	-25Q AMZ	-27 H10T	-27 CWN15
	-23P CWK26	-25P CWK20	-25P AMZ	-25Q CWK20	-25Q AMZ	-AL CWK15	-AL CWN15
							
	F DCGT	F DCGT	F DCGT	M DCGT	M DCGT	M DCGT	M DCGT
ISO / RE mm	Article no. 70 261 ...	Article no. 70 263 ...	Article no. 70 263 ...	Article no. 70 263 ...	Article no. 70 263 ...	Article no. 70 260 ...	Article no. 70 260 ...
070202FN 0,2		632	552			600	300
070204FN 0,4	654	634	554			602	302
11T302FN 0,2		635	535			604	304
11T304FL 0,4				670	620		
11T304FN 0,4	664	636	556	660	610	606	306
11T304FR 0,4				680	630		
11T308FL 0,8				672	622		
11T308FN 0,8	666	638	558	662	612	608	308
11T308FR 0,8				682	642		
Steel			○		○		
Stainless steel			○		○		○
Cast iron	○	○	○	○	○	○	
Non ferrous metals	●	●	●	●	●	●	●
Heat resistant alloys	○	○		○		○	

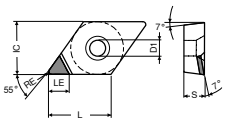
DCGT / DCMT / DCET

	-27 AMZ	-29 H216T	-29 AMZ	-F05 CTPX710	-F23 CTP2120
	-AL AMZ				-F23 CCN2120
				DRAGONSKIN	
					
	M DCGT	M DCMT	M DCMT	F DCET	F DCGT
		NEW	NEW	NEW	
ISO / RE mm	Article no. 70 260 ...	Article no. 70 246 ...	Article no. 70 246 ...	Article no. 76 254 ...	Article no. 70 192 ...
0702005FN 0,05				10200	
070200FN 0,00					600
0702015FN 0,15				10600	
070201FN 0,10				10400	602
070202FN 0,20	450			10800	
070204EN 0,40		60400	40400		
070204FN 0,40	452				
11T3005FN 0,05				11400	
11T300FN 0,00					604
11T3015FN 0,15				11800	
11T301FN 0,10				11600	606
11T302FN 0,20	454			12000	
11T304EN 0,40		61600	41600		
11T304FN 0,40	456				
11T304N 0,40				12200	
11T308EN 0,80		61800	41800		
11T308FN 0,80	458				
Steel	○		○	●	
Stainless steel	○		○	●	●
Cast iron	○	○	○	○	○
Non ferrous metals	●	●	●	○	○
Heat resistant alloys		○		●	●

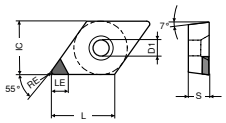
→ v_c Page 144–159

DCGW / DCGT

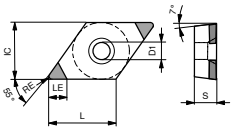
Designation	L	S	D1	IC
	mm	mm	mm	mm
DCG. 0702..	7,75	2,38	2,8	6,35
DCG. 11T3..	11,60	3,97	4,4	9,52



DCGT -A

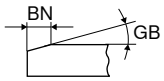


DCGW -A



DCGW-B

DCGW / DCGT

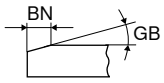


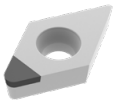
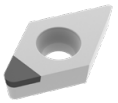
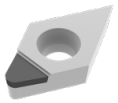
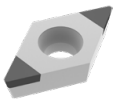
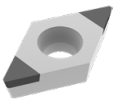
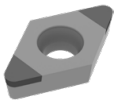
	-A CTBS10U	-A CTBS10U	-A CTBS10U	-B CTBS10U	-B CTBS10U	-B CTBS20C
	PBC10	PBC10	PBC10	-2S PBC10	-2S PBC10	-2MC PBC15-S
	F	F	F	F	F	F
	CBN DCGW	CBN DCGW	CBN DCGT	CBN DCGW	CBN DCGW	CBN DCGW

ISO	RE	GB	BN	LE	Article no. 71 130 ...	Article no. 71 130 ...	Article no. 71 134 ...	Article no. 71 131 ...	Article no. 71 131 ...	Article no. 71 163 ...
	mm	°	mm	mm						
070202SN	0,2	10	0,09	3,9						120
070202SN	0,2	15	0,11	3,9						130
070202TN	0,2	20	0,14	3,9		300				
070202TN	0,2	20	0,15	3,9						140
070202SN	0,2	20	0,16	3,9						150
070202TN	0,2	25	0,17	3,9						160
070202FN	0,2			3,9	200		200			
070204SN	0,4	10	0,09	3,5						121
070204SN	0,4	15	0,11	3,5						131
070204TN	0,4	20	0,14	3,5		302				
070204TN	0,4	20	0,15	3,5						141
070204SN	0,4	20	0,16	3,5						151
070204TN	0,4	25	0,17	3,5						161
070204SN	0,4	30	0,18	3,5						181
070204FN	0,4			3,5	202		202			
070208SN	0,8	15	0,11	3,0						132
070208TN	0,8	20	0,14	3,0		304				
070208TN	0,8	20	0,15	3,0						142
070208SN	0,8	20	0,16	3,0						152
070208TN	0,8	25	0,17	3,0						162
070208SN	0,8	25	0,18	3,0						172
070208EN	0,8			3,0						112
070208FN	0,8			3,0	204		204			
11T302SN	0,2	15	0,11	3,9						133
11T302TN	0,2	20	0,14	3,9		306			300	
11T302TN	0,2	20	0,15	3,9						143
11T302SN	0,2	20	0,16	3,9						153
Cast iron					●	●	●	●	●	●
Sintered steels					●	●	●	●	●	●
Heat resistant alloys					●	●	●	●	●	●
hardened < 45 HRC										
hardened 46–55 HRC										
hardened 56–60 HRC										
hardened 61–65 HRC										

9

DCGW / DCGT

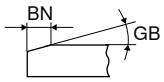


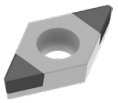
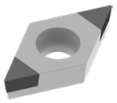
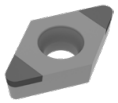
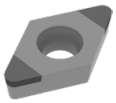
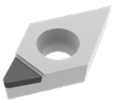
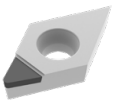
	-A CTBS10U	-A CTBS10U	-A CTBS10U	-B CTBS10U	-B CTBS10U	-B CTBS20C
	PBC10	PBC10	PBC10	-2S PBC10	-2S PBC10	-2MC PBC15-S
						
	F	F	F	F	F	F
	CBN DCGW	CBN DCGW	CBN DCGT	CBN DCGW	CBN DCGW	CBN DCGW
	Article no. 71 130 ...	Article no. 71 130 ...	Article no. 71 134 ...	Article no. 71 131 ...	Article no. 71 131 ...	Article no. 71 163 ...
ISO						
11T302TN						163
11T302FN			206		206	200		
11T302EN						113
11T304SN						124
11T304TN		308			302	
11T304TN						144
11T304SN						154
11T304TN						164
11T304SN						174
11T304SN						184
11T304FN			208		208	202		
11T308SN						135
11T308TN		310			304	
11T308TN						145
11T308SN						155
11T308TN						165
11T308SN						185
11T308FN			210		210	204		
11T308EN						115

RE mm	GB °	BN mm	LE mm
0,2	25	0,17	3,9
0,2			3,9
0,2			3,9
0,4	10	0,09	3,5
0,4	20	0,14	3,5
0,4	20	0,15	3,5
0,4	20	0,16	3,5
0,4	25	0,17	3,5
0,4	25	0,18	3,5
0,4	30	0,18	3,5
0,4			3,5
0,8	15	0,11	3,0
0,8	20	0,14	3,0
0,8	20	0,15	3,0
0,8	20	0,16	3,0
0,8	25	0,17	3,0
0,8	30	0,18	3,0
0,8			3,0
0,8			3,0

Cast iron	●	●	●	●	●	●
Sintered steels	●	●	●	●	●	●
Heat resistant alloys	●	●	●	●	●	●
hardened < 45 HRC						
hardened 46–55 HRC						
hardened 56–60 HRC						
hardened 61–65 HRC						

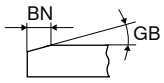
DCGW / DCGT



	-B CTBH15U	-B CTBH15U	-B CTBH15C	-B CTBH15C	-A CTBH21U PBC25	-A CTBH40U PBC40
						
	F	F	F	F	F	F
	CBN DCGW	CBN DCGW	CBN DCGW	CBN DCGW	CBN DCGT	CBN DCGT
	NEW	NEW	NEW	NEW		
ISO	Article no. 71 008 ...	Article no. 71 012 ...	Article no. 71 007 ...	Article no. 71 009 ...	Article no. 71 134 ...	Article no. 71 134 ...
RE mm / GB ° / BN mm / LE mm						
070202EN 0,2 / 3,9	00200		00200			
070202SN 0,2 / 15 / 0,11 / 3,9	30214		30214			
070202FN 0,2 / 3,9					400	800
070204EN 0,4 / 3,5	00400		00400			
070204SN 0,4 / 15 / 0,11 / 3,5	30414		30414			
070204SN 0,4 / 25 / 0,13 / 3,5	30429		30429			
070204FN 0,4 / 3,5					402	802
070208SN 0,8 / 15 / 0,11 / 3,0		30614		30614		
070208SN 0,8 / 25 / 0,13 / 3,0		30629		30629		
070208EN 0,8 / 3,0		00600		00600		
11T302SN 0,2 / 15 / 0,11 / 3,9			31414			
11T302RN 0,2 / 3,9			21400			
11T302SN 0,2 / 25 / 0,13 / 3,9			31429			
11T302FN 0,2 / 3,9					406	806
11T304SN 0,4 / 15 / 0,11 / 3,5			31614			
11T304SN 0,4 / 25 / 0,13 / 3,5			31629			
11T304RN 0,4 / 3,5			21600			
11T304FN 0,4 / 3,5					408	808
11T308RN 0,8 / 3,0				21800		
11T308SN 0,8 / 15 / 0,11 / 3,0				31814		
11T308SN 0,8 / 25 / 0,13 / 3,0				31829		
11T308FN 0,8 / 3,0					410	810
Cast iron						
Sintered steels						
Heat resistant alloys						
hardened < 45 HRC	●	●	●	●		
hardened 46–55 HRC	●	●	●	●	●	●
hardened 56–60 HRC	●	●	●	●	●	●
hardened 61–65 HRC						●

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DCGW



ISO	RE	GB	BN	LE	-A CTBH21U PBC25 F CBN DCGW	-B CTBH21U -2S PBC25 F CBN DCGW	-B CTBH20C -2MC PBC25-S F CBN DCGW	-A CTBH40U PBC40 F CBN DCGW	-B CTBH40U -2S PBC40 F CBN DCGW	-B CTBH40C -2MC PBC40-S F CBN DCGW
	mm	°	mm	mm	Article no. 71 130 ...	Article no. 71 131 ...	Article no. 71 163 ...	Article no. 71 130 ...	Article no. 71 131 ...	Article no. 71 163 ...
070202FN	0,2			3,9	400 [1]			800		
070202SN	0,2	10	0,09	3,9			230			
070202SN	0,2	15	0,11	3,9			240			
070202SN	0,2	20	0,09	3,9			250			
070202TN	0,2	20	0,09	3,9						320
070202TN	0,2	20	0,14	3,9	500					
070202SN	0,2	25	0,09	3,9						350
070202TN	0,2	25	0,11	3,9						340
070202TN	0,2	25	0,12	3,9				900		
070202TN	0,2	25	0,14	3,9			260			
070202TN	0,2	30	0,14	3,9						360
070202SN	0,2	30	0,16	3,9						370
070202SN	0,2	35	0,17	3,9						380
070202EN	0,2			3,9						310
070204SN	0,4	10	0,09	3,5			231			
070204SN	0,4	15	0,11	3,5			241			
070204SN	0,4	20	0,09	3,5			251			331
070204TN	0,4	20	0,14	3,5	502					
070204SN	0,4	25	0,09	3,5						351
070204TN	0,4	25	0,11	3,5						341
070204TN	0,4	25	0,12	3,5				902		
070204TN	0,4	25	0,14	3,5			261			
070204SN	0,4	25	0,15	3,5			271			
070204TN	0,4	30	0,14	3,5						361
070204SN	0,4	30	0,16	3,5						371
070204SN	0,4	35	0,17	3,5						381
070204FN	0,4			3,5	402 [1]		211	802		
070208SN	0,8	10	0,09	3,0			232			
070208SN	0,8	20	0,09	3,0			252			332
070208TN	0,8	20	0,14	3,0	504					
070208SN	0,8	25	0,09	3,0						352
070208TN	0,8	25	0,11	3,0						342
070208TN	0,8	25	0,12	3,0				904		
070208TN	0,8	25	0,14	3,0			262			
070208TN	0,8	30	0,14	3,0						362
070208SN	0,8	30	0,16	3,0						372
070208SN	0,8	35	0,17	3,0						382
070208FN	0,8			3,0	404 [1]		212	804		
070208EN	0,8			3,0			222			312
11T302FN	0,2			3,9	406 [1]	400 [1]		806	800 [1]	
11T302SN	0,2	15	0,09	3,9			233			
11T302SN	0,2	15	0,11	3,9			243			
11T302SN	0,2	20	0,09	3,9			253			
11T302TN	0,2	20	0,09	3,9						323

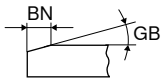
Cast iron							
Sintered steels							
Heat resistant alloys							
hardened < 45 HRC							
hardened 46–55 HRC	●	●	●	●	●	●	
hardened 56–60 HRC	●	●	●	●	●	●	
hardened 61–65 HRC				●	●	●	

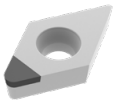
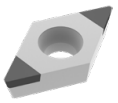
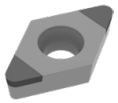
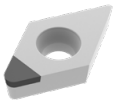
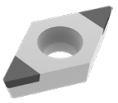
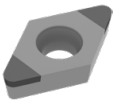
1) Machining to 60 HRC

→ v_c Page 160–167

Continued on next page

DCGW



ISO	RE	GB	BN	LE	-A CTBH21U PBC25	-B CTBH21U -2S PBC25	-B CTBH20C -2MC PBC25-S	-A CTBH40U PBC40	-B CTBH40U -2S PBC40	-B CTBH40C -2MC PBC40-S
										
					F CBN DCGW	F CBN DCGW	F CBN DCGW	F CBN DCGW	F CBN DCGW	F CBN DCGW
	mm	°	mm	mm	Article no. 71 130 ...	Article no. 71 131 ...	Article no. 71 163 ...	Article no. 71 130 ...	Article no. 71 131 ...	Article no. 71 163 ...
11T302TN	0,2	20	0,14	3,9	506	500				
11T302SN	0,2	25	0,09	3,9						353
11T302TN	0,2	25	0,11	3,9						343
11T302TN	0,2	25	0,12	3,9				906	900	
11T302TN	0,2	25	0,14	3,9			263			
11T302SN	0,2	25	0,15	3,9			273			
11T302TN	0,2	30	0,14	3,9						363
11T302SN	0,2	35	0,17	3,9						383
11T302EN	0,2			3,9						313
11T304FN	0,4			3,5	408 1)	402 1)	214	808	802 1)	
11T304SN	0,4	10	0,09	3,5			234			
11T304SN	0,4	15	0,11	3,5			244			
11T304SN	0,4	20	0,09	3,5			254			334
11T304TN	0,4	20	0,09	3,5						324
11T304TN	0,4	20	0,14	3,5	508	502				
11T304SN	0,4	25	0,09	3,5						354
11T304TN	0,4	25	0,11	3,5						344
11T304TN	0,4	25	0,12	3,5				908	902	
11T304TN	0,4	25	0,14	3,5			264			
11T304SN	0,4	25	0,15	3,5			274			
11T304TN	0,4	30	0,14	3,5						364
11T304SN	0,4	30	0,16	3,5						374
11T304SN	0,4	30	0,18	3,5			284			
11T304SN	0,4	35	0,17	3,5						384
11T304EN	0,4			3,5			224			314
11T308SN	0,8	15	0,11	3,0			245			
11T308SN	0,8	20	0,09	3,0			255			335
11T308TN	0,8	20	0,09	3,0						325
11T308TN	0,8	20	0,14	3,0	510	504				
11T308SN	0,8	25	0,09	3,0						355
11T308TN	0,8	25	0,11	3,0						345
11T308TN	0,8	25	0,12	3,0				910	904	
11T308TN	0,8	25	0,14	3,0			265			
11T308TN	0,8	30	0,14	3,0						365
11T308SN	0,8	30	0,16	3,0						375
11T308SN	0,8	30	0,18	3,0			285			
11T308SN	0,8	35	0,17	3,0						385
11T308EN	0,8			3,0			225			
11T308FN	0,8			3,0	410 1)	404 1)	215		804 1)	

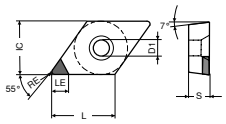
Cast iron										
Sintered steels										
Heat resistant alloys										
hardened < 45 HRC										
hardened 46–55 HRC					●	●	●	●	●	●
hardened 56–60 HRC					●	●	●	●	●	●
hardened 61–65 HRC								●	●	●

1) Machining to 60 HRC

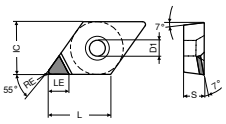
9

DCGW / DCGT

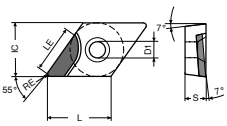
Designation	L	S	D1	IC
	mm	mm	mm	mm
DCG. 0702..	7,75	2,38	2,8	6,35
DCG. 11T3..	11,60	3,97	4,4	9,52



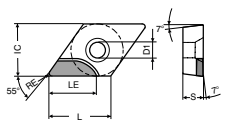
DCGW -A



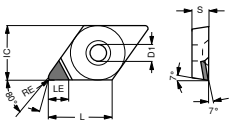
DCGT -A



DCGT-L



DCGT-R

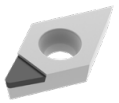
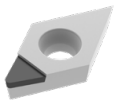
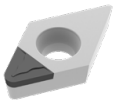
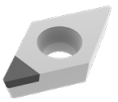
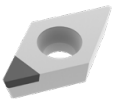


DCGT -Q-A (-2Q)

DCGW / DCGT

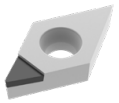
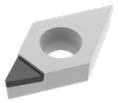
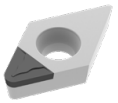
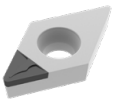
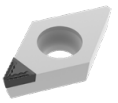
	-A CTDMD05	-A CTDMD05	-A CTDPD20	-A CTDPD20	-A CTDPD20	-A CTDPD20
	MDC	MDC	PDC	PDC	PDC	PDC
	F DIAMOND DCGW	F DIAMOND DCGT	F DIAMOND DCGW	F DIAMOND DCGT	F DIAMOND DCGT	F DIAMOND DCGT
ISO	Article no. 71 130 ...	Article no. 71 134 ...	Article no. 71 130 ...	Article no. 71 134 ...	Article no. 71 135 ...	Article no. 71 136 ...
RE mm / LE mm						
070202FN 0,2 / 2,5		050				
070202FN 0,2 / 3,7			100	100		
070204FN 0,4 / 2,5		052				
070204FN 0,4 / 3,4			102	102		
070204FRR 0,4 / 5,5					102	
070204FLL 0,4 / 5,5						102
070208FN 0,8 / 2,5		054				
070208FN 0,8 / 3,0			104	104		
070208FRR 0,8 / 5,0					104	
070208FLL 0,8 / 5,0						104
11T302FN 0,2 / 2,5		056				
11T302FN 0,2 / 3,0	056					
11T302FN 0,2 / 4,7			106	106		
11T304FN 0,4 / 2,5		058				
11T304FN 0,4 / 3,0	058					
11T304FN 0,4 / 4,3			108	108		
11T304FRR 0,4 / 7,5					108	
11T304FLL 0,4 / 7,5						108
11T308FN 0,8 / 2,5		060				
11T308FN 0,8 / 4,0			110	110		
11T308FRR 0,8 / 7,0					110	
11T308FLL 0,8 / 7,0						110
Steel						
Stainless steel						
Cast iron						
Non ferrous metals	●	●	●	●	●	●
Heat resistant alloys	○	○				

DCGT / DCGW

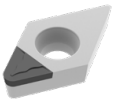
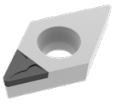
			-Q-A CTDPD20	-Q-A CTDPD20	-A-CB1 CTDPD20	-Q-A CTDPS30	-Q-A CTDPS30
			-2Q PDC	-2Q PDC	-CB1 PDC	-2Q PDC-S	-2Q PDC-S
							
			F	F	F	F	F
			DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGW	DIAMOND DCGW
ISO	RE	LE	Article no. 71 144 ...	Article no. 71 145 ...	Article no. 71 310 ...	Article no. 71 138 ...	Article no. 71 139 ...
	mm	mm					
070202FN	0,2	3,7			102		
070204FL	0,4	3,0		104			
070204FR	0,4	3,0	104				
070204FN	0,4	3,4			104		
070208FN	0,8	3,0			108		
11T302FR	0,2	4,0				162	
11T302FN	0,2	4,7			112		
11T304FR	0,4	4,0	114			164	
11T304FL	0,4	4,0		114			164
11T304FN	0,4	4,3			114		
11T308FN	0,8	4,0			118		
Steel							
Stainless steel							
Cast iron							
Non ferrous metals			●	●	●	●	●
Heat resistant alloys						○	○

9

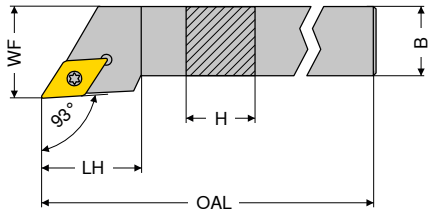
DCGT

			-Q-A CTDPS30	-Q-A CTDPS30	-A-CB1 CTDPS30	-A-CB2 CTDPS30	-A-CB3 CTDPU20
			-2Q PDC-S	-2Q PDC-S	-CB1 PDC-S	-CB2 PDC-S	-CB3 PDC-S
							
			F DIAMOND DCGT	F DIAMOND DCGT	F DIAMOND DCGT	M DIAMOND DCGT	R DIAMOND DCGT
ISO	RE	LE	Article no. 71 144 ...	Article no. 71 145 ...	Article no. 71 310 ...	Article no. 71 311 ...	Article no. 71 312 ...
	mm	mm					
070201FL	0,1	3,0		151			
070202FL	0,2	3,0		152			
070202FR	0,2	3,0	152				
070202FN	0,2	3,7			202		
070202EN	0,2	3,7				202	
070204FN	0,4	3,4			204		
070204EN	0,4	3,4				204	204
070208EN	0,8	3,0				208	
11T301FL	0,1	4,0		161			
11T301FR	0,1	4,0	161				
11T302FR	0,2	4,0	162				
11T302FL	0,2	4,0		162			
11T302FN	0,2	4,7			212		
11T302EN	0,2	4,7				212	
11T304FN	0,4	4,3			214		
11T304EN	0,4	4,3				214	214
11T308EN	0,8	4,0				218	218
11T308FN	0,8	4,0			218		
Steel							
Stainless steel							
Cast iron							
Non ferrous metals			●	●	●	●	●
Heat resistant alloys			○	○	○	○	○

DCGT

			-A-CB1 CTDCD10	-A-CB2 CTDCD10
			-CB1 CVD	-CB2 CVD
				
			F DIAMOND DCGT	M DIAMOND DCGT
ISO	RE	LE	Article no. 71 310 ...	Article no. 71 311 ...
	mm	mm		
070202FN	0,2	2,6	302	
070204FN	0,4	2,3	304	
070204EN	0,4	2,3		304
070208EN	0,8	2,0		308
11T304EN	0,4	2,3		314
11T304FN	0,4	2,3	314	
11T308EN	0,8	2,0		318
11T308FN	0,8	2,0	318	
Steel				
Stainless steel				
Cast iron				
Non ferrous metals			●	●
Heat resistant alloys				

MaxiLock-S – SDJC 93° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand Article no. 70 685 ...	Right-hand Article no. 70 684 ...
SDJC R/L 0808 D07	8	8	60	13,0	10	1,2	DC.. 0702	008	008
SDJC R/L 1010 E07	10	10	70	13,0	12	1,2	DC.. 0702	010	010
SDJC R/L 1212 F07	12	12	80	14,5	16	1,2	DC.. 0702	012	012
SDJC R/L 1616 H11	16	16	100	20,0	20	3,2	DC.. 11T3	016	016
SDJC R/L 2020 K11	20	20	125	20,5	25	3,2	DC.. 11T3	020	020
SDJC R/L 2525 M11	25	25	150	21,5	32	3,2	DC.. 11T3	025	025
SDJC R/L 3225 P11	32	25	170	21,5	32	3,2	DC.. 11T3	032	032

Tool holders with HSK-T or PSC interface can be found in → **Chapter 16.**


Key D


Combination Key


Clamping screw


Solid Carbide Seat D

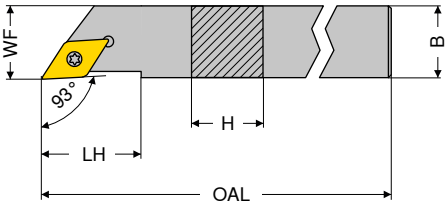

Threaded sleeve

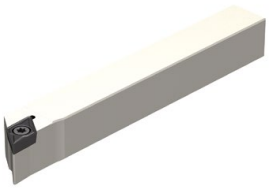
Spare parts	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
Insert					
DC.. 0702	110		112		
DC.. 11T3		398	113	106	171

9

MaxiLock-S – SDJC 93° – Toolholder with screw clamping

▲ for sliding head lathes





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand Article no. 70 685 ...	Right-hand Article no. 70 684 ...
SDJC R/L 0808 H07	8	8	100	13,0	8	1,2	DC.. 0702	108	108
SDJC R/L 1010 H07	10	10	100	13,0	10	1,2	DC.. 0702	110	110
SDJC R/L 1212 H07	12	12	100	14,5	12	1,2	DC.. 0702	112	112
SDJC R/L 1616 K07	16	16	125	33,0	16	1,2	DC.. 0702	116	116
SDJC R/L 1212 H11	12	12	100	22,0	12	3,2	DC.. 11T3	212	212
SDJC R/L 1616 K11	16	16	125	33,0	16	3,2	DC.. 11T3	216	216

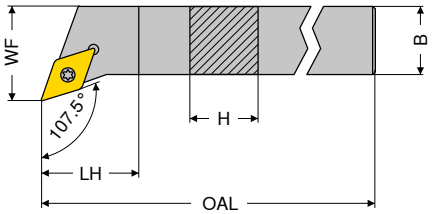

Key D


Clamping screw

Spare parts		Article no. 80 950 ...	Article no. 72 950 ...
Insert			
DC.. 0702	T08	110	002
DC.. 11T3	T15	113	006

MaxiLock-S – SDHC 107.5° – Toolholder with screw clamping







Illustrations show right-hand versions

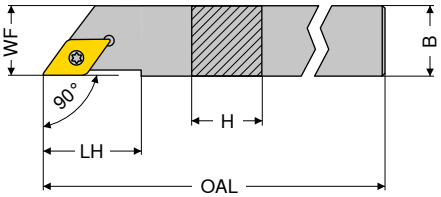
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand Article no. 70 689 ...	Right-hand Article no. 70 688 ...
SDHC R/L 1010 E07	10	10	70	5,5	12	1,2	DC.. 0702	**010**	**010**
SDHC R/L 1212 F07	12	12	80	12,0	16	1,2	DC.. 0702	**012**	**012**
SDHC R/L 1616 H11	16	16	100	10,4	20	3,2	DC.. 11T3	**016**	**016**
SDHC R/L 2020 K11	20	20	125	14,0	32	3,2	DC.. 11T3	**020**	**020**
SDHC R/L 2525 M11	25	25	150	20,0	32	3,2	DC.. 11T3	**025**	**025**

Spare parts for Article no.	Key D Article no. 80 950 ...	Combination Key Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide Seat D Article no. 70 950 ...	Threaded sleeve Article no. 70 950 ...
70 689 010 / 70 688 010	**110**		**112**		
70 689 012 / 70 688 012	**110**		**112**		
70 689 016 / 70 688 016		**398**	**113**	**106**	**171**
70 689 020 / 70 688 020		**398**	**113**	**106**	**171**
70 689 025 / 70 688 025		**398**	**113**	**106**	**171**

MaxiLock-S – SDAC 90° – Toolholder with screw clamping

▲ for sliding head lathes







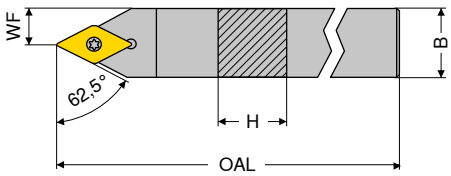
Illustrations show right-hand versions

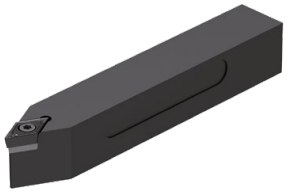
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand Article no. 70 789 ...	Right-hand Article no. 70 788 ...
SDAC R/L 0808 K07	8	8	125	14	8	1,2	DC.. 0702	**008**	**008**
SDAC R/L 1010 M07	10	10	150	14	10	1,2	DC.. 0702	**010**	**010**
SDAC R/L 1212 M07	12	12	150	14	12	1,2	DC.. 0702	**012**	**012**
SDAC R/L 1414 M11	14	14	150	21	14	3,2	DC.. 11T3	**014**	**014**

Spare parts for Article no.	Key D Article no. 80 950 ...		Clamping screw Article no. 70 950 ...	
70 788 008 / 70 789 008	T08	**110**	M2,5x6	**112**
70 788 010 / 70 789 010	T08	**110**	M2,5x6	**112**
70 788 012 / 70 789 012	T08	**110**	M2,5x6	**112**
70 788 014 / 70 789 014	T15	**113**	M3,5x11	**113**

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping







ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Neutral Article no. 70 680 ...
SDNC N 0808 D07	8	8	60	4,0	1,2	DC.. 0702	008
SDNC N 1010 E07	10	10	70	5,0	1,2	DC.. 0702	010
SDNC N 1212 F07	12	12	80	6,0	1,2	DC.. 0702	012
SDNC N 1616 H11	16	16	100	8,0	3,2	DC.. 11T3	016
SDNC N 2020 K11	20	20	125	10,0	3,2	DC.. 11T3	020
SDNC N 2525 M11	25	25	150	12,5	3,2	DC.. 11T3	025


Key D


Combination Key


Clamping screw


Solid Carbide Seat D

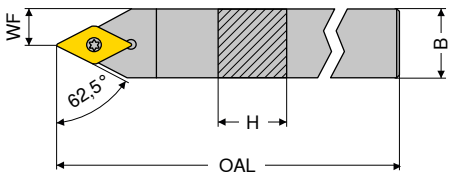

Threaded sleeve

Spare parts for Article no.	Key D Article no. 80 950 ...	Combination Key Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide Seat D Article no. 70 950 ...	Threaded sleeve Article no. 70 950 ...
70 680 008	110		112		
70 680 010	110		112		
70 680 012	110		112		
70 680 016		398	113	106	171
70 680 020		398	113	106	171
70 680 025		398	113	106	171

9

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping







ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Neutral Article no. 70 784 ...
SDNC N 0808 K07	8	8	125	4	1,2	DC.. 0702	008
SDNC N 1010 M07	10	10	150	5	1,2	DC.. 0702	010
SDNC N 1212 M07	12	12	150	6	1,2	DC.. 0702	012
SDNC N 1414 M11	14	14	150	7	3,2	DC.. 11T3	014


Key D

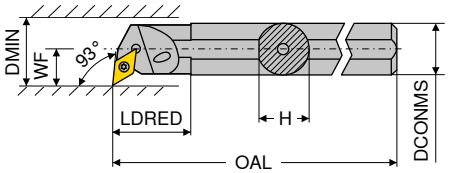

Clamping screw

Spare parts for Article no.		Key D Article no. 80 950 ...		Clamping screw Article no. 70 950 ...
70 784 008	T08	110	M2,5x6	112
70 784 010	T08	110	M2,5x6	112
70 784 012	T08	110	M2,5x6	112
70 784 014	T15	113	M3,5x11	113

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 737 ...	Right-hand Article no. 70 736 ...
S12Q SDUC R/L 07	12	11,0	180		9	17	1,2	DC.. 0702	012	012
A12K SDUC R/L 07	12	11,5	125	22	9	16	1,2	DC.. 0702	212	212
A16M SDUC R/L 07	16	15,0	150	29	11	20	1,2	DC.. 0702	216	216
S16R SDUC R/L 07	16	15,0	200		11	21	1,2	DC.. 0702	016	016
A20Q SDUC R/L 07	20	18,5	180	32	13	25	1,2	DC.. 0702	220	220
S20S SDUC R 07	20	18,0	250		13	25	1,2	DC.. 0702		020
S20S SDUC R 11	20	18,0	250		13	25	3,2	DC.. 11T3		120
A20Q SDUC R/L 11	20	18,5	180	32	13	25	3,2	DC.. 11T3	320	320
A25R SDUC R/L 11	25	23,0	200	36	17	32	3,2	DC.. 11T3	325	325
S25T SDUC R/L 11	25	23,0	300		17	32	3,2	DC.. 11T3	125	125
A32S SDUC R/L 11	32	30,0	250	50	22	40	3,2	DC.. 11T3	332	332
S32U SDUC R 11	32	30,0	350		22	40	3,2	DC.. 11T3		132
A40T SDUC R/L 11	40	38,0	300	60	27	50	3,2	DC.. 11T3	340	340

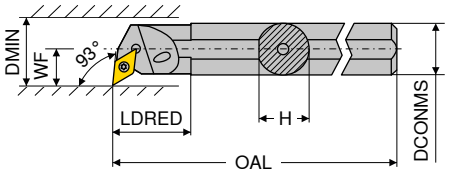
Tool holders with HSK-T or PSC interface can be found in → **Chapter 16.**

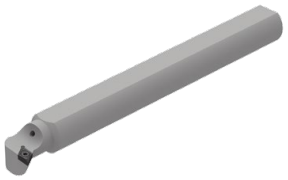
Spare parts for Article no.	Key D Article no. 80 950 ...	Combination Key Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide Seat D Article no. 70 950 ...	Threaded sleeve Article no. 70 950 ...
70 736 012 / 70 737 012	110		112		
70 736 212 / 70 737 212	110		112		
70 736 216 / 70 737 216	110		112		
70 736 016 / 70 737 016	110		112		
70 736 220 / 70 737 220	110		112		
70 736 020	110		112		
70 736 120	113		110		
70 736 320 / 70 737 320	113		110		
70 736 325 / 70 737 325	113		113		
70 736 125 / 70 737 125		398	113	106	171
70 736 332 / 70 737 332		398	113	106	171
70 736 132		398	113	106	171
70 736 340 / 70 737 340		398	113	106	171

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ with carbide core







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 739 ...	Right-hand Article no. 70 738 ...
E-A10H SDUC R/L 07	10	9	100	28	8	13	1,2	DC.. 0702	**210**	**210**
E-A12K SDUC R/L 07	12	11	125	18	9	18	1,2	DC.. 0702	**212**	**212**
E-A16M SDUC R/L 07	16	15	150	30	11	22	1,2	DC.. 0702	**216**	**216**
E-A20Q SDUC R/L 07	20	18	180	38	13	26	1,2	DC.. 0702	**220**	**220**
E-A20Q SDUC R/L 11	20	18	180	38	13	26	3,2	DC.. 11T3	**320**	**320**
E-A25R SDUC R/L 11	25	23	200	38	17	34	3,2	DC.. 11T3	**225**	**225**
E-A32S SDUC R/L 11	32	30	250	43	22	39	3,2	DC.. 11T3	**232**	**232**



Key D



Clamping screw

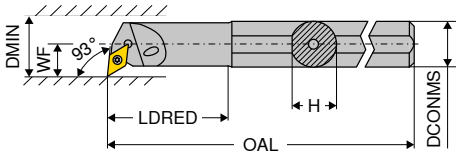
Spare parts for Article no.	Article no. 80 950 ...	Article no. 70 950 ...
70 738 210 / 70 739 210	**110**	**112**
70 738 212 / 70 739 212	**110**	**112**
70 738 216 / 70 739 216	**110**	**112**
70 738 220 / 70 739 220	**110**	**112**
70 738 320 / 70 739 320	**113**	**449**
70 738 225 / 70 739 225	**113**	**449**
70 738 232 / 70 739 232	**113**	**449**

9

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ with carbide core







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 739 ...	Right-hand Article no. 70 738 ...
E-A0810H SDUC R/L 07	10	9	100	22	7	12,5	1,2	DC.. 0702	**410**	**410**
E-A1012K SDUC R/L 07	12	11	125	28	9	15,5	1,2	DC.. 0702	**412**	**412**
E-A1216M SDUC R/L 07	16	15	150	36	11	19,5	1,2	DC.. 0702	**416**	**416**



Key D

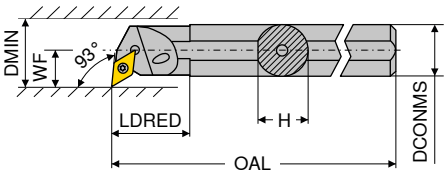


Clamping screw

Spare parts for Article no.	Article no. 80 950 ...	Article no. 70 950 ...
70 738 410 / 70 739 410	**110**	**112**
70 738 412 / 70 739 412	**110**	**112**
70 738 416 / 70 739 416	**110**	**112**

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ Type: Solid carbide





Illustrations show right-hand versions

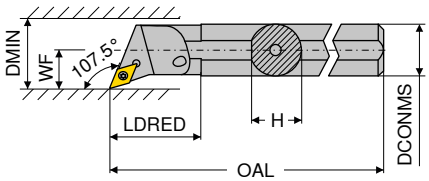
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 739 ...	Right-hand Article no. 70 738 ...
E12Q SDUC R/L 07	12	11,5	180	26	9	16	1,2	DC.. 0702	**012**	**012**
E16R SDUC R/L 07	16	15,0	200	34	11	20	1,2	DC.. 0702	**016**	**016**
E20S SDUC R/L 11	20	18,5	250	38	13	25	3,2	DC.. 11T3	**120**	**120**
E25T SDUC R/L 11	25	23,0	300	43	17	32	3,2	DC.. 11T3	**125**	**125**


Key D


Clamping screw

Spare parts for Article no.	Article no. 80 950 ...	Article no. 70 950 ...
70 739 012 / 70 738 012	**110**	**112**
70 739 016 / 70 738 016	**110**	**112**
70 739 120 / 70 738 120	**113**	**304**
70 739 125 / 70 738 125	**113**	**113**

MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 741 ...	Right-hand Article no. 70 740 ...
A10H SDQC R/L 07	10	9,0	100	22	7	12,5	1,2	DC.. 0702	**210**	**210**
A12K SDQC R/L 07	12	11,5	125	22	9	16,0	1,2	DC.. 0702	**212**	**212**
A16M SDQC R/L 07	16	15,0	150	29	11	20,0	1,2	DC.. 0702	**216**	**216**
A20Q SDQC R/L 07	20	18,5	180	32	13	25,0	1,2	DC.. 0702	**220**	**220**
A25R SDQC R/L 11	25	23,0	200	36	17	32,0	3,2	DC.. 11T3	**225**	**225**
A32S SDQC R/L 11	32	30,0	250	50	22	40,0	3,2	DC.. 11T3	**232**	**232**
A40T SDQC R/L 11	40	38,0	300	60	27	50,0	3,2	DC.. 11T3	**240**	**240**


Key D


Combination Key


Clamping screw


Solid Carbide Seat D

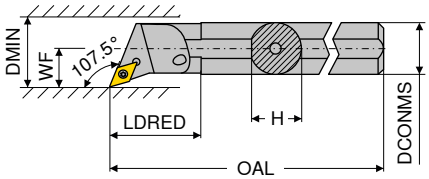

Threaded sleeve

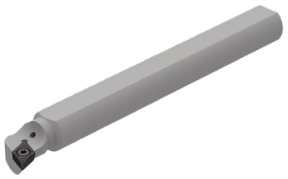
Spare parts for Article no.	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
70 740 210 / 70 741 210	**110**		**112**		
70 740 212 / 70 741 212	**110**		**112**		
70 740 216 / 70 741 216	**110**		**112**		
70 740 220 / 70 741 220	**110**		**112**		
70 740 225 / 70 741 225		**398**	**113**	**106**	**171**
70 740 232 / 70 741 232		**398**	**113**	**106**	**171**
70 740 240 / 70 741 240		**398**	**113**	**106**	**171**

MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

▲ with carbide core







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 751 ...	Right-hand Article no. 70 750 ...
E-A12K SDQC R/L 07	12	11	125	24	9	18	1,2	DC.. 0702	**012**	**012**
E-A16M SDQC R/L 07	16	15	150	30	11	22	1,2	DC.. 0702	**016**	**016**
E-A20Q SDQC R/L 07	20	18	180	38	13	26	1,2	DC.. 0702	**020**	**020**
E-A20Q SDQC R/L 11	20	18	180	38	13	26	3,2	DC.. 11T3	**120**	**120**
E-A25R SDQC R/L 11	25	23	200	38	17	34	3,2	DC.. 11T3	**025**	**025**
E-A32S SDQC R/L 11	32	30	250	43	22	39	3,2	DC.. 11T3	**032**	**032**



Key D



Clamping screw

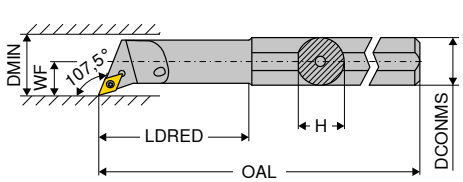
Spare parts for Article no.	Article no. 80 950 ...	Article no. 70 950 ...
70 750 012 / 70 751 012	**110**	**112**
70 750 016 / 70 751 016	**110**	**112**
70 750 020 / 70 751 020	**110**	**112**
70 750 120 / 70 751 120	**113**	**449**
70 750 025 / 70 751 025	**113**	**449**
70 750 032 / 70 751 032	**113**	**449**

9

MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

▲ with carbide core







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 751 ...	Right-hand Article no. 70 750 ...
E-A0810H SDQC R/L 07	10	9	100	22	7	12,5	1,2	DC.. 0702	**210**	**210**
E-A1012K SDQC R/L 07	12	11	125	28	9	15,5	1,2	DC.. 0702	**212**	**212**
E-A1216M SDQC R/L 07	16	15	150	36	11	19,5	1,2	DC.. 0702	**216**	**216**



Key D

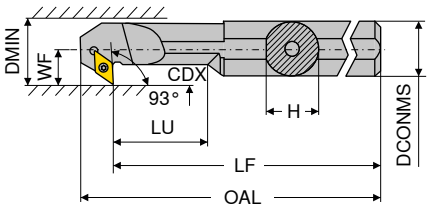


Clamping screw

Spare parts for Article no.	Article no. 80 950 ...	Article no. 70 950 ...
70 750 210 / 70 751 210	**110**	**112**
70 750 212 / 70 751 212	**110**	**112**
70 750 216 / 70 751 216	**110**	**112**

MaxiLock-S – SDXC 93° – Boring bar with screw clamping







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LU mm	WF mm	DMIN mm	CDX mm	torque moment Nm	Insert	Left-hand Article no. 70 733 ...	Right-hand Article no. 70 732 ...
A12K SDXC R/L 07	12	11,5	125	137,0	24	9	16	4,5	1,2	DC.. 0702	**212**	**212**
A16M SDXC R/L 07	16	15,0	150	162,0	36	11	20	4,5	1,2	DC.. 0702	**216**	**216**
A20Q SDXC R/L 11	20	18,5	180	196,5	40	13	25	6,5	3,2	DC.. 11T3	**220**	**220**
A25R SDXC R/L 11	25	23,0	200	216,8	50	17	32	9,5	3,2	DC.. 11T3	**225**	**225**



Key D

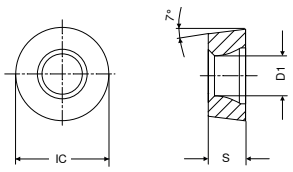


Clamping screw

Spare parts for Article no.	Article no. 80 950 ...	Article no. 70 950 ...
70 733 212 / 70 732 212	**110**	**112**
70 733 216 / 70 732 216	**110**	**112**
70 733 220 / 70 732 220	**113**	**304**
70 733 225 / 70 732 225	**113**	**304**

RCMT / RCGT

Designation	S	D1	IC
	mm	mm	mm
RCGT 0602..	2,38	2,8	6
RCGT 0803..	3,18	3,4	8
RC.T 1003..	3,18	4,0	10
RCMT 1204..	4,76	4,9	12
RCMT 1606..	6,35	5,3	16
RCMT 2006..	6,35	6,5	20
RCMT 2507..	7,94	7,2	25



RCMT / RCGT

	-SMF CTCK110	-SM CTCP125	-SM CTCP135	-SM CTCP115	-SM CTCP125	-SM CTCP135	-27 H10T
	-SMF DCX3110	-ZM HCX1125	-ZM HCR1135	-ZM HCX1115	-ZM HCX1125	-ZM HCR1135	-AL CWK15
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
	F	M	M	M	M	M	M
	RCMT	RCGT	RCGT	RCMT	RCMT	RCMT	RCGT
ISO	RE mm	Article no. 70 188 ...	Article no. 76 262 ...	Article no. 76 262 ...	Article no. 76 264 ...	Article no. 76 264 ...	Article no. 76 264 ...	Article no. 70 266 ...
0602MOEN	3,0		502	702				
0602MOFN	3,0							600
0803MOEN	4,0		512	712				
0803MOFN	4,0							602
1003MOFN	5,0							604
1003MOSN	5,0					514	714	
1204MOSN	6,0				328	526	726	
1606MOEN	8,0	038						
1606MOSN	8,0				340	538	738	
2006MOSN	10,0					550	750	
2507MOSN	12,5				36200	562	762	
Steel		●	●	●	●	●	●	
Stainless steel		○	○	○	○	○	○	
Cast iron		●	○		○	○		○
Non ferrous metals								●
Heat resistant alloys				○			○	○

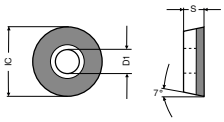
9

RCGT

		-27 CWN15	-27 AMZ
		-AL CWN15	-AL AMZ
			
		M	M
		RCGT	RCGT
ISO	RE mm	Article no. 70 266 ...	Article no. 70 266 ...
0602MOFN	3	300	
0803MOFN	4	302	502
Steel			○
Stainless steel		○	○
Cast iron			○
Non ferrous metals		●	●
Heat resistant alloys			

RCGT

Designation	S	D1	IC
	mm	mm	mm
RCGT 0602..	2,38	2,8	6
RCGT 10T3..	3,97	4,4	10



RCGT-F

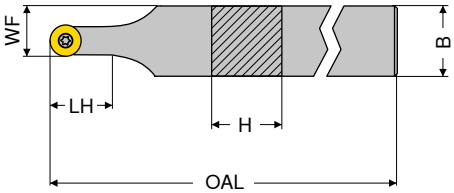
RCGT

			-F-CB1 CTDPD20	-F-CB1 CTDPS30	-F-CB2 CTDPS30
			-CB1 PDC	-CB1 PDC-S	-CB2 PDC-S
					
			F	F	M
			DIAMOND RCGT	DIAMOND RCGT	DIAMOND RCGT
					NEW
ISO	RE	LE	Article no. 71 315 ...	Article no. 71 315 ...	Article no. 71 316 ...
	mm	mm			
0602M0EN	3	6			202
0602M0FN	3	6	102	202	
10T3M0EN	5	10			204
10T3M0FN	5	10	104	204	
Steel					
Stainless steel					
Cast iron					
Non ferrous metals			●	●	●
Heat resistant alloys				○	○

9

MaxiLock-S – SRDC 0° – Toolholder with screw clamping





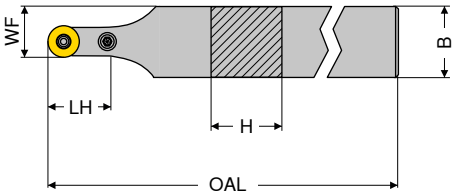


ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral Article no. 70 708 ...
SRDC N 1212 F06	12	12	80	12,4	9,0	1,2	RC.. 0602 M0	012
SRDC N 1616 H06	16	16	100	12,4	11,0	1,2	RC.. 0602 M0	016
SRDC N 2020 K06	20	20	125	12,4	13,0	1,2	RC.. 0602 M0	020
SRDC N 2525 M06	25	25	150	12,4	15,5	1,2	RC.. 0602 M0	025
SRDC N 1616 H08	16	16	100	16,4	12,0	1,8	RC.. 0803 M0	116
SRDC N 2020 K08	20	20	125	16,4	14,0	1,8	RC.. 0803 M0	120
SRDC N 2525 M08	25	25	150	16,4	16,5	1,8	RC.. 0803 M0	125
SRDC N 1616 H10	16	16	100	20,3	13,0	3,2	RC.. 1003 M0	216
SRDC N 2020 K10	20	20	125	20,3	15,0	3,2	RC.. 1003 M0	220
SRDC N 2525 M10	25	25	150	20,3	17,5	3,2	RC.. 1003 M0	225

Spare parts for Article no.	 Key D Article no. 80 950 ...	 Combination Key Article no. 70 950 ...	 Clamping screw Article no. 70 950 ...	 Solid carbide support R Article no. 70 950 ...	 Threaded sleeve Article no. 70 950 ...
70 708 012	110		112		
70 708 016	110		112		
70 708 020	110		112		
70 708 025	110		112		
70 708 116	110		115		
70 708 120	110		115		
70 708 125	110		115		
70 708 216		398	113	117	171
70 708 220		398	113	117	171
70 708 225		398	113	117	171

MaxiLock-N – PRDC 0° – Toolholder with lever clamping







ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral Article no. 70 544 ...
PRDC N 2525 M12	25	25	150	24	18,5	3	RCMT 1204	**025**
PRDC N 3225 P12	32	25	170	24	18,5	3	RCMT 1204	**032**
PRDC N 3225 P16	32	25	170	28	20,5	4	RCMT 1606	**132**
PRDC N 3225 P20	32	32	170	32	26,0	5	RCMT 2006	**23200**
PRDC N 4040 S25	40	40	250	42	32,5	6	RCMT 2507	**04000**

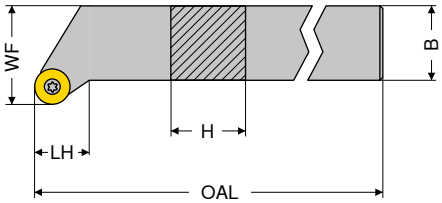
Tool holders with HSK-T interface can be found in → **Chapter 16.**

Spare parts for Article no.		 Key I Article no. 70 950 ...	 Shim Article no. 70 950 ...	Assembly pin Article no. 70 950 ...	 Lever Article no. 70 950 ...	 Clamping screw Article no. 70 950 ...	 Solid carbide support R Article no. 70 950 ...
70 544 025	SW2,5	**175**	**197**	**191**	**178**	**208**	**215**
70 544 032	SW2,5	**175**	**197**	**191**	**178**	**208**	**215**
70 544 132	SW3	**176**	**196**	**192**	**387**	**390**	**384**
70 544 23200	SW2	**177**	**391**	**394**	**28100**	**28500**	**27400**
70 544 04000	SW4	**396**	**392**	**395**	**28400**	**28600**	**27500**

9

MaxiLock-S – SRGC – Toolholder with screw clamping







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand Article no. 70 713 ...	Right-hand Article no. 70 712 ...
SRGC R/L 1212 F06	12	12	80	10,0	16	1,2	RC.. 0602 M0	**012**	**012**
SRGC R 1616 H06	16	16	100	10,0	20	1,2	RC.. 0602 M0		**016**
SRGC R/L 2020 K06	20	20	125	11,5	25	1,2	RC.. 0602 M0	**020**	**020**
SRGC R/L 2525 M06	25	25	150	15,0	32	1,2	RC.. 0602 M0	**025**	**025**
SRGC R/L 1616 H08	16	16	100	11,0	20	1,8	RC.. 0803 M0	**116**	**116**
SRGC R 2020 K08	20	20	125	13,0	25	1,8	RC.. 0803 M0		**120**
SRGC R/L 2525 M08	25	25	150	16,0	32	1,8	RC.. 0803 M0	**125**	**125**
SRGC R/L 1616 H10	16	16	100	12,0	20	3,2	RC.. 1003 M0	**216**	**216**
SRGC R/L 2020 K10	20	20	125	13,5	25	3,2	RC.. 1003 M0	**220**	**220**
SRGC R/L 2525 M10	25	25	150	17,0	32	3,2	RC.. 1003 M0	**225**	**225**



Clamping screw



Solid carbide support R



Threaded sleeve

Spare parts for Article no.		Article no. 70 950 ...	Article no. 70 950 ...		Article no. 70 950 ...
70 712 012 / 70 713 012	M2,5x6	**112**			
70 712 016	M2,5x6	**112**			
70 712 020 / 70 713 020	M2,5x6	**112**			
70 712 025 / 70 713 025	M2,5x6	**112**			
70 712 116 / 70 713 116	M3x7,3	**115**			
70 712 120	M3x7,3	**115**			
70 712 125 / 70 713 125	M3x7,3	**115**			
70 712 216 / 70 713 216	M3,5x11	**113**	**117**	M3,5	**171**
70 712 220 / 70 713 220	M3,5x11	**113**	**117**	M3,5	**171**
70 712 225 / 70 713 225	M3,5x11	**113**	**117**	M3,5	**171**



Key D

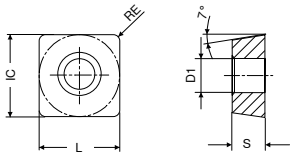


Combination Key

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 712 012 / 70 713 012	T08	**110**		
70 712 016	T08	**110**		
70 712 020 / 70 713 020	T08	**110**		
70 712 025 / 70 713 025	T08	**110**		
70 712 116 / 70 713 116	T08	**110**		
70 712 120	T08	**110**		
70 712 125 / 70 713 125	T08	**110**		
70 712 216 / 70 713 216			T15/SW	**398**
70 712 220 / 70 713 220			T15/SW	**398**
70 712 225 / 70 713 225			T15/SW	**398**

SCGT / SCMT / SCMX

Designation	L	S	D1	IC
	mm	mm	mm	mm
SC.T 09T3..	9,52	3,97	4,4	9,52
SC.. 1204..	12,70	4,76	5,5	12,70



SCGT / SCMT

	-CF05 CTEP110	-SF TCM10	-SF TCM407	-SF CTCP125	-CF55 CTEP110	-SMF CTCP115	-SMF CTCP135
	-PF14 DCC1110	-ZF CWC10	-ZF CWC407	-ZF HCX1125	-PF15 DCC1110	-SMF HCX1115	-SMF HCR1135
	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	F CERMET SCGT	F CERMET SCGT	F CERMET SCGT	F SCMT	F CERMET SCMT	F SCMT	F SCMT
ISO / RE mm	Article no. 76 261 ...	Article no. 70 271 ...	Article no. 70 271 ...	Article no. 76 269 ...	Article no. 76 260 ...	Article no. 76 267 ...	Article no. 76 267 ...
09T304EN 0,4	004	902		504	004	304	
09T308EN 0,8	006	904	852	506	006	306	
120408EN 0,8				518			718
Steel	●	●	●	●	●	●	●
Stainless steel	○			○	○	○	○
Cast iron	○	○	○	○	○	○	
Non ferrous metals							
Heat resistant alloys							○

SCMT / SCMX

	-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135	CTCP135	-SM CTC2135
	-ZM DCX3110	-ZM HCF3120	-ZM HCX1115	-ZM HCX1125	-ZM HCR1135	HCR1135	-ZM CWN2135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
	M SCMT	M SCMT	M SCMT	M SCMT	M SCMT	M SCMX	M SCMT
ISO / RE mm	Article no. 70 268 ...	Article no. 70 268 ...	Article no. 76 268 ...	Article no. 76 268 ...	Article no. 76 268 ...	Article no. 76 182 ...	Article no. 70 268 ...
09T304EN 0,4	004	504	304	504	704		
09T308EN 0,8	006	506	306	506	706		442
120408EN 0,8	018	518	318	518	718	718	444
120412EN 1,2	020	520		520			
Steel	●	●	●	●	●	●	○
Stainless steel	○		○	○	○	○	●
Cast iron	●	●	○	○			
Non ferrous metals							
Heat resistant alloys					○	○	●

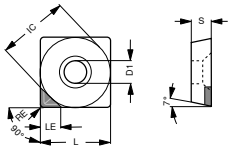
9

SCMT / SCGT

		-M55 CTPM125	-25P H210T	-25P AMZ	-27 H10T	-27 CWN15
		-PF26 HCN2125	-25P CWK20	-25P AMZ	-AL CWK15	-AL CWN15
		DRAGONSKIN				
						
		F	F	F	M	M
		SCMT	SCGT	SCGT	SCGT	SCGT
ISO	RE mm	Article no. 75 216 ...	Article no. 70 283 ...	Article no. 70 283 ...	Article no. 70 270 ...	Article no. 70 270 ...
09T304FN	0,4				600	300
09T308EN	0,8	206				
09T308FN	0,8				602	302
120408EN	0,8	218				
120408FN	0,8		634	554	604	304
Steel		○		○		
Stainless steel		●		○		○
Cast iron			○	○	○	
Non ferrous metals			●	●	●	●
Heat resistant alloys			○		○	

SCGT

Designation	L	S	D1	IC
	mm	mm	mm	mm
SCGT 09T3..	9,52	3,97	4,4	9,52



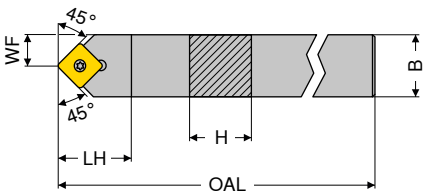
SCGT-A

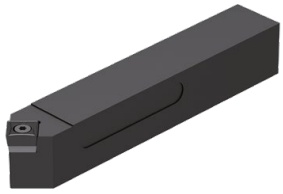
SCGT

ISO	RE	LE	-A-CB1 CTDPD20	-A-CB2 CTDPS30	-A-CB3 CTDPU20
			-CB1 PDC	-CB2 PDC-S	-CB3 PDC-S
					
			F DIAMOND SCGT	M DIAMOND SCGT	R DIAMOND SCGT
				NEW	
	mm	mm	Article no. 71 320 ...	Article no. 71 321 ...	Article no. 71 322 ...
09T304EN	0,4	4,4		214	214
09T304FN	0,4	4,4	114		
09T308EN	0,8	4,3		218	218
09T308FN	0,8	4,3	118		
Steel					
Stainless steel					
Cast iron					
Non ferrous metals			●	●	●
Heat resistant alloys				○	○

9

MaxiLock-S – SSDC 45° – Toolholder with screw clamping





ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Neutral Article no. 70 656 ...
	mm	mm	mm	mm	mm	Nm		
SSDC N 1212 F09	12	12	80	16	6,0	3,2	SC.. 09T3..	012
SSDC N 1616 H09	16	16	100	20	8,0	3,2	SC.. 09T3..	016
SSDC N 2020 K09	20	20	125	20	10,0	3,2	SC.. 09T3..	020
SSDC N 1616 H12	16	16	100	25	8,0	5	SC.. 1204..	116
SSDC N 2020 K12	20	20	125	25	10,0	5	SC.. 1204..	120
SSDC N 2525 M12	25	25	150	25	12,5	5	SC.. 1204..	125


Key D


Combination Key

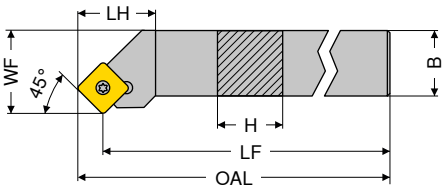

Clamping screw


Solid Carbide support S

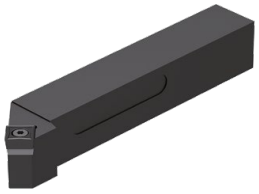

Threaded sleeve

Spare parts	Key D	Combination Key	Clamping screw	Solid Carbide support S	Threaded sleeve
for Article no.	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
70 656 012	113		113		
70 656 016		398	113	167	171
70 656 020		398	113	167	171
70 656 116		398	114	168	170
70 656 120		398	114	168	170
70 656 125		398	114	168	170

MaxiLock-S – SSSC 45° – Toolholder with screw clamping



Illustrations show right-hand versions



ISO designation	H	B	LF	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 661 ...	Right-hand Article no. 70 660 ...
	mm	mm	mm	mm	mm	mm	Nm			
SSSC R/L 1212 F09	12	12	80	86,40	18	16	3,2	SC.. 09T3..	012	012
SSSC R/L 1616 H09	16	16	100	106,40	20	20	3,2	SC.. 09T3..	016	016
SSSC R/L 2020 K09	20	20	125	131,40	20	25	3,2	SC.. 09T3..	020	020
SSSC R/L 1616 H12	16	16	100	108,63	25	20	5	SC.. 1204..	116	116
SSSC R/L 2020 K12	20	20	125	133,63	25	25	5	SC.. 1204..	120	120
SSSC R/L 2525 M12	25	25	150	158,63	25	32	5	SC.. 1204..	125	125
SSSC R 3225 P12	32	25	170	178,63	25	32	5	SC.. 1204..		132


Key D


Combination Key


Clamping screw

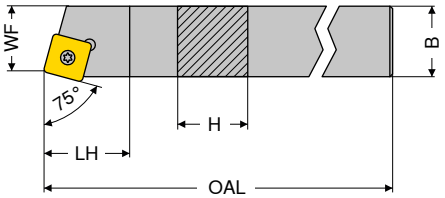

Solid Carbide support S


Threaded sleeve

Spare parts	Key D	Combination Key	Clamping screw	Solid Carbide support S	Threaded sleeve
for Article no.	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
70 661 012 / 70 660 012	113		113		
70 661 016 / 70 660 016		398	113	167	171
70 661 020 / 70 660 020		398	113	167	171
70 661 116 / 70 660 116		398	114	168	170
70 661 120 / 70 660 120		398	114	168	170
70 661 125 / 70 660 125		398	114	168	170
70 660 132		398	114	168	170

MaxiLock-S – SSBC 75° – Toolholder with screw clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 665 ...	Right-hand Article no. 70 664 ...
	mm	mm	mm	mm	mm	Nm			
SSBC R/L 1616 H09	16	16	100	20	13	3,2	SC.. 09T3..	**016**	**016**
SSBC R 2020 K09	20	20	125	20	17	3,2	SC.. 09T3..		**020**
SSBC R/L 2020 K12	20	20	125	20	17	5	SC.. 1204..	**120**	**120**
SSBC R/L 2525 M12	25	25	150	20	22	5	SC.. 1204..	**125**	**125**


Key D


Combination Key


Clamping screw


Solid Carbide support S

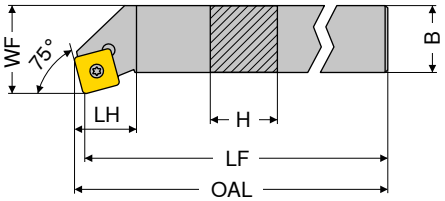

Threaded sleeve

Spare parts	Key D Article no. 80 950 ...	Combination Key Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide support S Article no. 70 950 ...	Threaded sleeve Article no. 70 950 ...
for Article no.					
70 665 016 / 70 664 016	**113**	**398**	**113**	**167**	**171**
70 664 020	**113**	**398**	**113**	**167**	**171**
70 665 120 / 70 664 120	**113**	**398**	**114**	**168**	**170**
70 665 125 / 70 664 125	**113**	**398**	**114**	**168**	**170**

9

MaxiLock-S – SSKC 75° – Toolholder with screw clamping







Illustrations show right-hand versions

ISO designation	H	B	LF	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 669 ...	Right-hand Article no. 70 668 ...
	mm	mm	mm	mm	mm	mm	Nm			
SSKC R/L 1616 H09	16	16	100	102,3	22	20	3,2	SC.. 09T3..	**016**	**016**
SSKC R/L 2020 K09	20	20	125	127,3	22	25	3,2	SC.. 09T3..	**020**	**020**
SSKC R 2020 K12	20	20	125	127,3	23	25	5	SC.. 1204..		**120**
SSKC R 2525 M12	25	25	150	153,3	23	32	5	SC.. 1204..		**125**


Key D


Combination Key


Clamping screw

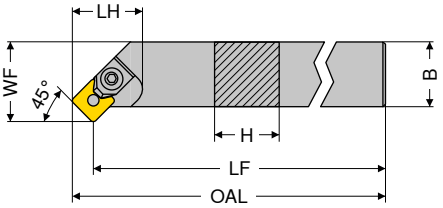

Solid Carbide support S


Threaded sleeve

Spare parts	Key D Article no. 80 950 ...	Combination Key Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide support S Article no. 70 950 ...	Threaded sleeve Article no. 70 950 ...
for Article no.					
70 668 016 / 70 669 016	**113**	**398**	**113**	**167**	**171**
70 668 020 / 70 669 020	**113**	**398**	**113**	**167**	**171**
70 668 120	**113**	**398**	**114**	**168**	**170**
70 668 125	**113**	**398**	**114**	**168**	**170**

MaxiLock-P – MSSC 45° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	H	B	LF	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 589 ...	Right-hand Article no. 70 588 ...
	mm	mm	mm	mm	mm	mm	Nm			
MSSC R/L 2020 K12	20	20	125	133,65	32	25	5	SCMX 1204	**020**	**020**
MSSC R/L 2525 M12	25	25	150	158,65	28	32	5	SCMX 1204	**025**	**025**
MSSC R/L 3225 P12	32	25	170	178,65	28	32	5	SCMX 1204	**032**	**032**


Key D


Dowel pin


Clamping Element

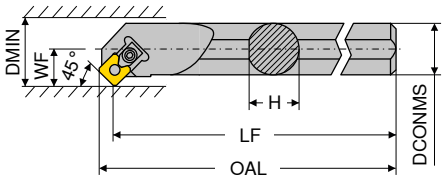

Wedge


Solid Carbide support S

Spare parts		Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
for Article no.						
70 588 020 / 70 589 020	T20	**114**	**153**	**159**	**150**	**140**
70 588 025 / 70 589 025	T20	**114**	**153**	**159**	**150**	**140**
70 588 032 / 70 589 032	T20	**114**	**153**	**159**	**150**	**140**

MaxiLock-P – MSSC 45° – Boring bar with top clamping







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 625 ...	Right-hand Article no. 70 624 ...
S32S MSSC R/L 12	32	30	250	258	22	40	5	SCMX 1204	**032**	**032**


Key D


Dowel pin


Clamping Element


Wedge

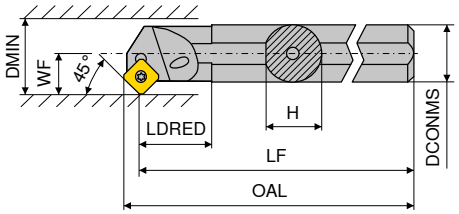

Solid Carbide support S

Spare parts		Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
for Article no.						
70 625 032 / 70 624 032	T20	**114**	**155**	**163**	**150**	**147**

MaxiLock-S – SSSC 45° – Boring bar with screw clamping

- ▲ A... = with thro' coolant
- ▲ S... = without thro' coolant







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 721 ...	Right-hand Article no. 70 720 ...
S16R SSSC R 09	16	15,00	200	206,0	13,97	11	20	3,2	SC.. 09T3..		**016**
A16M SSSC R/L 09	16	15,25	150	156,0	29,00	11	20	3,2	SC.. 09T3..	**216**	**216**
A20Q SSSC R/L 09	20	19,00	180	186,0	32,00	13	25	3,2	SC.. 09T3..	**220**	**220**
A25R SSSC R/L 09	25	24,50	200	206,0	36,00	17	32	3,2	SC.. 09T3..	**225**	**225**
A32S SSSC R/L 12	32	31,00	250	258,3	50,00	22	40	5	SC.. 1204..	**232**	**232**
A40T SSSC R/L 12	40	39,00	300	308,1	60,00	27	50	5	SC.. 1204..	**240**	**240**


Key D


Combination Key


Clamping screw

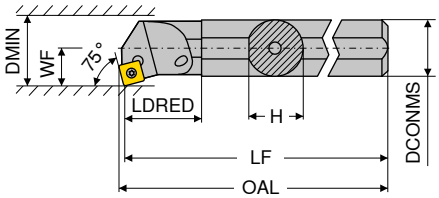

Solid Carbide support S


Threaded sleeve

Spare parts		Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
for Article no.						
70 720 016		**113**		**110**		
70 720 216 / 70 721 216		**113**		**110**		
70 720 220 / 70 721 220		**113**		**304**		
70 720 225 / 70 721 225		**113**		**304**		
70 720 232 / 70 721 232			**398**	**114**	**168**	**170**
70 720 240 / 70 721 240			**398**	**114**	**168**	**170**

MaxiLock-S – SSKC 75° – Boring bar with screw clamping







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 725 ...	Right-hand Article no. 70 724 ...
A16M SSKC R/L 09	16	15,0	150	152,4	29	11	20	3,2	SC.. 09T3..	**216**	**216**
A20Q SSKC R/L 09	20	18,5	180	182,4	32	13	25	3,2	SC.. 09T3..	**220**	**220**
A25R SSKC R/L 09	25	23,0	200	202,4	36	17	32	3,2	SC.. 09T3..	**225**	**225**



Key D

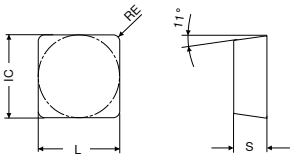


Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 724 216 / 70 725 216	T15	**113**	M3,5x7,2	**110**
70 724 220 / 70 725 220	T15	**113**	M3,5x8,6	**304**
70 724 225 / 70 725 225	T15	**113**	M3,5x8,6	**304**

SPMR / SPUN

Designation	L	S	IC
	mm	mm	mm
SPUN 0903..	9,52	3,18	9,52
SP.. 1203..	12,70	3,18	12,70



SPMR / SPUN



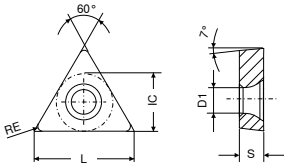


ISO	RE	M SPMR Article no. 76 208 ...	M SPUN Article no. 76 206 ...
	mm		
090304EN	0,4	704	
120304EN	0,4	716	
120308EN	0,8	718	718
120308ER	0,8	720	
Steel		●	●
Stainless steel		○	○
Cast iron			
Non ferrous metals			
Heat resistant alloys		○	○

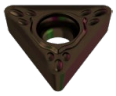
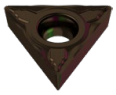
9

TCGT / TCMT

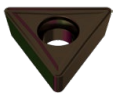
Designation	L	S	D1	IC
	mm	mm	mm	mm
TCMT 0902..	9,6	2,38	2,50	5,56
TC.T 1102..	11,0	2,38	2,80	6,35
TC.T 16T3..	16,5	3,97	4,40	9,52
TCMT 2204..	22,0	4,76	5,16	12,70



TCGT / TCMT

	-CF05 CTEP110	-SF TCM10	-SF CTCP125	-CF55 CTEP110	-SMF TCM10	-SMF CTCP115
	-PF14 DCC1110	-ZF CWC10	-ZF HCX1125	-PF15 DCC1110	-SMF CWC10	-SMF HCX1115
	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN
						
	F	F	F	F	F	F
	CERMET TCGT	CERMET TCGT	TCMT	CERMET TCMT	CERMET TCMT	TCMT
ISO / RE mm	Article no. 76 272 ...	Article no. 70 273 ...	Article no. 76 275 ...	Article no. 76 266 ...	Article no. 70 284 ...	Article no. 76 284 ...
110202EN 0,2	**014**	**900**				
110204EN 0,4	**016**	**902**	**516**	**016**	**902**	
110208EN 0,8	**018**		**518**			**318**
16T304EN 0,4	**028**	**906**	**528**			**328**
16T308EN 0,8			**530**	**030**		**330**
Steel	●	●	●	●	●	●
Stainless steel	○		○	○		○
Cast iron	○	○	○	○	○	○
Non ferrous metals						
Heat resistant alloys						

TCMT / TCGT

	-SMF CTCP135	-SM CTCP135	-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135
	-SMF HCR1135	-ZM HCR1135	-ZM DCX3110	-ZM HCF3120	-ZM HCX1115	-ZM HCX1125	-ZM HCR1135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F TCMT	M TCGT	M TCMT	M TCMT	M TCMT	M TCMT	M TCMT
ISO / RE mm	Article no. 76 284 ...	Article no. 76 270 ...	Article no. 70 274 ...	Article no. 70 274 ...	Article no. 76 274 ...	Article no. 76 274 ...	Article no. 76 274 ...
090204EN 0,4						504	704
110202EN 0,2		714					
110204EN 0,4			016	516	316	516	716
110208EN 0,8	718		018	518	318		718
16T304EN 0,4			028	528	328	528	728
16T308EN 0,8			030	530	330	530	730
16T312EN 1,2			032	532			
220408EN 0,8						542	742
Steel	●	●	●	●	●	●	●
Stainless steel	○	○	○		○	○	○
Cast iron			●	●	○	○	
Non ferrous metals							
Heat resistant alloys	○	○					○

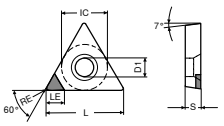
9

TCMT / TCGT

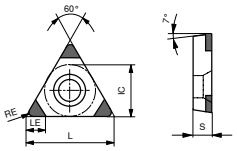
	-F43 CTC2135	-M25 CTPM125	-SM CTC2135	-M55 CTPM125	-27 H10T	-27 CWN15
	-F43 CWN2135	-PF23 HCN2125	-ZM CWN2135	-PF26 HCN2125	-AL CWK15	-AL CWN15
		DRAGONSKIN		DRAGONSKIN		
						
	F TCMT	F TCMT	M TCMT	F TCMT	M TCGT	M TCGT
ISO / RE mm	Article no. 70 187 ...	Article no. 75 217 ...	Article no. 70 274 ...	Article no. 75 218 ...	Article no. 70 276 ...	Article no. 70 276 ...
090204EN 0,4			398	204		
110202FN 0,2					600	300
110204EN 0,4	400	216	402	216		
110204FN 0,4					602	302
16T302FN 0,2					604	304
16T304EN 0,4	402	228				
16T304FN 0,4					606	306
16T308EN 0,8	404	230	396	230		
16T308FN 0,8					608	308
Steel	○	○	○	○		
Stainless steel	●	●	●	●		○
Cast iron					○	
Non ferrous metals					●	●
Heat resistant alloys	●		●		○	

TCGW

Designation	L	S	D1	IC
	mm	mm	mm	mm
TCGW 0902..	9,6	2,38	2,5	5,56
TCGW 1102..	11,0	2,38	2,8	6,35
TCGW 16T3..	16,5	3,97	4,4	9,52

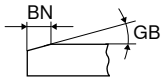


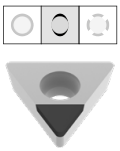
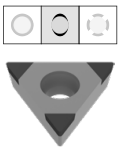
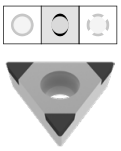
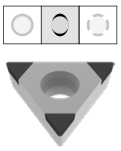
TCGW-A



TCGW-C

TCGW



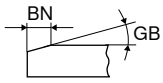
	-A CTBS10U	-C CTBS20C	-C CTBH15U	-C CTBH15U
	PBC10	-3MC PBC15-S		
				
	F	F	F	F
	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW
			NEW	NEW
ISO	Article no. 71 140 ...	Article no. 71 164 ...	Article no. 71 028 ...	Article no. 71 029 ...

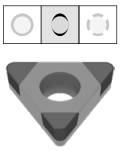
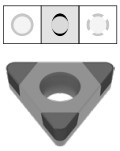
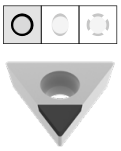
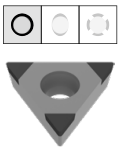
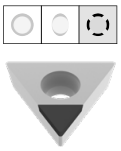
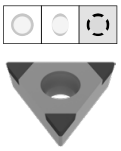
ISO	RE mm	GB °	BN mm	LE mm	-A CTBS10U	-C CTBS20C	-C CTBH15U	-C CTBH15U
090202SN	0,2	10	0,09	2,6		120		
090202SN	0,2	15	0,11	2,6		130		30214
090202TN	0,2	20	0,14	3,8	300			
090202TN	0,2	20	0,15	2,6		140		
090202SN	0,2	20	0,16	2,6		150		
090202EN	0,2			2,6				00200
090204SN	0,4	10	0,09	2,2		121		
090204SN	0,4	15	0,11	2,2		131	30414	
090204TN	0,4	20	0,14	3,5	302			
090204SN	0,4	20	0,16	2,2		151		
090204TN	0,4	25	0,17	2,2		161		
090204FN	0,4			3,5	202			
090204EN	0,4			2,2		111	00400	
090208SN	0,8	10	0,09	1,8		122		
090208SN	0,8	15	0,11	1,8		132	30614	
090208TN	0,8	20	0,15	1,8		142		
090208TN	0,8	25	0,17	1,8		162		
090208EN	0,8			1,8			00600	
110202SN	0,2	10	0,09	2,9		123		
110202SN	0,2	15	0,11	2,9		133		
110202TN	0,2	20	0,14	3,8	306			
110202TN	0,2	20	0,15	2,9		143		
110202SN	0,2	20	0,16	2,9		153		
110202FN	0,2			3,8	206			
110204SN	0,4	10	0,09	2,5		124		
110204SN	0,4	15	0,11	2,5		134		
110204TN	0,4	20	0,14	3,5	308			
110204TN	0,4	20	0,15	2,5		144		
110204SN	0,4	20	0,16	2,5		154		
110204TN	0,4	25	0,17	2,5		164		
110204FN	0,4			3,5	208			
110204EN	0,4			2,5		114		
110208SN	0,8	10	0,09	2,1		125		
110208SN	0,8	15	0,11	2,1		135		
110208TN	0,8	20	0,14	3,0	310			
110208TN	0,8	20	0,15	2,1		145		
110208TN	0,8	25	0,17	2,1		165		
110208FN	0,8			3,0	210			
16T304SN	0,4	10	0,09	3,2		126		
16T304SN	0,4	15	0,11	3,2		136		
16T308SN	0,8	10	0,09	2,7		127		
16T308SN	0,8	15	0,11	2,7		137		
16T308SN	0,8	20	0,16	2,7		157		
16T308TN	0,8	25	0,17	2,7		167		
16T308EN	0,8			2,7		117		

	-A CTBS10U	-C CTBS20C	-C CTBH15U	-C CTBH15U
Cast iron	●	●		
Sintered steels	●	●		
Heat resistant alloys	●	●		
hardened < 45 HRC			●	●
hardened 46–55 HRC			●	●
hardened 56–60 HRC			●	●
hardened 61–65 HRC				

→ v_c Page 160–167

TCGW

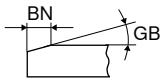


	-C CTBH15C	-C CTBH15C	-A CTBH21U	-C CTBH20C	-A CTBH40U	-C CTBH40C
			PBC25	-3MC PBC25-S	PBC40	-3MC PBC40-S
						
	F	F	F	F	F	F
	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW
	NEW	NEW				
ISO	Article no. 71 027 ...	Article no. 71 034 ...	Article no. 71 140 ...	Article no. 71 164 ...	Article no. 71 140 ...	Article no. 71 164 ...
RE mm / GB ° / BN mm / LE mm						
090202FN 0,2 / / / 2,6				210		
090202SN 0,2 / 15 / 0,11 / 2,6		30214				
090202SN 0,2 / 20 / 0,09 / 2,6				250		330
090202TN 0,2 / 20 / 0,09 / 2,6						320
090202TN 0,2 / 20 / 0,14 / 3,8			500			
090202TN 0,2 / 25 / 0,11 / 2,6						340
090202TN 0,2 / 25 / 0,12 / 3,8					900	
090202EN 0,2 / / / 2,6		00200		220		
090202FN 0,2 / / / 3,8			400			
090204SN 0,4 / 15 / 0,11 / 2,2	30414			241		
090204TN 0,4 / 20 / 0,09 / 2,2						321
090204TN 0,4 / 20 / 0,14 / 3,5			502			
090204SN 0,4 / 25 / 0,09 / 2,2						351
090204TN 0,4 / 25 / 0,11 / 2,2						341
090204TN 0,4 / 25 / 0,12 / 3,5					902	
090204EN 0,4 / / / 2,2	00400			221		
090204FN 0,4 / / / 3,5			402		802	
090204TN 0,4 / 25 / 0,14 / 2,2				261		
090204SN 0,4 / 25 / 0,15 / 2,2				271		
090204TN 0,4 / 30 / 0,14 / 2,2						361
090204SN 0,4 / 30 / 0,16 / 2,2						371
090208SN 0,8 / 10 / 0,09 / 1,8				232		
090208SN 0,8 / 15 / 0,11 / 1,8	30614			242		
090208SN 0,8 / 20 / 0,09 / 1,8				252		
090208TN 0,8 / 20 / 0,14 / 1,8						362
090208TN 0,8 / 20 / 0,14 / 3,0			504			
090208SN 0,8 / 25 / 0,09 / 1,8						352
090208TN 0,8 / 25 / 0,11 / 1,8						342
090208TN 0,8 / 25 / 0,12 / 3,0					904	
090208EN 0,8 / / / 1,8	00600					312
110202SN 0,2 / 15 / 0,11 / 2,9		31414				
110202SN 0,2 / 20 / 0,09 / 2,9				253		333
110202TN 0,2 / 20 / 0,09 / 2,9						323
110202TN 0,2 / 20 / 0,14 / 3,8			506			
110202TN 0,2 / 25 / 0,11 / 2,9						343
110202TN 0,2 / 25 / 0,12 / 3,8					906	
110202EN 0,2 / / / 2,9				223		
110202FN 0,2 / / / 2,9				213		
110202FN 0,2 / / / 3,8			406		806	
110202SN 0,2 / 25 / 0,13 / 2,9		31429				
110202TN 0,2 / 30 / 0,14 / 2,9						363
110204FN 0,4 / / / 2,5				214		
110204SN 0,4 / 10 / 0,09 / 2,5				234		
110204EN 0,4 / / / 2,5				224		

Cast iron						
Sintered steels						
Heat resistant alloys						
hardened < 45 HRC	●	●				
hardened 46–55 HRC	●	●	●	●	●	●
hardened 56–60 HRC	●	●	●	●	●	●
hardened 61–65 HRC					●	●

9

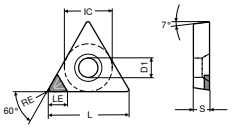
TCGW



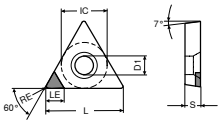
	-C CTBH15C	-C CTBH15C	-A CTBH21U	-C CTBH20C	-A CTBH40U	-C CTBH40C
			PBC25	-3MC PBC25-S	PBC40	-3MC PBC40-S
						
	F	F	F	F	F	F
	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW
	NEW	NEW				
ISO	Article no. 71 027 ...	Article no. 71 034 ...	Article no. 71 140 ...	Article no. 71 164 ...	Article no. 71 140 ...	Article no. 71 164 ...
RE mm / GB ° / BN mm / LE mm						
110204SN 0,4 15 0,11 2,5		31614		244		
110204TN 0,4 20 0,09 2,5						324
110204TN 0,4 20 0,14 3,5			508			
110204SN 0,4 25 0,09 2,5						354
110204TN 0,4 25 0,11 2,5						344
110204TN 0,4 25 0,12 3,5					908	
110204SN 0,4 25 0,13 2,5		31629				
110204TN 0,4 25 0,14 2,5				264		
110204FN 0,4 3,5					808	
110204SN 0,4 25 0,15 2,5				274		
110204TN 0,4 30 0,14 2,5						364
110204SN 0,4 30 0,16 2,5						374
110208SN 0,8 10 0,09 2,1				235		
110208SN 0,8 15 0,11 2,1	31814			245		
110208SN 0,8 20 0,09 2,1				255		
110208TN 0,8 20 0,09 2,1						325
110208TN 0,8 20 0,14 3,0			510			
110208SN 0,8 25 0,09 2,1						355
110208TN 0,8 25 0,12 3,0					910	
110208EN 0,8 2,1						315
110208SN 0,8 25 0,13 2,1	31829					
110208TN 0,8 25 0,14 2,1				265		
110208TN 0,8 30 0,14 2,1						365
110208SN 0,8 30 0,16 2,1						375
110208FN 0,8 3,0			410			
16T304SN 0,4 20 0,09 3,2				256		336
16T304SN 0,4 25 0,09 3,2						356
16T304TN 0,4 25 0,11 3,2						346
16T304SN 0,4 25 0,15 3,2				276		
16T304TN 0,4 30 0,14 3,2						366
16T304SN 0,4 35 0,17 3,2						386
16T304FN 0,4 3,2				216		
16T304EN 0,4 3,2				226		
16T308SN 0,8 15 0,11 2,7				247		
16T308SN 0,8 20 0,09 2,7						337
16T308SN 0,8 25 0,09 2,7						357
16T308TN 0,8 25 0,11 2,7						347
16T308TN 0,8 25 0,14 2,7				267		
16T308SN 0,8 25 0,15 2,7				277		
16T308TN 0,8 30 0,14 2,7						367
16T308SN 0,8 30 0,16 2,7						377
16T308SN 0,8 30 0,18 2,7				287		
16T308EN 0,8 2,7				227		317
Cast iron						
Sintered steels						
Heat resistant alloys						
hardened < 45 HRC	●	●				
hardened 46–55 HRC	●	●	●	●	●	●
hardened 56–60 HRC	●	●	●	●	●	●
hardened 61–65 HRC					●	●

TCGW / TCGT

Designation	L	S	D1	IC
	mm	mm	mm	mm
TCG. 0902..	9,6	2,38	2,5	5,56
TCG. 1102..	11,0	2,38	2,8	6,35
TCG. 16T3..	16,5	3,97	4,4	9,52



TCGT-A-CB



TCGW-A

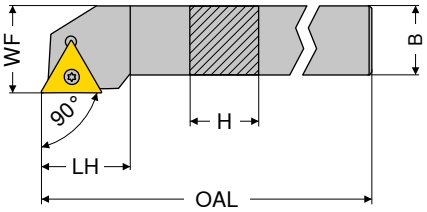
TCGW / TCGT

ISO	RE	LE	-A CTDPD20	-A-CB1 CTDPD20	-A-CB2 CTDPS30	-A-CB3 CTDPU20
			PDC	-CB1 PDC	-CB2 PDC-S	-CB3 PDC-S
			F DIAMOND TCGW	F DIAMOND TCGT	M DIAMOND TCGT	R DIAMOND TCGT
	mm	mm	Article no. 71 140 ...	Article no. 71 325 ...	Article no. 71 326 ...	Article no. 71 327 ...
090202FN	0,2	3,7	100	112		
090202EN	0,2	3,7			212	
090204FN	0,4	3,4	102	114		
090204EN	0,4	3,4			214	
090208FN	0,8	3,0	104			
110202FN	0,2	3,7	106	122		
110202EN	0,2	3,7			222	
110204FN	0,4	3,4	108	124		
110204EN	0,4	3,4			224	224
110208FN	0,8	3,0	110			
16T304FN	0,4	4,6	112	134		
16T304EN	0,4	4,6			234	
16T308FN	0,8	4,2	114			
16T308EN	0,8	4,2				238
Steel						
Stainless steel						
Cast iron						
Non ferrous metals			●	●	●	●
Heat resistant alloys					○	○

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MaxiLock-S – STGC 90° – Toolholder with screw clamping







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 677 ...	Right-hand Article no. 70 676 ...
	mm	mm	mm	mm	mm	Nm			
STGC R/L 1010 E09	10	10	70	12	12	1	TC.. 0902	**010**	**010**
STGC R/L 1212 F11	12	12	80	15	16	1,2	TC.. 1102	**012**	**012**
STGC R/L 1616 H16	16	16	100	22	20	3,2	TC.. 16T3	**016**	**016**
STGC R/L 2020 K16	20	20	125	22	25	3,2	TC.. 16T3	**020**	**020**
STGC R/L 2525 M16	25	25	150	22	32	3,2	TC.. 16T3	**025**	**025**


Key D


Combination Key


Clamping screw


Solid Carbide Seat T

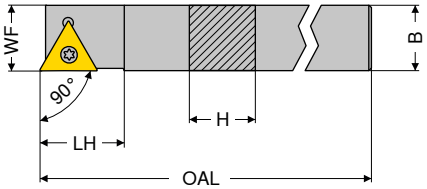

Threaded sleeve

Spare parts for Article no.	Key D Article no. 80 950 ...	Combination Key Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide Seat T Article no. 70 950 ...	Threaded sleeve Article no. 70 950 ...
70 676 010 / 70 677 010	**109**		**111**		
70 676 012 / 70 677 012	**110**		**112**		
70 676 016 / 70 677 016		**398**	**113**	**169**	**171**
70 676 020 / 70 677 020		**398**	**113**	**169**	**171**
70 676 025 / 70 677 025		**398**	**113**	**169**	**171**

MaxiLock-S – STAC 90° – Toolholder with screw clamping

▲ for sliding head lathes







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 769 ...	Right-hand Article no. 70 768 ...
	mm	mm	mm	mm	mm	Nm			
STAC R/L 1010 K09	10	10	125	12	10	1	TC.. 0902	**010**	**010**
STAC R/L 1212 K11	12	12	125	15	12	1,2	TC.. 1102	**012**	**012**
STAC R 1414 K11	14	14	125	15	14	1,2	TC.. 1102		**014**

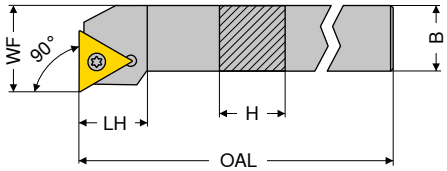

Key D


Clamping screw

Spare parts for Article no.		Key D Article no. 80 950 ...		Clamping screw Article no. 70 950 ...
70 769 010 / 70 768 010	T07	**109**	M2,2x5	**111**
70 769 012 / 70 768 012	T08	**110**	M2,5x6	**112**
70 768 014	T08	**110**	M2,5x6	**112**

MaxiLock-S – STFC 90° – Toolholder with screw clamping







Illustrations show right-hand versions

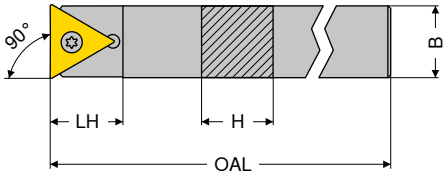
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand Article no. 70 673 ...	Right-hand Article no. 70 672 ...
STFC R/L 1212 F11	12	12	80	15	16	1,2	TC.. 1102	**012**	**012**
STFC R/L 1616 H16	16	16	100	20	20	3,2	TC.. 16T3	**016**	**016**
STFC R/L 2020 K16	20	20	125	20	25	3,2	TC.. 16T3	**020**	**020**
STFC R/L 2525 M16	25	25	150	20	32	3,2	TC.. 16T3	**025**	**025**

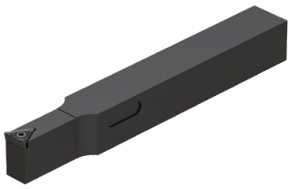
Spare parts for Article no.	Key D Article no. 80 950 ...	Combination Key Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide Seat T Article no. 70 950 ...	Threaded sleeve Article no. 70 950 ...
70 673 012 / 70 672 012	**110**		**112**		
70 673 016 / 70 672 016		**398**	**113**	**169**	**171**
70 673 020 / 70 672 020		**398**	**113**	**169**	**171**
70 673 025 / 70 672 025		**398**	**113**	**169**	**171**

9

MaxiLock-S – STCC 90° – Toolholder with screw clamping







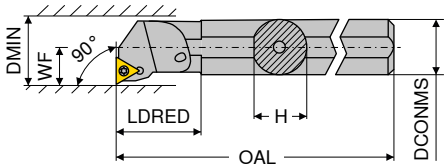
ISO designation	H mm	B mm	OAL mm	LH mm	torque moment Nm	Insert	Neutral Article no. 70 782 ...
STCC N 0808 K09	8	8	125	11	1	TC.. 0902	**008**
STCC N 1010 K11	10	10	125	15	1,2	TC.. 1102	**010**
STCC N 1212 K11	12	12	125	15	1,2	TC.. 1102	**012**
STCC N 1414 K11	14	14	125	21	1,2	TC.. 1102	**014**
STCC N 1616 K11	16	16	125	24	1,2	TC.. 1102	**016**

Spare parts for Article no.		Key D Article no. 80 950 ...		Clamping screw Article no. 70 950 ...
70 782 008	T07	**109**	M2,2x5	**111**
70 782 010	T08	**110**	M2,5x6	**112**
70 782 012	T08	**110**	M2,5x6	**112**
70 782 014	T08	**110**	M2,5x6	**112**
70 782 016	T08	**110**	M2,5x6	**112**

MaxiLock-S – STFC 90° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 729 ...	Right-hand Article no. 70 728 ...
A10H STFC R/L 09	10	9,5	100	19	7	13	1	TC.. 0902	**210**	**210**
A12K STFC R/L 11	12	11,5	125	22	9	16	1,2	TC.. 1102	**212**	**212**
A16M STFC R/L 11	16	15,0	150	29	11	20	1,2	TC.. 1102	**216**	**216**
S16R STFC R 11	16	15,0	200		11	21	1,2	TC.. 1102		**016**
A20Q STFC R/L 11	20	18,5	180	32	13	25	1,2	TC.. 1102	**220**	**220**
S20S STFC R 11	20	18,0	250		13	25	1,2	TC.. 1102		**020**
A25R STFC R/L 16	25	24,0	200	36	17	32	3,2	TC.. 16T3	**225**	**225**
A32S STFC R/L 16	32	31,0	250	50	22	40	3,2	TC.. 16T3	**232**	**232**
A40T STFC R/L 16	40	39,0	300	60	27	50	3,2	TC.. 16T3	**240**	**240**


Clamping screw


Solid Carbide Seat T


Threaded sleeve

Spare parts for Article no.		Article no. 70 950 ...	Article no. 70 950 ...		Article no. 70 950 ...
70 729 210 / 70 728 210	M2,2x5	**111**			
70 729 212 / 70 728 212	M2,5x6	**112**			
70 729 216 / 70 728 216	M2,5x6	**112**			
70 728 016	M2,5x6	**112**			
70 729 220 / 70 728 220	M2,5x6	**112**			
70 728 020	M2,5x6	**112**			
70 729 225 / 70 728 225	M3,5x11	**113**	**169**	M3,5	**171**
70 729 232 / 70 728 232	M3,5x11	**113**	**169**	M3,5	**171**
70 729 240 / 70 728 240	M3,5x11	**113**	**169**	M3,5	**171**

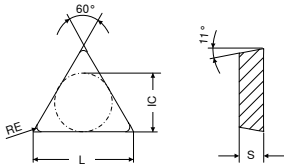

Key D


Combination Key

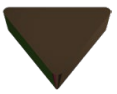
Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 729 210 / 70 728 210	T07	**109**		
70 729 212 / 70 728 212	T08	**110**		
70 729 216 / 70 728 216	T08	**110**		
70 728 016	T08	**110**		
70 729 220 / 70 728 220	T08	**110**		
70 728 020	T08	**110**		
70 729 225 / 70 728 225			T15/SW	**398**
70 729 232 / 70 728 232			T15/SW	**398**
70 729 240 / 70 728 240			T15/SW	**398**

TPMR / TPUN

Designation	L	S	IC
	mm	mm	mm
TPMR 1103..	11,0	3,18	6,35
TPMR 1603..	16,5	3,18	9,52
TPUN 2204..	22,0	4,76	12,70



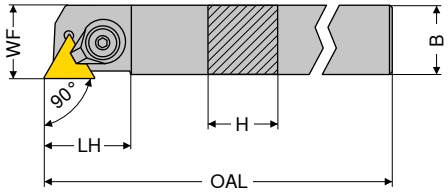
TPMR / TPUN

		CTCK110	CTCP135	CTCP135	CTCP135
		DCX3110	HCR1135	HCR1135	HCR1135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		M	M	M	M
		TPMR	TPMR	TPMR	TPUN
ISO	RE	Article no. 70 189 ...	Article no. 76 228 ...	Article no. 76 232 ...	Article no. 76 212 ...
	mm				
110304EL	0,4			706	
110304EN	0,4		702		702
110304ER	0,4			704	
110308EN	0,8		704		
160304EL	0,4			714	
160304EN	0,4		706		720
160304ER	0,4			712	
160308EL	0,8			718	
160308EN	0,8	008	708		722
160308ER	0,8			716	
160312EN	1,2				724
220408EN	0,8				742
220412EN	1,2				744
Steel		●	●	●	●
Stainless steel		○	○	○	○
Cast iron		●			
Non ferrous metals					
Heat resistant alloys			○	○	○

9

Simplex – CTAP 90° – Toolholder with top clamping





Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 797 ...	Right-hand Article no. 70 796 ...
	mm	mm	mm	mm	mm	Nm			
CTAP R/L 2020 K16	20	20	125	30	20,5	10	TP.. 1603	**020**	**020**
CTAP R/L 2525 M16	25	25	150	30	20,5	10	TP.. 1603	**025**	**025**


Clamp


Key I


Clamping screw


Countersunk head grooved pin

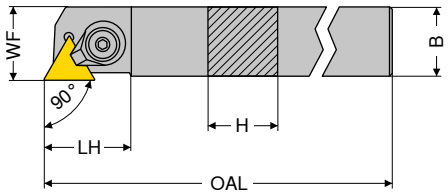

Solid Carbide Seat T


Spring washer

Spare parts	Clamp Article no. 70 950 ...	Key I Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Countersunk head grooved pin Article no. 70 950 ...	Solid Carbide Seat T Article no. 70 950 ...	Spring washer Article no. 70 950 ...
for Article no.						
70 796 020 / 70 797 020	**601**	SW4 **396**	M8x20 **604**	**603**	**602**	**605**
70 796 025 / 70 797 025	**601**	SW4 **396**	M8x20 **604**	**603**	**602**	**605**

Simplex – CTGP 90° – Toolholder with top clamping





Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 797 ...	Right-hand Article no. 70 796 ...
	mm	mm	mm	mm	mm	Nm			
CTGP R 1010 E11	10	10	70	16,5	12	5	TP.. 1103		**010**
CTGP R/L 1212 F11	12	12	80	16,5	16	5	TP.. 1103	**012**	**012**


Clamp

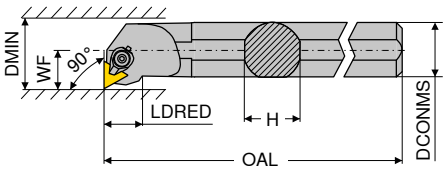
Key D


Clamping screw

Spare parts	Clamp Article no. 70 950 ...	Key D Article no. 80 950 ...	Clamping screw Article no. 70 950 ...
for Article no.			
70 796 010	**600**	T15 **113**	M4x10 **477**
70 797 012 / 70 796 012	**600**	T15 **113**	M4x10 **477**

Simplex – CTFP 90° – Boring bar with top clamping







Illustrations show right-hand versions

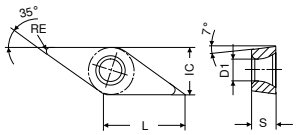
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 795 ...	Right-hand Article no. 70 794 ...
S12Q CTFP R/L 11	12	11,0	180	15	9	16	5	TP.. 1103	**012**	**012**
S16R CTFP R/L 11	16	14,5	200	15	11	20	5	TP.. 1103	**016**	**016**
S20S CTFP R/L 11	20	18,0	250	15	13	25	5	TP.. 1103	**020**	**020**
S25T CTFP R/L 16	25	23,0	300	20	17	32	10	TP.. 1603	**025**	**025**
S32U CTFP R/L 16	32	30,0	350	20	22	40	10	TP.. 1603	**032**	**032**

Spare parts	 Clamp Article no. 70 950 ...	 Key D Article no. 80 950 ...	 Clamping screw Article no. 70 950 ...	 Countersunk head grooved pin Article no. 70 950 ...	 Solid Carbide Seat T Article no. 70 950 ...
for Article no.					
70 794 012 / 70 795 012	**600**	T15 **113**	M4x10 **477**		
70 794 016 / 70 795 016	**600**	T15 **113**	M4x10 **477**		
70 794 020 / 70 795 020	**600**	T15 **113**	M4x10 **477**		
70 794 025 / 70 795 025	**606**	T20 **114**	M6x16,2 **596**	**603**	**602**
70 794 032 / 70 795 032	**606**	T20 **114**	M6x16,2 **596**	**603**	**602**

9

VCGT / VCMT / VCXT / VCET

Designation	L	S	D1	IC
	mm	mm	mm	mm
VCET 1103..	11,1	3,18	2,8	6,35
VC.T 1103..	11,1	3,18	2,9	6,35
VC.T 1604..	16,6	4,76	4,4	9,52
VCGT 2205..	22,1	5,56	5,5	12,70



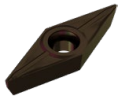
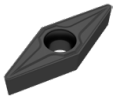
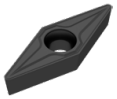
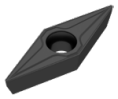
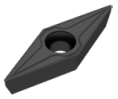
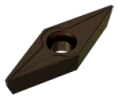
VCGT / VCMT

	-CF05 CTEP110	-SF TCM407	-SF TCM10	-SF CTCP115	-SF CTCP125	-SF CTCP135	-SF CTCP115
	-PF14 DCC1110	-ZF CWC407	-ZF CWC10	-ZF HCX1115	-ZF HCX1125	-ZF HCR1135	-ZF HCX1115
	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	F	F	F	F	F	F	F
	CERMET VCGT	CERMET VCGT	CERMET VCGT	VCGT	VCGT	VCGT	VCMT
ISO / RE mm	Article no. 76 276 ...	Article no. 70 277 ...	Article no. 70 277 ...	Article no. 76 277 ...	Article no. 76 277 ...	Article no. 76 277 ...	Article no. 76 279 ...
110301EN 0,1			892				
110302EN 0,2	014	844	894	314	514	714	
110304EN 0,4	016	846	896	316	516	716	
110308EN 0,8				318	518	718	
160404EN 0,4	028	850	900				328
160408EN 0,8	030		902				330
Steel	●	●	●	●	●	●	●
Stainless steel	○			○	○	○	○
Cast iron	○	○	○	○	○		○
Non ferrous metals							
Heat resistant alloys						○	

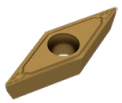
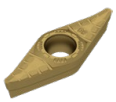
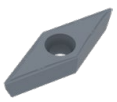
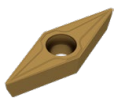
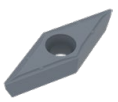
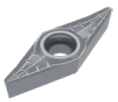
VCMT / VCGT

	-SF CTCP125	-SF CTCP135	-CF55 CTEP110	-SMF TCM10	-SMF CTCP135	-SMF CTCP115	-SMF CTCP125
	-ZF HCX1125	-ZF HCR1135	-PF15 DCC1110	-SMF CWC10	-SMF HCR1135	-SMF HCX1115	-SMF HCX1125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	F	F	F	F	F	F	F
	VCMT	VCMT	CERMET VCMT	CERMET VCMT	VCGT	VCMT	VCMT
ISO / RE mm	Article no. 76 279 ...	Article no. 76 279 ...	Article no. 76 292 ...	Article no. 70 288 ...	Article no. 76 285 ...	Article no. 76 288 ...	Article no. 76 288 ...
110302EN 0,2					714		
110304EN 0,4			016	896		316	516
160404EN 0,4	528	728	028	900		328	528
160408EN 0,8	530		030	902		330	530
Steel	●	●	●	●	●	●	●
Stainless steel	○	○	○		○	○	○
Cast iron	○		○	○		○	○
Non ferrous metals							
Heat resistant alloys		○			○		

VCMT / VCGT

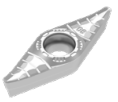
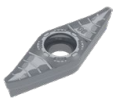
	-SMF CTCP135	-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135	-SF CTC2135
	-SMF HCR1135	-ZM DCX3110	-ZM HCF3120	-ZM HCX1115	-ZM HCX1125	-ZM HCR1135	-ZF CWN2135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
							
	F	M	M	M	M	M	F
	VCMT	VCMT	VCMT	VCMT	VCMT	VCMT	VCGT
ISO / RE mm	Article no. 76 288 ...	Article no. 70 278 ...	Article no. 70 278 ...	Article no. 76 278 ...	Article no. 76 278 ...	Article no. 76 278 ...	Article no. 70 277 ...
110302EN 0,2							444
110304EN 0,4	716						446
160404EN 0,4	728	028	528	328	528	728	
160406EN 0,6				329			
160408EN 0,8	730	030	530	330	530	730	
160412EN 1,2		032	532	33200	53200	732	
Steel	●	●	●	●	●	●	○
Stainless steel	○	○		○	○	○	●
Cast iron		●	●	○	○		
Non ferrous metals							
Heat resistant alloys	○					○	●

VCMT / VCXT / VCGT

	-SF CTC2135	-M81 CWN2120	-M25 CTPM125	-SM CTC2135	-M55 CTPM125	-25P H210T	-25P AMZ
	-ZF CWN2135		-PF23 HCN2125	-ZM CWN2135	-PF26 HCN2125	-25P CWK20	-25P AMZ
			DRAGONSKIN		DRAGONSKIN		
							
	F	M	F	M	F	F	F
	VCMT	VCXT	VCMT	VCMT	VCMT	VCGT	VCGT
ISO / RE mm	Article no. 70 279 ...	Article no. 70 280 ...	Article no. 75 219 ...	Article no. 70 278 ...	Article no. 75 220 ...	Article no. 70 282 ...	Article no. 70 282 ...
110302FN 0,2						638	538
110304FN 0,4						640	540
160404EN 0,4	440		228	440	228		
160404FN 0,4		112				642	562
160408EN 0,8				442	230		
160408FN 0,8		114				644	564
160412FN 1,2						646	566
220530FN 3,0						648	568
Steel	○		○	○	○		○
Stainless steel	●	●	●	●	●		○
Cast iron						○	○
Non ferrous metals		○				●	●
Heat resistant alloys	●			●		○	

9

VCGT / VCMT

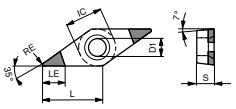
ISO	RE mm	-25Q H210T -25Q CWK20	-25Q AMZ -25Q AMZ	-27 H10T -AL CWK15	-27 CWN15 -AL CWN15	-27 AMZ -AL AMZ	-29 H216T	-29 AMZ
								
		M VCGT	M VCGT	M VCGT	M VCGT	M VCGT	M VCMT	M VCMT
							NEW	NEW
		Article no. 70 282 ...	Article no. 70 282 ...	Article no. 70 280 ...	Article no. 70 280 ...	Article no. 70 280 ...	Article no. 70 247 ...	Article no. 70 247 ...
110302FN	0,2			606	306	456		
110304FL	0,4	670	620					
110304FN	0,4			608	308	458		
110304FR	0,4	680	630					
110308FN	0,8			610	310			
160404EN	0,4						62800	42800
160404FN	0,4			612	312	462		
160408EN	0,8						63000	43000
160408FN	0,8			614	314	464		
160412EN	1,2						63200	43200
160412FN	1,2			616	316			
220530FN	3,0			618				
Steel			○			○		○
Stainless steel			○		○	○		○
Cast iron		○	○	○		○	○	○
Non ferrous metals		●	●	●	●	●	●	●
Heat resistant alloys		○		○			○	

VCET / VCGT

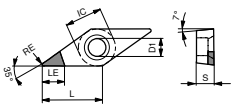
ISO	RE mm	-F05 CTPX710 DRAGONSKIN	-F23 CTP2120 -F23 CCN2120
			
		F VCET	F VCGT
		NEW	
		Article no. 76 255 ...	Article no. 70 193 ...
110300FN	0,00		600
1103015FN	0,15	11800	
110301FN	0,10	11600	602
113005FN	0,05	11400	
11302FN	0,20	12000	
11304FN	0,40	12200	
160401FN	0,10		606
Steel		●	
Stainless steel		●	●
Cast iron		○	○
Non ferrous metals		○	○
Heat resistant alloys		●	●

VCGW

Designation	L	S	D1	IC
	mm	mm	mm	mm
VCGW 1103..	11,1	3,18	2,9	6,35
VCGW 1604..	16,6	4,76	4,4	9,52

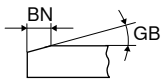


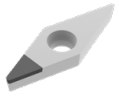
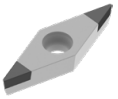
-B (-2MC)



-A

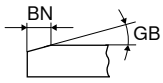
VCGW

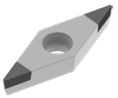


	-A CTBS10U	-B CTBS20C	-B CTBH15U	-B CTBH15C
	PBC10	-2MC PBC15-S		
				
	F	F	F	F
	CBN VCGW	CBN VCGW	CBN VCGW	CBN VCGW
			NEW	NEW
ISO	Article no. 71 160 ...	Article no. 71 165 ...	Article no. 71 036 ...	Article no. 71 035 ...
RE mm / GB ° / BN mm / LE mm				
110302SN 0,2 15 0,11 3,4			32014	32014
110302TN 0,2 20 0,14 4,7	300			
110302SN 0,2 25 0,13 3,4			32029	32029
110302FN 0,2 4,7	200			
110302EN 0,2 3,4			02000	02000
110304SN 0,4 10 0,09 3,1		121		
110304SN 0,4 15 0,11 3,1		131	32214	32214
110304TN 0,4 20 0,14 4,5	302			
110304TN 0,4 20 0,15 3,1		141		
110304SN 0,4 20 0,16 3,1		151		
110304SN 0,4 25 0,13 3,1				32229
110304SN 0,4 25 0,18 3,1		171		
110304FN 0,4 4,5	202			
110304EN 0,4 3,1			02200	02200
110308SN 0,8 10 0,09 2,5		122		
110308SN 0,8 15 0,11 2,5		132	32414	32414
110308TN 0,8 20 0,14 4,2	304			
110308SN 0,8 20 0,16 2,5		152		
110308SN 0,8 25 0,13 3,1			32229	
110308SN 0,8 25 0,13 2,5			32429	32429
110308TN 0,8 25 0,17 2,5		162		
110308SN 0,8 25 0,18 2,5		172		
110308FN 0,8 4,2	204			
110308EN 0,8 2,5		112	02400	02400
160402SN 0,2 15 0,11 3,4			33614	33614
160402TN 0,2 20 0,14 5,3	305			
160404SN 0,2 25 0,13 3,4			33629	
160402RN 0,2 3,4				23600
160402FN 0,2 5,3	205			
160402SN 0,2 25 0,13 3,4				33629
160404SN 0,4 10 0,09 3,1		125		
160404SN 0,4 15 0,11 3,1		135	33814	33814
160404TN 0,4 20 0,14 5,0	306			
160404TN 0,4 20 0,15 3,1		145		
160404SN 0,4 20 0,16 3,1		155		
160404RN 0,4 3,4			23600	
160404SN 0,4 25 0,13 3,1			33829	33829
160404SN 0,4 25 0,18 3,1		175		
160404FN 0,4 5,0	206			
160404RN 0,4 3,1			23800	23800
Cast iron	●	●		
Sintered steels	●	●		
Heat resistant alloys	●	●		
hardened < 45 HRC			●	●
hardened 46–55 HRC			●	●
hardened 56–60 HRC			●	●
hardened 61–65 HRC				

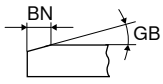
9

VCGW



	-A CTBS10U	-B CTBS20C	-B CTBH15U	-B CTBH15C
	PBC10	-2MC PBC15-S		
				
	F	F	F	F
	CBN VCGW	CBN VCGW	CBN VCGW	CBN VCGW
			NEW	NEW
ISO	Article no. 71 160 ...	Article no. 71 165 ...	Article no. 71 036 ...	Article no. 71 035 ...
RE mm / GB ° / BN mm / LE mm				
160408SN 0,8 10 0,09 2,5		126		
160408SN 0,8 15 0,11 2,5		136	34014	34014
160408TN 0,8 20 0,14 4,4	308			
160408SN 0,8 20 0,16 2,5		156		
160408SN 0,8 25 0,13 2,5			34029	34029
160408TN 0,8 25 0,17 2,5		166		
160408SN 0,8 25 0,18 2,5		176		
160408EN 0,8 2,5		116		
160408FN 0,8 4,4	208			
160408RN 0,8 2,5			24000	24000
Cast iron	●	●		
Sintered steels	●	●		
Heat resistant alloys	●	●		
hardened < 45 HRC			●	●
hardened 46–55 HRC			●	●
hardened 56–60 HRC			●	●
hardened 61–65 HRC				

VCGW

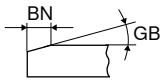


	-A CTBH21U	-B CTBH20C	-A CTBH40U	-B CTBH40C
	PBC25	-2MC PBC25-S	PBC40	-2MC PBC40-S
				
	F	F	F	F
	CBN VCGW	CBN VCGW	CBN VCGW	CBN VCGW
ISO	Article no. 71 160 ...	Article no. 71 165 ...	Article no. 71 160 ...	Article no. 71 165 ...
RE mm / GB ° / BN mm / LE mm				
110302TN 0,2 20 0,14 4,7	500			
110302TN 0,2 25 0,12 4,7			900	
110302FN 0,2 4,7	400 1)		800	
110304FN 0,4 4,5	402 1)		802	
110304SN 0,4 20 0,09 3,1		251		331
110304TN 0,4 20 0,14 4,5	502			
110304SN 0,4 25 0,09 3,1				351
110304TN 0,4 25 0,11 3,1				341
110304TN 0,4 25 0,12 4,5			902	
Cast iron				
Sintered steels				
Heat resistant alloys				
hardened < 45 HRC				
hardened 46–55 HRC	●	●	●	●
hardened 56–60 HRC	●	●	●	●
hardened 61–65 HRC			●	●

1) Machining to 60 HRC

→ v_c Page 160–167
Continued on next page

VCGW



ISO	RE	GB	BN	LE	-A CTBH21U PBC25 F CBN VCGW Article no. 71 160 ...	-B CTBH20C -2MC PBC25-S F CBN VCGW Article no. 71 165 ...	-A CTBH40U PBC40 F CBN VCGW Article no. 71 160 ...	-B CTBH40C -2MC PBC40-S F CBN VCGW Article no. 71 165 ...
	mm	°	mm	mm				
110304EN	0,4			3,1		221		
110304FN	0,4			3,1		211		
110304TN	0,4	25	0,14	3,1		261		
110304SN	0,4	25	0,15	3,1		271		
110304TN	0,4	30	0,14	3,1				361
110304SN	0,4	35	0,17	3,1				381
110308FN	0,8			4,2	404 [1]		804	
110308SN	0,8	15	0,11	2,5		242		
110308SN	0,8	20	0,09	2,5		252		332
110308TN	0,8	20	0,14	4,2	504			
110308SN	0,8	25	0,09	2,5				352
110308TN	0,8	25	0,11	2,5				342
110308TN	0,8	25	0,14	2,5		262		
110308SN	0,8	25	0,15	2,5		272		
110308TN	0,8	30	0,14	2,5				362
110308SN	0,8	30	0,16	2,5				372
110308SN	0,8	30	0,18	2,5		282		
110308SN	0,8	35	0,17	2,5				382
110308EN	0,8			2,5		222		312
160402FN	0,2			5,3	405 [1]		805	
160402TN	0,2	20	0,14	5,3	505			
160402TN	0,2	25	0,12	5,3			905	
160404FN	0,4			5,0	406 [1]		806	
160404SN	0,4	20	0,09	3,1		255		335
160404TN	0,4	20	0,14	5,0	506			
160404SN	0,4	25	0,09	3,1				355
160404TN	0,4	25	0,11	3,1				345
160404TN	0,4	25	0,12	5,0			906	
160404FN	0,4			3,1		215		
160404EN	0,4			3,1		225		
160404TN	0,4	25	0,14	3,1		265		
160404TN	0,4	30	0,14	3,1				365
160404SN	0,4	35	0,17	3,1				385
160408FN	0,8			4,4	408 [1]		808	
160408SN	0,8	15	0,11	2,5		246		
160408SN	0,8	20	0,09	2,5		256		336
160408TN	0,8	20	0,14	4,4	508			
160408SN	0,8	25	0,09	2,5				356
160408TN	0,8	25	0,11	2,5				346
160408TN	0,8	25	0,12	4,4			908	
160408TN	0,8	25	0,14	2,5		266		
160408SN	0,8	25	0,15	2,5		276		
160408TN	0,8	30	0,14	2,5				366
160408SN	0,8	30	0,16	2,5				376
160408SN	0,8	30	0,18	2,5		286		
160408SN	0,8	35	0,17	2,5				386
160408EN	0,8			2,5		226		316
160412TN	1,2	20	0,14	3,9	510			

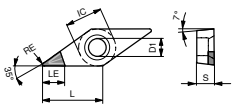
Cast iron				
Sintered steels				
Heat resistant alloys				
hardened < 45 HRC				
hardened 46–55 HRC	●	●	●	●
hardened 56–60 HRC	●	●	●	●
hardened 61–65 HRC			●	●

1) Machining to 60 HRC

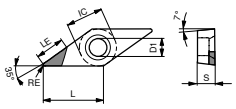
9

VCGW / VCGT

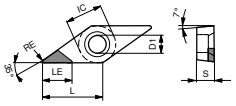
Designation	L	S	D1	IC
	mm	mm	mm	mm
VCG. 1103..	11,1	3,18	2,9	6,35
VCG. 1604..	16,6	4,76	4,4	9,52



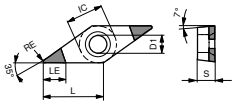
VCGT -A



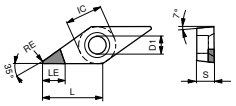
VCGT-L



VCGT-R



-B (-2MC)



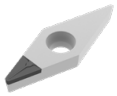
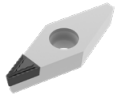
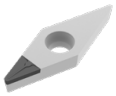
VCGW -A

VCGW / VCGT

	-A CTDMD05	-A CTDPD20	-A CTDPD20	-A CTDPD20	-A CTDPD20
	MDC	PDC	PDC	PDC	PDC
	F	F	F	F	F
	DIAMOND VCGW	DIAMOND VCGW	DIAMOND VCGT	DIAMOND VCGT	DIAMOND VCGT
ISO	Article no. 71 160 ...	Article no. 71 160 ...	Article no. 71 062 ...	Article no. 71 063 ...	Article no. 71 064 ...
110302FN	050				
110302FN		100	100		
110304FN	052				
110304FN		102	102		
110304FRR				102	
110304FLL					102
110308FN		104	104		
110308FRR				104	
110308FLL					104
160402FN		105	105		
160404FN		106	106		
160404FRR				106	
160404FLL					106
160408FN		108	108		
160408FRR				108	
160408FLL					108
160412FN		110	110		
160412FRR				110	
160412FLL					110

Steel					
Stainless steel					
Cast iron					
Non ferrous metals	●	●	●	●	●
Heat resistant alloys	○				

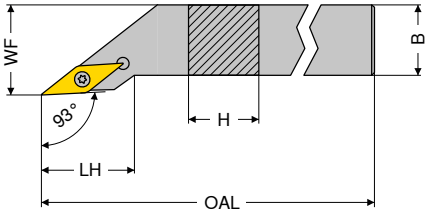
VCGT

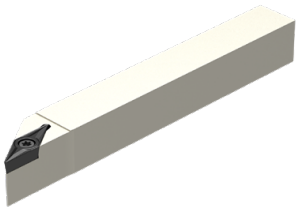
			-A-CB1 CTDPD20	-A-CB1 CTDPS30	-A-CB2 CTDPS30	-A-CB3 CTDPU20	-A-CB1 CTDCD10	-A-CB2 CTDCD10
			-CB1 PDC	-CB1 PDC-S	-CB2 PDC-S	-CB3 PDC-S	-CB1 CVD	-CB2 CVD
								
			F DIAMOND VCGT	F DIAMOND VCGT	M DIAMOND VCGT	R DIAMOND VCGT	F DIAMOND VCGT	M DIAMOND VCGT
ISO	RE	LE	Article no. 71 330 ...	Article no. 71 330 ...	Article no. 71 331 ...	Article no. 71 332 ...	Article no. 71 330 ...	Article no. 71 331 ...
	mm	mm						
110302FN	0,2	3,0					312	
110302EN	0,2	3,0						312
110302EN	0,2	4,6			212			
110302FN	0,2	4,6	112					
110304FN	0,4	3,0					314	
110304EN	0,4	3,0						314
110304EN	0,4	3,9			214	214		
110304FN	0,4	3,9	114	214				
160404EN	0,4	3,0						334
160404EN	0,4	5,5			234	234		
160404FN	0,4	5,5	134	234				
160408EN	0,8	3,0						338
160408EN	0,8	5,0			238			
160408FN	0,8	5,0	138	238				
160412EN	1,2	4,5			242			
Steel								
Stainless steel								
Cast iron								
Non ferrous metals			●	●	●	●	●	●
Heat resistant alloys				○	○	○		

9

MaxiLock-S – SVJC 93° – Toolholder with screw clamping







Illustrations show right-hand versions

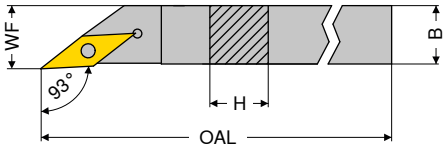
ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand Article no. 70 697 ...	Right-hand Article no. 70 696 ...
	mm	mm	mm	mm	mm	Nm			
SVJC R/L 1212 F11	12	12	80	21,5	16	1,2	VC.. 1103	**012**	**012**
SVJC R/L 1616 H11	16	16	100	21,5	20	1,2	VC.. 1103	**016**	**016**
SVJC R/L 2020 K11	20	20	125	23,0	25	1,2	VC.. 1103	**020**	**020**
SVJC R/L 2525 M11	25	25	150	25,5	32	1,2	VC.. 1103	**025**	**025**
SVJC R/L 2020 K16	20	20	125	29,5	25	3,2	VC.. 1604	**120**	**120**
SVJC R/L 2525 M16	25	25	150	32,5	32	3,2	VC.. 1604	**125**	**125**
SVJC R/L 3225 P16	32	25	170	32,5	32	3,2	VC.. 1604	**132**	**132**

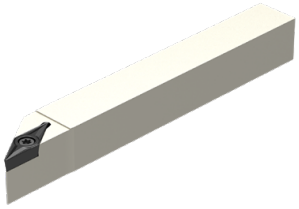
Tool holders with HSK-T interface can be found in → **Chapter 16.**

Spare parts	 Key D	 Combination Key	 Clamping screw	 Solid Carbide Seat V	 Threaded sleeve
	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
Insert					
VC.. 1103	**110**		**112**		
VC.. 1604		**398**	**113**	**107**	**171**

MaxiLock-S – SVJC 93° – Toolholder with screw clamping





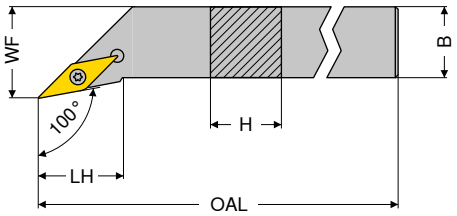


Illustrations show right-hand versions

ISO designation	H	B	OAL	WF	torque moment	Insert	Left-hand Article no. 70 697 ...	Right-hand Article no. 70 696 ...
	mm	mm	mm	mm	Nm			
SVJC R/L 0808 H11	8	8	100	8	1,2	VC.. 1103	**008**	**008**
SVJC R/L 1010 H11	10	10	100	10	1,2	VC.. 1103	**010**	**010**
SVJC R/L 1212 H11	12	12	100	12	1,2	VC.. 1103	**112**	**112**
SVJC R/L 1616 K11	16	16	125	16	1,2	VC.. 1103	**116**	**116**

Spare parts	 Key D	 Clamping screw
	Article no. 80 950 ...	Article no. 70 950 ...
Insert		
VC.. 1103	**110**	**112**

MaxiLock-S – SVZC 100° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand Article no. 70 701 ...	Right-hand Article no. 70 700 ...
SVZC R/L 2525 M16	25	25	150	28,5	32	3,2	VC.. 1604	**025**	**025**


Combination Key

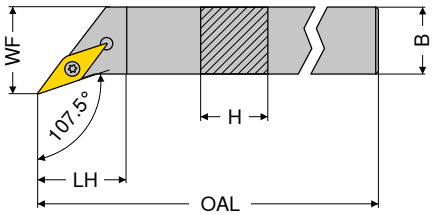

Clamping screw


Solid Carbide Seat V


Threaded sleeve

Spare parts for Article no.		Combination Key Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide Seat V Article no. 70 950 ...	Threaded sleeve Article no. 70 950 ...
70 701 025 / 70 700 025	T15/SW	**398**	M3,5x11 **113**	**107**	M3,5 **171**

MaxiLock-S – SVHC 107.5° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand Article no. 70 705 ...	Right-hand Article no. 70 704 ...
SVHC R/L 1212 F11	12	12	80	11,4	16	1,2	VC.. 1103	**012**	**012**
SVHC R/L 1616 H11	16	16	100	11,4	20	1,2	VC.. 1103	**016**	**016**
SVHC R/L 2020 K11	20	20	125	14,6	25	1,2	VC.. 1103	**020**	**020**
SVHC R/L 2525 M11	25	25	150	20,9	32	1,2	VC.. 1103	**025**	**025**
SVHC R/L 2020 K16	20	20	125	13,2	25	3,2	VC.. 1604	**120**	**120**
SVHC R/L 2525 M16	25	25	150	19,6	32	3,2	VC.. 1604	**125**	**125**
SVHC R/L 3225 P16	32	25	170	19,6	32	3,2	VC.. 1604	**132**	**132**
SVHC R/L 2525 M22	25	25	150	19,6	32	5	VC.. 2205	**225**	**225**
SVHC R/L 3225 P22	32	25	170	19,6	32	5	VC.. 2205	**232**	**232**

Tool holders with HSK-T interface can be found in → **Chapter 16.**


Key D


Combination Key


Clamping screw

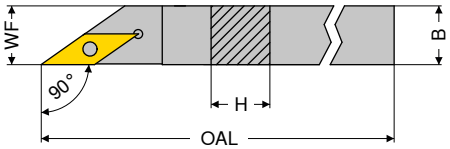

Solid Carbide Seat V

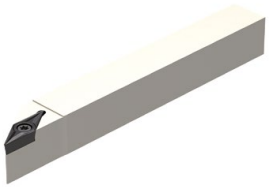

Threaded sleeve

Spare parts for Article no.	Key D Article no. 80 950 ...	Combination Key Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide Seat V Article no. 70 950 ...	Threaded sleeve Article no. 70 950 ...
70 704 012 / 70 705 012	**110**		**112**		
70 704 016 / 70 705 016	**110**		**112**		
70 704 020 / 70 705 020	**110**		**112**		
70 704 025 / 70 705 025	**110**		**112**		
70 704 120 / 70 705 120		**398**	**113**	**107**	**171**
70 704 125 / 70 705 125		**398**	**113**	**107**	**171**
70 704 132 / 70 705 132		**398**	**113**	**107**	**171**
70 704 225 / 70 705 225		**398**	**114**	**109**	**170**
70 704 232 / 70 705 232		**398**	**114**	**109**	**170**

MaxiLock-S – SVAC 90° – Toolholder with screw clamping

▲ for sliding head lathes





Illustrations show right-hand versions

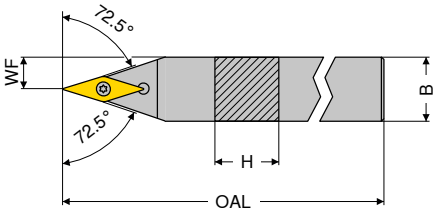
ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand Article no. 70 695 ...	Right-hand Article no. 70 694 ...
SVAC R/L 0808 H11	8	8	100	8	1,2	VC.. 1103	**008**	**008**
SVAC R/L 1010 H11	10	10	100	10	1,2	VC.. 1103	**010**	**010**
SVAC R/L 1212 H11	12	12	100	12	1,2	VC.. 1103	**012**	**012**

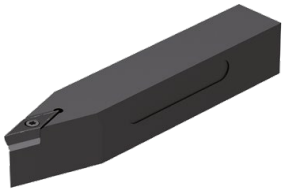

Key D


Clamping screw

Spare parts for Article no.	Key D Article no. 80 950 ...		Clamping screw Article no. 70 950 ...	
70 694 008 / 70 695 008	T08	**110**	M2,5x6	**112**
70 694 010 / 70 695 010	T08	**110**	M2,5x6	**112**
70 694 012 / 70 695 012	T08	**110**	M2,5x6	**112**

MaxiLock-S – SVVC 72.5° – Toolholder with screw clamping





ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Neutral Article no. 70 692 ...
SVVC N 1212 F11	12	12	80	6,0	1,2	VC.. 1103	**012**
SVVC N 1616 H11	16	16	100	8,0	1,2	VC.. 1103	**016**
SVVC N 2020 K11	20	20	125	10,0	1,2	VC.. 1103	**020**
SVVC N 2525 M11	25	25	150	12,5	1,2	VC.. 1103	**025**
SVVC N 2020 K16	20	20	125	10,0	3,2	VC.. 1604	**120**
SVVC N 2525 M16	25	25	150	12,5	3,2	VC.. 1604	**125**
SVVC N 3225 P16	32	25	170	12,5	3,2	VC.. 1604	**132**


Key D


Combination Key


Clamping screw


Solid Carbide Seat V

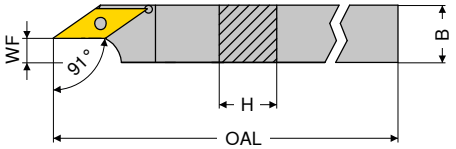

Threaded sleeve

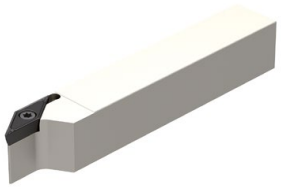
Spare parts for Article no.	Key D Article no. 80 950 ...		Combination Key Article no. 70 950 ...		Clamping screw Article no. 70 950 ...		Solid Carbide Seat V Article no. 70 950 ...		Threaded sleeve Article no. 70 950 ...	
70 692 012		**110**				**112**				
70 692 016		**110**				**112**				
70 692 020		**110**				**112**				
70 692 025		**110**				**112**				
70 692 120				**398**		**113**		**107**		**171**
70 692 125				**398**		**113**		**107**		**171**
70 692 132				**398**		**113**		**107**		**171**

MaxiLock-S – SVXC 91° – Toolholder with screw clamping

▲ for sliding head lathes







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand Article no. 70 691 ...	Right-hand Article no. 70 690 ...
SVXC R/L 1010 H11	10	10	100	3,4	1,2	VC.. 1103	**010**	**010**
SVXC R/L 1212 H11	12	12	100	5,4	1,2	VC.. 1103	**012**	**012**
SVXC R/L 1616 K11	16	16	125	8,9	1,2	VC.. 1103	**016**	**016**
SVXC R/L 2020 K16	20	20	125	10,4	3,2	VC.. 1604	**020**	**020**



Key D



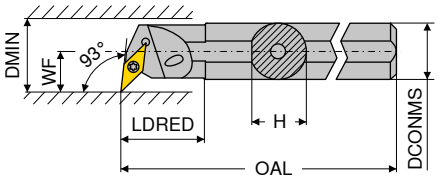
Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 691 010 / 70 690 010	T08	**110**	M2,5x6	**112**
70 691 012 / 70 690 012	T08	**110**	M2,5x6	**112**
70 691 016 / 70 690 016	T08	**110**	M2,5x6	**112**
70 691 020 / 70 690 020	T15	**113**	M3,5x11	**113**

9

MaxiLock-S – SVUC 93° – Boring bar with screw clamping







Illustrations show right-hand versions

ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	Nm		Article no. 70 745 ...	Article no. 70 744 ...
A16M SVUC R/L 11	16	15,0	150	29	11	20	1,2	VC.. 1103	**216**	**216**
A20Q SVUC R/L 11	20	18,5	180	32	13	25	1,2	VC.. 1103	**220**	**220**
A25R SVUC R/L 11	25	23,0	200	36	17	32	1,2	VC.. 1103	**225**	**225**
A32S SVUC R/L 16	32	30,0	250	50	22	40	3,2	VC.. 1604	**232**	**232**
A40T SVUC R/L 16	40	38,0	300	60	27	50	3,2	VC.. 1604	**240**	**240**

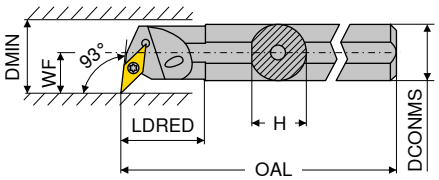
Tool holders with HSK-T interface can be found in → **Chapter 16.**

Spare parts	Key D	Combination Key	Clamping screw	Solid Carbide Seat V	Threaded sleeve
	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
for Article no.					
70 744 216 / 70 745 216	**110**		**112**		
70 744 220 / 70 745 220	**110**		**112**		
70 744 225 / 70 745 225	**110**		**112**		
70 744 232 / 70 745 232		**398**	**113**	**107**	**171**
70 744 240 / 70 745 240		**398**	**113**	**107**	**171**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

▲ with carbide core







Illustrations show right-hand versions

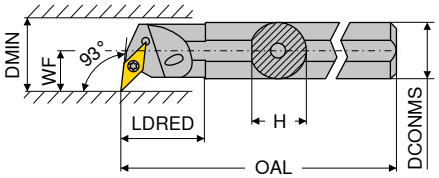
ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	Nm		Article no. 70 747 ...	Article no. 70 746 ...
E-A16M SVUC R/L 11	16	15	150	16,5	11	21	1,2	VC.. 1103	**216**	**216**
E-A20Q SVUC R/L 11	20	18	180	20,5	13	25	1,2	VC.. 1103	**220**	**220**
E-A25R SVUC R/L 11	25	23	200	25,5	17	31	1,2	VC.. 1103	**225**	**225**
E-A25R SVUC R/L 16	25	23	200	25,5	17	31	3,2	VC.. 1604	**325**	**325**
E-A32S SVUC R/L 16	32	30	250	32,5	22	39	3,2	VC.. 1604	**232**	**232**

Spare parts	Key D	Clamping screw
	Article no. 80 950 ...	Article no. 70 950 ...
for Article no.		
70 746 216 / 70 747 216	**110**	**112**
70 746 220 / 70 747 220	**110**	**112**
70 746 225 / 70 747 225	**110**	**112**
70 746 325 / 70 747 325	**113**	**449**
70 746 232 / 70 747 232	**113**	**449**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

▲ Type: Solid carbide







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 747 ...	Right-hand Article no. 70 746 ...
E16R SVUC R/L 11	16	15,0	200	34	11	20	1,2	VC.. 1103	**016**	**016**
E20S SVUC R/L 11	20	18,5	250	38	13	25	1,2	VC.. 1103	**020**	**020**
E25T SVUC R/L 11	25	23,0	300	43	17	32	1,2	VC.. 1103	**025**	**025**



Key D



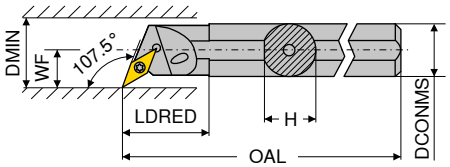
Clamping screw

Spare parts for Article no.		Key D Article no. 80 950 ...		Clamping screw Article no. 70 950 ...	
70 746 016 / 70 747 016	T08	**110**	M2,5x6	**112**	
70 746 020 / 70 747 020	T08	**110**	M2,5x6	**112**	
70 746 025 / 70 747 025	T08	**110**	M2,5x6	**112**	

MaxiLock-S – SVQC 107.5° – Boring bar with screw clamping

9







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 749 ...	Right-hand Article no. 70 748 ...
A16M SVQC R/L 11	16	15,0	150	29	11	20	1,2	VC.. 1103	**216**	**216**
A20Q SVQC R/L 11	20	18,5	180	32	13	25	1,2	VC.. 1103	**220**	**220**
A25R SVQC R/L 11	25	23,0	200	36	17	32	1,2	VC.. 1103	**225**	**225**
A32S SVQC R/L 16	32	30,0	250	50	22	40	3,2	VC.. 1604	**232**	**232**
A40T SVQC R/L 16	40	38,0	300	60	27	50	3,2	VC.. 1604	**240**	**240**

Tool holders with HSK-T or PSC interface can be found in→ **Chapter 16.**



Key D



Combination Key



Clamping screw



Solid Carbide Seat V

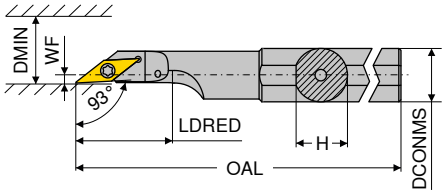


Threaded sleeve

Spare parts for Article no.	Key D Article no. 80 950 ...	Combination Key Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide Seat V Article no. 70 950 ...	Threaded sleeve Article no. 70 950 ...
70 748 216 / 70 749 216	**110**		**112**		
70 748 220 / 70 749 220	**110**		**112**		
70 748 225 / 70 749 225	**110**		**112**		
70 748 232 / 70 749 232		**398**	**113**	**107**	**171**
70 748 240 / 70 749 240		**398**	**113**	**107**	**171**

MaxiLock-S – SVJC 93° – Boring bar with screw clamping







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand Article no. 70 727 ...	Right-hand Article no. 70 726 ...
A16M SVJC R/L 11	16	15	150	30	2	22	1,2	VC.. 1103	**216**	**216**
A20M SVJC R/L 11	20	19	150	38	2	25	1,2	VC.. 1103	**220**	**220**
A25M SVJC R/L 16	25	24	150	44	2	28	3,2	VC.. 1604	**225**	**225**



Key D

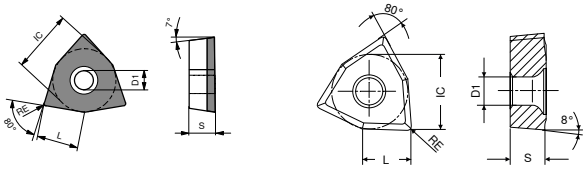


Clamping screw

Spare parts for Article no.	Article no. 80 950 ...	Article no. 70 950 ...
70 727 216 / 70 726 216	**110**	**112**
70 727 220 / 70 726 220	**110**	**112**
70 727 225 / 70 726 225	**113**	**174**

WCGT / WCGW

Designation	L	S	D1	IC
	mm	mm	mm	mm
WCGW 0201..	2,70	1,58	2,3	3,97
WCGT 0201..	2,71	1,59	2,1	3,97



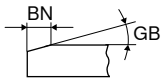
WCGW

WCGT

ISO	RE	-SF TCM10	-SF CTPP430	-SF H216T
		-ZF CWC10	-ZF HCN2430	-ZF CWK26
			DRAGONSKIN	
				
		F	F	F
		CERMET WCGT	WCGT	WCGT
		Article no. 70 287 ...	Article no. 70 287 ...	Article no. 70 287 ...
	mm			
020102EN	0,2	900	450	600
020104EN	0,4	902	452	602
Steel		●	●	
Stainless steel			●	
Cast iron		○	○	○
Non ferrous metals			○	●
Heat resistant alloys			●	○

9

WCGW



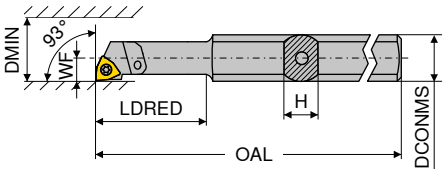
ISO	RE	GB	BN	LE	-F CTBS10U PBC10 F CBN WCGW	-F CTBH15U F CBN WCGW NEW	-F CTBH21U PBC25 F CBN WCGW	-F CTBH40U PBC40 F CBN WCGW
	mm	°	mm	mm	Article no. 71 154 ...	Article no. 71 037 ...	Article no. 71 154 ...	Article no. 71 154 ...
020102EN	0,2			2,7		00200		
020102SN	0,2	15	0,11	2,7		30214		
020102TN	0,2	20	0,14	2,7			500	
020102TN	0,2	25	0,12	2,7				900
020102FN	0,2			2,7	200		400 [1]	800
020104SN	0,4	15	0,11	2,7		30414		
020104TN	0,4	20	0,14	2,7			502	
020104FN	0,4			2,7			402 [1]	
020104EN	0,4			2,7		00400		
020104TN	0,4	25	0,12	2,7				902
Cast iron					●			
Sintered steels					●			
Heat resistant alloys					●			
hardened < 45 HRC						●		
hardened 46–55 HRC						●	●	●
hardened 56–60 HRC						●	●	●
hardened 61–65 HRC								●

1) Machining to 60 HRC

WCGW

ISO	RE	LE	-F CTDPD20 PDC F DIAMOND WCGW
	mm	mm	Article no. 71 154 ...
020102FN	0,2	2,7	100
020104FN	0,4	2,7	102
Steel			
Stainless steel			
Cast iron			
Non ferrous metals			●
Heat resistant alloys			

MaxiLock-S – SWUC 93° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	H	OAL	LDRED	WF	DCONMS	DMIN	torque moment	Insert	Left-hand Article no. 70 731 ...	Right-hand Article no. 70 730 ...
	mm	mm	mm	mm	mm	mm	Nm			
A0508H SWUC R/L 02	7	100	24	2,9	8	5,8	0,4	WC.. 0201..	**005**	**005**
A0608H SWUC R/L 02	7	100	24	3,9	8	7,8	0,4	WC.. 0201..	**006**	**006**
SET							0,4	WC.. 0201..	**999**	**999**

Set includes boring bars 70 731 005 and 70 731 006 or 70 730 005 and 70 730 006


Key D

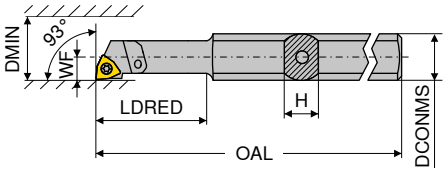

Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 731 005 / 70 730 005	T06	**108**	M1,8x3,4	**334**
70 731 006 / 70 730 006	T06	**108**	M1,8x3,4	**334**

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MaxiLock-S – SWUC 93° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions

ISO designation	H	OAL	LDRED	WF	DCONMS	DMIN	torque moment	Insert	Left-hand Article no. 70 743 ...	Right-hand Article no. 70 742 ...
	mm	mm	mm	mm	mm	mm	Nm			
E-A0508H SWUC R/L 02	7	100	24	2,9	8	5,8	0,4	WC.. 0201..	**005**	**005**
E-A0608H SWUC R/L 02	7	100	24	3,9	8	7,8	0,4	WC.. 0201..	**006**	**006**
SET							0,4	WC.. 0201..	**999**	**999**

Set includes boring bars 70 743 005 and 70 743 006 or 70 742 005 and 70 742 006


Key D


Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 743 005 / 70 742 005	T06	**108**	M1,8x3,4	**334**
70 743 006 / 70 742 006	T06	**108**	M1,8x3,4	**334**

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data values for fine machining (F)

Chip breaker:	-CF	-F32	-CF20	-F30	-F40	//	-F23	-M25	-F43	-SF	-SMF	-CF05	-CF55
Chip breaker:	(-CF)	(-F32)	(-NF12)	(-NF23)	(-F40)	//	(-F23)	(-PF23)	(-F43)	(-ZF)	(-SMF)	(-PF14)	(-PF15)

	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN			
	CTEP110 (DCC1110)	TCM407 (CWC407)	TCM10 (CWC10)	CTCK110 (DCX3110)	CTCK120 (HCF3120)	CTCP115 (HCX1115)	CTCP125 (HCX1125)	CTCP135 (HCR1135)	CTPM125 (HCN2125)	CTPX710 (CTPX710)	CTP2120 (CCN2120)	CTC2135 (CWN2135)
Index	v_c in m/min											
1.1	**300–370**	**290–340**	**230–270**	**270–340**	**230 –280**	**260–350**	**200–270**	**180–220**	120–260	**120–170**		170–220
1.2	**400–520**	**340–430**	**280–350**	**270–350**	**230 –310**	**280–360**	**230–280**	**190–240**	130–220	**140–200**		190–230
1.3	**350–400**	**300–370**	**280–350**	**250–340**	**210–280**	**220–350**	**240–290**	**170–210**	130–250	**110–160**		160–200
1.4	**300–370**	**240–310**	**170–330**	**250–330**	**210–270**	**240–320**	**200–270**	**180–220**	130–220	**90–150**		170–230
1.5	**400–440**	**230–280**	**180–340**	**240–320**	**200–260**	**230–300**	**220–260**	**160–210**	100–180	**90–150**		150–200
1.6	**350–410**	**230–270**	**170–320**	**230–310**	**190–270**	**210–270**	**210–250**	**170–230**	100–180	**100–130**		160–220
1.7	**250–300**	**250–310**	**180–280**	**200–280**	**160–230**	**240–320**	**210–280**	**170–210**	60–180	**80–140**		150–200
1.8	**300–360**	**230–290**	**160–250**	**210–270**	**170–220**	**200–280**	**190–240**	**150–190**	60–180	**80–130**		140–180
1.9	**200–320**			**230–310**	**190–260**	**200–300**	**170–240**	**170–200**	80–180	**80–120**		170–200
1.10	**250–320**	**250–310**	**180–270**	**230–290**	**190 –240**	**220–280**	**180–240**	**150–200**	100–180	**80–120**		140–170
1.11	**240–310**	**230–290**	**170–250**	**220–290**	**180–240**	**200–270**	**170–240**	**140–180**	100–180	**80–140**		140–180
1.12	**240–310**	**270–320**	**190–270**	**250–310**	**210–260**	**210–300**	**200–270**	**160–200**	80–180	**130–220**		160–200
1.13				**210–270**	**170–220**	**180–270**	**170–240**	**140–190**	60–180	**80–120**		130–180
1.14				**220–280**	**180–230**	**180–250**	**180–230**	**130–180**	80–180	**70–130**		130–180
1.15	**260–310**	**210–250**	**170–250**	**200–290**	**170–240**	**160–250**	**150–230**	**120–160**	80–150	**70–130**		120–160
1.16	**260–310**	**210–250**	**170–250**	**200–280**	**170–230**	**150–240**	**140–220**	**120–170**	80–150	**70–100**		110–160
2.1	250–320			190–310		200–280	200–280	160–210	**200–280**	**90–260**	**190–260**	**160–240**
2.2	250–320			190–320		200–280	200–280	160–210	**200–280**	**80–240**	**200–250**	**180–250**
2.3	300–350			180–300		190–260	190–260	130–200	**190–260**	**70–240**	**190–240**	**150–240**
2.4	210–250			200–300		190 -240	190–240	120–200	**190–240**	**40–220**	**140–210**	**160–230**
2.5								100–150	**100–220**	**60–230**	**110–190**	**150–230**
2.6	210–250							60–80	**100–220**	**40–170**	**80–160**	**120–170**
2.7	210–250							60–80	**40–100**	**40–160**	**80–140**	**120–160**
3.1	340–480			**260–310**	**220–260**	220–280	200–260			140–240	140–180	
3.2	260–360			**260–330**	**230–280**	200–270	190–250			100–190	110–170	
3.3	360–520	280–430	220–300	**330–450**	**320–410**	180–250	170–240			130–260	130–180	
3.4	300–400	250–380	180–250	**350–460**	**340–420**	180–260	140–190			100–250	160–240	
3.5	330–500	250–400	250–350	**380–460**	**360– 420**	260–320	240–290			160–240	160–230	
3.6	180–320	180–320	160–250	**270–370**	**250–330**	200– 320	170–290			130–200	130–190	
3.7	330–500	250–400	250–350	**350–430**	**320– 390**	240–320	240–290			150–240	150–220	
3.8	180–320	180–320	160–250	**260–350**	**240–310**	210–320	170–290			140–210	140–180	
4.1										300–3200	100–600	
4.2										200–2800	100–600	
4.3										400–2000	100–400	
4.4										40–2000	100–400	
4.5										200–1200	100–400	
4.6										250–1000	100–400	
4.7										200–1000	100–400	
4.8										200–1000	100–400	
4.9										200–1000	100–400	
4.10										200–1000	100–400	
4.11										150–800		
4.12										150–500		
4.13										100–250		
4.14										80–200		
4.15										80–220		
4.16												
4.17												
4.18										80–120		
4.19										100–140		
5.1								20–40		**30–140**	**15–30**	**20–40**
5.2								20–40		**30–110**	**15–40**	**20–40**
5.3								8–25		**30–110**	**20–35**	**15–35**
5.4								8–25		**30–110**	**13–30**	**15–35**
5.5								4–15		**30–110**	**15–35**	**8–25**
5.6								4–15		**30–110**	**15–35**	**4–15**
5.7								4–15		**30–110**	**60–100**	**4–15**
5.8								4–12		**30–110**	**20–40**	**4–15**
5.9								80–130		**30–140**	**80–140**	**80–130**
5.10								15–35		30–140	**25–45**	**15–35**
5.11								15–35		30–120	**25–45**	**15–35**
6.1												
6.2												
6.3												
6.4												
6.5												

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

9

Cutting data values for medium machining (M)

Chip breaker:	-M30	-M36	-M50	-M60	-M34	-M40	-42	-M42	-M52	-M70 // -M55	-SM	-SMQ	-M81
Chip breaker:	(-NM23)	(-XU)	(-NM15)	(-NM26)	(-M34)	(-M40)	(-42)	(-M42)	(-M52)	(-NM19) // (-PF26)	(-ZM)	(-SMQ)	(-M81)
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN					DRAGONSKIN	DRAGONSKIN	
	CTCK110 (DCX3110)	CTCK120 (HCF3120)	CTCP115 (HCX1115)	CTCP125 (HCX1125)	CTCP135 (HCR1135)	CTPM125 (HCN2125)	CTP2120 (CCN2120)	CTC2135 (CWN2135)	CWN2120 (CWN2120)		CTP5110 (HCN5110)	CTP5115 (HCN5115)	
Index	v_c in m/min												
1.1	**260–330**	**220–270**	**250–340**	**200–260**	**170–210**	120-250		170-210					
1.2	**260–340**	**220–300**	**270–350**	**230–280**	**180–230**	120-220		180-230					
1.3	**230–320**	**190–260**	**220–350**	**240–290**	**160–200**	120-250		150-220					
1.4	**240–310**	**200–250**	**240–310**	**200–250**	**170–210**	130-200		170-210					
1.5	**230–310**	**190–250**	**230–300**	**210–250**	**150–200**	100-170		150-200					
1.6	**220–300**	**180–260**	**210–270**	**190–240**	**160–220**	100-170		150-210					
1.7	**190–270**	**150–210**	**240–300**	**200–270**	**160–200**	50- 160		150-200					
1.8	**190–250**	**150–200**	**190–270**	**180–230**	**140–180**	50- 160		130-170					
1.9	**210–290**	**170–240**	**190–280**	**160–220**	**160–190**	60- 160		160-190					
1.10	**210–270**	**170–220**	**200–260**	**180–230**	**140–190**	100-180		130-170					
1.11	**210–280**	**170–230**	**180–260**	**170–240**	**130–170**	80-180		130-170					
1.12	**230–290**	**190–240**	**200–280**	**190–260**	**150–200**	70-170		150-190					
1.13	**190–260**	**150–210**	**180–250**	**170–230**	**130–180**	60-170		120-180					
1.14	**210–270**	**170–220**	**170–230**	**170–210**	**120–160**	70-160		120-170					
1.15	**180–270**	**150–220**	**150–240**	**130–220**	**110–150**	60-120		100-150					
1.16	**180–260**	**150–210**	**130–220**	**130–220**	**110–150**	60-120		100-150					
2.1	150-270		200-280	200-280	150-210	**120–280**	**180–240**	**150–230**	**130–200**		180-260	180-260	
2.2	150-260		200-280	200-280	150-200	**120–280**	**180–230**	**170–250**	**120–220**		170-240	170-240	
2.3	140-250		190-260	190-260	120-200	**120–260**	**170–220**	**140–220**	**100–160**		170-220	170-220	
2.4	160-260		190 -240	190-240	110-190	**120–240**	**130–210**	**140–210**	**80–180**		130-220	130-220	
2.5					90-150	**100–220**	**100–180**	**120–210**	**90–140**		100-170	100-170	
2.6					60-80	**100–220**	**70–140**	**100–140**	**80–150**		80-150	80-150	
2.7					60-80	**40–100**	**70–110**	**100–140**	**80–120**		80-150	80-150	
3.1	**220–280**	**170–240**	140-240	120-210			120-170						
3.2	**210–270**	**170–230**	160-250	160-200			100-150						
3.3	**300–350**	**260–310**	150-220	150-200			120-170						
3.4	**270–330**	**230–320**	140-200	130-190			150-240						
3.5	**290–370**	**250–330**	200-260	160-230			150-220						
3.6	**250–310**	**210–270**	180-240	150-210			110-170						
3.7	**290–370**	**250–330**	180-280	160-230			140-220						
3.8	**250–370**	**210–330**	160-260	150-210			120-170						
4.1							100-600		400-2000				
4.2							100-600		400-2000				
4.3							100-400		400-2000				
4.4							100-400		200-1200				
4.5							100-400		200-1000				
4.6							100-400		250-1000				
4.7							100-400		250-1000				
4.8							100-400		250-1000				
4.9							100-400		250-1000				
4.10							100-400		250-1000				
4.11									150-800				
4.12									150-800				
4.13													
4.14													
4.15													
4.16													
4.17													
4.18													
4.19													
5.1					20-40		**15–30**	**20–40**			**30–120**		
5.2					20-40		**15–40**	**20–40**				**30–90**	
5.3					8-25		**20–35**	**15–35**				**30–90**	
5.4					8-25		**13–30**	**15–35**				**30–90**	
5.5					4-15		**15–35**	**8–25**				**30–90**	
5.6					4-15		**15–35**	**4–15**				**30–90**	
5.7					4-15		**60–100**	**4–15**				**30–90**	
5.8					4-12		**20–40**	**4–15**			**30–120**		
5.9					80-130	80-130	**80–140**	**80–130**			**30–120**		
5.10					15-35	25-45	**25–45**	**15–35**			**30–120**		
5.11					15-35		**25–45**	**15–35**			**30–120**		
6.1													
6.2													
6.3													
6.4													
6.5													

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

Cutting data values for rough machining (R)

Chip breaker: .NMA -R28 -R58 -R88
Chip breaker: (.NMA) (-NR14) (-NR17) (-NR19)

	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	CTCK110 (DCX3110)	CTCK120 (HCF3120)	CTCP115 (HCX1115)	CTCP125 (HCX1125)	CTCP135 (HCR1135)
Index	v_c in m/min				
1.1			**220–320**	**180–240**	**160–200**
1.2			**270–350**	**230–280**	**170–220**
1.3			**220–350**	**240–290**	**150–190**
1.4			**240–310**	**180–250**	**160–200**
1.5			**230–300**	**200–240**	**140–190**
1.6			**210–270**	**190–240**	**150–210**
1.7			**240–300**	**180–260**	**150–190**
1.8			**190–270**	**150–210**	**130–170**
1.9			**190–280**	**140–200**	**150–180**
1.10			**200–260**	**170–220**	**130–180**
1.11			**180–260**	**160–220**	**120–160**
1.12			**200–280**	**170–240**	**140–190**
1.13			**180–250**	**160–230**	**120–170**
1.14			**170–230**	**150–190**	**110–150**
1.15			**150–240**	**150–210**	**100–140**
1.16			**130–220**	**150–190**	**100–140**
2.1			200–280	200–280	140–200
2.2			200–280	200–280	140–190
2.3			190–260	190–260	110–190
2.4			190 –240	190–240	100–180
2.5					80–150
2.6					55–75
2.7					55–75
3.1	**220–280**	**170–240**	140–220	130–180	
3.2	**210–270**	**170–230**	160–230	120–170	
3.3	**300–350**	**260–310**	150–200	130–180	
3.4	**270–330**	**230–320**	140–180	100–160	
3.5	**290–370**	**250–330**	200–240	150–200	
3.6	**250–310**	**210–270**	180–220	130–180	
3.7	**290–370**	**250–330**	180–260	150–200	
3.8	**250–370**	**210–330**	160–240	130–180	
4.1					
4.2					
4.3					
4.4					
4.5					
4.6					
4.7					
4.8					
4.9					
4.10					
4.11					
4.12					
4.13					
4.14					
4.15					
4.16					
4.17					
4.18					
4.19					
5.1					20–40
5.2					20–40
5.3					8–25
5.4					8–25
5.5					4–15
5.6					4–15
5.7					4–15
5.8					4–12
5.9					80–130
5.10					15–35
5.11					15–35
6.1					
6.2					
6.3					
6.4					
6.5					

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

Cutting data values for aluminum-chip breakers

Chip breaker:	-23P	-25P	-25Q	-27	-29
Chip breaker:	(-23P)	(-25P)	(-25Q)	(-AL)	(-29)

	H10T (CWK15)	H210T (CWK20)	H216T (CWK26)	AMZ (AMZ)	CWN15 (CWN15)
Index	v_c in m/min				
1.1				90–140	
1.2				110–160	
1.3				90–130	
1.4				80–120	
1.5				80–120	
1.6				90–110	
1.7				90–110	
1.8				70–90	
1.9				90–110	
1.10				70–90	
1.11				70–90	
1.12				70–110	
1.13				150–200	
1.14					
1.15				70–110	
1.16				70–110	
2.1				100–150	80–140
2.2					80–140
2.3					70–120
2.4					40–60
2.5					60–100
2.6				90–140	40–60
2.7					40–60
3.1	120–160	140–200	120–160	180–220	
3.2	90–140	100–160	90–140	140–180	
3.3	130–170	160–200	130–170	160–220	
3.4	90–130	110–150	90–130	120–180	
3.5	140–200	160–220	140–200	180–240	
3.6	120–160	140–180	120–160	160–200	
3.7	140–200	160–220	140–200	180–240	
3.8	120–160	140–180	120–160	160–200	
4.1	**300–2500**	**300–3200**	**300–2500**	**300–3200**	**300–3200**
4.2	**200–2500**	**400–1500**	**200–2000**	**200–2800**	**200–2800**
4.3	**400–2000**	**300–1000**	**400–1500**	**400–2000**	**400–2000**
4.4	**400–1800**	**200–500**	**400–1500**	**40–2000**	**40–2000**
4.5	**200–1000**	**200–500**	**200–800**	**200–1200**	**200–1200**
4.6	**150–300**	**150–400**	**150–300**	**250–1000**	**250–1000**
4.7	**250–600**	**250–800**	**150–400**	**200–1000**	**200–1000**
4.8	**150–400**	**250–800**	**150–400**	**200–1000**	**200–1000**
4.9	**150–400**	**250–800**	**150–400**	**200–1000**	**200–1000**
4.10	**150–400**	**250–800**	**150–400**	**200–1000**	**200–1000**
4.11	**150–300**	**200–800**	**200–600**	**150–800**	**150–800**
4.12	**130–350**	**150–400**	**150–400**	**150–500**	**150–500**
4.13	**100–200**	**80–320**	**100–200**	**100–250**	**100–250**
4.14	**80–180**	**80–320**	**80–180**	**80–200**	**80–200**
4.15	**60–150**	**80–200**	**60–150**	**80–220**	**80–220**
4.16					
4.17					
4.18	**60–140**				
4.19		**100–140**	**100–140**		
5.1		25–40	30–45		
5.2		25–40	20–35		
5.3		25–40	20–35		
5.4		20–30	15–25		
5.5		25–40	15–25		
5.6		20–30	15–25		
5.7		20–30	15–25		
5.8		15–25	15–25		
5.9	60–120	80–140	60–120		
5.10	30–80	40–100	30–80		
5.11	30–80	40–100	30–80		
6.1					
6.2					
6.3					
6.4					
6.5					

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

Cutting data for machining non ferrous metals with carbide inserts

	Material group	Material examples			Machinability of aluminium alloys *	Comments	Cutting speed v_c in m/min
N	Pure aluminium	non hardenable	Al 99,5	W7	5	▲ Snarl chips ▲ Possibly bad surface ▲ Excessive built-up edge ▲ Long tool life ▲ Use coolant emulsion	300–3200
			Al 99,5	F13	4		
			Al 99	W8	5		
			Al 99	F14	4		
	Aluminium wrought alloys	non hardenable	Al Mn	W10	5	▲ Snarl, continuous or fragmented chip ▲ Large feed rates necessary for good swarf control ▲ Built-up edge ▲ Long tool life ▲ Emulsion coolant is advantageous	300–2500
			Al Mn	F16	4		
			Al Mg 1	W10	5		
			Al Mg 1	F19	4		
			Al Mg 3	W18	4		
			Al Mg 3	F25	3		
			Al Mg 5	W25	4		
			AL Mg 5	F28	2		
			Al Mg 4,5 Mn	W27	4		
			Al Mg 4,5 Mn	G35	3		
		hardenable	Al Mg Si 0,5	W	4	▲ Good swarf control with higher feed rates	200–2000
			Al Mg Si 0,5	F13-25	3		
			Al Mg Si 1	W	4		
			Al Mg Si 1	F21-30	3		
			Al Mg Si Pb	F20-28	2	▲ Very good swarf control ▲ No built up edge ▲ Very good surface quality	
			Al Cu Si Pb	F28-37	1		
			Al Cu Mg Pb	F34-37	1		
			Al Cu Mg 1	W	3	▲ Good swarf control ▲ Good surface quality ▲ Little built-up edge	
			Al Cu Mg 1	F33-40	2		
			Al Cu Mg 2	W	3		
			Al Cu Mg 2	F40-47	2		
			Al Cu Si Mn	W	3		
			Al Cu Si Mn	F43-46	2		
			Al Zn Mg Cu 1,5	F50-52	2		
			Al Sn 6 Cu		1		
	Cast Aluminium Alloys	non hardenable	G-Al Si 12		3	▲ Good swarf control ▲ Built-up edge ▲ Higher Si content results in lower tool life	Si content < 12 % 400–1500
			G-Al Si 10 Mg		3		
			G-Al Si 5 Mg		2		Si content ~ 12.5 % 300–1000
			G-Al Si 7 Mg (9 Mg)		2		
			G-Al Si Cu 3		2	▲ High wear of the carbide	Si content > 13 % 200–500
			G-Al Si 6 Cu 4		2		
			G-Al Mg 3 (Mg 5)		2	▲ Good swarf control ▲ Good surface quality ▲ Long tool life	200–1500
			G-Al Mg 9		2		
			G-Al Mg 10		2		
			G-Al Mg 3 Si (5 Si)		2		
			G-Al Cu 4 Ti (Mg)		2		
			G-Al Si 12 Cu Mg Ni		2		
	Copper wrought alloys		Cu Ag				300–1200
			Cu As				
			Cu Cd				
			Cu Cd Sn				
			Cu Mg				
			Cu Mn				
		brass	Cu Zn Al				300–1000
		bronze	Cu Sn				300–800
			Cu Sn Zn				
			Cu Ni				
			Cu Ni Fe				
			Cu Al				
	Non metal materials	Duroplastics					80–320
		Fibre-reinforced plastics					
		hard rubber					

* 1 = good machinability, 5 = bad machinability

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

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Cutting data standard values for negative inserts

	Designation	-NF12 (Cermet)						-F50 (-NF15)					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304							0,06	**0,15**	0,25	0,2	**0,5**	1,5
	CN.. 090308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	CN.. 120404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	CN.. 120408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	CN.. 120412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	CN.. 120416												
	CN.. 160608												
	CN.. 160612												
	CN.. 160616												
	CN.. 160624												
	CN.. 190608												
	CN.. 190612												
	CN.. 190616												
	CN.. 190624												
	CN.. 250924												
	DN.. 110402							0,04	**0,10**	0,20	0,1	**0,4**	2,3
	DN.. 110404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 110408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 110412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 150408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 150412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150416												
	DN.. 150604	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 150608	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 150612	0,10	**0,20**	0,30	0,5	**0,7**	1,5	0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150616												
	SN.. 090308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	SN.. 120404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	SN.. 120408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	SN.. 120412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	SN.. 120416												
	SN.. 150608												
	SN.. 150612												
	SN.. 150616												
	SN.. 190612												
	SN.. 190616												
	SN.. 190624												
	SN.. 250724												
	SN.. 250924												
	TN.. 110304							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	TN.. 110308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	TN.. 160404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	TN.. 160408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	TN.. 160412	0,10	**0,20**	0,30	0,5	**0,7**	1,5	0,14	**0,25**	0,35	0,6	**1,4**	2,6
	TN.. 220404												
	TN.. 220408												
	TN.. 220412												
	TN.. 220416												
	VN.. 160404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	VN.. 160408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	VN.. 160412												
	WN.. 060404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	WN.. 060408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	WN.. 060412												
	WN.. 080404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	WN.. 080408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	WN.. 080412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	WN.. 080416												

sharp ◄——————————————————————————► stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-TFQ (-TFQ)						-XU (-XU)						-M50 (-NM15)					
	f			a_p			f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404	0,10	**0,15**	0,35	0,4	**1,0**	3,0	0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**2,0**	5,0
CN.. 120408	0,10	**0,25**	0,50	0,5	**1,5**	4,0	0,13	**0,25**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**2,0**	5,0
CN.. 120412	0,15	**0,30**	0,70	0,8	**2,0**	5,0	0,15	**0,30**	0,45	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**2,0**	5,0
CN.. 120416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
CN.. 160608													0,15	**0,25**	0,40	0,6	**3,0**	8,0
CN.. 160612													0,20	**0,30**	0,50	1,0	**3,0**	8,0
CN.. 160616													0,25	**0,40**	0,60	1,4	**3,0**	8,0
CN.. 160624																		
CN.. 190608																		
CN.. 190612																		
CN.. 190616																		
CN.. 190624																		
CN.. 250924																		
DN.. 110402																		
DN.. 110404													0,10	**0,20**	0,30	0,4	**1,5**	4,0
DN.. 110408													0,15	**0,25**	0,40	0,6	**1,5**	4,0
DN.. 110412													0,20	**0,30**	0,50	1,0	**1,5**	4,0
DN.. 150404													0,10	**0,20**	0,30	0,4	**2,0**	5,0
DN.. 150408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
DN.. 150412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
DN.. 150416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
DN.. 150604	0,10	**0,15**	0,30	0,4	**1,0**	3,0	0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**2,0**	5,0
DN.. 150608	0,10	**0,25**	0,40	0,5	**1,5**	4,0	0,13	**0,25**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**2,0**	5,0
DN.. 150612							0,15	**0,25**	0,40	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**2,0**	5,0
DN.. 150616													0,25	**0,40**	0,60	1,4	**2,0**	5,0
SN.. 090308																		
SN.. 120404																		
SN.. 120408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
SN.. 120412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
SN.. 120416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
SN.. 150608													0,15	**0,25**	0,40	0,6	**3,0**	8,0
SN.. 150612													0,20	**0,30**	0,50	1,0	**3,0**	8,0
SN.. 150616													0,25	**0,40**	0,60	1,4	**3,0**	8,0
SN.. 190612																		
SN.. 190616																		
SN.. 190624																		
SN.. 250724																		
SN.. 250924																		
TN.. 110304																		
TN.. 110308																		
TN.. 160404													0,10	**0,20**	0,30	0,4	**2,0**	5,0
TN.. 160408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
TN.. 160412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
TN.. 220404																		
TN.. 220408													0,15	**0,25**	0,40	0,6	**3,0**	8,0
TN.. 220412													0,20	**0,30**	0,50	1,0	**3,0**	8,0
TN.. 220416																		
VN.. 160404							0,08	**0,15**	0,20	0,3	**1,0**	1,8	0,10	**0,20**	0,30	0,4	**1,0**	4,0
VN.. 160408							0,13	**0,20**	0,30	0,6	**1,5**	2,5	0,15	**0,25**	0,40	0,6	**1,0**	4,0
VN.. 160412													0,20	**0,30**	0,50	1,0	**1,0**	4,0
WN.. 060404	0,10	**0,18**	0,35	0,4	**0,8**	3,0							0,10	**0,20**	0,30	0,4	**1,0**	3,0
WN.. 060408	0,10	**0,20**	0,50	0,5	**1,5**	3,0							0,15	**0,25**	0,40	0,6	**1,0**	3,0
WN.. 060412													0,20	**0,30**	0,50	1,0	**1,0**	3,0
WN.. 080404							0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**1,5**	4,0
WN.. 080408	0,10	**0,25**	0,50	0,5	**1,5**	4,0	0,13	**0,22**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**1,5**	4,0
WN.. 080412	0,15	**0,30**	0,70	0,8	**2,0**	5,0	0,15	**0,25**	0,45	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**1,5**	4,0
WN.. 080416													0,25	**0,40**	0,60	1,4	**1,5**	4,0

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 168–175**

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Cutting data standard values for negative inserts

	Designation	-TMQ (-TMQ)						-M70 (-NM19)					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304												
	CN.. 090308												
	CN.. 120404												
	CN.. 120408	0,20	**0,40**	0,65	0,8	**3,0**	5,0	0,20	**0,30**	0,45	0,8	**3,0**	6,0
	CN.. 120412	0,25	**0,50**	0,85	1,0	**3,0**	6,0	0,25	**0,40**	0,60	1,2	**3,0**	6,0
	CN.. 120416							0,30	**0,45**	0,70	1,6	**3,0**	6,0
	CN.. 160608							0,20	**0,30**	0,45	0,8	**4,0**	8,0
	CN.. 160612							0,25	**0,40**	0,60	1,2	**4,0**	8,0
	CN.. 160616							0,30	**0,45**	0,70	1,6	**4,0**	8,0
	CN.. 160624							0,40	**0,70**	1,20	2,4	**4,0**	8,0
	CN.. 190608							0,20	**0,30**	0,45	0,8	**4,5**	9,0
	CN.. 190612							0,25	**0,40**	0,60	1,2	**4,5**	9,0
	CN.. 190616							0,30	**0,45**	0,70	1,6	**4,5**	9,0
	CN.. 190624							0,40	**0,70**	1,20	2,4	**4,5**	9,0
	CN.. 250924							0,40	**0,70**	1,20	2,4	**6,0**	13,0
	DN.. 110402												
	DN.. 110404												
	DN.. 110408							0,20	**0,25**	0,45	0,8	**2,0**	5,0
	DN.. 110412							0,25	**0,35**	0,60	1,2	**2,0**	5,0
	DN.. 150404												
	DN.. 150408							0,20	**0,25**	0,45	0,8	**2,5**	6,0
	DN.. 150412							0,25	**0,35**	0,60	1,2	**2,5**	6,0
	DN.. 150416							0,30	**0,40**	0,70	1,6	**2,5**	6,0
	DN.. 150604												
	DN.. 150608	0,15	**0,30**	0,50	0,8	**2,5**	5,0	0,20	**0,25**	0,45	0,8	**2,5**	6,0
	DN.. 150612	0,20	**0,40**	0,60	1,0	**3,0**	5,0	0,25	**0,35**	0,60	1,2	**2,5**	6,0
	DN.. 150616							0,30	**0,40**	0,70	1,6	**2,5**	6,0
	SN.. 090308												
	SN.. 120404												
	SN.. 120408							0,20	**0,30**	0,50	0,8	**3,0**	6,0
	SN.. 120412							0,25	**0,40**	0,65	1,2	**3,0**	6,0
	SN.. 120416							0,30	**0,45**	0,70	1,6	**3,0**	6,0
	SN.. 150608												
	SN.. 150612							0,25	**0,40**	0,65	1,2	**4,0**	8,0
	SN.. 150616							0,30	**0,45**	0,75	1,6	**4,0**	8,0
	SN.. 190612							0,25	**0,40**	0,65	1,2	**4,5**	9,0
	SN.. 190616							0,30	**0,45**	0,75	1,6	**4,5**	9,0
	SN.. 190624							0,40	**0,70**	1,20	2,4	**4,5**	9,0
	SN.. 250724												
	SN.. 250924							0,40	**0,70**	1,20	2,4	**6,0**	13,0
	TN.. 110304												
	TN.. 110308												
	TN.. 160404												
	TN.. 160408							0,20	**0,25**	0,45	0,8	**2,5**	6,0
	TN.. 160412							0,25	**0,35**	0,60	1,2	**2,5**	6,0
	TN.. 220404							0,15	**0,20**	0,30	0,4	**3,0**	7,0
	TN.. 220408							0,20	**0,25**	0,45	0,8	**3,0**	7,0
	TN.. 220412							0,25	**0,35**	0,60	1,2	**3,0**	7,0
	TN.. 220416							0,30	**0,40**	0,70	1,6	**3,0**	7,0
	VN.. 160404												
	VN.. 160408												
	VN.. 160412												
	WN.. 060404												
	WN.. 060408							0,20	**0,30**	0,45	0,8	**2,0**	4,0
	WN.. 060412							0,25	**0,40**	0,60	1,2	**2,0**	4,0
	WN.. 080404												
	WN.. 080408	0,20	**0,30**	0,65	0,8	**3,0**	5,0	0,20	**0,30**	0,45	0,8	**2,5**	5,0
	WN.. 080412	0,25	**0,40**	0,85	1,0	**3,0**	6,0	0,25	**0,40**	0,60	1,2	**2,5**	5,0
	WN.. 080416							0,30	**0,45**	0,70	1,6	**2,5**	5,0

sharp ◄——————————————————————► stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-R28 (-NR14)						-R58 (-NR17)						-R88 (-NR19)					
	f			a_p			f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404																		
CN.. 120408	0,25	**0,35**	0,55	0,8	**3,0**	7,0	0,25	**0,45**	0,70	1,0	**3,0**	7,0						
CN.. 120412	0,30	**0,45**	0,70	1,0	**3,0**	7,0	0,30	**0,55**	0,85	1,5	**3,0**	7,0						
CN.. 120416	0,30	**0,60**	0,90	1,5	**3,0**	7,0	0,35	**0,65**	1,00	2,0	**3,0**	7,0						
CN.. 160608																		
CN.. 160612	0,30	**0,45**	0,70	1,0	**4,0**	9,0	0,30	**0,55**	0,85	1,5	**4,0**	9,0						
CN.. 160616	0,35	**0,60**	0,90	1,5	**4,0**	9,0	0,35	**0,65**	1,00	2,0	**4,0**	9,0						
CN.. 160624							0,40	**0,75**	1,20	2,5	**4,0**	9,0	0,40	**0,70**	1,20	2,0	**5,0**	9,0
CN.. 190608																		
CN.. 190612	0,30	**0,45**	0,70	1,0	**5,5**	12,0	0,35	**0,55**	0,85	1,5	**5,5**	12,0						
CN.. 190616	0,35	**0,60**	0,90	1,5	**5,5**	12,0	0,40	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,70**	1,00	2,0	**5,0**	12,0
CN.. 190624	0,35	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,75**	1,20	2,5	**5,5**	12,0	0,40	**0,70**	1,20	2,0	**5,0**	12,0
CN.. 250924							0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
DN.. 110402																		
DN.. 110404																		
DN.. 110408																		
DN.. 110412																		
DN.. 150404																		
DN.. 150408																		
DN.. 150412																		
DN.. 150416																		
DN.. 150604																		
DN.. 150608																		
DN.. 150612	0,25	**0,45**	0,70	1,0	**2,5**	6,0	0,30	**0,50**	0,80	1,5	**2,5**	6,0						
DN.. 150616	0,30	**0,60**	0,85	1,5	**2,5**	6,0	0,35	**0,60**	0,90	2,0	**2,5**	6,0						
SN.. 090308																		
SN.. 120404																		
SN.. 120408							0,25	**0,45**	0,70	1,0	**3,0**	7,0						
SN.. 120412							0,30	**0,55**	0,85	1,5	**3,0**	7,0						
SN.. 120416																		
SN.. 150608																		
SN.. 150612	0,30	**0,35**	0,70	1,0	**4,0**	9,0	0,30	**0,55**	0,85	1,5	**4,0**	9,0						
SN.. 150616	0,35	**0,60**	0,90	1,5	**4,0**	9,0	0,35	**0,65**	1,00	2,0	**4,0**	9,0						
SN.. 190612							0,35	**0,55**	0,85	1,5	**5,5**	12,0						
SN.. 190616	0,35	**0,60**	0,90	1,5	**5,5**	12,0	0,40	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,70**	1,00	2,0	**5,0**	12,0
SN.. 190624							0,40	**0,75**	1,20	2,0	**5,5**	12,0	0,40	**0,70**	1,20	2,0	**5,0**	12,0
SN.. 250724	0,35	**0,65**	1,00	2,0	**7,0**	16,0	0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
SN.. 250924	0,35	**0,65**	1,00	2,0	**7,0**	16,0	0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
TN.. 110304																		
TN.. 110308																		
TN.. 160404																		
TN.. 160408																		
TN.. 160412																		
TN.. 220404																		
TN.. 220408																		
TN.. 220412							0,30	**0,50**	0,80	1,5	**3,0**	7,0						
TN.. 220416	0,30	**0,55**	0,85	1,5	**3,0**	7,0												
VN.. 160404																		
VN.. 160408																		
VN.. 160412																		
WN.. 060404																		
WN.. 060408																		
WN.. 060412																		
WN.. 080404																		
WN.. 080408																		
WN.. 080412																		
WN.. 080416																		

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 168–175**

Cutting data standard values for negative inserts

	Designation	-F30 (-NF23)						-M30 (-NM23)					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304												
	CN.. 090308												
	CN.. 120404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	CN.. 120408	0,10	**0,22**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	CN.. 120412							0,20	**0,30**	0,50	1,2	**2,5**	5,0
	CN.. 120416							0,25	**0,35**	0,55	1,6	**2,5**	5,0
	CN.. 160608												
	CN.. 160612												
	CN.. 160616												
	CN.. 160624												
	CN.. 190608												
	CN.. 190612												
	CN.. 190616												
	CN.. 190624												
	CN.. 250924												
	DN.. 110402												
	DN.. 110404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	DN.. 110408	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	DN.. 110412							0,20	**0,30**	0,50	1,2	**2,0**	4,5
	DN.. 150404												
	DN.. 150408												
	DN.. 150412												
	DN.. 150416												
	DN.. 150604	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	DN.. 150608	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	5,5
	DN.. 150612							0,20	**0,30**	0,50	1,2	**2,0**	5,5
	DN.. 150616												
	SN.. 090308												
	SN.. 120404	0,10	**0,15**	0,30	0,4	**1,0**	2,0						
	SN.. 120408	0,15	**0,20**	0,40	0,8	**1,5**	2,5	0,20	**0,25**	0,45	1,0	**2,0**	4,5
	SN.. 120412	0,15	**0,20**	0,40	1,2	**1,8**	2,5	0,25	**0,30**	0,50	1,2	**2,0**	5,0
	SN.. 120416												
	SN.. 150608												
	SN.. 150612												
	SN.. 150616												
	SN.. 190612												
	SN.. 190616												
	SN.. 190624												
	SN.. 250724												
	SN.. 250924												
	TN.. 110304												
	TN.. 110308												
	TN.. 160404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	TN.. 160408	0,10	**0,15**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	TN.. 160412							0,20	**0,30**	0,50	1,2	**2,0**	4,5
	TN.. 220404												
	TN.. 220408												
	TN.. 220412												
	TN.. 220416												
	VN.. 160404	0,08	**0,10**	0,20	0,4	**1,0**	2,0						
	VN.. 160408	0,10	**0,15**	0,30	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**1,5**	4,0
	VN.. 160412												
	WN.. 060404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	WN.. 060408	0,10	**0,20**	0,30	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**1,5**	3,5
	WN.. 060412							0,20	**0,30**	0,45	1,2	**1,5**	4,0
	WN.. 080404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	WN.. 080408	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	WN.. 080412							0,20	**0,30**	0,50	1,2	**2,0**	5,0
	WN.. 080416												

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M60 (-NM26)						-M34 (-M34)					
	f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm		
CN.. 090304												
CN.. 090308												
CN.. 120404							0,08	**0,12**	0,18	1,0	**1,5**	3,0
CN.. 120408	0,25	**0,30**	0,50	1,5	**2,5**	6,0	0,10	**0,15**	0,35	1,0	**1,8**	3,5
CN.. 120412	0,30	**0,35**	0,55	2,0	**3,0**	6,0	0,13	**0,20**	0,40	1,5	**2,0**	4,0
CN.. 120416	0,30	**0,40**	0,60	2,0	**3,0**	6,0	0,15	**0,25**	0,45	2,0	**3,0**	4,5
CN.. 160608												
CN.. 160612	0,30	**0,35**	0,55	2,0	**3,0**	8,0						
CN.. 160616												
CN.. 160624												
CN.. 190608												
CN.. 190612												
CN.. 190616												
CN.. 190624												
CN.. 250924												
DN.. 110402												
DN.. 110404												
DN.. 110408												
DN.. 110412												
DN.. 150404							0,08	**0,12**	0,18	0,8	**1,2**	2,5
DN.. 150408							0,10	**0,15**	0,30	1,0	**1,8**	3,5
DN.. 150412							0,13	**0,20**	0,38	1,5	**2,0**	4,0
DN.. 150416												
DN.. 150604												
DN.. 150608	0,25	**0,30**	0,45	1,5	**2,5**	6,0	0,10	**0,15**	0,30	1,0	**1,8**	3,5
DN.. 150612	0,30	**0,40**	0,55	1,5	**2,5**	6,0	0,13	**0,20**	0,38	1,5	**2,0**	4,0
DN.. 150616												
SN.. 090308												
SN.. 120404												
SN.. 120408	0,30	**0,35**	0,50	1,5	**2,0**	6,0	0,15	**0,25**	0,40	1,0	**2,0**	4,0
SN.. 120412	0,30	**0,40**	0,55	2,0	**2,5**	6,0	0,15	**0,25**	0,45	1,5	**2,5**	4,5
SN.. 120416	0,30	**0,40**	0,60	2,0	**2,5**	6,0						
SN.. 150608												
SN.. 150612												
SN.. 150616												
SN.. 190612												
SN.. 190616												
SN.. 190624												
SN.. 250724												
SN.. 250924												
TN.. 110304												
TN.. 110308												
TN.. 160404												
TN.. 160408	0,25	**0,25**	0,45	1,5	**2,5**	5,0	0,10	**0,15**	0,35	1,0	**2,0**	4,0
TN.. 160412	0,30	**0,30**	0,55	2,0	**2,5**	5,5						
TN.. 220404							0,10	**0,15**	0,35	1,0	**2,0**	4,0
TN.. 220408							0,13	**0,20**	0,40	1,5	**2,5**	4,0
TN.. 220412												
TN.. 220416							0,15	**0,25**	0,45	2,0	**2,5**	4,5
VN.. 160404							0,07	**0,10**	0,18	0,8	**1,2**	2,0
VN.. 160408							0,10	**0,15**	0,20	1,0	**1,5**	2,5
VN.. 160412							0,13	**0,18**	0,25	1,5	**1,8**	3,0
WN.. 060404												
WN.. 060408	0,25	**0,30**	0,45	1,5	**2,0**	4,0						
WN.. 060412	0,30	**0,35**	0,50	2,0	**2,5**	4,5						
WN.. 080404												
WN.. 080408	0,25	**0,30**	0,50	1,5	**2,0**	5,0	0,10	**0,15**	0,35	1,0	**2,0**	4,0
WN.. 080412	0,30	**0,35**	0,55	2,0	**2,5**	5,5	0,13	**0,20**	0,40	1,5	**2,0**	4,0
WN.. 080416												

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 168–175**

Cutting data values for positive inserts

	Designation	-CF05 (-PF14)						-SF (-ZF)					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CC.. 060200							0,02	**0,035**	0,05	0,1	**0,4**	1,5
	CC.. 060201							0,02	**0,035**	0,05	0,2	**0,4**	1,5
	CC.. 060202	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,03	**0,1**	0,15	0,2	**0,4**	1,5
	CC.. 060204	0,05	**0,10**	0,12	0,1	**0,3**	1,3	0,05	**0,1**	0,2	0,2	**0,6**	1,5
	CC.. 060208							0,05	**0,125**	0,2	0,2	**1**	1,5
	CC.. 09T300							0,02	**0,035**	0,05	0,2	**0,75**	2
	CC.. 09T301							0,02	**0,035**	0,05	0,2	**0,75**	2
	CC.. 09T302	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,05	**0,075**	0,1	0,2	**0,75**	2
	CC.. 09T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,75**	2
	CC.. 09T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,05	**0,125**	0,25	0,4	**1**	2
	CC.. 09T312												
	CC.. 120402							0,05	**0,075**	0,1	0,2	**0,8**	2,5
	CC.. 120404							0,05	**0,12**	0,2	0,2	**1**	2,5
	CC.. 120408							0,08	**0,15**	0,25	0,4	**1**	2,5
	CC.. 120412							0,08	**0,15**	0,25	0,4	**1,5**	2,5
	DC.. 0702005												
	DC.. 070201												
	DC.. 0702015												
	DC.. 070202	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,03	**0,1**	0,15	0,1	**0,4**	1,5
	DC.. 070204	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,6**	1,5
	DC.. 070208												
	DC.. 11T3005												
	DC.. 11T301												
	DC.. 11T3015												
	DC.. 11T302	0,03	**0,08**	0,12	0,1	**0,3**	1,3						
	DC.. 11T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	DC.. 11T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	DC.. 11T312												
	RC.. 0602M0												
	RC.. 0803M0												
	RC.. 1003M0												
	RC.. 1204M0												
	RC.. 1606M0												
	RC.. 2006M0												
	RC.. 2507M0												
	SC.. 09T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	SC.. 09T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	SC.. 120408							0,08	**0,15**	0,25	0,4	**1**	2,5
	SC.. 120412												
	TC.. 090204												
	TC.. 110202	0,03	**0,08**	0,12	0,1	**0,3**	1,3						
	TC.. 110204	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	TC.. 110208	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	TC.. 16T302												
	TC.. 16T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,8**	2,5
	TC.. 16T308							0,08	**0,15**	0,25	0,4	**1**	2,5
	TC.. 16T312												
	TC.. 220408												
	VC.. 1103005												
	VC.. 110301												
	VC.. 1103015												
	VC.. 110302	0,03	**0,06**	0,12	0,1	**0,3**	1,3	0,02	**0,08**	0,15	0,1	**0,4**	1,5
	VC.. 110304	0,05	**0,08**	0,22	0,2	**0,4**	1,3	0,05	**0,1**	0,2	0,2	**0,6**	1,5
	VC.. 110308							0,08	**0,12**	0,22	0,4	**1**	1,5
	VC.. 160402												
	VC.. 160404	0,05	**0,08**	0,22	0,2	**0,4**	1,3	0,05	**0,1**	0,2	0,2	**0,7**	2
	VC.. 160408	0,06	**0,10**	0,22	0,2	**0,4**	1,3	0,08	**0,12**	0,22	0,4	**1**	2
	VC.. 160412												
	VC.. 220530												
	WC.. 020102							0,02	**0,075**	0,1	0,1	**0,4**	1
	WC.. 020104							0,02	**0,1**	0,2	0,1	**0,6**	1,5

sharp ◄——————————————————————► stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-CF55 (-PF15)						-SMF (-SMF)						-SM (-ZM)					
	f			a_p			f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CC.. 060200																		
CC.. 060201																		
CC.. 060202													0,04	**0,12**	0,2	0,2	**0,6**	2,5
CC.. 060204	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,7**	2	0,08	**0,17**	0,3	0,4	**0,8**	2,5
CC.. 060208							0,1	**0,17**	0,27	0,6	**1**	2	0,12	**0,2**	0,35	0,8	**1**	2,5
CC.. 09T300																		
CC.. 09T301																		
CC.. 09T302																		
CC.. 09T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,08	**0,17**	0,3	0,4	**1**	3
CC.. 09T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
CC.. 09T312													0,15	**0,22**	0,4	1,2	**1,5**	3
CC.. 120402																		
CC.. 120404	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**1**	3	0,08	**0,17**	0,3	0,4	**1,2**	3,5
CC.. 120408							0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
CC.. 120412													0,15	**0,22**	0,4	1,2	**2**	3,5
DC.. 0702005																		
DC.. 070201																		
DC.. 0702015																		
DC.. 070202	0,03	**0,10**	0,12	0,1	**0,4**	1,3							0,04	**0,12**	0,2	0,2	**0,6**	2,5
DC.. 070204	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,7**	2	0,08	**0,17**	0,3	0,4	**0,8**	2,5
DC.. 070208							0,1	**0,17**	0,27	0,6	**1**	2	0,12	**0,2**	0,3	0,8	**1**	2,5
DC.. 11T3005																		
DC.. 11T301																		
DC.. 11T3015																		
DC.. 11T302																		
DC.. 11T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,8	**0,17**	0,3	0,4	**1**	3
DC.. 11T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1,2**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
DC.. 11T312													0,15	**0,22**	0,4	1,2	**1,7**	3
RC.. 0602M0													0,2	**0,3**	0,5	0,2	**0,5**	1,5
RC.. 0803M0													0,2	**0,3**	0,6	0,2	**0,6**	2
RC.. 1003M0													0,25	**0,4**	0,7	0,2	**0,7**	2,5
RC.. 1204M0													0,3	**0,5**	0,8	0,2	**0,8**	3
RC.. 1606M0							0,15	**0,3**	0,6	0,25	**2**	3,5	0,4	**0,6**	1	0,3	**1**	3,5
RC.. 2006M0													0,5	**0,8**	1,2	0,4	**1,2**	4
RC.. 2507M0													0,6	**0,9**	1,4	0,6	**2**	5
SC.. 09T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,08	**0,17**	0,3	0,4	**1**	3
SC.. 09T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
SC.. 120408							0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
SC.. 120412													0,15	**0,22**	0,4	1,2	**2**	3,5
TC.. 090204													0,08	**0,12**	0,2	0,4	**0,8**	2
TC.. 110202													0,08	**0,1**	0,2	0,4	**0,6**	3
TC.. 110204	0,05	**0,12**	0,22	0,2	**0,5**	1,3							0,12	**0,2**	0,35	0,8	**1,2**	3
TC.. 110208							0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
TC.. 16T302																		
TC.. 16T304							0,07	**0,15**	0,25	0,3	**1**	3	0,08	**0,17**	0,3	0,4	**1,2**	3,5
TC.. 16T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
TC.. 16T312													0,15	**0,22**	0,4	1,2	**1,7**	3,5
TC.. 220408													0,12	**0,2**	0,35	0,8	**2,5**	6
VC.. 1103005																		
VC.. 110301																		
VC.. 1103015																		
VC.. 110302							0,05	**0,1**	0,18	0,2	**0,5**	2						
VC.. 110304	0,05	**0,10**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,23	0,3	**0,7**	2						
VC.. 110308																		
VC.. 160402																		
VC.. 160404	0,05	**0,10**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,23	0,3	**0,8**	2,5	0,08	**0,17**	0,25	0,4	**1**	3
VC.. 160408	0,06	**0,12**	0,22	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,3	0,8	**1,2**	3
VC.. 160412													0,15	**0,22**	0,32	1,2	**1,5**	3
VC.. 220530																		
WC.. 020102																		
WC.. 020104																		

sharp ◄——————————————————————————————► stable

Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 168–175**

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Cutting data values for positive inserts

	Designation	-SMQ (-SMQ)						-M25 (-PF23)					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CC.. 060200												
	CC.. 060201												
	CC.. 060202												
	CC.. 060204							0,06	**0,13**	0,20	0,2	**1,1**	2,0
	CC.. 060208												
	CC.. 09T300												
	CC.. 09T301												
	CC.. 09T302												
	CC.. 09T304	0,10	**0,25**	0,4	0,4	**2**	4	0,06	**0,14**	0,22	0,2	**1,2**	2,2
	CC.. 09T308	0,15	**0,30**	0,5	0,8	**2**	4	0,10	**0,20**	0,30	0,4	**1,8**	3,2
	CC.. 09T312												
	CC.. 120402												
	CC.. 120404	0,10	**0,25**	0,4	0,4	**2**	4						
	CC.. 120408	0,15	**0,30**	0,5	0,8	**2**	4						
	CC.. 120412												
	DC.. 0702005												
	DC.. 070201												
	DC.. 0702015												
	DC.. 070202							0,04	**0,09**	0,13	0,1	**0,9**	1,6
	DC.. 070204	0,10	**0,18**	0,25	0,4	**1,5**	3	0,06	**0,12**	0,18	0,2	**1,1**	2,0
	DC.. 070208												
	DC.. 11T3005												
	DC.. 11T301												
	DC.. 11T3015												
	DC.. 11T302							0,04	**0,10**	0,16	0,1	**1,1**	2,0
	DC.. 11T304	0,10	**0,25**	0,4	0,4	**2**	4	0,06	**0,14**	0,22	0,2	**1,2**	2,2
	DC.. 11T308	0,15	**0,30**	0,5	0,8	**2**	4	0,10	**0,20**	0,30	0,4	**1,8**	3,2
	DC.. 11T312												
	RC.. 0602M0												
	RC.. 0803M0												
	RC.. 1003M0												
	RC.. 1204M0												
	RC.. 1606M0												
	RC.. 2006M0												
	RC.. 2507M0												
	SC.. 09T304												
	SC.. 09T308												
	SC.. 120408												
	SC.. 120412												
	TC.. 090204												
	TC.. 110202												
	TC.. 110204							0,06	**0,13**	0,20	0,2	**1,2**	2,2
	TC.. 110208												
	TC.. 16T302												
	TC.. 16T304							0,06	**0,14**	0,22	0,2	**1,6**	3,0
	TC.. 16T308							0,10	**0,20**	0,30	0,4	**1,9**	3,4
	TC.. 16T312												
	TC.. 220408												
	VC.. 1103005												
	VC.. 110301												
	VC.. 1103015												
	VC.. 110302												
	VC.. 110304												
	VC.. 110308												
	VC.. 160402												
	VC.. 160404							0,06	**0,13**	0,20	0,2	**1,2**	2,2
	VC.. 160408							0,10	**0,15**	0,25	0,4	**1,4**	3,0
	VC.. 160412												
	VC.. 220530												
	WC.. 020102												
	WC.. 020104												

sharp ◄——————————————————————————► stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M55 (-PF26)						-F05					
	f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm		
CC.. 060200												
CC.. 060201												
CC.. 060202												
CC.. 060204	0,06	**0,13**	0,20	0,4	**1,5**	2,6						
CC.. 060208												
CC.. 09T300												
CC.. 09T301												
CC.. 09T302												
CC.. 09T304	0,08	**0,16**	0,24	0,4	**1,7**	3,0						
CC.. 09T308	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
CC.. 09T312												
CC.. 120402												
CC.. 120404	0,08	**0,18**	0,28	0,4	**2,2**	4,0						
CC.. 120408	0,12	**0,26**	0,40	0,8	**2,8**	4,8						
CC.. 120412												
DC.. 0702005							0,02	**0,025**	0,04	0,1	**1**	2
DC.. 070201							0,02	**0,03**	0,05	0,1	**1**	2
DC.. 0702015							0,02	**0,04**	0,075	0,1	**1**	2
DC.. 070202							0,02	**0,05**	0,1	0,1	**1**	2
DC.. 070204	0,06	**0,14**	0,22	0,4	**1,3**	2,2						
DC.. 070208	0,08	**0,16**	0,24	0,8	**1,6**	2,4						
DC.. 11T3005							0,02	**0,025**	0,04	0,1	**1,25**	2,5
DC.. 11T301							0,02	**0,03**	0,05	0,1	**1,25**	2,5
DC.. 11T3015							0,02	**0,04**	0,075	0,1	**1,25**	2,5
DC.. 11T302							0,02	**0,075**	0,1	0,1	**1,25**	2,5
DC.. 11T304	0,08	**0,16**	0,24	0,4	**1,7**	3,0	0,02	**0,1**	0,25	0,1	**1,25**	2,5
DC.. 11T308	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
DC.. 11T312												
RC.. 0602M0												
RC.. 0803M0												
RC.. 1003M0												
RC.. 1204M0												
RC.. 1606M0												
RC.. 2006M0												
RC.. 2507M0												
SC.. 09T304	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
SC.. 09T308	0,12	**0,26**	0,40	0,8	**2,8**	4,8						
SC.. 120408												
SC.. 120412												
TC.. 090204	0,06	**0,12**	0,18	0,4	**1,3**	2,2						
TC.. 110202												
TC.. 110204	0,06	**0,14**	0,22	0,4	**1,4**	2,4						
TC.. 110208												
TC.. 16T302												
TC.. 16T304												
TC.. 16T308	0,12	**0,24**	0,35	0,8	**2,6**	4,4						
TC.. 16T312												
TC.. 220408												
VC.. 1103005							0,02	**0,025**	0,04	0,1	**1,25**	2,5
VC.. 110301							0,02	**0,03**	0,05	0,1	**1,25**	2,5
VC.. 1103015							0,02	**0,04**	0,075	0,1	**1,25**	2,5
VC.. 110302							0,02	**0,075**	0,1	0,1	**1,25**	2,5
VC.. 110304							0,02	**0,15**	0,25	0,1	**1,25**	2,5
VC.. 110308												
VC.. 160402												
VC.. 160404	0,08	**0,14**	0,20	0,4	**1,7**	3,0						
VC.. 160408	0,12	**0,21**	0,30	0,8	**2,1**	3,4						
VC.. 160412												
VC.. 220530												
WC.. 020102												
WC.. 020104												

sharp ◄——————————————————————► stable

Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 168–175**

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Cutting data standard values for diamond cutting materials CTD PD20 / PS30 / PU20 / CD10

Material group			a_p = 0,04–0,4 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,04–0,4 mm Surface roughness R_z in µm 5,0–10	a_p = 0,4–1,0 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,4–1,0 mm Surface roughness R_z in µm 5,0–10	a_p = 0,4–2,5 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,4–2,5 mm Surface roughness R_z in µm 5,0–10
			CTD ...	CTD ...	CTD ...	CTD ...	CTD ...	CTD ...
Aluminium wrought alloys without Si f=0.05–0.5 mm/rev.	○	Grade v_c in m/min	PD20 / PU20 / CD10 **400–2500**	PD20 / PU20 / CD10 **400–2500**	PD20 / PU20 / CD10 **400–2000**	PD20 / PU20 / CD10 **400–2000**	PD20 / PU20 / CD10 **400–1600**	PD20 / PU20 / CD10 **400–1600**
	◔	Grade v_c in m/min		PD20 / CD10 **400–2500**		PD20 / CD10 **400–2000**		PD20 / CD10 **400–1600**
	◌	Grade v_c in m/min	PD20 / PU20 **400–2500**	PD20 / PU20 **400–2500**	PD20 / PU20 **400–2000**	PD20 / PU20 **400–2000**	PD20 / PU20 **400–1600**	PD20 / PU20 **400–1600**
Aluminium cast alloys Si=2–12 % f=0.05–0.5 mm/rev.	○	Grade v_c in m/min	PS30 / PU20 / CD10 **600–2000**	PS30 / PU20 / CD10 **600–2200**	PS30 / PU20 / CD10 **600–1800**	PS30 / PU20 / CD10 **600–2000**	PS30 / PU20 / CD10 **600–1500**	PS30 / PU20 / CD10 **600–1800**
	◔	Grade v_c in m/min	PD20 / PU20 / CD10 **400–2000**	PD20 / PU20 / CD10 **400–2200**	PD20 / PU20 / CD10 **400–1800**	PS30 / PU20 / CD10 **600–2000**	PS30 / PU20 / CD10 **400–1500**	PS30 / PU20 / CD10 **400–1800**
	◌	Grade v_c in m/min	PS30 **600–2000**	PS30 **600–2200**	PS30 **600–1800**	PS30 **600–2000**	PS30 **600–1500**	
Aluminium cast alloys Si=12–20 % f=0.05–0.5 mm/rev.	○	Grade v_c in m/min	PU20 / CD10 **800-1200**	PU20 / CD10 **400–1800**	PU20 / CD10 **700–1000**	PU20 / CD10 **400–1500**	PU20 / CD10 **600–900**	PU20 / CD10 **400–1200**
	◔	Grade v_c in m/min		PU20 / CD10 **600–1800**		PU20 / CD10 **600–1500**		PU20 / CD10 **600–1200**
	◌	Grade v_c in m/min		PU20 **600–1800**		PU20 **600–1500**		
Copper and copper wrought alloys f=0.05–0.5 mm/rev.	○	Grade v_c in m/min	PD20 / PU20 / CD10 **400–1800**	PD20 / PU20 / CD10 **300–1600**	PD20 / PU20 / CD10 **400–1600**	PS30 / PU20 / CD10 **300–1600**	PD20 / PU20 / CD10 **400–1400**	PD20 / PU20 / CD10 **400–1500**
	◔	Grade v_c in m/min	PU20 / CD10 **300–1500**	PD20 / PU20 / CD10 **300–1500**	PD20 / PU20 / CD10 **400–1600**	PS30 / PU20 / CD10 **300–1500**	PD20 / PU20 / CD10 **400–1500**	PD20 / PU20 / CD10 **300–1400**
	◌	Grade v_c in m/min		PD20 / PU20 **300–1800**		PS30 / PU20 **300–1700**	PD20 / PU20 **300–1600**	PS30 / PU20 **200–1300**
Plastic materials without reinforcement (acrylic glass) f=0.05–0.7 mm/rev.	○	Grade v_c in m/min		PD20 / CD10 **400–1200**		PD20 / CD10 **300–1000**		PD20 / CD10 **200–1000**
	◔	Grade v_c in m/min		PD20 / CD10 **300–1200**		PD20 / CD10 **200–1000**		PS30 / CD10 **200–900**
	◌	Grade v_c in m/min		PD20 / CD10 **400–1200**		PD20 / CD10 **300–1000**		PD20 / CD10 **200–1000**
Plastic materials with reinforcement (glass-fibre, carbon-fibre reinforced) f=0.05–0.7 mm/rev.	○	Grade v_c in m/min	PS30 / PU20 / CD10 **500–1000**		PS30 / PU20 / CD10 **400–900**	PS30 / PU20 / CD10 **300–900**	PS30 / PU20 / CD10 **300–800**	PS30 / PU20 / CD10 **200–1200**
	◔	Grade v_c in m/min	PS30 / PU20 / CD10 **400–900**		PS30 / PU20 / CD10 **300–800**	PS30 / PU20 / CD10 **200–900**	PS30 / PU20 / CD10 **200–800**	PS30 / PU20 / CD10 **200–1400**
	◌	Grade v_c in m/min	PU20 **500–1000**		PU20 **400–800**	PU20 **300–1000**	PU20 **300–800**	

○ **Smooth cut**	◔ **Irregular cutting depth**	◌ **Interrupted cut**

Application range of CBN grades

Cutting material grade	Cutting material designation		Properties		Application range	Interrupted cut	Material suitability/ ISO hardness			
	New	Old	PcBN content	Main binder			K	S	H	Sintered steels
High PcBN content	**CTB S10U**	PBC 10	95 %		Grey cast iron, sintered steels, super alloys	Smooth to medium interrupted cut	10	10		10
	CTB S20C	PBC 15-S	90 %		Spheroidal graphite cast iron, sintered steels, super alloys		20	20		20
Low PcBN content	**CTB H15C**	–	40 %	TiN	32 HRC and above	Smooth cut			15	
	CTB H15U	–	40 %	TiN		Smooth to slightly interrupted cut			15	
	CTB H20C	PBC 25-S	65 %	TiCN	48–62 HRC				20	
	CTB H21U	PBC 25	65 %	TiCN	52–65 HRC				20	
	CTB H40C	PBC 40-S	55 %	TiN	48–65 HRC	Interrupted cut			40	
	CTB H40U	PBC 40	65 %	TiN	54–65 HRC				40	

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CBN – The Next Generation

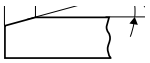
The ‚Sandwich' Technology

The singular system (patent), to apply CBN segments on a tungsten carbide base in a single process reduces the edge price significantly and opens up the possibility for the development of different CBN grades.

Specialized edge preperations! To achieve the highest efficiency for each application, the new CBN sandwich inserts are available with up to 8 edge preperations.

CBN Test Insert

The type CNGA test insert was specifically used, in order to identify the **quickest and most effective** type.
The insert is manufactured with four edge preperations for trial. The cutting edge with highest performance gives the correct chamfer style.



Article No.	Designation	Chamfers (BN x GB)				Price / €
71 499 ...						
290	CNGA 120408-X-**CTB S20C**	**A** F (sharp)	**B** 009B (0,09mm x 10°)	**C** 009C (0,09mm x 15°)	**E** 009D (0,09mm x 20°)	
292	CNGA 120408-X-**CTB H20C**	**B** 009C (0,09mm x 15°)	**C** 009D (0,09mm x 20°)	**E** 011E (0,11mm x 25°)	**G** 014F (0,14mm x 30°)	
294	CNGA 120408-X-**CTB H40C**	**C** 009D (0,09mm x 20°)	**E** 011E (0,11mm x 25°)	**G** 014F (0,14mm x 30°)	**H** 014G (0,14mm x 35°)	

Cutting data values for CBN inserts

			CTB S10U (PBC 10)					
	Cutting edges code negative insert*		**EN** (A)			**F**		
	Cutting edges code positive insert*		**EN** (A)			**TN–D** (F)		
Index	**Material**	**Strength**	v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		150–350	0,02–0,25	0,02–0,4	100–220	0,08–0,35	0,1–0,4
	General sintered steel (> HV300)		250–750	0,02–0,25	0,02–0,4	210–550	0,08–0,35	0,1–0,4
	High density sintered steel (> HV600)		200–700	0,02–0,25	0,02–0,4	150–400	0,08–0,35	0,1–0,4
3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	900–1600	0,02–0,25	0,05–0,25	700–1200	0,08–0,35	0,08–0,4
3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	900–1600	0,02–0,25	0,05–0,25	700–1200	0,08–0,35	0,08–0,4
3.3	Cast iron with spheroidal graphite	300–500 N/mm²	1000–1750	0,02–0,25	0,02–0,25	800–1250	0,08–0,35	0,08–0,4
3.4	Cast iron with spheroidal graphite	500–900 N/mm²	1000–1750	0,02–0,25	0,02–0,25	800–1250	0,08–0,35	0,08–0,4
3.5	White malleable cast iron	270–450 N/mm²						
3.6	White malleable cast iron	500–650 N/mm²						
3.7	Black malleable cast iron	300–450 N/mm²						
3.8	Black malleable cast iron	500–800 N/mm²						
5.1	Pure nickel							
5.2	Nickel alloys							
5.3	Nickel alloys	< 850 N/mm²						
5.4	Nickel molybdenum alloys		300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
5.5	Nickel-chromium alloys	< 1300 N/mm²	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
5.6	Cobalt Chrome Alloys	< 1300 N/mm²	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
5.7	Heat resistant alloys	< 1300 N/mm²	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
5.9	Pure titanium	< 900 N/mm²						
5.10	Titanium alloys	< 700 N/mm²						
5.11	Titanium alloys	< 1200 N/mm²						

			CTB S20C (PBC 15S)					
	Cutting edges code negative insert*		**SN–C** (D)			**SN–D** (E)		
	Cutting edges code positive insert*		**TN–D**			**SN–D**		
Index	**Material**	**Strength**	v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		130–300	0,05–0,35	0,06–0,4	120–250	0,06–0,35	0,08–0,4
	General sintered steel (> HV300)		250–600	0,05–0,35	0,06–0,4	220–580	0,06–0,35	0,08–0,4
	High density sintered steel (> HV600)		180–550	0,05–0,35	0,06–0,4	170–510	0,06–0,35	0,08–0,4
3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	650–1100	0,05–0,35	0,06–0,4	600–1000	0,06–0,35	0,08–0,5
3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	650–1100	0,05–0,35	0,06–0,4	600–1000	0,06–0,35	0,08–0,5
3.3	Cast iron with spheroidal graphite	300–500 N/mm²	750–1300	0,05–0,35	0,06–0,4	700–1250	0,06–0,35	0,08–0,5
3.4	Cast iron with spheroidal graphite	500–900 N/mm²	750–1300	0,05–0,35	0,06–0,4	700–1250	0,06–0,35	0,08–0,5
3.5	White malleable cast iron	270–450 N/mm²						
3.6	White malleable cast iron	500–650 N/mm²						
3.7	Black malleable cast iron	300–450 N/mm²						
3.8	Black malleable cast iron	500–800 N/mm²						
5.1	Pure nickel							
5.2	Nickel alloys							
5.3	Nickel alloys	< 850 N/mm²						
5.4	Nickel molybdenum alloys		180–500	0,05–0,4	0,06–0,4	180–450	0,06–0,5	0,08–0,5
5.5	Nickel-chromium alloys	< 1300 N/mm²	180–500	0,05–0,4	0,06–0,4	180–450	0,06–0,5	0,08–0,5
5.6	Cobalt Chrome Alloys	< 1300 N/mm²	180–500	0,05–0,4	0,06–0,4	180–450	0,06–0,5	0,08–0,5
5.7	Heat resistant alloys	< 1300 N/mm²	180–500	0,05–0,4	0,06–0,4	180–450	0,06–0,5	0,08–0,5
5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	180–500	0,05–0,4	0,06–0,4	180–450	0,06–0,5	0,08–0,5
5.9	Pure titanium	< 900 N/mm²						
5.10	Titanium alloys	< 700 N/mm²						
5.11	Titanium alloys	< 1200 N/mm²						

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

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

Cutting data values for CBN inserts

CTB S20C (PBC 15S)								
EN (A)			**SN–B** (B)			**SN–C** (C)		
EN (A)			**SN–B** (B)			**SN–C** (C)		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
150–350	0,02–0,25	0,02–0,4	150–350	0,04–0,25	0,03–0,4	150–350	0,05–0,25	0,06–0,4
250–750	0,02–0,25	0,02–0,4	250–700	0,04–0,25	0,03–0,4	250–650	0,05–0,25	0,06–0,4
200–700	0,02–0,25	0,02–0,4	200–700	0,04–0,25	0,03–0,4	200–600	0,05–0,25	0,06–0,4
800–1450	0,02–0,25	0,05–0,25	700–1400	0,04–0,25	0,05–0,25	650–1300	0,05–0,25	0,06–0,4
800–1450	0,02–0,25	0,05–0,25	700–1400	0,04–0,25	0,05–0,25	650–1300	0,05–0,25	0,06–0,4
900–1600	0,02–0,25	0,05–0,25	800–1600	0,04–0,25	0,05–0,25	780–1400	0,05–0,25	0,06–0,4
900–1600	0,02–0,25	0,05–0,25	800–1600	0,04–0,25	0,05–0,25	780–1400	0,05–0,25	0,06–0,4
200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4	200–550	0,05–0,25	0,06–0,4
200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4	200–550	0,05–0,25	0,06–0,4
200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4	200–550	0,05–0,25	0,06–0,4
200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4	200–550	0,05–0,25	0,06–0,4
200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4	200–550	0,05–0,25	0,06–0,4

CTB S20C (PBC 15S)								
SN–D (F)			**SN–E** (G)			**SN–F** (H)		
TN–E			**SN–E**			**SN–F**		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
100–220	0,08–0,35	0,1–0,4	100–200	0,1–0,35	0,1–0,4	80–150	0,12–0,35	0,12–0,4
210–550	0,08–0,35	0,1–0,4	200–520	0,1–0,35	0,1–0,4	180–480	0,12–0,35	0,12–0,4
150–400	0,08–0,35	0,1–0,4	130–350	0,1–0,35	0,1–0,4	80–250	0,12–0,35	0,12–0,4
550–1000	0,08–0,35	0,08–0,4	550–950	0,1–0,35	0,1–0,4	500–850	0,12–0,35	0,12–0,4
550–1000	0,08–0,35	0,08–0,4	550–950	0,1–0,35	0,1–0,4	500–850	0,12–0,35	0,12–0,4
700–1200	0,08–0,35	0,08–0,4	700–1100	0,1–0,35	0,1–0,4	650–1000	0,12–0,35	0,12–0,4
700–1200	0,08–0,35	0,08–0,4	700–1100	0,1–0,35	0,1–0,4	650–1000	0,12–0,35	0,12–0,4
150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4	130–300	0,12–0,35	0,12–0,4
150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4	130–300	0,12–0,35	0,12–0,4
150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4	130–300	0,12–0,35	0,12–0,4
150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4	130–300	0,12–0,35	0,12–0,4
150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4	130–300	0,12–0,35	0,12–0,4

CCGW 120404 FN-...

CTB H15U / CT		
FN (A) / **FN** (A)		
FN (A) / **FN** (A)		
1,6 - 6,4		
v_c	f	a_p
0-240	0,03-0,15	0,06
240	0,03-0,15	0,0
	0,03-0,15	

9

Cutting data values for CBN inserts

					CTB H15U / CTB H15C (BHT02RU / BHT02R)					
		Cutting edge code negative insert*			FN (A) / FN (A)			EN (B) / EN (B)		
		Cutting edges code positive insert*			FN (A) / FN (A)			EN (B) / EN (B)		
			Ra (theo.)		1,6 – 6,4			1,0 – 3,2		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
6.1		< 45 HRC								
6.2		46–55 HRC	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
6.3	Tempered steel	56–60 HRC	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
6.4		61–65 HRC								
6.5		65–70 HRC								

					CTB H21U / CTB H20C (PBC 25 / PBC 25S)					
		Cutting edge code negative insert*			FN (A) / FN (A)			TN-C (B)		
		Cutting edges code positive insert*			EN (A) / FN (A)			EN (B)		
			Ra (theo.)		1,6 – 6,4			1,0 – 4,5		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
6.1		< 45 HRC								
6.2		46–55 HRC	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
6.3	Tempered steel	56–60 HRC	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
6.4		61–65 HRC								
6.5		65–70 HRC								

					CTB H21U / CTB H20C (PBC 25 / PBC 25S)					
		Cutting edge code negative insert*			TN-E (F)/ SN-E (F)			SN-F (G)		
		Cutting edges code positive insert*			TN-E (F)			SN-E (G)		
			Ra (theo.)		0,35 – 1,6			0,2 – 0,8		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
6.1		< 45 HRC								
6.2		46–55 HRC	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
6.3	Tempered steel	56–60 HRC	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
6.4		61–65 HRC								
6.5		65–70 HRC								

					CTB H40U / CTB H40C (PBC 40 / PBC 40S)					
		Cutting edge code negative insert*			FN (A) / EN (A)			SN-C (B)		
		Cutting edges code positive insert*			FN (A) / EN (A)			TN-D (B)		
			Ra (theo.)		1,0 – 3,2			0,8 – 3,0		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
6.1		< 45 HRC								
6.2		46–55 HRC	x		190–250	0,03–0,15	0,03–0,5	180–240	0,04–0,15	0,03–0,5
6.3	Tempered steel	56–60 HRC	x		190–250	0,03–0,15	0,03–0,5	180–240	0,04–0,15	0,03–0,5
6.4		61–65 HRC	x		190–250	0,03–0,15	0,03–0,5	180–240	0,04–0,15	0,03–0,5
6.5		65–70 HRC								

					CTB H40U / CTB H40C (PBC 40 / PBC 40S)					
		Cutting edge code negative insert*			SN-E (F)			SN-F (G)		
		Cutting edges code positive insert*			TN-F (F)			SN-F (G)		
			Ra (theo.)		0,4 – 1,0			0,2 – 0,8		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
6.1		< 45 HRC								
6.2		46–55 HRC	x		180–230	0,05–0,25	0,1–0,5	130–200	0,04–0,15	0,1–0,5
6.3	Tempered steel	56–60 HRC	x		180–230	0,05–0,25	0,1–0,5	130–200	0,04–0,15	0,1–0,5
6.4		61–65 HRC	x		180–230	0,05–0,25	0,1–0,5	130–200	0,04–0,15	0,1–0,5
6.5		65–70 HRC								

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

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

Cutting data values for CBN inserts

CTB H15U / CTB H15C (BHT02RU / BHT02R)								
SN-C (D) / **SN-C** (D)			**SN-E** (F) / **SN-E** (F)			**RN / RN** (Rounded chamfer)		
SN-C (D) / **SN-C** (D)			**SN-E** (F) / **SN-E** (F)			**RN / RN** (Rounded chamfer)		
0,5 – 1,6			0,1 – 0,8			0,1 – 0,8		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
140–200	0,06–0,2	0,08–0,3	120–180	0,06–0,25	0,1–0,4	130–210	0,06–0,2	0,08–0,3
140–200	0,06–0,2	0,08–0,3	120–180	0,06–0,25	0,1–0,4	130–210	0,06–0,2	0,08–0,3
140–200	0,06–0,2	0,08–0,3	120–180	0,06–0,25	0,1–0,4	130–210	0,06–0,2	0,08–0,3

CTB H21U / CTB H20C (PBC 25 / PBC 25S)								
TN-D (C)			**TN-D** (D) / **SN-D** (D)			**TN-E** (E)		
SN-B (C)			**TN-D** (D) / **SN-C** (D)			**SN-D** (E)		
0,8 – 3,0			0,5 – 2,0			0,35 – 2,5		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
270–330	0,06–0,25	0,05–0,5	250–320	0,06–0,25	0,08–1,0	220–290	0,05–0,15	0,08–0,5
270–330	0,06–0,25	0,05–0,5	250–320	0,06–0,25	0,08–1,0	220–290	0,05–0,15	0,08–0,5

CTB H21U / CTB H20C (PBC 25 / PBC 25S)		
SN-G (H)		
SN-F (H)		
0,1 – 0,5		
v_c	f	a_p
160–200	0,05–0,12	0,1–0,5
160–200	0,05–0,12	0,1–0,5

CTB H40U / CTB H40C (PBC 40 / PBC 40S)								
SN-D (C)			**SN-D** (D)			**EN-T** (E)/ **SN-E** (E)		
SN-D (C)			**TN-D** (D)			**EN-T** (E)/ **SN-E** (E)		
0,8 – 2,0			0,5 – 1,6			0,5 – 1,6		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
160–220	0,04–0,15	0,03–0,5	150–210	0,04–0,25	0,08–0,5	140–200	0,05–0,15	0,08–0,5
160–220	0,04–0,15	0,03–0,5	150–210	0,04–0,25	0,08–0,5	140–200	0,05–0,15	0,08–0,5
160–220	0,04–0,15	0,03–0,5	150–210	0,04–0,25	0,08–0,5	140–200	0,05–0,15	0,08–0,5

CTB H40U / CTB H40C (PBC 40 / PBC 40S)		
SN-G (H)		
SN-G (H)		
0,1 – 0,5		
v_c	f	a_p
120–190	0,04–0,12	0,1–0,5
120–190	0,04–0,12	0,1–0,5
120–190	0,04–0,12	0,1–0,5

CCGW 120404 FN –...

CTB H15U / CT		
FN (A) / **FN** (A)		
FN (A) / **FN** (A)		
1,6 – 6,4		
v_c	f	a_p
0–240	0,03–0,15	0,06
240	0,03–0,15	0,0
	0,03–0,15	

9

Diamond as a cutting material



Ensures

- optimal surface quality
- burr-free workpieces
- high service lives
- lowest cutting forces
- high Process Security

Complete programme of roughing, finishing and wiper inserts for machining aluminium, non ferrous metals, plastics, ...

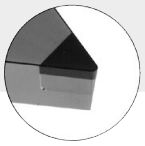
The cutting materials

	CTD CD10 (CVD)	CTD PD20 (PKD)	CTD PU20 (PKD)	CTD CD10 (CVD)
	Fine grain Size (N10)	Fine grain grade (N20)	Coarse grain grade (N20)	Coarse grain Size (N30)
Properties	▲ perfect sharp edges ▲ no cutting pressure ▲ very close tolerances ▲ highest abrasion resistance with highest toughness ▲ very high heat conductivity	▲ high sharpness ▲ lower cutting pressure than PDC-S ▲ close tolerance ▲ lower abrasion resistance with increased toughness	▲ very sharp cutting edge ▲ reduced cutting pressure ▲ tight tolerances ▲ very high level of wear resistance and toughness	▲ high sharpness ▲ lower cutting pressure ▲ close tolerance ▲ lower abrasion resistance than with the PDC, with increased toughness
Material	suitable for superfinishing and semi-finishing of all non ferrous metals and NE-composite materials with small to high levels of abrasiveness	suitable for fine machining of all NE materials with low abrasiveness	suitable for finishing to roughing non-ferrous metals and non-ferrous materials with highly abrasive alloying element. High chip removal on fibre-reinforced plastics such as CFRP and GFRP.	suitable for fine machining of all NE-materials and non-ferrous metals with low to very high levels of abrasiveness

Cutting Geometries

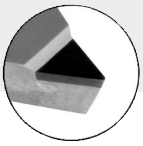
Neutral rake angle:

- higher cuting force
- higher temperature
- improved surface quality
- for stable workpieces



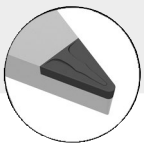
Positive rake angle:

- lower cutting force
- lower temperature
- reduction in surface quality
- for unstable workpieces
- improved accuracy



CB chip breaker geometries:

- reliable chip control
- ideal for low-alloy aluminium
- for F | M | R applications

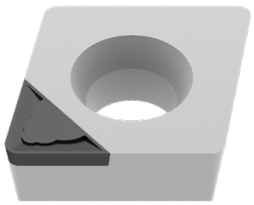


Notes on diamond usage

- coolant is not generally needed, however it facilitates chip removal
- note the chemical reaction to carbide-forming elements (PCD)
- note the thermal interaction and critical temperature:
  PCD: 600 °C, CVD: 700 °C
  Depending on the material, use cooling.

Cutting data standard values for the CB chip breaker geometries

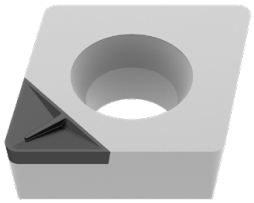
-CB1



3D-Chip Breaker -CB1				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,1 mm	0,05	0,30	0,02	0,05
0,2 mm	0,06	0,40	0,03	0,08
0,4 mm	0,10	0,80	0,04	0,15
0,8 mm	0,15	1,00	0,08	0,20
1,2 mm	0,30	1,50	0,12	0,25

- Finish and Superfinish
- Extremely sharp cutting edge geometry
- Depth of Cut a_p: 0,05–1,5 mm
- Smallest cutting pressure for highest accuracies
- For machining of thin-walled and unstable workpieces

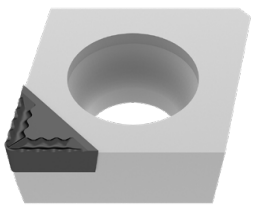
-CB2



3D-Chip Breaker -CB2				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,2 mm	0,50	0,80	0,08	0,12
0,4 mm	0,60	1,50	0,08	0,20
0,8 mm	0,70	1,50	0,15	0,30
1,2 mm	0,80	2,00	0,20	0,40

- Semi-finish and Finish machining
- Negative edge preperation
- Cutting Depth a_p: 0,5–2,0 mm
- High surface quality and tight tolerances
- Machining of solid workpieces under stable conditions

-CB3



3D-Chip Breaker -CB3				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,4 mm	1,00	3,00	0,10	0,20
0,8 mm	1,00	3,00	0,15	0,35

- Medium and rough machining
- Highly aggressive chip breaker
- Cutting depth a_p: 1,0–3,0 mm
- Stable component conditions necessary
- Cooling must be ensured

Standard chip breakers / application notes

Negative

Main application steel and cast iron, secondary application stainless steels

Model	Smooth cut ○	Irregular cutting depth ◌	Interrupted cut ◌	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-CF / -CF20 (-CF / -NF12) ▲ Fine finishing ▲ Sharp cutting edge for low cutting forces ▲ Good chip control even at small depths of cut	**CTEP110 / TCM10 (DCC1110 / CWC10)** CTEP110 / TCM10 (DCC1110 / CWC10) CTEP110 / TCM10 (DCC1110 / CWC10)			0,30–1,50	0,07–0,25	CN.. DN.. TN.. WN..
F						
-F40 (-F40) ▲ Fine turning chip breaker for machining steels ▲ Good chip control ▲ Ideal for copy turning work	**CTCP125 (HCX1125)** CTCP125 (HCX1125) CTCP125 (HCX1125)	**CTCP125 (HCX1125)** CTCP125 (HCX1125) CTCP125 (HCX1125)		0,50–2,00	0,10–0,30	VN..
F						
-F50 (-NF15) ▲ Fine turning chip breaker for fine machining ▲ Steel and stainless steels ▲ Excellent chip control ▲ High surface quality	**CTCP125 (HCX1125)** CTCP115 / CTCP125 (HCX115 / HCX1125)	**CTCP115 / CTCP125 / CTCP135 (HCX1115 / HCX1125 / HCX1135)** CTCP125 / CTCP135 (HCX1125 / HCX1135)	**CTCP135 (HCX1135)** CTCP135 (HCX1135)	0,10–2,60	0,06–0,35	CN.. DN.. SN.. TN.. VN.. WN..
F						
-TFQ (-TFQ) ▲ Wiper geometry ▲ Finishing to medium machining ▲ Very high feedrate ▲ High surface quality	**CTEP110 / CTCP115 (DCC1110 / HCX1115)** CTEP110 / CTCP115 (DCC1110 / HCX 1115) CTEP110 / CTCP115 (DCC1110 / HCX 1115)	**CTCP115 / CTCP125 (HCX1115 / HCX1125)** CTCP115 / CTCP125 (HCX1115 / HCX1125) CTCP115 / CTCP125 (HCX1115 / HCX1125)		0,50–5,00	0,10–0,60	CN.. DN.. WN..
F						
-42 (-42) ▲ Extremely soft-cutting chip breaker ▲ For small and medium widths of cut ▲ Suitable for thin-walled parts	**CTC2135 (CWN2135)** CTC2135 (CWN2135)	**CTC2135 (CWN2135)** CTC2135 (CWN2135)		0,50–4,50	0,05–0,35	CN..
F **M**	**CTC2135 (CWN2135)**	**CTC2135 (CWN2135)**				
-XU (-XU) ▲ Finishing to light roughing ▲ Universal chip breaker ▲ Copy turning ▲ Excellent chip formation ▲ Low cutting forces	**CTCP115 / CTCP125 (HCX1115 / HCX1125)** CTCP125 (HCX1125) CTCP115 (HCX1115)	CTCP115 / **CTCP125 (HCX1115 / HCX1125)** CTCP125 (HCX1125) CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP125 (HCX1125)	0,40–4,50	0,12–0,40	CN.. DN.. VN.. WN..
M						

Standard chip breakers / application notes

Negative

Main application steel and cast iron, secondary application stainless steels

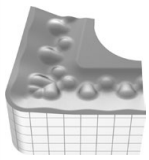
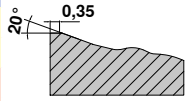
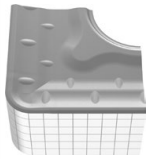
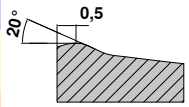
Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-M40 (-M40) ▲ Stable geometry ▲ Medium feed rates ▲ Can be used for any application ▲ Good chip control	**CTCP125 (HCX1125)** CTCP125 (HCX1125) CTCP125 (HCX1125)	**CTCP125 (HCX1125)** CTCP125 (HCX1125) CTCP125 (HCX1125)		0,50–3,00	0,10–0,35	VN..
-M50 (-NM15) ▲ Medium machining ▲ First choice for steel machining ▲ Universal application ▲ Wide range of applications	**CTCP115 / CTCP125 / CTCK110 / CTCK120 (HCX1115 / HCX1125 / DCX3110 / HCF3120)** CTCP125 (HCX1125) **CTCP115 / CTCP125 / CTCK110 / CTCK120 (HCX1115 / HCX1125 / DCX3110 / HCF3120)**	CTCP115 / **CTCP125 (HCX1115 / HCX1125)** CTCP115 / **CTCP125 / CTCK110 / CTCK120** (HCX1115 / **HCX1125 / DCX3110 / HCF3120)**	**CTCP125 (HCX1125)** **CTCP125 / CTCK120 (HCX1125 / HCF3120)**	0,50–5,00	0,12–0,40	CN.. DN.. SN.. TN.. VN.. WN..
-TMQ (-TMQ) ▲ Wiper geometry ▲ Light to medium rough machining ▲ Very high feedrate ▲ High surface quality	**CTCP115 (HCX1115)** CTCP125 (HCX1125) CTCP125 (HCX1125)	**CTCP125 (HCX1125)** CTCP125 (HCX1125) CTCP125 (HCX1125)		0,80–6,00	0,20–0,85	CN.. DN.. WN..
-M70 (-NM19) ▲ Light to medium rough machining ▲ Cast crust and forging skin ▲ Stable cutting edge ▲ Interrupted cut ▲ Raw materials and forgings	**CTCK110 / CTCK120 / CTCP115 (DCX3110 / HCF3120 / HCX1115)** **CTCP125 / CTC2135 (HCX1125 / CWN2135)** **CTCK110 / CTCK120 / CTCP115** / CTCP125 **(DCX3110 / HCF3120 / HCX1115 /** HCX1125) CTC2135 / CTCP125 (CWN2135 / HCX1125)	CTCP115 / **CTCP125** (HCX1115 / **HXC1125)** **CTC2135 /** CTCP135 **CWN2135 /** HCR1135 **CTCK120 /** CTCP125 **(HCF3120 /** HCX1125) CTC2135 / CTCP125 (CWN2135 / HCX1125)	**CTCP125 / CTCP135 (HCX1125 / HCR1135)** CTCP135 / **CTC2135** HCR1135 / **CWN2135** **CTCP125 /** CTCK120 **(HCX1125 /** HCF3120)	1,50–4,50	0,20–0,80	CN.. DN.. SN.. TN.. WN..
.NMA ▲ Rough machining ▲ Stable cutting edge ▲ For short-chipping materials ▲ First choice for grey cast iron	**CTCK110 (DCX3110)**	**CTCK110 / CTCK120 (DCX3110 / HFC3120)**	**CTCK120 HFC3120**	1,50–4,50	0,20–0,80	CN.. DN.. SN.. TN.. WN..
-R28 (-NR14) ▲ Single sided roughing geometry ▲ Longitudinal, face and copy turning ▲ Varying depths of cut ▲ Steels with low tensile strength (800 N/mm²) ▲ Good chip control	**CTCP115** / CTCP125 **(HCX1115** / HCX1125) **CTCP115 / CTCP125 (HCX1115 / HCX1125)** CTCP115 (HCX1115) CTCP125 / CTCP135 (HCX1125 / HCR1135)	CTCP115 / CTCP135 / CTCP125 (HCX1115 / HCR1135 / HCX1125) **CTCP125 / CTCP135 (HCX1125 / HCR1135)** CTCP115 / CTCP125 (HCX1115 / HCX1125) CTCP135 (HCR1135)	**CTCP135 (HCR1135)** **CTCP135 (HCR1135)** CTCP125 (HCX1125) CTCP135 (HCR1135)	1,00–12,00	0,25–0,80	CN.. DN.. SN..

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Standard chip breakers / application notes

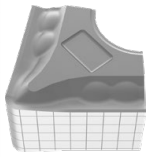
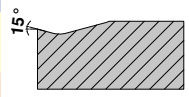
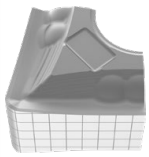
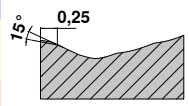
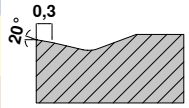
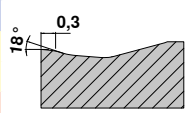
Negative

Main application steel and cast iron, secondary application stainless steels

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-R58 (-NR17) ▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ Light interrupted cut ▲ Low cutting forces ▲ Unstable machines						
 **R**	**CTCP115** / CTCP125 **(HCX1115** / HCX1125)	**CTCP115 / CTCP135 / CTCP125** **(HCX1115 / HCR1135 / HCX1125)**	**CTCP135** **(HCR1135)**			CN.. DN.. SN.. TN..
	CTCP115 / CTCP125 **(HCX1115 / HCX1125)**	**CTCP125 / CTCP135** **(HCX1125 / HCR1135)**	**CTCP135** **(HCR1135)**			
	CTCP115 (HCX1115)	CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP125 (HCX1125)			
				1,50–12,00	0,30–1,20	
	CTCP125 / CTCP135 (HCX1125 / HCR1135)	CTCP135 (HCR1135)	CTCP135 (HCR1135)			
-R88 (-NR19) ▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ High feedrate ▲ Large depths of cut ▲ Heavily interrupted cut						
 **R**	**CTCP115** / CTCP125 **(HCX1115** / HCX1125)	CTCP115 / CTCP125 / CTCP135 (HCX1115 / HCX1125 / HCR1135)	**CTCP135** **(HCR1135)**			SN..
	CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP135 (HCR1135)			
	CTCP115 **HCX1115**	**CTCP115** / CTCP125 **(HCX1115** / HCX1125)	**CTCP125** **(HCX1125)**			
				3,50–16,00	0,50–1,50	
	CTCP125 / CTCP135 (HCX1125 / HCR1135)	CTCP135 (HCR1135)	CTCP135 (HCR1135)			

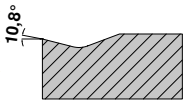
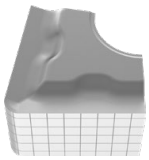
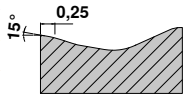
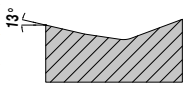
Negative

Main application stainless steels, secondary application steel and super alloys

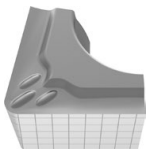
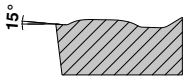
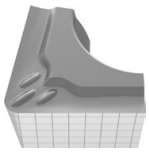
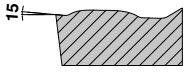
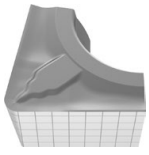
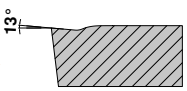
Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-F30 (-NF23) ▲ Finishing of stainless steels ▲ Continous cut ▲ High surface quality ▲ Good swarf control						
 **F**	CTPM125 (HCN2125)	CTPM125 (HCN2125)				CN.. DN.. SN.. TN.. VN.. WN..
	CTPM125 **(HCN2125)**	**CTPM125** **(HCN2125)**				
				0,08–2,5	0,10–0,35	
-M30 (-NM23) ▲ Option for stainless steel machining ▲ Good swarf control ▲ Little edg build up ▲ Low cutting forces ▲ Little built-up edge ▲ Applicable on unstable machines						
 **F** **M**	CTPM125 (HCN2125)	CTPM125 (HCN2125)	CTPM125 (HCN2125)			CN.. DN.. SN.. TN.. VN.. WN..
	CTPM125 **(HCN2125)**	**CTPM125** **(HCN2125)**	**CTPM125** **(HCN2125)**			
				1,00-4,50	0,15-0,40	
	CTPM125 (HCN2125)	CTPM125 (HCN2125)				
-M42 (-M42) ▲ For medium machining of stainless steels ▲ Also by application on general steels and superalloys						
 **M**	**CTP2120 / CTC2135** **(CCN2120 / CWN2135)**	**CTP2120 / CTC2135** **(CCN2120 / CWN2135)**	**CTC2135** **(CWN2135)**			CN.. DN.. SN.. TN.. WN..
	CTP2120 / CTC2135 **(CCN2120 / CWN2135)**	**CTP2120 / CTC2135** **(CCN2120 / CWN2135)**				
				1,00–4,00	0,20–0,40	
-M60 (-NM26) ▲ Light to medium roughing ▲ Stable cutting edge ▲ Interrupted cut ▲ Forged skin and cast crust						
 **M** **R**	CTPM125 (HCN2125)	CTPM125 (HCN2125)	CTPM125 (HCN2125)			CN.. DN.. SN.. TN.. WN..
	CTPM125 **(HCN2125)**	**CTPM125** **(HCN2125)**	**CTPM125** **(HCN2125)**			
				1,50–6,00	0,25–0,50	
		CTPM125 (HCN2125)	CTPM125 (HCN2125)			

Standard chip breakers / application notes

Negative

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application super alloys, secondary application stainless steels						
-F32 (-F32) ▲ Streamlined geometry for finishing superalloys ▲ For finishing stainless steels						
F	**CTP2120 (CCN2120)**	**CTP2120 (CCN2120)**				CN.. DN.. VN..
	CTP2120 (CCN2120)	CTP2120 (CCN2120)		0,05–4,0	0,05–0,25	
	CTP2120 (CCN2120)					
-M34 (-M34) ▲ First choice for superalloys ▲ Light cutting geometry ▲ Little built-up edge ▲ Low cutting forces						
M	**CTP5110 / CTP5115 (HCN5110 / HCN5115)**	**CTP5110 / CTP5115 (HCN5110 / HCN5115)**				CN.. DN.. SN.. VN.. WN..
	CTP5110 / CTP5115 (HCN5110 / HCN5115)	**CTP5110 / CTP5115 (HCN5110 / HCN5115)**		0,80–3,0	0,10–0,30	
-M52 (-M52) ▲ Universal geometry for machining superalloys and stainless steels						
M	**CTP2120 (CCN2120)**	**CTP2120 (CCN2120)**				CN.. DN.. SN.. TN.. WN..
	CTP2120 (CCN2120)	CTP2120 (CCN2120)		1,50–4,00	0,20–0,38	

Positive

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application steel and cast iron, secondary application stainless steels and super alloys						
-CF05 (-PF14) ▲ Fine finishing ▲ For all common steel materials, stainless steels and GGG ▲ Good swarf control ▲ High surface quality						
F	**CTEP110 / TCM407 (DCC1110 / CWC407)**	TCM10 / TCM407 (CWC10 / CWC407)				CC.. DC.. SC.. TC.. VC..
	CTEP110 (DCC1110)					
	CTEP110 (DCC1110)	TCM10 / TCM407 (CWC10 / CWC407)		0,20–1,30	0,06–0,25	
-SF (-ZF) ▲ Finishing / contour turning ▲ Good swarf control ▲ High surface quality ▲ Low cutting forces						
F	CTC2135 / **CTCP115** (CWN2135 / **HCX1115**)	**CTCP125 (HCX1125)**	**CTCP125 / CTCP135 (HCX1125 / HCR1135)**			CC.. DC.. SC.. TC.. VC.. WC..
	CTC2135 / **CTCP125** (CWN2135 / **HCX1125**)	CTCP125 / **CTC2135** (HCX1125 / **CWN2135**)	**CTC2135 (CWN2135)**			
		CTCP125 (HCX1125)	**CTCP125 (HCX1125)**			
	CTC2135 / CTCP125 (CWN2135 / HCX1125)	CTC2135 (CWN2135)		0,05–2,50	0,05–0,25	
-CF55 (-PF15) ▲ Finishing to medium machining ▲ Suitable for general and stainless steels ▲ Low cutting forces ▲ Good swarf control ▲ High surface quality						
F M	**CTEP110 (DCC1110)**	**TCM10** / CTEP110 **(CWC10** / DCC1110)				CC.. DC.. SC.. TC.. VC..
	CTEP110 (DCC1110)	CTEP110 (DCC1110)				
	CTEP110 (DCC1110)	CTEP110 (DCC1110)		0,20–1,30	0,06–0,25	

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Standard chip breakers / application notes

Positive

Main application steel and cast iron, secondary application stainless steels and super alloys

Model	Smooth cut	Irregular cutting depth	Interrupted cut	sectional illustration a_p mm	sectional illustration f mm	Geometry
-SMF (-SMF) ▲ Finishing to medium machining ▲ Low cutting forces ▲ Good swarf control ▲ High surface quality	**CTEP110 /** CTCP115 **(DCC1110 /** HCX1115) CTCP115 / CTCP125 / CTEP110 (HCX1115 / HCX1125 / DCC1110) CTEP110 (DCC1110)	**TCM10 /** CTCP125 / CTCP115 **(CWC10 /** HCX1125 / HCX1115) CTCP125 / CTCP135 (HCX1125 / HCR1135)	CTCP135 HCR1135 CTCP135 HCR1135	0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..
F **M**	CTCP115 / CTCP135 (HCX1115 / HCR1135)	CTCP135 HCR1135				
-SM (-ZM) ▲ Medium machining ▲ Universal application ▲ Stable cutting edge ▲ Varying depths of cut ▲ Wide range of applications	**CTCP115 / CTCP125** **(HCX1115 / HCX1125)** **CTCP125** **(HCX1125)** **CTCP115 /** CTCK110 / CTCK120 **(HCX1115 /** DCX3110 / HCF3120)	**CTCP125 / CTCP135 /** CTCP115 **(HCX1125 / HCR1135 /** HCX1115) **CTCP125 / CTCP135** **(HCX1125 / HCR1135)** **CTCP125 /** CTCK110 / CTCK120 **(HCX1125 /** DCX3110 / HCF3120)	**CTCP125 / CTCP135** **(HCX1125 / HCR1135)** **CTCP135** **(HCR1135)** CTCK120 / CTCP125 HCF3120 / HCX1125	0,05–5,00	0,15–0,45	CC.. DC.. RC.. SC.. TC.. VC..
M	CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP135 HCR1135				
-SMQ (-SMQ) ▲ Positive wiper geometry ▲ Finishing to medium machining ▲ Very high feedrate ▲ High surface quality	**CTCP115** **(HCX1115)** **CTCP115** **(HCX1115)** CTCP125 / CTCP115 (HCX1125 / HCX1115)	CTCP125 (HCX1125) CTCP125 (HCX1125) CTCP125 (HCX1125)	CTCP125 (HCX1125) CTCP125 (HCX1125)	1,00–4,00	0,15–0,45	CC.. DC..
M						

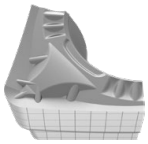
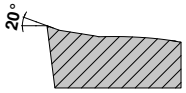
Positive

Main application stainless steels

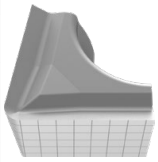
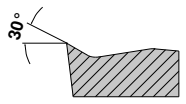
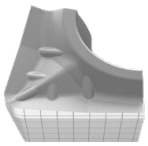
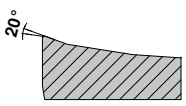
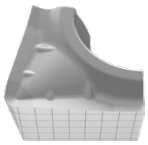
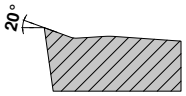
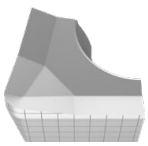
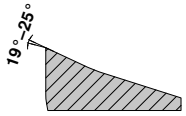
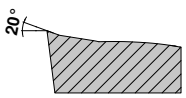
Model	Smooth cut	Irregular cutting depth	Interrupted cut	sectional illustration a_p mm	sectional illustration f mm	Geometry
-F43 (-F43) ▲ For the light to medium machining of all stainless steels, general steels and superalloys	CTC2135 (CWN2135) **CTC2135** **(CWN2135)**	CTC2135 (CWN2135) **CTC2135** **(CWN2135)**	CTC2135 (CWN2135) **CTC2135** **(CWN2135)**	0,50 –2,50	0,05–0,25	CC.. DC.. TC..
F	CTC2135 (CWN2135)	CTC2135 (CWN2135)				
-M25 (-PF23) ▲ First choice for medium machining of stainless steels ▲ High surface quality ▲ Little built-up edge	CTPM125 (HCN2125) **CTPM125** **(HCN2125)**	CTPM125 (HCN2125) **CTPM125** **(HCN2125)**		0,40–3,20	0,10–0,30	CC.. DC.. TC.. VC..
F **M**						
-M55 (-PF26) ▲ First choice for medium machining to roughing of stainless steels ▲ Smooth to lightly interrupted cut ▲ Good swarf control ▲ Stable cutting edge	CTPM125 (HCN2125) **CTPM125** **(HCN2125)**	CTPM125 (HCN2125) **CTPM125** **(HCN2125)**	CTPM125 (HCN2125) CTPM125 (HCN2125)	0,40–4,80	0,06–0,35	CC.. DC.. SC.. TC.. VC..
M	CTPM125 (HCN2125)	CTPM125 (HCN2125)				

Standard chip breakers / application notes

Positive

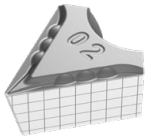
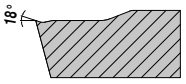
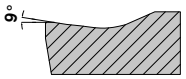
Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application stainless steels						
-M81 (-M81) ▲ Directly pressed insert ▲ Positive rake angle ▲ Good swarf control ▲ For medium to rough machining						
 **M**	**CWN2120 (CWN2120)** CWN2120 (CWN2120)	CWN2120 (CWN2120)	CWN2120 (CWN2120)	 1,00–6,00	0,25–0,60	CC.. DC.. VC..

Positive

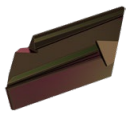
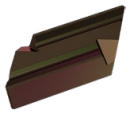
Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application non-ferrous metals, secondary application stainless steels, steels, super alloys, cast iron						
-23P (-23P) ▲ Low adhesion ▲ Good chip control with soft aluminium alloys						
 **F**	H216T (CWK26) H216T (CWK26) H216T (CWK26)	H216T (CWK26) H216T (CWK26) H216T (CWK26)	H216T (CWK26)	 0,2–4,0	0,05–0,3	CC.. DC..
-25P (-25P) ▲ Sharp cutting edge ▲ Good swarf control on soft aluminium alloys ▲ Low adhesion						
 **F** **M**	AMZ (AMZ) AMZ (AMZ) **AMZ (AMZ)** **H216T (CWK26)** **AMZ (AMZ)**	AMZ (AMZ) AMZ (AMZ) **AMZ (AMZ)** **H216T (CWK26)** **AMZ (AMZ)**	**H216T (CWK26)**	 0,50–4,50	0,05–0,60	CC.. DC.. SC.. VC..
-25Q (-25Q) ▲ Wiper geometry ▲ High feed rates ▲ High surface quality ▲ Good swarf control on soft aluminium alloys ▲ Low adhesion						
 **M**	H210T / AMZ (CWK20 / AMZ) **H210T / AMZ (CWK20 / AMZ)** **H210T / AMZ (CWK20 / AMZ)** **H210T / AMZ (CWK20 / AMZ)**	H210T / AMZ (CWK20 / AMZ) **H210T / AMZ (CWK20 / AMZ)** **H210T / AMZ (CWK20 / AMZ)** **H210T / AMZ (CWK20 / AMZ)**	**H210T / AMZ (CWK20 / AMZ)**	 0,05–6,50	0,05–0,60	CC.. DC.. VC..
-27 (-27) ▲ The universal Alu geometry ▲ Sharp cutting edge ▲ Extremely positive rake angle ▲ Low adhesion ▲ High feed rates						
 **M** **R**	AMZ (AMZ) AMZ (AMZ) **AMZ (AMZ)** **H10T (CWK15)**	AMZ (AMZ) AMZ (AMZ) **AMZ (AMZ)** **H10T (CWK15)**	**H216T (CWK26)** **H10T (CWK15)**	 1,00–10,00	0,10–0,75	CC.. DC.. RC.. SC.. TC.. VC..
-29 (-29) ▲ Direct sintered aluminium geometry ▲ Positive rake angle ▲ Good chip control ▲ For medium to rough machining						
 **F** **R**	AMZ (AMZ) AMZ (AMZ) **AMZ (AMZ)** **H216T / AMZ (CWK26 / AMZ)**	AMZ (AMZ) AMZ (AMZ) **AMZ (AMZ)** **H216T / AMZ (CWK26 / AMZ)**	**H216T (CWK26)** **H216T (CWK26)**	 1,00–6,00	0,25–0,60	CC.. DC.. VC..

9

Standard chip breakers / application notes

Positive	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application super alloys and stainless steels, secondary application steels and non-ferrous metals							
-F05 (-F05) ▲ Maximum tolerance class ▲ Outstanding chip control, even with the smallest cutting depths ▲ Very low cutting forces	 F	**CTPX710**			 0,10–2,50	0,02–0,25	DC.. VC..
		CTPX710					
		CTPX710					
		CTPX710					
		CTPX710					
-F23 (-F23) ▲ Fine finishing (ground edge) ▲ Very high surface quality ▲ High repeatability ▲ Low depths of cut	 F	**CTP2120 (CCN2120)**	**CTP2120 (CCN2120)**		 0,10–2,00	0,06–0,13	CC.. DC.. VC..
		CTP2120 (CCN2120)					
		CTP2120 (CCN2120)					
		CTP2120 (CCN2120)	**CTP2120 (CCN2120)**				

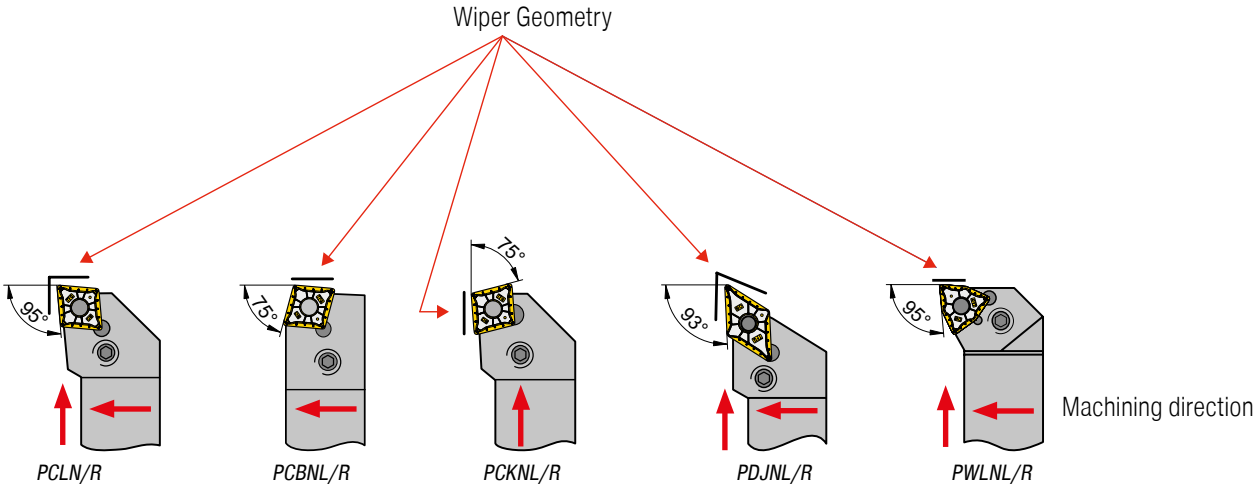
Supplementary chip breakers / application notes

Negative	Model	Smooth cut ○	Irregular cutting depth ◔	Interrupted cut ◌
-11 (-11) ▲ For copy machining in finishing operations ▲ On general steels, stainless steels and cast iron ▲ Can be used on less powerful machines	 **F**		**CTCP125 (HCX1125)**	**CTCP135 (HCR1135)**
-12 (-12) ▲ For copy machining in the medium machining range ▲ On general steels, stainless steels and cast iron	 **M**		**CTCP125 (HCX1125)**	**CTCP135 (HCR1135)**
-EN (-EN) ▲ Universal chip breaker for general steels	 **M**	**CTCP115 HCX1115** CTCP125 (HCX1125) **CTCK110 DCX3110**	**CTCP125 (HCX1125)** CTCP135 (HCR1135) **CTCK120 HCF3120**	**CTCP135 (HCR1135)** CTCP135 (HCR1135) CTCP125 (HCX1125)
-ER|EL (-ER|EL) ▲ A problem solver for unstable conditions ▲ Can be used on less powerful machines ▲ Can be used for general steels and on stainless materials as a secondary application	 **M**		**CTCP125 (HCX1125)**	**CTCP135 (HCR1135)**

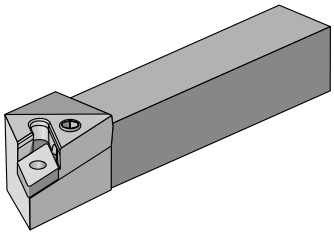
9

Masterfinish – wiper geometry – notes

Through the use of indexable inserts with wiper edge (-TFQ; -TMQ; -SMQ; -25Q) high quality surfaces can be produced economically.

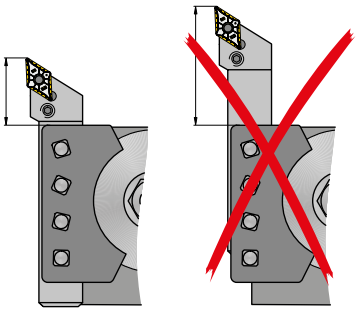


All turning inserts with wiper cutting edge are clamped in standard ISO tool holders

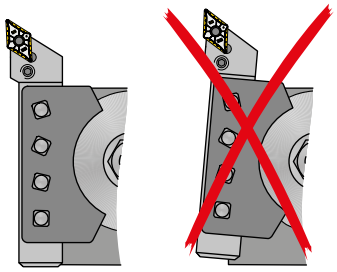


Check toolholder:

- Insert seat
- Shim
- Clamping Lever



Short tool overhang



Ensure correct tool alignment

Feed rate guide values for surface finish quality

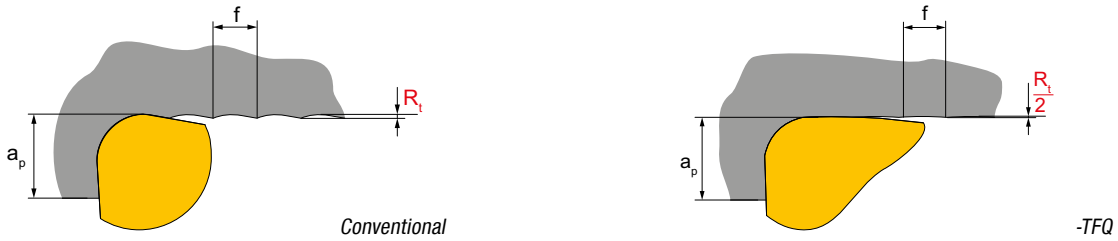
Roughness range R_z in µm	$R_{t\,max.}$	Corresponds to R_a	Roughness index	ISO 1302	Corner radius r_ε in mm and feed rate f in mm/rev.			
					r_ε = 0,4	r_ε = 0,8	r_ε = 1,2	r_ε = 1,6
63–100	R_t100	12,5–25	N11	25		0,51	0,69	0,88
40–63	R_t63	6,3–25	N10	12,5	0,27	0,43	0,56	0,68
31,5–40	R_t40	4,9–6,3	N9	6,3	0,25	0,37	0,49	0,57
25–31,5	R_t31,5	4,0–4,9			0,22	0,32	0,41	0,47
16–25	R_t25	2,5–4,0	N8	3,2	0,20	0,28	0,36	0,39
10–16	R_t16	1,6–2,5			0,15	0,22	0,29	0,31
6,3–10	R_t10	1,0–1,6	N7	1,6	0,10	0,13	0,18	0,20

Masterfinish – wiper geometry – functional principle

Relationship of feed rate to surface roughness

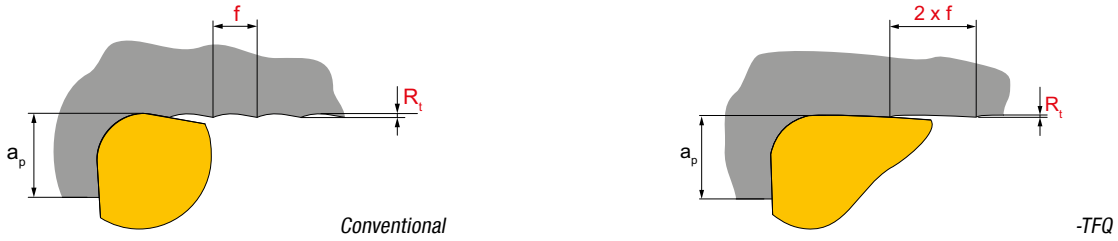
Improved Surface Quality

With the same feed rate an insert with wiper cutting edge reaches a roughness value R_t which is many times better than a conventional insert.



Shorter machining time

To achieve the same R_t-value as with a standard insert, double the feed rate can be applied for the insert with wiper cutting edge
(= shorter production time per component!))



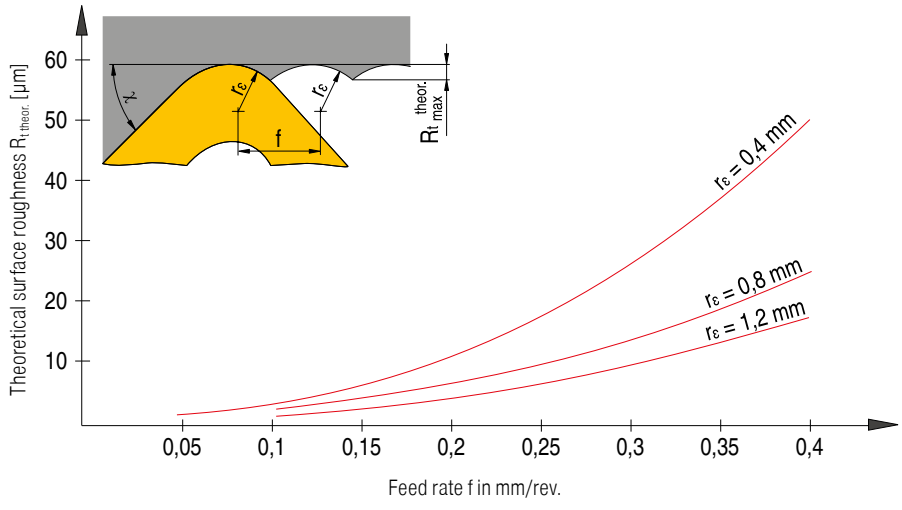
Theoretical Surface Quality

The maximum theoretical surface roughness with turning $Rt_{theor.}$ is the combination of feed rate and corner radius:

$$Rt_{theor.} = \left(r_\varepsilon - \sqrt{r_\varepsilon^2 - \frac{f^2}{4}}\right) \cdot 1000$$

or approximately:

$$Rt_{theor.} = \frac{125 \cdot f^2}{r\varepsilon} \quad [\mu m]$$



9

ISO designation system for inserts

Indexable inserts – metric

C	N	M	G	12	04	08	E	N	-	M50
1	2	3	4	5	6	7	8	9		13

Indexable inserts – inch

C	N	M	G	4	3	2	E	N	-	M50
1	2	3	4	5	6	7	8	9		13

Indexable inserts, CBN, ceramic – metric

C	N	G	A	12	04	08	S	N	-	020D	_	B	3	-	Q
1	2	3	4	5	6	7	8	9		10		11	12		13

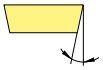
Indexable inserts, CBN, ceramic – inch

C	N	G	A	4	3	2	S	N	-	020D	_	B	3	-	Q
1	2	3	4	5	6	7	8	9		10		11	12		13

1 Insert shape

V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

2 Clearance angle



	α		α
A	3°	F	25°
B	5°	G	30°
C	7°	N	0°
D	15°	P	11°
E	20°		

O — Clearance angles not included within the standard for which particular information is necessary.

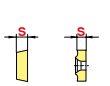
3 Tolerances



	IC±		BS		S	
	mm	inch	mm	inch	mm	inch
A	0,025	.0010	0,005	.0002	0,025	.001
F	0,013	.0005	0,005	.0002	0,025	.001
C	0,025	.0010	0,013	.0005	0,025	.001
H	0,013	.0005	0,013	.0005	0,025	.001
E	0,025	.0010	0,025	.0010	0,025	.001
G	0,025	.0010	0,025	.0010	0,13	.005
J	0,05-0,15*	.002-.006*	0,005	.0002	0,025	.001
K	0,05-0,15*	.002-.006*	0,013	.0005	0,025	.001
L	0,05-0,15*	.002-.006*	0,025	.0010	0,025	.001
M	0,05-0,15*	.002-.006*	0,05-0,20*	.003-.008*	0,13	.005
N	0,05-0,15*	.002-.006*	0,05-0,20*	.003-.008*	0,025	.001
U	0,08-0,25*	.003-.010*	0,13-0,38*	.005-.015*	0,13	.005

* Depends on insert size

6 Insert thickness



		Code	
mm	inch	mm	inch
1,59	1/16	01	1
2,38	3/32	02	
3,18	1/8	03	2
3,97	5/32	T3	
4,76	3/16	04	3
5,56	7/32	05	
6,35	1/4	06	4
7,94	5/16	07	5
9,52	3/8	09	6

7 Corner radius

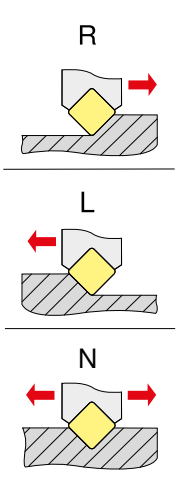


		Code		RN **00** RC **MO**
mm	inch	mm	inch	
≤ 0,05	.0015	00	X0	
0,1	.004	01	0	
0,2	.008	02	.5	
0,4	1/64	04	1	
0,8	1/32	08	2	
1,2	3/64	12	3	
1,6	1/16	16	4	
2,0	5/64	20	5	
2,4	3/32	24	6	
2,8	7/64	28	7	
3,2	1/8	32	8	

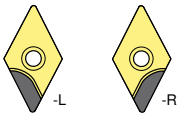
8 Cutting edge

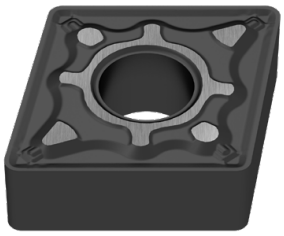
F	Sharp
E	Honed
T	Chamfered
S	Chamfered and honed
K	Double-chamfered
P	Double-chamfered and honed
R	Round chamfer

9 Direction of cut



CBN and PCD segment orientation





4 Characteristics

N	
R	
F	
A	
M, P	
G, P	
W	
T	
Q	
U	
B	
H	
C	
J	
X	Special version

inch

Change at inscribed circle IK < 1/4"

IK > 1/4"	IK < 1/4"
N / R / F	E
A / M / G	D
X	X

5 Cutting length

Type	ISO	ANSI	L mm	L inch	IC mm	IC inch
C	06	2	6,4	.250	6,35	.250
	09	3	9,7	.382	9,525	.375
	12	4	12,9	.508	12,70	.500
	16	5	16,1	.634	15,875	.625
	19	6	19,3	.760	19,05	.750
	25	8	25,8	1.016	25,4	1.000
	32	12	35,24	1.269	31,75	1.250
S	06	2	6,35	.250	6,35	.250
	09	3	9,525	.375	9,525	.375
	12	4	12,7	.500	12,7	.500
	15	5	15,875	.625	15,875	.625
	19	6	19,05	.750	19,05	.750
	25	8	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
D	07	2	7,7	.303	6,35	.250
	11	3	11,6	.457	9,525	.375
	15	4	15,5	.610	12,70	.500
V	11	2	11,1	.437	6,35	.250
	16	3	16,6	.653	9,525	.375
	22	4	22,10	.870	12,70	.500

* inch version

Type	ISO	ANSI	L mm	L inch	IC mm	IC inch
T	06	1.2	6,9	.272	3,97	.156
	09	1.8	9,6	.378	5,56	.219
	11	2	11,0	.433	6,35	.250
	16	3	16,5	.650	9,525	.375
	22	4	22,	.079	12,70	.039
	27	5	27,5	1.083	15,875	.625
	33	6	33,0	1.299	19,05	.750
W	06	3	6,5	.256	9,525	.375
	08	4	8,7	.331	12,70	.039
	10	5	10,9	.429	15,875	.625
R	06	2	6,35	.250	6,35	.250
	08	-	8,0	.315	8,0	.315
	09	3	9,52	.375	9,52	.375
	10	-	10,0	.394	10,0	.394
	12*	-	12,0	.472	12,0	.472
	12	4	12,7	.488	12,70	.488
	15	5	15,875	.625	15,875	.625
	16	-	16,0	.630	16,0	.630
	19	6	19,05	.750	19,05	.750
	25	8	25,0	.984	25,0	.984
	25*	-	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
	32	-	32,0	1.260	32,0	1.260

9

10 Chamfer type



T / S K / P [1]

	mm	inch		
015	0,15	.006	A	05°
020	0,20	.008	B	10°
025	0,25	.010	C	15°
050	0,50	.020	D	20°
075	0,75	.030	E	25°
100	1,00	.040	F	30°
			G	35°

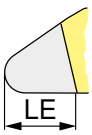
1) Two letters are assigned for double-chamfered cutting edges
e.g. BE =
chamfer angle 1 (y_1) = 10°
chamfer angle 2 (y_2) = 25°

11 Number of cutting edges

Single sided		Complete insert thickness	
A		T	
B		U	
C		V	
D		W	
G		X	
H		Y	

Double sided		Entire clamping flat	
K		S	
L		F	
M		E	
N			
P			
Q			

12 Segment length



Approx. specification in mm

13 Chip breaker designation

You can find a comprehensive chip breaker overview on
→ **page 168–175**

ISO designation system for tool holders

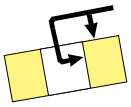
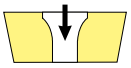
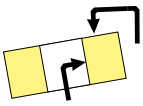
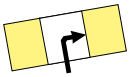
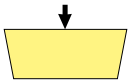
	P	C	L	N	R	20	20	K	12	- T
	1	2	3	4	5	6	7	8	9	10
UT50	- P	C	L	N	R				-12	
0	1	2	3	4	5	6	7	8	9	10
HSK-T63	- D	C	L	N	R				-12	
0	1	2	3	4	5	6	7	8	9	10

0 System/size

UT = UTS
according to ISO 26622
UT40 = UTS 40 mm
UT50 = UTS 50 mm
UT63 = UTS 63 mm

HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm

1 Tool holder

D  Retained from above and via bore	**S**  Retained via centre screw
M  Retained from above and via bore	**P**  Retained via the bore
C  Retained from above	**X** Special version

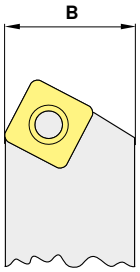
2 Insert shape

V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

6 Shank height

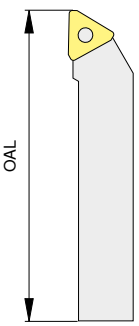


7 Shank width



8 Tool length

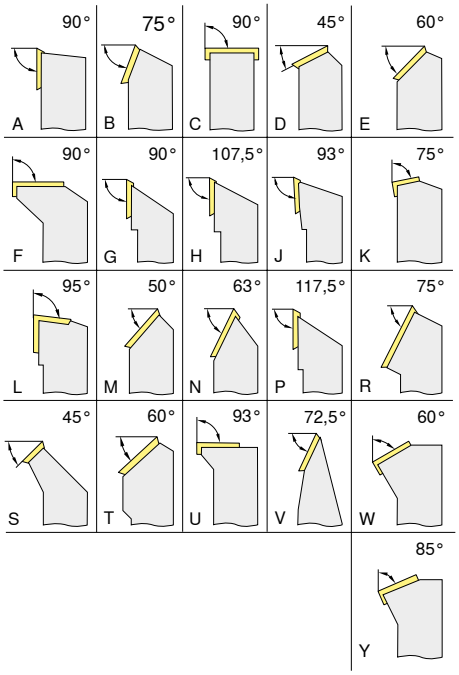
OAL mm	OAL inch		OAL mm	OAL inch	
32	4.000	**A**	160	4.500	**N**
40	4.500	**B**	170	5.500	**P**
50	5.000	**C**	180	–	**Q**
60	6.000	**D**	200	6.000	**R**
70	7.000	**E**	250	7.000	**S**
80	8.000	**F**	300	8.000	**T**
90	5.500	**G**	350	5.500	**U**
100	5.625	**H**	400	3.500	**V**
110	5.300	**J**	450	3.500	**W**
125	14.000	**K**	500	3.750	**Y**
140	6.800	**L**	Special version		**X**
150	4.400	**M**			





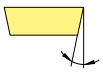
3

Style



4

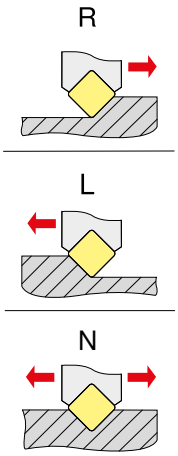
Clearance angle



	α		α
A	3°	**F**	25°
B	5°	**G**	30°
C	7°	**N**	0°
D	15°	**P**	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		

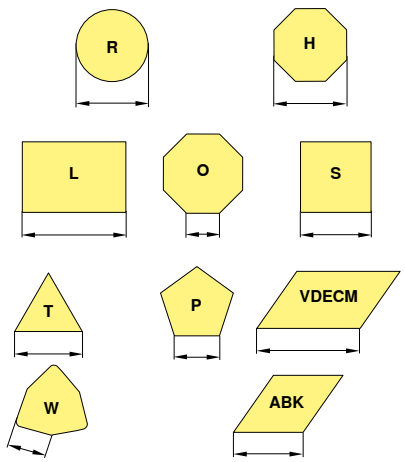
5

Direction of cut



9

Cutting length



10

Manufacturer specification

T = Toggle
Special length (mm)
Insert thickness (deviating from standard)
Special version (X..)
Machine manufacturer (specific)

ISO designation system for boring bars

		A	25	R		P	C	L	N	R	12	
		1	2	3		4	5	6	7	8	9	10
UT40	-		25	G	-	P	C	L	N	R	-	12
0		1	2	3		4	5	6	7	8	9	10
HSK-T63	-		50	Q	-	D	C	L	N	R	-	12
0		1	2	3		4	5	6	7	8	9	10

0 System/size

UT = UTS
according to ISO 26622
UT40 = UTS 40 mm
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HSK-T63 = 63 mm
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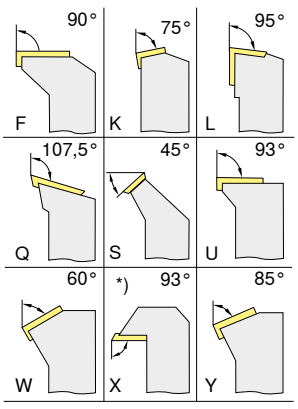
1 Shank type

S	Steel shank	**E**	As C with coolant hole
A	Steel shank with coolant hole	**F**	As C with antivibration system
B	Steel shank with antivibration system	**G**	As C with coolant hole and antivibration system
D	Steel shank with coolant hole and antivibration system	**H**	Heavy metal
C	Carbide shank with steel head	**J**	Heavy metal with coolant hole

5 Insert shape

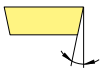
V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

6 Style



*) CERATIZIT factory standard

7 Clearance angle



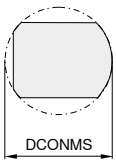
	α		α
A	3°	**F**	25°
B	5°	**G**	30°
C	7°	**N**	0°
D	15°	**P**	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		



2

Shank diameter

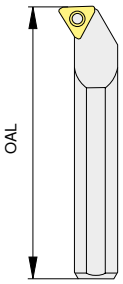
DCONMS mm	DCONMS inch
08	A two-digit figure indicating the boring bar diameter in 1/16 of an inch.
10	
12	
16	
20	
25	
32	
40	
50	
60	



3

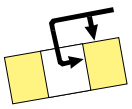
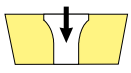
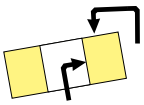
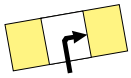
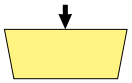
Tool length

OAL mm	OAL inch	
80	3	F
100	3,5	H
110	4	J
125	4,5	K
140	5	L
150	5,5	M
160	6	N
170	6,5	P
180	6,75	Q
200	7	R
250	8	S
300	10	T
350	12	U
400	14	V
450	16	W
500	18	Y
	20	
Special version		X



4

Clamping method

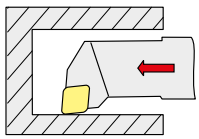
D  Retained from above and via bore	**S**  Retained via centre screw
M  Retained from above and via bore	**P**  Retained via the bore
C  Retained from above	**X** Special version

9

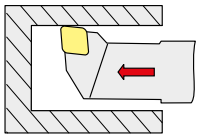
8

Direction of cut

R

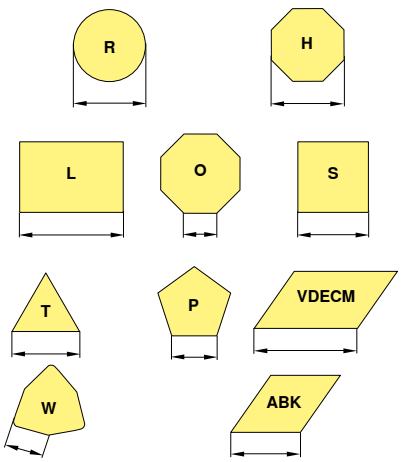


L



9

Cutting length



10

Manufacturer specification

T = Toggle
Special length (mm)
Insert thickness (deviating from standard)
Special version (X..)
Machine manufacturer (specific)

Types of wear

Wear on clearance face

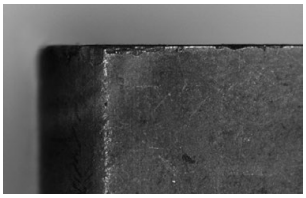


Abrasion on flank: normal wear after a certain machining time

Cause
- Too high cutting speed
- Carbide grade with too low wear resistance
- Feed rate not adapted

Remedy
- Reduce cutting speed
- Use grade with higher wear resistance
- Adapt feed rate to cutting speed and cutting depth

Edge chipping

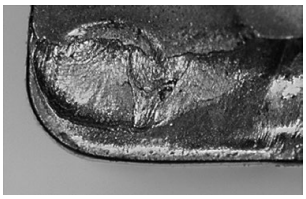


Through excessive mechanical stress at the cutting edge fracture and chipping can occur.

Cause
- Grade with too high wear resistance
- Vibration
- Too high cutting speed and / or feed rate
- Interrupted cut
- Swarf damage

Remedy
- Use tougher grade
- Use negative cutting edge geometry with chip groove
- Improve stability (tool, work piece)

Cratering

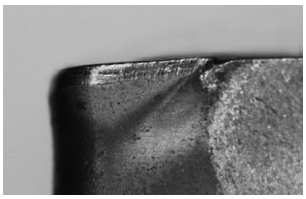


The hot chip which is being evacuated causes cratering at the rake face of the cutting edge.

Cause
- Too high cutting speed and / or feed rate
- Rake angle too shallow
- Grade with insufficient wear resistance
- Insufficient coolant supply

Remedy
- Reduce cutting speed and / or feed rate
- Use grade with higher wear resistance
- Increase coolant quantity and / or pressure, optimise coolant supply
- Use grade which is more resistant to cratering

Plastic deformation

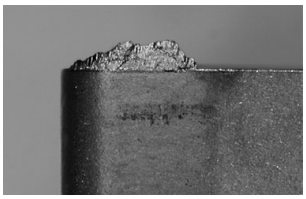


High machining temperature and simultaneous mechanical stress can lead to plastic deformation.

Cause
- Too high machining temperature resulting in softening of substrate
- Damage of coating
- Grade with insufficient wear resistance
- Insufficient coolant supply

Remedy
- Reduce cutting speed
- Use grade with higher wear resistance
- Provide cooling

Built-up edge

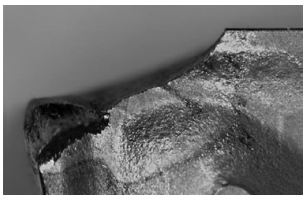


Built-up material / edges occur when the chip is not evacuated properly due to insufficient cutting temperature.

Cause
- Insufficient cutting speed
- Rake angle too shallow
- Wrong cutting material
- Lack of cooling / lubrication

Remedy
- Increase cutting speed
- Increase rake angle
- Apply TiN coating
- Use emulsion with higher concentration

Insert breakage

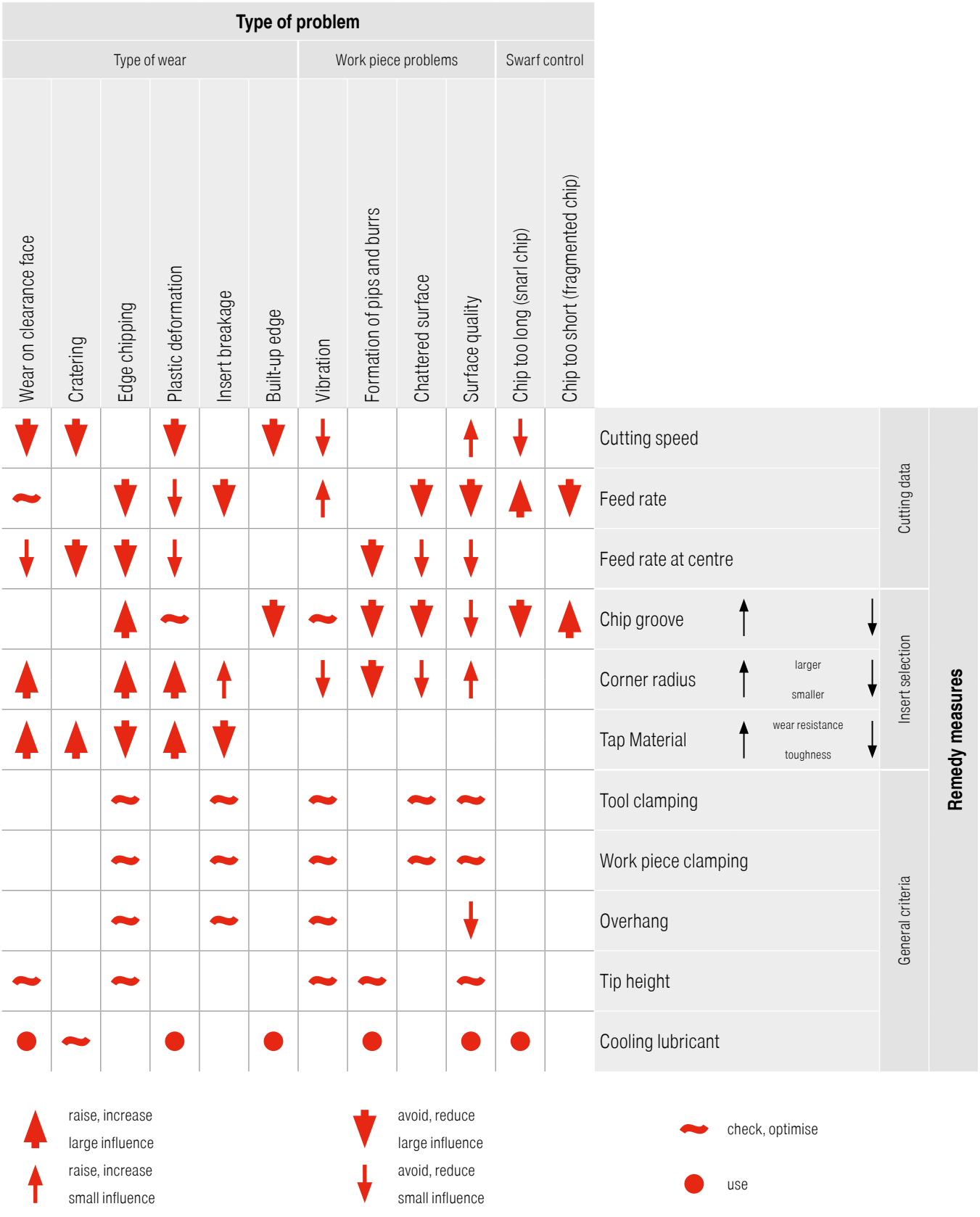


Excessive stress of the insert causes breakage.

Cause
- Excessive stress of cutting material
- Lack of stability
- Clearance angle too small

Remedy
- Use tougher grade
- Use protective edge chamfer
- Increase edge hone
- Use geometry with higher stability

Recommendation for Optimum Results



Grades Overview

	Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant alloys S
	Turning							
Main application: **Steel and cast iron**	CTEP110 (DCC1110)	HC-P10 HC-M10 HC-K05		●	○	○		
	CTCK110 (DCX3110)	HC-P05 HC-K10		●	○	●		
	CTCK120 (HCF3120)	HC-P10 HC-K20		●		●		
	CTCP115 (HCX1115)	HC-P15 HC-M10 HC-K25		●	○	○		
	CTCP125 (HCX1125)	HC-P25 HC-M20 HC-K30		●	○	○		
	CTCP135 (HCR1135)	HC-P35 HC-M25 HC-S25		●	○			○
Main application: **Stainless**	CWN2120	HC-M20 HC-N20			●		○	
	CTPM125 (HCN2125)	HC-P35 HC-M25		○	●			○
	CTC2135 (CWN2135)	HC-P35 HC-M20 HC-S20		○	●			●
Main application: **Non-ferrous metals**	H210T (CWK20)	HW-K10 HW-N10 HW-S10				○	●	○
	H216T (CWK26)	HW-K15 HW-N15 HW-S15				○	●	○
	H10T (CWK15)	HW-K15 HW-N15 HW-S15				○	●	○
	AMZ	HC-P15 HC-M15 HC-K20 HC-N20		○	○	○	●	
	CWN15	HC-M20 HC-N20			○		●	
Main application: **Heat-resistant**	CTPX710	HC-P10 HC-M10 HC-K10 HC-N10 HC-S15		●	●	○	○	●
	CTP5110 (HCN5110)	HC-N10 HC-S10			○			●
	CTP5115 (HCN5115)	HC-N15 HC-S15			○			●
	CTP2120 (CCN2120)	HC-P20 HC-M20 HC-K15 HC-N20 HC-S20			●	○	○	●

ISO application range: 01 05 10 15 20 25 30 35 40 45 50

● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c− tough

Grade description

TCM407 / CWC407
- Cermet, uncoated
- ISO | **P10** | M05 | K05
- The uncoated cermet grade for super-fine finishing steel materials

CTEP110 / DCC1110
- Cermet, TiCN-Al_2O_3-coated
- ISO | **P10** | M10 | K05
- The cermet grade with reserves of toughness for finish machining at high cutting speeds

TCM10 / CWC10
- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

CTCP115 / HCX1115
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P15** | M10 | **K25**
- The wear-resistant high-performance grade for stable conditions and a continuous cut

CTCP125 / HCX1125
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P25** | M20 | **K30**
- The first choice for universal machining of steels

CTCP135 / HCR1135
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P35** | M25 | S25
- The tough alternative for heavily interrupted cut and unstable conditions

CTP2120 / CCN2120
- Carbide, TiAlN-coated
- ISO | **M20** | K20 | N20 | **S20**
- The universal carbide grade for stainless steel and super alloys

CWN2120 / CWN2120
- Carbide, TiN-coated
- ISO | **M20** | K20 | N20
- The universal carbide grade for machining stainless steel

CTPM125 / HCN2125
- ISO | **P35** | **M25** | S25
- The universal carbide grade with maximum toughness, without affecting the necessary hot hardness and wear resistance for stainless machining

CTC2135 / CWN2135
- Carbide, TiCN-TiNB-coated
- ISO | P35 | **M30** | S35
- The turning grade for general stainless machining

CTCK110 / DCX3110
- Carbide, TiCN-Al_2O_3-coated
- ISO | P05 | **K10**
- The wear-resistant grade for machining cast iron materials at high cutting speeds in a continuous cut

CTCK120 / HCF3120
- Carbide, TiCN-Al_2O_3-coated
- ISO | P10 | **K20**
- The grade for cast iron machining, with high toughness reserves for difficult conditions and interrupted cuts

H10T / CWK15
- Carbide, uncoated
- ISO | **K15** | **N15**
- The uncoated carbide grade for machining aluminium and other non-ferrous metals

H210T / CWK20
- Carbide, uncoated
- ISO | **N10** | **S10** | K10
- The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

H216T / CWK26
- Carbide, uncoated
- ISO | **K15** | **N15**
- The uncoated carbide grade for machining aluminium and other non-ferrous metals
- Also highly suitable for HSC machining

CWN15 / CWN15
- Carbide, TiN-coated
- ISO | **K15**
- Special carbide grade for abrasive aluminium alloys

AMZ / AMZ
- Carbide, TiAlN-coated
- ISO | P10 | K10 | **N10** | S10
- The coated carbide grade for aluminium machining

CTP5110 / HCN5110
- Carbide, TiAlN-coated
- ISO | M15 | **S15**
- The alternative for machining heat-resistant materials

CTP5115 / HCN5115
- Carbide, TiAlN-TiN-coated
- ISO | M15 | **S15**
- The first choice for machining heat-resistant materials

CTPX710
- Carbide, AlTiN-coated
- ISO | **P10** | **M10** | K10 | N10 | **S15**
- Universal multi-material grade from the X7 line for highest machining requirements

Grade description

C	T	C	P	1	2	5
H	C	X	1	1	2	5

(Example)

Main application – material

1|P	Steel
2|M	Stainless steel
3|K	Cast iron
4|N	Light and non ferrous metals
5|S	Super alloys, titanium
6|H	Hard materials
7|X	Universal application

Application

1	Turning
2	Milling
3	Grooving
4	Drilling
5	Thread turning
6	Others
7	Several processes

Degree of hardness

05	ISO 05
10	ISO 10
15	ISO 15
	...

Programme Extension

EcoCut – Mini Ø 2–3.5 mm

DRAGONSKIN



→ Page 5

EcoCut adapter Mini



→ Page 6

EcoCut – Mini adapter with coolant connection thread



→ Page 7



Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut 10
11 Grooving Tools
12 Miniature turning tools

Milling

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

Tool Clamping

16 Adapters
17 Accessories

18 Material examples and article no. index

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Product programme	5–14
Technical Information	
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EcoCut Classic Cutting Data	17+18
EcoCut ProfileMaster Cutting Data	19+20
Cutting Data	21+22
EcoCut Classic chip breaker characteristics	23
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Application information	25–29
Grade overview and application	30+31

CERATIZIT \ Performance

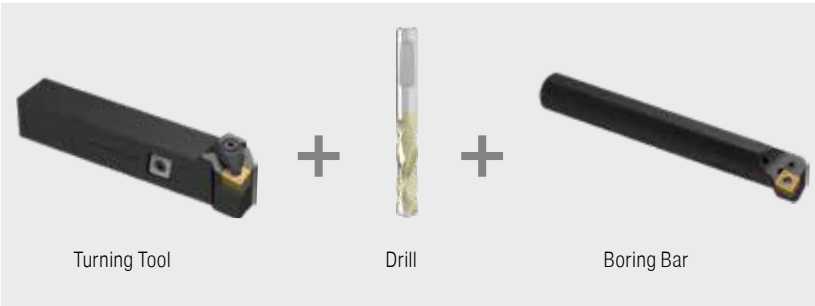
Premium quality tools for high performance.

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

More productive thanks to EcoCut – continous cost savings

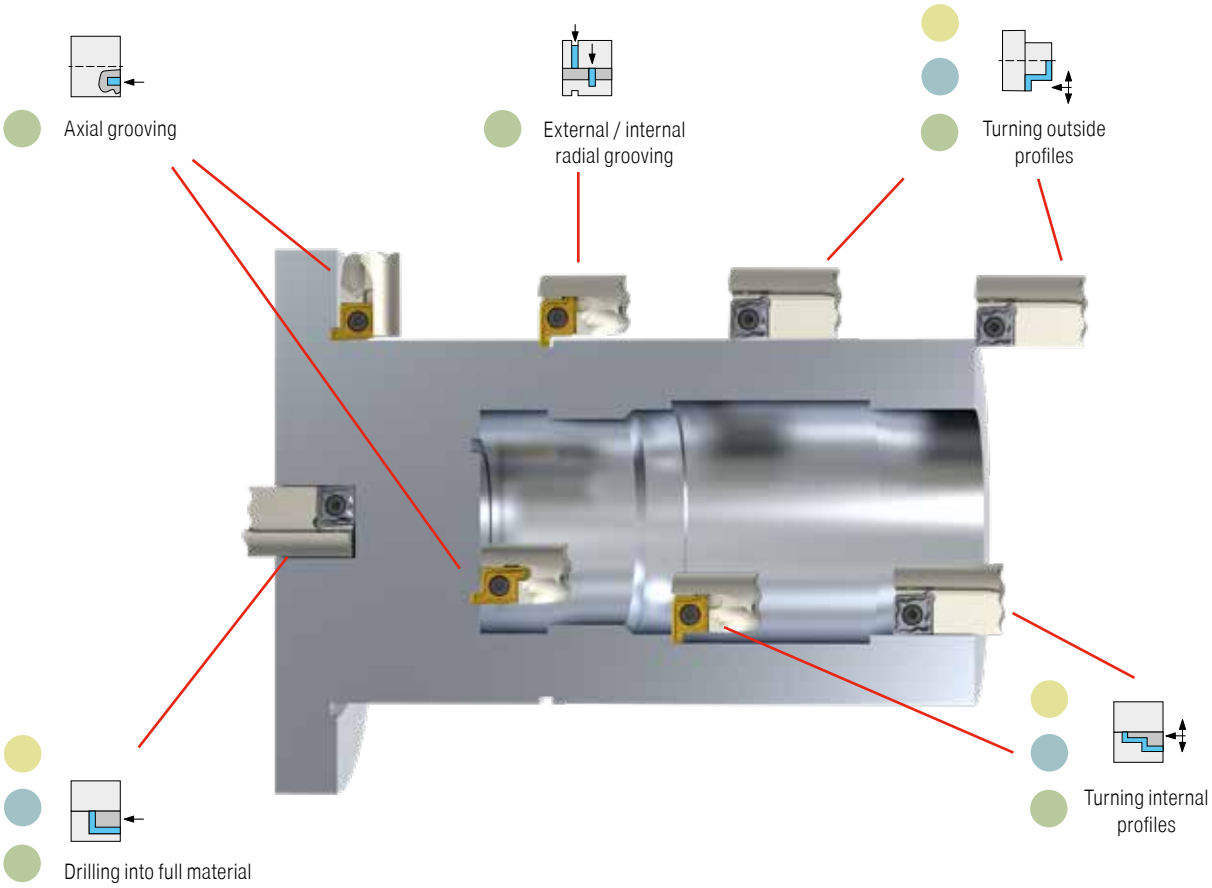
Advantages with EcoCut

- reduced machining time
- reduced need for tool positions
- generates flat bottom of hole
- less programming
- lower set-up costs / reduced setting time
- time savings due to fewer tool changes





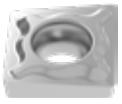
Toolfinder



	Tools:			Applications					Pages
	Dimension	Hole Ø mm	max. hole depth mm						
EcoCut Mini	2,25xD	2–8	4,5–18	✓	✓	✓			5
	4xD	2–8	8–32	✓	✓	✓			5
EcoCut Classic	1,5xD	8–32	12–48	✓	✓	✓			9
	2,25xD	8–32	18–72	✓	✓	✓			10
	3xD	8–32	24–96	✓	✓	✓			11
EcoCut ProfileMaster	1,5xD	10–32	15–48	✓	✓	✓	✓	✓	13
	2,25xD	10–32	22,5–72	✓	✓	✓	✓	✓	14
EcoCut HSK-T	2,25xD	25–32	56,2–72	✓	✓	✓			see → **Chapter 16, Adapters.**

EcoCut tools are suitable for off-centre drilling.
This permits certain deviations from the nominal tool diameter to be achieved → **For details, see the technical information.**

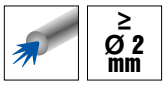
Overview EcoCut Mini and EcoCut Inserts

Type	Smooth cut	Irregular cutting depth	Interrupted cut	Grade	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant alloys	Tempered steel	Radius RE in mm	coated	uncoated	Pages
EcoCut Mini														
DRAGONSKIN 	○	◌	◌	CTPP435 / HCN1435	●	●	○		●		0,1–0,2	■		5
	○	◌	◌	CTWN425 / CWK4425			○	●			0,1–0,2		□	5
EcoCut Classic														
DRAGONSKIN 	○	◌	◌	CTCP425 / HCR1425	●	○	●				0,2–0,8	■		8
DRAGONSKIN 	○	◌	◌	CTCP435 / HCR1435	●	○	●				0,2–0,8	■		8
DRAGONSKIN 	○	◌	◌	CTPP430 / HCN2430	●	●	○	○	●		0,2–0,8	■		8
	○	◌	◌	H216T / CWK26				●	●		0,2–0,8		□	8
	○	◌	◌	H210T / CWK20			○	●	●		0,2–0,8		□	8
EcoCut ProfileMaster														
DRAGONSKIN 	○	◌	◌	CTPP430 / HCN2430	●	●	○	○	●		0,4	■		12

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

EcoCut – Mini

▲ Drilling and turning tool for small diameters



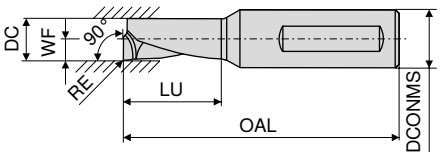
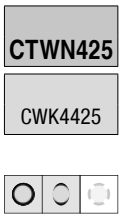
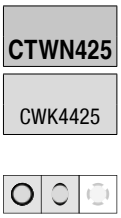


Diagram shows right hand version















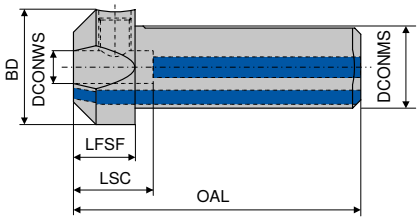


							Solid carbide Left-hand	Solid carbide Right-hand	Solid carbide Left-hand	Solid carbide Right-hand
Designation	DC	DCONMS	OAL	LU	WF	RE	**Article no. 70 805 ...**	**Article no. 70 804 ...**	**Article no. 70 805 ...**	**Article no. 70 804 ...**
	mm	mm	mm	mm	mm	mm				
ECM 02 R/L 2,25D	2,0	4	28	4,50	1,00	0,1	320	320		
ECM 02 R/L 2,25D AL	2,0	4	28	4,50	1,00	0,1			420	420
ECM 02 R/L 4,00D	2,0	4	31	8,00	1,00	0,1	321	321		
ECM 02 R/L 4,00D AL	2,0	4	31	8,00	1,00	0,1			421	421
ECM 02,5 R/L 2,25D	2,5	4	29	5,63	1,25	0,1	325	325		
ECM 02,5 R/L 2,25D AL	2,5	4	29	5,63	1,25	0,1			425	425
ECM 02,5 R/L 4,00D	2,5	4	33	10,00	1,25	0,1	326	326		
ECM 02,5 R/L 4,00D AL	2,5	4	33	10,00	1,25	0,1			426	426
ECM 03 R/L 2,25D	3,0	4	31	6,75	1,50	0,1	330	330		
ECM 03 R/L 2,25D AL	3,0	4	31	6,75	1,50	0,1			430	430
ECM 03 R/L 4,00D	3,0	4	35	12,00	1,50	0,1	331	331		
ECM 03 R/L 4,00D AL	3,0	4	35	12,00	1,50	0,1			431	431
ECM 03,5 R/L 2,25D	3,5	4	32	7,88	1,75	0,1	335	335		
ECM 03,5 R/L 2,25D AL	3,5	4	32	7,88	1,75	0,1			435	435
ECM 03,5 R/L 4,00D	3,5	4	37	14,00	1,75	0,1	336	336		
ECM 03,5 R/L 4,00D AL	3,5	4	37	14,00	1,75	0,1			436	436
ECM 04 R/L 2,25D	4,0	6	35	9,00	2,00	0,2	300	300		
ECM 04 R/L 2,25D AL	4,0	6	35	9,00	2,00	0,2			450	450
ECM 04 R/L 4,00D	4,0	6	41	16,00	2,00	0,2	301	301		
ECM 04 R/L 4,00D AL	4,0	6	41	16,00	2,00	0,2			451	451
ECM 05 R/L 2,25D	5,0	6	37	11,25	2,50	0,2	302	302		
ECM 05 R/L 2,25D AL	5,0	6	37	11,25	2,50	0,2			452	452
ECM 05 R/L 4,00D	5,0	6	45	20,00	2,50	0,2	303	303		
ECM 05 R/L 4,00D AL	5,0	6	45	20,00	2,50	0,2			453	453
ECM 06 R/L 2,25D	6,0	8	38	13,50	3,00	0,2	306	306		
ECM 06 R/L 2,25D AL	6,0	8	38	13,50	3,00	0,2			456	456
ECM 06 R/L 4,00D	6,0	8	49	24,00	3,00	0,2	312	312		
ECM 06 R/L 4,00D AL	6,0	8	49	24,00	3,00	0,2			462	462
ECM 07 R/L 2,25D	7,0	8	42	15,75	3,50	0,2	308	308		
ECM 07 R/L 2,25D AL	7,0	8	42	15,75	3,50	0,2			458	458
ECM 07 R/L 4,00D	7,0	8	53	28,00	3,50	0,2	314	314		
ECM 07 R/L 4,00D AL	7,0	8	53	28,00	3,50	0,2			464	464
ECM 08 R/L 2,25D	8,0	8	45	18,00	4,00	0,2	310	310		
ECM 08 R/L 2,25D AL	8,0	8	45	18,00	4,00	0,2			460	460
ECM 08 R/L 4,00D	8,0	8	57	32,00	4,00	0,2	316	316		
ECM 08 R/L 4,00D AL	8,0	8	57	32,00	4,00	0,2			466	466
Steel							●	●		
Stainless steel							●	●		
Cast iron							○	○	○	○
Non ferrous metals									●	●
Heat resistant alloys							●	●		

→ v_c Page 22

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EcoCut – Adapter Mini





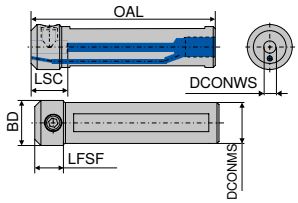
Designation	DCONWS	DCONMS	BD	OAL	LFSF	LSC	Article no. 70 800 ...
	mm	mm	mm	mm	mm	mm	
EC-ADX16-04	4	16,00	22	59,0	14	18	**716**
EC-ADX12-04-E	4	19,05	25	63,5	14	18	**719**
EC-ADX20-04	4	20,00	25	64,0	14	18	**720**
EC-ADX16-06	6	16,00	22	59,0	14	18	**976**
EC-ADX12-06-E	6	19,05	25	63,5	14	18	**986**
EC-ADX20-06	6	20,00	25	64,0	14	18	**996**
EC-ADX16-08	8	16,00	22	59,0	14	18	**978**
EC-ADX12-08-E	8	19,05	25	63,5	14	18	**988**
EC-ADX20-08	8	20,00	25	64,0	14	18	**998**



Clamping screw

Spare parts for Article no.		Article no. 70 950 ...
70 800 716	M5x10 ISO 4026	**867**
70 800 719	M5x10 ISO 4026	**867**
70 800 720	M5x10 ISO 4026	**867**
70 800 976	M8x1x8 - SW4	**123**
70 800 986	M8x1x8 - SW4	**123**
70 800 996	M8x1x8 - SW4	**123**
70 800 978	M8x1x8 - SW4	**123**
70 800 988	M8x1x8 - SW4	**123**
70 800 998	M8x1x8 - SW4	**123**

EcoCut – Mini adapter with coolant connection thread





Designation	DCONWS	DCONMS	BD	OAL	LFSF	LSC		Article no. 70 801 ...
	mm	mm	mm	mm	mm	mm	Thread	
ECA 16-04	4	16,00	20,0	75	14	18	G 1/8	**716**
ECA 0750-04	4	19,05	20,0	100	14	18	G 1/8	**719**
ECA 20-04	4	20,00	19,6	90	14	18	G 1/8	**720**
ECA 22-04	4	22,00	21,6	110	14	18	G 1/8	**722**
ECA 25-04	4	25,00	24,6	110	14	18	G 1/8	**725**
ECA 1000-04	4	25,40	25,0	110	14	18	G 1/8	**726**
ECA 16-06	6	16,00	22,0	75	14	18	G 1/8	**816**
ECA 0750-06	6	19,05	22,0	100	14	18	G 1/8	**819**
ECA 20-06	6	20,00	22,0	90	14	18	G 1/8	**820**
ECA 22-06	6	22,00	21,6	110	14	18	G 1/8	**822**
ECA 25-06	6	25,00	24,6	110	14	18	G 1/8	**825**
ECA 1000-06	6	25,40	25,0	110	14	18	G 1/8	**826**
ECA 16-08	8	16,00	22,0	75	14	18	G 1/8	**916**
ECA 0750-08	8	19,05	22,0	100	14	18	G 1/8	**919**
ECA 20-08	8	20,00	22,0	90	14	18	G 1/8	**920**
ECA 22-08	8	22,00	21,6	110	14	18	G 1/8	**922**
ECA 25-08	8	25,00	24,6	110	14	18	G 1/8	**925**
ECA 1000-08	8	25,40	25,0	110	14	18	G 1/8	**926**



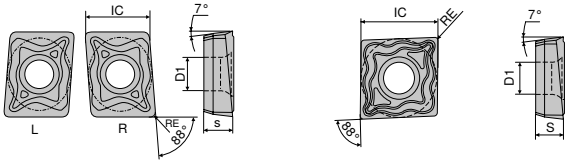
Clamping screw

10

Spare parts		Article no. 70 950 ...
for Article no.		
70 801 716	M5X8 - DIN 913	**13200**
70 801 719	M5X8 - DIN 913	**13200**
70 801 720	M5X8 - DIN 913	**13200**
70 801 722	M5X8 - DIN 913	**13200**
70 801 725	M5x10 ISO 4026	**867**
70 801 726	M5x10 ISO 4026	**867**
70 801 816	M8x1x8 - SW4	**123**
70 801 819	M8x1x8 - SW4	**123**
70 801 820	M8x1x8 - SW4	**123**
70 801 822	M8x1x8 - SW4	**123**
70 801 825	M8x1x8 - SW4	**123**
70 801 826	M8x1x8 - SW4	**123**
70 801 916	M8x1x8 - SW4	**123**
70 801 919	M8x1x8 - SW4	**123**
70 801 920	M8x1x8 - SW4	**123**
70 801 922	M8x1x8 - SW4	**123**
70 801 925	M8x1x8 - SW4	**123**
70 801 926	M8x1x8 - SW4	**123**

XCNT / XCET

Designation	S	D1	IC
	mm	mm	mm
XC.T 0401..	1,80	2,10	4,5
XC.T 0502..	2,10	2,25	5,8
XC.T 0602..	2,38	2,50	6,5
XC.T 0703..	3,18	2,80	7,6
XC.T 0803..	3,18	3,40	8,5
XC.T 09T3..	3,97	3,40	9,6
XC.T 10T3..	3,97	4,40	10,6
XC.T 1304..	4,76	5,30	13,5
XC.T 1705..	5,56	5,30	17,5



XCNT / XCET

	CTCP425	-M50Q CTCP425	CTCP435	CTPP430	-27P H216T	-27Q H210T
	HCR1425	-M50Q HCR1425	HCR1435	HCN2430	-ALP CWK26	-ALQ CWK20
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
						
	XCNT	XCNT	XCNT	XCNT	XCET	XCET
ISO	RE	Article no. 70 386 ...	Article no. 70 386 ...	Article no. 70 386 ...	Article no. 70 386 ...	Article no. 70 286 ...	Article no. 70 286 ...
	mm						
040102EL	0,2	720		820	920		
040102ER	0,2	722		822	922		
040102FL	0,2					620	120
040102FR	0,2					622	122
040104EL	0,4	700	750	800	900		
040104ER	0,4	702	752	802	902		
040104FL	0,4					600	100
040104FR	0,4					602	102
050202EN	0,2	723		823	923		
050202FN	0,2					623	123
050204EN	0,4	703	753	803	903		
050204FN	0,4					603	103
060202EN	0,2	724		824	924		
060202FN	0,2					624	124
060204EN	0,4	704	754	804	904		
060204FN	0,4					604	104
070304EN	0,4	705	755	805	905		
070304FN	0,4					605	105
080304EN	0,4	706	756	806	906		
080304FN	0,4					606	106
09T304EN	0,4	707	757	807	907		
09T304FN	0,4					607	107
10T304EN	0,4	708	758	808	908		
10T304FN	0,4					608	108
10T308EN	0,8	738	788	838	938		
10T308FN	0,8					628	128
130404EN	0,4	710	760	810	910		
130404FN	0,4					610	110
130408EN	0,8	740	790	840	940		
130408FN	0,8					611	111
170508EN	0,8	712	762	812	912		
170508FN	0,8					612	112

Steel	●	●	●	●		
Stainless steel	○	○	○	●		
Cast iron	●	●	●	○	●	●
Non ferrous metals				○	●	●
Heat resistant alloys				●		●

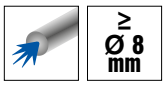
→ v_c Page 22

EcoCut – Classic 1.5xD

▲ Drilling and turning tool

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver



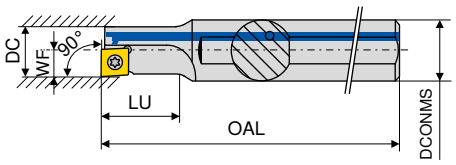


Diagram shows right hand version



Left-hand



Right-hand

Designation	DC	DCONMS	OAL	LU	WF	torque moment	Insert	Article no. 70 805 ...	Article no. 70 804 ...
	mm	mm	mm	mm	mm	Nm			
ECC 08 L 1,5D 04	8	12	80	12,0	4,0	0,4	XC.T 0401..EL	008 [2]	
ECC 08 R 1,5D 04	8	12	80	12,0	4,0	0,4	XC.T 0401..ER		008 [1]
ECC 10 R/L 1,5D 05	10	12	90	15,0	5,0	0,7	XC.T 0502..	010	010
ECC 12 R/L 1,5D 06	12	16	100	18,0	6,0	1,0	XC.T 0602..	012	012
ECC 14 R/L 1,5D 07	14	16	110	21,0	7,0	1,2	XC.T 0703..	014	014
ECC 16 R/L 1,5D 08	16	20	125	24,0	8,0	2,2	XC.T 0803..	016	016
ECC 18 R/L 1,5D 09	18	25	135	27,0	9,0	2,2	XC.T 09T3..	018	018
ECC 20 R/L 1,5D 10	20	25	150	30,0	10,0	3,2	XC.T 10T3..	020	020
ECC 25 R/L 1,5D 13	25	32	180	37,5	12,5	5,0	XC.T 1304..	025	025
ECC 32 R/L 1,5D 17	32	40	200	48,0	16,0	5,0	XC.T 1705..	032	032

1) Note! Right-hand insert on right-hand tool → **Page 26**
2) Note! Left-hand insert on left-hand tool → **Page 26**

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Key D



Clamping screw

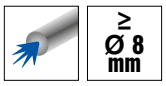
Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 805 008	T06 - IP	123	M1,8x3,6 - IP	862
70 804 008	T06 - IP	123	M1,8x3,6 - IP	862
70 805 010 / 70 804 010	T06 - IP	123	M2x4,3 - IP	863
70 805 012 / 70 804 012	T07 - IP	124	M2,2x5 - IP	856
70 805 014 / 70 804 014	T08 - IP	125	M2,5x6 - IP	857
70 805 016 / 70 804 016	T09 - IP	126	M3x7 - IP	819
70 805 018 / 70 804 018	T09 - IP	126	M3x7 - IP	819
70 805 020 / 70 804 020	T15 - IP	128	M3,5x8,6 - IP	859
70 805 025 / 70 804 025	T20 - IP	129	M4,5x10,5 - IP	864
70 805 032 / 70 804 032	T20 - IP	129	M4,5x10,5 - IP	864

EcoCut – Classic 2.25xD

▲ Drilling and turning tool

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver



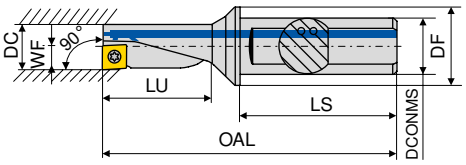


Diagram shows right hand version



Left-hand Right-hand

Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LS mm	WF mm	torque moment Nm	Insert	Article no. 70 805 ...	Article no. 70 804 ...
ECC 08 L 2,25D 04	8	10	12	60,0	18,0	38	4,0	0,4	XC.T 0401..EL	**108** [2]	
ECC 08 R 2,25D 04	8	10	12	60,0	18,0	38	4,0	0,4	XC.T 0401..ER		**108** [1]
ECC 10 R/L 2,25D 05	10	12	16	69,5	22,5	42	5,0	0,7	XC.T 0502..	**110**	**110**
ECC 12 R/L 2,25D 06	12	16	20	78,0	27,0	45	6,0	1,0	XC.T 0602..	**112**	**112**
ECC 14 R/L 2,25D 07	14	16	20	83,5	31,5	45	7,0	1,2	XC.T 0703..	**114**	**114**
ECC 16 R/L 2,25D 08	16	20	25	94,0	36,0	50	8,0	2,2	XC.T 0803..	**116**	**116**
ECC 18 R/L 2,25D 09	18	25	32	109,5	40,5	56	9,0	2,2	XC.T 09T3..	**118**	**118**
ECC 20 R/L 2,25D 10	20	25	32	111,0	45,0	56	10,0	3,2	XC.T 10T3..	**120**	**120**
ECC 25 R/L 2,25D 13	25	32	40	129,0	56,5	60	12,5	5,0	XC.T 1304..	**125**	**125**
ECC 32 R/L 2,25D 17	32	40	50	158,0	72,0	70	16,0	5,0	XC.T 1705..	**132**	**132**

1) Note! Right-hand insert on right-hand tool → **Page 26**
2) Note! Left-hand insert on left-hand tool → **Page 26**



Key D



Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 805 108	T06 - IP	**123**	M1,8x3,6 - IP	**862**
70 804 108	T06 - IP	**123**	M1,8x3,6 - IP	**862**
70 805 110 / 70 804 110	T06 - IP	**123**	M2x4,3 - IP	**863**
70 805 112 / 70 804 112	T07 - IP	**124**	M2,2x5 - IP	**856**
70 805 114 / 70 804 114	T08 - IP	**125**	M2,5x6 - IP	**857**
70 805 116 / 70 804 116	T09 - IP	**126**	M3x7 - IP	**819**
70 805 118 / 70 804 118	T09 - IP	**126**	M3x7 - IP	**819**
70 805 120 / 70 804 120	T15 - IP	**128**	M3,5x8,6 - IP	**859**
70 805 125 / 70 804 125	T20 - IP	**129**	M4,5x10,5 - IP	**864**
70 805 132 / 70 804 132	T20 - IP	**129**	M4,5x10,5 - IP	**864**

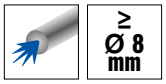
The EcoCut Classic 2.25xD is also available as a Monoblock HSK-T version. See → **Chapter 16, Adapters.**

EcoCut – Classic 3xD – Heavy metal

- Drilling and turning tool
- vibration-damped

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver



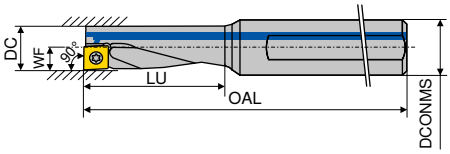


Diagram shows right hand version



Left-hand



Right-hand

Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert	Article no. 70 805 ...	Article no. 70 804 ...
ECC 08 L 3,00D 04 H	8	12	80	24	4,0	0,4	XC.T 0401..EL	608 [2]	
ECC 08 R 3,00D 04 H	8	12	80	24	4,0	0,4	XC.T 0401..ER		608 [1]
ECC 10 R/L 3,00D 05 H	10	12	85	30	5,0	0,7	XC.T 0502..	610	610
ECC 12 R/L 3,00D 06 H	12	16	95	36	6,0	1,0	XC.T 0602..	612	612
ECC 14 R/L 3,00D 07 H	14	16	100	42	7,0	1,2	XC.T 0703..	614	614
ECC 16 R/L 3,00D 08 H	16	20	110	48	8,0	2,2	XC.T 0803..	616	616
ECC 18 R/L 3,00D 09 H	18	25	125	54	9,0	2,2	XC.T 09T3..	618	618
ECC 20 R/L 3,00D 10 H	20	25	130	60	10,0	3,2	XC.T 10T3..	620	620
ECC 25 R/L 3,00D 13 H	25	32	150	75	12,5	5,0	XC.T 1304..	625	625
ECC 32 R/L 3,00D 17 H	32	40	185	96	16,0	5,0	XC.T 1705..	632	632

1) Note! Right-hand insert on right-hand tool → **Page 26**
2) Note! Left-hand insert on left-hand tool → **Page 26**

10



Key D

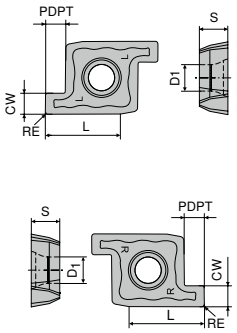


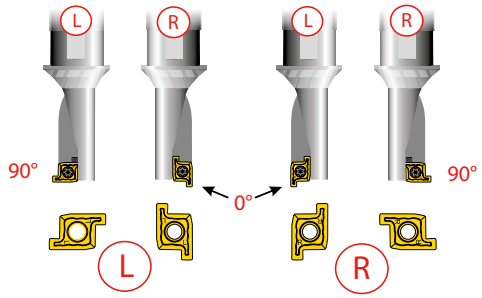
Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 805 608	T06 - IP	123	M1,8x3,6 - IP	862
70 804 608	T06 - IP	123	M1,8x3,6 - IP	862
70 805 610 / 70 804 610	T06 - IP	123	M2x4,3 - IP	863
70 805 612 / 70 804 612	T07 - IP	124	M2,2x5 - IP	856
70 805 614 / 70 804 614	T08 - IP	125	M2,5x6 - IP	857
70 805 616 / 70 804 616	T09 - IP	126	M3x7 - IP	819
70 805 618 / 70 804 618	T09 - IP	126	M3x7 - IP	819
70 805 620 / 70 804 620	T15 - IP	128	M3,5x8,6 - IP	859
70 805 625 / 70 804 625	T20 - IP	129	M4,5x10,5 - IP	864
70 805 632 / 70 804 632	T20 - IP	129	M4,5x10,5 - IP	864

PM-R / PM-L

Designation	CW	PDPT	L	S	D1
	mm	mm	mm	mm	mm
PM 10 G 201504	2,0	1,5	5,0	2,10	2,1
PM 12 G 201804	2,0	1,8	6,0	2,30	2,5
PM 16 G 252004	2,5	2,0	8,0	2,80	3,4
PM 20 G 302504	3,0	2,5	10,0	3,70	4,0
PM 25 G 353004	3,5	3,0	12,5	4,50	4,4
PM 32 G 404004	4,0	4,0	16,0	5,60	6,0





PM-R / PM-L

	-M20 CTPP430	-M20 CTPP430
	-M20 HCN2430	-M20 HCN2430
	DRAGONSKIN	DRAGONSKIN
		
	PM-R	PM-L
ISO	Article no. 70 289 ...	Article no. 70 289 ...
RE mm		
PM 10 G 201504 0,4	511	510
PM 12 G 201804 0,4	516	515
PM 16 G 252004 0,4	521	520
PM 20 G 302504 0,4	526	525
PM 25 G 353004 0,4	531	530
PM 32 G 404004 0,4	536	535
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●

→ v_c Page 22

EcoCut – ProfileMaster 1.5xD

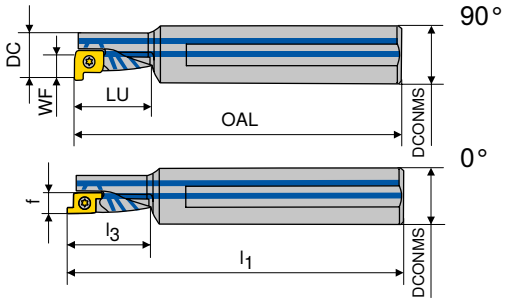
▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver







Diagrams show right hand versions



Designation	DC	DCONMS	OAL	LU	WF	l_1 (0°)	l_3 (0°)	f (0)°	torque moment	Insert	Left-hand Article no. 70 821 ...	Right-hand Article no. 70 820 ...
	mm	mm	mm	mm	mm	mm	mm	mm	Nm			
PMC 10 R/L 1,5D	10	12	80	15,0	5,0				0,4	PM 10R/L	**010** [1]	**010** [1]
PMC 12 R/L 1,5D	12	16	90	18,0	6,0				1,0	PM 12R/L	**012** [1]	**012** [1]
PMC 16 R/L 1,5D	16	20	125	24,0	8,0	127,3	26,3	5,7	2,2	PM 16R/L	**016**	**016**
PMC 20 R/L 1,5D	20	25	150	30,0	10,0	152,8	32,8	7,2	2,2	PM 20R/L	**020**	**020**
PMC 25 R/L 1,5D	25	32	180	37,5	12,5	183,3	40,8	9,2	3,2	PM 25R/L	**025**	**025**
PMC 32 R/L 1,5D	32	40	200	48,0	16,0	204,3	52,3	11,7	5,0	PM 32R/L	**032**	**032**

1) only usable as 90° version



Key D



Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 820 010 / 70 821 010	T06 - IP	**123**	M1,8x3,6 - IP	**862**
70 820 012 / 70 821 012	T07 - IP	**124**	M2,2x4,2 - IP	**137**
70 820 016 / 70 821 016	T09 - IP	**126**	M3x5,7 - IP	**008**
70 820 020 / 70 821 020	T15 - IP	**128**	M3x5,7 - IP	**009**
70 820 025 / 70 821 025	T15 - IP	**128**	M3,5x8,6 - IP	**859**
70 820 032 / 70 821 032	T20 - IP	**129**	M5x10,8 - IP	**010**

EcoCut – ProfileMaster 2.25xD

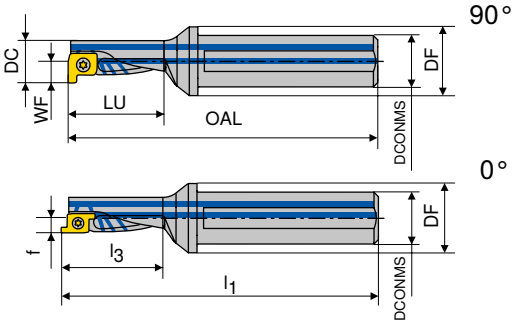
▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver







Diagrams show right hand versions



Designation	DC	DCONMS	DF	OAL	LU	WF	l_1 (0°)	l_3 (0°)	f (0)°	torque moment	Insert	Left-hand Article no. 70 821 ...	Right-hand Article no. 70 820 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Nm			
PMC 10 R/L 2,25D	10	12	18	72,4	22,5	5,0				0,4	PM 10R/L	110 [1]	110 [1]
PMC 12 R/L 2,25D	12	16	22	78,0	27,0	6,0				1,0	PM 12R/L	112 [1]	112 [1]
PMC 16 R/L 2,25D	16	20	28	96,5	36,0	8,0	98,8	38,3	5,7	2,2	PM 16R/L	116	116
PMC 20 R/L 2,25D	20	25	35	111,0	45,0	10,0	113,8	47,8	7,2	2,2	PM 20R/L	120	120
PMC 25 R/L 2,25D	25	32	44	132,6	56,3	12,5	135,9	59,6	9,2	3,2	PM 25R/L	125	125
PMC 32 R/L 2,25D	32	40	54	158,0	72,0	16,0	162,3	76,3	11,7	5,0	PM 32R/L	132	132

1) only usable as 90° version



Key D



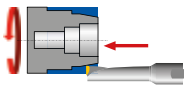
Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 820 110 / 70 821 110	T06 - IP	123	M1,8x3,6 - IP	862
70 820 112 / 70 821 112	T07 - IP	124	M2,2x4,2 - IP	137
70 820 116 / 70 821 116	T09 - IP	126	M3x5,7 - IP	008
70 820 120 / 70 821 120	T15 - IP	128	M3x5,7 - IP	009
70 820 125 / 70 821 125	T15 - IP	128	M3,5x8,6 - IP	859
70 820 132 / 70 821 132	T20 - IP	129	M5x10,8 - IP	010

Depth of cut and feed rate for EcoCut Mini

Turning

2.25xD

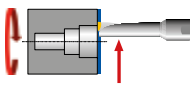


EcoCut Mini Size	Depth of cut a_p in mm									
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.									
ECM 02..	0,02–0,07	0,02–0,07								
ECM 02,5..	0,02–0,07	0,02–0,07	0,02–0,05							
ECM 03..	0,02–0,07	0,02–0,07	0,02–0,05	0,02–0,05						
ECM 03,5..	0,02–0,07	0,02–0,07	0,02–0,05	0,02–0,05	0,02–0,05					
ECM 04..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,07	0,01–0,05				
ECM 05..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04			
ECM 06..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04		
ECM 07..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04	
ECM 08..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04

4xD

EcoCut Mini Size	Depth of cut a_p in mm									
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.									
ECM 02..	0,02–0,05	0,01–0,05								
ECM 02,5..	0,02–0,05	0,01–0,05								
ECM 03..	0,02–0,05	0,02–0,05	0,01–0,05							
ECM 03,5..	0,02–0,05	0,02–0,05	0,02–0,05	0,01–0,05						
ECM 04..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,01–0,05					
ECM 05..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,085	0,02–0,06	0,01–0,04				
ECM 06..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,085	0,02–0,06	0,01–0,04				
ECM 07..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04			
ECM 08..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,095	0,03–0,8	0,02–0,06	0,01–0,04		

Face turning

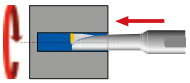


EcoCut Mini Size	2,25xD		4xD	
	$a_{p\,max.}$ in mm	f in mm/rev.	$a_{p\,max.}$ in mm	f in mm/rev.
ECM 02..	0,30	0,01–0,05	0,30	0,01–0,03
ECM 02,5..	0,30	0,01–0,05	0,30	0,01–0,03
ECM 03..	0,50	0,01–0,06	0,50	0,01–0,04
ECM 03,5..	0,50	0,01–0,06	0,50	0,01–0,04
ECM 04..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 05..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 06..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 07..	1,00	0,04–0,08	1,00	0,03–0,06
ECM 08..	1,00	0,04–0,08	1,00	0,03–0,06

Depth of cut and feed rate for EcoCut Mini

Drilling

Feed rate



EcoCut Mini Size	2,25xD	4xD
	f in mm/rev.	f in mm/rev.
ECM 02..	0,0025–0,0075	0,0025–0,005
ECM 02,5..	0,0025–0,010	0,0025–0,005
ECM 03..	0,0025–0,0125	0,0025–0,010
ECM 03,5..	0,0025–0,0150	0,0025–0,010
ECM 04..	0,005–0,030	0,005–0,0125
ECM 05..	0,005–0,030	0,005–0,015
ECM 06..	0,005–0,030	0,005–0,020
ECM 07..	0,005–0,035	0,005–0,025
ECM 08..	0,005–0,040	0,005–0,030

max. bore depth

EcoCut Mini Size	2,25xD	4xD
	Max. hole depth in mm	Max. hole depth in mm
ECM 02..	4,50	8,0
ECM 02,5..	5,63	10,0
ECM 03..	6,75	12,0
ECM 03,5..	7,88	14,0
ECM 04..	9,0	16,0
ECM 05..	11,25	20,0
ECM 06..	13,5	24,0
ECM 07..	15,75	28,0
ECM 08..	18,0	32,0

Depth of cut and feed rate for EcoCut Classic

Turning

1.5xD



EcoCut Classic Size	Depth of cut a_p in mm											
	1	2	3	4	5	6	7	8	9	10	12	14
	Feed rate f in mm/rev.											
ECC 08	0,06–0,12	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,07–0,15	0,05–0,13	0,04–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,10–0,20	0,10–0,20	0,08–0,18	0,06–0,16	0,04–0,14	0,02–0,12				
ECC 18	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,05–0,16	0,03–0,13			
ECC 20	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,11–0,23	0,09–0,21	0,07–0,19	0,05–0,17	0,03–0,15		
ECC 25	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,11–0,24	0,09–0,22	0,07–0,20	0,03–0,16	
ECC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,14–0,30	0,15–0,30	0,15–0,30	0,13–0,28	0,11–0,26	0,07–0,22	0,03–0,18

Feed f may be increased by 50–75 % when using M50Q and ALQ.

2.25xD

EcoCut Classic Size	Depth of cut a_p in mm										
	1,0	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	7,0
	Feed rate f in mm/rev.										
ECC 08	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,05–0,13	0,03–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,04–0,13	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,09–0,19	0,07–0,17	0,05–0,15	0,03–0,13					
ECC 18	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,05–0,16	0,03–0,14				
ECC 20	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,10–0,22	0,08–0,20	0,06–0,18	0,04–0,16			
ECC 25	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,12–0,25	0,10–0,23	0,08–0,21	0,06–0,19	0,04–0,17	
ECC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,14–0,29	0,12–0,27	0,10–0,25	0,08–0,23	0,05–0,20

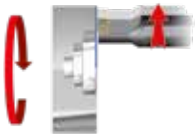
Feed f may be increased by 50–75 % when using M50Q and ALQ.

3xD

EcoCut Classic Size	Depth of cut a_p in mm								
	1,0	2,0	2,5	3,0	3,5	4,0	5,0	6,0	7,0
	Feed rate f in mm/rev.								
ECC 08	0,05–0,10	0,02–0,06							
ECC 10	0,06–0,11	0,03–0,07							
ECC 12	0,06–0,12	0,04–0,10	0,02–0,08						
ECC 14	0,07–0,13	0,05–0,11	0,02–0,09						
ECC 16	0,07–0,15	0,06–0,14	0,04–0,12	0,02–0,09					
ECC 18	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12					
ECC 20	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,03–0,12			
ECC 25	0,10–0,19	0,10–0,19	0,10–0,19	0,08–0,17	0,06–0,15	0,03–0,13			
ECC 32	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,03–0,14		

Depth of cut and feed rate for EcoCut Classic

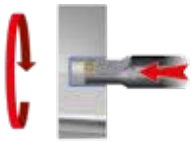
Face turning



EcoCut Classic Size	1,5xD		2,25xD		3xD	
	a_p in mm	f in mm/rev.	a_p in mm	f in mm/rev.	a_p in mm	f in mm/rev.
ECC 08	2,00	0,05–0,10	1,90	0,04–0,09	1,10	0,04–0,07
ECC 10	2,50	0,06–0,12	2,20	0,05–0,10	1,20	0,04–0,09
ECC 12	3,00	0,07–0,14	2,60	0,06–0,12	1,40	0,05–0,11
ECC 14	3,50	0,08–0,16	3,00	0,07–0,14	1,60	0,06–0,12
ECC 16	4,00	0,09–0,18	3,40	0,08–0,16	1,90	0,06–0,13
ECC 18	4,50	0,10–0,20	3,80	0,09–0,18	2,00	0,07–0,14
ECC 20	5,00	0,11–0,22	4,20	0,10–0,20	2,20	0,08–0,15
ECC 25	6,00	0,12–0,24	5,00	0,11–0,22	2,60	0,09–0,18
ECC 32	8,00	0,13–0,27	6,00	0,12–0,25	3,00	0,10–0,20

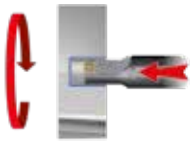
Drilling

Feed rate



EcoCut Classic Size	1,5xD	2,25xD	3xD
	f in mm/rev.	f in mm/rev.	f in mm/rev.
ECC 08	0,01–0,04	0,01–0,04	0,01–0,02
ECC 10	0,01–0,05	0,01–0,05	0,01–0,03
ECC 12	0,01–0,05	0,01–0,05	0,01–0,04
ECC 14	0,01–0,07	0,01–0,07	0,01–0,05
ECC 16	0,02–0,08	0,02–0,08	0,02–0,06
ECC 18	0,03–0,09	0,03–0,09	0,03–0,07
ECC 20	0,03–0,10	0,03–0,10	0,03–0,08
ECC 25	0,03–0,12	0,03–0,12	0,04–0,09
ECC 32	0,05–0,15	0,05–0,15	0,05–0,11

max. bore depth



EcoCut Classic Size	1,5xD	2,25xD	3xD
	Max. hole depth in mm	Max. hole depth in mm	Max. hole depth in mm
ECC 08	12,0	18,0	24,0
ECC 10	15,0	22,5	30,0
ECC 12	18,0	27,0	36,0
ECC 14	21,0	31,5	42,0
ECC 16	24,0	36,0	48,0
ECC 18	27,0	40,5	54,0
ECC 20	30,0	45,0	60,0
ECC 25	37,5	56,5	75,0
ECC 32	48,0	72,0	96,0

Depth of cut and feed rate for EcoCut ProfileMaster 90°

Turning

1,5xD



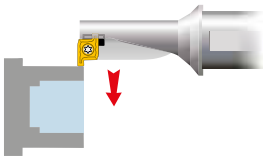
EcoCut ProfileMaster Size	Depth of cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
PMC 10	0,07–0,20	0,05–0,17	0,02–0,12					
PMC 12	0,07–0,20	0,05–0,17	0,02–0,12					
PMC 16	0,10–0,25	0,07–0,23	0,05–0,21	0,02–0,17				
PMC 20	0,12–0,27	0,10–0,26	0,007–0,24	0,05–0,20	0,02–0,14			
PMC 25	0,15–0,30	0,15–0,30	0,13–0,28	0,10–0,26	0,05–0,22	0,02–0,18		
PMC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,10–0,27	0,07–0,24	0,05–0,21	0,02–0,15

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
PMC 10	0,07–0,19	0,02–0,13						
PMC 12	0,07–0,19	0,02–0,13						
PMC 16	0,10–0,25	0,07–0,21	0,02–0,13					
PMC 20	0,12–0,27	0,07–0,24	0,05–0,19					
PMC 25	0,15–0,30	0,10–0,27	0,07–0,23	0,02–0,15				
PMC 32	0,15–0,30	0,15–0,30	0,10–0,27	0,07–0,23	0,02–0,15			

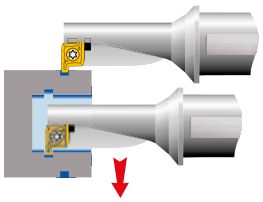
Face turning

1.5xD and 2.25xD



EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
PMC 10	0,02–0,15	0,02–0,15				
PMC 12	0,02–0,15	0,02–0,15				
PMC 16	0,05–0,20	0,05–0,20	0,05–0,20			
PMC 20	0,08–0,22	0,08–0,22	0,08–0,22	0,08–0,22		
PMC 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	
PMC 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

Internal + external – radial grooving

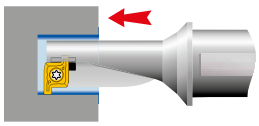


EcoCut ProfileMaster Size	1,5xD
	f in mm/rev.
PMC 10	0,01–0,08
PMC 12	0,02–0,10
PMC 16	0,04–0,15
PMC 20	0,04–0,16
PMC 25	0,07–0,20
PMC 32	0,08–0,22

EcoCut ProfileMaster Size	2,25xD
	f in mm/rev.
PMC 10	0,01–0,08
PMC 12	0,02–0,10
PMC 16	0,04–0,15
PMC 20	0,04–0,16
PMC 25	0,07–0,20
PMC 32	0,08–0,22

Drilling

Feed and max. hole depth



EcoCut ProfileMaster Size	1,5xD	
	f in mm/rev.	Max. hole depth in mm
PMC 10	0,01–0,05	15,0
PMC 12	0,01–0,06	18,0
PMC 16	0,02–0,09	24,0
PMC 20	0,03–0,10	30,0
PMC 25	0,04–0,12	37,5
PMC 32	0,04–0,14	48,0

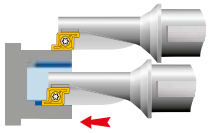
EcoCut ProfileMaster Size	2,25xD	
	f in mm/rev.	Max. hole depth in mm
PMC 10	0,01–0,05	22,5
PMC 12	0,01–0,06	27,0
PMC 16	0,02–0,09	36,0
PMC 20	0,03–0,10	45,0
PMC 25	0,04–0,12	56,3
PMC 32	0,04–0,14	72,0

Depth of cut and feed rate for EcoCut ProfileMaster 0°

EcoCut ProfileMaster Sizes 10 and 12 can not be used as 0° version.

Turning

1,5xD



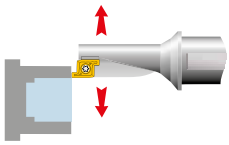
EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
PMC 16	0,04–0,20	0,04–0,20	0,04–0,20			
PMC 20	0,06–0,22	0,06–0,22	0,06–0,22	0,06–0,22		
PMC 25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	
PMC 32	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
PMC 16	0,04–0,20	0,04–0,20	0,04–0,20			
PMC 20	0,06–0,22	0,06–0,22	0,06–0,22	0,06–0,22		
PMC 25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	
PMC 32	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28

Face turning

1,5xD

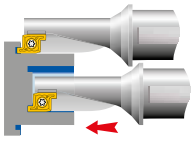


EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
PMC 16	0,05–0,20	0,05–0,20	0,05–0,20				
PMC 20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20			
PMC 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25		
PMC 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
PMC 16	0,05–0,20	0,05–0,20	0,05–0,20				
PMC 20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20			
PMC 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25		
PMC 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

Axial grooving external + internal



EcoCut ProfileMaster Size	1,5xD
	Feed rate f in mm/rev.
PMC 16	0,02–0,12
PMC 20	0,04–0,14
PMC 25	0,06–0,18
PMC 32	0,08–0,20

EcoCut ProfileMaster Size	2,25xD
	Feed rate f in mm/rev.
PMC 16	0,02–0,12
PMC 20	0,04–0,14
PMC 25	0,06–0,18
PMC 32	0,08–0,20

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

10

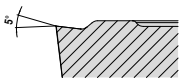
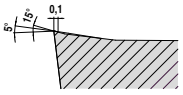
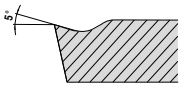
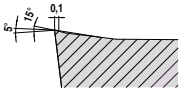
Cutting data appoximate values

	EcoCut Mini CTWN425 (CWK4425)	EcoCut Mini CTPP435 (HCN1435)	EcoCut Classic CTCP425 (HCR1425)	EcoCut Classic CTCP435 (HCR1435)	EcoCut Classic CTPP430 (HCN2430)	EcoCut Classic H210T (CWK20)	EcoCut Classic H216T (CWK26)	EcoCut ProfileMaster CTPP430 (HCN 2430)
Index	v_c in m/min							
1.1		**80–160**	**120–250**	**120–240**	**120–220**			**120–220**
1.2		**80–230**	**150–300**	**150–300**	**120–250**			**120–250**
1.3		**80–230**	**120–220**	**120–220**	**80–180**			**80–180**
1.4		**80–230**	**100–200**	**100–180**	**60–160**			**60–160**
1.5		**60–130**	**120–220**	**110–200**	**80–180**			**80–180**
1.6		**60–120**	**100–180**	**100–180**	**60–160**			**60–160**
1.7		**60–120**	**120–200**	**100–180**	**80–180**			**80–180**
1.8		**50–100**	**80–150**	**70–140**	**60–130**			**60–130**
1.9		**60–120**	**110–190**	**80–150**	**80–180**			**80–180**
1.10		**50–150**	**100–180**	**100–180**	**60–170**			**60–170**
1.11		**50–150**	**80–150**	**50–150**	**80–150**			**80–150**
1.12		**80–140**	**90–150**	**80–150**	**60–150**			**60–150**
1.13		**60–120**	**70–150**	**60–140**	**60–150**			**60–150**
1.14								
1.15		**50–150**	**80–150**	**80–150**	**60–150**			**60–150**
1.16		**50–150**	**80–150**	**80–150**	**60–150**			**60–150**
2.1		**50–200**	100–200	100–180	**50–160**			**50–160**
2.2		**50–180**	120–220	100–200	**50–180**			**50–180**
2.3		**50–180**	120–200	100–200	**50–150**			**50–150**
2.4		**50–180**	100–200	100–180	**50–160**			**50–160**
2.5		**50–100**			**50–130**			**50–130**
2.6		**50–80**			**50–120**			**50–120**
2.7		**50–80**			**50–120**			**50–120**
3.1	100–150	100–170	**130–280**	**120–250**	120–200	140–200	**100–150**	120–200
3.2	100–150	100–170	**130–280**	**120–250**	100–180	100–160	**100–150**	100–180
3.3	100–140	100–160	**120–280**	**110–250**	120–200	160–200	**100–140**	120–200
3.4	100–140	100–160	**120–280**	**110–250**	100–180	110–150	**100–140**	100–180
3.5	100–160	100–180	**110–280**	**100–250**	90–160	160–220	**100–160**	90–160
3.6	100–160	100–170	**110–280**	**100–250**	70–150	140–180	**100–160**	70–150
3.7	100–160	100–170	**110–280**	**100–250**	90–160	160–220	**100–160**	90–160
3.8	100–160	100–170	**110–280**	**100–250**	70–150	140–180	**100–160**	70–150
4.1	**100–2000**				100–2000	**300–3000**	**100–500**	100–2000
4.2	**100–1500**				100–1500	**200–2500**	**100–500**	100–1500
4.3	**100–1500**				100–1500	**400–2000**	**100–300**	100–1500
4.4	**100–1300**				100–1300	**200–1000**	**100–300**	100–1300
4.5	**100–600**				100–600	**250–800**	**100–300**	100–600
4.6	**100–300**				100–300	**150–400**	**100–300**	100–300
4.7	**100–500**				100–500	**200–400**	**100–500**	100–500
4.8	**100–500**				100–500	**150–400**	**100–300**	100–500
4.9	**100–500**				100–500	**150–400**	**100–300**	100–500
4.10	**100–500**				100–500	**150–400**	**100–300**	100–500
4.11	**100–500**				100–500	**200–800**	**100–500**	100–500
4.12	**100–290**				100–290	**150–600**	**100–300**	100–290
4.13	**90–200**				90–200	**150–280**	**120–200**	90–200
4.14	**60–160**				60–160	**100–220**	**80–180**	60–160
4.15	**50–140**				50–140	**80–200**	**60–150**	50–140
4.16								
4.17								
4.18								
4.19								
5.1		**20–50**			**20–90**	**30–50**		**20–90**
5.2		**15–25**			**20–90**	**15–30**		**20–90**
5.3		**15–25**			**20–80**	**15–25**		**20–80**
5.4		**10–20**			**20–80**	**15–25**		**20–80**
5.5		**10–20**			**20–80**	**15–25**		**20–80**
5.6		**10–20**			**20–90**	**15–30**		**20–90**
5.7		**10–20**			**20–80**	**15–25**		**20–80**
5.8		**10–20**			**20–80**	**15–25**		**20–80**
5.9		**50–120**			**40–100**	**80–140**		**40–100**
5.10		**30–50**			**30–90**	**40–100**		**30–90**
5.11		**30–50**				**30–60**		
6.1								
6.2								
6.3								
6.4								
6.5								

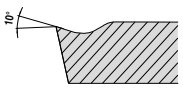
The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Chip Breakers Overview

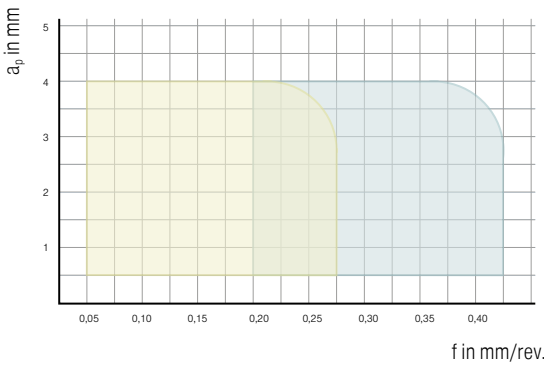
EcoCut Classic

	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration f mm
-EN ▲ Universal geometry ▲ Excellent chip breakage ▲ Positive cutting edge ▲ Low to medium feeds		**CTCP425 (HCR1425)** **CTCP435 (HCR1435)** **CTCP425 (HCR1425)** CTPP430 (HCN2430)	**CTCP435 (HCR1435)** **CTPP430 (HCN2430)** **CTCP435 (HCR1435)** CTPP430 (HCN2430)	**CTPP430 (HCN2430)** **CTPP430 (HCN2430)** CTPP430 (HCN2430)	 0,05–0,75
-M50Q ▲ With wiper geometry ▲ Excellent surface qualities ▲ Good chip formation ▲ Medium to high feeds		**CTCP425 (HCR1425)** CTCP425 (HCR1425) **CTCP425 (HCR1425)**	**CTCP425 (HCR1425)** CTCP425 (HCR1425)		 0,2–0,425
-27P ▲ Positive cutting edge ▲ Periphery ground ▲ Polished rake face ▲ First choice for non-ferrous metals		**H216T (CWK 26)**	**H216T (CWK 26)**	**H216T (CWK 26)**	 0,1–0,4
-ALQ ▲ With wiper geometry ▲ Extremely positive geometry ▲ Periphery ground ▲ Low adhesion		**H210T (CWK 20)**	**H210T (CWK 20)**		 0,2–0,5

EcoCut ProfileMaster

-M20 ▲ Positive geometry ▲ Universal application ▲ Low to medium feeds		CTPP430 (HCN2430) **CTPP430 (HCN2430)** CTPP430 (HCN2430) CTPP430 (HCN2430) **CTPP430 (HCN2430)**	**CTPP430 (HCN2430)** **CTPP430 (HCN2430)** CTPP430 (HCN2430) CTPP430 (HCN2430) CTPP430 (HCN2430)	**CTPP430 (HCN2430)** **CTPP430 (HCN2430)** CTPP430 (HCN2430) CTPP430 (HCN2430)	 0,05–0,25

Application area of -EN and -M50Q chip breakers



EcoCut Classic 2.25xD – ECC16 – XCNT 080304

= -M50Q

= Standard

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EcoCut Classic – Application as the most stable boring tool

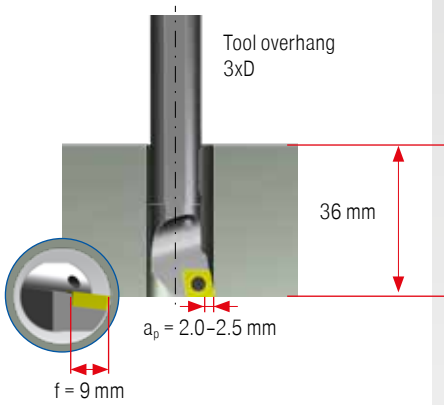
EcoCut can be used not only as a multifunctional tool. In comparison with a boring bar EcoCut used as a pure boring tool gives the user enormous benefits.

Example: Machining bores, 16 mm diameter by 36 mm depth

Differences in the tool

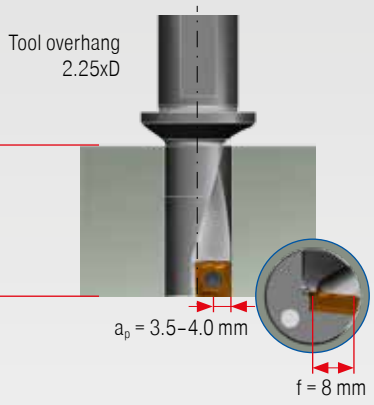
Boring Bar

A12K SCFCR 06



EcoCut Classic

ECC 16R-2.25D 08



Your Advantages

Large, stable toolholder

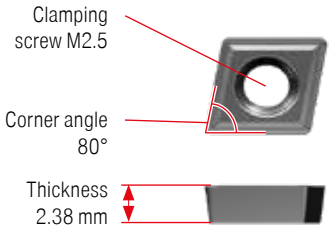
- Absorption of high cutting forces
- Low vibration
- Chip Booster for perfect cooling and chip evacuation

Benefits

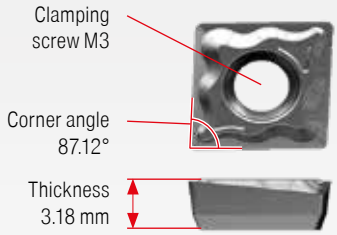
- High surface quality
- Perfect chip control
- Max. process security

Differences in the insert

CCMT 060204



XCNT 080304



Large and stable insert

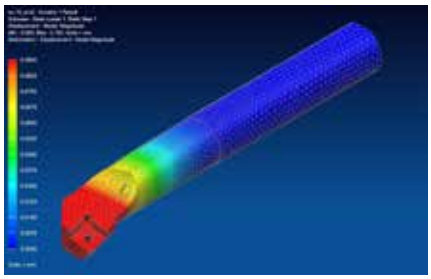
- Increased process security
- Enables large depths of cut
- Higher cutting data
- Higher tool life

Benefits

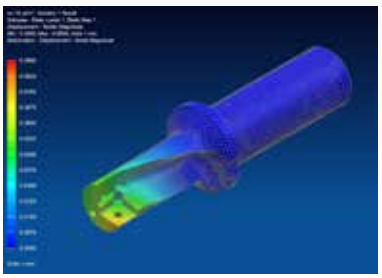
- Reduction in machining time
- Increased productivity
- Reduced tooling costs

Stability Comparison

Calculation using FEM
A load of 1000 N on the insert seat corresponds to an approx. a_p of 2.0 mm and f 0.2 mm



Deflection 0.19mm

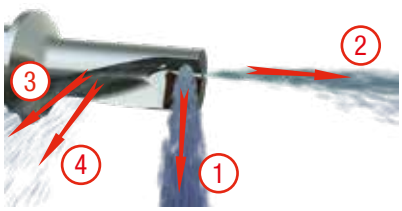


Deflection 0.08mm

Practical experience shows:

- Reduced machining time by up to **75 %**
- Increase in tool life by **400 %** possible

Innovative chip removal – Chip-Booster



EcoCut tools are equipped with a unique coolant and chip removal system.

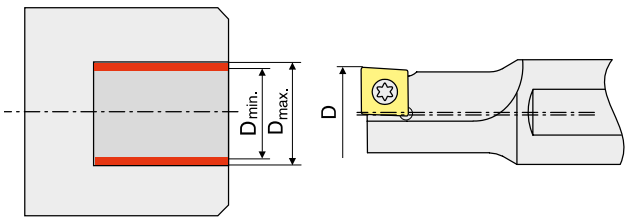
1. Cooling of the indexable insert
2. General coolant stream
3. Chip booster for improved chip transport
4. Chip booster prevents chips from getting stuck between tool and workpiece

For maximum chip transport efficiency when drilling, coolant pressure must be 3–6 bar minimum (optimal 7–10 bar).

Application Tips

Drilling Off centre

Due to the special construction of the EcoCut tool and insert, off-centre drilling is possible.
Deviations from the tool nominal Ø,
can be achieved (see adjacent table).





ProfileMaster 0°
Not suitable for drilling!

EcoCut Mini	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
ECM 02 L/R - ...D	2	1,95	2,1
ECM 02,5 L/R - ...D	2,5	2,45	2,6
ECM 03 L/R - ...D	3	2,95	3,15
ECM 03,5 L/R - ...D	3,5	3,45	3,65
ECM 04 R/L - ...D	4	3,90	4,20
ECM 05 R/L - ...D	5	4,90	5,20
ECM 06 R/L - ...D	6	5,90	6,20
ECM 07 R/L - ...D	7	6,90	7,20
ECM 08 R/L - ...D	8	7,90	8,20

EcoCut Classic	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
ECC 08 R/L - ... 04	8	7,85	8,30
ECC 10 R/L - ... 05	10	9,85	10,50
ECC 12 R/L - ... 06	12	11,85	12,50
ECC 14 R/L - ... 07	14	13,85	14,50
ECC 16 R/L - ... 08	16	15,85	16,50
ECC 18 R/L - ... 09	18	17,85	18,50
ECC 20 R/L - ... 10	20	19,80	20,50
ECC 25 R/L - ... 13	25	24,80	25,80
ECC 32 R/L - ... 17	32	31,80	33,00

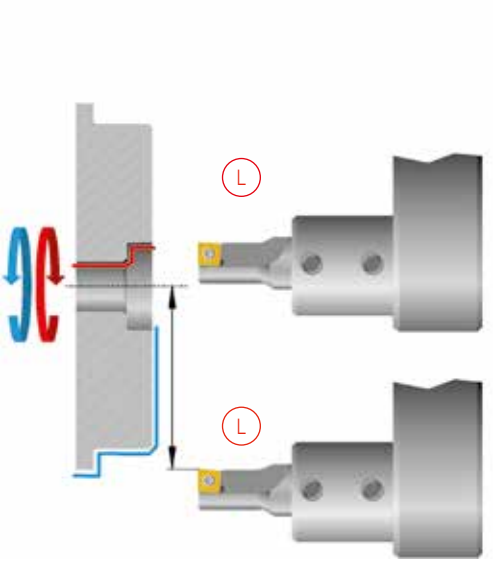
EcoCut ProfileMaster	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
PM 10R/L ...	10	9,85	12
PM 12R/L ...	12	11,85	15
PM 16R/L ...	16	15,85	19
PM 20R/L ...	20	19,80	24
PM 25R/L ...	25	24,80	29
PM 32R/L ...	32	31,80	38

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Machining over centre

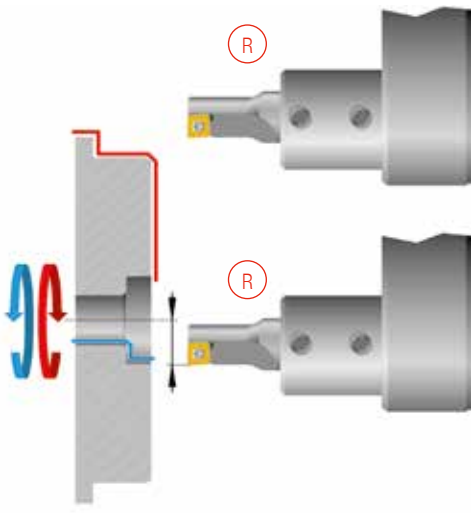
Problem

In case of insufficient movement of the machine across the centre line, the external diameter can not be machined with the same tool.



Solution

Use a right hand EcoCut tool.

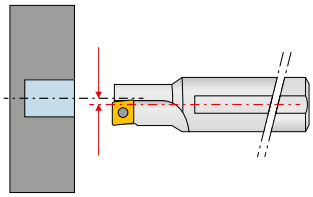


Application Tips

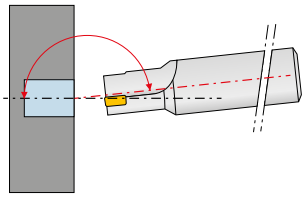
With axial displacement there is the danger of collision!

Problems

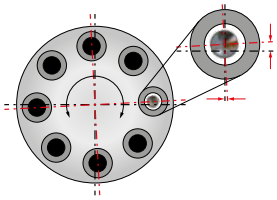
Displacement in x-direction:



Angular error:



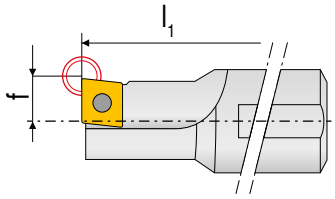
Turret position error:



Remedy

When pre-setting the tool:

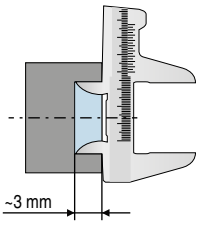
- Definition as an internal turning tool for programming



- Enter the tool nominal Ø as bore target Ø

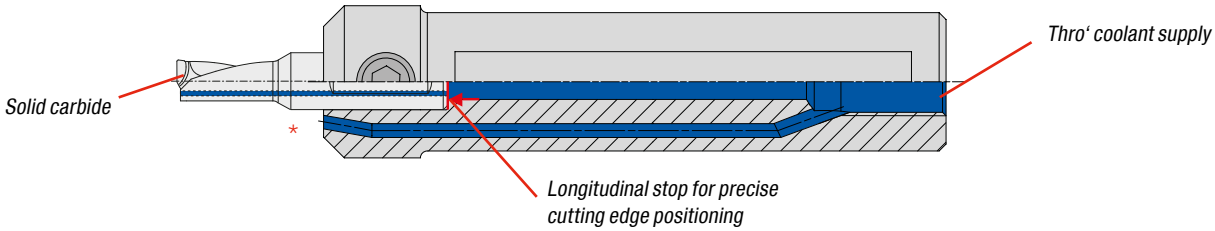
At the machine:

- Make measuring cut, approx. 3 mm deep
- Measure drilled diameter produced



- If necessary correct drilling Ø
- Start machining

EcoCut Mini adapter – Design



* Cross-section rotated by 90° for clarity

Mounting of the insert for EcoCut Classic

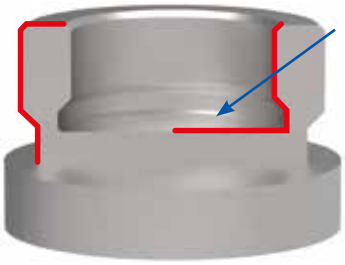
For tools up to Ø 8 mm right and left handed inserts are required. From Ø 10–32 mm neutral inserts are used.

Note!
Ensure correct installation position.





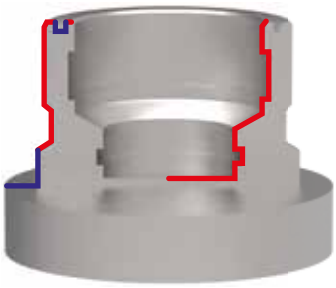
EcoCut ProfileMaster – the highlight with regard to efficiency



Right hand tools



Right hand insert



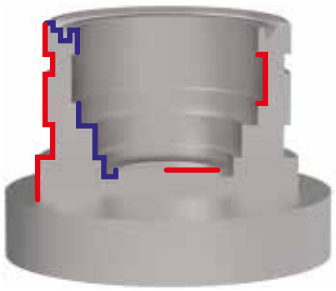
Right hand tools



Left hand insert



Right hand insert



Left hand tool



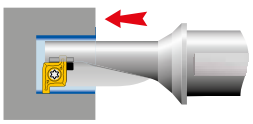
Right hand tools



Right hand insert

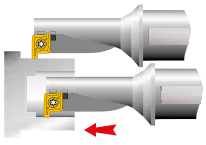
10

Version 90°



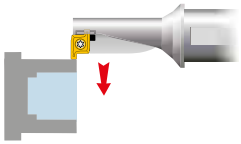
Drilling into solid material with flat bottom hole

Drilling

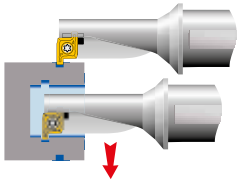


Turning External Diameters

Turning Internal Diameters



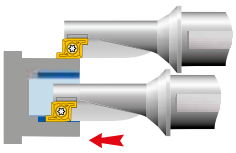
Turning Profiles



External radial grooving

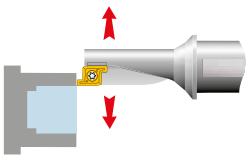
Internal radial grooving

Version 0°

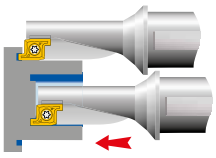


Turning External Diameters

Turning Internal Diameters



Turning Profiles



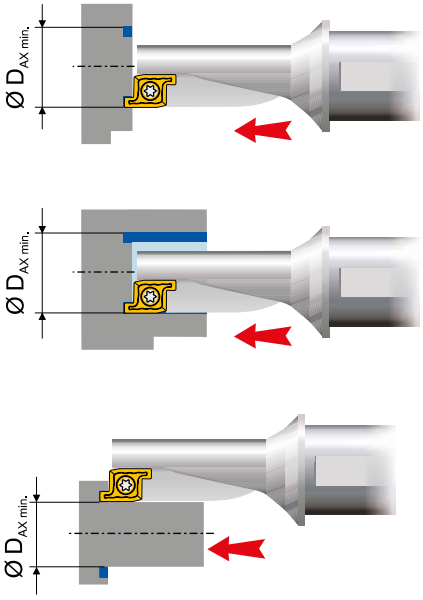
Axial grooving external

Axial grooving internal

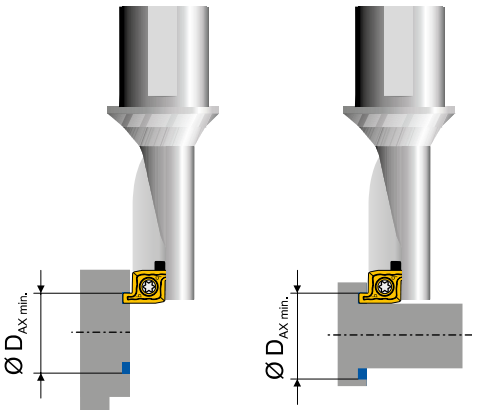
For maximum chip transport efficiency when drilling, coolant pressure must be 3–6 bar minimum (optimal 7–10 bar).

EcoCut ProfileMaster – Axial Grooving

0° (from Ø 16 mm)

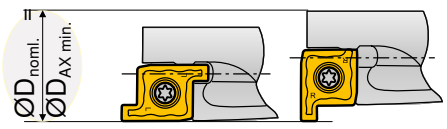


90°



EcoCut ProfileMaster	$ØD_{noml.}$ mm	$ØD_{AX\ min.}$ mm	$ØD_{AX\ max.}$ mm
PM 10R/L 1,5D	10	10	> 10
PM 10R/L 2,25D	10	10	> 10
PM 12R/L 1,5D	12	12	> 12
PM 12R/L 2,25D	12	12	> 12
PM 16R/L 1,5D	16	16	> 16
PM 16R/L 2,25D	16	16	> 16
PM 20R/L 1,5D	20	20	> 20
PM 20R/L 2,25D	20	20	> 20
PM 25R/L 1,5D	25	25	> 25
PM 25R/L 2,25D	25	25	> 25
PM 32R/L 1,5D	32	32	> 32
PM 32R/L 2,25D	32	32	> 32

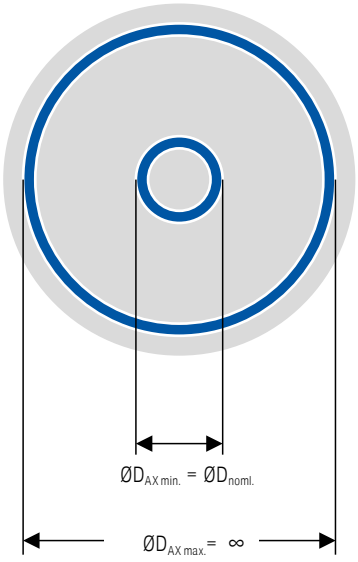
$ØD_{AX\ min.}$ = $ØD_{noml.}$



$ØD_{noml.}$ = Nominal tool diameter

$ØD_{AX\ min.}$ = Smallest diameter for axial grooving

$ØD_{AX\ max.}$ = Largest diameter for axial grooving



Application Tips

Recommendation for Optimum Results

Type of problem										
Type of wear				Work piece problems		Swarf control				
Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)	Remedy measures		
	↑	↓	↓	↓	↑	↓			Cutting data	Cutting speed
↓		~	↓	↑	↓	↑	↓			Feed rate
↑		↑	↑	↓	↑				Insert selection	Corner radius (larger ↑ / smaller ↓)
↓		↑	↑							Tap Material (wear resistance ↑ / toughness ↓)
~				~	~				General criteria	Tool clamping
~				~	~					Work piece clamping
~				~	↓					Overhang
~		~		~	~					Tip height
	●	●	●		●	●				Cooling lubricant

↑ raise, increase large influence
↑ raise, increase small influence
↓ avoid, reduce large influence
↓ avoid, reduce small influence
~ control, optimize
● use

10

Grades Overview

EcoCut Classic

CTCP425 / HCR1425
- Carbide, Ti+Al_2O_3-coated
- ISO | **P25** | **K30** | M20
- The wear-resistant choice for steel and cast iron materials under stable conditions and at high cutting speeds

CTCP435 / HCR1435
- Carbide, Ti+Al_2O_3-coated
- ISO | **P35** | **K40** | M30
- The reliable choice for steel and cast iron materials under unstable conditions

CTPP430 / HCN2430
- Carbide, TiAlN-coated
- ISO | **P30** | **M25** | **S25** | K30 | N25
- The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

H210T / CWK20
- Carbide, uncoated
- ISO | **N10** | **S10** | K10
- The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

H216T / CWK26
- Carbide, uncoated
- ISO | **K15** | **N15**
- The uncoated carbide grade for machining aluminium and other non-ferrous metals
- Also highly suitable for HSC machining

EcoCut Mini

CTPP435 / HCN1435
- Carbide, TiAlN-coated
- ISO **I P35 I M30 I S30** | K30
- The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

CTWN425 / CWK4425
- Carbide, uncoated
- ISO | **N25** | K20
- The uncoated carbide grade for machining aluminium and other non-ferrous metals

EcoCut ProfileMaster

CTPP430 / HCN2430
- Carbide, TiAlN-coated
- ISO | **P30** | **M25** | **S25** | K30 | N25
- The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

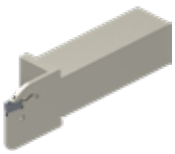
Application

Grade designation	Standard designation	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant alloys S	Tempered steel H
EcoCut Mini							
CTWN425 (CWK4425)	HW-N25				●		
	HW-K20			○			
CTPP435 DRAGONSKIN (HCN1435)	HC-P35	●					
	HC-M30		●				
	HC-S30					●	
	HC-K30			○			
EcoCut Classic							
CTCP425 DRAGONSKIN (HCR1425)	HC-P25	●					
	HC-M20		○				
	HC-K30			●			
CTCP435 DRAGONSKIN (HCR1435)	HC-P35	●					
	HC-M30		○				
	HC-K40			●			
CTPP430 DRAGONSKIN (HCN2430)	HC-P30	●					
	HC-M25		●				
	HC-S25					●	
	HC-K30			○			
	HC-N25				○		
H216T (CWK26)	HW-N15				●		
	HW-K15			●			
H210T (CWK20)	HW-N10				●		
	HW-S10					●	
	HW-K10			○			
EcoCut ProfileMaster							
CTPP430 DRAGONSKIN (HCN2430)	HC-P30	●					
	HC-M25		●				
	HC-S25					●	
	HC-N25			○			
	HC-K30				○		



10

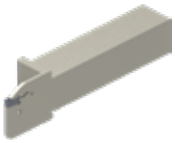
New products for machining technicians



NEW MonoClamp – Radial Monoholder SX-DC

DirectCooling – dual cooling of the grooving insert via the rake face and flank. For grooving and parting off up to a diameter of 80 mm.

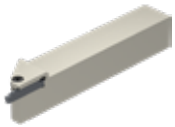
20



NEW MonoClamp – Radial Monoholder SX

Proven single-edged grooving and turning system with a completely updated design. Elastic insert clamping with assembly key.

21





NEW MonoClamp – Axial Monoholder AX

For axial grooves from a diameter of 10 mm. Suitable for 0° and 90° versions with groove depths up to 15 mm.

77+78



Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut
11 Grooving Tools
12 Miniature turning tools

Milling

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

Tool Clamping

16 Adapters
17 Accessories

18 Material examples and article no. index

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TC – Reference values for profile depth and number of passes	110
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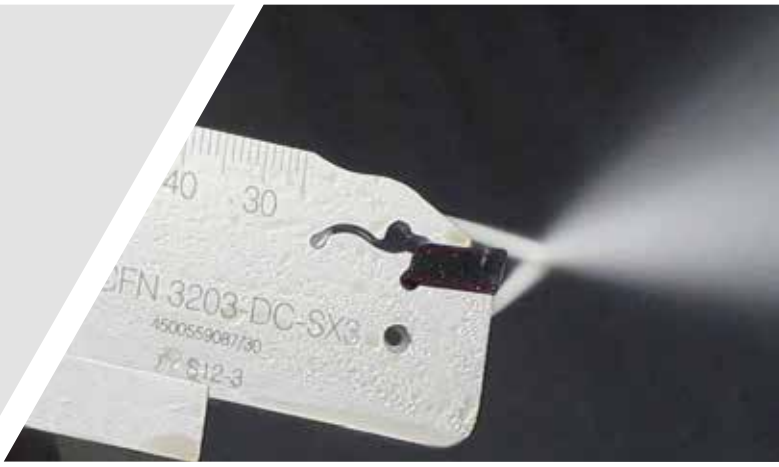
CERATIZIT \ Performance

Premium quality tools for high performance.

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

Advantages of the DirectCooling blade

- The best machining results, even with reduced pump output
  Highest flow volume of all thro' coolant blades on the market
- User friendly
  Reinforced blades without sealing screw
- Process-secure spare part for easy handling and a long service life
  Single-piece sealing screw made from steel (for standard blades)



Symbol explanation


Grooving


Turning


Face turning


Axial grooving


Main Application


Extended application


Repeatability

F	M	R

F: Fine Machining
M: Medium Machining
R: Rough Machining

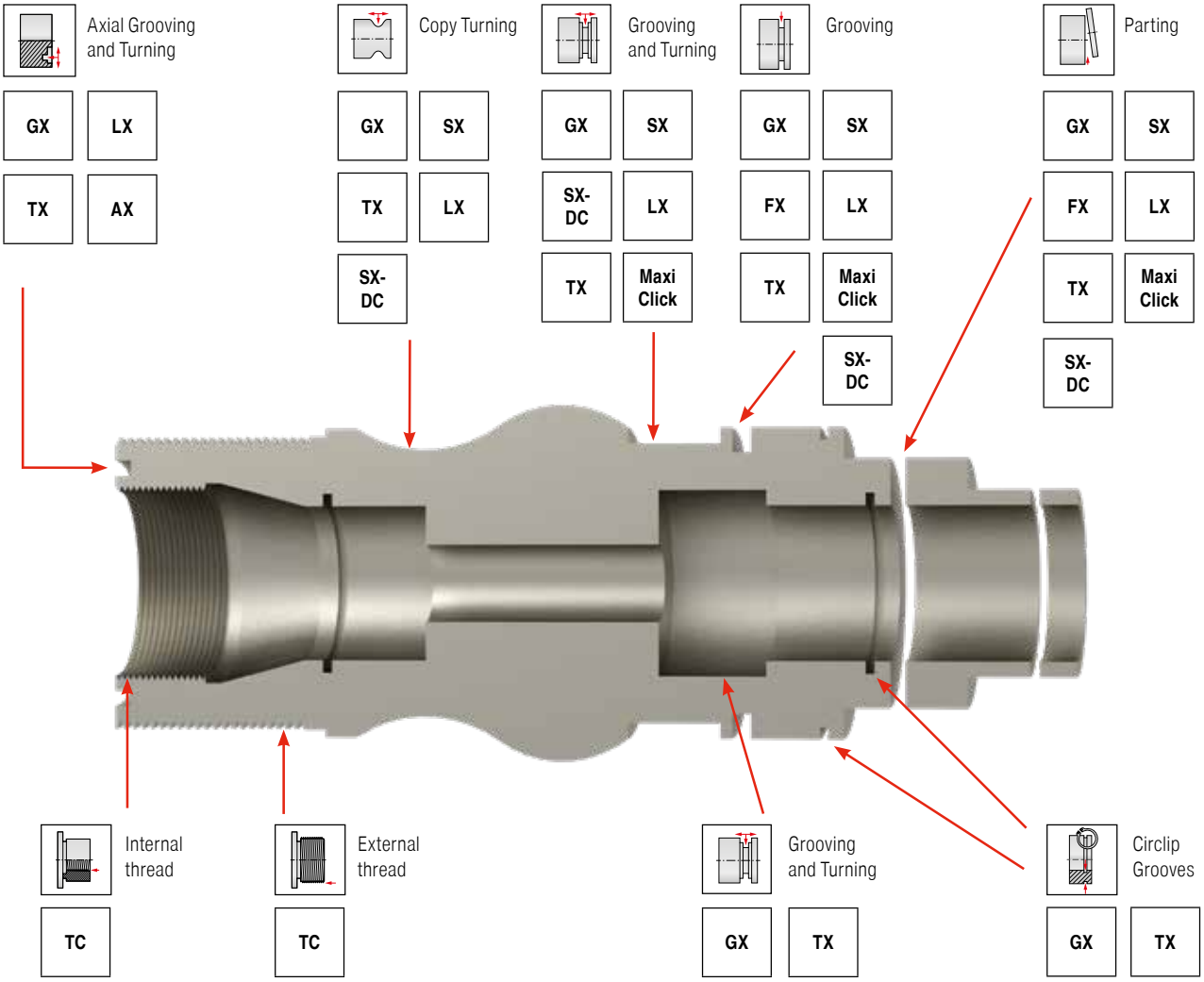



Smooth cut
Irregular cutting depth
Interrupted cut

CTCP325
HCR1325

Carbide Grade

Toolfinder – System Overview

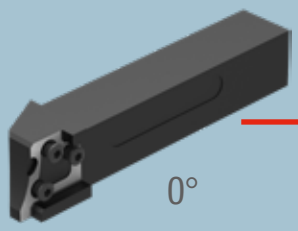


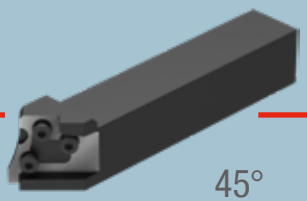
System Description

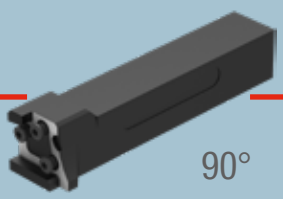
		Pages
SX	The single edged SX grooving system is even more versatile with the -M3 chip breaker. Besides grooving / parting with the -F2, -M2, or -27P chip breakers, the SX -M3 type also allows copying turning operations with the highest chip control. With this additional option, the SX grooving system can cover all areas of grooving making it a universal grooving tool. Available as a Modular or Mono system.	8–21
SX-DC	Our tried-and-tested single-edged SX grooving system is now available with targeted DirectCooling (DC) thro' coolant supply. The coolant is guided through two coolant holes – one above and one below the grooving insert – straight to the point where it will be most effective: the cutting edge itself.	14–21
FX	A single-edged grooving system with a variety of specialized chip geometries. From fine machining in unstable parts through to high-performance machining under stable conditions. Available as a Modular or Mono system.	22–29
GX	Double edged grooving system for grooving, parting off, turning and for producing circlip grooves. Available in sizes GX 09, GX 16 and GX 24. Available as a Modular or Mono system.	30–60
TX	Three-edged system for parting, grooving, axial grooving, radial grooving, and fine turning. Positive ground cutting geometries, with a very soft cut with minimum cutting forces. Universally applicable for almost all materials. Available as a Monosystem.	61–70
LX	Single edged system for extreme applications starting from a cutting width of 8.0 mm. The LX system is for use in stable conditions. Available as a Modular or Mono system	71–74
AX	Double-edged Axial grooving system for grooving and groove turning with high precision. Due to the three different depths (5 mm, 10 mm and 15 mm) stable tools are available for each application.	75–78
TC	Double-edged thread turning system for the production of external and internal threads. Advantage is the use without pitch angle correction and in narrow or difficult areas of application. Available as a Modular or Mono system.	79–87
Maxi Click	Five-edged grooving system for grooving and parting.	88–92

Toolfinder – External Machining

ModularClamp







GX 09



GX 16



Deep Radial Grooving, Parting and Turning

Axial Grooving and Face Turning

Deep Axial Grooving and Face Turning

GX 24



GX 09

Circlip grooves



Cutting width
CW = 0,5–3,15 mm (H13)

Radius grooves

Standard 

CRE = 0,8–1,2 mm

Grooving and Turning

-F2 

Standard 

-M40 

Cutting width
CW = 2,0–3,5 mm

GX 16

Circlip grooves



Cutting width
CW = 0,5–5,15 mm (H13)

Radius grooves

Standard 

-27P 

CRE = 0,8–3,0 mm

Grooving and Turning

-F2 

Standard 

-M40 

-M1 

-27P 

Cutting width
CW = 2,0–6,0 mm

GX 24

Radial, axial and deep axial grooving and parting, face turning and turning

-F2 

-E 

-M1 

-M40 

-27P 

Cutting width
CW = 2,0–6,0 mm

-M3 

-27P 

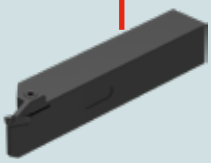
CRE = 1,5–4,0 mm

MonoClamp

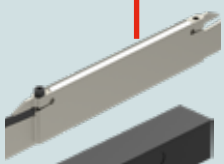
GX 09

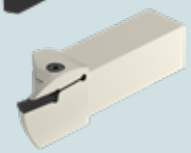


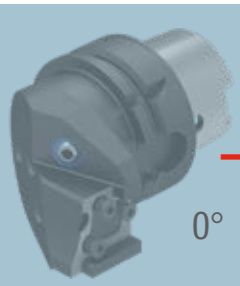
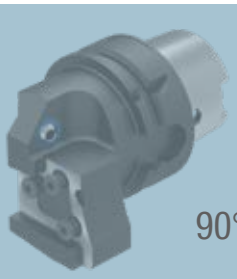
GX 16



GX 24






*

*
* These articles can be found in → **Chapter 16**

0°
90°

SX FX LX TC AX


13

27

73

84

76

SX FX LX TC AX TX Maxi Click

Parting, Grooving and Turning

-F2 8 — Parting and Grooving
-27P 11 — Grooving and copy turning
-M1 9
-M3 12 — CRE = 1,5–3,0 mm
-M2 10
Cutting width CW = 2,0–6,0 mm

Parting and Grooving

-F1 22
23+24
-M1
-27P 25
-R2 26
Cutting width CW = 2,2–9,7 mm

Deep Parting and Grooving

-M2 71
-M3 72
Cutting width CW = 8,0–10,0 mm

Thread turning

Full profile
60° 79
55° 82
Partial profile
60° 81
55° 83

Axial Grooving and Turning

-F50 75
Groove width CW = 3,0 mm

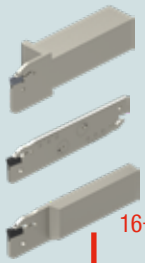
TX

Parting 61
Circlip Grooves 62
Corner undercut 63
Fine and copy turning 64
Axial grooving 65

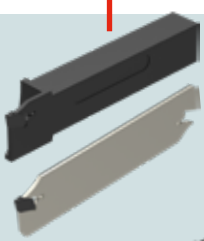
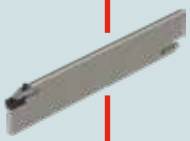
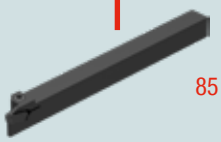
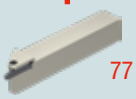
Maxi Click

-F2 5 mm 88
-F2 10 mm 89
-F3 10 mm 90
Cutting width CW = 1,0–2,5 mm

SX - DC FX LX TC AX TX Maxi Click


20

14

16+18

28
29

74

85

77

78

66

67

68

69

91

92

0°
*

97

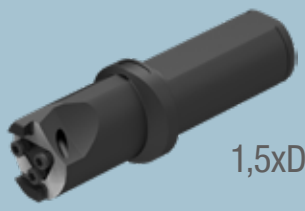
98

99

11

Toolfinder – Internal Machining

ModularClamp


1,5xD
96

GX 09


40


41

GX 16


40


41

GX 09

Circlip grooves


35

Cutting width
CW = 0,5–3,15 mm (H13)

Radius grooves

Standard

36

CRE = 0,8–1,2 mm

Grooving and Turning

-F2

30

Standard

31

-M40

32

Cutting width
CW = 2,0–3,5 mm

GX 16

Circlip grooves


35

Cutting width
CW = 0,5–5,15 mm (H13)

Radius grooves

Standard

36

-27P

37

CRE = 0,8–3,0 mm

Grooving and Turning

-F2

30

Standard

31

-M40

32

-M1

33

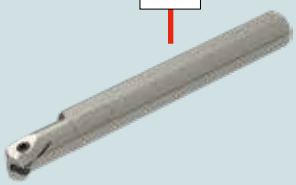
-27P

34

Cutting width
CW = 2,0–6,0 mm

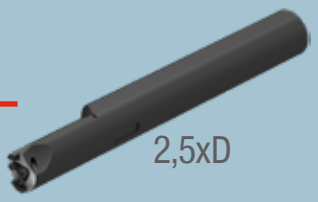
MonoClamp

GX 09


44

GX 16


45


96

2,5xD

GX 24


54

TC


86

GX 24

Radial, axial and deep axial grooving and parting, face turning and turning

-M1  48

-M40  49

-E  47

-F2  46

-27P  51

Cutting width
CW = 2,0–6,0 mm

-M3  50

-27PF  52

CRE = 1,5–4,0 mm

TC

Thread turning

Partial profile 60°  81

Full profile 60°  80

Full profile 55°  82

Partial profile 55°  83

TX

Parting  61

Circlip Grooving Inserts  62

For corner relief  63

Fine and copy turning  64

Axial grooving  65

GX 24


59

TC


87

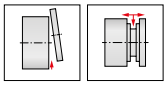
TX


70

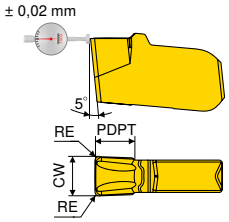
11

Insert SX

▲ High Precision polished geometry



F	M	R



-F2 CTCP325	-F2 CTCP335	-F2 CTPP345	-F2 CTP1340
-F2 HCR1325	-F2 HCR1335	-F2 HCN1345	-F2 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	Article no. 70 346 ...	Article no. 70 346 ...	Article no. 70 346 ...	Article no. 70 346 ...
SX E2.00 N 0.20	2	0,2	1,5	-SX2			**822**	**622**
SX E3.00 N 0.30	3	0,3	2,0	-SX3	**923**	**523**	**823**	**623**
SX E4.00 N 0.40	4	0,4	2,5	-SX4			**824**	**624**

Steel	●	●	●	●
Stainless steel	○	○	●	●
Cast iron	●	●		●
Non ferrous metals				○
Heat resistant alloys			○	●
hardened materials	○			

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Internal machining *External machining*



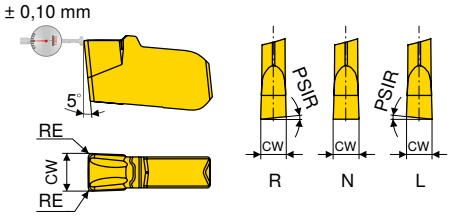
→ 13 → 14–19 → 20+21

Insert SX

▲ Specially developed geometry with negative edge-chamfers available in right, left and neutral types



F	M	R



-M1 CTCP325	-M1 CTCP335	-M1 CTPP345	-M1 CTP1340
-M1 HCR1325	-M1 HCR1335	-M1 HCN1345	-M1 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	IH	CW +/-0,05 mm	RE +/-0,05 mm	PSIR	for tool holder	Article no. 70 342 ...	Article no. 70 342 ...	Article no. 70 342 ...	Article no. 70 342 ...
SX E2.00 L 6	L	2	0,2	6°	-SX2				612
SX E3.00 L 6	L	3	0,2	6°	-SX3	913			613
SX E4.00 L 6	L	4	0,3	6°	-SX4				614
SX E2.00 N 0.20	N	2	0,2		-SX2	922		822	622
SX E3.00 N 0.20	N	3	0,2		-SX3	923	523	823	623
SX E4.00 N 0.30	N	4	0,3		-SX4	924	524	824	624
SX E5.00 N 0.30	N	5	0,3		-SX5	925		825	625
SX E6.00 N 0.40	N	6	0,4		-SX6	926		826	626
SX E2.00 R 6	R	2	0,2	6°	-SX2				602
SX E3.00 R 6	R	3	0,2	6°	-SX3	903			603
SX E4.00 R 6	R	4	0,3	6°	-SX4				604
Steel						●	●	●	●
Stainless steel						○	○	●	●
Cast iron						●	●		●
Non ferrous metals									○
Heat resistant alloys								○	●
hardened materials						○			

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Note: reduce feed rate by 20–50 % with R/L version!

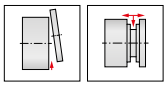
Internal machining *External machining*



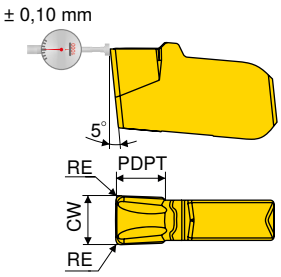
→ 13 → 14–19 → 20+21

Insert SX

▲ All purpose geometry for parting, grooving & turning.



F	M	R



-M2 CTCP325	-M2 CTCP335	-M2 CTPP345	-M2 CTP1340
-M2 HCR1325	-M2 HCR1335	-M2 HCN1345	-M2 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	Article no. 70 343 ...	Article no. 70 343 ...	Article no. 70 343 ...	Article no. 70 343 ...
SX E2.00 N 0.20	2	0,2	1,5	-SX2	**922**	**522**	**822**	**622**
SX E3.00 N 0.30	3	0,3	2,0	-SX3	**923**	**523**	**823**	**623**
SX E4.00 N 0.40	4	0,4	2,5	-SX4	**924**	**524**	**824**	**624**
SX E5.00 N 0.40	5	0,4	2,7	-SX5	**925**	**525**	**825**	**625**
SX E6.00 N 0.50	6	0,5	3,0	-SX6	**926**	**526**	**826**	**626**

Steel	●	●	●	●
Stainless steel	○	○	●	●
Cast iron	●	●		●
Non ferrous metals				○
Heat resistant alloys			○	●
hardened materials	○			

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→ Application recommendation on page 107

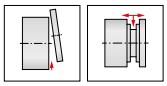
Internal machining | *External machining*



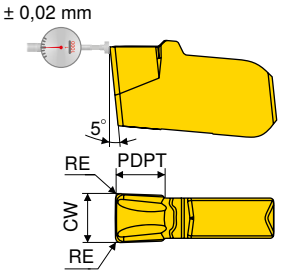
→ 13 | → 14–19 | → 20+21

Insert SX

- Insert with highly positive cutting edge geometry and sharp cutting edge
- Specialist for aluminum and other soft long-chipping non-ferrous metals



F	M	R



-27P
H216T

-ALP
CWK26



Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	Article no. 70 349 ...
SX E2.00 N 0.20	2	0,2	2,0	-SX2	**122**
SX E3.00 N 0.30	3	0,3	2,5	-SX3	**123**
SX E4.00 N 0.40	4	0,4	3,0	-SX4	**124**

Steel	
Stainless steel	
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

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→ Application recommendation on page 107

Internal machining | *External machining*



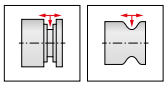


→ 13 → 14–19 → 20+21

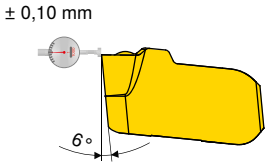
11

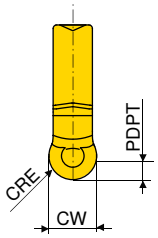
Radius Grooving Insert SX

- For grooving and copy turning
- Very good chip control



F	M	R





-M3 CTCP335	-M3 CTP1340
-M3 HCR1335	-M3 CCN1340
DRAGONSKIN	DRAGONSKIN





Designation	CW +/-0,05 mm	CRE mm	PDPT mm	for tool holder	Article no. 70 344 ...	Article no. 70 344 ...
SX R3.00 N 1.50	3	1,5	1,5	-SX3	**531**	**631**
SX R4.00 N 2.00	4	2,0	2,0	-SX4	**532**	**632**
SX R5.00 N 2.50	5	2,5	2,5	-SX5	**533**	**633**
SX R6.00 N 3.00	6	3,0	3,0	-SX6		**634**

Steel	●	●
Stainless steel	○	●
Cast iron	●	●
Non ferrous metals		○
Heat resistant alloys		●
hardened materials		

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→ Application recommendation on page 108

Internal machining | *External machining*



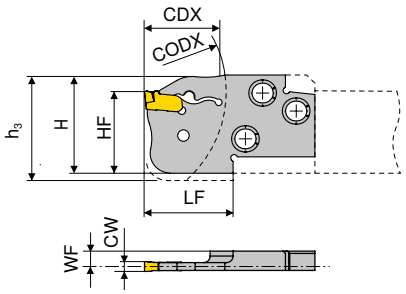




→ 13 → 14–19 → 20+21

ModularClamp MSS – Radial grooving module SX

▲ For parting, grooving and finish turning



Illustrations show right-hand versions



Designation	HF mm	CW mm	WF mm	LF mm	H mm	h_3 mm	CODX mm	CDX mm	for grooving inserts	Left-hand Article no. 70 897 ...	Right-hand Article no. 70 896 ...
E20 R/L 20-SX2	20	2	3,57	22	24	27	60	20	SX .2..	**020**	**020**
E20 R/L 20-SX3	20	3	3,20	22	24	27	60	20	SX .3..	**120**	**120**
E25 R/L 20-SX2	25	2	5,07	22	30		75	20	SX .2..	**025**	**025**
E25 R/L 25-SX3	25	3	4,70	27	30		75	25	SX .3..	**125**	**125**
E25 R/L 35-SX3	25	3	4,70	37	30		75	35	SX .3..	**225**	**225**
E25 R/L 25-SX4	25	4	4,30	27	30		75	25	SX .4..	**325**	**325**
E25 R/L 35-SX4	25	4	4,30	37	30		75	35	SX .4..	**425**	**425**
E32 R/L 35-SX3	32	3	4,70	37	38		96	35	SX .3..	**032**	**032**
E32 R/L 35-SX4	32	4	4,30	37	38		96	35	SX .4..	**132**	**132**



Ejector SX

Spare parts for grooving inserts		Article no. 70 950 ...
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**



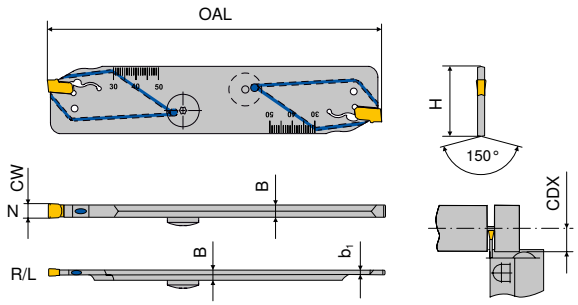


→ 8–12 → 93–95 → **Chapter 16**

Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX-DC Standard







Designation	CW mm	H mm	B mm	OAL mm	b_1 mm	CDX mm	for grooving inserts	R/L/N	Article no. 70 884 ...
XLCF L 2602-DC-SX2	2	26	2,4	110	1,6	25	SX .2..	L	**712**
XLCF L 3202-DC-SX2	2	32	2,4	150	1,6	26	SX .2..	L	**702**
XLCF R 2602-DC-SX2	2	26	2,4	110	1,6	25	SX .2..	R	**512**
XLCF R 3202-DC-SX2	2	32	2,4	150	1,6	26	SX .2..	R	**502**
XLCF N 2603-DC-SX3	3	26	2,5	110		35	SX .3..	N	**613**
XLCF N 3203-DC-SX3	3	32	2,5	150		50	SX .3..	N	**603**
XLCF N 2604-DC-SX4	4	26	3,3	110		40	SX .4..	N	**614**
XLCF N 3204-DC-SX4	4	32	3,3	150		50	SX .4..	N	**604**
XLCF N 3205-DC-SX5	5	32	4,3	150		55	SX .5..	N	**605**
XLCF N 3206-DC-SX6	6	32	5,2	150		60	SX .6..	N	**606**

Key D

Ejector SX


Sealing screw

Spare parts for grooving inserts	Key D Article no. 80 950 ...		Ejector SX Article no. 70 950 ...		Sealing screw Article no. 70 950 ...	
SX .2..	T15 - IP	**128**	SX 2-3	**836**	M4 x 3	**450**
SX .3..	T15 - IP	**128**	SX 2-3	**836**	M4 x 3	**450**
SX .4..	T15 - IP	**128**	SX 4-6	**837**	M4 x 3	**450**
SX .5..	T15 - IP	**128**	SX 4-6	**837**	M4 x 3	**450**
SX .6..	T15 - IP	**128**	SX 4-6	**837**	M4 x 3	**450**


→ 8–12

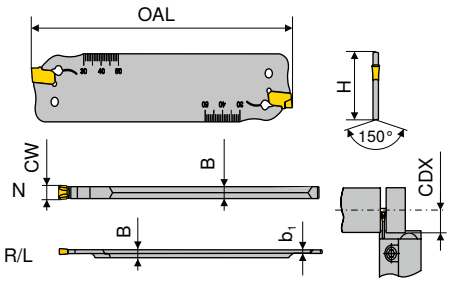

→ 97

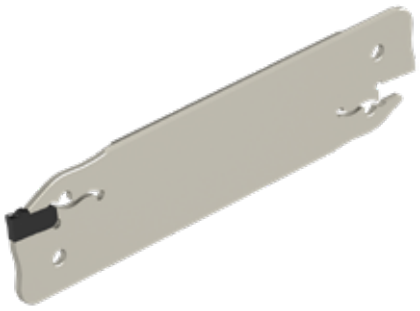

→ **Chapter 16**


→ **Chapter 16**

Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX Standard





Designation	CW mm	H mm	B mm	OAL mm	b_1 mm	CDX mm	for grooving inserts	R/L/N	Article no. 70 884 ...
XLCF L 2602-SX2	2	26	2,4	110	1,5	25	SX .2..	L	**212**
XLCF L 3202-SX2	2	32	2,4	150	1,5	25	SX .2..	L	**202**
XLCF R 2602-SX2	2	26	2,4	110	1,5	25	SX .2..	R	**012**
XLCF R 3202-SX2	2	32	2,4	150	1,5	25	SX .2..	R	**002**
XLCF N 2603-SX3	3	26	2,4	110		35	SX .3..	N	**113**
XLCF N 3203-SX3	3	32	2,4	150		50	SX .3..	N	**103**
XCLF N 2604-SX4	4	26	3,2	110		40	SX .4..	N	**114**
XLCF N 3204-SX4	4	32	3,2	150		50	SX .4..	N	**104**
XLCF N 3205-SX5	5	32	4,2	150		55	SX .5..	N	**105**
XLCF N 3206-SX6	6	32	5,2	150		60	SX .6..	N	**106**



Ejector SX

Spare parts for grooving inserts		Article no. 70 950 ...
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**
SX .5..	SX 4-6	**837**
SX .6..	SX 4-6	**837**



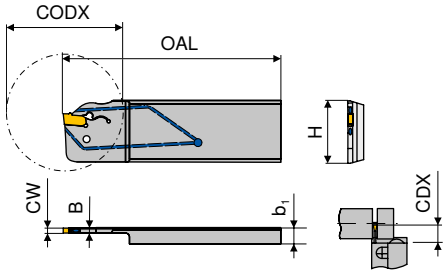



→ 8–12 → 98+99 → **Chapter 16** → **Chapter 16**

Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX-DC reinforced





Illustrations show right-hand versions



Designation	CW	H	B	OAL	b_1	CODX	CDX	for grooving inserts	R/L/N	Article no. 70 879 ...
	mm	mm	mm	mm	mm	mm	mm			
XLCF L 2608-DC-SX3	3	26	2,5	110	8	66	33	SX .3..	L	**713**
XLCF L 3208-DC-SX3	3	32	2,5	110	8	66	33	SX .3..	L	**703**
XLCF R 2608-DC-SX3	3	26	2,5	110	8	66	33	SX .3..	R	**513**
XLCF R 3208-DC-SX3	3	32	2,5	110	8	66	33	SX .3..	R	**503**

Ejector SX

Spare parts		Article no. 70 950 ...
for grooving inserts		
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**



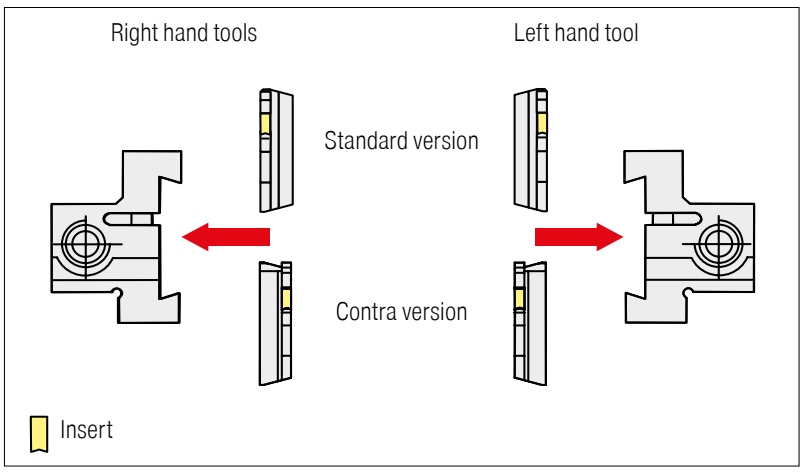






→ 8–12 → 97 → **Chapter 16** → **Chapter 16**

Correct Tool Selection

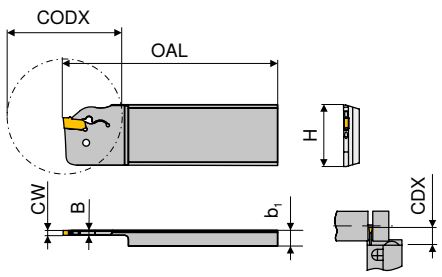






Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX reinforced





Illustrations show right-hand versions

Designation	CW mm	H mm	B mm	OAL mm	b_1 mm	CODX mm	CDX mm	for grooving inserts	R/L/N	Article no. 70 879 ...
XLCF L 2608-SX2	2	26	1,5	110	8	44	22	SX .2..	L	**212** 1)
XLCF L 2608-SX3	3	26	2,5	110	8	44	22	SX .3..	L	**213** 1)
XLCF L 3208-SX3	3	32	2,5	110	8	66	33	SX .3..	L	**203**
XLCF L 3208-SX4	4	32	3,4	110	8	66	33	SX .4..	L	**204**
XLCF R 2608-SX2	2	26	1,5	110	8	44	22	SX .2..	R	**012** 1)
XLCF R 2608-SX3	3	26	2,5	110	8	44	22	SX .3..	R	**013** 1)
XLCF R 3208-SX3	3	32	2,5	110	8	66	33	SX .3..	R	**003**
XLCF R 3208-SX4	4	32	3,4	110	8	66	33	SX .4..	R	**004**

1) can be used in both directions

Ejector SX

Spare parts for grooving inserts		Article no. 70 950 ...
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**





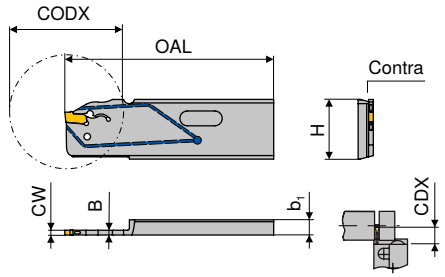

→ 8–12 | → 98+99 | → **Chapter 16** | → **Chapter 16**

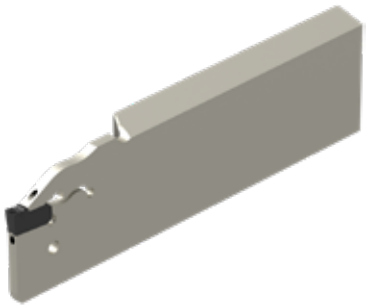
Please order SX assembly key separately if required.

11

MonoClamp – SX-DC reinforced Contra radial blade







Illustrations show right-hand versions

Designation	CW mm	H mm	B mm	OAL mm	b_1 mm	CODX mm	CDX mm	for grooving inserts	R/L/N	Article no. 70 877 ...
XLCF L 3208C-DC-SX3	3	32	2,5	110	8	66	33	SX .3..	L	**703**
XLCF R 3208C-DC-SX3	3	32	2,5	110	8	66	33	SX .3..	R	**503**

Ejector SX

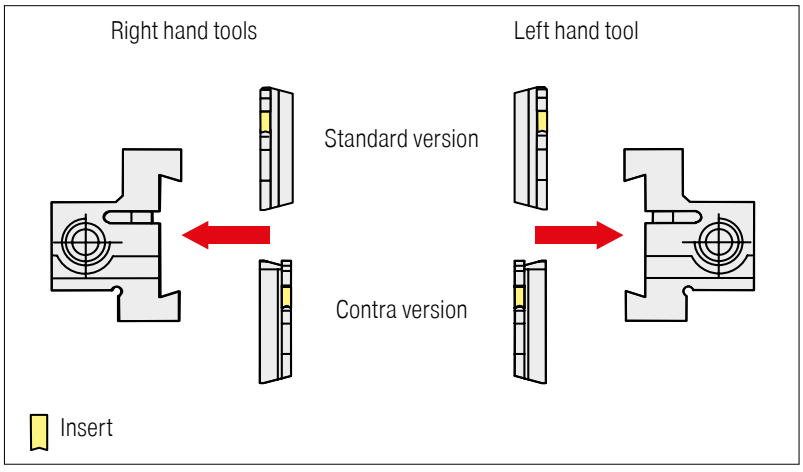
Spare parts for grooving inserts		Article no. 70 950 ...
SX .3..	SX 2-3	**836**






→ 8–12 | → 97 | → **Chapter 16** | → **Chapter 16**

Correct Tool Selection

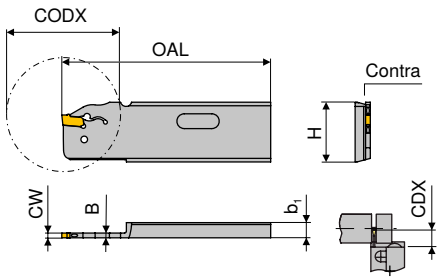


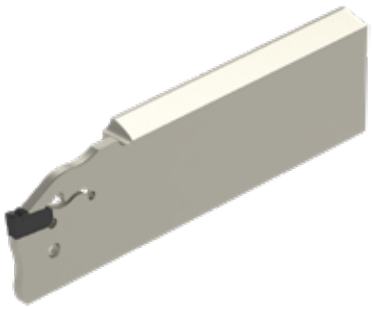




Please order SX assembly key separately if required.

MonoClamp – SX reinforced Contra radial blade





Illustrations show right-hand versions

Designation	CW mm	H mm	B mm	OAL mm	b_1 mm	CODX mm	CDX mm	for grooving inserts	R/L/N	Article no. 70 877 ...
XLCF L 3208C-SX3	3	32	2,5	110	8	66	33	SX .3..	L	**203**
XLCF R 3208C-SX3	3	32	2,5	110	8	66	33	SX .3..	R	**003**



Ejector SX

Spare parts		Article no. 70 950 ...
for grooving inserts		
SX .3..	SX 2-3	**836**





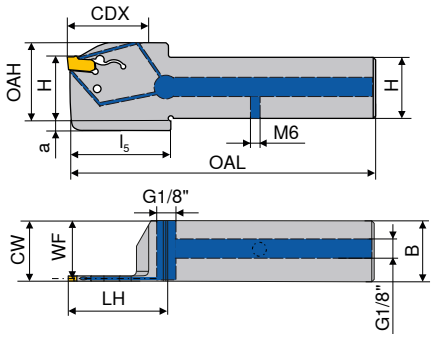

→ 8-12 | → 98+99 | → **Chapter 16** | → **Chapter 16**

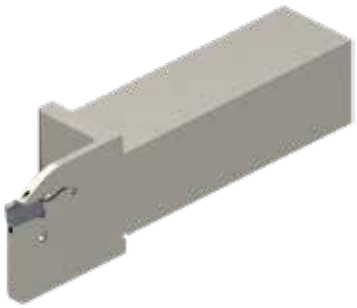
Please order SX assembly key separately if required.

11

MonoClamp – Radial Monoholder SX-DC







Illustrations show right-hand versions

Designation	H	B	CW	WF	OAL	LH	l_5	OAH	CDX	a	for grooving inserts	Left-hand NEW Article no. 70 847 ...	Right-hand NEW Article no. 70 847 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			
E12 R/L 0022-1212X-K-DC-SX2	12	12	2	11,2	71	27	28	22	22	5	SX .2..	**21201**	**21200**
E16 R/L 0026-1616X-K-DC-SX2	16	16	2	15,2	87	32	33	26	26	4	SX .2..	**21601**	**21600**
E20 R/L 0026-2020X-K-DC-SX2	20	20	2	19,2	102	32	33	31	26	5	SX .2..	**22001**	**22000**
E25 R/L 0033-2525X-K-DC-SX2	25	25	2	24,2	126	41	42	36	33	5	SX .2..	**22501**	**22500**
E16 R/L 0026-1616X-K-DC-SX3	16	16	3	14,8	87	32	33	26	26	4	SX .3..	**31601**	**31600**
E20 R/L 0026-2020X-K-DC-SX3	20	20	3	18,8	102	32	33	31	26	5	SX .3..	**32001**	**32000**
E25 R/L 0026-2525X-K-DC-SX3	25	25	3	23,8	117	33		31	26		SX .3..	**32501**	**32500**
E25 R/L 0033-2525X-K-DC-SX3	25	25	3	23,8	126	41	42	36	33	5	SX .3..	**32601**	**32600**
E20 R/L 0033-2020X-K-DC-SX4	20	20	4	18,3	109	39	40	32	33	5	SX .4..	**42001**	**42000**
E25 R/L 0033-2525X-K-DC-SX4	25	25	4	23,3	126	41	42	36	33	5	SX .4..	**42501**	**42500**
E25 R/L 0040-2525X-K-DC-SX4	25	25	4	23,3	133	48	49	38	40	6	SX .4..	**42601**	**42600**
E25 R/L 0040-2525X-K-DC-SX5	25	25	5	22,9	133	48	49	38	40	6	SX .5..	**52501**	**52500**
E25 R/L 0040-2525X-K-DC-SX6	25	25	6	22,4	133	48	49	38	40	6	SX .6..	**62501**	**62500**

Ejector SX



Coolant screw plug

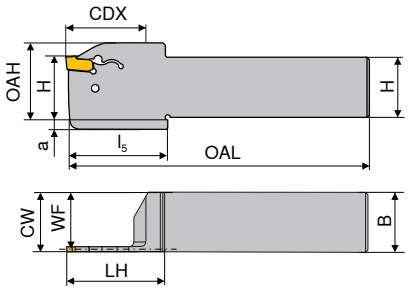
Spare parts for grooving inserts	Ejector SX Article no. 70 950 ...		Coolant screw plug Article no. 70 950 ...	
SX .2..	SX 2-3	**836**	G 1/8"	**294**
SX .3..	SX 2-3	**836**	G 1/8"	**294**
SX .4..	SX 4-6	**837**	G 1/8"	**294**
SX .5..	SX 4-6	**837**	G 1/8"	**294**
SX .6..	SX 4-6	**837**	G 1/8"	**294**

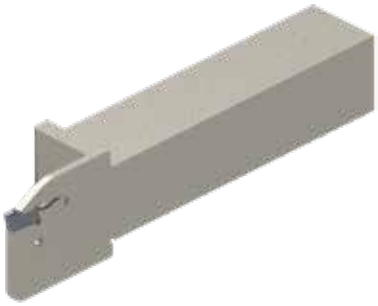


→ 8–12

Please order SX assembly key separately if required.

MonoClamp – Radial Monoholder SX





Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	l_5 mm	OAH mm	CDX mm	a mm	for grooving inserts	Left-hand NEW Article no. 70 846 ...	Right-hand NEW Article no. 70 846 ...
E12 R/L 0022-1212K-K-SX2	12	12	2	11,2	125	27	28	22	22	5	SX .2..	**21201**	**21200**
E16 R/L 0026-1616K-K-SX2	16	16	2	15,2	125	33	33	26	26	4	SX .2..	**21601**	**21600**
E20 R/L 0026-2020K-K-SX2	20	20	2	19,2	125	33	33	31	26	5	SX .2..	**22001**	**22000**
E25 R/L 0033-2525M-K-SX2	25	25	2	24,2	150	42	42	36	33	5	SX .2..	**22501**	**22500**
E16 R/L 0026-1616K-K-SX3	16	16	3	14,8	125	33	33	26	26	4	SX .3..	**31601**	**31600**
E20 R/L 0026-2020K-K-SX3	20	20	3	18,8	125	31	33	31	26	5	SX .3..	**32001**	**32000**
E25 R/L 0026-2525M-K-SX3	25	25	3	23,8	150	33		31	26		SX .3..	**32501**	**32500**
E25 R/L 0033-2525M-K-SX3	25	25	3	23,8	150	42	42	36	33	5	SX .3..	**32601**	**32600**
E20 R/L 0033-2020K-K-SX4	20	20	4	18,3	125	40	40	32	33	5	SX .4..	**42001**	**42000**
E25 R/L 0033-2525M-K-SX4	25	25	4	23,3	150	42	42	36	33	5	SX .4..	**42501**	**42500**
E25 R/L 0040-2525M-K-SX4	25	25	4	23,3	150	49	49	38	40	6	SX .4..	**42601**	**42600**
E25 R/L 0040-2525M-K-SX5	25	25	5	22,9	150	49	49	38	40	6	SX .5..	**52501**	**52500**
E25 R/L 0040-2525M-K-SX6	25	25	6	22,4	150	49	49	38	40	6	SX .6..	**62501**	**62500**



Ejector SX

Spare parts for grooving inserts		Article no. 70 950 ...
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**
SX .5..	SX 4-6	**837**
SX .6..	SX 4-6	**837**

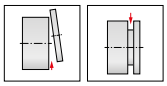


→ 8-12

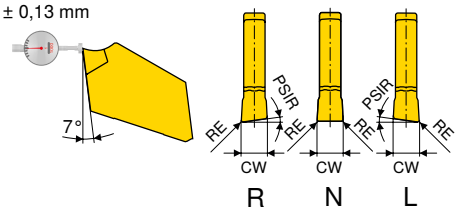
Please order SX assembly key separately if required.

Insert FX

- ▲ Excellent cutting geometry with low cutting forces
- ▲ Very good swarf control also with low feed rates
- ▲ Reduced built-up edge



F	M	R



-F1 CTCP325	-F1 CTPP345	-F1 CTP1340
-F1 HCR1325	-F1 HCN1345	-F1 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	IH	CW $_{-0,1}$ mm	RE $_{+/-0,05}$ mm	PSIR	for tool holder	Article no. 70 331 ...	Article no. 70 331 ...	Article no. 70 331 ...
FX 2.2 L 5-F1	L	2,2	0,15	5°	-FX 2.2		847	647
FX 3.1 L 5-F1	L	3,1	0,20	5°	-FX 3.1		851	651
FX 3.1 L 8-F1	L	3,1	0,20	8°	-FX 3.1		855	
FX 2.2 N 0.15-F1	N	2,2	0,15		-FX 2.2	998	848	648
FX 3.1 N 0.40-F1	N	3,1	0,40		-FX 3.1	906	856	656
FX 3.1 N 0.20-F1	N	3,1	0,20		-FX 3.1	902	852	652
FX 4.1 N 0.20-F1	N	4,1	0,20		-FX 4.1		860	660
FX 4.1 N 0.50-F1	N	4,1	0,50		-FX 4.1		864	
FX 2.2 R 5-F1	R	2,2	0,15	5°	-FX 2.2		849	649
FX 3.1 R 8-F1	R	3,1	0,20	8°	-FX 3.1		857	
FX 3.1 R 5-F1	R	3,1	0,20	5°	-FX 3.1		853	653
Steel						●	●	●
Stainless steel						○	●	●
Cast iron						●		●
Non ferrous metals								○
Heat resistant alloys							○	●
hardened materials						○		

→ v_c Page 101
→ Application recommendation on page 109

Note: reduce feed rate by 20–50 % with R/L version!

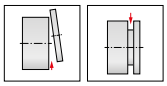
Internal machining *External machining*



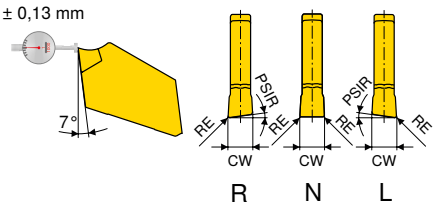
→ 27 → 29 → 28

Insert FX

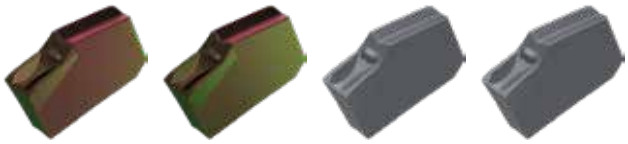
▲ Narrow version



F	M	R



-M1 CTCP325	-M1 CTCP335	-M1 CTPP345	-M1 CTP1340
-M1 HCR1325	-M1 HCR1335	-M1 HCN1345	-M1 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	IH	CW $_{-0,1}$ mm	RE $_{+/-0,05}$ mm	PSIR	for tool holder	Article no. 70 330 ...	Article no. 70 330 ...	Article no. 70 330 ...	Article no. 70 330 ...
FX 2.2 L 4-M1	L	2,2	0,1	4°	-FX 2.2		550	800	600
FX 2.2 N 0.10-M1	N	2,2	0,1		-FX 2.2	902	552	802	602
FX 2.2 R 4-M1	R	2,2	0,1	4°	-FX 2.2		554	804	604

Steel	●	●	●	●
Stainless steel	○	○	●	●
Cast iron	●	●		●
Non ferrous metals				○
Heat resistant alloys			○	●
hardened materials	○			

→ v_c Page 101
→ Application recommendation on page 109

Note: reduce feed rate by 20–50 % with R/L version!

11

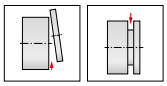
Internal machining *External machining*



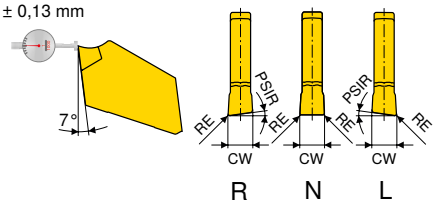
→ 27 → 29 → 28

Insert FX

▲ Wide version



F	M	R



-M1 CTCP325	-M1 CTCP335	-M1 CTPP345	-M1 CTP1340
-M1 HCR1325	-M1 HCR1335	-M1 HCN1345	-M1 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	IH	CW +/-0,05 mm	RE +/-0,05 mm	PSIR	for tool holder	Article no. 70 332 ...	Article no. 70 332 ...	Article no. 70 332 ...	Article no. 70 332 ...
FX 3.1 L 6-M1	L	3,1	0,15	6°	-FX 3.1	900	550	800	600
FX 4.1 L 6-M1	L	4,1	0,20	6°	-FX 4.1		556	806	606
FX 3.1 N 0.15-M1	N	3,1	0,15		-FX 3.1	902	552	802	602
FX 4.1 N 0.20-M1	N	4,1	0,20		-FX 4.1	908	558	808	608
FX 5.1 N 0.25-M1	N	5,1	0,25		-FX 5.1	914	564	814	614
FX 6.5 N 0.30-M1	N	6,5	0,30		-FX 6.5	920	570		620
FX 8.2 N 0.40-M1	N	8,2	0,40		blades XLCEN 4608	924	574		624
FX 9.7 N 0.40-M1	N	9,7	0,40		blades XLCEN 4609	926	576		626
FX 3.1 R 6-M1	R	3,1	0,15	6°	-FX 3.1	904	554	804	604
FX 4.1 R 6-M1	R	4,1	0,20	6°	-FX 4.1		560	810	610
FX 5.1 R 6-M1	R	5,1	0,25	6°	-FX 5.1			816	
Steel						●	●	●	●
Stainless steel						○	○	●	●
Cast iron						●	●		●
Non ferrous metals									○
Heat resistant alloys								○	●
hardened materials						○			

→ v_c Page 101
→ Application recommendation on page 109

Note: reduce feed rate by 20–50 % with R/L version!

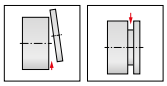
Internal machining *External machining*



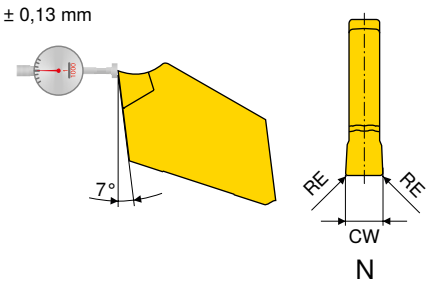
→ 27 → 29 → 28

Insert FX

- Insert with highly positive cutting edge geometry and sharp cutting edge
- Reduced built-up edge



F	M	R



-27P
H216T

-ALP
CWK26



Designation	IH	CW $_{-0,1}$ mm	RE $_{+/-0,05}$ mm	for tool holder	Article no. 70 334 ...
FX 2.2 N 0.10	N	2,2	0,10	-FX 2.2	**650**
FX 3.1 N 0.15	N	3,1	0,15	-FX 3.1	**652**
FX 4.1 N 0.15	N	4,1	0,15	-FX 4.1	**654**

Steel	
Stainless steel	
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

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→ Application recommendation on page 109

Internal machining | *External machining*

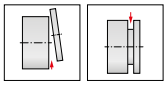


→ 27 → 29 → 28

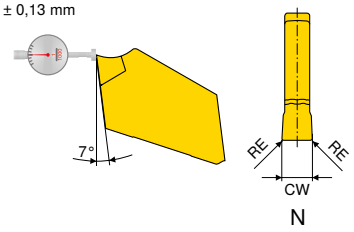
11

Insert FX

- Insert with excellent swarf control for a wide range of feed rates
- Very stable cutting edge



F	M	R



-R2 CTCP325	-R2 CTPP345	-R2 CTP1340
-R2 HCR1325	-R2 HCN1345	-R2 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	IH	CW $_{-0,1}$ mm	RE $_{+/-0,05}$ mm	for tool holder	Article no. 70 335 ...	Article no. 70 335 ...	Article no. 70 335 ...
FX 3.1 N 0.40-R2	N	3,1	0,4	-FX 3.1	**902**	**852**	**652**
FX 4.1 N 0.50-R2	N	4,1	0,5	-FX 4.1	**908**	**858**	**658**

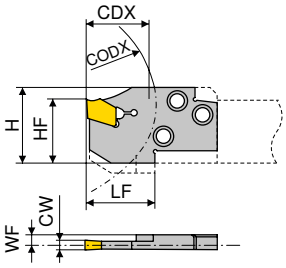
Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●		●
Non ferrous metals			○
Heat resistant alloys		○	●
hardened materials	○		

→ v_c Page 101
→ Application recommendation on page 109

Internal machining	*External machining*		
			
	→ 27	→ 29	→ 28

ModularClamp MSS – Radial grooving module FX short/long

▲ For parting and grooving





Illustrations show right-hand versions

Designation	HF	CW	WF	LF	H	CODX	CDX	for grooving inserts	Left-hand Article no. 70 876 ...	Right-hand Article no. 70 875 ...
	mm	mm	mm	mm	mm	mm	mm			
E20 R/L 20-FX 2.2	23	2,2	3,58	22	27	60	20	FX 2.2 ..	020	020
E20 R/L 20-FX 3.1	23	3,1	3,20	22	27	60	20	FX 3.1 ..	120	120
E20 R/L 20-FX 4.1	23	4,1	2,80	22	27	60	20	FX 4.1 ..	220	220
E25 R/L 20-FX 2.2	25	2,2	5,08	22	30	75	20	FX 2.2 ..	025	025
E25 R/L 25-FX 3.1	25	3,1	4,70	27	30	75	25	FX 3.1 ..	125	125
E25 R/L 25-FX 4.1	25	4,1	4,30	27	30	75	25	FX 4.1 ..	225	225
E25 R/L 25-FX 5.1	25	5,1	3,90	27	30	75	25	FX 5.1 ..	325	325
E25 R/L 25-FX 6.5	25	6,5	3,30	27	30	75	25	FX 6.5 ..	425	425
E25 R/L 35-FX 3.1	25	3,1	4,70	37	30	75	35	FX 3.1 ..	525	525
E25 R/L 35-FX 4.1	25	4,1	4,30	37	30	75	35	FX 4.1 ..	625	625
E25 R/L 35-FX 5.1	25	5,1	3,90	37	30	75	35	FX 5.1 ..	725	725
E25 R/L 35-FX 6.5	25	6,5	3,30	37	30	75	35	FX 6.5 ..	825	825
E32 R/L 32-FX 3.1	32	3,1	4,70	34	38	96	32	FX 3.1 ..	032	032
E32 R/L 32-FX 4.1	32	4,1	4,30	34	38	96	32	FX 4.1 ..	132	132
E32 R/L 32-FX 5.1	32	5,1	3,90	34	38	96	32	FX 5.1 ..	232	232
E32 R/L 32-FX 6.5	32	6,5	3,30	34	38	96	32	FX 6.5 ..	332	332
E32 R/L 45-FX 3.1	32	3,1	4,70	47	38	96	45	FX 3.1 ..	432	432
E32 R/L 45-FX 4.1	32	4,1	4,30	47	38	96	45	FX 4.1 ..	532	532
E32 R/L 45-FX 5.1	32	5,1	3,90	47	38	96	45	FX 5.1 ..	632	632
E32 R/L 45-FX 6.5	32	6,5	3,30	47	38	96	45	FX 6.5 ..	732	732



Ejector

Spare parts for grooving inserts	Article no. 70 950 ...
FX 2.2 ..	375
FX 3.1 ..	376
FX 4.1 ..	376
FX 5.1 ..	376
FX 6.5 ..	376

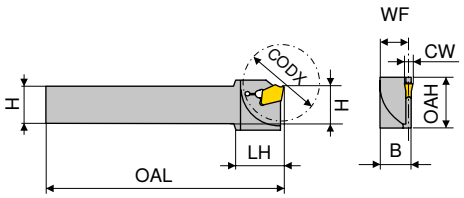


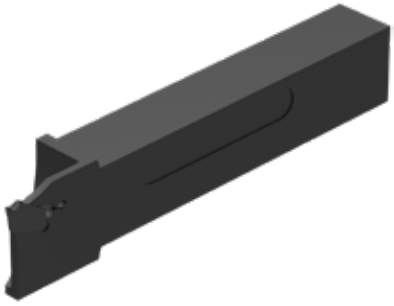


→ 22–26 → 93–95 → **Chapter 16**

MonoClamp – Radial Monoholder FX

Scope of supply:
Blade and ejector





Illustrations show right-hand versions

Designation	H	B	OAL	LH	OAH	CW	WF	CODX	for grooving inserts	Left-hand Article no. 70 837 ...	Right-hand Article no. 70 836 ...
	mm	mm	mm	mm	mm	mm	mm	mm			
XLCE R/L 1010 M-FX2.2	10	10	150	19,4	21	2,2	9,18	30	FX 2.2 ..	101	101
XLCE R/L 1212 F-FX2.2	12	12	80	21,0	21	2,2	11,18	30	FX 2.2 ..	102	102
XLCE R/L 1212 M-FX2.2	12	12	150	19,4	21	2,2	11,18	30	FX 2.2 ..	103	103
XLCE R/L 1414 M-FX2.2	14	14	150	19,4	21	2,2	13,18	30	FX 2.2 ..	104	104
XLCE R/L 1612 H-FX2.2	16	12	100	21,0	21	2,2	11,18	30	FX 2.2 ..	105	105
XLCF R/L 1612 H-FX3.1	16	12	100	21,4	25	3,1	10,80	35	FX 3.1 ..	106	106
XLCF R/L 2016 K-FX3.1	20	16	125	26,4	26	3,1	14,80	40	FX 3.1 ..	107	107
XLCF R/L 2520 M-FX3.1	25	20	150	35,2	34	3,1	18,80	50	FX 3.1 ..	108	108
XLCF R/L 2016 K-FX4.1	20	16	125	26,4	26	4,1	14,40	40	FX 4.1 ..	109	109
XLCF R/L 2520 M-FX4.1	25	20	150	35,2	34	4,1	18,40	50	FX 4.1 ..	110	110



Ejector

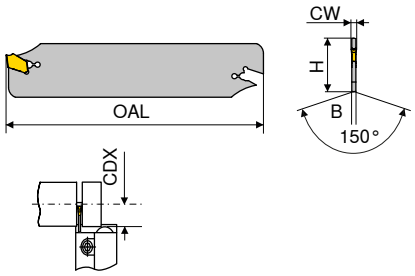
Spare parts for grooving inserts	Article no. 70 950 ...
FX 2.2 ..	375
FX 3.1 ..	376
FX 4.1 ..	376

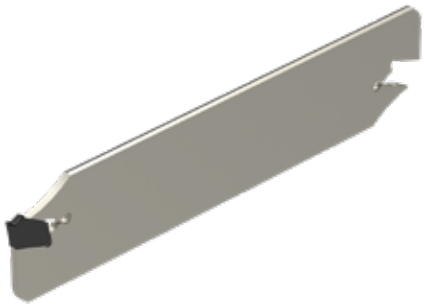


→ 22–26

MonoClamp – Radial Blade FX

Scope of supply:
Blade and ejector





Designation	H	B	OAL	CW	CDX	for grooving inserts	Article no. 70 832 ...
	mm	mm	mm	mm	mm		
XLCEN 2602 J 22 FX	26	1,65	110	2,2	25	FX 2.2 ..	**101**
XLCFN 2603 J 31 FX	26	2,40	110	3,1	35	FX 3.1 ..	**102**
XLCFN 2604 J 41 FX	26	3,20	110	4,1	40	FX 4.1 ..	**103**
XLCEN 3202 M 22 FX	32	1,65	150	2,2	30	FX 2.2 ..	**004**
XLCFN 3203 M 31 FX	32	2,40	150	3,1	50	FX 3.1 ..	**104**
XLCFN 3204 M 41 FX	32	3,20	150	4,1	50	FX 4.1 ..	**105**
XLCFN 3205 M 51 FX	32	4,00	150	5,1	55	FX 5.1 ..	**106**
XLCFN 3206 M 65 FX	32	5,20	150	6,5	55	FX 6.5 ..	**107**
XLCEN 4608 S 82 FX	46	6,80	250	8,2	80	FX 8.2 ..	**108**
XLCEN 4609 S 97 FX	46	8,00	250	9,7	80	FX 9.7 ..	**109**


Ejector

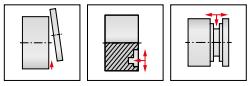
Spare parts for grooving inserts	Article no. 70 950 ...
FX 2.2 ..	**375**
FX 3.1 ..	**376**
FX 4.1 ..	**376**
FX 5.1 ..	**376**
FX 6.5 ..	**376**
FX 8.2 ..	**377**
FX 9.7 ..	**377**



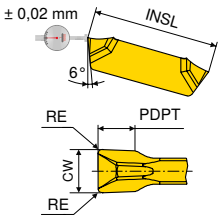

→ 22–26 → 98+99

Insert GX 09/16

- Insert with ground periphery
- Suitable also for parting off tubes and thin-walled workpieces



F	M	R



-F2 CTP1340

-F2 CCN1340

DRAGONSKIN



Designation	INSL	CW +/-0,02	RE +/-0,05	PDPT	for tool holder	Article no. 70 360 ...
	mm	mm	mm	mm		
GX 09-1 E2.00 N 0.20	9	2,0	0,2	1,5	GX 09-1	**600**
GX 09-1 E2.50 N 0.20	9	2,5	0,2	1,5	GX 09-1	**602**
GX 09-2 E3.00 N 0.30	9	3,0	0,3	2,0	GX 09-2	**604**
GX 16-1 E2.00 N 0.20	16	2,0	0,2	2,5	GX 16-1	**650**
GX 16-2 E3.00 N 0.30	16	3,0	0,3	3,0	GX 16-2	**652**
GX 16-3 E4.00 N 0.40	16	4,0	0,4	3,5	GX 16-3	**654**
GX 16-3 E5.00 N 0.40	16	5,0	0,4	3,5	GX 16-3	**656**

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	

→ v_c Page 101
→ Application recommendation on page 103

Internal machining | *External machining*





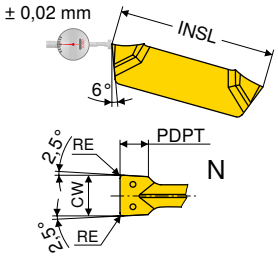

→ 40+41 | → 44+45 | → 38+39 | → 42+43

Insert GX 09/16 – Standard

▲ Suitable for parting thin-walled workpieces



F	M	R
		



CTCP325	CTCP335	CTP1340
HCR1325	HCR1335	CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL	CW +/-0,02	RE +/-0,05	PDPT	for tool holder	Article no. 70 350 ...	Article no. 70 350 ...	Article no. 70 350 ...
	mm	mm	mm	mm				
GX 09-1 E2.00 N 0.20	9	2,0	0,2	1,5	GX 09-1	**984**		**634**
GX 09-1 E2.50 N 0.20	9	2,5	0,2	1,5	GX 09-1	**988**		**638**
GX 09-2 E3.00 N 0.30	9	3,0	0,3	2,0	GX 09-2	**992**		**642**
GX 16-1 E2.00 N 0.20	16	2,0	0,2	2,5	GX 16-1	**900**	**500**	**600**
GX 16-1 E2.50 N 0.20	16	2,5	0,2	2,5	GX 16-1	**904**	**504**	**604**
GX 16-2 E3.00 N 0.30	16	3,0	0,3	3,0	GX 16-2	**908**	**508**	**608**
GX 16-2 E3.00 N 0.50	16	3,0	0,5	3,0	GX 16-2	**910**		
GX 16-2 E3.50 N 0.30	16	3,5	0,3	3,0	GX 16-2	**912**	**512**	**612**
GX 16-3 E4.00 N 0.60	16	4,0	0,6	3,5	GX 16-3	**918**		
GX 16-3 E4.00 N 0.40	16	4,0	0,4	3,5	GX 16-3	**916**	**516**	**616**
GX 16-3 E5.00 N 0.40	16	5,0	0,4	3,5	GX 16-3	**924**	**524**	**624**
GX 16-4 E6.00 N 0.50	16	6,0	0,5	4,0	GX 16-4	**928**		**628**
GX 16-4 E6.00 N 0.80	16	6,0	0,8	4,0	GX 16-4	**930**		

Steel	●	●	●
Stainless steel	○	○	●
Cast iron	●	●	●
Non ferrous metals			○
Heat resistant alloys			●
hardened materials	○		

→ v_c Page 101
→ Application recommendation on page 103

11

Internal machining *External machining*

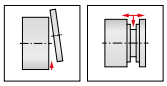




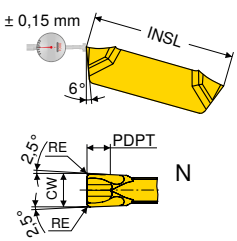

→ 40+41 → 44+45 → 38+39 → 42+43

Insert GX 09/16

▲ Very good swarf control



F	M	R



-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
-M40 HCR1325	-M40 HCN1345	-M40 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	Article no. 70 351 ...	Article no. 70 351 ...	Article no. 70 351 ...
GX 09-1 E2.00 N 0.20	9	2	0,2	1,5	GX 09-1	**986**	**886**	**686**
GX 09-2 E3.00 N 0.30	9	3	0,3	2,0	GX 09-2	**994**	**894**	**694**
GX 16-1 E2.00 N 0.20	16	2	0,2	2,5	GX 16-1	**902**	**802**	**602**
GX 16-2 E3.00 N 0.30	16	3	0,3	3,0	GX 16-2	**910**	**810**	**610**
GX 16-3 E4.00 N 0.40	16	4	0,4	3,5	GX 16-3	**918**	**818**	**618**
GX 16-3 E5.00 N 0.40	16	5	0,4	3,5	GX 16-3	**926**	**826**	**626**
GX 16-4 E6.00 N 0.50	16	6	0,5	4,0	GX 16-4	**930**	**830**	**630**
Steel						●	●	●
Stainless steel						○	●	●
Cast iron						●		●
Non ferrous metals								○
Heat resistant alloys							○	●
hardened materials						○		

→ v_c Page 101
→ Application recommendation on page 103

Internal machining *External machining*





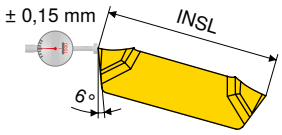

→ 40+41 → 44+45 → 38+39 → 42+43

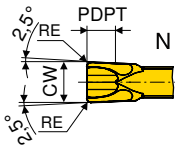
Insert GX 16

▲ Very good swarf control



F	M	R
		





-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
-M1 HCR1325	-M1 HCN1345	-M1 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	Article no. 70 362 ...	Article no. 70 362 ...	Article no. 70 362 ...
GX 16-1 E2.00 N 0.20	16	2	0,2	2,0	GX 16-1		**800**	**600**
GX 16-2 E3.00 N 0.20	16	3	0,2	2,5	GX 16-2	**902**	**802**	**602**
GX 16-3 E4.00 N 0.30	16	4	0,3	3,0	GX 16-3	**904**		**604**
Steel						●	●	●
Stainless steel						○	●	●
Cast iron						●		●
Non ferrous metals								○
Heat resistant alloys							○	●
hardened materials						○		

→ v_c Page 101
→ Application recommendation on page 104

Internal machining *External machining*



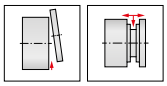



→ 40+41 → 45 → 38+39 → 43

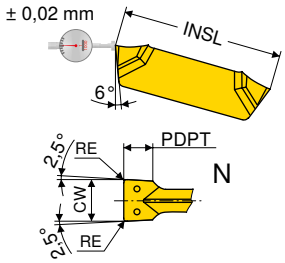
11

Insert GX 16

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ Ground periphery



F	M	R



-27P
H216T

-ALP
CWK26



Designation	INSL	CW +/-0,02	RE +/-0,05	PDPT	for tool holder	Article no. 70 350 ...
	mm	mm	mm	mm		
GX 16-1 E2.00 N 0.20	16	2	0,2	2,5	GX 16-1	**650**
GX 16-2 E3.00 N 0.30	16	3	0,3	3,0	GX 16-2	**658**
GX 16-3 E4.00 N 0.40	16	4	0,4	3,5	GX 16-3	**670**
GX 16-4 E6.00 N 0.50	16	6	0,5	4,0	GX 16-4	**678**

Steel	
Stainless steel	
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c Page 101
→ Application recommendation on page 103

Internal machining



→ 40+41



→ 45

External machining



→ 38+39

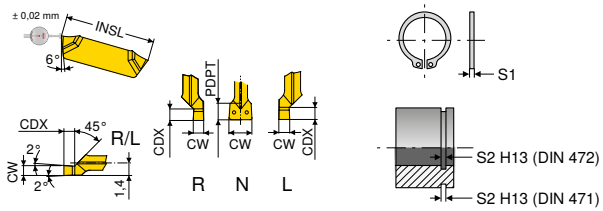


→ 43

Circlip groove insert GX 09/16 – Standard



F	M	R
		





Designation	IH	INSL	s_1	s_2	CW $_{+/-0,02}$	RE $_{+/-0,05}$	CDX	PDPT	for tool holder	Article no. 70 352 ...	Article no. 70 352 ...
		mm	mm	mm	mm	mm	mm	mm			
GX 09-1 S0.60 L	L	9	0,40	0,50	0,60		0,75		R/L 02-GX 09-1		679
GX 09-1 S0.80 L	L	9	0,60	0,70	0,80		0,94		R/L 02-GX 09-1		681
GX 09-1 S0.90 L	L	9	0,70	0,80	0,90		1,04		R/L 02-GX 09-1		683
GX 09-1 S1.00 L	L	9	0,80	0,90	1,00		1,14		R/L 02-GX 09-1		684
GX 09-1 S1.20 L	L	9	1,00	1,10	1,20		1,34		R/L 02-GX 09-1		686
GX 09-1 S1.40 L	L	9	1,20	1,30	1,40		1,53		R/L 02-GX 09-1		688
GX 09-1 S1.70 L	L	9	1,50	1,60	1,70		1,82		R/L 02-GX 09-1		690
GX 16-2 S0.60 L	L	16	0,40	0,50	0,60		0,75		R/L 03-GX 16-2		607
GX 16-2 S0.80 L	L	16	0,60	0,70	0,80		0,94		R/L 03-GX 16-2		609
GX 16-2 S0.90 L	L	16	0,70	0,80	0,90		1,04		R/L 03-GX 16-2		611
GX 16-2 S1.00 L	L	16	0,80	0,90	1,00		1,14		R/L 03-GX 16-2		612
GX 16-2 S1.20 L	L	16	1,00	1,10	1,20		1,34		R/L 03-GX 16-2		614
GX 16-2 S1.40 L	L	16	1,20	1,30	1,40		1,53		R/L 03-GX 16-2		616
GX 16-2 S1.70 L	L	16	1,50	1,60	1,70		1,82		R/L 03-GX 16-2		618
GX 16-2 S1.95 L	L	16	1,75	1,85	1,95		2,07		R/L 03-GX 16-2		620
GX 16-2 S2.25 L	L	16	2,00	2,15	2,25		2,36		R/L 03-GX 16-2		622
GX 09-1 S1.95 N	N	9	1,75	1,85	1,95	0,1		2,0	GX 09-1	692	
GX 09-1 S2.25 N	N	9	2,00	2,15	2,25	0,1		2,0	GX 09-1	694	
GX 09-2 S2.75 N	N	9	2,50	2,65	2,75	0,1		2,0	GX 09-2	696	
GX 09-2 S3.25 N	N	9	3,00	3,15	3,25	0,1		2,0	GX 09-2	698	
GX 16-2 S2.75 N	N	16	2,50	2,65	2,75	0,1		3,0	GX 16-2	624	
GX 16-2 S3.25 N	N	16	3,00	3,15	3,25	0,1		3,0	GX 16-2	626	
GX 16-3 S4.25 N	N	16	4,00	4,15	4,25	0,2		3,5	GX 16-3	628	
GX 16-4 S5.25 N	N	16	5,00	5,15	5,25	0,2		4,0	GX 16-4	630	
GX 09-1 S0.60 R	R	9	0,40	0,50	0,60		0,75		R/L 02-GX 09-1		670
GX 09-1 S0.80 R	R	9	0,60	0,70	0,80		0,94		R/L 02-GX 09-1		672
GX 09-1 S0.90 R	R	9	0,70	0,80	0,90		1,04		R/L 02-GX 09-1		674
GX 09-1 S1.00 R	R	9	0,80	0,90	1,00		1,14		R/L 02-GX 09-1		676
GX 09-1 S1.20 R	R	9	1,00	1,10	1,20		1,34		R/L 02-GX 09-1		678
GX 09-1 S1.40 R	R	9	1,20	1,30	1,40		1,53		R/L 02-GX 09-1		680
GX 09-1 S1.70 R	R	9	1,50	1,60	1,70		1,82		R/L 02-GX 09-1		682
GX 16-2 S0.60 R	R	16	0,40	0,50	0,60		0,75		R/L 03-GX 16-2		695
GX 16-2 S0.80 R	R	16	0,60	0,70	0,80		0,94		R/L 03-GX 16-2		697
GX 16-2 S0.90 R	R	16	0,70	0,80	0,90		1,04		R/L 03-GX 16-2		699
GX 16-2 S1.00 R	R	16	0,80	0,90	1,00		1,14		R/L 03-GX 16-2		600
GX 16-2 S1.20 R	R	16	1,00	1,10	1,20		1,34		R/L 03-GX 16-2		602
GX 16-2 S1.40 R	R	16	1,20	1,30	1,40		1,53		R/L 03-GX 16-2		604
GX 16-2 S1.70 R	R	16	1,50	1,60	1,70		1,82		R/L 03-GX 16-2		606
GX 16-2 S1.95 R	R	16	1,75	1,85	1,95		2,07		R/L 03-GX 16-2		608
GX 16-2 S2.25 R	R	16	2,00	2,15	2,25		2,36		R/L 03-GX 16-2		610

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 101
→ Application recommendation on page 104

Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining *External machining*

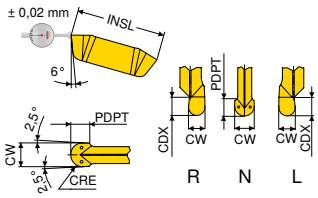


→ 40+41 → 44+45 → 38+39 → 42+43

Radius groove insert GX 09/16



F	M	R
		



CTCP325	CTCP325	CTP1340
HCR1325	HCR1325	CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN





Designation	IH	INSL	CW +/-0,02	CRE	PDPT	CDX	for tool holder	Article no. 70 354 ...	Article no. 70 354 ...	Article no. 70 354 ...
		mm	mm	mm	mm	mm				
GX 09-1 R0.80 L	L	9	1,6	0,8		1,78	R/L 02-GX 09-1	**988**		
GX 16-2 R0.80 L	L	16	1,6	0,8		1,78	R/L 03-GX 16-2	**912**		
GX 16-2 R1.00 L	L	16	2,0	1,0		2,18	R/L 03-GX 16-2	**916**		
GX 16-2 R1.20 L	L	16	2,4	1,2		2,58	R/L 03-GX 16-2	**920**		
GX 09-1 R1.00 N	N	9	2,0	1,0	1,0		GX 09-1		**992**	
GX 09-1 R1.20 N	N	9	2,4	1,2	1,2		GX 09-1		**996**	
GX 16-2 R1.50 N	N	16	3,0	1,5	1,5		GX 16-2		**924**	**624**
GX 16-3 R2.00 N	N	16	4,0	2,0	2,0		GX 16-3		**928**	**628**
GX 16-3 R2.50 N	N	16	5,0	2,5	2,5		GX 16-3		**932**	**632**
GX 16-4 R3.00 N	N	16	6,0	3,0	3,0		GX 16-4		**936**	**636**
GX 09-1 R0.80 R	R	9	1,6	0,8		1,78	R/L 02-GX 09-1	**984**		
GX 16-2 R0.80 R	R	16	1,6	0,8		1,78	R/L 03-GX 16-2	**900**		
GX 16-2 R1.00 R	R	16	2,0	1,0		2,18	R/L 03-GX 16-2	**904**		
GX 16-2 R1.20 R	R	16	2,4	1,2		2,58	R/L 03-GX 16-2	**908**		

Steel	●	●	●
Stainless steel	○	○	●
Cast iron	●	●	●
Non ferrous metals			○
Heat resistant alloys			●
hardened materials	○	○	

→ v_c Page 101
→ Application recommendation on page 104

Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining *External machining*





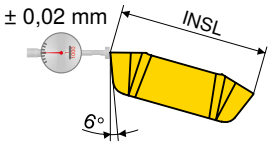

→ 40+41 → 44+45 → 38+39 → 42+43

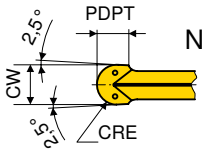
Radius groove insert GX 16

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ Ground periphery



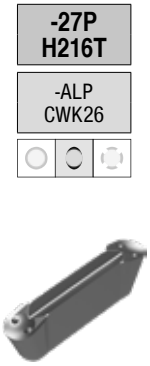
F	M	R
		





-27P
H216T

-ALP
CWK26



Designation	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	for tool holder	Article no. 70 354 ...
GX 16-2 R1.50 N	16	3	1,5	1,5	GX 16-2	**674**
GX 16-3 R2.00 N	16	4	2,0	2,0	GX 16-3	**678**
GX 16-3 R2.50 N	16	5	2,5	2,5	GX 16-3	**682**

Steel	
Stainless steel	
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c Page 101
→ Application recommendation on page 104

Internal machining


→ 40+41


→ 45

External machining

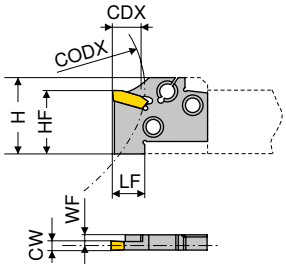

→ 38+39


→ 43

11

ModularClamp MSS – Radial grooving module GX 09/16

- For circlip grooves = 2,75 mm
- For radius grooves up to = 1,2 mm
- For external recessing



Illustrations show right-hand versions



Designation	CW	WF	LF	HF	H	CODX	CDX	for grooving inserts	Left-hand Article no. 70 871 ...	Right-hand Article no. 70 870 ...
	mm	mm	mm	mm	mm	mm	mm			
E12 R/L 02-GX 09-1	<1,95	3,15	8	12	14,5	36	2	GX 09-1 ..R/L	**112**	**112**
E16 R/L 02-GX 09-1	<1,95	3,15	8	16	19,5	48	2	GX 09-1 ..R/L	**116**	**116**
E20 R/L 03-GX 16-2	<2,75	3,40	13	20	24,0	60	3	GX 16-2 ..R/L	**120**	**120**
E25 R/L 03-GX 16-2	<2,75	4,90	13	25	30,0	75	3	GX 16-2 ..R/L	**125**	**125**
E32 R/L 03-GX 16-2	<2,75	4,90	13	32	38,0	96	3	GX 16-2 ..R/L	**132**	**132**

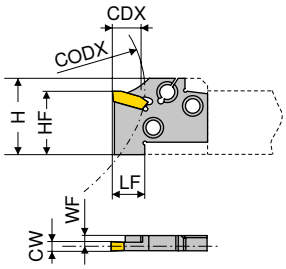




→ 30–37 → 93–95 → **Chapter 16**

ModularClamp MSS – Radial grooving module GX 09/16

- For grooving and turning
- For circlip grooves = 5,25 mm
- For radius grooves up to = 2,5 mm
- For external recessing



Illustrations show right-hand versions



Designation	CW	WF	LF	HF	H	CODX	CDX	for grooving inserts	Left-hand Article no. 70 866 ...	Right-hand Article no. 70 865 ...
	mm	mm	mm	mm	mm	mm	mm			
E12 R/L 07-GX 09-1	2,00 - 2,75	3,15	8	12	14,5	36	7	GX 09-1 ..N	**012**	**012**
E12 R/L 07-GX 09-2	2,76 - 3,75	3,15	8	12	14,5	36	7	GX 09-2 ..N	**112**	**112**
E16 R/L 07-GX 09-1	2,00 - 2,75	3,15	8	16	19,5	48	7	GX 09-1 ..N	**016**	**016**
E16 R/L 07-GX 09-2	2,76 - 3,75	3,15	8	16	19,5	48	7	GX 09-2 ..N	**116**	**116**
E20 R/L 12-GX 16-1	2,00 - 2,75	3,75	13	20	24,0	60	12	GX 16-1 ..N	**020**	**020**
E20 R/L 12-GX 16-2	2,76 - 3,75	3,40	13	20	24,0	60	12	GX 16-2 ..N	**120**	**120**
E20 R/L 12-GX 16-3	3,76 - 5,00	2,93	13	20	24,0	60	12	GX 16-3 ..N	**220**	**220**
E25 R/L 12-GX 16-1	2,00 - 2,75	5,25	13	25	30,0	75	12	GX 16-1 ..N	**025**	**025**
E25 R/L 12-GX 16-2	2,76 - 3,75	4,90	13	25	30,0	75	12	GX 16-2 ..N	**125**	**125**
E25 R/L 12-GX 16-3	3,76 - 5,00	4,43	13	25	30,0	75	12	GX 16-3 ..N	**225**	**225**
E25 R/L 12-GX 16-4	5,01 - 6,50	3,80	13	25	30,0	75	12	GX 16-4 ..N	**325**	**325**
E32 R/L 12-GX 16-2	2,76 - 3,75	4,90	13	32	38,0	96	12	GX 16-2 ..N	**132**	**132**
E32 R/L 12-GX 16-3	3,76 - 5,00	4,43	13	32	38,0	96	12	GX 16-3 ..N	**232**	**232**
E32 R/L 12-GX 16-4	5,01 - 6,50	3,80	13	32	38,0	96	12	GX 16-4 ..N	**332**	**332**

11

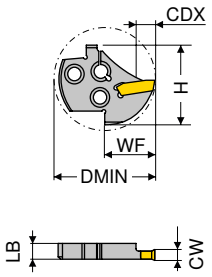




→ 30–37 → 93–95 → **Chapter 16**

ModularClamp MSS – Radial Grooving module GX 09/16 for Internal machining

- For circlip grooves = 2,75 mm
- For radius grooves up to = 1,2 mm



Illustrations show right-hand versions



Designation	CW	LB	WF	H	CDX	DMIN	for grooving inserts	Left-hand Article no. 70 886 ...	Right-hand Article no. 70 885 ...
	mm	mm	mm	mm	mm	mm			
I16 R/L 02-GX 09-1	<1,95	3,8	10,0	16,4	2	20	GX 09-1 ..R/L	**016**	**016**
I20 R/L 02-GX 09-1	<1,95	3,8	12,0	20,3	2	25	GX 09-1 ..R/L	**020**	**020**
I25 R/L 02-GX 09-1	<1,95	3,8	15,5	24,9	2	32	GX 09-1 ..R/L	**025**	**025**
I32 R/L 03-GX 16-2	<2,75	5,9	20,0	32,2	3	40	GX 16-2 ..R/L	**032**	**032**
I40 R/L 03-GX 16-2	<2,75	5,9	24,5	39,6	3	50	GX 16-2 ..R/L	**040**	**040**

Right hand module → left hand insert only
Left hand module → right hand insert only

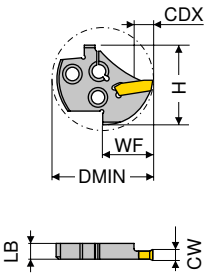




→ 30–37 → 96

ModularClamp MSS – Radial Grooving module 09/16 for Internal machining

- For circlip grooves = 5,25 mm
- For radius grooves up to = 2,5 mm



Illustrations show right-hand versions



Designation	CW	LB	WF	H	CDX	DMIN	for grooving inserts	Left-hand Article no. 70 881 ...	Right-hand Article no. 70 880 ...
	mm	mm	mm	mm	mm	mm			
I16 R/L 04-GX 09-1	2,00 - 2,75	3,8	10,0	16,4	4	20	GX 09-1 ..N	**017**	**017**
I16 R/L 04-GX 09-2	2,76 - 3,75	3,8	10,0	16,4	4	20	GX 09-2 ..N	**117**	**117**
I20 R/L 05-GX 09-1	2,00 - 2,75	3,8	12,0	20,3	5	25	GX 09-1 ..N	**021**	**021**
I20 R/L 05-GX 09-2	2,76 - 3,75	3,8	12,0	20,3	5	25	GX 09-2 ..N	**121**	**121**
I25 R/L 06-GX 09-1	2,00 - 2,75	3,8	15,5	24,9	6	32	GX 09-1 ..N	**026**	**026**
I25 R/L 06-GX 09-2	2,76 - 3,75	3,8	15,5	24,9	6	32	GX 09-2 ..N	**126**	**126**
I32 R/L 09-GX 16-1	2,00 - 2,75	5,9	20,0	32,2	9	40	GX 16-1 ..N	**033**	**033**
I32 R/L 09-GX 16-2	2,76 - 3,75	5,9	20,0	32,2	9	40	GX 16-2 ..N	**133**	**133**
I32 R/L 09-GX 16-3	3,76 - 5,00	5,9	20,0	32,2	9	40	GX 16-3 ..N	**233**	**233**
I32 R/L 09-GX 16-4	5,01 - 6,50	5,9	20,0	32,2	9	40	GX 16-4 ..N	**333**	**333**
I40 R/L 10-GX 16-1	2,00 - 2,75	5,9	24,5	39,6	10	50	GX 16-1 ..N	**041**	**041**
I40 R/L 10-GX 16-2	2,76 - 3,75	5,9	24,5	39,6	10	50	GX 16-2 ..N	**141**	**141**
I40 R/L 10-GX 16-3	3,76 - 5,00	5,9	24,5	39,6	10	50	GX 16-3 ..N	**241**	**241**
I40 R/L 10-GX 16-4	5,01 - 6,50	5,9	24,5	39,6	10	50	GX 16-4 ..N	**341**	**341**

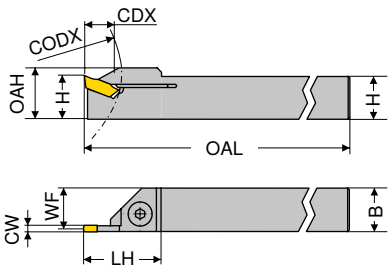




→ 30–37 → 96

11

MonoClamp – Radial Monoholder GX 09

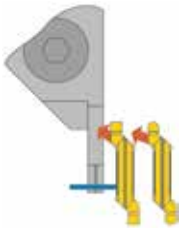




Illustrations show right-hand versions

Designation	H	B	CW	WF	OAH	OAL	LH	CODX	CDX	for grooving inserts	Left-hand Article no. 70 863 ...	Right-hand Article no. 70 862 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm			
E10 R/L 00-1010M-GX09	10	10	2,00 - 3,50	9,35	12	150	18	30	7	GX 09 ..	**010**	**010**

When using „R“ or „L“ tools the tool must be modified at the end face to ensure cutting clearance.





Key D



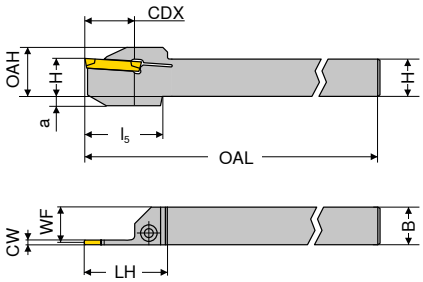
Clamping screw

Spare parts		Article no. 80 950 ...		Article no. 70 950 ...
for grooving inserts				
GX 09 ..	T15	**113**	M4x11	**442**



→ 30–36

MonoClamp – Radial Monoholder GX 16

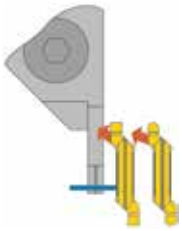


Illustrations show right-hand versions



Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	a mm	CDX mm	for grooving inserts	Left-hand Article no. 70 889 ...	Right-hand Article no. 70 888 ...
E12 R/L 0012-1212K-GX16-1	12	12	2,00 - 2,75	11,35	17	125	26	24	4	12	GX 16-1	**212**	**212**
E12 R/L 0012-1212K-GX16-2	12	12	2,76 - 3,75	11,00	17	125	26	24	4	12	GX 16-2	**312**	**312**
E16 R/L 0012-1616K-GX16-1	16	16	2,00 - 2,75	15,35	21	125	26	24	4	12	GX 16-1	**216**	**216**
E16 R/L 0012-1616K-GX16-2	16	16	2,76 - 3,75	15,00	21	125	26	24	4	12	GX 16-2	**316**	**316**
E16 R/L 0012-1616K-GX16-3	16	16	3,76 - 5,00	14,53	21	125	26	24	4	12	GX 16-3	**416**	**416**
E20 R/L 0012-2020K-GX16-1	20	20	2,00 - 2,75	19,35	25	125	26			12	GX 16-1	**220**	**220**
E20 R/L 0012-2020K-GX16-2	20	20	2,76 - 3,75	19,00	25	125	26			12	GX 16-2	**320**	**320**
E20 R/L 0012-2020K-GX16-3	20	20	3,76 - 5,00	18,53	25	125	26			12	GX 16-3	**420**	**420**
E25 R/L 0012-2525M-GX16-2	25	25	2,76 - 3,75	24,00	30	150	26			12	GX 16-2	**325**	**325**
E25 R/L 0012-2525M-GX16-3	25	25	3,76 - 5,00	23,53	30	150	26			12	GX 16-3	**425**	**425**

When using „R“ or „L“ tools the tool must be modified at the end face to ensure cutting clearance.



11


Key D

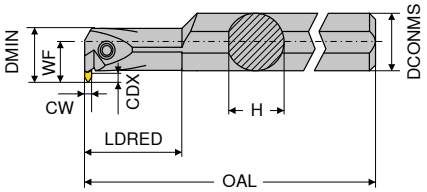

Clamping screw

Spare parts for grooving inserts		Article no. 80 950 ...		Article no. 70 950 ...
GX 16-1	T15	**113**	M3,5x14	**160**
GX 16-2	T15	**113**	M3,5x14	**160**
GX 16-3	T15	**113**	M3,5x14	**160**



→ 30–37

MonoClamp – Radial Mono-boring bars GX 09



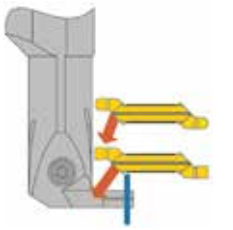


Illustrations show right-hand versions

Designation	H	DCONMS	DMIN	CW	CDX	WF	OAL	LDRED	for grooving inserts	Left-hand Article no. 70 859 ...	Right-hand Article no. 70 858 ...
	mm	mm	mm	mm	mm	mm	mm	mm			
I12 R/L 90-2,5D-GX09	15,25	16	16	2,00 - 3,75	3	11	150	30	GX 09 ..	**012**	**012**

Right hand boring bar→ left hand insert only
Left hand boring bar→ right hand insert only

When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.




Key D

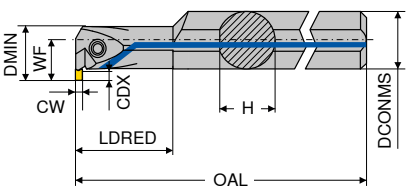

Clamping screw

Spare parts for grooving inserts		Article no. 80 950 ...		Article no. 70 950 ...
GX 09 ..	T15	**113**	M3,5x12,5	**441**



→ 30–36

MonoClamp – Radial Mono-boring bars GX 16



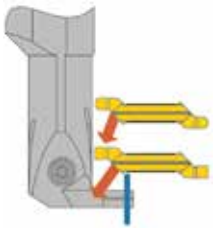


Illustrations show right-hand versions

Designation	H	DCONMS	DMIN	CW	CDX	WF	OAL	LDRED	for grooving inserts	Left-hand Article no. 70 893 ...	Right-hand Article no. 70 892 ...
	mm	mm	mm	mm	mm	mm	mm	mm			
I16 R/L 90-2.0D-GX16-1	15,25	16	20,5	2,00 - 2,75	5,0	13,5	150	32	GX 16-1	**516**	**516**
I16 R/L 90-2.0D-GX16-2	15,25	16	20,5	2,76 - 3,75	5,0	13,5	150	32	GX 16-2	**616**	**616**
I20 R/L 90-2.0D-GX16-2	19,00	20	25,0	2,76 - 3,75	5,5	15,5	180	40	GX 16-2	**620**	**620**
I25 R/L 90-2.0D-GX16-2	24,00	25	32,0	2,76 - 3,75	8,0	20,5	200	50	GX 16-2	**625**	**625**
I25 R/L 90-2.0D-GX16-3	24,00	25	32,0	3,76 - 5,00	10,0	22,5	200	50	GX 16-3	**725**	**725**
I32 R/L 90-2.0D-GX16-2	31,00	32	42,0	2,76 - 3,75	11,0	27,5	250	64	GX 16-2	**632**	**632**
I32 R/L 90-2.0D-GX16-3	31,00	32	42,0	3,76 - 5,00	11,0	27,5	250	64	GX 16-3	**732**	**732**

Right hand boring bar→ left hand insert only
Left hand boring bar→ right hand insert only

When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.



11

Key D


Clamping screw

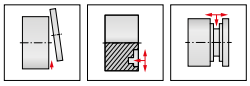
Spare parts for grooving inserts		Article no. 80 950 ...		Article no. 70 950 ...
GX 16-1	T15	**113**	M4x14	**403**
GX 16-2	T15	**113**	M4x14	**403**
GX 16-3	T15	**113**	M4x14	**403**



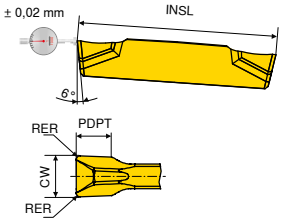
→ 30–37

Insert GX 24

▲ Insert with ground periphery
▲ Suitable also for parting off tubes and thin-walled workpieces



F	M	R



-F2 CTCP325	-F2 CTPP345	-F2 CTP1340
-F2 HCR1325	-F2 HCN1345	-F2 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL	CW +/-0,02	RE +/-0,05	PDPT	for tool holder	Article no. 70 350 ...	Article no. 70 350 ...	Article no. 70 350 ...
	mm	mm	mm	mm				
GX 24-2 E3.00 N 0.30	24	3,0	0,3	2,5	GX 24-2	**962**	**862**	**662**
GX 24-2 E3.50 N 0.30	24	3,5	0,3	2,5	GX 24-2		**864**	
GX 24-3 E4.00 N 0.40	24	4,0	0,4	3,0	GX 24-3	**966**	**866**	**666**
GX 24-3 E5.00 N 0.40	24	5,0	0,4	3,5	GX 24-3	**970**	**870**	**671**
GX 24-4 E6.00 N 0.50	24	6,0	0,5	4,0	GX 24-4		**872**	**672**

Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●		●
Non ferrous metals			○
Heat resistant alloys		○	●
hardened materials	○		

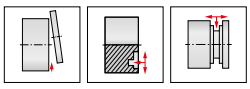
→ v_c Page 101
→ Application recommendation on page 103

Internal machining | *External machining*

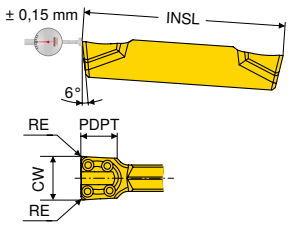


→ 54 | → 59 | → 53–56 | → 57 | → 58 | → 60

Insert GX 24 -E



F	M	R
		





Designation	INSL	CW +/-0,05	RE +/-0,05	PDPT	for tool holder	Article no. 70 350 ...	Article no. 70 350 ...	Article no. 70 350 ...	Article no. 70 350 ...
	mm	mm	mm	mm					
GX 24-2 E3.00 N 0.30	24	3	0,3	2,5	GX 24-2	**932**	**532**	**832**	**632**
GX 24-3 E4.00 N 0.40	24	4	0,4	3,0	GX 24-3	**936**	**536**	**836**	**636**
GX 24-3 E5.00 N 0.40	24	5	0,4	3,0	GX 24-3	**940**	**540**	**840**	**640**
GX 24-4 E6.00 N 0.50	24	6	0,5	3,5	GX 24-4	**944**	**544**	**844**	**644**

Steel	●	●	●	●
Stainless steel	○	○	●	●
Cast iron	●	●		●
Non ferrous metals				○
Heat resistant alloys			○	●
hardened materials	○			

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Internal machining *External machining*



→ 54 → 59 → 53–56 → 57 → 58 → 60

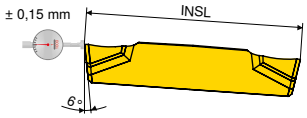
11

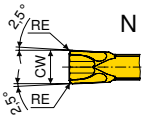
Insert GX 24

▲ Very good swarf control



F	M	R
		





-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
-M1 HCR1325	-M1 HCN1345	-M1 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	for tool holder	Article no. 70 363 ...	Article no. 70 363 ...	Article no. 70 363 ...
GX 24-1 E2.00 N 0.20	24	2	0,2	GX 24-1	**900**	**800**	**600**
GX 24-2 E3.00 N 0.20	24	3	0,2	GX 24-2	**902**	**802**	**602**
GX 24-3 E4.00 N 0.30	24	4	0,3	GX 24-3	**904**	**804**	**604**
Steel					●	●	●
Stainless steel					○	●	●
Cast iron					●		●
Non ferrous metals							○
Heat resistant alloys						○	●
hardened materials					○		

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Internal machining | *External machining*


→ 54


→ 59


→ 53–56

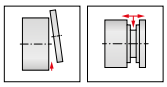

→ 57


→ 58

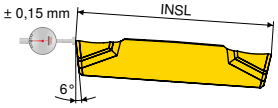

→ 60

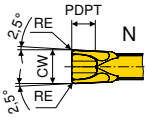
Insert GX 24

▲ Very good swarf control



F	M	R
		





-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
-M40 HCR1325	-M40 HCN1345	-M40 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL	CW +/-0,05	RE +/-0,05	PDPT	for tool holder	Article no. 70 364 ...	Article no. 70 364 ...	Article no. 70 364 ...
	mm	mm	mm	mm				
GX 24-2 E3.00 N 0.30	24	3	0,3	3,5	GX 24-2	**900**	**800**	**600**
GX 24-3 E4.00 N 0.40	24	4	0,4	4,0	GX 24-3	**902**	**802**	**602**
GX 24-3 E5.00 N 0.40	24	5	0,4	4,0	GX 24-3	**904**	**804**	**604**
GX 24-4 E6.00 N 0.50	24	6	0,5	4,0	GX 24-4	**906**	**806**	**606**

Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●		●
Non ferrous metals			○
Heat resistant alloys		○	●
hardened materials	○		

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→ Application recommendation on page 103

Internal machining *External machining*



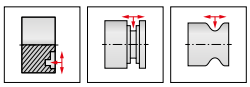




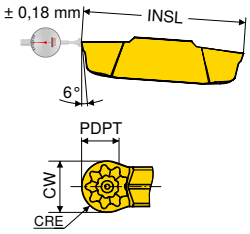

→ 54 | → 59 | → 53–56 | → 57 | → 58 | → 60

11

Radius groove insert GX 24



F	M	R



-M3 CTCP325	-M3 CTCP335
-M3 HCR1325	-M3 HCR1335
DRAGONSKIN	DRAGONSKIN




Designation	INSL mm	CW +/-0,05 mm	CRE mm	PDPT mm	for tool holder	Article no. 70 354 ...	Article no. 70 354 ...
GX 24-2 R1.50 N	24,4	3	1,5	1,5	GX 24-2	**952**	**552**
GX 24-3 R2.00 N	24,4	4	2,0	2,5	GX 24-3	**954**	**554**
GX 24-3 R2.50 N	24,4	5	2,5	3,0	GX 24-3	**956**	**556**
GX 24-4 R3.00 N	24,4	6	3,0	4,0	GX 24-4	**958**	**558**

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals		
Heat resistant alloys		
hardened materials	○	

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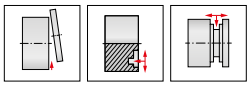
Internal machining | *External machining*



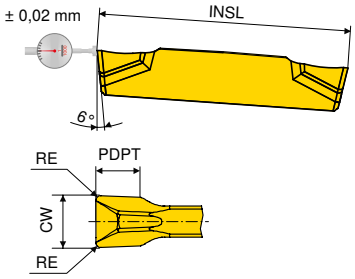
→ 54 | → 59 | → 53–56 | → 57 | → 58 | → 60

Insert GX 24

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery



F	M	R



-27P
H216T

-ALP
CWK26





Designation	INSL	CW +/-0,02	RE +/-0,05	PDPT	for tool holder	Article no. 70 350 ...
	mm	mm	mm	mm		
GX 24-2 E3.00 N 0.30	24	3	0,3	2,5	GX 24-2	**682**
GX 24-3 E4.00 N 0.40	24	4	0,4	3,0	GX 24-3	**684**
GX 24-3 E5.00 N 0.40	24	5	0,4	3,5	GX 24-3	**686**
GX 24-4 E6.00 N 0.50	24	6	0,5	4,0	GX 24-4	**688**

Steel	
Stainless steel	
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

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Internal machining | *External machining*

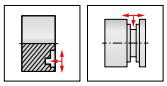


→ 54 | → 59 | → 53–56 | → 57 | → 58 | → 60

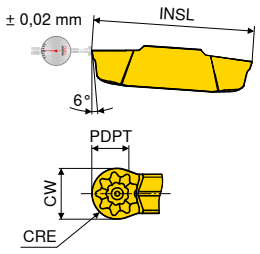
11

Radius grooving insert GX 24

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ Ground periphery



F	M	R



-27PF
H216T

-ALP-F
CWK26



Designation	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	for tool holder	Article no. 70 353 ...
GX 24-4 R3.00 N	25,4	6	3	4	GX 24-4	**500**
GX 24-5 R4.00 N	25,4	8	4	5	GX 24-5	**506**

Steel	
Stainless steel	
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

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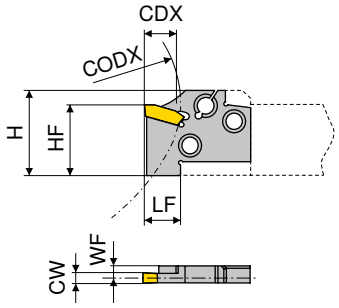
Internal machining | *External machining*



→ 54 | → 59 | → 53–56 | → 57 | → 58 | → 60

ModularClamp MSS – Radial grooving module GX 24

▲ For deep radial parting and grooving
▲ For turning



Illustrations show right-hand versions



Designation	CW	WF	LF	HF	H	CODX	CDX	for grooving inserts	Left-hand Article no. 70 868 ...	Right-hand Article no. 70 867 ...
	mm	mm	mm	mm	mm	mm	mm			
E20 R/L 21-GX 24-1	2,00 - 2,75	3,85	22	20	24	60	21	GX 24-1	**020**	**020**
E20 R/L 21-GX 24-2	3	3,40	22	20	24	60	21	GX 24-2	**120**	**120**
E25 R/L 21-GX 24-1	2,00 - 2,75	5,10	22	25	30	75	21	GX 24-1	**025**	**025**
E25 R/L 21-GX 24-2	3	4,90	22	25	30	75	21	GX 24-2	**125**	**125**
E25 R/L 21-GX 24-3	4/5	4,43	22	25	30	75	21	GX 24-3	**225**	**225**
E25 R/L 21-GX 24-4	6	3,80	22	25	30	75	21	GX 24-4	**325**	**325**
E25 R/L 21-GX 24-5	8	2,95	22	25	30	75	21	GX 24-5	**425**	**425**
E32 R/L 21-GX 24-3	4/5	4,43	22	32	38	96	21	GX 24-3	**232**	**232**
E32 R/L 21-GX 24-4	6	3,80	22	32	38	96	21	GX 24-4	**332**	**332**



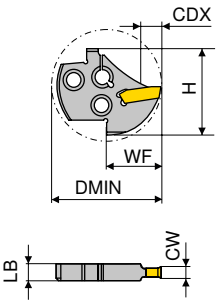


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11

ModularClamp MSS – Radial Grooving module GX 24 for Internal machining

▲ For grooving and turning





Neutral

Designation	CW	LB	WF	H	CDX	DMIN	for grooving inserts	Article no. 70 880 ...
	mm	mm	mm	mm	mm	mm		
I40 N 19-GX 24-2	2,76 - 3,75	6,2	33,5	40,7	19	60	GX 24-2 ..N	**340**
I40 N 19-GX 24-3	3,76 - 5,00	6,2	33,5	40,7	19	60	GX 24-3 ..N	**440**
I40 N 19-GX 24-4	5,01 - 6,50	6,2	33,5	40,7	19	60	GX 24-4 ..N	**540**

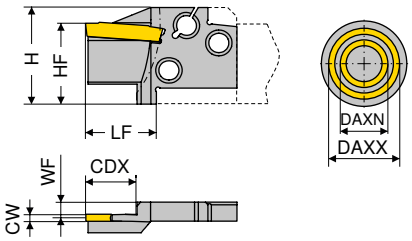




→ 46–52 → 96

ModularClamp MSS – Axial grooving module GX 24 short

- For axial grooving
- For face turning





Illustrations show right-hand versions

Designation	DAXN	DAXX	CW	WF	LF	HF	H	CDX	for grooving inserts	Left-hand Article no. 70 891 ...	Right-hand Article no. 70 890 ...
	mm	mm	mm	mm	mm	mm	mm	mm			
E20 R/L 14-GX 24-2 A	50	70	3	3,40	22	20	24	14	GX 24-2	**100**	**100**
E20 R/L 14-GX 24-2 A	70	100	3	3,40	22	20	24	14	GX 24-2	**102**	**102**
E20 R/L 14-GX 24-2 A	100	150	3	3,40	22	20	24	14	GX 24-2	**104**	**104**
E25 R/L 15-GX 24-2 A	50	70	3	4,90	22	25	30	15	GX 24-2	**200**	**200**
E25 R/L 15-GX 24-2 A	70	100	3	4,90	22	25	30	15	GX 24-2	**202**	**202**
E25 R/L 15-GX 24-2 A	100	150	3	4,90	22	25	30	15	GX 24-2	**204**	**204**
E25 R/L 15-GX 24-3 A	50	70	4/5	4,43	22	25	30	15	GX 24-3	**206**	**206**
E25 R/L 15-GX 24-3 A	70	100	4/5	4,43	22	25	30	15	GX 24-3	**208**	**208**
E25 R/L 15-GX 24-3 A	100	150	4/5	4,43	22	25	30	15	GX 24-3	**210**	**210**
E25 R/L 15-GX 24-3 A	150	300	4/5	4,43	22	25	30	15	GX 24-3	**212**	**212**
E25 R/L 15-GX 24-4 A	50	70	6	3,80	22	25	30	15	GX 24-4	**214**	**214**
E25 R/L 15-GX 24-4 A	70	100	6	3,80	22	25	30	15	GX 24-4	**216**	**216**
E25 R/L 15-GX 24-4 A	100	150	6	3,80	22	25	30	15	GX 24-4	**218**	**218**
E25 R/L 15-GX 24-4 A	150	300	6	3,80	22	25	30	15	GX 24-4	**220**	**220**
E32 R/L 15-GX 24-3 A	70	100	4/5	4,43	22	32	38	15	GX 24-3	**300**	**300**
E32 R/L 15-GX 24-3 A	100	150	4/5	4,43	22	32	38	15	GX 24-3	**302**	**302**
E32 R/L 15-GX 24-3 A	150	300	4/5	4,43	22	32	38	15	GX 24-3	**304**	**304**
E32 R/L 15-GX 24-4 A	70	100	6	3,80	22	32	38	15	GX 24-4	**306**	**306**
E32 R/L 15-GX 24-4 A	100	150	6	3,80	22	32	38	15	GX 24-4	**308**	**308**
E32 R/L 15-GX 24-4 A	150	300	6	3,80	22	32	38	15	GX 24-4	**310**	**310**
E32 R/L 15-GX 24-4 A	300	900	6	3,80	22	32	38	15	GX 24-4	**312**	**312**

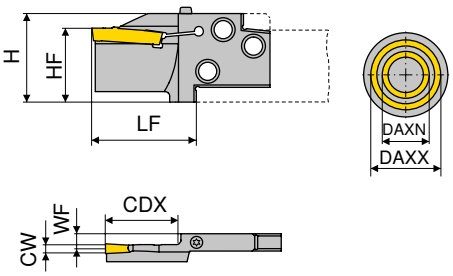




→ 46–52 → 93–95 → **Chapter 16**

ModularClamp MSS – Axial grooving module GX 24 long

- For axial grooving
- For face turning





Illustrations show right-hand versions

Designation	DAXN	DAXX	CW	WF	LF	HF	H	CDX	for grooving inserts	Left-hand Article no. 70 895 ...	Right-hand Article no. 70 894 ...
	mm	mm	mm	mm	mm	mm	mm	mm			
E25 R/L 21-GX 24-3 AS	50	70	4/5	4,53	35	25	30	21	GX 24-3	**200**	**200**
E25 R/L 21-GX 24-3 AS	70	100	4/5	4,53	35	25	30	21	GX 24-3	**202**	**202**
E25 R/L 21-GX 24-3 AS	100	150	4/5	4,53	35	25	30	21	GX 24-3	**204**	**204**
E25 R/L 21-GX 24-3 AS	150	300	4/5	4,53	35	25	30	21	GX 24-3	**206**	**206**
E25 R/L 25-GX 24-4 AS	50	70	6	3,90	35	25	30	25	GX 24-4	**210**	**210**
E25 R/L 25-GX 24-4 AS	70	100	6	3,90	35	25	30	25	GX 24-4	**212**	**212**
E25 R/L 25-GX 24-4 AS	100	150	6	3,90	35	25	30	25	GX 24-4	**214**	**214**
E25 R/L 25-GX 24-4 AS	150	300	6	3,90	35	25	30	25	GX 24-4	**216**	**216**

Axial modules version „GX 24 long“ can be clamped on both sides.



Key D



Clamping screw

Spare parts for grooving inserts	Key D Article no. 80 950 ...	Clamping screw Article no. 70 950 ...
GX 24-3	T15 **113**	M3,5x14 **160**
GX 24-4	T15 **113**	M3,5x14 **160**



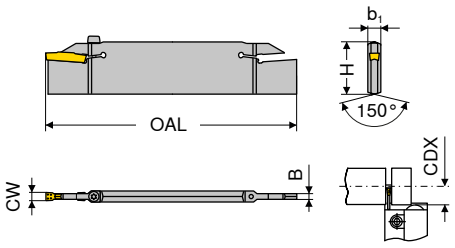


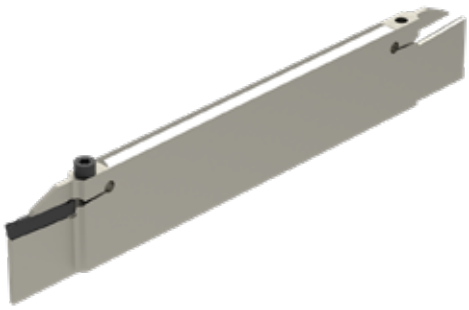


→ 46–52 → 93–95 → **Chapter 16**

MonoClamp – Radial Blade GX 24

Scope of supply:
Blade incl. clamping screw and tightening wrench





Designation	CW	H	B	b_1	OAL	CDX	for grooving inserts	Article no. 70 834 ...
	mm	mm	mm	mm	mm	mm		
XLCF N 3203-GX24-1S	2	32	1,05	6,2	180	21	GX 24-1	**102**
XLCF N 3203-GX24-2S	3	32	2,10	6,2	180	21	GX 24-2	**103**
XLCF N 3204-GX24-3S	4/5	32	3,05	6,2	180	21	GX 24-3	**104**
XLCF N 3206-GX24-4S	6	32	4,20	6,2	180	21	GX 24-4	**106**


Key D


Clamping screw

Spare parts		Article no. 80 950 ...		Article no. 70 950 ...
for grooving inserts				
GX 24-1	T15	**113**	M3,5x14	**160**
GX 24-2	T15	**113**	M3,5x14	**160**
GX 24-3	T15	**113**	M3,5x14	**160**
GX 24-4	T15	**113**	M3,5x14	**160**

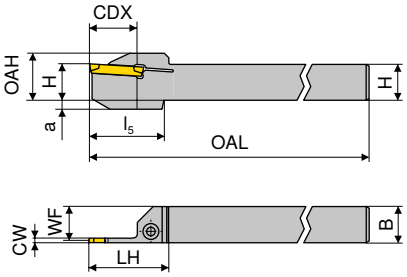




→ 46–52 → 98+99 → **Chapter 16**

11

MonoClamp – Radial Monoholder GX 24





Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	CDX mm	a mm	for grooving inserts	Left-hand Article no. 70 863 ...	Right-hand Article no. 70 862 ...
E16 R/L 0021-1616K-GX24-1	16	16	2,00 - 2,75	15,20	21	125	35	32	21	4	GX 24-1	**160**	**160**
E16 R/L 0021-1616K-GX24-2	16	16	2,76 - 3,75	15,00	21	125	35	32	21	4	GX 24-2	**016**	**016**
E20 R/L 0021-2020K-GX24-1	20	20	2,00 - 2,75	19,20	25	125	35		21		GX 24-1	**200**	**200**
E20 R/L 0021-2020K-GX24-2	20	20	2,76 - 3,75	19,00	25	125	35		21		GX 24-2	**020**	**020**
E20 R/L 0021-2020K-GX24-3	20	20	3,76 - 5,00	18,53	25	125	35		21		GX 24-3	**120**	**120**
E25 R/L 0021-2525M-GX24-2	25	25	2,76 - 3,75	24,00	30	150	35		21		GX 24-2	**025**	**025**
E25 R/L 0021-2525M-GX24-3	25	25	3,76 - 5,00	23,53	30	150	35		21		GX 24-3	**125**	**125**
E25 R/L 0021-2525M-GX24-4	25	25	5,01 - 6,50	22,90	30	150	35		21		GX 24-4	**225**	**225**
E32 R/L 0021-3225P-GX24-2	32	25	2,76 - 3,75	24,00	37	170	35		21		GX 24-2	**032**	**032**
E32 R/L 0021-3225P-GX24-3	32	25	3,76 - 5,00	23,53	37	170	35		21		GX 24-3	**132**	**132**
E32 R/L 0021-3225P-GX24-4	32	25	5,01 - 6,50	22,90	37	170	35		21		GX 24-4	**232**	**232**


Key D


Clamping screw

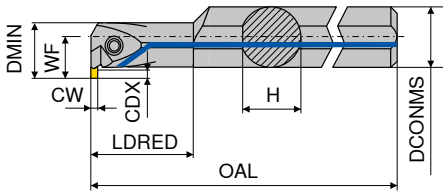
Spare parts for grooving inserts	Key D Article no. 80 950 ...	Clamping screw Article no. 70 950 ...
GX 24-1	T20 **114**	M4x18 **204**
GX 24-2	T20 **114**	M4x18 **204**
GX 24-3	T20 **114**	M4x18 **204**
GX 24-4	T20 **114**	M4x18 **204**



→ 46–52

MonoClamp – Radial Mono-boring bars GX 24



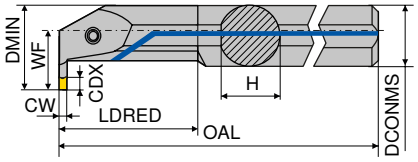




Designation	H	DCONMS	DMIN	CW	CDX	WF	OAL	LDRED	for grooving inserts	Left-hand Article no. 70 895 ...	Right-hand Article no. 70 894 ...
	mm	mm	mm	mm	mm	mm	mm	mm			
I32 R/L 90-2.0D-GX24-2	31,0	32	42	2,76 - 3,75	11	27,5	250	64	GX 24-2	**132**	**132**
I32 R/L 90-2.0D-GX24-3	31,0	32	42	3,76 - 5,00	11	27,5	250	64	GX 24-3	**232**	**232**
I40 R/L 90-2.0D-GX24-3	38,5	40	53	3,76 - 5,00	12	32,5	300	80	GX 24-3	**240**	**240**

MonoClamp – Radial Mono-boring bars GX 24







Designation	H	DCONMS	DMIN	CW	CDX	WF	OAL	LDRED	for grooving inserts	Left-hand Article no. 70 895 ...	Right-hand Article no. 70 894 ...
	mm	mm	mm	mm	mm	mm	mm	mm			
I32 R/L 90-2.0D-GX24-4	31,0	32	47	5,01 - 6,50	17,5	30,4	250	64	GX 24-4	**332**	**332**
I40 R/L 90-2.0D-GX24-4	38,5	40	57	5,01 - 6,50	17,5	34,4	300	80	GX 24-4	**340**	**340**


Key D

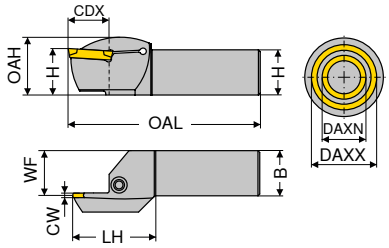

Clamping screw

Spare parts for grooving inserts	Article no. 80 950 ...	Article no. 70 950 ...
GX 24-2	**114**	**404**
GX 24-3	**114**	**404**
GX 24-4	**114**	**404**



→ 46–52

MonoClamp – Axial Monoholder GX24





Illustrations show right-hand versions

Designation	H	B	CW	WF	DAXN	DAXX	OAH	OAL	LH	CDX	for grooving inserts	Left-hand Article no. 70 904 ...	Right-hand Article no. 70 903 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			
E25 R/L 0012-2525X-GX24-2	25	25	3	24,7	40	45	32	115	45	12	GX 24-2	**200**	**200**
E25 R/L 0012-2525X-GX24-2	25	25	3	24,7	45	50	32	115	45	12	GX 24-2	**202**	**202**
E25 R/L 0016-2525X-GX24-2	25	25	3	24,7	50	60	32	115	45	16	GX 24-2	**204**	**204**
E25 R/L 0019-2525X-GX24-2	25	25	3	24,7	60	75	32	115	45	19	GX 24-2	**206**	**206**
E25 R/L 0019-2525X-GX24-2	25	25	3	24,7	75	100	32	115	45	19	GX 24-2	**208**	**208**
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	100	130	32	115	45	22	GX 24-2	**210**	**210**
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	130	180	32	115	45	22	GX 24-2	**212**	**212**
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	180	300	32	115	45	22	GX 24-2	**214**	**214**
E25 R/L 0012-2525X-GX24-3	25	25	4+5	24,2	40	45	32	115	45	12	GX 24-3	**230**	**230**
E25 R/L 0012-2525X-GX24-3	25	25	4+5	24,2	45	50	32	115	45	12	GX 24-3	**232**	**232**
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24,2	50	60	32	115	45	20	GX 24-3	**234**	**234**
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24,2	60	75	32	115	45	20	GX 24-3	**236**	**236**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	75	100	32	115	45	22	GX 24-3	**238**	**238**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	100	150	32	115	45	22	GX 24-3	**240**	**240**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	150	300	32	115	45	22	GX 24-3	**242**	**242**
E25 R/L 0020-2525X-GX24-4	25	25	6	23,2	40	50	32	115	45	20	GX 24-4	**260**	**260**
E25 R/L 0022-2525X-GX24-4	25	25	6	23,2	50	70	32	115	45	22	GX 24-4	**262**	**262**
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	70	100	32	115	45	25	GX 24-4	**264**	**264**
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	100	150	32	115	45	25	GX 24-4	**266**	**266**
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	150	300	32	115	45	25	GX 24-4	**268**	**268**


Key D


Clamping screw

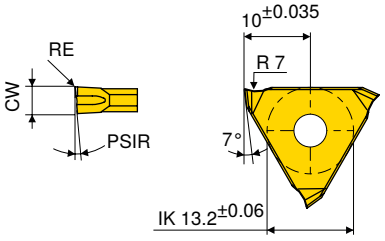
Spare parts for grooving inserts	Key D Article no. 80 950 ...		Clamping screw Article no. 70 950 ...	
GX 24-2	T15 - IP	**128**	M5x18	**865**
GX 24-3	T15 - IP	**128**	M5x18	**865**
GX 24-4	T15 - IP	**128**	M5x18	**865**



→ 46–52

TX Insert for parting

- Cutting depth 5.0 mm
- Cutting width 1.99–2.79 mm







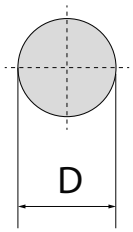
Illustrations show right-hand versions

Designation	CW -0,05	RE	PSIR	for tool holder	Left-hand	Right-hand
	mm	mm			CWX500 Article no. 73 302 ...	CWX500 Article no. 73 301 ...
TX R/L 0518.00.1	1,99	0,1	5°	R/L 207 .. . / 780 .. . 1	**204**	**204**
TX R/L 0521.00.2	2,29	0,1	5°	R/L 207 .. . / 780 .. . 2	**206**	**206**
TX R/L 0526.00.2	2,79	0,1	5°	R/L 207 .. . / 780 .. . 2	**208**	**208**

→ v_c Page 102

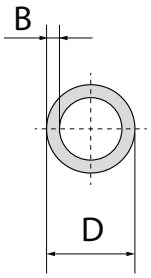
Grooving depth

Full material



max. 10 mm

Pipe



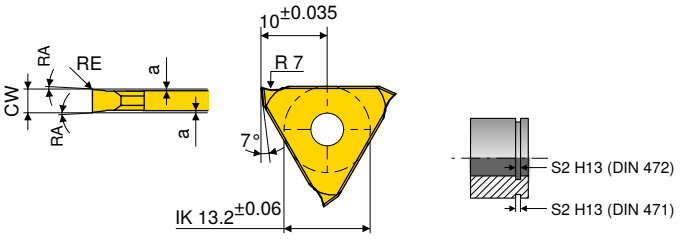
D ≥ 50 mm: Wall thickness B = approx. 5 mm
D ≤ 50 mm: Wall thickness B = approx. 4 mm

Internal machining	*External machining*
	
	→ 66–70

11

TX insert for circlip grooves

▲ For circlip grooves according to DIN 471 / 472



CWX500



Neutral

Designation	s_2 mm	CW $_{-0,05}$ mm	RE mm	RA	a $_{+/-0,02}$ mm	for tool holder	Article no. 73 300 ...
TX N 0050.00.1	0,50	0,57	0,1	1	0,07	R/L .. .1	**204**
TX N 0060.00.1	0,60	0,67	0,1	1	0,07	R/L .. .1	**206**
TX N 0070.00.1	0,70	0,77	0,1	1	0,08	R/L .. .1	**208**
TX N 0080.00.1	0,80	0,87	0,1	1	0,08	R/L .. .1	**210**
TX N 0090.00.1	0,90	0,97	0,1	1	0,08	R/L .. .1	**212**
TX N 0100.00.1	1,00	1,07	0,1	1	0,09	R/L .. .1	**214**
TX N 0110.00.1	1,10	1,24	0,1	3	0,15	R/L .. .1	**216**
TX N 0130.00.1	1,30	1,44	0,1	3	0,15	R/L .. .1	**218**
TX N 0160.00.1	1,60	1,74	0,1	3	0,20	R/L .. .1	**220**
TX N 0185.00.1	1,85	1,99	0,1	3	0,20	R/L .. .1	**222**
TX N 0215.00.2	2,15	2,29	0,1	3	0,20	R/L .. .2	**224**
TX N 0265.00.2	2,65	2,79	0,1	3	0,20	R/L .. .2	**226**
TX N 0315.00.3	3,15	3,29	0,1	3	0,20	R/L .. .3	**228**
TX N 0415.00.4	4,15	4,29	0,1	3	0,20	R/L .. .4	**230**
TX N 0515.00.4	5,15	5,29	0,1	3	0,20	R/L .. .4	**232**

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Internal machining



→ 70

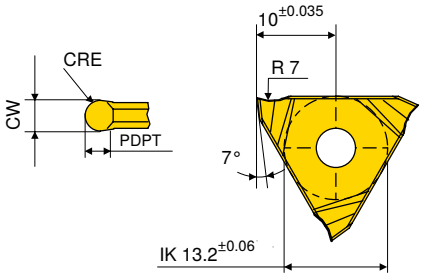
External machining



→ 66–69

Radial TX insert for corner recessing

▲ Full radius for cutting width 0.5–5.0 mm



CWX500



Neutral

Designation	CRE	CW +/-0,05	PDPT	for tool holder	Article no. 73 304 ...
	mm	mm	mm		
TX N 0002.05.1	0,25	0,5	0,20	R/L .. .1	**212**
TX N 0005.10.1	0,50	1,0	0,35	R/L .. .1	**214**
TX N 0006.12.1	0,60	1,2	0,40	R/L .. .1	**216**
TX N 0008.16.1	0,80	1,6	0,55	R/L .. .1	**218**
TX N 0010.20.2	1,00	2,0	0,70	R/L .. .2	**204**
TX N 0012.25.2	1,25	2,5	0,85	R/L .. .2	**220**
TX N 0015.30.3	1,50	3,0	1,00	R/L .. .3	**206**
TX N 0020.40.4	2,00	4,0	1,20	R/L .. .4	**208**
TX N 0025.50.4	2,50	5,0	1,50	R/L .. .4	**210**

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Internal machining



→ 70

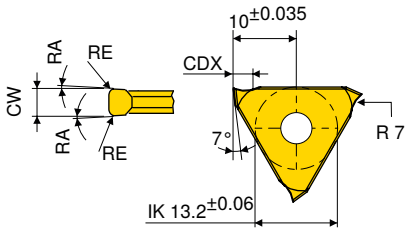
External machining



→ 66–69

TX insert for fine and copy turning

CWX500





Neutral

Designation	CW +0,03 mm	RE mm	RA	for tool holder	Article no. 73 303 ...
TX N 0150.02.1	1,5	0,2	3	R/L 207 .. . / 738 .. . / 660 .. . 1	**204**
TX N 0200.02.1	2,0	0,2	3	R/L 207 .. . / 738 .. . / 660 .. . 1	**206**
TX N 0200.04.1	2,0	0,4	3	R/L 207 .. . / 738 .. . / 660 .. . 1	**208**
TX N 0300.06.2	3,0	0,6	3	R/L 207 .. . / 738 .. . / 660 .. . 2	**212**
TX N 0300.08.2	3,0	0,8	3	R/L 207 .. . / 738 .. . / 660 .. . 2	**214**
TX N 0300.02.2	3,0	0,2	3	R/L 207 .. . / 738 .. . / 660 .. . 2	**210**
TX N 0400.02.3	4,0	0,2	3	R/L 207 .. . / 738 .. . / 660 .. . 3	**216**
TX N 0400.12.3	4,0	1,2	3	R/L 207 .. . / 738 .. . / 660 .. . 3	**220**
TX N 0400.08.3	4,0	0,8	3	R/L 207 .. . / 738 .. . / 660 .. . 3	**218**

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Internal machining



→ 70

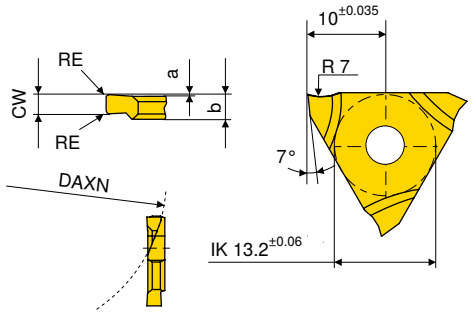
External machining



→ 66-68

TX insert for axial grooving

- Up to cutting depth 3.5 mm
- Cutting width 1.5–5.0 mm
- Groove-Ø external $D_a \geq 20$ mm



CWX500



CWX500



Illustrations show right-hand versions

Designation	CW	b	a	DAXN	RE	for tool holder	Left-hand	Right-hand
	mm	mm	mm	mm	mm		Article no. 73 306 ...	Article no. 73 305 ...
TX R/L 2015.2.2	1,5	2,7	0,2	20	0,2	R/L 207 .. . 2	**204**	**204**
TX R/L 3020.2.2	2,0	2,7	0,2	30	0,2	R/L 207 .. . 2	**206**	**206**
TX R/L 3030.2.3	3,0	3,7	0,2	30	0,2	R/L 207 .. . 3	**208**	**208**
TX R/L 3040.2.4	4,0	4,3	0,2	30	0,2	R/L 207 .. . 4	**210**	**210**
TX R/L 3050.2.4	5,0	5,3	0,2	30	0,2	R/L 207 .. . 4	**212**	**212**

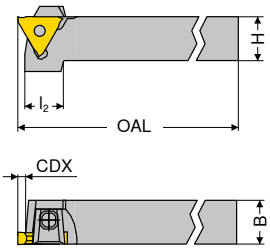
→ v_c Page 102

Internal machining	*External machining*
	
	→ 66

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MonoClamp – Radial/Axial TX Grooving Holder 0°, 6 mm cutting depth

- For radial and axial grooving
- Cutting width 0.5–6.3 mm





Illustrations show right-hand versions

Designation	H mm	B +/-0,1 mm	OAL mm	l_2 mm	CDX mm	for grooving inserts	Left-hand Article no. 73 501 ...	Right-hand Article no. 73 500 ...
R/L 207.1212.1	12	12	100	24	4	TX R/N/L ...1	**112**	**112**
R/L 207.1616.1	16	16	125	22	4	TX R/N/L ...1	**116**	**116**
R/L 207.2020.1	20	20	125	21	4	TX R/N/L ...1	**120**	**120**
R/L 207.2525.1	25	25	150		4	TX R/N/L ...1	**125**	**125**
R/L 207.3232.1	32	32	170		4	TX R/N/L ...1	**132**	**132**
R/L 207.1212.2	12	12	100	24	6	TX R/N/L ...2	**212**	**212**
R/L 207.1616.2	16	16	125	22	6	TX R/N/L ...2	**216**	**216**
R/L 207.2020.2	20	20	125	21	6	TX R/N/L ...2	**220**	**220**
R/L 207.2525.2	25	25	150		6	TX R/N/L ...2	**225**	**225**
R/L 207.3232.2	32	32	170		6	TX R/N/L ...2	**232**	**232**
R/L 207.1212.3	12	12	100	24	6	TX R/N/L ...3	**312**	**312**
R/L 207.1616.3	16	16	125	22	6	TX R/N/L ...3	**316**	**316**
R/L 207.2020.3	20	20	125	21	6	TX R/N/L ...3	**320**	**320**
R/L 207.2525.3	25	25	150		6	TX R/N/L ...3	**325**	**325**
R/L 207.3232.3	32	32	170		6	TX R/N/L ...3	**332**	**332**
R/L 207.1616.4	16	16	125	22	6	TX R/N/L ...4	**416**	**416**
R/L 207.2020.4	20	20	125	21	6	TX R/N/L ...4	**420**	**420**
R/L 207.2525.4	25	25	150		6	TX R/N/L ...4	**425**	**425**
R/L 207.3232.4	32	32	170		6	TX R/N/L ...4	**432**	**432**


Key I


right hand


left hand


Clamping screw


Guide pin

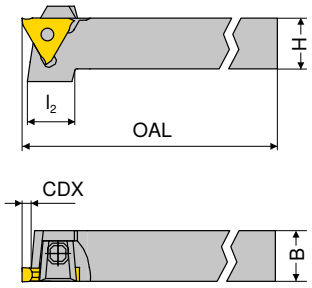
Spare parts for grooving inserts		Article no. 70 950 ...	Article no. 73 950 ...	Article no. 73 950 ...	Article no. 73 950 ...	Article no. 73 950 ...
TX R/N/L ...1	SW03	**176**	**020**		M6x20 **028**	Ø 4x18 **030**
TX R/N/L ...1	SW03	**176**		**024**	M6x20 **028**	Ø 4x18 **030**
TX R/N/L ...2	SW03	**176**		**024**	M6x20 **028**	Ø 4x18 **030**
TX R/N/L ...2	SW03	**176**	**020**		M6x20 **028**	Ø 4x18 **030**
TX R/N/L ...3	SW03	**176**		**024**	M6x20 **028**	Ø 4x18 **030**
TX R/N/L ...3	SW03	**176**	**020**		M6x20 **028**	Ø 4x18 **030**
TX R/N/L ...4	SW03	**176**		**026**	M6x20 **028**	Ø 4x18 **030**
TX R/N/L ...4	SW03	**176**	**022**		M6x20 **028**	Ø 4x18 **030**



→ 61–65

MonoClamp – Radial TX Grooving holder 0°, 8 mm cutting depth

- For radial parting and grooving
- Cutting width 1.9–6.3 mm





Illustrations show right-hand versions

Designation	H mm	B +/-0,1 mm	OAL mm	l_2 mm	CDX mm	for grooving inserts	Left-hand Article no. 73 503 ...	Right-hand Article no. 73 502 ...
R/L 780.2020.2	20	20	125	24	8	TX R/N/L ...2	**120**	**120**
R/L 780.2525.2	25	25	150		8	TX R/N/L ...2	**125**	**125**
R/L 780.3232.2	32	32	170		8	TX R/N/L ...2	**132**	**132**
R/L 780.2020.3	20	20	125	24	8	TX R/N/L ...3	**220**	**220**
R/L 780.2525.3	25	25	150		8	TX R/N/L ...3	**225**	**225**
R/L 780.3232.3	32	32	170		8	TX R/N/L ...3	**232**	**232**
R/L 780.2020.4	20	20	125	24	8	TX R/N/L ...4	**320**	**320**
R/L 780.2525.4	25	25	150		8	TX R/N/L ...4	**325**	**325**
R/L 780.3232.4	32	32	170		8	TX R/N/L ...4	**332**	**332**


Key I


right hand


left hand


Clamping screw


Guide pin

Spare parts for grooving inserts		Article no. 70 950 ...	Article no. 73 950 ...	Article no. 73 950 ...		Article no. 73 950 ...		Article no. 73 950 ...
TX R/N/L ...2	SW03	**176**	**020**		M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...2	SW03	**176**		**024**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3	SW03	**176**	**020**		M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3	SW03	**176**		**024**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4	SW03	**176**		**026**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4	SW03	**176**	**022**		M6x20	**028**	Ø 4x18	**030**

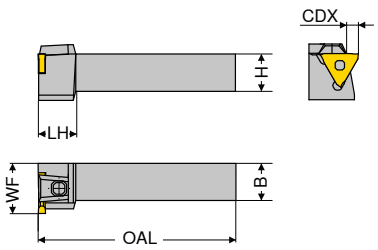


→ 61–63

11

MonoClamp – Radial TX Grooving holder 90°, 6 mm cutting depth

- For radial grooving
- Cutting width 0.5–6.3 mm





Illustrations show right-hand versions

Designation	H	B +/-0,1	OAL	LH	WF +/-0,07	CDX	for grooving inserts	Left-hand Article no. 73 505 ...	Right-hand Article no. 73 504 ...
	mm	mm	mm	mm	mm	mm			
R/L 738.2020.1	20	20	150	20	27	4	TX R/N/L ...1	**120**	**120**
R/L 738.2525.1	25	25	150		32	4	TX R/N/L ...1	**125**	**125**
R/L 738.2020.2	20	20	150	20	27	6	TX R/N/L ...2	**220**	**220**
R/L 738.2525.2	25	25	150		32	6	TX R/N/L ...2	**225**	**225**
R/L 738.2020.3	20	20	150	20	27	6	TX R/N/L ...3	**320**	**320**
R/L 738.2525.3	25	25	150		32	6	TX R/N/L ...3	**325**	**325**
R/L 738.2020.4	20	20	150	20	27	6	TX R/N/L ...4	**420**	**420**
R/L 738.2525.4	25	25	150		32	6	TX R/N/L ...4	**425**	**425**


Key I


right hand


left hand


Clamping screw


Guide pin

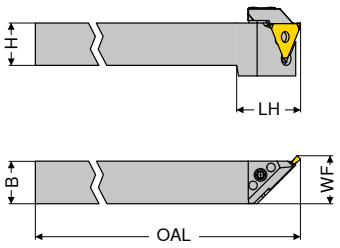
Spare parts for grooving inserts		Article no. 70 950 ...	Article no. 73 950 ...	Article no. 73 950 ...		Article no. 73 950 ...		Article no. 73 950 ...
TX R/N/L ...1	SW03	**176**	**020**		M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...1	SW03	**176**		**024**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...2	SW03	**176**		**024**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...2	SW03	**176**	**020**		M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3	SW03	**176**		**024**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3	SW03	**176**	**020**		M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4	SW03	**176**		**026**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4	SW03	**176**	**022**		M6x20	**028**	Ø 4x18	**030**

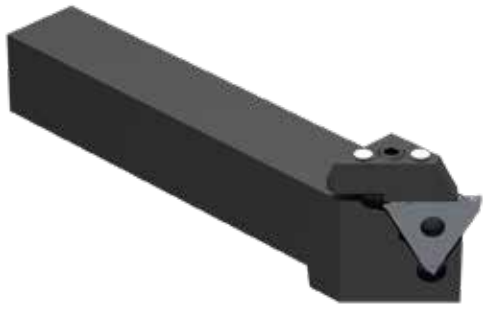


→ 62–64

MonoClamp – Tool holder TX 45°

- For recessing
- Cutting width 1.9–6.3 mm





Illustrations show right-hand versions

Designation	H	B +/-0,1	OAL	LH	for grooving inserts	Left-hand Article no. 73 507 ...	Right-hand Article no. 73 506 ...
	mm	mm	mm	mm			
R/L 618.2020.2	20	20	125	30	TX R/N/L ...2	**120**	**120**
R/L 618.2525.2	25	25	150		TX R/N/L ...2	**125**	**125**
R/L 618.3232.2	32	32	170		TX R/N/L ...2	**132**	**132**
R/L 618.2020.3	20	20	125	30	TX R/N/L ...3	**220**	**220**
R/L 618.2525.3	25	25	150		TX R/N/L ...3	**225**	**225**
R/L 618.3232.3	32	32	170		TX R/N/L ...3	**232**	**232**
R/L 618.2020.4	20	20	125	30	TX R/N/L ...4	**320**	**320**
R/L 618.2525.4	25	25	150		TX R/N/L ...4	**325**	**325**
R/L 618.3232.4	32	32	170		TX R/N/L ...4	**332**	**332**


Key I


right hand


left hand


Clamping screw


Guide pin

Spare parts for grooving inserts		Article no. 70 950 ...	Article no. 73 950 ...	Article no. 73 950 ...		Article no. 73 950 ...		Article no. 73 950 ...
TX R/N/L ...2	SW03	**176**	**001**		M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...2	SW03	**176**		**005**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3	SW03	**176**	**001**		M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3	SW03	**176**		**005**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4	SW03	**176**		**007**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4	SW03	**176**	**002**		M6x20	**028**	Ø 4x18	**030**

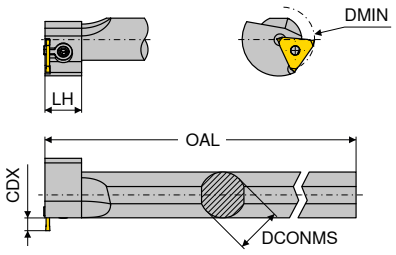


→ 62+63

11

MonoClamp – Radial Boring bar TX

- For radial internal grooving
- Cutting width 0,5–6,3 mm





Illustrations show right-hand versions

Designation	DCONMS $_{g7}$	DMIN	OAL	LH	CDX	for grooving inserts	Left-hand	Right-hand
	mm	mm	mm	mm	mm		Article no. 73 511 ...	Article no. 73 510 ...
R/L 660.0025.1	25	46	170	20	2	TX R/N/L ...1	**125**	**125**
R/L 660.0032.1	32	46	200	20	2	TX R/N/L ...1	**132**	**132**
R/L 660.0040.1	40	46	250		2	TX R/N/L ...1	**140**	**140**
R/L 660.0025.2	25	46	170	20	2	TX R/N/L ...2	**225**	**225**
R/L 660.0032.2	32	46	200	20	2	TX R/N/L ...2	**232**	**232**
R/L 660.0040.2	40	46	250		2	TX R/N/L ...2	**240**	**240**
R/L 660.0025.3	25	46	170	20	2	TX R/N/L ...3	**325**	**325**
R/L 660.0032.3	32	46	200	20	2	TX R/N/L ...3	**332**	**332**
R/L 660.0040.3	40	46	250		2	TX R/N/L ...3	**340**	**340**
R/L 660.0025.4	25	46	170	20	2	TX R/N/L ...4	**425**	**425**
R/L 660.0032.4	32	46	200	20	2	TX R/N/L ...4	**432**	**432**
R/L 660.0040.4	40	46	250		2	TX R/N/L ...4	**440**	**440**

Bore-Ø$_{min.}$ in mm	46	50	60	80	100	for grooving insert
$T_{max.}$ (mm)	2	3	4	4,5	5	TX R/N/L ...1
	2	3	4	4,5	5	TX R/N/L ...2
	2	3	4	4,5	5	TX R/N/L ...3
	2	3	4	4,5	5	TX R/N/L ...4


Clamping element


Key I


Clamping screw

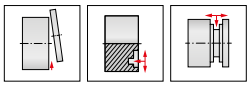
Spare parts for grooving inserts	Article no. 73 950 ...		Article no. 70 950 ...		Article no. 73 950 ...
TX R/N/L ...1	**011**	SW03	**176**	M6x30	**009**
TX R/N/L ...2	**011**	SW03	**176**	M6x30	**009**
TX R/N/L ...3	**011**	SW03	**176**	M6x30	**009**
TX R/N/L ...4	**011**	SW03	**176**	M6x30	**009**



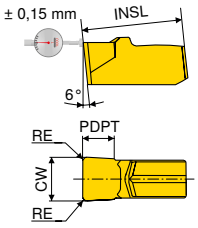
→ 62–64

Insert LX

- Grooving width 8 and 10 mm
- Axial grooving from Ø 500 mm onwards
- Internal grooving and turning, from Ø 200 mm onwards



F	M	R



-M2 CTCP325	-M2 CTCP335	-M2 CTP1340
-M2 HCR1325	-M2 HCR1335	-M2 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW -/+0,08 mm	RE +/-0,1 mm	PDPT mm	for tool holder	Article no. 70 337 ...	Article no. 70 337 ...	Article no. 70 337 ...
LXE 8.00N0.80-M2	19	8	0,8	5	E32 N ..-LX	**928**	**578**	**682**
LXE 10.00N0.80-M2	19	10	0,8	5	E32 N ..-LX	**932**	**582**	**678**
Steel						●	●	●
Stainless steel						○	○	●
Cast iron						●	●	●
Non ferrous metals								○
Heat resistant alloys								●
hardened materials						○		

→ v_c Page 101
→ Application recommendation on page 108

Internal machining



→ 73

External machining



→ 73

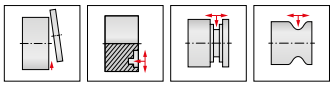


→ 74

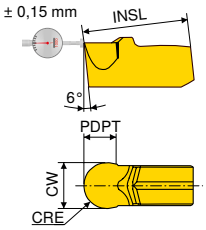
11

Radial Grooving Insert LX

- Grooving width 8 mm
- Axial grooving from Ø 500 mm
- Internal grooving and turning, from Ø 200 mm



F	M	R



-M3 CTCP325	-M3 CTCP335	-M3 CTP1340
-M3 HCR1325	-M3 HCR1335	-M3 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL	CW -/+0,08	CRE	PDPT	for tool holder	Article no. 70 337 ...	Article no. 70 337 ...	Article no. 70 337 ...
	mm	mm	mm	mm				
LXR 4.00N-M3	19	8	4	5	E32 N ..-LX	**908**	**518**	**618**
Steel						●	●	●
Stainless steel						○	○	●
Cast iron						●	●	●
Non ferrous metals								○
Heat resistant alloys								●
hardened materials						○		

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→ Application recommendation on page 108

Internal machining



→ 73

External machining



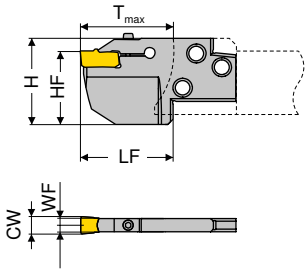
→ 73



→ 74

ModularClamp MSS – Axial and radial grooving module LX

- Grooving width 8 and 10 mm
- Axial grooving from Ø 500 mm onwards
- Internal grooving and turning, from Ø 200 mm onwards

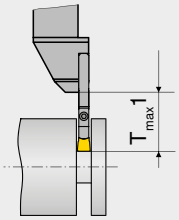




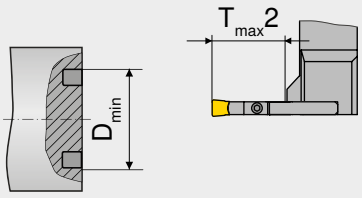
Neutral

Designation	CW	WF	LF	HF	H	T max. 1	T max. 2	T max. 3	for grooving inserts	Article no. 70 835 ...
	mm	mm	mm	mm	mm	mm	mm	mm		
E32 N 25-LX	8 / 10	3,4	27	32	44	25	19	14	LX ..	**032**
E32 N 32-LX	8 / 10	3,4	37	32	44	32	26	21	LX ..	**132**
E32 N 45-LX	8 / 10	3,4	47	32	44	45	39	34	LX ..	**232**

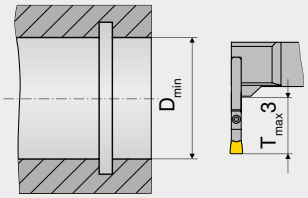
Radial grooving



Axial grooving D_{min} > 500 mm



Internal grooving D_{min} > 200 mm





Key D



Clamping screw

Spare parts		Article no. 80 950 ...		Article no. 70 950 ...
for grooving inserts				
LX ..	T20	**114**	M4x18	**204**



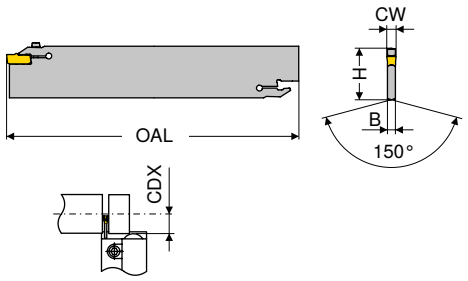


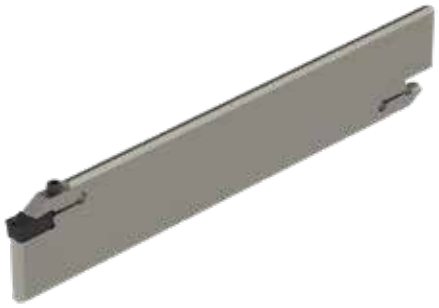
→ 71+72 → 93-95

11

MonoClamp – Blade LX

Scope of supply:
Blade incl. clamping screw and tightening wrench





Designation	H	B	OAL	CW	CDX	for grooving inserts	Article no. 70 833 ...
	mm	mm	mm	mm	mm		
XLCEN 4608-LX	46	6,8	250	8/10	80	LX ..	**108**


Key D


Clamping screw

Spare parts	Article no. 80 950 ...		Article no. 70 950 ...	
for grooving inserts				
LX ..	T20	**114**	M4x18	**204**

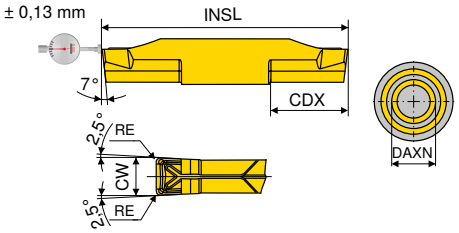


→ 71+72 → 98+99 → **Chapter 16**

Grooving insert AX

- Very good chip control
- DAXN minimum groove diameter refers to the outside diameter

F	M	R
		



-F50
CTP1340

-F50
CCN1340

DRAGONSKIN

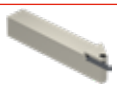


Designation	IH	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	CDX mm	DAXN mm	for tool holder	Article no. 70 327 ...
AX 05 E3.00 N 0.30	N	24	3	0,3	5	10	E.. R/L.. -AX 05	**005**
AX 10 E3.00 N 0.30	N	34	3	0,3	10	20	E.. R/L.. -AX 10	**010**
AX 15 E3.00 N 0.30	N	44	3	0,3	15	30	E.. R/L.. -AX 15	**015**

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	

→ v_c Page 101
→ Application recommendation on page 109

Internal machining *External machining*

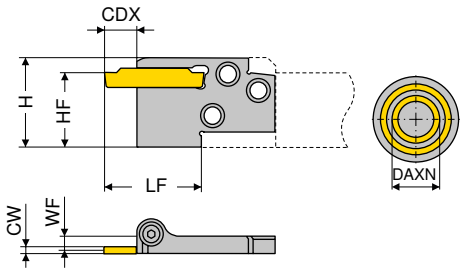




→ 76 → 77 → 78

11

ModularClamp MSS – Axial grooving module AX

▲ For axial grooving and turning



Illustrations show right-hand versions



Designation	HF	CW	WF	LF	H	DAXN	CDX	for grooving inserts	Left-hand Article no. 70 827 ...	Right-hand Article no. 70 828 ...
	mm	mm	mm	mm	mm	mm	mm			
E16 R/L 05-AX 05	16	3	2,5	24,0	20,5	10	5	AX05	**016**	**016**
E20 R/L 05-AX 05	20	3	3,1	28,0	25,0	10	5	AX05	**020**	**020**
E25 R/L 05-AX 05	25	3	4,6	27,5	30,0	10	5	AX05	**025**	**025**
E20 R/L 10-AX 10	20	3	3,1	33,0	25,0	20	10	AX10	**120**	**120**
E25 R/L 10-AX 10	25	3	4,6	32,5	30,0	20	10	AX10	**125**	**125**
E20 R/L 15-AX 15	20	3	3,1	44,0	25,0	30	15	AX15	**220**	**220**
E25 R/L 15-AX 15	25	3	4,6	43,5	30,0	30	15	AX15	**225**	**225**



Key D



Clamping screw

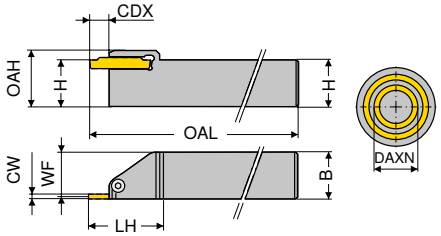
Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 827 016 / 70 828 016	T15	**113**	M3,5x12,5	**441**
70 827 020 / 70 828 020	T15	**113**	M4x14	**403**
70 827 025 / 70 828 025	T20	**114**	M5x18	**404**
70 827 120 / 70 828 120	T15	**113**	M4x14	**403**
70 827 125 / 70 828 125	T20	**114**	M5x18	**404**
70 827 220 / 70 828 220	T15	**113**	M4x14	**403**
70 827 225 / 70 828 225	T20	**114**	M5x18	**404**





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MonoClamp – Axial AX Grooving Holder 0°, up to 15 mm groove depth





Illustrations show right-hand versions

Designation	H	B	OAL	LH	OAH	CDX	CW	WF	DAXN	for grooving inserts	Left-hand NEW Article no. 70 823 ...	Right-hand NEW Article no. 70 824 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm			
E20 R/L 0005-2020-AX 05	20	20	140	28	25	5	3	18,7	10	AX05	**02000**	**02000**
E20 R/L 0010-2020-AX 10	20	20	140	38	25	10	3	18,7	20	AX10	**12000**	**12000**
E20 R/L 0015-2020-AX 15	20	20	140	49	25	15	3	18,7	30	AX15	**22000**	**22000**
E25 R/L 0005-2525-AX 05	25	25	160	28	30	5	3	23,7	10	AX05	**02500**	**02500**
E25 R/L 0010-2525-AX 10	25	25	160	38	30	10	3	23,7	20	AX10	**12500**	**12500**
E25 R/L 0015-2525-AX 15	25	25	160	49	30	15	3	23,7	30	AX15	**22500**	**22500**


Key D


Clamping screw

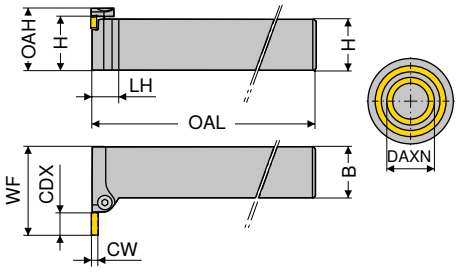
Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...	
70 824 02000 / 70 823 02000	T20	**106**	M5x18	**404**
70 824 12000 / 70 823 12000	T20	**106**	M5x18	**404**
70 824 22000 / 70 823 22000	T20	**106**	M5x18	**404**
70 824 02500 / 70 823 02500	T20	**106**	M5x18	**404**
70 824 12500 / 70 823 12500	T20	**106**	M5x18	**404**
70 824 22500 / 70 823 22500	T20	**106**	M5x18	**404**

11



→ 75

MonoClamp – Axial AX Grooving Holder 90°, up to 15 mm groove depth





Illustrations show right-hand versions

Designation	H	B	WF	OAH	OAL	LH	CDX	DAXN	CW	Left-hand NEW Article no. 70 825 ...	Right-hand NEW Article no. 70 826 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm		
E20 R/L 9005-2020-AX 05	20	20	28	25	110	12	5	10	3	**02000**	**02000**
E20 R/L 9010-2020-AX 10	20	20	38	25	110	13	10	20	3	**12000**	**12000**
E20 R/L 9015-2020-AX 15	20	20	49	25	110	13	15	30	3	**22000**	**22000**
E25 R/L 9005-2525-AX 05	25	25	33	30	140	12	5	10	3	**02500**	**02500**
E25 R/L 9010-2525-AX 10	25	25	43	30	110	13	10	20	3	**12500**	**12500**
E25 R/L 9015-2525-AX 15	25	25	49	30	140	13	15	30	3	**22500**	**22500**



Key D



Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 825 22000 / 70 826 22000	T20	**106**	M5x18	**404**
70 825 12000 / 70 826 12000	T20	**106**	M5x18	**404**
70 825 02000 / 70 826 02000	T15	**105**	M4x14	**403**
70 825 22500 / 70 826 22500	T20	**106**	M5x18	**404**
70 825 12500 / 70 826 12500	T20	**106**	M5x18	**404**
70 825 02500 / 70 826 02500	T15	**105**	M4x14	**403**

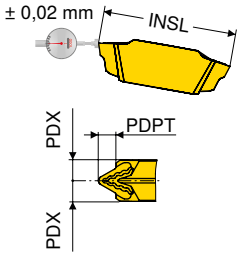


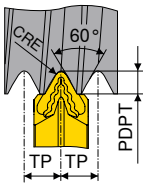
→ 75

Threading inserts TC full profile – External thread 60°



F	M	R





CTPP520	CTPP535	-27P H216T
DPX1520	DPX1535	-ALP CWK26
DRAGONSKIN	DRAGONSKIN	



Designation	Size	TP	INSL	PDPT	PDX	CRE	for tool holder	Article no. 70 357 ...	Article no. 70 357 ...	Article no. 70 357 ...
		mm	mm	mm	mm	mm				
TC 16-1 E 0.5 ISO	TC 16-1 ...	0,50	16	0,32	1,05	0,06	E.. R/L TC 16-1	**010**	**110**	**610**
TC 16-1 E 0.75 ISO	TC 16-1 ...	0,75	16	0,48	1,05	0,09	E.. R/L TC 16-1	**012**	**112**	**612**
TC 16-1 E 1.0 ISO	TC 16-1 ...	1,00	16	0,64	1,05	0,12	E.. R/L TC 16-1	**014**	**114**	**614**
TC 16-1 E 1.25 ISO	TC 16-1 ...	1,25	16	0,80	1,05	0,15	E.. R/L TC 16-1	**016**	**116**	**616**
TC 16-1 E 1.5 ISO	TC 16-1 ...	1,50	16	0,95	1,05	0,18	E.. R/L TC 16-1	**018**	**118**	**618**
TC 16-2 E 1.75 ISO	TC 16-2 ...	1,75	16	1,10	2,15	0,22	E.. R/L/N TC 16-2	**030**	**130**	**630**
TC 16-2 E 2.0 ISO	TC 16-2 ...	2,00	16	1,26	2,15	0,25	E.. R/L/N TC 16-2	**032**	**132**	**632**
TC 16-2 E 2.5 ISO	TC 16-2 ...	2,50	16	1,58	2,15	0,32	E.. R/L/N TC 16-2	**034**	**134**	**634**
TC 16-2 E 3.0 ISO	TC 16-2 ...	3,00	16	1,89	2,15	0,38	E.. R/L/N TC 16-2	**036**	**136**	**636**
TC 16-3 E 3.5 ISO	TC 16-3 ...	3,50	16	2,21	3,10	0,44	E25 N TC 16-3	**050**	**150**	
TC 16-3 E 4.0 ISO	TC 16-3 ...	4,00	16	2,53	3,10	0,50	E25 N TC 16-3	**052**	**152**	
TC 16-3 E 5.0 ISO	TC 16-3 ...	5,00	16	3,16	3,10	0,63	E25 N TC 16-3	**056**	**156**	

Steel	●	●	
Stainless steel	●	●	
Cast iron	●		●
Non ferrous metals	○	○	●
Heat resistant alloys	○	●	
hardened materials			

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→ Application recommendation on page 110

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Internal machining *External machining*

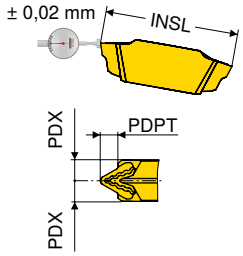


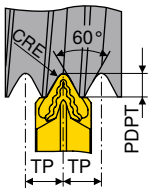
→ 84 → 85

Threading inserts TC full profile – Internal thread 60°



F	M	R





CTPP535	CTPP520	-27P H216T
DPX1535	DPX1520	-ALP CWK26
DRAGONSKIN	DRAGONSKIN	



Designation	Size	TP	INSL	PDPT	PDX	CRE	for tool holder	Article no. 70 358 ...	Article no. 70 358 ...	Article no. 70 358 ...
		mm	mm	mm	mm	mm				
TC 16-1 I 1.0 ISO	TC 16-1 ...	1,00	16	0,59	1,05	0,06	I32 R/L TC 16-1	**114**	**014**	**614**
TC 16-1 I 1.25 ISO	TC 16-1 ...	1,25	16	0,74	1,05	0,07	I32 R/L TC 16-1		**016**	
TC 16-1 I 1.5 ISO	TC 16-1 ...	1,50	16	0,89	1,05	0,09	I32 R/L TC 16-1	**118**	**018**	**618**
TC 16-2 I 1.75 ISO	TC 16-2 ...	1,75	16	1,02	2,15	0,11	I32 R/L TC 16-2		**030**	
TC 16-2 I 2.0 ISO	TC 16-2 ...	2,00	16	1,17	2,15	0,13	I32 R/L TC 16-2	**132**	**032**	**632**
TC 16-2 I 3.0 ISO	TC 16-2 ...	3,00	16	1,76	2,15	0,19	I32 R/L TC 16-2	**136**	**036**	**636**

Steel	●	●	
Stainless steel	●	●	
Cast iron		●	●
Non ferrous metals	○	○	●
Heat resistant alloys	●	○	
hardened materials			

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→ Application recommendation on page 110

Internal machining *External machining*



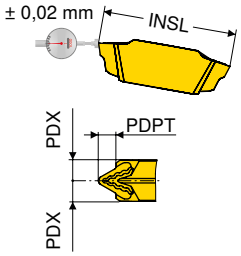


→ 86 → 87

Threading inserts TC partial profile 60°



F	M	R
		



CTPP535	CTPP520	-27P H216T
DPX1535	DPX1520	-ALP CWK26
DRAGONSKIN	DRAGONSKIN	



Designation	Size	TP	INSL	PDPT	PDX	CRE	for tool holder	Article no. 70 355 ...		Article no. 70 355 ...		Article no. 70 355 ...	
		mm	mm	mm	mm	mm							
TC 16-1 EI A 60	TC 16-1 ...	0,5 - 1,5	16	1,27	1,05	0,03	E/I.. R/L TC 16-1	**110**		**010**		**610**	
TC 16-2 EI G 60	TC 16-2 ...	1,75 - 3,0	16	2,49	2,15	0,11	E/I.. R/L/N TC 16-2	**130**		**030**		**630**	
TC 16-2 EI AG 60	TC 16-2 ...	0,5 - 3,0	16	2,57	2,15	0,03	E/I.. R/L/N TC 16-2	**132**		**032**		**632**	
TC 16-3 EI N 60	TC 16-3 ...	3,5 - 5,0	16	4,11	3,10	0,22	E/I.. N TC 16-3	**150**		**050**		**650**	
Steel								●		●			
Stainless steel								●		●			
Cast iron										●		●	
Non ferrous metals								○		○		●	
Heat resistant alloys								●		○			
hardened materials													

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→ Application recommendation on page 110

Internal machining *External machining*





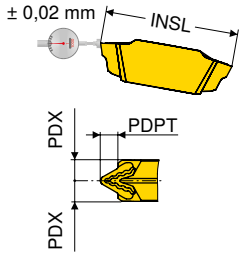

→ 86 → 87 → 84 → 85

11

Threading inserts TC full profile 55°



F	M	R



CTPP520	CTPP535	-27P H216T
DPX1520	DPX1535	-ALP CWK26
DRAGONSKIN	DRAGONSKIN	



Designation	Size	TPI	INSL	PDPT	PDX	CRE	for tool holder	Article no. 70 359 ...		Article no. 70 359 ...		Article no. 70 359 ...	
		1/"	mm	mm	mm	mm							
TC 16-1 EI 28 W	TC 16-1 ...	28	16	0,60	1,05	0,12	E/I.. R/L TC 16-1	**010**		**110**			
TC 16-1 EI 20 W	TC 16-1 ...	20	16	0,84	1,05	0,17	E/I.. R/L TC 16-1	**016**					
TC 16-1 EI 19 W	TC 16-1 ...	19	16	0,88	1,05	0,17	E/I.. R/L TC 16-1	**018**		**118**		**618**	
TC 16-1 EI 16 W	TC 16-1 ...	16	16	1,05	1,05	0,21	E/I.. R/L TC 16-1	**022**					
TC 16-2 EI 14 W	TC 16-2 ...	14	16	1,20	2,15	0,23	E/I.. R/L/N TC 16-2	**030**		**130**		**630**	
TC 16-2 EI 12 W	TC 16-2 ...	12	16	1,40	2,15	0,27	E/I.. R/L/N TC 16-2			**132**			
TC 16-2 EI 11 W	TC 16-2 ...	11	16	1,53	2,15	0,30	E/I.. R/L/N TC 16-2	**034**		**134**		**634**	
Steel								●		●			
Stainless steel								●		●			
Cast iron								●				●	
Non ferrous metals								○		○		●	
Heat resistant alloys								○		●			
hardened materials													

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→ Application recommendation on page 110

Internal machining *External machining*

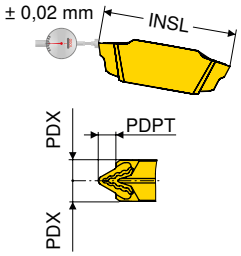


→ 86 → 87 → 84 → 85

Threading inserts TC partial profile 55°



F	M	R
		





Designation	Size	TPI	INSL	PDPT	PDX	CRE	for tool holder	Article no. 70 356 ...		Article no. 70 356 ...	
		1/"	mm	mm	mm	mm					
TC 16-1 EI A 55	TC 16-1 ...	28 - 16	16	1,39	1,05	0,12	E/I.. R/L TC 16-1	**110**		**010**	
TC 16-2 EI AG 55	TC 16-2 ...	28 - 8	16	2,91	2,15	0,12	E/I.. R/L/N TC 16-2	**132**		**032**	
TC 16-2 EI G 55	TC 16-2 ...	14 - 8	16	2,78	2,15	0,23	E/I.. R/L/N TC 16-2	**130**		**030**	
TC 16-3 EI N 55	TC 16-3 ...	7 - 5	16	4,34	3,10	0,46	E/I.. N TC 16-3	**150**		**050**	
Steel								●		●	
Stainless steel								●		●	
Cast iron										●	
Non ferrous metals								○		○	
Heat resistant alloys								●		○	
hardened materials											

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Internal machining *External machining*

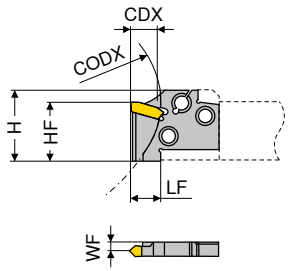





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ModularClamp MSS – Threading module TC for external threads





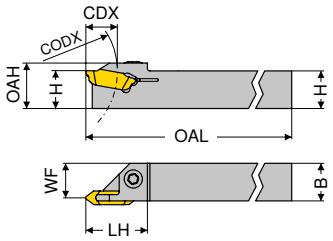
Designation	TP	TPI	WF	HF	LF	H	CODX	CDX	for grooving inserts	Left-hand Article no. 70 872 ...	Neutral Article no. 70 872 ...	Right-hand Article no. 70 872 ...
	mm	1/"	mm	mm	mm	mm	mm	mm				
E20 R/L TC 16-1	0,5 - 1,5	28 - 16	3,45	13	20	24	60	8	TC 16-1 ...	**120**		**020**
E20 N TC 16-2	1,75 - 3,0	14 - 8	2,20	13	20	24		12	TC 16-2 ...		**220**	
E25 R/L TC 16-1	0,5 - 1,5	28 - 16	5,20	13	25	30	75	8	TC 16-1 ...	**125**		**025**
E25 R/L TC 16-2	1,75 - 3,0	14 - 8	4,10	13	25	30	75	10	TC 16-2 ...	**325**		**225**
E25 N TC 16-3	3,5 - 5,0	7 - 5	3,10	13	25	30		12	TC 16-3 ...		**425**	





→ 79–83 → 93–95 → **Chapter 16**

MonoClamp – Monobloc tool TC for external thread cutting





Illustrations show right-hand versions

Designation	TP	TPI	H	B	OAL	LH	OAH	WF	CODX	for grooving inserts	Left-hand Article no. 70 883 ...	Right-hand Article no. 70 882 ...
	mm	1/"	mm	mm	mm	mm	mm	mm	mm			
E12 R/L 00-1212 TC16	0,5 - 3	28 - 8	12	12	150	20	14,5	11	30	TC16-1/2..	**012**	**012**


Key D


Clamping screw

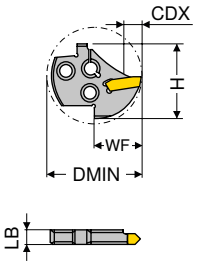
Spare parts		Article no. 80 950 ...		Article no. 70 950 ...
for grooving inserts				
TC16-1/2..	T15	**113**	M4x11	**442**



→ 79–83

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ModularClamp MSS – Threading module TC for internal threads





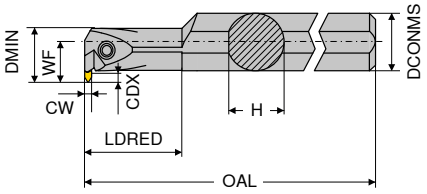
Designation	TP	TPI	LB	WF	H	DMIN	CDX	for grooving inserts	Left-hand Article no. 70 887 ...	Neutral Article no. 70 887 ...	Right-hand Article no. 70 887 ...
	mm	1/"	mm	mm	mm	mm	mm				
I32 R/L TC 16-1	0,5 - 1,5	28 - 16	6,2	5,2	32,2	40	7	TC 16-1 ...	**132**		**032**
I32 R/L TC 16-2	1,75 - 3,0	14 - 8	6,2	4,1	32,2	40	7	TC 16-2 ...	**332**		**232**
I32 N TC 16-3	3,5 - 5,0	7 - 5	6,2	3,1	32,2	40	7	TC 16-3 ...		**432**	





→ 79–83 → 96

MonoClamp – Monobloc Boring bar TC for internal thread cutting





Illustrations show right-hand versions

Designation	WF	DCONMS	H	OAL	LDRED	CDX	DMIN	for grooving inserts	Left-hand Article no. 70 857 ...	Right-hand Article no. 70 856 ...
	mm	mm	mm	mm	mm	mm	mm			
I16 R/L 90-2D TC16	14,0	20	18	180	32	4	20	TC16-1/2..	**016**	**016**
I20 R/L 90-2D TC16	17,5	25	23	200	40	5	25	TC16-..	**020**	**020**
I25 R/L 90-2D TC16	22,0	32	30	250	50	6	32	TC16-..	**025**	**025**



Key D



Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 857 016 / 70 856 016	T15	**113**	M4x14	**403**
70 857 020 / 70 856 020	T20	**114**	M5x18	**404**
70 857 025 / 70 856 025	T25	**115**	M6x20	**405**

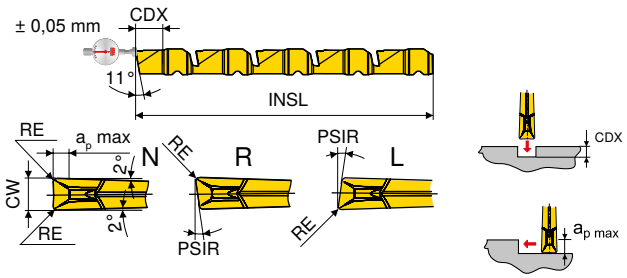


→ 79–83

MaxiClick – Insert – Cutting depth 5 mm

▲ 5 cutting edges

F	M	R
		



-F2
CTP1340

-F2
CCN1340

DRAGONSKIN



Designation	IH	CW mm	RE mm	PSIR	INSL mm	$a_{p\,max}$ mm	CDX mm	for tool holder	Article no. 70 338 ...
MC 05-5-1.00 L 07-F2	L	1,0	0,1	7°	59,2		5	MC 05 R/L	**250**
MC 05-5-1.50 L 07-F2	L	1,5	0,1	7°	59,2		5	MC 05 R/L	**260**
MC 05-5-1.00 N 0.10-F2	N	1,0	0,1		59,2	0,5	5	MC 05 R/L	**210**
MC 05-5-1.50 N 0.10-F2	N	1,5	0,1		59,2	1,0	5	MC 05 R/L	**220**
MC 05-5-1.00 R 07-F2	R	1,0	0,1	7°	59,2		5	MC 05 R/L	**230**
MC 05-5-1.50 R 07-F2	R	1,5	0,1	7°	59,2		5	MC 05 R/L	**240**

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	

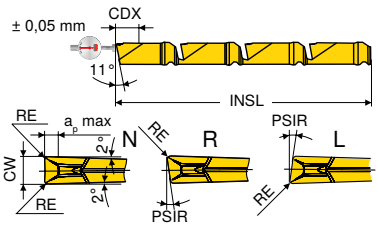
→ v_c Page 106

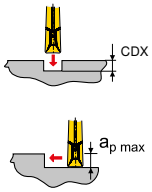
Internal machining	*External machining*
	
	→ 91

MaxiClick insert – Cutting depth 10 mm

▲ 4 cutting edges

F	M	R





-F2
CTP1340

-F2
CCN1340

DRAGONSKIN



Designation	IH	CW mm	RE mm	PSIR	INSL mm	$a_{p\,max}$ mm	CDX mm	for tool holder	Article no. 70 339 ...
MC 10-4-1.50 L 07-F2	L	1,5	0,1	7°	59,2		10	MC 10 R/L	**270**
MC 10-4-2.00 L 07-F2	L	2,0	0,1	7°	59,2		10	MC 10 R/L	**280**
MC 10-4-2.50 L 07-F2	L	2,5	0,1	7°	59,2		10	MC 10 R/L	**290**
MC 10-4-1.50 N 0.10-F2	N	1,5	0,1		59,2	1,0	10	MC 10 R/L	**210**
MC 10-4-2.00 N 0.10-F2	N	2,0	0,1		59,2	1,5	10	MC 10 R/L	**220**
MC 10-4-2.50 N 0.10-F2	N	2,5	0,1		59,2	2,0	10	MC 10 R/L	**230**
MC 10-4-1.50 R 07-F2	R	1,5	0,1	7°	59,2		10	MC 10 R/L	**240**
MC 10-4-2.00 R 07-F2	R	2,0	0,1	7°	59,2		10	MC 10 R/L	**250**
MC 10-4-2.50 R 07-F2	R	2,5	0,1	7°	59,2		10	MC 10 R/L	**260**

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	

→ v_c Page 106

11

Internal machining *External machining*

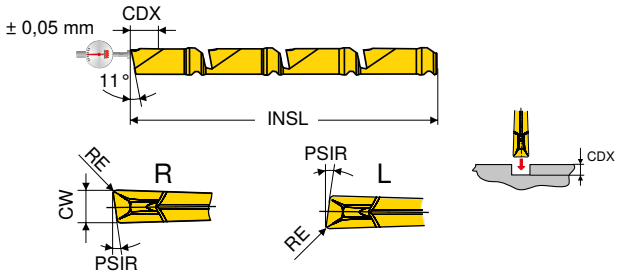


→ 92

MaxiClick insert – Cutting depth 10 mm

▲ 4 cutting edges

F	M	R
		



-F3 CTP1340

-F3 CCN1340

DRAGONSKIN



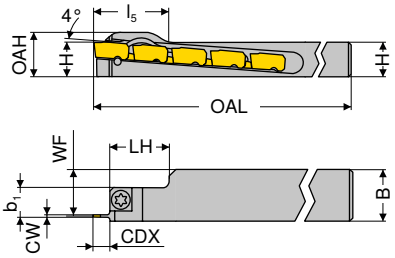
Designation	IH	CW mm	RE mm	PSIR	INSL mm	CDX mm	for tool holder	Article no. 70 340 ...
MC 10-4-1.50 L 12-F3	L	1,5	0,1	12°	59,2	10	MC 10 R/L	**270**
MC 10-4-2.00 L 12-F3	L	2,0	0,1	12°	59,2	10	MC 10 R/L	**280**
MC 10-4-2.50 L 12-F3	L	2,5	0,1	12°	59,2	10	MC 10 R/L	**290**
MC 10-4-1.50 R 12-F3	R	1,5	0,1	12°	59,2	10	MC 10 R/L	**240**
MC 10-4-2.00 R 12-F3	R	2,0	0,1	12°	59,2	10	MC 10 R/L	**250**
MC 10-4-2.50 R 12-F3	R	2,5	0,1	12°	59,2	10	MC 10 R/L	**260**

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	

→ v_c Page 106

Internal machining	*External machining*
	
	→ 92

MaxiClick – Toolholder – Cutting depth 5 mm





Illustrations show right-hand versions

Designation	H mm	OAH mm	B mm	b_1 mm	CW mm	CDX mm	WF mm	OAL mm	LH mm	l_5 mm	for grooving inserts	Left-hand Article no. 70 873 ...	Right-hand Article no. 70 873 ...
MC 05 R/L -1010K	10	13	10	10	1,00 - 1,50	5	8,5	125	23	27	MC 05	**210**	**110**
MC 05 R/L -1212K	12	15	12	12	1,00 - 1,50	5	10,5	125	23	27	MC 05	**212**	**112**
MC 05 R/L -1616K	16	19	16	12	1,00 - 1,50	5	14,5	125	23	20	MC 05	**216**	**116**
MC 05 R/L -2020K	20	23	20	12	1,00 - 1,50	5	18,8	125	23	20	MC 05	**220**	**120**
MC 05 R/L -2525M	25	28	25	12	1,00 - 1,50	5	23,5	150	23	21	MC 05	**225**	**125**


Key-T


Clamping screw

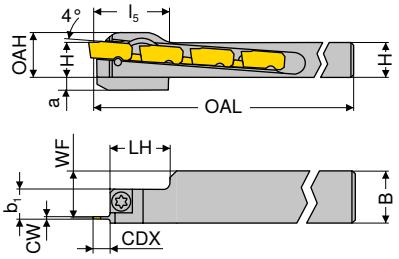
Spare parts for grooving inserts		Article no. 70 950 ...		Article no. 70 950 ...
MC 05	T15	**738**	M4x11	**174**

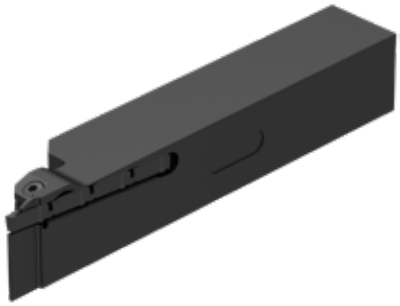


→ 88

11

MaxiClick – Toolholder – Cutting depth 10 mm





Illustrations show right-hand versions

Designation	H	OAH	B	b_1	a	CW	CDX	WF	OAL	LH	l_5	for grooving inserts	Left-hand Article no. 70 874 ...	Right-hand Article no. 70 874 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			
MC 10 R/L -1010K	10	13	10	10		1,50 - 2,50	10	8,5	125	28		MC 10	**210**	**110**
MC 10 R/L -1010K-S	10	13	10	10	6	1,50 - 2,50	10	8,5	125	28	27	MC 10	**410** 1)	**310** 1)
MC 10 R/L -1212K	12	15	12	12		1,50 - 2,50	10	10,5	125	28		MC 10	**212**	**112**
MC 10 R/L -1212K-S	12	15	12	12	4	1,50 - 2,50	10	10,5	125	28	27	MC 10	**412** 1)	**312** 1)
MC 10 R/L -1616K	16	19	16	12		1,50 - 2,50	10	14,5	125	28	20	MC 10	**216**	**116**
MC 10 R/L -2020K	20	23	20	12		1,50 - 2,50	10	18,8	125	28	20	MC 10	**220**	**120**
MC 10 R/L -2525M	25	28	25	12		1,50 - 2,50	10	23,5	150	28	21	MC 10	**225**	**125**

1) -S = strengthened variant


Key-T

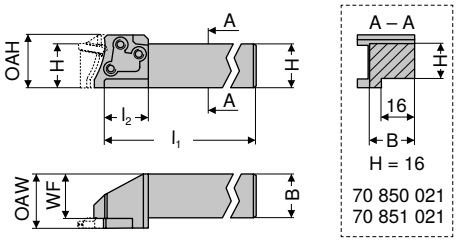

Clamping screw

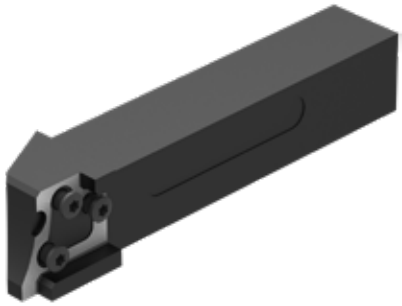
Spare parts for grooving inserts		Article no. 70 950 ...		Article no. 70 950 ...
MC 10	T15	**738**	M4x11	**174**



→ 89+90

ModularClamp MSS – Tool holder 0°





Illustrations show right-hand versions

Designation	H	B	OAW	OAH	WF	l_1	l_2	for modules	Left-hand Article no. 70 851 ...	Right-hand Article no. 70 850 ...
	mm	mm	mm	mm	mm	mm	mm			
E12 R/L 00-1212E	12	12	15,25	14,5	11,75	70	12	E12 R/L ...	**012**	**012**
E16 R/L 00-1616G	16	16	19,25	19,5	15,75	90	16	E16 R/L ...	**016**	**016**
E20 R/L 00-1620G	16	20	24,25	24,0	20,15	90	20	E20 R/L ...	**021** 1)	**021** 1)
E20 R/L 00-2020J	20	20	24,25	24,0	20,15	110	20	E20 R/L ...	**020**	**020**
E25 R/L 00-2525L	25	25	31,00	30,0	25,50	140	25	E25 R/L ...	**025**	**025**
E32 R/L 00-3225N	32	25	31,00	38,0	25,50	160	32	E32 R/L ...	**032**	**032**

1) see view A-A


Key D


Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 851 012 / 70 850 012	T08	**110**	M2,5x10	**440**
70 851 016 / 70 850 016	T15	**113**	M3,5x12,5	**441**
70 851 021 / 70 850 021	T15	**113**	M4x14	**403**
70 851 020 / 70 850 020	T15	**113**	M4x14	**403**
70 851 025 / 70 850 025	T20	**114**	M5x18	**404**
70 851 032 / 70 850 032	T25	**115**	M6x20	**405**

Module Overview

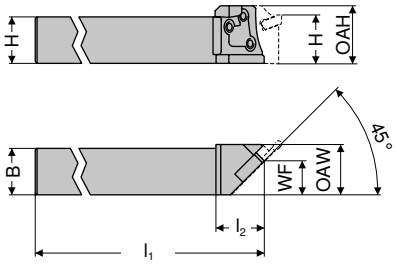


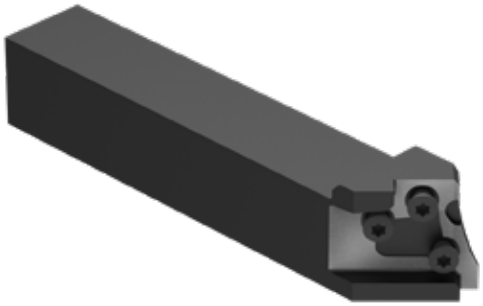
→ 4+5

ModularClamp Holder with HSK-T interface can be found in → **Chapter 16.**

11

ModularClamp MSS – Tool holder 45°





Illustrations show right-hand versions

Designation	H mm	B mm	OAW mm	OAH mm	WF mm	l_1 mm	l_2 mm	for modules	Left-hand Article no. 70 853 ...	Right-hand Article no. 70 852 ...
E20 R/L 45-2020J	20	20	21,5	24	14,5	110	20	E20 R/L ...	**020**	**020**
E25 R/L 45-2525L	25	25	26,0	30	18,0	140	25	E25 R/L ...	**025**	**025**

For right hand holder → left hand module only
For left hand holder → right hand module only


Key D


Clamping screw


Clamping screw

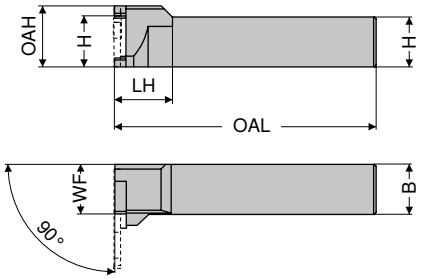
Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...
70 853 020 / 70 852 020	T15	**113**	M4x11	**442**	M4x14	**403**
70 853 025 / 70 852 025	T20	**114**	M5x13,5	**513**	M5x18	**404**

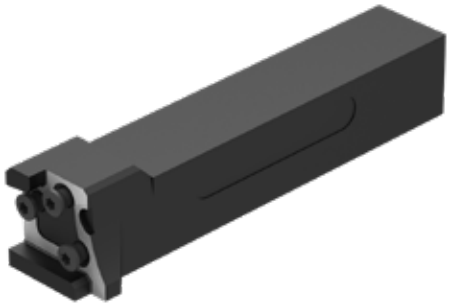
Module Overview



→ 4+5

ModularClamp MSS – Tool holder 90°





Illustrations show right-hand versions

Designation	H	B	OAH	WF	OAL	LH	for modules	Left-hand Article no. 70 855 ...	Right-hand Article no. 70 854 ...
	mm	mm	mm	mm	mm	mm			
E20 R/L 90-2020J	20	20	24	20	110	20	E20 R/L ...	**020**	**020**
E25 R/L 90-2525L	25	25	30	25	140	28	E25 R/L ...	**025**	**025**
E32 R/L 90-3225N	32	25	38	32	160	34	E32 R/L ...	**032**	**032**

For right hand holder → left hand module only
For left hand holder → right hand module only


Key D


Clamping screw

Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...
70 855 020 / 70 854 020	T15	**113**	M4x14	**403**
70 855 025 / 70 854 025	T20	**114**	M5x18	**404**
70 855 032 / 70 854 032	T25	**115**	M6x20	**405**

Module Overview



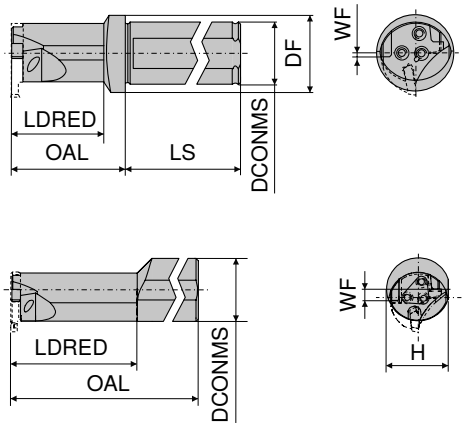
→ 4+5

ModularClamp Holder with HSK-T interface can be found in → **Chapter 16.**

11

ModularClamp MSS – Boring bars GX / TC

▲ With internal coolant supply





Illustrations show right-hand versions

	Designation	DCONMS	DF	WF	H	OAL	LDRED	LS	for modules	Left-hand Article no. 70 861 ...	Right-hand Article no. 70 860 ...
		mm	mm	mm	mm	mm	mm	mm			
≤ 1,5xD	I16 R/L 90-1,5 D-N	20	25	1,0		32	24	50	I 16 R/L	017	017
	I20 R/L 90-1,5 D-N	20	25	1,0		37	30	50	I 20 R/L	021	021
	I25 R/L 90-1,5 D-N	25	32	1,5		46	38	56	I 25 R/L	026	026
	I32 R/L 90-1,5 D-N	32	40	2,0		59	48	60	I 32 R/L	033 1)	033 1)
	I40 R/L 90-1,5 D-N	40	50	2,5		72	60	70	I 40 R/L/N	041	041
≤ 2,5xD	I16 R/L 90-2,5 D-N	20		4,5	19,0	180	40		I 16 R/L	117	117
	I20 R/L 90-2,5 D-N	25		6,0	24,0	200	50		I 20 R/L	121	121
	I25 R/L 90-2,5 D-N	32		7,0	31,0	250	63		I 25 R/L	126	126
	I32 R/L 90-2,5 D-N	40		9,5	38,0	300	80		I 32 R/L	133 1)	133 1)
	I40 R/L 90-2,5 D-N	50		11,5	48,5	350	100		I 40 R/L/N	141	141

1) with 2 clamping surfaces


Key D


Clamping screw

Spare parts for modules		Article no. 80 950 ...		Article no. 70 950 ...
I 16 R/L	T08	110	M2,5x10	440
I 20 R/L	T10	112	M3x11	444
I 25 R/L	T15	113	M3,5x12,5	441
I 32 R/L	T20	114	M4,5x17	445
I 40 R/L/N	T20	114	M5x18	404

Module Overview



→ 6+7

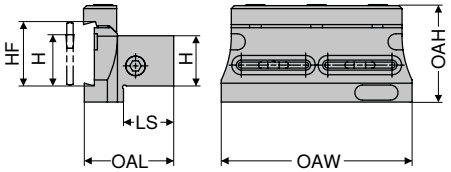
ModularClamp Holder with HSK-T interface can be found in → **Chapter 16.**

Split clamping block for blades DC

Scope of supply:

Complete clamping block, but without blade







Designation	H	HF	OAH	LS	OAL	OAW	for blades	Article no. 70 829 ...
	mm	mm	mm	mm	mm	mm		
SBN 2020-26-DC	20	26	43,0	20	40,0	82	XLC.. 26..	**020**
SBN 2020-32-DC	20	32	43,0	20	40,0	95	XLC.. 32..	**120**
SBN 2525-32-DC	25	32	48,5	25	44,5	95	XLC.. 32..	**025**
SBN 3232-32-DC	32	32	52,0	32	51,0	95	XLC.. 32..	**032**



Coolant screw plug



Clamping rail



Clamping screw

Spare parts		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...
for Article no.						
70 829 020	G 1/8"	**294**	CU70	**290**	M6x12	**861**
70 829 120	G 1/8"	**294**	CU85	**291**	M6x12	**861**
70 829 025	G 1/8"	**294**	CU85	**291**	M6x12	**861**
70 829 032	G 1/8"	**294**	CU85	**291**	M6x12	**861**



Key I



O-Ring



O-Ring

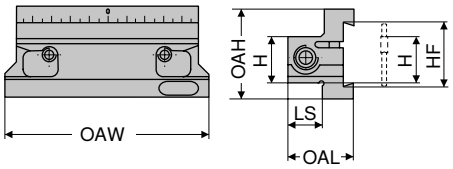
		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...
for Article no.						
70 829 020	SW5	**265**	19x2,5	**293**		
70 829 120	SW5	**265**	19x2,5	**293**	23x2,5	**292**
70 829 025	SW5	**265**			23x2,5	**292**
70 829 032	SW5	**265**			23x2,5	**292**

11

Clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set





Designation	H	HF	OAH	LS	OAL	OAW	for blades	Article no. 70 830 ...
	mm	mm	mm	mm	mm	mm		
SBN 2020-26-K	20	26	39	20	33,0	90	XLC.. 26..	**020**
SBN 2520-32-K	25	32	48	20	36,0	110	XLC.. 32..	**025**
SBN 3229-32-K	32	32	48	29	44,5	120	XLC.. 32..	**032**
SBN 3229-46-K	32	46	70	29	52,0	150	XLC.. 46..	**132**
SBN 4037-46-K	40	46	70	37	60,0	150	XLC.. 46..	**140**


Key I


Cooling agent set


clamping screw

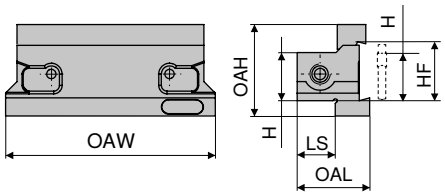
Spare parts		Article no. 70 950 ...	Article no. 70 950 ...		Article no. 70 950 ...
for blades					
XLC.. 26..	SW5	**265**	**278**	M6x25	**269**
XLC.. 32..	SW5	**265**	**278**	M6x25	**269**
XLC.. 46..	SW6	**266**	**279**	M8x35	**282**

Clamping Block for Blades with HSK-T interface can be found in → **Chapter 16.**

Split clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set





Designation	H	HF	OAH	LS	OAL	OAW	for blades	Article no. 70 831 ...
	mm	mm	mm	mm	mm	mm		
SBN 2020-26-KS	20	26	39	20	35,0	90	XLC.. 26..	**020**
SBN 2520-32-KS	25	32	48	20	38,0	110	XLC.. 32..	**025**
SBN 3229-32-KS	32	32	48	29	46,5	120	XLC.. 32..	**032**


Key I


Cooling agent set


clamping screw

Spare parts for blades		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...
XLC.. 26..	SW5	**265**		**278**	M6x25	**269**
XLC.. 32..	SW5	**265**		**278**	M6x25	**269**

Clamping Block for Blades with HSK-T interface can be found in → **Chapter 16.**

11

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data values for grooving inserts GX/LX/FX/SX/AX/TC/MaxiClick

	DRAGONSKIN CTCP325 (HCR1325)	DRAGONSKIN CTCP335 (HCR1335)	DRAGONSKIN CTPP345 (HCN1345)	DRAGONSKIN CTPP520 (DPX1520)	DRAGONSKIN CTPP535 (DPX1535)	DRAGONSKIN CTP1340 (CCN1340)	H216T (CWK26)
Index	v_c in m/min.						
1.1	**130–260**	**110–190**	**80–150**	**150–200**	**80–150**	**80–180**	
1.2	**150–300**	**130–250**	**110–190**	**150–240**	**110–170**	**120–250**	
1.3	**130–260**	**110–190**	**80–150**	**100–200**	**80–150**	**60–150**	
1.4	**140–240**	**80– 170**	**70–140**	**130–180**	**70–130**	**120–200**	
1.5	**150–300**	**70–170**	**70–140**	**140–220**	**70–130**	**80–180**	
1.6	**130–200**	**70–170**	**60–180**	**100–160**	**60–170**	**60–150**	
1.7	**150–230**	**110–220**	**70–130**	**140–190**	**70–130**	**80–180**	
1.8	**100–180**	**90–210**	**60–110**	**100–150**	**60–110**	**50–120**	
1.9	**120–180**	**90–180**	**70–130**	**120–170**	**60–100**	**80–150**	
1.10	**120–180**	**70–160**	**60–110**	**120–170**	**70–120**	**50–120**	
1.11	**100–160**	**70–160**	**60–110**	**100–150**	**60–110**	**50–120**	
1.12	**100–160**	**70–160**	**60–110**	**100–150**	**60–110**	**50–120**	
1.13	**60–110**				**60–110**		
1.14	**60–110**						
1.15	**60–110**	**70–160**	**60–100**	**60–100**	**60–100**	**50–120**	
1.16	**60–110**	**70–160**	**60–100**	**60–100**	**60–100**	**50–120**	
2.1	140–230	120–200	**100–180**	**110–180**	**50–150**	**50–200**	
2.2	140–230	120–190	**100–180**	**110–180**	**50–140**	**50–180**	
2.3	120–210	120–170	**80–150**	**70–140**	**50–130**	**50–180**	
2.4	60–110	60–90	**60–90**	**70–100**	**50–80**	**50–80**	
2.5	80–140	70–110	**70–110**	**70–100**	**50–90**	**50–100**	
2.6	80–140	70–110	**70–110**	**70–100**	**50–90**	**50–100**	
2.7	60–110	60–90	**60–90**		**50–80**	**50–80**	
3.1	**120–210**	**90–180**		**180–220**		**100–200**	**110–180**
3.2	**100–170**	**80–150**		**140–180**		**80–160**	**90–150**
3.3	**130–210**	**100–160**		**160–200**		**90–190**	**110–180**
3.4	**100–170**	**70–140**		**120–180**		**70–160**	**80–140**
3.5	**120–250**	**100–200**		**180–240**		**110–230**	**100–200**
3.6	**90–190**	**80–150**		**160–200**		**80–160**	**70–160**
3.7	**120–240**	**100–200**		**180–240**		**110–230**	**100–200**
3.8	**90–190**	**80–150**		**160–200**		**80–160**	**70–160**
4.1				100–1000	100–500	100–500	**100–800**
4.2				100–800	100–500	100–500	**80–800**
4.3				100–500	100–500	100–500	**50–500**
4.4				100–500	100–300	100–300	
4.5				100–350	100–300	100–200	
4.6					100–300	100–300	**80–300**
4.7					100–300	100–300	**200–600**
4.8					100–300	100–300	**150–400**
4.9					100–300	100–300	**150–400**
4.10					100–300	100–300	**150–400**
4.11				80–250	100–500	100–500	**200–600**
4.12					100–370	100–370	**200–600**
4.13							
4.14				80–500	80–180	80–180	**80–500**
4.15				80–200	60–150	60–150	**60–150**
4.16							
4.17							
4.18							
4.19							
5.1				25–45			
5.2			20–40	20–40	**20–35**	**20–35**	
5.3			20–30	15–25	**20–40**	**20–40**	
5.4			20–30	15–25	**20–40**	**20–40**	
5.5				10–20	**15–25**	**15–25**	
5.6				10–20	**15–25**	**15–25**	
5.7				10–20	**10–20**	**10–20**	
5.8				10–20	**10–20**	**10–20**	
5.9					**50–120**	**50–120**	
5.10					**30–50**	**30–50**	
5.11					**30–50**	**30–50**	
6.1	10–20						
6.2	10–20						
6.3							
6.4							
6.5							

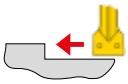
Cutting data values for TX grooving inserts

	CWX 500		
Index	v_c m/min.	f mm/rev.	Coolant
1.1	**80–200**	0,03–0,1	Emulsion
1.2	**80–200**	0,03–0,1	Emulsion
1.3	**80–200**	0,03–0,1	Emulsion
1.4	**80–160**	0,03–0,1	Emulsion
1.5	**80–160**	0,03–0,1	Emulsion
1.6	**80–160**	0,03–0,1	Emulsion
1.7	**80–160**	0,03–0,1	Emulsion
1.8	**80–150**	0,03–0,1	Emulsion
1.9	**80–200**	0,03–0,1	Emulsion
1.10	**70–140**	0,03–0,07	Emulsion
1.11	**70–140**	0,03–0,07	Emulsion
1.12	**70–140**	0,03–0,07	Emulsion
1.13	**40–60**	0,03–0,07	Emulsion
1.14	**40–60**	0,03–0,07	Emulsion
1.15	**40–60**	0,03–0,07	Emulsion
1.16	**40–60**	0,03–0,07	Emulsion
2.1	**80–160**	0,02–0,06	Emulsion
2.2	**80–160**	0,02–0,06	Emulsion
2.3	**80–160**	0,02–0,06	Emulsion
2.4	**20–85**	0,02–0,06	Emulsion
2.5	**20–75**	0,02–0,06	Emulsion
2.6	**20–65**	0,02–0,06	Emulsion
2.7	**20–65**	0,02–0,06	Emulsion
3.1	**30–180**	0,03–0,1	Emulsion
3.2	**30–150**	0,03–0,1	Emulsion
3.3	**30–180**	0,03–0,1	Emulsion
3.4	**30–120**	0,03–0,1	Emulsion
3.5	**30–90**	0,03–0,1	Emulsion
3.6	**20–80**	0,03–0,1	Emulsion
3.7	**30–90**	0,03–0,1	Emulsion
3.8	**20–80**	0,03–0,1	Emulsion
4.1	**120–600**	0,05–0,12	Petroleum
4.2	**120–600**	0,05–0,12	Petroleum
4.3	**100–450**	0,05–0,12	Petroleum
4.4	**70–300**	0,05–0,12	Petroleum
4.5	**60–150**	0,05–0,12	Petroleum
4.6	**60–150**	0,05–0,12	Petroleum
4.7	**100–180**	0,05–0,12	Petroleum
4.8	**90–180**	0,05–0,12	Petroleum
4.9	**80–180**	0,05–0,12	Emulsion
4.10	**80–180**	0,05–0,12	Emulsion
4.11	**120–220**	0,05–0,12	Emulsion
4.12	**70–150**	0,05–0,12	Emulsion
4.13	**80–180**	0,05–0,12	Emulsion
4.14	**80–180**	0,05–0,12	Emulsion
4.15	**80–180**	0,05–0,12	Emulsion
4.16	**80–180**	0,05–0,12	Emulsion
4.17	**80–180**	0,05–0,12	Emulsion
4.18	**80–180**	0,05–0,12	Emulsion
4.19	**80–180**	0,05–0,12	Emulsion
5.1	**30–80**	0,01–0,04	Emulsion
5.2	**18–75**	0,01–0,04	Emulsion
5.3	**18–75**	0,01–0,04	Emulsion
5.4	**18–40**	0,01–0,04	Emulsion
5.5	**18–40**	0,01–0,04	Emulsion
5.6	**18–40**	0,01–0,04	Emulsion
5.7	**15–30**	0,01–0,04	Emulsion
5.8	**15–30**	0,01–0,04	Emulsion
5.9	**15–30**	0,01–0,04	Emulsion
5.10	**100–150**	0,01–0,04	Emulsion
5.11	**100–150**	0,01–0,04	Emulsion
6.1			
6.2			
6.3			
6.4			
6.5			

GX – Speeds and Feeds

GX Standard / GX-E

Turning



Parting / Grooving

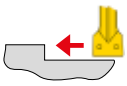


	Depth of Cut a_p in mm							
GX Standard / GX-E	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**GX Standard / GX-E**
Cutting width in mm	Feed rate f in mm/rev.							Feed rate f in mm/rev.
2	0,10–0,15	0,05–0,15	0,05–0,12	0,05–0,10				0,05–0,20
3	0,10–0,17	0,05–0,17	0,05–0,17	0,05–0,15	0,05–0,12			0,10–0,25
4	0,10–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,17	0,07–0,15		0,10–0,25
5	0,10–0,25	0,10–0,25	0,07–0,25	0,07–0,25	0,07–0,22	0,07–0,20		0,10–0,30
6	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,25	0,15–0,22	0,15–0,35

When axial grooving reduce feed by 40 %.

GX-F2

Turning



Parting / Grooving

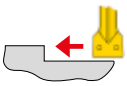


	Depth of Cut a_p in mm								
GX-F2	**0,50**	**0,75**	**1,00**	**1,25**	**1,50**	**1,75**	**2,00**	**2,25**	**2,50**	**GX-F2**
Cutting width in mm	Feed rate f in mm/rev.									Feed rate f in mm/rev.
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10						0,05–0,15
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12				0,075–0,20
4	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,17	0,05–0,15			0,10–0,25
5	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,17	0,07–0,15		0,10–0,30
6	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,19	0,10–0,15	0,15–0,325

When axial grooving reduce feed by 40 %.

GX-M40

Turning



Parting / Grooving

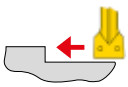


	Depth of Cut a_p in mm								
GX-M40	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**	**GX-M40**
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,10–0,20	0,05–0,20	0,05–0,17	0,05–0,15					0,05–0,15
3	0,10–0,22	0,10–0,22	0,10–0,21	0,10–0,20	0,10–0,17				0,075–0,20
4	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,22	0,10–0,17			0,10–0,25
5	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,27	0,10–0,23	0,10–0,20		0,10–0,30
6	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,32	0,10–0,27	0,10–0,23	0,10–0,20	0,15–0,325

When axial grooving reduce feed by 40 %.

GX-27P

Turning



Parting / Grooving



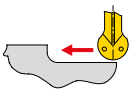
	Depth of Cut a_p in mm								
GX-27P	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**	**GX-27P**
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20					0,05–0,20
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20				0,05–0,25
4	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,25			0,05–0,30
5	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,32	0,10–0,30		0,10–0,35
6	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,36	0,10–0,33	0,10–0,30	0,10–0,40

When axial grooving reduce feed by 40 %.

GX – Depths of cut and feed rates

GX-M3

Turning



Parting / Grooving

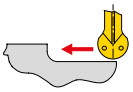


	Depth of Cut a_p in mm							
GX-M3	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius RE in mm	Feed rate f in mm/rev.							
1,5	0,15–0,35	0,15–0,35	0,15–0,30					
2	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30				
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35			
3	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40		

GX-M3
Feed rate f in mm/rev.
0,05–0,20
0,10–0,25
0,10–0,25
0,10–0,35

GX-27P Full Radius

Turning



Parting / Grooving



	Depth of Cut a_p in mm							
GX-27P Full Radius	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius RE in mm	Feed rate f in mm/rev.							
1,5	0,10–0,45	0,05–0,45	0,05–0,40					
2	0,15–0,50	0,10–0,50	0,10–0,50	0,10–0,40				
2,5	0,15–0,60	0,10–0,60	0,10–0,60	0,10–0,50	0,10–0,45			
3	0,25–0,70	0,20–0,70	0,15–0,70	0,15–0,70	0,15–0,65	0,15–0,60	0,15–0,55	
4	0,25–0,80	0,20–0,80	0,15–0,80	0,15–0,80	0,15–0,80	0,15–0,80	0,15–0,75	0,15–0,70

GX-27P Full Radius
Feed rate f in mm/rev.
0,05–0,15
0,075–0,20
0,10–0,25
0,10–0,30
0,15–0,35

GX-M1

Parting / Grooving



GX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2	0,05–0,15
3	0,10–0,20
4	0,10–0,25

GX Radius grooving inserts

Parting / Grooving



GX Radius grooving insert	
Radius RE in mm	Feed rate f in mm/rev.
0,80	0,05–0,10
1,00	0,05–0,15
1,20	0,05–0,15

GX circlip grooving

Grooving

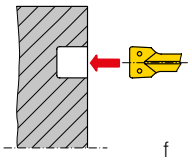
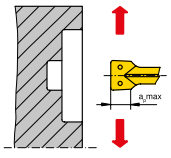


GX circlip grooves	
Cutting width in mm	Feed rate f in mm/rev.
0,60–1,70	0,02–0,09
1,95–2,25	0,05–0,10
2,75–3,25	0,05–0,12

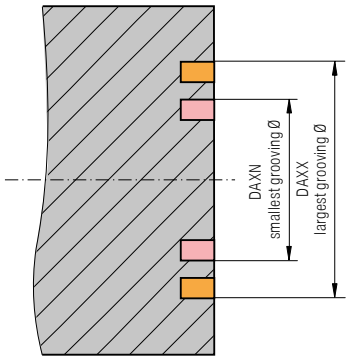
Feed guide and machining instructions for axial grooving and face turning with GX 24 axial

Approximate feed rates

GX

Designation	 f in mm/rev.	 f in mm/rev.	a_p max mm
GX 24-2 E 3.00 ..	0,05–0,15	0,05–0,20	2,5
GX 24-3 E 4.00 ..	0,05–0,15	0,05–0,25	3,0
GX 24-3 E 5.00 ..	0,05–0,15	0,10–0,25	3,0
GX 24-4 E 6.00 ..	0,05–0,20	0,10–0,30	3,5

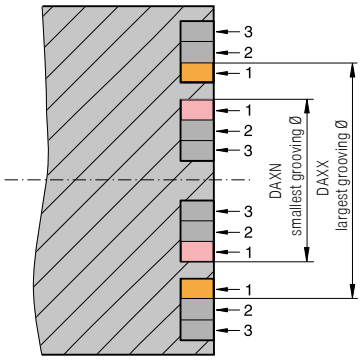
Axial grooving



It is only possible to plunge within the fixed diameter range of the axial grooving module or monoholder (e.g. 50–70 mm).

Important: The indicated diameter range is always valid for the external diameter of the groove!

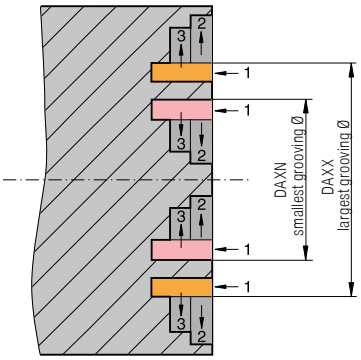
Axial grooving – Groove widening



In case of face turning it is possible to widen the groove above and below the diameter range indicated on the Axial grooving module or monoholder.

Important: Only the first groove must lie within the diameter range of the axial grooving module or axial monoholder. The depth of the widening groove must not be larger than the depth of the original groove.

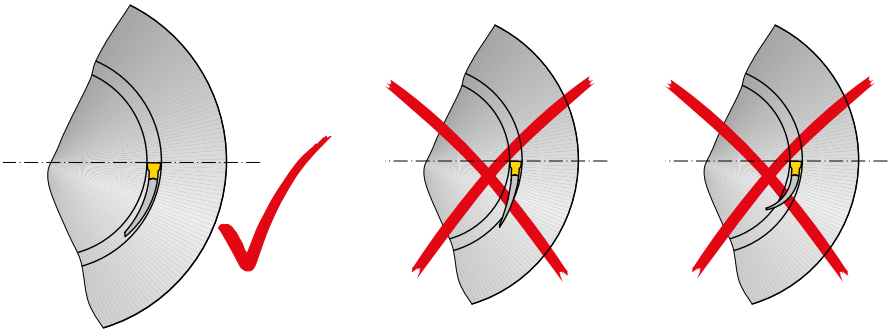
Axial grooving and face turning



Groove widening by face turning in the diameter range above and below the values specified for the Axial grooving module and Axial monoholder are possible.

Important: Only the first groove must lie within the diameter range of the module.

Attention: The diameter of face grooves must lie within the diameter range indicated on the axial grooving module and axial monoholder. Not following this range will result in the tool being damaged or destroyed.



Correct Axial mono holder

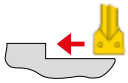
Incorrect Axial mono holder

11

MaxiClick – Depths of cut and feed rates

MaxiClick 05

Turning



	Depth of Cut a_p in mm		
MaxiClick 05	**0,25**	**0,50**	**0,75**
Cutting width in mm	Feed rate f in mm/rev.		
1	0,02–0,15	0,02–0,10	
1,5	0,02–0,20	0,02–0,20	0,02–0,14

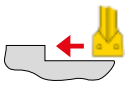
Parting / Grooving



MaxiClick 05
Feed rate f in mm/rev.
0,03–0,10
0,03–0,11

MaxiClick 10

Turning



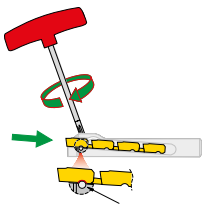
	Depth of Cut a_p in mm				
MaxiClick 10	**0,50**	**0,75**	**1,00**	**1,25**	**1,50**
Cutting width in mm	Feed rate f in mm/rev.				
1,5	0,02–0,20	0,02–0,15	0,02–0,10		
2	0,02–0,20	0,02–0,20	0,02–0,14	0,02–0,10	
2,5	0,02–0,20	0,02–0,20	0,02–0,17	0,02–0,13	0,02–0,10

Parting / Grooving

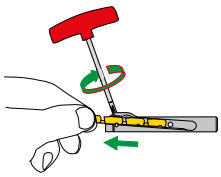


MaxiClick 10
Feed rate f in mm/rev.
0,03–0,11
0,03–0,12
0,03–0,15

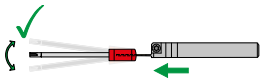
MaxiClick – System function

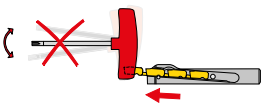


correct insert location in the seat

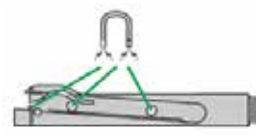


Withdraw cutting insert





Worn-out cutting edge is broken off towards the left or right side

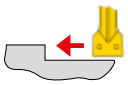


Magnets prevent the cutting insert from falling out of the tool holder during positioning

SX – Depths of cut and feed rates

SX-F2

Turning



Parting / Grooving

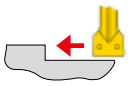


	Depth of Cut a_p in mm								
SX-F2	**0,50**	**0,75**	**1,00**	**1,25**	**1,50**	**1,75**	**2,00**	**2,25**	**2,50**
Cutting width in mm	Feed rate f in mm/rev.								
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10					
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12			
4	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,17	0,05–0,15		

SX-F2
Feed rate f in mm/rev.
0,05–0,15
0,075–0,20
0,10–0,25

SX-M2

Turning



Parting / Grooving

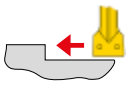


	Depth of Cut a_p in mm							
SX-M2	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Cutting width in mm	Feed rate f in mm/rev.							
2	0,05–0,17	0,05–0,13	0,05–0,10					
3	0,07–0,20	0,07–0,20	0,07–0,18	0,07–0,15				
4	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,22	0,10–0,18			
5	0,12–0,27	0,12–0,27	0,12–0,27	0,12–0,25	0,12–0,22			
6	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,25	0,15–0,20		

SX-M2
Feed rate f in mm/rev.
0,05–0,15
0,075–0,20
0,10–0,25
0,10–0,30
0,15–0,35

SX-27P

Turning



Parting / Grooving



	Depth of Cut a_p in mm							
SX-27P	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Cutting width in mm	Feed rate f in mm/rev.							
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20				
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20			
4	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,25		

SX-27P
Feed rate f in mm/rev.
0,05–0,20
0,05–0,25
0,05–0,30

SX/LX – Depths of cut and feed rates

SX-M1

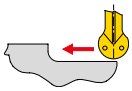
Parting / Grooving



SX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2	0,05–0,15
3	0,10–0,20
4	0,10–0,25
5	0,15–0,30
6	0,15–0,35

SX-M3

Turning



Parting / Grooving

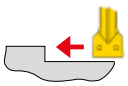


	Depth of Cut a_p in mm							
SX-M3	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius in mm	Feed rate f in mm/rev.							
1,5	0,15–0,35	0,15–0,35	0,15–0,30					
2	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30				
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35			
3	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40		

SX-M3
Feed rate f in mm/rev.
0,05–0,20
0,10–0,25
0,10–0,25
0,10–0,35

LX-M2

Turning



Parting / Grooving

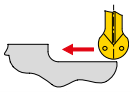


	Depth of Cut a_p in mm							
LX-M2	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Cutting width in mm	Feed rate f in mm/rev.							
8	0,17–0,45	0,17–0,45	0,17–0,45	0,17–0,45	0,17–0,40	0,17–0,37	0,17–0,35	
10	0,20–0,50	0,20–0,50	0,20–0,50	0,20–0,50	0,20–0,46	0,20–0,42	0,20–0,38	0,20–0,35

LX-M2
Feed rate f in mm/rev.
0,20–0,50
0,20–0,50

LX-M3

Turning



Parting / Grooving



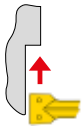
	Depth of Cut a_p in mm							
LX-M3	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius in mm	Feed rate f in mm/rev.							
4	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,70	0,25–0,60	0,25–0,50

LX-M3
Feed rate f in mm/rev.
0,15–0,35

AX/FX – Depths of cut and feed rates

AX-F50

Face turning



	Depth of Cut a_p in mm			
AX-F50	**0,5**	**1,0**	**1,5**	**2,3**
Size	Feed rate f in mm/rev.			
AX 05	0,03–0,10	0,03–0,10		
AX 10	0,03–0,13	0,03–0,13	0,03–0,135	
AX 15	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,15

Axial grooving



1. Plunging	
Feed rate f in mm/rev.	Feed rate f in mm/rev.
0,025–0,080	0,025–0,20
0,025–0,065	0,05–0,25
0,025–0,050	0,05–0,30

FX-F1

Parting / Grooving



FX-F1	
Cutting width in mm	Feed rate f in mm/rev.
2,2	0,025–0,10
3,1	0,05–0,15
4,1	0,05–0,20

FX-M1

Parting / Grooving



FX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2,20	0,05–0,15
3,10	0,08–0,18
4,10	0,10–0,20
5,10	0,15–0,28
6,50	0,15–0,33
8,20	0,20–0,40
9,70	0,20–0,40

FX-27P

Parting / Grooving



FX-27P	
Cutting width in mm	Feed rate f in mm/rev.
2,20	0,01–0,10
3,10	0,015–0,125
4,10	0,05–0,15

FX-R2

Grooving



FX-R2	
Cutting width in mm	Feed rate f in mm/rev.
3,10	0,10–0,275
4,10	0,15–0,35

11

TC – Reference values for profile depth and number of passes

All listed values are guide values for steel machining

Metric ISO 60° external thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	4–8	5–9	6–10	7–11	8–12	9–14	10–18	10–18	12–20	12–20	12–20
Thread profile depth in mm	0,32	0,48	0,64	0,8	0,95	1,10	1,26	1,58	1,89	2,21	2,53	2,84	3,16

Metric ISO 60° internal thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	4–8	5–9	6–10	7–11	8–12	9–14	10–18	10–18	12–20	12–20	12–20
Thread profile depth in mm	0,30	0,45	0,59	0,74	0,89	1,02	1,17	1,46	1,76	2,02	2,35	2,64	2,93

Whitworth 55° external and internal thread

TPI	28	26	24	20	19	18	16	14	12	11	10	9	8	7	6	5
Number/cuts	5–8	5–8	5–9	5–9	6–10	6–10	7–11	8–12	9–14	9–14	10–17	10–18	10–18	12–20	12–20	12–20
Thread profile depth in mm	0,60	0,65	0,70	0,84	0,88	0,93	1,05	1,20	1,40	1,53	1,68	1,87	2,11	2,41	2,81	3,37

Partial profile 60° external and internal thread

External	TC 16-2EI-AG60																
	TC 16-1EI-A60									TC 16-2EI-G60				TC 16-3EI-N60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	5–9	6–10	7–11	8–12	9–14	10–15	12–19	8–12	9–14	10–15	12–20	12–20	13–21	14–22	14–22
Thread profile depth in mm	0,33	0,52	0,71	0,90	1,09	1,28	1,47	1,84	2,22	1,23	1,42	1,79	2,17	2,45	2,83	3,21	3,59

Internal	TC 16-2EI-AG60																
	TC 16-1EI-A60									TC 16-2EI-G60				TC 16-3EI-N60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	5–9	6–10	7–11	8–12	9–14	10–15	12–19	8–12	9–14	10–15	12–20	12–20	13–21	14–22	14–22
Thread profile depth in mm	0,27	0,44	0,60	0,76	0,92	1,09	1,25	1,57	1,90	1,04	1,20	1,52	1,85	2,07	2,40	2,72	3,05

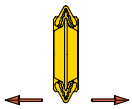
Partial profile 55° external and internal thread

External	TC 16-2EI-AG55												
	TC 16-1EI-A55												
TPI	28	26	24	20	19	18	16	14	12	11	10	9	8
Number/cuts	5–8	5–8	6–9	6–9	7–12	7–12	8–14	9–14	10–16	10–16	11–18	12–20	12–20
Thread profile depth in mm	0,66	0,72	0,79	0,95	1,01	1,07	1,21	1,39	1,63	1,79	1,97	2,20	2,48

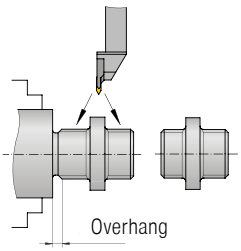
Internal	TC 16-2EI-G55						TC 16-3EI-N55		
TPI	14	12	11	10	9	8	7	6	5
Number/cuts	8–12	9–14	10–15	11–18	12–20	12–20	12–20	12–20	14–22
Thread profile depth in mm	1,22	1,46	1,56	1,80	2,03	2,31	2,40	2,89	3,56

Comparison threading system with TC and conventional

TC

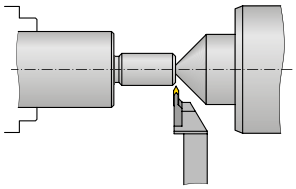


- Neutral configuration of insert makes operation in both directions possible
- Only one threading insert per pitch for partial profile and Whitworth thread; only two threading inserts (internal - external) per pitch for ISO threads
- Reduced stock holding
- good chip formation due to chip breaker with rake angle + 10°

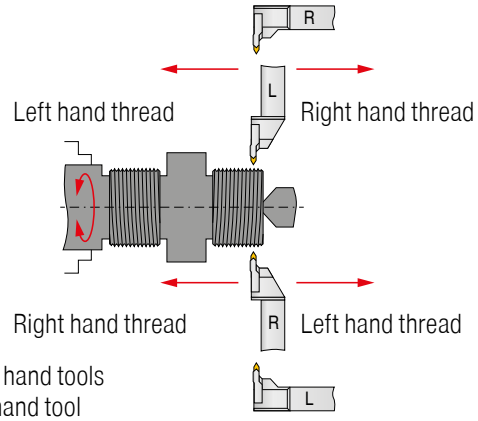


Greater efficiency through:

- shorter operating time
- Less tool changing
- High stability wih small overhang
- Material saving
- Thread turning between shoulders
- Fewer tools and indexable inserts



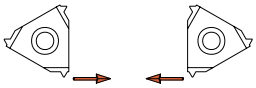
- Very good access to workpiece, therefore use of tailstock also possible with small thread diameters



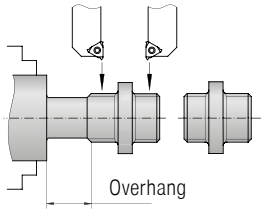
R = Right hand tools
L = Left hand tool

- ease of use, as the tools have no pitch angle correction they can be used in both directions

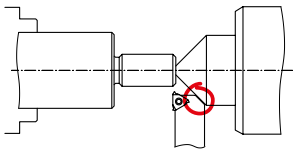
Conventional



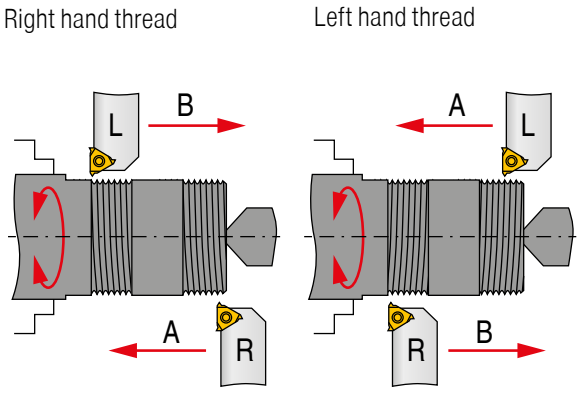
- Right-hand and left-hand version of indexable insert, therefore operation only in one direction
- For every pitch 4 threading inserts are necessary (right – left, internal – external)



- For this machining method 2 tools are required
- additional material and stability loss with large overhang



- poor accessibility
- Collision danger

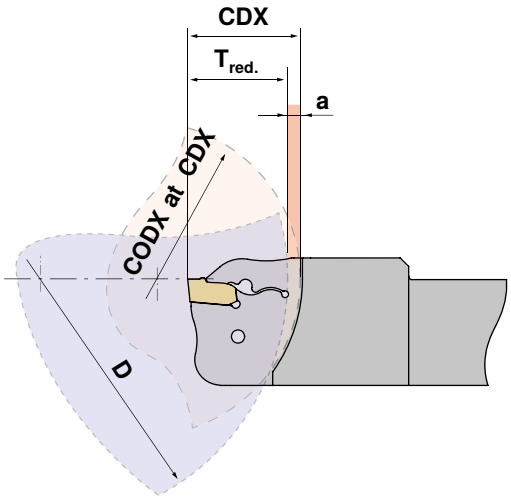


- With conventional thread turning the correction of the helix angle is necessary, therefore a high degree of application know-how is required
- Can only be operated in one direction

11

ModularClamp

GX | SX | LX | FX



The ModularClamp grooving modules are matched according to size on a particular workpiece diameter CODX. If the diameter of the workpiece is greater than CODX of the grooving Modules, this reduces the achievable penetration depth by the dimension „a“. The extent of reduction can be determined with the following table.

CDX	maximum plunge depth in mm
CDOX	maximum workpiece Ø with full penetration depth in mm
a	Reduction amount in mm

$T_{red.} = CDX - a$

Grooving depth reduction

	Reduction a (mm) of the maximum grooving depth (CDX)																
Size		0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	6,5	7,0	7,5	8,0
E12	35	40	45	60	75	115	>250										
E16	50	55	60	70	80	100	130	200	>420								
E20	60	65	70	75	85	95	110	130	165	220	>330						
E25	75	80	85	90	100	110	125	140	160	190	240	320	>500				
E32	95	100	105	110	120	125	135	145	160	180	200	225	270	320	400	530	>800
	Workpiece diameter D (mm)																

Maximum workpiece diameter (CODX) with full penetration depth (CDX) in mm

Calculation example:

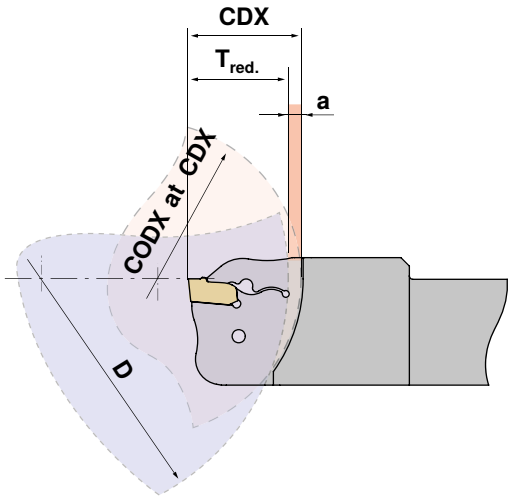
E25R**21**-GX24-3

Size 25 — CDX = 21 mm, Ø 75 mm

D = Ø 100 mm — CDX–a = $T_{red.}$ 21–2 = 19 mm

MonoClamp

SX



Depending on the groove width and shank size, the MonoClamp tools are designed for use with a specific workpiece diameter CDOX. If the workpiece diameter is larger than the CDOX of the grooving module, the achievable groove depth is reduced by the dimension „a“. The extent of the reduction is determined using the following table.

CDX maximum plunge depth in mm
CDOX maximum workpiece Ø with full penetration depth in mm
a Reduction amount in mm

$T_{red.} = CDX - a$

Grooving depth reduction

	Reduction a (mm) of the maximum grooving depth (CDX)																
Shank	0	0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8
E12R/L0022...	44	70	80	95	115	150	225	>450									
E16R/L0026...	52	90	105	125	155	210	305	>600									
E20R/L0026...	52	110	125	140	160	195	240	320	475	>950							
E20R/L0033...	66	110	125	140	160	195	240	320	475	>950							
E25R/L0026...	52	140	160	190	235	310	465	>930									
E25R/L0033...	66	155	175	200	230	275	340	450	675	>1350							
E25R/L0040...	80	155	175	200	230	275	340	450	675	>1350							
	Workpiece diameter D (mm)																

Maximum workpiece diameter (CODX) with full penetration depth (CDX) in mm

Calculation example:

E25R0033...

CDX = 33 mm, Ø 66 mm

D = Ø 200 mm	CDX–a = $T_{red.}$ 33–1,5 = 31,5 mm

Clamping Method – SX-System

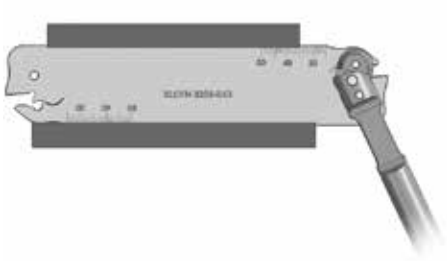
System function – inserting and removing the cutting inserts

Precision system for internal and external grooving.

The key has been designed in such a way that it will not stress the material beyond its 'elastic limit'.

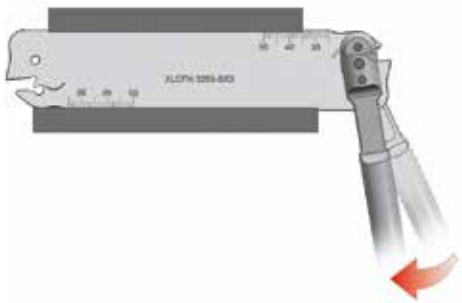
With this alternate system the material always remains in its flexible range and provides a substantial increase in tool life.

1



Locate wrench into blade with pins located in two holes

2



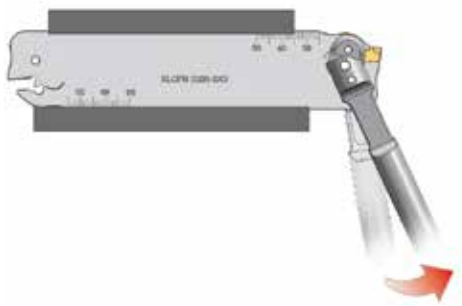
Movement of the fitting key in the direction of the insert seat opens the tool.

3



Load the grooving insert into position and press against the seat.

4



Moving the key forward causes the insert seat to close and clamp the insert.

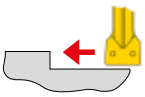
When changing the inserts, always maintain tension on the key!

The clamp is designed so that the wrench can be inserted from both sides of the blade according to the accessibility.



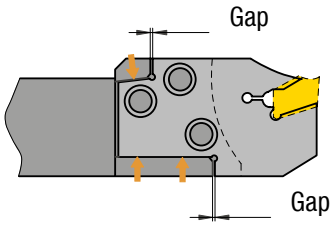
Maximum blade projection when turning

Blade	max. overhang
SX 2 – SX 3	25 mm
SX 4 – SX 5	30 mm
SX 6	35 mm



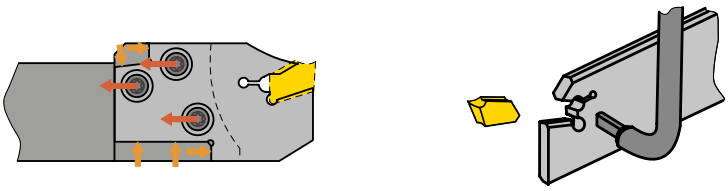
Clamping function – ModularClamp-Module

Module unclamped



- Gap between module and support face for axial clamping

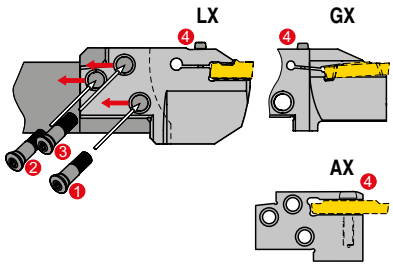
Module clamped



- Axial clamping with support face
- Connection free from play, therefore maximum stability

GX LX AX

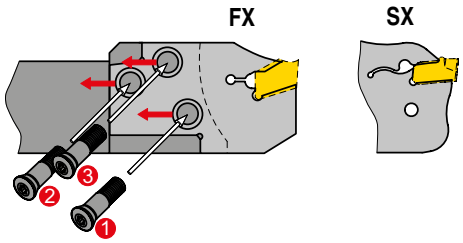
Active insert clamping



Clamping screws 1, 2 and 3 are used to clamp the modules.
The insert is clamped in the module via the additional screw 4.

FX SX

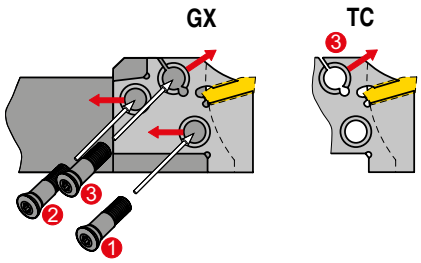
Self clamping of the insert



Clamping screws 1, 2 and 3 are used for clamping the module.
The insert is self-clamping.

GX TC

Active insert clamping

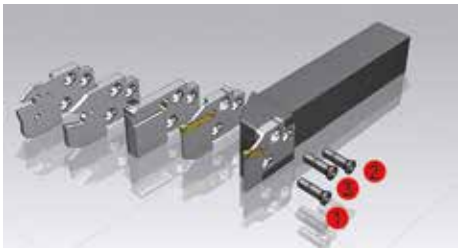


Clamping screws 1 and 2 are used for clamping the module.
Important: first tighten clamp screws 1 and 2.
Then clamp the insert with screw 3.

11

Torque Moment ModularClamp Module Screws

ModularClamp – Tool holder



Order for the pre-and tightening of the screws!

ModularClamp – Tool holder	Screw	Torx	Torque	
			Nm	in.lbs
E12..	M2,5x10	T08	1,2	10,6
E16..	M3,5x12,5	T15	3,2	28,3
E20..	M4x14	T15	4,0	35,4
E25..	M5x18	T20	5,0	44,3
E32..	M6x20	T25	6,0	53,1

ModularClamp – Boring bar



Order for the pre-and tightening of the screws!

ModularClamp – Boring bar	Screw	Torx	Torque	
			Nm	in.lbs
I16..	M2,5x10	T08	1,2	10,6
I20..	M3x11	T10	2,0	17,7
I25..	M3,5x12,5	T15	3,2	28,3
I32..	M4,5x17	T20	4,0	35,4
I40..	M5x18	T20	5,0	44,3

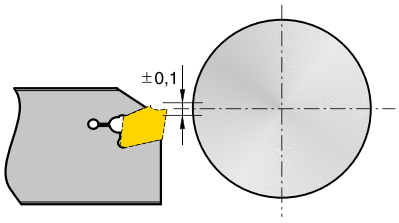
Tightening torque for the insert clamping

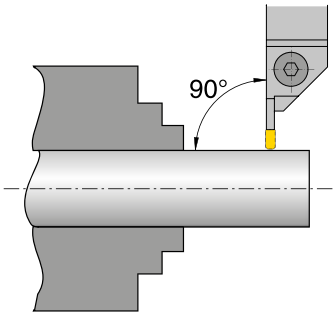
Recommended tightening torque

Grooving systems	Screw	Torx	Torque	
			Nm	in.lbs
GX / AX / LX	M3,5	T15	3,2	28,3
	M4,0	T15/T20	4,0	35,4
	M5,0	T20	5,0	44,3

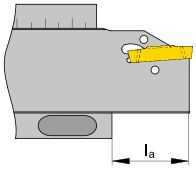
General references

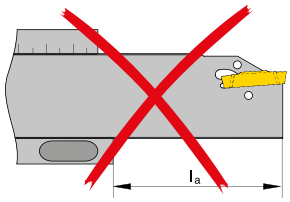
Tool position

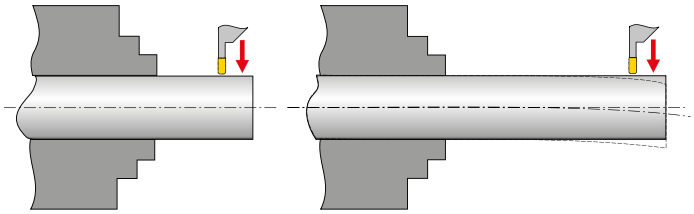




Tool overhang

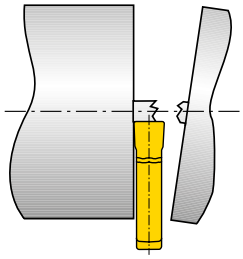




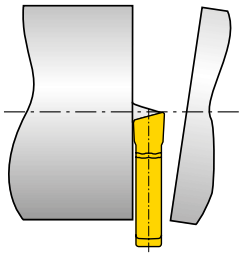


As a rule of thumb: Overhang l_a should not be greater than 8xs (Groove width).

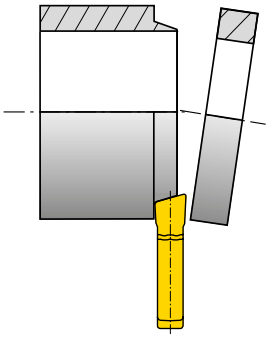
References for Parting off



From Ø 5 mm on, reduce feed „f“ by approx. 50 %. No parting across centre (risk of breakage).

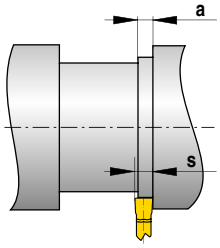


For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20–50 %.

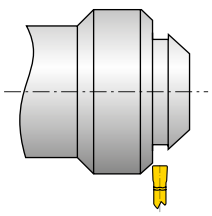


In order to prevent ring formation, use R or L inserts. Reduce feed „f“ because of lateral deflection by approx. 20–50 %.

References for grooving

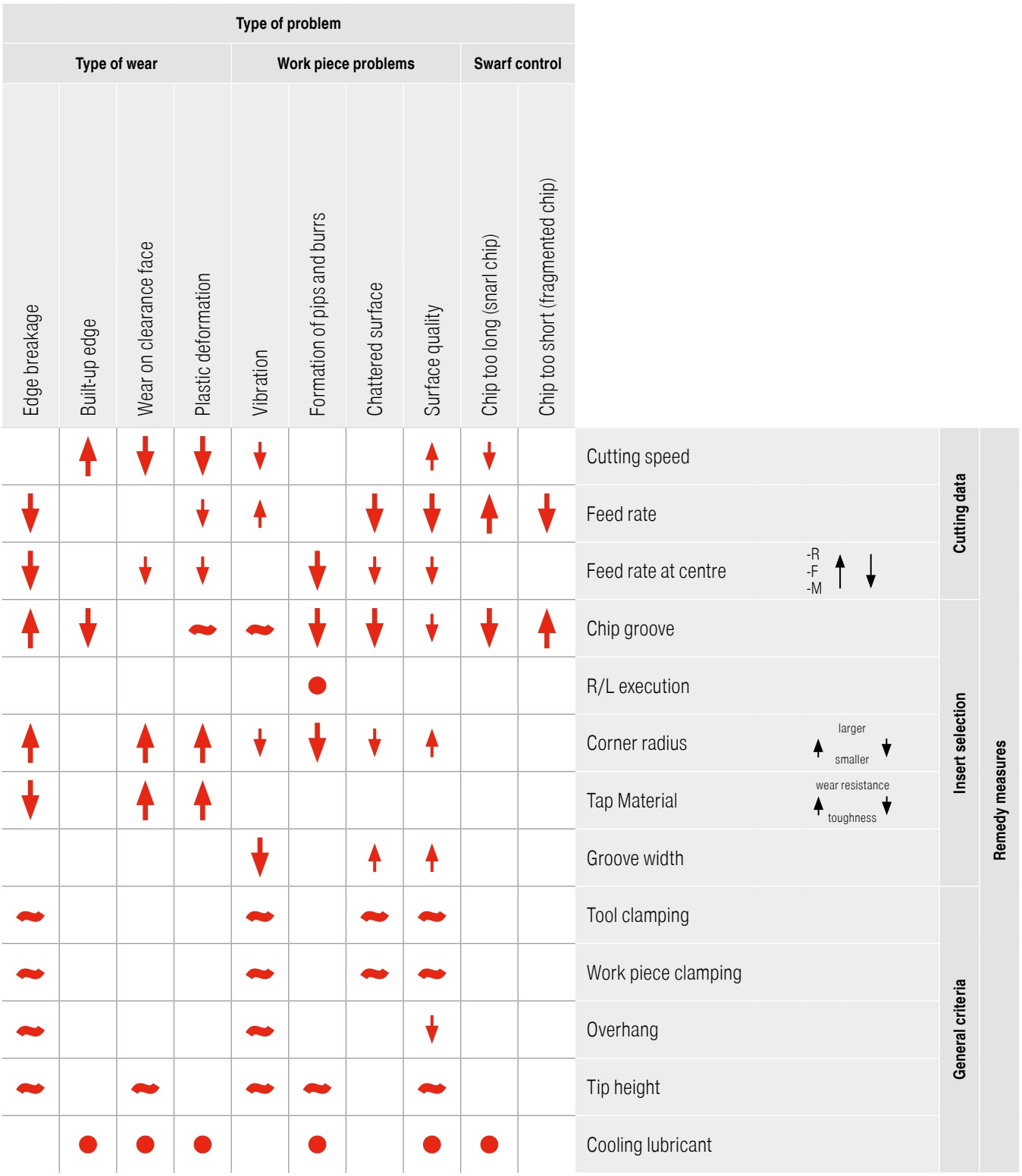


When grooving with an axial displacement the width **„a“** should amount to at least 70 % of the grooving width **„s“**.



When grooving oblique surfaces the feed should be reduced by approx. 20–50 % until fully engaged.

Trouble shooting guide for grooving FX/SX/GX/LX



raise, increase large influence

raise, increase small influence

avoid, reduce large influence

avoid, reduce small influence

check, optimise

use

Trouble shooting guide for TC threading

Type of problem												
Type of wear				Workpiece				Swarf control				
Wear on clearance face	Break out cut	Plastic deformation	Built-up edge	Formation of a shoulder at the external thread Ø	Profile	Surface quality	Chatter marks, vibrations	Chip too thick	Chip too thin	Chip shape (snarl chip)		
↓		↓	↑			↑	↓				Cutting speed	Cutting data
a, b	a, b		a, b	a, b		a, b	a, b	a, b		a, b	Feed (a – over the flanks; b – Alternating flanks)	Cutting data
↑	↓	↓		↓	↓	↓	↓	↓	↑	~	Feed (Cutting depth)	Cutting data
↓	↑	↑		~	~	↑	~	↑	↓	↓	Number of passes	Cutting data
				●	●	●					Spring cut (Air cut)	Cutting data
			●			●	●			●	Chip groove	Indexable insert selection
↑	↓	↑									Tap Material (wear resistance ↑ ↓ toughness)	Indexable insert selection
				●	●	●					Full profile	Indexable insert selection
											Partial profile	Indexable insert selection
	~					~	~				Stable tool holder / insert	Various criteria
	~					~	~				Stable workpiece	Various criteria
	↓					↓	↓				Overhang	Various criteria
~	~	~			~	~	~				Tip height	Various criteria
●	●	●	●	●		●					Cooling lubricant	Various criteria

Remedy measures

11

↑ raise, increase large influence
↑ raise, increase small influence
↓ avoid, reduce large influence
↓ avoid, reduce small influence
~ check, optimise
● use

Wear causes

Wear on clearance face



Abrasion on the flank, normal wear after a given operation time.

Cause

- cutting speed too high
- grade with too low wear resistance
- insufficient coolant

Remedy

- Reduce the cutting speed
- select a more wear resistant grade
- Improve/check coolant feed

Edge chipping



Excessive mechanical stress on the cutting edge causing carbide particles to break out.

Cause

- too hard grade
- vibration
- too high feed and depth of cut
- chip impact

Remedy

- use tougher grade
- use negative geometry with chip breaker
- reduce overhang, check center height
- stabilize the cutting edge

Cratering



The outgoing hot chip causes cratering of the insert on the clamping surface.

Cause

- too high cutting speed, feed, or both
- too low rake angle
- grade with too low wear resistance
- incorrectly supplied cooling

Remedy

- Reduce cutting speed and / or feed
- Check coolant flow and / or increase pressure
- Use harder grade

Plastic deformation



Large mechanical load produces high temperature machining, this can lead to plastic deformation.

Cause

- too high operating temperature, thus softening the base material
- unsuitable grade
- inadequate coolant supply

Remedy

- Reduce the cutting speed
- select a more wear resistant grade
- use coolant

Built-up edge



Weld deposits of material on the cutting edge occurs when the chip does not flow caused by low average temperature.

Cause

- too low cutting speed
- too low rake angle
- Incorrect grade
- lack of cooling / lubrication

Remedy

- Increase the cutting speed
- Increase rake angle
- Use TiN coating
- increase coolant strength

Notch wear



Contraction at maximum cutting depth.

Cause

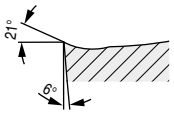
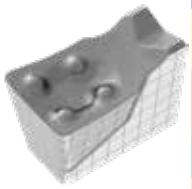
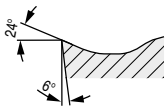
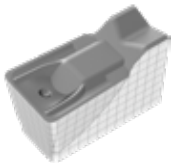
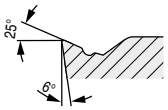
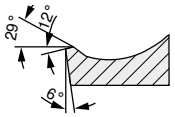
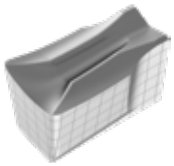
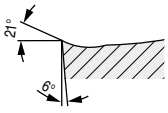
- Oxidation at the cutting edge
- Too high a temperature at the edge

Remedy

- Use different cutting depths
- Reduce cutting speed
- Improve/check coolant feed

Chip breakers / Applications

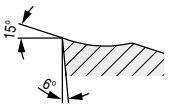
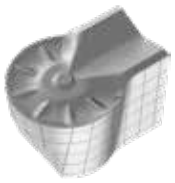
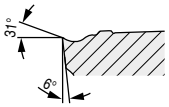
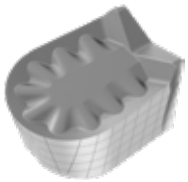
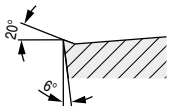
System GX

		smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTCP325 (HCR1325)** **CTP1340 (CCN1340)** CTCP325 (HCR1325) CTP1340 (CCN1340)	**CTP1340 (CCN1340)** **CTP1340/CTPP345 (CCN1340/HCN1345)** CTP1340 (CCN1340) CTP1340 (CCN1340)	**CTPP345 (HCN1345)** **CTPP345 (HCN1345)** CTPP345 (HCN1345)		0,05–0,15
-Standard / -E ▲ positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ universal application ▲ first choice for axial grooving		**CTCP325 (HCR1325)** **CTP1340 (CCN1340)** CTCP325 (HCR1325) CTP1340 (CCN1340)	**CTCP335/CTP1340 (HCR1335/CCN1340)** **CTP1340/CTPP345 (CCN1340/HCN1345)** **CTCP335/CTP1340 (HCR1335/CCN1340)** CTP1340 (CCN1340)	CTPP345 (HCN1345) CTPP345 (HCN1345) **CTP1340 (CCN1340)** CTPP345 (HCN1345)		0,05–0,17
-M40 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325 (HCR1325)** CTP1340 (CCN1340) **CTCP325 (HCR1325)** CTP1340 (CCN1340)	**CTP1340 (CCN1340)** CTP1340/CTPP345 (CCN1340/HCN1345) **CTCP325/CTP1340 (HCR1325/CCN1340)** CTP1340 (CCN1340)	**CTPP345 (HCN1345)** CTPP345 (HCN1345) **CTP1340 (CCN1340)** CTPP345 (HCN1345)		0,075–0,20
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		**CTCP325 (HCR1325)** CTP1340 (CCN1340) **CTCP325 (HCR1325)** CTP1340 (CCN1340)	**CTP1340 (CCN1340)** CTP1340/CTPP345 (CCN1340/HCN1345) **CTCP325/CTP1340 (HCR1325/CCN1340)** CTP1340 (CCN1340)	**CTPP345 (HCN1345)** CTPP345 (HCN1345) **CTP1340 (CCN1340)** CTPP345 (HCN1345)		0,1–0,20
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 H216T (CWK26) 	 H216T (CWK26) 	 H216T (CWK26) 		0,05–0,25

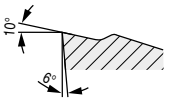
11

Chip breakers / Applications

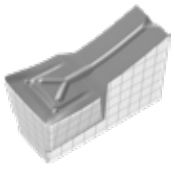
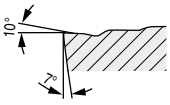
System GX

		smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
Standard – Radius ▲ positive geometry ▲ honed cutting edge ▲ low-medium feed rates ▲ low cutting forces ▲ Radius grooving/copy turning		**CTCP325 (HCR1325)** **CTP1340 (CCN1340)** CTCP325 (HCR1325) CTP1340 (CCN1340)	**CTCP325/CTP1340 (HCR1325/CCN1340)** **CTP1340 (CCN1340)** **CTCP325/CTP1340 (HCR1325/CCN1340)** CTP1340 (CCN1340)	**CTP1340 (CCN1340)** CTP1340 (CCN1340) **CTP1340 (CCN1340)**		0,05–0,20
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		**CTCP325 (HCR1325)** CTCP335 (HCR1335) **CTCP325 (HCR1325)**	**CTCP325/CTCP335 HCR1325/HCR1335** CTCP335 (HCR1335) **CTCP325/CTCP335 (HCR1325/HCR1335)**	**CTCP335 (HCR1335)** **CTCP335 (HCR1335)**		0,07–0,20
-27P – Radius ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		**H216T (CWK26)**	**H216T (CWK26)**	**H216T (CWK26)**		0,05–0,30

Circlip grooving

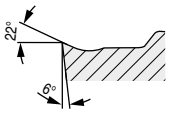
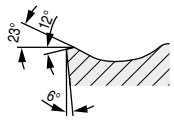
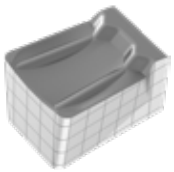
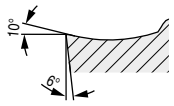
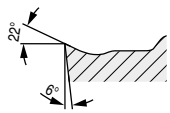
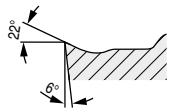
Standard ▲ positive geometry ▲ honed cuttign edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		**CTP1340 (CCN1340)** **CTP1340 (CCN1340)** **CCN1340 (CCN1340)** CTP1340 (CCN1340) CTP1340 (CCN1340)	**CTP1340 (CCN1340)** **CTP1340 (CCN1340)** **CTP1340 (CCN1340)** CTP1340 (CCN1340) CTP1340 (CCN1340)			0,05–0,30

System AX

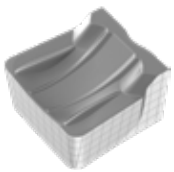
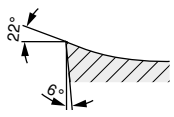
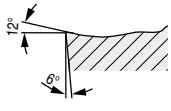
-F50 ▲ positive geometry ▲ honed cuttign edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		**CTP1340 (CCN1340)** **CTP1340 (CCN1340)** **CCN1340 (CCN1340)** CTP1340 (CCN1340) CTP1340 (CCN1340)	**CTP1340 (CCN1340)** **CTP1340 (CCN1340)** **CCN1340 (CCN1340)** CTP1340 (CCN1340) CTP1340 (CCN1340)			0,025–0,125

Chip breakers / Applications

System SX

		smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTP1340 (CCN1340)** **CTP1340 (CCN1340)** CTCP325 (HCR1325) CTP1340 (CCN1340)	**CTP1340 (CCN1340)** **CTP1340/CTPP345 (CCN1340/HCN1345)** CTP1340 (CCN1340) CTP1340/CTPP345 (CCN1340/HCN1345)	**CTPP345 (HCN1345)** **CTPP345 (HCN1345)**		0,05–0,15
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		**CTCP325 (HCR1325)** CTCP335 (HCR1335) **CTCP325 (HCR1325)** CTP1340 (CCN1340)	**CTCP335/CTP1340 (HCR1335/CCN1340)** CTP1340 (CCN1340) **CTCP325 (HCR1325)** CTP1340 (CCN1340)	**CTPP345 (HCN1345)** CTPP345 (HCN1345) **CTCP325 (HCR1325)** CTPP345 (HCN1345)		0,10–0,20
-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325 (HCR1325)** CTCP335 (HCR1335) CTCP325 (HCR1325) CTP1340 (CCN1340)	**CTCP335/CTP1340 (HCR1335/CCN1340)** CTP1340 (CCN1340) CTCP325 (HCR1325) CTP1340 (CCN1340)	**CTPP345 (HCN1345)** CTPP345 (HCN1345) CTCP335 (HCR1335) CTPP345 (HCN1345)		0,075–0,20
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		H216T (CWK26)	H216T (CWK26)	H216T (CWK26)		0,05–0,25
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving / Copy turning		**CTCP335 (HCR1335)** **CTCP335 (HCR1335)** **CTCP335 (HCR1335)** CTP1340 (CCN1340)	**CTCP335/CTP1340 (HCR1335/CCN1340)** **CTCP335/CTP1340 (HCR1335/CCN1340)** **CTCP335/CTP1340 (HCR1335/CCN1340)** CTP1340 (CCN1340)	**CTP1340 (CCN1340)** **CTP1340 (CCN1340)** **CTP1340 (CCN1340)** CTP1340 (CCN1340)		0,05–0,20

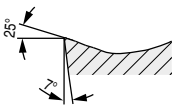
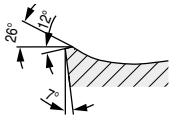
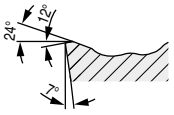
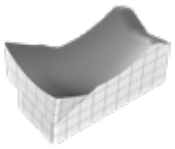
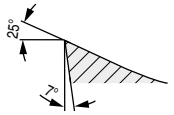
System LX

-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325 (HCR1325)** CTCP335 (HCR1335) **CTCP325 (HCR1325)** CTP1340 (CCN1340)	**CTCP335/CTP1340 (HCR1335/CCN1340)** CTP1340 (CCN1340) **CTCP325 (HCR1325)** CTP1340 (CCN1340)	**CTCP335 (HCR1335)** CTP1340 (CCN1340) **CTCP335 (HCR1335)** CTP1340 (CCN1340)		0,20–0,50
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		**CTCP325 (HCR1325)** **CTCP335 (HCR1335)** **CTCP325 (HCR1325)** CTP1340 (CCN1340)	**CTCP335/CTP1340 (HCR1335/CCN1340)** **CTCP335/CTP1340 (HCR1335/CCN1340)** **CTCP335/CTP1340 (HCR1335/CCN1340)** CTP1340 (CCN1340)	**CTP1340 (CCN1340)** **CTP1340 (CCN1340)** **CTP1340 (CCN1340)** CTP1340 (CCN1340)		0,15–0,35

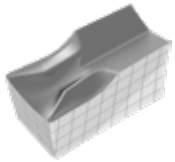
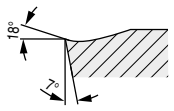
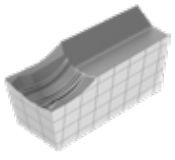
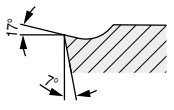
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Chip breakers / Applications

System FX

		smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-F1 ▲ very positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ good chip control ▲ low cutting edge build up		**CTCP325 (HCR1325)** **CTP1340 (CCN1340)** CTCP325 (HCR1325) CTP1340 (CCN1340)	**CTP1340 (CCN1340)** **CTP1340/CTPP345 (CCN1340/HCN1345)** CTCP325/CTP1340 (HCR1325/CCN1340) CTP1340/CTPP345 (CCN1340/HCN1345)	**CTPP345 (HCN1345)** **CTPP345 (HCN1345)** CTPP345 (HCN1345)		0,05–0,15
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		**CTCP325 (HCR1325)** **CTCP335 (HCR1335)** CTCP325 (HCR1325) CTP1340 (CCN1340)	**CTCP335/CTP1340 (HCR1335/CCN1340)** **CTP1340 (CCN1340)** **CTCP325 (HCR1325)** CTP1340 (CCN1340)	**CTPP345 (HCN1345)** CTPP345 (HCN1345) **CTCP325 (HCR1325)** CTPP345 (HCN1345)		0,08–0,20
-R2 ▲ very stable cutting edge ▲ high feed rates ▲ good chip control		**CTCP325 (HCR1325)** CTP1340 (CCN1340) **CTCP325 (HCR1325)** CTP1340 (CCN1340)	**CTP1340 (CCN1340)** CTP1340/CTPP345 (CCN1340/HCN1345) **CTCP325/CTP1340 (HCR1325/CCN1340)** CTP1340/CTPP345 (CCN1340/HCN1345)	**CTPP345 (HCN1345)** CTPP345 (HCN1345) CTPP345 (HCN1345)		0,10–0,27
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T (CWK26)** 	 **H216T (CWK26)** 	 **H216T (CWK26)** 		0,03–0,13

System MC

-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTP1340 (CCN1340)** **CTP1340 (CCN1340)** CTP1340 (CCN1340) CTP1340 (CCN1340) **CTP1340 (CCN1340)**	**CTP1340 (CCN1340)** **CTP1340 (CCN1340)** CTP1340 (CCN1340) CTP1340 (CCN1340) **CTP1340 (CCN1340)**	**CTP1340 (CCN1340)** **CTP1340 (CCN1340)** CTP1340 (CCN1340) 		0,05–0,10
-F3 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ reduced burrs / edge build up		**CTP1340 (CCN1340)** **CTP1340 (CCN1340)** CTP1340 (CCN1340) CTP1340 (CCN1340) **CTP1340 (CCN1340)**	**CTP1340 (CCN1340)** **CTP1340 (CCN1340)** CTP1340 (CCN1340) CTP1340 (CCN1340) **CTP1340 (CCN1340)**	 		0,02–0,06

Example of Coding Grooving Tools

Grooving insert

GX	16	2	E	3.00	N	0.50
Grooving system (GX)	Insert length (16 mm)	Width class of the holder / module or support surface (2 mm)	Type of insert, application	Groove width (3.0 mm)	Insert seat N = Neutral L = Left Handed R = Right Handed	Corner radius size (0.5 mm)

Module

E	25	R	12	GX	16	2
Application E = external I = internal	Size (25 mm)	Module version R = Right Handed L = Left Handed	Maximum groove depth (12 mm)	Grooving system (GX)	Insert size (16 mm)	Width class 2

Basic holder

E	25	R	00	2525	L
Application E = external I = internal	Size (25 mm)	Holder version R = Right Handed L = Left Handed	Approach angle 0°	Shank type 25x25mm	Shank length L = (sh. ISO)

Monobloc tool holder

E	25	R	00	33	2525	M	K	DC	SX3
Application E = external I = internal	Size (25 mm)	Holder version R = Right Handed L = Left Handed	Approach angle 0°	Groove depth (33 mm)	Shank type 25x25mm	Shank length M = (sh. ISO)	Insert clamping K = Key	Cooling system DC = DirectCooling	Grooving system/ width (3.0 mm)

Compilation

Basic holder	Module	Grooving insert
E25 R 00 - 2525L	E25 R 12 - GX 16-2	GX 16-2 E3.00 N 0.50

Grades Overview

CTCP325 / HCR1325
- ▲ Carbide, TiCN-Al_2O_3-coated
- ▲ ISO | **P25 I K30** | M20
- ▲ The wear-resistant solution for steel and cast iron materials at high cutting speeds

CTCP335 / HCR1335
- ▲ Carbide, TiCN-Al_2O_3-coated
- ▲ ISO | **P35** | M30 | **K35**
- ▲ The reliable choice for machining steel and cast iron materials

CTPP345 / HCN1345
- ▲ Carbide, TiAlTaN-coated
- ▲ ISO | **P45** | **M40** | S40
- ▲ The reliable solution for steel materials and austenitic steels under unstable conditions

CTP1340 / CCN1340
- ▲ Carbide, TiAlTaN-coated
- ▲ ISO | **P30** | **M25** | **K30** | **S30** | N30
- ▲ The universal high-performance grade for steel materials, austenitic steel, cast iron materials and heat-resistant alloys

CTPP520 / DPX1520
- ▲ Carbide, TiAlTaN-coated
- ▲ ISO | **P20** | **M15** | **K25** | N25 | S25
- ▲ The wear-resistant grade for wet machining of steels

CTPP535 / DPX1535
- ▲ Carbide, AlTiN-coated
- ▲ ISO | **P35** | **M30** | **S30** | N30
- ▲ The tough thread turning grade for universal application

H216T / CWK26
- ▲ Carbide, uncoated
- ▲ ISO | **K15** | **N15**
- ▲ The uncoated carbide grade for machining aluminium and other non-ferrous metals
- ▲ Also highly suitable for HSC machining

CWX500
- ▲ Carbide, TiAlN-coated
- ▲ ISO | **K30**
- ▲ The universal carbide grade for almost all materials

Application

Grade designation		Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant alloys S
Grooving								
CTCP325 (HCR1325)	DRAGONSKIN	HC-P25		●				
		HC-M20			○			
		HC-K30				●		
CTCP335 (HCR1335)	DRAGONSKIN	HC-P35		●				
		HC-K35			●			
		HC-M30				○		
CTPP345 (HCN1345)	DRAGONSKIN	HC-P45		●				
		HC-M40			●			
		HC-S40						○
CTP1340 (CCN1340)	DRAGONSKIN	HC-P30		●				
		HC-M25			●			
		HC-K30				●		
		HC-N30					○	
		HC-S30						●
H216T (CWK26)		HW-K15				●		
		HW-N15					●	
TC thread								
CTPP520 (DPX1520)	DRAGONSKIN	HC-P20		●				
		HC-M15			●			
		HC-K25				●		
		HC-N25					○	
		HC-S25						○
CTPP535 (DPX1535)	DRAGONSKIN	HC-P35		●				
		HC-M30			●			
		HC-N30					○	
		HC-S30						●
H216T (CWK26)		HW-K15				●		
		HW-N15					●	

ISO application range: 01 05 10 15 20 25 30 35 40 45 50

● Main Application
○ Extended application

wear-resistant v_c+ ○ ◌ v_c– tough

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Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut
11 Grooving Tools
12 Miniature turning tools 12

Milling

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

Tool Clamping

16 Adapters
17 Accessories

18 Material examples and article no. index

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Toolfinder	2+3
Product programme	
UltraMini	4–35
MiniCut	36–54
UltraMini + MiniCut Hard Turning	8+37
SlotCut – Broaching	55–58
Technical Information	
Coatings and thread types	59–61
Broaching – Recommendations for Correct Use	62
Cutting Data	63

WNT \ Performance

Premium quality tools for high performance.

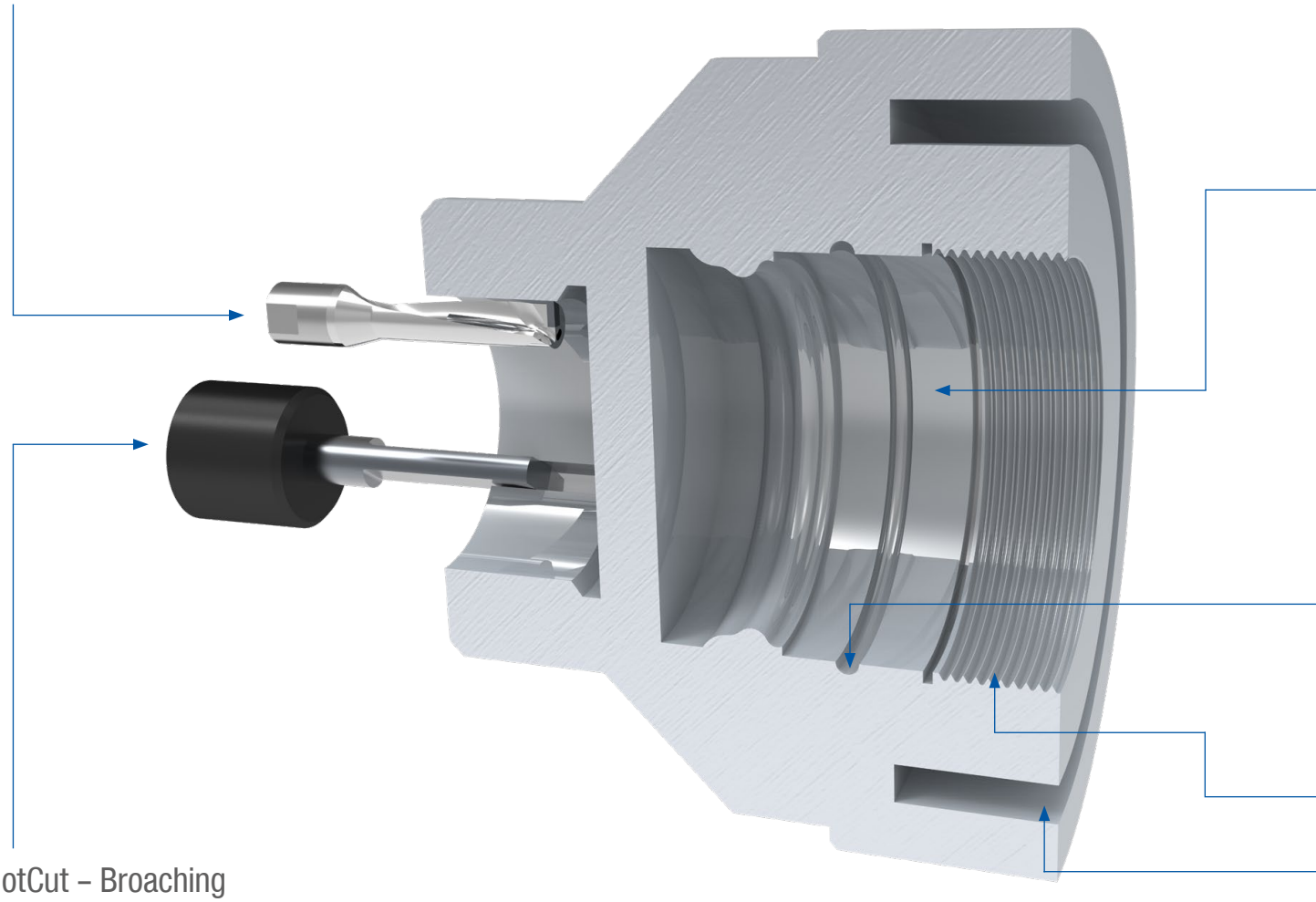
The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools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

Toolfinder

EcoCut Mini

From Ø 2 mm

Inserts and tool holders can be found in → **Chapter 10 – EcoCut**



SlotCut – Broaching

Inserts + Holder DIN138 55–58

System overview

UltraMini



- from Ø 0.5 mm
- flexible system
- ground inserts
- high repeatability
- coolant supply to the cutting edge

MiniCut



- from Ø 7.8 mm
- stable three-rib interface
- easy handling
- coolant supply to the cutting edge
- precise cutting edge position

SlotCut

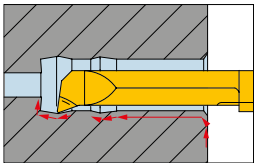


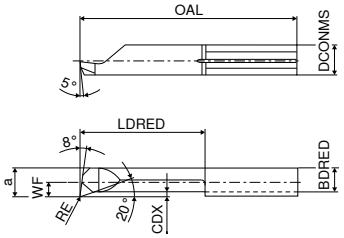
- broaching directly on the machine
- usable from Ø 6 mm
- low machine load
- variety of tolerance classes

Hole diameter in mm		UltraMini										MiniCut					
			≥ 0,5	≥ 2	≥ 2,4	≥ 2,8	≥ 3	≥ 4	≥ 5	≥ 6	≥ 8	≥ 16		≥ 8	≥ 9	≥ 11	≥ 14	≥ 16
Internal turning and profiling			4–7	4–7	4–7	4–7		4–7	4–7	4–7				36	36	36	36	36
Internal turning and profiling – hard turning				8		8		8	8	8				37		37	37	37
High-feed turning				10			10	10	10	10								
Turning and profile turning – super alloys				9		9		9	9	9								
Internal turning						11		11	11					38	38	38	38	38
Back boring							12	12	12	12				39	39	39	39	
Turning and chamfering									13	13				39	39	39	39	
Pre-parting and chamfering								13	13	13				40	40	40	40	40
Groove turning				14–16			14–16	14–16	14–16	14–16				41+42	40	40	40	40
Internal Undercuts				17		17		17	17	17				43	43	43	43	43
Groove and profile turning								18	18	18				44	44	44	44	44
Internal thread turning					19–22			19–22	19–22	19–22				45–48	45–48	45–48	45–48	45–48
Axial grooving									23–28	23–28	23–28	23–28		49+50	49+50	49+50	49+50	49+50
Suitable holder								31–35								51–54		
Sets								29+30								50		

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UltraMini – Inserts for internal turning and profiling













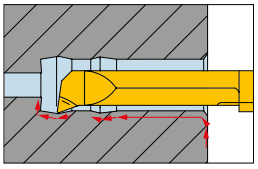
Illustrations show right-hand versions

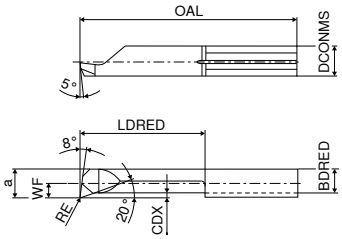
Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	Left-hand Article no. 73 005 ...	Right-hand Article no. 73 004 ...	Left-hand Article no. 73 005 ...	Right-hand Article no. 73 004 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 050.05-2	4		0,5	0,4	20	2	0,03	0,32	0,02	645.00..-D	500	500		
R/L 050.06-2	4		0,6	0,5	20	2	0,05	0,40	0,04	645.00..-D	510	510		
R/L 050.06-3	4		0,6	0,5	20	3	0,05	0,40	0,04	645.00..-D	511	511		
R/L 050.08-4	4		0,8	0,7	20	4	0,05	0,60	0,04	645.00..-D			812	812
R/L 050.1-8	4		1,0	0,9	22	8	0,10	0,75	0,05	645.00..-D			813	813
R/L 050.15-5	4		1,5	1,3	19	5	0,10	1,15	0,05	645.00..-D	515	515		
R/L 050.15-10	4		1,5	1,3	24	10	0,10	1,15	0,05	645.00..-D	516	516		
R/L 050.15-12	4		1,5	1,3	26	12	0,10	1,15	0,05	645.00..-D			818	818
R/L 050.2-5	4		2,0	1,7	19	5	0,10	1,50	0,05	645.00..-D	520	520		
R/L 050.2-10	4		2,0	1,7	24	10	0,10	1,50	0,05	645.00..-D	521	521		
R/L 050.2-15	4		2,0	1,7	29	15	0,10	1,50	0,05	645.00..-D	522	522		
R/L 050.3-10	4	0,6	2,8	2,6	24	10	0,20	2,30	0,10	645.00..-D	531	531		
R/L 050.3-16	4	0,6	2,8	2,6	30	16	0,20	2,30	0,10	645.00..-D	530	530		
R/L 050.3-20	4	0,6	2,8	2,6	34	20	0,20	2,30	0,10	645.00..-D	532	532		
R/L 050.35-10	4	1,1	3,5	3,1	24	10	0,25	2,80	0,10	645.00..-D			835	835
R/L 050.35-16	4	1,1	3,5	3,1	30	16	0,25	2,80	0,10	645.00..-D			836	836
R/L 050.35-20	4	1,1	3,5	3,1	34	20	0,25	2,80	0,10	645.00..-D			837	837
R/L 050.35-24	4	1,1	3,5	3,1	38	24	0,25	2,80	0,10	645.00..-D			838	838
R/L 050.4-10	4	1,5	4,0	3,5	24	10	0,30	3,00	0,10	645.00..-D	541	541	841	841
R/L 050.4-16	4	1,5	4,0	3,5	30	16	0,30	3,00	0,10	645.00..-D	540	540	840	840
R/L 050.4-20	4	1,5	4,0	3,5	34	20	0,30	3,00	0,10	645.00..-D	542	542	842	842
R/L 050.4-24	4	1,5	4,0	3,5	38	24	0,30	3,00	0,10	645.00..-D	545	545	845	845
R/L 050.4-28	4	1,5	4,0	3,5	42	28	0,30	3,00	0,10	645.00..-D	546	546	846	846
R/L 050.5-10	5	1,9	5,0	4,4	25	10	0,50	3,80	0,15	645.00..-D	551	551	851	851
R/L 050.5-15	5	1,9	5,0	4,4	30	15	0,50	3,80	0,15	645.00..-D	552	552	852	852
R/L 050.5-20	5	1,9	5,0	4,4	35	20	0,50	3,80	0,15	645.00..-D	550	550	850	850
R/L 050.5-25	5	1,9	5,0	4,4	40	25	0,50	3,80	0,15	645.00..-D	553	553	853	853
R/L 050.5-30	5	1,9	5,0	4,4	45	30	0,50	3,80	0,15	645.00..-D	554	554	854	854
R/L 050.5-35	5	1,9	5,0	4,4	50	35	0,50	3,80	0,15	645.00..-D	556	556	856	856
R/L 050.5-40	5	1,9	5,0	4,4	55	40	0,50	3,80	0,15	645.00..-D			857	857
R/L 050.6-15	6	2,3	6,0	5,3	30	15	0,50	4,50	0,15	676.00..-D	561	561	861	861
R/L 050.6-22	6	2,3	6,0	5,3	37	22	0,50	4,50	0,15	676.00..-D	560	560	860	860
R/L 050.6-25	6	2,3	6,0	5,3	40	25	0,50	4,50	0,15	676.00..-D	562	562	862	862
R/L 050.6-30	6	2,3	6,0	5,3	45	30	0,50	4,50	0,15	676.00..-D	563	563	863	863
R/L 050.6-35	6	2,3	6,0	5,3	50	35	0,50	4,50	0,15	676.00..-D	564	564	864	864
R/L 050.6-42	6	2,3	6,0	5,3	57	42	0,50	4,50	0,15	676.00..-D	565	565	865	865
R/L 050.7-20	7	2,8	6,8	6,3	35	20	0,60	5,50	0,15	676.00..-D	572	572	872	872
R/L 050.7-25	7	2,8	6,8	6,3	40	25	0,60	5,50	0,15	676.00..-D	573	573	873	873
R/L 050.7-30	7	2,8	6,8	6,3	45	30	0,60	5,50	0,15	676.00..-D	574	574	874	874
R/L 050.7-35	7	2,8	7,0	6,3	50	35	0,60	5,50	0,15	676.00..-D	575	575	875	875
R/L 050.7-40	7	2,8	7,0	6,3	55	40	0,60	5,50	0,15	676.00..-D	576	576	876	876
R/L 050.7-45	7	2,8	7,0	6,3	60	45	0,60	5,50	0,15	676.00..-D	577	577	877	877
R/L 050.7-50	7	2,8	7,0	6,3	65	50	0,60	5,50	0,15	676.00..-D	578	578	878	878

Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	○	○	●	●
Non ferrous metals	○	○	●	●
Heat resistant alloys	○	○	●	●
hardened materials				

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UltraMini – Inserts for internal turning and profiling









Illustrations show right-hand versions

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Left-hand Article no. 73 005 ...	Right-hand Article no. 73 004 ...
R/L 050.2-5	4		2,0	1,7	19	5	0,1	1,5	0,05	645.00..-D	020	020
R/L 050.2-10	4		2,0	1,7	24	10	0,1	1,5	0,05	645.00..-D	021	021
R/L 050.2-15	4		2,0	1,7	29	15	0,1	1,5	0,05	645.00..-D	022	022
R/L 050.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,10	645.00..-D	031	031
R/L 050.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,10	645.00..-D	030	030
R/L 050.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,10	645.00..-D	032	032
R/L 050.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,10	645.00..-D	041	041
R/L 050.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,10	645.00..-D	040	040
R/L 050.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,10	645.00..-D	042	042
R/L 050.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,15	645.00..-D	051	051
R/L 050.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,15	645.00..-D	052	052
R/L 050.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,15	645.00..-D	050	050
R/L 050.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	0,15	645.00..-D	053	053
R 050.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,05	645.00..-D		054
L 050.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,15	645.00..-D	054	
R/L 050.6-15	6	2,3	6,0	5,3	30	15	0,5	4,5	0,15	676.00..-D	061	061
R/L 050.6-22	6	2,3	6,0	5,3	37	22	0,5	4,5	0,15	676.00..-D	060	060
R/L 050.6-25	6	2,3	6,0	5,3	40	25	0,5	4,5	0,15	676.00..-D	062	062
R/L 050.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	0,15	676.00..-D	063	063
R/L 050.7-20	7	2,8	6,8	6,3	35	20	0,6	5,5	0,15	676.00..-D	072	072
R/L 050.7-25	7	2,8	6,8	6,3	40	25	0,6	5,5	0,15	676.00..-D	073	073
R/L 050.7-30	7	2,8	6,8	6,3	45	30	0,6	5,5	0,15	676.00..-D	074	074

Steel	○	○
Stainless steel		
Cast iron	○	○
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

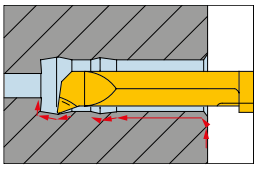
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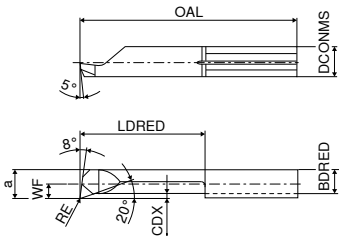
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UltraMini – Inserts for internal turning and profiling

▲ with corner radius ≤ 0.05 mm















Illustrations show right-hand versions

Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	Left-hand Article no. 73 021 ...	Right-hand Article no. 73 020 ...	Left-hand Article no. 73 023 ...	Right-hand Article no. 73 022 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 053.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,03	645.00..-D	**310**	**310**		
R/L 053.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,03	645.00..-D	**316**	**316**		
R/L 053.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,03	645.00..-D	**320**	**320**		
R/L 053.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,03	645.00..-D	**410**	**410**		
R/L 053.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,03	645.00..-D	**416**	**416**		
R/L 053.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,03	645.00..-D	**420**	**420**		
R/L 053.4-24	4	1,5	4,0	3,5	38	24	0,3	3,0	0,03	645.00..-D	**424**	**424**		
R/L 053.4-28	4	1,5	4,0	3,5	42	28	0,3	3,0	0,03	645.00..-D	**428**	**428**		
R/L 055.2-10	4		2,0	1,7	24	10	0,1	1,5	0,05	645.00..-D			**210**	**210**
R/L 055.2-15	4		2,0	1,7	29	15	0,1	1,5	0,05	645.00..-D			**215**	**215**
R/L 055.2-5	4		2,0	1,7	19	5	0,1	1,5	0,05	645.00..-D			**205**	**205**
R/L 055.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,05	645.00..-D			**310**	**310**
R/L 055.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,05	645.00..-D			**316**	**316**
R/L 055.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,05	645.00..-D			**320**	**320**
R/L 055.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,05	645.00..-D			**410**	**410**
R/L 055.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,05	645.00..-D			**416**	**416**
R/L 055.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,05	645.00..-D			**420**	**420**
R/L 055.4-24	4	1,5	4,0	3,5	38	24	0,3	3,0	0,05	645.00..-D			**424**	**424**
R/L 055.4-28	4	1,5	4,0	3,5	42	28	0,3	3,0	0,05	645.00..-D			**428**	**428**
R/L 055.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,05	645.00..-D			**510**	**510**
R/L 055.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,05	645.00..-D			**515**	**515**
R/L 055.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,05	645.00..-D			**520**	**520**
R/L 055.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	0,05	645.00..-D			**525**	**525**
R/L 055.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,05	645.00..-D			**530**	**530**
R/L 055.5-35	5	1,9	5,0	4,4	50	35	0,5	3,8	0,05	645.00..-D			**535**	**535**
R/L 055.6-15	6	2,3	6,0	5,3	30	15	0,5	4,5	0,05	676.00..-D			**615**	**615**
R/L 055.6-22	6	2,3	6,0	5,3	37	22	0,5	4,5	0,05	676.00..-D			**622**	**622**
R/L 055.6-25	6	2,3	6,0	5,3	40	25	0,5	4,5	0,05	676.00..-D			**625**	**625**
R/L 055.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	0,05	676.00..-D			**630**	**630**
R/L 055.6-35	6	2,3	6,0	5,3	50	35	0,5	4,5	0,05	676.00..-D			**635**	**635**
R/L 055.6-42	6	2,3	6,0	5,3	57	42	0,5	4,5	0,05	676.00..-D			**642**	**642**

Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	●	●	●	●
Non ferrous metals	●	●	●	●
Heat resistant alloys	●	●	●	●
hardened materials				

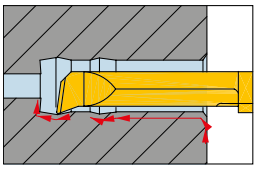
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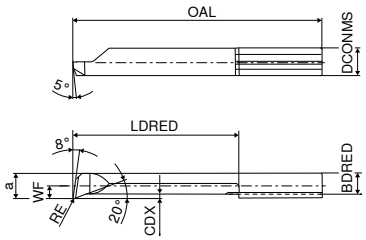
UltraMini – Inserts for internal turning and profiling

▲ with chip former



TiAlN TiAlN









Illustrations show right-hand versions

Left-hand Right-hand

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Article no. 73 017 ...	Article no. 73 016 ...
R/L 050.4-10C	4	1,5	4	3,5	24	10	0,3	3,0	0,2	645.00..-D	**410**	**410**
R/L 050.4-16C	4	1,5	4	3,5	30	16	0,3	3,0	0,2	645.00..-D	**416**	**416**
R/L 050.4-20C	4	1,5	4	3,5	34	20	0,3	3,0	0,2	645.00..-D	**420**	**420**
R/L 050.4-24C	4	1,5	4	3,5	38	24	0,3	3,0	0,2	645.00..-D	**424**	**424**
R/L 050.4-28C	4	1,5	4	3,5	42	28	0,3	3,0	0,2	645.00..-D	**428**	**428**
R/L 050.5-10C	5	1,9	5	4,4	25	10	0,5	3,8	0,2	645.00..-D	**510**	**510**
R/L 050.5-15C	5	1,9	5	4,4	30	15	0,5	3,8	0,2	645.00..-D	**515**	**515**
R/L 050.5-20C	5	1,9	5	4,4	35	20	0,5	3,8	0,2	645.00..-D	**520**	**520**
R/L 050.5-25C	5	1,9	5	4,4	40	25	0,5	3,8	0,2	645.00..-D	**525**	**525**
R/L 050.5-30C	5	1,9	5	4,4	45	30	0,5	3,8	0,2	645.00..-D	**530**	**530**
R/L 050.5-35C	5	1,9	5	4,4	50	35	0,5	3,8	0,2	645.00..-D	**535**	**535**
R/L 050.6-15C	6	2,3	6	5,3	30	15	0,5	4,5	0,2	676.00..-D	**615**	**615**
R/L 050.6-22C	6	2,3	6	5,3	37	22	0,5	4,5	0,2	676.00..-D	**622**	**622**
R/L 050.6-25C	6	2,3	6	5,3	40	25	0,5	4,5	0,2	676.00..-D	**625**	**625**
R/L 050.6-30C	6	2,3	6	5,3	45	30	0,5	4,5	0,2	676.00..-D	**630**	**630**
R/L 050.6-35C	6	2,3	6	5,3	50	35	0,5	4,5	0,2	676.00..-D	**635**	**635**
R/L 050.6-42C	6	2,3	6	5,3	57	42	0,5	4,5	0,2	676.00..-D	**642**	**642**
R/L 050.7-20C	7	2,8	7	6,3	35	20	0,6	5,5	0,2	676.00..-D	**720**	**720**
R/L 050.7-25C	7	2,8	7	6,3	40	25	0,6	5,5	0,2	676.00..-D	**725**	**725**
R/L 050.7-30C	7	2,8	7	6,3	45	30	0,6	5,5	0,2	676.00..-D	**730**	**730**
R/L 050.7-35C	7	2,8	7	6,3	50	35	0,6	5,5	0,2	676.00..-D	**735**	**735**
R/L 050.7-40C	7	2,8	7	6,3	55	40	0,6	5,5	0,2	676.00..-D	**740**	**740**
R/L 050.7-45C	7	2,8	7	6,3	60	45	0,6	5,5	0,2	676.00..-D	**745**	**745**
R/L 050.7-50C	7	2,8	7	6,3	65	50	0,6	5,5	0,2	676.00..-D	**750**	**750**

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

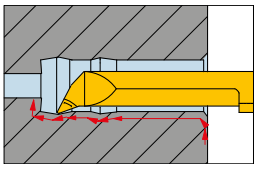
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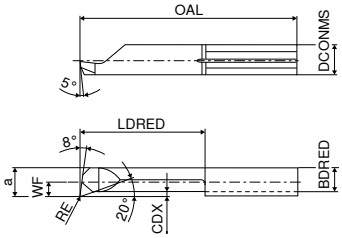
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UltraMini – Inserts for internal turning and profiling – hard turning

▲ 46 to 65 HRC

TiAlN+ TiAlN+









Illustrations show right-hand versions

Left-hand Right-hand

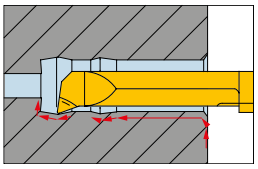
Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Article no. 73 025 ...	Article no. 73 024 ...
R/L 050.2-5	4		2,0	1,7	19	5	0,1	1,5	0,05	645.00..-D	**920**	**920**
R/L 050.2-10	4		2,0	1,7	24	10	0,1	1,5	0,05	645.00..-D	**921**	**921**
R/L 050.2-15	4		2,0	1,7	29	15	0,1	1,5	0,05	645.00..-D	**922**	**922**
R/L 050.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,10	645.00..-D	**931**	**931**
R/L 050.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,10	645.00..-D	**930**	**930**
R/L 050.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,10	645.00..-D	**932**	**932**
R/L 050.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,10	645.00..-D	**941**	**941**
R/L 050.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,10	645.00..-D	**940**	**940**
R/L 050.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,10	645.00..-D	**942**	**942**
R/L 050.4-24	4	1,5	4,0	3,5	38	24	0,3	3,0	0,10	645.00..-D	**945**	**945**
R/L 050.4-28	4	1,5	4,0	3,5	42	28	0,3	3,0	0,10	645.00..-D	**946**	**946**
R/L 050.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,15	645.00..-D	**951**	**951**
R/L 050.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,15	645.00..-D	**952**	**952**
R/L 050.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,15	645.00..-D	**950**	**950**
R/L 050.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	0,15	645.00..-D	**953**	**953**
R/L 050.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,15	645.00..-D	**954**	**954**
R/L 050.5-35	5	1,9	5,0	4,4	50	35	0,5	3,8	0,15	645.00..-D	**956**	**956**
R/L 050.6-15	6	2,3	6,0	5,3	30	15	0,5	4,5	0,15	676.00..-D	**961**	**961**
R/L 050.6-22	6	2,3	6,0	5,3	37	22	0,5	4,5	0,15	676.00..-D	**960**	**960**
R/L 050.6-25	6	2,3	6,0	5,3	40	25	0,5	4,5	0,15	676.00..-D	**962**	**962**
R/L 050.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	0,15	676.00..-D	**963**	**963**
R/L 050.6-35	6	2,3	6,0	5,3	50	35	0,5	4,5	0,15	676.00..-D	**964**	**964**
R/L 050.6-42	6	2,3	6,0	5,3	57	42	0,5	4,5	0,15	676.00..-D	**965**	**965**
R/L 050.7-20	7	2,8	6,8	6,3	35	20	0,6	5,5	0,15	676.00..-D	**972**	**972**
R/L 050.7-25	7	2,8	6,8	6,3	40	25	0,6	5,5	0,15	676.00..-D	**973**	**973**
R/L 050.7-30	7	2,8	6,8	6,3	45	30	0,6	5,5	0,15	676.00..-D	**974**	**974**
R/L 050.7-35	7	2,8	6,8	6,3	50	35	0,6	5,5	0,15	676.00..-D	**975**	**975**
R/L 050.7-40	7	2,8	6,8	6,3	55	40	0,6	5,5	0,15	676.00..-D	**976**	**976**
R/L 050.7-45	7	2,8	6,8	6,3	60	45	0,6	5,5	0,15	676.00..-D	**977**	**977**
R/L 050.7-50	7	2,8	6,8	6,3	65	50	0,6	5,5	0,15	676.00..-D	**978**	**978**

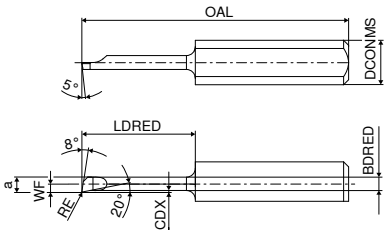
Steel		
Stainless steel		
Cast iron		
Non ferrous metals		
Heat resistant alloys		
hardened materials	●	●

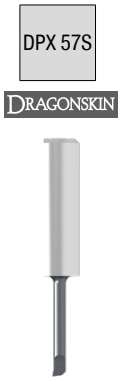
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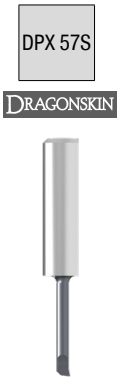
UltraMini – Inserts for internal turning and profiling

▲ Specially designed for super alloys









Illustrations show right-hand versions

Left-hand | Right-hand

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Article no. 73 027 ...	Article no. 73 026 ...
R/L M050.05-2	4	0,20	0,5	0,40	20	2	0,02	0,02	0,02	645.00..-D	**052**	**052**
R/L M050.08-4	4	0,35	0,8	0,70	20	4	0,08	0,03	0,02	645.00..-D	**082**	**082**
R/L M050.1-5	4	0,40	1,0	0,90	20	5	0,05	0,05	0,02	645.00..-D	**102**	**102**
R/L M050.1-7	4	0,40	1,0	0,90	22	7	0,05	0,05	0,02	645.00..-D	**103**	**103**
R/L M050.15-5	4	0,60	1,5	1,15	19	5	0,08	0,08	0,02	645.00..-D	**151**	**151**
R/L M050.15-10	4	0,60	1,5	1,15	24	10	0,08	0,08	0,02	645.00..-D	**154**	**154**
R/L M050.2-5	4	0,80	2,0	1,70	19	5	0,08	0,08	0,02	645.00..-D	**201**	**201**
R/L M050.2-10	4	0,80	2,0	1,70	24	10	0,08	0,08	0,02	645.00..-D	**204**	**204**
R/L M050.25-5	4	0,20	2,5	2,20	19	5	0,10	0,10	0,02	645.00..-D	**251**	**251**
R/L M050.25-10	4	0,20	2,5	2,20	24	10	0,10	0,10	0,02	645.00..-D	**254**	**254**
R/L M050.3-10	4	0,60	3,0	2,60	24	10	0,15	0,15	0,02	645.00..-D	**304**	**304**
R/L M050.3-16	4	0,60	3,0	2,60	30	16	0,15	0,15	0,02	645.00..-D	**307**	**307**
R/L M050.35-10	4	1,10	3,5	3,10	24	10	0,17	0,17	0,02	645.00..-D	**350**	**350**
R/L M050.35-16	4	1,10	3,5	3,10	30	16	0,17	0,17	0,02	645.00..-D	**353**	**353**
R/L M050.35-20	4	1,10	3,5	3,10	34	20	0,17	0,17	0,02	645.00..-D	**354**	**354**
R/L M050.4-10	4	1,50	4,0	3,50	24	10	0,20	0,20	0,02	645.00..-D	**400**	**400**
R/L M050.4-16	4	1,50	4,0	3,50	30	16	0,20	0,20	0,02	645.00..-D	**403**	**403**
R/L M050.4-20	4	1,50	4,0	3,50	34	20	0,20	0,20	0,02	645.00..-D	**404**	**404**
R/L M050.4-24	4	1,50	4,0	3,50	38	24	0,20	0,20	0,02	645.00..-D	**406**	**406**

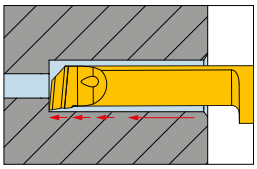
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

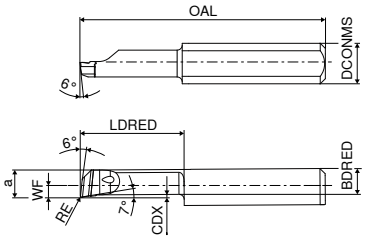
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UltraMini – Inserts for internal turning

▲ with chip former





DPX77S DRAGONSKIN



DPX77S DRAGONSKIN



Illustrations show right-hand versions

Left-hand

Right-hand

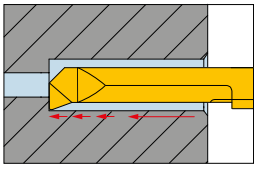
Designation	DCONMS $_{h6}$ mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Article no. 73 001 ...	Article no. 73 000 ...
R/L X050.1-5	4		1,0	0,90	20	5	0,03	0,85	0,05	645.00..-D	**121**	**121**
R/L X050.15-7	4		1,5	1,35	22	7	0,05	1,25	0,10	645.00..-D	**233**	**233**
R/L X050.2-5	4		2,0	1,80	19	5	0,10	1,60	0,15	645.00..-D	**245**	**245**
R/L X050.2-10	4		2,0	1,80	24	10	0,10	1,60	0,05	645.00..-D	**215**	**215**
R/L X050.2-10	4		2,0	1,80	24	10	0,10	1,60	0,15	645.00..-D	**241**	**241**
R/L X050.3-10	4	0,7	3,0	2,70	24	10	0,15	2,55	0,05	645.00..-D	**341**	**341**
R/L X050.3-10	4	0,7	3,0	2,70	24	10	0,15	2,55	0,20	645.00..-D	**347**	**347**
R/L X050.3-16	4	0,7	3,0	2,70	30	16	0,15	2,55	0,05	645.00..-D	**371**	**371**
R/L X050.3-16	4	0,7	3,0	2,70	30	16	0,15	2,55	0,10	645.00..-D	**373**	**373**
R/L X050.3-16	4	0,7	3,0	2,70	30	16	0,15	2,55	0,20	645.00..-D	**377**	**377**
R/L X050.4-10	4	1,6	4,0	3,60	24	10	0,20	3,20	0,10	645.00..-D	**403**	**403**
R/L X050.4-10	4	1,6	4,0	3,60	24	10	0,20	3,20	0,20	645.00..-D	**407**	**407**
R/L X050.4-16	4	1,6	4,0	3,60	30	16	0,20	3,20	0,05	645.00..-D	**431**	**431**
R/L X050.4-16	4	1,6	4,0	3,60	30	16	0,20	3,20	0,10	645.00..-D	**433**	**433**
R/L X050.4-16	4	1,6	4,0	3,60	30	16	0,20	3,20	0,20	645.00..-D	**437**	**437**
R/L X050.4-24	4	1,6	4,0	3,60	38	24	0,20	3,20	0,10	645.00..-D	**463**	**463**
R/L X050.4-24	4	1,6	4,0	3,60	38	24	0,20	3,20	0,20	645.00..-D	**467**	**467**
R/L X050.5-15	5	2,1	5,0	4,60	30	15	0,30	4,05	0,05	645.00..-D	**511**	**511**
R/L X050.5-15	5	2,1	5,0	4,60	30	15	0,30	4,05	0,10	645.00..-D	**513**	**513**
R/L X050.5-15	5	2,1	5,0	4,60	30	15	0,30	4,05	0,20	645.00..-D	**517**	**517**
R/L X050.5-25	5	2,1	5,0	4,60	40	25	0,30	4,05	0,10	645.00..-D	**543**	**543**
R/L X050.5-25	5	2,1	5,0	4,60	40	25	0,30	4,05	0,20	645.00..-D	**547**	**547**
R/L X050.5-30	5	2,1	5,0	4,60	45	30	0,30	4,05	0,10	645.00..-D	**553**	**553**
R/L X050.5-30	5	2,1	5,0	4,60	45	30	0,30	4,05	0,20	645.00..-D	**557**	**557**
R/L X050.6-15	6	2,5	6,0	5,50	30	15	0,40	4,90	0,05	676.00..-D	**611**	**611**
R/L X050.6-15	6	2,5	6,0	5,50	30	15	0,40	4,90	0,10	676.00..-D	**613**	**613**
R/L X050.6-15	6	2,5	6,0	5,50	30	15	0,40	4,90	0,20	676.00..-D	**617**	**617**
R/L X050.6-22	6	2,5	6,0	5,50	37	22	0,40	4,90	0,20	676.00..-D	**637**	**637**
R/L X050.6-30	6	2,5	6,0	5,50	45	30	0,40	4,90	0,20	676.00..-D	**657**	**657**
R/L X050.6-35	6	2,5	6,0	5,50	50	35	0,40	4,90	0,20	676.00..-D	**667**	**667**
R/L X050.6-50	6	2,5	6,0	5,50	65	50	0,40	4,90	0,20	676.00..-D	**697**	**697**
R/L X050.7-25	7	3,0	7,0	6,50	40	25	0,50	5,90	0,20	676.00..-D	**747**	**747**
R/L X050.7-30	7	3,0	7,0	6,50	45	30	0,50	5,90	0,20	676.00..-D	**757**	**757**

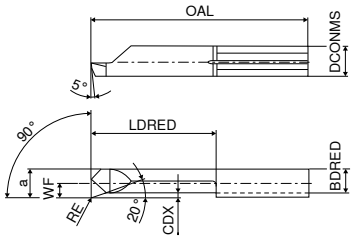
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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UltraMini – Inserts for internal turning







TiN



TiN



Illustrations show right-hand versions

Left-hand

Right-hand

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Article no. 73 015 ...	Article no. 73 014 ...
R/L 090.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,2	645.00..-D	**541**	**541**
R/L 090.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,2	645.00..-D	**542**	**542**
R/L 090.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,2	645.00..-D	**545**	**545**
R/L 090.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,2	645.00..-D	**546**	**546**
R/L 090.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,2	645.00..-D	**550**	**550**
R/L 090.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,2	645.00..-D	**551**	**551**
R/L 090.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,2	645.00..-D	**552**	**552**

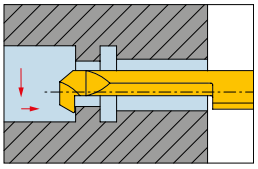
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

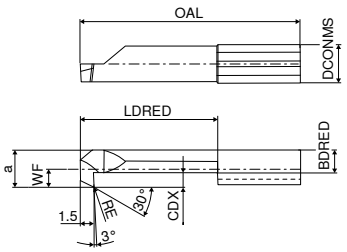
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UltraMini – Inserts for back boring







TiN



TiN



Illustrations show right-hand versions

Left-hand

Right-hand

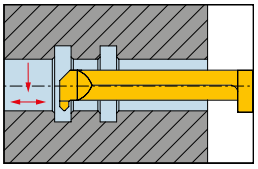
Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Article no. 73 013 ...	Article no. 73 012 ...
R/L 080.0003-15	4	0,6	3	2,6	29	15	0,5	2,0	0,10	645.00..-D	**542**	**542**
R/L 080.0003-20	4	0,6	3	2,6	34	20	0,5	2,0	0,10	645.00..-D	**544**	**544**
R/L 080.0004-15	4	1,5	4	3,5	29	15	0,8	2,4	0,15	645.00..-D	**546**	**546**
R/L 080.0004-25	4	1,5	4	3,5	39	25	0,8	2,4	0,15	645.00..-D	**548**	**548**
R/L 080.0005-20	5	1,9	5	4,4	35	20	1,0	3,3	0,20	645.00..-D	**554**	**554**
R/L 080.0005-30	5	1,9	5	4,4	45	30	1,0	3,3	0,20	645.00..-D	**558**	**558**
R/L 080.0006-20	6	2,3	6	5,3	35	20	1,8	3,4	0,20	676.00..-D	**564**	**564**
R/L 080.0006-30	6	2,3	6	5,3	45	30	1,8	3,4	0,20	676.00..-D	**568**	**568**
R/L 080.0007-20	7	2,7	7	6,3	35	20	2,5	3,8	0,20	676.00..-D	**574**	**574**
R/L 080.0007-30	7	2,7	7	6,3	45	30	2,5	3,8	0,20	676.00..-D	**578**	**578**

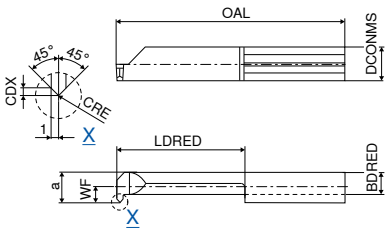
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

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UltraMini – Inserts for internal turning and chamfering







TiN



TiN



Illustrations show right-hand versions

Left-hand

Right-hand

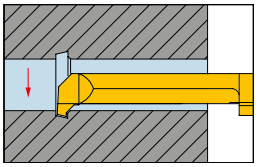
Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CRE	Standard tool holder	Article no. 73 007 ...	Article no. 73 006 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm			
R/L 060.5-15	5	1,9	5,0	4,4	30	15	0,7	3,3	0,2	645.00..-D	**551**	**551**
R/L 060.5-20	5	1,9	5,0	4,4	35	20	0,7	3,3	0,2	645.00..-D	**550**	**550**
R/L 060.7-20	7	2,7	6,8	6,3	35	20	0,7	3,8	0,2	676.00..-D	**570**	**570**

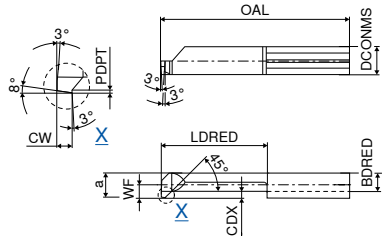
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

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UltraMini – Inserts for internal chamfering for subsequent parting off







TiN



TiN



Illustrations show right-hand versions

Left-hand

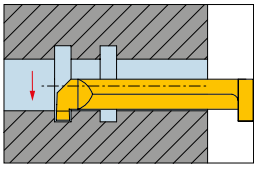
Right-hand

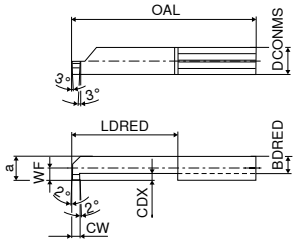
Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	PDPT	Standard tool holder	Article no. 73 009 ...	Article no. 73 008 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			
R/L 070.4-10	4	1,5	4	3,5	25	10	0,8	2,4	1	0,2	645.00..-D	**410**	**410**
R/L 070.4-16	4	1,5	4	3,5	30	16	0,8	2,4	1	0,2	645.00..-D	**416**	**416**
R/L 070.5-15	5	1,9	5	4,4	30	15	1,0	3,3	1	0,2	645.00..-D	**551**	**551**
R/L 070.5-20	5	1,9	5	4,4	35	20	1,0	3,3	1	0,2	645.00..-D	**550**	**550**
R/L 070.5-30	5	1,9	5	4,4	45	30	1,0	3,3	1	0,2	645.00..-D	**530**	**530**
R/L 070.6-30	6	2,3	6	5,3	45	30	1,0	4,2	1	0,2	676.00..-D	**630**	**630**
R/L 070.6-42	6	2,3	6	5,3	57	42	1,0	4,2	1	0,2	676.00..-D	**642**	**642**

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

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UltraMini – Inserts for Internal Grooving









TiN



TiN



Illustrations show right-hand versions

Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	Standard tool holder	Left-hand Article no. 73 003 ...	Right-hand Article no. 73 002 ...	Left-hand Article no. 73 003 ...	Right-hand Article no. 73 002 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 004.0100-10	4	1,5	4,0	3,5	24	10	0,8	2,4	1,0	645.00..-D	040	040	540	540
R/L 004.0100-16	4	1,5	4,0	3,5	30	16	0,8	2,4	1,0	645.00..-D	041	041	541	541
R/L 004.0100-20	4	1,5	4,0	3,5	34	20	0,8	2,4	1,0	645.00..-D	042	042	542	542
R/L 005.0100-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,0	645.00..-D	150	150	650	650
R/L 005.0150-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,5	645.00..-D	154	154	654	654
R/L 005.0200-10	5	1,9	5,0	4,4	25	10	1,0	3,3	2,0	645.00..-D	158	158	658	658
R/L 005.0100-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,0	645.00..-D	151	151	651	651
R/L 005.0150-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,5	645.00..-D	155	155	655	655
R/L 005.0200-15	5	1,9	5,0	4,4	30	15	1,0	3,3	2,0	645.00..-D	159	159	659	659
R/L 005.0100-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,0	645.00..-D	051	051	551	551
R/L 005.0150-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,5	645.00..-D	052	052	552	552
R/L 005.0200-20	5	1,9	5,0	4,4	35	20	1,0	3,3	2,0	645.00..-D	053	053	553	553
R/L 005.0100-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,0	645.00..-D	152	152	652	652
R/L 005.0150-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,5	645.00..-D	156	156	656	656
R/L 005.0200-25	5	1,9	5,0	4,4	40	25	1,0	3,3	2,0	645.00..-D	250	250	750	750
R/L 005.0100-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,0	645.00..-D	153	153	653	653
R/L 005.0150-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,5	645.00..-D	157	157	657	657
R/L 005.0200-30	5	1,9	5,0	4,4	45	30	1,0	3,3	2,0	645.00..-D	251	251	751	751
R/L 005.0100-35	5	1,9	5,0	4,4	50	35	1,0	3,3	1,0	645.00..-D			680	680
R/L 006.0100-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,0	676.00..-D	160	160	660	660
R/L 006.0150-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,5	676.00..-D	164	164	664	664
R/L 006.0200-10	6	2,3	6,0	5,3	25	10	1,8	3,4	2,0	676.00..-D	168	168	668	668
R/L 006.0100-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,0	676.00..-D	161	161	661	661
R/L 006.0150-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,5	676.00..-D	165	165	665	665
R/L 006.0200-15	6	2,3	6,0	5,3	30	15	1,8	3,4	2,0	676.00..-D	169	169	669	669
R/L 006.0100-22	6	2,3	6,0	5,3	37	22	1,8	3,4	1,0	676.00..-D	061	061	561	561
R/L 006.0150-22	6	2,3	6,0	5,3	37	22	1,8	3,4	1,5	676.00..-D	062	062	562	562
R/L 006.0200-22	6	2,3	6,0	5,3	37	22	1,8	3,4	2,0	676.00..-D	063	063	563	563
R/L 006.0100-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,0	676.00..-D	162	162	662	662
R/L 006.0150-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,5	676.00..-D	166	166	666	666
R/L 006.0200-25	6	2,3	6,0	5,3	40	25	1,8	3,4	2,0	676.00..-D	260	260	760	760
R/L 006.0100-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,0	676.00..-D	163	163	663	663
R/L 006.0150-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,5	676.00..-D	167	167	667	667
R/L 006.0200-30	6	2,3	6,0	5,3	45	30	1,8	3,4	2,0	676.00..-D	261	261	761	761
R/L 006.0100-35	6	2,3	6,0	5,3	50	35	1,8	3,4	1,0	676.00..-D			682	682
R/L 006.0150-35	6	2,3	6,0	5,3	50	35	1,8	3,4	1,5	676.00..-D			684	684
R/L 006.0100-42	6	2,3	6,0	5,3	57	42	1,8	3,4	1,0	676.00..-D			685	685
R/L 007.0100-10	7	2,7	6,8	6,3	25	10	2,5	3,8	1,0	676.00..-D	070	070	570	570
R/L 007.0150-10	7	2,7	6,8	6,3	25	10	2,5	3,8	1,5	676.00..-D	075	075	575	575
R/L 007.0200-10	7	2,7	6,8	6,3	25	10	2,5	3,8	2,0	676.00..-D	170	170	670	670
R/L 007.0100-15	7	2,7	6,8	6,3	30	15	2,5	3,8	1,0	676.00..-D	071	071	571	571
R/L 007.0150-15	7	2,7	6,8	6,3	30	15	2,5	3,8	1,5	676.00..-D	076	076	576	576
R/L 007.0200-15	7	2,7	6,8	6,3	30	15	2,5	3,8	2,0	676.00..-D	171	171	671	671
R/L 007.0100-22	7	2,7	6,8	6,3	37	22	2,5	3,8	1,0	676.00..-D	072	072	572	572
R/L 007.0150-22	7	2,7	6,8	6,3	37	22	2,5	3,8	1,5	676.00..-D	077	077	577	577
R/L 007.0200-22	7	2,7	6,8	6,3	37	22	2,5	3,8	2,0	676.00..-D	172	172	672	672
R/L 007.0100-25	7	2,7	6,8	6,3	40	25	2,5	3,8	1,0	676.00..-D	073	073	573	573
R/L 007.0150-25	7	2,7	6,8	6,3	40	25	2,5	3,8	1,5	676.00..-D	078	078	578	578
R/L 007.0200-25	7	2,7	6,8	6,3	40	25	2,5	3,8	2,0	676.00..-D	173	173	673	673
R/L 007.0100-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,0	676.00..-D	074	074	574	574
R/L 007.0150-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,5	676.00..-D	079	079	579	579
R/L 007.0200-30	7	2,7	6,8	6,3	45	30	2,5	3,8	2,0	676.00..-D	174	174	674	674
R/L 007.0100-35	7	2,7	7,0	6,3	50	35	2,5	3,8	1,0	676.00..-D			688	688
R/L 007.0150-35	7	2,7	7,0	6,3	50	35	2,5	3,8	1,5	676.00..-D			690	690
R/L 007.0200-35	7	2,7	7,0	6,3	50	35	2,5	3,8	2,0	676.00..-D			692	692
R/L 007.0100-40	7	2,7	7,0	6,3	55	40	2,5	3,8	1,0	676.00..-D			700	700
R/L 007.0150-40	7	2,7	7,0	6,3	55	40	2,5	3,8	1,5	676.00..-D			702	702
R/L 007.0100-45	7	2,7	7,0	6,3	60	45	2,5	3,8	1,0	676.00..-D			712	712
R/L 007.0100-50	7	2,7	7,0	6,3	65	50	2,5	3,8	1,0	676.00..-D			714	714

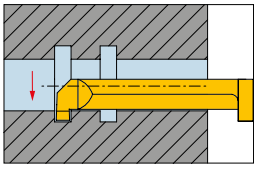
	Left-hand Article no. 73 003 ...	Right-hand Article no. 73 002 ...	Left-hand Article no. 73 003 ...	Right-hand Article no. 73 002 ...
Steel	○	○	●	●
Stainless steel			●	●
Cast iron	○	○	○	○
Non ferrous metals	●	●	○	○
Heat resistant alloys			○	○
hardened materials				

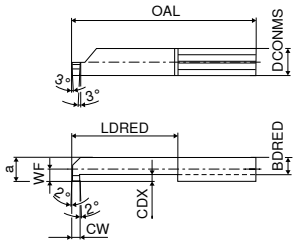
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UltraMini – Inserts for Internal Grooving



TiAlN TiAlN









Illustrations show right-hand versions

Left-hand Right-hand

Designation	DCONMS $_{h6}$ mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	Standard tool holder	Article no. 73 003 ...		Article no. 73 002 ...	
R/L 002.0050-5	4		2	1,8	19	5	0,4	1,2	0,5	645.00..-D		**820**		**820**
R/L 002.0050-10	4		2	1,8	24	10	0,4	1,2	0,5	645.00..-D		**821**		**821**
R/L 002.0050-15	4		2	1,8	29	15	0,4	1,2	0,5	645.00..-D		**822**		**822**
R/L 003.0070-5	4	0,7	3	2,7	19	5	0,6	1,9	0,7	645.00..-D		**830**		**830**
R/L 003.0070-10	4	0,7	3	2,7	24	10	0,6	1,9	0,7	645.00..-D		**831**		**831**
R/L 003.0070-16	4	0,7	3	2,7	30	16	0,6	1,9	0,7	645.00..-D		**832**		**832**

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

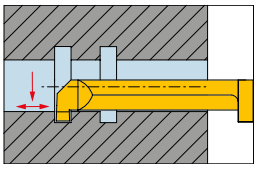
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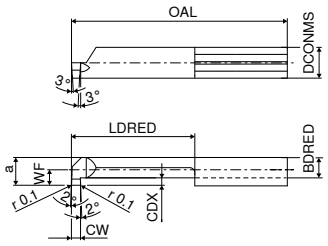
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UltraMini – Inserts for Internal Grooving

▲ with corner radius







TiAlN



Left-hand

TiAlN



Right-hand

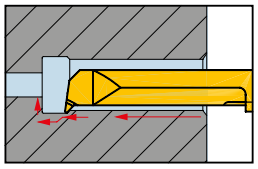
Illustrations show right-hand versions

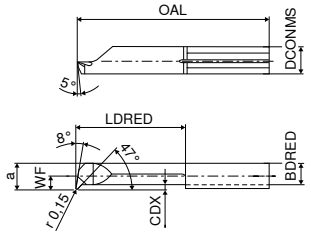
Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	Standard tool holder	Article no. 73 203 ...	Article no. 73 202 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm			
R/L 004M0100-10	4	1,5	4,0	3,5	24	10	0,8	2,4	1,0	645.00..-D	800	800
R/L 004M0100-16	4	1,5	4,0	3,5	30	16	0,8	2,4	1,0	645.00..-D	802	802
R/L 004M0100-20	4	1,5	4,0	3,5	34	20	0,8	2,4	1,0	645.00..-D	804	804
R/L 005M0100-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,0	645.00..-D	806	806
R/L 005M0150-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,5	645.00..-D	816	816
R/L 005M0200-10	5	1,9	5,0	4,4	25	10	1,0	3,3	2,0	645.00..-D	826	826
R/L 005M0100-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,0	645.00..-D	808	808
R/L 005M0150-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,5	645.00..-D	818	818
R/L 005M0200-15	5	1,9	5,0	4,4	30	15	1,0	3,3	2,0	645.00..-D	828	828
R/L 005M0100-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,0	645.00..-D	810	810
R/L 005M0150-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,5	645.00..-D	820	820
R/L 005M0200-20	5	1,9	5,0	4,4	35	20	1,0	3,3	2,0	645.00..-D	830	830
R/L 005M0100-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,0	645.00..-D	812	812
R/L 005M0150-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,5	645.00..-D	822	822
R/L 005M0200-25	5	1,9	5,0	4,4	40	25	1,0	3,3	2,0	645.00..-D	832	832
R/L 005M0100-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,0	645.00..-D	814	814
R/L 005M0150-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,5	645.00..-D	824	824
R/L 005M0200-30	5	1,9	5,0	4,4	45	30	1,0	3,3	2,0	645.00..-D	834	834
R/L 006M0100-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,0	676.00..-D	836	836
R/L 006M0150-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,5	676.00..-D	846	846
R/L 006M0200-10	6	2,3	6,0	5,3	25	10	1,8	3,4	2,0	676.00..-D	856	856
R/L 006M0100-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,0	676.00..-D	838	838
R/L 006M0150-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,5	676.00..-D	848	848
R/L 006M0200-15	6	2,3	6,0	5,3	30	15	1,8	3,4	2,0	676.00..-D	858	858
R/L 006M0100-20	6	2,3	6,0	5,3	35	22	1,8	3,4	1,0	676.00..-D	840	840
R/L 006M0150-20	6	2,3	6,0	5,3	37	22	1,8	3,4	1,5	676.00..-D	850	850
R/L 006M0200-20	6	2,3	6,0	5,3	37	22	1,8	3,4	2,0	676.00..-D	860	860
R/L 006M0100-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,0	676.00..-D	842	842
R/L 006M0150-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,5	676.00..-D	852	852
R/L 006M0200-25	6	2,3	6,0	5,3	40	25	1,8	3,4	2,0	676.00..-D	862	862
R/L 006M0100-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,0	676.00..-D	844	844
R/L 006M0150-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,5	676.00..-D	854	854
R/L 006M0200-30	6	2,3	6,0	5,3	45	30	1,8	3,4	2,0	676.00..-D	864	864
R/L 007M0100-10	7	2,7	6,8	6,3	25	10	2,5	3,7	1,0	676.00..-D	866	866
R/L 007M0150-10	7	2,7	6,8	6,3	25	10	2,5	3,7	1,5	676.00..-D	876	876
R/L 007M0200-10	7	2,7	6,8	6,3	25	10	2,5	3,7	2,0	676.00..-D	886	886
R/L 007M0100-15	7	2,7	6,8	6,3	30	15	2,5	3,7	1,0	676.00..-D	868	868
R/L 007M0150-15	7	2,7	6,8	6,3	30	15	2,5	3,7	1,5	676.00..-D	878	878
R/L 007M0200-15	7	2,7	6,8	6,3	30	15	2,5	3,7	2,0	676.00..-D	888	888
R/L 007M0100-22	7	2,7	6,8	6,3	37	22	2,5	3,7	1,0	676.00..-D	870	870
R/L 007M0150-22	7	2,7	6,8	6,3	37	22	2,5	3,7	1,5	676.00..-D	880	880
R/L 007M0200-22	7	2,7	6,8	6,3	37	22	2,5	3,7	2,0	676.00..-D	890	890
R/L 007M0100-25	7	2,7	6,8	6,3	40	25	2,5	3,7	1,0	676.00..-D	872	872
R/L 007M0150-25	7	2,7	6,8	6,3	40	25	2,5	3,7	1,5	676.00..-D	882	882
R/L 007M0200-25	7	2,7	6,8	6,3	40	25	2,5	3,7	2,0	676.00..-D	892	892
R/L 007M0100-30	7	2,7	6,8	6,3	45	30	2,5	3,7	1,0	676.00..-D	874	874
R/L 007M0150-30	7	2,7	6,8	6,3	45	30	2,5	3,7	1,5	676.00..-D	884	884
R/L 007M0200-30	7	2,7	6,8	6,3	45	30	2,5	3,7	2,0	676.00..-D	894	894

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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UltraMini – Inserts for internal undercuts













Illustrations show right-hand versions

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	Standard tool holder	Left-hand Article no. 73 011 ...	Right-hand Article no. 73 010 ...	Left-hand Article no. 73 011 ...	Right-hand Article no. 73 010 ...
R/L 047.2-10	4		2,0	1,7	24	10	0,4	1,2	645.00..-D			**221**	**221**
R/L 047.3-15	4	0,6	2,8	2,6	29	15	0,6	1,9	645.00..-D			**231**	**231**
R/L 047.4-10	4	1,5	4,0	3,5	24	10	0,6	2,8	645.00..-D			**241**	**241**
R/L 047.T4-20	4	1,5	4,0	3,5	34	20	0,6	2,8	645.00..-D			**242**	**242**
R/L 047.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	645.00..-D	**542**	**542**		
R/L 047.5-15	5	1,9	5,0	4,4	30	15	0,8	3,5	645.00..-D			**251**	**251**
R/L 047.T5-25	5	1,9	5,0	4,4	40	25	0,8	3,5	645.00..-D			**252**	**252**
R/L 047.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	645.00..-D	**552**	**552**		
R/L 047.T6-22	6	2,3	6,0	5,3	37	22	1,8	3,4	676.00..-D			**262**	**262**
R/L 047.T6-30	6	2,3	6,0	5,3	45	30	1,8	3,4	676.00..-D			**263**	**263**
R/L 047.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	676.00..-D	**562**	**562**		

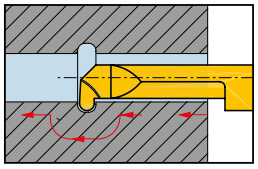
Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	○	○	●	●
Non ferrous metals	○	○	●	●
Heat resistant alloys	○	○	●	●
hardened materials				

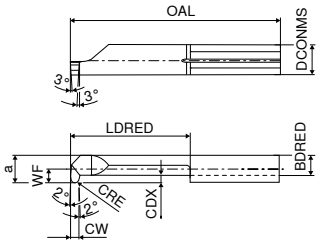
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UltraMini – Inserts for internal grooving and turning







TiN



TiN



Illustrations show right-hand versions

Left-hand

Right-hand

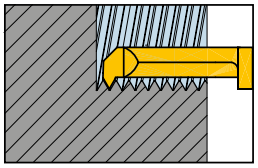
Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	CRE mm	Standard tool holder	Article no. 73 019 ...	Article no. 73 018 ...
R/L 006-0.75-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,5	0,75	676.00..-D	**564**	**564**
R/L 006-0.50-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,0	0,50	676.00..-D	**562**	**562**
R/L 006-1.00-25	6	2,3	6,0	5,3	40	25	1,8	3,4	2,0	1,00	676.00..-D	**566**	**566**
R/L 005-1.00-20	5	1,9	5,0	4,4	35	20	1,0	3,3	2,0	1,00	645.00..-D	**556**	**556**
R/L 007-0.50-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,0	0,50	676.00..-D	**572**	**572**
R/L 005-0.75-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,5	0,75	645.00..-D	**554**	**554**
R/L 007-0.75-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,5	0,75	676.00..-D	**574**	**574**
R/L 005-0.50-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,0	0,50	645.00..-D	**552**	**552**
R/L 007-1.00-30	7	2,7	6,8	6,3	45	30	2,5	3,8	2,0	1,00	676.00..-D	**576**	**576**
R/L 004-0.50-16	4	1,5	4,0	3,5	30	16	0,8	2,4	1,0	0,50	645.00..-D	**541**	**541**

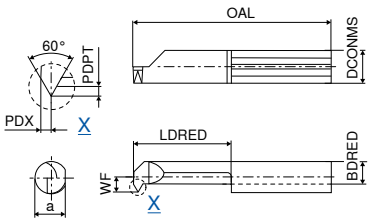
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

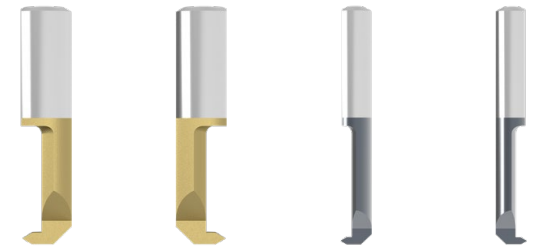
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UltraMini – Inserts for internal threading (Partial profile)









Left-hand | Right-hand | Left-hand | Right-hand

Illustrations show right-hand versions

Designation	DCONMS h6 mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	Standard tool holder	Article no. 73 101 ...	Article no. 73 100 ...	Article no. 73 101 ...	Article no. 73 100 ...
R/L 003.0105-8	4	0,50	0,30	2,4	2,3	22	8	1,8	0,27	0,33	645.00..-D			**551**	**551**
R/L 004.0408-15	4	0,80	1,75	4,0	3,5	30	15	2,4	0,43	0,45	645.00..-D			**552**	**552**
R/L 005.0510-15	5	1,00	1,90	4,8	4,4	30	15	3,3	0,55	0,55	645.00..-D	**545**	**545**		
R/L 005.0510-20	5	1,00	1,90	4,8	4,4	35	20	3,3	0,55	0,55	645.00..-D	**544**	**544**		
R/L 006.0612-15	6	1,25	2,30	6,0	5,3	30	15	3,4	0,68	0,65	676.00..-D	**547**	**547**		
R/L 006.0612-22	6	1,25	2,30	6,0	5,3	37	22	3,4	0,68	0,65	676.00..-D	**546**	**546**		
R/L 006.0815-15	6	1,50	2,30	6,0	5,3	30	15	3,4	0,81	0,75	676.00..-D	**549**	**549**		
R/L 006.0815-22	6	1,50	2,30	6,0	5,3	37	22	3,4	0,81	0,75	676.00..-D	**548**	**548**		
R/L 007.0815-15	7	1,50	2,70	7,0	6,3	30	15	3,8	0,81	0,75	676.00..-D	**550**	**550**		

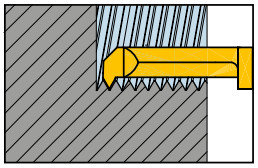
Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	○	○	●	●
Non ferrous metals	○	○	●	●
Heat resistant alloys	○	○	●	●
hardened materials				

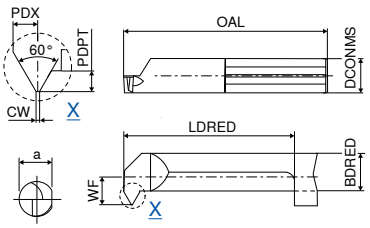
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UltraMini – Inserts for Internal thread turning (Full profile)







TiAlN



Left-hand

TiAlN



Right-hand

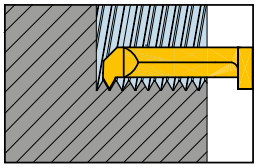
Illustrations show right-hand versions

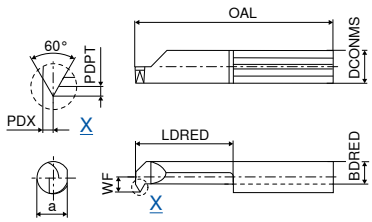
Designation	DCONMS $_{h6}$ mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	CW mm	Standard tool holder	Article no. 73 209 ...	Article no. 73 208 ...
R/L 105.0408-15	5	0,80	1,9	4,8	4,4	30	15	3,3	0,43	0,50	0,10	645.00..-D	**799**	**799**
R/L 105.510-15	5	1,00	1,9	4,8	4,4	30	15	3,3	0,54	0,55	0,12	645.00..-D	**800**	**800**
R/L 106.612-15	6	1,25	2,3	6,0	5,3	30	15	3,4	0,67	0,65	0,15	676.00..-D	**802**	**802**
R/L 106.815-15	6	1,50	2,3	6,0	5,3	30	15	3,4	0,81	0,75	0,18	676.00..-D	**804**	**804**
R/L 106.815-15	7	1,50	2,7	7,0	6,3	30	15	3,8	0,81	0,75	0,18	676.00..-D	**806**	**806**
Steel													●	●
Stainless steel													●	●
Cast iron													●	●
Non ferrous metals													●	●
Heat resistant alloys													●	●
hardened materials														

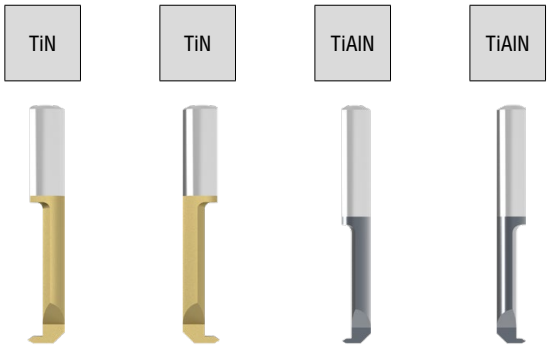
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UltraMini – Inserts for internal thread turning (Partial profile)









Left-hand | Right-hand | Left-hand | Right-hand

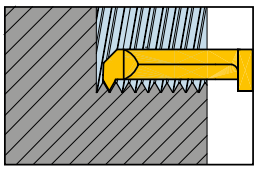
Illustrations show right-hand versions

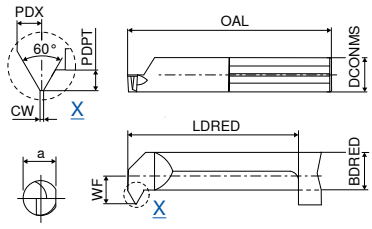
Designation	DCONMS h6	TP	WF	DMIN	a	OAL	LDRED	BDRED	PDPT	PDX	Standard tool holder	Article no. 73 103 ...	Article no. 73 102 ...	Article no. 73 103 ...	Article no. 73 102 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 004.0105-10	4	0,50	1,0	3,2	3,0	24	10	2,3	0,27	0,44	645.00..-D			509	509
R/L 004.0205-15	4	0,50	1,5	4,0	3,5	30	15	2,4	0,27	0,35	645.00..-D	510	510		
R/L 005.0205-15	5	0,50	1,9	5,0	4,4	30	15	3,3	0,27	0,35	645.00..-D	539	539		
R/L 005.0205-20	5	0,50	1,9	5,0	4,4	35	20	3,3	0,27	0,35	645.00..-D	540	540		
R/L 005.0407-15	5	0,75	1,9	5,0	4,4	30	15	3,3	0,40	0,45	645.00..-D	541	541		
R/L 005.0407-20	5	0,75	1,9	5,0	4,4	35	20	3,3	0,40	0,45	645.00..-D	542	542		
R/L 006.0510-15	6	1,00	2,3	6,0	5,3	30	15	3,4	0,55	0,55	676.00..-D	543	543		
R/L 006.0510-22	6	1,00	2,3	6,0	5,3	37	22	3,4	0,55	0,55	676.00..-D	544	544		
Steel												●	●	●	●
Stainless steel												●	●	●	●
Cast iron												○	○	●	●
Non ferrous metals												○	○	●	●
Heat resistant alloys												○	○	●	●
hardened materials															

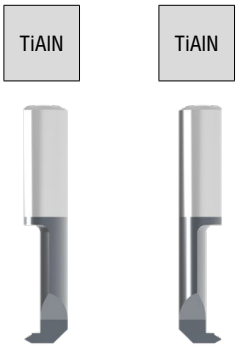
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UltraMini – Inserts for Internal thread turning (Full profile)









Left-hand | Right-hand

Illustrations show right-hand versions

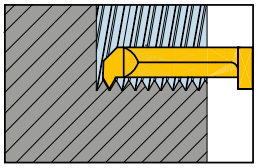
Designation	DCONMS h6	TP	WF	DMIN	a	OAL	LDRED	BDRED	PDPT	PDX	CW	Standard tool holder	Article no. 73 207 ...	Article no. 73 206 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			
R/L 104.0205-15	5	0,50	1,5	4	3,5	30	15	2,4	0,27	0,35	0,06	645.00..-D	800	800
R/L 105.0205-15	5	0,50	1,9	5	4,4	30	15	3,3	0,27	0,35	0,06	645.00..-D	802	802
R/L 105.0407-15	5	0,75	1,9	5	4,4	30	15	3,3	0,40	0,45	0,09	645.00..-D	804	804
R/L 106.0510-15	6	1,00	2,3	6	5,3	30	15	3,4	0,54	0,55	0,12	676.00..-D	806	806
Steel													●	●
Stainless steel													●	●
Cast iron													●	●
Non ferrous metals													●	●
Heat resistant alloys													●	●
hardened materials														

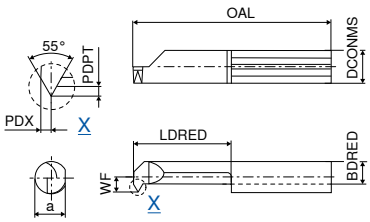
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UltraMini – Inserts for internal thread turning (Partial profile)







TiN



Left-hand

TiN



Right-hand

Illustrations show right-hand versions

Designation	DCONMS h6 mm	TPI 1/"	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	Standard tool holder	Article no. 73 105 ...	Article no. 73 104 ...
R/L 005.5548-15	5	48 - 24	1,9	4,8	4,4	30	15	3,3	0,40	0,45	645.00..-D	552	552
R/L 006.5548-15	6	48 - 24	2,3	6,0	5,3	30	15	3,4	0,40	0,45	676.00..-D	562	562
R/L 006.5524-15	6	24 - 16	2,3	6,0	5,3	30	15	3,4	0,81	0,75	676.00..-D	563	563
R/L 007.5524-15	7	24 - 16	2,7	7,0	6,3	30	15	3,8	0,81	0,75	676.00..-D	572	572

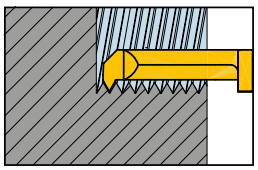
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

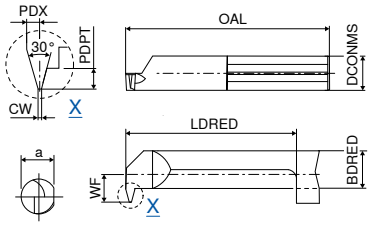
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UltraMini – Inserts for internal thread turning (Partial profile)

▲ Trapezoidal thread DIN 103







TiAlN



Left-hand

TiAlN



Right-hand

Illustrations show right-hand versions

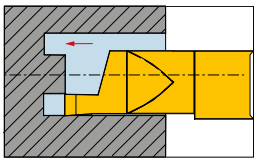
Designation	DCONMS h6 mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	CW mm	Standard tool holder	Article no. 73 211 ...	Article no. 73 210 ...
R/L 007.1220-22	7	2	2,8	7	6,3	37	22	3,8	1,25	0,75	0,6	676.00..-D	222	222
R/L 007.1220-30	7	2	2,8	7	6,3	45	30	3,8	1,25	0,75	0,6	676.00..-D	230	230
R/L 007.1730-22	7	3	2,8	7	6,3	37	22	3,8	1,75	1,10	1,0	676.00..-D	322	322
R/L 007.1730-30	7	3	2,8	7	6,3	45	30	3,8	1,75	1,10	1,0	676.00..-D	330	330

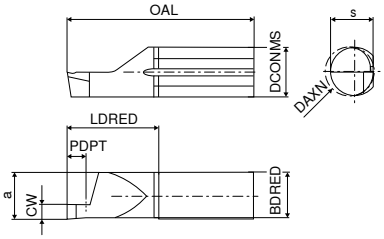
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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UltraMini – Inserts for axial grooving















Illustrations show right-hand versions

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	Standard tool holder	Left-hand Article no. 73 051 ...	Right-hand Article no. 73 050 ...	Left-hand Article no. 73 053 ...	Right-hand Article no. 73 052 ...
R/L 010.1006-10	6	5,2	6	5,3	26	11	1,5	4,9	1,0	676.00..-D	**561**	**561**	**561**	**561**
R/L 010.1506-10	6	5,2	6	5,3	26	11	2,0	4,9	1,5	676.00..-D	**563**	**563**	**563**	**563**
R/L 010.1008-10	7	5,9	8	6,3	26	11	1,5	5,6	1,0	676.00..-D	**571**	**571**	**571**	**571**
R/L 010.1008-20	7	5,9	8	6,3	35	20	1,5	5,6	1,0	676.00..-D	**671**	**671**	**671**	**671**
R/L 010.1008-30	7	5,9	8	6,3	45	30	1,5	5,6	1,0	676.00..-D	**771**	**771**	**771**	**771**
R/L 010.1508-10	7	5,9	8	6,3	26	11	2,5	5,6	1,5	676.00..-D	**573**	**573**	**573**	**573**
R/L 010.1508-20	7	5,9	8	6,3	35	20	2,5	5,6	1,5	676.00..-D	**673**	**673**	**673**	**673**
R/L 010.1508-30	7	5,9	8	6,3	45	30	2,5	5,6	1,5	676.00..-D	**773**	**773**	**773**	**773**
R/L 010.2008-10	7	5,9	8	6,3	26	11	3,0	5,6	2,0	676.00..-D	**575**	**575**	**575**	**575**
R/L 010.2008-20	7	5,9	8	6,3	35	20	3,0	5,6	2,0	676.00..-D	**675**	**675**	**675**	**675**
R/L 010.2008-30	7	5,9	8	6,3	45	30	3,0	5,6	2,0	676.00..-D	**775**	**775**	**775**	**775**
R/L 010.2508-10	7	5,9	8	6,3	26	11	3,5	5,6	2,5	676.00..-D	**577**	**577**	**577**	**577**
R/L 010.2508-20	7	5,9	8	6,3	35	20	3,5	5,6	2,5	676.00..-D	**677**	**677**	**677**	**677**
R/L 010.2508-30	7	5,9	8	6,3	45	30	3,5	5,6	2,5	676.00..-D	**777**	**777**	**777**	**777**
R/L 010.3008-10	7	5,9	8	6,3	26	11	3,5	5,6	3,0	676.00..-D	**579**	**579**	**579**	**579**
R/L 010.3008-20	7	5,9	8	6,3	35	20	3,5	5,6	3,0	676.00..-D	**679**	**679**	**679**	**679**
R/L 010.3008-30	7	5,9	8	6,3	45	30	3,5	5,6	3,0	676.00..-D	**779**	**779**	**779**	**779**

Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	○	○	●	●
Non ferrous metals	○	○	●	●
Heat resistant alloys	○	○	●	●
hardened materials				

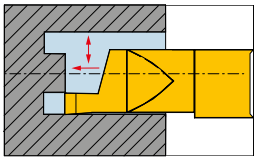
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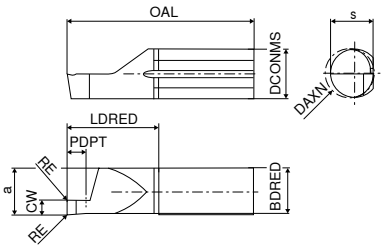
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UltraMini – Inserts for axial grooving

▲ with corner radius







TiAlN



TiAlN



Illustrations show right-hand versions

Left-hand

Right-hand

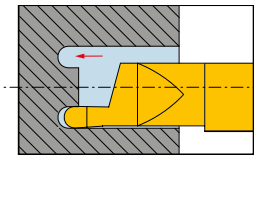
Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	RE mm	Standard tool holder	Article no. 73 253 ...	Article no. 73 252 ...
R/L 510M1008-10	5	4,3	5	6,3	26	11	2	4,0	1,0	0,05	645.00..-D	**510**	**510**
R/L 510M1008-20	5	4,3	5	6,3	35	20	2	4,0	1,0	0,05	645.00..-D	**610**	**610**
R/L 510M1508-10	5	4,3	5	6,3	26	11	3	4,0	1,5	0,05	645.00..-D	**515**	**515**
R/L 510M1508-20	5	4,3	5	6,3	35	20	3	4,0	1,5	0,05	645.00..-D	**615**	**615**
R/L 510M2008-10	5	4,3	5	6,3	26	11	4	4,0	2,0	0,05	645.00..-D	**520**	**520**
R/L 510M2008-20	5	4,3	5	6,3	35	20	4	4,0	2,0	0,05	645.00..-D	**620**	**620**
R/L 010M1008-10	7	5,9	8	6,3	26	11	2	5,6	1,0	0,10	676.00..-D	**800**	**800**
R/L 010M1008-20	7	5,9	8	6,3	35	20	2	5,6	1,0	0,10	676.00..-D	**810**	**810**
R/L 010M1008-30	7	5,9	8	6,3	45	30	2	5,6	1,0	0,10	676.00..-D	**820**	**820**
R/L 010M1508-10	7	5,9	8	6,3	26	11	3	5,6	1,5	0,10	676.00..-D	**802**	**802**
R/L 010M1508-20	7	5,9	8	6,3	35	20	3	5,6	1,5	0,10	676.00..-D	**812**	**812**
R/L 010M1508-30	7	5,9	8	6,3	45	30	3	5,6	1,5	0,10	676.00..-D	**822**	**822**
R/L 010M2008-10	7	5,9	8	6,3	26	11	4	5,6	2,0	0,10	676.00..-D	**804**	**804**
R/L 010M2008-20	7	5,9	8	6,3	35	20	4	5,6	2,0	0,10	676.00..-D	**814**	**814**
R/L 010M2008-30	7	5,9	8	6,3	45	30	4	5,6	2,0	0,10	676.00..-D	**824**	**824**
R/L 010M2508-10	7	5,9	8	6,3	26	11	5	5,6	2,5	0,10	676.00..-D	**806**	**806**
R/L 010M2508-20	7	5,9	8	6,3	35	20	5	5,6	2,5	0,10	676.00..-D	**816**	**816**
R/L 010M2508-30	7	5,9	8	6,3	45	30	5	5,6	2,5	0,10	676.00..-D	**826**	**826**
R/L 010M3008-10	7	5,9	8	6,3	26	11	6	5,6	3,0	0,10	676.00..-D	**808**	**808**
R/L 010M3008-20	7	5,9	8	6,3	35	20	6	5,6	3,0	0,10	676.00..-D	**818**	**818**
R/L 010M3008-30	7	5,9	8	6,3	45	30	6	5,6	3,0	0,10	676.00..-D	**828**	**828**

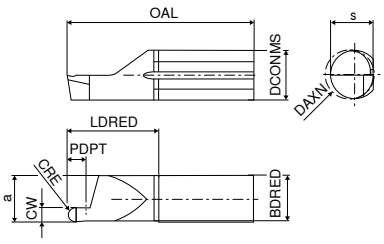
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

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UltraMini – Inserts for axial grooving (Full radius)







TiAlN



TiAlN



Illustrations show right-hand versions

Left-hand

Right-hand

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	CRE mm	Standard tool holder	Article no. 73 059 ...	Article no. 73 058 ...
R/L 610.1005-10	6	5,2	6	5,3	26	11	2	4,9	1,0	0,50	676.00..-D	**071**	**071**
R/L 610.1005-20	6	5,2	6	5,3	35	20	2	4,9	1,0	0,50	676.00..-D	**171**	**171**
R/L 610.1608-10	6	5,2	6	5,3	26	11	3	4,9	1,6	0,80	676.00..-D	**073**	**073**
R/L 610.1608-20	6	5,2	6	5,3	35	20	3	4,9	1,6	0,80	676.00..-D	**173**	**173**
R/L 610.2010-10	6	5,2	6	5,3	26	11	4	4,9	2,0	1,00	676.00..-D	**075**	**075**
R/L 610.2010-20	6	5,2	6	5,3	35	20	4	4,9	2,0	1,00	676.00..-D	**175**	**175**
R/L 610.2512-10	6	5,2	6	5,3	26	11	5	4,9	2,5	1,25	676.00..-D	**077**	**077**
R/L 610.2512-20	6	5,2	6	5,3	35	20	5	4,9	2,5	1,25	676.00..-D	**177**	**177**
R/L 610.3015-10	6	5,2	6	5,3	26	11	6	4,9	3,0	1,50	676.00..-D	**079**	**079**
R/L 610.3015-20	6	5,2	6	5,3	35	20	6	4,9	3,0	1,50	676.00..-D	**179**	**179**
R/L 010.1005-10	7	5,9	8	6,3	26	11	2	5,6	1,0	0,50	676.00..-D	**571**	**571**
R/L 010.1005-20	7	5,9	8	6,3	35	20	2	5,6	1,0	0,50	676.00..-D	**671**	**671**
R/L 010.1608-10	7	5,9	8	6,3	26	11	3	5,6	1,6	0,80	676.00..-D	**573**	**573**
R/L 010.1608-20	7	5,9	8	6,3	35	20	3	5,6	1,6	0,80	676.00..-D	**673**	**673**
R/L 010.2010-10	7	5,9	8	6,3	26	11	4	5,6	2,0	1,00	676.00..-D	**575**	**575**
R/L 010.2010-20	7	5,9	8	6,3	35	20	4	5,6	2,0	1,00	676.00..-D	**675**	**675**
R/L 010.2512-10	7	5,9	8	6,3	26	11	5	5,6	2,5	1,25	676.00..-D	**577**	**577**
R/L 010.2512-20	7	5,9	8	6,3	35	20	5	5,6	2,5	1,25	676.00..-D	**677**	**677**
R/L 010.3015-10	7	5,9	8	6,3	26	11	6	5,6	3,0	1,50	676.00..-D	**579**	**579**
R/L 010.3015-20	7	5,9	8	6,3	35	20	6	5,6	3,0	1,50	676.00..-D	**679**	**679**

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

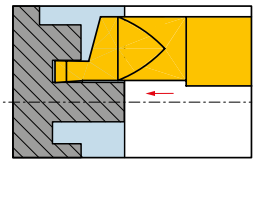
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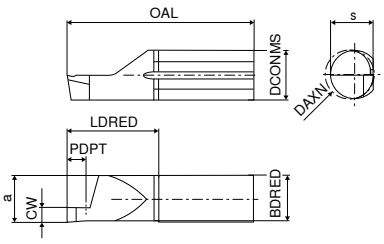
12

UltraMini – Inserts for axial grooving over a spigot



TiAlN TiAlN









Illustrations show right-hand versions

Left-hand Right-hand

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	Standard tool holder	Article no. 73 061 ...	Article no. 73 060 ...
R/L 620.1006-20	6	5,2	6	5,3	35	20	2	4,9	1,0	676.00..-D	**561**	**561**
R/L 620.1506-20	6	5,2	6	5,3	35	20	3	4,9	1,5	676.00..-D	**563**	**563**
R/L 620.2006-20	6	5,2	6	5,3	35	20	4	4,9	2,0	676.00..-D	**565**	**565**
R/L 620.2506-20	6	5,2	6	5,3	35	20	5	4,9	2,5	676.00..-D	**567**	**567**
R/L 620.3006-20	6	5,2	6	5,3	35	20	6	4,9	3,0	676.00..-D	**569**	**569**

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

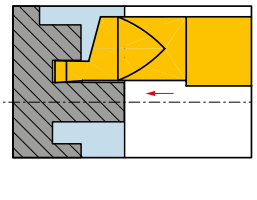
→ v_c Page 60

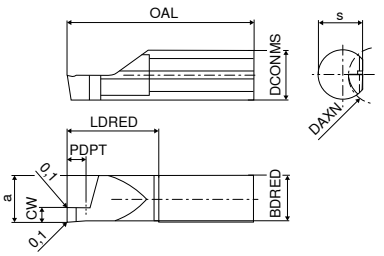
UltraMini – Inserts for axial grooving over a spigot

▲ with corner radius



TiAlN TiAlN









Illustrations show right-hand versions

Left-hand Right-hand

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	Standard tool holder	Article no. 73 261 ...	Article no. 73 260 ...
R/L 620M1006-20	6	5,2	6	5,3	35	20	2	4,9	1,0	676.00..-D	**800**	**800**
R/L 620M1506-20	6	5,2	6	5,3	35	20	3	4,9	1,5	676.00..-D	**802**	**802**
R/L 620M2006-20	6	5,2	6	5,3	35	20	4	4,9	2,0	676.00..-D	**804**	**804**
R/L 620M2506-20	6	5,2	6	5,3	35	20	5	4,9	2,5	676.00..-D	**806**	**806**
R/L 620M3006-20	6	5,2	6	5,3	35	20	6	4,9	3,0	676.00..-D	**808**	**808**

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 60

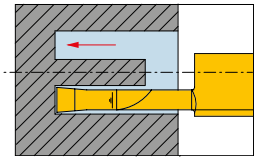
UltraMini – Inserts for axial grooving

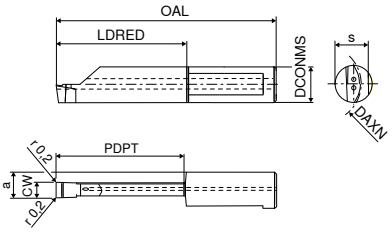
- up to 100 bar
- dual cooling channel



TiAlN

TiAlN









Illustrations show right-hand versions

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Standard tool holder	Left-hand Article no. 73 263 ...	Right-hand Article no. 73 262 ...
R/L 012.0200-10	8	5,00	12	7,3	30	10	10	2,0	687.00..-D	700	700
R/L 012.0200-15	8	5,00	12	7,3	35	15	15	2,0	687.00..-D	702	702
R/L 012.0250-10	8	5,25	12	7,3	30	10	10	2,5	687.00..-D	704	704
R/L 012.0250-20	8	5,25	12	7,3	40	20	20	2,5	687.00..-D	706	706
R/L 016.0300-10	8	5,50	16	7,3	30	10	10	3,0	687.00..-D	800	800
R/L 016.0300-20	8	5,50	16	7,3	40	20	20	3,0	687.00..-D	802	802
R/L 020.0300-25	8	5,50	20	7,3	45	25	25	3,0	687.00..-D	804	804
R/L 020.0300-30	8	5,50	20	7,3	50	30	30	3,0	687.00..-D	806	806
R/L 020.0300-35	8	5,50	20	7,3	55	35	35	3,0	687.00..-D	808	808
R/L 020.0300-40	8	5,50	20	7,3	60	40	40	3,0	687.00..-D	810	810
R/L 016.0400-10	8	6,00	16	7,3	30	10	10	4,0	687.00..-D	812	812
R/L 016.0400-20	8	6,00	16	7,3	40	20	20	4,0	687.00..-D	814	814
R/L 020.0400-25	8	6,00	20	7,3	45	25	25	4,0	687.00..-D	816	816
R/L 020.0400-30	8	6,00	20	7,3	50	30	30	4,0	687.00..-D	818	818
R/L 020.0400-35	8	6,00	20	7,3	55	35	35	4,0	687.00..-D	820	820
R/L 020.0400-40	8	6,00	20	7,3	60	40	40	4,0	687.00..-D	822	822
R/L 020.0500.20	8	6,50	20	7,3	40	20	20	5,0	687.00..-D	824	824
R/L 020.0500.25	8	6,50	20	7,3	45	25	25	5,0	687.00..-D	826	826
R/L 020.0500.30	8	6,50	20	7,3	50	30	30	5,0	687.00..-D	828	828
R/L 020.0500.35	8	6,50	20	7,3	55	35	35	5,0	687.00..-D	830	830
R/L 020.0500.40	8	6,50	20	7,3	60	40	40	5,0	687.00..-D	832	832

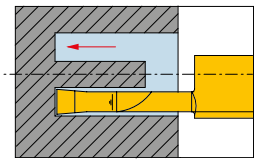
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

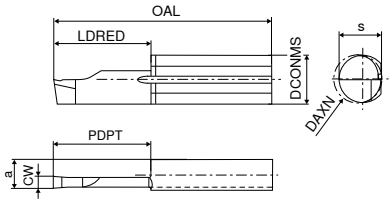
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UltraMini – Inserts for axial grooving







TiN | TiN | TiAlN | TiAlN



Illustrations show right-hand versions

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Standard tool holder	Left-hand Article no. 73 055 ...	Right-hand Article no. 73 054 ...	Left-hand Article no. 73 057 ...	Right-hand Article no. 73 056 ...
R/L 015.2515-20	7	5,9	15	6,3	35	20	20	2,5	676.00..-D	572	572	572	572
R/L 015.3015-20	7	5,9	15	6,3	35	20	20	3,0	676.00..-D	574	574	574	574
R/L 015.3015-30	7	5,9	15	6,3	45	30	30	3,0	676.00..-D	674	674	674	674

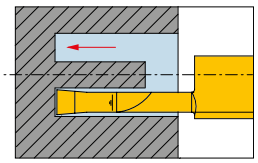
Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	○	○	●	●
Non ferrous metals	○	○	●	●
Heat resistant alloys	○	○	●	●
hardened materials				

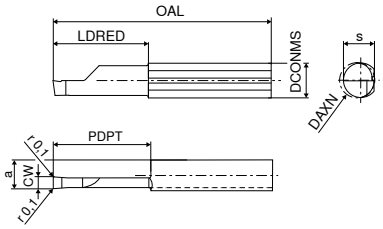
→ v_c Page 60

UltraMini – Inserts for axial grooving

▲ with corner radius







TiAlN | TiAlN



Illustrations show right-hand versions

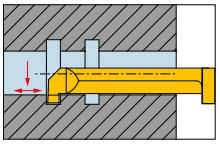
Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Standard tool holder	Left-hand Article no. 73 257 ...	Right-hand Article no. 73 256 ...
R/L 015M2515-20	7	5,9	8	6,3	35	20	20	2,5	676.00..-D	800	800
R/L 015M3015-20	7	5,9	8	6,3	35	20	20	3,0	676.00..-D	802	802
R/L 015M3015-30	7	5,9	8	6,3	45	30	30	3,0	676.00..-D	804	804

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

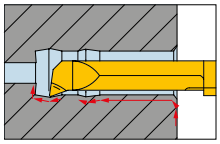
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Set 1: Internal turning, grooving and chamfering, right hand

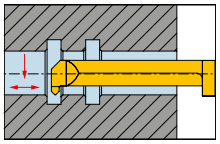
- extensive assortment of right-hand tools
- K10F – TiN



Grooving (E)



Profile turn (A)



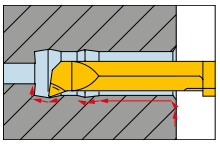
Chamfers (F)



Tool	Designation	Article No.	Bore Ø mm	Boring depth mm	Grooving depth mm	Groove width mm	Piece	fig.	Article no. 73 085 ...
Inserts	**R 004.0100-16**	**73 002 541**	4	16	0,8	1,0	1	E	
Inserts	**R 005.0150-20**	**73 002 552**	5	20	1,0	1,5	1	E	
Inserts	**R 005.0200-20**	**73 002 553**	5	20	1,0	2,0	1	E	
Inserts	**R 006.0150-22**	**73 002 562**	6	22	1,8	1,5	1	E	
Inserts	**R 006.0200-22**	**73 002 563**	6	22	1,8	2,0	1	E	
Inserts	**R 050.3-16**	**73 004 530**	3	16			1	A	999
Inserts	**R 050.4-16**	**73 004 540**	4	16			1	A	
Inserts	**R 050.5-20**	**73 004 550**	5	20			1	A	
Inserts	**R 050.6-22**	**73 004 560**	6	22			1	A	
Inserts	**R 060.5-20**	**73 006 550**	5	20			1	F	
Tool holder	**645.0016-D**	**73 080 164**					1		
Tool holder	**676.0016-D**	**73 080 166**					1		
Tightening Key	**110.645**	**70 950 175**					1		

Set 3: Internal Turning

- extensive assortment of right-hand tools
- K10F – TiN





Tool	Designation	Article No.	Bore Ø mm	Boring depth mm	Piece	Article no. 73 085 ...
Inserts	R 050.3-16	73 004 530	3	16	1	
Inserts	R 050.4-16	73 004 540	4	16	1	
Inserts	R 050.5-20	73 004 550	5	20	1	994
Inserts	R 050.6-22	73 004 560	6	22	1	
Tool holder	645.0016-D	73 080 164			1	
Tool holder	676.0016-D	73 080 166			1	
Tightening Key	110.645	70 950 175			1	

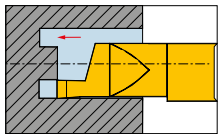
Set 4: Holder



Tool	Designation	Article No.	for cutting insert Ø mm	Piece	Article no. 73 085 ...
Tool holder	**645.0016-D**	**73 080 164**	3 / 4 / 5	1	
Tool holder	**676.0016-D**	**73 080 166**	6 / 7	1	990
Tightening Key	**110.645**	**70 950 175**		1	

Set 6: Axial Grooving

- extensive assortment of right-hand tools
- K10F – TiN



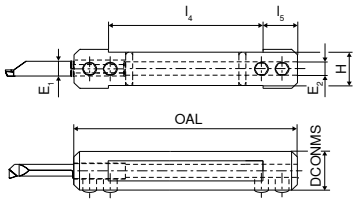


Tool	Designation	Article No.	Bore Ø mm	Boring depth mm	Grooving depth mm	Groove width mm	Piece	Article no. 73 085 ...
Inserts	**R 010.1008-10**	**73 050 571**	8	10	1,5	1,0	1	
Inserts	**R 010.1508-10**	**73 050 573**	8	10	2,5	1,5	1	
Inserts	**R 010.2008-10**	**73 050 575**	8	10	3,0	2,0	1	**996**
Inserts	**R 010.2508-20**	**73 050 677**	8	20	3,5	2,5	1	
Inserts	**R 010.3008-20**	**73 050 679**	8	20	3,5	3,0	1	
Tool holder	**676.0016-D**	**73 080 166**					1	
Tightening Key	**110.645**	**70 950 175**					1	

UltraMini – Standard tool holder for cutting inserts

- ▲ double ended
- ▲ Machining diameter from Ø 0.2 mm

Scope of supply:
Tool holder with allen key





Designation	Ø E_1 mm	Ø E_2 mm	DCONMS mm	OAL mm	l_4 mm	l_5 mm	H mm	Article no. 73 080 ...
645.0012-D	4	5	12,00	75	55	10	10,3	**163**
645.0016-D	4	5	16,00	75	55	10	14,0	**164**
645.001905-D	4	5	19,05	90	70	10	17,2	**170**
645.0020-D	4	5	20,00	90	70	10	18,0	**165**
645.0022-D	4	5	22,00	90	70	10	20,0	**171**
645.00254-D	4	5	25,40	95	75	10	23,4	**172**
676.0016-D	6	7	16,00	75	55	10	14,0	**166**
676.001905-D	6	7	19,05	90	70	10	17,2	**173**
676.0020-D	6	7	20,00	90	70	10	18,0	**167**
676.0022-D	6	7	22,00	90	70	10	20,0	**174**
676.00254-D	6	7	25,40	95	75	10	23,4	**175**
687.0016-D	7	8	16,00	75	55	10	14,0	**168**
687.0020-D	7	8	20,00	90	70	10	18,0	**169**


Key I

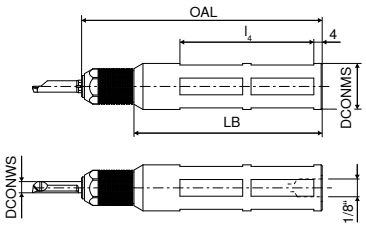

Clamping screw

Spare parts for Article no.		Article no. 70 950 ...		Article no. 73 082 ...
73 080 163	SW2,5	**175**	M5x4	**013**
73 080 164	SW2,5	**175**	M5x6	**001**
73 080 170	SW2,5	**175**	M5x6	**001**
73 080 165	SW2,5	**175**	M5x8	**008**
73 080 171	SW2,5	**175**	M5x8	**008**
73 080 172	SW2,5	**175**	M5x8	**008**
73 080 166	SW2,5	**175**	M5x6	**001**
73 080 173	SW2,5	**175**	M5x6	**001**
73 080 167	SW2,5	**175**	M5x8	**008**
73 080 174	SW2,5	**175**	M5x8	**008**
73 080 175	SW2,5	**175**	M5x8	**008**
73 080 168	SW2,5	**175**	M6x6	**014**
73 080 169	SW2,5	**175**	M6x6	**014**

UltraMini – Quick change tool holder for cutting inserts

Scope of supply:
Tool holder, lock nut and clamping wedge







Designation	DCONWS mm	DCONMS g6 mm	OAL mm	LB mm	l_4 mm	Article no. 73 089 ...
UM600H.0012.4	4	12,00	115	90	64	**124**
UM600H.0016.4	4	16,00	115	90	64	**164**
UM600H.001905.4	4	19,05	115	90	64	**194**
UM600H.0020.4	4	20,00	115	90	64	**204**
UM600H.0022.4	4	22,00	115	90	64	**224**
UM600H.0025.4	4	25,00	115	90	64	**254**
UM600H.00254.4	4	25,40	115	90	64	**264**
UM600H.0028.4	4	28,00	115	90	64	**284**
UM600H.0012.5	5	12,00	115	90	64	**125**
UM600H.0016.5	5	16,00	115	90	64	**165**
UM600H.001905.5	5	19,05	115	90	64	**195**
UM600H.0020.5	5	20,00	115	90	64	**205**
UM600H.0022.5	5	22,00	115	90	64	**225**
UM600H.0025.5	5	25,00	115	90	64	**255**
UM600H.00254.5	5	25,40	115	90	64	**265**
UM600H.0028.5	5	28,00	115	90	64	**285**
UM600H.0012.6	6	12,00	115	90	64	**126**
UM600H.0016.6	6	16,00	115	90	64	**166**
UM600H.001905.6	6	19,05	115	90	64	**196**
UM600H.0020.6	6	20,00	115	90	64	**206**
UM600H.0022.6	6	22,00	115	90	64	**226**
UM600H.0025.6	6	25,00	115	90	64	**256**
UM600H.00254.6	6	25,40	115	90	64	**266**
UM600H.0028.6	6	28,00	115	90	64	**286**
UM600H.0012.7	7	12,00	115	90	64	**127**
UM600H.0016.7	7	16,00	115	90	64	**167**
UM600H.001905.7	7	19,05	115	90	64	**197**
UM600H.0020.7	7	20,00	115	90	64	**207**
UM600H.0022.7	7	22,00	115	90	64	**227**
UM600H.0025.7	7	25,00	115	90	64	**257**
UM600H.00254.7	7	25,40	115	90	64	**267**
UM600H.0028.7	7	28,00	115	90	64	**287**

Avoid pulling cuts. Ensure a suitable clamping force is used when using thro' coolant supply. Can be tightened using a key.


Lock nut UM600H

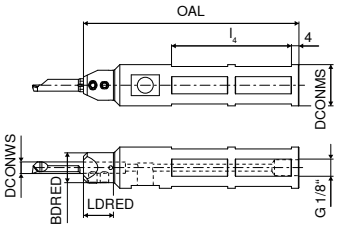

Clamping wedge UM600H

Spare parts DCONWS		Article no. 73 950 ...	Article no. 73 950 ...
4	M4	**104**	**111**
5	M5	**105**	**111**
6	M6	**106**	**111**
7	M7	**107**	**111**

UltraMini – Toolholder for inserts

▲ Tool holder suitable for high coolant pressures







Designation	DCONWS mm	BDRED mm	DCONMS g6 mm	OAL mm	LDRED mm	l_4 mm	Article no. 73 088 ...
UMST.0016.4	4	16	16,00	115	24	42	164
UMST.001905.4	4	16	19,05	115	24	42	194
UMST.0020.4	4	16	20,00	115	24	42	204
UMST.0022.4	4	16	22,00	115	24	42	224
UMST.00254.4	4	16	25,40	115	24	42	264
UMST.0028.4	4	16	28,00	115	24	42	284
UMST.0016.5	5	16	16,00	115	24	42	165
UMST.001905.5	5	16	19,05	115	24	42	195
UMST.0020.5	5	16	20,00	115	24	42	205
UMST.0022.5	5	16	22,00	115	24	42	225
UMST.00254.5	5	16	25,40	115	24	42	265
UMST.0028.5	5	16	28,00	115	24	42	285
UMST.0016.6	6	16	16,00	115	24	42	166
UMST.001905.6	6	16	19,05	115	24	42	196
UMST.0020.6	6	16	20,00	115	24	42	206
UMST.0022.6	6	16	22,00	115	24	42	226
UMST.00254.6	6	16	25,40	115	24	42	266
UMST.0028.6	6	16	28,00	115	24	42	286
UMST.0016.7	7	16	16,00	115	24	42	167
UMST.001905.7	7	16	19,05	115	24	42	197
UMST.0020.7	7	16	20,00	115	24	42	207
UMST.0022.7	7	16	22,00	115	24	42	227
UMST.00254.7	7	16	25,40	115	24	42	267
UMST.0028.7	7	16	28,00	115	24	42	287
UMST.0016.8	8	16	16,00	115	24	42	168
UMST.001905.8	8	16	19,05	115	24	42	198
UMST.0020.8	8	16	20,00	115	24	42	208
UMST.0022.8	8	16	22,00	115	24	42	228
UMST.00254.8	8	16	25,40	115	24	42	268
UMST.0028.8	8	16	28,00	115	24	42	288

12

up to 150 bar


Key D

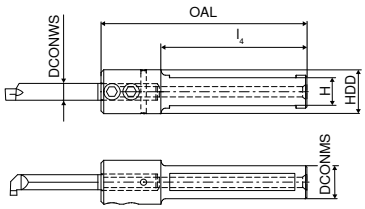

Clamping screw

Spare parts DCONWS		Article no. 80 950 ...		Article no. 73 950 ...
4	T10	104	M5x0,5x6T10	050
5	T10	104	M5x0,5x6T10	050
6	T10	104	M5x0,5x6T10	050
7	T10	104	M5x0,5x6T10	050
8	T10	104	M5x0,5x6T10	050

UltraMini – Toolholder for inserts

▲ single ended

Scope of supply:
Tool holder with allen key





Designation	DCONWS mm	HDD mm	DCONMS mm	OAL mm	l_4 mm	H mm	Article no. 73 081 ...
640.0012-D	4	16	12	75	53	10,2	**264**
650.0012-D	5	16	12	75	53	10,2	**265**
660.0012-D	6	16	12	75	53	10,2	**266**
670.0012-D	7	16	12	75	53	10,2	**267**
680.0012-D	8	16	12	75	53	10,2	**268**

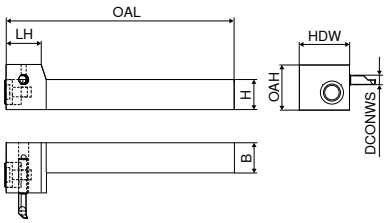

Key I

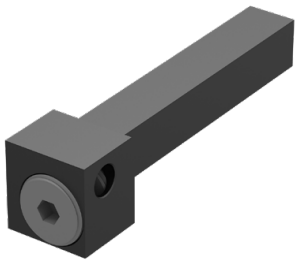

Clamping screw

Spare parts DCONWS		Article no. 70 950 ...		Article no. 73 082 ...
4	SW2,5	**175**	M5x0,5x6	**010**
5	SW2,5	**175**	M5x0,5x6	**010**
6	SW2,5	**175**	M5x0,5x6	**010**
7	SW2,5	**175**	M5x0,5x6	**010**
8	SW2,5	**175**	M5x0,5x6	**010**

UltraMini – Toolholder for inserts

Scope of supply:
Tool holder with allen key





Illustrations show right-hand versions

Designation	DCONWS mm	OAL mm	LH mm	B mm	HDW mm	H mm	OAH mm	Left-hand Article no. 73 083 ...	Right-hand Article no. 73 084 ...
R/L .UHCM.1212.4	4	90	17	12	20	12	18	124	124
R/L .UHCM.1212.5	5	90	17	12	20	12	18	125	125
R/L .UHCM.1212.6	6	90	17	12	20	12	21	126	126
R/L .UHCM.1212.7	7	90	17	12	20	12	21	127	127

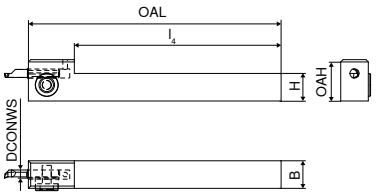

Clamping key – T

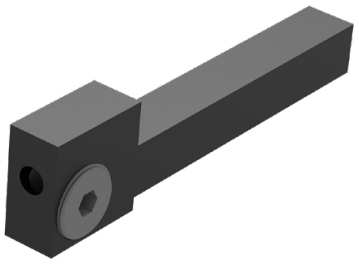

Clamping screw

Spare parts DCONWS	Clamping key – T Article no. 80 397 ...		Clamping screw Article no. 73 082 ...	
4	SW5	050	UM 12	011
5	SW5	050	UM 12	011
6	SW5	050	UM 16	012
7	SW5	050	UM 16	012

UltraMini – Toolholder for inserts

Scope of supply:
Tool holder with allen key





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Designation	DCONWS mm	OAL mm	l_4 mm	B mm	H mm	OAH mm	Article no. 73 086 ...
UM.1010.4	4	100	75	10	10	20	104
UM.1010.5	5	100	75	10	10	20	105
UM.1212.4	4	100	75	12	12	22	124
UM.1212.5	5	100	75	12	12	22	125
UM.1212.6	6	100	75	12	12	22	126

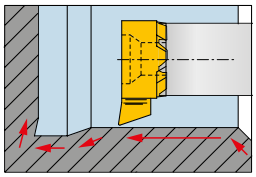

Clamping key – T

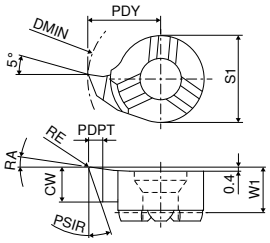

Clamping screw

Spare parts DCONWS	Clamping key – T Article no. 80 397 ...		Clamping screw Article no. 73 082 ...	
4	SW5	050	UM 12	011
5	SW5	050	UM 12	011
6	SW5	050	UM 16	012

MiniCut – Insert for turning and profiling

CWX500 CWX500







Illustrations show right-hand versions

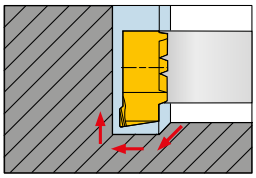
Size	Designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	RA °	Left-hand Article no. 73 324 ...	Right-hand Article no. 73 322 ...
08	8,00. R/L .3,30.18°	7,8	3,3	3,5	4,65	6,0	0,20	0,6	18	8	033	033
	8,00. R/L .3,50.18°	7,8	3,5	3,5	4,65	6,0	0,05	0,6	18	8	035	035
	8,00. R/L .3,50.20°	7,8	3,5	3,5	4,65	6,0	0,20	0,6	20	20	135	135
09	9,00. R/L .3,60.18°	9,0	3,6	3,6	5,50	6,2	0,20	0,8	18	8	136	136
	9,00. R/L .3,60.20°	9,0	3,6	3,6	5,50	6,2	0,20	0,8	20	20	236	236
11	9,80. R/L .3,90.18°	9,8	3,9	4,2	5,50	8,0	0,20	1,0	18	8	139	139
	11,00. R/L .3,90.18°	11,0	3,9	4,2	6,70	8,0	0,20	1,0	18	8	339	339
	11,00. R/L .4,20.20°	11,0	4,2	4,2	6,70	8,0	0,20	1,0	20	20	342	342
14	14,00. R/L .5,00.18°	13,8	5,0	5,1	8,70	9,0	0,20	1,5	18	8	550	550
	14,00. R/L .5,30.20°	14,0	5,3	5,3	8,70	9,0	0,20	1,5	20	20	553	553
16	15,50. R/L .5,00.18°	15,5	5,0	5,4	9,70	11,0	0,20	1,5	18	8	750	750
Steel											●	●
Stainless steel											●	●
Cast iron											●	●
Non ferrous metals											●	●
Heat resistant alloys											●	●
hardened materials												

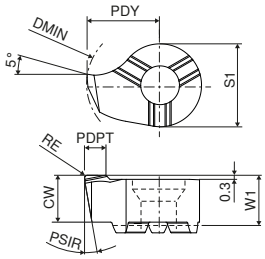
→ v_c Page 60

MiniCut – Insert for copy turning

▲ with chip breaker

CWX500 CWX500







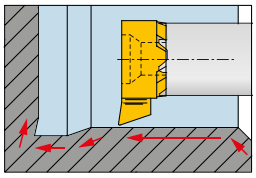
Illustrations show right-hand versions

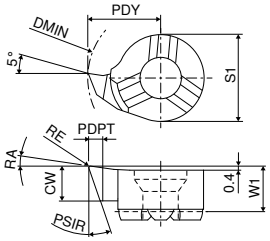
Size	Designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	Left-hand Article no. 73 388 ...	Right-hand Article no. 73 386 ...
08	8,00. R/L .3,40.10°	8	3,4	3,5	4,65	6,0	0,2	0,5	10	13400	13400
09	9,00. R/L .3,50.10°	9	3,5	3,6	5,50	6,2	0,2	0,5	10	136	136
11	11,00. R .4,10.10°	11	4,1	4,2	6,70	8,0	0,2	0,5	10	14100	14100
Steel										●	●
Stainless steel										●	●
Cast iron										●	●
Non ferrous metals										●	●
Heat resistant alloys										●	●
hardened materials											

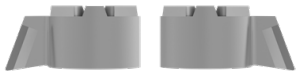
→ v_c Page 60

MiniCut – CBN insert for profiling – hard turning

▲ 56 to 65 HRC







Illustrations show right-hand versions

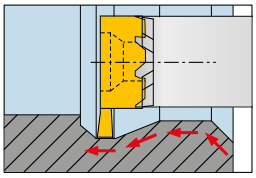
Size	Designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	RA °	Left-hand CBN Article no. 73 368 ...	Right-hand CBN Article no. 73 366 ...
08	8,00. R/L .3,30.18°	7,8	3,3	3,5	4,65	6	0,2	0,39	18	8	033	033
11	11,00. R/L .3,90.18°	11,0	3,9	4,2	6,70	8	0,2	0,55	18	8	139	139
14	14,00. R/L .5,00.18°	13,8	5,0	5,3	8,70	9	0,2	0,69	18	8	550	550
16	16,00. R/L .5,00.18°	15,5	5,0	5,4	9,70	11	0,2	0,77	18	8	750	750

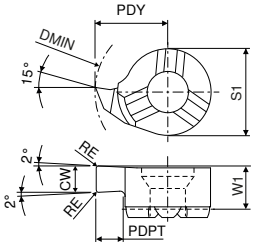
Steel		
Stainless steel		
Cast iron		
Non ferrous metals		
Heat resistant alloys		
hardened materials	●	●

→ v_c Page 60

12

MiniCut – Internal turning insert





CWX500 CWX500



Illustrations show right-hand versions

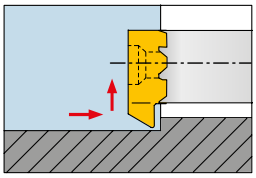
Size	Designation	DMIN mm	CW +0,05 mm	PDPT mm	W1 mm	PDY mm	S1 mm	RE mm	CDX mm	Left-hand Article no. 73 316 ...	Right-hand Article no. 73 314 ...
08	8,00. R/L .1,50.1,0	8	1,5	1,0	3,3	4,8	6,0	0,2	0,2	015	015
	8,00. R/L .2,00.1,0	8	2,0	1,0	3,3	4,8	6,0	0,2	0,2	020	020
09	9,00. R/L .1,50.2,0	9	1,5	2,0	3,6	5,5	6,2	0,2	0,2	115	115
	9,00. R/L .1,50.3,0	10	1,5	3,0	3,6	6,5	6,2	0,2	0,2	121	121
	9,00. R/L .2,00.2,0	9	2,0	2,0	3,6	5,5	6,2	0,2	0,2	120	120
	9,00. R/L .2,00.3,0	10	2,0	3,0	3,6	6,5	6,2	0,2	0,2	122	122
11	11,00. R/L .1,50.2,3	11	1,5	2,3	4,2	6,7	8,0	0,2	0,2	315	315
	11,00. R/L .2,00.2,3	11	2,0	2,3	4,2	6,7	8,0	0,2	0,2	320	320
14	14,00. R/L .1,50.4,0	14	1,5	4,0	5,3	9,0	9,0	0,2	0,2	515	515
	14,00. R/L .1,50,5,5	16	1,5	5,5	5,2	10,5	9,0	0,2	0,2	516	516
	14,00. R/L .1,50.6,5	17	1,5	6,5	5,2	11,5	9,0	0,2	0,2	517	517
	14,00. R/L .2,00.4,0	14	2,0	4,0	5,3	9,0	9,0	0,2	0,2	520	520
	14,00. R/L .2,00.5,5	16	2,0	5,5	5,2	10,5	9,0	0,2	0,2	521	521
	14,00. R/L .2,00.6,5	17	2,0	6,5	5,2	11,5	9,0	0,2	0,2	522	522
	14,00. R/L .2,50.5,5	16	2,5	5,5	5,2	10,5	9,0	0,2	0,2	525	525
	14,00. R/L .2,50.6,5	17	2,5	6,5	5,2	11,5	9,0	0,2	0,2	526	526
	14,00. R/L .3,00.5,5	16	3,0	5,5	5,2	10,5	9,0	0,2	0,2	530	530
	14,00. R/L .3,00.6,5	17	3,0	6,5	5,2	11,5	9,0	0,2	0,2	531	531
16	16,00. R/L .2,00.4,3	16	2,0	4,3	5,4	10,2	11,0	0,2	0,2	720	720

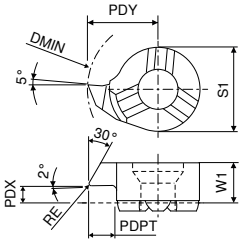
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 60

MiniCut – Back boring insert

CWX500 CWX500







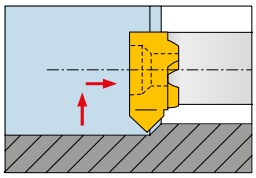
Illustrations show right-hand versions

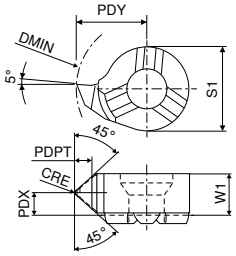
Size	Designation	DMIN mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	RE mm	CDX mm	Left-hand Article no. 73 332 ...	Right-hand Article no. 73 330 ...
08	8,00. R/L .30°.1,3	7,8	1,3	3,50	1,0	4,65	6,0	0,2	0,6	013	013
09	9,00. R/L .30°.1,7	9,0	1,7	3,55	1,2	5,50	6,2	0,2	0,8	117	117
	9,00. R/L .30°.2,3	10,0	2,3	3,55	1,2	6,50	6,2	0,2	0,8	123	123
11	11,00. R/L .30°.2,3	11,0	2,3	4,30	1,6	6,70	8,0	0,2	1,0	323	323
14	14,00. R/L .30°.3,5	13,8	3,5	5,40	2,4	8,70	9,0	0,2	1,5	535	535
Steel										●	●
Stainless steel										●	●
Cast iron										●	●
Non ferrous metals										●	●
Heat resistant alloys										●	●
hardened materials											

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MiniCut – Internal turning and chamfering insert

CWX500 CWX500







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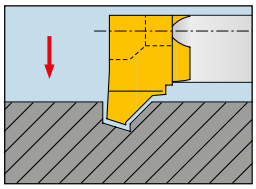
Illustrations show right-hand versions

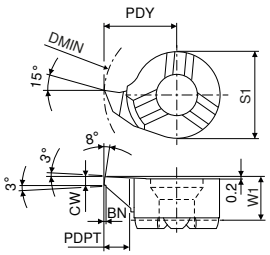
Size	Designation	DMIN mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	CRE mm	CDX mm	Left-hand Article no. 73 336 ...	Right-hand Article no. 73 334 ...
08	8,00. R/L .45°.1,4	8	1,4	3,50	1,8	4,8	6,0	0,2	0,6	010	010
09	9,00. R/L .45°.1,3	9	1,3	3,55	1,8	5,5	6,2	0,2	0,8	110	110
11	11,00. R/L .45°.1,5	11	1,5	4,30	2,2	6,7	8,0	0,2	1,0	310	310
14	14,00. R/L .45°.1,5	14	1,5	5,40	2,8	9,0	9,0	0,2	1,2	510	510
Steel										●	●
Stainless steel										●	●
Cast iron										●	●
Non ferrous metals										●	●
Heat resistant alloys										●	●
hardened materials											

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MiniCut – Insert for pregrooving and chamfering

CWX500 CWX500







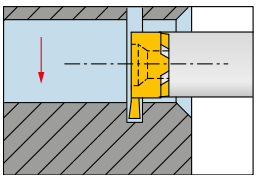
Illustrations show right-hand versions

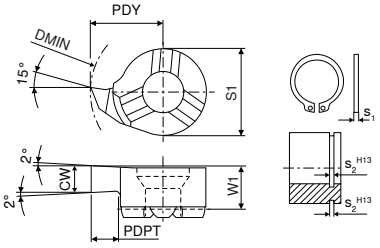
Size	Designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	BN mm	Left-hand Article no. 73 340 ...	Right-hand Article no. 73 338 ...
08	8,00. R/L .1,00.45°	8	1	1,0	3,3	4,8	6,0	0,2	100	100
09	9,00. R/L .1,00.45°	9	1	1,5	3,6	5,5	6,2	0,2	215	215
11	11,00. R/L .1,00.45°	11	1	1,5	4,2	6,7	8,0	0,2	315	315
14	14,00. R/L .1,00.45°	14	1	1,5	5,3	9,0	9,0	0,2	515	515
16	16,00. R/L .1,00.45°	16	1	1,5	5,4	10,2	11,0	0,2	715	715

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 60

MiniCut – Grooving insert





CWX500 CWX500



Illustrations show right-hand versions

Size	Designation	DMIN	CW	PDPT	W1	S1	S2 H13	PDY	S1	Left-hand Article no. 73 312 ...	Right-hand Article no. 73 310 ...
		mm	mm	mm	mm	mm	mm	mm	mm		
08	8,00. R/L .0,73.1,0	8	0,73	1,0	3,3	0,6	0,7	4,8	6,0	073	073
	8,00. R/L .0,83.1,0	8	0,83	1,0	3,3	0,7	0,8	4,8	6,0	083	083
	8,00. R/L .0,93.1,0	8	0,93	1,0	3,3	0,8	0,9	4,8	6,0	093	093
	8,00. R/L .1,00.1,0	8	1,00	1,0	3,3			4,8	6,0	110	110
	8,00. R/L .1,20.1,0	8	1,20	1,0	3,3	1,0	1,1	4,8	6,0	112	112
	8,00. R/L .1,40.1,0	8	1,40	1,0	3,3	1,2	1,3	4,8	6,0	114	114
	8,00. R/L .1,50.1,0	8	1,50	1,0	3,3			4,8	6,0	115	115
	8,00. R/L .1,70.1,0	8	1,70	1,0	3,3	1,5	1,6	4,8	6,0	117	117
	8,00. R/L .2,00.1,0	8	2,00	1,0	3,3			4,8	6,0	120	120
09	9,00. R/L .0,73.1,2	9	0,73	1,2	3,6	0,6	0,7	5,5	6,2	173	173
	9,00. R/L .0,83.1,3	9	0,83	1,3	3,6	0,7	0,8	5,5	6,2	183	183
	9,00. R/L .0,93.1,5	9	0,93	1,5	3,6	0,8	0,9	5,5	6,2	193	193
	9,00. R/L .1,00.1,8	9	1,00	1,8	3,6			5,5	6,2	210	210
	9,00. R/L .1,20.1,8	9	1,20	1,8	3,6	1,0	1,1	5,5	6,2	212	212
	9,00. R/L .1,40.1,8	9	1,40	1,8	3,6	1,2	1,3	5,5	6,2	214	214
	9,00. R/L .1,50.1,8	9	1,50	1,8	3,6			5,5	6,2	215	215
	9,00. R/L .1,70.1,8	9	1,70	1,8	3,6	1,5	1,6	5,5	6,2	217	217
	9,00. R/L .2,00.1,8	9	2,00	1,8	3,6			5,5	6,2	220	220
	9,00. R/L .2,50.1,8	9	2,50	1,8	3,6			5,5	6,2	225	225
	9,00. R/L .3,00.1,8	9	3,00	1,8	3,6			5,5	6,2	230	230
11	11,00. R/L .0,73.1,2	11	0,73	1,2	4,2	0,6	0,7	6,7	8,0	373	373
	11,00. R/L .0,83.1,3	11	0,83	1,3	4,2	0,7	0,8	6,7	8,0	383	383
	11,00. R/L .0,93.1,5	11	0,93	1,5	4,2	0,8	0,9	6,7	8,0	393	393
	11,00. R/L .1,00.2,3	11	1,00	2,3	4,2			6,7	8,0	310	310
	11,00. R/L .1,20.2,3	11	1,20	2,3	4,2	1,0	1,1	6,7	8,0	312	312
	11,00. R/L .1,40.2,3	11	1,40	2,3	4,2	1,2	1,3	6,7	8,0	314	314
	11,00. R/L .1,50.2,3	11	1,50	2,3	4,2			6,7	8,0	315	315
	11,00. R/L .1,70.2,3	11	1,70	2,3	4,2	1,5	1,6	6,7	8,0	317	317
	11,00. R/L .2,00.2,3	11	2,00	2,3	4,2			6,7	8,0	320	320
	11,00. R/L .2,50.2,3	11	2,50	2,3	4,2			6,7	8,0	325	325
	11,00. R/L .3,00.2,3	11	3,00	2,3	4,2			6,7	8,0	330	330
14	14,00. R/L .0,73.1,2	14	0,73	1,2	5,3	0,6	0,7	9,0	9,0	573	573
	14,00. R/L .0,83.1,3	14	0,83	1,3	5,3	0,7	0,8	9,0	9,0	583	583
	14,00. R/L .0,93.1,5	14	0,93	1,5	5,3	0,8	0,9	9,0	9,0	593	593
	14,00. R/L .1,20.4,0	14	1,20	4,0	5,3	1,0	1,1	9,0	9,0	512	512
	14,00. R/L .1,40.4,0	14	1,40	4,0	5,3	1,2	1,3	9,0	9,0	514	514
	14,00. R/L .1,50.4,0	14	1,50	4,0	5,3			9,0	9,0	515	515
	14,00. R/L .1,70.4,0	14	1,70	4,0	5,3	1,5	1,6	9,0	9,0	517	517
	14,00. R/L .2,00.4,0	14	2,00	4,0	5,3			9,0	9,0	520	520
	14,00. R/L .2,50.4,0	14	2,50	4,0	5,3			9,0	9,0	525	525
	14,00. R/L .3,00.4,0	14	3,00	4,0	5,3			9,0	9,0	530	530
16	16,00. R/L .0,73.1,2	16	0,73	1,2	5,4	0,6	0,7	10,2	11,0	773	773
	16,00. R/L .0,83.1,3	16	0,83	1,3	5,4	0,7	0,8	10,2	11,0	783	783
	16,00. R/L .0,93.1,5	16	0,93	1,5	5,4	0,8	0,9	10,2	11,0	793	793
	16,00. R/L .1,20.4,3	16	1,20	4,3	5,4	1,0	1,1	10,2	11,0	712	712
	16,00. R/L .1,40.4,3	16	1,40	4,3	5,4	1,2	1,3	10,2	11,0	714	714
	16,00. R/L .1,50.4,3	16	1,50	4,3	5,4			10,2	11,0	715	715
	16,00. R/L .1,70.4,3	16	1,70	4,3	5,4	1,5	1,6	10,2	11,0	717	717
	16,00. R/L .2,00.4,3	16	2,00	4,3	5,4			10,2	11,0	720	720
	16,00. R/L .2,50.4,3	16	2,50	4,3	5,4			10,2	11,0	725	725
	16,00. R/L .3,00.4,3	16	3,00	4,3	5,4			10,2	11,0	730	730
	16,00. R/L .3,50.4,3	16	3,50	4,3	5,4			10,2	11,0	735	735
	16,00. R/L .4,00.4,3	16	4,00	4,3	5,4			10,2	11,0	740	740

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

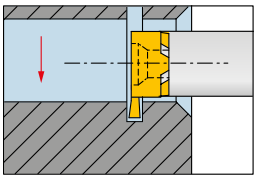
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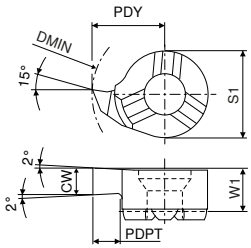
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MiniCut – Grooving insert

▲ large groove depth ($T_{max.}$ 5.5 mm)

CWX500 CWX500







Illustrations show right-hand versions

Size	Designation	DMIN mm	CW +0,03 mm	PDPT mm	W1 mm	PDY mm	S1 mm	Left-hand Article no. 73 372 ...	Right-hand Article no. 73 370 ...
14	14,00. R/L .1,50.5,5	16	1,5	5,5	5,2	10,5	9	715	715
	14,00. R/L .2,00.5,5	16	2,0	5,5	5,2	10,5	9	720	720
	14,00. R/L .2,50.5,5	16	2,5	5,5	5,2	10,5	9	725	725
	14,00. R/L .3,00.5,5	16	3,0	5,5	5,2	10,5	9	730	730

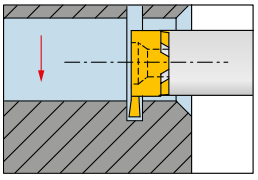
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

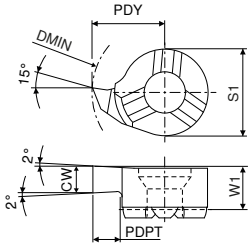
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MiniCut – Grooving insert

▲ large groove depth ($T_{max.}$ 6.5 mm)

CWX500 CWX500







Illustrations show right-hand versions

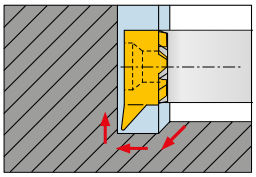
Size	Designation	DMIN mm	CW +0,03 mm	PDPT mm	W1 mm	PDY mm	S1 mm	Left-hand Article no. 73 384 ...	Right-hand Article no. 73 382 ...
14	14,00. R/L .1,50.6,5	17	1,5	6,5	5,2	11,5	9	515	515
	14,00. R/L .2,00.6,5	17	2,0	6,5	5,2	11,5	9	520	520
	14,00. R/L .2,50.6,5	17	2,5	6,5	5,2	11,5	9	525	525
	14,00. R/L .3,00.6,5	17	3,0	6,5	5,2	11,5	9	530	530

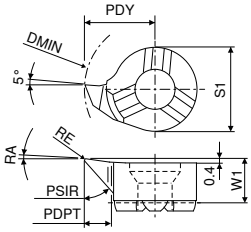
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 60

MiniCut – Internal undercut insert

CWX500 CWX500







Illustrations show right-hand versions

Size	Designation	DMIN mm	PDPT mm	W1 mm	PDY mm	S1 mm	RE mm	CDX mm	PSIR °	RA °	Left-hand Article no. 73 328 ...	Right-hand Article no. 73 326 ...
08	8,00. R/L .30°.1,0	7,8	1,0	3,5	4,65	6,0	0,2	0,4	30	3	010	010
	8,00. R/L .47°.1,2	7,8	1,2	3,5	4,65	6,0	0,2	0,4	47	3	012	012
09	9,00. R/L .47°.1,5	9,0	1,5	3,6	5,50	6,2	0,2	0,5	47	3	115	115
11	11,00. R/L .30°.2,3	11,0	2,3	4,2	6,70	8,0	0,2	0,6	30	3	423	423
	11,00. R/L .47°.2,3	11,0	2,3	4,2	6,70	8,0	0,2	0,6	47	3	323	323
14	13,70. R/L .47°.3,0	13,7	3,0	5,3	8,70	9,0	0,2	0,8	47	3	530	530
	13,70. R/L .30°.4,0	13,7	4,0	5,3	8,70	9,0	0,2	0,8	30	3	540	540
16	15,80. R/L .30°.4,3	15,8	4,3	5,4	10,20	11,0	0,2	1,0	30	3	744	744

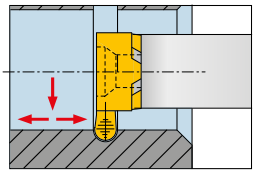
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

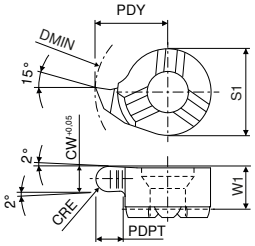
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MiniCut – Full radius grooving and turning insert

CWX500 CWX500







Illustrations show right-hand versions

Size	Designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	CRE mm	Left-hand Article no. 73 320 ...	Right-hand Article no. 73 318 ...
08	8,00. R/L .0,80.1,0	8	0,8	1,0	3,3	4,8	6,0	0,4	008	008
	8,00. R/L .1,20.1,0	8	1,2	1,0	3,3	4,8	6,0	0,6	012	012
	8,00. R/L .1,80.1,0	8	1,8	1,0	3,3	4,8	6,0	0,9	018	018
	8,00. R/L .2,00.1,0	8	2,0	1,0	3,3	4,8	6,0	1,0	020	020
09	9,00. R/L .0,80.1,6	9	0,8	1,6	3,6	5,5	6,2	0,4	108	108
	9,00. R/L .1,20.1,6	9	1,2	1,6	3,6	5,5	6,2	0,6	112	112
	9,00. R/L .1,80.1,6	9	1,8	1,6	3,6	5,5	6,2	0,9	118	118
	9,00. R/L .2,00.1,6	9	2,0	1,6	3,6	5,5	6,2	1,0	120	120
11	11,00. R/L .0,80.2,3	11	0,8	2,3	4,2	6,7	8,0	0,4	308	308
	11,00. R/L .1,20.2,3	11	1,2	2,3	4,2	6,7	8,0	0,6	312	312
	11,00. R/L .1,60.2,3	11	1,6	2,3	4,2	6,7	8,0	0,8	316	316
	11,00. R/L .1,80.2,3	11	1,8	2,3	4,2	6,7	8,0	0,9	318	318
	11,00. R/L .2,00.2,3	11	2,0	2,3	4,2	6,7	8,0	1,0	320	320
	11,00. R/L .2,40.2,3	11	2,4	2,3	4,2	6,7	8,0	1,2	324	324
	11,00. R/L .3,00.2,3	11	3,0	2,3	4,2	6,7	8,0	1,5	330	330
14	14,00. R/L .0,80.4,0	14	0,8	4,0	5,3	9,0	9,0	0,4	508	508
	14,00. R/L .1,20.4,0	14	1,2	4,0	5,3	9,0	9,0	0,6	512	512
	14,00. R/L .1,80.4,0	14	1,8	4,0	5,3	9,0	9,0	0,9	518	518
	14,00. R/L .2,00.4,0	14	2,0	4,0	5,3	9,0	9,0	1,0	520	520
	14,00. R/L .2,20.4,0	14	2,2	4,0	5,3	9,0	9,0	1,1	522	522
	14,00. R/L .3,00.4,0	14	3,0	4,0	5,3	9,0	9,0	1,5	530	530
16	16,00. R/L .1,60.4,3	16	1,6	4,3	5,4	10,2	11,0	0,8	716	716
	16,00. R/L .1,80.4,3	16	1,8	4,3	5,4	10,2	11,0	0,9	718	718
	16,00. R/L .2,00.4,3	16	2,0	4,3	5,4	10,2	11,0	1,0	720	720
	16,00. R/L .2,20.4,3	16	2,2	4,3	5,4	10,2	11,0	1,1	722	722
	16,00. R/L .2,40.4,3	16	2,4	4,3	5,4	10,2	11,0	1,2	724	724
	16,00. R/L .3,00.4,3	16	3,0	4,3	5,4	10,2	11,0	1,5	730	730
	16,00. R/L .3,20.4,3	16	3,2	4,3	5,4	10,2	11,0	1,6	732	732
	16,00. R/L .4,00.4,3	16	4,0	4,3	5,4	10,2	11,0	2,0	740	740

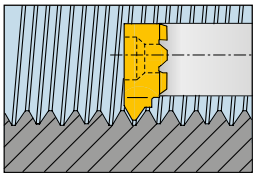
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

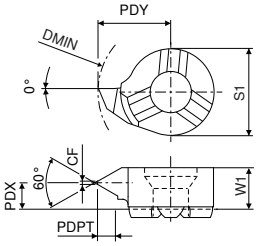
→ v_c Page 60

MiniCut – Threading insert (Partial profile)

M | 60°

CWX500 | CWX500







Illustrations show right-hand versions

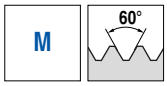
Size	Designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand Article no. 73 344 ...	Right-hand Article no. 73 342 ...
08	8,00. R/L .0,5/0,75.60°	8	0,5 - 0,75	0,06	0,43	3,50	2,7	4,8	6,0	012	012
	8,00. R/L .1,0/1,25.60°	8	1,0 - 1,25	0,12	0,70	3,50	2,7	4,8	6,0	014	014
	8,00. R/L .1,5/1,75.60°	8	1,5 - 1,75	0,18	0,95	3,50	2,5	4,8	6,0	010	010
09	9,00. R/L .0,5/0,75.60°	9	0,5 - 0,75	0,06	0,27	3,55	3,2	5,5	6,2	112	112
	9,00. R/L .1,0/1,25.60°	9	1,0 - 1,25	0,12	0,54	3,55	3,0	5,5	6,2	114	114
	9,00. R/L .1,5/1,75.60°	9	1,5 - 1,75	0,18	0,81	3,55	2,8	5,5	6,2	116	116
	9,00. R/L .1,75/2,0.60°	9	1,75 - 2,0	0,20	0,95	3,55	2,6	5,5	6,2	118	118
	9,00. R/L .2,0/2,5.60°	9	2,0 - 2,5	0,25	1,08	3,55	2,5	5,5	6,2	120	120
	9,00. R/L .2,5/3,0.60°	9	2,5 - 3,0	0,31	1,35	3,55	2,1	5,5	6,2	122	122
	9,00. R/L .3,0/3,5.60°	9	3,0 - 3,5	0,37	1,62	3,55	1,9	5,5	6,2	124	124
11	11,00. R/L .0,5/0,75.60°	11	0,5 - 0,75	0,06	0,75	4,30	3,5	6,7	8,0	312	312
	11,00. R/L .1,0/1,25.60°	11	1,0 - 1,25	0,12	0,55	4,30	3,5	6,7	8,0	314	314
	11,00. R/L .1,5/1,75.60°	11	1,5 - 1,75	0,18	0,81	4,30	3,5	6,7	8,0	316	316
	11,00. R/L .2,0/2,5.60°	11	2,0 - 2,5	0,25	1,08	4,30	3,0	6,7	8,0	310	310
	11,00. R/L .2,5/3,0.60°	11	2,5 - 3,0	0,31	1,35	4,30	3,0	6,7	8,0	320	320
14	14,00. R/L .1,0/1,25.60°	14	1,0 - 1,25	0,12	0,55	5,40	4,7	9,0	9,0	512	512
	14,00. R/L .1,5/1,75.60°	14	1,5 - 1,75	0,18	0,81	5,40	4,5	9,0	9,0	514	514
	14,00. R/L .2,0/2,5.60°	14	2,0 - 2,5	0,25	1,08	5,40	4,2	9,0	9,0	510	510
	14,00. R/L .2,5/3,0.60°	14	2,5 - 3,0	0,31	1,35	5,40	4,7	9,0	9,0	520	520
16	16,00. R/L .1,0/1,25.60°	16	1,0 - 1,25	0,12	0,55	5,50	4,7	10,2	11,0	712	712
	16,00. R/L .1,5/1,75.60°	16	1,5 - 1,75	0,18	0,81	5,50	4,5	10,2	11,0	714	714
	16,00. R/L .2,0/2,5.60°	16	2,0 - 2,5	0,25	1,08	5,50	4,2	10,2	11,0	716	716
	16,00. R/L .2,5/3,0.60°	16	2,5 - 3,0	0,31	1,35	5,50	4,2	10,2	11,0	710	710

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

12

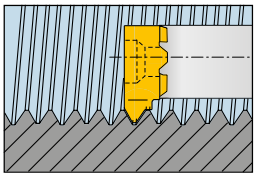
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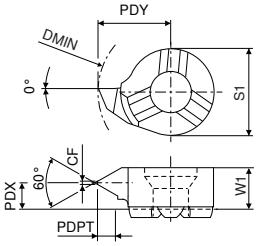
MiniCut – Threading insert (Full profile)













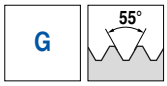
Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand Article no. 73 348 ...	Right-hand Article no. 73 346 ...
09	9,00. R/L .0,5.60°	9	0,50	0,06	0,27	3,55	3,25	5,5	6,2	405	405
	9,00. R/L .1,0.60°	9	1,00	0,12	0,54	3,55	3,00	5,5	6,2	410	410
	9,00. R/L .1,5.60°	9	1,50	0,18	0,81	3,55	2,80	5,5	6,2	415	415
	9,00. R/L .1,75.60°	9	1,75	0,20	0,95	3,55	2,70	5,5	6,2	418	418
	9,00. R/L .2,0.60°	9	2,00	0,25	1,08	3,55	2,60	5,5	6,2	420	420
	9,00. R/L .2,5.60°	9	2,50	0,31	1,35	3,55	2,50	5,5	6,2	425	425
	9,00. R/L .3,0.60°	9	3,00	0,37	1,62	3,55	2,20	5,5	6,2	430	430
11	11,00. R/L .1,0.60°	11	1,00	0,12	0,54	4,30	3,50	6,7	8,0	314	314
	11,00. R/L .1,5.60°	11	1,50	0,18	0,81	4,30	3,50	6,7	8,0	316	316
	11,00. R/L .2,0.60°	11	2,00	0,25	1,08	4,30	3,20	6,7	8,0	310	310
	11,00. R/L .2,5.60°	11	2,50	0,31	1,35	4,30	3,00	6,7	8,0	320	320
	11,00. R/L .3,0.60°	11	3,00	0,37	1,62	4,30	2,90	6,7	8,0	330	330
14	14,00. R/L .0,5.60°	14	0,50	0,06	0,27	5,40	3,50	9,0	9,0	510	510
	14,00. R/L .1,0.60°	14	1,00	0,12	0,54	5,40	3,50	9,0	9,0	512	512
	14,00. R/L .1,5.60°	14	1,50	0,18	0,81	5,40	3,30	9,0	9,0	514	514
	14,00. R/L .2,0.60°	14	2,00	0,25	1,08	5,40	4,20	9,0	9,0	610	610
	14,00. R/L .2,5.60°	14	2,50	0,31	1,35	5,40	4,70	9,0	9,0	520	520
16	16,00. R/L .1,0.60°	16	1,00	0,12	0,54	5,50	4,70	10,2	11,0	712	712
	16,00. R/L .1,5.60°	16	1,50	0,18	0,81	5,50	4,50	10,2	11,0	714	714
	16,00. R/L .2,0.60°	16	2,00	0,25	1,08	5,50	4,20	10,2	11,0	716	716
	16,00. R/L .2,5.60°	16	2,50	0,31	1,35	5,50	4,20	10,2	11,0	710	710
	16,00. R/L .3,0.60°	16	3,00	0,37	1,62	5,50	4,00	10,2	11,0	720	720
	16,00. R/L .3,5.60°	16	3,50	0,43	1,89	5,50	3,80	10,2	11,0	730	730
	16,00. R/L .4,0.60°	16	4,00	0,50	2,16	5,50	3,60	10,2	11,0	740	740

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

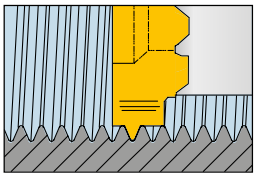
→ v_c Page 60

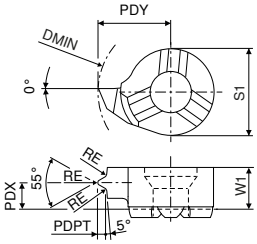
MiniCut – Threading insert (Full profile)













Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	TPI 1/"	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	RE mm	Left-hand Article no. 73 352 ...	Right-hand Article no. 73 350 ...
11	11,00. R/L .1,814.55°	11	1,814	14	1,16	4,30	3,0	6,7	8	0,24	306	306
	11,00. R/L .1,337.55°	11	1,337	19	0,85	4,30	2,7	6,7	8	0,18	304	304
14	14,00. R/L .1,814.55°	14	1,814	14	1,16	5,35	3,6	9,0	9	0,24	506	506
	14,00. R/L .1,337.55°	14	1,337	19	0,85	5,35	3,8	9,0	9	0,18	504	504
16	16,00. R/L .2,309.55°	16	2,309	11	1,48	5,50	3,5	10,2	11	0,31	708	708
	16,00. R/L .1,814.55°	16	1,814	14	1,16	5,50	3,9	10,2	11	0,24	706	706

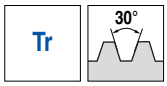
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 60

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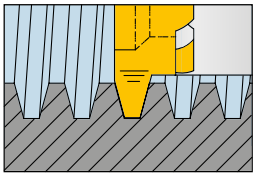
MiniCut – Threading insert (Partial profile)

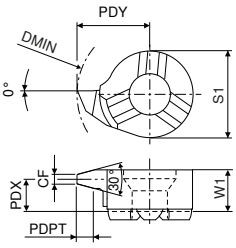
▲ Trapezoidal thread DIN 103













Illustrations show right-hand versions

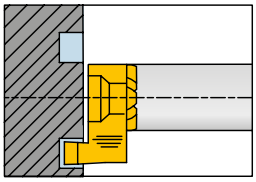
Size	Designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand Article no. 73 356 ...	Right-hand Article no. 73 354 ...
09	9,00. R/L .1,5.30°	9	1,5	0,47	0,90	3,55	3,00	5,5	6,2	415	415
	9,00. R/L .2,0.30°	9	2,0	0,60	1,25	3,55	2,85	5,5	6,2	420	420
	9,00. R/L .3,0.30°	9	3,0	0,96	1,75	3,55	2,25	5,5	6,2	430	430
	9,00. R/L .4,0.30°	10	4,0	1,33	2,25	3,55	2,25	5,5	6,2	440	440
11	11,00. R/L .1,5.30°	11	1,5	0,47	0,90	4,30	3,70	6,7	8,0	315	315
	11,00. R/L .2,0.30°	11	2,0	0,60	1,25	4,30	3,50	6,7	8,0	320	320
	11,00. R/L .3,0.30°	11	3,0	0,96	1,75	4,30	3,20	6,7	8,0	330	330
	11,00. R/L .4,0.30°	11	4,0	1,33	2,25	3,95	2,60	6,7	8,0	340	340
14	14,00. R/L .2,0.30°	14	2,0	0,60	1,25	5,30	4,30	9,0	9,0	520	520
	14,00. R/L .3,0.30°	14	3,0	0,96	1,75	5,30	4,00	9,0	9,0	530	530
	14,00. R/L .4,0.30°	14	4,0	1,33	2,25	5,30	3,60	9,0	9,0	540	540
	14,00. R/L .5,0.30°	14	5,0	1,69	2,75	5,30	3,30	9,0	9,0	550	550
16	16,00. R/L .2,0.30°	16	2,0	0,60	1,25	5,50	4,50	9,7	11,0	720	720
	16,00. R/L .3,0.30°	16	3,0	0,96	1,75	5,50	4,30	9,7	11,0	730	730
	16,00. R/L .4,0.30°	16	4,0	1,33	2,25	5,50	4,00	9,7	11,0	740	740
	16,00. R/L .5,0.30°	16	5,0	1,69	2,75	5,50	3,55	9,7	11,0	750	750
	16,00. R/L .6,0.30°	16	6,0	1,92	3,50	5,50	3,30	10,2	11,0	760	760

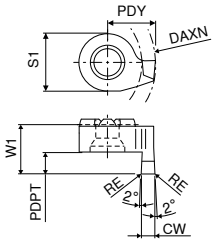
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 60

MiniCut – Axial grooving insert

CWX500 CWX500







Illustrations show right-hand versions

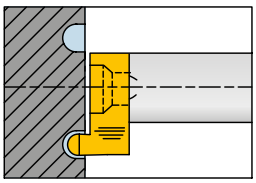
Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	RE mm	S1 mm	Left-hand Article no. 73 364 ...	Right-hand Article no. 73 362 ...
14	14,00. R/L .1,0.1,5	14	1,0	1,5	8,3	9		9	510	510
	14,00. R/L .1,5.2,5	14	1,5	2,5	8,3	9	0,2	9	515	515
	14,00. R/L .2,0.3,0	14	2,0	3,0	8,3	9	0,2	9	520	520
	14,00. R/L .2,0.5,0	14	2,0	5,0	10,3	9	0,2	9	620	620
	14,00. R/L .2,5.3,0	14	2,5	3,0	8,3	9	0,2	9	525	525
	14,00. R/L .2,5.5,0	14	2,5	5,0	10,3	9	0,2	9	625	625
	14,00. R/L .3,0.3,0	14	3,0	3,0	8,3	9	0,2	9	530	530
	14,00. R/L .3,0.5,0	14	3,0	5,0	10,3	9	0,2	9	630	630

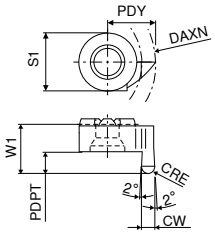
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 60

MiniCut – Full radius axial grooving insert

CWX500 CWX500







Illustrations show right-hand versions

Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	CRE mm	S1 mm	Left-hand Article no. 73 376 ...	Right-hand Article no. 73 374 ...
14	14,00. R/L . 1,0.1,5	14	1,0	1,5	8,3	9	0,5	9	510	510
	14,00. R/L . 1,6.2,5	14	1,6	2,5	8,3	9	0,8	9	516	516
	14,00. R/L . 2,0.3,0	14	2,0	3,0	8,3	9	1,0	9	520	520
	14,00. R/L . 2,5.3,0	14	2,5	3,0	8,3	9	1,2	9	525	525
	14,00. R/L . 3,0.3,0	14	3,0	3,0	8,3	9	1,5	9	530	530

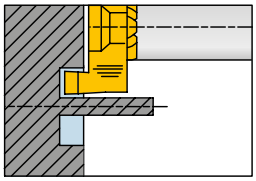
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

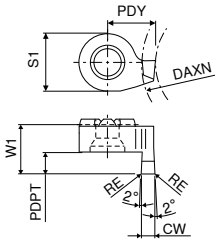
→ v_c Page 60

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MiniCut – Axial grooving insert over a spigot

CWX500 CWX500







Illustrations show right-hand versions

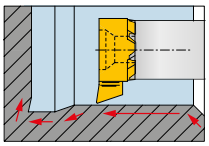
Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	RE mm	S1 mm	Left-hand Article no. 73 360 ...	Right-hand Article no. 73 358 ...
12	12,00. R/L .1,0.1,5	12	1,0	1,5	8,3	7,0		9	310	310
	12,00. R/L .1,5.2,5	12	1,5	2,5	8,3	7,5	0,2	9	315	315
	12,00. R/L .2,0.3,0	12	2,0	3,0	8,3	8,0	0,2	9	320	320
	12,00. R/L .2,0.5,0	12	2,0	5,0	10,3	8,0	0,2	9	420	420
	12,00. R/L .2,5.3,0	12	2,5	3,0	8,3	8,5	0,2	9	325	325
	12,00. R/L .2,5.5,0	12	2,5	5,0	10,3	8,5	0,2	9	425	425
	12,00. R/L .3,0.3,0	12	3,0	3,0	8,3	9,0	0,2	9	330	330
	12,00. R/L .3,0.5,0	12	3,0	5,0	10,3	9,0	0,2	9	430	430

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

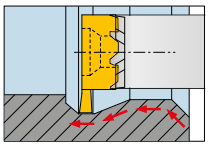
→ v_c Page 60

Set: MiniCut size 9

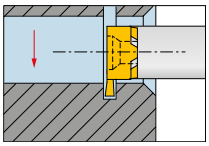
- ▲ Extensive range of size 9 inserts
- ▲ CWX 500



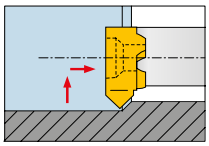
Profile turning (K)



Profile turn (A)



Grooving (E)

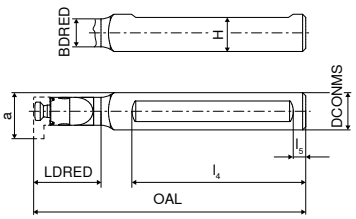


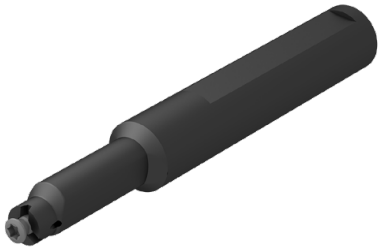
Chamfers (F)



Tool	Designation	Article number	Bore Ø mm	Width mm	Grooving depth mm	Piece	fig.	Article no. 73 528 ...
Grooving insert	**9,00. R .1,00.1,8**	**73 310 210**	9	1,00	1,8	1	E	
NC fine turning insert	**9,00. R .2,00.2,0**	**73 314 120**	9	2,0 +0,05	2,0	1	A	
Profiling insert	**9,00. R .3,60.10°**	**73 386 136**	9	3,6		1	K	
Profiling insert	**9,00. R .3,60.20°**	**73 322 236**	9	3,6		1	K	**125**
Chamfering insert	**9,00. R .45°.1,3**	**73 334 110**	9		1,3	1	F	
Tool holder	**9,00/16.N.25.1,0**	**73 522 125**				1		
Tightening Key		**70 950 105**				1		

MiniCut – Steel Tool holder





Size	Designation	a	DCONMS $_{f7}$	OAL	l_4	LDRED	BDRED	H	l_5	Article no. 73 522 ...
		mm	mm	mm	mm	mm	mm	mm	mm	
08	8,00/16.N.12.1,0	7,8	16	80	60	12	6,0	15,0	5	012
	8,00/16.N.22.1,0	7,8	16	90	60	22	6,0	15,0	5	122
09	9,00/16.N.14.1,8	8,6	16	95	60	14	7,4	15,0	5	014
	9,00/16.N.25.1,8	8,6	16	105	60	25	7,4	15,0	5	125
11	11,00/16.N.16.2,3	10,7	16	97	60	16	8,0	14,5	5	016
	11,00/16.N.29.2,3	10,7	16	110	60	29	8,0	14,5	5	129
14	14,00/16.N.18.4,0	13,8	16	100	60	18	11,0	14,5	5	018
	14,00/16.N.38.4,0	13,8	16	120	60	38	11,0	14,5	5	138
16	16,00/16.N.22.4,3	15,7	16	100	60	22	11,0	14,5	5	022
	16,00/16.N.42.4,3	15,7	16	120	60	42	11,0	14,5	5	142



Key D

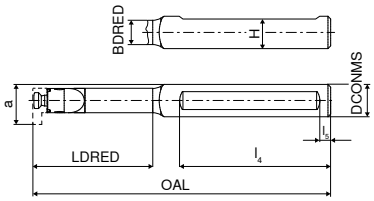


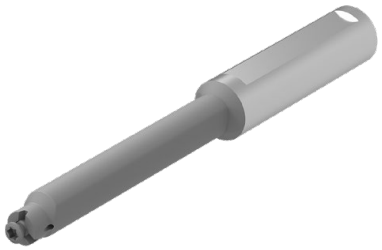
Clamping screw

Spare parts		Article no. 80 950 ...		Article no. 73 082 ...
Size				
08	T08	110	M2,6	002
09	T08	110	M2,6	002
11	T10	112	M3,5	003
14	T15	113	M4	004
16	T20	114	M5	005

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MiniCut – Solid Carbide Tool holder – vibration damped





Size	Designation	a	DCONMS $_{f7}$	OAL	l_4	LDRED	BDRED	H	l_5	Article no. 73 520 ...
		mm	mm	mm	mm	mm	mm	mm	mm	
08	8,00/12.N.21.1,0 HM	7,8	12	80	48	21	6,0	11,0	5	021
	8,00/12.N.30.1,0 HM	7,8	12	90	48	30	6,0	11,0	5	030
	8,00/12.N.42.1,0 HM	7,8	12	100	48	42	6,0	11,0	5	042
	8,00/12.N.50.1,0 HM	7,8	12	115	48	50	6,0	11,0	5	050
09	9,00/12.N.22.1,0 HM	8,6	12	90	60	22	7,4	11,0	5	222
	9,00/12.N.30.2,0 HM	8,6	12	98	60	30	7,4	11,0	5	230
	9,00/12.N.42.3,0 HM	8,6	12	110	60	42	7,4	11,0	5	242
	9,00/12.N.56.4,0 HM	8,6	12	122	60	56	7,4	11,0	5	256
11	11,00/12.N.29.2,3 HM	10,7	12	95	60	29	8,0	10,5	5	129
	11,00/12.N.42.2,3 HM	10,7	12	110	60	42	8,0	10,5	5	142
	11,00/12.N.56.2,3 HM	10,7	12	120	60	56	8,0	10,5	5	156
	11,00/12.N.64.2,3 HM	10,7	12	130	60	64	8,0	10,5	5	164
14	14,00/12.N.34.4,0 HM	13,8	12	100	60	34	11,0	10,5	5	234
	14,00/12.N.45.4,0 HM	13,8	12	110	60	45	11,0	10,5	5	245
	14,00/12.N.64.4,0 HM	13,8	12	130	60	64	11,0	10,5	5	264
	14,00/16.N.34.4,0 HM	13,8	16	100	60	34	11,0	14,5	5	334
	14,00/16.N.45.4,0 HM	13,8	16	110	60	45	11,0	14,5	5	345
	14,00/16.N.64.4,0 HM	13,8	16	130	60	64	11,0	14,5	5	364
	14,00/16.N.75.4,0 HM	13,8	16	145	60	75	11,0	14,5	5	375
16	16,00/12.N.40.4,3 HM	15,7	12	130	60	40	11,0	10,5	5	440
	16,00/12.N.56.4,3 HM	15,7	12	130	60	56	11,0	10,5	5	456
	16,00/12.N.80.4,3 HM	15,7	12	150	60	80	11,0	10,5	5	480
	16,00/16.N.40.4,3 HM	15,7	16	130	60	40	11,0	14,5	5	540
	16,00/16.N.56.4,3 HM	15,7	16	130	60	56	11,0	14,5	5	556
	16,00/16.N.80.4,3 HM	15,7	16	150	60	80	11,0	14,5	5	580

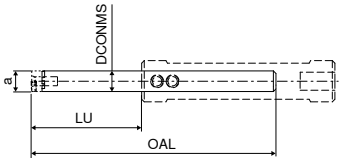
Key D

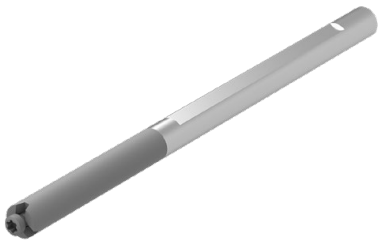


Clamping screw

Spare parts		Article no. 80 950 ...		Article no. 73 082 ...
Size				
08	T08	110	M2,6	002
09	T08	110	M2,6	002
11	T10	112	M3,5	003
14	T15	113	M4	004
16	T20	114	M5	005

MiniCut – HM – Flexoholder





Size	Designation	DCONMS mm	OAL mm	LU mm	a mm	Article no. 73 525 ...
08	8,0/6.N16/2	6	65	18	8	818
	8,0/6.N40/4	6	103	40	8	840
11	11,0/8.N20/2	8	79	20	11	120 1)
	11,0/8.N50/4	8	129	50	11	150 1)

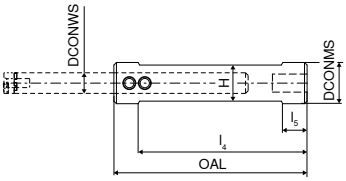
1) with thro' coolant


Key D


Clamping screw

Spare parts		Article no. 80 950 ...		Article no. 73 082 ...
Size				
08	T08	110	M2,6	002
11	T10	112	M3,5	003

MiniCut – Base holder for solid carbide Flexoholder





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Size	Designation	DCONWS mm	DCONMS mm	H mm	OAL mm	l_4 mm	l_5 mm	Article no. 73 526 ...
08	8/16.75	6	16	14	75	55	10	816
	8/20.90	6	20	18	90	70	10	820
11	11/16.75	8	16	14	75	55	10	116
	11/20.90	8	20	18	90	70	10	120

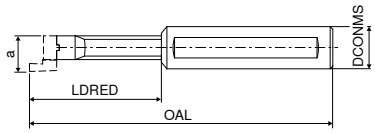

Key I

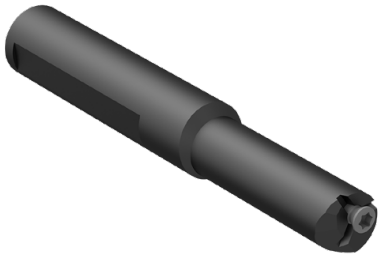

Clamping screw

Spare parts		Article no. 70 950 ...		Article no. 73 082 ...
for Article no.				
73 526 816	SW2,5	175	M5x0,5x6	010
73 526 820	SW2,5	175	M5x0,5x6	010
73 526 116	SW2,5	175	M5x0,5x4	009
73 526 120	SW2,5	175	M5x0,5x6	010

MiniCut – Steel holder

▲ for axial machining





Illustrations show right-hand versions

Size	Designation	a	DCONMS	OAL	LDRED	Left-hand	Right-hand
		mm	mm	mm	mm	Article no. 73 523 ...	Article no. 73 524 ...
14	14,0/16. R/L .25.1,0	13,5	16	90	25	025	025
	14,0/16. R/L .45.1,0	13,5	16	110	45	145	145



Key D

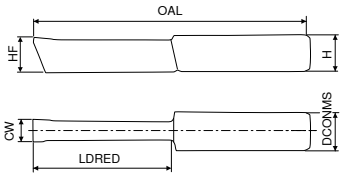


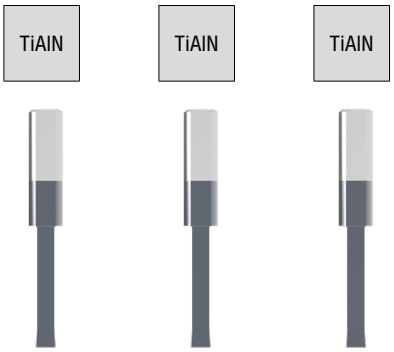
Clamping screw

Spare parts		Article no. 80 950 ...		Article no. 73 082 ...
Size				
14	T15	113	M4	004

SlotCut – Inserts – DIN 138

▲ b_1 = Groove width





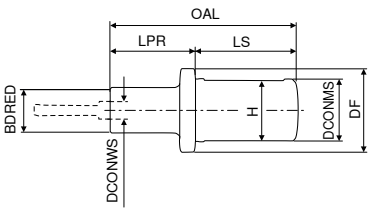
Designation	$b_{1\ P\,9/JS\,9/C\,11}$ mm	CW mm	HF mm	RE mm	OAL mm	LDRED mm	DAXN mm	$DCONMS_{h6}$ mm	H mm	clamping holder	Article no. 73 600 ...	Article no. 73 601 ...	Article no. 73 602 ...
NPU.0198.01.1	2	1,98	5,5	0,10	38	12,5	6	7	6,3	NHU			099
NPU.0200.01.1	2	2,01	5,5	0,10	38	12,5	6	7	6,3	NHU		099	
NPU.0210.03.1	2	2,10	5,5	0,35	38	12,5	6	7	6,3	NHU	098		
NPU.0298.01.1	3	2,98	6,2	0,10	38	12,5	7	7	6,3	NHU			100
NPU.0300.01.1	3	3,01	6,2	0,10	38	12,5	7	7	6,3	NHU		100	
NPU.0310.03.1	3	3,10	6,2	0,35	38	12,5	7	7	6,3	NHU	099		
NPU.0310.05.1	3	3,10	6,2	0,50	38	12,5	7	7	6,3	NHU	100		
NPU.0398.01.1	4	3,98	6,2	0,10	40	15,0	7	7	6,3	NHU			101
NPU.0398.02.2	4	3,98	6,2	0,20	50	25,0	7	7	6,3	NHU			102
NPU.0400.01.1	4	4,01	6,2	0,10	40	15,0	7	7	6,3	NHU		101	
NPU.0400.02.1	4	4,01	6,2	0,20	40	15,0	7	7	6,3	NHU		102	
NPU.0400.02.2	4	4,01	6,2	0,20	50	25,0	7	7	6,3	NHU		103	
NPU.0410.05.1	4	4,10	6,2	0,50	40	15,0	7	7	6,3	NHU	101		
NPU.0410.05.2	4	4,10	6,2	0,50	50	25,0	7	7	6,3	NHU	102		
NPU.0498.02.2	5	4,98	5,8	0,20	50	25,0	7	7	6,3	NHU			103
NPU.0500.02.2	5	5,01	5,8	0,20	50	25,0	8	7	6,3	NHU		104	

Tolerance **C 11** for 73 600 ..., Tolerance **JS 9** for 73 601 ..., Tolerance **P 9** for 73 602 ...

SlotCut – Toolholder for broaching inserts

Scope of supply:

Tool holder with clamping screw, without insert





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Designation	DCONWS mm	BDRED mm	$DCONMS_{g6}$ mm	DF mm	OAL mm	LS mm	LPR mm	H mm	Inserts	Article no. 73 610 ...
NHU.25	7	18	25	33	73	40	33	23	NPU	025
NHU.32	7	20	32	40	73	40	33	30	NPU	032

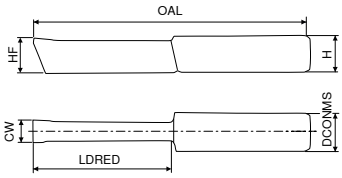

Key I

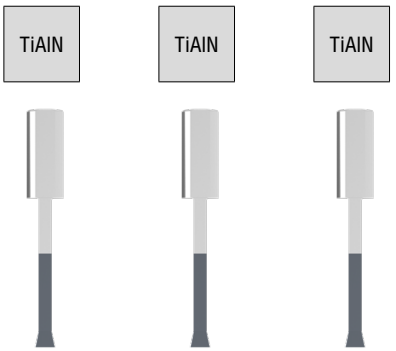

Clamping screw

Spare parts		Article no. 70 950 ...		Article no. 73 082 ...
for Article no.				
73 610 025	SW2,5	175	M5x6	001
73 610 032	SW2,5	175	M5x6	001

SlotCut – Inserts – DIN 138

▲ b_1 = Groove width





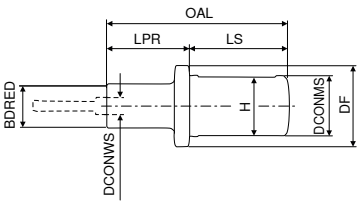
Designation	$b_{1\ JS\,9/P\,9/C\,11}$	CW	HF	RE	OAL	LDRED	DAXN	DCONMS $_{h6}$	H	clamping holder	Article no. 73 606 ...	Article no. 73 607 ...	Article no. 73 608 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
NP10.398.02.2	4	3,98	9	0,2	50	25	10	10	9,2	NH 10		101	
NP10.398.02.3	4	3,98	9	0,2	66	41	10	10	9,2	NH 10		102	
NP10.400.02.2	4	4,01	9	0,2	50	25	10	10	9,2	NH 10			101
NP10.400.02.3	4	4,01	9	0,2	66	41	10	10	9,2	NH 10			102
NP10.410.05.2	4	4,10	9	0,5	50	25	10	10	9,2	NH 10	101		
NP10.410.05.3	4	4,10	9	0,5	66	41	10	10	9,2	NH 10	102		
NP10.498.02.2	5	4,98	9	0,2	50	25	10	10	9,2	NH 10		103	
NP10.498.02.3	5	4,98	9	0,2	66	41	10	10	9,2	NH 10		104	
NP10.500.02.2	5	5,01	9	0,2	50	25	10	10	9,2	NH 10			103
NP10.500.02.3	5	5,01	9	0,2	66	41	10	10	9,2	NH 10			104
NP10.510.05.2	5	5,10	9	0,5	50	25	10	10	9,2	NH 10	103		
NP10.510.05.3	5	5,10	9	0,5	66	41	10	10	9,2	NH 10	104		

Tolerance **C 11** for 73 606 ..., Tolerance **P 9** for 73 607 ..., Tolerance **JS 9** for 73 608 ...

SlotCut – Toolholder for Cutting Inserts

Scope of supply:

Tool holder with clamping screw, without insert





Designation	DCONWS	BDRED	DCONMS $_{g6}$	DF	OAL	LS	LPR	H	Inserts	Article no. 73 612 ...
	mm	mm	mm	mm	mm	mm	mm	mm		
NH10.0025.1	10	20	25	33	73	40	33	23	NP10	025
NH10.0032.1	10	20	32	40	73	40	33	30	NP10	032



Key I

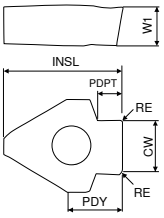


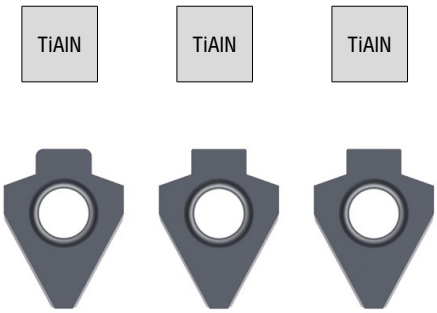
Grubscrew

Spare parts		Article no. 70 950 ...		Article no. 70 950 ...
for Article no.				
73 612 032	SW03	176	M6x5,5	031
73 612 025	SW03	176	M6x5,5	031

SlotCut – Inserts – DIN 138

▲ b_1 = Groove width





Designation	$b_{1\ P9/JS9/C11}$	CW	RE	PDY	INSL	PDPT	DAXN	W1	clamping holder	Article no. 73 603 ...	Article no. 73 604 ...	Article no. 73 605 ...
	mm	mm	mm	mm	mm	mm	mm	mm				
NV15.0398.02	4	3,98	0,20	6,5	13,0	2,3	15	3,2	NHV 15			**110**
NV15.0401.02	4	4,01	0,20	6,5	13,0	2,3	15	3,2	NHV 15		**110**	
NV15.0410.050	4	4,10	0,50	6,5	13,0	2,2	15	3,2	NHV 15	**108**		
NV15.0498.02	5	4,98	0,20	6,5	13,0	2,8	15	3,2	NHV 15			**111**
NV15.0501.02	5	5,01	0,20	6,5	13,0	2,8	15	3,2	NHV 15		**111**	
NV15.0510.050	5	5,10	0,50	6,5	13,0	2,5	15	3,2	NHV 15	**109**		
NV15.0598.02	6	5,98	0,20	6,5	13,0	3,3	15	3,2	NHV 15			**112**
NV15.0601.02	6	6,01	0,20	6,5	13,0	3,3	15	3,2	NHV 15		**112**	
NV15.0612.085	6	6,12	0,85	6,5	13,0	2,6	15	3,2	NHV 15	**110**		
NPV.0498.02	5	4,98	0,20	8,0	17,3	2,7	22	5,3	NHV 22			**100**
NPV.0501.02	5	5,01	0,20	8,0	17,3	2,7	22	5,3	NHV 22		**100**	
NPV.0598.02	6	5,98	0,20	8,0	17,3	3,4	22	5,3	NHV 22			**101**
NPV.0601.02	6	6,01	0,20	8,0	17,3	3,4	22	5,3	NHV 22		**101**	
NPV.0612.085	6	6,12	0,85	8,0	17,3	2,6	22	5,3	NHV 22	**101**		
NPV.0713.085	7	7,13	0,85	8,0	17,3	3,3	22	5,3	NHV 22	**102**		
NPV.0798.02	8	7,98	0,20	8,0	17,3	4,1	22	5,3	NHV 22/30			**102**
NPV.0801.02	8	8,01	0,20	8,0	17,3	4,1	22	5,3	NHV 22/30		**102**	
NPV.0813.105	8	8,13	1,05	8,0	17,3	3,4	22	5,3	NHV 22/30	**103**		
NPV.0998.03	10	9,98	0,30	8,0	17,3	4,2	30	5,3	NHV 30			**103**
NPV.1001.03	10	10,01	0,30	8,0	17,3	4,2	30	5,3	NHV 30		**103**	
NPV.1013.105	10	10,13	1,05	10,9	20,2	4,2	40	5,3	NHV 38	**104**		
NPV.1197.03	12	11,97	0,30	10,9	20,2	5,7	40	5,3	NHV 38			**104**
NPV.1202.05	20	12,02	0,50	10,9	20,2	8,5	40	5,3	NHV 38		**105**	
NPV.1202.03	12	12,02	0,30	10,9	20,2	5,7	40	5,3	NHV 38		**104**	
NPV.1215.135	12	12,15	1,35	10,9	20,2	5,1	40	5,3	NHV 38	**105**		
NPV.1215.175	16	12,15	1,75	10,9	20,2	6,6	40	5,3	NHV 38	**106**		
NPV.1215.225	24	12,15	2,25	10,9	20,2	8,5	40	5,3	NHV 38	**107**		
NPV.1397.03	14	13,97	0,30	10,9	20,1	7,5	45	5,3	NHV 45			**106**
NPV.1402.03	14	14,02	0,30	10,9	20,1	7,5	45	5,3	NHV 45		**106**	
NPV.1597.03	16	15,97	0,30	10,9	20,1	7,5	45	5,3	NHV 45			**107**
NPV.1602.03	16	16,02	0,30	10,9	20,1	7,5	45	5,3	NHV 45		**107**	
NPV.1797.05	18	17,97	0,50	10,9	20,1	9,5	45	5,3	NHV 45			**108**
NPV.1802.05	18	18,02	0,50	10,9	20,1	9,5	45	5,3	NHV 45		**108**	
NPV.1997.05	20	19,97	0,50	10,9	20,1	10,0	45	5,3	NHV 45			**109**
NPV.2002.05	20	20,02	0,50	10,9	20,1	10,0	45	5,3	NHV 45		**109**	

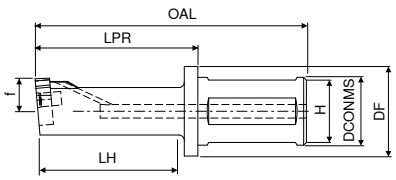
Tolerance **C 11** for 73 603 ..., Tolerance **JS 9** for 73 604 ..., Tolerance **P 9** for 73 605 ...

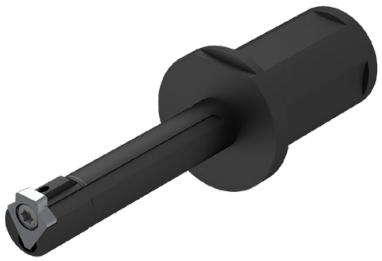
12

SlotCut – Toolholder for inserts

Scope of supply:
Tool holder with clamping screw, without insert



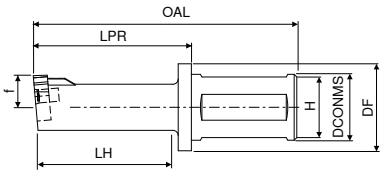


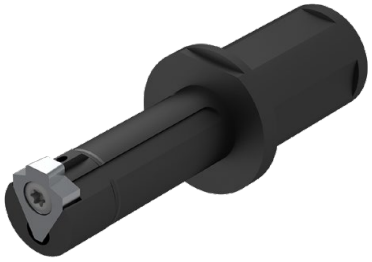


Designation	DCONMS g6 mm	DAXN mm	DF mm	OAL mm	LH mm	LPR mm	H mm	f mm	Inserts	Article no. 73 613 ...
NHV.15.1	25	15	33	75	25	35	23	8,4	NV15	**025**
NHV.15.2	25	15	33	90	40	50	23	8,4	NV15	**125**
NHV.15.3	25	15	33	110	60	70	23	8,4	NV15	**225**

SlotCut – Toolholder for inserts

Scope of supply:
Tool holder with clamping screw, without insert





Designation	DCONMS g6 mm	DAXN mm	DF mm	OAL mm	LH mm	LPR mm	H mm	f mm	Inserts	Article no. 73 611 ...
NHV.22	25	22	33	100	50	60	23	12,0	NPV	**025**
NHV.30	32	30	45	100	50	60	30	16,5	NPV	**032**
NHV.30	32	30	45	125	75	85	30	16,5	NPV	**532**
NHV.38	32	38	45	100	50	60	30	22,0	NPV	**132**
NHV.38	32	38	45	125	75	85	30	22,0	NPV	**632**
NHV.45	40	45	55	120	50	60	38	24,0	NPV	**040**
NHV.45	40	45	55	175	105	115	38	24,0	NPV	**140**
NHV.45	40	45	55	225	155	165	38	24,0	NPV	**240**


Key D


Clamping screw

Spare parts DCONMS g6		Article no. 80 950 ...		Article no. 73 082 ...
25	T20	114	M5x13	007
32	T20	114	M5x13	007
40	T20	114	M5x13	007

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data appoximate values

Index	UltraMini K10F	UltraMini K10F-TiN	UltraMini K10-TiAN	UltraMini DPX 57S	MiniCut CWX500	UltraMini TiAlN+	MiniCut CBN
	v_c in m/min						
1.1	30–130	**30–180**	**80–200**	**80–200**	**80–200**		
1.2	30–130	**40–200**	**80–200**	**80–200**	**80–200**		
1.3	30–130	**40–180**	**80–200**	**80–200**	**80–200**		
1.4	15–90	**30–140**	**80–160**	**80–160**	**80–160**		
1.5	15–90	**30–100**		**80–140**			
1.6	15–90	**30–100**	**80–160**	**80–160**	**80–160**		
1.7	30–130	**30–100**	**80–160**	**80–160**	**80–160**		
1.8	15–90	**30–100**	**80–150**	**80–150**	**80–150**		
1.9	30–130	**40–200**	**80–200**	**80–200**	**80–200**		
1.10	15–90	**30–100**	**70–140**	**70–140**	**70–140**		
1.11	15–90	**30–100**	**70–140**	**70–140**	**70–140**		
1.12	15–90	**30–100**	**70–140**	**70–140**	**70–140**		
1.13							
1.14							
1.15	15–45	**30–100**					
1.16	15–45	**30–100**					
2.1		**30–100**	**80–160**	**80–160**	**80–160**		
2.2		**30–100**	**80–160**	**80–160**	**80–160**		
2.3		**30–100**	**80–160**	**80–160**	**80–160**		
2.4		**20–90**	**20–85**	**20–85**	**20–85**		
2.5		**20–65**	**20–75**	**20–75**	**20–75**		
2.6		**20–80**	**20–65**	**20–65**	**20–65**		
2.7		**20–80**	**20–65**	**20–65**	**20–65**		
3.1	30–110	70–150	**30–180**	**30–180**	**30–180**		
3.2	30–90	50–120	**30–150**	**30–150**	**30–150**		
3.3	25–110	30–130	**30–180**	**30–180**	**30–180**		
3.4	25–80	30–110	**30–120**	**30–120**	**30–120**		
3.5	30–110	30–100	**30–90**	**30–90**	**30–90**		
3.6	30–90	30–90	**20–80**	**20–80**	**20–80**		
3.7	30–110	30–100	**30–90**	**30–90**	**30–90**		
3.8	30–90	30–90	**20–80**	**20–80**	**20–80**		
4.1	**110–210**	100–600	**120–600**	**120–600**	**120–600**		
4.2	**90–200**	100–600	**120–600**	**120–600**	**120–600**		
4.3	**90–200**	100–500	**100–450**	**100–450**	**100–450**		
4.4	**50–140**	80–350	**70–300**	**70–300**	**70–300**		
4.5		80–200	**60–150**	**60–150**	**60–150**		
4.6	**50–140**	70–160	**60–150**	**60–150**	**60–150**		
4.7	**60–150**	80–180	**100–180**	**100–180**	**100–180**		
4.8	**50–140**	80–180	**90–180**	**90–180**	**90–180**		
4.9	**50–140**	80–180	**80–180**	**80–180**	**80–180**		
4.10	**50–140**	80–180	**80–180**	**80–180**	**80–180**		
4.11	**80–160**	100–200	**120–220**	**120–220**	**120–220**		
4.12	**50–120**	80–180	**70–150**	**70–150**	**70–150**		
4.13	**40–120**	70–160	**80–180**	**80–180**	**80–180**		
4.14							
4.15							
4.16							
4.17							
4.18	**15–70**						
4.19							
5.1		30–80	**30–80**	30–80	**30–80**		
5.2		18–75	**18–75**	18–75	**18–75**		
5.3		18–75	**18–75**	18–75	**18–75**		
5.4				40–70		**55–75**	
5.5		18–40	**18–40**	40–70	**18–40**	**55–75**	
5.6		18–40	**18–40**	40–70	**18–40**	**55–75**	
5.7		15–30	**15–30**	40–70	**15–30**	**55–75**	
5.8		15–30	**15–30**	40–70	**15–30**	**55–75**	
5.9		15–30	**15–30**	**70–150**	**15–30**		
5.10				**70–150**			
5.11				**70–150**			
6.1							
6.2						**70–100**	
6.3						**70–100**	**50**
6.4						**70–100**	**50**
6.5							

	UltraMini	MiniCut
	f in mm/rev.	
Internal turning and profiling	0,02–0,05	0,03–0,10
Internal turning and profiling – hard turning	0,02–0,06	0,03–0,10
Turning and profile turning – super alloys	0,02–0,08	
Internal turning	0,02–0,05	0,01–0,03
Back boring	0,02–0,04	0,03–0,10
Turning and chamfering	0,01–0,03	0,03–0,10
Pre-parting and chamfering	0,01–0,02	0,01–0,03
Groove turning	0,01–0,02	0,01–0,03
Internal Undercuts	0,01–0,03	0,03–0,08
Groove and profile turning	0,01–0,02	0,01–0,03
Axial grooving	0,02–0,05	0,02–0,05

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

Cutting data standard values – 73 000 ... / 73 001 ...

Index	UltraMini DPX77S	Corner radius in mm			
		0,05	0,1	0,15	0,2
	v_c in m/min	f in mm/rev.			
1.1	80–200	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.2	80–200	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.3	80–200	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.4	80–160	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.5	80–140	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.6	80–160	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.7	80–160	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.8	80–150	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.9	80–200	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.10	70–140	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.11	70–140	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.12	70–140	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
1.13					
1.14					
1.15					
1.16					
2.1	80–160	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
2.2	80–160	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
2.3	80–160	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
2.4	20–85	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
2.5	20–75	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
2.6	20–65	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
2.7	20–65	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.1	30–180	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.2	30–150	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.3	30–180	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.4	30–120	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.5	30–90	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.6	20–80	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.7	30–90	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
3.8	20–80	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.1	120–600	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.2	120–600	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.3	100–450	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.4	70–300	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.5	60–150	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.6	60–150	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.7	100–180	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.8	90–180	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.9	80–180	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.10	80–180	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.11	120–220	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.12	70–150	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.13	80–180	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
4.14					
4.15					
4.16					
4.17					
4.18					
4.19					
5.1	30–80	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.2	18–75	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.3	18–75	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.4	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.5	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.6	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.7	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.8	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.9	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.10	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
5.11	40–70	0,015–0,03	0,02–0,06	0,02–0,08	0,02–0,12
6.1					
6.2					
6.3					
6.4					
6.5					

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

12

Broaching – Recommendations for Correct Use

SlotCut

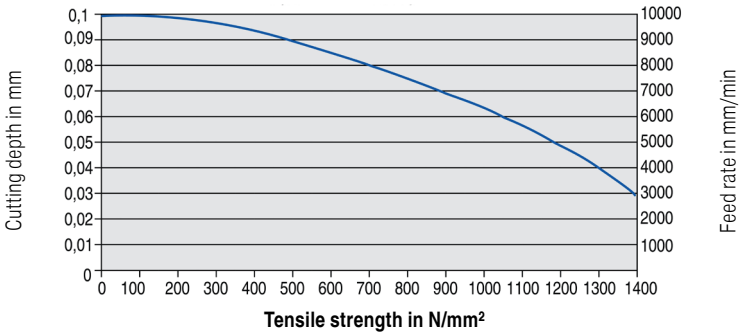
More and more often small and medium sized batch sizes are manufactured with precision grooves.

To directly machine such grooves in one set-up on one machine, it requires a special application of "Broaching" tools.

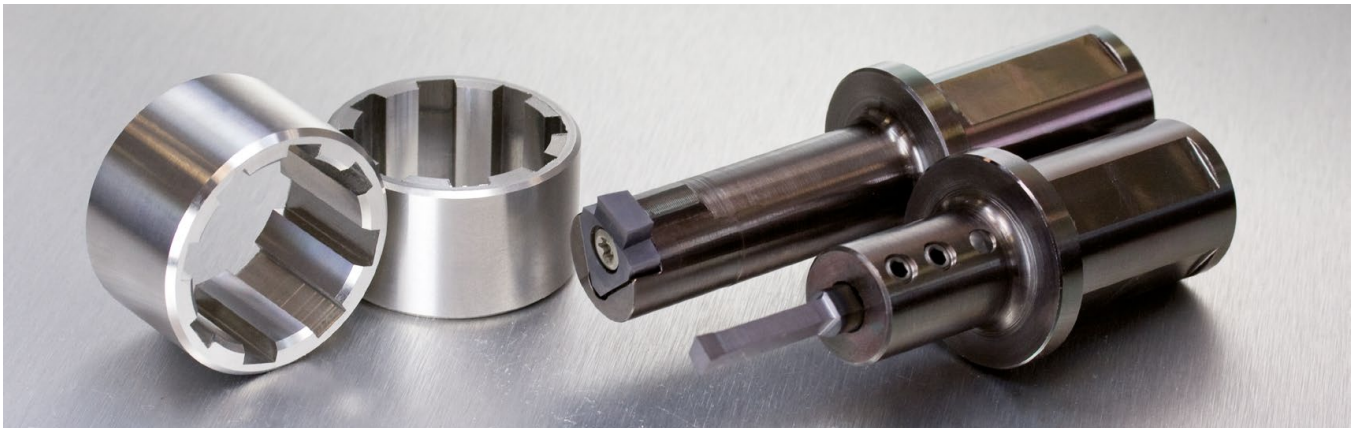
The SlotCut system can produce grooves with the most common groove tolerances.
To this end, there are four options. Two concepts are based on a solid carbide solution, which gives great success with small diameters.
For larger diameters, the concept with screw-on inserts is more suitable.

Broaching, on both lathes and machining centers is now economical, and provides highly accurate results in the shortest possible time.

Appoximate values when broaching



The data depends strongly on the conditions and represent only an appoximate value, factors such as machine stability, application and material may require adjustment of the data upward or downward.



Tips for the User

- Avoid interrupted cuts.
- Where possible, orientate the part so the groove is at the top, so the chips fall away!
- Ensure there is a relief at the end of the groove.
- Lift the tool out of the groove when retracting.
- Use coolant.
  This will increase tool life and surface quality.
- Adjustment of the tool is essential, therefore the tool diameter must be considered.



Symbol explanation

UltraMini

 Internal turning and profiling

 Back boring

 Internal Undercuts

 High-feed turning

 Turning and chamfering

 Groove and profile turning

 Turning and profile turning – super alloys

 Pre-parting and chamfering

 Internal thread turning

 Internal turning

 Groove turning

 Axial grooving

MiniCut

 Internal turning and profiling

 Pre-parting and chamfering

 Internal thread turning

 Internal turning

 Groove turning

 Axial grooving

 Back boring

 Internal Undercuts

 Turning and chamfering

 Groove and profile turning

Coatings

TiAlN+
- ▲ TiAlN multilayer coating
- ▲ Maximum application temperature: 1000 °C

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

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

CWX500
- ▲ Carbide, TiAlN-coated
- ▲ ISO | **K30**
- ▲ The universal carbide grade for almost all materials

DXP77S
- ▲ TiAlN+X-coating
- ▲ Maximum application temperature: 900 °C

DPX57S
- ▲ TiCrN coating
- ▲ Maximum application temperature: 900 °C

Thread types

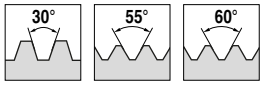
M Metric ISO standard thread

MF Metric ISO fine thread

G Whitworth thread

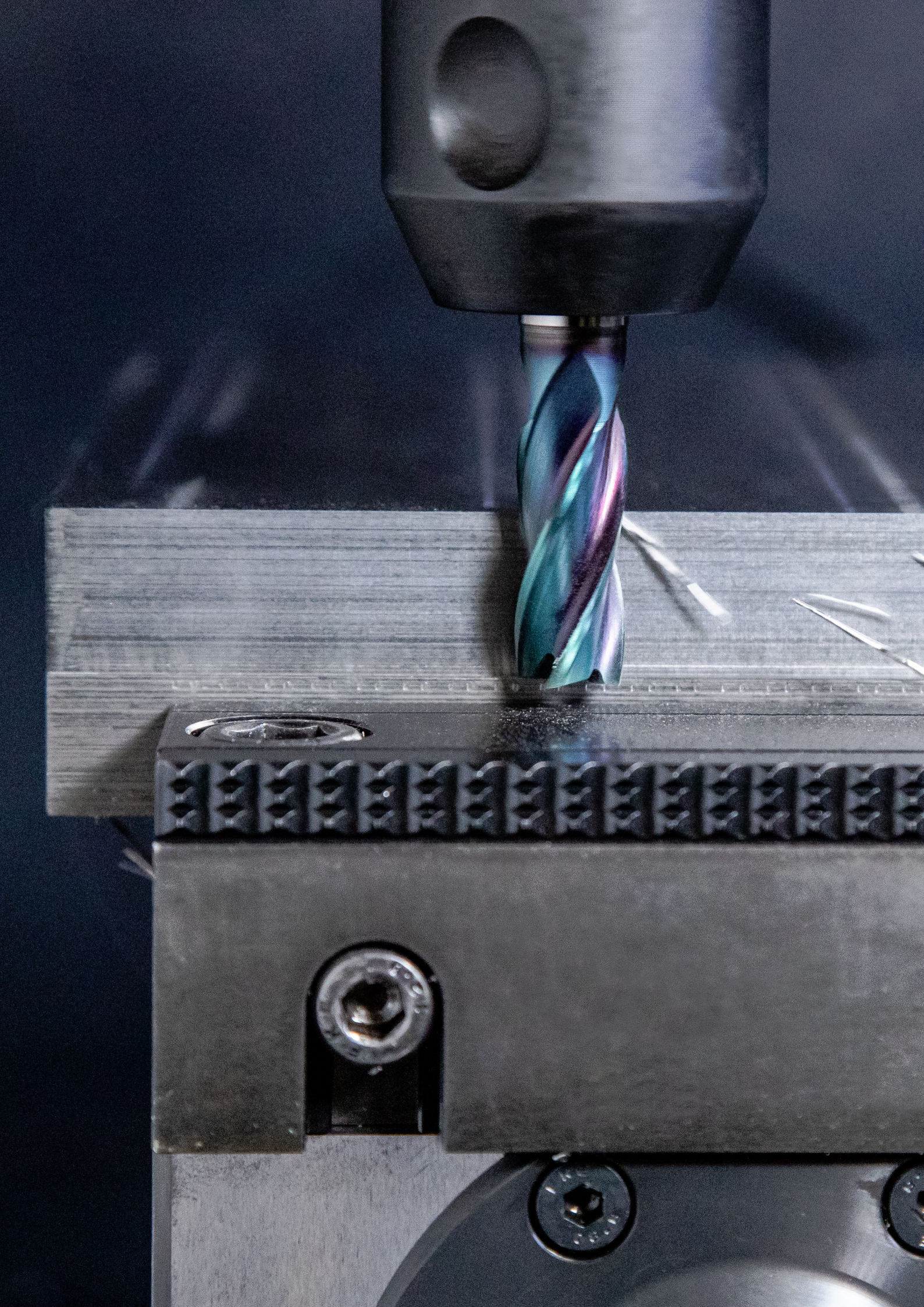
Tr Metric ISO trapezoidal fine thread

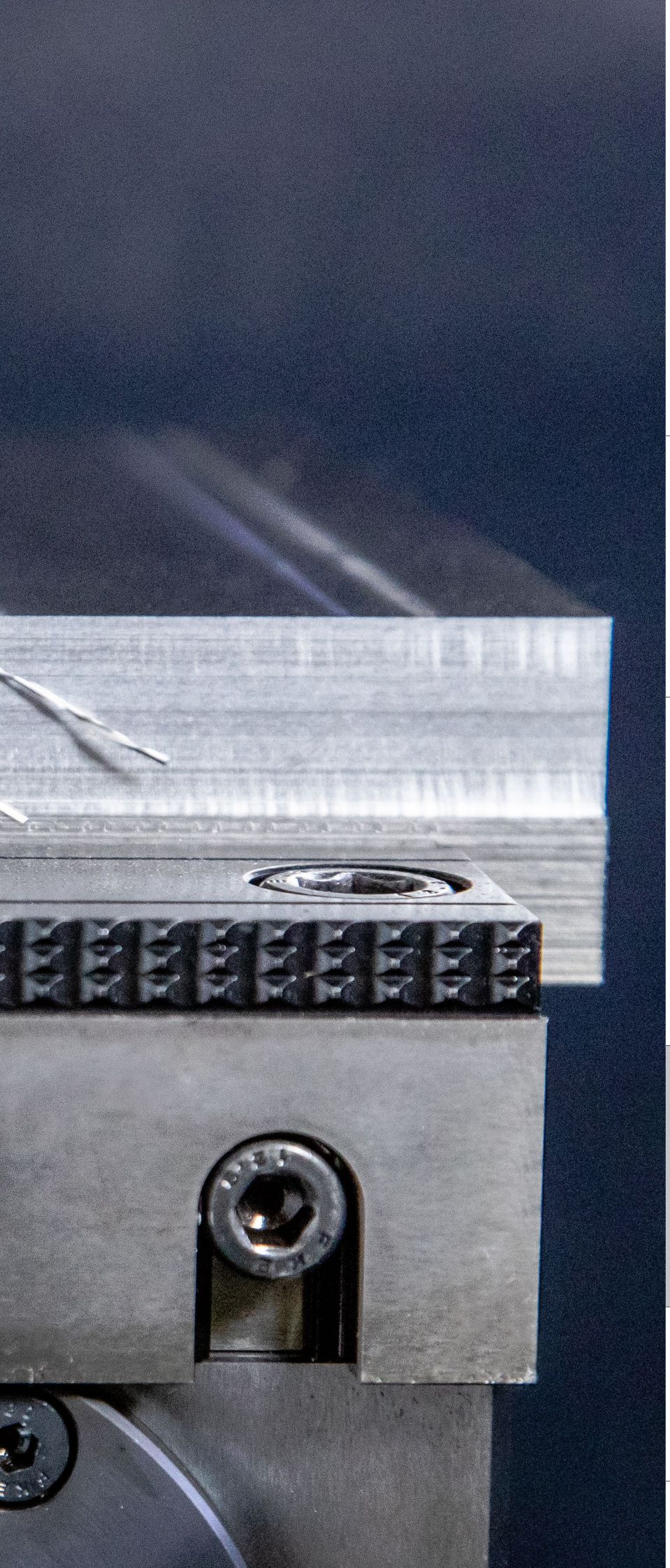
Thread flank angle



Coolant

 with thro‘ coolant





Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut
11 Grooving Tools
12 Miniature turning tools

Milling

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

Tool Clamping

16 Adapters
17 Accessories

18 Material examples and article no. index

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Product programme	6–38
Technical Information	
Cutting Data	39–46
Formula for cutting data calculation	47
Coating	47

WNT \ Performance

Premium quality tools for high performance.

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

Symbol explanation

Shank



Shank type



Length: extra short / short / medium / long / extra long



Cutting edge preparation



Sharp



Chamfer (CHW = chamfer width in mm)



Full Radius



Application



Machining example



The red arrows describe the possible feed directions



Number of teeth



Cutting geometry
λ_s = helix angle
γ_s = rake angle

● = **Main Application**

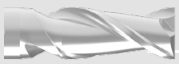
○ = Extended application

Toolfinder

softer — Material to machine — harder

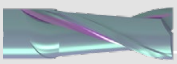
Finish milling

W


6+7


37

N


8–15


25

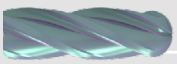

28+29


31


33+34


37

H

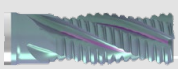

26


32

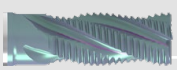

35+36

Rough and finish machining

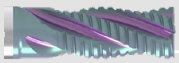
NTI


16

HS


18

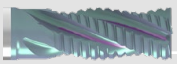
NF


17


30

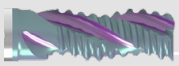

37

HF

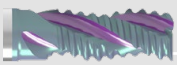

19

Rough machining

WR

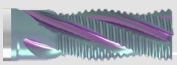

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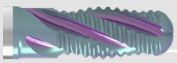
NR


21+22


38

HR

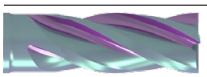
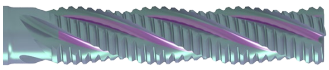
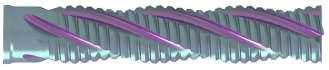
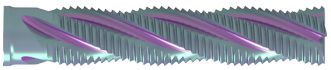
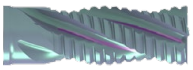
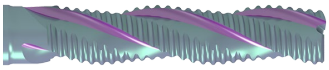
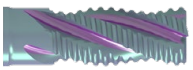
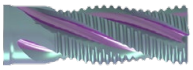
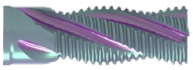

23+24


27

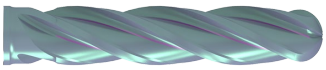
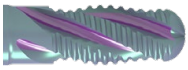
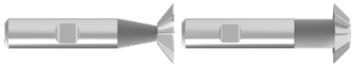
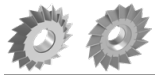
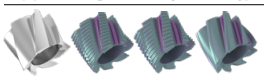

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13

Overview HSS milling cutters

	Tool type	Number of teeth ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius	Full Radius	Length	Material, e.g. PM = Powdersteel	coated	uncoated	WNT \ Performance
Finishing cutter																		
	W	2	2–22				●			■					HSS-E		□	6
	W	3–4	2–40				●			■					HSS-E		□	7
	N	2	1–26	●	●	●	○	○		■					HSS-E	■	□	8+9
	N	3	1–10	●	●	●	○	○		■					HSS-E	■	□	10
	N	3	1,8–24,7	●	●	●	○	○		■					HSS-E	■	□	11+12
	N	4–5	4–25	○	●	○	●	●		■					HSS-E	■	□	13
	N	4–8	2–50	●	●	●	○	○		■					HSS-E	■	□	14+15
Rough and finish milling cutters																		
	NTI	4–6	6–40	○	●	○	○	●			■				PM	■		16
	NF	4–5	6–28	●	○	●	○	○		■					HSS-E	■		17
	HS	4–6	6–40	○		●		●			■				PM	■		18
	HF	4	6–25	●	○	●	○	○		■					PM	■		19
Rough milling cutters																		
	WR	3	6–32				●			■					HSS-E	■		20
	NR	3	6–25	●	○	●	○	○			■				HSS-E	■	□	21
	NR	4–6	6–40	●	○	●	○	○			■				HSS-E	■	□	22
	HR	4–6	6–32	●	●	●	○	○			■				PM	■		23
	HR	3–6	4–32	●	●	●	○	○			■				HSS-E	■	□	24

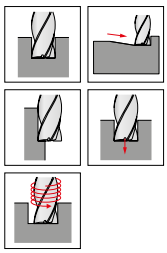
Overview HSS milling cutters

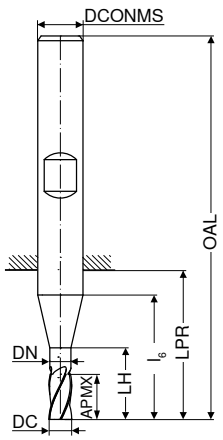
	Tool type	Number of teeth ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius	Full Radius	Length	Material, e.g. PM = Powdersteel	coated	uncoated	WNT \ Performance
Ball nose end milling cutters																		
	N	2	2–30	●	○	●	○	○	B				◐		HSS-E	■	□	25
	H	4–5	6–25	●	○	●	○	○	B				◐		HSS-E	■	□	26
	HR	4	6–20	●	○	●	○	○	B				◐		HSS-E	■		27
Form / Side and Face / Shell milling cutters																		
	N	6–10	11–60	●	○	●	○	○	B						HSS-E		□	28
	N	6–12	10,5–45,5	●	○	●	○	○	B						HSS-E		□	29
	NF	6–8	21–45	●	○	●	○	○	B						HSS-E		□	30
	N	4–6	1–16	●	○	●	○	○	B						HSS-E		□	31
	H	10	16–25	●	○	●	○	○	B						HSS-E		□	32
	N	14–28		●	○	●	○	○							HSS		□	33
		12–52		●	●	●	●	●							HSS-E		□	34–36
		6–12		●	●	●	●	○							HSS-E	■	□	37+38

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Slot milling cutter HSS-E Co 8











DIN 844



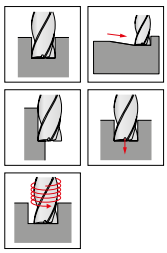
DC e8 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 50 144 ...
2,0	7		7	13	15	51	6	2	**020**
2,5	8		8	14	16	52	6	2	**025**
3,0	8		8	14	16	52	6	2	**030**
3,5	10		10	16	18	54	6	2	**035**
4,0	11		11	17	19	55	6	2	**040**
4,5	11		11	17	19	55	6	2	**045**
5,0	13		13	19	21	57	6	2	**050**
5,5	13		13	19	21	57	6	2	**055**
6,0	13		13	19	21	57	6	2	**060**
6,5	16	6,0	22	24	26	66	10	2	**065**
7,0	16	6,5	22	24	26	66	10	2	**070**
8,0	19	7,5	25	27	29	69	10	2	**080**
9,0	19	8,5	26	27	29	69	10	2	**090**
10,0	22	9,5	30	30	32	72	10	2	**100**
12,0	26	11,5	36	36	38	83	12	2	**120**
14,0	26	11,5	36	36	38	83	12	2	**140**
16,0	32	15,0	42	42	44	92	16	2	**160**
18,0	32	15,0	42	42	44	92	16	2	**180**
20,0	38	19,0	52	52	54	104	20	2	**200**
22,0	38	19,0	52	52	54	104	20	2	**220**

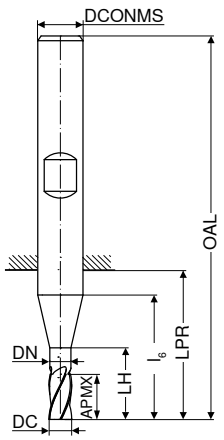
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

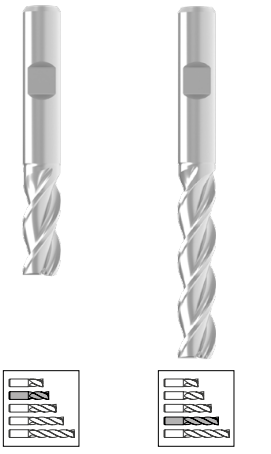
→ v_c/f_z Page 40–42

End milling cutter HSS-E Co 8









DIN 69844 | DIN 844

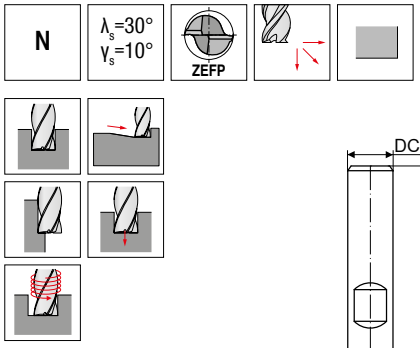
DC k10 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 50 120 ...	Article no. 50 121 ...
2	7		7	13	15	51	6	3	020	
3	8		8	14	16	52	6	3	030	
3	12		12	18	20	56	6	3		030
4	11		11	17	19	55	6	3	040	
4	19		19	25	27	63	6	3		040
5	13		13	19	21	57	6	3	050	
5	24		24	30	32	68	6	3		050
6	13	5,5	19	19	21	57	6	3	060	
6	24	5,5	30	30	32	68	6	3		060
7	16	6,5	22	24	26	66	10	3	070	
7	30	6,5	36	38	40	80	10	3		070
8	19	7,5	25	27	29	69	10	3	080	
8	38	7,5	44	46	48	88	10	3		080
9	19	8,5	26	27	29	69	10	3	090	
9	38	8,5	45	46	48	88	10	3		090
10	22	9,5	30	30	32	72	10	3	100	
10	45	9,5	53	53	55	95	10	3		100
12	26	11,5	36	36	38	83	12	3	120	
12	53	11,5	63	63	65	110	12	3		120
14	26	11,5	36	36	38	83	12	3	140	
14	53	11,5	63	63	65	110	12	3		140
16	32	15,0	42	42	44	92	16	3	160	
16	63	15,0	73	73	75	123	16	3		160
18	32	15,0	42	42	44	92	16	3	180	
18	63	15,0	73	73	75	123	16	3		180
20	38	19,0	52	52	54	104	20	3	200	
20	75	19,0	89	89	91	141	20	3		200
22	38	19,0	52	52	54	104	20	3	220	
22	75	19,0	89	89	91	141	20	3		220
24	90	23,0	106	108	110	166	25	3		240
25	45	24,0	63	45	65	121	25	4	250	
25	90	24,0	108	108	110	166	25	4		250
28	90	24,0	108	108	110	166	25	4		280
30	90	24,0	108	108	110	166	25	4		300
32	106	31,0	123	123	126	186	32	4		320
36	106	31,0	123	123	126	186	32	4		360
40	125	38,0	142	142	147	217	40	4		400

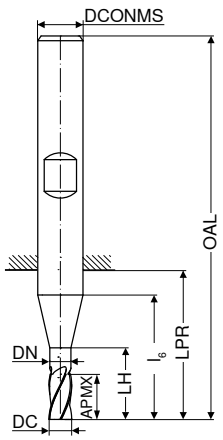
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

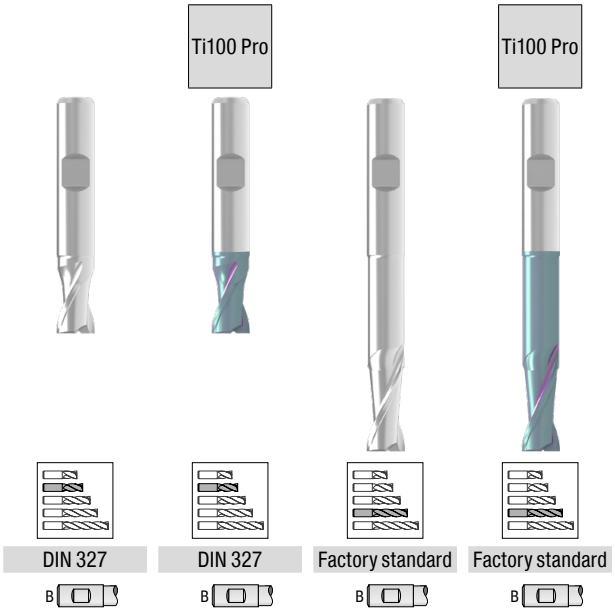
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Slot milling cutter HSS-E Co 8







DIN 327 | DIN 327 | Factory standard | Factory standard

DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	Article no. 50 100 ...	Article no. 54 025 ...	Article no. 50 122 ...	Article no. 54 020 ...
1,00	h10	2,5		2,5	9	11	47	6	2	010 [1]	010 [1]		
1,50	h10	3,0		3,0	9	11	47	6	2	015 [1]	015 [1]		
1,80	h10	4,0		4,0	10	12	48	6	2	018	018		
2,00	e8	4,0		4,0	10	12	48	6	2	020	020		
2,50	e8	5,0		5,0	11	13	49	6	2	025	025		
2,80	h10	5,0		5,0	11	13	49	6	2	028	028		
3,00	e8	5,0		5,0	11	13	49	6	2	030	030		
3,00	e8	8,0		8,0	18	20	56	6	2			030	030
3,50	h10	6,0		6,0	12	14	50	6	2	035	035		
3,50	h10	10,0		10,0	21	23	59	6	2			035	035
3,80	h10	7,0		7,0	13	15	51	6	2	038	038		
4,00	e8	7,0		7,0	13	15	51	6	2	040	040		
4,00	e8	11,0		11,0	25	27	63	6	2			040	040
4,50	h10	7,0		7,0	13	15	51	6	2	045	045		
4,50	h10	11,0		11,0	25	27	63	6	2			045	045
4,80	h10	8,0		8,0	14	16	52	6	2	048	048		
5,00	e8	8,0		8,0	14	16	52	6	2	050	050		
5,00	e8	13,0		13,0	30	32	68	6	2			050	050
5,50	h10	8,0		8,0	14	16	52	6	2	055	055		
5,50	h10	13,0		13,0	30	32	68	6	2			055	055
5,75	h10	8,0		8,0	14	16	52	6	2	057	057		
6,00	e8	8,0	5,50	14,0	14	16	52	6	2	060	060		
6,00	e8	13,0	5,50	30,0	30	32	68	6	2			060	060
6,50	h10	10,0	6,00	16,0	18	20	60	10	2	065	065		
6,50	h10	16,0	6,35	36,0	38	40	80	10	2			065	065
6,75	h10	10,0	6,50	16,0	18	20	60	10	2	067	067		
7,00	e8	10,0	6,50	16,0	18	20	60	10	2	070	070		
7,00	e8	16,0	6,35	36,0	38	40	80	10	2			070	070
7,50	h10	10,0	7,00	16,0	18	20	60	10	2	075	075		
7,50	h10	16,0	7,35	36,0	38	40	80	10	2			075	075
7,75	h10	11,0	7,50	17,0	19	21	61	10	2	077	077		
8,00	e8	11,0	7,50	17,0	19	21	61	10	2	080	080		
8,00	e8	19,0	7,35	44,0	46	48	88	10	2			080	080
8,50	h10	11,0	8,00	18,0	19	21	61	10	2	085	085		
8,50	h10	19,0	8,35	45,0	46	48	88	10	2			085	085
8,70	h10	11,0	8,50	18,0	19	21	61	10	2	087	087		
9,00	h10	11,0	8,50	18,0	19	21	61	10	2	090	090		
9,00	h10	19,0	8,35	45,0	46	48	88	10	2			090	090
9,50	h10	11,0	9,00	18,0	19	21	61	10	2	095	095		
9,50	h10	19,0	9,35	45,0	46	48	88	10	2			095	095
9,70	h10	13,0	9,50	21,0	21	23	63	10	2	097	097		
10,00	e8	13,0	9,50	21,0	21	23	63	10	2	100	100		
10,00	e8	22,0	9,35	53,0	53	55	95	10	2			100	100
10,50	h10	13,0	10,00	21,0	23	25	70	12	2	105	105		
10,70	h10	13,0	10,50	21,0	23	25	70	12	2	107	107		
11,00	h10	13,0	10,50	21,0	23	25	70	12	2	110	110		
11,00	h10	22,0	10,50	53,0	55	57	102	12	2			110	110
11,50	h10	13,0	11,00	21,0	23	25	70	12	2	115	115		

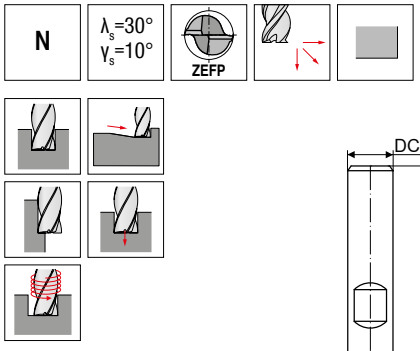
Steel	●	●	●	●
Stainless steel	○	●	○	●
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials				

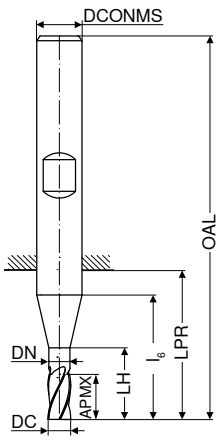
1) Factory standard

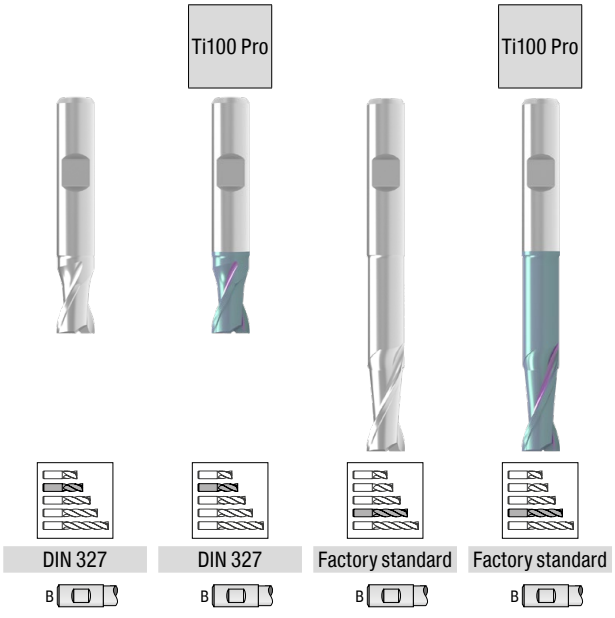
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Continued on next page

Slot milling cutter HSS-E Co 8







DC	Tol.	APMX	DN	LH	l_6	LPR	OAL	DCONMS $_{h6}$	ZEFP	Article no. 50 100 ...	Article no. 54 025 ...	Article no. 50 122 ...	Article no. 54 020 ...
mm		mm	mm	mm	mm	mm	mm	mm		DIN 327	DIN 327	Factory standard 1)	Factory standard 1)
										B	B	B	B
11,70	h10	16,0	11,50	26,0	26	28	73	12	2	117	117		
12,00	e8	16,0	11,50	26,0	26	28	73	12	2	120	120		
12,00	e8	26,0	11,50	63,0	63	65	110	12	2			120	120
12,70	h10	16,0	11,50	26,0	26	28	73	12	2	127	127		
13,00	h10	16,0	11,50	26,0	26	28	73	12	2	130	130		
13,00	h10	26,0	11,50	63,0	63	65	110	12	2			130	130
13,70	h10	16,0	11,50	26,0	26	28	73	12	2	137	137		
14,00	e8	16,0	11,50	26,0	26	28	73	12	2	140	140		
14,00	e8	26,0	11,50	63,0	63	65	110	12	2			140	140
14,70	h10	16,0	11,50	26,0	26	28	73	12	2	147			
15,00	h10	16,0	11,50	26,0	26	28	73	12	2	150	150		
15,00	h10	26,0	11,50	63,0	63	65	110	12	2			150	150
15,70	h10	19,0	15,00	29,0	29	31	79	16	2	157	157		
16,00	e8	19,0	15,00	29,0	29	31	79	16	2	160	160		
16,00	e8	32,0	15,00	73,0	73	75	123	16	2			160	160
16,70	h10	19,0	15,00	29,0	29	31	79	16	2	167			
17,00	h10	19,0	15,00	29,0	29	31	79	16	2	170	170		
17,00	h10	32,0	15,00	73,0	73	75	123	16	2			170	170
17,70	h10	19,0	15,00	29,0	29	31	79	16	2	177	177		
18,00	e8	19,0	15,00	29,0	29	31	79	16	2	180	180		
18,00	e8	32,0	15,00	73,0	73	75	123	16	2			180	180
19,00	h10	19,0	15,00	29,0	29	31	79	16	2	190	190		
19,00	h10	32,0	15,00	73,0	73	75	123	16	2			190	190
19,70	h10	22,0	19,00	36,0	36	38	88	20	2	197	197		
20,00	e8	22,0	19,00	36,0	36	38	88	20	2	200	200		
20,00	e8	38,0	19,00	89,0	89	91	141	20	2			200	200
21,70	h10	22,0	19,00	36,0	36	38	88	20	2	217	217		
22,00	e8	22,0	19,00	36,0	36	38	88	20	2	220	220		
22,00	e8	38,0	19,00	89,0	89	91	141	20	2			220	220
23,70	h10	26,0	23,00	42,0	44	46	102	25	2	237	237		
24,00	e8	26,0	23,00	42,0	44	46	102	25	2	240	240		
24,00	e8	45,0	23,00	106,0	108	110	166	25	2			240	240
24,70	h10	26,0	24,00	44,0	44	46	102	25	2	247	247		
25,00	e8	26,0	24,00	44,0	44	46	102	25	2	250	250		
25,00	e8	45,0	24,00	108,0	108	110	166	25	2			250	250
26,00	h10	26,0	24,00	44,0	44	46	102	25	2	260	260		

Steel	●	●	●	●
Stainless steel	○	●	○	●
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials				

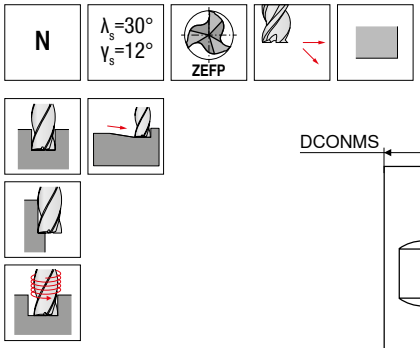
1) Factory standard

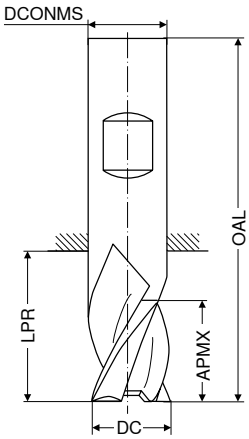
→ v_c/f_z Page 40–42

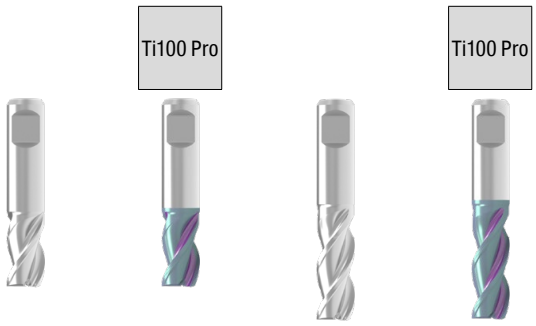
13

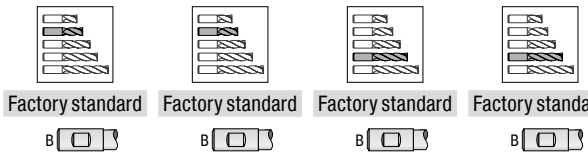
Throw-away milling cutter, HSS-E Co 8

▲ Shank similar to DIN 1835 B









DC e8	APMX	LPR	OAL	DCONMS h6	ZEFP	Article no. 50 092 ...	Article no. 54 014 ...	Article no. 50 093 ...	Article no. 54 042 ...
mm	mm	mm	mm	mm					
1,00	2	8	34	6	3	010	010		
1,50	3	8	34	6	3	015	015		
1,50	4	10	35	6	3			015 1)	015 1)
1,80	3	8	34	6	3	018	018		
2,00	4	9	35	6	3	020	020		
2,00	7	12	38	6	3			020 1)	020
2,30	4	9	35	6	3	023	023		
2,50	5	10	36	6	3	025	025		
2,50	8	13	39	6	3			025 1)	025
2,80	5	10	36	6	3	028	028		
3,00	5	10	36	6	3	030	030		
3,00	8	13	39	6	3			030 1)	030
3,30	6	11	37	6	3	033	033		
3,50	6	11	37	6	3	035	035		
3,50	10	15	41	6	3			035 1)	035
3,80	7	12	38	6	3	038	038		
4,00	7	12	38	6	3	040	040		
4,00	11	16	42	6	3			040 1)	040
4,30	7	12	38	6	3	043	043		
4,50	7	12	38	6	3	045	045		
4,50	11	16	42	6	3			045 1)	045
4,80	8	13	39	6	3	048	048		
5,00	8	13	39	6	3	050	050		
5,00	13	18	44	6	3			050 1)	050
5,30	8	13	39	6	3	053	053		
5,50	8	13	39	6	3	055	055		
5,50	13	18	44	6	3			055 1)	055
5,75	8	13	39	6	3	057	057		
6,00	8	13	39	6	3	060	060		
6,00	13	18	44	6	3			060 1)	060
6,50	10	14	42	8	3	065	065		
6,50	16	20	48	8	3			065 1)	065
7,00	10	14	42	8	3	070	070		
7,00	16	20	48	8	3			070 1)	070
7,50	10	14	42	8	3	075	075		
7,50	16	20	48	8	3			075 1)	075
8,00	11	15	43	8	3	080	080		
8,00	19	23	51	8	3			080 1)	080
8,50	11	16	48	10	3	085	085		
8,50	19	24	56	10	3			085 1)	085
9,00	11	16	48	10	3	090	090		
9,00	19	24	56	10	3			090 1)	090
9,50	11	16	48	10	3	095	095		
9,50	19	24	56	10	3			095 1)	095
10,00	13	18	50	10	3	100	100		
10,00	22	27	59	10	3			100 1)	100

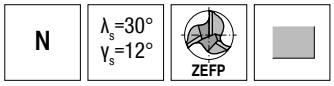
Steel	●	●	●	●
Stainless steel	○	●	○	●
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys hardened materials	○	○	○	○

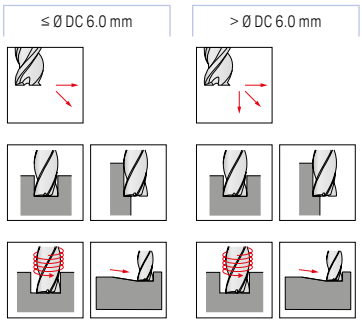
1) Shank tolerance -0,025 / -0,0323

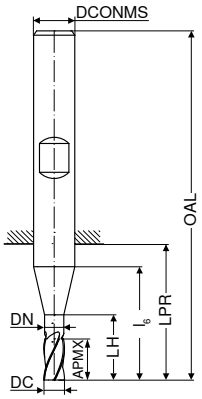
→ v_c/f_z Page 40–42

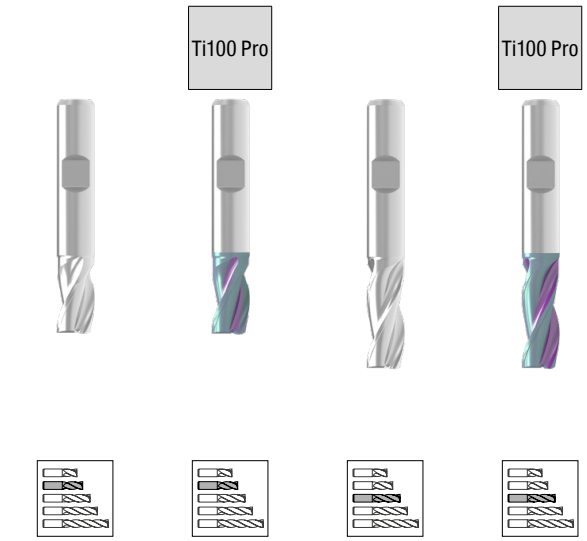
End milling cutter HSS-E Co 8

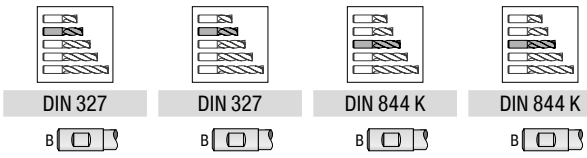
▲ Ø ≤ 6 mm, 3 teeth cutting to centre











										DIN 327	DIN 327	DIN 844 K	DIN 844 K
DC	Tol.	APMX	DN	LH	l_6	LPR	OAL	DCONMS $_{h6}$	ZEFP	Article no. 50 105 ...	Article no. 54 021 ...	Article no. 50 106 ...	Article no. 54 016 ...
mm		mm	mm	mm	mm	mm	mm	mm					
1,80	h10	4		4	10	12	48	6	3	018	018		
2,00	e8	4		4	10	12	48	6	3	020	020		
2,50	e8	5		5	11	13	49	6	3	025	025		
2,80	h10	5		5	11	13	49	6	3	028	028		
2,80	h10	8		8	18	20	56	6	3			028 [1]	028 [1]
3,00	e8	5		5	11	13	49	6	3	030	030		
3,00	e8	8		8	14	16	52	6	3			030	030
3,50	h10	6		6	12	14	50	6	3	035	035		
3,50	h10	10		10	16	18	54	6	3			035	035
3,80	h10	7		7	13	15	51	6	3	038	038		
3,80	h10	11		11	25	27	63	6	3			038 [1]	038 [1]
4,00	e8	7		7	13	15	51	6	3	040	040		
4,00	e8	11		11	17	19	55	6	3			040	040
4,50	h10	7		7	13	15	51	6	3	045	045		
4,50	h10	11		11	17	19	55	6	3			045	045
4,80	h10	8		8	14	16	52	6	3	048	048		
5,00	e8	8		8	14	16	52	6	3	050	050		
5,00	e8	13		13	19	21	57	6	3			050	050
5,50	h10	8		8	14	16	52	6	3	055	055		
5,50	h10	13		13	19	21	57	6	3			055	055
5,75	h10	8		8	14	16	52	6	3	057	057		
6,00	e8	8	5,5	14	14	16	52	6	3	060	060		
6,00	e8	13	5,5	19	19	21	57	6	3			060	060
6,50	h10	10	6,0	16	18	20	60	10	3	065	065		
6,50	h10	16	6,0	22	24	26	66	10	3			065	065
6,75	h10	10	6,5	16	18	20	60	10	3	067	067		
7,00	e8	10	6,5	16	18	20	60	10	3	070	070		
7,00	e8	16	6,5	22	24	26	66	10	3			070	070
7,50	h10	10	7,0	16	18	20	60	10	3	075	075		
7,50	h10	16	7,0	22	24	26	66	10	3			075	075
7,75	h10	11	7,5	17	19	21	61	10	3	077	077		
8,00	e8	11	7,5	17	19	21	61	10	3	080	080		
8,00	e8	19	7,5	25	27	29	69	10	3			080	080
8,50	h10	11	8,0	18	19	21	61	10	3	085	085		
8,50	h10	19	8,0	26	27	29	69	10	3			085	085
8,70	h10	11	8,5	18	19	21	61	10	3	087	087		
9,00	h10	11	8,5	18	19	21	61	10	3	090	090		
9,00	h10	19	8,5	26	27	29	69	10	3			090	090
9,50	h10	11	9,0	18	19	21	61	10	3	095	095		
9,50	h10	19	9,0	26	27	29	69	10	3			095	095
9,70	h10	13	9,5	21	21	23	63	10	3	097	097		
10,00	e8	13	9,5	21	21	23	63	10	3	100	100		
10,00	e8	22	9,5	30	30	32	72	10	3			100	100
10,50	h10	13	10,0	21	23	25	70	12	3	105	105		
10,70	h10	13	10,5	21	23	25	70	12	3	107	107		
11,00	h10	13	10,5	21	23	25	70	12	3	110	110		

Steel	●	●	●	●
Stainless steel	○	●	○	●
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials				

1) Factory standard

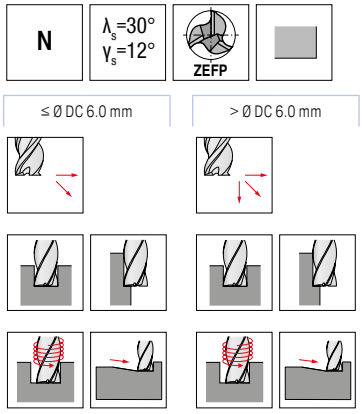
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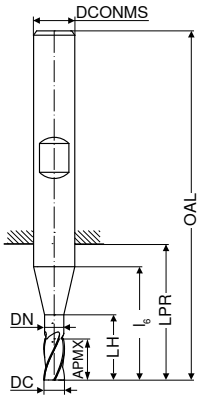
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Continued on next page

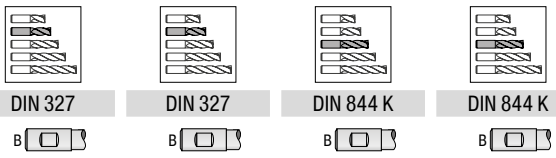
End milling cutter HSS-E Co 8

▲ Ø ≤ 6 mm, 3 teeth cutting to centre







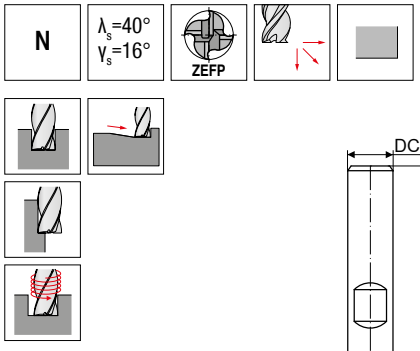


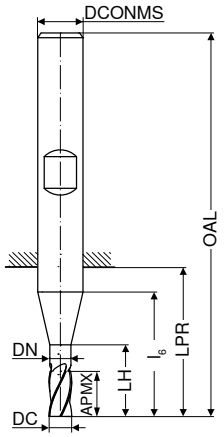
										DIN 327	DIN 327	DIN 844 K	DIN 844 K
DC	Tol.	APMX	DN	LH	l_6	LPR	OAL	DCONMS $_{h6}$	ZEFP	Article no. 50 105 ...	Article no. 54 021 ...	Article no. 50 106 ...	Article no. 54 016 ...
mm		mm	mm	mm	mm	mm	mm	mm					
11,00	h10	22	10,5	30	32	34	79	12	3			110	110
11,50	h10	13	11,0	21	23	25	70	12	3	115	115		
11,50	h10	22	11,0	30	32	34	79	12	3			115	115
11,70	h10	16	11,5	26	26	28	73	12	3	117	117		
12,00	e8	16	11,5	26	26	28	73	12	3	120	120		
12,00	e8	26	11,5	36	36	38	83	12	3			120	120
12,70	h10	16	11,5	26	26	28	73	12	3	127	127		
13,00	h10	16	11,5	26	26	28	73	12	3	130	130		
13,00	h10	26	11,5	36	36	38	83	12	3			130	130
13,70	h10	16	11,5	26	26	28	73	12	3	137	137		
14,00	e8	16	11,5	26	26	28	73	12	3	140	140		
14,00	e8	26	11,5	36	36	38	83	12	3			140	140
15,00	h10	16	11,5	26	26	28	73	12	3	150	150		
15,00	h10	26	11,5	36	36	38	83	12	3			150	150
15,50	h10	32	15,0	42	42	44	92	16	3			155	155
15,70	h10	19	15,0	29	29	31	79	16	3	157	157		
16,00	e8	19	15,0	29	29	31	79	16	3	160	160		
16,00	e8	32	15,0	42	42	44	92	16	3			160	160
17,00	h10	19	15,0	29	29	31	79	16	3	170	170		
17,00	h10	32	15,0	42	42	44	92	16	3			170	170
17,70	h10	19	15,0	29	29	31	79	16	3	177	177		
18,00	e8	19	15,0	29	29	31	79	16	3	180	180		
18,00	e8	32	15,0	42	42	44	92	16	3			180	180
19,00	h10	19	15,0	29	29	31	79	16	3	190	190		
19,00	h10	32	15,0	42	42	44	92	16	3			190	190
19,50	h10	38	19,0	52	52	54	104	20	3			195	195
19,70	h10	22	19,0	36	36	38	88	20	3	197	197		
20,00	e8	22	19,0	36	36	38	88	20	3	200	200		
20,00	e8	38	19,0	52	52	54	104	20	3			200	200
21,70	h10	22	19,0	36	36	38	88	20	3	217	217		
22,00	e8	22	19,0	36	36	38	88	20	3	220	220		
22,00	e8	38	19,0	52	52	54	104	20	3			220	220
23,70	h10	26	23,0	42	44	46	102	25	3	237	237		
24,00	e8	26	23,0	42	44	46	102	25	3	240	240		
24,70	h10	26	24,0	44	44	46	102	25	3	247	247		
Steel										●	●	●	●
Stainless steel										○	●	○	●
Cast iron										●	●	●	●
Non ferrous metals										○	○	○	○
Heat resistant alloys										○	○	○	○
hardened materials													

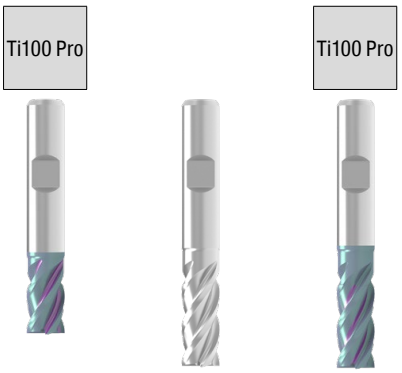
1) Factory standard

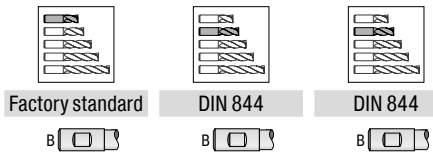
→ v_c/f_z Page 40–42

End milling cutter HSS-E Co 8







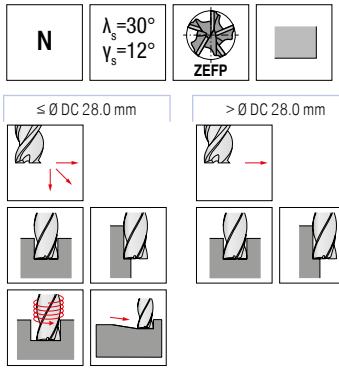


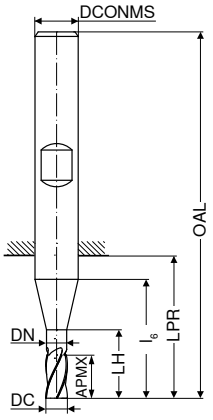
											Factory standard		DIN 844		DIN 844	
											B		B		B	
DC	Tol.	APMX	DN	LH	l_6	LPR	OAL	DCONMS $_{h6}$	ZEFP		**Article no. 54 017 ...**		**Article no. 50 124 ...**		**Article no. 54 011 ...**	
mm		mm	mm	mm	mm	mm	mm	mm								
4	k10	11		11	17	19	55	6	4					040		040
5	k10	13		13	19	21	57	6	4					050		050
6	e8	8	5,5	14	14	16	52	6	4			060				
6	k10	13	5,5	19	19	21	57	6	4					060		060
8	e8	11	7,5	17	19	21	61	10	4			080				
8	k10	19	7,5	25	27	29	69	10	4					080		080
9	k10	19	8,5	26	27	29	69	10	4					090		090
10	e8	13	9,5	21	21	23	63	10	4			100				
10	k10	22	9,5	30	30	32	72	10	4					100		100
12	e8	16	11,5	26	26	28	73	12	4			120				
12	k10	26	11,5	36	36	38	83	12	4					120		120
14	e8	16	11,5	26	26	28	73	12	4			140				
14	k10	26	11,5	36	36	38	83	12	4					140		140
15	k10	26	11,5	36	36	38	83	12	4					150		
16	e8	19	15,0	29	29	31	79	16	4			160				
16	k10	32	15,0	42	42	44	92	16	4					160		160
17	k10	32	15,0	42	42	44	92	16	4					170		170
18	e8	19	15,0	29	29	31	79	16	4			180				
18	k10	32	15,0	42	42	44	92	16	4					180		180
20	e8	22	19,0	36	36	38	88	20	4			200				
20	k10	38	19,0	52	52	54	104	20	4					200		200
25	k10	45	24,0	63	63	65	121	25	5					250		250
Steel												o		o		o
Stainless steel												●		●		●
Cast iron												o		o		o
Non ferrous metals												●		●		●
Heat resistant alloys												●		●		●
hardened materials																

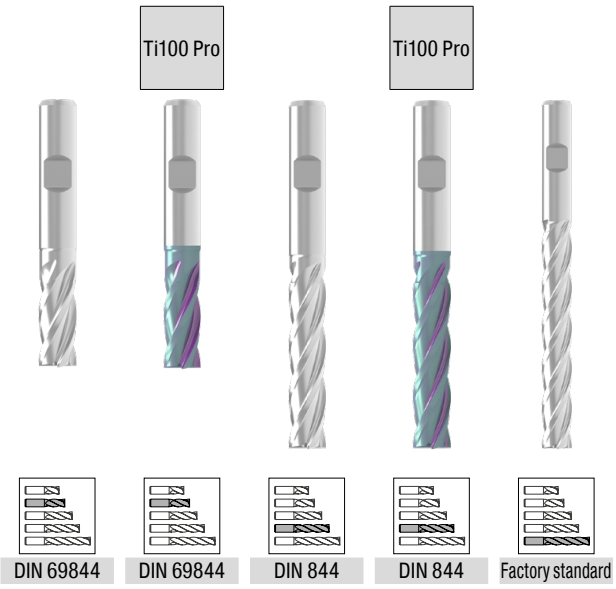
→ v_c/f_z Page 40–42

End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre







									DIN 69844	DIN 69844	DIN 844	DIN 844	Factory standard
									B	B	B	B	B
DC k10	APMX	DN	LH	l6	LPR	OAL	DCONMS h6	ZEFP	Article no. 50 110 ...	Article no. 54 018 ...	Article no. 50 111 ...	Article no. 54 019 ...	Article no. 50 104 ...
mm	mm	mm	mm	mm	mm	mm	mm						
2,0	7		7	13	15	51	6	4	020	020			
2,5	8		8	14	16	52	6	4	025	025			
3,0	8		8	14	16	52	6	4	030	030			
3,0	12		12	18	20	56	6	4			030	030	
3,5	10		10	16	18	54	6	4	035	035			
4,0	11		11	17	19	55	6	4	040	040			
4,0	19		19	25	27	63	6	4			040	040	
4,5	11		11	17	19	55	6	4	045	045			
5,0	13		13	19	21	57	6	4	050	050			
5,0	24		24	30	32	68	6	4			050	050	
5,5	13		13	19	21	57	6	4	055	055			
6,0	13	5,5	19	19	21	57	6	4	060	060			
6,0	24	5,5	30	30	32	68	6	4			060	060	
6,0	56	5,5	62	62	64	100	6	4					060
6,5	16	6,0	22	24	26	66	10	4	065	065			
7,0	16	6,5	22	24	26	66	10	4	070	070			
7,0	30	6,5	36	38	40	80	10	4			070	070	
7,5	16	7,0	22	24	26	66	10	4	075	075			
8,0	19	7,5	25	27	29	69	10	4	080	080			
8,0	38	7,5	44	46	48	88	10	4			080	080	
8,0	70	7,5	73	73	75	115	10	4					080
8,5	19	8,0	26	27	29	69	10	4	085	085			
9,0	19	8,5	26	27	29	69	10	4	090	090			
9,0	38	8,5	45	46	48	88	10	4			090	090	
9,5	19	9,0	26	27	29	69	10	4	095	095			
10,0	22	9,5	30	30	32	72	10	4	100	100			
10,0	45	9,5	53	53	55	95	10	4			100	100	
10,0	75	9,5	79	79	81	121	10	4					100
10,5	22	10,0	30	32	34	79	12	4	105	105			
11,0	22	10,5	30	32	34	79	12	4	110	110			
11,0	45	10,5	53	55	57	102	12	4			110	110	
11,5	22	11,0	30	32	34	79	12	4	115	115			
12,0	26	11,5	36	36	38	83	12	4	120	120			
12,0	53	11,5	63	63	65	110	12	4			120	120	
12,0	85		85	85	85	130	12	4					120
13,0	26	11,5	36	36	38	83	12	4	130	130			
14,0	26	11,5	36	36	38	83	12	4	140	140			
14,0	53	11,5	63	63	65	110	12	4			140	140	

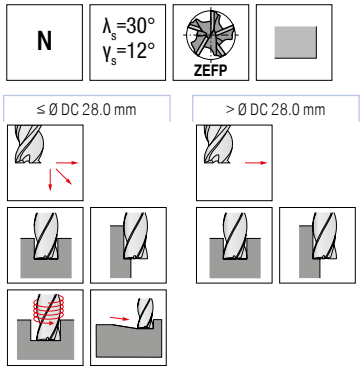
Steel	●	●	●	●	●
Stainless steel	○	●	○	●	○
Cast iron	●	●	●	●	●
Non ferrous metals	○	○	○	○	○
Heat resistant alloys hardened materials	○	○	○	○	○

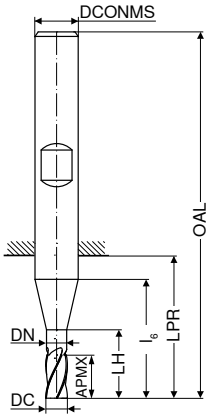
→ v_c/f_z Page 40–42

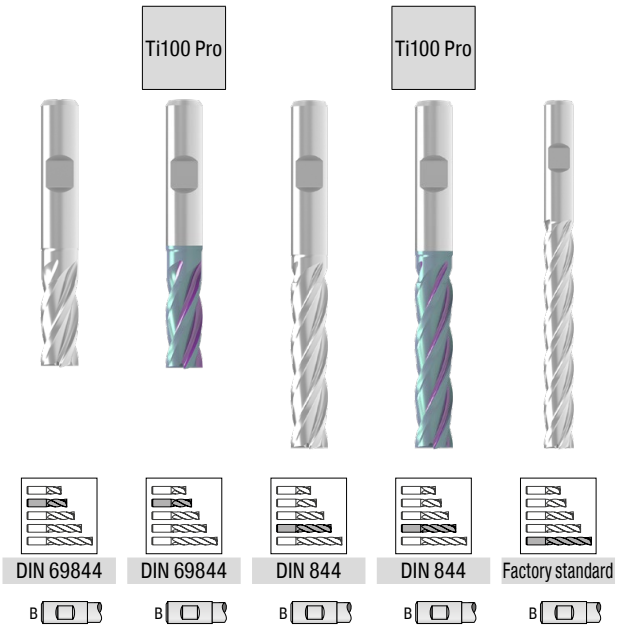
Continued on next page

End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre







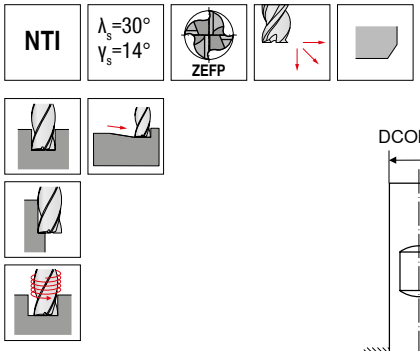
DC k10	APMX	DN	LH	l6	LPR	OAL	DCONMS h6	ZEFP	DIN 69844	DIN 69844	DIN 844	DIN 844	Factory standard
									B	B	B	B	B
									Article no. 50 110 ...	Article no. 54 018 ...	Article no. 50 111 ...	Article no. 54 019 ...	Article no. 50 104 ...
mm	mm	mm	mm	mm	mm	mm	mm						
14,0	85		85	85	85	130	12	4					140
15,0	26	11,5	36	36	38	83	12	4	150	150			
15,0	53	11,5	63	63	65	110	12	4			150	150	
16,0	32	15,0	42	42	44	92	16	4	160	160			
16,0	63	15,0	73	73	75	123	16	4			160	160	
16,0	90	15,0	95	95	97	145	16	4					160
18,0	32	15,0	42	42	44	92	16	4	180	180			
18,0	63	15,0	73	73	75	123	16	4			180	180	
18,0	100	15,0	110	110	112	160	16	5					180
20,0	38	19,0	52	52	54	104	20	4	200	200			
20,0	75	19,0	89	89	91	141	20	4			200	200	
20,0	110	19,0	128	128	130	180	20	5					200
22,0	38	19,0	52	52	54	104	20	5	220	220			
22,0	75	19,0	89	89	91	141	20	5			220	220	
22,0	110	19,0	128	128	130	180	20	5					220
24,0	45	23,0	61	63	65	121	25	5	240	240			
24,0	90	23,0	106	108	110	166	25	5			240	240	
25,0	45	24,0	63	63	65	121	25	5	250	250			
25,0	90	24,0	108	108	110	166	25	5			250	250	
25,0	125	24,0	142	142	144	200	25	6					250
28,0	45	24,0	63	63	65	121	25	5	280	280			
28,0	90	24,0	108	108	110	166	25	5			280	280	
28,0	140	24,0	147	147	149	205	25	6					280
30,0	45	24,0	63	63	65	121	25	5	300	300			
30,0	90	24,0	108	108	110	166	25	5			300	300	
32,0	53	31,0	70	70	73	133	32	6	320				
32,0	53	31,0	70	70	73	133	32	5		320			
32,0	106	31,0	123	123	126	186	32	6			320	320	
32,0	160	31,0	167	167	170	230	32	6					320
36,0	53	31,0	70	70	73	133	32	6	360	360			
40,0	63	38,0	80	80	85	155	40	6	400	400			
40,0	125	38,0	142	142	147	217	40	6			400	400	
40,0	180	31,0	197	197	200	260	32	8					400
45,0	125	38,0	142	142	147	217	40	8			450	450	
50,0	150	48,0	172	172	172	252	50	8			500	500	

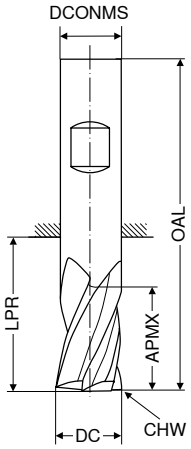
Steel	●	●	●	●	●
Stainless steel	○	●	○	●	○
Cast iron	●	●	●	●	●
Non ferrous metals	○	○	○	○	○
Heat resistant alloys	○	○	○	○	○
hardened materials					

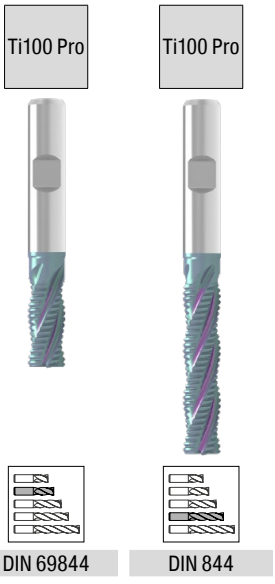
→ v_c/f_z Page 40–42

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Powdersteel roughing finishing cutter







DIN 69844 | DIN 844





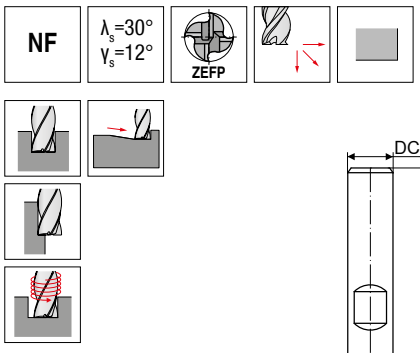
DC k12 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Article no. 54 007 ...	Article no. 54 008 ...
6	13	21	57	6	0,3	4	060	
6	24	32	68	6	0,3	4		060
7	16	26	66	10	0,3	4	070	
8	19	29	69	10	0,3	4	080	
8	38	48	88	10	0,3	4		080
9	19	29	69	10	0,5	4	090	
10	22	32	72	10	0,5	4	100	
10	45	55	95	10	0,5	4		100
12	26	38	83	12	0,7	4	120	
12	53	65	110	12	0,7	4		120
14	26	38	83	12	0,8	4	140	
14	53	65	110	12	0,8	4		140
16	32	44	92	16	0,8	4	160	
16	63	75	123	16	0,8	4		160
18	32	44	92	16	0,8	4	180	
18	63	75	123	16	0,8	4		180
20	38	54	104	20	0,8	4	200	
20	75	91	141	20	0,8	4		200
25	45	65	121	25	1,0	5	250	
25	90	110	166	25	1,0	4		250
30	90	110	166	25	1,3	5		300
32	53	73	133	32	1,3	6	320	
32	106	126	186	32	1,3	5		320
40	63	85	155	40	1,3	6	400	
40	125	147	217	40	1,3	6		400

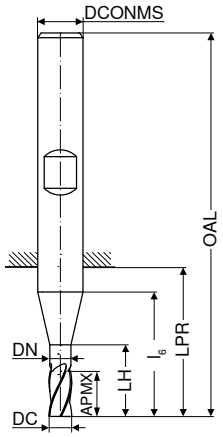
Steel	○	○
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials		

→ v_c/f_z Page 40–42

Roughing-finishing milling cutter HSS-E Co 5

NF | λ_s=30° γ_s=12° | ZEFP









DIN 69844



DIN 844





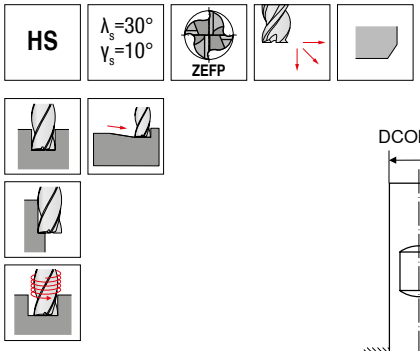
DC $_{k12}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	Article no. 54 028 ...	Article no. 54 029 ...
6	13	5,5	19	19	21	57	6	4	060	
6	24	5,5	30	30	32	68	6	4		060
7	16	6,5	22	24	26	66	10	4	070	
8	19	7,5	25	27	29	69	10	4	080	
8	38	7,5	44	46	48	88	10	4		080
9	19	8,5	26	27	29	69	10	4	090	
10	22	9,5	30	30	32	72	10	4	100	
10	45	9,5	53	53	55	95	10	4		100
11	22	10,5	30	32	32	79	12	4	110	
11	45	10,5	53	55	57	102	12	4		110
12	26	11,5	36	36	38	83	12	4	120	
12	53	11,5	63	63	65	110	12	4		120
13	26	11,5	36	36	38	83	12	4	130	
14	26	11,5	36	36	38	83	12	4	140	
15	26	11,5	36	36	38	83	12	4	150	
15	53	11,5	63	63	65	110	12	4		150
16	32	15,0	42	42	44	92	16	4	160	
16	63	15,0	73	73	75	123	16	4		160
18	32	15,0	42	42	44	92	16	4	180	
20	38	19,0	52	52	54	104	20	4	200	
20	75	19,0	89	89	91	141	20	4		200
22	75	19,0	89	89	91	141	20	4		220
22	38	19,0	52	52	54	104	20	4	220	
25	90	24,0	108	108	110	166	25	4		250
25	45	24,0	63	63	65	121	25	4	250	
28	90	24,0	108	108	110	166	25	5		280

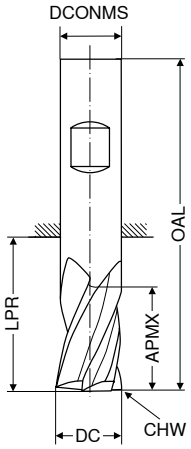
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

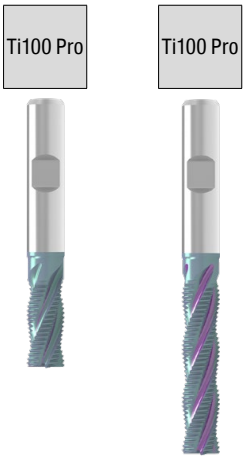
→ v_c/f_z Page 40–42

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Powdersteel roughing finishing cutter











DIN 69844 | DIN 844





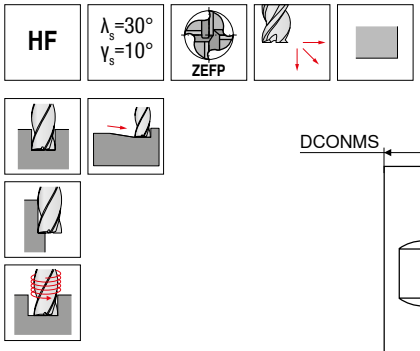
DC k12 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Article no. 54 009 ...	Article no. 54 012 ...
6	13	21	57	6	0,45	4	060	
6	24	32	68	6	0,45	4		060
8	19	29	69	10	0,45	4	080	
8	38	48	88	10	0,45	4		080
10	22	32	72	10	0,45	4	100	
10	45	55	95	10	0,45	4		100
12	26	38	83	12	0,45	4	120	
12	53	65	110	12	0,45	4		120
14	26	38	83	12	0,45	4	140	
14	53	65	110	12	0,45	4		140
16	32	44	92	16	0,60	4	160	
16	63	75	123	16	0,60	4		160
18	32	44	92	16	0,60	4	180	
18	63	75	123	16	0,60	4		180
20	38	54	104	20	0,60	4	200	
20	75	91	141	20	0,60	4		200
22	38	54	104	20	0,60	5	220	
25	45	65	121	25	0,75	5	250	
25	90	110	166	25	0,75	5		250
28	45	65	121	25	0,75	5	280	
28	90	110	166	25	0,75	5		280
30	45	65	121	25	0,75	5	300	
30	90	110	166	25	0,75	5		300
32	53	73	133	32	0,75	6	320	
32	106	126	186	32	0,75	5		320
40	63	85	155	40	0,90	6	400	

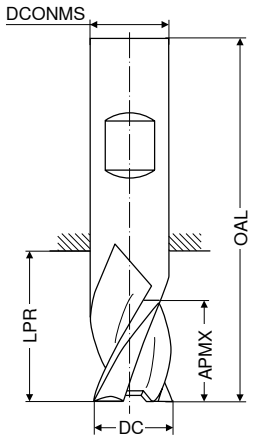
Steel	○	○
Stainless steel		
Cast iron	●	●
Non ferrous metals		
Heat resistant alloys	●	●
hardened materials		

→ v_c/f_z Page 40–42

Powdersteel roughing finishing cutter

HF | λ_s=30° γ_s=10° | ZEFP





Ti100 Pro





DIN 844



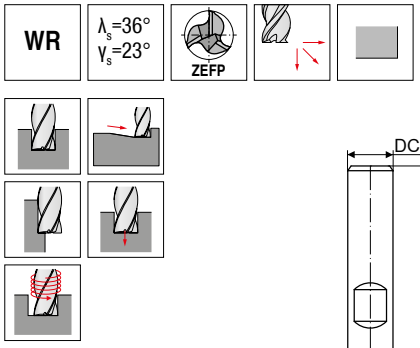
DC $_{k12}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	Article no. 54 034 ...
6	13	21	57	6	4	**060**
8	19	29	69	10	4	**080**
10	22	32	72	10	4	**100**
12	26	38	83	12	4	**120**
14	26	38	83	12	4	**140**
16	32	44	92	16	4	**160**
18	32	44	92	16	4	**180**
20	38	54	104	20	4	**200**
25	45	65	121	25	4	**250**

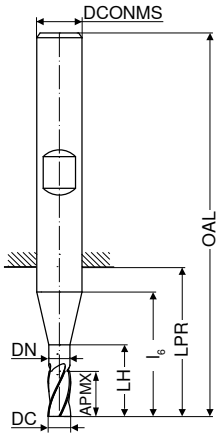
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

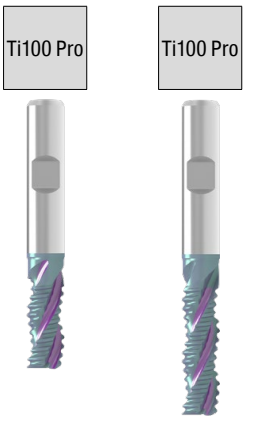
→ v_c/f_z Page 40–42

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Rough milling cutter HSS-E Co 8











DIN 844 | Factory standard



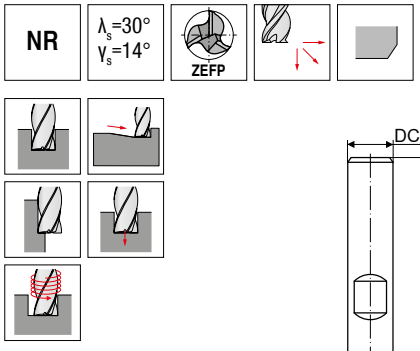


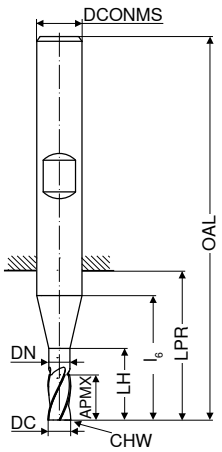
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 54 013 ...	Article no. 54 010 ...
6	13	5,5	19	19	21	57	6	3	**060**	
6	19	5,5	25	25	27	63	6	3		**060**
8	19	7,5	25	27	29	69	10	3	**080**	
8	28	7,5	34	36	38	78	10	3		**080**
10	22	9,5	30	30	32	72	10	3	**100**	
10	34	9,5	42	42	44	84	10	3		**100**
12	26	11,5	36	36	38	83	12	3	**120**	
12	40	11,5	50	50	52	97	12	3		**120**
16	32	15,0	42	42	44	92	16	3	**160**	
16	48	15,0	58	58	60	108	16	3		**160**
20	38	19,0	52	52	54	104	20	3	**200**	
20	56	19,0	70	70	72	122	20	3		**200**
25	45	24,0	63	63	65	121	25	3	**250**	
25	68	24,0	86	86	88	144	25	3		**250**
32	80	31,0	97	97	100	160	32	3		**320**

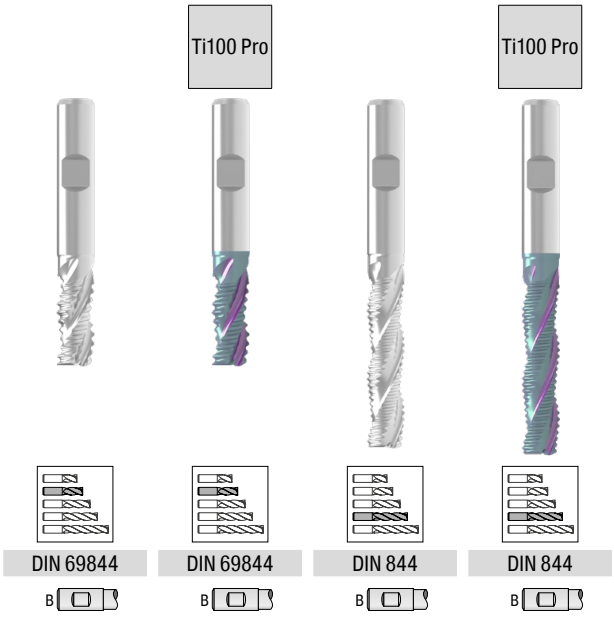
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

→ v_c/f_z Page 40–42

Rough milling cutter HSS-E Co 8







DC k12	APMX	DN	LH	l6	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 50 153 ...	Article no. 54 026 ...	Article no. 50 157 ...	Article no. 54 027 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm		DIN 69844 B	DIN 69844 B	DIN 844 B	DIN 844 B
6	13	5,5	19	19	21	57	6	0,5	3	060	060		
6	24	5,5	30	30	32	68	6	0,5	3			060	060
7	16	6,5	22	24	26	66	10	0,5	3	070	070		
8	19	7,5	25	27	29	69	10	0,7	3	080	080		
8	38	7,5	44	46	48	88	10	0,7	3			080	080
9	19	8,5	26	27	29	69	10	0,7	3	090	090		
9	38	8,5	45	46	48	88	10	0,7	3			090	090
10	22	9,5	30	30	32	72	10	0,7	3	100	100		
10	45	9,5	53	53	55	95	10	0,7	3			100	100
11	22	10,5	30	32	34	79	12	0,7	3	110	110		
11	45	10,5	53	55	55	102	12	0,7	3			110	110
12	26	11,5	36	36	38	83	12	0,7	3	120	120		
12	53	11,5	63	63	65	110	12	0,7	3			120	120
14	26	11,5	36	36	38	83	12	0,9	3	140	140		
14	53	11,5	63	63	65	110	12	0,9	3			140	140
15	26	11,5	36	36	38	83	12	0,9	3	150	150		
15	53	11,5	63	63	65	110	12	0,9	3			150	150
16	32	15,0	42	42	44	92	16	0,9	3	160	160		
16	63	15,0	73	73	75	123	16	0,9	3			160	160
18	32	15,0	42	42	44	92	16	0,9	3	180	180		
18	63	15,0	73	73	75	123	16	0,9	3			180	180
20	38	19,0	52	52	54	104	20	0,9	3	200	200		
20	75	19,0	89	89	91	141	20	0,9	3			200	200
25	45	24,0	63	63	65	121	25	0,9	3	250	250		
25	90	24,0	108	108	110	166	25	0,9	3			250	250

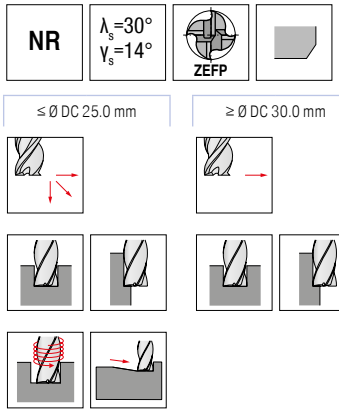
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials				

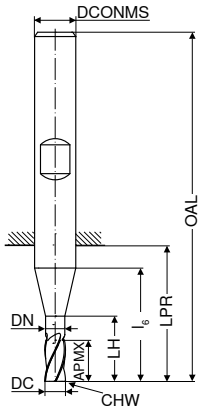
→ v_c/f_z Page 40–42

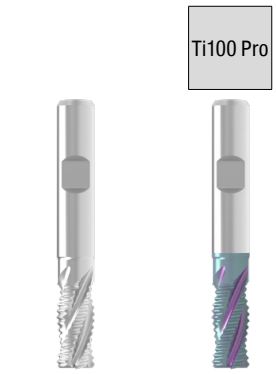
13

Rough milling cutter HSS-E Co 5

▲ > Ø 25,0 mm recessed centre









DIN 69844 B | DIN 69844 B

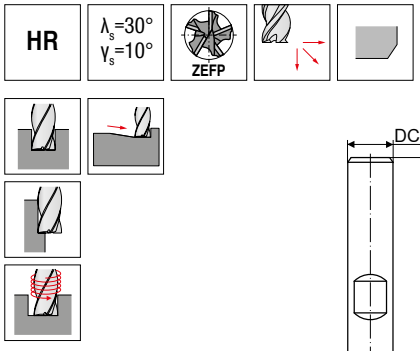
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Article no. 50 125 ...	Article no. 54 030 ...
6	13	5,5	19	19	21	57	6	0,5	4	060	060
7	16	6,5	22	24	26	66	10	0,5	4	070	070
8	19	7,5	25	27	29	69	10	0,7	4	080	080
9	19	8,5	26	27	29	69	10	0,7	4	090	090
10	22	9,5	30	30	32	72	10	0,7	4	100	100
11	22	10,5	30	32	32	79	12	0,7	4	110	110
12	26	11,5	36	36	38	83	12	0,7	4	120	120
13	26	11,5	36	36	38	83	12	0,7	4		130
14	26	11,5	36	36	38	83	12	0,9	4	140	140
15	26	11,5	36	36	38	83	12	0,9	4		150
16	32	15,0	42	42	44	92	16	0,9	4	160	160
18	32	15,0	42	42	44	92	16	0,9	4	180	180
20	38	19,0	52	52	54	104	20	0,9	4	200	200
22	38	19,0	52	52	54	104	20	0,9	4		220
24	45	23,0	61	63	65	121	25	0,9	4		240
25	45	24,0	63	63	65	121	25	0,9	4	250	250
30	45	24,0	63	63	65	121	25	1,1	5		300
32	53	31,0	70	70	73	133	32	1,1	6		320
40	63	38,0	80	80	85	155	40	1,1	6		400

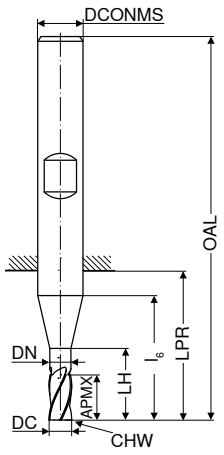
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

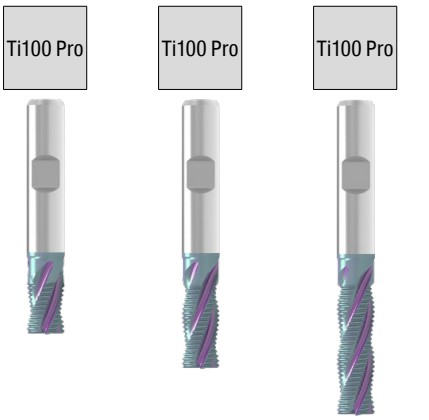
→ v_c/f_z Page 40–42

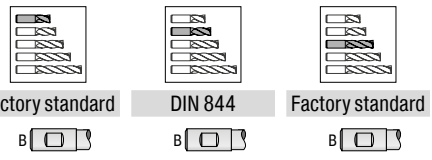
Powdersteel Fine rough milling cutter

HR | λ_s=30° γ_s=10° | ZEFP









Factory standard | DIN 844 | Factory standard

B | B | B

DC $_{k12}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	Article no. 54 031 ...	Article no. 54 032 ...	Article no. 54 033 ...
6	8	5,5	14	14	16	52	6	0,35	4	**060**		
6	13	5,5	19	19	21	57	6	0,35	4		**060**	
8	11	7,5	17	19	21	61	10	0,45	4	**080**		
8	19	7,5	25	27	29	69	10	0,45	4		**080**	
8	28	7,5	34	36	38	78	10	0,45	4			**080**
10	13	9,5	21	21	23	63	10	0,45	4	**100**		
10	22	9,5	30	30	32	72	10	0,45	4		**100**	
10	34	9,5	42	42	44	84	10	0,45	4			**100**
12	16	11,5	26	26	28	73	12	0,60	4	**120**		
12	26	11,5	36	36	38	83	12	0,60	4		**120**	
12	40	11,5	50	50	52	97	12	0,60	4			**120**
14	16	11,5	26	26	28	73	12	0,60	4	**140**		
14	26	11,5	36	36	38	83	12	0,60	4		**140**	
14	40	11,5	50	50	52	97	12	0,60	4			**140**
16	19	15,0	29	29	31	79	16	0,70	4	**160**		
16	32	15,0	42	42	44	92	16	0,70	4		**160**	
16	48	15,0	58	58	60	108	16	0,70	4			**160**
18	19	15,0	29	29	31	79	16	0,70	4	**180**		
18	32	15,0	42	42	44	92	16	0,70	4		**180**	
18	48	15,0	58	58	60	108	16	0,70	4			**180**
20	22	19,0	36	36	38	88	20	0,70	4	**200**		
20	38	19,0	52	52	54	104	20	0,70	4		**200**	
20	56	19,0	70	70	72	122	20	0,70	4			**200**
22	22	19,0	36	36	38	88	20	0,70	4	**220**		
22	38	19,0	52	52	54	104	20	0,70	4		**220**	
22	56	19,0	70	70	72	122	20	0,70	4			**220**
25	26	24,0	44	44	46	102	25	0,70	4	**250**		
25	45	24,0	63	63	65	121	25	0,70	4		**250**	
25	68	24,0	86	86	88	144	25	0,70	4			**250**
28	26	24,0	44	44	46	102	25	0,90	5	**280**		
30	45	24,0	63	63	65	121	25	0,90	5		**300**	
32	32	31,0	49	49	52	112	32	0,90	6	**320**		
32	53	31,0	70	70	73	133	32	0,90	6		**320**	

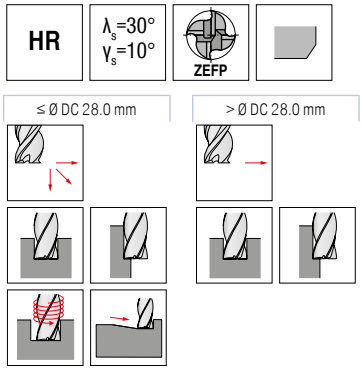
Steel	●	●	●
Stainless steel	●	●	●
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials			

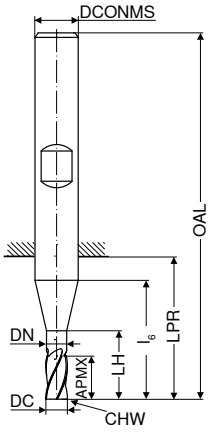
→ v_c/f_z Page 40–42

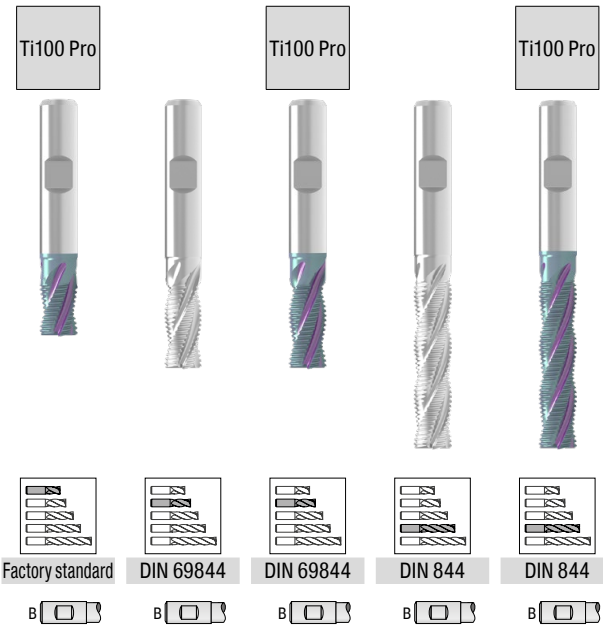
13

Fine profile milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre







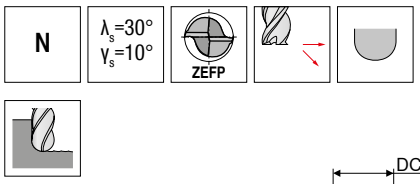
	Factory standard	DIN 69844	DIN 69844	DIN 844	DIN 844
	B	B	B	B	B
	Article no. 54 022 ...	Article no. 50 140 ...	Article no. 54 023 ...	Article no. 50 141 ...	Article no. 54 024 ...

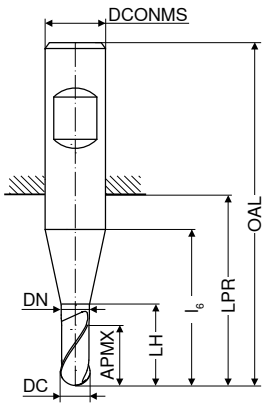
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP										
4	11		11	17	19	55	6	0,35	3			040		040					
5	13		13	19	21	57	6	0,35	3			050		050					
6	8	5,5	14	14	16	52	6	0,35	4	060									
6	13	5,5	19	19	21	57	6	0,35	4			060		060					
6	24	5,5	30	30	32	68	6	0,35	4							060		060	
8	11	7,5	17	19	21	61	10	0,45	4	080									
8	19	7,5	25	27	29	69	10	0,45	4			080		080					
8	38	7,5	44	46	48	88	10	0,45	4							080		080	
10	13	9,5	21	21	23	63	10	0,45	4	100									
10	22	9,5	30	30	32	72	10	0,45	4			100		100					
10	45	9,5	53	53	55	95	10	0,45	4							100		100	
12	16	11,5	26	26	28	73	12	0,60	4	120									
12	26	11,5	36	36	38	83	12	0,60	4			120		120					
12	53	11,5	63	63	65	110	12	0,60	4							120		120	
14	16	11,5	26	26	28	73	12	0,60	4	140									
14	26	11,5	36	36	38	83	12	0,60	4			140		140					
14	53	11,5	63	63	65	110	12	0,60	4							140		140	
16	19	15,0	29	29	31	79	16	0,70	4	160									
16	32	15,0	42	42	44	92	16	0,70	4			160		160					
16	63	15,0	73	73	75	123	16	0,70	4							160		160	
18	19	15,0	29	29	31	79	16	0,70	4	180									
18	32	15,0	42	42	44	92	16	0,70	4			180		180					
18	63	15,0	73	73	75	123	16	0,70	4							180		180	
20	22	19,0	36	36	38	88	20	0,70	4	200									
20	38	19,0	52	52	54	104	20	0,70	4			200		200					
20	75	19,0	89	89	91	141	20	0,70	4							200		200	
22	38	19,0	52	52	54	114	20	0,70	4			220		220					
22	75	19,0	89	89	91	141	20	0,70	4							220		220	
25	45	24,0	63	63	65	121	25	0,70	4			250		250					
25	90	24,0	108	108	110	166	25	0,70	4									250	
28	45	24,0	63	63	65	121	25	0,90	5					280					
28	90	24,0	108	108	110	166	25	0,90	5									280	
30	45	24,0	63	63	65	121	25	0,90	5					300					
30	90	24,0	108	108	110	166	25	0,90	5									300	
32	53	31,0	70	70	73	133	32	0,90	6					320					
32	106	31,0	123	123	126	186	32	0,90	6									320	

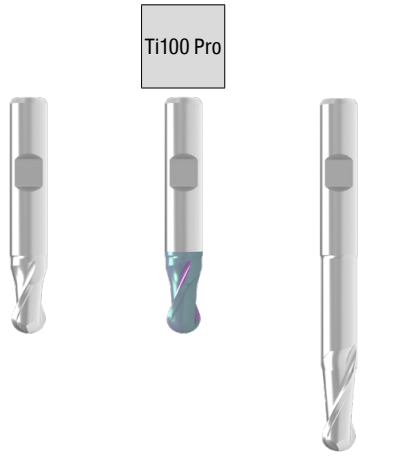
Steel	●	●	●	●	●
Stainless steel	●	○	●	○	●
Cast iron	●	●	●	●	●
Non ferrous metals	○	○	○	○	○
Heat resistant alloys	○	○	○	○	○
hardened materials					

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Ball nosed end milling cutter HSS-E Co 8



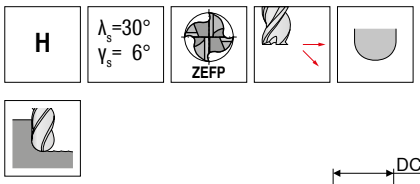


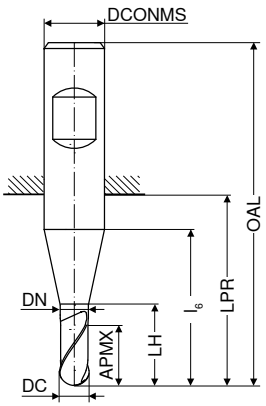


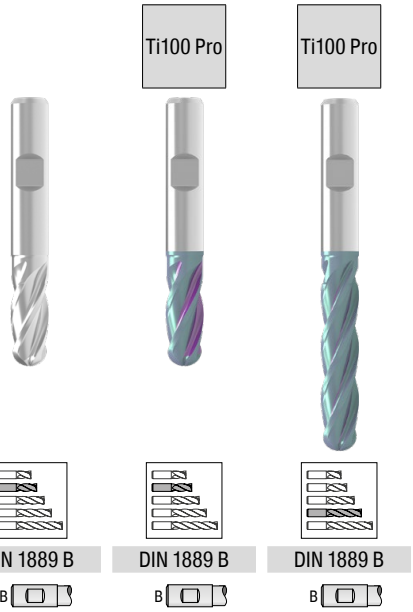
DC h10 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard B Article no. 50 320 ...	Factory standard B Article no. 54 041 ...	Factory standard B Article no. 50 321 ...
2	4		4	10	12	48	6	2	**020**	**020**	
3	5		5	11	13	49	6	2	**030**	**030**	
3	8		8	18	20	56	6	2			**030**
4	7		7	13	15	51	6	2	**040**	**040**	
4	11		11	25	27	63	6	2			**040**
5	8		8	14	16	52	6	2	**050**	**050**	
5	13		13	30	32	68	6	2			**050**
6	8	5,50	14	14	16	52	6	2	**060**	**060**	
6	13	5,50	30	30	32	68	6	2			**060**
7	10	6,50	16	18	20	60	10	2	**070**	**070**	
7	16	6,35	36	38	40	80	10	2			**070**
8	11	7,50	17	19	21	61	10	2	**080**	**080**	
8	19	7,35	44	46	48	88	10	2			**080**
9	11	8,50	18	19	21	61	10	2	**090**	**090**	
9	19	8,35	45	46	48	88	10	2			**090**
10	13	9,50	21	21	23	63	10	2	**100**	**100**	
10	22	9,35	53	53	55	95	10	2			**100**
11	13	10,50	21	23	25	70	12	2	**110**		
11	22	10,50	53	55	57	102	12	2			**110**
12	16	11,50	26	26	28	73	12	2	**120**	**120**	
12	26	11,50	63	63	65	110	12	2			**120**
13	16	11,50	26	26	28	73	12	2	**130**	**130**	
14	16	11,50	26	26	28	73	12	2	**140**	**140**	
14	26	11,50	63	63	65	110	12	2			**140**
15	16	11,50	26	26	28	73	12	2	**150**	**150**	
15	26	11,50	63	63	65	110	12	2			**150**
16	19	15,50	29	29	31	79	16	2	**160**	**160**	
16	32	15,00	73	73	75	123	16	2			**160**
18	19	15,50	29	29	31	79	16	2	**180**	**180**	
18	32	15,00	73	73	75	123	16	2			**180**
20	22	19,00	36	36	38	88	20	2	**201**	**201**	
22	22	19,00	36	36	38	88	20	2	**220**		
24	26	23,00	42	44	46	102	25	2	**240**	**240**	
24	45	23,00	106	108	110	166	25	2			**240**
25	26	24,00	44	44	46	102	25	2	**250**		
25	45	24,00	108	108	110	166	25	2			**250**
26	26	24,00	44	44	46	102	25	2	**260**		
28	26	24,00	44	44	46	102	25	2	**280**		
30	26	24,00	44	44	46	102	25	2	**300**		
30	45	24,00	108	108	110	166	25	2			**300**
Steel									●	●	●
Stainless steel									○	○	○
Cast iron									●	●	●
Non ferrous metals									○	○	○
Heat resistant alloys									○	○	○
hardened materials											

→ v_c/f_z Page 40–42

Ball nosed cutter HSS-E Co 8







DIN 1889 B | DIN 1889 B | DIN 1889 B



DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 50 308 ...	Article no. 54 038 ...	Article no. 54 039 ...
6	13	5,5	19	19	21	57	6	4	**060**	**060**	
6	24	5,5	30	30	32	68	6	4			**060** [1]
8	19	7,5	25	27	29	69	10	4	**080**	**080**	
8	38	7,5	44	46	48	88	10	4			**080** [1]
10	22	9,5	30	30	32	72	10	4	**100**	**100**	
10	45	9,5	53	53	55	95	10	4			**100**
12	26	11,5	36	36	38	83	12	4	**120**	**120**	
12	53	11,5	63	63	65	110	12	4			**120**
16	32	15,0	42	42	44	92	16	4	**160**	**160**	
16	63	15,0	73	73	75	123	16	4			**160**
20	38	19,0	52	52	54	104	20	4		**200**	
20	75	19,0	89	89	91	141	20	4			**200**
25	45	24,0	63	63	65	121	25	5		**250**	

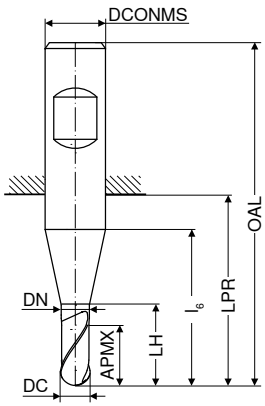
Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials			

1) Factory standard

→ v_c/f_z Page 40–42

Ball nosed fine rough milling cutter HSS-E Co 8

HR | λ_s=30° γ_s=10° | ZEFP



Ti100 Pro





DIN 1889 B



DC $_{js14}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	Article no. 54 040 ...
6	13	5,5	19	19	21	57	6	4	**060**
8	19	7,5	25	27	29	69	10	4	**080**
10	22	9,5	30	30	32	72	10	4	**100**
12	26	11,5	36	36	38	83	12	4	**120**
16	32	15,0	42	42	44	92	16	4	**160**
20	38	19,0	52	52	54	104	20	4	**200**

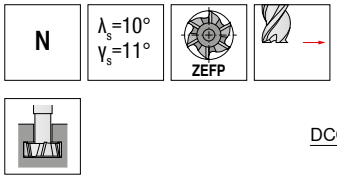
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

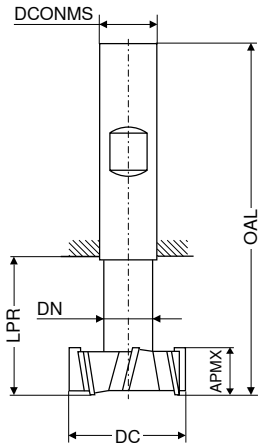
→ v_c/f_z Page 40–42

13

T-slot milling cutter HSS-E Co 5, cross pitched

▲ for slots according to DIN 650







DIN 851 A

B 

DC $_{d11}$ mm	APMX $_{d11}$ mm	DN $_{h12}$ mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	Article no. 50 240 ...
11,0	4	4	13,5	53,5	10	6	**110**
12,5	6	5	17,0	57,0	10	6	**125**
16,0	8	7	22,0	62,0	10	6	**160**
18,0	8	8	25,0	70,0	12	6	**180**
19,0	9	8	26,0	71,0	12	6	**190** 1)
21,0	9	10	29,0	74,0	12	6	**210**
22,0	10	10	30,0	75,0	12	6	**220** 1)
25,0	11	12	34,0	82,0	16	8	**250**
28,0	12	13	37,0	85,0	16	8	**280** 1)
32,0	14	15	42,0	90,0	16	8	**320**
36,0	16	17	47,0	103,0	25	8	**360** 1)
40,0	18	19	52,0	108,0	25	10	**400**
45,0	20	21	57,0	113,0	25	10	**450** 1)
50,0	22	25	64,0	124,0	32	10	**500**
60,0	28	30	79,0	139,0	32	10	**600**

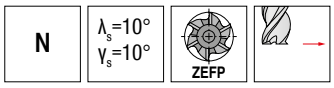
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

1) Factory standard

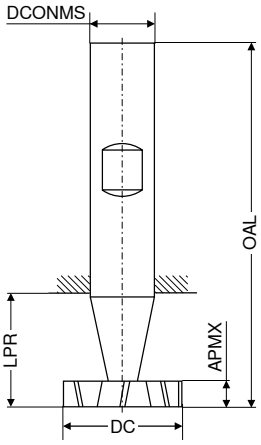
→ v_c/f_z Page 43

Slot milling cutter HSS-E Co 5, cross-pitched

▲ for slots according to DIN 6888
▲ CDX = $a_{p\,max.}$









DIN 850
B 

DC h12	APMX e8	LPR	OAL	DCONMS h6	CDX	ZEFP	Article no. 50 234 ...
mm	mm	mm	mm	mm	mm		
10,5	2,0	14	50	6	3,25	6	**100**
10,5	2,5	14	50	6	3,15	6	**101**
10,5	3,0	14	50	6	3,15	6	**102**
13,5	2,0	16	56	10	4,45	6	**130** 1)
13,5	3,0	16	56	10	4,45	6	**132**
13,5	4,0	16	56	10	4,45	6	**133**
16,5	3,0	16	56	10	5,95	6	**161**
16,5	4,0	16	56	10	5,95	6	**162**
16,5	5,0	16	56	10	5,75	6	**163**
19,5	3,0	23	63	10	6,95	8	**190** 1)
19,5	4,0	23	63	10	6,95	8	**191**
19,5	5,0	23	63	10	6,75	8	**192**
22,5	4,0	23	63	10	8,25	8	**220** 1)
22,5	5,0	23	63	10	8,25	8	**221**
22,5	6,0	23	63	10	8,00	8	**222**
25,5	5,0	23	63	10	9,00	10	**250** 1)
25,5	6,0	23	63	10	9,00	10	**251**
28,5	6,0	23	63	10	10,00	10	**281**
28,5	8,0	23	63	10	10,00	10	**283**
32,5	6,0	26	71	12	12,00	10	**321** 1)
32,5	8,0	26	71	12	12,00	10	**322**
38,5	8,0	26	71	12	13,35	10	**381** 1)
45,5	10,0	26	71	12	16,85	12	**450**

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

1) Factory standard

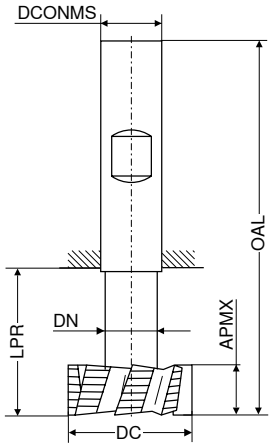
→ v_c/f_z Page 43

13

T-slot milling cutter HSS-E Co 5

▲ for slots according to DIN 650

NF | λ_s=20° γ_s=11° | ZEFP





DIN 851 A

B 

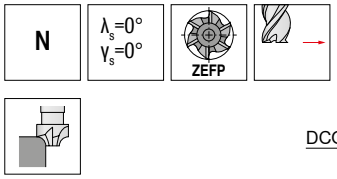
DC $_{d11}$ mm	APMX mm	DN $_{h12}$ mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	Article no. 50 241 ...
21	9	10	29	74	12	6	**210**
22	10	10	30	75	12	6	**220** 1)
25	11	12	34	82	16	6	**250**
28	12	13	37	85	16	6	**280** 1)
32	14	15	42	90	16	6	**320**
36	16	17	47	103	25	6	**360** 1)
40	18	19	52	108	25	8	**400**
45	20	21	57	113	25	8	**450** 1)

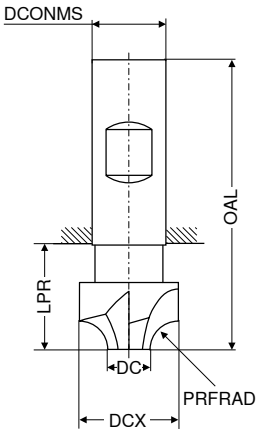
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

1) Factory standard

→ v_c/f_z Page 43

Quarter-round profile milling cutter HSS-E Co 5, concave







DIN 6518

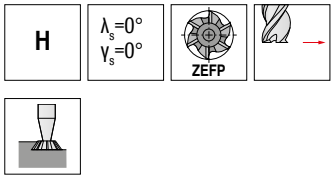
B

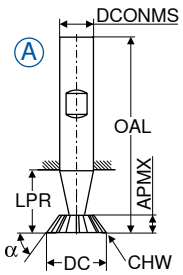
PRFRAD h11	DCX	DC	LPR	OAL	DCONMS h6	ZEFP	Article no. 50 248 ...
mm	mm	mm	mm	mm	mm		
1,0	8	6	20	60	10	4	**010**
1,5	9	6	20	60	10	4	**015**
2,0	10	6	20	60	10	4	**020**
2,5	11	6	20	60	10	4	**025**
3,0	12	6	15	60	12	4	**030**
4,0	14	6	15	60	12	4	**040**
5,0	16	6	15	60	12	4	**050**
6,0	20	8	19	67	16	4	**060**
8,0	24	8	23	71	16	4	**080**
9,0	26	8	29	85	25	4	**090**
10,0	28	8	29	85	25	4	**100**
12,0	34	10	34	90	25	4	**120**
15,0	46	16	44	100	25	6	**150**
16,0	48	16	44	100	25	6	**160**

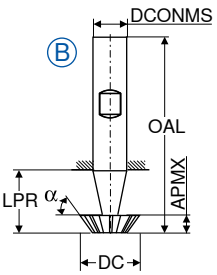
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

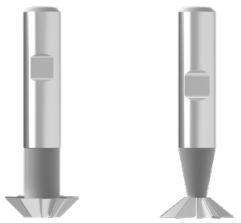
→ v_c/f_z Page 43

Single angle miling cutters HSS-E Co 5









α°	DC mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Fig.	DIN 1833 B Article no. 50 246 ...	DIN 1833 B Article no. 50 245 ...
45	16	4,0	15	60	12	0,3	10	A		016
	16	4,0	15	60	12		10	B	016	
	20	5,0	18	63	12	0,3	10	A		020
	20	5,0	18	63	12		10	B	020	
	25	6,3	22	67	12	0,3	10	A		025
	25	6,3	22	67	12		10	B	025	
60	16	6,3	15	60	12	0,3	10	A		116
	16	6,3	15	60	12		10	B	116	
	20	8,0	18	63	12	0,3	10	A		120
	20	8,0	18	63	12		10	B	120	
	25	10,0	22	67	12	0,3	10	A		125
	25	10,0	22	67	12		10	B	125	
70	16	7,0	15	60	12	0,3	10	A		216 1)
	20	9,0	18	63	12	0,3	10	A		220 1)
	25	11,0	19	67	16	0,3	10	A		225 1)

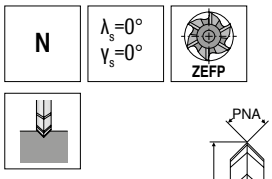
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

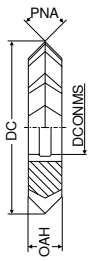
1) Factory standard

→ v_c/f_z Page 44

Double angle milling cutter HSS

▲ with keyway to DIN 138







DIN 847

PNA °	DC mm	OAH mm	DCONMS mm	ZEFP	Article no. 50 360 ...
45	50	8	16	22	045
	63	10	22	24	145
	80	12	27	26	245
	100	18	32	28	345
60	50	10	16	18	060
	63	14	22	20	160
	80	18	27	22	260
	100	25	32	24	360
90	50	14	16	16	090
	63	20	22	18	190
	80	22	27	20	290
	100	32	32	24	390
120	50	14	16	16	120 1)
	63	20	22	16	121 1)

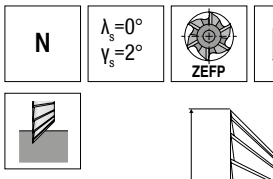
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

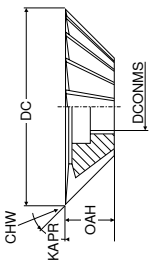
1) Factory standard

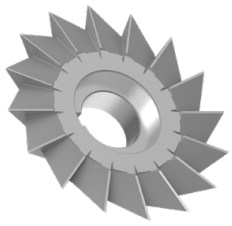
→ v_c/f_z Page 44

Shell type single angle milling cutter HSS

▲ with keyway to DIN 138







DIN 842 A

KAPR °	DC mm	OAH mm	DCONMS mm	CHW mm	ZEFP	Article no. 50 362 ...
45	40	10	10	0,3	14	045
	50	13	13	0,3	16	145
	63	18	16	0,3	18	245
	80	22	22	0,3	20	345
	100	28	27	0,3	22	445
50	50	16	13	0,3	16	150
60	40	13	10	0,3	14	060
	50	16	13	0,3	16	160
	63	20	16	0,3	18	260
	80	25	22	0,3	20	360
	100	32	27	0,3	22	460
	125	40	32	0,3	28	560

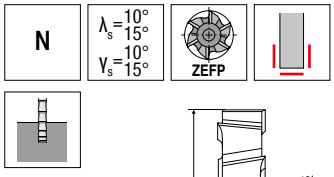
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

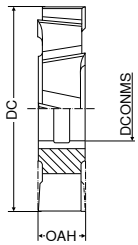
→ v_c/f_z Page 44

13

Side and face milling cutter HSS-E Co 5

▲ Coarse cross-pitched
▲ with keyway to DIN 138







DIN 885 A

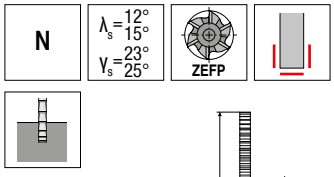
DC js16	OAH k11	DCONMS H7	ZEFP	Article no. 50 348 ...
mm	mm	mm		
50	4	16	12	100
50	5	16	12	102
50	6	16	12	104
50	8	16	12	106
50	10	16	12	108
63	4	22	12	200
63	5	22	12	202
63	6	22	12	204
63	8	22	12	206
63	10	22	12	208
63	12	22	12	210
63	14	22	12	212
80	5	27	14	300
80	6	27	14	302
80	8	27	14	304
80	10	27	14	306
80	12	27	14	308
80	14	27	14	310
80	16	27	14	312
80	18	27	14	314
80	20	27	14	316
100	6	32	14	400
100	8	32	14	402
100	10	32	14	404
100	12	32	14	406
100	14	32	14	408
100	16	32	14	410
100	18	32	14	412
100	20	32	14	414
100	25	32	14	418
125	8	32	16	500
125	10	32	16	502
125	12	32	16	504
125	14	32	16	506
125	16	32	16	508
125	18	32	16	510
125	20	32	16	512
125	25	32	16	516
160	10	40	18	600
160	12	40	18	602
160	14	40	18	604
160	16	40	18	606
160	18	40	18	608
160	20	40	18	610
160	25	40	18	614
160	32	40	18	618

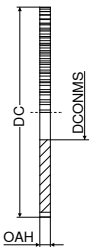
Steel	○
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 45

Narrow side and face milling cutter HSS-E Co 5

▲ Coarse cross-pitched
▲ with keyway to DIN 138







Factory standard

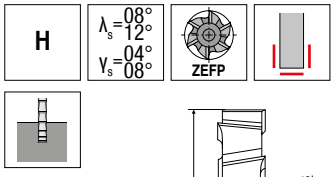
DC js16	OAH k11	DCONMS H7	ZEFP	Article no. 50 342 ...
mm	mm	mm		
63	1,6	22	16	200
63	2,0	22	16	202
63	2,5	22	16	204
63	3,0	22	16	206
80	1,6	27	20	300
80	2,0	27	20	302
80	2,5	27	20	304
80	3,0	27	20	306
80	4,0	27	20	310
100	1,6	32	24	400
100	2,0	32	24	402
100	2,5	32	24	404
100	3,0	32	24	406
100	4,0	32	24	410
100	5,0	32	24	414
125	1,6	32	26	500
125	2,0	32	26	502
125	2,5	32	26	504
125	3,0	32	26	506
125	4,0	32	26	510
125	5,0	32	26	514
125	6,0	32	26	516
160	2,0	40	30	600
160	2,5	40	30	602
160	3,0	40	30	604
160	4,0	40	30	606
160	5,0	40	30	608
160	6,0	40	30	610
160	8,0	40	22	612

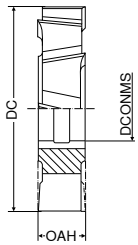
Steel	
Stainless steel	●
Cast iron	
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 45

Side and face milling cutter HSS-E Co 5

▲ Fine cross-pitched version
▲ with keyway to DIN 138







DIN 885 A

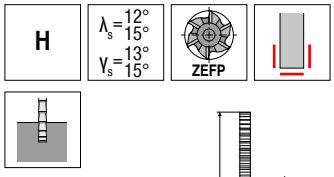
DC js16	OAH k11	DCONMS H7	ZEFP	Article no. 50 349 ...
mm	mm	mm		
50	4	16	16	100
50	5	16	16	102
50	6	16	16	104
50	8	16	16	106
50	10	16	16	108
63	4	22	18	200
63	5	22	18	202
63	6	22	18	204
63	8	22	18	206
63	10	22	18	208
63	12	22	18	210
63	14	22	18	212
80	5	27	20	300
80	6	27	20	302
80	8	27	20	304
80	10	27	18	306
80	12	27	18	308
80	14	27	18	310
80	16	27	18	312
80	18	27	18	314
80	20	27	18	316
100	6	32	22	400
100	8	32	22	402
100	10	32	20	404
100	12	32	20	406
100	14	32	20	408
100	16	32	20	410
100	18	32	20	412
100	20	32	20	414
100	25	32	20	418
125	8	32	24	500
125	10	32	22	502
125	12	32	22	504
125	14	32	22	506
125	16	32	22	508
125	18	32	22	510
125	20	32	22	512
125	25	32	22	516
160	10	40	26	600
160	12	40	26	602
160	14	40	26	604
160	16	40	26	606
160	18	40	26	608
160	20	40	26	610
160	25	40	26	614
160	32	40	26	618

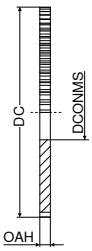
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 45

Narrow side and face milling cutter HSS-E Co 5

▲ Fine cross-pitched version
▲ with keyway to DIN 138







DIN 1834 A

DC js16	OAH k11	DCONMS H7	ZEFP	Article no. 50 340 ...
mm	mm	mm		
63	1,6	22	28	200
63	2,0	22	28	202
63	2,5	22	28	204
63	3,0	22	28	206
80	1,6	27	32	300
80	2,0	27	32	302
80	2,5	27	32	304
80	3,0	27	32	306
80	4,0	27	32	310
100	1,6	32	36	400
100	2,0	32	36	402
100	2,5	32	36	404
100	3,0	32	36	406
100	4,0	32	36	410
100	5,0	32	36	414
125	1,6	32	40	500
125	2,0	32	40	502
125	2,5	32	40	504
125	3,0	32	40	506
125	4,0	32	40	510
125	5,0	32	40	514
125	6,0	32	40	516
160	2,0	40	48	600
160	2,5	40	48	602
160	3,0	40	48	604
160	4,0	40	48	606
160	5,0	40	48	608
160	6,0	40	48	610
160	8,0	40	36	612

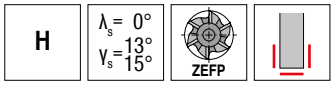
Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	

→ v_c/f_z Page 45

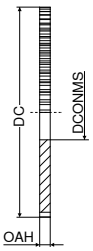
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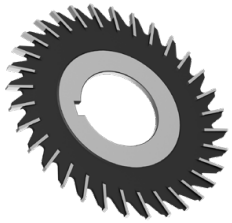
Narrow side and face milling cutter HSS-E Co 5

- straight cut
- with keyway to DIN 138









DIN 1834 B

DC js16	OAH k11	DCONMS H7	ZEFP	Article no. 50 341 ...
mm	mm	mm		
63	1,6	22	32	200
63	2,0	22	32	202
63	2,5	22	32	204
63	3,0	22	32	206
80	1,6	27	36	300
80	2,0	27	36	302
80	2,5	27	36	304
80	3,0	27	36	306
80	4,0	27	36	310
100	1,6	32	40	400
100	2,0	32	40	402
100	2,5	32	40	404
100	3,0	32	40	406
100	4,0	32	40	410
100	5,0	32	40	414
125	1,6	32	44	500
125	2,0	32	44	502
125	2,5	32	44	504
125	3,0	32	44	506
125	4,0	32	44	510
125	5,0	32	44	514
125	6,0	32	44	516
160	2,0	40	52	600
160	2,5	40	52	602
160	3,0	40	52	604
160	4,0	40	52	606
160	5,0	40	52	608
160	6,0	40	52	610
160	8,0	40	40	612

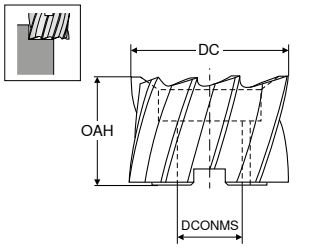
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

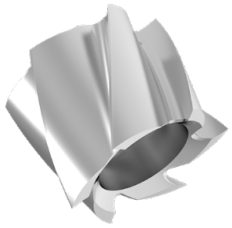
→ v_c/f_z Page 45

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

W | λ_s=30° γ_s=24° | ZEFP





DIN 1880

DC $_{k10}$ mm	OAH mm	DCONMS mm	ZEFP	Article no. 50 255 ...
40	32	16	6	040
50	36	22	6	050
63	40	27	6	063
80	45	27	6	080
100	50	32	6	100

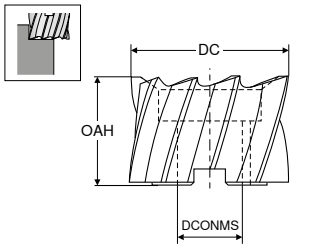
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

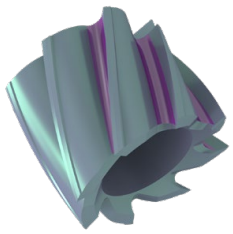
→ v_c/f_z Page 46+47

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

N | λ_s=25° γ_s=10° | ZEFP | Ti100 Pro





DIN 1880

DC $_{k10}$ mm	OAH mm	DCONMS mm	ZEFP	Article no. 54 035 ...
40	32	16	8	040
50	36	22	8	050
63	40	27	8	063
80	45	27	10	080
100	50	32	12	100

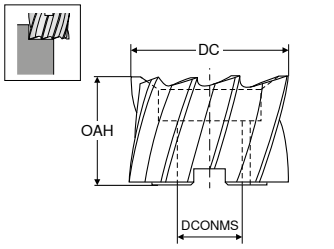
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

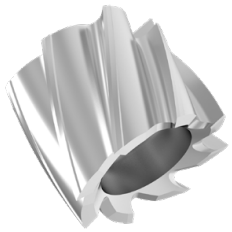
→ v_c/f_z Page 46+47

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

N | λ_s=25° γ_s=10° | ZEFP





DIN 1880

DC $_{k10}$ mm	OAH mm	DCONMS mm	ZEFP	Article no. 50 250 ...
40	32	16	8	040
50	36	22	8	050
63	40	27	8	063
80	45	27	10	080
100	50	32	12	100

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

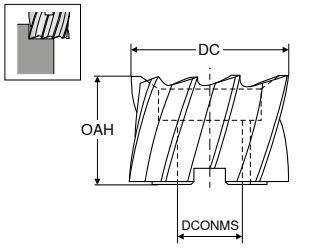
→ v_c/f_z Page 46+47

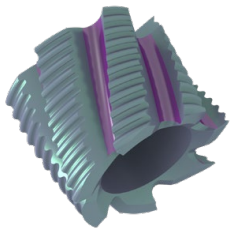
Roughing-finishing face milling cutters HSS-Co 5

▲ with keyway to DIN 138

▲ Manufacturing tolerance lies on the plus range of the tolerance js14

NF | λ_s=25° γ_s=12° | ZEFP | Ti100 Pro





DIN 1880

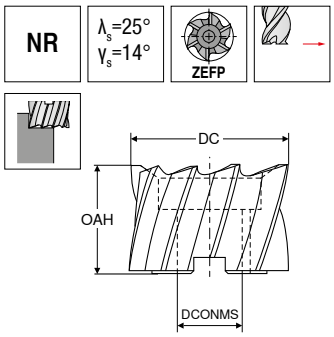
DC $_{js14}$ mm	OAH mm	DCONMS mm	ZEFP	Article no. 54 036 ...
40	32	16	7	040
50	36	22	8	050
63	40	27	8	063
80	45	27	10	080
100	50	32	12	100

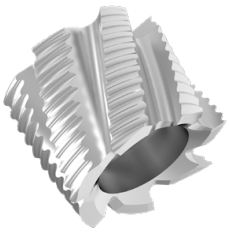
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 46+47

Roughing face milling cutters HSS-E Co 5

- with keyway to DIN 138
- Manufacturing tolerance lies on the plus range of the tolerance js14





DIN 1880

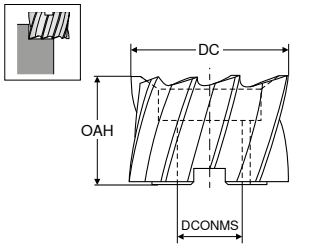
DC js14	OAH	DCONMS	ZEFP	Article no. 50 260 ...
mm	mm	mm		
40	32	16	7	040
50	36	22	8	050
63	40	27	8	063
80	45	27	10	080
100	50	32	12	100

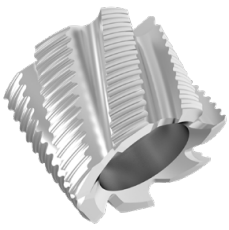
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 46+47

Roughing-finishing face milling cutters HSS-E Co 8

- with keyway to DIN 138
- Manufacturing tolerance lies on the plus range of the tolerance js14





DIN 1880

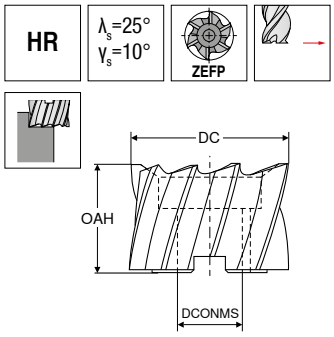
DC js14	OAH	DCONMS	ZEFP	Article no. 50 297 ...
mm	mm	mm		
40	32	16	7	040
50	36	22	8	050
63	40	27	8	063
80	45	27	10	080
100	50	32	12	100

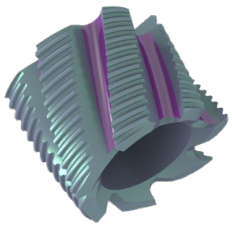
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 46+47

Roughing-finishing face milling cutters HSS-E Co 8

- with keyway to DIN 138
- Manufacturing tolerance lies on the plus range of the tolerance js14





DIN 1880

DC js14	OAH	DCONMS	ZEFP	Article no. 54 037 ...
mm	mm	mm		
40	32	16	7	040
50	36	22	8	050
63	40	27	8	063
80	45	27	10	080
100	50	32	12	100

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 46+47

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data – slot and end milling cutters

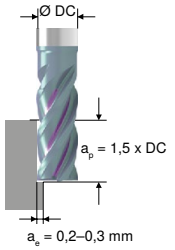
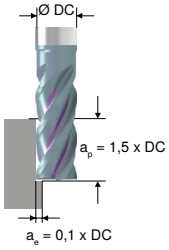
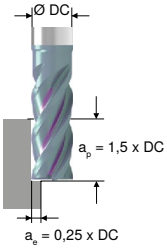
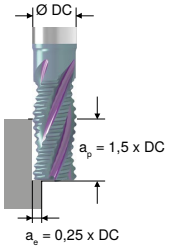
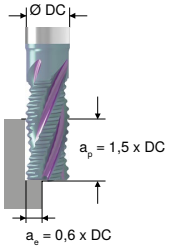
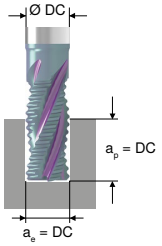
		uncoated	Ti100 Pro	Powder steel	● 1st choice		○ suitable
				Ti100 Pro			
Index	Kf f_z	v_c in m/min			Emulsion	Compressed air	MMS
1.1	1,2	30–40	60–80	65–90	●		
1.2	1,2	25–35	50–65	55–75	●		
1.3	1,2	20–30	45–55	50–65	●		
1.4	1	15–25	40–55	45–65	●		
1.5	1,2	20–30	45–55	50–60	●		
1.6	1	15–20	30–35	35–45	●		
1.7	1,2	20–30	40–55	45–65	●		
1.8	0,8	15–20	30–35	35–45	●		
1.9	1,2	20–30	45–55	50–60	●		
1.10	1	15–20	30–35	35–45	●		
1.11	0,8	15–20	30–35	35–45	●		
1.12	0,8	15–20	30–35	35–45	●		
1.13							
1.14							
1.15	0,8	12–18	25–30	30–40	●		
1.16	0,8	10–15	20–25	25–35	●		
2.1	1	10–15	20–30	25–35	●		
2.2	1	10–15	20–30	25–35	●		
2.3	1	8–12	15–25	20 -30	●		
2.4	0,9	7–10	15–20	20–30	●		
2.5	1	5–8	10–15	15–20	●		
2.6	1	10–15	20–30	25–35	●		
2.7							
3.1	1	18–25	35–45	40 -55	●		
3.2	1	18–25	25–30	30–40	●		
3.3	1	15–20	30–35	35–45	●		
3.4	1	15–20	30–35	35–45	●		
3.5	1	15–25	35–40	40–50	●		
3.6	1	15–20	35–40	40–50	●		
3.7	1	15–20	30–35	35–45	●		
3.8	0,8	12–18	25–30	30–40	●		
4.1	1,9	150–180	240–280	260–300	●		
4.2	1,9	100–130	130–160	150–180	●		
4.3	1,8		100–140	140–160	●		
4.4	1,7		60–130	80–150	●		
4.5							
4.6	1,2	30–50	60–80	80–100	●		
4.7	1,1		110–150	130–170	●		
4.8	0,9	5–10	10–15	20–25	●		
4.9							
4.10							
4.11	1,1		100–140	130–170	●		
4.12	1,1	80–120	120–150	140–180	●		
4.13	2	20–30	25–45	40–60	●		
4.14	2	30–40	50–70	70–90	●		
4.15							
4.16	1,8	90–120	140–170	160–190		●	
4.17	1		30–40	40–50		●	
4.18	1,1		10–20	15–25	●		
4.19							
5.1	1,1	5–10	10–15	15–20	●		
5.2							
5.3							
5.4							
5.5							
5.6							
5.7							
5.8							
5.9	1	10–15	15–25	25–35	●		
5.10	1,1	10–15	15–20	25–35	●		
5.11							
6.1							
6.2							
6.3							
6.4							
6.5							

For full slot milling reduce the cutting speed (v_c), indicated in this table by approx. 15–20 %!

Kf f_z = Correction factor for feed per tooth

Feed per tooth for HSS end mills

Appoximate values (in mm) for the feed per tooth (f_z)

	Peripheral milling										Full slot milling	
												
	f_z in mm		f_z in mm		f_z in mm		f_z in mm		f_z in mm		f_z in mm	
Ø DC mm	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated
2	0,008	0,009	0,008	0,009	0,008	0,009						
3	0,011	0,012	0,010	0,012	0,009	0,010						
4	0,017	0,018	0,014	0,015	0,013	0,014	0,015	0,016	0,013	0,014	0,011	0,012
5	0,024	0,026	0,018	0,020	0,014	0,015	0,019	0,021	0,016	0,018	0,014	0,016
6	0,032	0,035	0,022	0,024	0,015	0,017	0,024	0,027	0,020	0,022	0,018	0,019
8	0,047	0,051	0,029	0,032	0,020	0,022	0,032	0,036	0,027	0,030	0,024	0,026
10	0,065	0,072	0,037	0,041	0,026	0,028	0,042	0,047	0,035	0,039	0,031	0,034
12	0,084	0,091	0,044	0,049	0,031	0,034	0,051	0,057	0,043	0,047	0,037	0,041
14	0,100	0,106	0,054	0,059	0,037	0,041	0,063	0,069	0,053	0,058	0,045	0,050
16	0,111	0,121	0,061	0,067	0,042	0,046	0,072	0,079	0,060	0,066	0,052	0,057
18	0,126	0,136	0,070	0,077	0,048	0,053	0,084	0,093	0,071	0,078	0,061	0,067
20	0,141	0,151	0,076	0,083	0,052	0,057	0,092	0,101	0,077	0,084	0,066	0,073
22	0,160	0,166	0,085	0,094	0,059	0,065	0,104	0,114	0,087	0,096	0,075	0,082
25	0,170	0,188	0,095	0,104	0,065	0,072	0,117	0,129	0,098	0,108	0,084	0,093
28	0,196	0,210	0,109	0,120	0,075	0,083	0,136	0,150	0,114	0,125	0,098	0,108
32	0,212	0,240	0,124	0,137	0,086	0,094	0,157	0,173	0,131	0,145	0,113	0,125
36	0,224	0,240	0,144	0,159	0,099	0,109	0,170	0,194	0,142	0,162	0,126	0,140
40	0,240	0,240	0,157	0,173	0,108	0,119	0,184	0,202	0,154	0,169	0,132	0,146
45	0,240	0,240	0,157	0,173	0,108	0,119	0,200	0,220	0,170	0,180	0,140	0,160
50	0,240	0,240	0,157	0,173	0,108	0,119	0,200	0,220	0,170	0,180	0,140	0,160

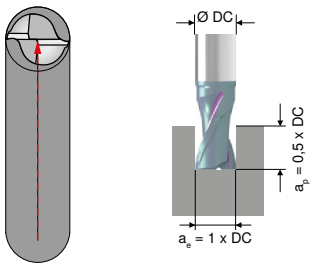
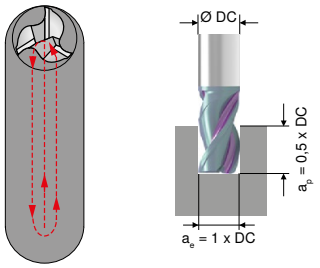
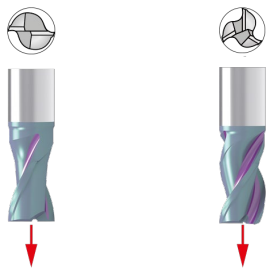
Attention:
In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 40**.

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Feed per tooth when milling parallel key slots with HSS slot drills

Appoximate values (in mm) for the feed per tooth (f_z)

	Full slot milling (in one cut)		Profile slot milling (internal profile milling)				Circular ramping			
										
			Roughing cut		Finishing cut					
	f_z in mm		f_z in mm				f_z in mm			
Ø DC mm	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated
2	0,005	0,006	0,005	0,006	0,008	0,009	0,003	0,003	0,002	0,002
3	0,009	0,010	0,009	0,010	0,015	0,016	0,004	0,005	0,003	0,003
4	0,012	0,013	0,012	0,013	0,022	0,024	0,006	0,007	0,004	0,004
5	0,016	0,017	0,016	0,017	0,030	0,033	0,008	0,009	0,005	0,006
6	0,020	0,022	0,020	0,022	0,039	0,043	0,010	0,011	0,007	0,007
8	0,026	0,029	0,026	0,029	0,055	0,061	0,013	0,014	0,009	0,010
10	0,034	0,037	0,034	0,037	0,075	0,082	0,017	0,019	0,011	0,012
12	0,040	0,044	0,040	0,044	0,093	0,101	0,020	0,022	0,013	0,015
14	0,049	0,054	0,049	0,054	0,117	0,118	0,024	0,027	0,016	0,018
16	0,056	0,062	0,056	0,062	0,135	0,135	0,028	0,031	0,019	0,021
18	0,065	0,072	0,065	0,072	0,151	0,151	0,033	0,036	0,022	0,024
20	0,071	0,078	0,071	0,078	0,167	0,167	0,035	0,039	0,024	0,026
22	0,080	0,088	0,080	0,088	0,184	0,184	0,040	0,044	0,027	0,029
25	0,089	0,098	0,089	0,098	0,208	0,208	0,044	0,049	0,030	0,033
28	0,103	0,113	0,103	0,113	0,233	0,233	0,051	0,056	0,034	0,037
32	0,118	0,130	0,118	0,130	0,260	0,260	0,060	0,065	0,040	0,043
36	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
40	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
45	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
50	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043

Attention:
In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 40.**

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Cutting data standard values – form cutters

		50 241 ...			50 240 ...					50 234 ...					50 248 ...				● 1st choice		○ suitable
		Ø DC 21–25 mm	Ø DC 28–36 mm	Ø DC 40–45 mm	Ø DC 11–16 mm	Ø DC 18–22 mm	Ø DC 25–32 mm	Ø DC 36–45 mm	Ø DC 50–60 mm		Ø DC 10–17 mm	Ø DC 19–26 mm	Ø DC 28–33 mm	Ø DC 33–46 mm	Ø DC 8–11 mm	Ø DC 12–24 mm	Ø DC 26–34 mm	Ø DC 46–48 mm	Emulsion	Compressed air	MMS
Index	v_c m/min	f_z mm			f_z mm					v_c m/min	f_z mm				f_z mm						
1.1	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
1.2	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
1.3	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
1.4	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
1.5	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
1.6	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
1.7	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
1.8																					
1.9	20	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	20	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
1.10																					
1.11																					
1.12																					
1.13																					
1.14																					
1.15																					
1.16																					
2.1	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
2.2	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
2.3	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
2.4																					
2.5																					
2.6	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
2.7																					
3.1	28	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	24	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
3.2																			●		
3.3	22	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	22	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
3.4	20	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	20	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
3.5	20	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	20	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
3.6	15	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	15	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12			
3.7	20	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	20	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
3.8	15	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	15	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12			
4.1	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15			
4.2	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15	●		
4.3	80	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	80	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
4.4	60	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	60	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
4.5																					
4.6	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03	0,035	25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
4.7	20	0,08	0,1	0,12	0,015	0,04	0,035	0,03	0,035	20	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
4.8																					
4.9																					
4.10																					
4.11	50	0,09	0,11	0,13	0,015	0,03	0,03	0,03	0,04	45	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
4.12	25	0,09	0,11	0,13	0,015	0,03	0,03	0,03	0,04	25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
4.13	80	0,12	0,15	0,18	0,025	0,06	0,055	0,055	0,07	80	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●		
4.14	65	0,12	0,15	0,18	0,025	0,06	0,055	0,055	0,07	65	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●		
4.15																					
4.16	70	0,1	0,12	0,15	0,018	0,04	0,03	0,035	0,045	70	0,03	0,035	0,05	0,06	0,025	0,06	0,1	0,12	●		
4.17																					
4.18																					
4.19																					
5.1																					
5.2																					
5.3																					
5.4																					
5.5																					
5.6																					
5.7																					
5.8																					
5.9	20	0,06	0,08	0,1	0,012	0,025	0,025	0,025	0,035	20	0,015	0,025	0,035	0,045	0,02	0,05	0,07	0,09			
5.10																					
5.11																					
6.1																					
6.2																					
6.3																					
6.4																					
6.5																					

13

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

Cutting data standard values – form cutters

		50 245 ... / 50 246 ...			50 360 ...					50 362 ...				● 1st choice		○ suitable
		Ø DC 16 mm a_e= 3,2	Ø DC 20 mm a_e= 4	Ø DC 25 mm a_e= 5		Ø DC 50 mm a_e= 5	Ø DC 63 mm a_e= 6,3	Ø DC 80 mm a_e= 8	Ø DC 100 mm a_e= 10	Ø DC 40–50 mm	Ø DC 63 mm	Ø DC 80 mm	Ø DC 100 mm			
Index	v_c m/min	f_z mm			v_c m/min	f_z mm				f_z mm				Emulsion	Compressed air	MMS
1.1	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
1.2	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
1.3	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
1.4	28	0,01	0,015	0,018	22	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
1.5	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
1.6	22	0,01	0,015	0,018	20	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
1.7	22	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
1.8																
1.9	20	0,01	0,015	0,015	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
1.10																
1.11																
1.12																
1.13																
1.14																
1.15																
1.16																
2.1	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
2.2	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
2.3	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
2.4																
2.5																
2.6	10	0,007	0,01	0,015										●		
2.7																
3.1	24	0,01	0,012	0,015	19	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
3.2					12	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
3.3	22	0,01	0,012	0,015	15	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
3.4	20	0,01	0,012	0,015	12	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
3.5	20	0,01	0,012	0,015	16	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
3.6	15	0,01	0,012	0,015												
3.7	20	0,01	0,012	0,015	13	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
3.8	15	0,01	0,012	0,015												
4.1	90	0,01	0,015	0,02												
4.2	90	0,01	0,015	0,02	70	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
4.3	80	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
4.4	60	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
4.5																
4.6	25	0,01	0,015	0,02	18	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
4.7	20	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
4.8																
4.9																
4.10																
4.11	45	0,01	0,015	0,02	40	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
4.12	25	0,01	0,015	0,015	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
4.13	80	0,018	0,02	0,025	65	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
4.14	65	0,018	0,02	0,025	60	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
4.15																
4.16	70	0,01	0,015	0,0175	45	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,01	●		
4.17																
4.18																
4.19																
5.1																
5.2																
5.3																
5.4																
5.5																
5.6																
5.7																
5.8																
5.9	20	0,008	0,01	0,015	20	0,008	0,01	0,012	0,016	0,005	0,007	0,009	0,012	●		
5.10																
5.11																
6.1																
6.2																
6.3																
6.4																
6.5																

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

Cutting data – side and face cutters

		uncoated						● 1st choice		○ suitable
		Ø DC 50 mm	Ø DC 63 mm	Ø DC 80 mm	Ø DC 100 mm	Ø DC 125 mm	Ø DC 160 mm			
Index	v_c in m/min	f_z mm						Emulsion	Compressed air	MMS
1.1	30–40	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
1.2	30–40	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
1.3	30–40	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
1.4	20–30	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
1.5	20–25	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
1.6	15–30	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
1.7	20–25	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
1.8	10–15	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
1.9	18–25	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
1.10	15–30	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
1.11	12–18	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
1.12	15–20	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
1.13										
1.14										
1.15	10–15	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
1.16	10–15	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
2.1	12–18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
2.2	10–15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
2.3	8–12	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
2.4	7–10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
2.5	5–8	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
2.6	10–15	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
2.7										
3.1	20–30	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
3.2	18–25	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
3.3	18–25	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
3.4	15–20	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
3.5	25–35	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
3.6	18–25	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
3.7	25–35	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
3.8	18–25	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
4.1	150–180	0,06–0,075	0,075–0,09	0,009–0,1	0,01–0,12	0,12–0,135	0,135–0,15	●		
4.2	100–130	0,06–0,075	0,075–0,09	0,009–0,1	0,01–0,12	0,12–0,135	0,135–0,15	●		
4.3	80–100	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
4.4	40–60	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
4.5										
4.6	30–50	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
4.7	90–110	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
4.8	5–10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
4.9										
4.10										
4.11	80–100	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
4.12	80–120	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
4.13	20–30	0,08–0,1	0,1–0,12	0,12–0,14	0,14–0,16	0,16–0,18	0,18–0,2	●		
4.14	30–40	0,08–0,1	0,1–0,12	0,12–0,14	0,14–0,16	0,16–0,18	0,18–0,2	●		
4.15										
4.16	90–120	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12		●	
4.17										
4.18										
4.19										
5.1	5–10	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
5.2										
5.3										
5.4										
5.5										
5.6										
5.7										
5.8										
5.9	10–15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
5.10	10–15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
5.11										
6.1										
6.2										
6.3										
6.4										
6.5										

Feed correction factor (Kf f_z) for side and face cutters in relation to the cutting depth (a_e)

a_e	Kf f_z
0,05 x DC	1,4
0,1 x DC	1,0
0,15 x DC	0,8
0,2 x DC	0,7
0,25 x DC	0,6

The indicated feed rates apply to straight pitched cutters with a cutting depth of 0.1 x DC! With cross-pitched cutters the feed rate is to be reduced by 50 %!

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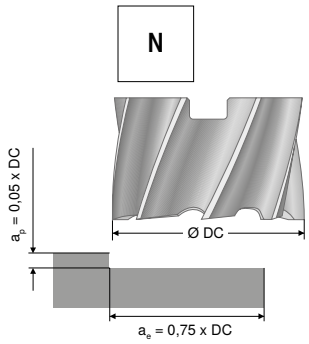
Cutting data – face mills

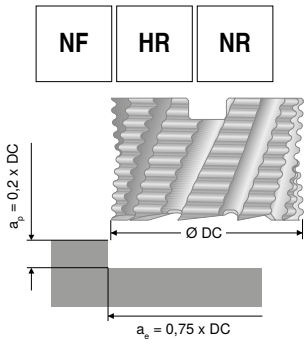
		uncoated	Ti100 Pro	● 1st choice		○ suitable
				Emulsion	Compressed air	MMS
Index	Kf f_z	v_c in m/min				
1.1	**1,2**	**25–30**	**50–60**	●		
1.2	**1,2**	**25–30**	**45–55**	●		
1.3	**1,2**	**25–30**	**45–55**	●		
1.4	**1**	**20–25**	**40–50**	●		
1.5	**1,2**	**20–25**	**40–50**	●		
1.6	**1**	**15–30**	**30–40**	●		
1.7	**1,2**	**20–25**	**40–50**	●		
1.8	**0,8**	**10–15**	**20–30**	●		
1.9	**1,2**	**18–25**	**35–45**	●		
1.10	**1**	**15–30**	**30–40**	●		
1.11	**0,8**	**12–18**	**25–35**	●		
1.12	**0,8**	**15–20**	**30–40**	●		
1.13						
1.14						
1.15	**0,8**	**10–15**	**20–30**	●		
1.16	**0,8**	**10–15**	**20–30**	●		
2.1	**1**	**12–18**	**20–25**	●		
2.2	**1**	**10–15**	**15–20**	●		
2.3	**1**	**8–12**	**20–25**	●		
2.4	**0,9**	**7–10**	**15–20**	●		
2.5	**1**	**5–8**	**10–15**	●		
2.6	**1**	**10–15**	**15–20**	●		
2.7						
3.1	**1**	**20–30**	**30–40**	●		
3.2	**1**	**18–25**	**30–35**	●		
3.3	**1**	**18–25**	**30–35**	●		
3.4	**1**	**15–20**	**25–30**	●		
3.5	**1**	**25–35**	**35–40**	●		
3.6	**1**	**18–25**	**30–35**	●		
3.7	**1**	**25–35**	**35–40**	●		
3.8	**1**	**18–25**	**30–35**	●		
4.1	**1,5**	**150–180**		●		
4.2	**1,5**	**100–130**		●		
4.3	**1,3**	**80–100**		●		
4.4	**1,3**	**40–60**		●		
4.5						
4.6	**1,2**	**30–50**	**60–80**	●		
4.7	**1,1**	**90–110**	**120–150**	●		
4.8	**0,9**	**5–10**	**10–15**	●		
4.9						
4.10						
4.11	**1,1**	**80–100**	**110–140**	●		
4.12	**1,1**	**80–120**	**120–150**	●		
4.13	**2**	**20–30**	**25–45**	●		
4.14	**2**	**30–40**	**50–70**	●		
4.15						
4.16	**1,3**	**90–120**	**120–140**		●	
4.17	**1**		**30–40**		●	
4.18	**1,1**		**15–25**	●		
4.19						
5.1	1,1	5–10	10–15	●		
5.2						
5.3						
5.4						
5.5						
5.6						
5.7						
5.8						
5.9	1	10–15	15–25	●		
5.10	1,1	10–15	15–20	●		
5.11	0,8		10–15	●		
6.1						
6.2						
6.3						
6.4						
6.5						

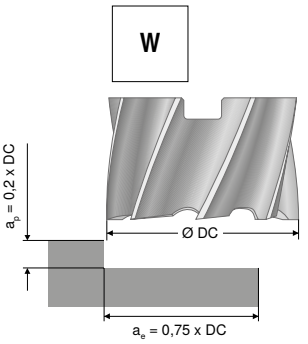
Kf f_z = Correction factor for feed per tooth

Feed per tooth for HSS face mills

Appoximate values (in mm) for the feed per tooth (f_z)







	f_z in mm		f_z in mm		f_z in mm
Ø DC mm	uncoated	Ti100 Pro	uncoated	Ti100 Pro	uncoated
40	0,049	0,054	0,064	0,070	0,060
50	0,055	0,060	0,071	0,078	0,066
63	0,061	0,067	0,079	0,087	0,074
80	0,065	0,071	0,084	0,092	0,078
100	0,059	0,065	0,076	0,084	0,071

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 46**.

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Formula for cutting data calculation

Designation	Abbreviation	Unit	Formula
Number of revolutions	n	min^{-1}	$n = \frac{v_c \times 1000}{DC \times \pi}$
Cutting speed	v_c	m/min	$v_c = \frac{DC \times \pi \times n}{1000}$
Feed per tooth	f_z	mm	$f_z = \frac{v_f}{ZEFP \times n}$ $f_z = h_m \times \sqrt{\frac{DC}{a_e}}$
Feed per revolution	f	mm	$f = f_z \times ZEFP$
Feed rate	v_f	mm/min	$v_f = f_z \times ZEFP \times n$
Average chip thickness	h_m	mm	$h_m = f_z \times \sqrt{\frac{a_e}{DC}}$

ZEFP = Number of teeth
a_e = Cutting width (for side milling cutter cutting depth)
DC = Cutting diameter

Coating

Ti100 Pro

- ▲ Ti multilayer coating
- ▲ HV0.05 = 3500
- ▲ Coefficient of friction (against steel) = 0.7
- ▲ Maximum application temperature: 900 °C

New products for machining technicians

NEW MonsterMill – TCR



TCR

→ Page 23–27

High-performance milling cutter for machining titanium and heat-resistant materials

---

NEW MonsterMill – HCR



HCR

→ Page 28–33

The specialist for hardened steels

NEW CircularLine – CCR-Ti



CCR Ti

→ Page 46

Trochoidal milling cutter for titanium and heat-resistant materials

---

NEW CircularLine – CCR-H



CCR H

→ Page 47

Trochoidal milling cutter for hardened steels

NEW MultiChange – Torus cutter



AL

→ Page 119

High-volume milling cutter for aluminium machining

NEW MultiChange – Shoulder mill



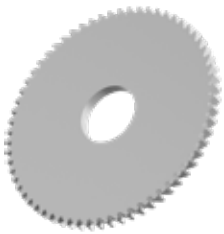
PCR UNI | PCR ALU

→ Page 120

PCR plunge milling cutter – now also with MultiChange interface

---

NEW Circular saw blades



→ Page 228–230



Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut
11 Grooving Tools
12 Miniature turning tools

Milling

13 HSS Milling Cutters
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Tool Clamping

16 Adapters
17 Accessories

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WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Shank



Shank type


Length: extra short / short / medium / long / extra long


Central internal coolant


Lateral internal coolant



Cutting edge preparation


Sharp


Chamfer (CHW = chamfer width in mm)


Radius


Full Radius



Application



High volume machining



High-feed milling



Hard materials


Machining example


The red arrows describe the possible feed directions



Number of teeth

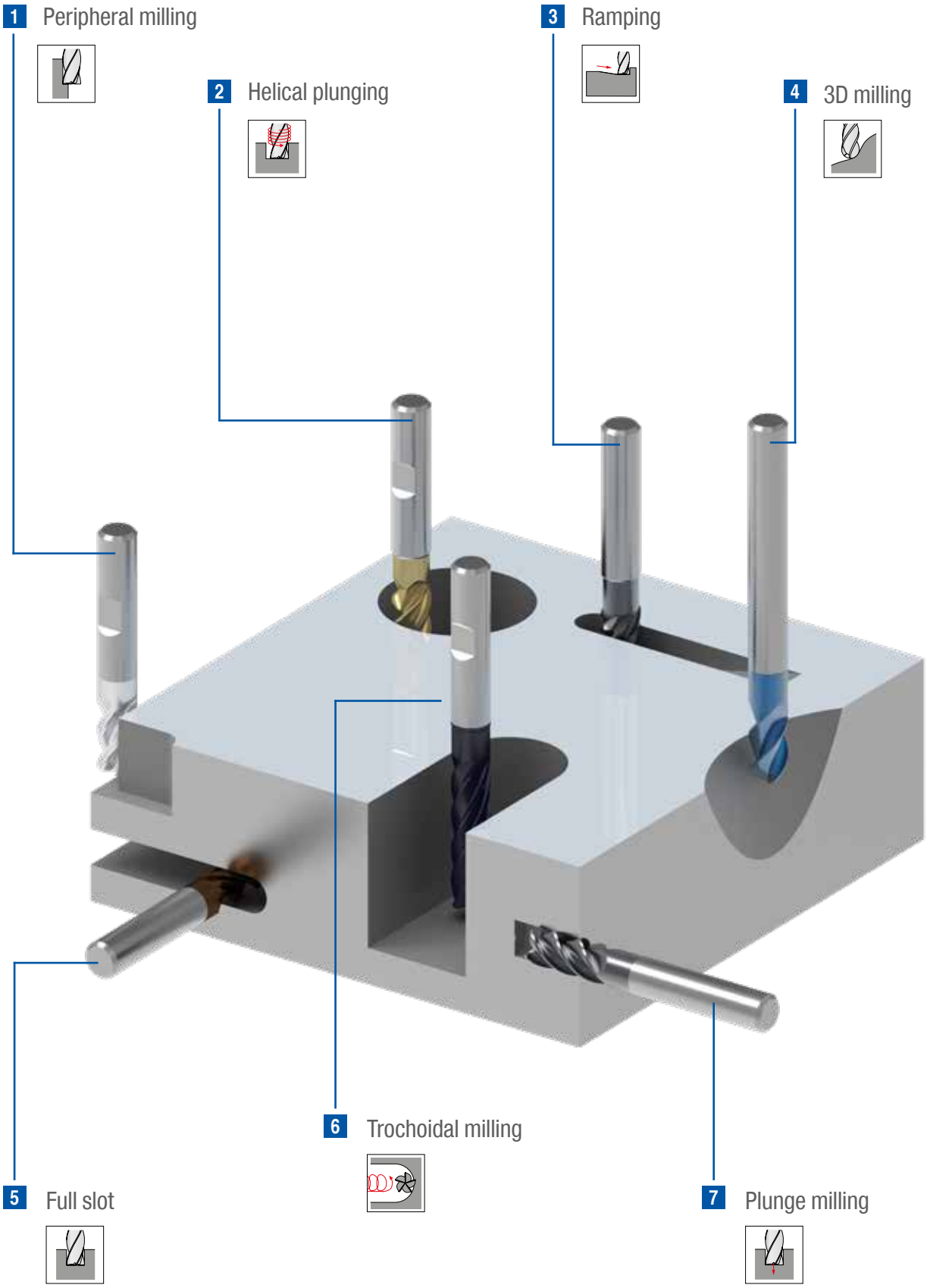


Cutting geometry
λ_s = Helix Angle
γ_s = Rake Angle


Trochoidal milling

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

Toolfinder for High Performance Milling Cutters



Toolfinder for High Performance Milling Cutters

	1 Peripheral milling	2 Helical plunging	3 Ramping	4 3D milling
Steel	S-Cut MonsterMill – SCR SilverLine	MCR MonsterMill – PCR	MCR MonsterMill – PCR	MonsterMill – SCR SilverLine
Stainless steel	S-Cut MonsterMill – ICR SilverLine	MonsterMill – PCR MonsterMill – ICR	MonsterMill – PCR MonsterMill – ICR	SilverLine
Cast iron	S-Cut MonsterMill – SCR SilverLine	MCR MonsterMill – PCR	MCR MonsterMill – PCR	MonsterMill – SCR SilverLine
Non-ferrous metals	AluLine	MonsterMill – PCR AluLine	MonsterMill – PCR AluLine	AluLine
Heat resistant alloys	MonsterMill – ICR MonsterMill – TCR	MonsterMill – ICR MonsterMill – TCR	MonsterMill – ICR MonsterMill – TCR	MonsterMill – TCR
Hardened steel < 55 HRC	BlueLine	BlueLine	BlueLine	BlueLine
Hardened steel > 55 HRC	MonsterMill – HCR	MonsterMill – HCR	MonsterMill – HCR	MonsterMill – HCR

MonsterMill – SCR
Page 13–20

▲ THE specialist for machining steel

SCR



HA
HB

ZEFP: 3–6
Ø DC mm: 3–20

MonsterMill – ICR
Page 21+22

▲ THE specialist for machining stainless steel

ICR



HB

ZEFP: 3–5
Ø DC mm: 1,5–20

MonsterMill – TCR
Page 23–27

▲ THE specialist for machining titanium

TCR



HB

ZEFP: 2–5
Ø DC mm: 2–20

MonsterMill – HCR
Page 28–33

▲ THE specialist for finish machining up to 70 HRC hardness

HCR



HA

ZEFP: 2–4
Ø DC mm: 0,2–12

MonsterMill – PCR
Page 34–36

▲ THE specialist for ramping and helical milling
▲ Available versions: PCR-UNI, PCR-ALU

PCR



HB

ZEFP: 4
Ø DC mm: 5–20

MonsterMill – MCR
Page 37

▲ THE specialist for rough machining

MCR



HB

ZEFP: 3–4
Ø DC mm: 1–20

	5 Full slot	6 Trochoidal milling	7 Plunge milling
	S-Cut MonsterMill – SCR SilverLine	CircularLine	MonsterMill – PCR
	S-Cut MonsterMill – ICR SilverLine	CircularLine	
	S-Cut MonsterMill – SCR SilverLine	CircularLine	MonsterMill – PCR
	AluLine	CircularLine	MonsterMill – PCR
	MonsterMill – ICR MonsterMill – TCR	CircularLine	
	BlueLine	CircularLine	
		CircularLine	

CircularLine
Page 38–47

- THE specialist for trochoidal milling
- Available versions: CCR-UNI, CCR-AL, CCR-Ti, CCR-H

CCR



HB

ZEFP: 4–6

Ø DC mm: 6–20

AluLine
Page 48–69

- THE specialist for machining non-ferrous metals

W



HA
HB

ZEFP: 2–6

Ø DC mm: 2–25

SilverLine
Page 70–81

- The all-rounder

N



HA
HB

ZEFP: 3–6

Ø DC mm: 3–25

S-Cut
Page 82–87

- All-rounder with soft cut and low power consumption

SC UNI



HB

ZEFP: 4–5

Ø DC mm: 3–25

BlueLine
Page 88–113

- For all types of machining in hardened steels up to 65 HRC

H



HA
HB

ZEFP: 2–10

Ø DC mm: 0,1–20

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Overview High Performance Milling Cutters

MonsterMill

	Tool type	Number of teeth ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius	Full Radius	Length	Tool design	coated	uncoated	WNT \ Performance
	SCR	4–6	3–20	●	○	●	○	○	○		■	■		■	HPC	■		13–18
	SCR	3–4	3–16	●	○	●	○	○	○				■	■	HPC	■		19
	SCR	4	3–16	●		●	○		○			■		■	HPC	■		20
	ICR	3–5	1,5–20	○	●	○	○	●	○		■			■	HPC	■		21+22
	TCR	4–5	4–20		○			●				■		■	HPC	■	□	23–25
	TCR	4	2–16		○			●					■	■		■	□	26
	TCR	2–5	2–16		○			●				■		■	HPC	■	□	27
	HCR	2–4	0,2–12	○					●			■		■		■		28–30
	HCR	2–4	0,2–12	○					●				■	■		■		31–33
	PCR UNI	4	5,7–20	●	○	●						■		■	HPC	■		34+35
	PCR ALU	4	5–20				●					■		■	HPC	■		36
	MCR	3–4	1–20	●	○	●	○	○	○		■			■	HPC	■		37

CircularLine

	CCR UNI	5–6	6–20	●	○	●		○			■	■		■	HPC	■		38–42
	CCR AL	4	6–20				●				■	■		■		■		43–45
	CCR Ti	5	6–20		○			●				■		■	HPC	■	□	46
	CCR H	6	6–20						●			■		■		■		47

Overview High Performance Milling Cutters

	Tool type	Number of teeth ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius	Full Radius	Length	Tool design	coated	uncoated	WNT \ Performance
AluLine																		
	W	2	2–20				● HA				■			■		■	□	48+49
	W	3	3–20				● HA			■				■		■	□	50+51
	W	3	3–20				● HA		HB		■			■	HPC	■		52–54
	W	3	5–20				● HA		HB			■		■			□	55+56
	W	3	3–20				● HA					■		■	HPC	■		57–59
	WF	3	5–20				● HA		HB			■		■		■		60
	WR	3	6–20				● HA		HB		■			■	HPC	■		61+62
	W	4	3–25				● HA		HB		■			■	HPC	■	□	63–67
	W	6	6–20				● HA			■				■	HPC	■		68
	W	2	3–20				● HA						■	■			□	69
SilverLine																		
	N	3	3–20	●	●	○	○	●	HB		■	■		■	HPC	■		70+71
	N	4	3–20	●	●	●	○	●	HB		■	■		■	HPC	■		72–77
	N	6	6–25	●	●	○	○	●	HA	■				■		■		78
	N	3	4–20	●	●	○	○	●	HA				■	■	HPC	■		79
	H	4	6–20	●		●	○		● HA			■		■	HPC	■		80+81
S-Cut																		
	SC UNI	4	3–25	●	●	●	○	○	○ HB	■	■	■		■	HPC	■		82–86
	SC UNI	5	6–20	●	●	●		○	HB		■			■	HPC	■		87

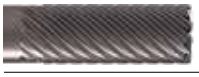
14

Overview High Performance Milling Cutters

	Tool type	Number of teeth ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius	Full Radius	Length	Tool design	coated	uncoated	WNT \ Performance
BlueLine																		
	H	2	0,2–3	● HA					●	■				■		■		88–90
	H	2	0,2–3	● HA					●				■	■		■		91–93
	H	2	0,4–3	● HA					●			■		■		■		94–97
	H	2	0,5–20	● HA					●		■			■		■		98
	H	4–6	1–20	● HA					● HB			■		■		■		99–101
	H	4–10	2–20	● HA					● HB	■		■		■		■		102+103
	H	2	0,1–20	● HA					● HB				■	■		■		104–108
	H	3	3–12	● HA					●				■	■		■		109
	H	4	2–20	○ HA					● HB				■	■		■		110
	H	2	0,5–16	● HA					● HB			■		■		■		111–113
Micro-Cutter																		
	N	2	0,2–2	● HA		●	●	●	●	■				■		■		114
	N	2	0,2–2	● HA		●	●	●	●				■	■		■		115+116
	N	2	0,5–2	● HA		●	●	●	●			■		■		■		117
MultiChange																		
	PDC	2	8–16				●				■						□	119
	AL	3	10–20				●					■				■		119
	PCR	4	9,7–20	●	○	●	●					■			HPC	■		120
	N	3–6	8–20	●	○	●	●		○	■	■	■	■		HPC	■		119–123

End Mills Overview

End Mills with Finishing Geometry

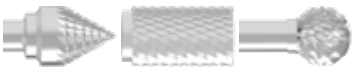
	Tool type	Number of teeth	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius	Full Radius	Length	Tool design	coated	uncoated	WNT \ Standard
	W	2	0,2–25				●			■	■	■			HPC	■	□	124–132
	W	3	3–25				●			■		■			HPC	■	□	133–135
	W	4	6–20				●			■					HPC	■	□	136+137
	W	5–7	6–20				●			■					HPC	■	□	138
	N	2	0,2–20	●	○	●	○	○	○	■	■					■	□	139–146
	N	3	3–20	○	●	○	○	●		■							□	147
	N	3	0,5–20	●	●	●	●	●	○	■	■					■	□	148–152
	N	4	1,5–20	●	○	●	○	○	○	■	■				HPC	■	□	153–155
	N	4	3–25	●	○	●	○	○	○		■					■	□	156
	N	4	2–12	○	●	○	●	●	○			■			HPC	■		157
	N	4	3–20	●	○	●	○	○	○			■				■		158
	N	4	3–20	●	●	●	○	●		■	■	■			HPC	■		159–163
	N	6–8	4–32	○	●	○	●	●	●		■	■				■	□	164–166
	N	5–13	4–25	○	●	○	○	●			■					■		167
	N	8–16	6–20	○	●	○	●	●	○	■						■		168
	H	4	4–20	●					○		■	■				■		169+170
	H	6–8	4–32	○	●	○	●	●	●	■	■					■		171+172

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Overview of end milling, ball-nosed and torus cutters

	Tool type	Number of teeth ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius	Full Radius	Length	Tool design	coated	uncoated	WNT \ Standard
End Mills with Roughing and Finishing Geometry																		
	WF	4	5–20				●	○								■		173
	NTR	3–4	6–20	●	○	●	○	○	○							■		174
End Mills with Roughing Geometry																		
	WR	3	3–20				●								HPC	■		175
	NR	4–6	4–25	●	●	●	○	●								■		176–178
	HR	4–5	6–25	●	●	●		○								■		179–181
Ball Nosed End Mills with Finishing Geometry																		
	W	2	0,2–20				●	○							HPC	■	□	182–187
	N	2	0,1–20	●	○	●	○	○	○							■	□	188–193
	N	2	1–12	●	○	●	○	○	○							■		194
	N	2	3–20	●	●	○	○	●							HPC	■		195
	N	4	3–20	●	●	○	●	●	○						HPC	■		196–198
	H	2	0,2–20	●	○	●	○	○	○							■		199–201
Ball Nosed End Mills with Roughing Geometry																		
	NR	4	6–20	●	○	●	○	○								■		202
Torus Milling Cutters with Finishing Geometry																		
	W	2	0,2–12				●									■		203–206
	W	2	2–12				●									■		207
	W	4	4–12				●									■		208+209
	N	2	0,5–16	●	○	●	○	○	○							■		210
	H	2	0,2–12	●	○	●	○	○	○							■		211–214
	H	4–8	3–16	●		○	○		●							■		215

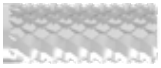
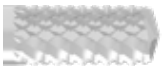
Overview Special Milling Cutters

	Tool type	Number of teeth	Diameter in mm	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius	Full Radius	Length	Tool design	coated	uncoated	
		ZEFP	Ø DC															WNT \ Performance / WNT \ Standard
Intermediate Size Torus End Mills																		
	H	4	7–17	○ HA	●	○	●	●	○			■		■		■		216
High Feed Cutter																		
	N	4	6–16	● HA	○	○	○	○	●			■		■	HFC	■		217+218
Form / Chamfering and Die Sinking / Deburring Cutters																		
	W	1	3–6	○ HA	○	○	●	○									□	219
	N	4	4–12	● HB	○	●	○	○	○							■	□	220
	N	4	4–12	● HB	○	●	○	○	○							■	□	221
	N	4	3–12	● HA	○	●	○	○	○							■	□	222
	N	4	PRFRAD 0,5–6	● HA	○	●	○	○	○							■		223
	N	4–6	2–16	● HA	○	●	○	○	○ HB							■		224+225
			3–16	●	○	●	○	○	●								□	226+227
Circular saw blades																		
	NR	24–160	15–63	●	●	●	●	●	○								□	228–230

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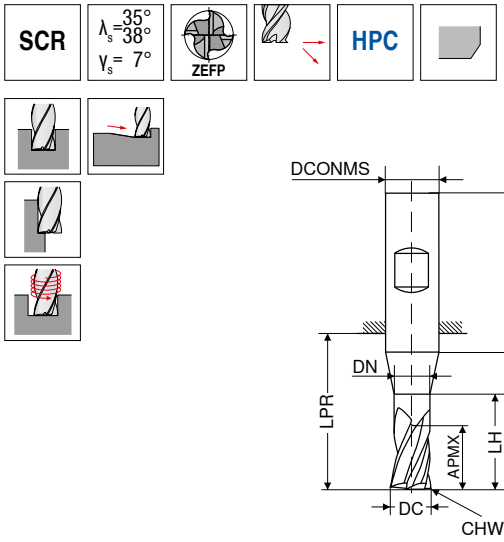
Overview Special Milling Cutters

Plastics-, GFK-, CFK-Cutters

	Tool type	Number of teeth	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius	Full Radius	Length	Tool design	coated	uncoated	WNT \ Standard
	W		2–20				●										☐	232
	W		2–20				●										☐	233
	W		2–20				●									■		234
	W		5–44				●									■		235+236
	W	2	2–12				●									■		237
	W	1	1,5–20				●										☐	238
	W	1	1,5–12				●									■		239
	W	2	2–12				●									■		240
	W	3	3–20				●									■		241
	N	2	2–12	●	○	●	○	○									☐	242

MonsterMill – End milling cutter

SCR | λ_s=35° γ_s= 7° | λ_s=38° | ZEFP | HPC







DIN 6527 HA | DIN 6527 HB | DIN 6527 HA | DIN 6527 HB

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	Article no. 52 600 ...	Article no. 52 601 ...	Article no. 52 602 ...	Article no. 52 603 ...
3,0	5	2,9	9	14	14	50	6	0,07	4	030	030		
3,0	8	2,9	14	20	22	58	6	0,07	4			030	030
3,5	5	3,4	9	14	14	50	6	0,07	4	035	035		
3,5	8	3,4	14	20	22	58	6	0,07	4			035	035
4,0	8	3,8	12	18	18	54	6	0,07	4	040	040		
4,0	11	3,8	18	20	22	58	6	0,07	4			040	040
4,5	9	4,3	12	18	18	54	6	0,07	4	045	045		
4,5	13	4,3	18	20	22	58	6	0,07	4			045	045
5,0	9	4,8	16	18	18	54	6	0,07	4	050	050		
5,0	13	4,8	19	20	22	58	6	0,07	4			050	050
5,5	9	5,3	16	18	18	54	6	0,07	4	055	055		
5,5	13	5,3	19	20	22	58	6	0,07	4			055	055
6,0	10	5,8		16	18	54	6	0,07	4	060	060		
6,0	13	5,8		20	22	58	6	0,07	4			060	060
6,5	12	6,3	18	20	23	59	8	0,07	4	065	065		
6,5	19	6,3	23	25	28	64	8	0,07	4			065	065
7,0	12	6,8	18	20	23	59	8	0,07	4	070	070		
7,0	19	6,8	23	25	28	64	8	0,07	4			070	070
7,5	12	7,3	18	20	23	59	8	0,12	4	075	075		
7,5	19	7,3	23	25	28	64	8	0,12	4			075	075
8,0	12	7,7		20	23	59	8	0,12	4	080	080		
8,0	19	7,7		25	28	64	8	0,12	4			080	080
8,5	15	8,2	22	24	27	67	10	0,20	4	085	085		
8,5	22	8,2	28	30	33	73	10	0,20	4			085	085
9,0	15	8,7	22	24	27	67	10	0,20	4	090	090		
9,0	22	8,7	28	30	33	73	10	0,20	4			090	090
9,5	15	9,2	22	24	27	67	10	0,20	4	095	095		
9,5	22	9,2	28	30	33	73	10	0,20	4			095	095
10,0	15	9,5		24	27	67	10	0,20	4	100	100		
10,0	22	9,5		30	33	73	10	0,20	4			100	100
11,0	18	10,5	24	26	28	73	12	0,20	4	110	110		
11,0	26	10,5	32	35	39	84	12	0,20	4			110	110
11,5	18	11,0	24	26	28	73	12	0,20	4	115	115		
11,5	26	11,0	32	35	39	84	12	0,20	4			115	115
12,0	18	11,5		26	28	73	12	0,20	4	120	120		
12,0	26	11,5		35	39	84	12	0,20	4			120	120
14,0	21	13,5		28	30	75	14	0,20	4	140	140		
14,0	26	13,5		35	39	84	14	0,20	4			140	140
15,0	24	14,5	30	32	35	83	16	0,20	4	150	150		
15,0	32	14,5	38	40	45	93	16	0,20	4			150	150
15,5	24	15,0	30	32	35	83	16	0,20	4	155	155		
15,5	32	15,0	38	40	45	93	16	0,20	4			155	155

Steel	●	●	●	●
Stainless steel	○	●	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

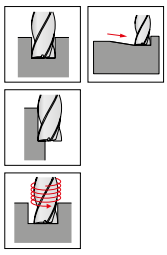
→ v_c/f_z Page 244+245

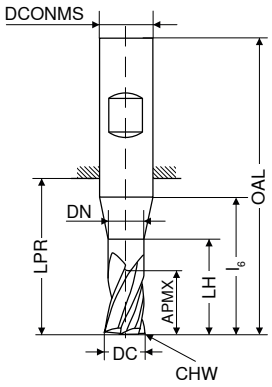
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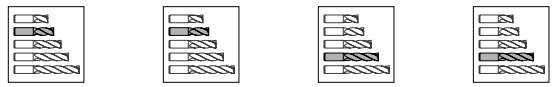
MonsterMill – End milling cutter

SCR | λ_s=35° γ_s= 7° | ZEFP | HPC









DIN 6527 | DIN 6527 | DIN 6527 | DIN 6527

HA | HB | HA | HB

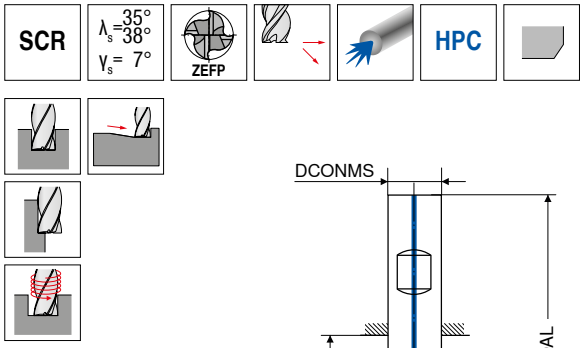
DC $_{f8}$	APMX	DN	LH	l_6	LPR	OAL	DCONMS $_{h5}$	CHW	ZEFP	Article no. 52 600 ...	Article no. 52 601 ...	Article no. 52 602 ...	Article no. 52 603 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm					
16,0	24	15,5		32	35	83	16	0,20	4	**160**	**160**		
16,0	24	15,5		32	35	83	16	0,20	5	**161** [1]	**161** [1]		
16,0	32	15,5		40	45	93	16	0,20	5			**161** [1]	**161** [1]
16,0	32	15,5		40	45	93	16	0,20	4			**160**	**160**
17,0	27	16,5	32	34	37	85	18	0,20	4	**170**	**170**		
17,0	32	16,5	48	50	52	100	18	0,20	4			**170**	**170**
18,0	27	17,5		34	37	85	18	0,20	4	**180**	**180**		
18,0	27	17,5		34	37	85	18	0,20	5	**181** [1]	**181** [1]		
18,0	32	17,5		50	52	100	18	0,20	5			**181** [1]	**181** [1]
18,0	32	17,5		50	52	100	18	0,20	4			**180**	**180**
19,0	30	18,5	38	40	43	93	20	0,30	4	**190**	**190**		
19,0	38	18,5	48	50	54	104	20	0,30	4			**190**	**190**
19,5	30	19,0	38	40	43	93	20	0,30	4	**195**	**195**		
19,5	38	19,0	48	50	54	104	20	0,30	4			**195**	**195**
20,0	30	19,5		40	43	93	20	0,30	4	**200**	**200**		
20,0	30	19,5		40	43	93	20	0,30	5	**201** [1]	**201** [1]		
20,0	38	19,5		50	54	104	20	0,30	5			**201** [1]	**201** [1]
20,0	38	19,5		50	54	104	20	0,30	4			**200**	**200**

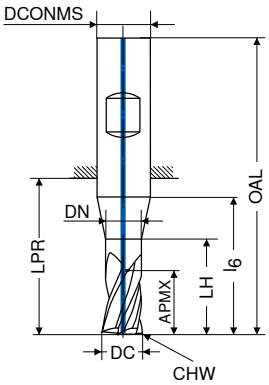
Steel	●	●	●	●
Stainless steel	○	●	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f_z Page 244+245

MonsterMill – End milling cutter











DIN 6527

HB

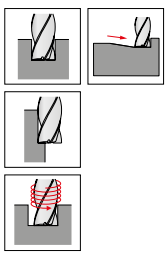
DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	Article no. 52 606 ...
3	8	2,9	14	20	22	58	6	0,07	4	**030**
4	11	3,8	18	20	22	58	6	0,07	4	**040**
5	13	4,8	19	20	22	58	6	0,07	4	**050**
6	13	5,8		20	22	58	6	0,07	4	**060**
8	19	7,7		25	28	64	8	0,12	4	**080**
10	22	9,5		30	33	73	10	0,20	4	**100**
12	26	11,5		35	39	84	12	0,20	4	**120**
14	26	13,5		35	39	84	14	0,20	4	**140**
16	32	15,5		40	45	93	16	0,20	4	**160**
18	32	17,5		50	52	100	18	0,20	4	**180**
20	38	19,5		50	54	104	20	0,30	4	**200**

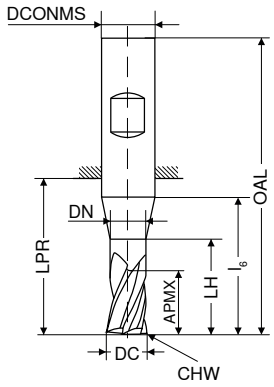
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 244+245

MonsterMill – End milling cutter

SCR | λ_s=35° γ_s= 7° | ZEFP | HPC











Factory standard

HB



Factory standard

HB

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	Article no. 52 604 ...	Article no. 52 605 ...
3	5	2,9	14	20	22	58	6	0,07	4	030	
3	5	2,9	19	23	26	62	6	0,07	4		030
4	8	3,8	18	20	22	58	6	0,07	4	040	
4	8	3,8	23	25	26	62	6	0,07	4		040
5	9	4,8	19	20	22	58	6	0,07	4	050	
5	9	4,8	24	25	26	62	6	0,07	4		050
6	10	5,8		20	22	58	6	0,07	4	060	
6	10	5,8		25	26	62	6	0,07	4		060
8	12	7,7		25	28	64	8	0,12	4	080	
8	12	7,7		30	32	68	8	0,12	4		080
10	15	9,5		30	33	73	10	0,20	4	100	
10	15	9,5		35	40	80	10	0,20	4		100
12	18	11,5		35	39	84	12	0,20	4	120	
12	18	11,5		45	48	93	12	0,20	4		120
14	21	13,5		35	39	84	14	0,20	4	140	
14	21	13,5		50	54	99	14	0,20	4		140
16	24	15,5		40	45	93	16	0,20	4	160	
16	24	15,5		40	45	93	16	0,20	5	161 [1]	
16	24	15,5		55	60	108	16	0,20	4		160
16	24	15,5		55	60	108	16	0,20	5		161 [1]
18	27	17,5		50	52	100	18	0,20	4	180	
18	27	17,5		50	52	100	18	0,20	5	181 [1]	
18	27	17,5		60	66	114	18	0,20	4		180
18	27	17,5		60	66	114	18	0,20	5		181 [1]
20	30	19,5		50	54	104	20	0,30	4	200	
20	30	19,5		50	54	104	20	0,30	5	201 [1]	
20	30	19,5		70	76	126	20	0,30	4		200
20	30	19,5		70	76	126	20	0,30	5		201 [1]

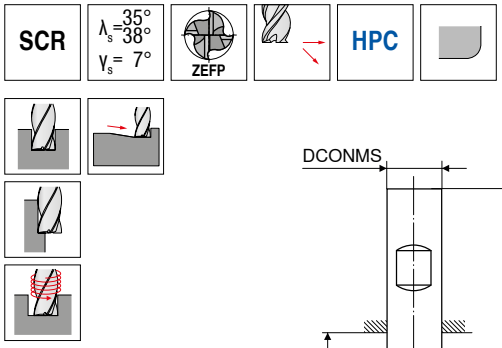
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

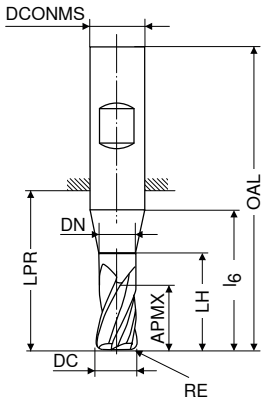
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f_z Page 244-247

MonsterMill – End milling cutter with corner radius

SCR | λ_s=35° γ_s= 7° | ZEFP | HPC





Ti1200





Factory standard

HB

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	Article no. 52 607 ...
3	0,10	8	2,9	14	20	22	58	6	4	030
3	0,30	8	2,9	14	20	22	58	6	4	031
3	0,50	8	2,9	14	20	22	58	6	4	032
4	0,10	11	3,8	18	20	22	58	6	4	040
4	0,40	11	3,8	18	20	22	58	6	4	041
4	0,50	11	3,8	18	20	22	58	6	4	042
5	0,10	13	4,8	19	20	22	58	6	4	050
5	0,50	13	4,8	19	20	22	58	6	4	051
5	1,00	13	4,8	19	20	22	58	6	4	052
6	0,10	13	5,8		20	22	58	6	4	060
6	0,50	13	5,8		20	22	58	6	4	061
6	1,00	13	5,8		20	22	58	6	4	062
8	0,15	19	7,7		25	28	64	8	4	080
8	0,50	19	7,7		25	28	64	8	4	081
8	1,00	19	7,7		25	28	64	8	4	082
8	2,00	19	7,7		25	28	64	8	4	083
10	0,15	22	9,5		30	33	73	10	4	100
10	0,50	22	9,5		30	33	73	10	4	101
10	1,00	22	9,5		30	33	73	10	4	102
10	1,50	22	9,5		30	33	73	10	4	103
10	2,00	22	9,5		30	33	73	10	4	104
12	0,20	26	11,5		35	39	84	12	4	120
12	0,50	26	11,5		35	39	84	12	4	121
12	1,00	26	11,5		35	39	84	12	4	122
12	1,50	26	11,5		35	39	84	12	4	123
12	2,00	26	11,5		35	39	84	12	4	124
14	1,00	26	13,5		35	39	84	14	4	140
16	0,30	32	15,5		40	45	93	16	4	160
16	0,50	32	15,5		40	45	93	16	4	161
16	1,00	32	15,5		40	45	93	16	4	162
16	2,00	32	15,5		40	45	93	16	4	163
16	4,00	32	15,5		40	45	93	16	4	164
20	0,30	38	19,5		50	54	104	20	4	200
20	0,50	38	19,5		50	54	104	20	4	201
20	1,00	38	19,5		50	54	104	20	4	202
20	2,00	38	19,5		50	54	104	20	4	203

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

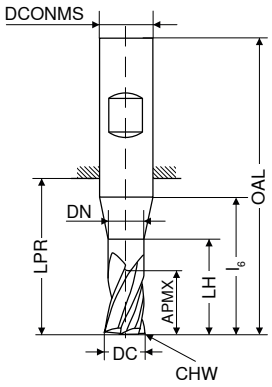
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14

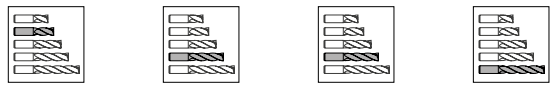
MonsterMill – End milling cutter

SCR | λ_s=35° γ_s= 7° | ZEFP | HPC









DIN 6527 | DIN 6527 | DIN 6527 | Factory standard

HA | HA | HB | HA

DC $_{f8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	CHW mm	ZEFP	Article no. 52 608 ...			
5	9	4,8	16	18	18	54	6	0,12	6	050			
5	13	4,8	19	20	22	58	6	0,12	6		051		
5	13	4,8	24	25	26	62	6	0,12	6				052
6	10	5,8		16	18	54	6	0,12	6	060			
6	13	5,8		20	22	58	6	0,12	6		061		
6	13	5,8		25	26	62	6	0,12	6				062
8	12	7,7		20	23	59	8	0,12	6	080			
8	19	7,7		25	28	64	8	0,12	6		081		
8	19	7,7		30	32	68	8	0,12	6				082
10	15	9,5		24	27	67	10	0,20	6	100			
10	22	9,5		30	33	73	10	0,20	6		101	103	
10	22	9,5		35	40	80	10	0,20	6				102
12	18	11,5		26	28	73	12	0,20	6	120			
12	26	11,5		35	39	84	12	0,20	6		121	123	
12	26	11,5		45	48	93	12	0,20	6				122
16	24	15,5		32	35	83	16	0,20	6	160			
16	32	15,5		40	45	93	16	0,20	6		161	163	
16	32	15,5		55	60	108	16	0,20	6				162
20	30	19,5		40	43	93	20	0,30	6	200			
20	38	19,5		50	54	104	20	0,30	6		201	203	
20	38	19,5		70	76	126	20	0,30	6				202

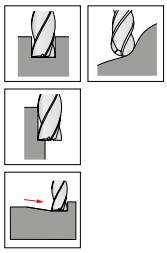
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

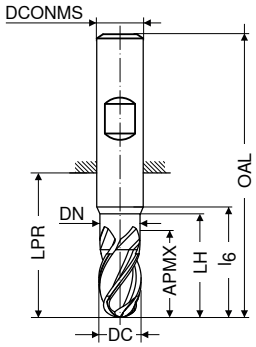
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MonsterMill – Ball nosed cutter

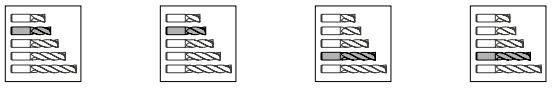
▲ Radius accuracy: -0,015 mm for Ø ≤ 6,0 mm / -0,02 mm for Ø > 6,0 mm

SCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC









DIN 6527 | DIN 6527 | DIN 6527 | DIN 6527

HA | HB | HA | HB

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	Article no. 52 611 ...		Article no. 52 611 ...		Article no. 52 612 ...		Article no. 52 612 ...	
3	5	2,9	9	14	14	50	6	3		**030**						
3	8	2,9	14	20	22	58	6	3						**030**		
4	11	3,8	18	20	22	58	6	3						**040**		
4	8	3,8	12	18	18	54	6	3		**040**						
5	13	4,8	19	20	22	58	6	3						**050**		
5	9	4,8	16	18	18	54	6	3		**050**						
6	10	5,8		16	18	54	6	4		**060**		**061**				
6	13	5,8		20	22	58	6	4						**060**		**061**
8	19	7,7		25	28	64	8	4						**080**		**081**
8	12	7,7		20	23	59	8	4		**080**		**081**				
10	22	9,5		30	33	73	10	4						**100**		**101**
10	15	9,5		24	27	67	10	4		**100**		**101**				
12	26	11,5		35	39	84	12	4						**120**		**121**
12	18	11,5		26	28	73	12	4		**120**		**121**				
16	32	15,5		40	45	93	16	4						**160**		**161**
16	24	15,5		32	35	83	16	4		**160**		**161**				

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

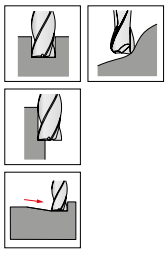
→ v_c/f_z Page 244+245

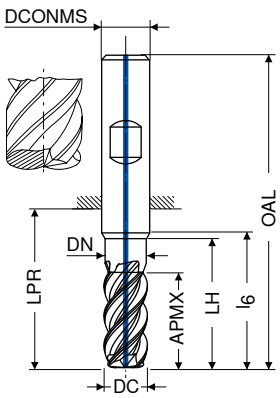
14

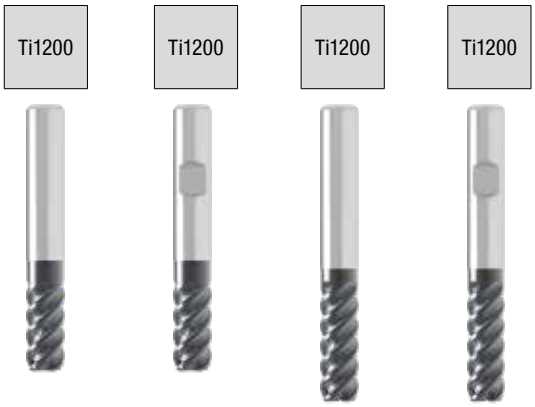
MonsterMill – Torus face milling cutter

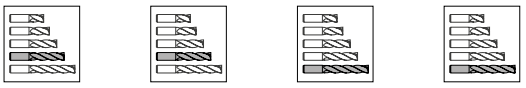
▲ r_{3D} = programmed corner radius

SCR | λ_s=45° γ_s= 7° | ZEFP | HPC | ≤ 60 HRC









DIN 6527 | DIN 6527 | DIN 6527 | DIN 6527

HA | HB | HA | HB

LPR with Shank DIN 6535 HB

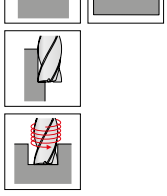
DC $_{-0,04}$ mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	l_6 mm	DCONMS $_{h5}$ mm	t_{max} mm	ZEFP	Article no. 52 609 ...	Article no. 52 609 ...	Article no. 52 610 ...	Article no. 52 610 ...
3	0,4	3	2,9	14,00	21	57	20	6	0,10	4	**030**	**031**		
4	0,5	4	3,8	18,00	21	57	20	6	0,15	4	**040**	**041**		
5	0,6	5	4,8	18,00	21	57	20	6	0,20	4	**050**	**051**		
6	0,8	13	5,8	19,90	21	57	20	6	0,20	4	**060**	**061**		
8	1,0	19	7,7	24,85	27	63	25	8	0,30	4	**080**	**081**		
8	1,0	19	7,7	29,85	32	68	30	8	0,30	4			**080**	**081**
10	1,2	22	9,5	29,75	32	72	30	10	0,40	4	**100**	**101**		
10	1,2	22	9,5	34,75	40	80	35	10	0,40	4			**100**	**101**
12	1,6	26	11,5	34,75	38	83	35	12	0,40	4	**120**	**121**		
12	1,6	26	11,5	44,75	47	93	45	12	0,40	4			**120**	**121**
16	2,2	32	15,5	39,75	44	92	40	16	0,50	4	**160**	**161**		
16	2,2	32	15,5	54,75	60	108	55	16	0,50	4			**160**	**161**

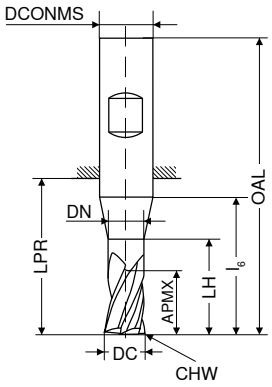
Steel	●	●	●	●
Stainless steel				
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys				
hardened materials	○	○	○	○

→ v_c/f_z Page 248–251

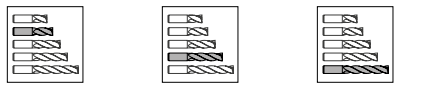
MonsterMill – End milling cutter

ICR | λ_s=40° γ_s=10° | ZEFP | HPC









DIN 6527 | Factory standard | Factory standard

HB | HB | HB

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	Article no. 52 784 ...	Article no. 52 784 ...	Article no. 52 784 ...
1,5	2,3	1,4	6	14	21	57	6	0,04	3	**017**		
2,0	3,0	1,9	8	15	21	57	6	0,04	3	**022**		
2,5	3,8	2,4	10	16	21	57	6	0,07	3	**027**		
3,0	5,0	2,9	14	18	21	57	6	0,07	3	**032**		
3,0	8,0	2,9	14	18	21	57	6	0,07	3		**034**	
3,0	5,0	2,9	19	23	26	62	6	0,07	3			**036**
4,0	8,0	3,8	18	20	21	57	6	0,07	3	**042**		
4,0	11,0	3,8	18	20	21	57	6	0,07	3		**044**	
4,0	8,0	3,8	23	25	26	62	6	0,07	3			**046**
5,0	9,0	4,8	19	20	21	57	6	0,12	3	**052**		
5,0	13,0	4,8	19	20	21	57	6	0,12	3		**054**	
5,0	9,0	4,8	24	25	26	62	6	0,12	3			**056**
6,0	10,0	5,8	20		21	57	6	0,12	4	**062**		
6,0	13,0	5,8	20		21	57	6	0,12	4		**064**	
6,0	10,0	5,8	25		26	62	6	0,12	4			**066**
8,0	12,0	7,7	25		27	63	8	0,12	4	**082**		
8,0	19,0	7,7	25		27	63	8	0,12	4		**084**	
8,0	12,0	7,7	30		32	68	8	0,12	4			**086**
10,0	15,0	9,5	30		32	72	10	0,20	4	**102**		
10,0	22,0	9,5	30		32	72	10	0,20	4		**104**	
10,0	15,0	9,5	35		40	80	10	0,20	4			**106**
12,0	18,0	11,5	35		38	83	12	0,20	4	**122**		
12,0	26,0	11,5	35		38	83	12	0,20	4		**124**	
12,0	18,0	11,5	45		48	93	12	0,20	4			**126**
14,0	21,0	13,5	35		38	83	14	0,20	4	**142**		
14,0	26,0	13,5	35		38	83	14	0,20	4		**144**	
14,0	21,0	13,5	50		54	99	14	0,20	4			**146**
16,0	24,0	15,5	40		44	92	16	0,20	4	**161**		
16,0	24,0	15,5	40		44	92	16	0,20	5	**162** [1]		
16,0	32,0	15,5	40		44	92	16	0,20	4		**163**	
16,0	32,0	15,5	40		44	92	16	0,20	5		**164** [1]	
16,0	24,0	15,5	55		60	108	16	0,20	4			**165**
16,0	24,0	15,5	55		60	108	16	0,20	5			**166** [1]
18,0	27,0	17,5	40		44	92	18	0,20	4	**181**		
18,0	27,0	17,5	40		44	92	18	0,20	5	**182** [1]		
18,0	32,0	17,5	40		44	92	18	0,20	4		**183**	
18,0	32,0	17,5	40		44	92	18	0,20	5		**184** [1]	
18,0	27,0	17,5	60		66	114	18	0,20	4			**185**
18,0	27,0	17,5	60		66	114	18	0,20	5			**186** [1]
20,0	30,0	19,5	50		54	104	20	0,30	4	**201**		
20,0	30,0	19,5	50		54	104	20	0,30	5	**202** [1]		
20,0	38,0	19,5	50		54	104	20	0,30	4		**203**	
20,0	38,0	19,5	50		54	104	20	0,30	5		**204** [1]	
20,0	30,0	19,5	70		76	126	20	0,30	4			**205**
20,0	30,0	19,5	70		76	126	20	0,30	5			**206** [1]

Steel	○	○	○
Stainless steel	●	●	●
Cast iron	○	○	○
Non ferrous metals	○	○	○
Heat resistant alloys	●	●	●
hardened materials	○	○	○

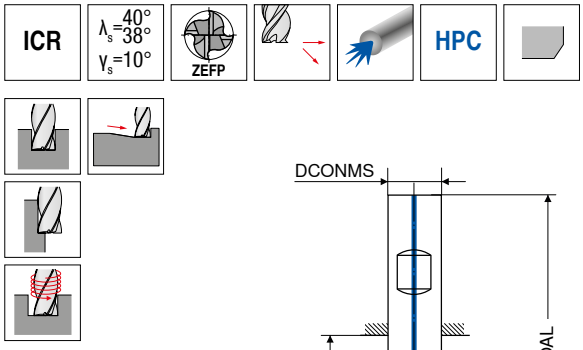
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

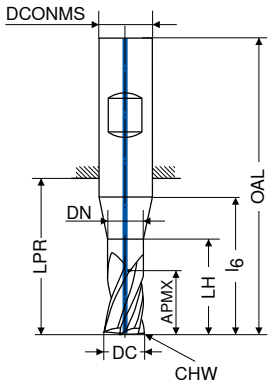
→ v_c/f_z Page 252–257

14

MonsterMill – End Milling Cutter

▲ with axial through coolant











DIN 6527

HB

DC e8 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Article no. 52 786 ...
3	8	2,9	14	18	21	57	6	0,07	3	**034**
4	11	3,8	18	20	21	57	6	0,07	3	**044**
5	13	4,8	19	20	21	57	6	0,12	3	**054**
6	13	5,8	20		21	57	6	0,12	4	**064**
8	19	7,7	25		27	63	8	0,12	4	**084**
10	22	9,5	30		32	72	10	0,20	4	**104**
12	26	11,5	35		38	83	12	0,20	4	**124**
14	26	13,5	35		38	83	14	0,20	4	**144**
16	32	15,5	40		44	92	16	0,20	4	**163**
16	32	15,5	40		44	92	16	0,20	5	**164** 1)
18	32	17,5	40		44	92	18	0,20	4	**183**
18	32	17,5	40		44	92	18	0,20	5	**184** 1)
20	38	19,5	50		54	104	20	0,30	4	**203**
20	38	19,5	50		54	104	20	0,30	5	**204** 1)

Steel	○
Stainless steel	●
Cast iron	○
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	○

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

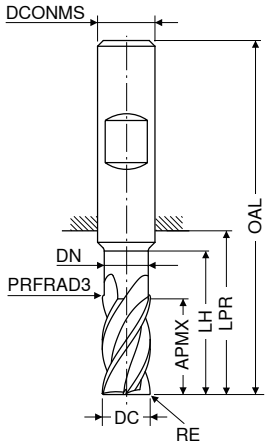
→ v_c/f_z Page 252–255

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

TCR | λ_s=40° γ_s=10° | ZEFP | HPC







Factory standard | Factory standard | Factory standard | Factory standard

HB | HB | HB | HB

DC e8	RE	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	NEW Article no. 52 503 ...	NEW Article no. 52 504 ...	NEW Article no. 52 505 ...	NEW Article no. 52 506 ...
mm	mm	mm	mm	mm	mm	mm	mm					
4	0,1	11		14	21	57	6	4	04000	04000		
4	0,1	11	3,8	17	21	57	6	5			04000 1)	04000 1)
5	0,1	13	4,8	19	21	57	6	5			05000 1)	05000 1)
5	0,1	13		16	21	57	6	4	05000	05000		
6	0,1	13	5,8	19	21	57	6	5			06000 1)	06000 1)
6	0,1	13			21	57	6	4	06000	06000		
8	0,2	21	7,7	25	27	63	8	5			08000 1)	08000 1)
8	0,2	21			27	63	8	4	08000	08000		
10	0,2	22	9,7	30	32	72	10	5			10000 1)	10000 1)
10	0,2	22			32	72	10	4	10000	10000		
12	0,2	26	11,6	36	38	83	12	5			12000 1)	12000 1)
12	0,2	26			38	83	12	4	12000	12000		
16	0,3	36	15,5	42	44	92	16	5			16000 1)	16000 1)
16	0,3	36			44	92	16	4	16000	16000		
20	0,3	41	19,5	52	54	104	20	5			20000 1)	20000 1)
20	0,3	41			54	104	20	4	20000	20000		

Steel				
Stainless steel	○	○	○	○
Cast iron				
Non ferrous metals				
Heat resistant alloys	●	●	●	●
hardened materials				

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

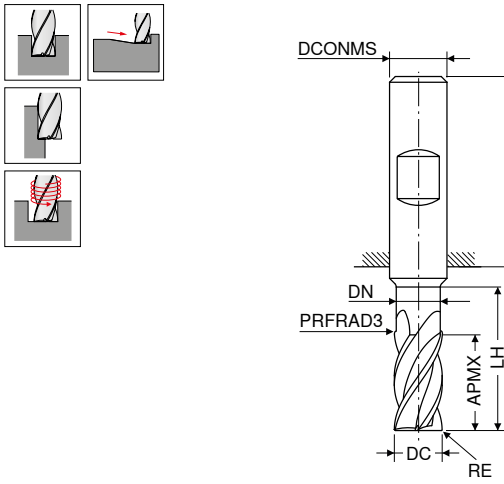
→ v_c/f_z Page 258+259

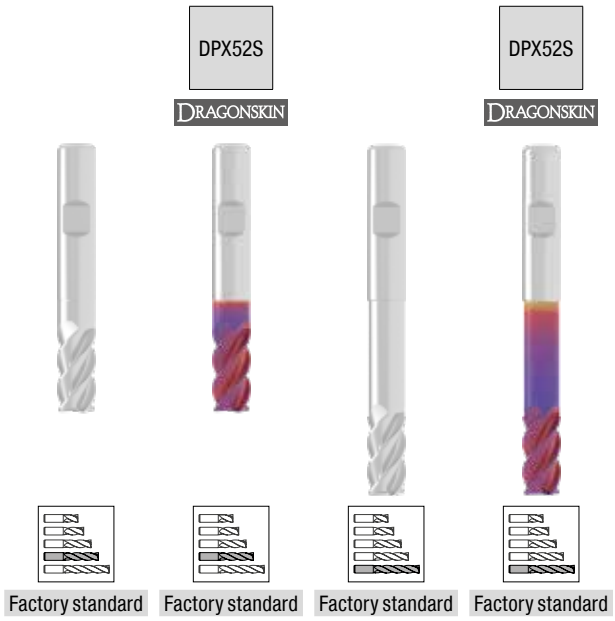
14

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

TCR | λ_s=40° γ_s=10° | ZEFP | HPC





Factory standard | Factory standard | Factory standard | Factory standard

HB | HB | HB | HB

DC e8	RE	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	NEW Article no. 52 507 ...	NEW Article no. 52 508 ...	NEW Article no. 52 507 ...	NEW Article no. 52 508 ...
mm	mm	mm	mm	mm	mm	mm	mm					
4	0,4	8,5	3,8	20	26	62	6	4			04104	04104
4	0,5	8,5	3,8	20	26	62	6	4			04105	04105
4	0,8	8,5	3,8	20	26	62	6	4			04108	04108
4	0,2	11,0		14	21	57	6	4	04002	04002		
4	0,4	11,0		14	21	57	6	4	04004	04004		
4	0,5	11,0		14	21	57	6	4	04005	04005		
5	0,5	10,5	4,8	25	34	70	6	4			05105	05105
5	0,8	10,5	4,8	25	34	70	6	4			05108	05108
5	0,5	13,0		16	21	57	6	4	05005	05005		
5	1,0	13,0		16	21	57	6	4	05010	05010		
6	0,4	13,0			21	57	6	4	06004	06004		
6	0,5	13,0			21	57	6	4	06005	06005		
6	0,6	13,0			21	57	6	4	06006	06006		
6	0,6	13,0	5,8	30	34	70	6	4			06106	06106
6	0,8	13,0			21	57	6	4	06008	06008		
6	0,8	13,0	5,8	30	34	70	6	4			06108	06108
6	1,0	13,0	5,8	30	34	70	6	4			06110	06110
6	1,0	13,0			21	57	6	4	06010	06010		
6	1,5	13,0			21	57	6	4	06015	06015		
8	0,8	17,0	7,7	40	44	80	8	4			08108	08108
8	1,0	17,0	7,7	40	44	80	8	4			08110	08110
8	1,5	17,0	7,7	40	44	80	8	4			08115	08115
8	2,0	17,0	7,7	40	44	80	8	4			08120	08120
8	0,5	21,0			27	63	8	4	08005	08005		
8	0,8	21,0			27	63	8	4	08008	08008		
8	1,0	21,0			27	63	8	4	08010	08010		
8	1,2	21,0			27	63	8	4	08012	08012		
8	1,5	21,0			27	63	8	4	08015	08015		
8	2,0	21,0			27	63	8	4	08020	08020		
10	0,5	21,0	9,7	50	54	94	10	4			10105	10105
10	1,0	21,0	9,7	50	54	94	10	4			10110	10110
10	1,5	21,0	9,7	50	54	94	10	4			10115	10115
10	2,0	21,0	9,7	50	54	94	10	4			10120	10120
10	0,5	22,0			32	72	10	4	10005	10005		
10	1,0	22,0			32	72	10	4	10010	10010		
10	1,2	22,0			32	72	10	4	10012	10012		
10	1,5	22,0			32	72	10	4	10015	10015		
10	1,6	22,0			32	72	10	4	10016	10016		
10	2,0	22,0			32	72	10	4	10020	10020		
12	0,5	25,0	11,6	60	65	110	12	4			12105	12105
12	1,0	25,0	11,6	60	65	110	12	4			12110	12110
12	1,5	25,0	11,6	60	65	110	12	4			12115	12115
12	2,0	25,0	11,6	60	65	110	12	4			12120	12120

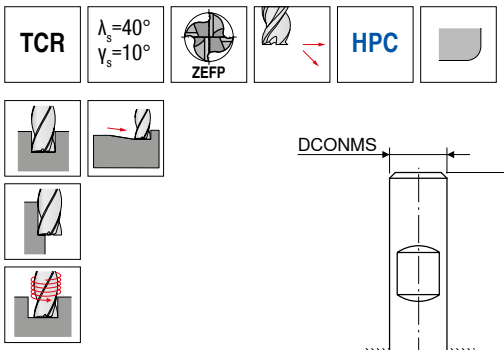
Steel				
Stainless steel	○	○	○	○
Cast iron				
Non ferrous metals				
Heat resistant alloys	●	●	○	○
hardened materials				

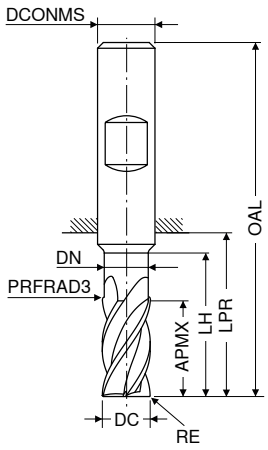
→ v_c/f_z Page 258+259

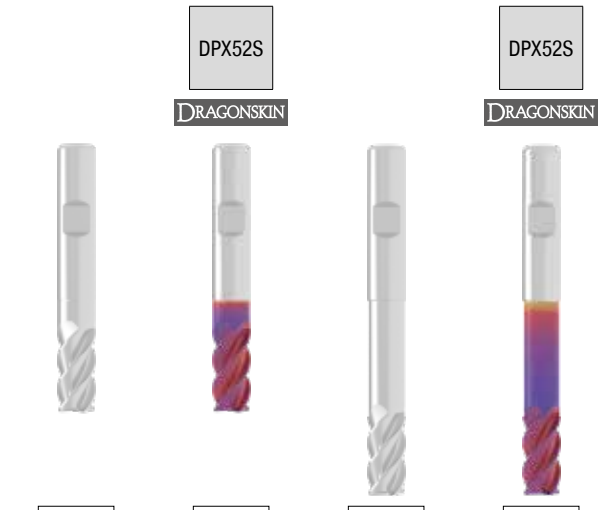
Continued on next page

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm







Factory standard | Factory standard | Factory standard | Factory standard

HB | HB | HB | HB

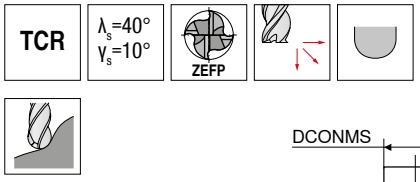
DC e8	RE	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	NEW Article no. 52 507 ...		NEW Article no. 52 508 ...		NEW Article no. 52 507 ...		NEW Article no. 52 508 ...	
mm	mm	mm	mm	mm	mm	mm	mm									
12	3,0	25,0	11,6	60	65	110	12	4						12130		12130
12	4,0	25,0	11,6	60	65	110	12	4						12140		12140
12	0,5	26,0			38	83	12	4		12005		12005				
12	1,0	26,0			38	83	12	4		12010		12010				
12	1,2	26,0			38	83	12	4		12012		12012				
12	1,5	26,0			38	83	12	4		12015		12015				
12	1,6	26,0			38	83	12	4		12016		12016				
12	2,0	26,0			38	83	12	4		12020		12020				
12	2,5	26,0			38	83	12	4		12025		12025				
12	3,0	26,0			38	83	12	4		12030		12030				
14	1,0	29,0	13,6	70	75	120	14	4						14110		14110
14	2,0	29,0	13,6	70	75	120	14	4						14120		14120
14	3,0	29,0	13,6	70	75	120	14	4						14130		14130
14	4,0	29,0	13,6	70	75	120	14	4						14140		14140
16	1,0	33,0	15,5	80	84	132	16	4						16110		16110
16	2,0	33,0	15,5	80	84	132	16	4						16120		16120
16	3,0	33,0	15,5	80	84	132	16	4						16130		16130
16	4,0	33,0	15,5	80	84	132	16	4						16140		16140
16	1,0	36,0			44	92	16	4		16010		16010				
16	1,6	36,0			44	92	16	4		16016		16016				
16	2,0	36,0			44	92	16	4		16020		16020				
16	2,5	36,0			44	92	16	4		16025		16025				
16	3,0	36,0			44	92	16	4		16030		16030				
16	3,2	36,0			44	92	16	4		16032		16032				
16	4,0	36,0			44	92	16	4		16040		16040				
18	1,0	38,0	17,5	90	94	142	18	4						18110		18110
18	2,0	38,0	17,5	90	94	142	18	4						18120		18120
18	3,0	38,0	17,5	90	94	142	18	4						18130		18130
18	4,0	38,0	17,5	90	94	142	18	4						18140		18140
20	2,0	41,0			54	104	20	4		20020		20020				
20	3,0	41,0			54	104	20	4		20030		20030				
20	4,0	41,0			54	104	20	4		20040		20040				
20	5,0	41,0			54	104	20	4		20050		20050				
20	6,3	41,0			54	104	20	4		20063		20063				
20	1,0	42,0	19,5	100	104	154	20	4						20110		20110
20	2,0	42,0	19,5	100	104	154	20	4						20120		20120
20	3,0	42,0	19,5	100	104	154	20	4						20130		20130
20	4,0	42,0	19,5	100	104	154	20	4						20140		20140

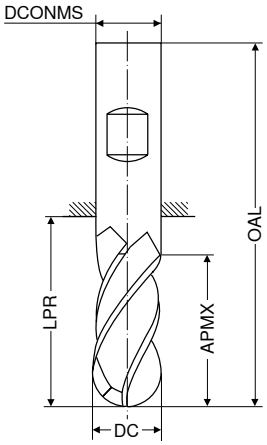
Steel				
Stainless steel	○	○	○	○
Cast iron				
Non ferrous metals				
Heat resistant alloys	●	●	○	○
hardened materials				

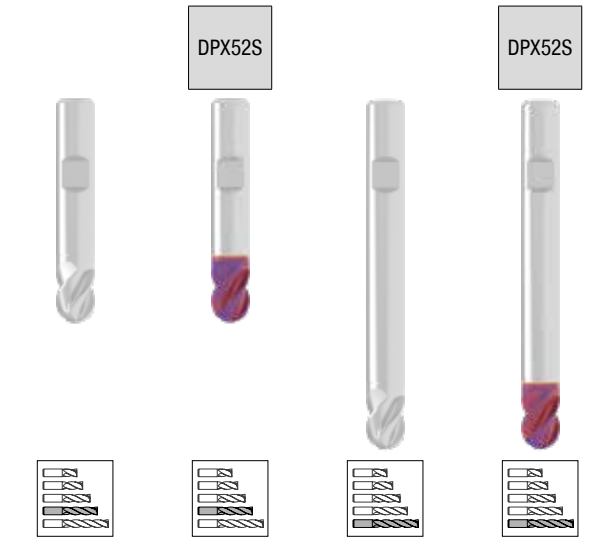
→ v_c/f_z Page 258+259

14

MonsterMill – Ball nosed cutter







Factory standard | Factory standard | Factory standard | Factory standard

HB | HB | HB | HB

DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	NEW Article no. 52 513 ...	NEW Article no. 52 514 ...	NEW Article no. 52 513 ...	NEW Article no. 52 514 ...
2	4	18	54	6	4	**02000**	**02000**		
2	4	44	80	6	4			**02100**	**02100**
3	5	44	80	6	4			**03100**	**03100**
3	5	18	54	6	4	**03000**	**03000**		
4	8	44	80	6	4			**04100**	**04100**
4	8	18	54	6	4	**04000**	**04000**		
5	9	44	80	6	4			**05100**	**05100**
5	9	18	54	6	4	**05000**	**05000**		
6	10	44	80	6	4			**06100**	**06100**
6	10	18	54	6	4	**06000**	**06000**		
8	12	64	100	8	4			**08100**	**08100**
8	12	22	58	8	4	**08000**	**08000**		
10	14	60	100	10	4			**10100**	**10100**
10	14	26	66	10	4	**10000**	**10000**		
12	16	55	100	12	4			**12100**	**12100**
12	16	28	73	12	4	**12000**	**12000**		
16	20	52	100	16	4			**16100**	**16100**
16	20	34	82	16	4	**16000**	**16000**		

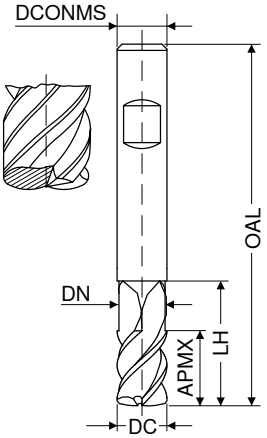
Steel				
Stainless steel	●	●	●	●
Cast iron				
Non ferrous metals				
Heat resistant alloys	●	●	●	●
hardened materials				

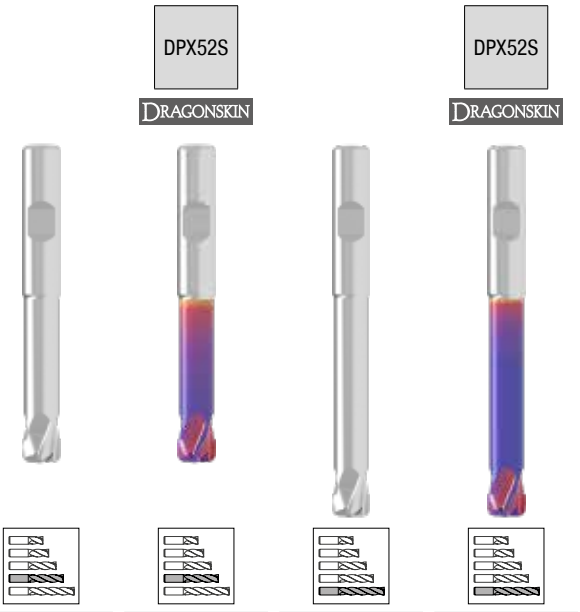
→ v_c/f_z Page 260+261

MonsterMill – Torus face milling cutter

▲ r_{3D} = programmed corner radius
▲ APMX does not correspond to the maximum cutting depth

TCR | λ_s=15° γ_s=10° | ZEFP | HPC





DIN 6527 | DIN 6527 | DIN 6527 | DIN 6527

HB | HB | HB | HB

DC e8 mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	NEW Article no. 52 511 ...	NEW Article no. 52 512 ...	NEW Article no. 52 511 ...	NEW Article no. 52 512 ...
2	0,3	1,5	1,7	13	18	54	6	2	02000	02000		
2	0,3	1,5	1,7	18	39	75	6	2			02100	02100
3	0,3	1,5	2,7	15	18	54	6	2	03000	03000		
3	0,3	1,5	2,7	20	39	75	6	2			03100	03100
4	0,5	2,5	3,6	16	22	58	6	2	04000	04000		
4	0,5	2,5	3,6	24	49	85	6	2			04100	04100
5	0,5	3,5	4,6	18	29	65	6	4	05000	05000		
5	0,5	3,5	4,6	28	64	100	6	4			05100	05100
6	1,0	3,5	5,2	20	29	65	6	4	06000	06000		
6	1,0	3,5	5,2	28	64	100	6	4			06100	06100
8	1,5	4,8	7,0	24	34	70	8	5	08000	08000		
8	1,5	4,8	7,0	40	64	100	8	5			08100	08100
10	2,0	5,8	9,0	26	45	85	10	5	10000	10000		
10	2,0	5,8	9,0	48	60	100	10	5			10100	10100
12	2,0	6,8	11,0	30	48	93	12	5	12000	12000		
12	2,0	6,8	11,0	56	75	120	12	5			12100	12100
16	2,5	8,8	14,5	35	52	100	16	5	16000	16000		
16	2,5	8,8	14,5	65	102	150	16	5			16100	16100

Steel				
Stainless steel	●	●	●	●
Cast iron				
Non ferrous metals				
Heat resistant alloys	●	●	●	●
hardened materials				

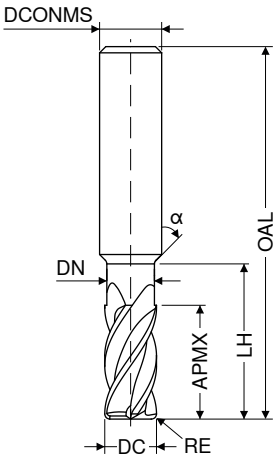
→ v_c/f_z Page 260+261

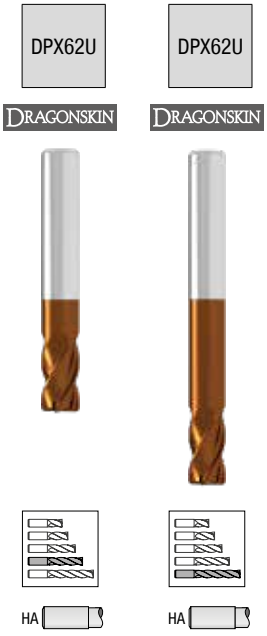
14

MonsterMill – Finish milling cutter with corner radius

- Radius accuracy +/- 0.01 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC





DC	RE	APMX	DN	LH	α°	OAL	DCONMS $_{h5}$	T_x	ZEFP	NEW Article no. 53 603 ...	NEW Article no. 53 604 ...
mm	mm	mm	mm	mm		mm	mm				
0,2	0,05	0,5		0,5	30	48	4	2,5 x DC	2	**30205**	
0,2	0,05	0,5	0,18	1,0	30	48	4	5 x DC	2	**40205**	
0,3	0,05	0,6	0,27	1,0	30	48	4	3,3 x DC	2	**30305**	
0,3	0,05	0,6	0,27	2,0	30	48	4	6,7 x DC	2	**40305**	
0,4	0,05	0,7	0,35	1,0	30	48	4	2,5 x DC	2	**30405**	
0,4	0,05	0,7	0,35	2,0	30	48	4	5 x DC	2	**40405**	
0,4	0,05	0,7	0,35	3,0	30	48	4	7,5 x DC	2	**50405**	
0,5	0,05	0,7	0,45	1,0	30	48	4	2 x DC	2	**30505**	
0,5	0,05	0,7	0,45	2,0	30	48	4	4 x DC	2	**40505**	
0,5	0,05	0,7	0,45	2,5	30	48	4	5 x DC	2	**50505**	
0,5	0,05	0,7	0,45	3,0	30	48	4	6 x DC	2	**60505**	
0,5	0,05	0,7	0,45	4,0	30	48	4	8 x DC	2	**70505**	
0,6	0,05	0,8	0,55	2,0	30	48	4	3,3 x DC	2	**30605**	
0,6	0,05	0,8	0,55	3,0	30	48	4	5 x DC	2	**40605**	
0,6	0,05	0,8	0,55	4,5	30	48	4	7,5 x DC	2	**50605**	
0,6	0,05	0,8	0,55	6,0	30	48	4	10 x DC	2		**30605**
0,8	0,05	1,0	0,75	2,0	30	48	4	2,5 x DC	2	**30805**	
0,8	0,05	1,0	0,75	4,0	30	48	4	5 x DC	2	**40805**	
0,8	0,05	1,0	0,75	6,0	30	48	4	7,5 x DC	2	**50805**	
0,8	0,05	1,0	0,75	8,0	30	48	4	10 x DC	2		**30805**
0,8	0,05	1,0	0,75	10,0	30	48	4	12,5 x DC	2		**40805**
1,0	0,10	1,5	0,95	2,0	30	48	4	2 x DC	4	**31001**	
1,0	0,10	1,5	0,95	4,0	30	48	4	4 x DC	4	**41001**	
1,0	0,10	1,5	0,95	6,0	30	48	4	6 x DC	4	**51001**	
1,0	0,10	1,5	0,95	8,0	30	48	4	8 x DC	4	**61001**	
1,0	0,10	1,5	0,95	10,0	30	48	4	10 x DC	4		**31001**
1,0	0,10	1,5	0,95	14,0	30	48	4	14 x DC	4		**41001**
1,5	0,10	2,0	1,45	4,0	30	48	4	2,7 x DC	4	**31501**	
1,5	0,10	2,0	1,45	6,0	30	48	4	4 x DC	4	**41501**	
1,5	0,10	2,0	1,45	10,0	30	48	4	6,7 x DC	4	**51501**	
1,5	0,10	2,0	1,45	12,0	30	48	4	8 x DC	4	**61501**	
1,5	0,10	2,0	1,45	15,0	30	60	4	10 x DC	4		**31501**
1,5	0,10	2,0	1,45	20,0	30	60	4	13,3 x DC	4		**41501**
2,0	0,20	2,5	1,90	4,0	30	48	4	2 x DC	4	**32002**	
2,0	0,20	2,5	1,90	6,0	30	48	4	3 x DC	4	**42002**	
2,0	0,20	2,5	1,90	8,0	30	48	4	4 x DC	4	**52002**	
2,0	0,20	2,5	1,90	10,0	30	48	4	5 x DC	4	**62002**	
2,0	0,20	2,5	1,90	12,0	30	48	4	6 x DC	4	**72002**	
2,0	0,20	2,5	1,90	16,0	30	60	4	8 x DC	4	**82002**	
2,0	0,20	2,5	1,90	20,0	30	60	4	10 x DC	4		**32002**
2,0	0,20	2,5	1,90	25,0	30	60	4	12,5 x DC	4		**42002**
3,0	0,20	3,5	2,90	8,0	30	60	6	2,7 x DC	4	**33002**	

Steel	○	○
hardened < 45 HRC	○	○
hardened 46–55 HRC	○	○
hardened 56–60 HRC	●	●
hardened 61–65 HRC	●	●
hardened 65–70 HRC	●	●

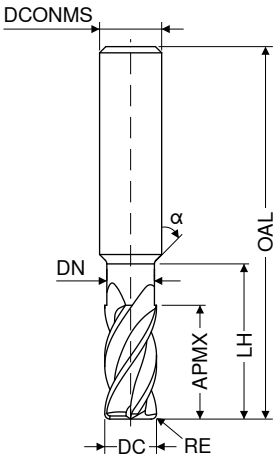
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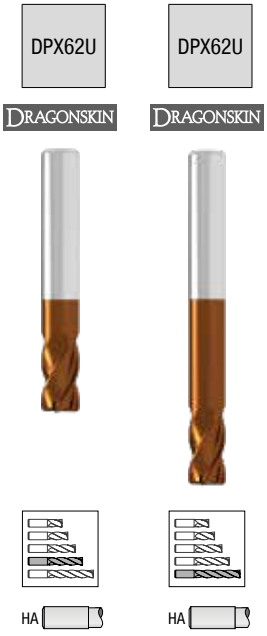
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MonsterMill – Finish milling cutter with corner radius

- Radius accuracy +/- 0.01 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC





DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	NEW Article no. 53 603 ...	NEW Article no. 53 604 ...
3,0	0,20	3,5	2,90	12,0	30	60	6	4 x DC	4	**43002**	
3,0	0,20	3,5	2,90	16,0	30	60	6	5,3 x DC	4	**53002**	
3,0	0,20	3,5	2,90	20,0	30	70	6	6,7 x DC	4	**63002**	
3,0	0,20	3,5	2,90	24,0	30	70	6	8 x DC	4	**73002**	
4,0	0,20	4,5	3,90	8,0	30	60	6	2 x DC	4	**34002**	
4,0	0,20	4,5	3,90	12,0	30	60	6	3 x DC	4	**44002**	
4,0	0,20	4,5	3,90	16,0	30	60	6	4 x DC	4	**54002**	
4,0	0,20	4,5	3,90	20,0	30	70	6	5 x DC	4	**64002**	
4,0	0,20	4,5	3,90	24,0	30	70	6	6 x DC	4	**74002**	
4,0	0,20	4,5	3,90	28,0	30	70	6	7 x DC	4	**84002**	
4,0	0,50	4,5	3,90	8,0	30	60	6	2 x DC	4	**34005**	
4,0	0,50	4,5	3,90	12,0	30	60	6	3 x DC	4	**44005**	
4,0	0,50	4,5	3,90	16,0	30	60	6	4 x DC	4	**54005**	
4,0	0,50	4,5	3,90	20,0	30	70	6	5 x DC	4	**64005**	
4,0	0,50	4,5	3,90	24,0	30	70	6	6 x DC	4	**74005**	
4,0	0,50	4,5	3,90	28,0	30	70	6	7 x DC	4	**84005**	
4,0	1,00	4,5	3,90	8,0	30	60	6	2 x DC	4	**34010**	
4,0	1,00	4,5	3,90	12,0	30	60	6	3 x DC	4	**44010**	
4,0	1,00	4,5	3,90	16,0	30	60	6	4 x DC	4	**54010**	
4,0	1,00	4,5	3,90	20,0	30	70	6	5 x DC	4	**64010**	
4,0	1,00	4,5	3,90	24,0	30	70	6	6 x DC	4	**74010**	
4,0	1,00	4,5	3,90	28,0	30	70	6	7 x DC	4	**84010**	
6,0	0,20	6,5	5,90	12,0		60	6	2 x DC	4	**36002**	
6,0	0,20	6,5	5,90	16,0		60	6	2,7 x DC	4	**46002**	
6,0	0,20	6,5	5,90	20,0		60	6	3,3 x DC	4	**56002**	
6,0	0,50	6,5	5,90	12,0		60	6	2 x DC	4	**36005**	
6,0	0,50	6,5	5,90	16,0		60	6	2,7 x DC	4	**46005**	
6,0	0,50	6,5	5,90	20,0		60	6	3,3 x DC	4	**56005**	
6,0	1,00	6,5	5,90	12,0		60	6	2 x DC	4	**36010**	
6,0	1,00	6,5	5,90	16,0		60	6	2,7 x DC	4	**46010**	
6,0	1,00	6,5	5,90	20,0		60	6	3,3 x DC	4	**56010**	
8,0	0,50	8,5	7,90	16,0		60	8	2 x DC	4	**38005**	
8,0	0,50	8,5	7,90	40,0		80	8	5 x DC	4	**48005**	
8,0	1,00	8,5	7,90	16,0		60	8	2 x DC	4	**38010**	
8,0	1,00	8,5	7,90	40,0		80	8	5 x DC	4	**48010**	
10,0	0,50	10,5	9,90	20,0		70	10	2 x DC	4	**10005**	
10,0	0,50	10,5	9,90	40,0		90	10	4 x DC	4	**10105**	
10,0	1,00	10,5	9,90	20,0		70	10	2 x DC	4	**10010**	
10,0	1,00	10,5	9,90	40,0		90	10	4 x DC	4	**10110**	
12,0	1,00	12,5	11,90	24,0		70	12	2 x DC	4	**12010**	
12,0	1,00	12,5	11,90	40,0		90	12	3,3 x DC	4	**12110**	

Steel	○	○
hardened < 45 HRC	○	○
hardened 46–55 HRC	○	○
hardened 56–60 HRC	●	●
hardened 61–65 HRC	●	●
hardened 65–70 HRC	●	●

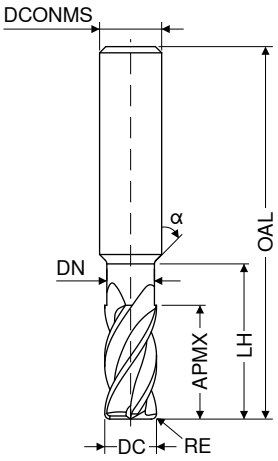
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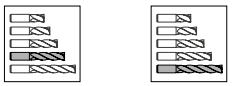
MonsterMill – Finish milling cutter with corner radius

- Radius accuracy +/- 0.02 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s = 50° γ_s = -15° | ZEFP | 54–70 HRC







Factory standard | Factory standard

HA | HA

DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	NEW Article no. 53 605 ...	NEW Article no. 53 606 ...
1	0,03	2			30	48	4	2 x DC	4	410	
1	0,03	3	0,95	4	30	48	4	3 x DC	4		410
2	0,03	6	1,90	8	30	48	4	3 x DC	4		420
2	0,03	4			30	48	4	2 x DC	4	420	
3	0,03	6			30	60	6	2 x DC	4	030	
3	0,03	9	2,90	12	30	60	6	3 x DC	4		030
4	0,05	8			30	60	6	2 x DC	4	040	
4	0,05	12	3,90	16	30	60	6	3 x DC	4		040
6	0,05	12				60	6	2 x DC	4	060	
6	0,05	18	5,90	24		60	6	3 x DC	4		060
8	0,05	16				60	8	2 x DC	4	080	
8	0,05	24	7,90	32		70	8	3 x DC	4		080
10	0,05	20				70	10	2 x DC	4	100	
10	0,05	30	9,90	40		80	10	3 x DC	4		100
12	0,05	24				70	12	2 x DC	4	120	
12	0,05	36	11,90	44		90	12	3 x DC	4		120

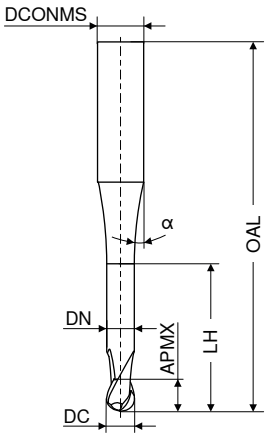
Steel	○	○
hardened < 45 HRC	○	○
hardened 46–55 HRC	○	○
hardened 56–60 HRC	●	●
hardened 61–65 HRC	●	●
hardened 65–70 HRC	●	●

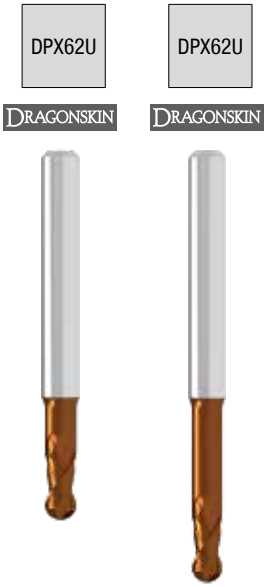
→ v_c/f_z Page 270

MonsterMill – Ball Nosed Cutter

- Radius accuracy: ±0.01 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC





Factory standard | Factory standard

HA | HA

DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	NEW Article no. 53 600 ...	NEW Article no. 53 601 ...
0,2	0,5		0,5	30	48	4	2,5 x DC	2	**302**	
0,2	0,5	0,18	1,0	30	48	4	5 x DC	2	**402**	
0,3	0,5	0,27	1,0	30	48	4	3,3 x DC	2	**303**	
0,3	0,5	0,27	2,0	30	48	4	6,7 x DC	2	**403**	
0,4	0,5	0,35	1,0	30	48	4	2,5 x DC	2	**304**	
0,4	0,5	0,35	2,0	30	48	4	5 x DC	2	**404**	
0,4	0,5	0,35	3,0	30	48	4	7,5 x DC	2	**504**	
0,5	0,5	0,45	1,0	30	48	4	2 x DC	2	**305**	
0,5	0,5	0,45	2,0	30	48	4	4 x DC	2	**405**	
0,5	0,5	0,45	2,5	30	48	4	5 x DC	2	**505**	
0,5	0,5	0,45	3,0	30	48	4	6 x DC	2	**605**	
0,5	0,5	0,45	4,0	30	48	4	8 x DC	2	**705**	
0,6	0,6	0,55	2,0	30	48	4	3,3 x DC	2	**306**	
0,6	0,6	0,55	3,0	30	48	4	5 x DC	2	**406**	
0,6	0,6	0,55	4,5	30	48	4	7,5 x DC	2	**506**	
0,6	0,6	0,55	6,0	30	48	4	10 x DC	2		**306**
0,8	1,0	0,75	2,0	30	48	4	2,5 x DC	2	**308**	
0,8	1,0	0,75	4,0	30	48	4	5 x DC	2	**408**	
0,8	1,0	0,75	6,0	30	48	4	7,5 x DC	2	**508**	
0,8	1,0	0,75	8,0	30	48	4	10 x DC	2		**308**
0,8	1,0	0,75	10,0	30	48	4	12,5 x DC	2		**408**
1,0	1,5	0,95	2,0	30	48	4	2 x DC	2	**310**	
1,0	1,5	0,95	4,0	30	48	4	4 x DC	2	**410**	
1,0	1,5	0,95	6,0	30	48	4	6 x DC	2	**510**	
1,0	1,5	0,95	8,0	30	48	4	8 x DC	2	**610**	
1,0	1,5	0,95	10,0	30	48	4	10 x DC	2		**310**
1,0	1,5	0,95	14,0	30	48	4	14 x DC	2		**410**
1,5	1,5	1,45	4,0	30	48	4	2,7 x DC	2	**315**	
1,5	1,5	1,45	6,0	30	48	4	4 x DC	2	**415**	
1,5	1,5	1,45	8,0	30	48	4	5,3 x DC	2	**515**	
1,5	1,5	1,45	10,0	30	48	4	6,7 x DC	2	**615**	
1,5	1,5	1,45	15,0	30	60	4	10 x DC	2		**315**
1,5	1,5	1,45	20,0	30	60	4	13,3 x DC	2		**415**
2,0	2,5	1,90	4,0	30	48	4	2 x DC	2	**320**	

Steel	○	○
hardened < 45 HRC	○	○
hardened 46–55 HRC	○	○
hardened 56–60 HRC	●	●
hardened 61–65 HRC	●	●
hardened 65–70 HRC	●	●

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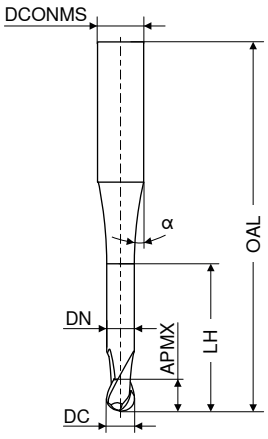
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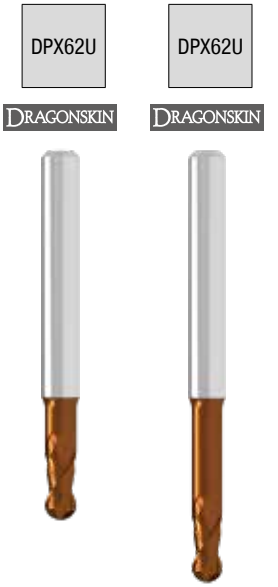
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MonsterMill – Ball Nosed Cutter

- Radius accuracy: ±0.01 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=-3° | ZEFP | 54–70 HRC





Factory standard | Factory standard

HA | HA

DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	NEW Article no. 53 600 ...	NEW Article no. 53 601 ...
2,0	2,5	1,90	6,0	30	48	4	3 x DC	2	**420**	
2,0	2,5	1,90	8,0	30	48	4	4 x DC	2	**520**	
2,0	2,5	1,90	10,0	30	48	4	5 x DC	2	**620**	
2,0	2,5	1,90	12,0	30	48	4	6 x DC	2	**720**	
2,0	2,5	1,90	16,0	30	60	4	8 x DC	2	**820**	
2,0	2,5	1,90	20,0	30	60	4	10 x DC	2		**320**
2,0	2,5	1,90	25,0	30	60	4	12,5 x DC	2		**420**
3,0	3,5	2,90	8,0	30	60	6	2,7 x DC	2	**330**	
3,0	3,5	2,90	12,0	30	60	6	4 x DC	2	**430**	
3,0	3,5	2,90	16,0	30	60	6	5,3 x DC	2	**530**	
3,0	3,5	2,90	20,0	30	70	6	6,7 x DC	2	**630**	
3,0	3,5	2,90	24,0	30	70	6	8 x DC	2	**730**	
4,0	4,5	3,90	8,0	30	60	6	2 x DC	2	**340**	
4,0	4,5	3,90	12,0	30	60	6	3 x DC	2	**440**	
4,0	4,5	3,90	16,0	30	60	6	4 x DC	2	**540**	
4,0	4,5	3,90	20,0	30	70	6	5 x DC	2	**640**	
4,0	4,5	3,90	24,0	30	70	6	6 x DC	2	**740**	
4,0	4,5	3,90	28,0	30	70	6	7 x DC	2	**840**	
6,0	6,5	5,90	12,0		60	6	2 x DC	2	**360**	
6,0	6,5	5,90	16,0		60	6	2,7 x DC	2	**460**	
6,0	6,5	5,90	20,0		60	6	3,3 x DC	2	**560**	
8,0	8,5	7,90	16,0		60	8	2 x DC	2	**380**	
8,0	8,5	7,90	40,0		80	8	5 x DC	2	**480**	
10,0	10,5	9,90	20,0	30	70	10	2 x DC	2	**100**	
10,0	10,5	9,90	40,0		90	10	4 x DC	2	**101**	
12,0	12,5	11,90	24,0		75	12	2 x DC	2	**120**	
12,0	12,5	11,90	40,0		90	12	3,3 x DC	2	**121**	

Steel	○	○
hardened < 45 HRC	○	○
hardened 46–55 HRC	○	○
hardened 56–60 HRC	●	●
hardened 61–65 HRC	●	●
hardened 65–70 HRC	●	●

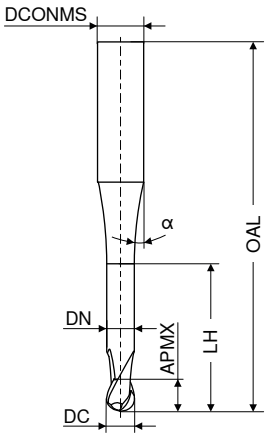
→ v_c/f_z Page 262+263

MonsterMill – Ball Nosed Cutter

- Radius accuracy: ±0.01 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm







DPX62U

DRAGONSKIN





Factory standard

HA

DC	APMX	DN	LH	α°	OAL	DCONMS $_{h5}$	T_x	ZEFP	NEW Article no. 53 602 ...
mm	mm	mm	mm		mm	mm			
3	3,5	2,9	8	30	60	6	2,7 x DC	4	330
3	3,5	2,9	12	30	60	6	4 x DC	4	430
3	3,5	2,9	16	30	60	6	5,3 x DC	4	530
3	3,5	2,9	20	30	70	6	6,7 x DC	4	630
3	3,5	2,9	24	30	70	6	8 x DC	4	730
4	4,5	3,9	8	30	60	6	2 x DC	4	340
4	4,5	3,9	12	30	60	6	3 x DC	4	440
4	4,5	3,9	16	30	60	6	4 x DC	4	540
4	4,5	3,9	20	30	70	6	5 x DC	4	640
4	4,5	3,9	24	30	70	6	6 x DC	4	740
4	4,5	3,9	28	30	70	6	7 x DC	4	840
6	6,5	5,9	12		60	6	2 x DC	4	360
6	6,5	5,9	16		60	6	2,7 x DC	4	460
6	6,5	5,9	20		60	6	3,3 x DC	4	560
8	8,5	7,9	16		60	8	2 x DC	4	380
8	8,5	7,9	40		80	8	5 x DC	4	480
10	10,5	9,9	20		70	10	2 x DC	4	100
10	10,5	9,9	40		90	10	4 x DC	4	101
12	12,5	11,9	24		75	12	2 x DC	4	120
12	12,5	11,9	40		90	12	3,3 x DC	4	121

Steel	○
hardened < 45 HRC	○
hardened 46–55 HRC	○
hardened 56–60 HRC	●
hardened 61–65 HRC	●
hardened 65–70 HRC	●

→ v_c/f_z Page 271

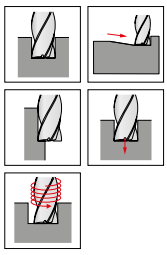
MonsterMill – Plunge milling cutter with corner radius

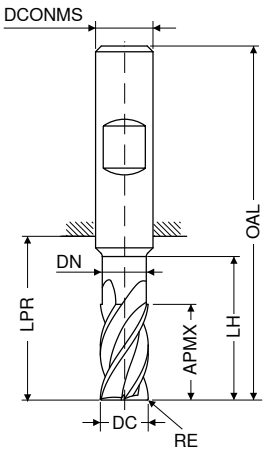
PCR
UNI

λ_s=36°
λ_s=38°
γ_s= 8°

ZEFP

HPC













DIN 6527
HB



DIN 6527
HB



DIN 6527
HB

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 52 613 ...	Article no. 52 614 ...	Article no. 52 615 ...
5,7	0,20	10			18	54	6	4	057		
5,7	0,20	13	5,5	19	21	57	6	4		057	
5,7	0,20	13	5,5	24	26	62	6	4			057
6,0	0,20	10			18	54	6	4	060		
6,0	0,20	13	5,8	19	21	57	6	4		060	
6,0	0,20	13	5,8	24	26	62	6	4			060
6,7	0,20	11			22	58	8	4	067		
6,7	0,20	16	6,5	25	27	63	8	4		067	
6,7	0,20	16	6,4	30	32	68	8	4			067
7,0	0,20	11			22	58	8	4	070		
7,0	0,20	16	6,8	25	27	63	8	4		070	
7,0	0,20	16	6,7	30	32	68	8	4			070
7,7	0,20	12			22	58	8	4	077		
7,7	0,20	19	7,5	25	27	63	8	4		077	
7,7	0,20	21	7,4	30	32	68	8	4			077
8,0	0,20	12			22	58	8	4	080		
8,0	0,20	19	7,8	25	27	63	8	4		080	
8,0	0,20	21	7,7	30	32	68	8	4			080
8,7	0,32	13			26	66	10	4	087		
8,7	0,32	19	8,5	30	32	72	10	4		087	
8,7	0,32	22	8,4	38	40	80	10	4			087
9,0	0,32	13			26	66	10	4	090		
9,0	0,32	19	8,8	30	32	72	10	4		090	
9,0	0,32	22	8,7	38	40	80	10	4			090
9,7	0,32	14			26	66	10	4	097		
9,7	0,32	22	9,5	30	32	72	10	4		097	
9,7	0,32	22	9,4	38	40	80	10	4			097
10,0	0,32	14			26	66	10	4	100		
10,0	0,32	22	9,8	30	32	72	10	4		100	
10,0	0,32	22	9,7	38	40	80	10	4			100
11,7	0,32	16			28	73	12	4	117		
11,7	0,32	26	11,5	36	38	83	12	4		117	
11,7	0,32	26	11,3	46	48	93	12	4			117
12,0	0,32	16			28	73	12	4	120		
12,0	0,32	26	11,8	36	38	83	12	4		120	
12,0	0,32	26	11,6	46	48	93	12	4			120
13,7	0,32	18			30	75	14	4	137		
13,7	0,32	26	13,5	36	38	83	14	4		137	
13,7	0,32	26	13,3	52	54	99	14	4			137
14,0	0,32	18			30	75	14	4	140		
14,0	0,32	26	13,8	36	38	83	14	4		140	

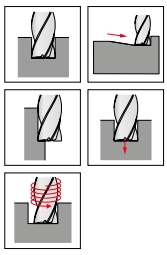
Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals			
Heat resistant alloys			
hardened materials			

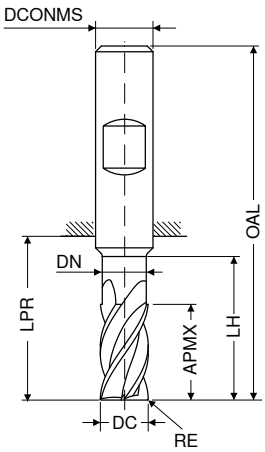
→ v_c/f_z Page 272+273

Continued on next page

MonsterMill – Plunge milling cutter with corner radius

PCR
UNI
λ_s=36°
λ_s=38°
γ_s= 8°
ZEFP
HPC

















DIN 6527 | DIN 6527 | DIN 6527







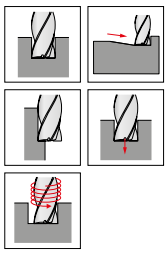
DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 52 613 ...	Article no. 52 614 ...	Article no. 52 615 ...
14,0	0,32	26	13,6	52	54	99	14	4			**140**
15,5	0,32	22			34	82	16	4	**155**		
15,5	0,32	32	15,3	42	44	92	16	4		**155**	
15,5	0,32	36	15,0	58	60	108	16	4			**155**
16,0	0,32	22			34	82	16	4	**160**		
16,0	0,32	32	15,8	42	44	92	16	4		**160**	
16,0	0,32	36	15,5	58	60	108	16	4			**160**
17,5	0,32	24			36	84	18	4	**175**		
17,5	0,32	32	17,3	42	44	92	18	4		**175**	
17,5	0,32	36	17,0	67	69	117	18	4			**175**
18,0	0,32	24			36	84	18	4	**180**		
18,0	0,32	32	17,8	42	44	92	18	4		**180**	
18,0	0,32	36	17,5	67	69	117	18	4			**180**
19,5	0,50	26			42	92	20	4	**195**		
19,5	0,50	38	19,3	52	54	104	20	4		**195**	
19,5	0,50	41	19,0	74	76	126	20	4			**195**
20,0	0,50	26			42	92	20	4	**200**		
20,0	0,50	38	19,8	52	54	104	20	4		**200**	
20,0	0,50	41	19,5	74	76	126	20	4			**200**

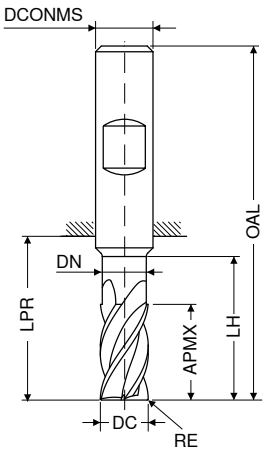
Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals			
Heat resistant alloys			
hardened materials			

→ v_c/f_z Page 272+273

MonsterMill – Plunge milling cutter with corner radius

PCR ALU | λ_s=36° γ_s= 8° | ZEFP | HPC











DIN 6527

HB



DIN 6527

HB

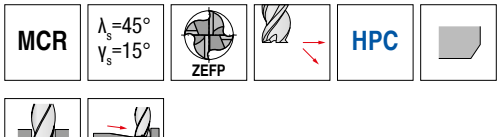
DC f8	RE ±0,03	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 52 616 ...	Article no. 52 617 ...
mm	mm	mm	mm	mm	mm	mm	mm			
5,0	0,20	13	4,8	19	21	57	6	4	050	
5,0	0,20	13	4,8	24	26	62	6	4		050
5,7	0,20	13	5,5	19	21	57	6	4	057	
5,7	0,20	13	5,5	24	26	62	6	4		057
6,0	0,20	13	5,8	19	21	57	6	4	060	
6,0	0,20	13	5,8	24	26	62	6	4		060
6,7	0,20	16	6,5	25	27	63	8	4	067	
6,7	0,20	16	6,4	30	32	68	8	4		067
7,0	0,20	16	6,8	25	27	63	8	4	070	
7,0	0,20	16	6,7	30	32	68	8	4		070
7,7	0,20	19	7,5	25	27	63	8	4	077	
7,7	0,20	21	7,4	30	32	68	8	4		077
8,0	0,20	19	7,8	25	27	63	8	4	080	
8,0	0,20	21	7,7	30	32	68	8	4		080
8,7	0,32	19	8,5	30	32	72	10	4	087	
8,7	0,32	22	8,4	38	40	80	10	4		087
9,0	0,32	19	8,8	30	32	72	10	4	090	
9,0	0,32	22	8,7	38	40	80	10	4		090
9,7	0,32	22	9,5	30	32	72	10	4	097	
9,7	0,32	22	9,4	38	40	80	10	4		097
10,0	0,32	22	9,8	30	32	72	10	4	100	
10,0	0,32	22	9,7	38	40	80	10	4		100
11,7	0,32	26	11,5	36	38	83	12	4	117	
11,7	0,32	26	11,3	46	48	93	12	4		117
12,0	0,32	26	11,8	36	38	83	12	4	120	
12,0	0,32	26	11,6	46	48	93	12	4		120
13,7	0,32	26	13,5	36	38	83	14	4	137	
13,7	0,32	26	13,3	52	54	99	14	4		137
14,0	0,32	26	13,8	36	38	83	14	4	140	
14,0	0,32	26	13,6	52	54	99	14	4		140
15,5	0,32	32	15,3	42	44	92	16	4	155	
15,5	0,32	36	15,0	58	60	108	16	4		155
16,0	0,32	32	15,8	42	44	92	16	4	160	
16,0	0,32	36	15,5	58	60	108	16	4		160
17,5	0,32	32	17,3	42	44	92	18	4	175	
17,5	0,32	36	17,0	67	69	117	18	4		175
18,0	0,32	32	17,8	42	44	92	18	4	180	
18,0	0,32	36	17,5	67	69	117	18	4		180
19,5	0,50	38	19,3	52	54	104	20	4	195	
19,5	0,50	41	19,0	74	76	126	20	4		195
20,0	0,50	38	19,8	52	54	104	20	4	200	
20,0	0,50	41	19,5	74	76	126	20	4		200

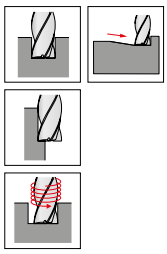
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

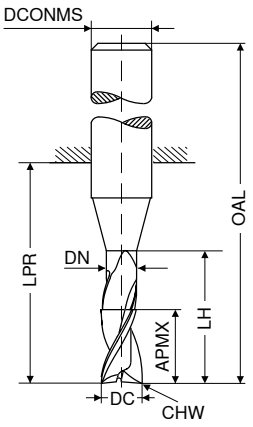
→ v_c/f_z Page 274+275

MonsterMill – Rough milling cutter

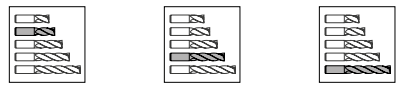
▲ Cutting edges with irregular pitch











Factory standard | Factory standard | Factory standard

HB | HB | HB

DC h11	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 52 752 ...		Article no. 52 752 ...		Article no. 52 752 ...	
mm	mm	mm	mm	mm	mm	mm	mm							
1	1,5	0,9	3	10	38	3	0,09	3	010	1)				
2	3,0	1,9	8	21	57	6	0,17	3	020					
3	5,0	2,9	14	21	57	6	0,17	3	030					
3	8,0	2,9	14	21	57	6	0,17	3			031			
3	5,0	2,9	19	26	62	6	0,17	3					032	
4	8,0	3,8	18	21	57	6	0,17	3	040					
4	11,0	3,8	18	21	57	6	0,17	3			041			
4	8,0	3,8	23	26	62	6	0,17	3					042	
5	9,0	4,8	19	21	57	6	0,17	3	050					
5	13,0	4,8	19	21	57	6	0,17	3			051			
5	9,0	4,8	24	26	62	6	0,17	3					052	
6	10,0	5,8	20	21	57	6	0,17	4	060					
6	13,0	5,8	20	21	57	6	0,17	4			061			
6	10,0	5,8	25	26	62	6	0,17	4					062	
8	12,0	7,7	25	27	63	8	0,28	4	080					
8	19,0	7,7	25	27	63	8	0,28	4			081			
8	12,0	7,7	30	32	68	8	0,28	4					082	
10	15,0	9,5	30	32	72	10	0,28	4	100					
10	22,0	9,5	30	32	72	10	0,28	4			101			
10	15,0	9,5	35	40	80	10	0,28	4					102	
12	18,0	11,5	35	38	83	12	0,28	4	120					
12	26,0	11,5	35	38	83	12	0,28	4			121			
12	18,0	11,5	45	48	93	12	0,28	4					122	
14	21,0	13,5	35	38	83	14	0,28	4	140					
14	26,0	13,5	35	38	83	14	0,28	4			141			
14	21,0	13,5	50	54	99	14	0,28	4					142	
16	24,0	15,5	40	44	92	16	0,43	4	160					
16	32,0	15,5	40	44	92	16	0,43	4			161			
16	24,0	15,5	55	60	108	16	0,43	4					162	
20	30,0	19,5	50	54	104	20	0,43	4	200					
20	38,0	19,5	50	54	104	20	0,43	4			201			
20	30,0	19,5	70	76	126	20	0,43	4					202	

Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials	○	○	○

1) DIN 6535 HA Shank

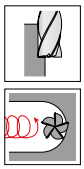
→ v_c/f_z Page 276–279

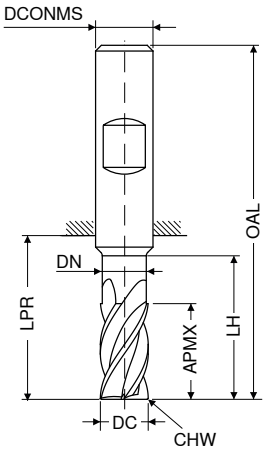
14

CircularLine – End milling cutter

▲ Chip breaker 0.9 x DC

CCR UNI | λ_s=30° 31° | γ_s= 8° | ZEFP | HPC













Factory standard

HB

Factory standard

HB

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	Article no. 53 585 ...	Article no. 53 587 ...
6	13	5,8	19	21	57	6	0,2	6	**060**	
6	19	5,8	25	27	63	6	0,2	6		**060**
8	21	7,7	25	27	63	8	0,2	6	**080**	
8	25	7,7	33	35	71	8	0,2	6		**080**
10	22	9,7	30	32	72	10	0,2	6	**100**	
10	31	9,7	41	43	83	10	0,2	6		**100**
12	26	11,6	36	38	83	12	0,2	6	**120**	
12	37	11,6	47	49	94	12	0,2	6		**120**
16	36	15,5	42	44	92	16	0,2	6	**160**	
16	49	15,5	61	63	111	16	0,2	6		**160**
20	41	19,5	52	54	104	20	0,2	6	**200**	
20	61	19,5	75	77	127	20	0,2	6		**200**

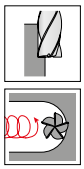
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals		
Heat resistant alloys	○	○
hardened materials		

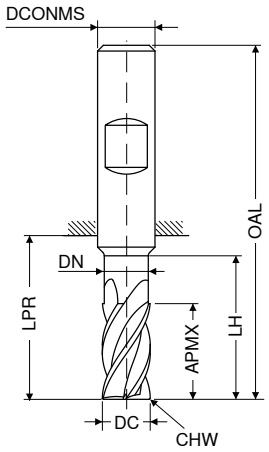
→ v_c/f_z Page 280+281

CircularLine – End milling cutter

▲ Chip breaker 0.9 x DC

CCR UNI | λ_s=35° 36° γ_s= 8° | ZEFP | HPC | DPX72S | DRAGONSKIN









Factory standard

HB

DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 53 589 ...
mm	mm	mm	mm	mm	mm	mm	mm		
6	25	5,8	29	31	67	6	0,2	5	060
8	33	7,7	38	40	76	8	0,2	5	080
10	41	9,7	47	49	89	10	0,2	5	100
12	49	11,6	55	57	102	12	0,2	5	120
16	65	15,5	73	75	123	16	0,2	5	160
20	82	19,5	91	93	143	20	0,2	5	200

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	
Heat resistant alloys	○
hardened materials	

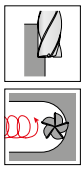
→ v_c/f_z Page 282+283

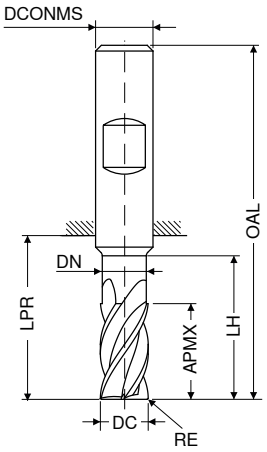
14

CircularLine – End milling cutter

▲ Chip breaker 0.9 x DC

CCR UNI | λ_s=30° 31° γ_s= 8° | ZEFP | HPC





DPX72S

DRAGONSKIN





Factory standard

HB

DC e8	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 53 586 ...
mm	mm	mm	mm	mm	mm	mm	mm		
6	0,2	13	5,8	19	21	57	6	6	06002
6	1,0	13	5,8	19	21	57	6	6	06010
6	1,5	13	5,8	19	21	57	6	6	06015
8	0,2	21	7,7	25	27	63	8	6	08002
8	1,0	21	7,7	25	27	63	8	6	08010
8	1,5	21	7,7	25	27	63	8	6	08015
8	2,0	21	7,7	25	27	63	8	6	08020
10	0,2	22	9,7	30	32	72	10	6	10002
10	1,0	22	9,7	30	32	72	10	6	10010
10	1,5	22	9,7	30	32	72	10	6	10015
10	1,6	22	9,7	30	32	72	10	6	10016
10	2,0	22	9,7	30	32	72	10	6	10020
12	0,2	26	11,6	36	38	83	12	6	12002
12	1,0	26	11,6	36	38	83	12	6	12010
12	1,5	26	11,6	36	38	83	12	6	12015
12	1,6	26	11,6	36	38	83	12	6	12016
12	2,0	26	11,6	36	38	83	12	6	12020
12	3,0	26	11,6	36	38	83	12	6	12030
16	0,2	36	15,5	42	44	92	16	6	16002
16	1,0	36	15,5	42	44	92	16	6	16010
16	1,5	36	15,5	42	44	92	16	6	16015
16	1,6	36	15,5	42	44	92	16	6	16016
16	2,0	36	15,5	42	44	92	16	6	16020
16	3,0	36	15,5	42	44	92	16	6	16030
16	4,0	36	15,5	42	44	92	16	6	16040
20	0,2	41	19,5	52	54	104	20	6	20002
20	1,0	41	19,5	52	54	104	20	6	20010
20	1,5	41	19,5	52	54	104	20	6	20015
20	1,6	41	19,5	52	54	104	20	6	20016
20	2,0	41	19,5	52	54	104	20	6	20020
20	3,0	41	19,5	52	54	104	20	6	20030
20	4,0	41	19,5	52	54	104	20	6	20040

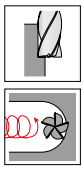
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	
Heat resistant alloys	○
hardened materials	

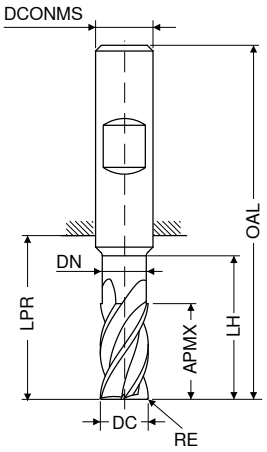
→ v_c/f_z Page 280+281

CircularLine – End milling cutter

▲ Chip breaker 1.8 x DC

CCR UNI | λ_s=30° 31° γ_s= 8° | ZEFP | HPC





DPX72S

DRAGONSKIN





Factory standard

HB

DC e8	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 53 592 ...
mm	mm	mm	mm	mm	mm	mm	mm		
6	0,2	19	5,8	25	27	63	6	6	06002
6	1,0	19	5,8	25	27	63	6	6	06010
6	1,5	19	5,8	25	27	63	6	6	06015
8	0,2	25	7,7	33	35	71	8	6	08002
8	1,0	25	7,7	33	35	71	8	6	08010
8	1,5	25	7,7	33	35	71	8	6	08015
8	2,0	25	7,7	33	35	71	8	6	08020
10	0,2	31	9,7	41	43	83	10	6	10002
10	1,0	31	9,7	41	43	83	10	6	10010
10	1,5	31	9,7	41	43	83	10	6	10015
10	1,6	31	9,7	41	43	83	10	6	10016
10	2,0	31	9,7	41	43	83	10	6	10020
12	0,2	37	11,6	47	49	94	12	6	12002
12	1,0	37	11,6	47	49	94	12	6	12010
12	1,5	37	11,6	47	49	94	12	6	12015
12	1,6	37	11,6	47	49	94	12	6	12016
12	2,0	37	11,6	47	49	94	12	6	12020
12	3,0	37	11,6	47	49	94	12	6	12030
16	0,2	49	15,5	61	63	111	16	6	16002
16	1,0	49	15,5	61	63	111	16	6	16010
16	1,5	49	15,5	61	63	111	16	6	16015
16	1,6	49	15,5	61	63	111	16	6	16016
16	2,0	49	15,5	61	63	111	16	6	16020
16	3,0	49	15,5	61	63	111	16	6	16030
16	4,0	49	15,5	61	63	111	16	6	16040
20	0,2	61	19,5	75	77	127	20	6	20002
20	1,0	61	19,5	75	77	127	20	6	20010
20	1,5	61	19,5	75	77	127	20	6	20015
20	1,6	61	19,5	75	77	127	20	6	20016
20	2,0	61	19,5	75	77	127	20	6	20020
20	3,0	61	19,5	75	77	127	20	6	20030
20	4,0	61	19,5	75	77	127	20	6	20040

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	
Heat resistant alloys	○
hardened materials	

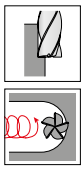
→ v_c/f_z Page 280+281

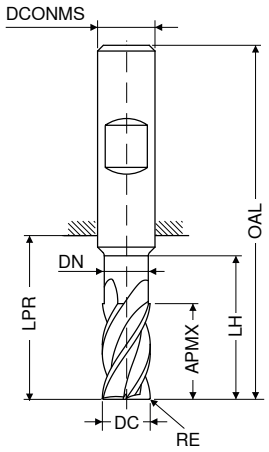
14

CircularLine – End milling cutter

▲ Chip breaker 0.9 x DC

CCR UNI | λ_s=35° 36° γ_s= 8° | ZEFP | HPC | DPX72S | DRAGONSKIN







Factory standard

HB

DC e8	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 53 593 ...
mm	mm	mm	mm	mm	mm	mm	mm		
6	0,2	25	5,8	29	31	67	6	5	06002
6	1,0	25	5,8	29	31	67	6	5	06010
6	1,5	25	5,8	29	31	67	6	5	06015
8	0,2	33	7,7	38	40	76	8	5	08002
8	1,0	33	7,7	38	40	76	8	5	08010
8	1,5	33	7,7	38	40	76	8	5	08015
8	2,0	33	7,7	38	40	76	8	5	08020
10	0,2	41	9,7	47	49	89	10	5	10002
10	1,0	41	9,7	47	49	89	10	5	10010
10	1,5	41	9,7	47	49	89	10	5	10015
10	1,6	41	9,7	47	49	89	10	5	10016
10	2,0	41	9,7	47	49	89	10	5	10020
12	0,2	49	11,6	55	57	102	12	5	12002
12	1,0	49	11,6	55	57	102	12	5	12010
12	1,5	49	11,6	55	57	102	12	5	12015
12	1,6	49	11,6	55	57	102	12	5	12016
12	2,0	49	11,6	55	57	102	12	5	12020
12	3,0	49	11,6	55	57	102	12	5	12030
16	0,2	65	15,5	73	75	123	16	5	16002
16	1,0	65	15,5	73	75	123	16	5	16010
16	1,5	65	15,5	73	75	123	16	5	16015
16	1,6	65	15,5	73	75	123	16	5	16016
16	2,0	65	15,5	73	75	123	16	5	16020
16	3,0	65	15,5	73	75	123	16	5	16030
16	4,0	65	15,5	73	75	123	16	5	16040
20	0,2	82	19,5	91	93	143	20	5	20002
20	1,0	82	19,5	91	93	143	20	5	20010
20	1,5	82	19,5	91	93	143	20	5	20015
20	1,6	82	19,5	91	93	143	20	5	20016
20	2,0	82	19,5	91	93	143	20	5	20020
20	3,0	82	19,5	91	93	143	20	5	20030
20	4,0	82	19,5	91	93	143	20	5	20040

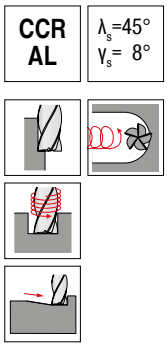
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	
Heat resistant alloys	○
hardened materials	

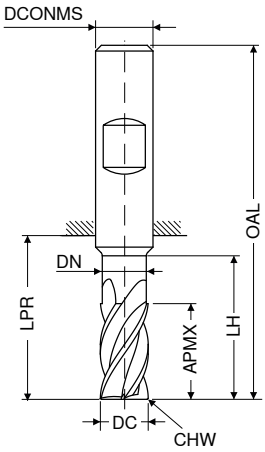
→ v_c/f_z Page 282+283

CircularLine – End milling cutter

▲ Chip breaker 1.8 x DC

CCR AL | λ_s=45° γ_s= 8° | ZEFP







Factory standard | Factory standard

HB | HB

DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 53 590 ...	Article no. 53 591 ...
mm	mm	mm	mm	mm	mm	mm	mm			
6	19	5,8	24	30	66	6	0,2	4	060	
6	25	5,8	30	35	71	6	0,2	4		060
8	25	7,7	32	37	73	8	0,2	4	080	
8	33	7,7	40	44	80	8	0,2	4		080
10	31	9,7	40	49	89	10	0,2	4	100	
10	41	9,7	50	55	95	10	0,2	4		100
12	37	11,6	48	56	101	12	0,2	4	120	
12	49	11,6	60	64	109	12	0,2	4		120
16	49	15,5	64	72	120	16	0,2	4	160	
16	65	15,5	80	84	132	16	0,2	4		160
20	62	19,5	80	84	134	20	0,2	4	200	
20	82	19,5	100	104	154	20	0,2	4		200

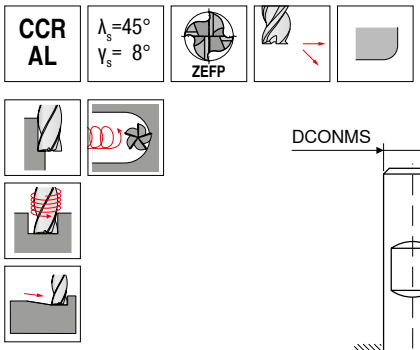
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

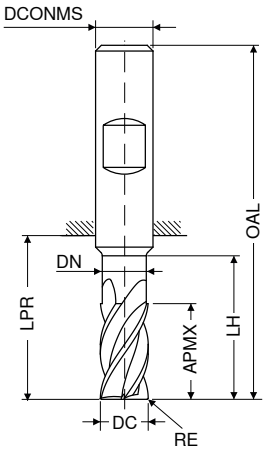
→ v_c/f_z Page 284

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CircularLine – End milling cutter

▲ Chip breaker 1.8 x DC







DC e8	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 53 594 ...	Article no. 53 595 ...
mm	mm	mm	mm	mm	mm	mm	mm			
6	0,2	19	5,8	24	30	66	6	4	06002	
6	1,0	19	5,8	24	30	66	6	4	06010	
6	1,5	19	5,8	24	30	66	6	4	06015	
6	0,2	25	5,8	30	35	71	6	4		06002
6	1,0	25	5,8	30	35	71	6	4		06010
6	1,5	25	5,8	30	35	71	6	4		06015
8	0,2	25	7,7	32	37	73	8	4	08002	
8	1,0	25	7,7	32	37	73	8	4	08010	
8	1,5	25	7,7	32	37	73	8	4	08015	
8	2,0	25	7,7	32	37	73	8	4	08020	
8	0,2	33	7,7	40	44	80	8	4		08002
8	1,0	33	7,7	40	44	80	8	4		08010
8	1,5	33	7,7	40	44	80	8	4		08015
8	2,0	33	7,7	40	44	80	8	4		08020
10	0,2	31	9,7	40	49	89	10	4	10002	
10	1,0	31	9,7	40	49	89	10	4	10010	
10	1,5	31	9,7	40	49	89	10	4	10015	
10	1,6	31	9,7	40	49	89	10	4	10016	
10	2,0	31	9,7	40	49	89	10	4	10020	
10	0,2	41	9,7	50	55	95	10	4		10002
10	1,0	41	9,7	50	55	95	10	4		10010
10	1,5	41	9,7	50	55	95	10	4		10015
10	1,6	41	9,7	50	55	95	10	4		10016
10	2,0	41	9,7	50	55	95	10	4		10020
12	0,2	37	11,6	48	56	101	12	4	12002	
12	1,0	37	11,6	48	56	101	12	4	12010	
12	1,5	37	11,6	48	56	101	12	4	12015	
12	1,6	37	11,6	48	56	101	12	4	12016	
12	2,0	37	11,6	48	56	101	12	4	12020	
12	3,0	37	11,6	48	56	101	12	4	12030	
12	0,2	49	11,6	60	64	109	12	4		12002
12	1,0	49	11,6	60	64	109	12	4		12010
12	1,5	49	11,6	60	64	109	12	4		12015
12	1,6	49	11,6	60	64	109	12	4		12016
12	2,0	49	11,6	60	64	109	12	4		12020
12	3,0	49	11,6	60	64	109	12	4		12030
16	0,2	49	15,5	64	72	120	16	4	16002	
16	1,0	49	15,5	64	72	120	16	4	16010	
16	1,5	49	15,5	64	72	120	16	4	16015	

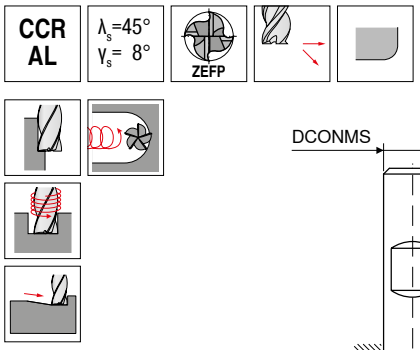
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

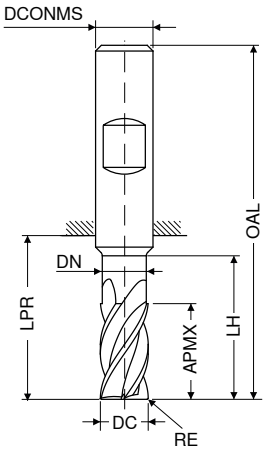
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Continued on next page

CircularLine – End milling cutter

▲ Chip breaker 1.8 x DC







DC e8	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 53 594 ...	Article no. 53 595 ...
mm	mm	mm	mm	mm	mm	mm	mm			
16	1,6	49	15,5	64	72	120	16	4	16016	
16	2,0	49	15,5	64	72	120	16	4	16020	
16	3,0	49	15,5	64	72	120	16	4	16030	
16	4,0	49	15,5	64	72	120	16	4	16040	
16	0,2	65	15,5	80	84	132	16	4		16002
16	1,0	65	15,5	80	84	132	16	4		16010
16	1,5	65	15,5	80	84	132	16	4		16015
16	1,6	65	15,5	80	84	132	16	4		16016
16	2,0	65	15,5	80	84	132	16	4		16020
16	3,0	65	15,5	80	84	132	16	4		16030
16	4,0	65	15,5	80	84	132	16	4		16040
20	0,2	62	19,5	80	84	134	20	4	20002	
20	1,0	62	19,5	80	84	134	20	4	20010	
20	1,5	62	19,5	80	84	134	20	4	20015	
20	1,6	62	19,5	80	84	134	20	4	20016	
20	2,0	62	19,5	80	84	134	20	4	20020	
20	3,0	62	19,5	80	84	134	20	4	20030	
20	4,0	62	19,5	80	84	134	20	4	20040	
20	0,2	82	19,5	100	104	154	20	4		20002
20	1,0	82	19,5	100	104	154	20	4		20010
20	1,5	82	19,5	100	104	154	20	4		20015
20	1,6	82	19,5	100	104	154	20	4		20016
20	2,0	82	19,5	100	104	154	20	4		20020
20	3,0	82	19,5	100	104	154	20	4		20030
20	4,0	82	19,5	100	104	154	20	4		20040

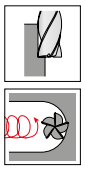
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

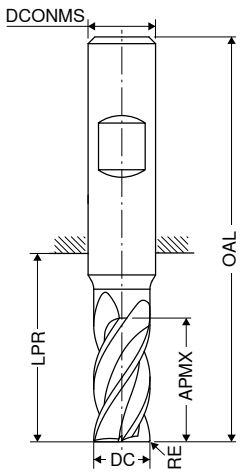
→ v_c/f_z Page 284

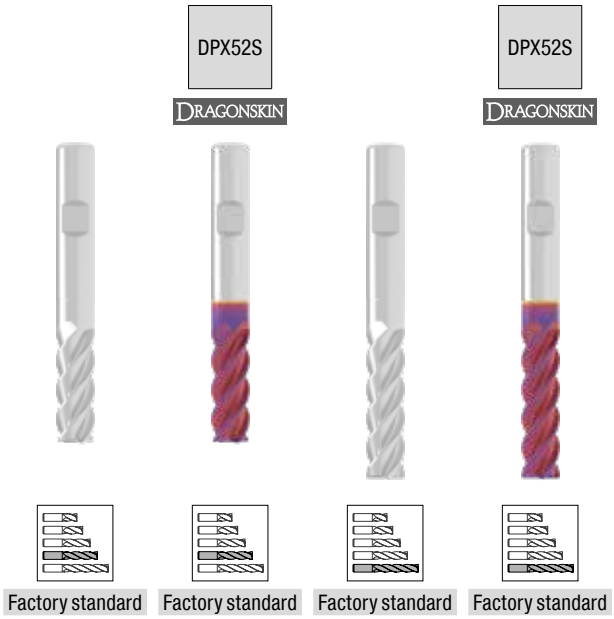
CircularLine – End milling cutter with corner radius

▲ Chip breaker 0.9 x DC

CCR Ti | λ_s=40° γ_s=10° | ZEFP | HPC







Factory standard | Factory standard | Factory standard | Factory standard

HB | HB | HB | HB

DC e8	RE ±0,01	APMX	LPR	OAL	DCONMS h5	ZEFP	NEW Article no. 52 509 ...	NEW Article no. 52 510 ...	NEW Article no. 52 509 ...	NEW Article no. 52 510 ...
mm	mm	mm	mm	mm	mm					
6	0,1	18	29	65	6	5	**06000**	**06000**		
6	0,1	24	31	67	6	5			**06100**	**06100**
8	0,2	24	34	70	8	5	**08000**	**08000**		
8	0,2	32	44	80	8	5			**08100**	**08100**
10	0,2	30	40	80	10	5	**10000**	**10000**		
10	0,2	40	50	90	10	5			**10100**	**10100**
12	0,2	36	50	95	12	5	**12000**	**12000**		
12	0,2	48	55	100	12	5			**12100**	**12100**
16	0,2	48	62	110	16	5	**16000**	**16000**		
16	0,3	64	72	120	16	5			**16100**	**16100**
20	0,3	60	75	125	20	5	**20000**	**20000**		
20	0,3	80	90	140	20	5			**20100**	**20100**

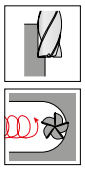
Steel				
Stainless steel	○	○	○	○
Cast iron				
Non ferrous metals				
Heat resistant alloys	●	●	●	●
hardened materials				

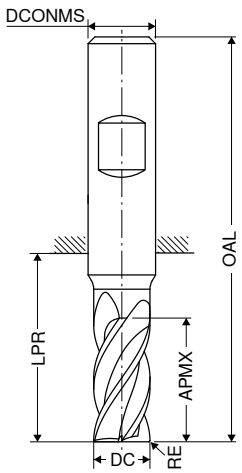
→ v_c/f_z Page 286+287

CircularLine – End milling cutter

▲ Chip breaker 0.9 x DC

CCR H | λ_s= 60° γ_s= -6° | ZEFP | 45–70 HRC





DPX62S

DRAGONSKIN





Factory standard

HB 

DC $_{e8}$	RE $_{\pm 0,03}$	APMX	LPR	OAL	DCONMS $_{h6}$	ZEFP	NEW Article no. 53 596 ...
mm	mm	mm	mm	mm	mm		
6	0,2	19	24	60	6	6	**06002**
6	1,0	19	24	60	6	6	**06010**
8	0,2	25	31	67	8	6	**08002**
8	1,0	25	31	67	8	6	**08010**
10	0,2	31	37	77	10	6	**10002**
10	1,0	31	37	77	10	6	**10010**
10	1,5	31	37	77	10	6	**10015**
12	0,2	37	43	88	12	6	**12002**
12	1,0	37	43	88	12	6	**12010**
12	1,5	37	43	88	12	6	**12015**
12	2,0	37	43	88	12	6	**12020**
12	3,0	37	43	88	12	6	**12030**
16	0,2	49	56	104	16	6	**16002**
16	1,0	49	56	104	16	6	**16010**
16	1,5	49	56	104	16	6	**16015**
16	2,0	49	56	104	16	6	**16020**
16	3,0	49	56	104	16	6	**16030**
20	0,2	61	68	118	20	6	**20002**
20	1,0	61	68	118	20	6	**20010**
20	1,5	61	68	118	20	6	**20015**
20	2,0	61	68	118	20	6	**20020**
20	3,0	61	68	118	20	6	**20030**

hardened < 45 HRC	●
hardened 46–55 HRC	●
hardened 56–60 HRC	●
hardened 61–65 HRC	●
hardened 65–70 HRC	●

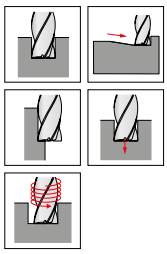
→ v_c/f_z Page 285

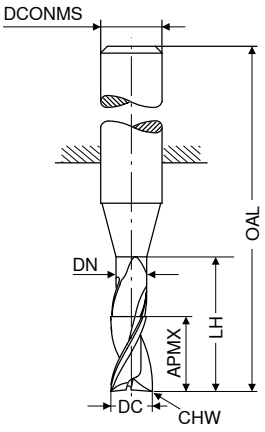
14

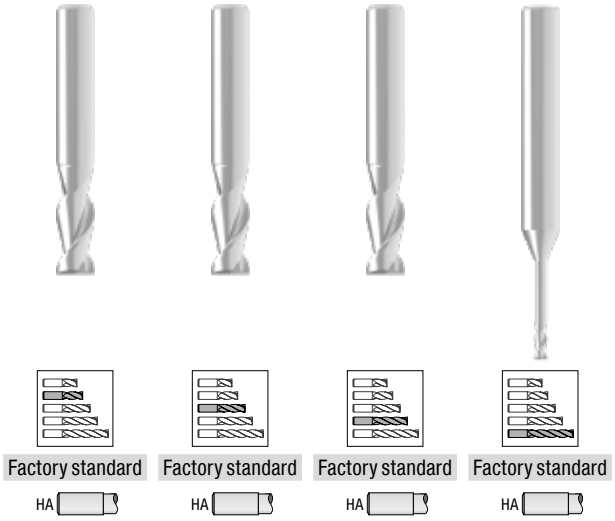
AluLine – End milling cutter

▲ with polished chip flutes







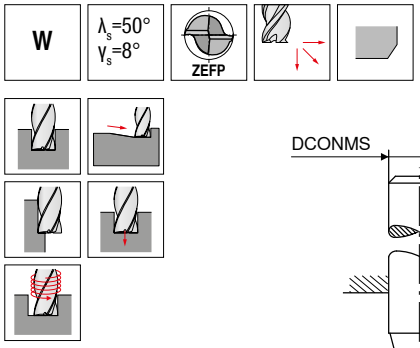


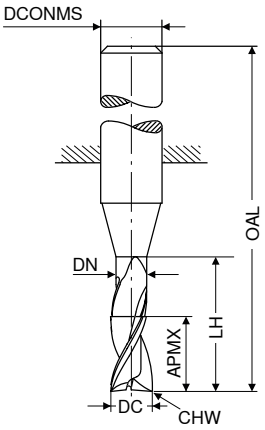
DC h6	APMX	DN	LH	OAL	DCONMS h5	CHW	ZEFP	Article no. 53 500 ...	Article no. 53 501 ...	Article no. 53 502 ...	Article no. 53 503 ...
mm	mm	mm	mm	mm	mm	mm					
2,0	8	1,9	16	57	6	0,05	2				020
2,5	8	2,4	16	57	6	0,10	2				025
3,0	8	2,9	18	57	6	0,10	2				030
3,5	11	3,4	18	57	6	0,10	2			035	
4,0	11	3,9	18	57	6	0,10	2			040	
4,5	13	4,4	20	57	6	0,10	2			045	
5,0	13	4,9	20	57	6	0,10	2			050	
5,5	13	5,4	20	57	6	0,10	2		055		
6,0	13	5,9	20	57	6	0,10	2		060		
6,5	16	6,2	26	63	8	0,10	2			065	
7,0	16	6,7	26	63	8	0,10	2		070		
7,5	19	7,2	26	63	8	0,10	2		075		
8,0	19	7,7	26	63	8	0,10	2		080		
8,5	19	8,2	29	72	10	0,10	2		085		
9,0	19	8,7	29	72	10	0,10	2		090		
9,5	22	9,2	29	72	10	0,10	2		095		
10,0	22	9,7	29	72	10	0,10	2	100			
10,5	26	10,2	36	83	12	0,10	2		105		
11,0	26	10,7	36	83	12	0,10	2		110		
11,5	26	11,2	36	83	12	0,10	2		115		
12,0	26	11,7	36	83	12	0,10	2		120		
12,5	26	12,2	36	83	14	0,10	2	125			
13,0	26	12,7	36	83	14	0,10	2	130			
13,5	26	13,2	36	83	14	0,10	2	135			
14,0	26	13,7	36	83	14	0,10	2	140			
14,5	32	14,0	42	92	16	0,10	2	145			
15,0	32	14,5	42	92	16	0,10	2	150			
15,5	32	15,0	42	92	16	0,10	2	155			
16,0	32	15,5	42	92	16	0,10	2	160			
16,5	32	16,0	42	92	18	0,10	2	165			
17,0	32	16,5	42	92	18	0,10	2	170			
17,5	32	17,0	42	92	18	0,10	2	175			
18,0	32	17,5	42	92	18	0,10	2	180			
18,5	38	18,0	52	104	20	0,10	2	185			
19,0	38	18,5	52	104	20	0,10	2	190			
19,5	38	19,0	52	104	20	0,10	2	195			
20,0	38	19,5	52	104	20	0,10	2	200			

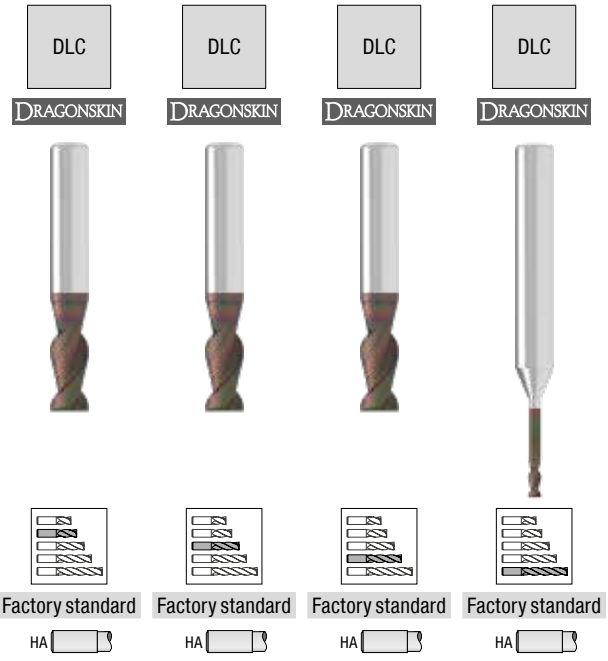
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

→ v_c/f_z Page 288+289

AluLine – End milling cutter







DC h6	APMX	DN	LH	OAL	DCONMS h5	CHW	ZEFP	Article no. 53 504 ...	Article no. 53 505 ...	Article no. 53 506 ...	Article no. 53 507 ...
mm	mm	mm	mm	mm	mm	mm					
2,0	8	1,9	16	57	6	0,05	2				020
2,5	8	2,4	16	57	6	0,10	2				025
3,0	8	2,9	18	57	6	0,10	2				030
3,5	11	3,4	18	57	6	0,10	2			035	
4,0	11	3,9	18	57	6	0,10	2			040	
4,5	13	4,4	20	57	6	0,10	2			045	
5,0	13	4,9	20	57	6	0,10	2			050	
5,5	13	5,4	20	57	6	0,10	2		055		
6,0	13	5,9	20	57	6	0,10	2		060		
6,5	16	6,2	26	63	8	0,10	2			065	
7,0	16	6,7	26	63	8	0,10	2		070		
7,5	19	7,2	26	63	8	0,10	2		075		
8,0	19	7,7	26	63	8	0,10	2		080		
8,5	19	8,2	29	72	10	0,10	2		085		
9,0	19	8,7	29	72	10	0,10	2		090		
9,5	22	9,2	29	72	10	0,10	2		095		
10,0	22	9,7	29	72	10	0,10	2	100			
10,5	26	10,2	36	83	12	0,10	2		105		
11,0	26	10,7	36	83	12	0,10	2		110		
11,5	26	11,2	36	83	12	0,10	2		115		
12,0	26	11,7	36	83	12	0,10	2		120		
12,5	26	12,2	36	83	14	0,10	2	125			
13,0	26	12,7	36	83	14	0,10	2	130			
13,5	26	13,2	36	83	14	0,10	2	135			
14,0	26	13,7	36	83	14	0,10	2	140			
14,5	32	14,0	42	92	16	0,10	2	145			
15,0	32	14,5	42	92	16	0,10	2	150			
15,5	32	15,0	42	92	16	0,10	2	155			
16,0	32	15,5	42	92	16	0,10	2	160			
16,5	32	16,0	42	92	18	0,10	2	165			
17,0	32	16,5	42	92	18	0,10	2	170			
17,5	32	17,0	42	92	18	0,10	2	175			
18,0	32	17,5	42	92	18	0,10	2	180			
18,5	38	18,0	52	104	20	0,10	2	185			
19,0	38	18,5	52	104	20	0,10	2	190			
19,5	38	19,0	52	104	20	0,10	2	195			
20,0	38	19,5	52	104	20	0,10	2	200			

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

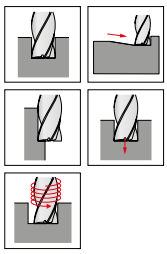
→ v_c/f_z Page 288+289

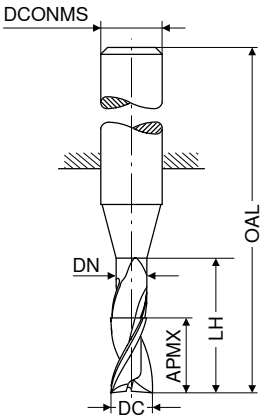
14

AluLine – End milling cutter

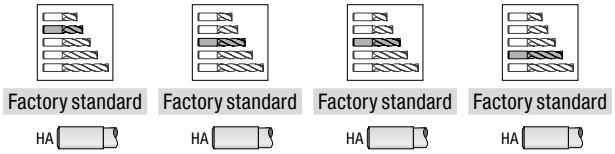
▲ with polished chip flutes









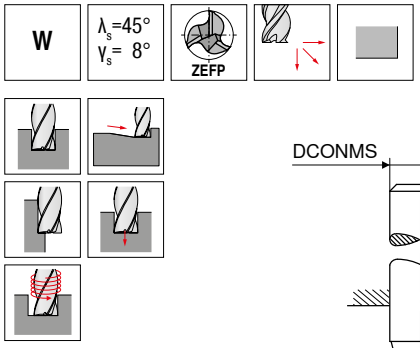


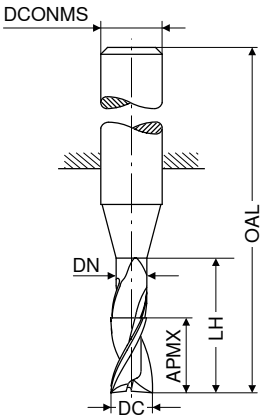
DC h6	APMX	DN	LH	OAL	DCONMS h5	ZEFP	Article no. 53 517 ...	Article no. 53 518 ...	Article no. 53 519 ...	Article no. 53 520 ...
mm	mm	mm	mm	mm	mm					
3	8	2,7	13	57	6	3				030
4	11	3,7	17	57	6	3				040
5	13	4,7	19	57	6	3			050	
6	13	5,7	19	57	6	3			060	
6	18	5,7	24	62	6	3				060
8	21	7,4	25	63	8	3		080		
8	24	7,4	30	68	8	3			080	
10	22	9,2	30	72	10	3		100		
10	30	9,2	38	80	10	3			100	
12	26	11,0	36	83	12	3		120		
12	36	11,0	46	93	12	3			120	
14	26	13,0	36	83	14	3	140			
16	36	15,0	42	92	16	3	160			
16	48	15,0	58	108	16	3			160	
18	36	17,0	42	92	18	3	180			
20	41	19,0	52	104	20	3	200			
20	60	19,0	74	126	20	3			200	

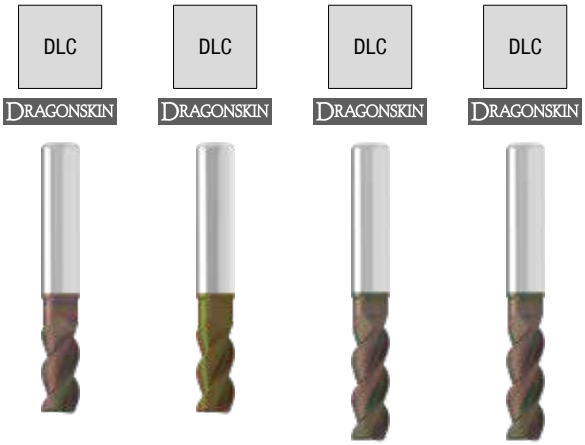
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

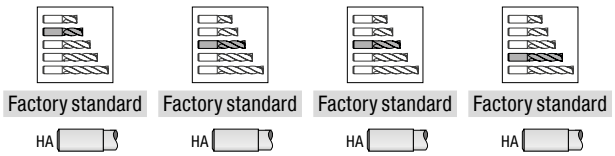
→ v_c/f_z Page 288+289

AluLine – End milling cutter









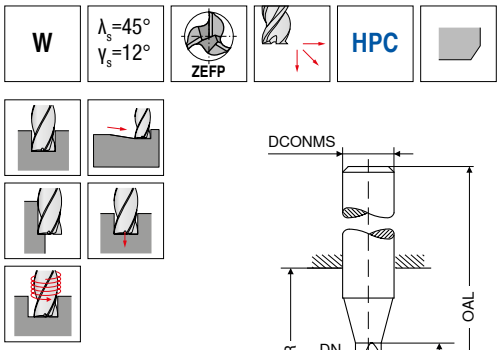
DC h6	APMX	DN	LH	OAL	DCONMS h5	ZEFP	Article no. 53 521 ...	Article no. 53 522 ...	Article no. 53 523 ...	Article no. 53 524 ...
mm	mm	mm	mm	mm	mm					
3	8	2,7	13	57	6	3				030
4	11	3,7	17	57	6	3				040
5	13	4,7	19	57	6	3			050	
6	13	5,7	19	57	6	3			060	
6	18	5,7	24	62	6	3				060
8	21	7,4	25	63	8	3		080		
8	24	7,4	30	68	8	3			080	
10	22	9,2	30	72	10	3		100		
10	30	9,2	38	80	10	3			100	
12	26	11,0	36	83	12	3		120		
12	36	11,0	46	93	12	3			120	
14	26	13,0	36	83	14	3	140			
16	36	15,0	42	92	16	3	160			
18	36	17,0	42	92	18	3	180			
20	41	19,0	52	104	20	3	200			

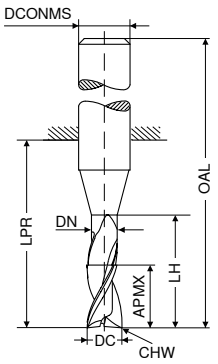
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

→ v_c/f_z Page 288+289

AluLine – End milling cutter

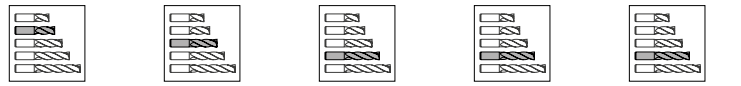
▲ with graduated flute depth





LPR with Shank DIN 6535 HB





Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HB | HA | HA | HA | HB

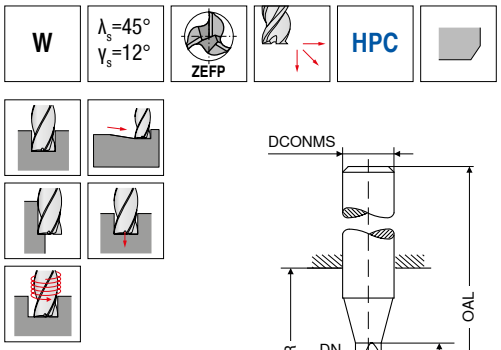
DC h10	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 53 532 ...	Article no. 53 533 ...	Article no. 53 534 ...	Article no. 53 536 ...	Article no. 53 535 ...
mm	mm	mm	mm	mm	mm	mm	mm						
3	8	2,7	12	21	57	6	0,1	3				030	
4	11	3,7	18	21	57	6	0,1	3				040	
5	13	4,7	18	21	57	6	0,1	3		050			
6	13	5,7	18	21	57	6	0,2	3		060			
8	21	7,4	25	27	63	8	0,2	3		080			
10	16	9,2	58	60	100	10	0,2	3			100		
10	22	9,2	30	32	72	10	0,2	3		100			
10	22	9,2	58	60	100	10	0,2	3				100	
12	26	11,0	36	38	83	12	0,2	3		120			
16	36	15,0	42	44	92	16	0,2	3	160				
18	36	17,0	42	44	92	18	0,2	3	180				
20	32	19,0	98	100	150	20	0,2	3					200
20	41	19,0	52	54	104	20	0,2	3	200				

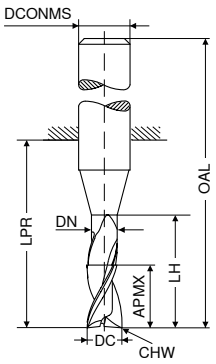
Steel					
Stainless steel					
Cast iron					
Non ferrous metals	●	●	●	●	●
Heat resistant alloys					
hardened materials					

→ v_c/f_z Page 288+289

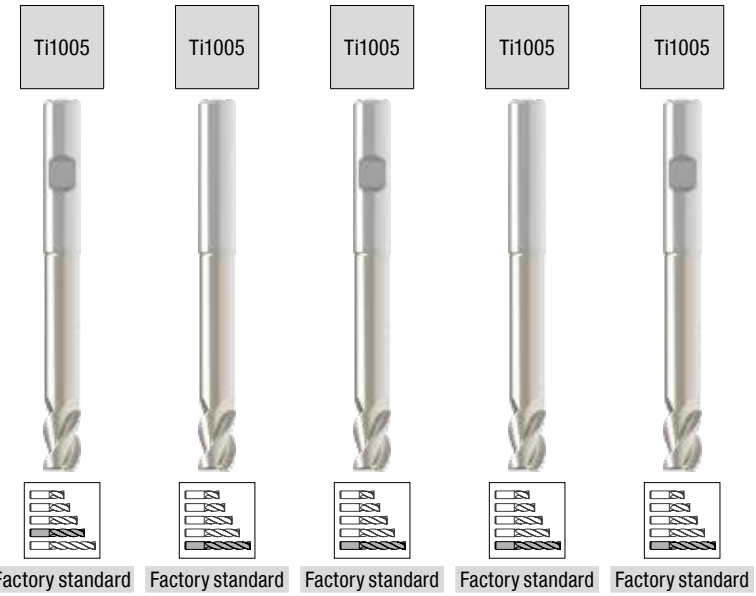
AluLine – End milling cutter

▲ with graduated flute depth





LPR with Shank DIN 6535 HB



Factory standard | Factory standard | Factory standard | Factory standard | Factory standard



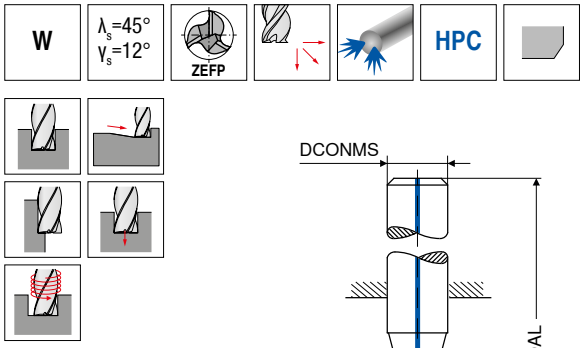
DC h10	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 53 537 ...	Article no. 53 538 ...	Article no. 53 539 ...	Article no. 53 540 ...	Article no. 53 541 ...
mm	mm	mm	mm	mm	mm	mm	mm						
3	5,0	2,7	18	44	80	6	0,1	3				030	
4	6,5	3,7	24	44	80	6	0,1	3				040	
5	8,0	4,7	30	44	80	6	0,1	3				050	
6	10,0	5,7	42	44	80	6	0,2	3		060			
6	13,0	5,7	42	44	80	6	0,2	3				060	
8	13,0	7,4	62	64	100	8	0,2	3		080			
8	21,0	7,4	62	64	100	8	0,2	3				080	
12	19,0	11,0	73	75	120	12	0,2	3		120			
12	26,0	11,0	73	75	120	12	0,2	3				120	
16	25,0	15,0	100	102	150	16	0,2	3			160		
16	36,0	15,0	100	102	150	16	0,2	3					160
18	36,0	17,0	100	102	150	18	0,2	3	180				
20	41,0	19,0	98	100	150	20	0,2	3	200				

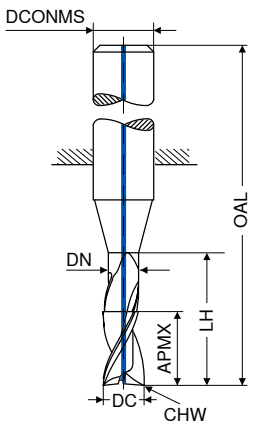
Steel					
Stainless steel					
Cast iron					
Non ferrous metals	●	●	●	●	●
Heat resistant alloys					
hardened materials					

→ v_c/f_z Page 288+289

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AluLine – End milling cutter







Factory standard | Factory standard

HA | HA

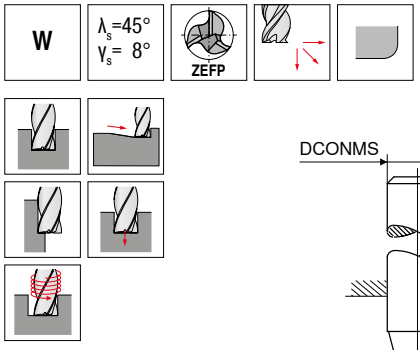
DC h10	APMX	DN	LH	OAL	DCONMS h6	CHW	ZEFP	Article no. 53 542 ...	Article no. 53 543 ...
mm	mm	mm	mm	mm	mm	mm			
6	10	5,7	42	80	6	0,2	3		060
8	13	7,4	62	100	8	0,2	3		080
10	16	9,2	58	100	10	0,2	3	100	
12	19	11,0	73	120	12	0,2	3		120

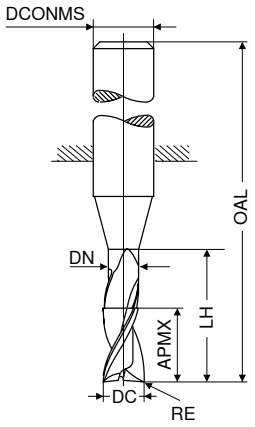
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

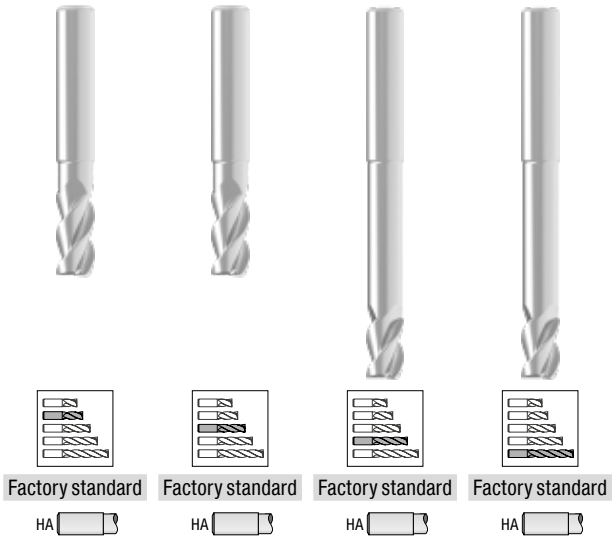
→ v_c/f_z Page 288+289

AluLine – End milling cutter with corner radius

▲ With polished chip flutes







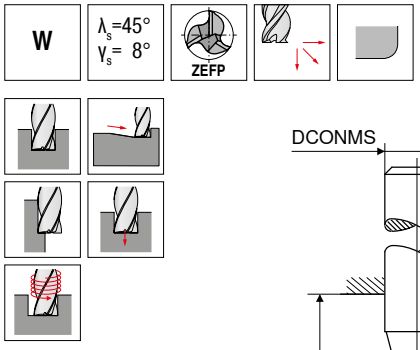
								Factory standard HA	Factory standard HA	Factory standard HA	Factory standard HA
DC h6	RE ±0,01	APMX	DN	LH	OAL	DCONMS h5	ZEFP	Article no. 53 525 ...	Article no. 53 527 ...	Article no. 53 528 ...	Article no. 53 530 ...
mm	mm	mm	mm	mm	mm	mm					
5	0,5	13	4,7	19	57	6	3		05005		
5	1,0	13	4,7	19	57	6	3		05010		
6	0,5	10	5,7	42	80	6	3				06005
6	0,5	13	5,7	19	57	6	3		06005		
6	1,0	10	5,7	42	80	6	3				06010
6	1,0	13	5,7	19	57	6	3		06010		
8	0,5	13	7,4	62	100	8	3				08005
8	0,5	21	7,4	25	63	8	3		08005		
8	1,0	13	7,4	62	100	8	3				08010
8	1,0	21	7,4	25	63	8	3		08010		
10	0,5	16	9,2	58	100	10	3			10005	
10	0,5	22	9,2	30	72	10	3		10005		
10	1,0	16	9,2	58	100	10	3			10010	
10	1,0	22	9,2	30	72	10	3		10010		
12	0,5	19	11,0	73	120	12	3				12005
12	0,5	26	11,0	36	83	12	3		12005		
12	1,0	19	11,0	73	120	12	3				12010
12	1,0	26	11,0	36	83	12	3		12010		
16	2,0	25	15,0	100	150	16	3				16020
16	2,0	36	15,0	42	92	16	3	16020			
16	4,0	25	15,0	100	150	16	3				16040
16	4,0	36	15,0	42	92	16	3	16040			
20	4,0	32	19,0	98	150	20	3			20040	
20	4,0	41	19,0	52	104	20	3	20040			

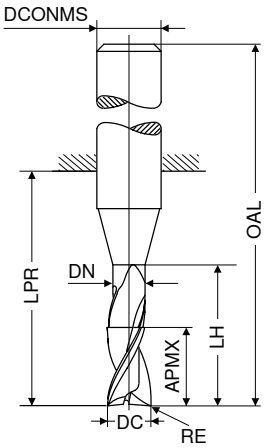
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

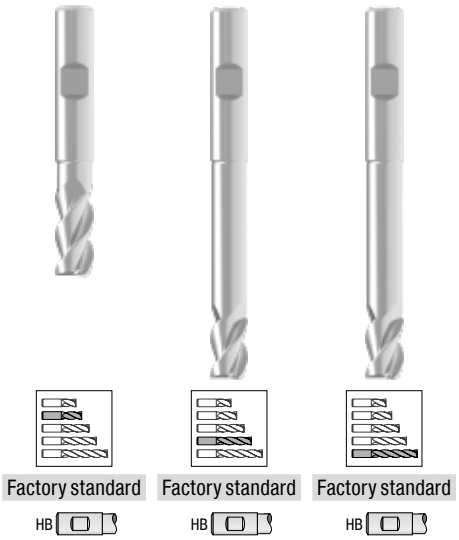
→ v_c/f_z Page 288+289

AluLine – End milling cutter with corner radius

▲ With polished chip flutes







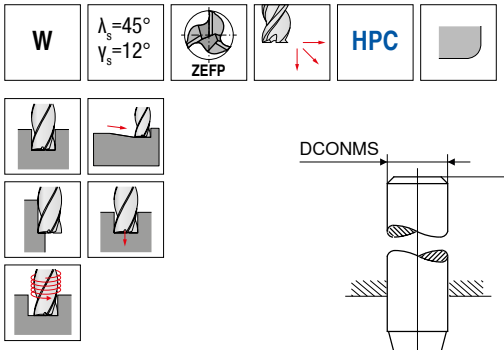
DC h6	RE ±0,01	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	Article no. 53 526 ...	Article no. 53 529 ...	Article no. 53 531 ...
mm	mm	mm	mm	mm	mm	mm	mm				
16	2	25	15	100	102	150	16	3			**16020**
16	2	36	15	42	44	92	16	3	**16020**		
16	4	25	15	100	102	150	16	3			**16040**
16	4	36	15	42	44	92	16	3	**16040**		
20	4	32	19	98	100	150	20	3		**20040**	
20	4	41	19	52	54	104	20	3	**20040**		

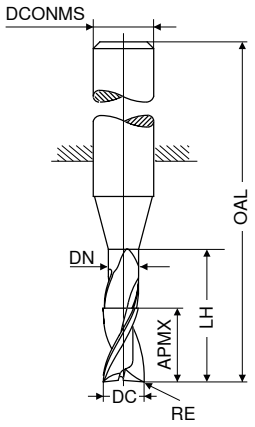
Steel			
Stainless steel			
Cast iron			
Non ferrous metals	●	●	●
Heat resistant alloys			
hardened materials			

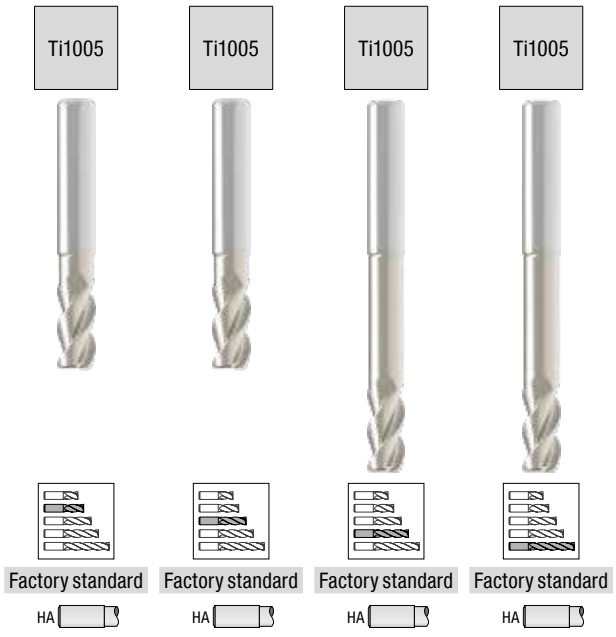
→ v_c/f_z Page 288+289

AluLine – End milling cutter with corner radius

▲ With graduated flute depth







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA

DC h6	RE ±0,01	APMX	DN	LH	OAL	DCONMS h5	ZEFP	Article no. 53 544 ...	Article no. 53 545 ...	Article no. 53 547 ...	Article no. 53 549 ...
mm	mm	mm	mm	mm	mm	mm					
3	0,4	8	2,7	12	57	6	3			03004	
3	0,5	8	2,7	12	57	6	3			03005	
3	1,0	8	2,7	12	57	6	3			03010	
4	0,2	11	3,7	18	57	6	3			04002	
4	0,4	11	3,7	18	57	6	3			04004	
4	0,5	11	3,7	18	57	6	3			04005	
4	1,0	11	3,7	18	57	6	3			04010	
5	0,5	13	4,7	18	57	6	3		05005		
5	1,0	13	4,7	18	57	6	3		05010		
6	0,4	13	5,7	18	57	6	3		06004		
6	0,4	13	5,7	42	80	6	3				06004
6	0,5	13	5,7	18	57	6	3		06005		
6	0,5	13	5,7	42	80	6	3				06005
6	0,6	13	5,7	18	57	6	3		06006		
6	0,6	13	5,7	42	80	6	3				06006
6	0,8	13	5,7	18	57	6	3		06008		
6	0,8	13	5,7	42	80	6	3				06008
6	1,0	13	5,7	18	57	6	3		06010		
6	1,0	13	5,7	42	80	6	3				06010
6	1,5	13	5,7	18	57	6	3		06015		
6	1,5	13	5,7	42	80	6	3				06015
8	0,5	21	7,4	25	63	8	3		08005		
8	0,5	21	7,4	62	100	8	3				08005
8	0,8	21	7,4	25	63	8	3		08008		
8	0,8	21	7,4	62	100	8	3				08008
8	1,0	21	7,4	25	63	8	3		08010		
8	1,0	21	7,4	62	100	8	3				08010
8	1,2	21	7,4	25	63	8	3		08012		
8	1,2	21	7,4	62	100	8	3				08012
8	1,5	21	7,4	25	63	8	3		08015		
8	1,5	21	7,4	62	100	8	3				08015
8	2,0	21	7,4	25	63	8	3		08020		
8	2,0	21	7,4	62	100	8	3				08020
10	0,5	22	9,2	30	72	10	3		10005		
10	0,5	22	9,2	58	100	10	3			10005	
10	1,0	22	9,2	30	72	10	3		10010		
10	1,0	22	9,2	58	100	10	3			10010	
10	1,2	22	9,2	30	72	10	3		10012		
10	1,2	22	9,2	58	100	10	3			10012	
10	1,5	22	9,2	30	72	10	3		10015		

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

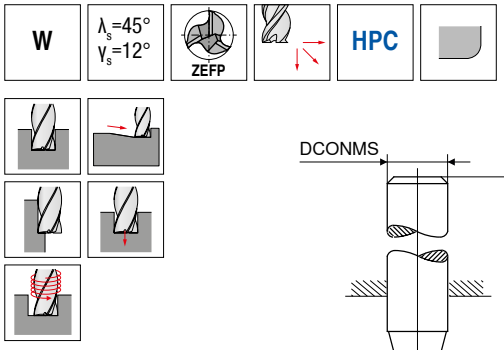
→ v_c/f_z Page 288+289

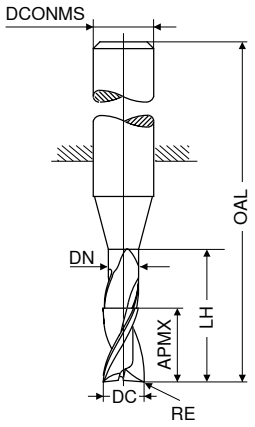
14

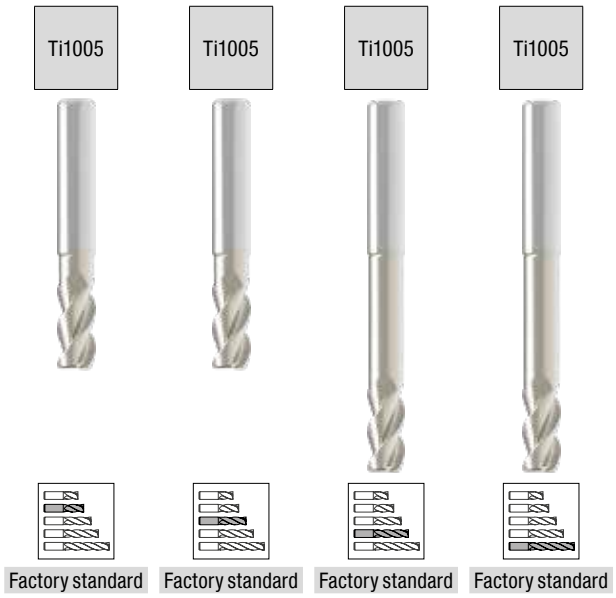
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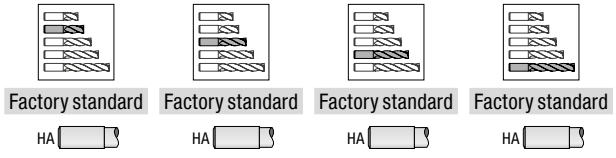
AluLine – End milling cutter with corner radius

▲ With graduated flute depth









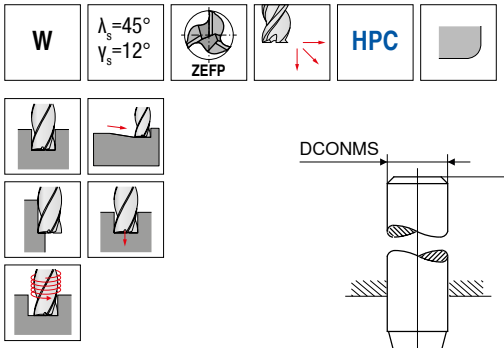
DC h6	RE ±0,01	APMX	DN	LH	OAL	DCONMS h5	ZEFP	Article no. 53 544 ...	Article no. 53 545 ...	Article no. 53 547 ...	Article no. 53 549 ...
mm	mm	mm	mm	mm	mm	mm					
10	1,5	22	9,2	58	100	10	3			10015	
10	1,6	22	9,2	30	72	10	3		10016		
10	1,6	22	9,2	58	100	10	3			10016	
10	2,0	22	9,2	30	72	10	3		10020		
10	2,0	22	9,2	58	100	10	3			10020	
12	0,5	26	11,0	73	120	12	3				12005
12	1,0	26	11,0	73	120	12	3				12010
12	1,2	26	11,0	73	120	12	3				12012
12	1,5	26	11,0	73	120	12	3				12015
12	1,6	26	11,0	73	120	12	3				12016
12	2,0	26	11,0	73	120	12	3				12020
12	2,5	26	11,0	73	120	12	3				12025
12	4,0	26	11,0	73	120	12	3				12040
16	1,0	36	15,0	42	92	16	3	16010			
16	1,0	36	15,0	100	150	16	3				16010
16	1,6	36	15,0	42	92	16	3	16016			
16	1,6	36	15,0	100	150	16	3				16016
16	2,0	36	15,0	42	92	16	3	16020			
16	2,0	36	15,0	100	150	16	3				16020
16	2,5	36	15,0	42	92	16	3	16025			
16	2,5	36	15,0	100	150	16	3				16025
16	3,2	36	15,0	42	92	16	3	16032			
16	3,2	36	15,0	100	150	16	3				16032
16	4,0	36	15,0	42	92	16	3	16040			
16	4,0	36	15,0	100	150	16	3				16040
20	1,0	41	19,0	52	104	20	3	20010			
20	1,0	41	19,0	98	150	20	3			20010	
20	2,0	41	19,0	52	104	20	3	20020			
20	2,0	41	19,0	98	150	20	3			20020	
20	4,0	41	19,0	52	104	20	3	20040			
20	4,0	41	19,0	98	150	20	3			20040	
20	5,0	41	19,0	52	104	20	3	20050			
20	5,0	41	19,0	98	150	20	3			20050	
20	6,3	41	19,0	52	104	20	3	20063			
20	6,3	41	19,0	98	150	20	3			20063	

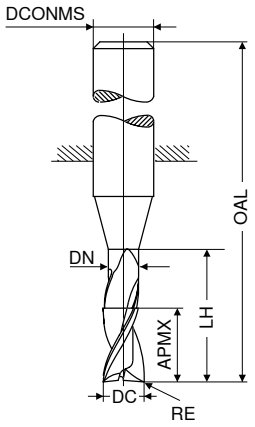
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

→ v_c/f_z Page 288+289

AluLine – End milling cutter with corner radius

▲ with graduated flute depth







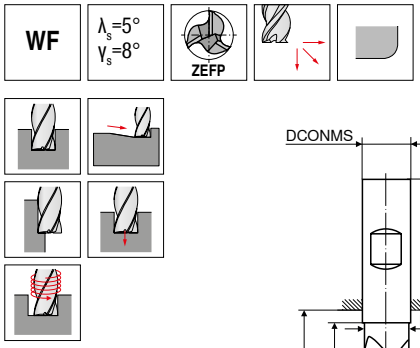
DC h6	RE ±0,01	APMX	DN	LH	OAL	DCONMS h5	ZEFP	Article no. 53 546 ...	Article no. 53 548 ...
mm	mm	mm	mm	mm	mm	mm			
6	0,4	10	5,7	42	80	6	3		06004
6	0,5	10	5,7	42	80	6	3		06005
6	0,6	10	5,7	42	80	6	3		06006
6	0,8	10	5,7	42	80	6	3		06008
6	1,0	10	5,7	42	80	6	3		06010
6	1,5	10	5,7	42	80	6	3		06015
8	0,5	13	7,4	62	100	8	3		08005
8	0,8	13	7,4	62	100	8	3		08008
8	1,0	13	7,4	62	100	8	3		08010
8	1,2	13	7,4	62	100	8	3		08012
8	1,5	13	7,4	62	100	8	3		08015
8	2,0	13	7,4	62	100	8	3		08020
10	0,5	16	9,2	58	100	10	3	10005	
10	1,0	16	9,2	58	100	10	3	10010	
10	1,2	16	9,2	58	100	10	3	10012	
10	1,5	16	9,2	58	100	10	3	10015	
10	1,6	16	9,2	58	100	10	3	10016	
10	2,0	16	9,2	58	100	10	3	10020	
12	0,5	19	11,0	73	120	12	3		12005
12	1,0	19	11,0	73	120	12	3		12010
12	1,2	19	11,0	73	120	12	3		12012
12	1,5	19	11,0	73	120	12	3		12015
12	1,6	19	11,0	73	120	12	3		12016
12	2,0	19	11,0	73	120	12	3		12020
12	2,5	19	11,0	73	120	12	3		12025
12	4,0	19	11,0	73	120	12	3		12040
16	0,5	25	15,0	100	150	16	3		16005
16	1,6	25	15,0	100	150	16	3		16016
16	2,0	25	15,0	100	150	16	3		16020
16	2,5	25	15,0	100	150	16	3		16025
16	3,2	25	15,0	100	150	16	3		16032
16	4,0	25	15,0	100	150	16	3		16040
20	1,0	32	19,0	98	150	20	3	20010	
20	2,0	32	19,0	98	150	20	3	20020	
20	4,0	32	19,0	98	150	20	3	20040	
20	5,0	32	19,0	98	150	20	3	20050	
20	6,3	32	19,0	98	150	20	3	20063	

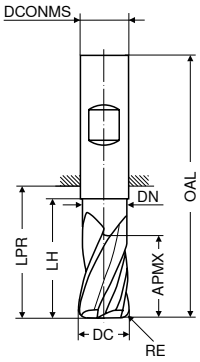
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

→ v_c/f_z Page 288+289

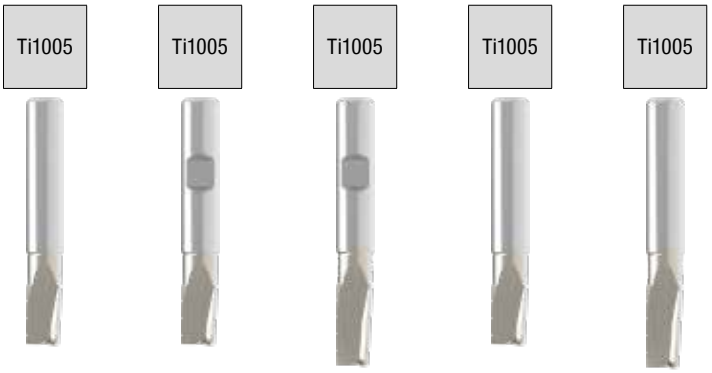
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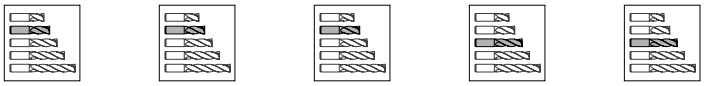
AluLine – Roughing-Finishing cutter





LPR with Shank DIN 6535 HB



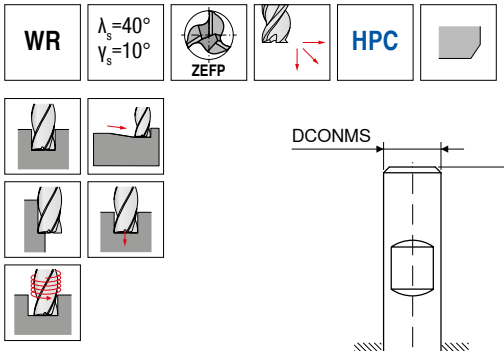


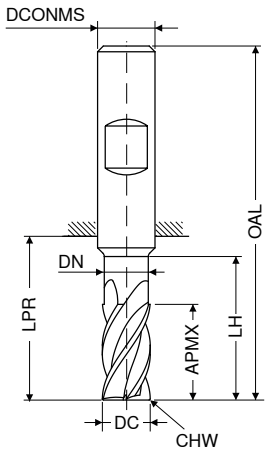
									Factory standard HA	Factory standard HB	Factory standard HB	Factory standard HA	Factory standard HA
DC h6	RE ±0,01	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	Article no. 53 512 ...	Article no. 53 513 ...	Article no. 53 514 ...	Article no. 53 515 ...	Article no. 53 516 ...
mm	mm	mm	mm	mm	mm	mm	mm						
5	0,15	8	4,7	16	18	54	6	3				05002	
5	0,15	13	4,7	18	21	57	6	3					05002
6	0,20	10	5,7	17	18	54	6	3	06002				
6	0,20	13	5,7	18	21	57	6	3					06002
8	0,25	13	7,4	20	22	58	8	3	08003				
8	0,25	21	7,4	25	27	63	8	3					08003
10	0,30	16	9,2	24	26	66	10	3	10003				
10	0,30	22	9,2	30	32	72	10	3					10003
12	0,35	19	11,0	26	28	73	12	3	12004				
12	0,35	26	11,0	36	38	83	12	3					12004
16	0,50	25	15,0	32	38	82	16	3		16005			
16	0,50	36	15,0	42	44	92	16	3			16005		
20	0,60	32	19,0	40	42	92	20	3		20006			
20	0,60	41	19,0	52	54	104	20	3			20006		

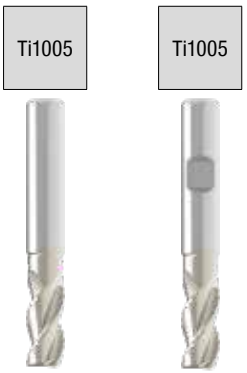
Steel					
Stainless steel					
Cast iron					
Non ferrous metals	●	●	●	●	●
Heat resistant alloys					
hardened materials					

→ v_c/f_z Page 288+289

AluLine – Rough milling cutter











Factory standard

HA

Factory standard

HB

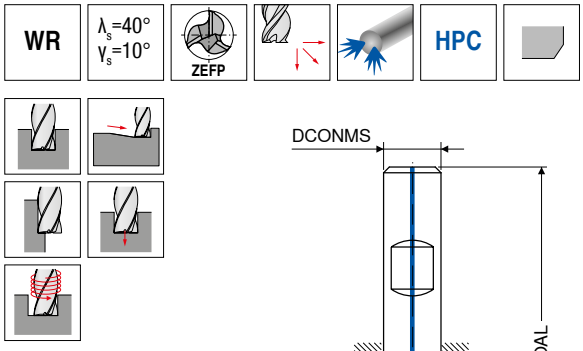
DC h10	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 53 551 ...	Article no. 53 550 ...
mm	mm	mm	mm	mm	mm	mm	mm			
6	13	5,7	18	21	57	6	0,4	3	060	
8	21	7,4	25	27	63	8	0,4	3	080	
10	22	9,2	30	32	72	10	0,4	3	100	
12	26	11,0	36	38	83	12	0,4	3	120	
16	36	15,0	42	44	92	16	0,4	3		160
20	41	19,0	52	54	104	20	0,4	3		200

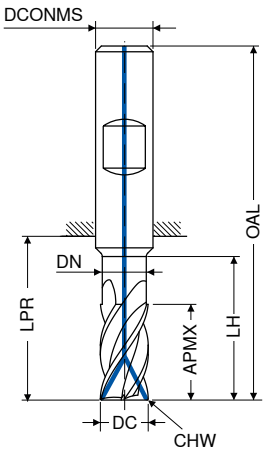
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

→ v_c/f_z Page 288+289

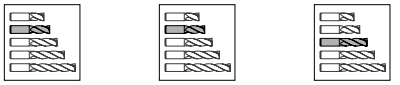
14

AluLine – Rough milling cutter









Factory standard | Factory standard | Factory standard

HA | HB | HA

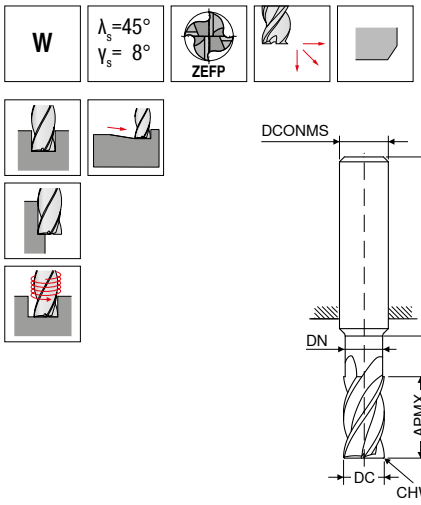
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Article no. 53 552 ...	Article no. 53 553 ...	Article no. 53 554 ...
6	13	5,7	18	21	57	6	0,4	3			**060**
8	21	7,4	25	27	63	8	0,4	3			**080**
10	22	9,2	30	32	72	10	0,4	3			**100**
12	26	11,0	36	38	83	12	0,4	3			**120**
16	36	15,0	42	44	92	16	0,4	3	**160**	**160**	
20	41	19,0	52	54	104	20	0,4	3	**200**	**200**	

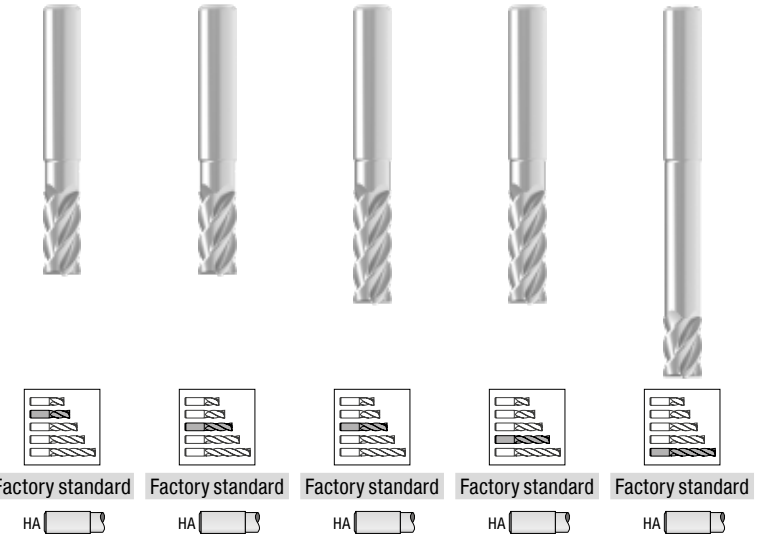
Steel			
Stainless steel			
Cast iron			
Non ferrous metals	●	●	●
Heat resistant alloys			
hardened materials			

→ v_c/f_z Page 288+289

AluLine – End milling cutter

▲ with polished chip flutes





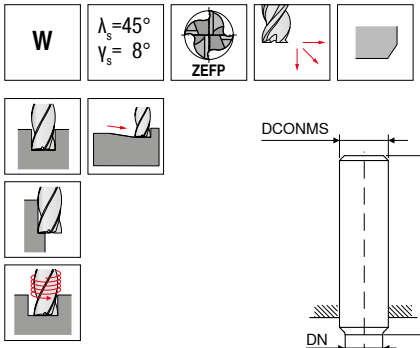
								Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
								HA	HA	HA	HA	HA
DC h10	APMX	DN	LH	OAL	DCONMS h6	CHW	ZEFP	Article no. 53 560 ...	Article no. 53 561 ...	Article no. 53 562 ...	Article no. 53 563 ...	Article no. 53 564 ...
mm	mm	mm	mm	mm	mm	mm						
3,0	8	2,7	13	57	6	0,1	4				030	
3,5	11	3,2	17	57	6	0,1	4				035	
4,0	11	3,7	17	57	6	0,1	4				040	
4,5	13	4,2	19	57	6	0,1	4				045	
5,0	13	4,7	19	57	6	0,1	4			050		
5,5	13	5,2	19	57	6	0,1	4			055		
6,0	10	5,7	42	80	6	0,2	4					060
6,0	13	5,7	19	57	6	0,2	4			060		
6,0	18	5,7	24	62	6	0,2	4				060	
6,5	21	6,1	25	63	8	0,2	4			065		
8,0	13	7,4	62	100	8	0,2	4					080
8,0	21	7,4	25	63	8	0,2	4		080			
8,0	24	7,4	30	68	8	0,2	4			080		
8,5	22	7,9	30	72	10	0,2	4			085		
10,0	16	9,2	58	100	10	0,2	4				100	
10,0	22	9,2	30	72	10	0,2	4		100			
10,0	30	9,2	38	80	10	0,2	4			100		
12,0	19	11,0	73	120	12	0,2	4					120
12,0	26	11,0	36	83	12	0,2	4		120			
12,0	36	11,0	46	93	12	0,2	4			120		
14,0	26	13,0	36	83	14	0,2	4	140				
16,0	25	15,0	100	150	16	0,2	4					160
16,0	36	15,0	42	92	16	0,2	4	160				
16,0	48	15,0	58	108	16	0,2	4			160		
18,0	36	17,0	42	92	18	0,2	4	180				
20,0	32	19,0	98	150	20	0,2	4				200	
20,0	41	19,0	52	104	20	0,2	4	200				
20,0	60	19,0	74	126	20	0,2	4			200		
25,0	52	24,0	62	121	25	0,3	4	250				

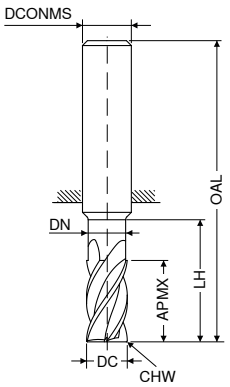
Steel						
Stainless steel						
Cast iron						
Non ferrous metals	●	●	●	●	●	
Heat resistant alloys						
hardened materials						

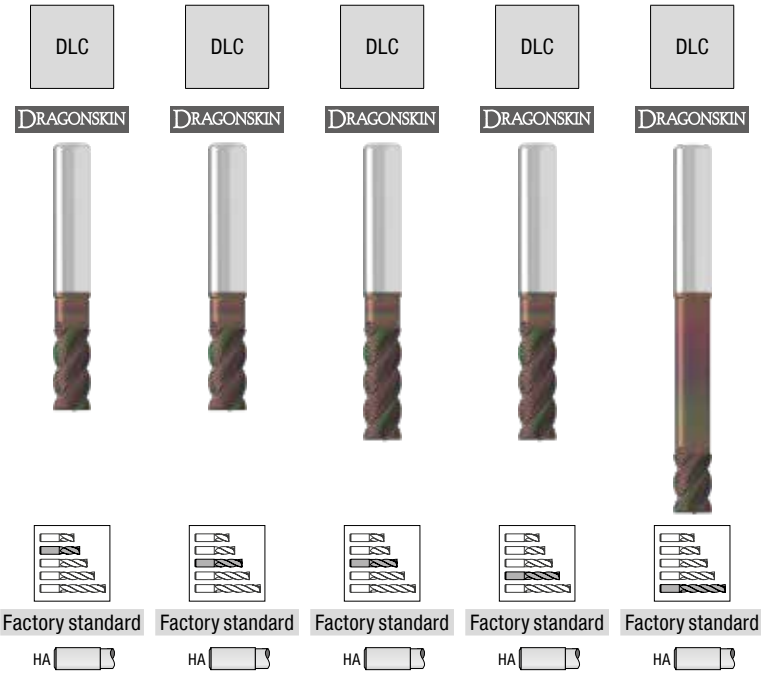
14

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AluLine – End milling cutter





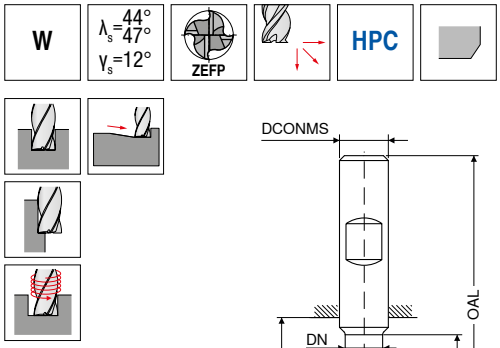


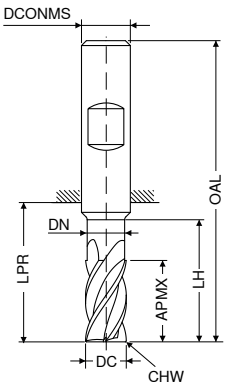
DC h10	APMX	DN	LH	OAL	DCONMS h6	CHW	ZEFP	Article no. 53 565 ...	Article no. 53 566 ...	Article no. 53 567 ...	Article no. 53 568 ...	Article no. 53 569 ...
mm	mm	mm	mm	mm	mm	mm						
3,0	8	2,7	13	57	6	0,1	4				030	
3,5	11	3,2	17	57	6	0,1	4				035	
4,0	11	3,7	17	57	6	0,1	4				040	
4,5	13	4,2	19	57	6	0,1	4				045	
5,0	13	4,7	19	57	6	0,1	4			050		
5,5	13	5,2	19	57	6	0,1	4			055		
6,0	10	5,7	42	80	6	0,2	4					060
6,0	13	5,7	19	57	6	0,2	4			060		
6,0	18	5,7	24	62	6	0,2	4				060	
6,5	21	6,1	25	63	8	0,2	4			065		
8,0	13	7,4	62	100	8	0,2	4					080
8,0	21	7,4	25	63	8	0,2	4		080			
8,0	24	7,2	30	68	8	0,2	4			080		
8,5	22	7,9	30	72	10	0,2	4			085		
10,0	16	9,2	58	100	10	0,2	4				100	
10,0	22	9,2	30	72	10	0,2	4		100			
10,0	30	9,2	38	80	10	0,2	4			100		
12,0	19	11,0	73	120	12	0,2	4					120
12,0	26	11,0	36	83	12	0,2	4		120			
12,0	36	11,0	46	93	12	0,2	4			120		
14,0	26	13,0	36	83	14	0,2	4	140				
16,0	25	15,0	100	150	16	0,2	4					160
16,0	36	15,0	42	92	16	0,2	4	160				
16,0	48	15,0	58	108	16	0,2	4			160		
18,0	36	17,0	42	92	18	0,2	4	180				
20,0	32	19,0	98	150	20	0,2	4				200	
20,0	41	19,0	52	104	20	0,2	4	200				
20,0	60	19,0	74	126	20	0,2	4			200		
25,0	52	24,0	62	121	25	0,3	4	250				

Steel						
Stainless steel						
Cast iron						
Non ferrous metals	●	●	●	●	●	
Heat resistant alloys						
hardened materials						

→ v_c/f_z Page 288+289

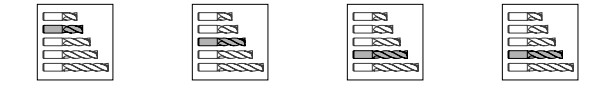
AluLine – End milling cutter





LPR with Shank DIN 6535 HB





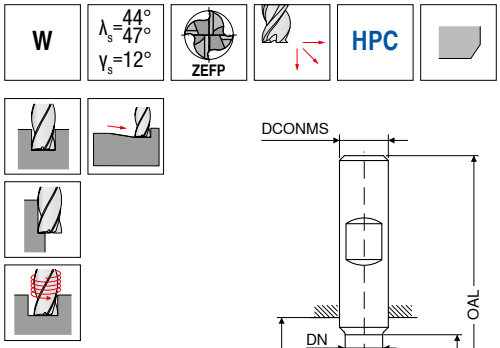


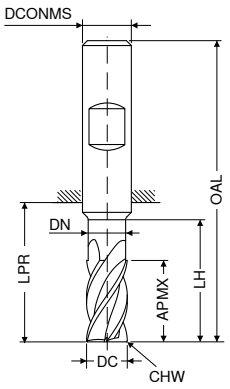
DC h10	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 53 570 ...	Article no. 53 571 ...	Article no. 53 572 ...	Article no. 53 573 ...
mm	mm	mm	mm	mm	mm	mm	mm					
3	6	2,7	10	21	57	6	0,1	4		030		
4	8	3,7	14	21	57	6	0,1	4		040		
4	16	3,7	22	26	62	6	0,1	4			040	
5	10	4,7	16	21	57	6	0,1	4		050		
5	17	4,7	24	26	62	6	0,1	4			050	
6	12	5,5	19	21	57	6	0,2	4		060		
8	16	7,4	25	27	63	8	0,2	4		080		
10	20	9,2	30	32	72	10	0,2	4		100		
10	20	9,2	58	60	100	10	0,2	4			100	
12	24	11,0	36	38	83	12	0,2	4		120		
16	32	15,0	42	44	92	16	0,2	4	160			
20	40	19,0	52	54	104	20	0,2	4	200			
20	40	19,0	98	100	150	20	0,2	4				200

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

→ v_c/f_z Page 288+289

AluLine – End milling cutter







Factory standard | Factory standard

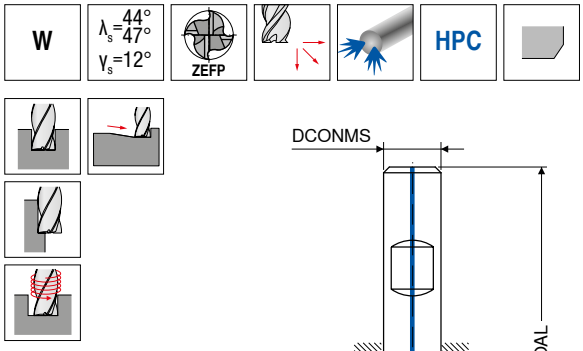
HA | HB

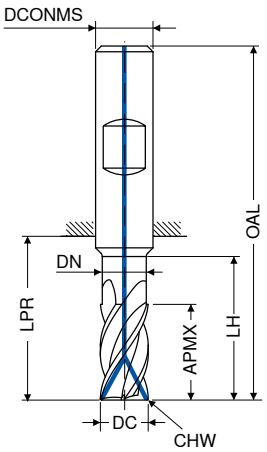
DC h10	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 53 574 ...	Article no. 53 575 ...
mm	mm	mm	mm	mm	mm	mm	mm			
6	12	5,5	42	44	80	6	0,2	4	**060**	
8	16	7,4	62	64	100	8	0,2	4	**080**	
12	24	11,0	73	75	120	12	0,2	4	**120**	
16	32	15,0	100	102	150	16	0,2	4		**160**

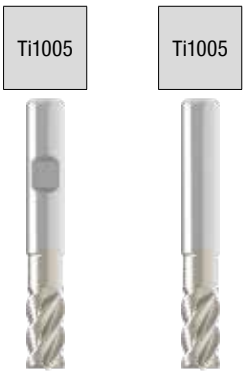
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

→ v_c/f_z Page 288+289

AluLine – End milling cutter











Factory standard | Factory standard

HB | HA

DC h10	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 53 576 ...	Article no. 53 577 ...
mm	mm	mm	mm	mm	mm	mm	mm			
3	6	2,7	10	21	57	6	0,1	4		030
4	8	3,7	14	21	57	6	0,1	4		040
5	10	4,7	16	21	57	6	0,1	4		050
6	12	5,7	19	21	57	6	0,2	4		060
8	16	7,4	25	27	63	8	0,2	4		080
10	20	9,2	30	32	72	10	0,2	4		100
12	24	11,0	36	38	83	12	0,2	4		120
16	32	15,0	42	44	92	16	0,2	4	160	
20	40	19,0	52	54	104	20	0,2	4	200	

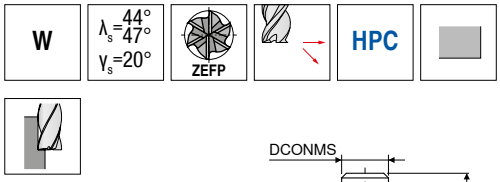
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

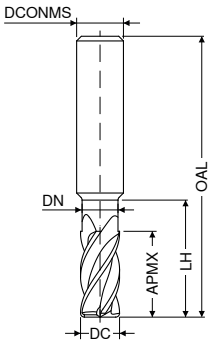
→ v_c/f_z Page 288+289

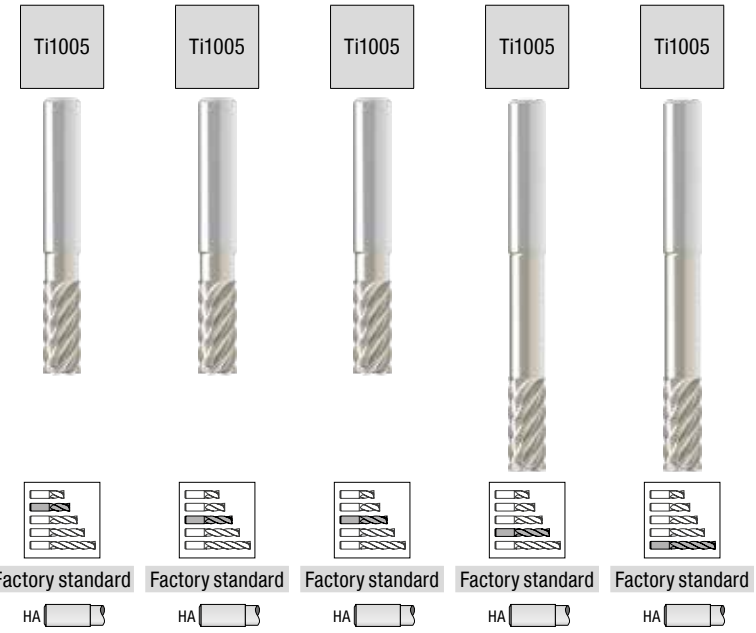
14

AluLine – High accuracy finish milling cutter

▲ max. taper of 0.003 mm for high precision and parallelism of vertical walls
▲ Tool with cutting edge correction







Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA | HA

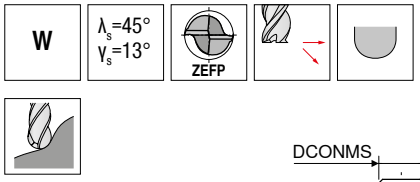
DC h6	APMX	DN	LH	OAL	DCONMS h5	ZEFP	Article no. 53 555 ...	Article no. 53 556 ...	Article no. 53 557 ...	Article no. 53 558 ...	Article no. 53 559 ...
mm	mm	mm	mm	mm	mm						
6	16	5,7	20	58	6	6			060		
6	16	5,7	42	80	6	6					060
8	19	7,4	26	64	8	6			080		
8	19	7,4	62	100	8	6					080
10	25	9,2	32	74	10	6			100		
10	25	9,2	58	100	10	6				100	
12	30	11,0	37	84	12	6		120			
12	30	11,0	73	120	12	6					120
12	45			120	12	6			120		
16	40	15,0	44	93	16	6	160				
16	40	15,0	100	150	16	6					160
16	65			150	16	6				160	
20	50	19,0	53	104	20	6	200				
20	50	19,0	98	150	20	6				200	
20	75			150	20	6			200		

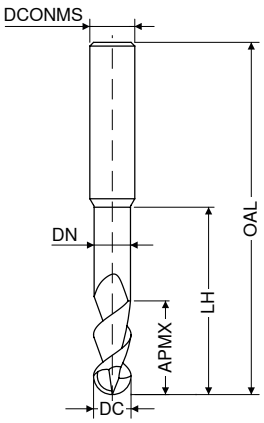
Steel					
Stainless steel					
Cast iron					
Non ferrous metals	●	●	●	●	●
Heat resistant alloys					
hardened materials					

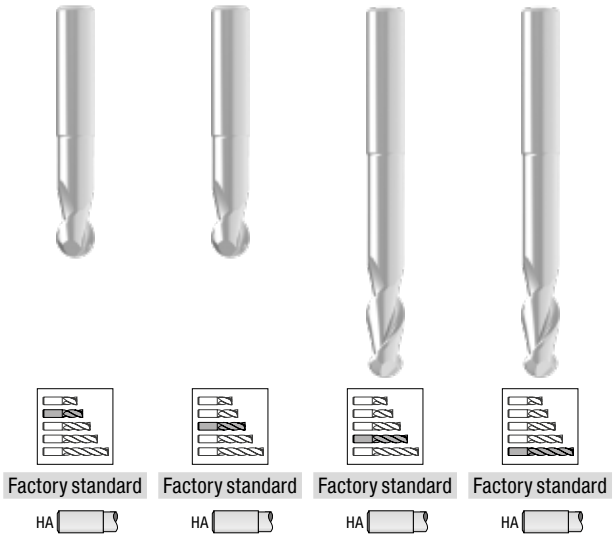
→ v_c/f_z Page 290+291

AluLine – Ball nosed cutter

▲ With polished chip flutes







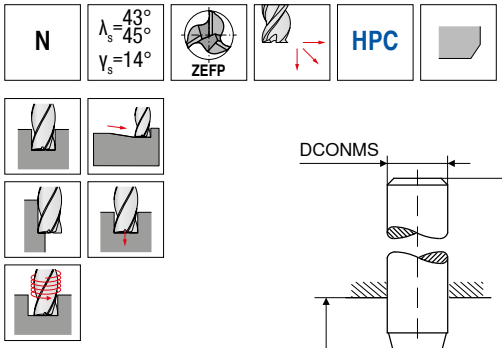
DC f8	APMX	DN	LH	OAL	DCONMS h5	ZEFP	Article no. 53 508 ...	Article no. 53 509 ...	Article no. 53 510 ...	Article no. 53 511 ...
mm	mm	mm	mm	mm	mm					
3	6	2,7	16	50	3	2			030	
3	10	2,7	32	75	3	2				030
4	7	3,7	17	54	4	2			040	
4	13	3,7	36	75	4	2				040
5	8	4,6	18	54	5	2		050		
5	15	4,6	40	75	5	2				050
6	10	5,5	21	54	6	2		060		
6	16	5,5	44	100	6	2				060
8	12	7,5	27	59	8	2		080		
8	22	7,5	54	100	8	2				080
10	13	9,4	32	67	10	2		100		
10	25	9,4	60	100	10	2				100
12	16	11,4	38	73	12	2		120		
12	26	11,4	60	100	12	2			120	
14	16	13,2	38	75	14	2	140			
14	26	13,2	60	100	14	2			140	
16	20	15,0	44	83	16	2	160			
16	30	15,0	92	150	16	2			160	
20	25	19,0	50	93	20	2	200			
20	40	19,0	92	150	20	2			200	

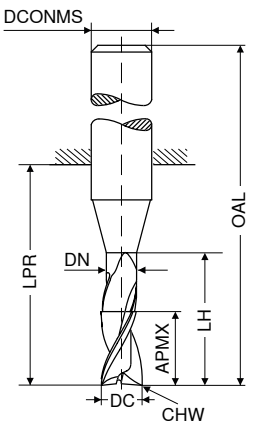
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

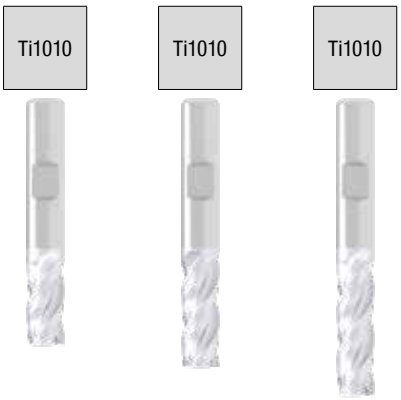
→ v_c/f_z Page 290+291

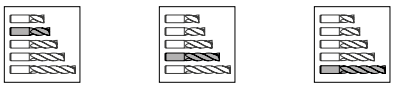
14

SilverLine – End milling cutter







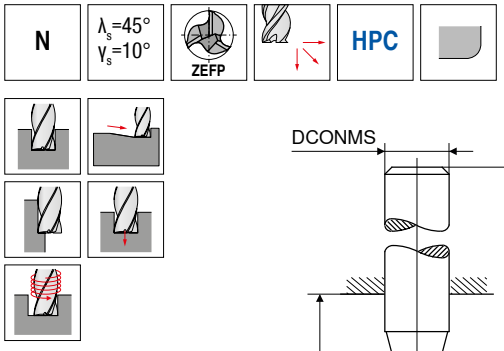


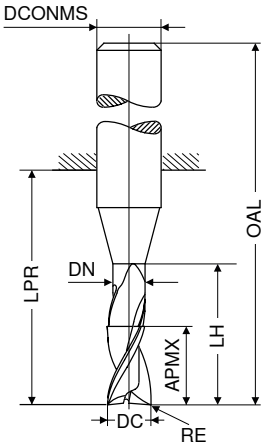
DC e8	APMX	DN	LH	LPR	OAL	DCONMS h5	CHW	ZEFP	≈DIN 6527 HB	≈DIN 6527 HB	Factory standard HB
mm	mm	mm	mm	mm	mm	mm	mm		Article no. 50 951 ...	Article no. 50 951 ...	Article no. 50 951 ...
3,0	8	2,9	15	21	57	6	0,15	3		031	
3,5	11	3,4	16	21	57	6	0,15	3		036	
4,0	8	3,9	15	18	54	6	0,15	3	040		
4,0	11	3,9	16	21	57	6	0,15	3		041	
4,0	16			26	62	6	0,15	3			042
4,5	13	4,4	19	21	57	6	0,15	3		046	
5,0	9	4,9	16	18	54	6	0,15	3	050		
5,0	13	4,9	19	21	57	6	0,15	3		051	
5,0	17			26	62	6	0,15	3			052
5,5	13	5,4	19	21	57	6	0,15	3		056	
6,0	10	5,9	17	18	54	6	0,25	3	060		
6,0	13	5,9	19	21	57	6	0,25	3		061	
6,0	18			26	62	6	0,25	3			062
6,5	19	6,3	25	27	63	8	0,25	3		066	
7,0	19	6,8	25	27	63	8	0,25	3		071	
7,5	19	7,3	25	27	63	8	0,25	3		076	
8,0	12	7,8	20	22	58	8	0,25	3	080		
8,0	19	7,8	25	27	63	8	0,25	3		081	
8,0	24			32	68	8	0,25	3			082
8,5	22	8,2	30	32	72	10	0,25	3		086	
9,0	22	8,7	30	32	72	10	0,25	3		091	
9,5	22	9,2	30	32	72	10	0,25	3		096	
10,0	14	9,7	24	26	66	10	0,25	3	100		
10,0	22	9,7	30	32	72	10	0,25	3		101	
10,0	30			40	80	10	0,25	3			102
12,0	16	11,7	26	28	73	12	0,25	3	120		
12,0	26	11,7	36	38	83	12	0,25	3		121	
12,0	36			48	93	12	0,25	3			122
14,0	18	13,7	28	30	75	14	0,25	3	140		
14,0	26	13,7	36	38	83	14	0,25	3		141	
14,0	42			54	99	14	0,25	3			142
16,0	22	15,5	32	34	82	16	0,25	3	160		
16,0	32	15,5	42	44	92	16	0,25	3		161	
16,0	48			60	108	16	0,25	3			162
18,0	24	17,5	34	36	84	18	0,25	3	180		
18,0	32	17,5	42	44	92	18	0,25	3		181	
18,0	54			66	114	18	0,25	3			182
20,0	26	19,5	40	42	92	20	0,25	3	200		
20,0	38	19,5	38	54	104	20	0,25	3		201	
20,0	60			76	126	20	0,25	3			202

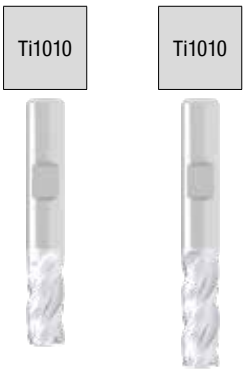
Steel	●	●	●
Stainless steel	●	●	●
Cast iron	○	○	○
Non ferrous metals	○	○	○
Heat resistant alloys	●	●	●
hardened materials			

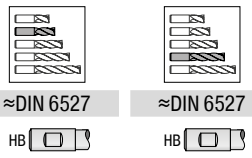
→ v_c/f_z Page 292+293

SilverLine – End milling cutter with corner radius









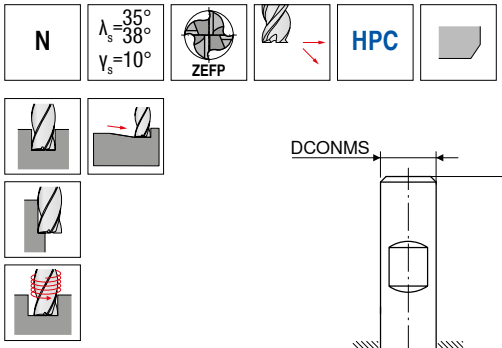
DC f8	RE ±0,01	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	Article no. 50 952 ...	Article no. 50 952 ...
mm	mm	mm	mm	mm	mm	mm	mm			
4	0,5	8	3,9	15	18	54	6	3	040	
4	0,5	11	3,9	16	21	57	6	3		041
5	0,5	9	4,9	16	18	54	6	3	050	
5	0,5	13	4,9	19	21	57	6	3		051
6	0,5	10	5,9	17	18	54	6	3	060	
6	0,5	13	5,9	19	21	57	6	3		061
8	1,0	12	7,8	20	22	58	8	3	080	
8	1,0	19	7,8	25	27	63	8	3		081
10	1,0	14	9,7	24	26	66	10	3	100	
10	1,0	22	9,7	30	32	72	10	3		101
12	1,5	16	11,7	26	28	73	12	3	120	
12	1,5	26	11,7	36	38	83	12	3		121
16	2,0	22	15,5	32	34	82	16	3	160	
16	2,0	32	15,5	42	44	92	16	3		161
20	2,0	26	19,5	40	42	92	20	3	200	
20	2,0	38	19,5	52	54	104	20	3		201

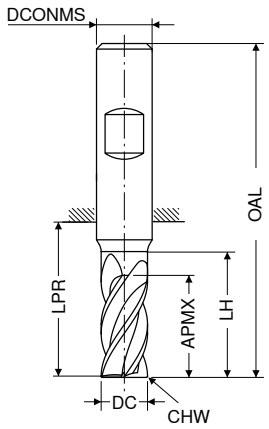
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials		

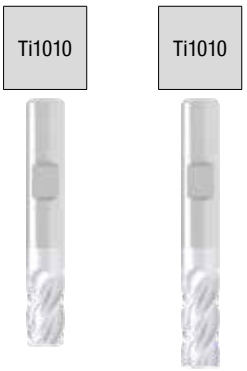
→ v_c/f_z Page 292+293

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SilverLine – End milling cutter









≈DIN 6527

HB



≈DIN 6527

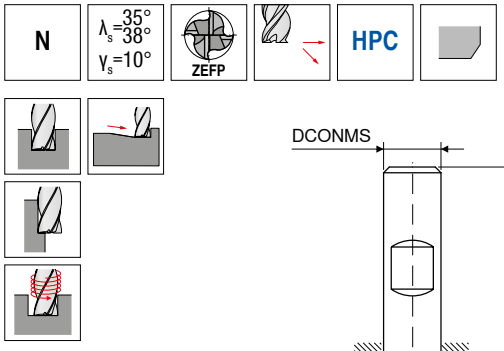
HB

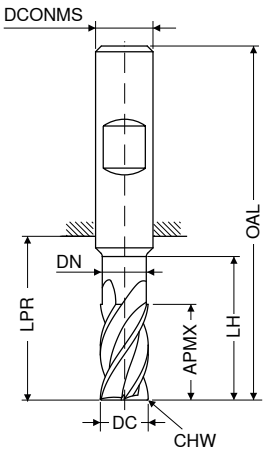
DC f8 mm	APMX mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Article no. 50 955 ...	Article no. 50 955 ...
3,0	5	8	14	50	6	0,15	4	030	
3,0	8	11	21	57	6	0,15	4		031
3,5	8	11	18	54	6	0,15	4	035	
3,5	11	14	21	57	6	0,15	4		036
4,0	8	11	18	54	6	0,15	4	040	
4,0	11	14	21	57	6	0,15	4		041
4,5	9	12	18	54	6	0,15	4	045	
4,5	13	16	21	57	6	0,15	4		046
5,0	9	12	18	54	6	0,15	4	050	
5,0	13	16	21	57	6	0,15	4		051
5,5	10	13	18	54	6	0,15	4	055	
5,5	13	16	21	57	6	0,15	4		056
6,0	10	13	18	54	6	0,15	4	060	
6,0	13	16	21	57	6	0,15	4		061
7,0	12	15	22	58	8	0,25	4	070	
7,0	21	24	27	63	8	0,25	4		071
8,0	12	15	22	58	8	0,25	4	080	
8,0	21	24	27	63	8	0,25	4		081
9,0	14	17	26	66	10	0,25	4	090	
9,0	22	25	32	72	10	0,25	4		091
10,0	14	17	26	66	10	0,25	4	100	
10,0	22	25	32	72	10	0,25	4		101
11,0	16	19	28	73	12	0,35	4	110	
11,0	26	29	38	83	12	0,35	4		111
12,0	16	19	28	73	12	0,35	4	120	
12,0	26	29	38	83	12	0,35	4		121
14,0	16	19	28	73	14	0,35	4	140	
14,0	26	29	38	83	14	0,35	4		141
15,0	22	25	34	82	16	0,35	4	150	
15,0	36	39	44	92	16	0,35	4		151
16,0	22	25	34	82	16	0,35	4	160	
16,0	36	39	44	92	16	0,35	4		161
17,0	22	25	34	82	18	0,35	4	170	
17,0	36	39	44	92	18	0,35	4		171
18,0	22	25	34	82	18	0,35	4	180	
18,0	36	39	44	92	18	0,35	4		181
19,0	26	29	42	92	20	0,35	4	190	
19,0	41	44	54	104	20	0,35	4		191
20,0	26	29	42	92	20	0,35	4	200	
20,0	41	44	54	104	20	0,35	4		201

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials		

→ v_c/f_z Page 294+295

SilverLine – End milling cutter







DIN 6527 | DIN 6527

HB | HB

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	Article no. 50 965 ...	Article no. 50 965 ...
3	6,5	2,8	9	19	55	6	0,15	4	030	
3	6,5	2,8	15	22	58	6	0,15	4		031
4	8,5	3,8	12	19	55	6	0,15	4	040	
4	8,5	3,8	20	26	62	6	0,15	4		041
5	10,5	4,8	15	22	58	6	0,15	4	050	
5	10,5	4,8	25	34	70	6	0,15	4		051
6	13,0	5,8	18	22	58	6	0,15	4	060	
6	13,0	5,8	30	34	70	6	0,15	4		061
8	17,0	7,7	24	28	64	8	0,25	4	080	
8	17,0	7,7	40	44	80	8	0,25	4		081
10	21,0	9,7	30	34	74	10	0,25	4	100	
10	21,0	9,7	50	54	94	10	0,25	4		101
12	25,0	11,6	36	40	85	12	0,35	4	120	
12	25,0	11,6	60	64	109	12	0,35	4		121
14	29,0	13,6	42	46	91	14	0,35	4	140	
14	29,0	13,6	70	74	119	14	0,35	4		141
16	33,0	15,5	48	52	100	16	0,35	4	160	
16	33,0	15,5	80	84	132	16	0,35	4		161
18	38,0	17,5	54	58	106	18	0,35	4	180	
18	38,0	17,5	90	94	142	18	0,35	4		181
20	42,0	19,5	60	64	114	20	0,35	4	200	
20	42,0	19,5	100	104	154	20	0,35	4		201

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials		

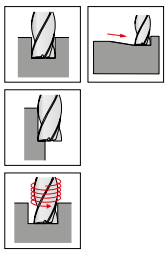
→ v_c/f_z Page 294+295

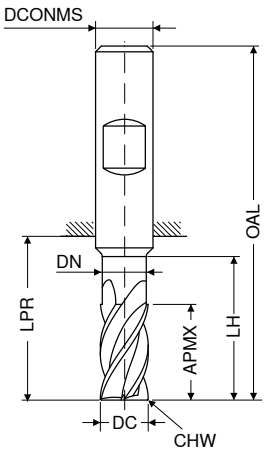
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SilverLine – End milling cutter

▲ with reinforced core Ø for increased stability













Factory standard

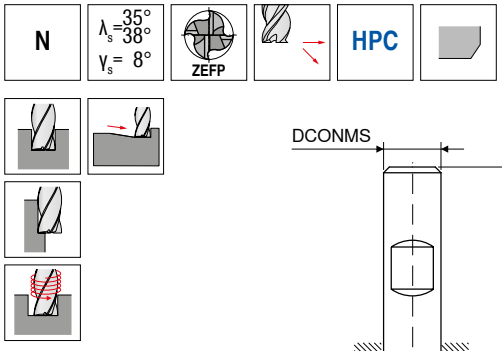
HB 

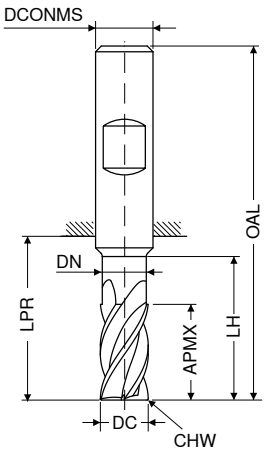
DC f8	APMX	DN	LH	LPR	OAL	DCONMS h5	CHW	ZEFP	Article no. 50 964 ...
mm	mm	mm	mm	mm	mm	mm	mm		
4	8	3,5	12	18	54	6	0,15	4	041
5	10	4,5	15	18	54	6	0,15	4	051
6	13	5,5	21	21	57	6	0,15	4	061
8	19	7,5	27	27	63	8	0,25	4	081
10	22	9,5	32	32	72	10	0,25	4	101
12	26	11,5	38	38	83	12	0,35	4	121
14	26	13,5	38	38	83	14	0,35	4	141
16	32	15,5	44	44	92	16	0,35	4	161
18	36	17,5	44	44	92	18	0,35	4	181
20	38	19,5	54	54	104	20	0,35	4	201

Steel	●
Stainless steel	●
Cast iron	○
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	

→ v_c/f_z Page 294+295

SilverLine – End milling cutter













≈DIN 6527 HB

≈DIN 6527 HB

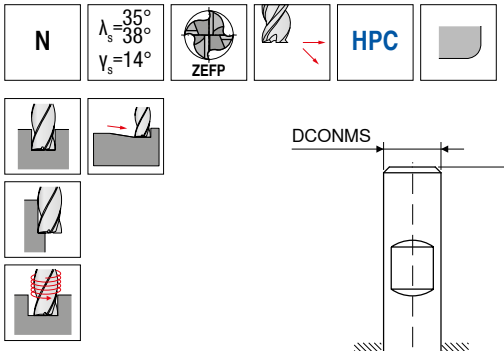
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	Article no. 50 954 ...	Article no. 50 954 ...
3	5		8	14	50	6	0,15	4	030	
3	8	2,8	13	21	57	6	0,15	4		031
4	8		11	18	54	6	0,15	4	040	
4	11	3,8	17	21	57	6	0,15	4		041
5	9		12	18	54	6	0,15	4	050	
5	13	4,8	19	21	57	6	0,15	4		051
6	10		13	18	54	6	0,15	4	060	
6	13	5,8	19	21	57	6	0,15	4		061
8	12		15	22	58	8	0,25	4	080	
8	21	7,7	25	27	63	8	0,25	4		081
10	14		17	26	66	10	0,25	4	100	
10	22	9,7	30	32	72	10	0,25	4		101
12	16		19	28	73	12	0,35	4	120	
12	26	11,6	36	38	83	12	0,35	4		121
14	16		19	28	73	14	0,35	4	140	
14	26	13,6	36	38	83	14	0,35	4		141
16	22		25	34	82	16	0,35	4	160	
16	36	15,5	42	44	92	16	0,35	4		161
18	22		25	34	82	18	0,35	4	180	
18	36	17,5	42	44	92	18	0,35	4		181
20	26		29	42	92	20	0,35	4	200	
20	41	19,5	52	54	104	20	0,35	4		201

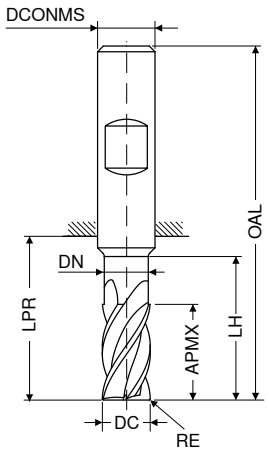
Steel	●	●
Stainless steel		
Cast iron	●	●
Non ferrous metals		
Heat resistant alloys		
hardened materials		

→ v_c/f_z Page 296+297

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SilverLine – End milling cutter with corner radius







Factory standard | Factory standard

HB | HB

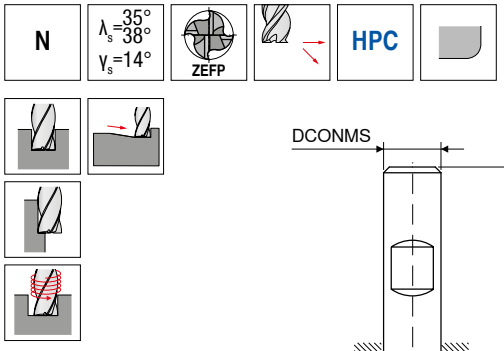
DC f8	RE ±0,01	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	Article no. 50 968 ...	Article no. 50 968 ...
mm	mm	mm	mm	mm	mm	mm	mm			
3	0,10	8,0	2,8	13	21	57	6	4	030	
3	0,40	8,0	2,8	13	21	57	6	4	031	
3	0,50	8,0	2,8	13	21	57	6	4	032	
3	1,00	8,0	2,8	13	21	57	6	4	033	
3	0,30	6,5	2,8	15	22	58	6	4	034	
3	0,50	6,5	2,8	15	22	58	6	4	035	
3	0,80	6,5	2,8	15	22	58	6	4	036	
4	0,10	11,0	3,8	17	21	57	6	4	040	
4	0,40	11,0	3,8	17	21	57	6	4	041	
4	0,50	11,0	3,8	17	21	57	6	4	042	
4	1,00	11,0	3,8	17	21	57	6	4	043	
4	0,40	8,5	3,8	20	26	62	6	4		044
4	0,50	8,5	3,8	20	26	62	6	4		045
4	0,80	8,5	3,8	20	26	62	6	4		046
5	0,10	13,0	4,8	19	21	57	6	4	050	
5	0,50	13,0	4,8	19	21	57	6	4	051	
5	1,00	13,0	4,8	19	21	57	6	4	052	
5	0,50	10,5	4,8	25	34	70	6	4		053
5	0,80	10,5	4,8	25	34	70	6	4		054
6	0,10	13,0	5,8	19	21	57	6	4	060	
6	0,50	13,0	5,8	19	21	57	6	4	061	
6	1,00	13,0	5,8	19	21	57	6	4	062	
6	1,50	13,0	5,8	19	21	57	6	4	063	
6	0,60	13,0	5,8	30	34	70	6	4		064
6	0,80	13,0	5,8	30	34	70	6	4		065
6	1,00	13,0	5,8	30	34	70	6	4		066
8	0,15	21,0	7,7	25	27	63	8	4	080	
8	0,50	21,0	7,7	25	27	63	8	4	081	
8	1,00	21,0	7,7	25	27	63	8	4	082	
8	1,50	21,0	7,7	25	27	63	8	4	083	
8	2,00	21,0	7,7	25	27	63	8	4	084	
8	0,80	17,0	7,7	40	44	80	8	4		085
8	1,00	17,0	7,7	40	44	80	8	4		086
8	1,50	17,0	7,7	40	44	80	8	4		087
8	2,00	17,0	7,7	40	44	80	8	4		088
10	0,15	22,0	9,7	30	32	72	10	4	100	
10	0,50	22,0	9,7	30	32	72	10	4	101	
10	1,00	22,0	9,7	30	32	72	10	4	102	
10	1,50	22,0	9,7	30	32	72	10	4	103	
10	2,00	22,0	9,7	30	32	72	10	4	104	
10	0,50	21,0	9,7	50	54	94	10	4		105
10	1,00	21,0	9,7	50	54	94	10	4		106
10	1,50	21,0	9,7	50	54	94	10	4		107
10	2,00	21,0	9,7	50	54	94	10	4		108
12	0,20	26,0	11,6	36	38	83	12	4	120	
12	0,50	26,0	11,6	36	38	83	12	4	121	

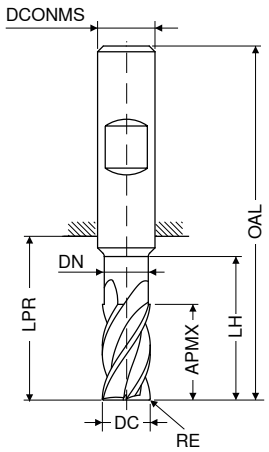
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials		

→ v_c/f_z Page 294+295

Continued on next page

SilverLine – End milling cutter with corner radius







DC f8	RE ±0,01	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	Article no. 50 968 ...	Article no. 50 968 ...
mm	mm	mm	mm	mm	mm	mm	mm			
12	1,00	26,0	11,6	36	38	83	12	4	122	
12	1,50	26,0	11,6	36	38	83	12	4	123	
12	2,00	26,0	11,6	36	38	83	12	4	124	
12	3,00	26,0	11,6	36	38	83	12	4	131	
12	4,00	26,0	11,6	36	38	83	12	4	125	
12	0,50	25,0	11,6	60	64	109	12	4		126
12	1,00	25,0	11,6	60	64	109	12	4		127
12	1,50	25,0	11,6	60	64	109	12	4		128
12	2,00	25,0	11,6	60	64	109	12	4		129
12	3,00	25,0	11,6	60	64	109	12	4		132
12	4,00	25,0	11,6	60	64	109	12	4		130
14	0,30	26,0	13,6	36	38	83	14	4	140	
14	1,00	26,0	13,6	36	38	83	14	4	141	
14	2,00	26,0	13,6	36	38	83	14	4	142	
14	3,00	26,0	13,6	36	38	83	14	4	147	
14	4,00	26,0	13,6	36	38	83	14	4	143	
14	1,00	29,0	13,6	70	74	119	14	4		144
14	2,00	29,0	13,6	70	74	119	14	4		145
14	3,00	29,0	13,6	70	74	119	14	4		148
14	4,00	29,0	13,6	70	74	119	14	4		146
16	0,30	36,0	15,5	42	44	92	16	4	160	
16	1,00	36,0	15,5	42	44	92	16	4	161	
16	2,00	36,0	15,5	42	44	92	16	4	162	
16	3,00	36,0	15,5	42	44	92	16	4	167	
16	4,00	36,0	15,5	42	44	92	16	4	163	
16	1,00	33,0	15,5	80	84	132	16	4		164
16	2,00	33,0	15,5	80	84	132	16	4		165
16	3,00	33,0	15,5	80	84	132	16	4		168
16	4,00	33,0	15,5	80	84	132	16	4		166
18	1,00	36,0	17,5	42	44	92	18	4	180	
18	2,00	36,0	17,5	42	44	92	18	4	181	
18	3,00	36,0	17,5	42	44	92	18	4	186	
18	4,00	36,0	17,5	42	44	92	18	4	182	
18	1,00	38,0	17,5	90	94	142	18	4		183
18	2,00	38,0	17,5	90	94	142	18	4		184
18	3,00	38,0	17,5	90	94	142	18	4		187
18	4,00	38,0	17,5	90	94	142	18	4		185
20	0,30	41,0	19,5	52	54	104	20	4	200	
20	1,00	41,0	19,5	52	54	104	20	4	201	
20	2,00	41,0	19,5	52	54	104	20	4	202	
20	3,00	41,0	19,5	52	54	104	20	4	207	
20	4,00	41,0	19,5	52	54	104	20	4	203	
20	1,00	42,0	19,5	100	104	154	20	4		204
20	2,00	42,0	19,5	100	104	154	20	4		205
20	3,00	42,0	19,5	100	104	154	20	4		208
20	4,00	42,0	19,5	100	104	154	20	4		206

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials		

→ v_c/f_z Page 294+295

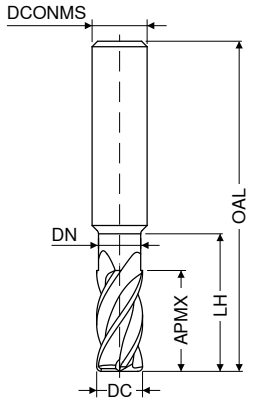
14

SilverLine – High accuracy finish milling cutter

▲ max. taper of 0.003 mm for high precision and parallelism of vertical walls
▲ Tool with cutting edge correction









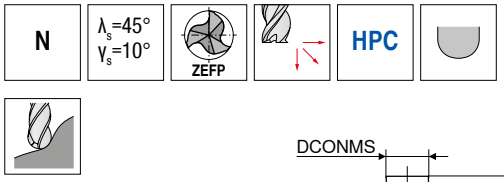
DC f8	APMX	DN	LH	OAL	DCONMS h5	ZEFP	Article no. 50 959 ...	Article no. 50 959 ...
mm	mm	mm	mm	mm	mm			
6	13	5,6	19	57	6	6	060	
6	10	5,8	18	58	6	6	063	
6	13	5,8	27	67	6	6		064
6	13	5,8	36	76	6	6		065
6	15	5,6	42	80	6	6		061
8	19	7,6	25	63	8	6	080	
8	13	7,7	24	64	8	6	083	
8	17	7,7	36	76	8	6		084
8	17	7,7	48	89	8	6		085
8	20	7,6	62	100	8	6		081
10	22	9,6	30	72	10	6	100	
10	16	9,7	30	74	10	6	103	
10	21	9,7	45	89	10	6		104
10	25	9,6	58	100	10	6		101
10	21	9,7	60	104	10	6		105
12	26	11,5	36	83	12	6	120	
12	19	11,6	36	85	12	6	123	
12	25	11,6	54	103	12	6		124
12	30	11,5	73	120	12	6		121
12	25	11,6	72	121	12	6		125
16	32	15,0	42	92	16	6	160	
16	25	15,5	48	100	16	6	163	
16	33	15,5	72	124	16	6		164
16	33	15,5	96	148	16	6		165
16	40	15,0	100	150	16	6		161
20	38	19,0	52	104	20	6	200	
20	32	19,5	60	114	20	6	203	
20	42	19,5	90	144	20	6		204
20	50	19,0	98	150	20	6		201
20	42	19,5	120	174	20	6		205
25	40	24,5	75	136	25	6	253	
25	52	24,5	113	174	25	6		254
25	52	24,5	150	210	25	6		255

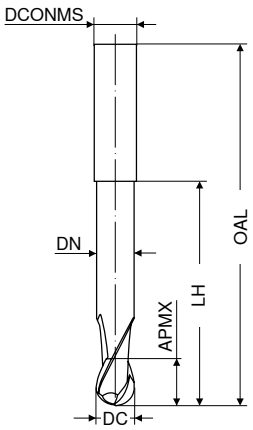
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials		

→ v_c/f_z Page 298+299

SilverLine – Ball nosed cutter

▲ Radius accuracy: ±0,01 mm













≈DIN 6527 HA

≈DIN 6527 HA

DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	Article no. 50 953 ...	Article no. 50 953 ...
4	8	3,9	15	54	6	3	040	
4	11	3,9	16	57	6	3		041
5	9	4,9	16	54	6	3	050	
5	13	4,9	19	57	6	3		051
6	10	5,9	17	54	6	3	060	
6	13	5,9	19	57	6	3		061
8	12	7,8	20	58	8	3	080	
8	19	7,8	25	63	8	3		081
10	14	9,7	24	66	10	3	100	
10	22	9,7	30	72	10	3		101
12	16	11,7	26	73	12	3	120	
12	26	11,7	36	83	12	3		121
16	22	15,5	32	82	16	3	160	
16	36	15,5	42	92	16	3		161
20	26	19,5	40	92	20	3	200	
20	38	19,5	52	104	20	3		201

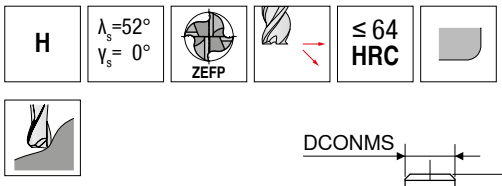
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials		

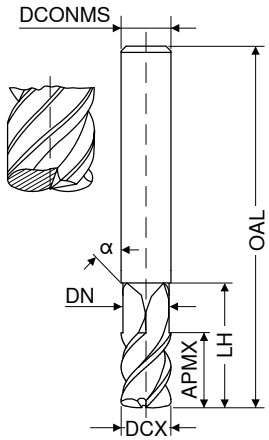
→ v_c/f_z Page 292+293

14

SilverLine – Torus face milling cutter

▲ APMX does not correspond to the maximum cutting depth
▲ r_{3D} = corner radius to be programmed

















DIN 6527 | Factory standard

HA  HA 

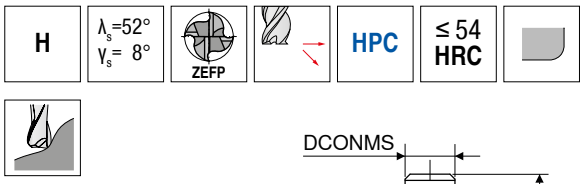
DCX f8 mm	r_{3D} mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	Article no. 50 962 ...	Article no. 50 962 ...
6	1,12	3	5,8	16	54	45	6	4	060	
6	1,12	3	5,8	44	80	45	6	4		061
8	1,23	4	7,7	20	58	45	8	4	080	
8	1,23	4	7,7	54	100	45	8	4		081
10	1,77	5	9,7	24	66	45	10	4	100	
10	1,77	5	9,7	60	100	45	10	4		101
12	1,86	6	11,6	26	73	45	12	4	120	
12	1,86	6	11,6	75	120	45	12	4		121
16	2,47	8	15,5	32	82	45	16	4	160	
16	2,47	8	15,5	92	150	45	16	4		161
20	2,61	10	19,5	40	92	45	20	4	200	
20	2,61	10	19,5	92	150	45	20	4		201

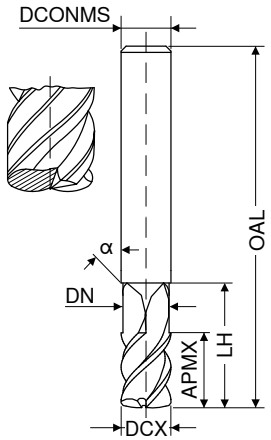
Steel	○	○
Stainless steel		
Cast iron	○	○
Non ferrous metals		
Heat resistant alloys		
hardened materials	●	●

→ v_c/f_z Page 300+301

SilverLine – Torus face milling cutter

▲ APMX does not correspond to the maximum cutting depth
▲ r_{3D} = corner radius to be programmed













≈DIN 6527 | Factory standard

HA | HA

DCX f8 mm	r_{3D} mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	Article no. 50 961 ...	Article no. 50 961 ...
6	1,21	3	5,8	16	54	45	6	4	060	
6	1,21	3	5,8	44	80	45	6	4		061
8	1,38	4	7,7	20	58	45	8	4	080	
8	1,38	4	7,7	54	100	45	8	4		081
10	2,00	5	9,7	24	66	45	10	4	100	
10	2,00	5	9,7	60	100	45	10	4		101
12	2,10	6	11,6	26	73	45	12	4	120	
12	2,10	6	11,6	75	120	45	12	4		121
16	2,78	8	15,5	32	82	45	16	4	160	
16	2,75	8	15,5	92	150	45	16	4		161
20	3,07	10	19,5	40	92	45	20	4	200	
20	3,07	10	19,5	92	150	45	20	4		201

Steel	●	●
Stainless steel		
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys		
hardened materials	○	○

→ v_c/f_z Page 302+303

14

S-Cut – End milling cutter

SC
UNI

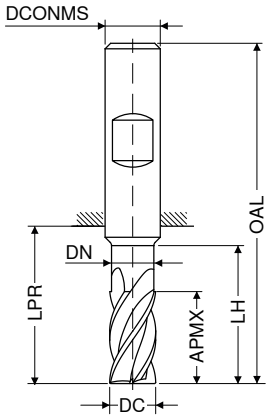
λ_s=28°
γ_s=10°

ZEFP

HPC

APX72S





≈DIN 6527

HB

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 52 225 ...
3	8	2,8	15,0	21	57	6	4	030
4	11	3,8	16,5	21	57	6	4	040
5	13	4,8	18,5	21	57	6	4	050
6	13	5,5	21,0	21	57	6	4	060
7	19	6,5	27,0	27	63	8	4	070
8	19	7,5	27,0	27	63	8	4	080
9	22	8,5	32,0	32	72	10	4	090
10	22	9,5	32,0	32	72	10	4	100
11	26	10,5	38,0	38	83	12	4	110
12	26	11,5	38,0	38	83	12	4	120
13	26	12,5	42,0	38	83	14	4	130
14	26	13,5	42,0	38	83	14	4	140
16	36	15,5	48,0	44	92	16	4	160
18	36	17,5	54,0	52	100	18	4	180
20	38	19,5	54,0	54	104	20	4	200
25	42	24,0	65,0	65	121	25	4	250

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 304+305

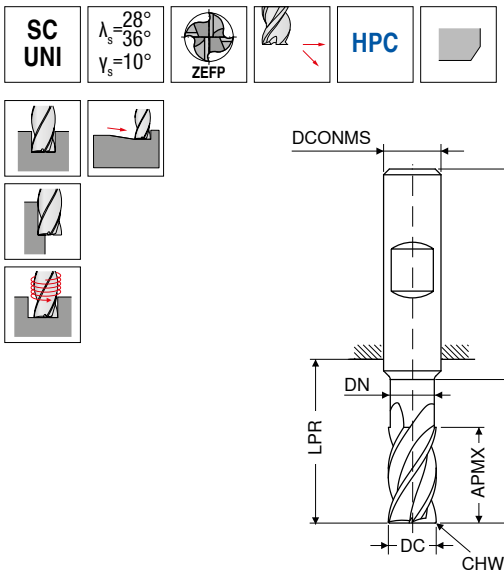
S-Cut – End milling cutter

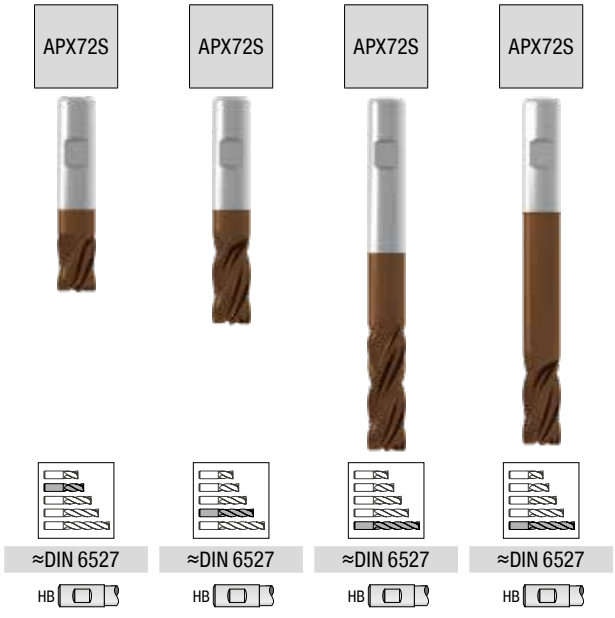
SC
UNI

λ_s=28°
36°
γ_s=10°

ZEFP

HPC





≈DIN 6527 HB | ≈DIN 6527 HB | ≈DIN 6527 HB | ≈DIN 6527 HB

DC f8	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 52 223 ...	Article no. 52 224 ...	Article no. 52 226 ...	Article no. 52 227 ...
mm	mm	mm	mm	mm	mm	mm	mm					
3	6	2,8	12,0	18	54	6	0,10	4	030			
3	8	2,8	15,0	21	57	6	0,10	4		030		
4	8	3,8	13,5	18	54	6	0,13	4	040			
4	11	3,8	16,5	21	57	6	0,13	4		040		
5	9	4,8	15,5	18	54	6	0,18	4	050			
5	13	4,8	18,5	21	57	6	0,18	4		050		
5	22	4,8	24,5	27	63	6	0,18	4			050	
6	10	5,5	18,0	18	54	6	0,20	4	060			
6	13	5,5	21,0	21	57	6	0,20	4		060		
6	13	5,5	42,0	44	80	6	0,20	4				060
6	22	5,5	27,0	27	63	6	0,20	4			060	
7	12	6,5	22,0	22	58	8	0,20	4	070			
7	19	6,5	27,0	27	63	8	0,20	4		070		
8	12	7,5	22,0	22	58	8	0,20	4	080			
8	19	7,5	27,0	27	63	8	0,20	4		080		
8	21	7,5	62,0	64	100	8	0,20	4				080
8	28	7,5	36,0	44	80	8	0,20	4			080	
9	14	8,5	26,0	26	66	10	0,30	4	090			
9	22	8,5	32,0	32	72	10	0,20	4		090		
10	14	9,5	26,0	26	66	10	0,30	4	100			
10	22	9,5	32,0	32	72	10	0,30	4		100		
10	22	9,5	58,0	60	100	10	0,30	4				100
10	33	9,5	54,0	60	100	10	0,30	4			100	
11	16	10,5	28,0	28	73	12	0,30	4	110			
11	26	10,5	38,0	38	83	12	0,30	4		110		
12	16	11,5	28,0	28	73	12	0,30	4	120			
12	26	11,5	38,0	38	83	12	0,30	4		120		
12	26	11,5	73,0	75	120	12	0,30	4				120
12	42	11,5	54,0	55	100	12	0,30	4			120	
13	18	12,5	30,0	30	75	14	0,30	4	130			
13	26	12,5	38,0	38	83	14	0,30	4		130		
14	18	13,5	30,0	30	75	14	0,30	4	140			
14	26	13,5	38,0	38	83	14	0,30	4		140		
14	48	13,5	54,0	55	100	14	0,30	4			140	
16	22	15,5	34,0	34	82	16	0,40	4	160			
16	36	15,5	44,0	44	92	16	0,40	4		160		
16	36	15,5	100,0	102	150	16	0,40	4				160
16	53	15,5	84,0	102	150	16	0,40	4			160	
18	24	17,5	34,0	36	84	18	0,40	4	180			
18	36	17,5	52,0	52	100	18	0,40	4		180		
20	26	19,5	42,0	42	92	20	0,50	4	200			
20	38	19,5	54,0	54	104	20	0,50	4		200		
20	38	19,5	100,0	100	150	20	0,50	4				200
20	68	19,5	84,0	100	150	20	0,50	4			200	
25	32	24,0	46,0	49	105	25	0,50	4	250			
25	42	24,0	65,0	65	121	25	0,50	4		250		
25	68	24,0	84,0	94	150	25	0,50	4			250	

Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

→ v_c/f_z Page 304–307

14

S-Cut – End milling cutter

SC
UNI

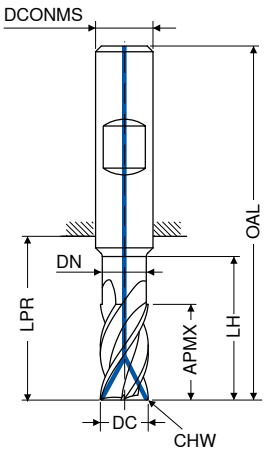
λ_s=28°
γ_s=10°

ZEFP

HPC

APX72S







≈DIN 6527

HB

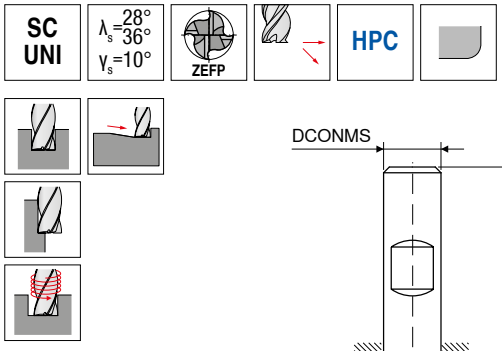
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Article no. 52 229 ...
6	13	5,5	21	21	57	6	0,2	4	**060**
8	19	7,5	27	27	63	8	0,2	4	**080**
10	22	9,5	32	32	72	10	0,3	4	**100**
12	26	11,5	38	38	83	12	0,3	4	**120**
14	26	13,5	42	42	83	14	0,3	4	**140**
16	36	15,5	46	46	92	16	0,4	4	**160**
20	38	19,5	54	54	104	20	0,5	4	**200**
25	42	24,0	65	65	121	25	0,5	4	**250**

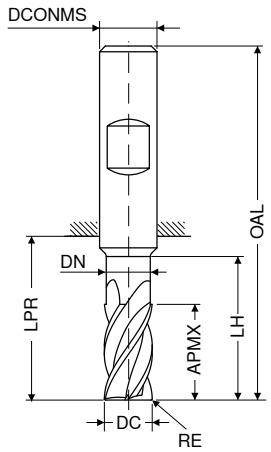
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 304+305

S-Cut – End milling cutter with corner radius

SC
UNI
λ_s=28°
γ_s=10°
ZEFP
HPC





APX72S





≈DIN 6527

HB

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 52 228 ...
3	0,25	8	2,8	15,0	21	57	6	4	03003
3	0,50	8	2,8	15,0	21	57	6	4	03005
3	1,00	8	2,8	15,0	21	57	6	4	03010
4	0,25	11	3,8	16,5	21	57	6	4	04003
4	0,50	11	3,8	16,5	21	57	6	4	04005
4	1,00	11	3,8	16,5	21	57	6	4	04010
5	0,50	13	4,8	18,5	21	57	6	4	05005
5	1,00	13	4,8	18,5	21	57	6	4	05010
5	1,50	13	4,8	18,5	21	57	6	4	05015
6	0,50	13	5,5	21,0	21	57	6	4	06005
6	0,80	13	5,5	21,0	21	57	6	4	06008
6	1,00	13	5,5	21,0	21	57	6	4	06010
6	1,50	13	5,5	21,0	21	57	6	4	06015
6	2,00	13	5,5	21,0	21	57	6	4	06020
8	0,50	19	7,5	27,0	27	63	8	4	08005
8	0,80	19	7,5	27,0	27	63	8	4	08008
8	1,00	19	7,5	27,0	27	63	8	4	08010
8	1,50	19	7,5	27,0	27	63	8	4	08015
8	2,00	19	7,5	27,0	27	63	8	4	08020
10	0,50	22	9,5	32,0	32	72	10	4	10005
10	1,00	22	9,5	32,0	32	72	10	4	10010
10	1,50	22	9,5	32,0	32	72	10	4	10015
10	1,60	22	9,5	32,0	32	72	10	4	10016
10	2,00	22	9,5	32,0	32	72	10	4	10020
12	0,50	26	11,5	38,0	38	83	12	4	12005
12	1,00	26	11,5	38,0	38	83	12	4	12010
12	1,50	26	11,5	38,0	38	83	12	4	12015
12	1,60	26	11,5	38,0	38	83	12	4	12016
12	2,00	26	11,5	38,0	38	83	12	4	12020
12	3,00	26	11,5	38,0	38	83	12	4	12030
14	1,00	26	13,5	38,0	38	83	14	4	14010
14	2,00	26	13,5	38,0	38	83	14	4	14020
16	1,00	36	15,5	44,0	44	92	16	4	16010
16	1,50	36	15,5	44,0	44	92	16	4	16015
16	1,60	36	15,5	44,0	44	92	16	4	16016
16	2,00	36	15,5	44,0	44	92	16	4	16020
16	2,50	36	15,5	44,0	44	92	16	4	16025
16	3,00	36	15,5	44,0	44	92	16	4	16030
16	3,20	36	15,5	44,0	44	92	16	4	16032
18	1,50	36	17,5	44,0	44	92	18	4	18015
18	2,50	36	17,5	44,0	44	92	18	4	18025
20	1,00	38	19,5	54,0	54	104	20	4	20010

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 304+305

14

Continued on next page

S-Cut – End milling cutter with corner radius

SC
UNI

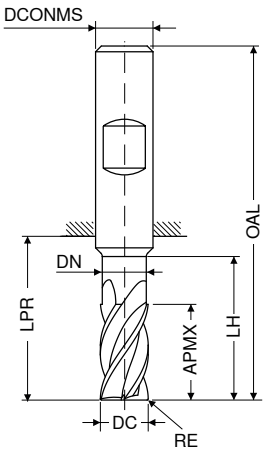
λ_s=28°
γ_s=10°

ZEFP

HPC

APX72S





≈DIN 6527

HB

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 52 228 ...
20	1,50	38	19,5	54,0	54	104	20	4	20015
20	2,00	38	19,5	54,0	54	104	20	4	20020
20	2,50	38	19,5	54,0	54	104	20	4	20025
20	3,00	38	19,5	54,0	54	104	20	4	20030
20	4,00	38	19,5	54,0	54	104	20	4	20040
25	1,00	42	24,0	65,0	65	121	25	4	25010
25	1,50	42	24,0	65,0	65	121	25	4	25015
25	2,00	42	24,0	65,0	65	121	25	4	25020
25	2,50	42	24,0	65,0	65	121	25	4	25025
25	3,00	42	24,0	65,0	65	121	25	4	25030
25	4,00	42	24,0	65,0	65	121	25	4	25040
25	5,00	42	24,0	65,0	65	121	25	4	25050

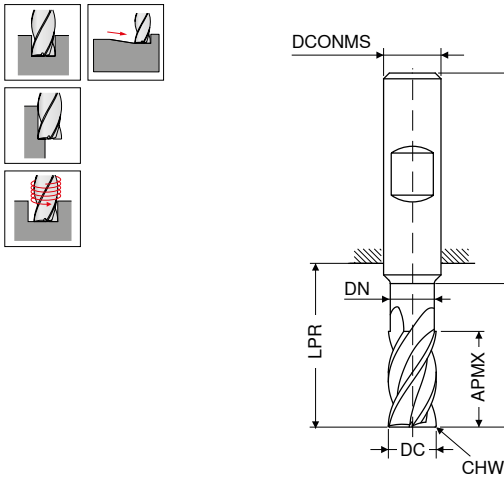
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 304+305

S-Cut – End milling cutter

▲ suitable for trochoidal milling

SC UNI | λ_s=28° 36° γ_s=10° | ZEFP | HPC



APX72S





≈DIN 6527

HB

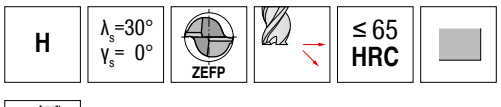
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Article no. 52 230 ...
6	18	5,5	25	26	62	6	0,12	5	060
8	24	7,5	30	32	68	8	0,16	5	080
10	30	9,5	35	40	80	10	0,20	5	100
12	36	11,5	45	48	93	12	0,24	5	120
16	48	15,5	55	60	108	16	0,32	5	160
20	60	19,5	70	76	126	20	0,40	5	200

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	
Heat resistant alloys	○
hardened materials	

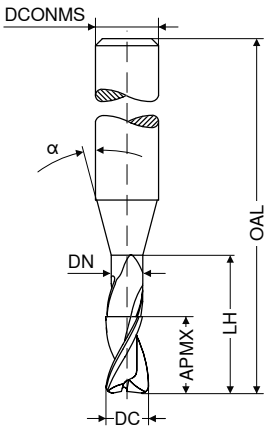
→ v_c/f_z Page 308+309

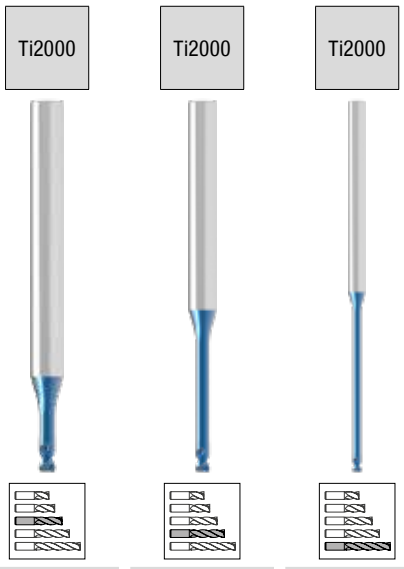
BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

HA | HA | HA

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	Article no. 52 345 ...	Article no. 52 346 ...	Article no. 52 347 ...
0,2	0,3	0,18	0,5	45	16	4	2,5 x DC	2	**302**		
0,2	0,3	0,18	1,0	45	16	4	5 x DC	2	**402**		
0,2	0,3	0,18	1,5	45	16	4	7,5 x DC	2	**502**		
0,3	0,4	0,28	1,0	45	16	4	3,3 x DC	2	**303**		
0,3	0,4	0,28	2,0	45	16	4	6,6 x DC	2	**403**		
0,3	0,4	0,28	3,0	45	16	4	10 x DC	2		**303**	
0,3	0,4	0,28	6,0	45	16	4	20 x DC	2		**403**	
0,3	0,4	0,28	9,0	45	16	4	30 x DC	2			**303**
0,4	0,6	0,38	2,0	45	16	4	5 x DC	2	**304**		
0,4	0,6	0,38	3,0	45	16	4	7,5 x DC	2	**404**		
0,4	0,6	0,38	4,0	45	16	4	10 x DC	2		**304**	
0,4	0,6	0,38	5,0	45	16	4	12,5 x DC	2		**404**	
0,4	0,6	0,38	8,0	45	16	4	20 x DC	2			**304**
0,4	0,6	0,38	12,0	45	16	4	30 x DC	2			**404**
0,5	0,7	0,48	2,0	45	16	4	4 x DC	2	**305**		
0,5	0,7	0,48	4,0	45	16	4	8 x DC	2	**405**		
0,5	0,7	0,48	6,0	45	16	4	12 x DC	2		**305**	
0,5	0,7	0,48	8,0	45	16	4	16 x DC	2		**405**	
0,5	0,7	0,48	10,0	50	16	4	20 x DC	2			**305**
0,5	0,7	0,48	15,0	50	16	4	30 x DC	2			**405**
0,6	0,9	0,58	2,0	45	16	4	3,3 x DC	2	**306**		
0,6	0,9	0,58	4,0	45	16	4	6,6 x DC	2	**406**		
0,6	0,9	0,58	6,0	45	16	4	10 x DC	2		**306**	
0,6	0,9	0,58	8,0	45	16	4	13,3 x DC	2		**406**	
0,6	0,9	0,58	10,0	45	16	4	16,6 x DC	2		**506**	
0,6	0,9	0,58	12,0	50	16	4	20 x DC	2			**306**
0,6	0,9	0,58	18,0	50	16	4	30 x DC	2			**406**
0,7	1,0	0,68	2,0	45	16	4	2,8 x DC	2	**307**		
0,7	1,0	0,68	4,0	45	16	4	5,7 x DC	2	**407**		
0,7	1,0	0,68	6,0	45	16	4	8,5 x DC	2	**507**		
0,7	1,0	0,68	8,0	45	16	4	11,4 x DC	2		**307**	
0,7	1,0	0,68	10,0	50	16	4	14,2 x DC	2		**407**	
0,8	1,2	0,78	4,0	45	16	4	5 x DC	2	**308**		
0,8	1,2	0,78	6,0	45	16	4	7,5 x DC	2	**408**		
0,8	1,2	0,78	8,0	45	16	4	10 x DC	2		**308**	
0,8	1,2	0,78	10,0	50	16	4	12,5 x DC	2		**408**	
0,8	1,2	0,78	12,0	50	16	4	15 x DC	2		**508**	
0,8	1,2	0,78	16,0	50	16	4	20 x DC	2			**308**
0,8	1,2	0,78	24,0	60	16	4	30 x DC	2			**408**
0,9	1,3	0,88	4,0	45	16	4	4,4 x DC	2	**309**		
0,9	1,3	0,88	6,0	45	16	4	6,6 x DC	2	**409**		
0,9	1,3	0,88	8,0	45	16	4	8,8 x DC	2	**509**		
0,9	1,3	0,88	10,0	45	16	4	11,1 x DC	2		**309**	
0,9	1,3	0,88	15,0	50	16	4	16,6 x DC	2		**409**	
1,0	1,5	0,95	4,0	45	16	4	4 x DC	2	**310**		
1,0	1,5	0,95	6,0	45	16	4	6 x DC	2	**410**		
1,0	1,5	0,95	8,0	45	16	4	8 x DC	2	**510**		

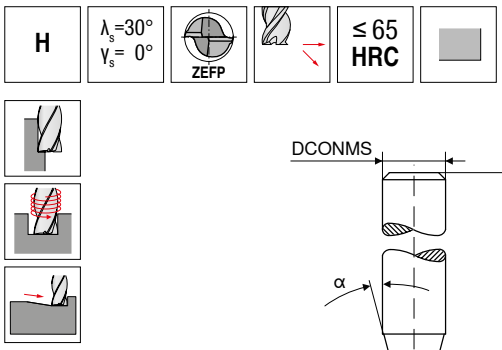
Steel	●	●	●
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	●	●	●

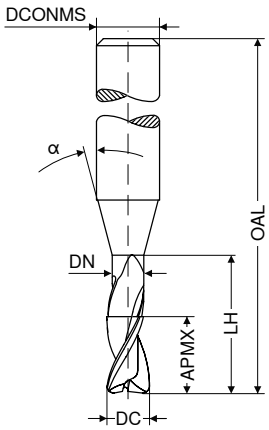
→ v_c/f_z Page 316+317

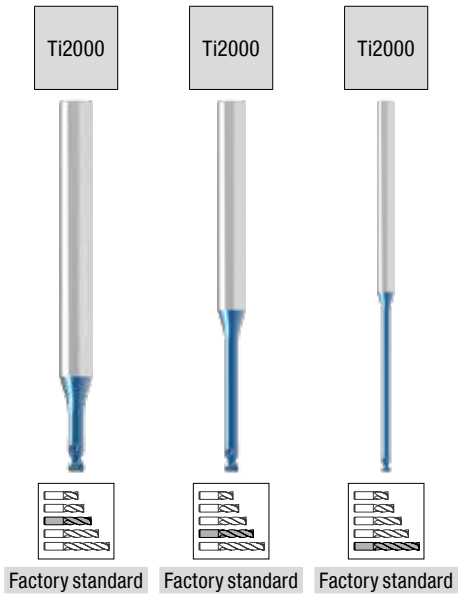
Continued on next page

BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth







DC -0,01	APMX	DN	LH	OAL	α°	DCONMS h5	T_x	ZEFP	Article no. 52 345 ...	Article no. 52 346 ...	Article no. 52 347 ...
mm	mm	mm	mm	mm		mm					
1,0	1,5	0,95	10,0	45	16	4	10 x DC	2		310	
1,0	1,5	0,95	12,0	45	16	4	12 x DC	2		410	
1,0	1,5	0,95	14,0	45	16	4	14 x DC	2		510	
1,0	1,5	0,95	16,0	50	16	4	16 x DC	2		610	
1,0	1,5	0,95	20,0	54	16	4	20 x DC	2			310
1,0	1,5	0,95	25,0	70	16	4	25 x DC	2			410
1,0	1,5	0,95	30,0	70	16	4	30 x DC	2			510
1,2	1,8	1,14	6,0	45	16	4	5 x DC	2	312		
1,2	1,8	1,14	8,0	45	16	4	6,6 x DC	2	412		
1,2	1,8	1,14	10,0	45	16	4	8,3 x DC	2	512		
1,2	1,8	1,14	12,0	45	16	4	10 x DC	2		312	
1,2	1,8	1,14	16,0	50	16	4	13,3 x DC	2		412	
1,2	1,8	1,14	20,0	60	16	4	16,6 x DC	2		512	
1,4	2,1	1,34	6,0	45	16	4	4,2 x DC	2	314		
1,4	2,1	1,34	8,0	45	16	4	5,7 x DC	2	414		
1,4	2,1	1,34	10,0	45	16	4	7,1 x DC	2	514		
1,4	2,1	1,34	12,0	45	16	4	8,5 x DC	2	614		
1,4	2,1	1,34	14,0	45	16	4	10 x DC	2		314	
1,4	2,1	1,34	16,0	50	16	4	11,4 x DC	2		414	
1,4	2,1	1,34	22,0	54	16	4	15,7 x DC	2		514	
1,5	2,3	1,44	6,0	45	16	4	4 x DC	2	315		
1,5	2,3	1,44	8,0	45	16	4	5,3 x DC	2	415		
1,5	2,3	1,44	10,0	45	16	4	6,6 x DC	2	515		
1,5	2,3	1,44	12,0	45	16	4	8 x DC	2	615		
1,5	2,3	1,44	14,0	50	16	4	9,3 x DC	2	715		
1,5	2,3	1,44	16,0	50	16	4	10,6 x DC	2		315	
1,5	2,3	1,44	18,0	54	16	4	12 x DC	2		415	
1,5	2,3	1,44	20,0	54	16	4	13,3 x DC	2		515	
1,5	2,3	1,44	25,0	70	16	4	16,6 x DC	2		615	
1,5	2,3	1,44	30,0	70	16	4	20 x DC	2		715	
1,5	2,3	1,44	35,0	70	16	4	23,3 x DC	2			315
1,5	2,3	1,44	40,0	80	16	4	26,6 x DC	2			415
1,5	2,3	1,44	45,0	80	16	4	30 x DC	2			515
1,6	2,4	1,51	6,0	45	16	4	3,7 x DC	2	316		
1,6	2,4	1,51	8,0	45	16	4	5 x DC	2	416		
1,6	2,4	1,51	10,0	45	16	4	6,2 x DC	2	516		
1,6	2,4	1,51	12,0	45	16	4	7,5 x DC	2	616		
1,6	2,4	1,51	14,0	50	16	4	8,75 x DC	2	716		
1,6	2,4	1,51	16,0	50	16	4	10 x DC	2		316	
1,6	2,4	1,51	18,0	54	16	4	11,25 x DC	2		416	
1,6	2,4	1,51	20,0	54	16	4	12,5 x DC	2		516	
1,6	2,4	1,51	26,0	60	16	4	16,2 x DC	2		616	
1,8	2,7	1,71	6,0	45	16	4	3,3 x DC	2	318		
1,8	2,7	1,71	8,0	45	16	4	4,4 x DC	2	418		
1,8	2,7	1,71	10,0	45	16	4	5,5 x DC	2	518		
1,8	2,7	1,71	12,0	45	16	4	6,6 x DC	2	618		
1,8	2,7	1,71	14,0	50	16	4	7,7 x DC	2	718		

Steel	●	●	●
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	●	●	●

→ v_c/f_z Page 316+317

14

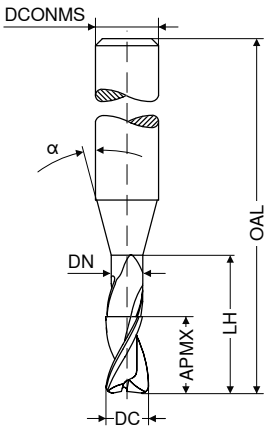
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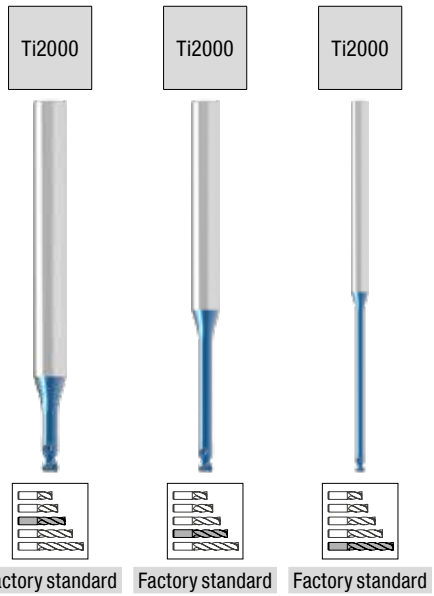
BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC







Factory standard | Factory standard | Factory standard

HA | HA | HA

DC $_{-0,01}$ mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	T_x	ZEFP	Article no. 52 345 ...	Article no. 52 346 ...	Article no. 52 347 ...
1,8	2,7	1,71	16,0	50	16	4	8,8 x DC	2	**818**		
1,8	2,7	1,71	18,0	54	16	4	10 x DC	2		**318**	
1,8	2,7	1,71	20,0	54	16	4	11,1 x DC	2		**418**	
1,8	2,7	1,71	25,0	60	16	4	13,8 x DC	2		**518**	
2,0	3,0	1,91	6,0	45	16	4	3 x DC	2	**320**		
2,0	3,0	1,91	8,0	45	16	4	4 x DC	2	**420**		
2,0	3,0	1,91	10,0	45	16	4	5 x DC	2	**520**		
2,0	3,0	1,91	12,0	45	16	4	6 x DC	2	**620**		
2,0	3,0	1,91	14,0	50	16	4	7 x DC	2	**720**		
2,0	3,0	1,91	16,0	50	16	4	8 x DC	2	**820**		
2,0	3,0	1,91	18,0	54	16	4	9 x DC	2	**920**		
2,0	3,0	1,91	20,0	54	16	4	10 x DC	2		**320**	
2,0	3,0	1,91	25,0	60	16	4	12,5 x DC	2		**420**	
2,0	3,0	1,91	30,0	70	16	4	15 x DC	2		**520**	
2,0	3,0	1,91	35,0	80	16	4	17,5 x DC	2		**620**	
2,0	3,0	1,91	40,0	90	16	4	20 x DC	2			**320**
2,0	3,0	1,91	50,0	100	16	4	25 x DC	2			**420**
2,0	3,0	1,91	60,0	110	16	4	30 x DC	2			**520**
2,5	3,7	2,41	8,0	45	16	4	3,2 x DC	2	**325**		
2,5	3,7	2,41	10,0	45	16	4	4 x DC	2	**425**		
2,5	3,7	2,41	12,0	45	16	4	4,8 x DC	2	**525**		
2,5	3,7	2,41	14,0	50	16	4	5,6 x DC	2	**625**		
2,5	3,7	2,41	16,0	50	16	4	6,4 x DC	2	**725**		
2,5	3,7	2,41	18,0	54	16	4	7,2 x DC	2	**825**		
2,5	3,7	2,41	20,0	54	16	4	8 x DC	2	**925**		
2,5	3,7	2,41	25,0	60	16	4	10 x DC	2		**325**	
2,5	3,7	2,41	30,0	70	16	4	12 x DC	2		**425**	
2,5	3,7	2,41	40,0	90	16	4	16 x DC	2		**525**	
2,5	3,7	2,41	50,0	100	16	4	20 x DC	2			**325**
3,0	4,5	2,92	8,0	45	16	4	2,6 x DC	2	**330**		
3,0	4,5	2,92	12,0	45	16	4	4 x DC	2	**430**		
3,0	4,5	2,92	16,0	50	16	4	5,3 x DC	2	**530**		
3,0	4,5	2,92	20,0	54	16	4	6,6 x DC	2	**630**		

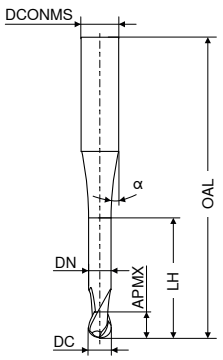
Steel	●	●	●
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	●	●	●

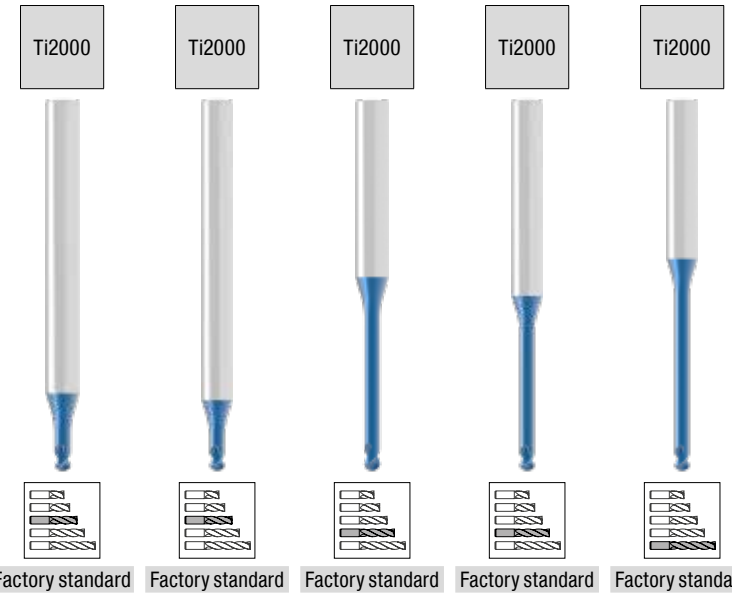
→ v_c/f_z Page 316+317

BlueLine – Micro-ball nosed cutter

▲ T_x = maximum engagement depth

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC





Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA | HA

DC $_{-0,01}$	APMX	DN	LH	OAL	α°	DCONMS $_{h5}$	T_x	ZEFP	Article no. 52 356 ...	Article no. 52 358 ...	Article no. 52 357 ...	Article no. 52 359 ...	Article no. 52 360 ...
mm	mm	mm	mm	mm		mm							
0,2	0,16	0,17	0,30	45	16	4	1,5 x DC	2	302				
0,2	0,16	0,17	0,50	45	16	4	2,5 x DC	2	402				
0,2	0,16	0,17	0,75	45	16	4	3,75 x DC	2	502				
0,2	0,16	0,17	1,00	45	16	4	5 x DC	2	602				
0,2	0,16	0,17	1,25	45	16	4	6,2 x DC	2	702				
0,2	0,16	0,17	1,50	45	16	4	7,5 x DC	2	802				
0,2	0,16	0,17	1,75	45	16	4	8,7 x DC	2	902				
0,2	0,16	0,17	2,00	45	16	4	10 x DC	2			302		
0,2	0,16	0,17	2,50	45	16	4	12,5 x DC	2			402		
0,2	0,16	0,17	3,00	45	16	4	15 x DC	2			502		
0,3	0,24	0,27	0,50	45	16	4	1,6 x DC	2	303				
0,3	0,24	0,27	0,75	45	16	4	2,5 x DC	2	403				
0,3	0,24	0,27	1,00	45	16	4	3,3 x DC	2	503				
0,3	0,24	0,27	1,25	45	16	4	4,1 x DC	2	603				
0,3	0,24	0,27	1,50	45	16	4	5 x DC	2	703				
0,3	0,24	0,27	1,75	50	16	4	5,8 x DC	2		303			
0,3	0,24	0,27	2,00	50	16	4	6,6 x DC	2		403			
0,3	0,24	0,27	2,25	50	16	4	7,5 x DC	2		503			
0,3	0,24	0,27	2,50	50	16	4	8,3 x DC	2		603			
0,3	0,24	0,27	2,75	50	16	4	9,1 x DC	2		703			
0,3	0,24	0,27	3,00	50	16	4	10 x DC	2				303	
0,3	0,24	0,27	3,50	50	16	4	11,6 x DC	2				403	
0,3	0,24	0,27	4,00	50	16	4	13,3 x DC	2				503	
0,3	0,24	0,27	4,50	50	16	4	15 x DC	2				603	
0,4	0,32	0,34	0,50	45	16	4	1,2 x DC	2	304				
0,4	0,32	0,34	1,00	45	16	4	2,5 x DC	2	404				
0,4	0,32	0,34	1,50	45	16	4	3,75 x DC	2	504				
0,4	0,32	0,34	2,00	45	16	4	5 x DC	2	604				
0,4	0,32	0,34	2,50	45	16	4	6,2 x DC	2	704				
0,4	0,32	0,34	3,00	45	16	4	7,5 x DC	2	804				
0,4	0,32	0,34	3,50	45	16	4	8,7 x DC	2	904				
0,4	0,32	0,34	4,00	45	16	4	10 x DC	2			304		
0,4	0,32	0,34	4,50	45	16	4	11,2 x DC	2			404		
0,4	0,32	0,34	5,00	45	16	4	12,5 x DC	2			504		
0,4	0,32	0,34	5,50	45	16	4	13,7 x DC	2			604		
0,4	0,32	0,34	6,00	45	16	4	15 x DC	2			704		
0,5	0,40	0,47	1,50	45	16	4	3 x DC	2	305				
0,5	0,40	0,47	2,00	45	16	4	4 x DC	2	405				
0,5	0,40	0,47	2,50	45	16	4	5 x DC	2	505				
0,5	0,40	0,47	3,00	45	16	4	6 x DC	2	605				
0,5	0,40	0,47	3,50	45	16	4	7 x DC	2	705				
0,5	0,40	0,47	4,00	45	16	4	8 x DC	2	805				
0,5	0,40	0,47	4,50	45	16	4	9 x DC	2	905				
0,5	0,40	0,47	5,00	45	16	4	10 x DC	2			305		

Steel	●	●	●	●	●
Stainless steel					
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials	●	●	●	●	●

→ v_c/f_z Page 316+317

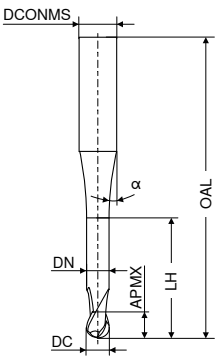
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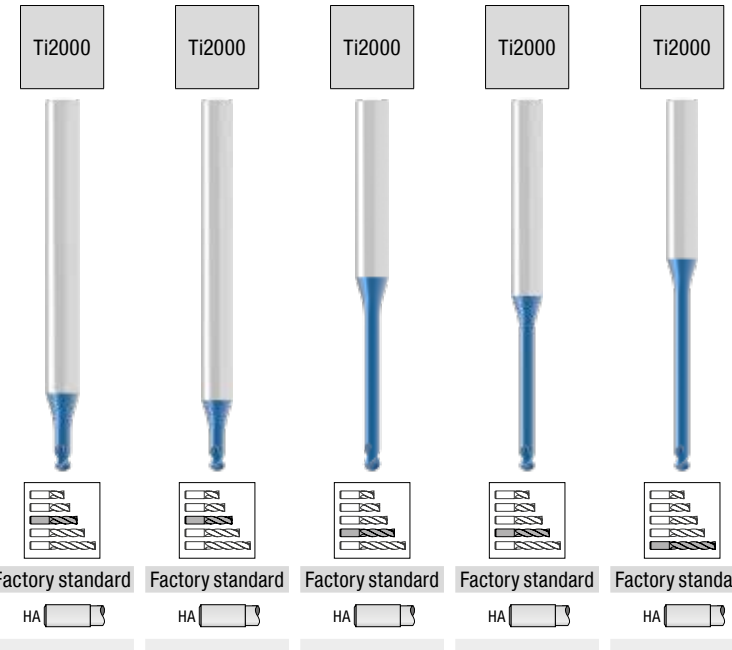
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BlueLine – Micro-ball nosed cutter

▲ T_x = maximum engagement depth

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC





Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA | HA

DC $_{-0,01}$	APMX	DN	LH	OAL	α°	DCONMS $_{h5}$	T_x	ZEFP	Article no. 52 356 ...	Article no. 52 358 ...	Article no. 52 357 ...	Article no. 52 359 ...	Article no. 52 360 ...
mm	mm	mm	mm	mm		mm							
0,5	0,40	0,47	5,50	45	16	4	11 x DC	2			405		
0,5	0,40	0,47	6,00	45	16	4	12 x DC	2			505		
0,5	0,40	0,47	7,00	45	16	4	14 x DC	2			605		
0,5	0,40	0,47	8,00	45	16	4	16 x DC	2			705		
0,5	0,40	0,47	9,00	45	16	4	18 x DC	2			805		
0,5	0,40	0,47	10,00	50	16	4	20 x DC	2					305
0,6	0,40	0,57	12,00	50	16	4	20 x DC	2					306
0,6	0,48	0,57	1,00	45	16	4	1,6 x DC	2	306				
0,6	0,48	0,57	2,00	45	16	4	3,3 x DC	2	406				
0,6	0,48	0,57	3,00	45	16	4	5 x DC	2	506				
0,6	0,48	0,57	4,00	45	16	4	6,6 x DC	2	606				
0,6	0,48	0,57	5,00	45	16	4	8,3 x DC	2	706				
0,6	0,48	0,57	6,00	45	16	4	10 x DC	2			306		
0,6	0,48	0,57	8,00	45	16	4	13,3 x DC	2			406		
0,6	0,48	0,57	10,00	50	16	4	16,6 x DC	2				306	
0,8	0,64	0,77	2,00	45	16	4	2,5 x DC	2	308				
0,8	0,64	0,77	3,00	45	16	4	3,75 x DC	2	408				
0,8	0,64	0,77	4,00	45	16	4	5 x DC	2	508				
0,8	0,64	0,77	5,00	45	16	4	6,2 x DC	2	608				
0,8	0,64	0,77	6,00	45	16	4	7,5 x DC	2	708				
0,8	0,64	0,77	7,00	45	16	4	8,7 x DC	2	808				
0,8	0,64	0,77	8,00	45	16	4	10 x DC	2			308		
0,8	0,64	0,77	9,00	45	16	4	11,2 x DC	2			408		
0,8	0,64	0,77	10,00	50	16	4	12,5 x DC	2				308	
1,0	0,80	0,96	3,00	45	16	4	3 x DC	2	310				
1,0	0,80	0,96	4,00	45	16	4	4 x DC	2	410				
1,0	0,80	0,96	5,00	45	16	4	5 x DC	2	510				
1,0	0,80	0,96	6,00	45	16	4	6 x DC	2	610				
1,0	0,80	0,96	7,00	45	16	4	7 x DC	2	710				
1,0	0,80	0,96	8,00	45	16	4	8 x DC	2	810				
1,0	0,80	0,96	9,00	45	16	4	9 x DC	2	910				
1,0	0,80	0,96	10,00	45	16	4	10 x DC	2			310		
1,0	0,80	0,96	12,00	45	16	4	12 x DC	2			410		
1,0	0,80	0,96	14,00	50	16	4	14 x DC	2				310	
1,0	0,80	0,96	16,00	50	16	4	16 x DC	2				410	
1,2	0,96	1,16	6,00	45	16	4	5 x DC	2	312				
1,2	0,96	1,16	8,00	45	16	4	6,6 x DC	2	412				
1,2	0,96	1,16	10,00	45	16	4	8,3 x DC	2	512				
1,2	0,96	1,16	12,00	45	16	4	10 x DC	2			312		
1,2	0,96	1,16	14,00	50	16	4	11,6 x DC	2				312	
1,2	0,96	1,16	16,00	50	16	4	13,3 x DC	2				412	
1,4	1,12	1,34	8,00	45	16	4	5,7 x DC	2	314				
1,4	1,12	1,34	12,00	45	16	4	8,5 x DC	2	414				
1,4	1,12	1,34	16,00	50	16	4	11,4 x DC	2				314	
Steel									●	●	●	●	●
Stainless steel													
Cast iron													
Non ferrous metals													
Heat resistant alloys													
hardened materials									●	●	●	●	●

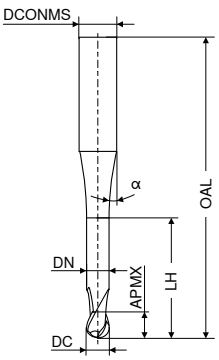
→ v_c/f_z Page 316+317

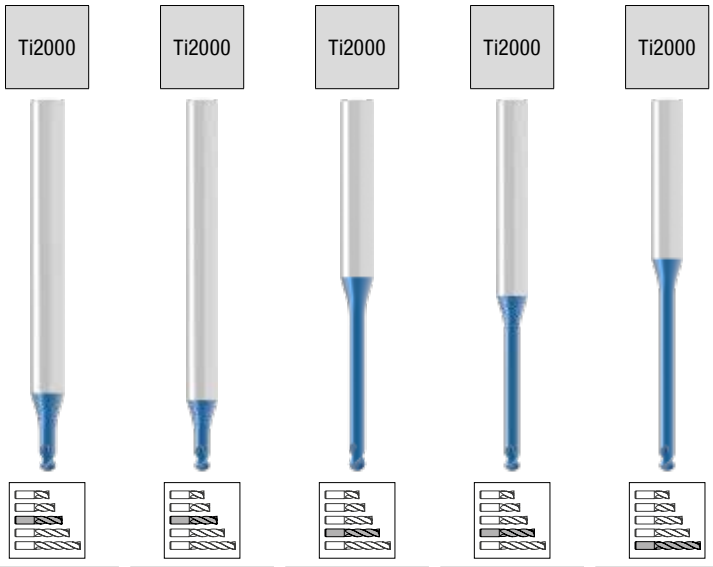
Continued on next page

BlueLine – Micro-ball nosed cutter

▲ T_x = maximum engagement depth

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC





Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA | HA

DC $_{-0,01}$	APMX	DN	LH	OAL	α°	DCONMS $_{h5}$	T_x	ZEFP	Article no. 52 356 ...	Article no. 52 358 ...	Article no. 52 357 ...	Article no. 52 359 ...	Article no. 52 360 ...
mm	mm	mm	mm	mm		mm							
1,5	1,20	1,44	3,00	45	16	4	2 x DC	2	**315**				
1,5	1,20	1,44	4,00	45	16	4	2,6 x DC	2	**415**				
1,5	1,20	1,44	6,00	45	16	4	4 x DC	2	**515**				
1,5	1,20	1,44	8,00	45	16	4	5,3 x DC	2	**615**				
1,5	1,20	1,44	10,00	45	16	4	6,6 x DC	2	**715**				
1,5	1,20	1,44	12,00	45	16	4	8 x DC	2	**815**				
1,5	1,20	1,44	14,00	50	16	4	9,3 x DC	2		**315**			
1,5	1,20	1,44	16,00	50	16	4	10,6 x DC	2				**315**	
1,6	1,28	1,54	8,00	45	16	4	5 x DC	2	**316**				
1,6	1,28	1,54	12,00	45	16	4	7,5 x DC	2	**416**				
1,6	1,28	1,54	16,00	50	16	4	10 x DC	2				**316**	
1,8	1,44	1,74	8,00	45	16	4	4,4 x DC	2	**318**				
1,8	1,44	1,74	12,00	45	16	4	6,6 x DC	2	**418**				
1,8	1,44	1,74	16,00	50	16	4	8,8 x DC	2		**318**			
2,0	1,60	1,94	3,00	45	16	4	1,5 x DC	2	**320**				
2,0	1,60	1,94	4,00	45	16	4	2 x DC	2	**420**				
2,0	1,60	1,94	6,00	45	16	4	3 x DC	2	**520**				
2,0	1,60	1,94	8,00	45	16	4	4 x DC	2	**620**				
2,0	1,60	1,94	10,00	45	16	4	5 x DC	2	**720**				
2,0	1,60	1,94	12,00	45	16	4	6 x DC	2	**820**				
2,0	1,60	1,94	14,00	50	16	4	7 x DC	2		**320**			
2,0	1,60	1,94	16,00	50	16	4	8 x DC	2		**420**			
2,5	2,00	2,41	10,00	45	16	4	4 x DC	2	**325**				
2,5	2,00	2,41	15,00	50	16	4	6 x DC	2		**325**			
3,0	3,50	2,92	8,00	45	16	4	2,6 x DC	2	**330**				
3,0	3,50	2,92	10,00	45	16	4	3,3 x DC	2	**430**				
3,0	3,50	2,92	12,00	45	16	4	4 x DC	2	**530**				
3,0	3,50	2,92	16,00	45	16	4	5,3 x DC	2	**630**				
3,0	3,50	2,92	16,00	50	16	4	5,3 x DC	2		**330**			

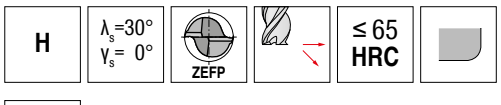
Steel	●	●	●	●	●
Stainless steel					
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials	●	●	●	●	●

→ v_c/f_z Page 316+317

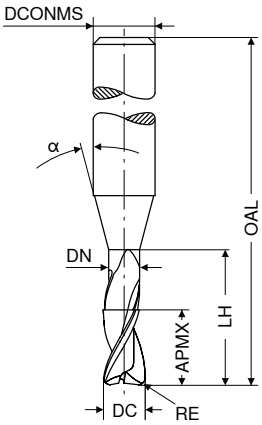
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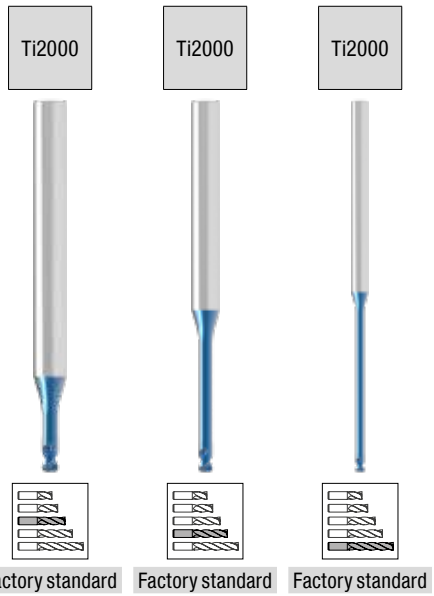
BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

HA | HA | HA

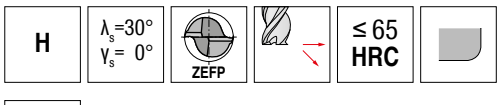
DC -0,012	RE ±0,005	APMX	DN	LH	OAL	α°	DCONMS h5	T_x	ZEFP	Article no. 52 349 ...	Article no. 52 350 ...	Article no. 52 351 ...
mm	mm	mm	mm	mm	mm		mm					
0,4	0,1	0,4	0,38	1,0	50	16	4	2,5 x DC	2	30401		
0,4	0,1	0,4	0,38	1,5	50	16	4	3,75 x DC	2	40401		
0,4	0,1	0,4	0,38	2,0	50	16	4	5 x DC	2	50401		
0,4	0,1	0,4	0,38	3,0	50	16	4	7,5 x DC	2	60401		
0,4	0,1	0,4	0,38	4,0	50	16	4	10 x DC	2		30401	
0,5	0,1	0,5	0,48	1,0	50	16	4	2 x DC	2	30501		
0,5	0,1	0,5	0,48	2,0	50	16	4	4 x DC	2	40501		
0,5	0,1	0,5	0,48	3,0	50	16	4	6 x DC	2	50501		
0,5	0,1	0,5	0,48	4,0	50	16	4	8 x DC	2	60501		
0,5	0,1	0,5	0,48	5,0	50	16	4	10 x DC	2		30501	
0,5	0,1	0,5	0,48	6,0	50	16	4	12 x DC	2		40501	
0,6	0,1	0,6	0,58	2,0	50	16	4	3,3 x DC	2	30601		
0,6	0,1	0,6	0,58	3,0	50	16	4	5 x DC	2	40601		
0,6	0,1	0,6	0,58	4,0	50	16	4	6,6 x DC	2	50601		
0,6	0,1	0,6	0,58	6,0	50	16	4	10 x DC	2		30601	
0,6	0,1	0,6	0,58	8,0	50	16	4	13,3 x DC	2		40601	
0,7	0,1	0,7	0,68	4,0	50	16	4	5,7 x DC	2	30701		
0,7	0,1	0,7	0,68	6,0	50	16	4	8,5 x DC	2	40701		
0,8	0,1	0,8	0,78	4,0	50	16	4	5 x DC	2	30801		
0,8	0,1	0,8	0,78	6,0	50	16	4	7,5 x DC	2	40801		
0,8	0,2	0,8	0,78	4,0	50	16	4	5 x DC	2	30802		
0,8	0,2	0,8	0,78	6,0	50	16	4	7,5 x DC	2	40802		
1,0	0,1	1,0	0,95	2,0	50	16	4	2 x DC	2	31001		
1,0	0,1	1,0	0,95	4,0	50	16	4	4 x DC	2	41001		
1,0	0,1	1,0	0,95	6,0	50	16	4	6 x DC	2	51001		
1,0	0,1	1,0	0,95	8,0	50	16	4	8 x DC	2	61001		
1,0	0,1	1,0	0,95	10,0	50	16	4	10 x DC	2		31001	
1,0	0,1	1,0	0,95	12,0	54	16	4	12 x DC	2		41001	
1,0	0,1	1,0	0,95	16,0	60	16	4	16 x DC	2		51001	
1,0	0,1	1,0	0,95	20,0	60	16	4	20 x DC	2			31001
1,0	0,2	1,0	0,95	2,0	50	16	4	2 x DC	2	31002		
1,0	0,2	1,0	0,95	4,0	50	16	4	4 x DC	2	41002		
1,0	0,2	1,0	0,95	6,0	50	16	4	6 x DC	2	51002		
1,0	0,2	1,0	0,95	8,0	50	16	4	8 x DC	2	61002		
1,0	0,2	1,0	0,95	10,0	50	16	4	10 x DC	2		31002	
1,0	0,2	1,0	0,95	12,0	54	16	4	12 x DC	2		41002	
1,0	0,2	1,0	0,95	16,0	60	16	4	16 x DC	2		51002	
1,0	0,2	1,0	0,95	20,0	60	16	4	20 x DC	2			31002
1,0	0,3	1,0	0,95	2,0	50	16	4	2 x DC	2	31003		
1,0	0,3	1,0	0,95	4,0	50	16	4	4 x DC	2	41003		
1,0	0,3	1,0	0,95	6,0	50	16	4	6 x DC	2	51003		
1,0	0,3	1,0	0,95	8,0	50	16	4	8 x DC	2	61003		
1,0	0,3	1,0	0,95	10,0	50	16	4	10 x DC	2		31003	
1,0	0,3	1,0	0,95	12,0	54	16	4	12 x DC	2		41003	
1,0	0,3	1,0	0,95	16,0	60	16	4	16 x DC	2		51003	
1,0	0,3	1,0	0,95	20,0	60	16	4	20 x DC	2			31003
1,2	0,2	1,2	1,14	6,0	50	16	4	5 x DC	2	31202		
Steel										●	●	●
Stainless steel												
Cast iron												
Non ferrous metals												
Heat resistant alloys												
hardened materials										●	●	●

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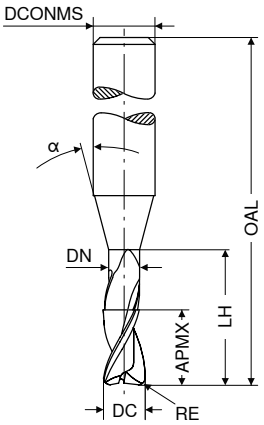
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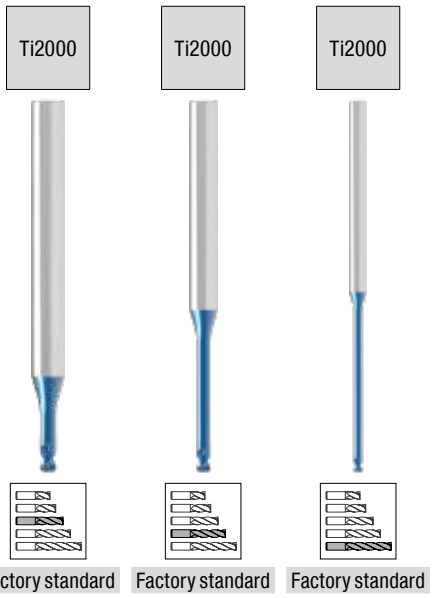
BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth









DC -0,012	RE ±0,005	APMX	DN	LH	OAL	α°	DCONMS h5	T_x	ZEFP	Article no. 52 349 ...	Article no. 52 350 ...	Article no. 52 351 ...
mm	mm	mm	mm	mm	mm		mm					
1,2	0,2	1,2	1,14	12,0	54	16	4	10 x DC	2		31202	
1,2	0,2	1,2	1,14	20,0	60	16	4	16,6 x DC	2		41202	
1,2	0,3	1,2	1,14	6,0	50	16	4	5 x DC	2	31203		
1,2	0,3	1,2	1,14	12,0	54	16	4	10 x DC	2		31203	
1,2	0,3	1,2	1,14	20,0	60	16	4	16,6 x DC	2		41203	
1,5	0,2	1,5	1,44	4,0	50	16	4	2,6 x DC	2	31502		
1,5	0,2	1,5	1,44	6,0	50	16	4	4 x DC	2	41502		
1,5	0,2	1,5	1,44	8,0	50	16	4	5,3 x DC	2	51502		
1,5	0,2	1,5	1,44	10,0	50	16	4	6,6 x DC	2	61502		
1,5	0,2	1,5	1,44	12,0	54	16	4	8 x DC	2	71502		
1,5	0,2	1,5	1,44	16,0	54	16	4	10,6 x DC	2		31502	
1,5	0,2	1,5	1,44	20,0	60	16	4	13,3 x DC	2		41502	
1,5	0,3	1,5	1,44	4,0	50	16	4	2,6 x DC	2	31503		
1,5	0,3	1,5	1,44	6,0	50	16	4	4 x DC	2	41503		
1,5	0,3	1,5	1,44	8,0	50	16	4	5,3 x DC	2	51503		
1,5	0,3	1,5	1,44	10,0	50	16	4	6,6 x DC	2	61503		
1,5	0,3	1,5	1,44	12,0	54	16	4	8 x DC	2	71503		
1,5	0,3	1,5	1,44	16,0	54	16	4	10,6 x DC	2		31503	
1,5	0,3	1,5	1,44	20,0	60	16	4	13,3 x DC	2		41503	
1,5	0,5	1,5	1,44	4,0	50	16	4	2,6 x DC	2	31505		
1,5	0,5	1,5	1,44	6,0	50	16	4	4 x DC	2	41505		
1,5	0,5	1,5	1,44	8,0	50	16	4	5,3 x DC	2	51505		
1,5	0,5	1,5	1,44	10,0	50	16	4	6,6 x DC	2	61505		
1,5	0,5	1,5	1,44	12,0	54	16	4	8 x DC	2	71505		
1,5	0,5	1,5	1,44	16,0	54	16	4	10,6 x DC	2		31505	
1,5	0,5	1,5	1,44	20,0	60	16	4	13,3 x DC	2		41505	
2,0	0,1	2,0	1,91	4,0	50	16	4	2 x DC	2	32001		
2,0	0,1	2,0	1,91	6,0	50	16	4	3 x DC	2	42001		
2,0	0,1	2,0	1,91	8,0	50	16	4	4 x DC	2	52001		
2,0	0,1	2,0	1,91	10,0	50	16	4	5 x DC	2	62001		
2,0	0,1	2,0	1,91	12,0	54	16	4	6 x DC	2	72001		
2,0	0,1	2,0	1,91	16,0	54	16	4	8 x DC	2	82001		
2,0	0,1	2,0	1,91	20,0	60	16	4	10 x DC	2		32001	
2,0	0,1	2,0	1,91	26,0	70	16	4	13 x DC	2		42001	
2,0	0,2	2,0	1,91	4,0	50	16	4	2 x DC	2	32002		
2,0	0,2	2,0	1,91	6,0	50	16	4	3 x DC	2	42002		
2,0	0,2	2,0	1,91	8,0	50	16	4	4 x DC	2	52002		
2,0	0,2	2,0	1,91	10,0	50	16	4	5 x DC	2	62002		
2,0	0,2	2,0	1,91	12,0	54	16	4	6 x DC	2	72002		
2,0	0,2	2,0	1,91	16,0	54	16	4	8 x DC	2	82002		
2,0	0,2	2,0	1,91	20,0	60	16	4	10 x DC	2		32002	
2,0	0,2	2,0	1,91	26,0	70	16	4	13 x DC	2		42002	
2,0	0,3	2,0	1,91	4,0	50	16	4	2 x DC	2	32003		
2,0	0,3	2,0	1,91	6,0	50	16	4	3 x DC	2	42003		
2,0	0,3	2,0	1,91	8,0	50	16	4	4 x DC	2	52003		
2,0	0,3	2,0	1,91	10,0	50	16	4	5 x DC	2	62003		
2,0	0,3	2,0	1,91	12,0	54	16	4	6 x DC	2	72003		

Steel	●	●	●
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	●	●	●

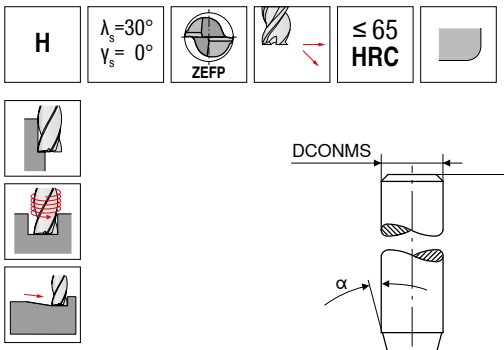
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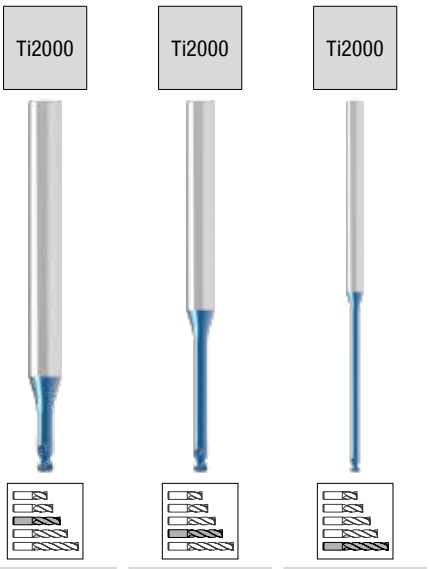
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BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth





Factory standard | Factory standard | Factory standard

HA | HA | HA

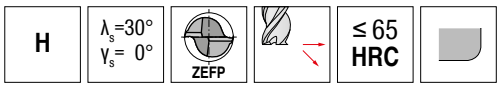
DC -0,012	RE ±0,005	APMX	DN	LH	OAL	α°	DCONMS h5	T_x	ZEFP	Article no. 52 349 ...	Article no. 52 350 ...	Article no. 52 351 ...
mm	mm	mm	mm	mm	mm		mm					
2,0	0,3	2,0	1,91	16,0	54	16	4	8 x DC	2	**82003**		
2,0	0,3	2,0	1,91	20,0	60	16	4	10 x DC	2		**32003**	
2,0	0,3	2,0	1,91	26,0	70	16	4	13 x DC	2		**42003**	
2,0	0,5	2,0	1,91	4,0	50	16	4	2 x DC	2	**32005**		
2,0	0,5	2,0	1,91	6,0	50	16	4	3 x DC	2	**42005**		
2,0	0,5	2,0	1,91	8,0	50	16	4	4 x DC	2	**52005**		
2,0	0,5	2,0	1,91	10,0	50	16	4	5 x DC	2	**62005**		
2,0	0,5	2,0	1,91	12,0	54	16	4	6 x DC	2	**72005**		
2,0	0,5	2,0	1,91	16,0	54	16	4	8 x DC	2	**82005**		
2,0	0,5	2,0	1,91	20,0	60	16	4	10 x DC	2		**32005**	
2,0	0,5	2,0	1,91	26,0	70	16	4	13 x DC	2		**42005**	
2,5	0,3	2,5	2,41	10,0	50	16	4	4 x DC	2	**32503**		
2,5	0,3	2,5	2,41	12,0	60	16	4	4,8 x DC	2	**42503**		
2,5	0,3	2,5	2,41	30,0	70	16	4	12 x DC	2		**32503**	
2,5	0,5	2,5	2,41	10,0	50	16	4	4 x DC	2	**32505**		
2,5	0,5	2,5	2,41	12,0	60	16	4	4,8 x DC	2	**42505**		
2,5	0,5	2,5	2,41	30,0	70	16	4	12 x DC	2		**32505**	
3,0	0,3	3,0	2,92	10,0	50	16	4	3,3 x DC	2	**33003**		
3,0	0,3	3,0	2,92	12,0	50	16	4	4 x DC	2	**43003**		
3,0	0,3	3,0	2,92	30,0	70	16	4	10 x DC	2		**33003**	
3,0	0,5	3,0	2,92	10,0	50	16	4	3,3 x DC	2	**33005**		
3,0	0,5	3,0	2,92	12,0	50	16	4	4 x DC	2	**43005**		
3,0	0,5	3,0	2,92	30,0	70	16	4	10 x DC	2		**33005**	

Steel	●	●	●
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	●	●	●

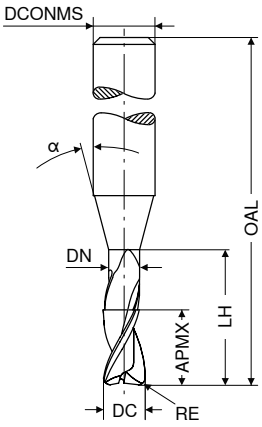
→ v_c/f_z Page 316+317

BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth













Factory standard



DC -0,008 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	Article no. 52 362 ...
0,6	0,1	0,6	0,58	2	50	16	4	3,3 x DC	2	**30601**
0,6	0,1	0,6	0,58	3	50	16	4	5 x DC	2	**40601**
0,6	0,1	0,6	0,58	4	50	16	4	6,6 x DC	2	**50601**
1,0	0,1	1,0	0,95	2	50	16	4	2 x DC	2	**31001**
1,0	0,1	1,0	0,95	4	50	16	4	4 x DC	2	**41001**
1,0	0,1	1,0	0,95	6	50	16	4	6 x DC	2	**51001**
1,0	0,2	1,0	0,95	2	50	16	4	2 x DC	2	**31002**
1,0	0,2	1,0	0,95	4	50	16	4	4 x DC	2	**41002**
1,0	0,2	1,0	0,95	6	50	16	4	6 x DC	2	**51002**
1,0	0,3	1,0	0,95	2	50	16	4	2 x DC	2	**31003**
1,0	0,3	1,0	0,95	4	50	16	4	4 x DC	2	**41003**
1,0	0,3	1,0	0,95	6	50	16	4	6 x DC	2	**51003**
2,0	0,1	2,0	1,91	4	50	16	4	2 x DC	2	**32001**
2,0	0,1	2,0	1,91	6	50	16	4	3 x DC	2	**42001**
2,0	0,1	2,0	1,91	8	50	16	4	4 x DC	2	**52001**
2,0	0,1	2,0	1,91	10	50	16	4	5 x DC	2	**62001**
2,0	0,1	2,0	1,91	12	54	16	4	6 x DC	2	**72001**
2,0	0,2	2,0	1,91	4	50	16	4	2 x DC	2	**32002**
2,0	0,2	2,0	1,91	6	50	16	4	3 x DC	2	**42002**
2,0	0,2	2,0	1,91	8	50	16	4	4 x DC	2	**52002**
2,0	0,2	2,0	1,91	10	50	16	4	5 x DC	2	**62002**
2,0	0,2	2,0	1,91	12	54	16	4	6 x DC	2	**72002**
2,0	0,3	2,0	1,91	4	50	16	4	2 x DC	2	**32003**
2,0	0,3	2,0	1,91	6	50	16	4	3 x DC	2	**42003**
2,0	0,3	2,0	1,91	8	50	16	4	4 x DC	2	**52003**
2,0	0,3	2,0	1,91	10	50	16	4	5 x DC	2	**62003**
2,0	0,3	2,0	1,91	12	54	16	4	6 x DC	2	**72003**
2,0	0,5	2,0	1,91	4	50	16	4	2 x DC	2	**32005**
2,0	0,5	2,0	1,91	6	50	16	4	3 x DC	2	**42005**
2,0	0,5	2,0	1,91	8	50	16	4	4 x DC	2	**52005**
2,0	0,5	2,0	1,91	10	50	16	4	5 x DC	2	**62005**
2,0	0,5	2,0	1,91	12	54	16	4	6 x DC	2	**72005**

Steel	●
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
hardened materials	●

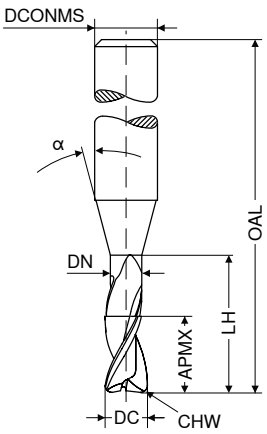
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BlueLine – End milling cutter

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC





Ti2000





Factory standard

HA 

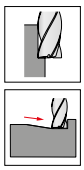
DC $_{e8}$ mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	CHW mm	ZEFP	Article no. 52 344 ...
0,5	1,5			58	12	6	0,02	2	**905**
1,0	3,0			58	12	6	0,02	2	**010**
1,5	4,0			58	12	6	0,03	2	**015**
2,0	5,0	1,8	12	58	20	6	0,03	2	**020**
2,5	6,0	2,3	13	58	20	6	0,04	2	**025**
3,0	8,0	2,8	15	58	20	6	0,04	2	**030**
3,5	8,0	3,3	15	58	20	6	0,05	2	**035**
4,0	11,0	3,8	15	58	20	6	0,05	2	**040**
5,0	13,0	4,8	21	58	20	6	0,06	2	**050**
6,0	16,0	5,8	24	58		6	0,07	2	**060**
8,0	19,0	7,8	27	64		8	0,08	2	**080**
10,0	22,0	9,8	32	73		10	0,10	2	**100**
12,0	26,0	11,8	38	84		12	0,13	2	**120**
16,0	32,0	15,7	44	93		16	0,18	2	**160**
20,0	38,0	19,7	54	104		20	0,20	2	**200**

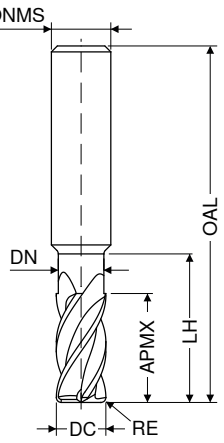
Steel	●
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
hardened materials	●

→ v_c/f_z Page 314+315

BlueLine – End milling cutter with corner radius









DC e8	RE ±0,005	APMX	DN	LH	OAL	DCONMS h5	ZEFP	Article no. 52 353 ...	Article no. 52 354 ...
mm	mm	mm	mm	mm	mm	mm			
1	0,10	1,5	0,85	10	50	3	4	31001	
1	0,10	1,5	0,85	20	75	3	4		31001
1	0,20	1,5	0,85	10	50	3	4	31002	
1	0,20	1,5	0,85	20	75	3	4		31002
2	0,20	2,5	1,80	12	50	3	4	32002	
2	0,20	2,5	1,80	25	75	3	4		32002
2	0,30	2,5	1,80	12	50	3	4	32003	
2	0,30	2,5	1,80	25	75	3	4		32003
2	0,50	2,5	1,80	12	50	3	4	32005	
2	0,50	2,5	1,80	25	75	3	4		32005
3	0,25	4,0	2,70	14	50	3	4	33002	
3	0,25	4,0	2,70	32	75	3	4		33002
3	0,30	4,0	2,70	14	50	3	4	33003	
3	0,30	4,0	2,70	32	75	3	4		33003
3	0,50	4,0	2,70	14	50	3	4	33005	
3	0,50	4,0	2,70	32	75	3	4		33005
3	1,00	4,0	2,70	14	50	3	4	33010	
3	1,00	4,0	2,70	32	75	3	4		33010
4	0,20	5,0	3,70	16	50	4	4	44002	
4	0,20	5,0	3,70	36	75	4	4		44002
4	0,25	5,0	3,70	16	50	4	4	44003	
4	0,25	5,0	3,70	36	75	4	4		44003
4	0,40	5,0	3,70	16	50	4	4	44004	
4	0,40	5,0	3,70	36	75	4	4		44004
4	0,50	5,0	3,70	16	50	4	4	44005	
4	0,50	5,0	3,70	36	75	4	4		44005
4	1,00	5,0	3,70	16	50	4	4	44010	
4	1,00	5,0	3,70	36	75	4	4		44010
5	0,25	6,0	4,60	18	54	5	4	55002	
5	0,25	6,0	4,60	40	75	5	4		55002
5	0,50	6,0	4,60	18	54	5	4	55005	
5	0,50	6,0	4,60	40	75	5	4		55005
5	1,00	6,0	4,60	18	54	5	4	55010	
5	1,00	6,0	4,60	40	75	5	4		55010
6	0,25	7,0	5,50	21	58	6	4	06002	
6	0,25	7,0	5,50	44	80	6	4		06002
6	0,50	7,0	5,50	21	58	6	4	06005	
6	0,50	7,0	5,50	44	80	6	4		06005
6	0,80	7,0	5,50	21	58	6	4	06008	
6	1,00	7,0	5,50	21	58	6	4	06010	
6	1,00	7,0	5,50	44	80	6	4		06010
6	1,50	7,0	5,50	21	58	6	4	06015	
6	1,50	7,0	5,50	44	80	6	4		06015
6	2,00	7,0	5,50	21	58	6	4	06020	
8	0,25	9,0	7,40	27	64	8	4	08002	

Steel	●	●
Stainless steel		
Cast iron		
Non ferrous metals		
Heat resistant alloys		
hardened materials	●	●

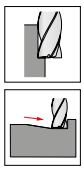
→ v_c/f_z Page 314+315

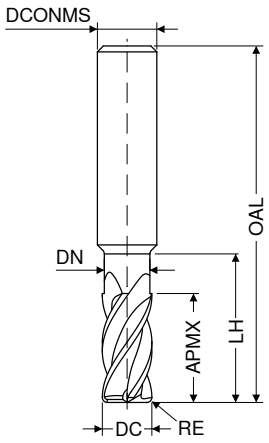
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Continued on next page

BlueLine – End milling cutter with corner radius

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC













Factory standard | HA

Factory standard | HA

DC e8	RE ±0,005	APMX	DN	LH	OAL	DCONMS h5	ZEFP	Article no. 52 353 ...	Article no. 52 354 ...
mm	mm	mm	mm	mm	mm	mm			
8	0,25	9,0	7,40	54	100	8	4		08002
8	0,50	9,0	7,40	27	64	8	4	08005	
8	0,50	9,0	7,40	54	100	8	4		08005
8	0,80	9,0	7,40	27	64	8	4	08008	
8	0,80	9,0	7,40	54	100	8	4		08008
8	1,00	9,0	7,40	27	64	8	4	08010	
8	1,00	9,0	7,40	54	100	8	4		08010
8	1,50	9,0	7,40	27	64	8	4	08015	
8	1,50	9,0	7,40	54	100	8	4		08015
8	2,00	9,0	7,40	27	64	8	4	08020	
8	2,00	9,0	7,40	54	100	8	4		08020
8	2,50	9,0	7,40	27	64	8	4	08025	
8	3,00	9,0	7,40	27	64	8	4	08030	
8	3,00	9,0	7,40	54	100	8	4		08030
10	0,25	11,0	9,20	32	73	10	4	10002	
10	0,25	11,0	9,20	60	100	10	4		10002
10	0,50	11,0	9,20	32	73	10	4	10005	
10	0,50	11,0	9,20	60	100	10	4		10005
10	0,80	11,0	9,20	32	73	10	4	10008	
10	0,80	11,0	9,20	60	100	10	4		10008
10	1,00	11,0	9,20	32	73	10	4	10010	
10	1,00	11,0	9,20	60	100	10	4		10010
10	1,50	11,0	9,20	32	73	10	4	10015	
10	1,50	11,0	9,20	60	100	10	4		10015
10	2,00	11,0	9,20	32	73	10	4	10020	
10	2,00	11,0	9,20	60	100	10	4		10020
10	3,00	11,0	9,20	32	73	10	4	10030	
10	3,00	11,0	9,20	60	100	10	4		10030
10	3,50	11,0	9,20	32	73	10	4	10035	
12	0,50	12,0	11,00	38	84	12	4	12005	
12	0,50	12,0	11,00	75	120	12	4		12005
12	1,00	12,0	11,00	38	84	12	4	12010	
12	1,00	12,0	11,00	75	120	12	4		12010
12	1,50	12,0	11,00	38	84	12	4	12015	
12	1,50	12,0	11,00	75	120	12	4		12015
12	2,00	12,0	11,00	38	84	12	4	12020	
12	2,00	12,0	11,00	75	120	12	4		12020
12	3,00	12,0	11,00	38	84	12	4	12030	
12	3,00	12,0	11,00	75	120	12	4		12030
16	2,00	16,0	15,00	44	93	16	4	16020	
16	2,00	16,0	15,00	92	150	16	4		16020
16	3,00	16,0	15,00	44	93	16	4	16030	
16	3,00	16,0	15,00	92	150	16	4		16030

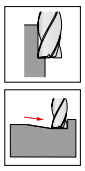
Steel	●	●
Stainless steel		
Cast iron		
Non ferrous metals		
Heat resistant alloys		
hardened materials	●	●

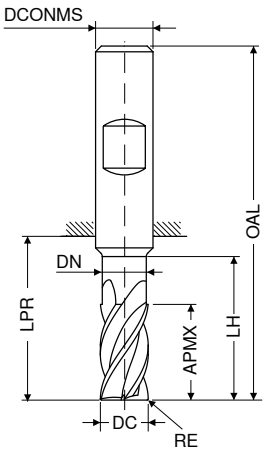
→ v_c/f_z Page 314+315

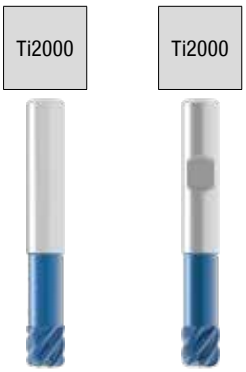
BlueLine – End milling cutter with corner radius

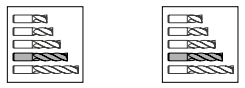
▲ with decreasing helix angle for reduced machining noise & vibration













DC e8	RE ±0,01	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 52 140 ...	Article no. 52 141 ...
mm	mm	mm	mm	mm	mm	mm	mm			
3	0,3	4	2,7	14	22	50	3	4	031	
3	0,5	4	2,7	14	22	50	3	4	033	
3	1,0	4	2,7	14	22	50	3	4	034	
4	0,4	5	3,7	16	22	50	4	4	042	
4	0,5	5	3,7	16	22	50	4	4	043	
4	1,0	5	3,7	16	22	50	4	4	044	
5	0,5	6	4,6	18	26	54	5	4	053	
5	1,0	6	4,6	18	26	54	5	4	054	
6	0,5	7	5,5	21	21	57	6	6	063	063
6	1,0	7	5,5	21	21	57	6	6	064	064
6	1,5	7	5,5	21	21	57	6	6	065	065
8	0,5	9	7,4	27	27	63	8	6	083	083
8	1,0	9	7,4	27	27	63	8	6	084	084
8	1,5	9	7,4	27	27	63	8	6	085	085
8	2,0	9	7,4	27	27	63	8	6	086	086
10	0,5	11	9,2	32	32	72	10	6	103	103
10	1,0	11	9,2	32	32	72	10	6	104	104
10	1,5	11	9,2	32	32	72	10	6	105	105
10	2,0	11	9,2	32	32	72	10	6	106	106
12	0,5	12	11,0	38	38	83	12	6	123	123
12	1,0	12	11,0	38	38	83	12	6	124	124
12	1,5	12	11,0	38	38	83	12	6	125	125
12	2,0	12	11,0	38	38	83	12	6	126	126
16	1,0	16	15,0	44	45	93	16	6	161	161
16	2,0	16	15,0	44	45	93	16	6	163	163
20	1,0	20	18,5	50	54	104	20	6	201	201
20	2,5	20	18,5	50	54	104	20	6	204	204

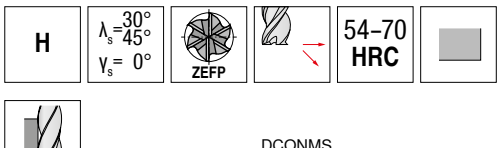
Steel	○	○
Stainless steel		
Cast iron		
Non ferrous metals		
Heat resistant alloys		
hardened materials	●	●

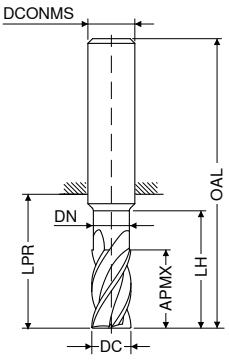
→ v_c/f_z Page 310+311

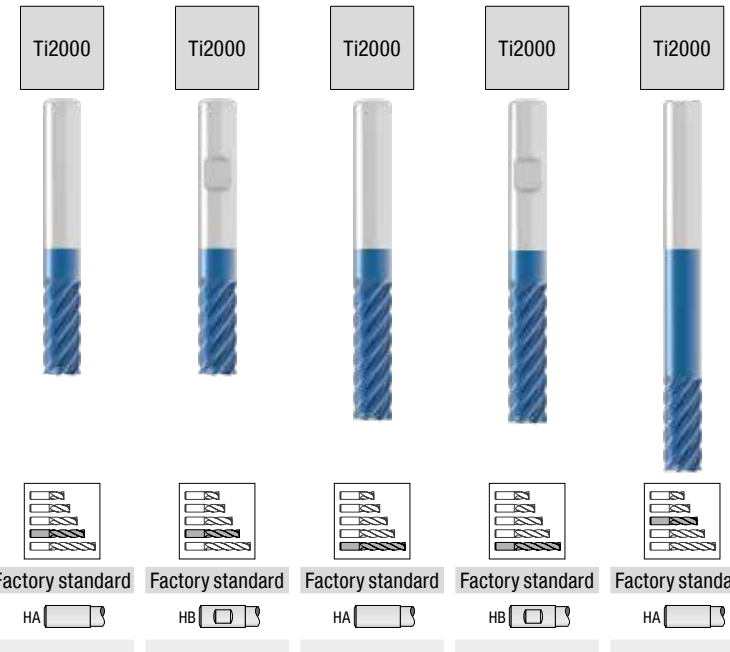
14

BlueLine – Finish milling cutter

▲ with decreasing helix angle for reduced machining noise & vibration







Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

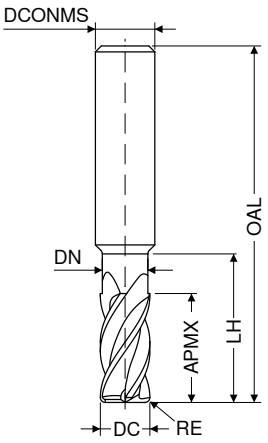
DC e8	APMX	LPR	DN	LH	OAL	DCONMS h6	ZEFP	Article no. 52 133 ...	Article no. 52 134 ...	Article no. 52 135 ...	Article no. 52 136 ...	Article no. 52 348 ...
mm	mm	mm	mm	mm	mm	mm						
2	8	22			58	6	4	020	020			
3	12	22			58	6	4	030	030			
4	13	22			58	6	4	040	040			
5	15	22			58	6	6	050	050			
6	16	22			58	6	6	060	060			
6	16	44	5,8	40	80	6	6					060
6	21	29			65	6	6			060	060	
8	19	64	7,7	50	100	8	6					080
8	22	34			70	8	6	080	080			
8	28	39			75	8	6			080	080	
10	25	33			73	10	6	100	100			
10	25	60	9,7	60	100	10	6					100
10	35	45			85	10	6			100	100	
12	28	39			84	12	6	120	120			
12	30	75	11,6	60	120	12	6					120
12	45	55			100	12	6			120	120	
14	30	39			84	14	6	140	140			
14	45	55			100	14	6			140	140	
16	35	45			93	16	8	160	160			
16	40	102	15,6	100	150	16	8					160
16	50	62			110	16	8			160	160	
16	65	77			125	16	8			161	161	
18	35	45			93	18	10	180	180			
18	54	66			114	18	10			180	180	
20	40	54			104	20	10	200	200			
20	50	100	19,6	100	150	20	10					200
20	55	76			126	20	10			200	200	
20	70	85			135	20	10			201	201	

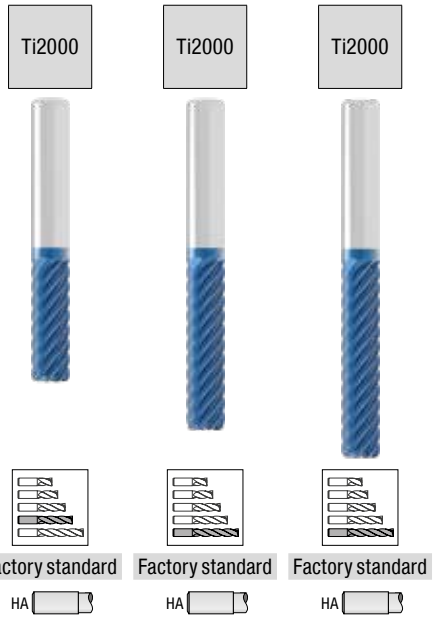
Steel	○	○	○	○	●
Stainless steel					
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials	●	●	●	●	●

→ v_c/f_z Page 310–315

BlueLine – Finish milling cutter with corner radius

H | λ_s=30°–45° γ_s= 0° | ZEFP | 54–70 HRC





DC e8	RE +/-0,005	APMX	DN	LH	OAL	DCONMS h6	ZEFP	Article no. 52 324 ...	Article no. 52 325 ...	Article no. 52 326 ...
mm	mm	mm	mm	mm	mm	mm				
5	0,5	15	4,8	19	58	6	6	052		
5	1,0	15	4,8	19	58	6	6	053		
6	0,5	16	5,8	20	58	6	6	062		
6	0,5	21	5,8	29	65	6	6		062	
6	1,0	16	5,8	20	58	6	6	063		
6	1,0	21	5,8	29	65	6	6		063	
8	0,5	22	7,8	26	70	8	6	082		
8	0,5	28	7,8	39	75	8	6		082	
8	1,0	22	7,8	26	70	8	6	083		
8	1,0	28	7,8	39	75	8	6		083	
10	0,5	25	9,8	31	73	10	6	102		
10	0,5	35	9,8	45	85	10	6		102	
10	1,0	25	9,8	31	73	10	6	103		
10	1,0	35	9,8	45	85	10	6		103	
10	1,5	25	9,8	31	73	10	6	104		
10	1,5	35	9,8	45	85	10	6		104	
12	0,5	28	11,8	37	84	12	6	122		
12	0,5	45	11,8	55	100	12	6		122	
12	1,0	28	11,8	37	84	12	6	123		
12	1,0	45	11,8	55	100	12	6		123	
12	1,5	28	11,8	37	84	12	6	124		
12	1,5	45	11,8	55	100	12	6		124	
14	1,0	30	13,8	37	84	14	6	143		
14	1,0	45	13,8	55	100	14	6		143	
16	1,0	35	15,8	43	93	16	8	163		
16	1,0	50	15,8	62	110	16	8		163	
16	1,0	65	15,8	77	125	16	8			163
16	2,0	35	15,8	43	93	16	8	165		
16	2,0	50	15,8	62	110	16	8		165	
16	2,0	65	15,8	77	125	16	8			165
18	1,0	35	17,8	43	93	18	10	183		
18	1,0	54	17,8	66	114	18	10		183	
20	1,0	40	19,8	52	104	20	10	203		
20	1,0	55	19,8	76	126	20	10		203	
20	1,0	70	19,8	85	135	20	10			203
20	2,0	40	19,8	52	104	20	10	205		
20	2,0	55	19,8	76	126	20	10		205	
20	2,0	70	19,8	85	135	20	10			205

Steel	○	○	○
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	●	●	●

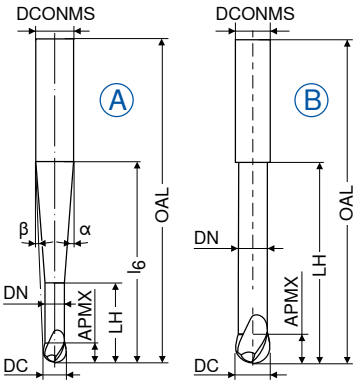
→ v_c/f_z Page 310+311

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BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ±0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC | Ti2000







Factory standard

HA

DC mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	Article no. 52 302 ...
1,0	1,00	0,95	10	16,5	57	15	9,0	6	2	A	**010**
1,5	1,25	1,40	12	18,0	57	15	7,5	6	2	A	**015**
2,0	1,50	1,90	16	20,0	57	15	6,0	6	2	A	**020**
3,0	2,00	2,90	20	34,5	80	15	2,5	6	2	A	**030**
4,0	2,50	3,90	22	35,0	80	15	2,0	6	2	A	**040**
5,0	3,00	4,90	25	35,0	80	15	1,0	6	2	A	**050**
6,0	3,50	5,90	29		80	15		6	2	B	**060**

Steel	○
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
hardened materials	●

→ v_c/f_z Page 310+311

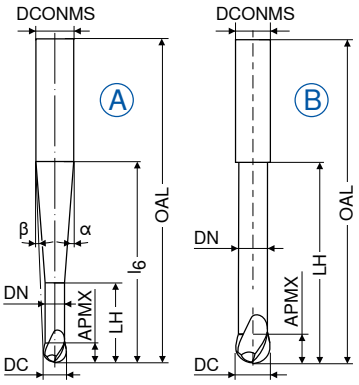
BlueLine – Ball Nosed Cutter

- Radius accuracy: ± 0.005 mm for Ø ≤ 6.0 mm / ± 0.01 mm for Ø > 6,0 mm
- for Ø ≤ 5.0 mm, angle tolerance α and β: ±0.5°

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC

Ti2000









Factory standard

HA

DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	Article no. 52 303 ...
0,5	±0,01	1,0	0,45	2,0	20	57	10,0	8,5	6	2	A	**005**
1,0	±0,01	2,0	0,95	4,0	20	57	10,0	8,0	6	2	A	**010**
1,5	±0,01	2,5	1,40	7,5	20	57	12,5	7,0	6	2	A	**015**
2,0	±0,01	3,0	1,80	8,0	20	57	12,0	6,5	6	2	A	**020**
3,0	±0,01	3,5	2,80	10,0	20	57	11,5	5,0	6	2	A	**030**
4,0	±0,01	4,0	3,80	12,0	20	57	11,0	3,5	6	2	A	**040**
5,0	±0,01	5,0	4,70	14,0	20	57	10,0	2,0	6	2	A	**050**
6,0	±0,01	6,0	5,60	20,0		57			6	2	B	**060**
8,0	±0,02	7,0	7,60	25,0		63			8	2	B	**080**
10,0	±0,02	8,0	9,60	30,0		72			10	2	B	**100**
12,0	±0,02	10,0	11,50	35,0		83			12	2	B	**120**
12,0	±0,02	10,0	11,50	35,0	40	92	35,0	3,5	16	2	A	**121**
16,0	±0,02	12,0	15,50	40,0		92			16	2	B	**160**

Steel	○
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
hardened materials	●

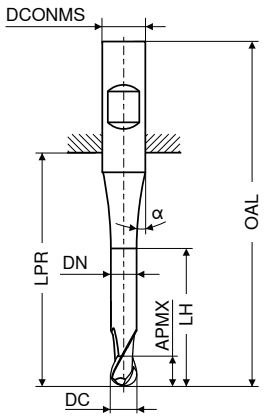
→ v_c/f_z Page 310+311

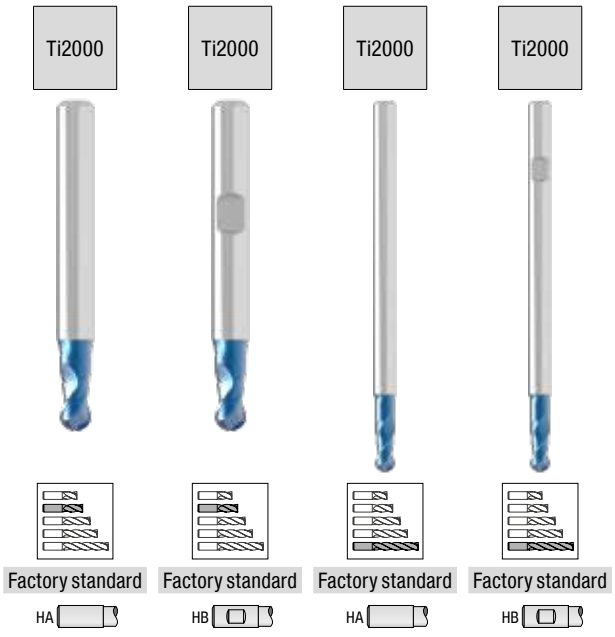
14

BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ±0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC





Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	α° ±0,5	ZEFP	Article no. 52 256 ...	Article no. 52 257 ...	Article no. 52 258 ...	Article no. 52 259 ...
0,10	0,2			11	10	38	3	8,0	2	**910**			
0,15	0,3			12	10	38	3	7,5	2	**915**			
0,20	0,4			12	10	38	3	7,0	2	**920**			
0,25	0,5	0,20	0,8	12	10	38	3	7,0	2	**925**			
0,30	1,0	0,25	1,3	12	10	38	3	7,0	2	**930**			
0,35	1,0	0,30	1,3	12	10	38	3	7,0	2	**935**			
0,40	1,0	0,35	1,3	12	10	38	3	7,0	2	**940**			
0,50	1,5	0,40	2,0	12	10	38	3	7,5	2	**950**			
0,50	1,5	0,40	2,0	17	18	54	6	10,5	2	**005**	**005**		
0,50	1,5	0,40	2,0	13	47	75	3	7,0	2			**950**	
0,50	1,5	0,40	2,0	17	44	80	6	10,5	2			**005**	**005**
0,60	1,5	0,50	2,0	12	10	38	3	7,0	2	**960**			
0,70	2,0	0,60	2,5	12	10	38	3	7,5	2	**970**			
0,80	2,0	0,70	2,5	13	10	38	3	7,5	2	**980**			
0,90	2,5	0,80	3,5	13	10	38	3	7,0	2	**990**			
1,00	2,0	0,90	3,0	13	22	50	3	6,0	2	**011**			
1,00	2,0	0,90	3,0	18	18	54	6	9,5	2	**106**	**010**		
1,00	3,0	0,90	4,0	14	47	75	3	6,0	2			**011**	
1,00	3,0	0,90	4,0	19	44	80	6	9,5	2			**010**	**010**
1,10	3,0	1,00	4,0	13	22	50	3	7,0	2	**911**			
1,20	3,0	1,10	4,0	13	22	50	3	7,0	2	**012**			
1,40	3,0	1,30	4,0	14	22	50	3	5,0	2	**014**			
1,50	3,0	1,40	4,0	13	22	50	3	5,5	2	**016**			
1,50	3,0	1,40	4,0	18	18	54	6	9,0	2	**156**	**015**		
1,50	4,0	1,40	6,0	13	47	75	3	7,0	2			**016**	
1,50	4,0	1,40	6,0	19	44	80	6	10,0	2			**015**	**015**
1,60	4,0	1,50	5,0	13	22	50	3	5,0	2	**916**			
1,80	4,0	1,70	5,0	13	22	50	3	5,0	2	**018**			
2,00	4,0	1,90	5,5	12	22	50	3	5,0	2	**021**			
2,00	4,0	1,90	5,5	18	18	54	6	9,0	2	**206**	**020**		
2,00	6,0	1,90	8,0	12	47	75	3	8,0	2			**021**	
2,00	6,0	1,90	8,0	20	44	80	6	11,0	2			**020**	**020**
2,50	5,0	2,30	6,5	10	22	50	3	7,0	2	**025**			
2,50	5,0	2,30	6,5	17	18	54	6	10,0	2	**026**	**026**		
2,50	8,0	2,30	10,0	14	47	75	3	5,5	2			**026**	
2,50	8,0	2,30	10,0	20	44	80	6	10,0	2			**025**	**025**
3,00	6,0	2,80	8,0		22	50	3		2	**031**			
3,00	6,0	2,80	8,0	18	18	54	6	9,0	2	**306**	**030**		
3,00	10,0	2,80	13,0		47	75	3		2			**031**	
3,00	10,0	2,80	15,0	23	44	80	6	11,0	2			**030**	**030**

Steel	○	○	○	○
Stainless steel				
Cast iron				
Non ferrous metals				
Heat resistant alloys				
hardened materials	●	●	●	●

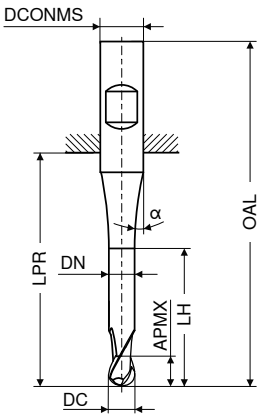
→ v_c/f_z Page 310+311

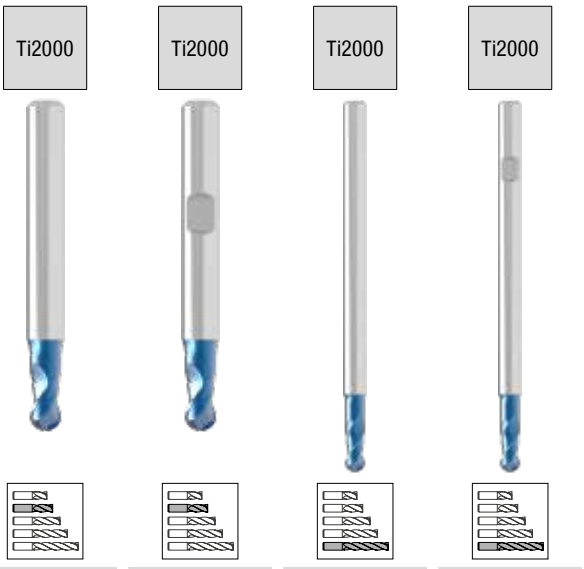
Continued on next page

BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ±0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC





Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

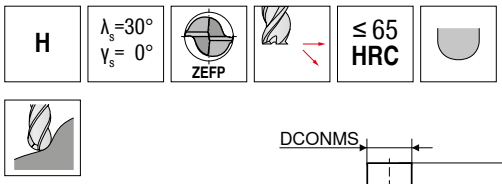
DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	α° ±0,5	ZEFP	Article no. 52 256 ...	Article no. 52 257 ...	Article no. 52 258 ...	Article no. 52 259 ...
4,00	7,0	3,80	10,0	18	18	54	6	11,0	2	**406**	**040**		
4,00	7,0	3,80	10,0		26	54	4		2	**041**			
4,00	13,0	3,80	20,0		47	75	4		2			**041**	
4,00	13,0	3,80	18,0	23	44	80	6	12,5	2			**040**	**040**
5,00	8,0	4,80	11,0	15	18	54	6	8,0	2	**506**	**050**		
5,00	8,0	4,80	11,0		26	54	5		2	**051**			
5,00	14,0	4,80	19,0		47	75	5		2			**051**	
5,00	14,0	4,80	19,0	21	64	100	6	13,0	2			**050**	**050**
6,00	10,0	5,80	15,0		18	54	6		2	**061**	**060**		
6,00	16,0	5,80	25,0		64	100	6		2			**060**	**060**
8,00	12,0	7,80	17,0		23	59	8		2	**081**	**080**		
8,00	22,0	7,80	35,0		64	100	8		2			**080**	**080**
10,00	13,0	9,80	18,0		27	67	10		2	**101**	**100**		
10,00	25,0	9,80	40,0		60	100	10		2			**100**	**100**
12,00	16,0	11,90	21,0		28	73	12		2	**121**	**120**		
12,00	26,0	11,80	40,0		55	100	12		2			**120**	**120**
14,00	16,0	13,80	21,0		30	75	14		2	**141**	**140**		
14,00	26,0	13,80	40,0		55	100	14		2			**140**	**140**
16,00	20,0	15,80	25,0		35	83	16		2	**161**	**160**		
16,00	30,0	15,80	50,0		102	150	16		2			**160**	**160**
20,00	25,0	19,80	30,0		43	93	20		2	**201**	**200**		
20,00	40,0	19,80	60,0		100	150	20		2			**200**	**200**

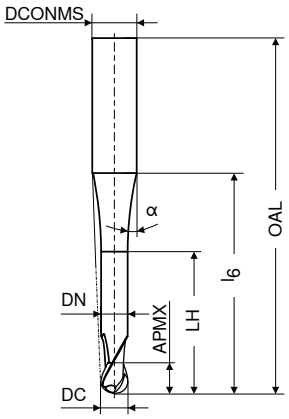
Steel	○	○	○	○
Stainless steel				
Cast iron				
Non ferrous metals				
Heat resistant alloys				
hardened materials	●	●	●	●

→ v_c/f_z Page 310+311

BlueLine – Ball Nosed Cutter

- Radius accuracy: ±0.005 mm
- for Ø ≤ 5.0 mm, angle tolerance α: ±0.5°





Ti2000





Factory standard

HA 

DC f8 mm	APMX mm	DN mm	LH mm	l6 mm	OAL mm	α°	DCONMS h6 mm	ZEFP	Article no. 52 352 ...
0,6	0,8	0,55	1,4	27	75	1,5	3	2	**906**
0,8	1,0	0,75	1,6	27	75	1,5	3	2	**908**
1,0	1,2	0,95	2,0	27	75	1,5	3	2	**310**
1,2	1,4	1,15	2,4	27	75	1,5	3	2	**312**
1,5	1,8	1,45	3,0	27	75	1,5	3	2	**315**
2,0	2,4	1,95	4,0	27	75	1,5	3	2	**320**
3,0	4,0	2,80	12,0	40	80	1,5	6	2	**030**
4,0	5,0	3,80	16,0	40	80	1,5	6	2	**040**
5,0	6,0	4,80	20,0	40	80	1,5	6	2	**050**
6,0	6,0	5,80	25,0	50	100	1,5	8	2	**060**
8,0	7,0	7,80	32,0	60	120	1,5	10	2	**080**
10,0	9,0	9,80	40,0	80	160	1,5	12	2	**100**
12,0	11,0	11,80	50,0	100	200	1,5	16	2	**120**

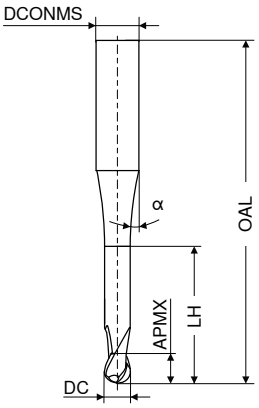
Steel	●
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
hardened materials	●

→ v_c/f_z Page 314

BlueLine – Ball nosed cutter

▲ Radius accuracy: ±0.005 mm

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC | Ti2000







Factory standard

HA

DC f8 mm	APMX mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	Article no. 52 355 ...
3	8	11	65	12	6	3	030
4	8	11	75	12	6	3	040
5	10	13	75	12	6	3	050
6	12		100		6	3	060
8	14		100		8	3	080
10	18		100		10	3	100
12	22		120		12	3	120

Steel	●
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
hardened materials	●

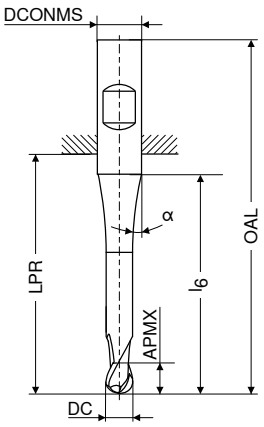
→ v_c/f_z Page 314

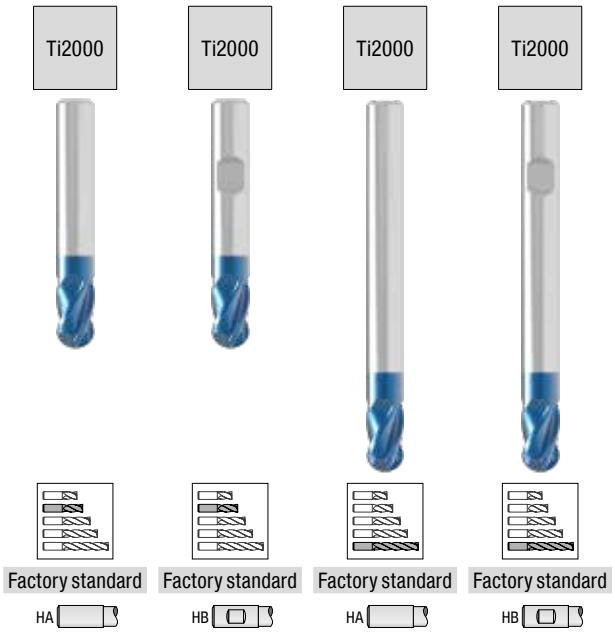
14

BlueLine – Ball nosed cutter

▲ Radius accuracy: ±0.005 mm

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC





Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

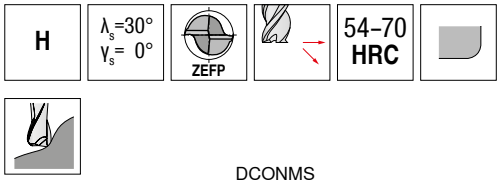
DC $_{f8}$ mm	APMX mm	l_6 mm	LPR mm	OAL mm	α° $_{\pm1°}$	DCONMS $_{h6}$ mm	ZEFP	Article no. 52 404 ...	Article no. 52 405 ...	Article no. 52 404 ...	Article no. 52 405 ...
2,0	4	10,0	22	50	8	3	4	020			
2,0	4	16,0	18	54	12	6	4	021	021		
2,0	4	10,0	47	75	8	3	4			022	
2,0	4	16,0	44	80	12	6	4			023	023
2,5	5	16,0	18	54	12	6	4	025	025		
2,5	5	16,0	44	80	12	6	4			026	026
3,0	5		22	50		3	4	030			
3,0	5	14,0	18	54	12	6	4	031	031		
3,0	5		47	75		3	4			032	
3,0	5	14,0	44	80	12	6	4			033	033
4,0	8	15,0	18	54	12	6	4	041	041		
4,0	8		26	54		4	4	040			
4,0	8		47	75		4	4			042	
4,0	8	15,0	44	80	12	6	4			043	043
5,0	9	13,5	18	54	12	6	4	051	051		
5,0	9		26	54		5	4	050			
5,0	9		47	75		5	4			052	
5,0	9	13,5	64	100	12	6	4			053	053
6,0	10		18	54		6	4	060	060		
6,0	10		64	100		6	4			062	062
7,0	12	15,0	23	59	12	8	4	070	070		
8,0	12		23	59		8	4	080	080		
8,0	12		64	100		8	4			082	082
9,0	14	17,0	27	67	12	10	4	090	090		
10,0	14	16,0	27	67		10	4	100	100		
10,0	14		60	100		10	4			102	102
12,0	16		29	74		12	4	120	120		
12,0	16		55	100		12	4			122	122
14,0	18		30	75		14	4	140	140		
14,0	18	20,0	55	100		14	4			142	142
16,0	22	24,0	35	83		16	4	160	160		
16,0	22	24,0	102	150		16	4			162	162
20,0	26	28,0	43	93		20	4	200	200		
20,0	26	28,0	100	150		20	4			202	202

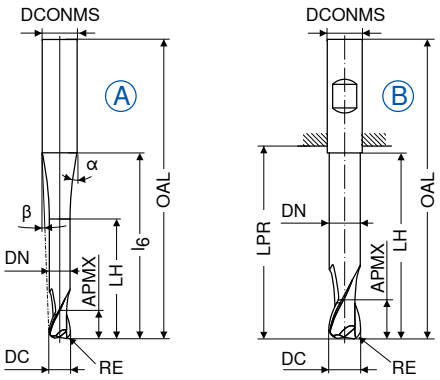
Steel	○	○	○	○
Stainless steel				
Cast iron				
Non ferrous metals				
Heat resistant alloys				
hardened materials	●	●	●	●

→ v_c/f_z Page 310+311

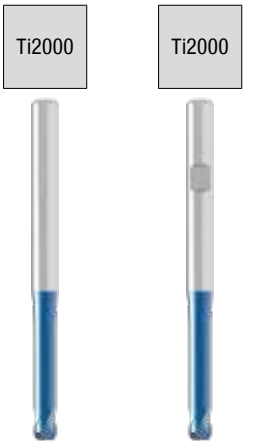
BlueLine – Torus cutter

▲ Radius accuracy: ±0,005 mm for Ø ≤ 6,0 mm / ±0,01 mm for Ø > 6,0 mm
▲ or Ø ≤ 5.0 mm, angle tolerance α and β: ±0.5 °





LPR with Shank DIN 6535 HB





Factory standard | Factory standard

HA | HB

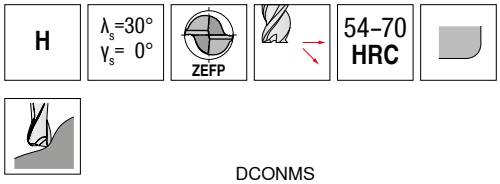
DC ±0,01	RE	APMX	DN	LH	LPR	l6	OAL	α° ±0,5	β°	DCONMS h5	ZEFP	Fig.	Article no. 52 305 ...	Article no. 52 305 ...
mm	mm	mm	mm	mm	mm	mm	mm			mm				
1,0	0,2	1,00	0,95	10	21	16,5	57	23,0	9,0	6	2	A	**010**	
1,5	0,3	1,25	1,40	12	21	18,0	57	21,0	7,5	6	2	A	**015**	
2,0	0,4	1,50	1,90	16	21	20,0	57	25,0	6,0	6	2	A	**020**	
3,0	0,5	2,00	2,90	20	44	34,5	80	6,0	2,5	6	2	A	**030**	
4,0	0,6	2,50	3,90	22	44	35,0	80	4,5	2,0	6	2	A	**040**	
5,0	0,8	3,00	4,90	25	44	35,0	80	3,5	1,0	6	2	A	**050**	
6,0	1,0	3,50	5,90	29	44		80			6	2	B		**060**

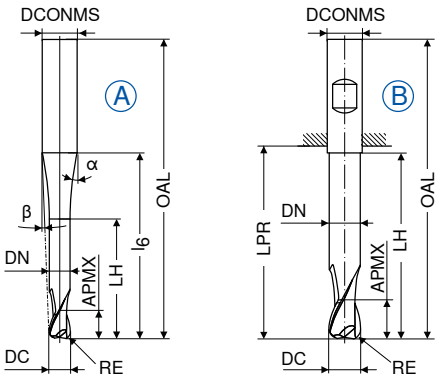
Steel	○	○
Stainless steel		
Cast iron		
Non ferrous metals		
Heat resistant alloys		
hardened materials	●	●

→ v_c/f_z Page 312+313

BlueLine – Torus cutter

▲ Radius accuracy: ±0,005 mm for Ø ≤ 6,0 mm / ±0,01 mm for Ø > 6,0 mm
▲ or Ø ≤ 5.0 mm, angle tolerance α and β: ±0.5 °





LPR with Shank DIN 6535 HB









Factory standard

Factory standard

HA



HB



DC mm	Tol.	RE mm	APMX mm	DN mm	LH mm	LPR mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	Article no. 52 304 ...	Article no. 52 304 ...
0,5	±0,01	0,10	1,0	0,45	2,0	21	20	57	10,0	8,5	6	2	A	**005**	
1,0	±0,01	0,25	2,0	0,95	4,0	21	20	57	10,0	8,0	6	2	A	**010**	
1,5	±0,01	0,30	2,5	1,40	7,5	21	20	57	12,5	7,0	6	2	A	**015**	
2,0	±0,01	0,50	3,0	1,80	8,0	21	20	57	12,0	6,5	6	2	A	**020**	
3,0	±0,01	0,50	3,5	2,80	10,0	21	20	57	11,5	5,0	6	2	A	**030**	
4,0	±0,01	1,00	4,0	3,80	12,0	21	20	57	11,0	3,5	6	2	A	**040**	
5,0	±0,01	1,50	5,0	4,70	14,0	21	20	57	10,0	2,0	6	2	A	**050**	
6,0	±0,01	2,00	6,0	5,60	20,0	21		57			6	2	B		**060**
8,0	±0,02	2,00	7,0	7,60	25,0	27		63			8	2	B		**080**
10,0	±0,02	3,00	8,0	9,60	30,0	32		72			10	2	B		**100**
12,0	±0,02	4,00	10,0	11,50	35,0	38		83			12	2	B		**120**
12,0	±0,02	4,00	10,0	11,50	35,0	44	40	92	37,0	3,5	16	2	A	**121**	
16,0	±0,02	5,00	12,0	15,50	40,0	44		92			16	2	B		**160**

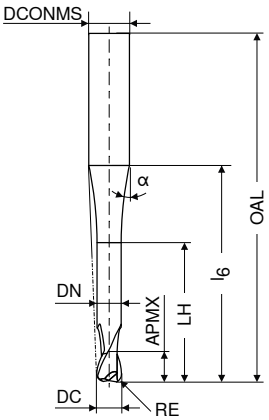
Steel	○	○
Stainless steel		
Cast iron		
Non ferrous metals		
Heat resistant alloys		
hardened materials	●	●

→ v_c/f_z Page 312+313

BlueLine – Torus cutter

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC

Ti2000







Factory standard

HA

DC e8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	DCONMS h5 mm	ZEFP	Article no. 52 361 ...
0,8	0,08	1,0	0,75	1,6	27	75	1,5	3	2	**90801**
1,0	0,10	1,2	0,95	2,0	27	75	1,5	3	2	**31001**
1,0	0,25	2,0	0,85	4,0	40	80	1,5	6	2	**01002**
1,2	0,12	1,4	1,15	2,4	27	75	1,5	3	2	**31201**
1,5	0,15	1,8	1,45	3,0	27	75	1,5	3	2	**31501**
2,0	0,20	2,4	1,95	4,0	27	75	1,5	3	2	**32002**
2,0	0,50	2,0	1,80	8,0	40	80	1,5	6	2	**02005**
3,0	0,30	3,6	2,95	6,0	27	75	1,5	4	2	**43003**
3,0	0,50	2,0	2,80	12,0	40	80	1,5	6	2	**03005**
3,0	1,00	2,0	2,80	12,0	40	80	1,5	6	2	**03010**
4,0	1,00	3,0	3,80	16,0	40	80	1,5	6	2	**04010**
6,0	1,00	4,0	5,80	25,0	50	100	1,5	8	2	**06010**
6,0	2,00	4,0	5,80	25,0	50	100	1,5	8	2	**06020**
8,0	1,00	4,0	7,80	32,0	60	120	1,5	10	2	**08010**
8,0	2,00	4,0	7,80	32,0	60	120	1,5	10	2	**08020**
10,0	1,50	6,0	9,80	40,0	80	160	1,5	12	2	**10015**
12,0	1,50	8,0	11,80	50,0	100	200	1,5	16	2	**12015**

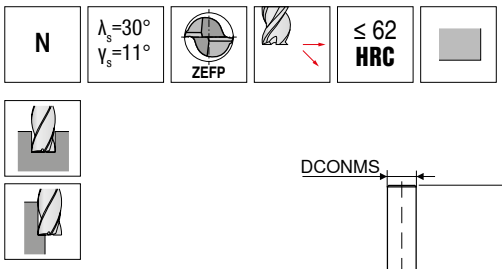
Steel	●
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
hardened materials	●

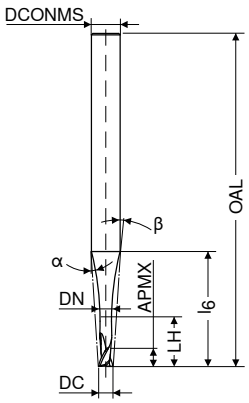
→ v_c/f_z Page 314+315

14

Micro-end milling cutter

▲ T_x = maximum engagement depth







DC	APMX	DN	LH	l_6	OAL	α°	β°	DCONMS $_{h5}$	T_x	ZEFP	Article no. 52 802 ...		Article no. 52 802 ...	
mm	mm	mm	mm	mm	mm			mm						
0,2	0,12	0,16	0,44	5,7	38	15,0	14	3	2,2 x DC	2	**021**			
0,2	0,20	0,16	1,00	6,4	38	15,0	13	3	5 x DC	2	**023**			
0,2	0,20	0,16	2,00	9,2	38	15,0	9	3	10 x DC	2	**025**			
0,2	0,20	0,16	0,44	5,7	43	15,0	14	3	2,2 x DC	2				**022**
0,2	0,20	0,16	1,00	6,4	43	15,0	13	3	5 x DC	2				**024**
0,2	0,20	0,16	2,00	9,2	43	15,0	9	3	10 x DC	2				**026**
0,5	0,30	0,40	1,10	5,8	38	15,0	13	3	2,2 x DC	2	**051**			
0,5	0,50	0,40	2,50	7,8	38	15,0	10	3	5 x DC	2	**053**			
0,5	0,50	0,40	5,00	10,7	38	13,0	7	3	10 x DC	2	**055**			
0,5	0,50	0,40	1,10	5,8	43	15,0	13	3	2,2 x DC	2				**052**
0,5	0,50	0,40	2,50	7,8	43	15,0	10	3	5 x DC	2				**054**
0,5	0,50	0,40	5,00	14,5	43	13,0	5	3	10 x DC	2				**056**
0,8	0,48	0,64	1,76	5,9	38	15,0	11	3	2,2 x DC	2	**081**			
0,8	0,80	0,64	4,00	9,0	38	15,0	7	3	5 x DC	2	**083**			
0,8	0,80	0,64	8,00	13,5	38	12,0	5	3	10 x DC	2	**085**			
0,8	0,80	0,64	1,76	5,9	43	15,0	11	3	2,2 x DC	2				**082**
0,8	0,80	0,64	4,00	9,0	43	15,0	7	3	5 x DC	2				**084**
0,8	0,80	0,64	8,00	15,5	43	9,8	5	3	10 x DC	2				**086**
1,0	0,60	0,80	2,20	5,9	38	15,0	10	3	2,2 x DC	2	**101**			
1,0	1,00	0,80	2,20	5,9	43	15,0	10	3	2,2 x DC	2				**102**
1,0	1,00	0,80	5,00	9,7	43	15,0	6	3	5 x DC	2	**103**			
1,0	1,00	0,80	10,00	15,3	43	11,0	4	3	10 x DC	2	**105**			
1,0	1,00	0,80	5,00	9,7	50	15,0	6	3	5 x DC	2				**104**
1,0	1,00	0,80	10,00	20,6	50	8,5	3	3	10 x DC	2				**106**
1,5	0,90	1,20	3,30	6,1	38	15,0	8	3	2,2 x DC	2	**151**			
1,5	1,50	1,20	3,30	6,1	43	15,0	8	3	2,2 x DC	2				**152**
1,5	1,50	1,20	7,50	11,8	43	14,0	4	3	5 x DC	2	**153**			
1,5	1,50	1,20	15,00	18,1	43	14,6	3	3	10 x DC	2	**155**			
1,5	1,50	1,20	7,50	11,8	50	14,0	4	3	5 x DC	2				**154**
1,5	1,50	1,20	15,00	22,0	50	6,2	2	3	10 x DC	2				**156**
1,8	1,08	1,44	3,96	6,2	38	15,0	6	3	2,2 x DC	2	**181**			
1,8	1,80	1,44	3,96	6,2	43	15,0	6	3	2,2 x DC	2				**182**
1,8	1,80	1,44	9,00	12,9	43	12,0	3	3	5 x DC	2	**183**			
1,8	1,80	1,44	18,00	20,0	43	19,8	2	3	10 x DC	2	**185**			
1,8	1,80	1,44	9,00	12,9	50	12,0	3	3	5 x DC	2				**184**
1,8	1,80	1,44	18,00	22,0	50	5,3	2	3	10 x DC	2				**186**
2,0	1,20	1,60	4,40	11,9	50	15,0	10	6	2,2 x DC	2	**201**			
2,0	2,00	1,60	10,00	19,7	50	15,0	6	6	5 x DC	2	**203**			
2,0	2,00	1,60	20,00	25,0	50	22,1	5	6	10 x DC	2	**205**			
2,0	2,00	1,60	4,40	11,9	57	15,0	10	6	2,2 x DC	2				**202**
2,0	2,00	1,60	10,00	19,7	57	15,0	6	6	5 x DC	2				**204**
2,0	2,00	1,60	20,00	29,0	57	7,8	4	6	10 x DC	2				**206**

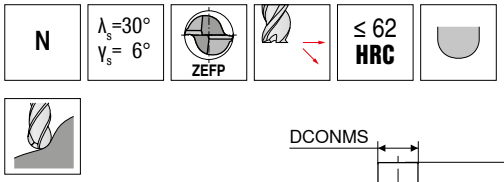
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials	●	●

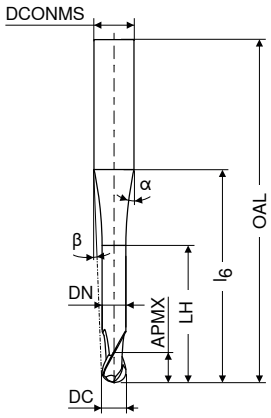
→ v_c/f_z Page 318–325

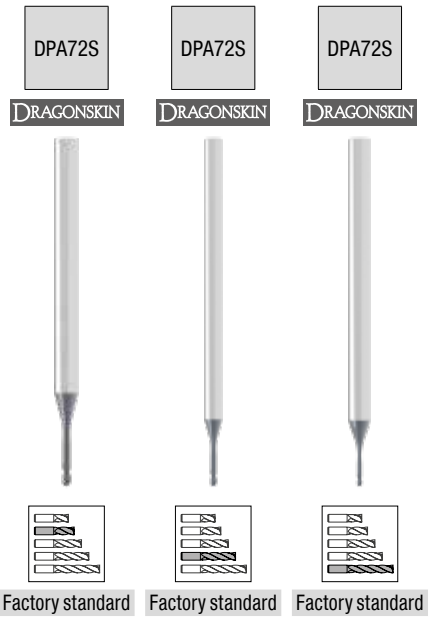
Use the Micro mills on machines with the highest accuracy and good stability.

Micro-ball nosed cutter

▲ T_x = maximum engagement depth









DC ±0,01	APMX	DN	LH	l_6	OAL	α°	β°	DCONMS h5	T_x	ZEFP	Article no. 52 804 ...	Article no. 52 804 ...	Article no. 52 804 ...
mm	mm	mm	mm	mm	mm			mm					
0,2	0,12	0,16	0,44	5,7	38	15,0	14	3	2,2 x DC	2	**021**		
0,2	0,20	0,16	1,00	6,4	38	15,0	13	3	5 x DC	2	**024**		
0,2	0,20	0,16	2,00	9,2	38	15,0	9	3	10 x DC	2	**027**		
0,2	0,12	0,16	0,44	5,7	50	15,0	14	3	2,2 x DC	2		**022**	
0,2	0,20	0,16	1,00	6,4	50	15,0	13	3	5 x DC	2		**025**	
0,2	0,20	0,16	2,00	9,2	50	15,0	9	3	10 x DC	2		**028**	
0,2	0,12	0,16	0,44	11,3	80	15,0	15	6	2,2 x DC	2			**023**
0,2	0,20	0,16	1,00	12,0	80	15,0	14	6	5 x DC	2			**026**
0,2	0,20	0,16	2,00	14,8	80	15,0	12	6	10 x DC	2			**029**
0,5	0,30	0,40	1,10	5,8	38	15,0	13	3	2,2 x DC	2	**051**		
0,5	0,50	0,40	2,50	7,8	38	15,0	10	3	5 x DC	2	**054**		
0,5	0,50	0,40	5,00	10,7	38	13,0	7	3	10 x DC	2	**057**		
0,5	0,30	0,40	1,10	5,8	50	15,0	13	3	2,2 x DC	2		**052**	
0,5	0,50	0,40	2,50	7,8	50	15,0	10	3	5 x DC	2		**055**	
0,5	0,50	0,40	5,00	14,5	50	13,0	5	3	10 x DC	2		**058**	
0,5	0,30	0,40	1,10	11,4	80	15,0	14	6	2,2 x DC	2			**053**
0,5	0,50	0,40	2,50	13,4	80	15,0	12	6	5 x DC	2			**056**
0,5	0,50	0,40	5,00	20,2	80	15,0	8	6	10 x DC	2			**059**
0,8	0,48	0,64	1,76	5,9	38	15,0	11	3	2,2 x DC	2	**081**		
0,8	0,80	0,64	4,00	9,0	38	15,0	7	3	5 x DC	2	**084**		
0,8	0,80	0,64	8,00	10,5	38	8,2	6	3	10 x DC	2	**087**		
0,8	0,48	0,64	1,76	5,9	50	15,0	11	3	2,2 x DC	2		**082**	
0,8	0,80	0,64	4,00	9,0	50	15,0	7	3	5 x DC	2		**085**	
0,8	0,80	0,64	8,00	18,7	50	9,8	4	3	10 x DC	2		**088**	
0,8	0,48	0,64	1,76	11,5	80	15,0	13	6	2,2 x DC	2			**083**
0,8	0,80	0,64	4,00	14,6	80	15,0	11	6	5 x DC	2			**086**
0,8	0,80	0,64	8,00	25,9	80	14,8	6	6	10 x DC	2			**089**
1,0	0,60	0,80	2,20	7,8	43	15,0	11	4	2,2 x DC	2	**101**		
1,0	1,00	0,80	5,00	11,6	43	15,0	8	4	5 x DC	2	**104**		
1,0	1,00	0,80	10,00	18,3	43	8,0	5	4	10 x DC	2	**107**		
1,0	0,60	0,80	2,20	7,8	60	15,0	11	4	2,2 x DC	2		**102**	
1,0	1,00	0,80	5,00	11,6	60	15,0	8	4	5 x DC	2		**105**	
1,0	1,00	0,80	10,00	23,7	60	10,2	4	4	10 x DC	2		**108**	
1,0	0,60	0,80	2,20	11,5	80	15,0	13	6	2,2 x DC	2			**103**
1,0	1,00	0,80	5,00	15,3	80	15,0	10	6	5 x DC	2			**106**
1,0	1,00	0,80	10,00	28,7	80	13,0	5	6	10 x DC	2			**109**
1,2	0,72	0,96	2,64	7,9	43	15,0	11	4	2,2 x DC	2	**121**		
1,2	1,20	0,96	6,00	12,4	43	15,0	7	4	5 x DC	2	**124**		
1,2	1,20	0,96	12,00	18,2	43	9,3	5	4	10 x DC	2	**127**		
1,2	0,72	0,96	2,64	7,9	60	15,0	11	4	2,2 x DC	2		**122**	
1,2	1,20	0,96	6,00	12,4	60	15,0	7	4	5 x DC	2		**125**	
1,2	1,20	0,96	12,00	26,1	60	9,1	4	4	10 x DC	2		**128**	

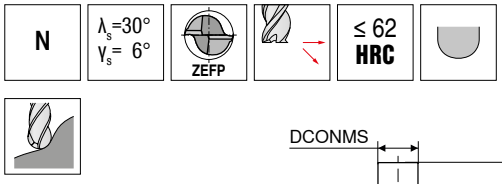
Steel	●	●	●
Stainless steel	●	●	●
Cast iron	●	●	●
Non ferrous metals	●	●	●
Heat resistant alloys	●	●	●
hardened materials	●	●	●

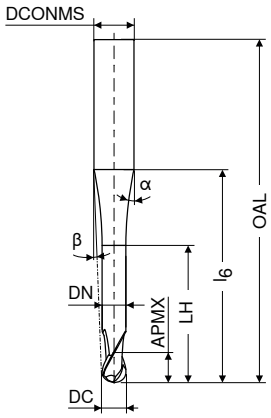
→ v_c/f_z Page 318–325

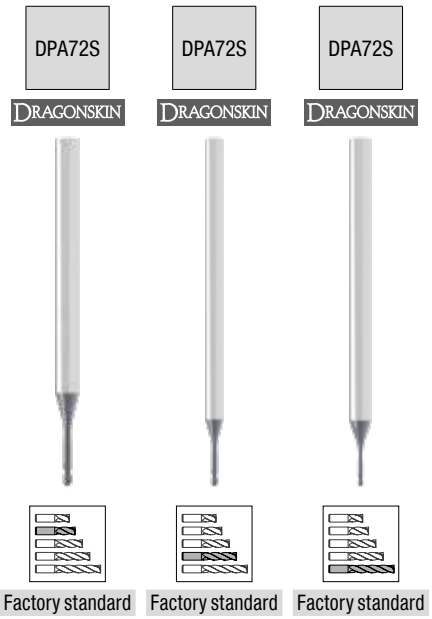
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Micro-ball nosed cutter

▲ T_x = maximum engagement depth







DC ±0,01	APMX	DN	LH	l_6	OAL	α°	β°	DCONMS h5	T_x	ZEFP	Article no. 52 804 ...	Article no. 52 804 ...	Article no. 52 804 ...
mm	mm	mm	mm	mm	mm			mm					
1,2	0,72	0,96	2,64	11,6	80	15,0	12	6	2,2 x DC	2			**123**
1,2	1,20	0,96	6,00	16,2	80	15,0	9	6	5 x DC	2			**126**
1,2	1,20	0,96	12,00	31,8	80	11,7	5	6	10 x DC	2			**129**
1,5	0,90	1,20	3,30	8,0	43	15,0	9	4	2,2 x DC	2	**151**		
1,5	1,50	1,20	7,50	13,7	43	15,0	6	4	5 x DC	2	**154**		
1,5	1,50	1,20	15,00	18,1	43	13,5	4	4	10 x DC	2	**157**		
1,5	0,90	1,20	3,30	8,0	60	15,0	9	4	2,2 x DC	2		**152**	
1,5	1,50	1,20	7,50	13,7	60	15,0	6	4	5 x DC	2		**155**	
1,5	1,50	1,20	15,00	28,0	60	7,8	3	4	10 x DC	2		**158**	
1,5	0,90	1,20	3,30	11,7	80	15,0	11	6	2,2 x DC	2			**153**
1,5	1,50	1,20	7,50	17,4	80	15,0	8	6	5 x DC	2			**156**
1,5	1,50	1,20	15,00	35,8	80	10,2	4	6	10 x DC	2			**159**
1,8	1,08	1,44	3,96	8,1	43	15,0	8	4	2,2 x DC	2	**181**		
1,8	1,80	1,44	9,00	15,0	43	15,0	5	4	5 x DC	2	**184**		
1,8	1,80	1,44	18,00	19,5	43	31,1	4	4	10 x DC	2	**187**		
1,8	1,08	1,44	3,96	8,1	60	15,0	8	4	2,2 x DC	2		**182**	
1,8	1,80	1,44	9,00	15,0	60	15,0	5	4	5 x DC	2		**185**	
1,8	1,80	1,44	18,00	31,9	60	6,8	2	4	10 x DC	2		**188**	
1,8	1,08	1,44	3,96	11,8	80	15,0	11	6	2,2 x DC	2			**183**
1,8	1,80	1,44	9,00	18,7	80	15,0	7	6	5 x DC	2			**186**
1,8	1,80	1,44	18,00	39,3	80	9,1	4	6	10 x DC	2			**189**
2,0	1,20	1,60	4,40	11,9	57	15,0	10	6	2,2 x DC	2	**201**		
2,0	2,00	1,60	10,00	19,7	57	15,0	6	6	5 x DC	2	**204**		
2,0	2,00	1,60	20,00	32,0	57	9,5	4	6	10 x DC	2	**207**		
2,0	1,20	1,60	4,40	11,9	70	15,0	10	6	2,2 x DC	2		**202**	
2,0	2,00	1,60	10,00	19,7	70	15,0	6	6	5 x DC	2		**205**	
2,0	2,00	1,60	20,00	41,4	70	8,5	3	6	10 x DC	2		**208**	
2,0	1,20	1,60	4,40	11,9	80	15,0	10	6	2,2 x DC	2			**203**
2,0	2,00	1,60	10,00	19,7	80	15,0	6	6	5 x DC	2			**206**
2,0	2,00	1,60	20,00	41,4	80	8,5	3	6	10 x DC	2			**209**

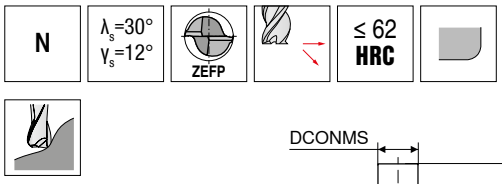
Steel	●	●	●
Stainless steel	●	●	●
Cast iron	●	●	●
Non ferrous metals	●	●	●
Heat resistant alloys	●	●	●
hardened materials	●	●	●

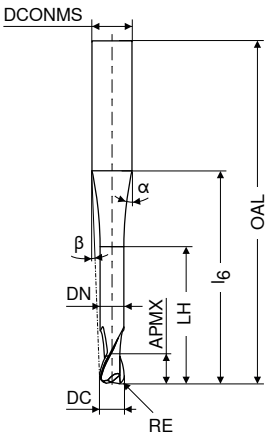
→ v_c/f_z Page 318–325

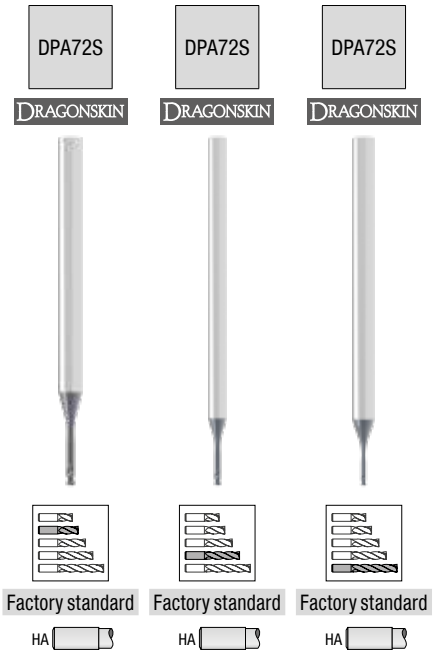
Use the Micro mills on machines with the highest accuracy and good stability.

Micro-torus cutter

▲ T_x = maximum engagement depth







DC ±0,01	RE ±0,005	APMX	DN	LH	l_6	OAL	α°	β°	DCONMS h5	T_x	ZEFP	Article no. 52 806 ...	Article no. 52 806 ...	Article no. 52 806 ...
mm	mm	mm	mm	mm	mm	mm			mm					
0,5	0,1	0,3	0,4	1,1	5,8	38	15,0	13	3	2,2 x DC	2	**051**		
0,5	0,1	0,5	0,4	2,5	7,8	38	15,0	10	3	5 x DC	2	**054**		
0,5	0,1	0,5	0,4	5,0	10,7	38	13,0	7	3	10 x DC	2	**057**		
0,5	0,1	0,3	0,4	1,1	5,8	50	15,0	13	3	2,2 x DC	2		**052**	
0,5	0,1	0,5	0,4	2,5	7,8	50	15,0	10	3	5 x DC	2		**055**	
0,5	0,1	0,5	0,4	5,0	14,5	50	13,0	5	3	10 x DC	2		**058**	
0,5	0,1	0,3	0,4	1,1	11,4	80	15,0	14	6	2,2 x DC	2			**053**
0,5	0,1	0,5	0,4	2,5	13,4	80	15,0	12	6	5 x DC	2			**056**
0,5	0,1	0,5	0,4	5,0	20,2	80	15,0	8	6	10 x DC	2			**059**
1,0	0,2	0,6	0,8	2,2	7,8	43	15,0	11	4	2,2 x DC	2	**101**		
1,0	0,2	1,0	0,8	5,0	11,6	43	15,0	8	4	5 x DC	2	**104**		
1,0	0,2	1,0	0,8	10,0	18,3	43	8,0	5	4	10 x DC	2	**107**		
1,0	0,2	0,6	0,8	2,2	7,8	60	15,0	11	4	2,2 x DC	2		**102**	
1,0	0,2	1,0	0,8	5,0	11,6	60	15,0	8	4	5 x DC	2		**105**	
1,0	0,2	1,0	0,8	10,0	23,7	60	10,2	4	4	10 x DC	2		**108**	
1,0	0,2	0,6	0,8	2,2	11,5	80	15,0	13	6	2,2 x DC	2			**103**
1,0	0,2	1,0	0,8	5,0	15,3	80	15,0	10	6	5 x DC	2			**106**
1,0	0,2	1,0	0,8	10,0	28,7	80	13,0	5	6	10 x DC	2			**109**
1,5	0,3	0,9	1,2	3,3	8,0	43	15,0	9	4	2,2 x DC	2	**151**		
1,5	0,3	1,5	1,2	7,5	13,7	43	15,0	6	4	5 x DC	2	**154**		
1,5	0,3	1,5	1,2	15,0	18,1	43	13,5	4	4	10 x DC	2	**157**		
1,5	0,3	0,9	1,2	3,3	8,0	60	15,0	9	4	2,2 x DC	2		**152**	
1,5	0,3	1,5	1,2	7,5	13,7	60	15,0	6	4	5 x DC	2		**155**	
1,5	0,3	1,5	1,2	15,0	29,2	60	7,8	3	4	10 x DC	2		**158**	
1,5	0,3	0,9	1,2	3,3	11,7	80	15,0	11	6	2,2 x DC	2			**153**
1,5	0,3	1,5	1,2	7,5	17,4	80	15,0	8	6	5 x DC	2			**156**
1,5	0,3	1,5	1,2	15,0	35,8	80	10,2	4	6	10 x DC	2			**159**
2,0	0,5	1,2	1,6	4,4	11,9	57	15,0	10	6	2,2 x DC	2	**201**		
2,0	0,5	2,0	1,6	10,0	19,7	57	15,0	6	6	5 x DC	2	**204**		
2,0	0,5	2,0	1,6	20,0	32,0	57	9,5	4	6	10 x DC	2	**207**		
2,0	0,5	1,2	1,6	4,4	11,9	70	15,0	10	6	2,2 x DC	2		**202**	
2,0	0,5	2,0	1,6	10,0	19,7	70	15,0	6	6	5 x DC	2		**205**	
2,0	0,5	2,0	1,6	20,0	41,4	70	8,5	3	6	10 x DC	2		**208**	
2,0	0,5	1,2	1,6	4,4	11,9	80	15,0	10	6	2,2 x DC	2			**203**
2,0	0,5	2,0	1,6	10,0	19,7	80	15,0	6	6	5 x DC	2			**206**
2,0	0,5	2,0	1,6	20,0	41,4	80	8,5	3	6	10 x DC	2			**209**

Steel	●	●	●
Stainless steel	●	●	●
Cast iron	●	●	●
Non ferrous metals	●	●	●
Heat resistant alloys	●	●	●
hardened materials	●	●	●

→ v_c/f_z Page 324+325

Use the Micro mills on machines with the highest accuracy and good stability.

14

MultiChange Programme Overview

The highly stable "MultiChange" exchangeable head system enables an extremely fast tool change. Designed to be durable and for a very high radial run-out accuracy, this exchangeable head system is probably the most stable and precise exchangeable head system on the market. The following chapters contain suitable exchangeable heads for almost every application.

Solid carbide drilling



▲ Solid Carbide NC Spot Drill
◁ 90°, 120°, 142° / Ø 8, 10, 12, 16, 20 mm / ZEFP* 2

→ **Chapter 2, Solid carbide drills**

*ZEFP = Number of teeth

Reaming and Countersinking





▲ Through hole reamers
Ø 8–30.2 mm incl. special diameters / ZEFP* 4-6

▲ Blind hold reamers
Ø 12.2–30.2 mm incl. special diameters / ZEFP* 6

→ **Chapter 4, Reaming and countersinking**

*ZEFP = Number of teeth

Tool holder



▲ Steel Holder Extra Short
Cylindrical / Tapered 87°
Length 60–90 mm
for KLG 8, 10, 12, 16, 20 mm



▲ Short Holder Steel/Solid Carbide
cylindrical
Length 85–120 mm
for KLG 8, 10, 12, 16, 20 mm



▲ Holder Steel /Solid Carbide, Short
87° taper
Length 85–120 mm
for KLG 8, 10, 12, 16, 20 mm



▲ Solid Carbide Holder Medium
Cylindrical / Tapered 87°
Length 110–150 mm
for KLG 8, 10, 12, 16, 20 mm



▲ Holder Steel/Solid Carbide, Long
cylindrical
Length 150–200 mm
for KLG 8, 10, 12, 16, 20 mm



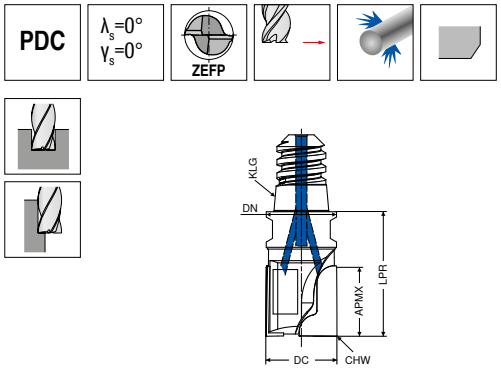
▲ Holder Steel/Solid Carbide, Long
87° taper
Length 150–200 mm
for KLG 8, 10, 12, 16, 20 mm



▲ Steel/Solid Carbide Holder Extra Long
cylindrical
Length 200–250 mm
For Ø 16 and 20 mm

→ **Chapter 17, Accessories**

MultiChange – PCD End Mill



Factory standard

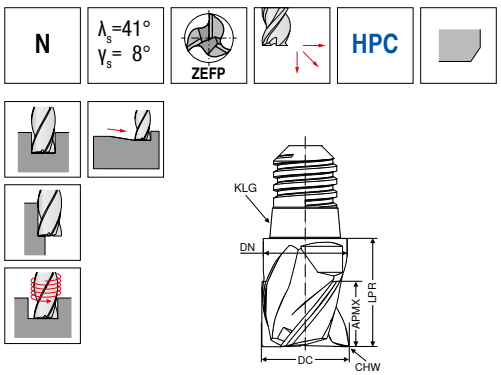
DC mm	KLG	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	Article no. 52 880 ...
8	06	8	7,4	17	0,1	2	080
10	08	10	9,4	20	0,1	2	100
12	10	12	11,0	24	0,1	2	120
16	12	15	15,0	28	0,1	2	160

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 328

Other PCD MultiChange heads can be found in our online shop at cuttingtools.ceratizit.com.

MultiChange – End Mill





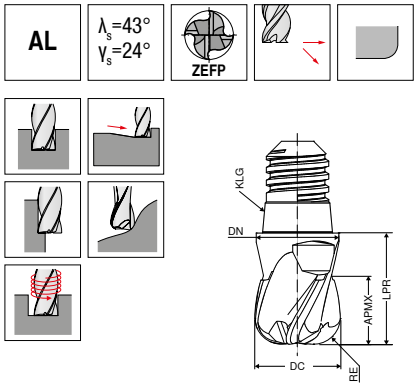
Factory standard

DC mm	KLG	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	Article no. 52 861 ...
8	06	6,0	7,8	11	0,16	3	080
10	08	7,5	9,8	13	0,20	3	100
12	10	9,0	11,8	16	0,24	3	120
16	12	12,0	15,8	20	0,32	3	160
20	16	15,0	19,8	25	0,40	3	200

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 329

MultiChange – Torus Cutter



Factory standard

DC mm	RE mm	KLG	APMX mm	DN mm	LPR mm	ZEFP	NEW Article no. 52 870 ...
10	0,5	08	7,5	9,8	13	3	10005
10	1,0	08	7,5	9,8	13	3	10010
12	0,5	10	9,0	11,8	16	3	12005
12	1,0	10	9,0	11,8	16	3	12010
12	2,0	10	9,0	11,8	16	3	12020
16	2,0	12	12,0	15,8	20	3	16020
16	4,0	12	12,0	15,8	20	3	16040
20	2,0	16	15,0	19,8	25	3	20020
20	3,0	16	15,0	19,8	25	3	20030
20	4,0	16	15,0	19,8	25	3	20040

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 335

Assembly instructions

- KLG = Coupling Size
- SW = Across Flats Size
- M = Torque moment

KLG	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- In unstable applications, the cutting data should be reduced.

Holders and accessories can be found in → **Chapter 17, Accessories.**

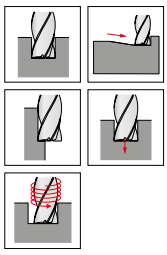
Application Tips

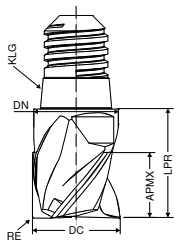
APMX does not correspond to the maximum cutting depth

14

MultiChange – End Mill

PCR UNI | λ_s=36° γ_s=10° | ZEFP | HPC | APA72S







Factory standard

NEW

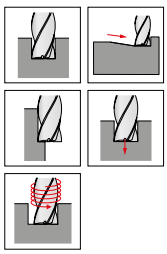
DC mm	RE mm	KLG	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	Article no. 52 871 ...
9,7	0,32	08	7,5	9,8	13	4	**09700**
10,0	0,32	08	7,5	9,8	13	4	**10000**
11,7	0,32	10	9,0	11,8	16	4	**11700**
12,0	0,32	10	9,0	11,8	16	4	**12000**
15,7	0,32	12	12,0	15,8	20	4	**15700**
16,0	0,32	12	12,0	15,8	20	4	**16000**
19,7	0,50	16	15,0	19,8	25	4	**19700**
20,0	0,50	16	15,0	19,8	25	4	**20000**

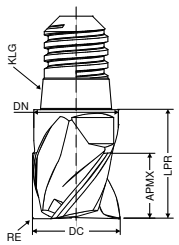
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 326+327

MultiChange – End Mill

PCR ALU | λ_s=41° γ_s=15° | ZEFP | HPC | DLC







Factory standard

NEW

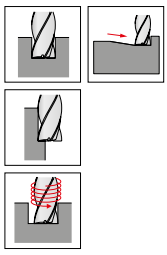
DC mm	RE mm	KLG	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	Article no. 52 872 ...
9,7	0,32	08	7,5	9,8	13	4	**09700**
10,0	0,32	08	7,5	9,8	13	4	**10000**
11,7	0,32	10	9,0	11,8	16	4	**11700**
12,0	0,32	10	9,0	11,8	16	4	**12000**
15,7	0,32	12	12,0	15,8	20	4	**15700**
16,0	0,32	12	12,0	15,8	20	4	**16000**
19,7	0,50	16	15,0	19,8	25	4	**19700**
20,0	0,50	16	15,0	19,8	25	4	**20000**

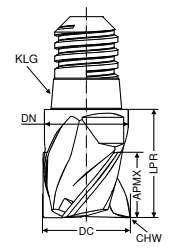
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 326+327

MultiChange – End Mill

N | λ_s=37° γ_s=12° | ZEFP | HPC | Ti1100







Factory standard

DC mm	KLG	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	Article no. 52 860 ...
8	06	6,0	7,8	11	0,16	4	**080**
10	08	7,5	9,8	13	0,20	4	**100**
12	10	9,0	11,8	16	0,24	4	**120**
16	12	12,0	15,8	20	0,32	4	**160**
20	16	15,0	19,8	25	0,40	4	**200**

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 329

Assembly instructions

- ▲ KLG = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

KLG	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

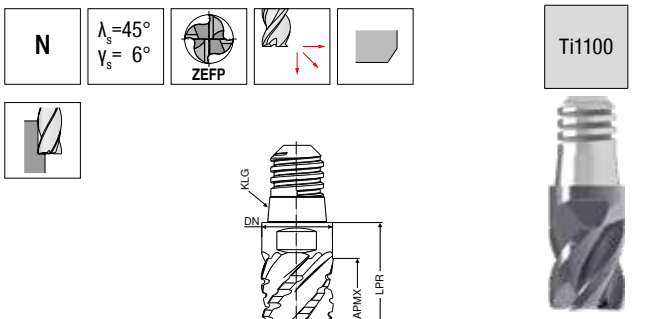
- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

Holders and accessories can be found in → **Chapter 17, Accessories.**

Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange – Roughing-Finishing Cutter



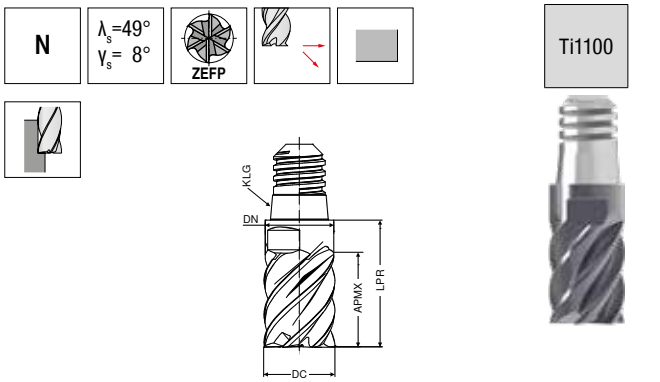
Factory standard

DC mm	KLG	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	Article no. 52 862 ...
8	06	10,0	7,8	15	0,16	4	080
10	08	12,5	9,8	18	0,20	4	100
12	10	15,0	11,8	22	0,24	4	120
16	12	20,0	15,8	28	0,32	5	160
20	16	25,0	19,8	35	0,40	6	200

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 330

MultiChange – Finish milling cutter



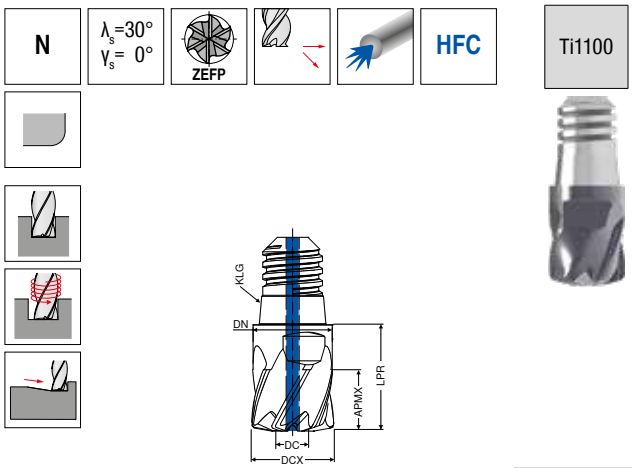
Factory standard

DC mm	KLG	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	Article no. 52 863 ...
8	06	10,0	7,8	15	6	080
10	08	12,5	9,8	18	6	100
12	10	15,0	11,8	22	6	120
16	12	20,0	15,8	28	6	160
20	16	25,0	19,8	35	6	200

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 332

MultiChange – High Feed Cutter



Factory standard

DCX mm	KLG	r_{3D} mm	APMX mm	LPR ±0,02 mm	ZEFP	Article no. 52 864 ...
8	06	0,7	6,0	11	6	080
10	08	0,9	7,5	13	6	100
12	10	1,0	9,0	16	6	120
16	12	1,4	12,0	20	6	160
20	16	1,7	15,0	25	6	200

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	
Heat resistant alloys	
hardened materials	○

→ v_c/f_z Page 331

- ▲ r_{3D} = corner radius to be programmed
- ▲ Ø DCX tapered by 0.2 mm, resulting in Ø DN
- ▲ Ø DCX halved, resulting in Ø DC

Assembly instructions

- ▲ KLG = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

KLG	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

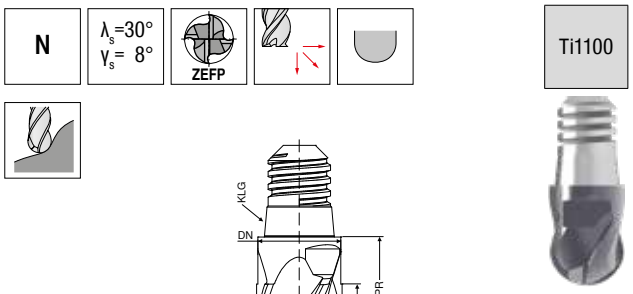
Holders and accessories can be found in → **Chapter 17, Accessories.**

Application Tips

APMX does not correspond to the maximum cutting depth

14

MultiChange – Ball Nosed Cutter



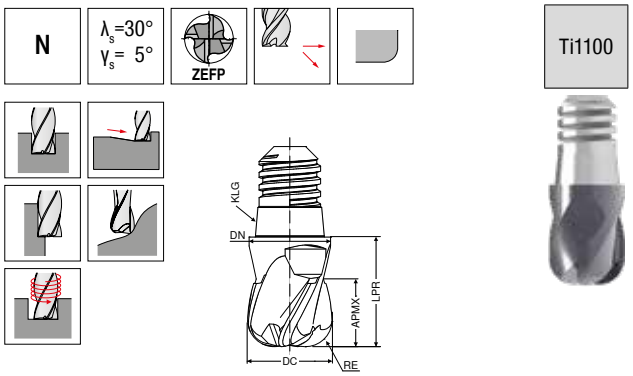
Factory standard

DC mm	KLG	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	Article no. 52 866 ...
10	08	7,5	9,8	13	4	100
12	10	9,0	11,8	16	4	120
16	12	12,0	15,8	20	4	160
20	16	15,0	19,8	25	4	200

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 333+334

MultiChange – Torus Cutter



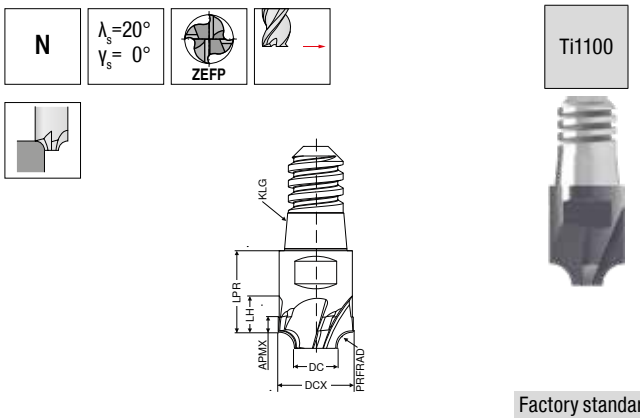
Factory standard

DC mm	KLG	APMX mm	DN mm	LPR ±0,02 mm	RE mm	ZEFP	Article no. 52 865 ...
8	06	6,0	7,8	11	1,0	4	081
8	06	6,0	7,8	11	2,0	4	082
10	08	7,5	9,8	13	1,5	4	101
10	08	7,5	9,8	13	3,0	4	103
12	10	9,0	11,8	16	1,5	4	121
12	10	9,0	11,8	16	4,0	4	124
16	12	12,0	15,8	20	2,0	4	162
16	12	12,0	15,8	20	5,0	4	165
20	16	15,0	19,8	25	2,0	4	202
20	16	15,0	19,8	25	6,0	4	206

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 333+334

MultiChange – Quarter-round milling cutter



Factory standard

DCX mm	KLG	PRFRAD ±0,03 mm	APMX mm	DC mm	LPR ±0,02 mm	LH mm	Article no. 52 869 ...
8	06	0,5	2,0	6,63	11	4,5	080
8	06	1,0	3,0	5,69	11	5,0	081
10	08	1,5	4,0	6,63	13	6,5	100
10	08	2,0	4,5	5,69	13	7,0	101
12	10	2,5	5,5	6,65	16	8,5	120
12	10	3,0	6,0	5,70	16	9,0	121
12	10	3,5	6,5	4,76	16	9,5	122
16	12	4,0	8,0	7,60	20	12,0	160
16	12	4,5	8,5	6,68	20	12,5	161
16	12	5,0	9,0	5,74	20	13,0	162
20	16	5,0	10,0	9,53	25	15,0	200
20	16	6,0	11,0	7,64	25	16,0	201

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 336

Assembly instructions

- KLG = Coupling Size
- SW = Across Flats Size
- M = Torque moment

KLG	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- In unstable applications, the cutting data should be reduced.

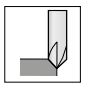
Holders and accessories can be found in → **Chapter 17, Accessories.**

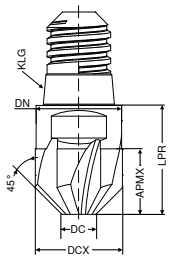
Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange – Deburring Cutter

N | λ_s=0° γ_s=0° 3° | ZEFP





Ti1050



Factory standard

DCX mm	KLG	APMX mm	DC mm	DN mm	LPR ±0,02 mm	ZEFP	Article no. 52 867 ...
10	08	7,5	0,0	9,8	13	4	100
12	10	9,0	0,0	11,8	16	4	120
16	12	12,0	6,4	15,8	20	6	160
20	16	15,0	8,0	19,8	25	6	200

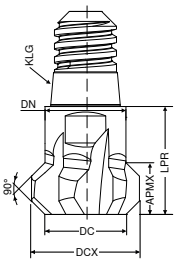
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 337

MultiChange – Deburring Cutter

N | λ_s=0° γ_s=2° | ZEFP





Ti1100



Factory standard

DCX mm	KLG	APMX mm	DC mm	DN mm	LPR ±0,02 mm	ZEFP	Article no. 52 868 ...
10	06	4,8	7,5	8	11	6	100
12	08	5,5	9,0	10	13	6	120
16	10	8,0	12,0	12	16	6	160
20	12	9,5	15,0	16	20	6	200

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 337

Assembly instructions

- KLG = Coupling Size
- SW = Across Flats Size
- M = Torque moment

KLG	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

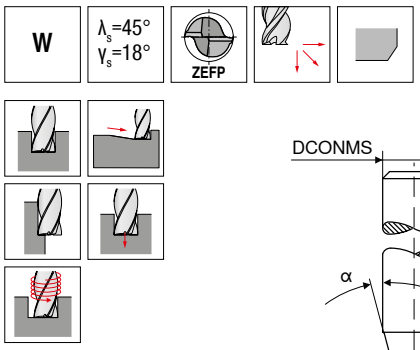
- A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- In unstable applications, the cutting data should be reduced.

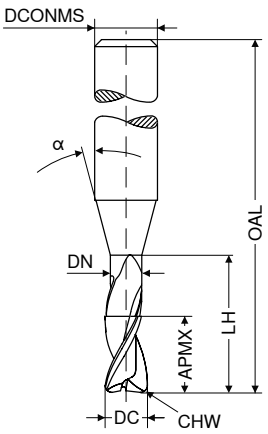
Holders and accessories can be found in → **Chapter 17, Accessories.**

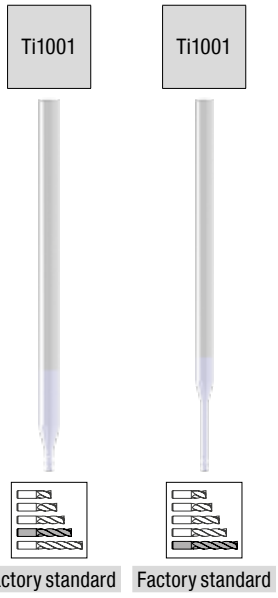
Application Tips

APMX does not correspond to the maximum cutting depth

End milling cutter







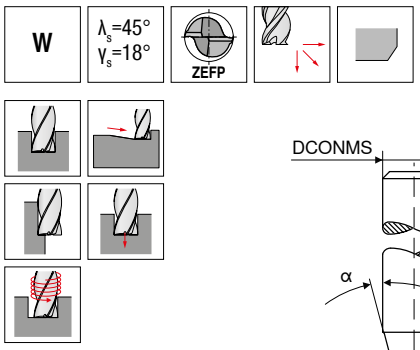
DC f8	APMX	DN	LH	OAL	α°	DCONMS h5	CHW	ZEFP	Article no. 50 900 ...	Article no. 50 900 ...
mm	mm	mm	mm	mm		mm	mm			
0,2	0,2	0,18	0,6	55	15	3	0,02	2	**021**	
0,2	0,2	0,18	1,0	55	15	3	0,02	2	**022**	
0,2	0,2	0,18	1,6	55	15	3	0,02	2	**023**	
0,2	0,2	0,18	2,0	55	15	3	0,02	2	**024**	
0,3	0,3	0,28	0,9	55	15	3	0,03	2	**031**	
0,3	0,3	0,28	1,5	55	15	3	0,03	2	**032**	
0,3	0,3	0,28	2,4	55	15	3	0,03	2	**033**	
0,3	0,3	0,28	3,0	55	15	3	0,03	2	**034**	
0,4	0,4	0,37	1,2	55	15	3	0,04	2	**041**	
0,4	0,4	0,37	2,0	55	15	3	0,04	2	**042**	
0,4	0,4	0,37	3,2	55	15	3	0,04	2	**043**	
0,4	0,4	0,37	4,0	55	15	3	0,04	2	**044**	
0,5	0,5	0,45	1,5	55	15	3	0,05	2	**051**	
0,5	0,5	0,45	2,5	55	15	3	0,05	2	**052**	
0,5	0,5	0,45	4,0	55	15	3	0,05	2	**053**	
0,5	0,5	0,45	5,0	55	15	3	0,05	2	**054**	
0,6	0,6	0,58	2,0	55	15	3	0,06	2	**061**	
0,6	0,6	0,58	3,0	55	15	3	0,06	2	**062**	
0,6	0,6	0,58	5,0	65	15	3	0,06	2		**063**
0,6	0,6	0,58	6,0	65	15	3	0,06	2		**064**
0,8	0,8	0,77	2,5	55	15	3	0,08	2	**081**	
0,8	0,8	0,77	4,0	55	15	3	0,08	2	**082**	
0,8	0,8	0,77	6,5	65	15	3	0,08	2		**083**
0,8	0,8	0,77	8,0	65	15	3	0,08	2		**084**
1,0	1,0	0,95	3,0	55	15	3	0,10	2	**101**	
1,0	1,0	0,95	5,0	55	15	3	0,10	2	**102**	
1,0	1,0	0,95	8,0	65	15	3	0,10	2		**103**
1,0	1,0	0,95	10,0	65	15	3	0,10	2		**104**
1,0	1,0	0,95	12,0	65	15	3	0,10	2		**105**
1,2	1,2	1,15	3,0	55	15	3	0,12	2	**121**	
1,2	1,2	1,15	6,0	55	15	3	0,12	2	**122**	
1,2	1,2	1,15	10,0	65	15	3	0,12	2		**123**
1,2	1,2	1,15	12,0	65	15	3	0,12	2		**124**
1,3	1,3	1,25	4,0	55	15	3	0,12	2	**131**	
1,3	1,3	1,25	7,0	55	15	3	0,12	2	**132**	
1,3	1,3	1,25	11,0	65	15	3	0,12	2		**133**
1,3	1,3	1,25	13,0	65	15	3	0,12	2		**134**
1,5	1,5	1,44	5,0	55	15	3	0,12	2	**151**	
1,5	1,5	1,44	7,5	55	15	3	0,12	2	**152**	
1,5	1,5	1,44	12,0	65	15	3	0,12	2		**153**
1,5	1,5	1,44	15,0	65	15	3	0,12	2		**154**

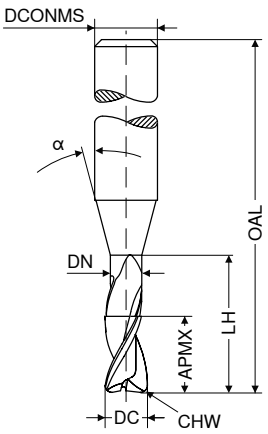
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

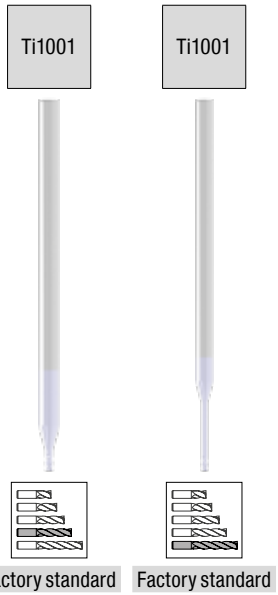
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Continued on next page

End milling cutter







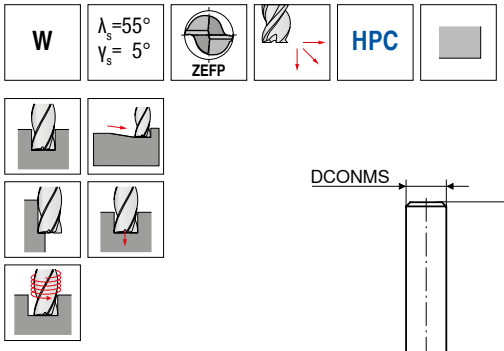
DC f8	APMX	DN	LH	OAL	α°	DCONMS h5	CHW	ZEFP	Article no. 50 900 ...	Article no. 50 900 ...
mm	mm	mm	mm	mm		mm	mm			
1,6	1,6	1,52	5,0	55	15	3	0,12	2	161	
1,6	1,6	1,52	8,0	55	15	3	0,12	2	162	
1,6	1,6	1,52	13,0	65	15	3	0,12	2		163
1,6	1,6	1,52	16,0	65	15	3	0,12	2		164
1,8	1,8	1,72	5,5	55	15	3	0,12	2	181	
1,8	1,8	1,72	9,0	55	15	3	0,12	2	182	
1,8	1,8	1,72	14,5	65	15	3	0,12	2		183
1,8	1,8	1,72	18,0	65	15	3	0,12	2		184
2,0	2,0	1,92	6,0	55	15	3	0,13	2	201	
2,0	2,0	1,92	10,0	55	15	3	0,13	2	202	
2,0	2,0	1,92	14,0	55	15	3	0,13	2	203	
2,0	2,0	1,92	16,0	65	15	3	0,13	2		204
2,0	2,0	1,92	20,0	65	15	3	0,13	2		205
2,3	2,3	2,22	7,0	55	15	3	0,13	2	231	
2,3	2,3	2,22	11,5	55	15	3	0,13	2	232	
2,3	2,3	2,22	18,5	65	15	3	0,13	2		233
2,3	2,3	2,22	20,0	65	15	3	0,13	2		234
2,3	2,3	2,22	23,0	65	15	3	0,13	2		235
3,0	3,0	2,90	9,0	65	15	6	0,15	2	301	
3,0	3,0	2,90	15,0	65	15	6	0,15	2	302	
3,0	3,0	2,90	24,0	100	15	6	0,15	2		303
3,0	3,0	2,90	30,0	100	15	6	0,15	2		304
4,0	4,0	3,90	12,0	65	15	6	0,15	2	401	
4,0	4,0	3,90	20,0	65	15	6	0,15	2	402	
4,0	4,0	3,90	32,0	100	15	6	0,15	2		403
4,0	4,0	3,90	40,0	100	15	6	0,15	2		404
5,0	5,0	4,90	15,0	65	15	6	0,15	2	501	
5,0	5,0	4,90	25,0	65	15	6	0,15	2	502	
5,0	5,0	4,90	40,0	100	15	6	0,15	2		503
5,0	5,0	4,90	50,0	100	15	6	0,15	2		504
6,0	6,0	5,90	18,0	65	15	6	0,15	2	601	
6,0	6,0	5,90	30,0	100	15	6	0,15	2		602
6,0	6,0	5,90	48,0	100	15	6	0,15	2		603
6,0	6,0	5,90	60,0	100	15	6	0,15	2		604

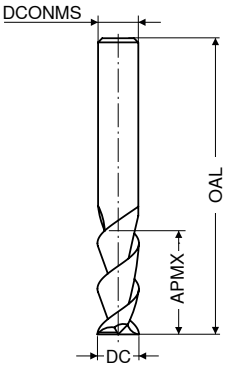
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

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End milling cutter









≈DIN 6527

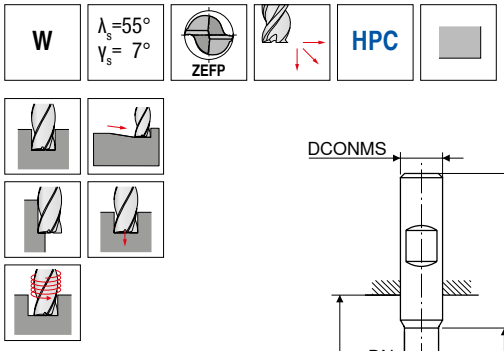
HA

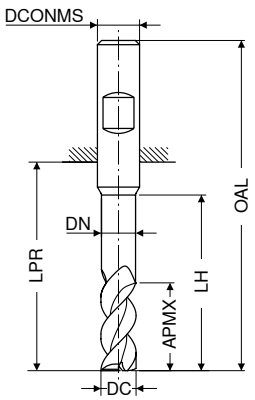
DC h6 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 50 960 ...
3	12	50	3	2	**030**
4	15	50	4	2	**040**
5	20	50	5	2	**050**
6	20	57	6	2	**060**
8	20	63	8	2	**080**
10	25	73	10	2	**100**
12	25	83	12	2	**120**
14	30	83	14	2	**140**
16	30	92	16	2	**160**
20	38	104	20	2	**200**

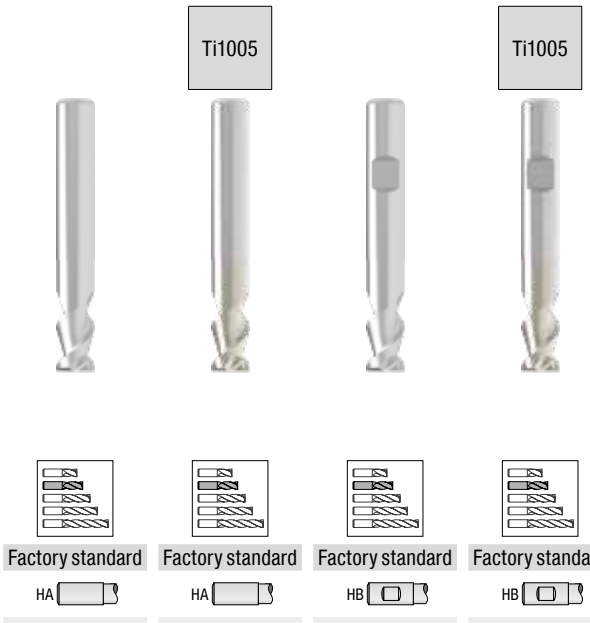
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 338+339

End milling cutter







DC h6	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	Factory standard HA	Article no. 54 590 ...	Factory standard HA	Article no. 54 592 ...	Factory standard HB	Article no. 54 591 ...	Factory standard HB	Article no. 54 593 ...
mm	mm	mm	mm	mm	mm	mm									
2,7	5,0	2,5	12	19	55	6	2		027		027		027		027
3,0	3,5	2,8	12	19	55	6	2		033		033				
3,0	5,0	2,8	12	19	55	6	2		031		031		031		031
3,7	6,5	3,5	12	19	55	6	2		037		037		037		037
4,0	4,5	3,8	12	19	55	6	2		043		043				
4,0	6,5	3,8	12	19	55	6	2		041		041		041		041
4,7	8,0	4,5	15	22	58	6	2		047		047		047		047
5,0	5,5	4,8	15	22	58	6	2		053		053				
5,0	8,0	4,8	15	22	58	6	2		051		051		051		051
5,7	10,0	5,5	18	22	58	6	2		057		057		057		057
6,0	7,0	5,8	18	22	58	6	2		063		063				
6,0	10,0	5,8	18	22	58	6	2		061		061		061		061
6,7	13,0	6,4	24	28	64	8	2		067		067		067		067
7,0	13,0	6,7	24	28	64	8	2		071		071		071		071
7,7	13,0	7,4	24	28	64	8	2		077		077		077		077
8,0	9,0	7,7	24	28	64	8	2		083		083				
8,0	13,0	7,7	24	28	64	8	2		081		081		081		081
8,7	16,0	8,4	30	34	74	10	2		087		087		087		087
9,0	16,0	8,7	30	34	74	10	2		091		091		091		091
9,7	16,0	9,4	30	34	74	10	2		097		097		097		097
10,0	11,0	9,7	30	34	74	10	2		103		103				
10,0	16,0	9,7	30	34	74	10	2		101		101		101		101
10,7	19,0	10,3	36	40	85	12	2		107		107		107		107
11,0	19,0	10,6	36	40	85	12	2		111		111		111		111
11,7	19,0	11,3	36	40	85	12	2		117		117		117		117
12,0	13,0	11,6	36	40	85	12	2		123		123				
12,0	19,0	11,6	36	40	85	12	2		121		121		121		121
13,0	22,0	12,6	42	46	91	14	2		131		131		131		131
13,7	22,0	13,3	42	46	91	14	2		137		137		137		137
14,0	15,0	13,6	42	46	91	14	2		143		143				
14,0	22,0	13,6	42	46	91	14	2		141		141		141		141
15,0	25,0	14,5	48	52	100	16	2		151		151		151		151
15,7	25,0	15,2	48	52	100	16	2		157		157		157		157
16,0	17,0	15,5	48	52	100	16	2		163		163				
16,0	25,0	15,5	48	52	100	16	2		161		161		161		161
18,0	20,0	17,5	54	58	106	18	2		183		183				
18,0	29,0	17,5	54	58	106	18	2		181		181		181		181
19,7	32,0	19,2	60	64	114	20	2		197		197		197		197
20,0	22,0	19,5	60	64	114	20	2		203		203				
20,0	32,0	19,5	60	64	114	20	2		201		201		201		201
24,7	40,0	24,2	75	80	136	25	2		247		247		247		247
25,0	27,0	24,5	75	80	136	25	2		253		253				
25,0	40,0	24,5	75	80	136	25	2		251		251		251		251

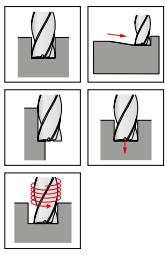
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

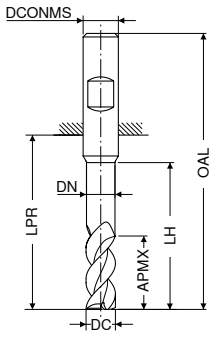
→ v_c/f_z Page 338+339

14

End milling cutter

W | λ_s=55° γ_s= 7° | ZEFP | HPC





LPR with Shank DIN 6535 HB

Ti1005 | Ti1005 | Ti1005





Factory standard | Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB | HA | HA

DC h6	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	Article no. 54 590 ...	Article no. 54 592 ...	Article no. 54 591 ...	Article no. 54 593 ...	Article no. 54 590 ...	Article no. 54 592 ...
mm	mm	mm	mm	mm	mm	mm							
2,7	8,0	2,5	15	22	58	6	2	028	028	028	028		
3,0	3,5	2,8	15	22	58	6	2	034	034				
3,0	8,0	2,8	15	22	58	6	2	032	032	032	032		
3,0	3,5	2,8	24	31	67	6	2					035	035
3,7	10,5	3,5	20	26	62	6	2	038	038	038	038		
4,0	4,5	3,8	20	26	62	6	2	044	044				
4,0	10,5	3,8	20	26	62	6	2	042	042	042	042		
4,0	4,5	3,8	32	38	74	6	2					045	045
4,7	13,0	4,5	25	34	70	6	2	048	048	048	048		
5,0	5,5	4,8	25	34	70	6	2	054	054				
5,0	13,0	4,8	25	34	70	6	2	052	052	052	052		
5,0	5,5	4,8	40	52	88	6	2					055	055
5,7	16,0	5,5	30	34	70	6	2	058	058	058	058		
6,0	7,0	5,8	30	34	70	6	2	064	064				
6,0	16,0	5,8	30	34	70	6	2	062	062	062	062		
6,0	7,0	5,8	48	52	88	6	2					065	065
6,7	21,0	6,4	40	44	80	8	2	068	068	068	068		
7,0	21,0	6,7	40	44	80	8	2	072	072	072	072		
7,7	21,0	7,4	40	44	80	8	2	078	078	078	078		
8,0	9,0	7,7	40	44	80	8	2	084	084				
8,0	21,0	7,7	40	44	80	8	2	082	082	082	082		
8,0	9,0	7,7	64	68	104	8	2					085	085
8,7	26,0	8,4	50	54	94	10	2	088	088	088	088		
9,0	26,0	8,7	50	54	94	10	2	092	092	092	092		
9,7	26,0	9,4	50	54	94	10	2	098	098	098	098		
10,0	11,0	9,7	50	54	94	10	2	104	104				
10,0	26,0	9,7	50	54	94	10	2	102	102	102	102		
10,0	11,0	9,7	80	84	124	10	2					105	105
10,7	31,0	10,3	60	64	109	12	2	108	108	108	108		
11,0	31,0	10,6	60	64	109	12	2	112	112	112	112		
11,7	31,0	11,3	60	64	109	12	2	118	118	118	118		
12,0	13,0	11,6	60	64	109	12	2	124	124				
12,0	31,0	11,6	60	64	109	12	2	122	122	122	122		
12,0	13,0	11,6	96	100	145	12	2					125	125
13,0	36,0	12,6	70	74	119	14	2	132	132	132	132		
13,7	36,0	13,3	70	74	119	14	2	138	138	138	138		
14,0	15,0	13,6	70	74	119	14	2	144	144				
14,0	36,0	13,6	70	74	119	14	2	142	142	142	142		

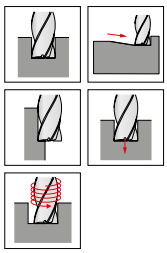
Steel						
Stainless steel						
Cast iron						
Non ferrous metals	●	●	●	●	●	●
Heat resistant alloys						
hardened materials						

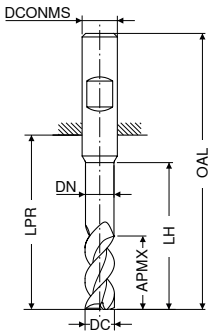
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Continued on next page

End milling cutter

W | λ_s=55° γ_s= 7° | ZEFP | HPC







LPR with Shank DIN 6535 HB



								Factory standard HA	Factory standard HA	Factory standard HB	Factory standard HB	Factory standard HA	Factory standard HA
DC h6	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	Article no. 54 590 ...	Article no. 54 592 ...	Article no. 54 591 ...	Article no. 54 593 ...	Article no. 54 590 ...	Article no. 54 592 ...
mm	mm	mm	mm	mm	mm	mm							
14,0	15,0	13,6	112	116	161	14	2					**145**	**145**
15,0	41,0	14,5	80	84	132	16	2	**152**	**152**	**152**	**152**		
15,7	41,0	15,2	80	84	132	16	2	**158**	**158**	**158**	**158**		
16,0	17,0	15,5	80	84	132	16	2	**164**	**164**				
16,0	41,0	15,5	80	84	132	16	2	**162**	**162**	**162**	**162**		
16,0	17,0	15,5	128	132	180	16	2					**165**	**165**
18,0	20,0	17,5	90	94	142	18	2	**184**	**184**				
18,0	47,0	17,5	90	94	142	18	2	**182**	**182**	**182**	**182**		
18,0	20,0	17,5	144	148	196	18	2					**185**	**185**
19,7	52,0	19,2	100	104	154	20	2	**198**	**198**	**198**	**198**		
20,0	22,0	19,5	100	104	154	20	2	**204**	**204**				
20,0	52,0	19,5	100	104	154	20	2	**202**	**202**	**202**	**202**		
20,0	22,0	19,5	160	164	214	20	2					**205**	**205**
24,7	65,0	24,2	125	130	186	25	2	**248**	**248**	**248**	**248**		
25,0	27,0	24,5	125	130	186	25	2	**254**	**254**				
25,0	65,0	24,5	125	130	186	25	2	**252**	**252**	**252**	**252**		
25,0	27,0	24,5	200	204	260	25	2					**255**	**255**

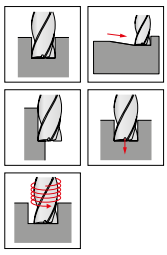
Steel						
Stainless steel						
Cast iron						
Non ferrous metals	●	●	●	●	●	●
Heat resistant alloys						
hardened materials						

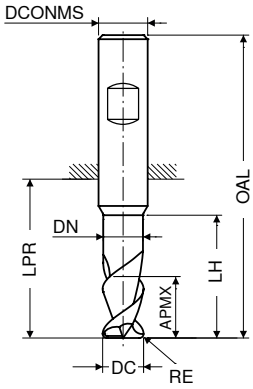
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End milling cutter with corner radius

W | λ_s=55° γ_s= 7° | ZEFP | HPC









Factory standard | Factory standard | Factory standard | Factory standard

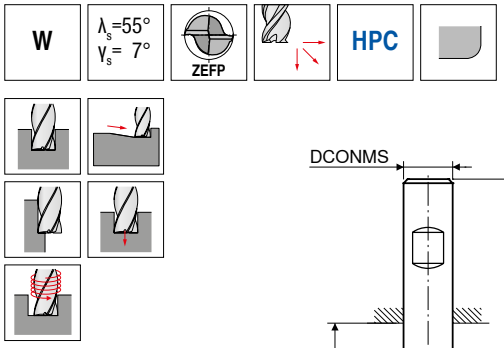
HA | HA | HB | HB

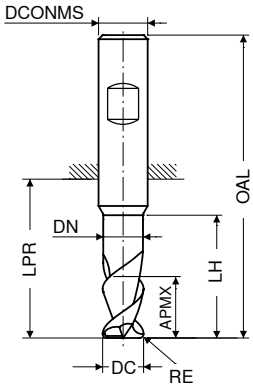
DC $_{h6}$	RE $_{\pm 0,01}$	APMX	DN	LH	LPR	OAL	DCONMS $_{h5}$	ZEFP	Article no. 54 594 ...	Article no. 54 596 ...	Article no. 54 595 ...	Article no. 54 597 ...
mm	mm	mm	mm	mm	mm	mm	mm					
3	0,2	5,0	2,8	12	19	55	6	2	031	031	031	031
3	0,3	5,0	2,8	12	19	55	6	2	033	033	033	033
3	0,5	5,0	2,8	12	19	55	6	2	035	035	035	035
4	0,3	6,5	3,8	12	19	55	6	2	041	041	041	041
4	0,5	6,5	3,8	12	19	55	6	2	043	043	043	043
4	1,0	6,5	3,8	12	19	55	6	2	045	045	045	045
5	0,3	8,0	4,8	15	22	58	6	2	051	051	051	051
5	0,5	8,0	4,8	15	22	58	6	2	053	053	053	053
5	1,0	8,0	4,8	15	22	58	6	2	055	055	055	055
6	0,3	10,0	5,8	18	22	58	6	2	061	061	061	061
6	0,5	10,0	5,8	18	22	58	6	2	063	063	063	063
6	1,0	10,0	5,8	18	22	58	6	2	065	065	065	065
8	0,3	13,0	7,7	24	28	64	8	2	081	081	081	081
8	0,5	13,0	7,7	24	28	64	8	2	083	083	083	083
8	1,0	13,0	7,7	24	28	64	8	2	085	085	085	085
10	0,3	16,0	9,7	30	34	74	10	2	101	101	101	101
10	1,0	16,0	9,7	30	34	74	10	2	103	103	103	103
10	1,5	16,0	9,7	30	34	74	10	2	105	105	105	105
12	1,0	19,0	11,6	36	40	85	12	2	121	121	121	121
12	1,5	19,0	11,6	36	40	85	12	2	123	123	123	123
12	2,0	19,0	11,6	36	40	85	12	2	125	125	125	125
16	2,0	25,0	15,5	48	52	100	16	2	161	161	161	161
16	2,5	25,0	15,5	48	52	100	16	2	163	163	163	163
16	3,0	25,0	15,5	48	52	100	16	2	165	165	165	165
20	2,0	32,0	19,5	60	64	114	20	2	201	201	201	201
20	2,5	32,0	19,5	60	64	114	20	2	203	203	203	203
20	3,0	32,0	19,5	60	64	114	20	2	205	205	205	205
20	4,0	32,0	19,5	60	64	114	20	2	206	206	206	206
25	2,0	40,0	24,5	75	80	136	25	2	251	251	251	251
25	4,0	40,0	24,5	75	80	136	25	2	253	253	253	253

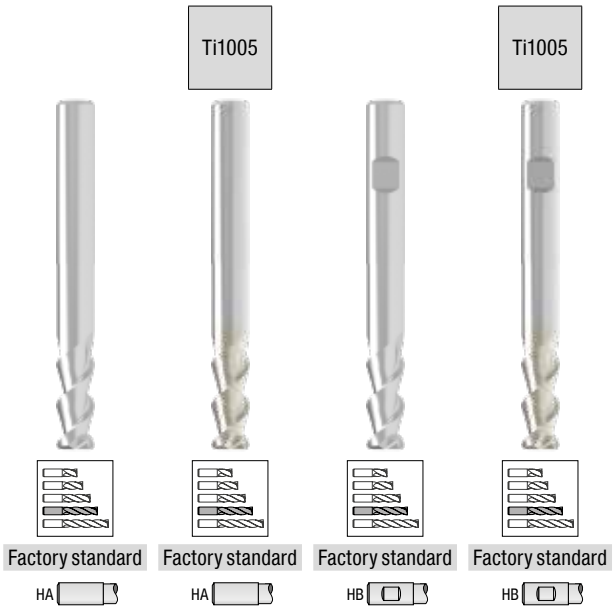
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

→ v_c/f_z Page 338+339

End milling cutter with corner radius







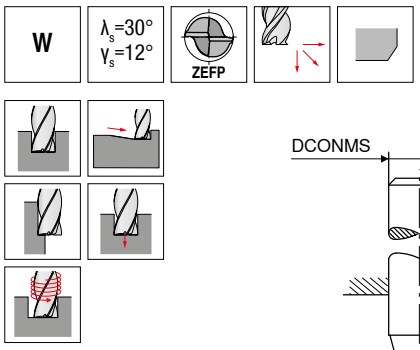
DC h6	RE ±0,01	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	Article no. 54 594 ...	Article no. 54 596 ...	Article no. 54 595 ...	Article no. 54 597 ...
mm	mm	mm	mm	mm	mm	mm	mm					
3	0,2	8,0	2,8	15	22	58	6	2	032	032	032	032
3	0,3	8,0	2,8	15	22	58	6	2	034	034	034	034
3	0,5	8,0	2,8	15	22	58	6	2	036	036	036	036
4	0,3	10,5	3,8	20	26	62	6	2	042	042	042	042
4	0,5	10,5	3,8	20	26	62	6	2	044	044	044	044
4	1,0	10,5	3,8	20	26	62	6	2	046	046	046	046
5	0,3	13,0	4,8	25	34	70	6	2	052	052	052	052
5	0,5	13,0	4,8	25	34	70	6	2	054	054	054	054
5	1,0	13,0	4,8	25	34	70	6	2	056	056	056	056
6	0,3	16,0	5,8	30	34	70	6	2	062	062	062	062
6	0,5	16,0	5,8	30	34	70	6	2	064	064	064	064
6	1,0	16,0	5,8	30	34	70	6	2	066	066	066	066
8	0,3	21,0	7,7	40	44	80	8	2	082	082	082	082
8	0,5	21,0	7,7	40	44	80	8	2	084	084	084	084
8	1,0	21,0	7,7	40	44	80	8	2	086	086	086	086
10	0,5	26,0	9,7	50	54	94	10	2	102	102	102	102
10	1,0	26,0	9,7	50	54	94	10	2	104	104	104	104
10	1,5	26,0	9,7	50	54	94	10	2	106	106	106	106
12	1,0	31,0	11,6	60	64	109	12	2	122	122	122	122
12	1,5	31,0	11,6	60	64	109	12	2	124	124	124	124
12	2,0	31,0	11,6	60	64	109	12	2	126	126	126	126
16	2,0	41,0	15,5	80	84	132	16	2	162	162	162	162
16	2,5	41,0	15,5	80	84	132	16	2	164	164	164	164
16	4,0	41,0	15,5	80	84	132	16	2	166	166	166	166
20	2,0	52,0	19,5	100	104	154	20	2	202	202	202	202
20	2,5	52,0	19,5	100	104	154	20	2	204	204	204	204
20	4,0	52,0	19,5	100	104	154	20	2	207	207	207	207
25	2,0	65,0	24,5	125	130	186	25	2	252	252	252	252
25	4,0	65,0	24,5	125	130	186	25	2	254	254	254	254

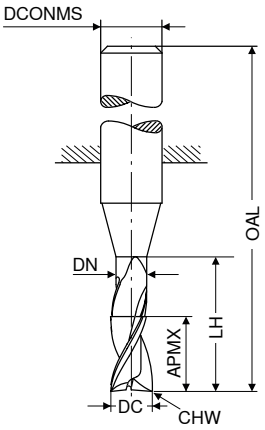
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

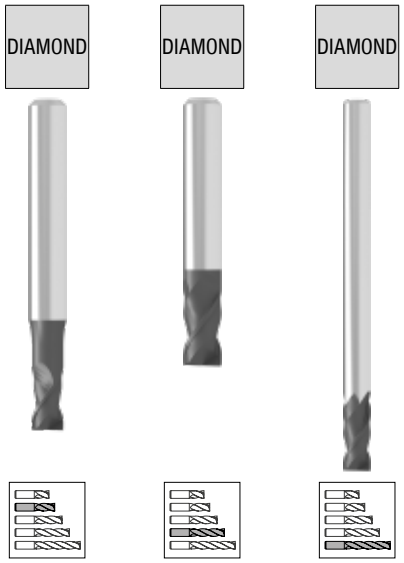
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Slot milling cutter







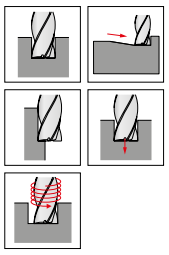
									DIN 6527 HA	DIN 6527 HA	Factory standard HA
DC	Tol.	APMX	DN	LH	OAL	DCONMS h6	CHW	ZEFP	Article no. 52 760 ...	Article no. 52 761 ...	Article no. 52 762 ...
mm		mm	mm	mm	mm	mm	mm				
2	e8	3			50	6	0,04	2	020		
2	h10	8	1,8	31	60	2	0,04	2			020
3	e8	4			50	6	0,07	2	030		
3	h10	12	2,8	41	70	3	0,07	2			030
4	e8	5			54	6	0,07	2	040		
4	h10	15	3,8	51	80	4	0,07	2			040
5	e8	6			54	6	0,12	2	050		
5	h10	20	4,8	71	100	5	0,12	2			050
6	e8	10			57	6	0,12	2		060	
6	h10	20	5,8	63	100	6	0,12	2			060
8	e8	16			63	8	0,12	2		080	
8	h10	20	7,8	83	120	8	0,12	2			080
10	e8	19			72	10	0,20	2		100	
10	h10	25	9,8	99	140	10	0,20	2			100
12	e8	22			83	12	0,20	2		120	
12	h10	25	11,8	104	150	12	0,20	2			120

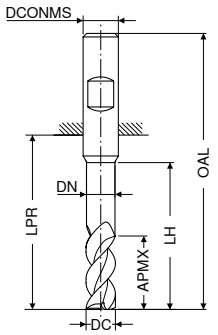
Steel			
Stainless steel			
Cast iron			
Non ferrous metals	●	●	●
Heat resistant alloys			
hardened materials			

→ v_c/f_z Page 348

End milling cutter

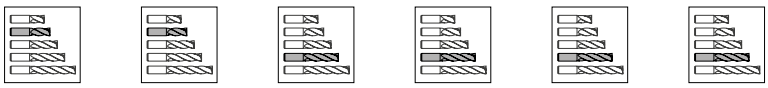
W | λ_s=45° γ_s= 7° | ZEFP | HPC





LPR with Shank DIN 6535 HB





								Factory standard HA	Factory standard HA	Factory standard HA	Factory standard HA	Factory standard HB	Factory standard HB
DC h6	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	Article no. 54 610 ...	Article no. 54 612 ...	Article no. 54 610 ...	Article no. 54 612 ...	Article no. 54 611 ...	Article no. 54 613 ...
mm	mm	mm	mm	mm	mm	mm							
3	3,5	2,8	12	19	55	6	3	033	033				
3	3,5	2,8	15	22	58	6	3			034	034		
3	8,0	2,8	15	22	58	6	3			032	032	032	032
4	4,5	3,8	12	19	55	6	3	043	043				
4	4,5	3,8	20	26	62	6	3			044	044		
4	10,5	3,8	20	26	62	6	3			042	042	042	042
5	5,5	4,8	15	22	58	6	3	053	053				
5	5,5	4,8	25	34	70	6	3			054	054		
5	13,0	4,8	25	34	70	6	3			052	052	052	052
6	7,0	5,8	18	22	58	6	3	063	063				
6	7,0	5,8	30	34	70	6	3			064	064		
6	16,0	5,8	30	34	70	6	3			062	062	062	062
7	21,0	6,7	40	44	80	8	3			072	072	072	072
8	9,0	7,7	24	28	64	8	3	083	083				
8	9,0	7,7	40	44	80	8	3			084	084		
8	21,0	7,7	40	44	80	8	3			082	082	082	082
9	26,0	8,7	50	54	94	10	3			092	092	092	092
10	11,0	9,7	30	34	74	10	3	103	103				
10	11,0	9,7	50	54	94	10	3			104	104		
10	26,0	9,7	50	54	94	10	3			102	102	102	102
11	31,0	10,6	60	64	109	12	3			112	112	112	112
12	13,0	11,6	36	40	85	12	3	123	123				
12	13,0	11,6	60	64	109	12	3			124	124		
12	31,0	11,6	60	64	109	12	3			122	122	122	122
13	36,0	12,6	70	74	119	14	3			132	132	132	132
14	15,0	13,6	42	46	91	14	3	143	143				
14	15,0	13,6	70	74	119	14	3			144	144		
14	36,0	13,6	70	74	119	14	3			142	142	142	142
15	17,0	14,5	48	52	100	16	3	153	153				
15	17,0	14,5	80	84	132	16	3			154	154		
15	41,0	14,5	80	84	132	16	3			152	152	152	152
16	17,0	15,5	48	52	100	16	3	163	163				
16	17,0	15,5	80	84	132	16	3			164	164		
16	41,0	15,5	80	84	132	16	3			162	162	162	162
18	20,0	17,5	54	58	106	18	3	183	183				
18	20,0	17,5	90	94	142	18	3			184	184		
18	47,0	17,5	90	94	142	18	3			182	182	182	182
20	22,0	19,5	60	64	114	20	3	203	203				
20	22,0	19,5	100	104	154	20	3			204	204		
20	52,0	19,5	100	104	154	20	3			202	202	202	202
25	27,0	24,5	75	80	136	25	3	253	253				
25	27,0	24,5	125	130	186	25	3			254	254		

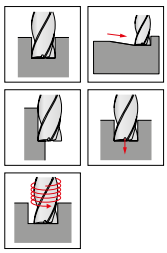
Steel						
Stainless steel						
Cast iron						
Non ferrous metals	●	●	●	●	●	●
Heat resistant alloys						
hardened materials						

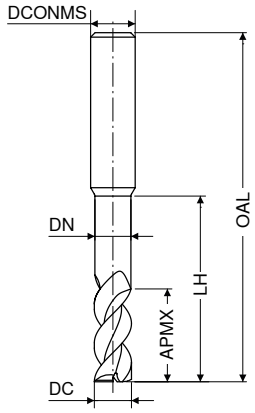
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14

End milling cutter

W | λ_s=45° γ_s= 7° | ZEFP | HPC | Ti1005







Factory standard | Factory standard

HA | HA

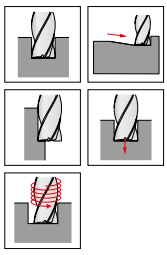
DC h6 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	Article no. 54 610 ...	Article no. 54 612 ...
3	3,5	2,8	24	67	6	3	035	035
4	4,5	3,8	32	74	6	3	045	045
5	5,5	4,8	40	88	6	3	055	055
6	7,0	5,8	48	88	6	3	065	065
8	9,0	7,7	64	104	8	3	085	085
10	11,0	9,7	80	124	10	3	105	105
12	13,0	11,6	96	145	12	3	125	125
14	15,0	13,6	112	161	14	3	145	145
16	17,0	15,5	128	180	16	3	165	165
18	20,0	17,5	144	196	18	3	185	185
20	22,0	19,5	160	214	20	3	205	205

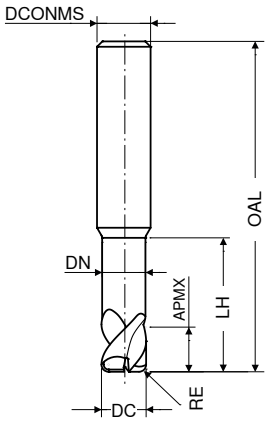
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

→ v_c/f_z Page 338+339

End milling cutter with corner radius

W | λ_s=45° γ_s= 7° | ZEFP | HPC





Ti1005





Factory standard

HA



Factory standard

HA

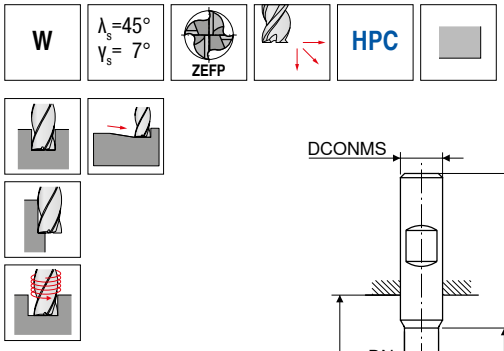
DC $_{h6}$	RE $_{\pm 0,01}$	APMX	DN	LH	OAL	DCONMS $_{h5}$	ZEFP	Article no. 54 620 ...	Article no. 54 622 ...
mm	mm	mm	mm	mm	mm	mm			
3	0,4	3,5	2,8	12	55	6	3	034	034
3	0,6	3,5	2,8	12	55	6	3	035	035
4	0,4	4,5	3,8	12	55	6	3	044	044
4	0,6	4,5	3,8	12	55	6	3	046	046
5	0,4	5,5	4,8	15	58	6	3	054	054
5	0,6	5,5	4,8	15	58	6	3	056	056
6	0,4	7,0	5,8	18	58	6	3	064	064
6	0,6	7,0	5,8	18	58	6	3	066	066
8	0,4	9,0	7,7	24	64	8	3	084	084
8	0,6	9,0	7,7	24	64	8	3	086	086
8	0,8	9,0	7,7	24	64	8	3	087	087
10	1,6	11,0	9,7	30	74	10	3	103	103
12	2,0	13,0	11,6	36	85	12	3	124	124
14	0,6	15,0	13,6	42	91	14	3	146	146
14	0,8	15,0	13,6	42	91	14	3	147	147
16	1,6	17,0	15,5	48	100	16	3	163	163
16	3,2	17,0	15,5	48	100	16	3	167	167
18	1,6	20,0	17,5	54	106	18	3	183	183
20	3,2	22,0	19,5	60	114	20	3	207	207
20	5,0	22,0	19,5	60	114	20	3	209	209

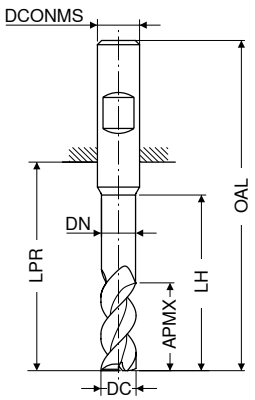
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

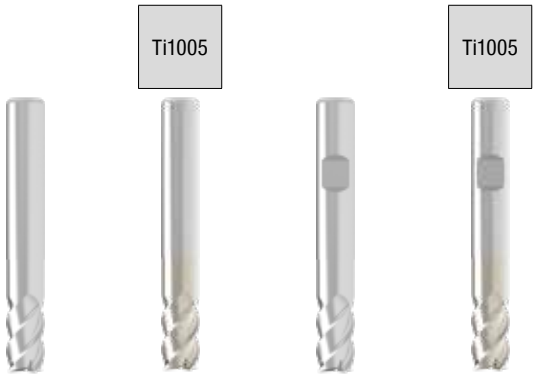
→ v_c/f_z Page 338+339

14

End milling cutter









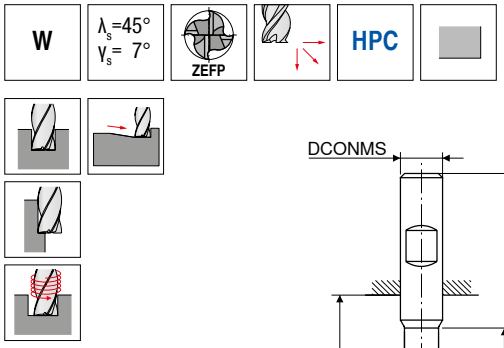
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HB	HB
DC h6 mm	Article no. 54 630 ...	Article no. 54 632 ...	Article no. 54 631 ...	Article no. 54 633 ...
6	061	061	061	061
7	071	071	071	071
8	081	081	081	081
9	091	091	091	091
10	101	101	101	101
11	111	111	111	111
12	121	121	121	121
13	131	131	131	131
14	141	141	141	141
15	151	151	151	151
16	161	161	161	161
18	181	181	181	181
20	201	201	201	201

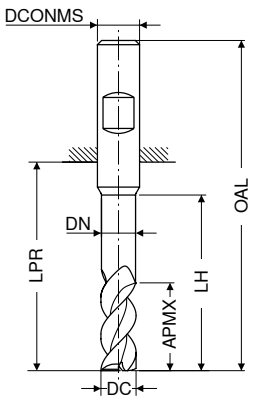
DC h6	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP
mm	mm	mm	mm	mm	mm	mm	
6	10	5,8	18	22	58	6	4
7	13	6,7	24	28	64	8	4
8	13	7,7	24	28	64	8	4
9	16	8,7	30	34	74	10	4
10	16	9,7	30	34	74	10	4
11	19	10,6	36	40	85	12	4
12	19	11,6	36	40	85	12	4
13	22	12,6	42	46	91	14	4
14	22	13,6	42	46	91	14	4
15	25	14,5	48	52	100	16	4
16	25	15,5	48	52	100	16	4
18	29	17,5	54	58	106	18	4
20	32	19,5	60	64	114	20	4

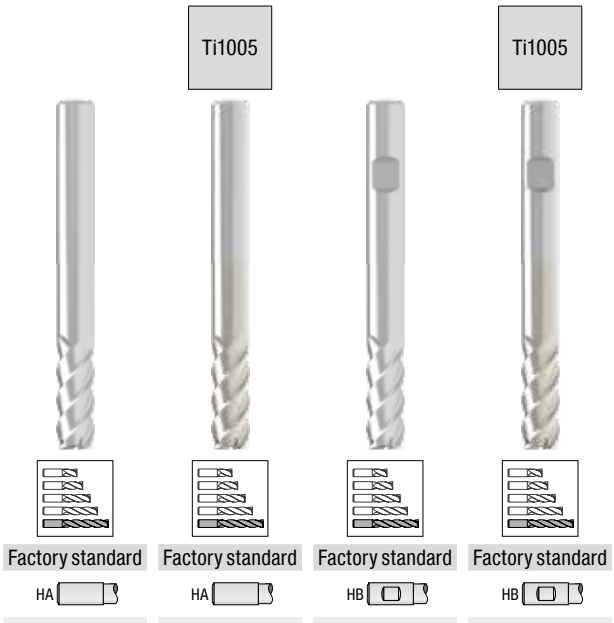
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

→ v_c/f_z Page 338+339

End milling cutter







								Factory standard	Factory standard	Factory standard	Factory standard
								HA	HA	HB	HB
DC h6	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	Article no. 54 630 ...	Article no. 54 632 ...	Article no. 54 631 ...	Article no. 54 633 ...
mm	mm	mm	mm	mm	mm	mm					
6	16	5,8	30	34	70	6	4	062	062	062	062
7	21	6,7	40	44	80	8	4	072	072	072	072
8	21	7,7	40	44	80	8	4	082	082	082	082
9	26	8,7	50	54	94	10	4	092	092	092	092
10	26	9,7	50	54	94	10	4	102	102	102	102
11	31	10,6	60	64	109	12	4	112	112	112	112
12	31	11,6	60	64	109	12	4	122	122	122	122
13	36	12,6	70	74	119	14	4	132	132	132	132
14	36	13,6	70	74	119	14	4	142	142	142	142
15	41	14,5	80	84	132	16	4	152	152	152	152
16	41	15,5	80	84	132	16	4	162	162	162	162
18	47	17,5	90	94	142	18	4	182	182	182	182
20	52	19,5	100	104	154	20	4	202	202	202	202

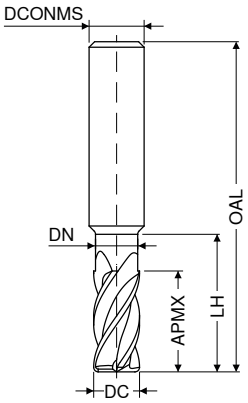
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

→ v_c/f_z Page 338+339

14

End milling cutter

W | λ_s=38° γ_s=17° | ZEFP | HPC | Ti1005








Factory standard | Factory standard

HA | HA

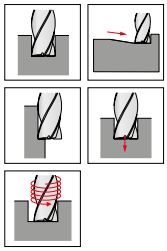
DC h6 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	Article no. 54 650 ...	Article no. 54 652 ...
6	19	5,8	30	70	6	5	**062**	**062**
8	25	7,7	40	80	8	5	**082**	**082**
10	31	9,7	50	94	10	5	**102**	**102**
12	37	11,6	60	109	12	5	**122**	**122**
14	43	13,6	70	119	14	5	**142**	**142**
16	49	15,5	80	132	16	7	**162**	**162**
18	56	17,5	90	142	18	7	**182**	**182**
20	62	19,5	100	154	20	7	**202**	**202**

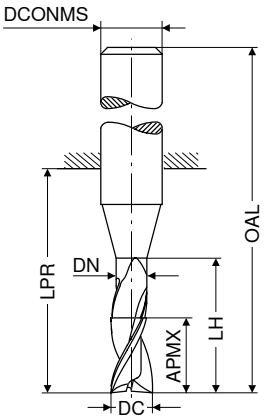
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

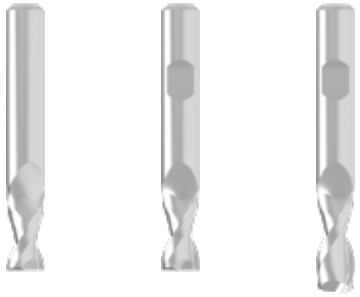
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End milling cutter













DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 52 842 ...	Article no. 52 841 ...	Article no. 52 848 ...
								Factory standard HA	Factory standard HB	Factory standard HB
mm	mm	mm	mm	mm	mm	mm				
0,20	0,4			10	38	3	2	920		
0,25	0,5			10	38	3	2	925		
0,30	1,0			10	38	3	2	930		
0,35	1,0			10	38	3	2	935		
0,40	1,0			10	38	3	2	940		
0,50	1,5			10	38	3	2	950		
0,60	1,5			10	38	3	2	960		
0,70	2,0			10	38	3	2	970		
0,80	2,0			10	38	3	2	980		
0,90	2,5			10	38	3	2	990		
1,00	3,0			10	38	3	2	010		
1,00	4,0	0,90	6	22	58	6	2			010
1,10	3,0			10	38	3	2	011		
1,20	4,0			10	38	3	2	012		
1,30	4,0			10	38	3	2	013		
1,40	4,0			10	38	3	2	014		
1,50	3,0	1,40	6	18	54	6	2	015	015	
1,50	4,0			10	38	3	2	915		
1,50	6,0	1,40	8	22	58	6	2			015
1,60	4,0			10	38	3	2	016		
1,80	5,0			10	38	3	2	018		
2,00	4,0	1,90	8	18	54	6	2	020	020	
2,00	7,0	1,90	10	22	58	6	2			020
2,50	4,0	2,40	8	18	54	6	2		025	
2,50	6,0			10	38	3	2	025		
2,80	4,0	2,70	9	18	54	6	2	028	028	
2,80	7,0	2,70	12	22	58	6	2			028
3,00	6,0	2,90	9	18	54	6	2	030	030	
3,00	10,0	2,90	14	22	58	6	2			030
3,50	6,0	3,30	9	18	54	6	2		035	
3,80	7,0	3,60	12	18	54	6	2	038	038	
3,80	10,0	3,60	18	22	58	6	2			038
4,00	7,0	3,80	12	18	54	6	2	040	040	
4,00	13,0	3,80	18	22	58	6	2			040
4,50	7,0	4,30	12	18	54	6	2		045	
4,80	8,0	4,60	16	18	54	6	2	048	048	
4,80	13,0	4,60	18	22	58	6	2			048
5,00	8,0	4,80	16	18	54	6	2	050	050	
5,00	15,0	4,80	18	22	58	6	2			050

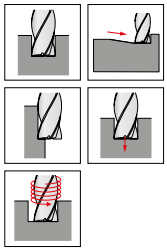
Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials			

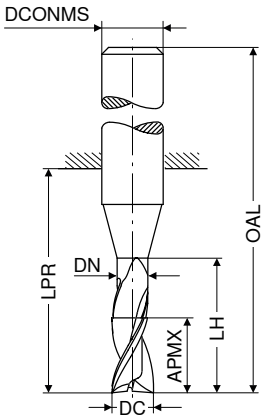
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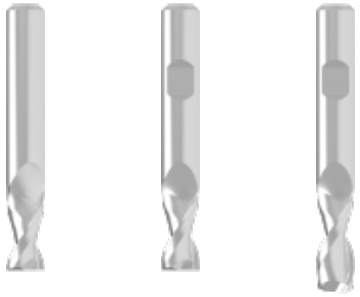
Continued on next page

End milling cutter











Factory standard
HA



Factory standard
HB



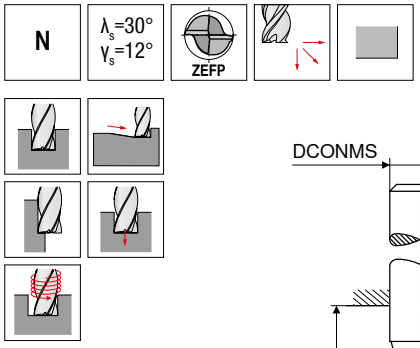
Factory standard
HB

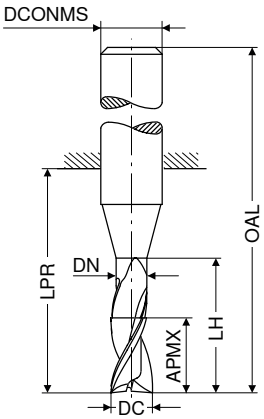
DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 52 842 ...	Article no. 52 841 ...	Article no. 52 848 ...
mm	mm	mm	mm	mm	mm	mm				
5,50	8,0	5,30	16	18	54	6	2		055	
5,75	10,0	5,55	16	18	54	6	2	057	057	
5,75	15,0	5,55	18	22	58	6	2			057
6,00	10,0	5,80	16	18	54	6	2	060	060	
6,00	16,0	5,80	20	22	58	6	2			060
6,75	10,0	6,45	16	23	59	8	2	067	067	
6,75	16,0	6,45	23	34	70	8	2			067
7,00	12,0	6,70	18	23	59	8	2		070	
7,00	16,0	6,70	23	34	70	8	2			070
7,75	12,0	7,45	18	23	59	8	2	077	077	
7,75	16,0	7,45	23	34	70	8	2			077
8,00	12,0	7,70	20	23	59	8	2	080	080	
8,00	22,0	7,70	25	34	70	8	2			080
8,70	12,0	8,40	20	27	67	10	2		087	
8,70	12,0	8,40	22	27	67	10	2	087		
9,00	13,0	8,70	22	27	67	10	2		090	
9,00	22,0	8,70	28	33	73	10	2			090
9,70	13,0	9,40	22	27	67	10	2	097	097	
9,70	22,0	9,40	28	33	73	10	2			097
10,00	13,0	9,70	24	27	67	10	2	100	100	
10,00	25,0	9,70	30	33	73	10	2			100
11,00	25,0	10,60	32	39	84	12	2			110
11,70	16,0	11,30	24	28	73	12	2	117	117	
11,70	25,0	11,30	32	39	84	12	2			117
12,00	16,0	11,60	26	28	73	12	2	120	120	
12,00	26,0	11,60	35	39	84	12	2			120
13,70	16,0	13,30	26	30	75	14	2	137	137	
13,70	26,0	13,30	35	39	84	14	2			137
14,00	16,0	13,60	28	30	75	14	2	140	140	
14,00	26,0	13,60	35	39	84	14	2			140
15,70	20,0	15,20	30	35	83	16	2	157	157	
16,00	20,0	15,50	32	35	83	16	2	160	160	
16,00	30,0	15,50	40	45	93	16	2			160
17,70	20,0	17,20	32	37	85	18	2	177	177	
18,00	20,0	17,50	34	37	85	18	2	180	180	
18,00	30,0	17,50	40	45	93	18	2			180
19,70	25,0	19,20	38	43	93	20	2	197	197	
20,00	25,0	19,50	40	43	93	20	2	200	200	
20,00	40,0	19,50	50	54	104	20	2			200

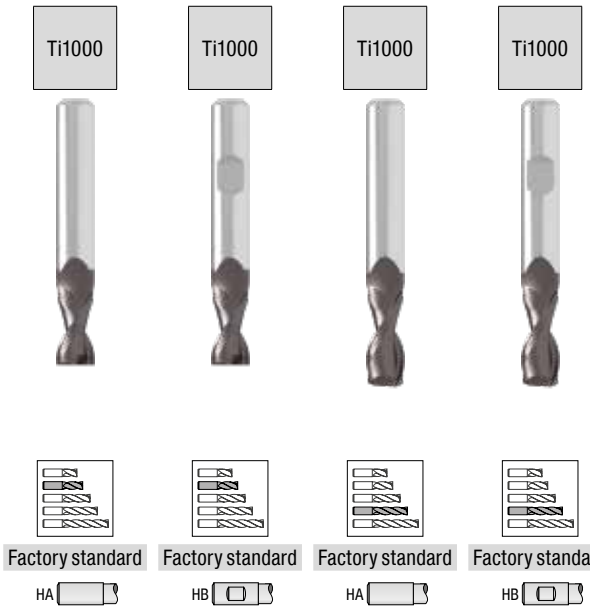
Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials			

→ v_c/f_z Page 350–353

End milling cutter







Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

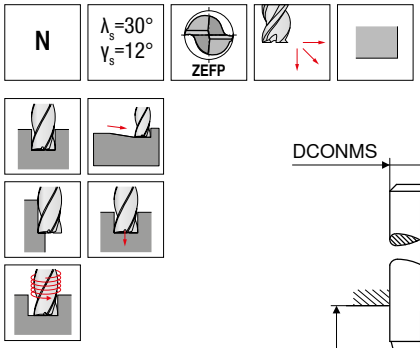
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 52 843 ...	Article no. 52 844 ...	Article no. 52 847 ...	Article no. 52 849 ...
0,20	0,4			10	38	3	2	920			
0,25	0,5			10	38	3	2	925			
0,30	1,0			10	38	3	2	930			
0,35	1,0			10	38	3	2	935			
0,40	1,0			10	38	3	2	940			
0,50	1,5			10	38	3	2	950			
0,60	1,5			10	38	3	2	960			
0,70	2,0			10	38	3	2	970			
0,80	2,0			10	38	3	2	980			
0,90	2,5			10	38	3	2	990			
1,00	3,0			10	38	3	2	010			
1,00	4,0	0,90	6	22	58	6	2			010	010
1,10	3,0			10	38	3	2	011			
1,20	4,0			10	38	3	2	012			
1,30	4,0			10	38	3	2	013			
1,40	4,0			10	38	3	2	014			
1,50	3,0	1,40	6	18	54	6	2	015	015		
1,50	4,0			10	38	3	2	915			
1,50	6,0	1,40	8	22	58	6	2			015	015
1,60	4,0			10	38	3	2	016			
1,80	5,0			10	38	3	2	018			
2,00	4,0	1,90	8	18	54	6	2	020	020		
2,00	5,0			10	38	3	2	021			
2,00	7,0	1,90	10	22	58	6	2			020	020
2,50	4,0	2,40	8	18	54	6	2	025	025		
2,50	6,0			10	38	3	2	026			
2,80	4,0	2,70	9	18	54	6	2	028	028		
2,80	7,0	2,70	12	22	58	6	2			028	028
3,00	6,0	2,90	9	18	54	6	2	030	030		
3,00	6,0			10	38	3	2	031			
3,00	10,0	2,90	14	22	58	6	2			030	030
3,50	6,0	3,30	9	18	54	6	2	035	035		
3,80	7,0	3,60	12	18	54	6	2	038	038		
3,80	10,0	3,60	18	22	58	6	2			038	038
4,00	7,0	3,80	12	18	54	6	2	040	040		
4,00	13,0	3,80	18	22	58	6	2			040	040
4,50	7,0	4,30	12	18	54	6	2	045	045		
4,80	8,0	4,60	16	18	54	6	2	048	048		
4,80	13,0	4,60	18	22	58	6	2			048	048
5,00	8,0	4,80	16	18	54	6	2	050	050		
5,00	15,0	4,80	18	22	58	6	2			050	050
5,50	8,0	5,30	16	18	54	6	2	055	055		

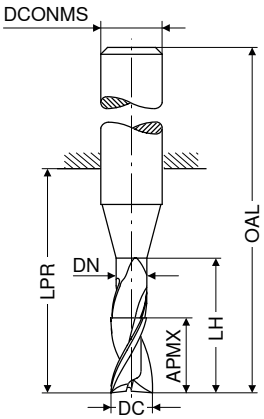
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

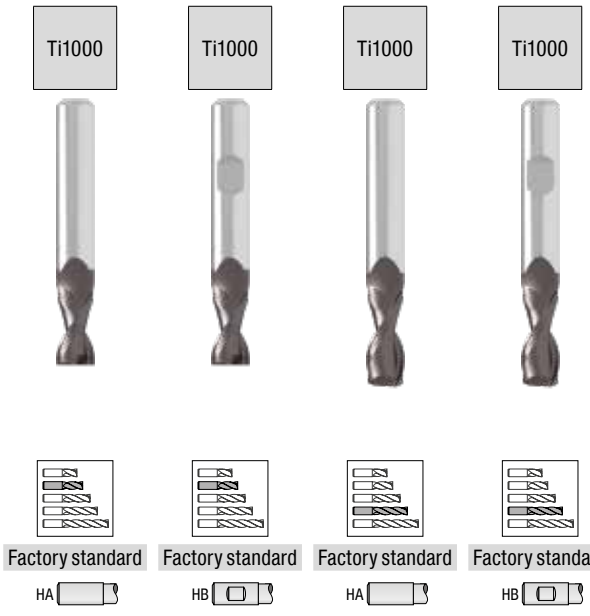
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End milling cutter





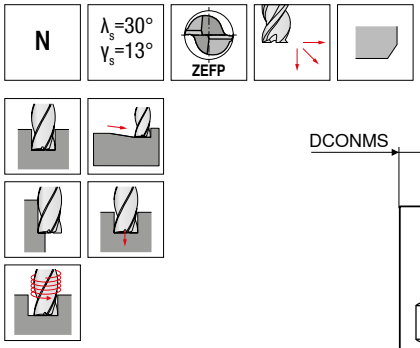


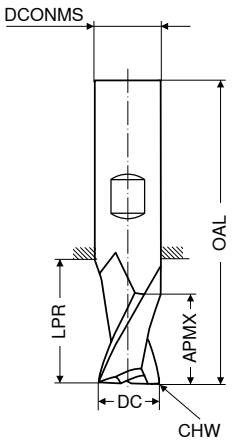
DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 52 843 ...	Article no. 52 844 ...	Article no. 52 847 ...	Article no. 52 849 ...
mm	mm	mm	mm	mm	mm	mm					
5,75	10,0	5,55	16	18	54	6	2	**057**	**057**		
5,75	15,0	5,55	18	22	58	6	2			**057**	**057**
6,00	10,0	5,80	16	18	54	6	2	**060**	**060**		
6,00	16,0	5,80	20	22	58	6	2			**060**	**060**
6,75	16,0	6,45	23	34	70	8	2			**067**	**067**
6,75	10,0	6,45	16	23	59	8	2		**067**		
7,00	12,0	6,70	18	23	59	8	2	**070**	**070**		
7,00	16,0	6,70	23	34	70	8	2			**070**	**070**
7,75	16,0	7,45	23	34	70	8	2			**077**	**077**
7,75	12,0	7,45	18	23	59	8	2	**077**	**077**		
8,00	12,0	7,70	20	23	59	8	2	**080**	**080**		
8,00	22,0	7,70	25	34	70	8	2			**080**	**080**
8,70	12,0	8,40	20	27	67	10	2		**087**		
9,00	13,0	8,70	22	27	67	10	2	**090**	**090**		
9,00	22,0	8,70	28	33	73	10	2			**090**	**090**
9,70	13,0	9,40	22	27	67	10	2	**097**	**097**		
9,70	22,0	9,40	28	33	73	10	2			**097**	**097**
10,00	13,0	9,70	24	27	67	10	2	**100**	**100**		
10,00	25,0	9,70	30	33	73	10	2			**100**	**100**
11,00	25,0	10,60	32	39	84	12	2			**110**	**110**
11,70	16,0	11,30	24	28	73	12	2	**117**	**117**		
11,70	25,0	11,30	32	39	84	12	2			**117**	**117**
12,00	26,0	11,60	35	39	84	12	2			**120**	**120**
12,00	16,0	11,60	26	28	73	12	2	**120**	**120**		
13,70	16,0	13,30	26	30	75	14	2		**137**		
13,70	26,0	13,30	35	39	84	14	2			**137**	**137**
14,00	26,0	13,60	35	39	84	14	2			**140**	**140**
14,00	16,0	13,60	28	30	75	14	2	**140**	**140**		
15,70	20,0	15,20	30	35	83	16	2		**157**		
16,00	20,0	15,50	32	35	83	16	2	**160**	**160**		
16,00	30,0	15,50	40	45	93	16	2			**160**	**160**
17,70	20,0	17,20	32	37	85	18	2		**177**		
18,00	20,0	17,50	34	37	85	18	2	**180**	**180**		
18,00	30,0	17,50	40	45	93	18	2			**180**	**180**
19,70	25,0	19,20	38	43	93	20	2		**197**		
20,00	25,0	19,50	40	43	93	20	2	**200**	**200**		
20,00	40,0	19,50	50	54	104	20	2			**200**	**200**

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

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End milling cutter







							Factory standard HA	Factory standard HB	≈DIN 6527 HA	≈DIN 6527 HB
DC e8	APMX	LPR	OAL	DCONMS h5	CHW	ZEFP	Article no. 50 593 ...	Article no. 50 593 ...	Article no. 50 594 ...	Article no. 50 594 ...
mm	mm	mm	mm	mm	mm					
0,25	0,5	10	38	3,0		2			925	
0,30	1,0	10	38	3,0		2			930	
0,35	1,0	10	38	3,0		2			935	
0,40	1,0	10	38	3,0		2			940	
0,50	1,5	10	38	3,0		2			950	
0,60	1,5	10	38	3,0		2			960	
0,70	2,0	10	38	3,0		2			970	
0,80	2,0	10	38	3,0		2			980	
0,90	2,5	10	38	3,0		2			990	
1,00	3,0	22	50	3,0		2			010	
1,10	3,0	22	50	3,0		2			011	
1,20	4,0	22	50	3,0		2			012	
1,40	4,0	22	50	3,0		2			014	
1,50	4,0	22	50	3,0		2			015	
1,60	4,0	22	50	3,0		2			016	
1,80	5,0	22	50	3,0		2			018	
2,00	5,0	22	50	3,0	0,07	2			020	
2,00	8,0	8	32	2,0	0,07	2	020			
2,50	6,0	22	50	3,0	0,07	2			025	
2,50	8,0	8	32	2,5	0,07	2	025			
2,80	8,0	21	57	6,0	0,07	2				028
3,00	8,0	21	57	6,0	0,15	2				030
3,00	12,0	12	32	3,0	0,15	2	030			
3,50	12,0	12	32	3,5	0,15	2	035			
3,80	11,0	21	57	6,0	0,15	2				038
4,00	11,0	21	57	6,0	0,15	2				040
4,00	12,0	12	40	4,0	0,15	2	040			
4,50	14,0	22	50	4,5	0,15	2	045			
4,80	13,0	21	57	6,0	0,15	2				048
5,00	13,0	21	57	6,0	0,15	2				050
5,00	14,0	22	50	5,0	0,15	2	050			
5,50	16,0	22	50	5,5	0,15	2	055			
5,80	13,0	21	57	6,0	0,15	2				058
6,00	13,0	21	57	6,0	0,15	2				060
6,00	16,0	14	50	6,0	0,15	2		060		
6,50	16,0	16	50	6,5	0,15	2	065			
6,80	16,0	27	63	8,0	0,15	2				068
7,00	16,0	27	63	8,0	0,15	2				070
7,00	20,0	24	60	7,0	0,15	2	070			
7,50	20,0	24	60	7,5	0,15	2	075			
7,80	19,0	27	63	8,0	0,15	2				078

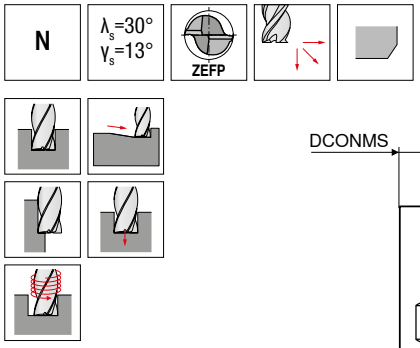
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials				

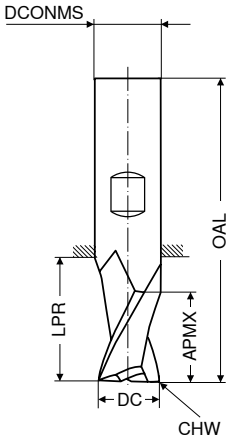
→ v_c/f_z Page 350–353

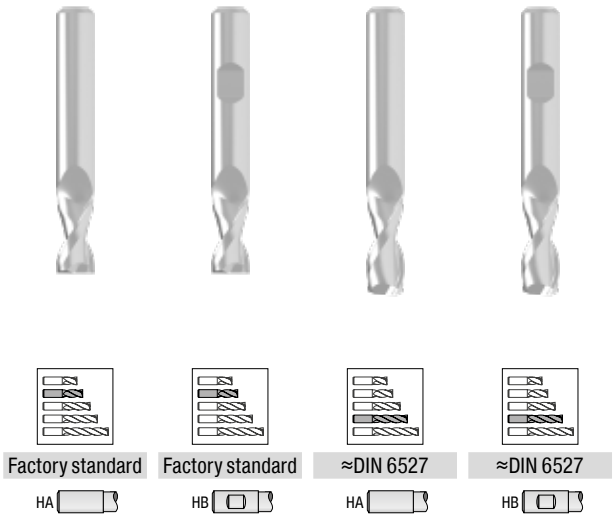
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Continued on next page

End milling cutter



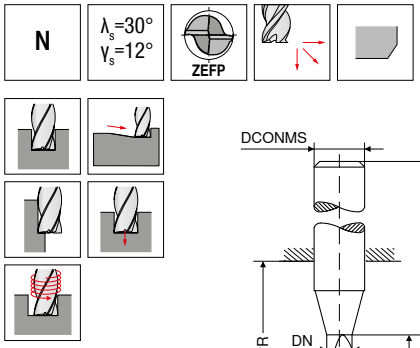


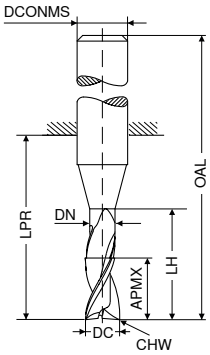


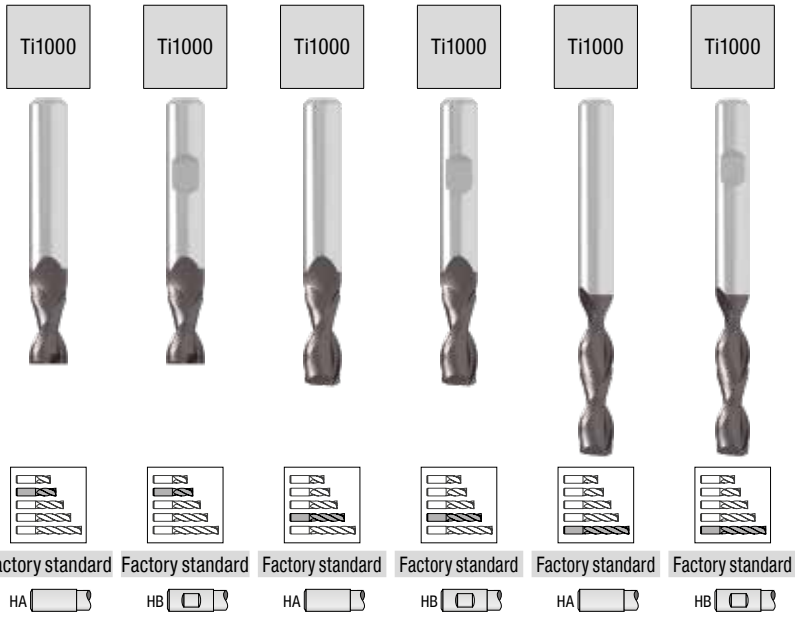
							Factory standard	Factory standard	≈DIN 6527	≈DIN 6527
							HA	HB	HA	HB
DC e8	APMX	LPR	OAL	DCONMS h5	CHW	ZEFP	Article no. 50 593 ...	Article no. 50 593 ...	Article no. 50 594 ...	Article no. 50 594 ...
mm	mm	mm	mm	mm	mm					
8,00	18,0	24	60	8,0	0,15	2		080		
8,00	19,0	27	63	8,0	0,15	2				080
8,50	20,0	24	60	8,5	0,15	2	085			
8,70	19,0	32	72	10,0	0,15	2				087
9,00	19,0	32	72	10,0	0,15	2				090
9,00	20,0	24	60	9,0	0,15	2	090			
9,50	22,0	34	70	9,5	0,15	2	095			
9,70	22,0	32	72	10,0	0,15	2				097
10,00	20,0	30	70	10,0	0,15	2		100		
10,00	22,0	32	72	10,0	0,15	2				100
10,70	26,0	38	83	12,0	0,15	2				107
11,00	22,0	30	70	11,0	0,15	2	110			
11,00	26,0	38	83	12,0	0,15	2				110
11,70	26,0	38	83	12,0	0,15	2				117
12,00	20,0	25	70	12,0	0,15	2		120		
12,00	26,0	38	83	12,0	0,15	2				120
13,00	25,0	30	75	13,0	0,15	2	130			
13,70	26,0	38	83	14,0	0,15	2				137
14,00	22,0	30	75	14,0	0,15	2		140		
14,00	26,0	38	83	14,0	0,15	2				140
15,00	25,0	30	75	15,0	0,15	2	150			
15,70	32,0	44	92	16,0	0,15	2				157
16,00	22,0	27	75	16,0	0,15	2		160		
16,00	32,0	44	92	16,0	0,15	2				160
17,70	32,0	44	92	18,0	0,15	2				177
18,00	30,0	52	100	18,0	0,15	2		180		
18,00	32,0	44	92	18,0	0,15	2				180
19,70	38,0	54	104	20,0	0,15	2				197
20,00	30,0	50	100	20,0	0,15	2		200		
20,00	38,0	54	104	20,0	0,15	2				200
Steel							●	●	●	●
Stainless steel							○	○	○	○
Cast iron							●	●	●	●
Non ferrous metals							○	○	○	○
Heat resistant alloys							○	○	○	○
hardened materials										

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End milling cutter







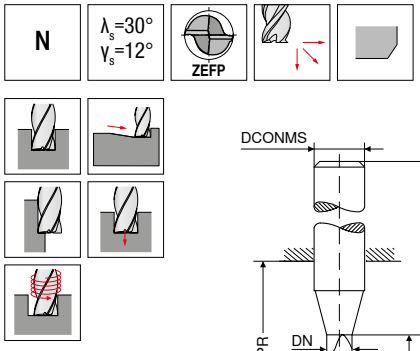
									Factory standard		Factory standard		Factory standard		Factory standard		Factory standard	
									HA		HB		HA		HB		HA		HB
									Article no. 52 839 ...		Article no. 52 840 ...		Article no. 52 845 ...		Article no. 52 846 ...		Article no. 52 850 ...		Article no. 52 851 ...
DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP											
mm	mm	mm	mm	mm	mm	mm	mm												
2,00	4	1,90	8	18	54	6	0,04	2		020		020							
2,00	5			10	38	3	0,04	2		021									
2,00	6			22	38	2	0,04	2						020					
2,00	7	1,90	10	22	58	6	0,04	2								020			
2,50	4	2,40	8	18	54	6	0,07	2		025		025							
2,50	6			10	38	3	0,07	2		026									
2,80	4	2,70	9	18	54	6	0,07	2		028		028							
2,80	7			22	38	3	0,07	2						028					
2,80	7	2,70	12	22	58	6	0,07	2								028			
3,00	6	2,90	9	18	54	6	0,07	2		030		030							
3,00	6			10	38	3	0,07	2		031									
3,00	7			22	38	3	0,07	2						030					
3,00	10	2,90	14	22	58	6	0,07	2								030			
3,00	20	2,90	24	32	60	3	0,07	2									030		
3,50	6	3,30	9	18	54	6	0,07	2		035		035							
3,80	7	3,60	12	18	54	6	0,07	2		038		038							
3,80	8	3,60	20	22	50	4	0,07	2						038					
3,80	10	3,60	18	22	58	6	0,07	2								038			
4,00	7	3,80	12	18	54	6	0,07	2		040		040							
4,00	8	3,80	20	22	50	4	0,07	2						040					
4,00	13	3,80	18	22	58	6	0,07	2								040			
4,00	30	3,80	35	47	75	4	0,07	2									040		
4,50	7	4,30	12	18	54	6	0,12	2		045		045							
4,80	8	4,60	16	18	54	6	0,12	2		048		048							
4,80	10	4,60	20	22	50	5	0,12	2						048					
4,80	13	4,60	18	22	58	6	0,12	2								048			
5,00	8	4,80	16	18	54	6	0,12	2		050		050							
5,00	10	4,80	20	22	50	5	0,12	2						050					
5,00	15	4,80	18	22	58	6	0,12	2								050			
5,00	30	4,80	35	47	75	5	0,12	2									050		
5,50	8	5,30	16	18	54	6	0,12	2		055		055							
5,75	10	5,55	16	18	54	6	0,12	2		057		057							
5,75	15	5,55	18	22	58	6	0,12	2						057		057			
6,00	10	5,80	16	18	54	6	0,12	2		060		060							
6,00	16	5,80	20	22	58	6	0,12	2						060		060			
6,00	40	5,80	60	64	100	6	0,12	2									060		060
6,75	16	6,45	23	34	70	8	0,12	2						067		067			
7,00	12	6,70	18	23	59	8	0,12	2		070		070							
7,00	16	6,70	23	34	70	8	0,12	2						070		070			

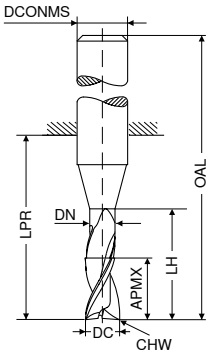
Steel	●	●	●	●	●	●
Stainless steel	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys	○	○	○	○	○	○
hardened materials	○	○	○	○	○	○

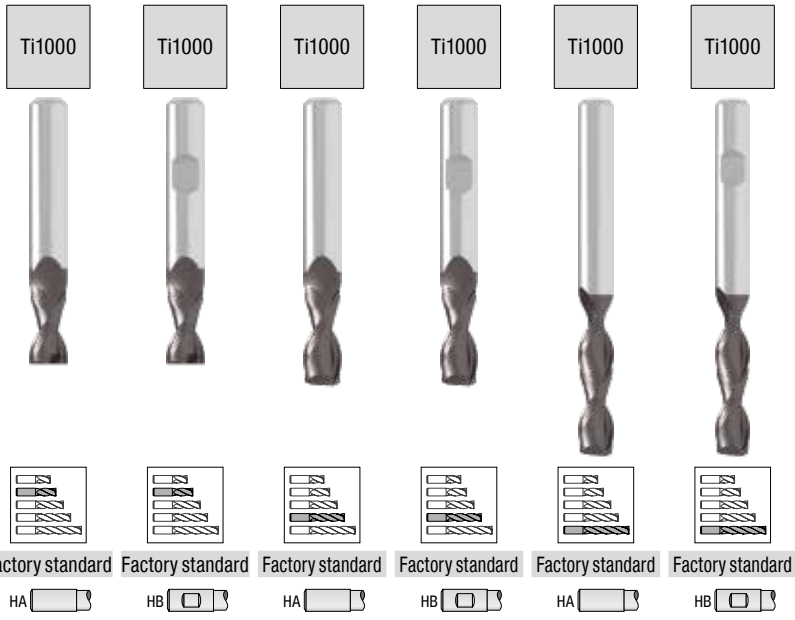
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End milling cutter





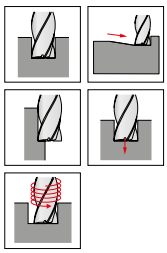


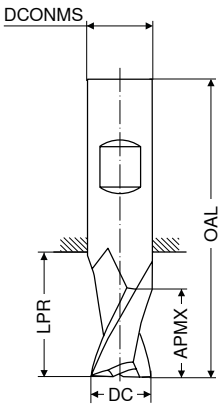
									Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
									HA	HB	HA	HB	HA	HB
DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 52 839 ...	Article no. 52 840 ...	Article no. 52 845 ...	Article no. 52 846 ...	Article no. 52 850 ...	Article no. 52 851 ...
mm	mm	mm	mm	mm	mm	mm	mm							
7,75	12	7,45	18	23	59	8	0,12	2	077	077				
7,75	16	7,45	23	34	70	8	0,12	2			077	077		
8,00	12	7,70	20	23	59	8	0,12	2	080	080				
8,00	22	7,70	25	34	70	8	0,12	2			080	080		
8,00	40	7,70	60	64	100	8	0,12	2					080	080
9,00	13	8,70	22	27	67	10	0,20	2	090	090				
9,00	22	8,70	28	33	73	10	0,20	2			090	090		
9,70	13	9,40	22	27	67	10	0,20	2	097	097				
9,70	22	9,40	28	33	73	10	0,20	2			097	097		
10,00	13	9,70	24	27	67	10	0,20	2	100	100				
10,00	25	9,70	30	33	73	10	0,20	2			100	100		
10,00	40	9,70	55	60	100	10	0,20	2					100	100
11,00	25	10,60	32	39	84	12	0,20	2			110	110		
11,70	16	11,30	24	28	73	12	0,20	2	117	117				
11,70	25	11,30	32	39	84	12	0,20	2			117	117		
12,00	16	11,60	26	28	73	12	0,20	2	120	120				
12,00	26	11,60	35	39	84	12	0,20	2			120	120		
12,00	45	11,60	50	55	100	12	0,20	2					120	120
13,70	26	13,30	35	39	84	14	0,20	2			137	137		
14,00	16	13,60	28	30	75	14	0,20	2	140	140				
14,00	26	13,60	35	39	84	14	0,20	2			140	140		
16,00	20	15,50	32	35	83	16	0,20	2	160	160				
16,00	30	15,50	40	45	93	16	0,20	2			160	160		
16,00	65	15,50	90	102	150	16	0,20	2					160	160
18,00	20	17,50	34	37	85	18	0,20	2	180	180				
18,00	30	17,50	40	45	93	18	0,20	2			180	180		
20,00	25	19,50	40	43	93	20	0,30	2	200	200				
20,00	40	19,50	50	54	104	20	0,30	2			200	200		
20,00	65	19,50	90	100	150	20	0,30	2					200	200
Steel									●	●	●	●	●	●
Stainless steel									○	○	○	○	○	○
Cast iron									●	●	●	●	●	●
Non ferrous metals									○	○	○	○	○	○
Heat resistant alloys									○	○	○	○	○	○
hardened materials									○	○	○	○	○	○

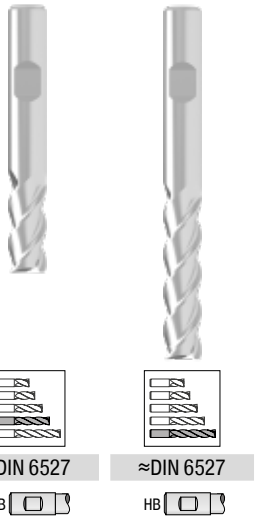
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End milling cutter







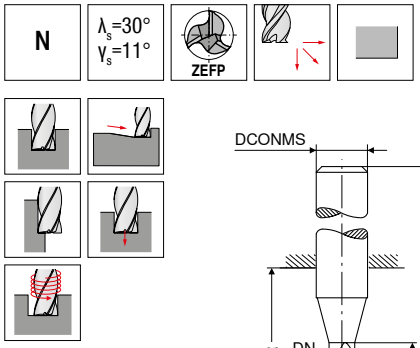


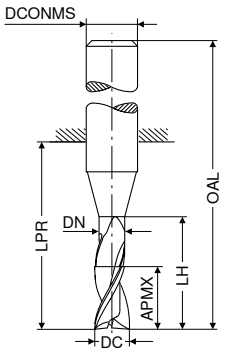
DC e8	APMX	LPR	OAL	DCONMS h5	ZEFP	Article no. 50 614 ...	Article no. 50 614 ...
						≈DIN 6527 HB	≈DIN 6527 HB
mm	mm	mm	mm	mm			
3,0	8	21	57	6	3	030	
3,5	11	21	57	6	3	035	
3,5	15	23	59	6	3		036
4,0	11	21	57	6	3	040	
4,0	19	27	63	6	3		041
4,5	13	21	57	6	3	045	
4,5	19	27	63	6	3		046
5,0	13	21	57	6	3	050	
5,0	24	32	68	6	3		051
5,5	13	21	57	6	3	055	
5,5	24	32	68	6	3		056
6,0	13	21	57	6	3	060	
6,0	24	32	68	6	3		061
6,5	16	27	63	8	3	065	
6,5	30	44	80	8	3		066
7,0	16	27	63	8	3	070	
7,0	30	44	80	8	3		071
7,5	19	27	63	8	3	075	
7,5	30	44	80	8	3		076
8,0	19	27	63	8	3	080	
8,0	38	52	88	8	3		081
8,5	19	32	72	10	3	085	
8,5	38	48	88	10	3		086
9,0	19	32	72	10	3	090	
9,0	38	48	88	10	3		091
9,5	22	32	72	10	3	095	
9,5	38	48	88	10	3		096
10,0	22	32	72	10	3	100	
10,0	45	55	95	10	3		101
11,0	26	38	83	12	3	110	
11,0	45	57	102	12	3		111
12,0	26	38	83	12	3	120	
12,0	53	65	110	12	3		121
14,0	26	38	83	14	3	140	
14,0	53	65	110	14	3		141
16,0	32	44	92	16	3	160	
16,0	63	75	123	16	3		161
18,0	32	44	92	18	3	180	
18,0	63	75	123	18	3		181
20,0	38	54	104	20	3	200	
20,0	75	91	141	20	3		201
Steel						○	○
Stainless steel						●	●
Cast iron						○	○
Non ferrous metals						○	○
Heat resistant alloys						●	●
hardened materials							

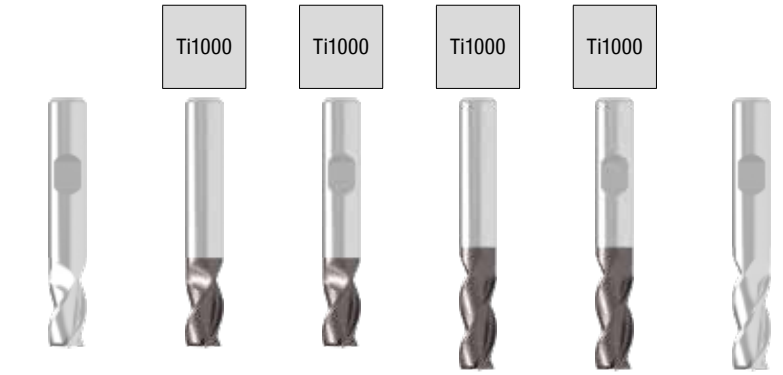
→ v_c/f_z Page 350–355

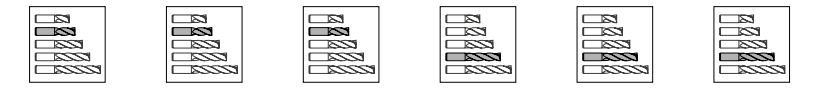
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End milling cutter







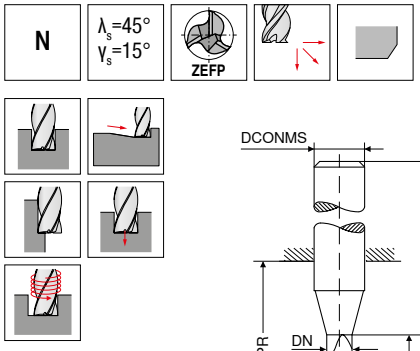


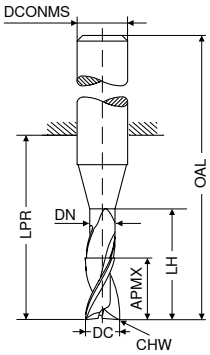
								Factory standard HB	Factory standard HA	Factory standard HB	Factory standard HA	Factory standard HB	Factory standard HB
DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 52 823 ...	Article no. 52 821 ...	Article no. 52 822 ...	Article no. 52 826 ...	Article no. 52 827 ...	Article no. 52 828 ...
mm	mm	mm	mm	mm	mm	mm							
1,00	4	1,00		22	58	6	3				010	010	010
1,50	3	1,40	6	18	54	6	3	015	015	015			
1,50	3	1,40	6	10	38	3	3		016				
1,50	6	1,50		22	58	6	3				015	015	015
2,00	4	1,90	8	18	54	6	3	020	020	020			
2,00	4	1,90	8	10	38	3	3		021				
2,00	7	2,00		22	58	6	3				020	020	020
2,50	4	2,40	8	18	54	6	3	025	025	025			
2,50	4	2,40	8	10	38	3	3		026				
2,80	6	2,70	9	18	54	6	3	028	028	028			
3,00	6	2,90	9	18	54	6	3	030	030	030			
3,00	6	2,90	9	10	38	3	3		031				
3,00	10	2,90	14	22	58	6	3				030	030	030
3,50	6	3,30	9	18	54	6	3	035	035	035			
3,80	6	3,60	12	18	54	6	3	038	038	038			
4,00	7	3,80	12	18	54	6	3	040	040	040			
4,00	13	3,80	17	22	58	6	3				040	040	040
4,50	7	4,30	12	18	54	6	3	045	045	045			
4,80	8	4,60	16	18	54	6	3	048	048	048			
5,00	8	4,80	16	18	54	6	3	050	050	050			
5,00	15	4,80	19	22	58	6	3				050	050	050
5,50	8	5,30	16	18	54	6	3	055	055	055			
5,75	8	5,55	16	18	54	6	3	057	057	057			
6,00	10	5,80	16	18	54	6	3	060	060	060			
6,00	16	5,80	20	22	58	6	3				060	060	060
7,00	19	6,70	23	28	64	8	3				070	070	070
7,75	10	7,45	18	22	58	8	3	077	077	077			
8,00	12	7,70	20	23	59	8	3	080	080	080			
8,00	22	7,70	26	34	70	8	3				080	080	080
9,00	23	8,70	28	32	72	10	3				090	090	090
9,70	12	9,40	18	19	59	10	3	097	097	097			
10,00	13	9,70	24	27	67	10	3	100	100	100			
10,00	25	9,70	31	33	73	10	3				100	100	100
11,00	25	10,60	34	38	83	12	3				110	110	110
11,70	16	11,30	20	22	67	12	3	117	117	117			
12,00	16	11,60	26	28	73	12	3	120	120	120			
12,00	26	11,60	37	39	84	12	3				120	120	120
14,00	16	13,60	28	30	75	14	3	140	140	140			
14,00	26	13,60	37	39	84	14	3				140	140	140
16,00	20	15,50	32	35	83	16	3	160	160	160			
16,00	32	15,50	43	45	93	16	3				160	160	160
18,00	20	17,50	34	37	85	18	3	180	180	180			
18,00	32	17,50	43	45	93	18	3				180	180	180
20,00	25	19,50	40	43	93	20	3	200	200	200			
20,00	40	19,50	52	54	104	20	3				200	200	200

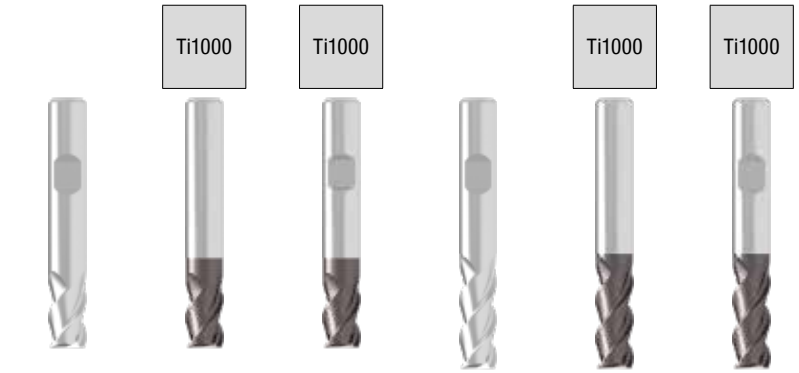
Steel	●	●	●	●	●	●
Stainless steel	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys	○	○	○	○	○	○
hardened materials		○	○	○	○	

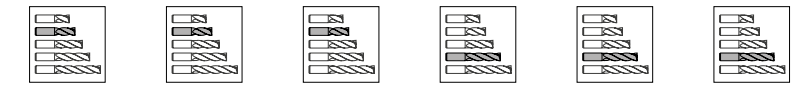
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End milling cutter









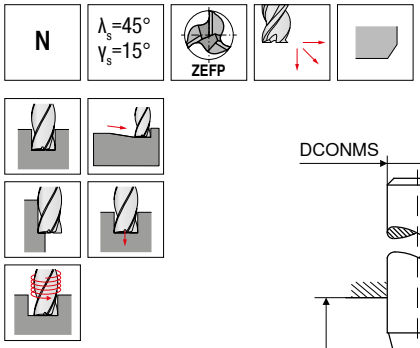
	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
	HB	HA	HB	HB	HA	HB
DC e8	Article no. 52 831 ...	Article no. 52 829 ...	Article no. 52 830 ...	Article no. 52 834 ...	Article no. 52 832 ...	Article no. 52 833 ...
mm						
2,0	020	020	020			
2,0				020	020	020
2,5	025	025	025			
3,0	030	030	030			
3,0				030	030	030
4,0	040	040	040			
4,0				040	040	040
5,0	050	050	050			
5,0				050	050	050
6,0	060	060	060			
6,0				060	060	060
7,0	070	070	070			
7,0				070	070	070
8,0	080	080	080			
8,0				080	080	080
9,0	090	090	090			
9,0				090	090	090
10,0	100	100	100			
10,0				100	100	100
12,0	120	120	120			
12,0				120	120	120
14,0	140	140	140			
14,0				140	140	140
16,0	160	160	160			
16,0				160	160	160
18,0	180	180	180			
18,0				180	180	180
20,0	200	200	200			
20,0				200	200	200

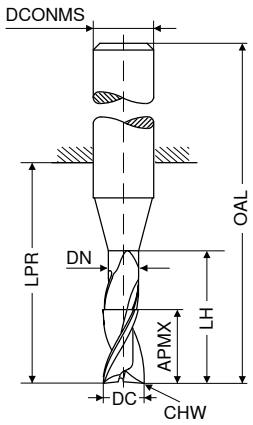
Steel	○	○	○	○	○	○
Stainless steel	●	●	●	●	●	●
Cast iron	○	○	○	○	○	○
Non ferrous metals	●	●	●	●	●	●
Heat resistant alloys	●	●	●	●	●	●
hardened materials		○	○		○	○

→ v_c/f_z Page 350–353

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End milling cutter







Factory standard | Factory standard

HA | HB

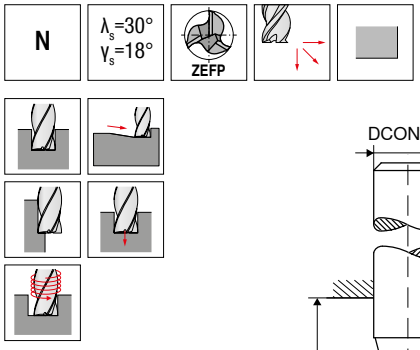
DC e8	DN	APMX	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 52 835 ...	Article no. 52 836 ...
mm	mm	mm	mm	mm	mm	mm	mm			
3	3,0	20	20	24	60	6	0,07	3	030	030
4	3,8	30	35	39	75	6	0,07	3	040	040
5	4,8	30	35	39	75	6	0,12	3	050	050
6	5,8	40	60	64	100	6	0,12	3	060	060
8	7,7	40	60	64	100	8	0,12	3	080	080
10	9,7	40	55	60	100	10	0,20	3	100	100
12	11,6	45	50	55	100	12	0,20	3	120	120
14	13,6	45	50	55	100	14	0,20	3	140	140
16	15,5	65	90	102	150	16	0,20	3	160	160
18	17,5	65	90	102	150	18	0,20	3	180	180
20	19,5	65	90	100	150	20	0,30	3	200	200

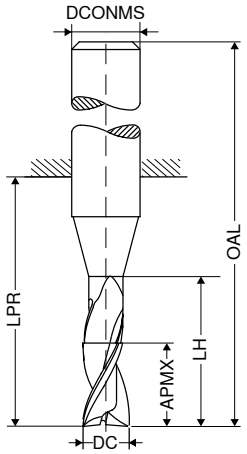
Steel	○	○
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials	○	○

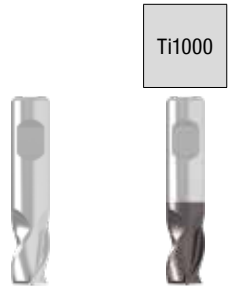
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Mini milling cutter

▲ Shank similar to DIN 6535











Factory standard

HB

Factory standard

HB

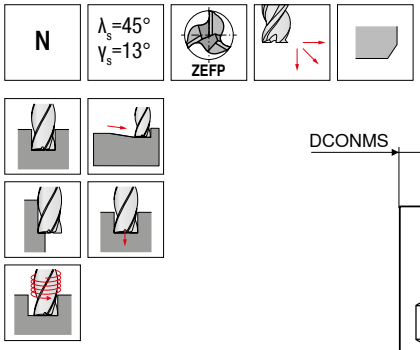
DC e8	APMX	LH	LPR	OAL	DCONMS h5	ZEFP	Article no. 50 598 ...	Article no. 50 599 ...
mm	mm	mm	mm	mm	mm			
2,00	4	4,0	10	35	6	3	**020**	**020**
2,50	4	4,0	10	35	6	3	**025**	**025**
3,00	5	5,0	10	36	6	3	**030**	**030**
3,50	5	5,0	10	36	6	3	**035**	**035**
4,00	7	7,0	12	38	6	3	**040**	**040**
4,50	7	7,0	12	38	6	3	**045**	**045**
5,00	8	8,0	13	39	6	3	**050**	**050**
5,50	8	8,0	13	39	6	3	**055**	**055**
5,75	8	8,0	13	39	6	3	**057**	**057**
6,00	8	8,5	13	39	6	3	**060**	**060**
6,75	11	11,5	16	43	8	3	**067**	**067**
7,00	11	11,5	16	43	8	3	**070**	**070**
7,75	11	11,5	16	43	8	3	**077**	**077**
8,00	11	11,5	16	43	8	3	**080**	**080**
8,70	13	13,5	18	50	10	3	**087**	**087**
9,00	13	13,5	18	50	10	3	**090**	**090**
9,70	13	13,5	18	50	10	3	**097**	**097**
10,00	13	13,5	18	50	10	3	**100**	**100**
12,00	15	15,5	24	55	12	3	**120**	**120**
14,00	15	15,5	26	58	14	3	**140**	**140**
16,00	18	18,5	28	62	16	3	**160**	**160**
18,00	20	20,5	35	70	18	3	**180**	**180**
20,00	22	22,5	40	75	20	3	**200**	**200**

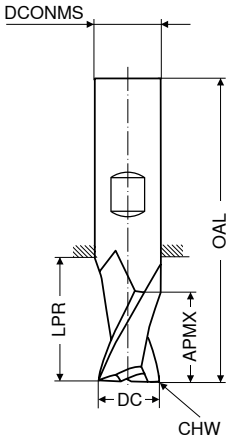
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		○

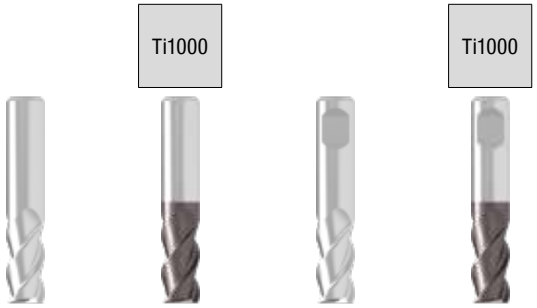
→ v_c/f_z Page 350–353

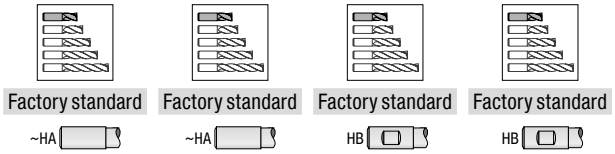
Mini milling cutter

▲ Shank similar to DIN 6535





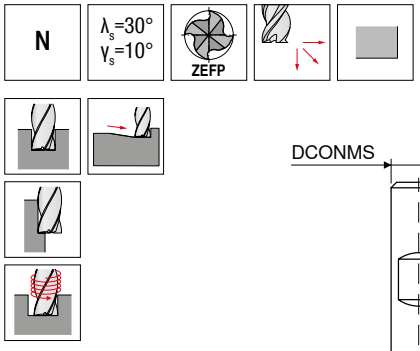


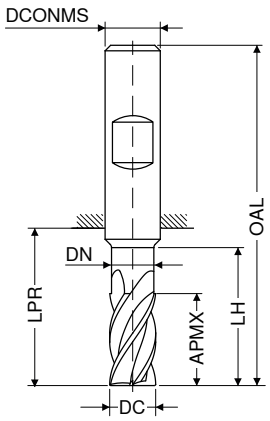


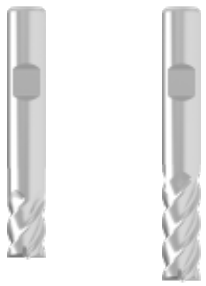
DC e8	APMX	LPR	OAL	DCONMS h5	CHW	ZEFP	Article no. 50 608 ...	Article no. 50 609 ...	Article no. 50 608 ...	Article no. 50 609 ...
mm	mm	mm	mm	mm	mm					
0,5	1,5	17	45	3	0,08	3	005	005		
1,0	2,0	17	45	3	0,08	3	010	010		
1,5	3,0	17	45	3	0,08	3	015	015		
1,8	3,0	17	45	3	0,08	3		018		
2,0	4,0	19	45	6	0,08	3			020	020
2,5	6,0	19	45	6	0,15	3			025	025
2,8	6,0	19	45	6	0,15	3				028
3,0	6,0	19	45	6	0,15	3			030	030
3,8	7,0	19	45	6	0,15	3				038
4,0	7,0	19	45	6	0,15	3			040	040
4,8	8,0	19	45	6	0,15	3				048
5,0	8,0	19	45	6	0,15	3			050	050
5,7	10,0	19	45	6	0,15	3				057
6,0	10,0	19	45	6	0,15	3			060	060
6,7	10,0	26	55	8	0,15	3				067
7,0	12,0	26	55	8	0,15	3			070	070
7,8	12,0	26	55	8	0,15	3				078
8,0	13,0	26	55	8	0,15	3			080	080
8,7	14,0	28	55	10	0,15	3				087
9,7	16,0	28	55	10	0,15	3				097
10,0	16,0	28	55	10	0,15	3			100	100
Steel							○	○	○	○
Stainless steel							●	●	●	●
Cast iron							○	○	○	○
Non ferrous metals							○	○	○	○
Heat resistant alloys							●	●	●	●
hardened materials								●		●

→ v_c/f_z Page 350–353

End milling cutter











Factory standard
HB

Factory standard
HB

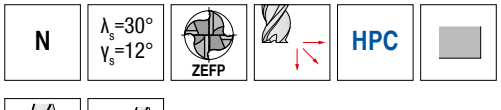
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 52 309 ...	Article no. 52 313 ...
2	4	1,9	8	18	54	6	4	020	
2	7			22	58	6	4		020
3	6	2,9	9	18	54	6	4	030	
3	10	2,8	14	22	58	6	4		030
4	7	3,8	12	18	54	6	4	040	
4	13	3,8	17	22	58	6	4		040
5	8	4,8	16	18	54	6	4	050	
5	15	4,8	19	22	58	6	4		050
6	10	5,8	16	18	54	6	4	060	
6	16	5,7	20	22	58	6	4		060
7	19	6,7	23	27	63	8	4		070
8	12	7,7	20	22	58	8	4	080	
8	22	7,7	26	34	70	8	4		080
9	23	8,7	28	33	73	10	4		090
10	14	9,7	24	26	66	10	4	100	
10	25	9,6	31	33	73	10	4		100
11	26	10,6	34	39	84	12	4		110
12	16	11,6	26	28	73	12	4	120	
12	28	11,6	37	39	84	12	4		120
14	18	13,6	28	30	75	14	4	140	
14	30	13,6	37	36	84	14	4		140
16	22	15,5	32	34	82	16	4	160	
16	35	15,6	43	45	93	16	4		160
18	20	17,5	34	36	80	18	4	180	
18	35	17,6	43	43	93	18	4		180
20	25	19,5	40	42	92	20	4	200	
20	40	19,6	52	54	104	20	4		200

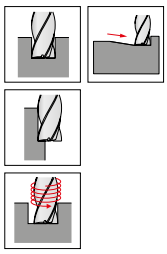
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

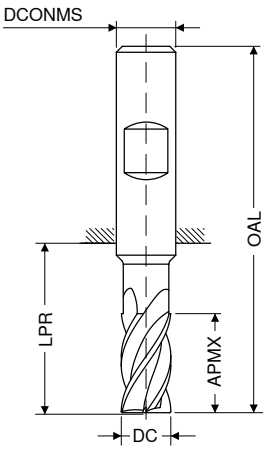
→ v_c/f_z Page 350–353

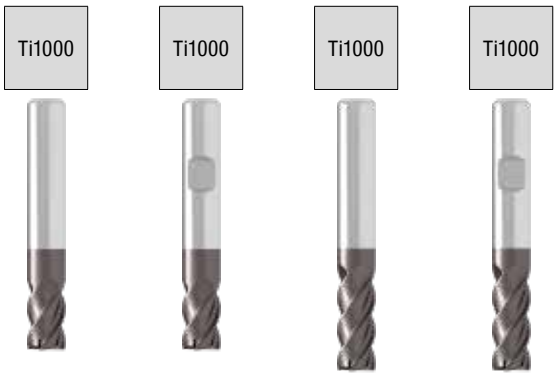
End milling cutter

▲ Cutting edges with irregular pitch











DIN 6527 | DIN 6527 | DIN 6527 | ≈DIN 6527

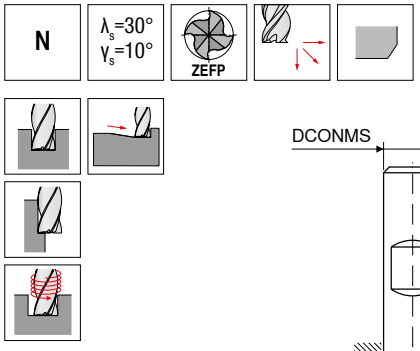


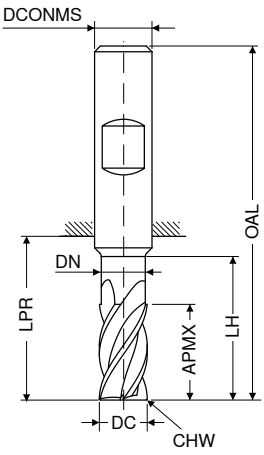
DC e8	APMX	LPR	OAL	DCONMS h6	ZEFP	Article no. 52 121 ...	Article no. 52 131 ...	Article no. 52 126 ...	Article no. 52 132 ...
mm	mm	mm	mm	mm					
3,0	6	18	54	6	4	030	030		
3,0	10	22	58	6	4			030	030
3,5	7	18	54	6	4	035	035		
3,5	13	22	58	6	4			035	035
4,0	7	18	54	6	4	040	040		
4,0	13	22	58	6	4			040	040
4,5	8	18	54	6	4	045	045		
4,5	15	22	58	6	4			045	045
5,0	8	18	54	6	4	050	050		
5,0	15	22	58	6	4			050	050
6,0	10	18	54	6	4	060	060		
6,0	16	22	58	6	4			060	060
8,0	12	23	59	8	4	080	080		
8,0	22	34	70	8	4			080	080
10,0	14	27	67	10	4	100	100		
10,0	25	33	73	10	4			100	100
12,0	16	28	73	12	4	120	120		
12,0	28	39	84	12	4			120	120
14,0	16	30	75	14	4	140	140		
14,0	30	39	84	14	4			140	140
16,0	20	35	83	16	4	160	160		
16,0	35	45	93	16	4			160	160
18,0	20	32	80	18	4	180	180		
18,0	35	45	93	18	4			180	180
20,0	25	43	93	20	4	200	200		
20,0	40	54	104	20	4			200	200

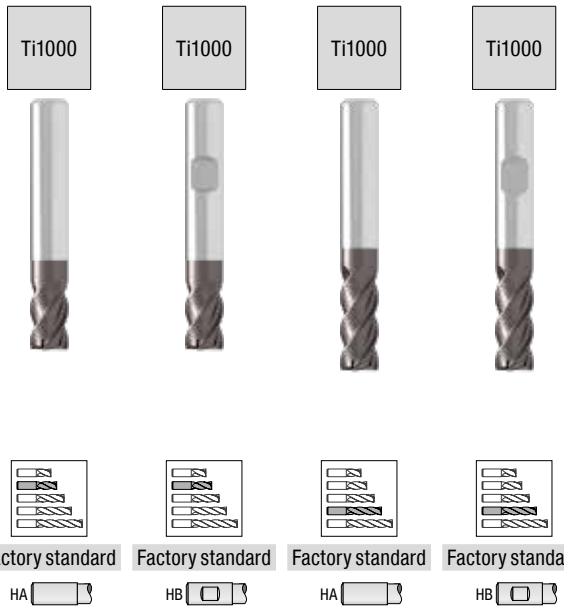
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

→ v_c/f_z Page 350–353

End milling cutter







Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

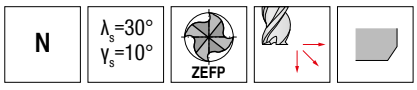
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Article no. 52 306 ...	Article no. 52 307 ...	Article no. 52 310 ...	Article no. 52 311 ...
1,5	3	1,4	6	10	38	3	0,02	4	015			
2,0	4	1,9	8	10	38	3	0,03	4	021			
2,0	4	1,9	8	18	54	6	0,03	4	020	020		
2,0	7			10	38	2	0,03	4			020	
2,5	4	2,4	8	10	38	3	0,04	4	025			
3,0	6	2,9	9	10	38	3	0,04	4	031			
3,0	6	2,9	9	18	54	6	0,04	4	030	030		
3,0	10	2,8	14	14	38	3	0,03	4			030	
4,0	7	3,8	12	18	54	6	0,05	4	040	040		
4,0	13	3,8	17	22	50	4	0,04	4			040	
5,0	8	4,8	16	18	54	6	0,06	4	050	050		
5,0	15	4,8	19	22	50	5	0,04	4			050	
6,0	10	5,8	16	18	54	6	0,07	4	060	060		
6,0	16	5,7	20	22	58	6	0,04	4			060	060
7,0	19	6,7	23	27	63	8	0,05	4			070	070
8,0	12	7,7	20	22	58	8	0,08	4	080	080		
8,0	22	7,7	26	34	70	8	0,06	4			080	080
9,0	23	8,7	28	33	73	10	0,07	4			090	090
10,0	14	9,7	24	26	66	10	0,10	4	100	100		
10,0	25	9,6	31	33	73	10	0,08	4			100	100
11,0	26	10,6	34	39	84	12	0,10	4			110	110
12,0	16	11,6	26	28	73	12	0,13	4	120	120		
12,0	28	11,6	37	39	84	12	0,13	4			120	120
14,0	18	13,6	28	30	75	14	0,15	4	140	140		
14,0	30	13,6	37	36	84	14	0,15	4			140	140
16,0	22	15,5	32	34	82	16	0,18	4	160	160		
16,0	35	15,6	43	45	93	16	0,18	4			160	160
18,0	20	17,5	34	36	80	18	0,18	4	180	180		
18,0	35	17,6	43	43	93	18	0,18	4			180	180
20,0	25	19,5	40	42	92	20	0,20	4	200	200		
20,0	40	19,6	52	54	104	20	0,20	4			200	200

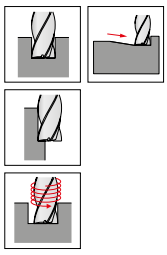
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

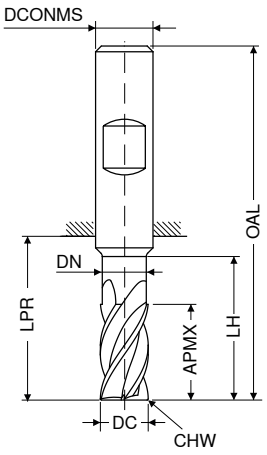
→ v_c/f_z Page 350–353

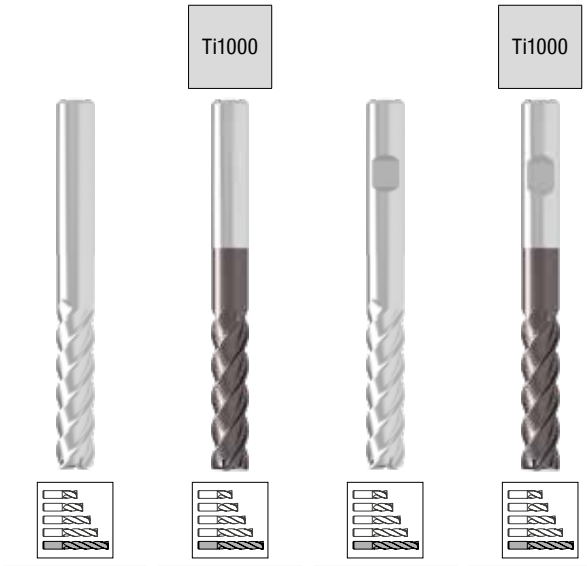
14

End milling cutter









Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

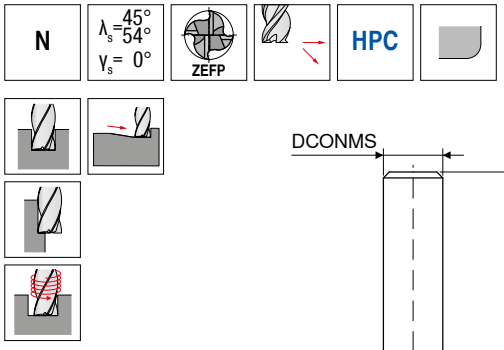
DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 52 315 ...	Article no. 52 314 ...	Article no. 52 315 ...	Article no. 52 314 ...
mm	mm	mm	mm	mm	mm	mm	mm					
3	16	2,8	32	47	75	3	0,04	4	032	032		
4	16	3,8	32	47	75	4	0,05	4	042	042		
4	20	3,8	48	72	100	4	0,05	4	043	043		
5	20	4,8	35	47	75	5	0,06	4	052	052		
5	25	4,8	55	72	100	5	0,06	4	053	053		
6	24	5,8	42	44	80	6	0,07	4			060	060
6	30	5,8	62	64	100	6	0,07	4			061	061
8	32	7,8	60	64	100	8	0,08	4			080	080
8	40	7,8	75	84	120	8	0,08	4			081	081
10	40	9,8	58	60	100	10	0,10	4			100	100
10	50	9,8	78	80	120	10	0,10	4			101	101
12	48	11,8	60	75	120	12	0,13	4			120	120
12	60	11,8	90	105	150	12	0,13	4			121	121
14	45	13,8	50	52	100	14	0,15	4			140	140
14	56	13,8	95	102	150	14	0,15	4			141	141
16	50	15,8	70	77	125	16	0,18	4			160	160
16	65	15,8	95	102	150	16	0,18	4			161	161
18	55	17,8	75	80	130	18	0,18	4			180	180
18	72	17,8	95	100	150	18	0,18	4			181	181
20	60	19,8	80	85	135	20	0,20	4			200	200
20	80	19,8	95	100	150	20	0,20	4			201	201
25	75	24,5	90	94	150	25	0,25	4			250	250

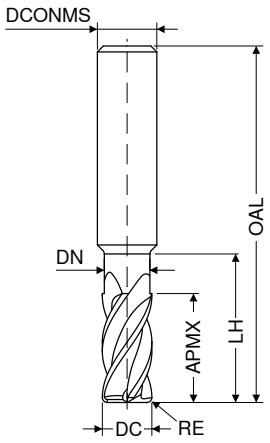
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials		○		○

→ v_c/f_z Page 350–355

End milling cutter with corner radius

▲ optimal quiet running with irregular helix











Factory standard

HA

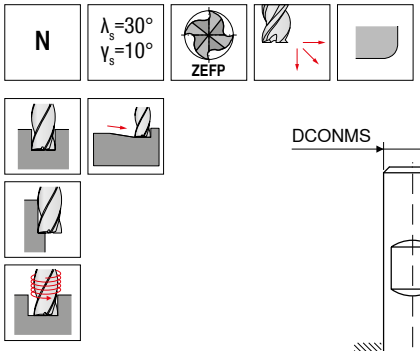
DC e8	RE ±0,01	APMX	DN	LH	OAL	DCONMS h6	ZEFP	Article no. 52 102 ...
mm	mm	mm	mm	mm	mm	mm		
2	0,2	7	1,8	11	58	6	4	022
3	0,3	8	2,8	13	58	6	4	033
4	0,4	11	3,8	16	58	6	4	044
5	0,5	13	4,8	18	58	6	4	055
6	0,5	16	5,8	26	58	6	4	065
6	1,0	16	5,8	26	58	6	4	066
8	0,5	22	7,8	32	64	8	4	085
8	1,0	22	7,8	32	64	8	4	086
8	1,5	22	7,8	32	64	8	4	087
10	0,5	25	9,8	35	73	10	4	105
10	1,0	25	9,8	35	73	10	4	106
10	1,5	25	9,8	35	73	10	4	107
12	0,5	28	11,8	38	84	12	4	125
12	1,0	28	11,8	38	84	12	4	126
12	1,5	28	11,8	38	84	12	4	127

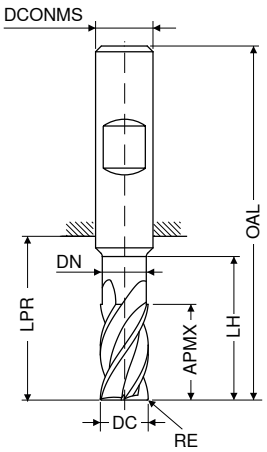
Steel	○
Stainless steel	●
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	○

→ v_c/f_z Page 350–353

14

End milling cutter with corner radius











≈DIN 6527

HA 



≈DIN 6527

HB 

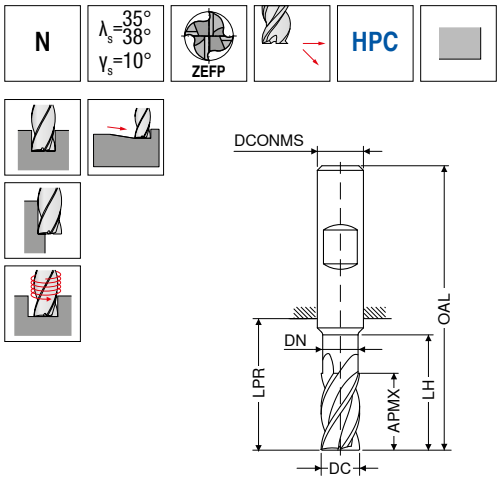
DC e8	RE ±0,01	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 52 316 ...	Article no. 52 317 ...
mm	mm	mm	mm	mm	mm	mm	mm			
3	0,3	8	2,8	13	21	57	6	4	031	031
3	0,5	8	2,8	13	21	57	6	4	032	032
4	0,3	11	3,8	16	21	57	6	4	041	041
4	0,5	11	3,8	16	21	57	6	4	042	042
5	0,3	13	4,8	18	21	57	6	4	051	051
5	0,5	13	4,8	18	21	57	6	4	052	052
6	0,5	13	5,8	26	31	57	6	4	062	062
6	1,0	13	5,8	26	31	57	6	4	064	064
6	1,5	13	5,8	26	31	57	6	4	065	065
8	0,5	19	7,8	32	35	63	8	4	082	082
8	1,0	19	7,8	32	35	63	8	4	084	084
8	1,5	19	7,8	32	35	63	8	4	085	085
8	2,0	19	7,8	32	35	63	8	4	086	086
10	1,0	22	9,8	35	36	72	10	4	104	104
10	1,5	22	9,8	35	36	72	10	4	105	105
10	2,0	22	9,8	35	36	72	10	4	106	106
12	1,0	26	11,8	38	38	83	12	4	124	124
12	1,5	26	11,8	38	38	83	12	4	125	125
12	2,0	26	11,8	38	38	83	12	4	126	126
12	3,0	26	11,8	38	38	83	12	4	128	128
16	1,0	32	15,8	44	44	92	16	4	164	164
16	1,5	32	15,8	44	44	92	16	4	165	165
16	2,0	32	15,8	44	44	92	16	4	166	166
16	3,0	32	15,8	44	44	92	16	4	168	168
20	1,5	38	19,8	52	54	104	20	4	205	205
20	2,0	38	19,8	52	54	104	20	4	206	206
20	3,0	38	19,8	52	54	104	20	4	208	208

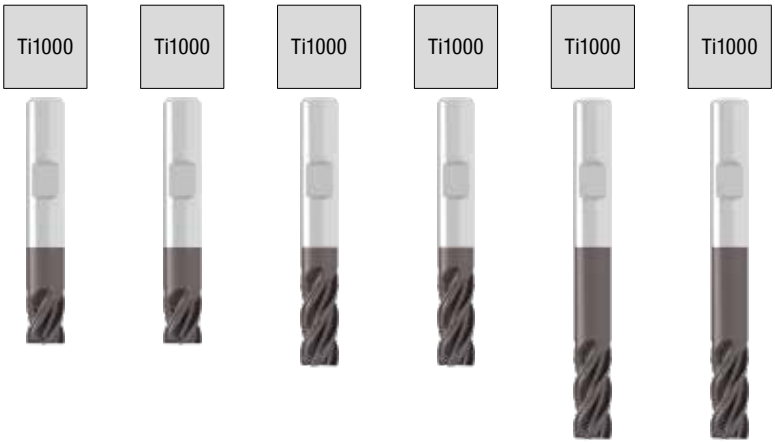
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

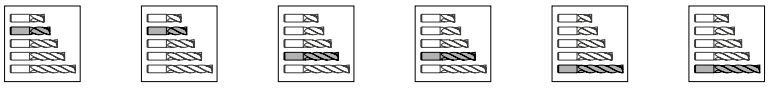
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End milling cutter

- ▲ irregular helix angle
- ▲ 54 050 ... / 54 051 ... / 54 052 ...: special cutting edge preperation for the machining of steel
- ▲ 54 060 ... / 54 061 ... / 54 062 ...: special cutting edge preperation for the machining of stainless steel







	≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527
	HB	HB	HB	HB	HB	HB
DC h10 / mm	Article no. 54 050 ...	Article no. 54 060 ...	Article no. 54 051 ...	Article no. 54 061 ...	Article no. 54 052 ...	Article no. 54 062 ...
3	030	030				
3			030	030		
3					030	030
4	040	040				
4			040	040		
4					040	040
5	050	050				
5			050	050		
5					050	050
6	060	060				
6			060	060		
6					060	060
8	080	080				
8			080	080		
8					080	080
10	100	100				
10			100	100		
10					100	100
12	120	120				
12			120	120		
12					120	120
16	160	160				
16			160	160		
16					160	160
20	200	200				
20			200	200		
20					200	200

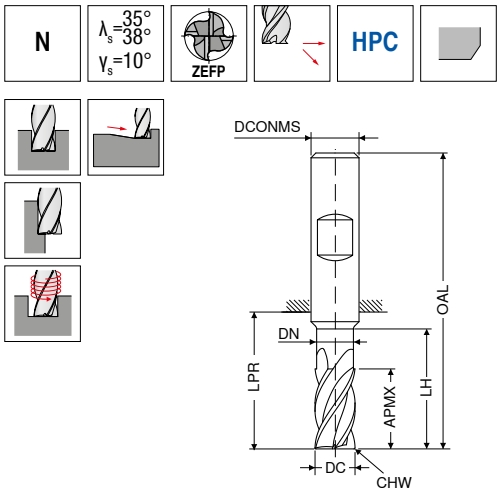
Steel	●	●	●	●	●	●
Stainless steel		●		●		●
Cast iron	●	○	●	○	●	○
Non ferrous metals		○		○		○
Heat resistant alloys		●		●		●
hardened materials						

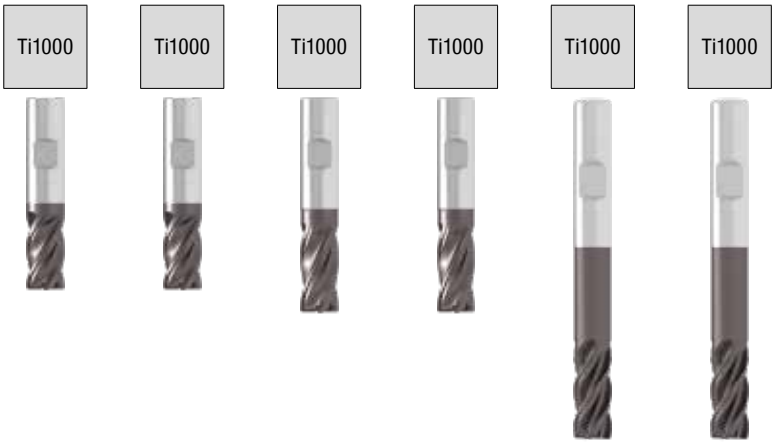
→ v_c/f_z Page 340–343

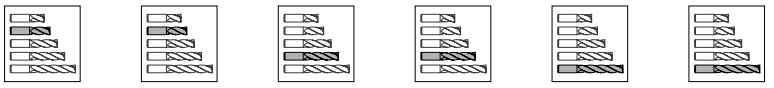
14

End milling cutter

- ▲ irregular helix angle
- ▲ 54 001 ... / 54 002 ... / 54 003 ...: special cutting edge preperation for the machining of steel
- ▲ 54 004 ... / 54 005 ... / 54 006 ...: special cutting edge preperation for the machining of stainless steel







	≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527
	HB	HB	HB	HB	HB	HB
DC h10/ mm	Article no. 54 001 ...	Article no. 54 005 ...	Article no. 54 002 ...	Article no. 54 006 ...	Article no. 54 003 ...	Article no. 54 004 ...
3,0	030	030				
3,0			030	030		
3,0					030	030
4,0	040	040				
4,0			040	040		
4,0					040	040
5,0	050	050				
5,0			050	050		
5,0					050	050
6,0	060	060				
6,0			060	060		
6,0					060	060
8,0	080	080				
8,0			080	080		
8,0					080	080
10,0	100	100				
10,0			100	100		
10,0					100	100
12,0	120	120				
12,0			120	120		
12,0					120	120
16,0	160	160				
16,0			160	160		
16,0					160	160
20,0	200	200				
20,0			200	200		
20,0					200	200

APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP
5			14	50	6	0,15	4
8	2,8	12,0	21	57	6	0,15	4
8	2,8	15,0	34	70	6	0,15	4
8			18	54	6	0,15	4
11	3,8	15,0	21	57	6	0,15	4
11	3,8	20,0	34	70	6	0,15	4
9			18	54	6	0,15	4
13	4,8	17,0	21	57	6	0,15	4
13	4,8	25,0	34	70	6	0,15	4
10			18	54	6	0,15	4
13	5,8	21,0	21	57	6	0,15	4
13	5,8	30,0	34	70	6	0,15	4
12			22	58	8	0,25	4
19	7,7	27,0	27	63	8	0,25	4
19	7,7	40,0	44	80	8	0,25	4
14			26	66	10	0,25	4
22	9,7	32,0	32	72	10	0,25	4
22	9,7	50,0	54	94	10	0,25	4
16			28	73	12	0,35	4
26	11,6	38,0	38	83	12	0,35	4
26	11,6	64,0	64	109	12	0,35	4
22			34	82	16	0,35	4
32	15,5	44,0	44	92	16	0,35	4
32	15,5	80,0	84	132	16	0,35	4
26			42	92	20	0,35	4
38	19,5	54,0	54	104	20	0,35	4
38	19,5	100,0	104	154	20	0,35	4

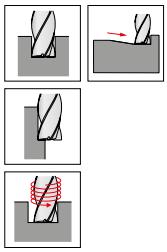
Steel	●	●	●	●	●	●
Stainless steel		●		●		●
Cast iron	●	○	●	○	●	○
Non ferrous metals		○		○		○
Heat resistant alloys		●		●		●
hardened materials						

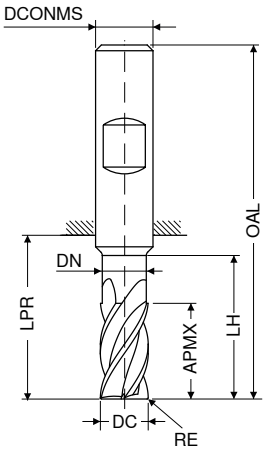
→ v_c/f_z Page 340–343

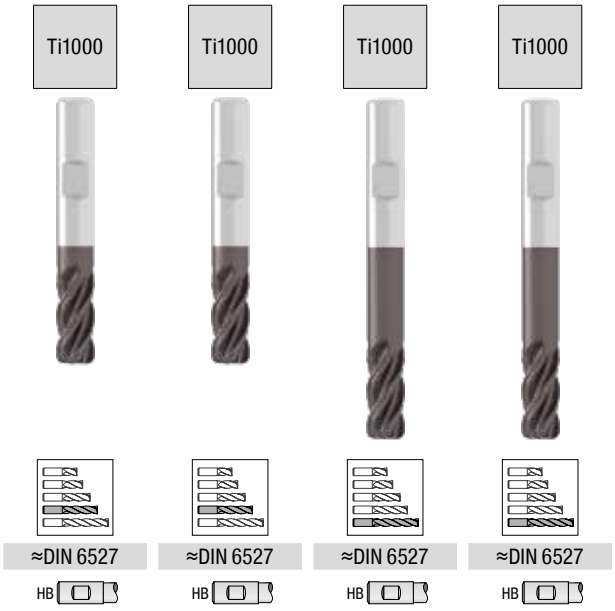
End milling cutter with corner radius

- ▲ irregular helix angle
- ▲ 54 053 ... / 54 054 ...: special cutting edge preperation for the machining of steel
- ▲ 54 063 ... / 54 064 ...: special cutting edge preperation for the machining of stainless steel









DC h10	RE	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 54 053 ...	Article no. 54 063 ...	Article no. 54 054 ...	Article no. 54 064 ...
mm	mm	mm	mm	mm	mm	mm	mm					
3	0,1	8	2,8	12	21	57	6	4	03001	03001		
3	0,1	8	2,8	15	34	70	6	4			03001	03001
3	0,3	8	2,8	12	21	57	6	4	03003	03003		
3	0,3	8	2,8	15	34	70	6	4			03003	03003
3	0,5	8	2,8	12	21	57	6	4	03005	03005		
3	0,5	8	2,8	15	34	70	6	4			03005	03005
3	1,0	8	2,8	12	21	57	6	4	03010	03010		
3	1,0	8	2,8	15	34	70	6	4			03010	03010
4	0,1	11	3,8	15	21	57	6	4	04001	04001		
4	0,1	11	3,8	20	34	70	6	4			04001	04001
4	0,3	11	3,8	15	21	57	6	4	04003	04003		
4	0,3	11	3,8	20	34	70	6	4			04003	04003
4	0,5	11	3,8	15	21	57	6	4	04005	04005		
4	0,5	11	3,8	20	34	70	6	4			04005	04005
4	1,0	11	3,8	15	21	57	6	4	04010	04010		
4	1,0	11	3,8	20	34	70	6	4			04010	04010
5	0,1	13	4,8	17	21	57	6	4	05001	05001		
5	0,1	13	4,8	25	34	70	6	4			05001	05001
5	0,3	13	4,8	17	21	57	6	4	05003	05003		
5	0,3	13	4,8	25	34	70	6	4			05003	05003
5	0,5	13	4,8	17	21	57	6	4	05005	05005		
5	0,5	13	4,8	25	34	70	6	4			05005	05005
5	1,0	13	4,8	17	21	57	6	4	05010	05010		
5	1,0	13	4,8	25	34	70	6	4			05010	05010
6	0,1	13	5,8	21	21	57	6	4	06001	06001		
6	0,1	13	5,8	30	34	70	6	4			06001	06001
6	0,3	13	5,8	21	21	57	6	4	06003	06003		
6	0,3	13	5,8	30	34	70	6	4			06003	06003
6	0,5	13	5,8	21	21	57	6	4	06005	06005		
6	0,5	13	5,8	30	34	70	6	4			06005	06005
6	1,0	13	5,8	21	21	57	6	4	06010	06010		
6	1,0	13	5,8	30	34	70	6	4			06010	06010
6	1,5	13	5,8	21	21	57	6	4	06015	06015		
6	1,5	13	5,8	30	34	70	6	4			06015	06015
6	2,0	13	5,8	21	21	57	6	4	06020	06020		
6	2,0	13	5,8	30	34	70	6	4			06020	06020
8	0,1	19	7,7	27	27	63	8	4	08001	08001		
8	0,1	19	7,7	40	44	80	8	4			08001	08001
8	0,3	19	7,7	27	27	63	8	4	08003	08003		
8	0,3	19	7,7	40	44	80	8	4			08003	08003
8	0,5	19	7,7	27	27	63	8	4	08005	08005		
8	0,5	19	7,7	40	44	80	8	4			08005	08005

Steel	●	●	●	●
Stainless steel		●		●
Cast iron	●	○	●	○
Non ferrous metals		○		○
Heat resistant alloys		●		●
hardened materials				

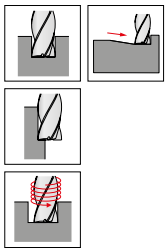
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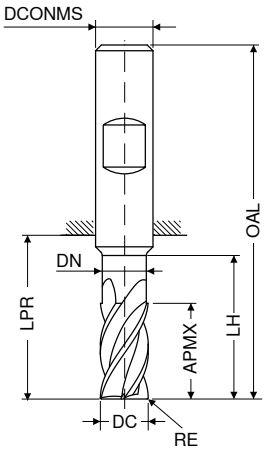
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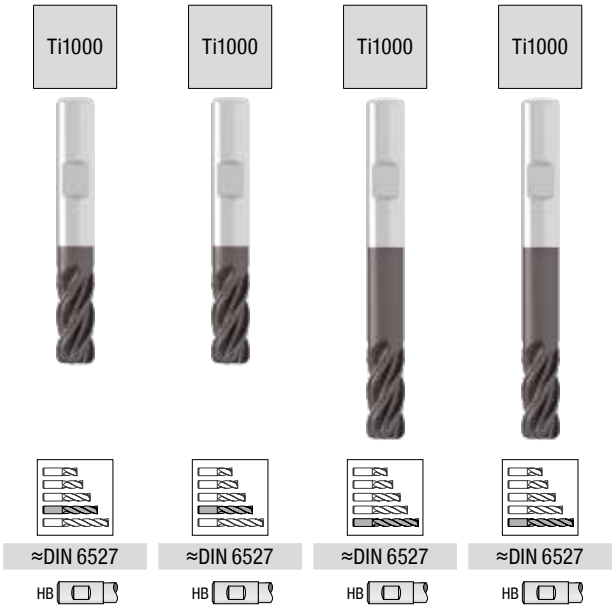
End milling cutter with corner radius

- ▲ irregular helix angle
- ▲ 54 053 ... / 54 054 ...: special cutting edge preperation for the machining of steel
- ▲ 54 063 ... / 54 064 ...: special cutting edge preperation for the machining of stainless steel









≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

HB | HB | HB | HB

DC h10	RE	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 54 053 ...	Article no. 54 063 ...	Article no. 54 054 ...	Article no. 54 064 ...
mm	mm	mm	mm	mm	mm	mm	mm					
8	1,0	19	7,7	27	27	63	8	4	08010	08010		
8	1,0	19	7,7	40	44	80	8	4			08010	08010
8	1,5	19	7,7	27	27	63	8	4	08015	08015		
8	1,5	19	7,7	40	44	80	8	4			08015	08015
8	1,6	19	7,7	27	27	63	8	4	08016	08016		
8	1,6	19	7,7	40	44	80	8	4			08016	08016
8	2,0	19	7,7	27	27	63	8	4	08020	08020		
8	2,0	19	7,7	40	44	80	8	4			08020	08020
10	0,1	22	9,7	32	32	72	10	4	10001	10001		
10	0,1	22	9,7	50	54	94	10	4			10001	10001
10	0,3	22	9,7	32	32	72	10	4	10003	10003		
10	0,3	22	9,7	50	54	94	10	4			10003	10003
10	0,5	22	9,7	32	32	72	10	4	10005	10005		
10	0,5	22	9,7	50	54	94	10	4			10005	10005
10	1,0	22	9,7	32	32	72	10	4	10010	10010		
10	1,0	22	9,7	50	54	94	10	4			10010	10010
10	1,5	22	9,7	32	32	72	10	4	10015	10015		
10	1,5	22	9,7	50	54	94	10	4			10015	10015
10	1,6	22	9,7	32	32	72	10	4	10016	10016		
10	1,6	22	9,7	50	54	94	10	4			10016	10016
10	2,0	22	9,7	32	32	72	10	4	10020	10020		
10	2,0	22	9,7	50	54	94	10	4			10020	10020
12	0,1	26	11,6	38	38	83	12	4	12001	12001		
12	0,1	26	11,6	64	64	109	12	4			12001	12001
12	0,3	26	11,6	38	38	83	12	4	12003	12003		
12	0,3	26	11,6	64	64	109	12	4			12003	12003
12	0,5	26	11,6	38	38	83	12	4	12005	12005		
12	0,5	26	11,6	64	64	109	12	4			12005	12005
12	1,0	26	11,6	38	38	83	12	4	12010	12010		
12	1,0	26	11,6	64	64	109	12	4			12010	12010
12	1,5	26	11,6	38	38	83	12	4	12015	12015		
12	1,5	26	11,6	64	64	109	12	4			12015	12015
12	1,6	26	11,6	38	38	83	12	4	12016	12016		
12	1,6	26	11,6	64	64	109	12	4			12016	12016
12	2,0	26	11,6	38	38	83	12	4	12020	12020		
12	2,0	26	11,6	64	64	109	12	4			12020	12020
12	3,0	26	11,6	38	38	83	12	4	12030	12030		
12	3,0	26	11,6	64	64	109	12	4			12030	12030
16	0,1	32	15,5	44	44	92	16	4	16001	16001		
16	0,1	32	15,5	80	84	132	16	4			16001	16001
16	0,3	32	15,5	44	44	92	16	4	16003	16003		
16	0,3	32	15,5	80	84	132	16	4			16003	16003

Steel	●	●	●	●
Stainless steel		●		●
Cast iron	●	○	●	○
Non ferrous metals		○		○
Heat resistant alloys		●		●
hardened materials				

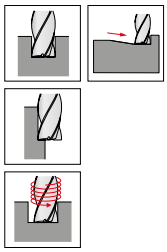
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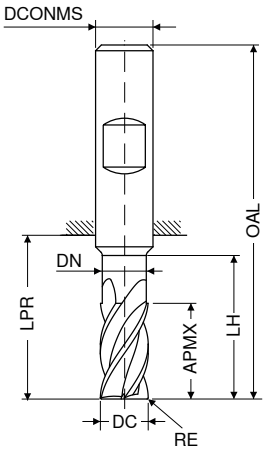
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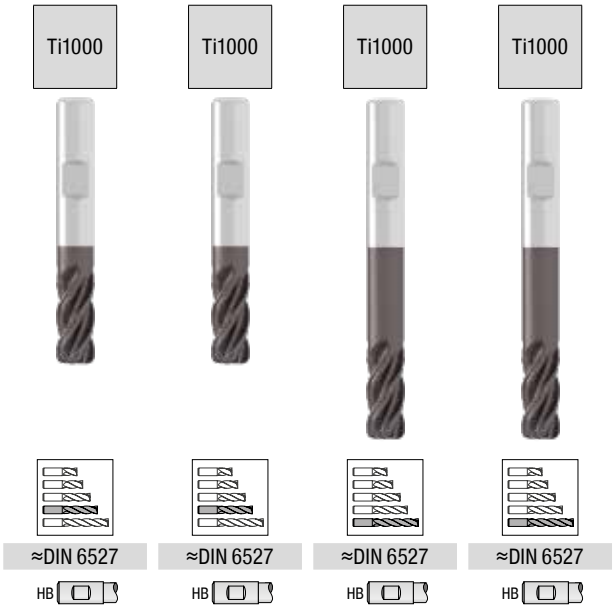
End milling cutter with corner radius

- ▲ irregular helix angle
- ▲ 54 053 ... / 54 054 ...: special cutting edge preperation for the machining of steel
- ▲ 54 063 ... / 54 064 ...: special cutting edge preperation for the machining of stainless steel









≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

HB | HB | HB | HB

DC h10	RE	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	Article no. 54 053 ...	Article no. 54 063 ...	Article no. 54 054 ...	Article no. 54 064 ...
mm	mm	mm	mm	mm	mm	mm	mm					
16	0,5	32	15,5	44	44	92	16	4	16005	16005		
16	0,5	32	15,5	80	84	132	16	4			16005	16005
16	1,0	32	15,5	44	44	92	16	4	16010	16010		
16	1,0	32	15,5	80	84	132	16	4			16010	16010
16	1,5	32	15,5	44	44	92	16	4	16015	16015		
16	1,5	32	15,5	80	84	132	16	4			16015	16015
16	1,6	32	15,5	44	44	92	16	4	16016	16016		
16	1,6	32	15,5	80	84	132	16	4			16016	16016
16	2,0	32	15,5	44	44	92	16	4	16020	16020		
16	2,0	32	15,5	80	84	132	16	4			16020	16020
16	3,0	32	15,5	44	44	92	16	4	16030	16030		
16	3,0	32	15,5	80	84	132	16	4			16030	16030
16	4,0	32	15,5	44	44	92	16	4	16040	16040		
16	4,0	32	15,5	80	84	132	16	4			16040	16040
20	0,1	38	19,5	54	54	104	20	4	20001	20001		
20	0,1	38	19,5	100	104	154	20	4			20001	20001
20	0,3	38	19,5	54	54	104	20	4	20103	20003		
20	0,3	38	19,5	100	104	154	20	4			20003	20003
20	0,5	38	19,5	54	54	104	20	4	20205	20005		
20	0,5	38	19,5	100	104	154	20	4			20005	20005
20	1,0	38	19,5	54	54	104	20	4	20310	20010		
20	1,0	38	19,5	100	104	154	20	4			20010	20010
20	1,5	38	19,5	54	54	104	20	4	20415	20015		
20	1,5	38	19,5	100	104	154	20	4			20015	20015
20	1,6	38	19,5	54	54	104	20	4	20516	20016		
20	1,6	38	19,5	100	104	154	20	4			20016	20016
20	2,0	38	19,5	54	54	104	20	4	20620	20020		
20	2,0	38	19,5	100	104	154	20	4			20020	20020
20	3,0	38	19,5	54	54	104	20	4	20730	20030		
20	3,0	38	19,5	100	104	154	20	4			20030	20030
20	4,0	38	19,5	54	54	104	20	4	20840	20040		
20	4,0	38	19,5	100	104	154	20	4			20040	20040

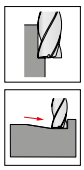
Steel	●	●	●	●
Stainless steel		●		●
Cast iron	●	○	●	○
Non ferrous metals		○		○
Heat resistant alloys		●		●
hardened materials				

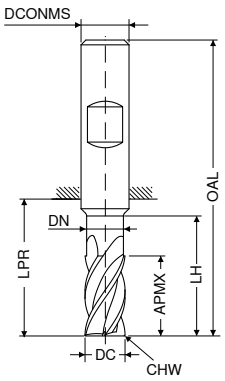
→ v_c/f_z Page 340–343

14

Finish milling cutter

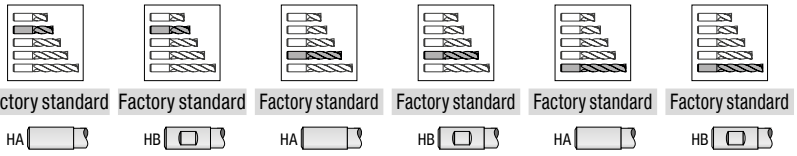






LPR with Shank DIN 6535 HB

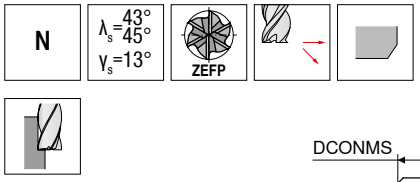


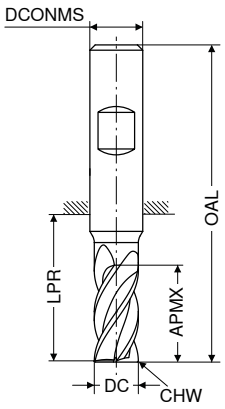


									Factory standard HA	Factory standard HB	Factory standard HA	Factory standard HB	Factory standard HA	Factory standard HB
DC e8	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 52 110 ...	Article no. 52 110 ...	Article no. 52 115 ...	Article no. 52 115 ...	Article no. 52 118 ...	Article no. 52 118 ...
mm	mm	mm	mm	mm	mm	mm	mm							
5	8	4,8	13	18	54	6	0,02	6	051	050				
5	13	4,8	18	22	58	6	0,02	6			051	050		
6	10	5,8	15	18	54	6	0,03	6	061	060				
6	16	5,8	20	22	58	6	0,03	6			061	060		
6	21			29	65	6	0,03	6					061	060
7	12	6,8	17	23	59	8	0,04	6	071	070				
7	22	6,8	30	34	70	8	0,04	6			071	070		
7	25			39	75	8	0,04	6					071	070
8	12	7,8	17	23	59	8	0,04	6	081	080				
8	22	7,8	32	34	70	8	0,04	6			081	080		
8	28			39	75	8	0,04	6					081	080
9	14	8,8	19	20	60	10	0,04	6	091	090				
9	25	8,8	33	33	73	10	0,04	6			091	090		
9	30			45	85	10	0,04	6					091	090
10	14	9,8	19	20	60	10	0,05	6	101	100				
10	25	9,8	33	33	73	10	0,05	6			101	100		
10	35			45	85	10	0,05	6					101	100
12	16	11,8	21	25	70	12	0,05	6	121	120				
12	28	11,8	38	39	84	12	0,05	6			121	120		
12	45			55	100	12	0,05	6					121	120
14	18	13,8	23	25	70	14	0,06	6	141	140				
14	30	13,8	38	39	84	14	0,06	6			141	140		
16	20	15,8	28	32	80	16	0,06	6	161	160				
16	35	15,8	43	45	93	16	0,06	6			161	160		
16	50			62	110	16	0,06	6					162	160
16	65			77	125	16	0,06	6					163	161
18	20	17,8	28	32	80	18	0,07	8	181	180				
18	35	17,8	43	45	93	18	0,07	8			181	180		
20	25	19,8	33	35	85	20	0,07	8	201	200				
20	40	19,8	45	50	100	20	0,07	8			201	200		
20	55			65	115	20	0,07	8					202	200
20	70			80	130	20	0,07	8					203	201
25	55	24,8	63	69	125	25	0,08	8			251	250		
25	75			94	150	25	0,08	8					251	250
Steel									○	○	○	○	○	○
Stainless steel									●	●	●	●	●	●
Cast iron									○	○	○	○	○	○
Non ferrous metals									●	●	●	●	●	●
Heat resistant alloys									●	●	●	●	●	●
hardened materials														

→ v_c/f_z Page 350–355

Finish milling cutter











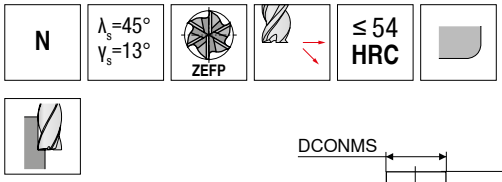
	≈DIN 6527	Factory standard
	HB	HB

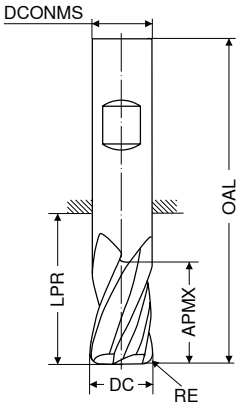
DC f8	APMX	LPR	OAL	DCONMS h5	CHW	ZEFP	Article no. 50 633 ...	Article no. 50 633 ...
mm	mm	mm	mm	mm	mm			
4	11	21	57	6	0,15	6	040	
4	16	26	62	6	0,15	6		041
5	13	21	57	6	0,15	6	050	
5	18	26	62	6	0,15	6		051
6	13	21	57	6	0,15	6	060	
6	18	26	62	6	0,15	6		061
7	16	27	63	8	0,15	6	070	
7	21	32	68	8	0,15	6		071
8	19	27	63	8	0,15	6	080	
8	24	32	68	8	0,15	6		081
9	19	32	72	10	0,15	6	090	
9	27	40	80	10	0,15	6		091
10	22	32	72	10	0,15	6	100	
10	30	40	80	10	0,15	6		101
12	26	38	83	12	0,15	6	120	
12	36	48	93	12	0,15	6		121
14	26	38	83	14	0,15	6	140	
14	42	54	99	14	0,15	6		141
16	32	44	92	16	0,15	6	160	
16	48	60	108	16	0,15	6		161
16	65	77	125	16	0,15	6		162
16	75	102	150	16	0,15	6		163
16	95	102	150	16	0,15	6		164
18	32	44	92	18	0,15	8	180	
18	54	66	114	18	0,15	8		181
20	38	54	104	20	0,15	8	200	
20	60	76	126	20	0,15	8		201
20	75	85	135	20	0,15	8		202
20	95	100	150	20	0,15	8		203
25	75	94	150	25	0,15	8		250
25	95	104	160	25	0,15	8		251
32	75	90	150	32	0,15	8	320	
32	95	100	160	32	0,15	8		321

Steel	○	○
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials	●	●

→ v_c/f_z Page 350–355

Finish milling cutter with corner radius





Ti1000





Factory standard

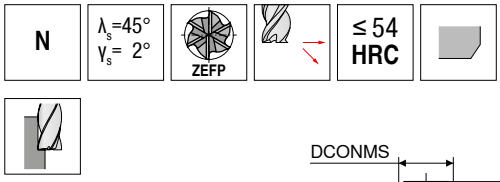
HB

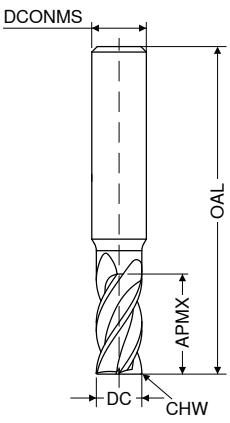
DC f8	RE ±0,01	APMX	LPR	OAL	DCONMS h5	ZEFP	Article no. 50 634 ...
mm	mm	mm	mm	mm	mm		
6	1,0	18	26	62	6	6	061
6	0,5	18	26	62	6	6	060
8	2,0	24	32	68	8	6	082
8	1,0	24	32	68	8	6	081
8	0,5	24	32	68	8	6	080
10	0,5	30	40	80	10	6	100
10	2,0	30	40	80	10	6	102
10	1,0	30	40	80	10	6	101
12	2,0	36	48	93	12	6	122
12	1,0	36	48	93	12	6	121
12	3,0	36	48	93	12	6	123
12	0,5	36	48	93	12	6	120
16	2,0	48	60	108	16	6	162
16	1,0	48	60	108	16	6	161
16	3,0	48	60	108	16	6	163
16	0,5	48	60	108	16	6	160
20	0,5	60	76	126	20	8	200
20	2,0	60	76	126	20	8	202
20	3,0	60	76	126	20	8	203
20	1,0	60	76	126	20	8	201

Steel	○
Stainless steel	●
Cast iron	○
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	●

→ v_c/f_z Page 350–355

Multi-flute milling cutter











Factory standard

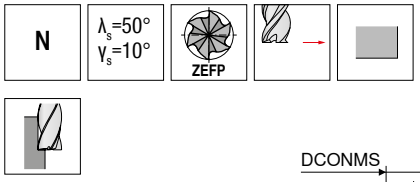


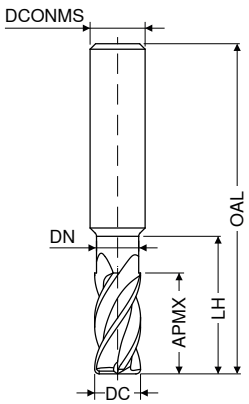
DC h10 mm	APMX mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	Article no. 50 631 ...
4	14	40	4	0,05	5	**040**
5	18	50	5	0,05	5	**050**
6	18	50	6	0,05	7	**060**
8	25	63	8	0,05	7	**080**
10	30	72	10	0,08	9	**100**
12	32	83	12	0,08	9	**120**
14	32	83	14	0,08	9	**140**
16	36	92	16	0,08	11	**160**
18	40	92	18	0,08	11	**180**
20	45	104	20	0,08	13	**200**
25	45	120	25	0,08	13	**250**

Steel	○
Stainless steel	●
Cast iron	○
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	

→ v_c/f_z Page 350–353

Multi-flute milling cutter for finishing





Ti1000





Factory standard

HA

DC e8 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 52 109 ...
6	16	5,8	26	58	6	8	060
8	22	7,8	32	64	8	10	080
10	25	9,8	35	73	10	12	100
12	28	11,8	38	84	12	12	120
16	35	15,8	43	93	16	16	160
20	40	19,8	50	104	20	16	200

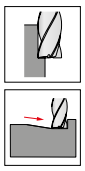
Steel	○
Stainless steel	●
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	○

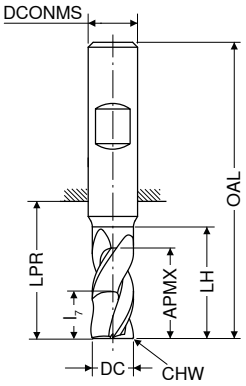
→ v_c/f_z Page 350–353

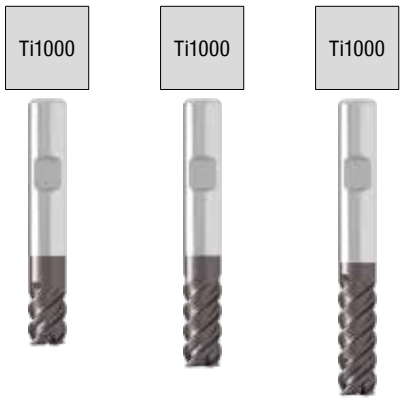
End milling cutter

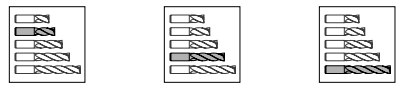
▲ With graduated flute depth











DIN 6527 | DIN 6527 | DIN 6527

HB | HB | HB

DC f8 mm	APMX mm	LH mm	l7 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	Article no. 50 907 ...		Article no. 50 907 ...		Article no. 50 907 ...	
4	8	15	4,4	18	54	6	0,15	4		040				
4	11	18	4,4	21	57	6	0,15	4				041		
4	16	19	6,4	26	62	6	0,15	4						042
5	9	16	4,8	18	54	6	0,15	4		050				
5	13	19	4,8	21	57	6	0,15	4				051		
5	17	20	6,8	26	62	6	0,15	4						052
6	10	17	5,2	18	54	6	0,15	4		060				
6	13	19	5,2	21	57	6	0,15	4				061		
6	18	21	7,2	26	62	6	0,15	4						062
8	12	20	7,6	22	58	8	0,15	4		080				
8	19	25	7,6	27	63	8	0,15	4				081		
8	24	27	9,6	32	68	8	0,15	4						082
10	14	24	8,8	26	66	10	0,15	4		100				
10	22	30	8,8	32	72	10	0,15	4				101		
10	30	33	12,0	40	80	10	0,15	4						102
12	16	26	10,4	28	73	12	0,15	4		120				
12	26	36	10,4	38	83	12	0,15	4				121		
12	36	39	14,4	48	93	12	0,15	4						122
14	18	28	10,4	30	75	14	0,15	4		140				
14	26	36	10,4	38	83	14	0,15	4				141		
14	42	45	16,8	54	99	14	0,15	4						142
16	22	32	12,8	34	82	16	0,15	4		160				
16	32	42	12,8	44	92	16	0,15	4				161		
16	48	51	19,2	60	108	16	0,15	4						162
18	24	34	12,8	36	84	18	0,15	4		180				
18	32	42	12,8	44	92	18	0,15	4				181		
18	54	57	21,6	66	114	18	0,15	4						182
20	26	42	15,2	42	92	20	0,15	4		200				
20	38	52	15,2	54	104	20	0,15	4				201		
20	60	63	24,0	76	126	20	0,15	4						202

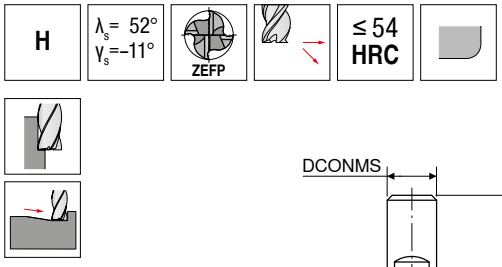
Steel	●	●	●
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	○	○	○

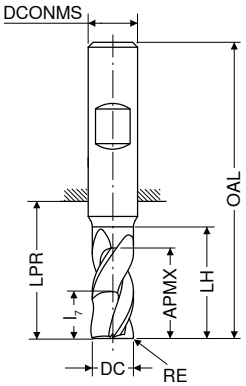
→ v_c/f_z Page 350–355

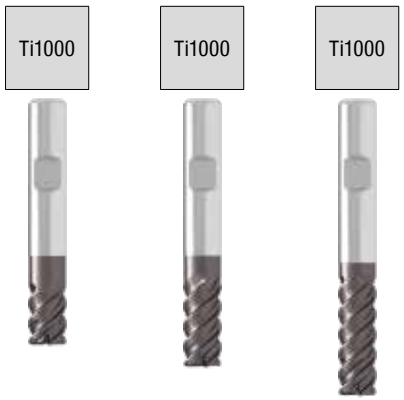
14

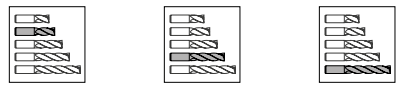
End milling cutter with corner radius

▲ With graduated flute depth











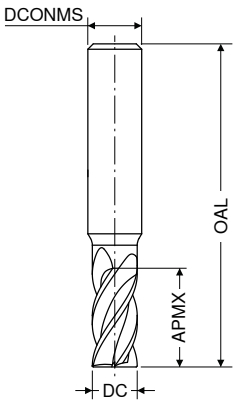
DC f8	RE ±0,01	APMX	LH	l_7	LPR	OAL	DCONMS h5	ZEFP	Article no. 50 908 ...		
mm	mm	mm	mm	mm	mm	mm	mm				
4	0,5	8	15	4,4	18	54	6	4	040		
4	0,5	11	18	4,4	21	57	6	4		041	
4	0,5	16	19	6,4	26	62	6	4			042
5	0,5	9	16	4,8	18	54	6	4	050		
5	0,5	13	19	4,8	21	57	6	4		051	
5	0,5	17	20	6,8	26	62	6	4			052
6	0,5	10	17	5,2	18	54	6	4	060		
6	0,5	13	19	5,2	21	57	6	4		061	
6	0,5	18	21	7,2	26	62	6	4			062
8	1,0	12	20	7,6	22	58	8	4	080		
8	1,0	19	25	7,6	27	63	8	4		081	
8	1,0	24	27	9,6	32	68	8	4			082
10	1,0	14	24	8,8	26	66	10	4	100		
10	1,0	22	30	8,8	32	72	10	4		101	
10	1,0	30	33	12,0	40	80	10	4			102
12	1,5	16	26	10,4	28	73	12	4	120		
12	1,5	26	36	10,4	38	83	12	4		121	
12	1,5	36	39	14,4	48	93	12	4			122
14	1,5	18	28	10,4	30	75	14	4	140		
14	1,5	26	36	10,4	38	83	14	4		141	
14	1,5	42	45	16,8	54	99	14	4			142
16	2,0	22	32	12,8	34	82	16	4	160		
16	2,0	32	42	12,8	44	92	16	4		161	
16	2,0	48	51	19,2	60	108	16	4			162
18	2,0	24	34	12,8	36	84	18	4	180		
18	2,0	32	42	12,8	44	92	18	4		181	
18	2,0	54	57	21,6	66	114	18	4			182
20	2,0	26	40	15,2	42	92	20	4	200		
20	2,0	38	52	15,2	54	104	20	4		201	
20	2,0	60	63	24,0	76	126	20	4			202

Steel	●	●	●
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	○	○	○

→ v_c/f_z Page 350–355

Finish milling cutter

H | λ_s=50° γ_s=–5° | ZEFP | ≤ 68 HRC









DIN 6527

HA



Factory standard

HA

DC f8 mm	APMX mm	OAL mm	DCONMS h5 mm	ZEFP	Article no. 50 635 ...	Article no. 50 635 ...
4	11	57	6	6	040	
4	16	62	6	6		041
5	13	57	6	6	050	
5	18	62	6	6		051
6	13	57	6	6	060	
6	18	62	6	6		061
8	19	63	8	6	080	
8	24	68	8	6		081
10	22	72	10	6	100	
10	30	80	10	6		101
12	26	83	12	6	120	
12	36	93	12	6		121
14	26	83	14	6	140	
14	42	99	14	6		141
16	32	92	16	8	160	
16	48	108	16	8		161
16	90	150	16	8		162
18	32	92	18	8	180	
18	54	114	18	8		181
20	38	104	20	8	200	
20	60	126	20	8		201
20	75	135	20	8		202
20	95	150	20	8		203
25	75	150	25	8	250	
25	95	160	25	8		251
32	75	150	32	8	320	
32	95	160	32	8		321

Steel	○	○
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials	●	●

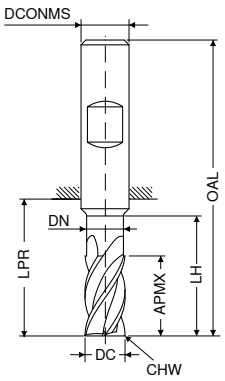
→ v_c/f_z Page 350–355

14

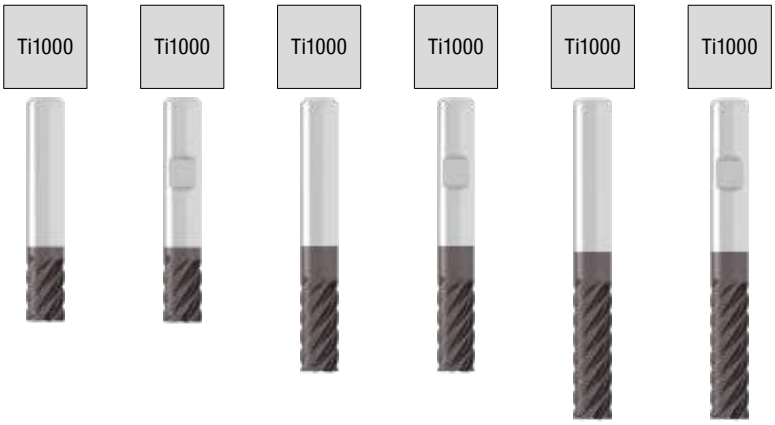
Finish milling cutter

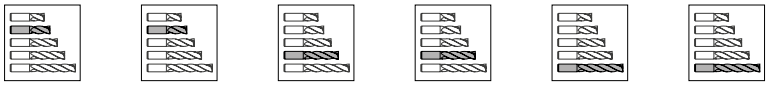
H | λ_s=45° γ_s=16° | ZEFP | ≤ 50 HRC





LPR with Shank DIN 6535 HB





Factory standard | Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

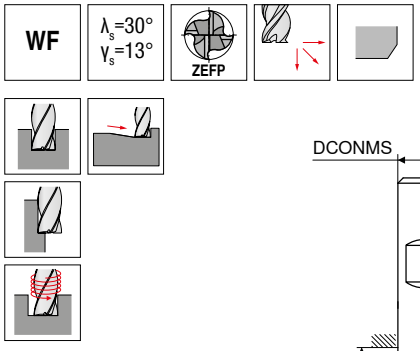
HA | HB | HA | HB | HA | HB

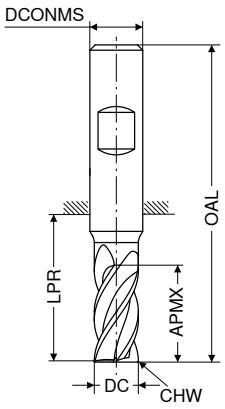
DC $_{e8}$	APMX	DN	LH	LPR	OAL	DCONMS $_{h6}$	CHW	ZEFP	Article no. 52 112 ...		Article no. 52 112 ...		Article no. 52 122 ...		Article no. 52 122 ...		Article no. 52 123 ...		Article no. 52 123 ...	
mm	mm	mm	mm	mm	mm	mm	mm													
5	8	4,8	13	18	54	6	0,02	6		051		050								
5	13	4,8	18	22	58	6	0,02	6						051		050				
6	10	5,8	15	18	54	6	0,03	6		061		060								
6	16	5,8	20	22	58	6	0,03	6						061		060				
6	21			29	65	6	0,03	6										061		060
7	12	6,8	17	23	59	8	0,04	6		071		070								
7	22	6,8	30	34	70	8	0,04	6						071		070				
7	25			39	75	8	0,04	6										071		070
8	12	7,8	17	23	59	8	0,04	6		081		080								
8	22	7,8	32	34	70	8	0,04	6						081		080				
8	28			39	75	8	0,04	6										081		080
9	14	8,8	19	20	60	10	0,04	6		091		090								
9	25	8,8	33	33	73	10	0,04	6						091		090				
9	30			45	85	10	0,04	6										091		090
10	14	9,8	19	20	60	10	0,05	6		101		100								
10	25	9,8	33	33	73	10	0,05	6						101		100				
10	35			45	85	10	0,05	6										101		100
12	16	11,8	21	25	70	12	0,05	6		121		120								
12	28	11,8	38	39	84	12	0,05	6						121		120				
12	45			55	100	12	0,05	6										121		120
14	18	13,8	23	25	70	14	0,06	6		141		140								
14	30	13,8	38	39	84	14	0,06	6						141		140				
16	20	15,8	28	32	80	16	0,06	6		161		160								
16	35	15,8	43	45	93	16	0,06	6						161		160				
16	50			62	110	16	0,06	6										162		160
16	65			77	125	16	0,06	6										163		161
18	20	17,8	28	32	80	18	0,07	8		181		180								
18	35	17,8	43	45	93	18	0,07	8						181		180				
20	25	19,8	33	35	85	20	0,07	8		201		200								
20	40	19,8	45	50	100	20	0,07	8						201		200				
20	55			65	115	20	0,07	8										202		200
20	70			80	130	20	0,07	8										203		201
25	55	24,8	63	69	125	25	0,08	8						251		250				
25	75			94	150	25	0,08	8										251		250

Steel	○	○	○	○	○	○
Stainless steel	●	●	●	●	●	●
Cast iron	○	○	○	○	○	○
Non ferrous metals	●	●	●	●	●	●
Heat resistant alloys	●	●	●	●	●	●
hardened materials	○	○	○	○	○	○

→ v_c/f_z Page 350–355

Roughing-Finishing Cutter









DIN 6527

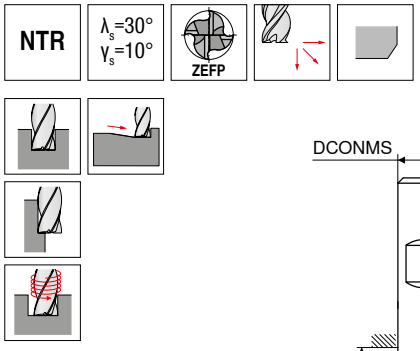
HB

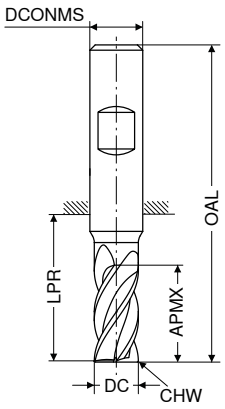
DC $_{d11}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	CHW mm	ZEFP	Article no. 50 628 ...
5	15	21	57	6	0,25	4	**050**
6	16	21	57	6	0,25	4	**060**
8	22	27	63	8	0,25	4	**080**
10	25	32	72	10	0,25	4	**100**
12	28	38	83	12	0,25	4	**120**
16	35	44	92	16	0,25	4	**160**
20	40	54	104	20	0,25	4	**200**

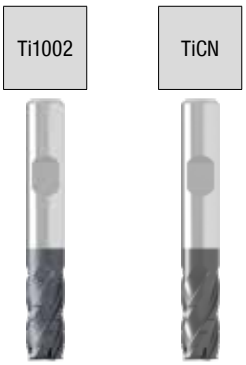
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

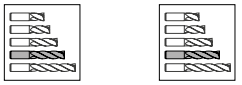
→ v_c/f_z Page 350–353

Roughing-Finishing Cutter









DIN 6527 | DIN 6527

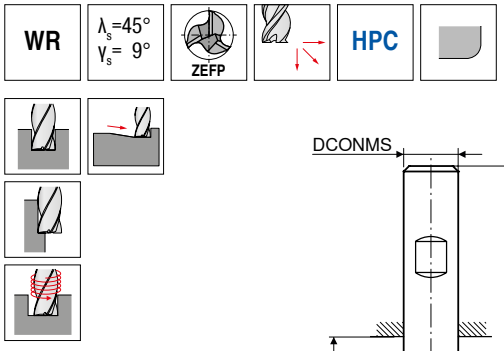
HB | HB

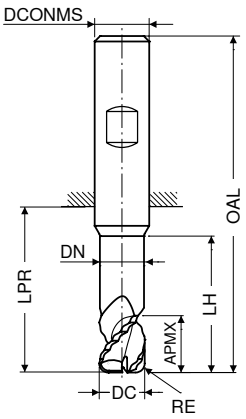
DC h10 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Article no. 52 301 ...	Article no. 52 300 ...
6	13	21	57	6		3	**060**	**060**
8	19	27	63	8	0,08	3	**080**	**080**
10	22	32	72	10	0,12	4	**100**	**100**
12	26	38	83	12	0,15	4	**120**	**120**
14	26	38	83	14	0,17	4	**140**	**140**
16	32	44	92	16	0,20	4	**160**	**160**
18	32	48	92	18	0,22	4	**180**	**180**
20	38	54	104	20	0,25	4	**200**	**200**

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	

→ v_c/f_z Page 350–353

Rough milling cutter with corner radius







Factory standard | Factory standard

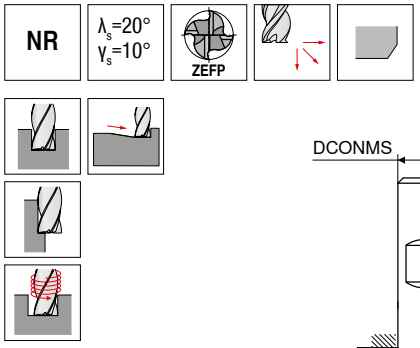
HA | HB

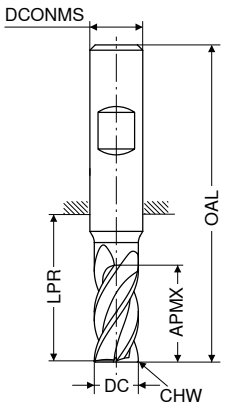
DC h6	RE +/-0,01	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	Article no. 54 625 ...	Article no. 54 627 ...
mm	mm	mm	mm	mm	mm	mm	mm			
3		4,5	2,8	15	22	58	6	3	030	030
3		8,0	2,8	15	22	58	6	3	031	031
4		5,5	3,8	20	26	62	6	3	040	040
4		10,5	3,8	20	26	62	6	3	041	041
5		7,0	4,8	25	34	70	6	3	050	050
5		13,0	4,8	25	34	70	6	3	051	051
6	1	8,5	5,8	30	34	70	6	3	061	061
6	1	16,0	5,8	30	34	70	6	3	062	062
7	1	11,0	6,7	40	44	80	8	3	071	071
7	1	21,0	6,7	40	44	80	8	3	072	072
8	1	11,0	7,7	40	44	80	8	3	081	081
8	1	21,0	7,7	40	44	80	8	3	082	082
9	1	14,0	8,7	50	54	94	10	3	091	091
9	1	26,0	8,7	50	54	94	10	3	092	092
10	2	14,0	9,7	50	54	94	10	3	101	101
10	2	26,0	9,7	50	54	94	10	3	102	102
11	2	16,0	10,6	60	64	109	12	3	111	111
11	2	31,0	10,6	60	64	109	12	3	112	112
12	2	16,0	11,6	60	64	109	12	3	121	121
12	2	31,0	11,6	60	64	109	12	3	122	122
14	2	19,0	13,6	70	74	119	14	3	141	141
14	2	36,0	13,6	70	74	119	14	3	142	142
16	2	22,0	15,5	80	84	132	16	3	161	161
16	2	41,0	15,5	80	84	132	16	3	162	162
18	2	25,0	17,5	90	94	142	18	3	181	181
18	2	47,0	17,5	90	94	142	18	3	182	182
20	2	27,0	19,5	100	104	154	20	3	201	201
20	2	52,0	19,5	100	104	154	20	3	202	202

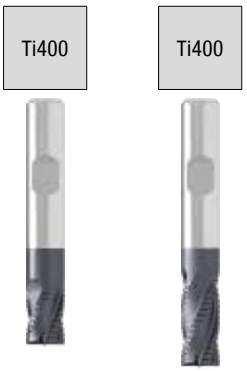
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

→ v_c/f_z Page 338+339

Rough milling cutter











DIN 6527 | DIN 6527

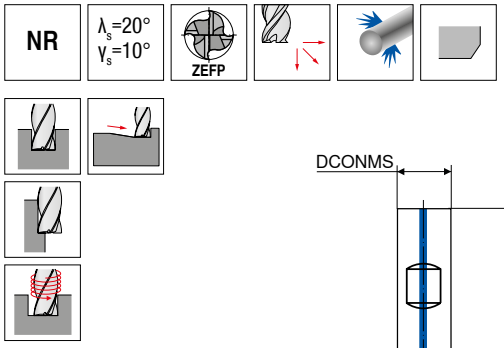
HB | HB

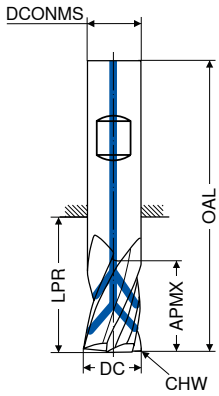
DC $_{d11}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	CHW mm	ZEFP	Article no. 50 618 ...	Article no. 50 624 ...
4	8	21	57	6	0,6	4		**040**
5	8	18	54	6	0,6	4	**050**	
5	13	21	57	6	0,6	4		**050**
6	8	18	54	6	0,6	4	**060**	
6	13	21	57	6	0,6	4		**060**
7	11	22	58	8	0,6	4	**070**	
7	19	27	63	8	0,6	4		**070**
8	11	22	58	8	0,6	4	**080**	
8	19	27	63	8	0,6	4		**080**
9	13	26	66	10	0,6	4	**090**	
9	22	32	72	10	0,6	4		**090**
10	13	26	66	10	0,6	4	**100**	
10	22	32	72	10	0,6	4		**100**
11	26	38	83	12	0,6	4		**110**
12	16	28	73	12	0,6	4	**120**	
12	26	38	83	12	0,6	4		**120**
13	26	38	83	14	0,6	4		**130**
14	16	31	76	14	0,6	4	**140**	
14	26	38	83	14	0,6	4		**140**
16	19	34	82	16	0,6	4	**160**	
16	32	44	92	16	0,6	4		**160**
18	19	36	84	18	0,6	4	**180**	
18	32	44	92	18	0,6	4		**180**
20	19	42	92	20	0,6	4	**200**	
20	38	54	104	20	0,6	4		**200**
25	45	65	121	25	0,6	5		**250**

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

→ v_c/f_z Page 350–353

Rough milling cutter











DIN 6527

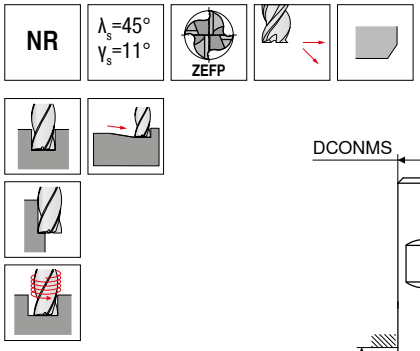
HB

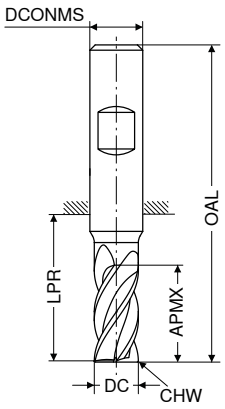
DC $_{d11}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	CHW mm	ZEFP	Article no. 50 625 ...
6	13	21	57	6	0,6	4	**060**
8	19	27	63	8	0,6	4	**080**
10	22	32	72	10	0,6	4	**100**
12	26	38	83	12	0,6	4	**120**
14	26	38	83	14	0,6	4	**140**
16	32	44	92	16	0,6	4	**160**
18	32	44	92	18	0,6	4	**180**
20	38	54	104	20	0,6	4	**200**

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 350–353

Rough milling cutter









DIN 6527

HB

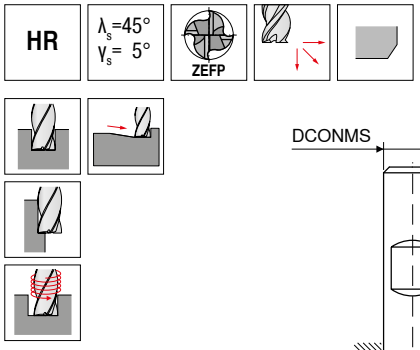
DC $_{d11}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	CHW mm	ZEFP	Article no. 50 637 ...
6	13	21	57	6	0,5	4	**060**
8	19	27	63	8	0,5	4	**080**
10	22	32	72	10	0,5	4	**100**
12	26	38	83	12	0,5	4	**120**
14	26	38	83	14	0,5	4	**140**
16	32	44	92	16	0,5	5	**160**
18	32	44	92	18	0,5	5	**180**
20	38	54	104	20	0,5	6	**200**
25	45	65	121	25	0,5	6	**250**

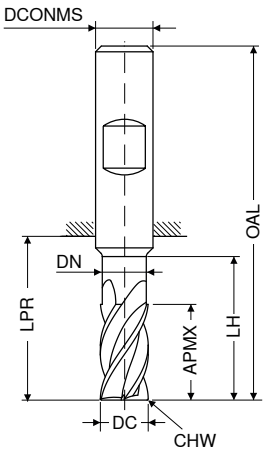
Steel	○
Stainless steel	●
Cast iron	○
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	

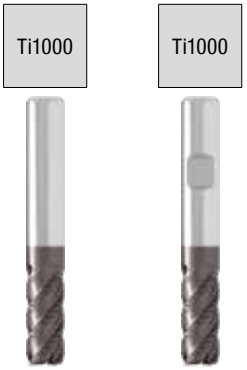
→ v_c/f_z Page 350–353

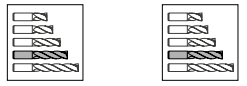
Rough milling cutter

▲ with integrated chip breakers in the flutes









Factory standard — HA

Factory standard — HB

DC h11	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 52 340 ...	Article no. 52 341 ...
mm	mm	mm	mm	mm	mm	mm	mm			
6	16	5,8	21	22	58	6	0,15	4	**060**	**060**
8	22	7,7	27	34	70	8	0,20	4	**080**	**080**
10	25	9,7	30	33	73	10	0,20	4	**100**	**100**
12	28	11,6	38	39	84	12	0,25	4	**120**	**120**
14	30	13,6	40	39	84	14	0,30	4	**140**	**140**
16	35	15,5	45	45	93	16	0,35	5	**160**	**160**
18	35	17,5	45	45	93	18	0,40	5	**180**	**180**
20	40	19,5	55	54	104	20	0,40	5	**200**	**200**
25	50	24,0	65	69	125	25	0,50	5	**250**	**250**

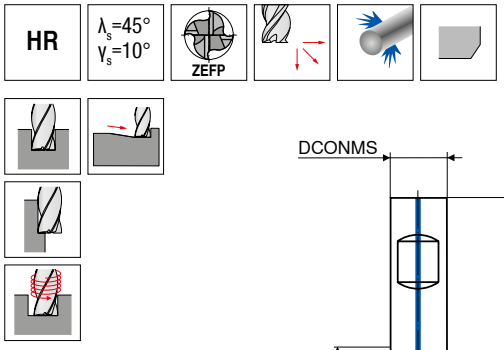
Steel	○	○
Stainless steel	●	●
Cast iron		
Non ferrous metals		
Heat resistant alloys		
hardened materials		

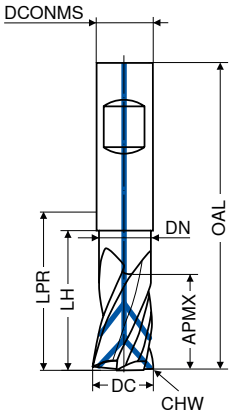
→ v_c/f_z Page 344+345

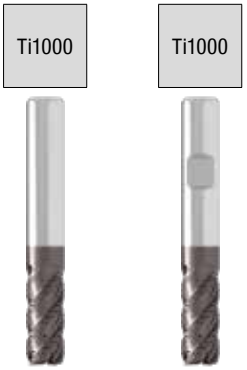
14

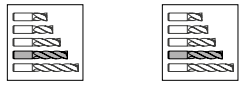
Rough milling cutter

▲ with integrated chip breakers in the flutes









Factory standard — HA

Factory standard — HB

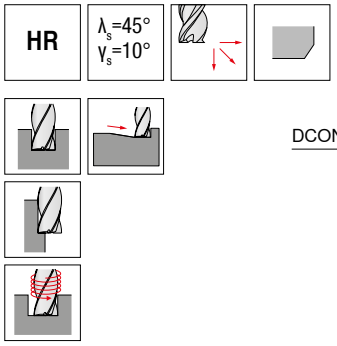
DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Article no. 52 338 ...	Article no. 52 339 ...
6	16	5,8	21	22	58	6	0,15	4	**060**	**060**
8	22	7,7	27	34	70	8	0,20	4	**080**	**080**
10	25	9,7	30	33	73	10	0,20	4	**100**	**100**
12	28	11,6	38	39	84	12	0,25	4	**120**	**120**
14	30	13,6	40	39	84	14	0,25	4	**140**	**140**
16	35	15,5	45	45	93	16	0,35	5	**160**	**160**
18	35	17,5	45	45	93	18	0,35	5	**180**	**180**
20	40	19,5	55	54	104	20	0,40	5	**200**	**200**

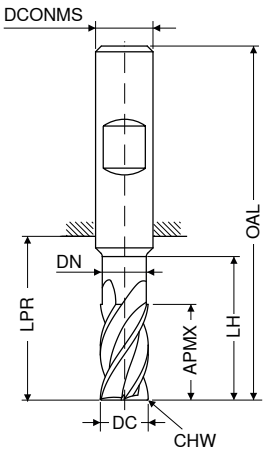
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals		
Heat resistant alloys	○	○
hardened materials		

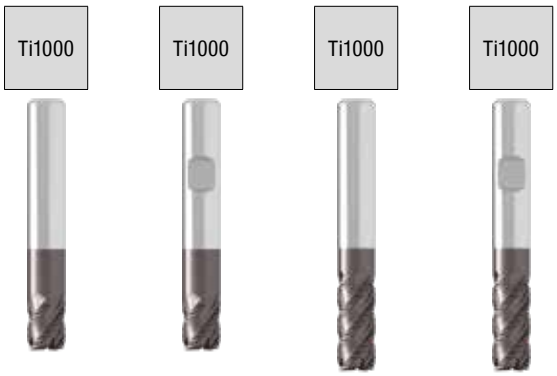
→ v_c/f_z Page 344+345

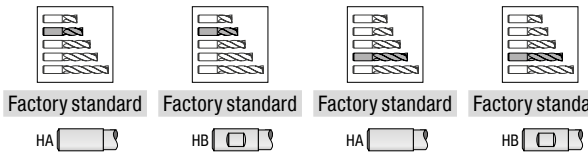
Rough milling cutter

▲ with integrated chip breakers in the flutes









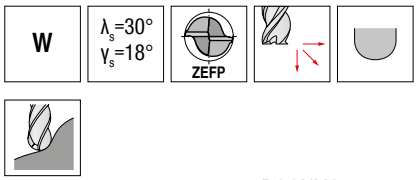
DC h11	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	Article no. 52 342 ...	Article no. 52 343 ...	Article no. 52 342 ...	Article no. 52 343 ...
mm	mm	mm	mm	mm	mm	mm	mm					
6	8	6,0		18	54	6	0,15	4	060	060		
6	16	5,8	21	22	58	6	0,15	4			061	061
8	11	8,0		23	59	8	0,20	4	080	080		
8	22	7,7	27	34	70	8	0,20	4			081	081
10	13	10,0		27	67	10	0,20	4	100	100		
10	25	9,7	30	33	73	10	0,20	4			101	101
12	16	12,0		29	74	12	0,25	4	120	120		
12	28	11,6	38	39	84	12	0,25	4			121	121
14	16	14,0		30	75	14	0,25	4	140	140		
14	30	13,5	40	39	84	14	0,25	4			141	141
16	19	16,0		36	84	16	0,35	5	160	160		
16	35	15,5	45	45	93	16	0,35	5			161	161
18	19	18,0		32	80	18	0,35	5	180	180		
18	35	17,5	45	45	93	18	0,35	5			181	181
20	19	20,0		43	93	20	0,40	5	200	200		
20	40	19,5	55	54	104	20	0,40	5			201	201
25	50	24,0	65	69	125	25	0,50	5			251	251
Steel									●	●	●	●
Stainless steel									○	○	○	○
Cast iron									●	●	●	●
Non ferrous metals												
Heat resistant alloys									○	○	○	○
hardened materials												

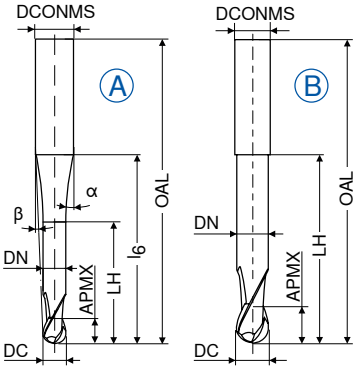
→ v_c/f_z Page 344+345

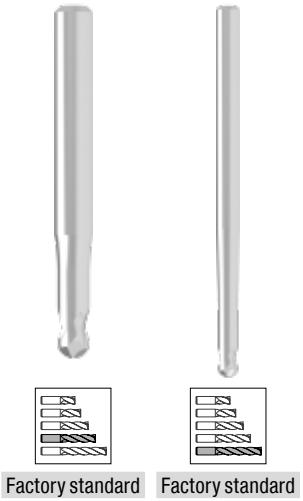
14

Ball nosed cutter

▲ Radius accuracy: ±0.005 mm
▲ For Ø DC ≤ 5.0 mm, angle tolerance α and β: ±0.5°







DC ±0,01	APMX	DN	LH	l_6	OAL	α°	β°	DCONMS h5	ZEFP	Fig.	Article no. 52 718 ...	Article no. 52 720 ...
mm	mm	mm	mm	mm	mm			mm				
0,5	1,0	0,45	2,0	9	38	10,0	8,0	3	2	A	**005**	
1,0	2,0	0,95	4,0	9	38	12,5	6,5	3	2	A	**010**	
1,5	2,5	1,40	7,5	9	38	32,0	5,0	3	2	A	**015**	
2,0	3,0	1,80	8,0	9	38	31,0	3,5	3	2	A	**020**	
3,0	3,5	2,80	10,0	20	57	11,5	5,0	6	2	A	**030**	
3,0	3,5	2,80	12,0	40	80	3,5	2,5	6	2	A		**030**
4,0	4,0	3,80	12,0	20	57	11,0	3,5	6	2	A	**040**	
4,0	4,0	3,80	20,0	40	80	4,0	1,5	6	2	A		**040**
5,0	5,0	4,70	10,0	40	100	1,5	1,0	6	2	A		**050**
5,0	5,0	4,70	14,0	20	57	10,0	2,0	6	2	A	**050**	
6,0	6,0	5,60	20,0		57			6	2	B	**060**	
6,0	6,0	5,60	40,0		100			6	2	B		**060**
8,0	7,0	7,60	25,0		63			8	2	B	**080**	
8,0	7,0	7,60	60,0		120			8	2	B		**080**
10,0	8,0	9,60	30,0		72			10	2	B	**100**	
10,0	8,0	9,60	60,0		120			10	2	B		**100**
12,0	8,0	11,50	40,0		83			12	2	B	**120**	
12,0	10,0	11,50	70,0		160			12	2	B		**120**

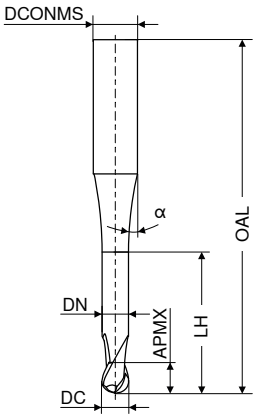
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys	○	○
hardened materials		

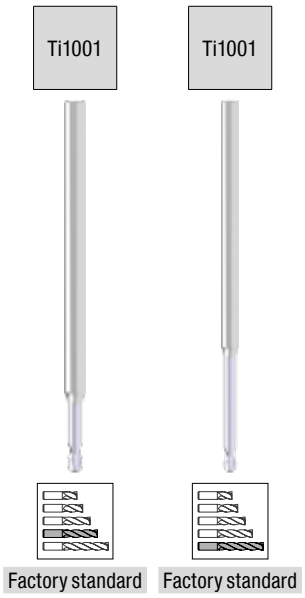
→ v_c/f_z Page 350–356

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm







DC f8	APMX	DN	LH	OAL	α°	DCONMS h5	ZEFP	Article no. 50 903 ...	Article no. 50 903 ...
mm	mm	mm	mm	mm		mm			
0,2	0,2	0,18	0,6	55	15	3	2	021	
0,2	0,2	0,18	1,0	55	15	3	2	022	
0,2	0,2	0,18	1,6	55	15	3	2	023	
0,2	0,2	0,18	2,0	55	15	3	2	024	
0,3	0,3	0,28	0,9	55	15	3	2	031	
0,3	0,3	0,28	1,5	55	15	3	2	032	
0,3	0,3	0,28	2,4	55	15	3	2	033	
0,3	0,3	0,28	3,0	55	15	3	2	034	
0,4	0,4	0,37	1,2	55	15	3	2	041	
0,4	0,4	0,37	2,0	55	15	3	2	042	
0,4	0,4	0,37	3,2	55	15	3	2	043	
0,4	0,4	0,37	4,0	55	15	3	2	044	
0,5	0,5	0,45	1,5	55	15	3	2	051	
0,5	0,5	0,45	2,5	55	15	3	2	052	
0,5	0,5	0,45	4,0	55	15	3	2	053	
0,5	0,5	0,45	5,0	55	15	3	2	054	
0,6	0,6	0,58	2,0	55	15	3	2	061	
0,6	0,6	0,58	3,0	55	15	3	2	062	
0,6	0,6	0,58	5,0	65	15	3	2		063
0,6	0,6	0,58	6,0	65	15	3	2		064
0,8	0,8	0,77	2,5	55	15	3	2	081	
0,8	0,8	0,77	4,0	55	15	3	2	082	
0,8	0,8	0,77	6,5	65	15	3	2		083
0,8	0,8	0,77	8,0	65	15	3	2		084
1,0	1,0	0,95	3,0	55	15	3	2	101	
1,0	1,0	0,95	5,0	55	15	3	2	102	
1,0	1,0	0,95	8,0	65	15	3	2		103
1,0	1,0	0,95	10,0	65	15	3	2		104
1,0	1,0	0,95	12,0	65	15	3	2		105
1,2	1,2	1,15	3,0	55	15	3	2	121	
1,2	1,2	1,15	6,0	55	15	3	2	122	
1,2	1,2	1,15	10,0	65	15	3	2		123
1,2	1,2	1,15	12,0	65	15	3	2		124
1,3	1,3	1,25	4,0	55	15	3	2	131	
1,3	1,3	1,25	7,0	55	15	3	2	132	
1,3	1,3	1,25	11,0	65	15	3	2		133
1,3	1,3	1,25	13,0	65	15	3	2		134
1,5	1,5	1,44	5,0	55	15	3	2	151	
1,5	1,5	1,44	7,5	55	15	3	2	152	
1,5	1,5	1,44	12,0	65	15	3	2		154

Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

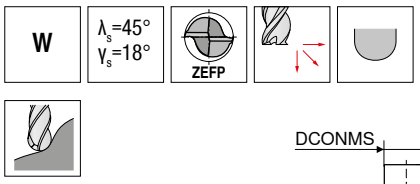
→ v_c/f_z Page 350–356

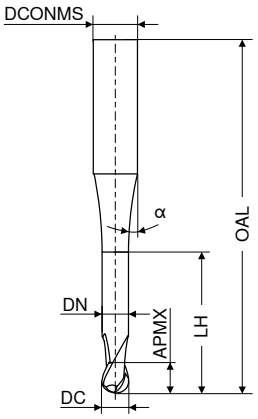
14

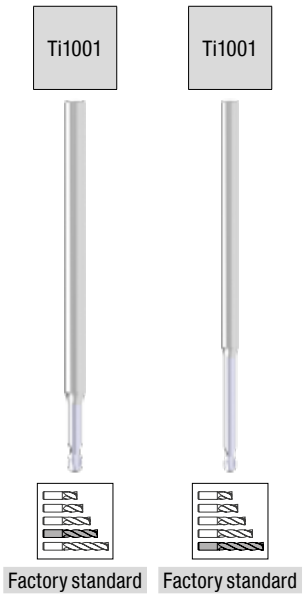
Continued on next page

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm







DC f8	APMX	DN	LH	OAL	α°	DCONMS h5	ZEFP	Article no. 50 903 ...	Article no. 50 903 ...
mm	mm	mm	mm	mm		mm			
1,5	1,5	1,44	15,0	65	15	3	2		153
1,6	1,6	1,52	5,0	55	15	3	2	161	
1,6	1,6	1,52	8,0	55	15	3	2	162	
1,6	1,6	1,52	13,0	65	15	3	2		163
1,6	1,6	1,52	16,0	65	15	3	2		164
1,8	1,8	1,72	5,5	55	15	3	2	181	
1,8	1,8	1,72	9,0	55	15	3	2	182	
1,8	1,8	1,72	14,5	65	15	3	2		183
1,8	1,8	1,72	18,0	65	15	3	2		184
2,0	2,0	1,92	6,0	55	15	3	2	201	
2,0	2,0	1,92	10,0	55	15	3	2	202	
2,0	2,0	1,92	14,0	55	15	3	2	203	
2,0	2,0	1,92	16,0	65	15	3	2		204
2,0	2,0	1,92	20,0	65	15	3	2		205
2,3	2,3	2,22	7,0	55	15	3	2	231	
2,3	2,3	2,22	11,5	55	15	3	2	232	
2,3	2,3	2,22	18,5	65	15	3	2		233
2,3	2,3	2,22	20,0	65	15	3	2		234
2,3	2,3	2,22	23,0	65	15	3	2		235
3,0	3,0	2,90	9,0	65	15	6	2	301	
3,0	3,0	2,90	15,0	65	15	6	2	302	
3,0	3,0	2,90	24,0	100	15	6	2		303
3,0	3,0	2,90	30,0	100	15	6	2		304
4,0	4,0	3,90	12,0	65	15	6	2	401	
4,0	4,0	3,90	20,0	65	15	6	2	402	
4,0	4,0	3,90	32,0	100	15	6	2		403
4,0	4,0	3,90	40,0	100	15	6	2		404
5,0	5,0	4,90	15,0	65	15	6	2	501	
5,0	5,0	4,90	25,0	65	15	6	2	502	
5,0	5,0	4,90	40,0	100	15	6	2		503
5,0	5,0	4,90	50,0	100	15	6	2		504
6,0	6,0	5,90	18,0	65	15	6	2	601	
6,0	6,0	5,90	30,0	100	15	6	2		602
6,0	6,0	5,90	48,0	100	15	6	2		603
6,0	6,0	5,90	60,0	100	15	6	2		604

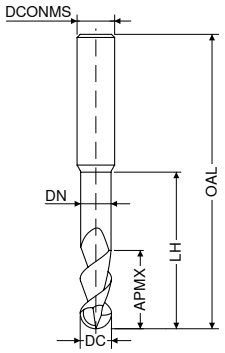
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

→ v_c/f_z Page 350–356

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm

W | λ_s=55° γ_s= 7° | ZEFP | HPC







Factory standard | Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA | HA | HA

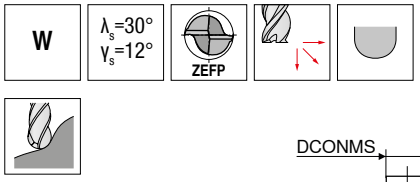
DC h6	APMX	DN	LH	OAL	DCONMS h5	ZEFP	Article no. 54 640 ...	Article no. 54 642 ...	Article no. 54 640 ...	Article no. 54 642 ...	Article no. 54 640 ...	Article no. 54 642 ...
mm	mm	mm	mm	mm	mm							
3	5,0	2,8	12	55	6	2	031	031				
3	3,5	2,8	15	58	6	2			034	034		
3	8,0	2,8	15	58	6	2			032	032		
3	3,5	2,8	24	67	6	2					035	035
4	6,5	3,8	12	55	6	2	041	041				
4	10,5	3,8	20	62	6	2			042	042		
4	4,5	3,8	20	62	6	2			044	044		
4	4,5	3,8	32	74	6	2					045	045
5	8,0	4,8	15	58	6	2	051	051				
5	13,0	4,8	25	70	6	2			052	052		
5	5,5	4,8	25	70	6	2			054	054		
5	5,5	4,8	40	88	6	2					055	055
6	10,0	5,8	18	58	6	2	061	061				
6	16,0	5,8	30	70	6	2			062	062		
6	7,0	5,8	30	70	6	2			064	064		
6	7,0	5,8	48	88	6	2					065	065
8	13,0	7,7	24	64	8	2	081	081				
8	21,0	7,7	40	80	8	2			082	082		
8	9,0	7,7	40	80	8	2			084	084		
8	9,0	7,7	64	104	8	2					085	085
10	16,0	9,7	30	74	10	2	101	101				
10	26,0	9,7	50	94	10	2			102	102		
10	11,0	9,7	50	94	10	2			104	104		
10	11,0	9,7	80	124	10	2					105	105
12	19,0	11,6	36	85	12	2	121	121				
12	31,0	11,6	60	109	12	2			122	122		
12	13,0	11,6	60	109	12	2			124	124		
12	13,0	11,6	96	145	12	2					125	125
14	22,0	13,6	42	91	14	2	141	141				
14	36,0	13,6	70	119	14	2			142	142		
14	15,0	13,6	70	119	14	2			144	144		
14	15,0	13,6	112	161	14	2					145	145
16	25,0	15,5	48	100	16	2	161	161				
16	41,0	15,5	80	132	16	2			162	162		
16	17,0	15,5	80	132	16	2			164	164		
16	17,0	15,5	128	180	16	2					165	165
18	29,0	17,5	54	106	18	2	181	181				
18	47,0	17,5	90	142	18	2			182	182		
18	20,0	17,5	90	142	18	2			184	184		
18	20,0	17,5	144	196	18	2					185	185
20	32,0	19,5	60	114	20	2	201	201				
20	52,0	19,5	100	154	20	2			202	202		
20	22,0	19,5	100	154	20	2			204	204		
20	22,0	19,5	160	214	20	2					205	205

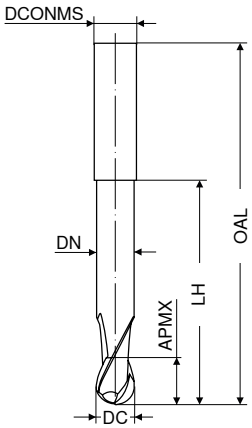
Steel						
Stainless steel						
Cast iron						
Non ferrous metals	●	●	●	●	●	●
Heat resistant alloys						
hardened materials						

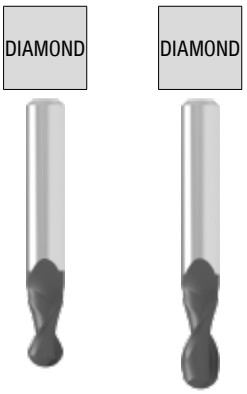
→ v_c/f_z Page 338+339

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Ball nosed cutter









Factory standard | Factory standard

HA | HA

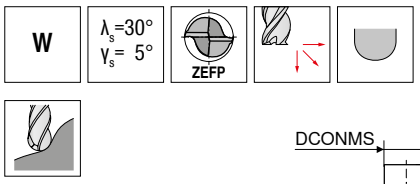
DC h10	APMX	LH	DN	OAL	DCONMS h6	ZEFP	Article no. 52 766 ...	Article no. 52 768 ...
mm	mm	mm	mm	mm	mm			
0,5	1,5			38	3	2	**005**	
1,0	2,0			38	3	2	**010**	
2,0	3,0			38	3	2	**020**	
2,0	3,0			50	6	2	**021**	
2,0	8,0	31	1,8	60	2	2		**020**
3,0	5,0			38	3	2	**030**	
3,0	5,0			50	6	2	**031**	
3,0	12,0	41	2,8	70	3	2		**030**
4,0	8,0			54	6	2	**040**	
4,0	15,0	51	3,8	80	4	2		**040**
5,0	9,0			54	6	2	**050**	
5,0	20,0	71	4,8	100	5	2		**050**
6,0	10,0			54	6	2	**060**	
6,0	20,0	63	5,8	100	6	2		**060**
8,0	12,0			58	8	2	**080**	
8,0	20,0	83	7,8	120	8	2		**080**
10,0	14,0			66	10	2	**100**	
10,0	25,0	99	9,8	140	10	2		**100**
12,0	25,0	104	11,8	150	12	2		**120**

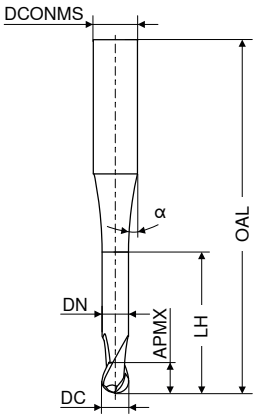
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

→ v_c/f_z Page 348

Micro-ball nosed cutter

▲ Radius accuracy: ±0.01 mm







DC f8	APMX	LH	DN	OAL	α°	DCONMS h5	ZEFP	Article no. 50 912 ...	Article no. 50 912 ...
mm	mm	mm	mm	mm		mm			
0,6	1,2	3,0	0,58	55	15	6	2	**906**	
0,6	1,2	6,0	0,58	65	15	6	2		**006**
0,8	1,2	4,0	0,77	55	15	6	2	**908**	
0,8	1,2	8,0	0,77	65	15	6	2		**008**
1,0	1,5	5,0	0,95	55	15	6	2	**910**	
1,0	1,5	12,0	0,95	65	15	6	2		**010**
1,2	1,6	6,0	1,15	55	15	6	2	**912**	
1,2	1,6	12,0	1,15	65	15	6	2		**012**
1,5	1,8	7,5	1,44	55	15	6	2	**915**	
1,5	1,8	15,0	1,44	65	15	6	2		**015**
2,0	2,0	10,0	1,92	55	15	6	2	**920**	
2,0	2,0	20,0	1,92	65	15	6	2		**020**

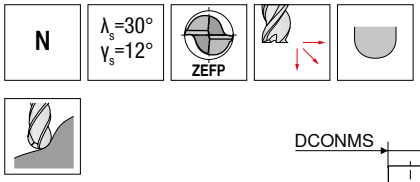
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

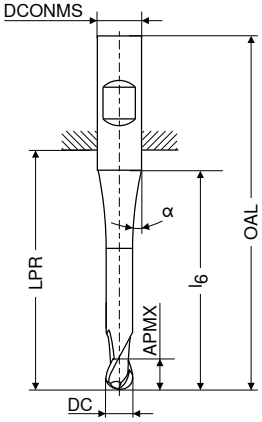
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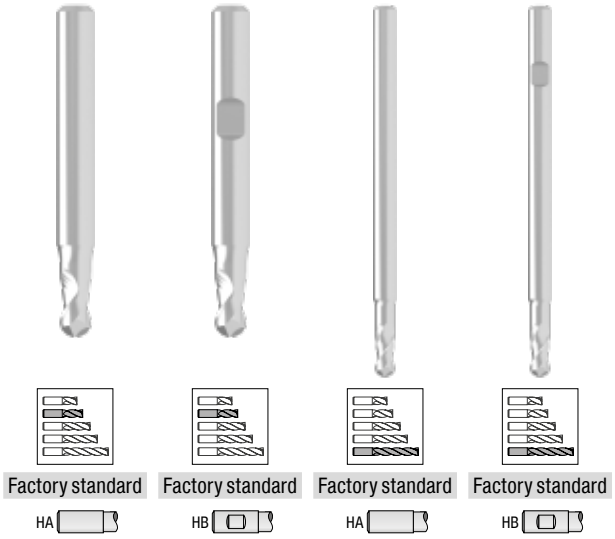
14

Ball nosed cutter

▲ Radius accuracy: ±0.005 mm







DC f8	APMX	l6	LPR	OAL	α° ±0,5	DCONMS h6	ZEFP	Factory standard HA	Factory standard HB	Factory standard HA	Factory standard HB
								Article no. 52 250 ...	Article no. 52 250 ...	Article no. 52 251 ...	Article no. 52 251 ...
mm	mm	mm	mm	mm		mm					
0,10	0,2	12,5	10	38	8	3	2	910			
0,15	0,3	11,5	10	38	8	3	2	915			
0,20	0,4	12,0	10	38	8	3	2	920			
0,25	0,5	12,5	10	38	8	3	2	925			
0,30	1,0	11,0	10	38	8	3	2	930			
0,35	1,0	11,0	10	38	8	3	2	935			
0,40	1,0	11,0	10	38	8	3	2	940			
0,50	1,5	11,5	10	38	8	3	2	950			
0,50	1,5	15,5	18	54	12	6	2	951			
0,50	1,5	11,5	47	75	8	3	2			005	
0,50	1,5	16,0	44	80	12	6	2			006	
0,60	1,5	11,5	10	38	8	3	2	960			
0,70	2,0	11,5	10	38	8	3	2	970			
0,80	2,0	11,5	10	38	8	3	2	980			
0,90	2,5	12,0	10	38	8	3	2	990			
1,00	2,0	11,0	22	50	8	3	2	011			
1,00	2,0	16,0	18	54	12	6	2	106	010		
1,00	3,0	12,0	47	75	8	3	2			010	
1,00	3,0	17,5	44	80	12	6	2			011	610
1,10	3,0	13,0	22	50	8	3	2	911			
1,20	3,0	13,0	22	50	8	3	2	012			
1,40	3,0	13,0	22	50	8	3	2	014			
1,50	3,0	11,0	22	50	8	3	2	016			
1,50	3,0	16,5	18	54	12	6	2	156	015		
1,50	4,0	13,0	47	75	8	3	2			015	
1,50	4,0	16,5	44	80	12	6	2			016	615
1,60	4,0	10,5	22	50	8	3	2	916			
1,80	4,0	10,0	22	50	8	3	2	018			
2,00	4,0	10,0	22	50	8	3	2	021			
2,00	4,0	16,5	18	54	12	6	2	206	020		
2,00	6,0	12,5	47	75	8	3	2			020	
2,00	6,0	18,0	44	80	12	6	2			021	620
2,50	5,0	10,5	22	50	8	3	2	025			
2,50	5,0	16,0	18	54	12	6	2	026	027		
2,50	8,0	14,0	47	75	8	3	2			025	
2,50	8,0	18,5	44	80	12	6	2			026	625
3,00	6,0		22	50		3	2	031			
3,00	6,0	15,5	18	54	12	6	2	306	030		
3,00	10,0		47	75		3	2			030	
3,00	10,0	19,5	44	80	12	6	2			031	630
4,00	7,0	16,0	18	54	12	6	2	406	040		

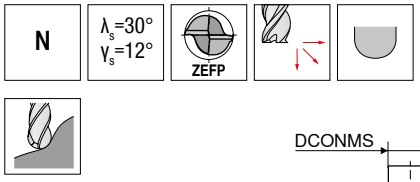
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials				

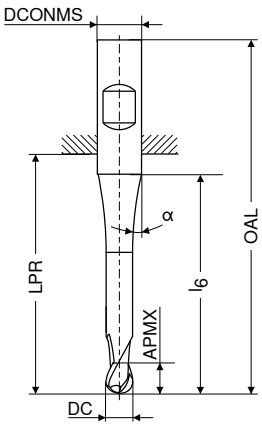
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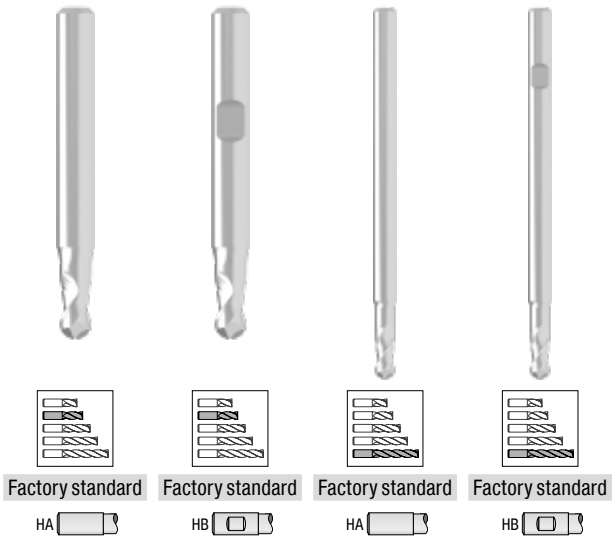
Continued on next page

Ball nosed cutter

▲ Radius accuracy: ±0.005 mm







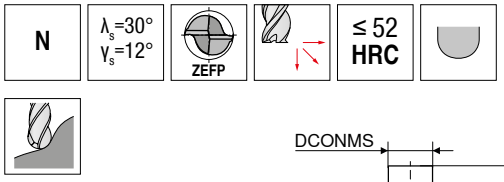
DC f8	APMX	l6	LPR	OAL	α° ±0,5	DCONMS h6	ZEFP	Article no. 52 250 ...		Article no. 52 250 ...		Article no. 52 251 ...		Article no. 52 251 ...	
mm	mm	mm	mm	mm		mm									
4,00	7,0		26	54		4	2	041							
4,00	13,0		47	75		4	2					040			
4,00	13,0	20,5	44	80	12	6	2					041		640	
5,00	8,0	13,0	18	54	12	6	2	506		050					
5,00	8,0		26	54		5	2	051							
5,00	14,0		47	75		5	2					050			
5,00	14,0	20,5	64	100	12	6	2					051		650	
6,00	10,0		18	54		6	2	061		060					
6,00	16,0		64	100		6	2					061		060	
8,00	12,0		23	59		8	2	081		080					
8,00	22,0		64	100		8	2					081		080	
10,00	13,0		27	67		10	2	101		100					
10,00	25,0		60	100		10	2					101		100	
12,00	16,0		28	73		12	2	121		120					
12,00	26,0		55	100		12	2					121		120	
14,00	16,0		30	75		14	2	141		140					
14,00	26,0		55	100		14	2					141		140	
16,00	20,0		35	83		16	2	161		160					
16,00	30,0		102	150		16	2					161		160	
20,00	25,0		43	93		20	2	201		200					
20,00	40,0		100	150		20	2					201		200	
								Factory standard	HA	Factory standard	HB	Factory standard	HA	Factory standard	HB
Steel								●		●		●		●	
Stainless steel								○		○		○		○	
Cast iron								●		●		●		●	
Non ferrous metals								○		○		○		○	
Heat resistant alloys								○		○		○		○	
hardened materials															

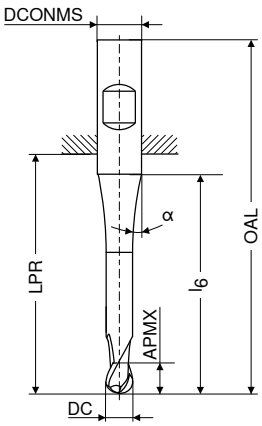
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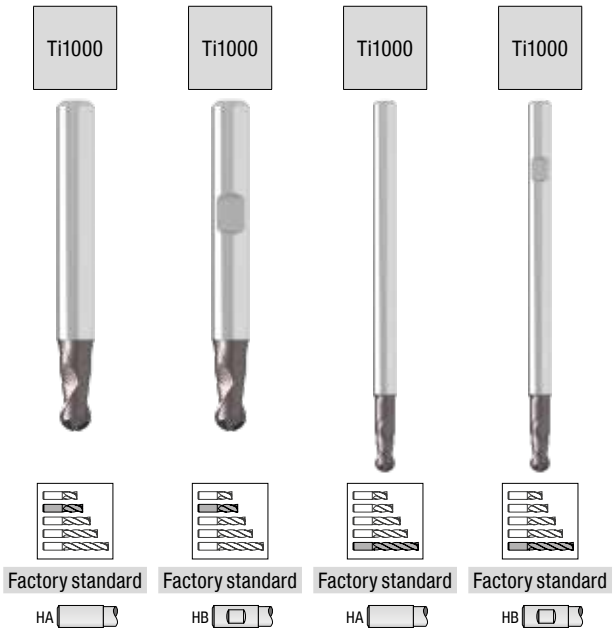
14

Ball nosed cutter

▲ Radius accuracy: ±0.005 mm







DC f8	APMX	l6	LPR	OAL	α° ±0,5°	DCONMS h6	ZEFP	Article no. 52 254 ...		Article no. 52 254 ...		Article no. 52 255 ...		Article no. 52 255 ...	
mm	mm	mm	mm	mm		mm									
0,10	0,2	12,5	10	38	8	3	2	910							
0,15	0,3	11,5	10	38	8	3	2	915							
0,20	0,4	12,0	10	38	8	3	2	920							
0,25	0,5	12,5	10	38	8	3	2	925							
0,30	1,0	11,0	10	38	8	3	2	930							
0,35	1,0	11,0	10	38	8	3	2	935							
0,40	1,0	11,0	10	38	8	3	2	940							
0,50	1,5	15,5	18	54	12	6	2	951							
0,50	1,5	16,0	44	80	12	6	2						006		
0,50	1,5	11,5	10	38	8	3	2	950							
0,50	1,5	11,5	47	75	8	3	2						005		
0,60	1,5	11,5	10	38	8	3	2	960							
0,70	2,0	11,5	10	38	8	3	2	970							
0,80	2,0	11,5	10	38	8	3	2	980							
0,90	2,5	12,0	10	38	8	3	2	990							
1,00	2,0	11,0	22	50	8	3	2	011							
1,00	2,0	16,0	18	54	12	6	2	106		010					
1,00	3,0	12,0	47	75	8	3	2						010		
1,00	3,0	17,5	44	80	12	6	2						011		610
1,10	3,0	13,0	22	50	8	3	2	911							
1,20	3,0	13,0	22	50	8	3	2	012							
1,40	3,0	13,0	22	50	8	3	2	014							
1,50	3,0	11,0	22	50	8	3	2	016							
1,50	3,0	16,5	18	54	12	6	2	156		015					
1,50	4,0	13,0	47	75	8	3	2						015		
1,50	4,0	16,5	44	80	12	6	2						016		615
1,60	4,0	10,5	22	50	8	3	2	916							
1,80	4,0	10,0	22	50	8	3	2	018							
2,00	4,0	16,5	18	54	12	6	2	206		020					
2,00	4,0	10,0	22	50	8	3	2	021							
2,00	6,0	12,5	47	75	8	3	2						020		
2,00	6,0	18,0	44	80	12	6	2						021		620
2,50	5,0	16,0	18	54	12	6	2	026		027					
2,50	5,0	10,5	22	50	8	3	2	025							
2,50	8,0	14,0	47	75	8	3	2						025		
2,50	8,0	18,5	44	80	12	6	2						026		625
3,00	6,0	15,5	18	54	12	6	2	306		030					
3,00	6,0		22	50		3	2	031							
3,00	10,0		47	75		3	2						030		
3,00	10,0	19,5	44	80	12	6	2						031		630

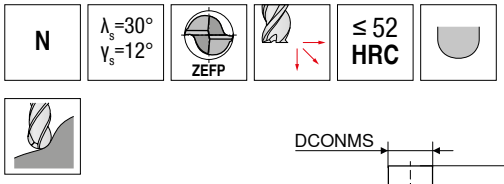
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

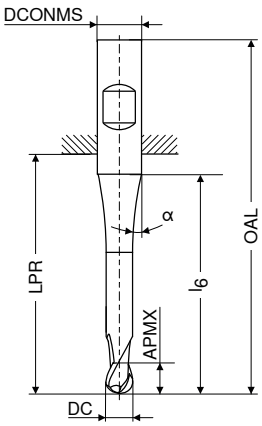
→ v_c/f_z Page 350–356

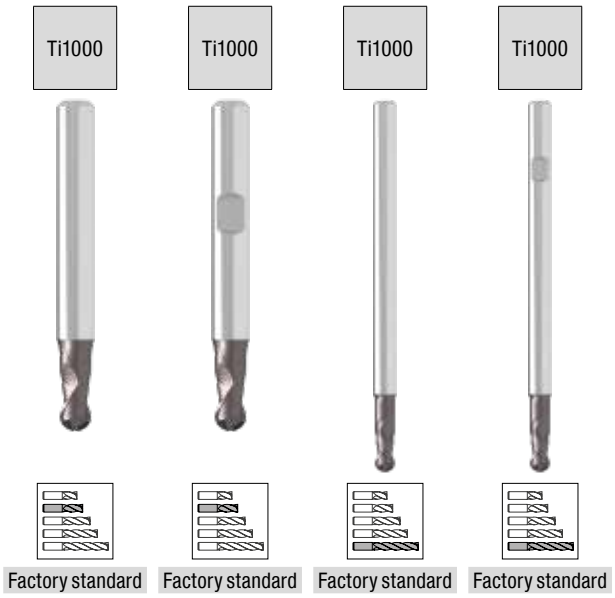
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Ball nosed cutter

▲ Radius accuracy: ±0.005 mm







Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

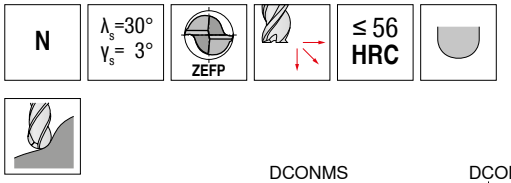
DC f8 mm	APMX mm	l6 mm	LPR mm	OAL mm	α° ±0,5°	DCONMS h6 mm	ZEFP	Article no. 52 254 ...		Article no. 52 254 ...		Article no. 52 255 ...		Article no. 52 255 ...	
4,00	7,0	13,0	18	54	12	6	2	406		040					
4,00	7,0		26	54		4	2	041							
4,00	13,0		47	75		4	2					040			
4,00	13,0	20,5	44	80	12	6	2					041		640	
5,00	8,0	13,0	18	54	12	6	2	506		050					
5,00	8,0		26	54		5	2	051							
5,00	14,0		47	75		5	2					050			
5,00	14,0	20,5	64	100	12	6	2					051		650	
6,00	10,0		18	54		6	2	061		060					
6,00	16,0		64	100		6	2					061		060	
8,00	12,0		23	59		8	2	081		080					
8,00	22,0		64	100		8	2					081		080	
10,00	13,0		27	67		10	2	101		100					
10,00	25,0		60	100		10	2					101		100	
12,00	16,0		28	73		12	2	121		120					
12,00	26,0		55	100		12	2					121		120	
14,00	16,0		30	75		14	2	141		140					
14,00	26,0		55	100		14	2					141		140	
16,00	20,0		35	83		16	2	161		160					
16,00	30,0		102	150		16	2					161		160	
18,00	22,0		43	93		18	2	181		180					
20,00	25,0		43	93		20	2	201		200					
20,00	40,0		100	150		20	2					201		200	

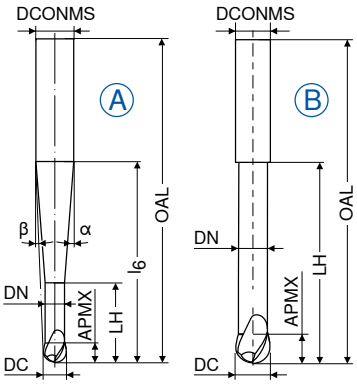
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

→ v_c/f_z Page 350–356

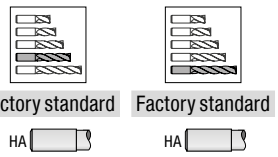
Ball nosed cutter

- Radius accuracy: ± 0.005 mm
- For Ø DC ≤ 5.0 mm, angle tolerance α and β: ±0.5°









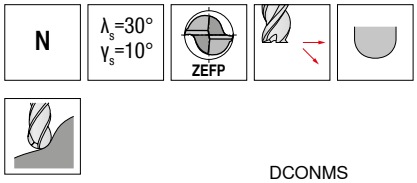
DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	Article no. 52 714 ...	Article no. 52 717 ...
0,5	1,0	0,45	2,0	20	57	10,0	8,5	6	2	A	**005**	
1,0	2,0	0,95	4,0	20	57	10,0	8,0	6	2	A	**010**	
1,0	2,0	0,95	4,0	40	80	4,5	4,0	6	2	A		**010**
1,5	2,5	1,40	7,5	20	57	12,5	7,0	6	2	A	**015**	
1,5	2,5	1,40	7,5	40	80	4,5	3,5	6	2	A		**015**
2,0	3,0	1,80	8,0	20	57	12,0	6,5	6	2	A	**020**	
2,0	3,0	1,80	8,0	40	80	4,0	3,0	6	2	A		**020**
3,0	3,5	2,80	10,0	20	57	11,5	5,0	6	2	A	**030**	
3,0	3,5	2,80	12,0	40	80	3,5	2,5	6	2	A		**030**
4,0	4,0	3,80	12,0	20	57	11,0	3,5	6	2	A	**040**	
4,0	4,0	3,80	20,0	40	80	4,0	1,5	6	2	A		**040**
5,0	5,0	4,70	14,0	20	57	10,0	2,0	6	2	A	**050**	
5,0	5,0	4,70	25,0	40	80	3,0	1,0	6	2	A		**050**
6,0	6,0	5,60	20,0		57			6	2	B	**060**	
6,0	6,0	5,60	40,0		80			6	2	B		**060**
6,0	6,0	5,60	25,0	60	100	2,0	1,0	8	2	A		**061**
8,0	7,0	7,60	25,0		63			8	2	B	**080**	
8,0	7,0	7,60	60,0		100			8	2	B		**080**
8,0	7,0	7,60	30,0	75	120	2,0	1,0	10	2	A		**081**
10,0	8,0	9,60	30,0		72			10	2	B	**100**	
10,0	8,0	9,60	50,0		100			10	2	B		**102**
10,0	8,0	9,60	75,0		120			10	2	B		**100**
10,0	8,0	9,60	40,0	110	160	1,0	1,0	12	2	A		**101**
12,0	10,0	11,50	35,0		83			12	2	B	**120**	
12,0	10,0	11,50	35,0	40	92	35,0	3,5	16	2	A	**121**	
12,0	10,0	11,50	70,0		120			12	2	B		**122**
12,0	10,0	11,50	70,0		160			12	2	B		**120**
12,0	10,0	11,50	50,0	150	200	1,5	1,0	16	2	A		**121**
16,0	12,0	15,50	40,0		92			16	2	B	**160**	
16,0	12,0	15,50	80,0		200			16	2	B		**160**

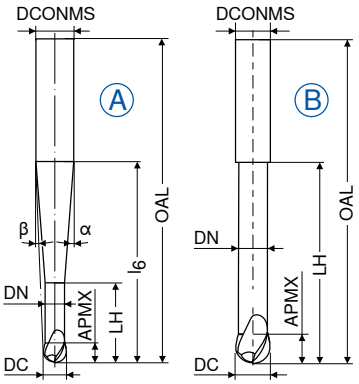
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

→ v_c/f_z Page 350–356

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ±0.5 °









Factory standard

HA 

DC e8 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h6 mm	ZEFP	Fig.	Article no. 52 320 ...
2	3	1,8	8	40	100	3,6	3,0	6	2	A	**020**
3	4	2,8	12	40	100	3,1	2,1	6	2	A	**030**
4	5	3,8	16	40	100	2,4	1,2	6	2	A	**040**
5	6	4,7	20	40	100	1,4	0,7	6	2	A	**050**
6	6	5,7	25	50	100	2,3	1,2	8	2	A	**061**
6	6	5,7	25		100			6	2	B	**060**
8	7	7,7	32		100			8	2	B	**080**
8	7	7,7	32	60	120	2,0	1,0	10	2	A	**081**
10	9	9,6	40		120			10	2	B	**100**
10	9	9,6	40	81	160	1,4	0,7	12	2	A	**101**
12	11	11,6	50		160			12	2	B	**120**
12	11	11,6	50	101	200	2,3	1,2	16	2	A	**121**
16	14	15,6	60		200			16	2	B	**160**

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

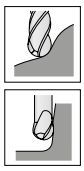
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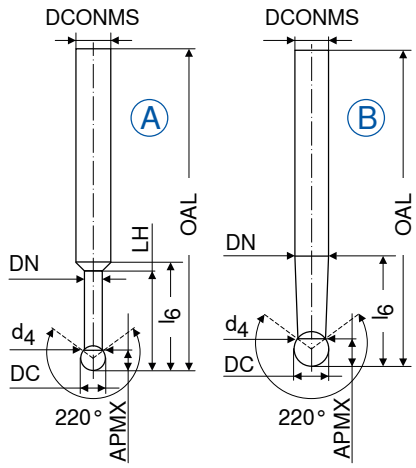
14

Ball nosed cutter 220°

▲ Radius accuracy: ±0.005 mm













Factory standard



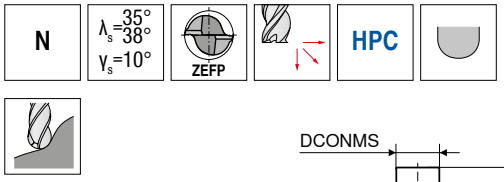
DC f8 mm	APMX mm	DN mm	d4 mm	LH mm	l6 mm	OAL mm	DCONMS h6 mm	ZEFP	Fig.	Article no. 52 323 ...
1,0	0,7	0,85	0,8	5	17	58	6	2	A	**010**
1,5	1,2	1,25	1,2	8	20	58	6	2	A	**015**
2,0	1,5	1,70	1,4	10	21	58	6	2	A	**020**
3,0	2,3	2,70	2,4	15	22	65	6	2	A	**030**
4,0	3,0	3,70	3,4	20	25	70	6	2	A	**040**
5,0	3,5	4,70	4,3	25	28	80	6	2	A	**050**
6,0	4,0	5,90	4,3		30	100	6	2	B	**060**
8,0	5,4	7,90	6,2		40	100	8	2	B	**080**
10,0	6,7	9,90	7,6		50	100	10	2	B	**100**
12,0	9,0	11,90	9,2		110	160	12	2	B	**121**
12,0	9,0	11,90	9,2		70	120	12	2	B	**120**

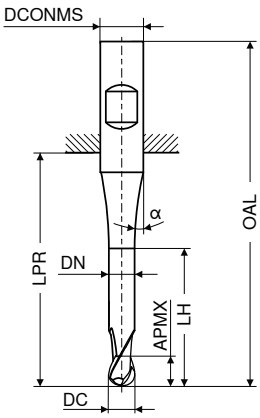
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 350–356

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm













≈DIN 6527 HB

≈DIN 6527 HB

DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	α°	ZEFP	Article no. 54 055 ...	Article no. 54 056 ...
3	5			14	50	6	15	2	**030**	
3	8	2,8	12	21	57	6	15	2		**030**
4	8			18	54	6	15	2	**040**	
4	11	3,8	15	21	57	6	15	2		**040**
5	9			18	54	6	15	2	**050**	
5	13	4,8	17	21	57	6	15	2		**050**
6	10			18	54	6	30	2	**060**	
6	13	5,8	21	21	57	6	30	2		**060**
8	12			22	58	8	30	2	**080**	
8	19	7,7	27	27	63	8	30	2		**080**
10	14			26	66	10	30	2	**100**	
10	22	9,7	32	32	72	10	30	2		**100**
12	16			28	73	12	30	2	**120**	
12	26	11,6	38	38	83	12	30	2		**120**
16	22			34	82	16	30	2	**160**	
16	32	15,5	44	44	92	16	30	2		**160**
20	26			42	92	20	30	2	**200**	
20	38	19,5	54	54	104	20	30	2		**200**

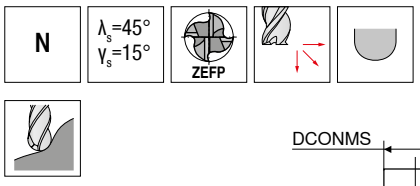
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials		

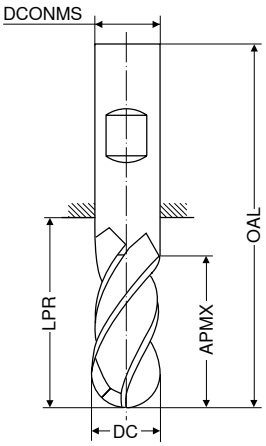
→ v_c/f_z Page 350–356

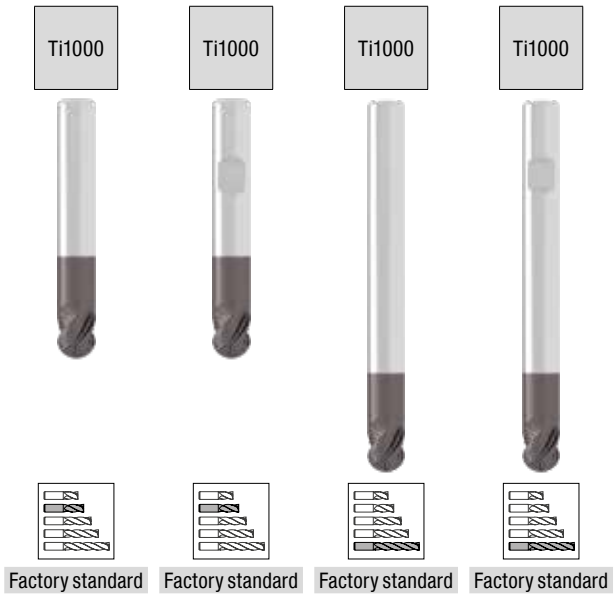
14

Ball nosed cutter

▲ Radius accuracy: ±0.005 mm







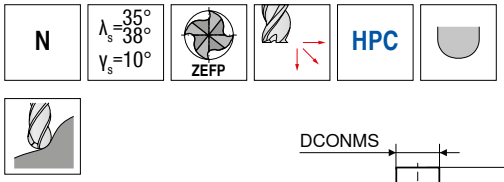
DC f8	APMX	LPR	OAL	DCONMS h6	ZEFP	Article no. 52 400 ...	Article no. 52 401 ...	Article no. 52 402 ...	Article no. 52 403 ...
mm	mm	mm	mm	mm					
3	5	22	50	3	4	030			
3	5	47	75	3	4			030	
4	8	26	54	4	4	040			
4	8	47	75	4	4			040	
5	9	26	54	5	4	050			
5	9	47	75	5	4			050	
6	10	18	54	6	4	060	060		
6	10	64	100	6	4			060	060
8	12	23	59	8	4	080	080		
8	12	64	100	8	4			080	080
10	14	27	67	10	4	100	100		
10	14	60	100	10	4			100	100
12	16	29	74	12	4	120	120		
12	16	55	100	12	4			120	120
14	18	30	75	14	4	140	140		
14	18	55	100	14	4			140	140
16	22	35	83	16	4	160	160		
16	22	102	150	16	4			160	160
20	26	43	93	20	4	200	200		
20	26	100	150	20	4			200	200

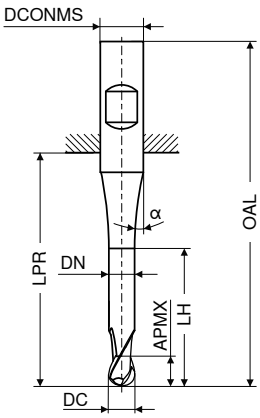
Steel	○	○	○	○
Stainless steel	●	●	●	●
Cast iron	○	○	○	○
Non ferrous metals	●	●	●	●
Heat resistant alloys	●	●	●	●
hardened materials	○	○	○	○

→ v_c/f_z Page 350–356

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm













≈DIN 6527 HB

≈DIN 6527 HB

DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	α°	ZEFP	Article no. 54 057 ...	Article no. 54 058 ...
3	5			14	50	6	15	4	030	
3	8	2,8	12	21	57	6	15	4		030
4	8			18	54	6	15	4	040	
4	11	3,8	15	21	57	6	15	4		040
5	9			18	54	6	15	4	050	
5	13	4,8	17	21	57	6	15	4		050
6	10			18	54	6	30	4	060	
6	13	5,8	21	21	57	6	30	4		060
8	12			22	58	8	30	4	080	
8	19	7,7	27	27	63	8	30	4		080
10	14			26	66	10	30	4	100	
10	22	9,7	32	32	72	10	30	4		100
12	16			28	73	12	30	4	120	
12	26	11,6	38	38	83	12	30	4		120
16	22			34	82	16	30	4	160	
16	32	15,5	44	44	92	16	30	4		160
20	26			42	92	20	30	4	200	
20	38	19,5	54	54	104	20	30	4		200

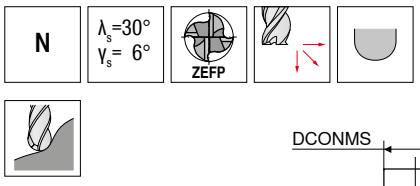
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials		

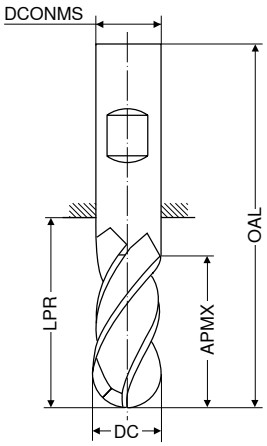
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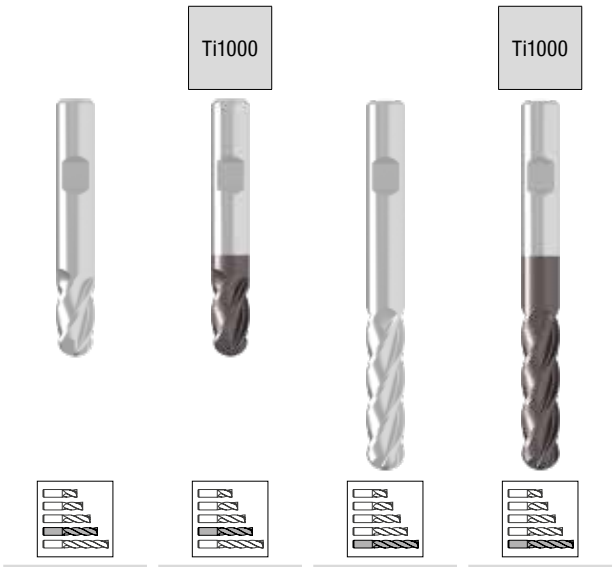
14

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm







DC f8	APMX	LPR	OAL	DCONMS h5	ZEFP	DIN 6527 HB	DIN 6527 HB	Factory standard HB	DIN 6527 HB
mm	mm	mm	mm	mm		Article no. 50 642 ...	Article no. 50 643 ...	Article no. 50 642 ...	Article no. 50 643 ...
3	8	21	57	6	4	030	030		
4	11	21	57	6	4	040	040		
6	13	21	57	6	4	060	060		
6	40	64	100	6	4			061	061
8	19	27	63	8	4	080	080		
8	40	64	100	8	4			081	081
10	22	32	72	10	4	100	100		
10	40	60	100	10	4			101	101
12	26	38	83	12	4	120	120		
12	45	55	100	12	4			121	121
12	75	105	150	12	4			122	122
14	26	38	83	14	4	140	140		
14	45	55	100	14	4			141	141
16	32	44	92	16	4	160	160		
16	75	102	150	16	4			161	161
20	38	54	104	20	4	200	200		
20	75	100	150	20	4			201	201

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials		○		○

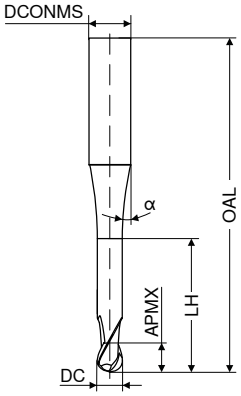
→ v_c/f_z Page 350–356

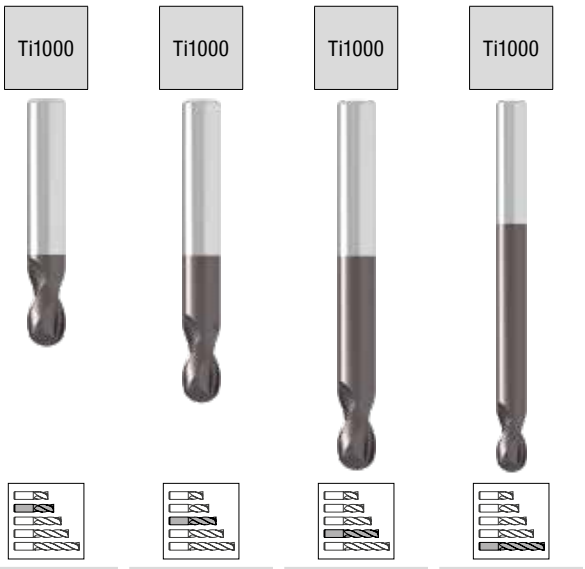
Ball nosed cutter

▲ Radius accuracy: ±0.01 mm

H | λ_s=30° γ_s= 4° | ZEFP | ≤ 68 HRC







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA

DC mm	Tol.	APMX mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	ZEFP	Article no. 50 906 ...		Article no. 50 906 ...		Article no. 50 906 ...		Article no. 50 906 ...	
0,20	0/-0,015	0,3	0,6	40	15	4	2		**002**						
0,25	0/-0,015	0,3	0,6	40	15	4	2		**925**						
0,30	0/-0,015	0,3	0,6	40	15	4	2		**003**						
0,35	0/-0,015	0,4	0,7	40	15	4	2		**935**						
0,40	0/-0,015	0,4	0,7	40	15	4	2		**004**						
0,50	0/-0,015	0,5	0,8	40	15	4	2		**005**						
0,50	0/-0,015	0,5	0,8	54	15	6	2		**951**						
0,60	0/-0,015	0,6	0,9	40	15	4	2		**006**						
0,70	0/-0,015	0,8	1,1	40	15	4	2		**007**						
0,80	0/-0,015	0,8	1,1	40	15	4	2		**008**						
0,90	0/-0,015	0,9	1,2	40	15	4	2		**009**						
1,00	0/-0,015	1,0	1,3	54		4	2					**010**			
1,00	0/-0,015	1,0	1,3	54	15	6	2		**011**						
1,00	0/-0,015	1,0	1,3	64		6	2					**012**			
1,00	0/-0,015	1,0	1,3	80		6	2							**013**	
1,00	0/-0,015	1,0	1,3	100		6	2							**014**	
1,20	0/-0,015	1,2	1,5	54		4	2					**112**			
1,40	0/-0,015	1,4	1,8	54		4	2					**114**			
1,50	0/-0,015	1,5	1,9	54		4	2					**115**			
1,50	0/-0,015	1,5	1,9	54	15	6	2		**215**						
1,50	0/-0,015	1,5	1,9	80		6	2							**315**	
1,60	0/-0,015	1,8	2,3	54		4	2					**116**			
1,80	0/-0,015	1,8	2,3	54		4	2					**118**			
2,00	0/-0,015	2,0	2,5	54		4	2					**206**			
2,00	0/-0,015	4,0	5,0	54		6	2					**202**			
2,00	0/-0,015	4,0	5,0	64		6	2					**207**			
2,00	0/-0,015	4,0	5,0	82		6	2							**204**	
2,00	0/-0,015	4,0	5,0	100		6	2							**205**	
2,50	0/-0,02	5,0	6,6	54		4	2					**251**			
2,50	0/-0,02	5,0	6,3	54	15	6	2		**252**						
2,50	0/-0,02	5,0	6,3	64		6	2					**253**			
2,50	0/-0,02	5,0	6,3	82		6	2							**254**	
2,50	0/-0,02	5,0	6,3	100		6	2							**255**	
3,00	0/-0,02	5,0	6,3	54		4	2					**030**			
3,00	0/-0,02	5,0	6,3	82		4	2							**032**	
3,00	0/-0,02	5,0	6,3	100		4	2							**033**	
3,00	0/-0,02	5,0	6,3	54	15	6	2		**035**						
3,00	0/-0,02	5,0	6,3	64		6	2					**036**			
3,00	0/-0,02	5,0	6,3	82		6	2							**037**	
3,00	0/-0,02	8,0	10,0	100		6	2							**038**	
4,00	0/-0,02	8,0		54	15	4	2					**040**			
4,00	0/-0,02	8,0		82	15	4	2							**042**	
4,00	0/-0,02	8,0		100	15	4	2							**043**	
4,00	0/-0,02	8,0	10,0	54	15	6	2		**045**						

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

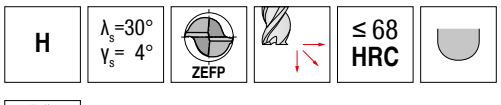
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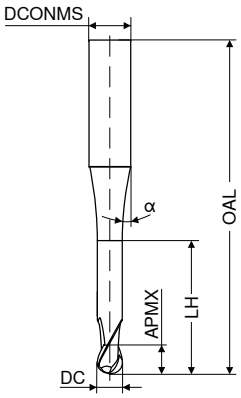
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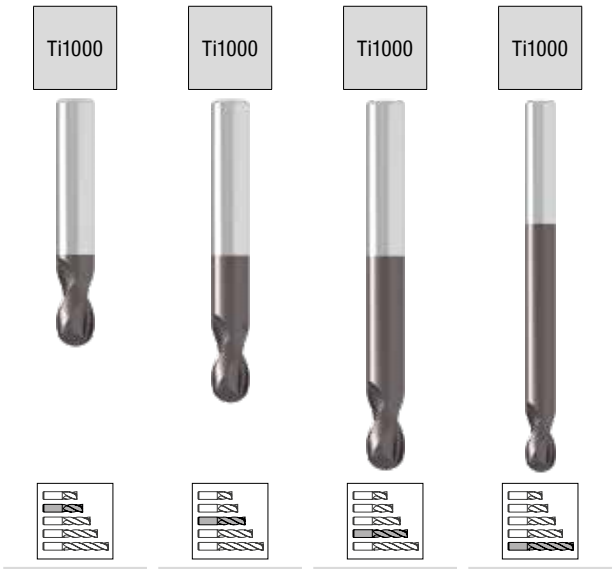
Ball nosed cutter

▲ Radius accuracy: ±0.01 mm









Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA

DC mm	Tol.	APMX mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	ZEFP	Article no. 50 906 ...	Article no. 50 906 ...	Article no. 50 906 ...	Article no. 50 906 ...
4,00	0/-0,02	8,0	10,0	64		6	2			046	
4,00	0/-0,02	8,0	10,0	82		6	2				047
4,00	0/-0,02	8,0	10,0	100		6	2				048
5,00	0/-0,02	9,0		54	15	5	2			050	
5,00	0/-0,02	9,0		64	15	5	2			051	
5,00	0/-0,02	9,0		82	15	5	2				052
5,00	0/-0,02	9,0		100	15	5	2				053
5,00	0/-0,02	9,0	11,3	54	15	6	2	055			
5,00	0/-0,02	9,0	11,3	64		6	2			056	
5,00	0/-0,02	9,0	11,3	82		6	2				057
5,00	0/-0,02	9,0	11,3	100		6	2				058
6,00	0/-0,02	10,0		54	15	6	2	060			
6,00	0/-0,02	10,0		64	15	6	2			061	
6,00	0/-0,02	10,0		82	15	6	2				062
6,00	0/-0,02	10,0		100	15	6	2				063
6,00	0/-0,02	10,0		120	15	6	2				064
8,00	0/-0,025	12,0		64	15	8	2			081	
8,00	0/-0,025	12,0		82	15	8	2		082		
8,00	0/-0,025	12,0		100	15	8	2				083
8,00	0/-0,025	12,0		120	15	8	2				084
10,00	0/-0,025	14,0		67	15	10	2	101			
10,00	0/-0,025	14,0		82	15	10	2		102		
10,00	0/-0,025	14,0		100	15	10	2				103
10,00	0/-0,025	14,0		127	15	10	2				104
12,00	0/-0,025	16,0		75	15	12	2	121			
12,00	0/-0,025	16,0		100	15	12	2		122		
12,00	0/-0,025	16,0		150	15	12	2				123
14,00	0/-0,025	18,0		80	15	14	2	141			
14,00	0/-0,025	18,0		100	15	14	2		142		
14,00	0/-0,025	18,0		150	15	14	2				143
16,00	0/-0,025	22,0		85	15	16	2	161			
16,00	0/-0,025	22,0		150	15	16	2				163
20,00	0/-0,025	26,0		90	15	20	2	201			
20,00	0/-0,025	26,0		150	15	20	2				203

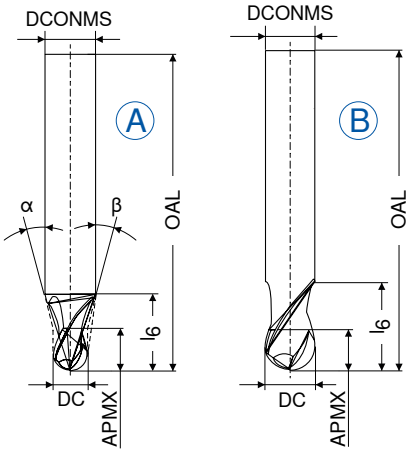
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

→ v_c/f_z Page 350–356

Ball nosed cutter

▲ Radius accuracy: ±0.005 mm

H | λ_s=30° γ_s=−3° | ZEFP | 45–66 HRC | Ti1000





Factory standard

HA

DC ±0,01 mm	APMX mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	Article no. 52 741 ...
2	1,5	3,3	38	15	9	3	2	A	**020**
3	2,0	7,5	57	15	12	6	2	A	**030**
4	2,5	6,0	57	15	9	6	2	A	**040**
5	3,0	5,0	57	15	6	6	2	A	**050**
6	3,5		57	15		6	2	B	**060**
8	4,5		63	15		8	2	B	**080**
10	5,5		72	15		10	2	B	**100**
12	6,5		83	15		12	2	B	**120**

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

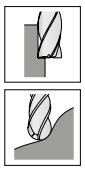
→ v_c/f_z Page 350–356

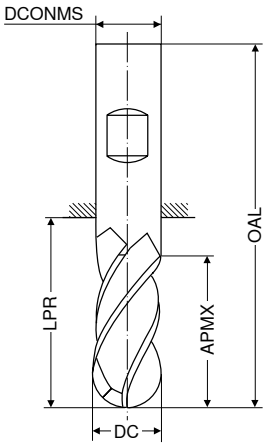
14

Ball nose cutter for rough milling

▲ Radius accuracy: ±0.01 mm













DIN 6527

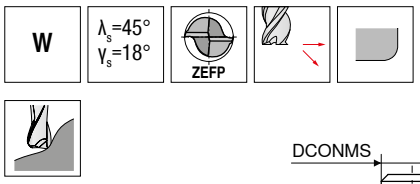
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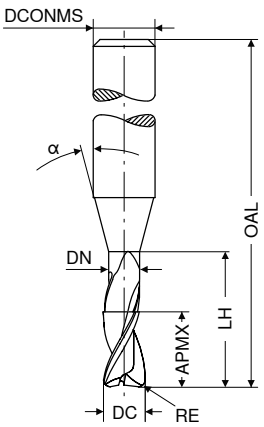
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	Article no. 50 641 ...
6	13	21	57	6	4	**060**
8	19	27	63	8	4	**080**
10	22	32	72	10	4	**100**
12	26	38	83	12	4	**120**
14	26	38	83	14	4	**140**
16	32	44	92	16	4	**160**
18	32	44	92	18	4	**180**
20	38	54	104	20	4	**200**

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 350–356

Torus cutter









Factory standard
HA

Factory standard
HA

DC f8	RE ±0,01	APMX	DN	LH	OAL	α°	DCONMS h5	ZEFP	Article no. 50 901 ...	Article no. 50 901 ...
mm	mm	mm	mm	mm	mm		mm			
0,2	0,02	0,2	0,18	0,6	55	15	3	2	021	
0,2	0,02	0,2	0,18	1,0	55	15	3	2	022	
0,2	0,02	0,2	0,18	1,6	55	15	3	2	023	
0,2	0,02	0,2	0,18	2,0	55	15	3	2	024	
0,3	0,03	0,3	0,28	0,9	55	15	3	2	031	
0,3	0,03	0,3	0,28	1,5	55	15	3	2	032	
0,3	0,03	0,3	0,28	2,4	55	15	3	2	033	
0,3	0,03	0,3	0,28	3,0	55	15	3	2	034	
0,4	0,04	0,4	0,37	1,2	55	15	3	2	041	
0,4	0,04	0,4	0,37	2,0	55	15	3	2	042	
0,4	0,04	0,4	0,37	3,2	55	15	3	2	043	
0,4	0,04	0,4	0,37	4,0	55	15	3	2	044	
0,5	0,05	0,5	0,45	1,5	55	15	3	2	051	
0,5	0,05	0,5	0,45	2,5	55	15	3	2	052	
0,5	0,05	0,5	0,45	4,0	55	15	3	2	053	
0,5	0,05	0,5	0,45	5,0	55	15	3	2	054	
0,6	0,06	0,6	0,58	2,0	55	15	3	2	061	
0,6	0,06	0,6	0,58	3,0	55	15	3	2	062	
0,6	0,06	0,6	0,58	4,2	55	15	3	2	063	
0,6	0,06	0,6	0,58	5,0	65	15	3	2		064
0,6	0,06	0,6	0,58	6,0	65	15	3	2		065
0,8	0,08	0,8	0,77	2,5	55	15	3	2	081	
0,8	0,08	0,8	0,77	4,0	55	15	3	2	082	
0,8	0,08	0,8	0,77	6,5	65	15	3	2		083
0,8	0,08	0,8	0,77	8,0	65	15	3	2		084
1,0	0,10	1,0	0,95	3,0	55	15	3	2	101	
1,0	0,10	1,0	0,95	5,0	55	15	3	2	102	
1,0	0,10	1,0	0,95	8,0	65	15	3	2		103
1,0	0,10	1,0	0,95	10,0	65	15	3	2		104
1,0	0,10	1,0	0,95	12,0	65	15	3	2		105
1,2	0,12	1,2	1,15	3,0	55	15	3	2	121	
1,2	0,12	1,2	1,15	6,0	55	15	3	2	122	
1,2	0,12	1,2	1,15	10,0	65	15	3	2		123
1,2	0,12	1,2	1,15	12,0	65	15	3	2		124
1,3	0,13	1,3	1,25	4,0	55	15	3	2	131	
1,3	0,13	1,3	1,25	7,0	55	15	3	2	132	
1,3	0,13	1,3	1,25	11,0	65	15	3	2		133
1,3	0,13	1,3	1,25	13,0	65	15	3	2		134
1,5	0,15	1,5	1,44	5,0	55	15	3	2	151	
1,5	0,15	1,5	1,44	7,5	55	15	3	2	152	
1,5	0,15	1,5	1,44	12,0	65	15	3	2		153
1,5	0,15	1,5	1,44	15,0	65	15	3	2		154
1,6	0,16	1,6	1,52	5,0	55	15	3	2	161	
1,6	0,16	1,6	1,52	8,0	55	15	3	2	162	
1,6	0,16	1,6	1,52	13,0	65	15	3	2		163

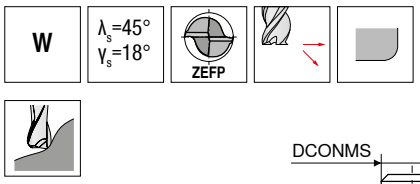
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

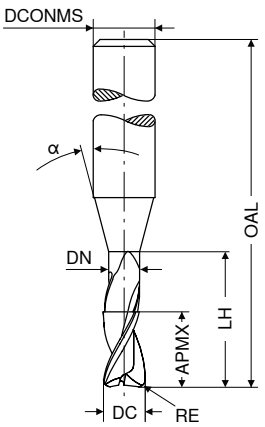
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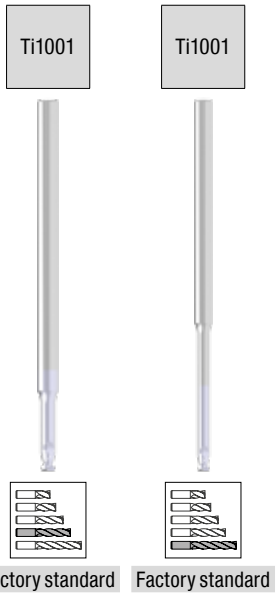
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Torus cutter





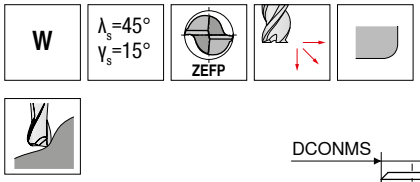


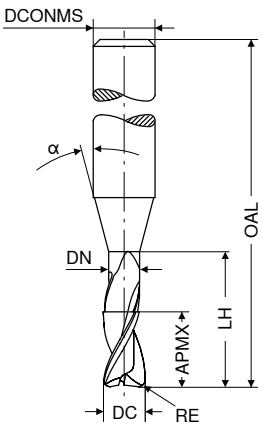
DC f8	RE ±0,01	APMX	DN	LH	OAL	α°	DCONMS h5	ZEFP	Article no. 50 901 ...	Article no. 50 901 ...
mm	mm	mm	mm	mm	mm		mm			
1,6	0,16	1,6	1,52	16,0	65	15	3	2		164
1,8	0,18	1,8	1,72	5,5	55	15	3	2	181	
1,8	0,18	1,8	1,72	9,0	55	15	3	2	182	
1,8	0,18	1,8	1,72	14,5	65	15	3	2		183
1,8	0,18	1,8	1,72	18,0	65	15	3	2		184
2,0	0,20	2,0	1,92	6,0	55	15	3	2	201	
2,0	0,20	2,0	1,92	10,0	55	15	3	2	202	
2,0	0,20	2,0	1,92	14,0	55	15	3	2	203	
2,0	0,20	2,0	1,92	16,0	65	15	3	2		204
2,0	0,20	2,0	1,92	20,0	65	15	3	2		205
2,3	0,23	2,3	2,22	7,0	55	15	3	2	231	
2,3	0,23	2,3	2,22	11,5	55	15	3	2	232	
2,3	0,23	2,3	2,22	14,0	55	15	3	2	233	
2,3	0,23	2,3	2,22	18,5	65	15	3	2		234
2,3	0,23	2,3	2,22	20,0	65	15	3	2		235
2,3	0,23	2,3	2,22	23,0	65	15	3	2		236
3,0	0,30	3,0	2,90	9,0	65	15	6	2	301	
3,0	0,30	3,0	2,90	15,0	65	15	6	2	302	
3,0	0,30	3,0	2,90	24,0	100	15	6	2		303
3,0	0,30	3,0	2,90	30,0	100	15	6	2		304
4,0	0,40	4,0	3,90	12,0	65	15	6	2	401	
4,0	0,40	4,0	3,90	20,0	65	15	6	2	402	
4,0	0,40	4,0	3,90	32,0	100	15	6	2		403
4,0	0,40	4,0	3,90	40,0	100	15	6	2		404
5,0	0,50	5,0	4,90	15,0	65	15	6	2	501	
5,0	0,50	5,0	4,90	25,0	65	15	6	2	502	
5,0	0,50	5,0	4,90	40,0	100	15	6	2		503
5,0	0,50	5,0	4,90	50,0	100	15	6	2		504
6,0	0,60	6,0	5,90	18,0	65	15	6	2	601	
6,0	0,60	6,0	5,90	30,0	100	15	6	2		602
6,0	0,60	6,0	5,90	48,0	100	15	6	2		603
6,0	0,60	6,0	5,90	60,0	100	15	6	2		604

Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

→ v_c/f_z Page 350–356

Torus cutter







DC f8	RE ±0,01	APMX	DN	LH	OAL	α°	DCONMS h5	ZEFP	Article no. 50 902 ...					
mm	mm	mm	mm	mm	mm		mm							
2	0,3	2	1,8	12	50	45	6	2	020					
2	0,5	2	1,8	12	50	45	6	2	023					
2	0,3	2	1,8	22	60	45	6	2			021			
2	0,5	2	1,8	22	60	45	6	2			024			
2	0,3	2	1,8	47	85	45	6	2						022
2	0,5	2	1,8	47	85	45	6	2						025
3	0,3	2	2,8	12	50	45	6	2	030					
3	0,5	2	2,8	12	50	45	6	2	033					
3	0,3	2	2,8	22	60	45	6	2			031			
3	0,5	2	2,8	22	60	45	6	2			034			
3	0,3	2	2,8	47	85	45	6	2						032
3	0,5	2	2,8	47	85	45	6	2						035
4	0,3	3	3,8	16	54	45	6	2	040					
4	0,5	3	3,8	16	54	45	6	2	043					
4	1,0	3	3,8	16	54	45	6	2	046					
4	0,3	3	3,8	37	75	45	6	2			041			
4	0,5	3	3,8	37	75	45	6	2			044			
4	1,0	3	3,8	37	75	45	6	2			047			
4	0,3	3	3,8	47	85	45	6	2						042
4	0,5	3	3,8	47	85	45	6	2						045
4	1,0	3	3,8	47	85	45	6	2						048
5	0,5	3	4,6	16	54	45	6	2	050					
5	1,0	3	4,6	16	54	45	6	2	052					
5	1,5	3	4,6	16	54	45	6	2	054					
5	0,5	3	4,6	37	75	45	6	2			051			
5	1,0	2	4,6	37	75	45	6	2			053			
5	1,5	3	4,6	37	75	45	6	2			055			
6	0,5	4	5,6	16	54	45	6	2	060					
6	1,0	4	5,6	16	54	45	6	2	063					
6	2,0	4	5,6	16	54	45	6	2	066					
6	0,5	4	5,6	47	85	45	6	2			061			
6	1,0	4	5,6	47	85	45	6	2			064			
6	2,0	4	5,6	47	85	45	6	2			067			
6	0,5	4	5,6	47	85	45	8	2			069			
6	1,0	4	5,6	47	85	45	8	2			070			
6	2,0	4	5,6	47	85	45	8	2			071			
6	0,5	4	5,6	62	100	45	6	2						062
6	1,0	4	5,6	62	100	45	6	2						065
6	2,0	4	5,6	62	100	45	6	2						068
8	0,5	4	7,6	20	58	45	8	2	080					
8	1,0	4	7,6	20	58	45	8	2	082					

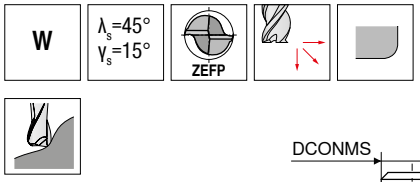
Steel			
Stainless steel			
Cast iron			
Non ferrous metals	●	●	●
Heat resistant alloys			
hardened materials			

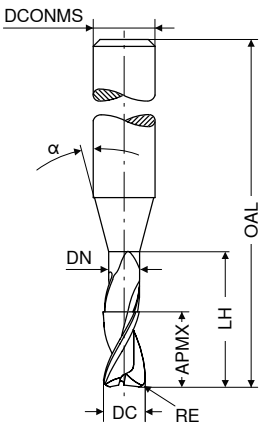
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Continued on next page

Torus cutter







DC f8	RE ±0,01	APMX	DN	LH	OAL	α°	DCONMS h5	ZEFP	Article no. 50 902 ...					
mm	mm	mm	mm	mm	mm		mm							
8	2,0	4	7,6	20	58	45	8	2	084					
8	0,5	4	7,6	62	100	45	8	2						081
8	1,0	4	7,6	62	100	45	8	2						083
8	2,0	4	7,6	62	100	45	8	2						085
8	2,0	4	7,6	62	100	45	10	2						086
10	1,0	6	9,6	18	66	45	10	2	100					
10	2,0	6	9,6	18	66	45	10	2	103					
10	3,0	6	9,6	18	66	45	10	2	106					
10	1,0	6	9,6	58	100	45	10	2			101			
10	2,0	6	9,6	58	100	45	10	2			104			
10	3,0	6	9,6	58	100	45	10	2			107			
10	1,0	6	9,6	78	120	45	10	2						102
10	2,0	6	9,6	78	120	45	10	2						105
10	3,0	6	9,6	78	120	45	10	2						108
10	1,0	6	9,6	78	120	45	12	2						109
10	2,0	6	9,6	78	120	45	12	2						110
10	3,0	6	9,6	78	120	45	12	2						111
12	1,0	8	11,5	26	73	45	12	2	120					
12	2,0	8	11,5	26	73	45	12	2	123					
12	3,0	8	11,5	26	73	45	12	2	126					
12	4,0	8	11,5	26	73	45	12	2	129					
12	1,0	8	11,5	53	100	45	12	2			121			
12	2,0	8	11,5	53	100	45	12	2			124			
12	3,0	8	11,5	53	100	45	12	2			127			
12	4,0	8	11,5	53	100	45	12	2			130			
12	1,0	8	11,5	73	120	45	12	2						122
12	2,0	8	11,5	73	120	45	12	2						125
12	3,0	8	11,5	73	120	45	12	2						128
12	4,0	8	11,5	73	120	45	12	2						131
12	1,0	8	11,5	103	150	45	16	2						132
12	2,0	8	11,5	103	150	45	16	2						133
12	3,0	8	11,5	103	150	45	16	2						134
12	4,0	8	11,5	103	150	45	16	2						135

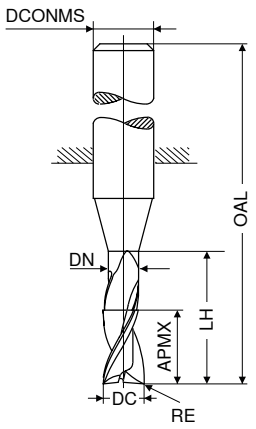
Steel			
Stainless steel			
Cast iron			
Non ferrous metals	●	●	●
Heat resistant alloys			
hardened materials			

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Torus cutter













Factory standard

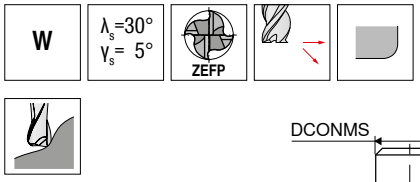
HA

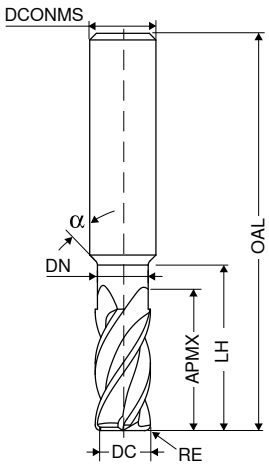
DC h10	RE	APMX	DN	LH	OAL	DCONMS h6	ZEFP	Article no. 52 765 ...
mm	mm	mm	mm	mm	mm	mm		
2	0,3	8	1,8	31	60	2	2	021
3	0,5	12	2,8	41	70	3	2	032
4	0,5	15	3,8	51	80	4	2	042
5	0,5	20	4,8	71	100	5	2	052
6	0,8	20	5,8	63	100	6	2	063
8	1,0	20	7,8	83	120	8	2	084
10	1,0	25	9,8	99	140	10	2	104
12	1,5	25	11,8	104	150	12	2	125

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

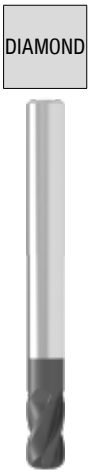
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Torus cutter













Factory standard

Factory standard





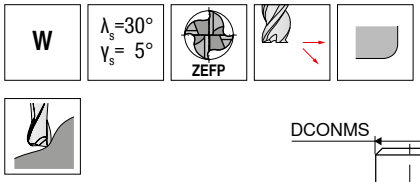
DC f8	RE ±0,01	APMX	DN	LH	OAL	α°	DCONMS h5	ZEFP	Article no. 50 911 ...	Article no. 50 911 ...
mm	mm	mm	mm	mm	mm		mm			
4	0,5	8	3,8	12	54	45	6	4	040	
4	1,0	8	3,8	12	54	45	6	4	041	
4	0,5	10	3,8	37	75	45	6	4		042
4	1,0	10	3,8	37	75	45	6	4		043
5	0,5	9	4,8	16	54	45	6	4	050	
5	1,0	9	4,8	16	54	45	6	4	051	
5	1,5	9	4,8	16	54	45	6	4	052	
5	0,5	12	4,8	37	75	45	6	4		053
5	1,0	12	4,8	37	75	45	6	4		054
5	1,5	12	4,8	37	75	45	6	4		055
6	0,5	10	5,6	16	54	45	6	4	060	
6	1,0	10	5,6	16	54	45	6	4	061	
6	1,5	10	5,6	16	54	45	6	4	062	
6	2,0	10	5,6	16	54	45	6	4	063	
6	0,5	12	5,6	62	100	45	6	4		064
6	1,0	12	5,6	62	100	45	6	4		065
6	1,5	12	5,6	62	100	45	6	4		066
6	2,0	12	5,6	62	100	45	6	4		067
7	0,5	11	6,6	20	58	45	8	4	070	
7	1,0	11	6,6	20	58	45	8	4	071	
7	1,5	11	6,6	20	58	45	8	4	072	
7	2,0	11	6,6	20	58	45	8	4	073	
7	0,5	14	6,6	62	100	45	8	4		074
7	1,0	14	6,6	62	100	45	8	4		075
7	1,5	14	6,6	62	100	45	8	4		076
7	2,0	14	6,6	62	100	45	8	4		077
8	0,5	12	7,6	20	58	45	8	4	080	
8	1,0	12	7,6	20	58	45	8	4	081	
8	1,5	12	7,6	20	58	45	8	4	086	
8	2,0	12	7,6	20	58	45	8	4	083	
8	0,5	14	7,6	62	100	45	8	4		084
8	1,0	14	7,6	62	100	45	8	4		085
8	1,5	14	7,6	62	100	45	8	4		082
8	2,0	14	7,6	62	100	45	8	4		087
10	0,5	14	9,6	24	66	45	10	4	100	
10	1,0	14	9,6	24	66	45	10	4	101	
10	1,5	14	9,6	24	66	45	10	4	107	
10	2,0	14	9,6	24	66	45	10	4	103	
10	3,0	14	9,6	24	66	45	10	4	104	
10	0,5	18	9,6	58	100	45	10	4		105
10	1,0	18	9,6	58	100	45	10	4		106

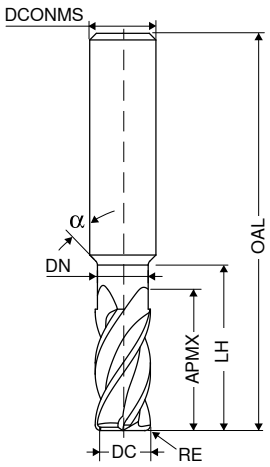
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

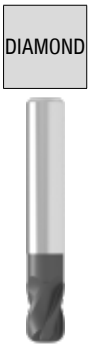
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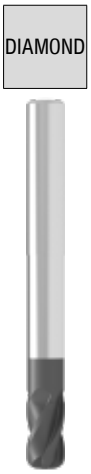
Continued on next page

Torus cutter













Factory standard
HA

Factory standard
HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	Article no. 50 911 ...	Article no. 50 911 ...
10	1,5	18	9,6	58	100	45	10	4		**102**
10	2,0	18	9,6	58	100	45	10	4		**108**
10	3,0	18	9,6	58	100	45	10	4		**109**
12	0,5	16	11,5	26	73	45	12	4	**120**	
12	1,0	16	11,5	26	73	45	12	4	**121**	
12	1,5	16	11,5	26	73	45	12	4	**127**	
12	2,0	16	11,5	26	73	45	12	4	**123**	
12	4,0	16	11,5	26	73	45	12	4	**124**	
12	0,5	22	11,5	53	100	45	12	4		**125**
12	1,0	22	11,5	53	100	45	12	4		**126**
12	1,5	22	11,5	53	100	45	12	4		**122**
12	2,0	22	11,5	53	100	45	12	4		**128**
12	4,0	22	11,5	53	100	45	12	4		**129**

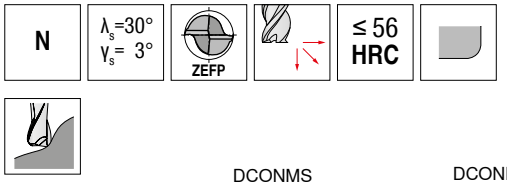
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

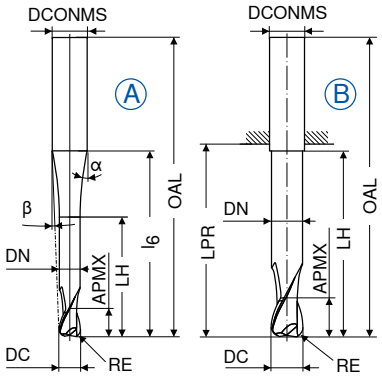
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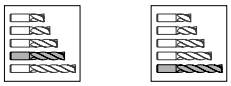
Torus cutter

▲ Radius accuracy: ±0.005 mm
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ±0.5°









Factory standard
HA

Factory standard
HA

DC ±0,01	RE ±0,005	APMX	DN	LH	l_6	OAL	α°	β°	DCONMS h5	ZEFP	Fig.	Article no. 52 730 ...	Article no. 52 734 ...
mm	mm	mm	mm	mm	mm	mm			mm				
0,5	0,10	1,0	0,45	2,0	20	57	10,0	8,5	6	2	A	005	
1,0	0,25	2,0	0,95	4,0	20	57	10,0	8,0	6	2	A	010	
1,0	0,25	2,0	0,95	4,0	40	80	4,5	4,0	6	2	A		010
1,5	0,30	2,5	1,40	7,5	20	57	12,5	7,0	6	2	A	015	
1,5	0,30	2,5	1,40	7,5	40	80	4,5	3,5	6	2	A		015
2,0	0,50	3,0	1,80	8,0	20	57	12,0	6,5	6	2	A	020	
2,0	0,50	3,0	1,80	8,0	40	80	4,0	3,0	6	2	A		020
3,0	0,50	3,5	2,80	10,0	20	57	11,5	5,0	6	2	A	030	
3,0	0,50	3,5	2,80	12,0	40	80	3,5	2,5	6	2	A		030
4,0	0,50	4,0	3,80	12,0	20	57	11,0	3,5	6	2	A	041	
4,0	0,50	4,0	3,80	20,0	40	80	4,0	1,5	6	2	A		041
4,0	1,00	4,0	3,80	12,0	20	57	11,0	3,5	6	2	A	040	
4,0	1,00	4,0	3,80	20,0	40	80	4,0	1,5	6	2	A		040
5,0	1,00	5,0	4,70	14,0	20	57	10,0	2,0	6	2	A	051	
5,0	1,00	5,0	4,70	25,0	40	80	3,0	1,0	6	2	A		051
5,0	1,50	5,0	4,70	14,0	20	57	10,0	2,0	6	2	A	050	
5,0	1,50	5,0	4,70	25,0	40	80	3,0	1,0	6	2	A		050
6,0	1,00	6,0	5,60	20,0		57			6	2	B	961	
6,0	1,00	6,0	5,60	40,0		80			6	2	B		961
6,0	2,00	6,0	5,60	20,0		57			6	2	B	060	
6,0	2,00	6,0	5,60	40,0		80			6	2	B		060
6,0	2,00	6,0	5,60	25,0	60	100	2,0	1,0	8	2	A		061
8,0	1,00	7,0	7,60	25,0		63			8	2	B	082	
8,0	1,00	7,0	7,60	60,0		100			8	2	B		082
8,0	2,00	7,0	7,60	25,0		63			8	2	B	080	
8,0	2,00	7,0	7,60	60,0		100			8	2	B		080
8,0	2,00	7,0	7,60	30,0	75	120	2,0	1,0	10	2	A		081
8,0	2,50	7,0	7,60	60,0		100			8	2	B		083
10,0	1,50	8,0	9,60	30,0		72			10	2	B	102	
10,0	1,50	8,0	9,60	75,0		120			10	2	B		102
10,0	2,50	8,0	9,60	75,0		120			10	2	B		104
10,0	3,00	8,0	9,60	30,0		72			10	2	B	100	
10,0	3,00	8,0	9,60	50,0		100			10	2	B		103
10,0	3,00	8,0	9,60	75,0		120			10	2	B		100
10,0	3,00	8,0	9,60	40,0	110	160	1,0	0,5	12	2	A		101
12,0	1,50	10,0	11,50	35,0		83			12	2	B	122	
12,0	1,50	10,0	11,50	70,0		160			12	2	B		122
12,0	4,00	10,0	11,50	35,0		83			12	2	B	120	
12,0	4,00	10,0	11,50	35,0	40	92	37,0	3,5	16	2	A	121	
12,0	4,00	10,0	11,50	70,0		160			12	2	B		120
12,0	4,00	10,0	11,50	50,0	150	200	1,5	1,0	16	2	A		121
16,0	5,00	12,0	15,50	40,0		92			16	2	B	160	
16,0	5,00	12,0	15,50	80,0		200			16	2	B		160

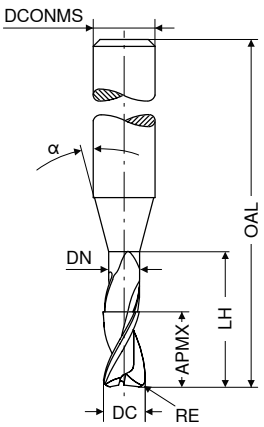
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

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Torus cutter















Factory standard

Factory standard





DC f8	RE ±0,01	APMX	DN	LH	OAL	α°	DCONMS h5	ZEFP	Article no. 50 649 ...	Article no. 50 649 ...
mm	mm	mm	mm	mm	mm		mm			
0,2	0,02	0,2	0,18	0,6	55	15	6	2	**921**	
0,2	0,02	0,2	0,18	1,0	55	15	6	2	**022**	
0,2	0,02	0,2	0,18	1,6	55	15	6	2	**023**	
0,2	0,02	0,2	0,18	2,0	55	15	6	2	**024**	
0,3	0,03	0,3	0,28	0,9	55	15	6	2	**031**	
0,3	0,03	0,3	0,28	1,5	55	15	6	2	**032**	
0,3	0,03	0,3	0,28	2,4	55	15	6	2	**033**	
0,3	0,03	0,3	0,28	3,0	55	15	6	2	**034**	
0,4	0,04	0,4	0,37	1,2	55	15	6	2	**041**	
0,4	0,04	0,4	0,37	2,0	55	15	6	2	**042**	
0,4	0,04	0,4	0,37	3,2	55	15	6	2	**043**	
0,4	0,04	0,4	0,45	4,0	55	15	6	2	**044**	
0,5	0,05	0,5	0,45	1,5	55	15	6	2	**051**	
0,5	0,05	0,5	0,45	2,5	55	15	6	2	**052**	
0,5	0,05	0,5	0,45	4,0	55	15	6	2	**053**	
0,5	0,05	0,5	0,45	5,0	55	15	6	2	**054**	
0,6	0,06	0,6	0,58	2,0	55	15	6	2	**061**	
0,6	0,06	0,6	0,58	3,0	55	15	6	2	**960**	
0,6	0,06	0,6	0,58	5,0	65	15	6	2		**063**
0,6	0,06	0,6	0,58	6,0	65	15	6	2	**961**	
0,8	0,08	0,8	0,77	2,5	55	15	6	2	**081**	
0,8	0,08	0,8	0,77	4,0	55	15	6	2	**980**	
0,8	0,08	0,8	0,77	6,5	65	15	6	2		**083**
0,8	0,08	0,8	0,77	8,0	65	15	6	2	**981**	
1,0	0,10	1,0	0,95	3,0	55	15	6	2	**101**	
1,0	0,10	1,0	0,95	5,0	55	15	6	2	**010**	
1,0	0,10	1,0	0,95	8,0	65	15	6	2		**103**
1,0	0,10	1,0	0,95	10,0	65	15	6	2		**011**
1,0	0,10	1,0	0,95	12,0	65	15	6	2		**105**
1,2	0,12	1,2	1,15	3,0	55	15	6	2	**121**	
1,2	0,12	1,2	1,15	6,0	55	15	6	2	**012**	
1,2	0,12	1,2	1,15	10,0	65	15	6	2	**123**	
1,2	0,12	1,2	1,15	12,0	65	15	6	2		**013**
1,3	0,13	1,3	1,25	4,0	55	15	6	2	**131**	
1,3	0,13	1,3	1,25	7,0	55	15	6	2	**132**	
1,3	0,13	1,3	1,25	11,0	65	15	6	2		**133**
1,3	0,13	1,3	1,25	13,0	65	15	6	2		**134**
1,5	0,15	1,5	1,44	5,0	55	15	6	2	**151**	
1,5	0,15	1,5	1,44	7,5	55	15	6	2	**015**	
1,5	0,15	1,5	1,44	12,0	65	15	6	2		**153**
1,5	0,15	1,5	1,44	15,0	65	15	6	2		**016**

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

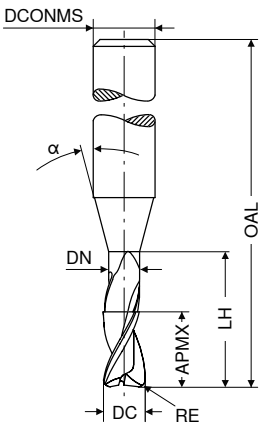
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Torus cutter















Factory standard

Factory standard





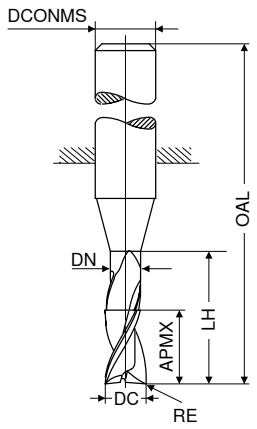
DC f8	RE ±0,01	APMX	DN	LH	OAL	α°	DCONMS h5	ZEFP	Article no. 50 649 ...	Article no. 50 649 ...
mm	mm	mm	mm	mm	mm		mm			
1,6	0,16	1,6	1,52	5,0	55	15	6	2	**161**	
1,6	0,16	1,6	1,52	8,0	55	15	6	2	**162**	
1,6	0,16	1,6	1,52	13,0	65	15	6	2		**163**
1,6	0,16	1,6	1,52	16,0	65	15	6	2		**164**
1,8	0,18	1,8	1,72	5,5	55	15	6	2	**181**	
1,8	0,18	1,8	1,72	9,0	55	15	6	2	**182**	
1,8	0,18	1,8	1,72	14,5	65	15	6	2		**183**
1,8	0,18	1,8	1,72	18,0	65	15	6	2		**184**
2,0	0,20	2,0	1,92	6,0	55	15	6	2	**201**	
2,0	0,20	2,0	1,92	10,0	55	15	6	2	**202**	
2,0	0,20	2,0	1,92	14,0	55	15	6	2	**020**	
2,0	0,20	2,0	1,92	16,0	65	15	6	2		**204**
2,0	0,20	2,0	1,92	20,0	65	15	6	2		**021**
2,3	0,23	2,3	2,22	7,0	55	15	6	2	**231**	
2,3	0,23	2,3	2,22	11,5	55	15	6	2	**232**	
2,3	0,23	2,3	2,22	18,5	65	15	6	2		**233**
2,3	0,23	2,3	2,22	23,0	65	15	6	2		**234**
3,0	0,30	3,0	2,90	9,0	65	15	6	2	**301**	
3,0	0,30	3,0	2,90	15,0	65	15	6	2	**302**	
3,0	0,30	3,0	2,90	24,0	100	15	6	2		**303**
3,0	0,30	3,0	2,90	30,0	100	15	6	2		**304**
4,0	0,40	4,0	3,90	12,0	65	15	6	2	**401**	
4,0	0,40	4,0	3,90	20,0	65	15	6	2	**402**	
4,0	0,40	4,0	3,90	32,0	100	15	6	2		**403**
4,0	0,40	4,0	3,90	40,0	100	15	6	2		**404**
5,0	0,50	5,0	4,90	15,0	65	15	6	2	**501**	
5,0	0,50	5,0	4,90	25,0	65	15	6	2	**502**	
5,0	0,50	5,0	4,90	40,0	100	15	6	2		**503**
5,0	0,50	5,0	4,90	50,0	100	15	6	2		**504**
6,0	0,60	6,0	5,90	18,0	65	15	6	2	**601**	
6,0	0,60	6,0	5,90	30,0	100	15	6	2		**602**
6,0	0,60	6,0	5,90	48,0	100	15	6	2		**603**
6,0	0,60	6,0	5,90	60,0	100	15	6	2		**604**

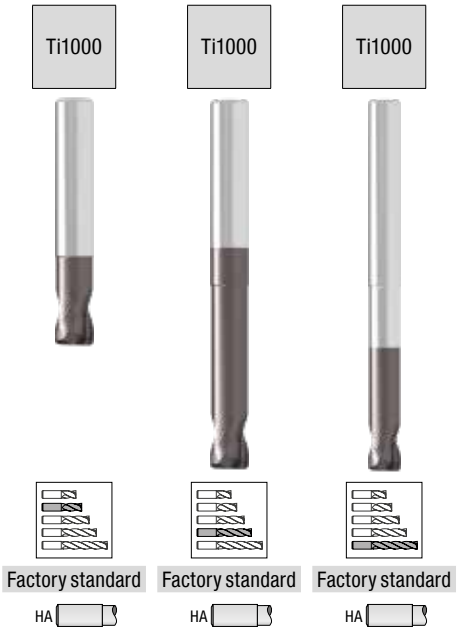
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

→ v_c/f_z Page 350–356

Torus cutter

H | λ_s=30° γ_s= 3° | ZEFP | ≤ 68 HRC





DC f8	RE ±0,01	APMX	DN	LH	OAL	DCONMS h5	ZEFP	Article no. 50 651 ...		
mm	mm	mm	mm	mm	mm	mm				
2	0,3	2	1,8	7	50	6	2	020		
2	0,5	2	1,8	7	50	6	2	021		
2	0,3	2	1,8	7	60	6	2		022	
2	0,5	2	1,8	7	60	6	2		023	
2	0,3	2	1,8	7	85	6	2			024
2	0,5	2	1,8	7	85	6	2			025
3	0,3	2	2,8	7	50	6	2	030		
3	0,5	2	2,8	7	50	6	2	031		
3	0,3	2	2,8	12	60	6	2		032	
3	0,5	2	2,8	12	60	6	2		033	
3	0,3	2	2,8	12	85	6	2			034
3	0,5	2	2,8	12	85	6	2			035
4	0,3	3	3,8	13	54	6	2	040		
4	0,5	3	3,8	13	54	6	2	041		
4	1,0	3	3,8	13	54	6	2	042		
4	0,3	3	3,8	20	75	6	2		043	
4	0,5	3	3,8	20	75	6	2		044	
4	1,0	3	3,8	20	75	6	2		045	
4	0,3	3	3,8	20	85	6	2			046
4	0,5	3	3,8	20	85	6	2			047
4	1,0	3	3,8	20	85	6	2			048
5	0,5	3	4,6	13	54	6	2	050		
5	1,0	3	4,6	13	54	6	2	051		
5	1,5	3	4,6	13	54	6	2	052		
5	1,0	3	4,6	20	75	6	2		053	
5	1,5	3	4,6	20	75	6	2		054	
6	0,5	4	5,6	14	54	6	2	060		
6	1,0	4	5,6	14	54	6	2	061		
6	2,0	4	5,6	14	54	6	2	062		
6	0,5	4	5,6	45	85	6	2		066	
6	1,0	4	5,6	45	85	6	2		067	
6	2,0	4	5,6	45	85	6	2		068	
6	0,5	4	5,6	25	100	6	2			069
6	1,0	4	5,6	25	100	6	2			070
6	2,0	4	5,6	25	100	6	2			071
6	0,5	4	5,6	25	85	8	2		063	
6	1,0	4	5,6	25	85	8	2		064	
6	2,0	4	5,6	25	85	8	2		065	
8	0,5	4	7,6	16	58	8	2	080		
8	1,0	4	7,6	16	58	8	2	081		
8	2,0	4	7,6	16	58	8	2	082		

Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials	○	○	○

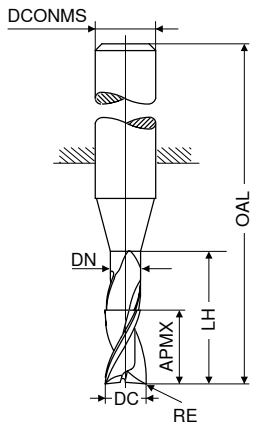
→ v_c/f_z Page 350–356

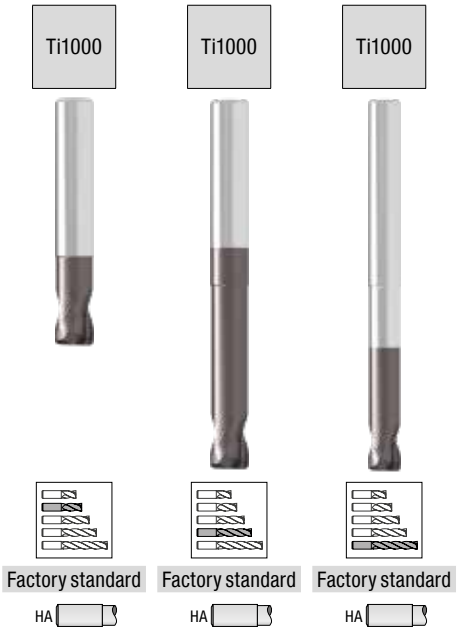
14

Continued on next page

Torus cutter

H | λ_s=30° γ_s= 3° | ZEFP | ≤ 68 HRC





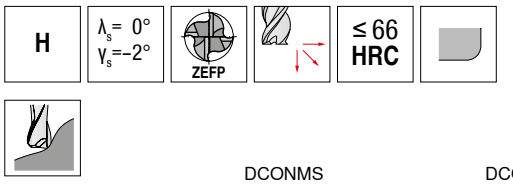
DC f8	RE ±0,01	APMX	DN	LH	OAL	DCONMS h5	ZEFP	Article no. 50 651 ...		
mm	mm	mm	mm	mm	mm	mm				
8	0,5	4	7,6	50	100	8	2			083
8	2,0	4	7,6	50	100	8	2			084
8	1,0	4	7,6	30	100	10	2			085
8	2,0	4	7,6	30	100	10	2			086
10	1,0	6	9,6	18	66	10	2	100		
10	3,0	6	9,6	18	66	10	2	101		
10	1,0	6	9,6	50	100	10	2		102	
10	2,0	6	9,6	50	100	10	2		103	
10	3,0	6	9,6	50	100	10	2		104	
10	1,0	6	9,6	60	120	10	2			105
10	2,0	6	9,6	60	120	10	2			106
10	3,0	6	9,6	60	120	10	2			107
10	1,0	6	9,6	30	120	12	2			108
10	2,0	6	9,6	30	120	12	2			109
10	3,0	6	9,6	30	120	12	2			110
12	1,0	8	11,5	18	73	12	2	120		
12	2,0	8	11,5	18	73	12	2	121		
12	3,0	8	11,5	18	73	12	2	122		
12	4,0	8	11,5	18	73	12	2	123		
12	1,0	8	11,5	45	100	12	2		124	
12	2,0	8	11,5	45	100	12	2		125	
12	3,0	8	11,5	45	100	12	2		126	
12	4,0	8	11,5	45	100	12	2		127	
12	1,0	8	11,5	70	120	12	2			128
12	2,0	8	11,5	70	120	12	2			129
12	3,0	8	11,5	70	120	12	2			130
12	4,0	8	11,5	70	120	12	2			131
12	1,0	8	11,5	35	150	16	2			132
12	2,0	8	11,5	35	150	16	2			133
12	3,0	8	11,5	35	150	16	2			134
12	4,0	8	11,5	35	150	16	2			135

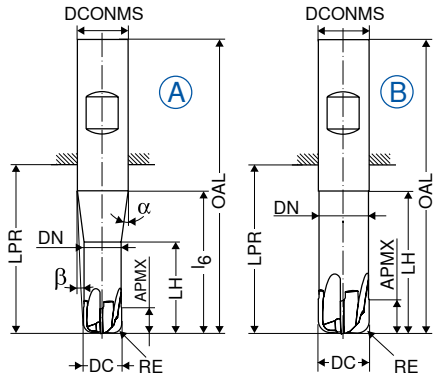
Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials	○	○	○

→ v_c/f_z Page 350–356

Torus cutter

- Radius accuracy: ±0.005 mm
- High-performance tool for clearing
- for Ø ≤ 5.0 mm, angle tolerance α and β: ±0.5°





LPR with Shank DIN 6535 HB



Factory standard | Factory standard | Factory standard

HA | HB | HA

DC ±0.01 mm	RE ±0.005 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	Article no. 52 732 ...	Article no. 52 733 ...	Article no. 52 732 ...
3	0,75	2,0	2,8	10	20	21	57	11,5	5,0	6	4	A	033	033	
4	1,00	2,5	3,8	12	20	21	57	11,0	3,5	6	4	A	044	044	
5	1,25	3,0	4,7	14	20	21	57	10,0	2,0	6	4	A	055	055	
6	1,50	4,0	5,6	20		21	57			6	4	B	065	065	
6	1,50	4,0	5,6	30		44	80			6	4	B			066
8	1,00	5,0	7,6	25		27	63			8	4	B	084		
8	1,00	5,0	7,6	35		44	80			8	4	B			085
8	2,00	5,0	7,6	25		27	63			8	4	B	086	086	
8	2,00	5,0	7,6	35		44	80			8	4	B			087
10	1,00	6,0	9,6	30		32	72			10	4	B	104		
10	1,00	6,0	9,6	30		32	72			10	6	B	105		
10	1,00	6,0	9,6	45		60	100			10	4	B			106
10	1,00	6,0	9,6	45		60	100			10	6	B			110
10	2,50	6,0	9,6	30		32	72			10	4	B	107	107	
10	2,50	6,0	9,6	30		32	72			10	6	B	108		
10	2,50	6,0	9,6	45		60	100			10	4	B			109
10	2,50	6,0	9,6	45		60	100			10	6	B			111
12	1,00	7,0	11,5	35		38	83			12	4	B	124		
12	1,00	7,0	11,5	35		38	83			12	8	B	125		
12	1,00	7,0	11,5	50		55	100			12	4	B			130
12	1,00	7,0	11,5	50		55	100			12	8	B			132
12	3,00	7,0	11,5	35		38	83			12	4	B	128	128	
12	3,00	7,0	11,5	35		38	83			12	8	B	129		
12	3,00	7,0	11,5	50		55	100			12	4	B			131
12	3,00	7,0	11,5	50		55	100			12	8	B			133
16	4,00	8,0	15,5	40		44	92			16	4	B	169	169	
16	4,00	8,0	15,5	60		72	120			16	4	B			170
16	4,00	8,0	15,5	60		72	120			16	8	B			171

Steel	●	●	●
Stainless steel			
Cast iron	○	○	○
Non ferrous metals	○	○	○
Heat resistant alloys			
hardened materials	●	●	●

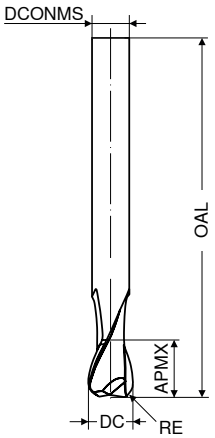
→ v_c/f_z Page 350–356

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Intermediate size torus cutter

▲ reduced shank Ø for flexible application in various overhang lengths

H | λ_s=45° γ_s=12° | ZEFP | ≤ 56 HRC | Ti1000





Factory standard

HA

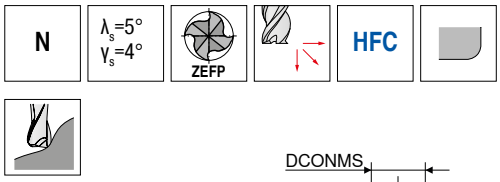
DC e8	RE ±0,01	APMX	OAL	DCONMS h6	ZEFP	Article no. 52 107 ...
mm	mm	mm	mm	mm		
7	0,5	9	120	6	4	075
7	1,0	9	120	6	4	076
7	1,5	9	120	6	4	077
9	0,5	12	135	8	4	095
9	1,0	12	135	8	4	096
9	1,5	12	135	8	4	097
11	1,0	15	150	10	4	115
11	1,5	15	150	10	4	116
11	2,0	15	150	10	4	117
13	1,0	18	160	12	4	135
13	1,5	18	160	12	4	136
13	2,0	18	160	12	4	137
15	1,0	21	160	14	4	156
15	1,5	21	160	14	4	157
15	2,0	21	160	14	4	158
17	1,0	24	180	16	4	176
17	1,5	24	180	16	4	177
17	2,0	24	180	16	4	178
17	3,0	24	180	16	4	179

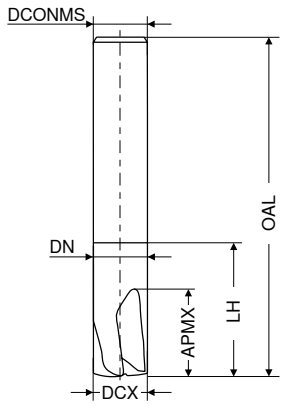
Steel	○
Stainless steel	●
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	○

→ v_c/f_z Page 350–356

High feed cutter

- ▲ APMX does not correspond to the maximum cutting depth
- ▲ for feed per tooth (f_z) up to 1 mm
- ▲ roughing in large depths
- ▲ extremely quiet running
- ▲ r_{3D} = corner radius to be programmed





TiAlN





Factory standard

HA

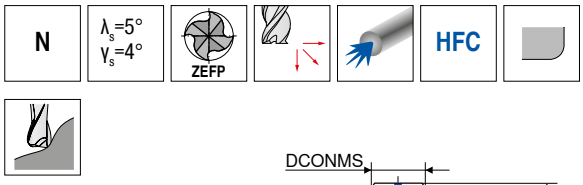
DCX h6 mm	r_{3D} mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 56 900 ...
6	0,50	6	5,8	21	57	6	4	060
8	0,70	8	7,8	27	63	8	4	080
10	0,85	10	9,8	32	72	10	4	100
12	1,00	12	11,8	38	83	12	4	120
16	1,40	16	15,8	50	92	16	4	160

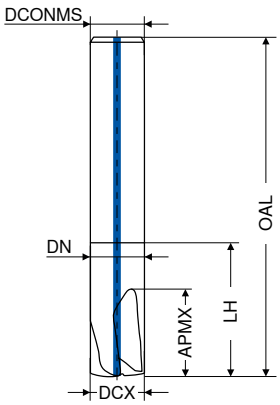
Steel	●
Stainless steel	○
Cast iron	○
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	●

→ v_c/f_z Page 346+347

High feed cutter

- ▲ APMX does not correspond to the maximum cutting depth
- ▲ for feed per tooth (f_z) up to 1 mm
- ▲ roughing in large depths
- ▲ extremely quiet running
- ▲ r_{3D} = corner radius to be programmed











Factory standard

HA



Factory standard

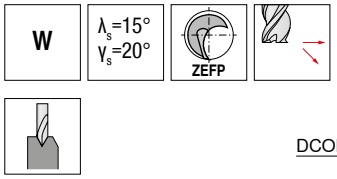
HA

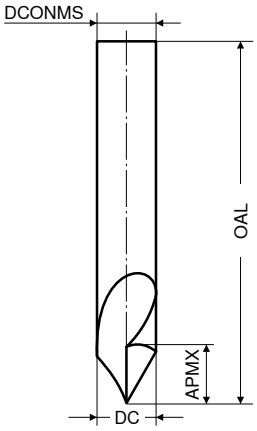
DCX h6 mm	r_{3D} mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 56 902 ...	Article no. 56 904 ...
6	0,50	6	5,8	21	57	6	4	**060**	
6	0,50	6	5,8	64	100	6	4		**060**
8	0,70	8	7,8	27	63	8	4	**080**	
8	0,70	8	7,8	64	100	8	4		**080**
10	0,85	10	9,8	32	72	10	4	**100**	
10	0,85	10	9,8	60	100	10	4		**100**
12	1,00	12	11,8	38	83	12	4	**120**	
12	1,00	12	11,8	65	110	12	4		**120**
16	1,40	16	15,8	50	92	16	4	**160**	
16	1,40	16	15,8	65	150	16	4		**160**

Steel	●	●
Stainless steel	○	○
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	●	●

→ v_c/f_z Page 346+347

Engraving cutter 60°







Factory standard

HA

DC h6 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 52 195 ...
3	15	50	3	1	030
4	18	50	4	1	040
6	20	54	6	1	060

Steel	○
Stainless steel	○
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 350–353

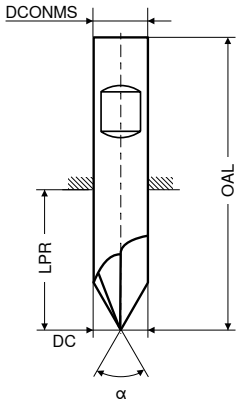
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NC deburring cutter

N

λ_s=0°
γ_s=0°





Ti1000 Ti1000 Ti1000



DC h6	OAL	LPR	DCONMS h6	ZEFP	α = 60° Factory standard HB	α = 60° Factory standard HB	α = 90° Factory standard HB	α = 90° Factory standard HB	α = 120° Factory standard HB	α = 120° Factory standard HB
mm	mm	mm	mm		Article no. 52 150 ...	Article no. 52 153 ...	Article no. 52 151 ...	Article no. 52 154 ...	Article no. 52 152 ...	Article no. 52 155 ...
4	50	22	4	4	040 [1]	040 [1]	040 [1]	040 [1]	040 [1]	040 [1]
6	54	18	6	4	060 [2]	060	060 [2]	060	060 [2]	060
8	59	23	8	4	080 [2]	080	080 [2]	080	080 [2]	080
10	60	20	10	4	100 [2]	100	100 [2]	100	100 [2]	100
12	70	25	12	4	120 [2]	120	120 [2]	120	120 [2]	120
Steel					●	●	●	●	●	●
Stainless steel					○	○	○	○	○	○
Cast iron					●	●	●	●	●	●
Non ferrous metals					○	○	○	○	○	○
Heat resistant alloys					○	○	○	○	○	○
hardened materials						○		○		○

1) DIN 6535 HA Shank
2) included in the set

→ v_c/f_z Page 350–353

Solid carbide NC deburring cutter set, factory standard

▲ Sets contain Ø 6, Ø 8, Ø 10 and Ø 12 mm

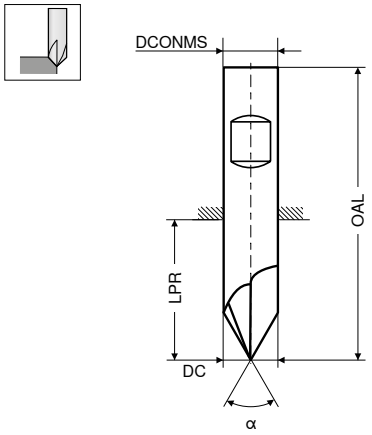


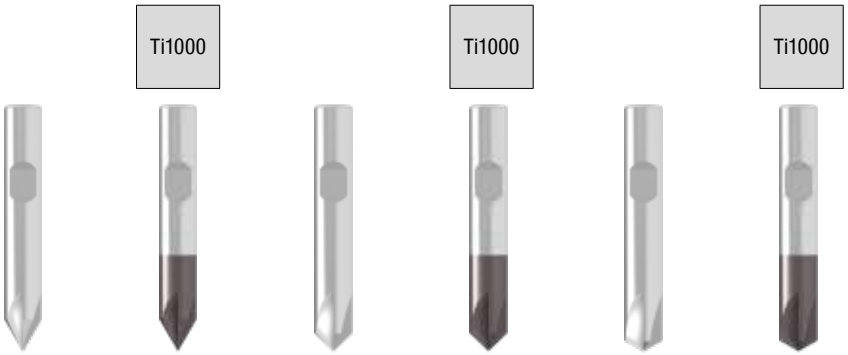
	α = 60° HB	α = 90° HB	α = 120° HB
	Article no. 52 150 ...	Article no. 52 151 ...	Article no. 52 152 ...
Set	999	999	999

NC deburring cutter

N

λ_s=0°
γ_s=0°





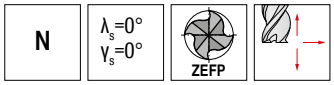
					α = 60°	α = 60°	α = 90°	α = 90°	α = 120°	α = 120°
					Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
					HB	HB	HB	HB	HB	HB
DC $_{h6}$	OAL	LPR	DCONMS $_{h6}$	ZEFP	Article no. 50 940 ...	Article no. 50 943 ...	Article no. 50 941 ...	Article no. 50 944 ...	Article no. 50 942 ...	Article no. 50 945 ...
mm	mm	mm	mm							
4	54	26	4	4	040 [1]	040 [1]	040 [1]	040 [1]	040 [1]	040 [1]
6	54	18	6	4	060	060	060	060	060	060
8	58	22	8	4	080	080	080	080	080	080
10	66	26	10	4	100	100	100	100	100	100
12	73	28	12	4	120	120	120	120	120	120
Steel					●	●	●	●	●	●
Stainless steel					○	○	○	○	○	○
Cast iron					●	●	●	●	●	●
Non ferrous metals					○	○	○	○	○	○
Heat resistant alloys					○	○	○	○	○	○
hardened materials						○		○		○

1) DIN 6535 HA Shank

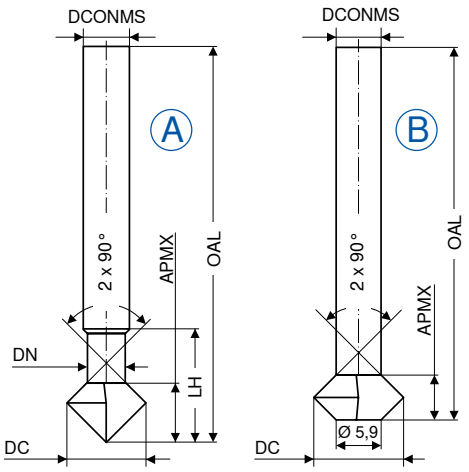
→ v_c/f_z Page 350–353

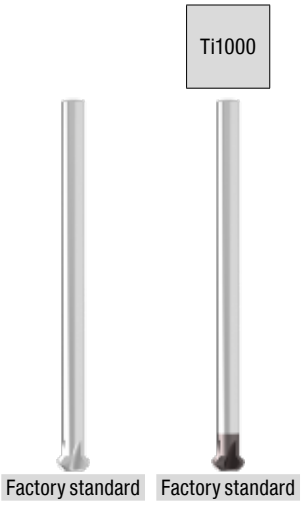
14

NC front and rear chamfer milling cutter







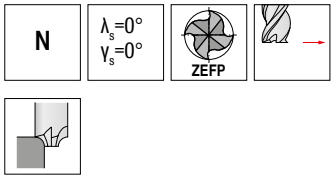


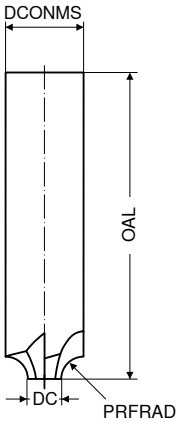
DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	Fig.	Article no. 52 158 ...	Article no. 52 159 ...
3	2,0	2,2	12,0	75	4	4	A	**030**	**030**
4	2,7	2,9	17,7	75	4	4	A	**040**	**040**
5	3,0	3,9	18,0	75	5	4	A	**050**	**050**
6	4,0	3,9	19,0	100	6	4	A	**060**	**060**
8	2,0			100	6	4	B	**080**	**080**
10	4,0			100	6	4	B	**100**	**100**
12	6,0			100	6	4	B	**120**	**120**

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		○

→ v_c/f_z Page 350–353

Quarter-round profile milling cutter, concave





Ti1000



Factory standard

HA

PRFRAD +/-0,02	DC	OAL	DCONMS h6	ZEFP	Article no. 52 249 ...
mm	mm	mm	mm		
0,50	7,0	70	8	4	**005**
1,00	6,0	70	8	4	**010**
1,25	7,5	75	10	4	**012**
1,50	7,0	75	10	4	**015**
2,00	6,0	75	10	4	**020**
2,50	7,0	73	12	4	**025**
3,00	6,0	73	12	4	**030**
3,50	9,0	80	16	4	**035**
4,00	8,0	80	16	4	**040**
4,50	7,0	80	16	4	**045**
5,00	10,0	80	20	4	**050**
6,00	8,0	80	20	4	**060**

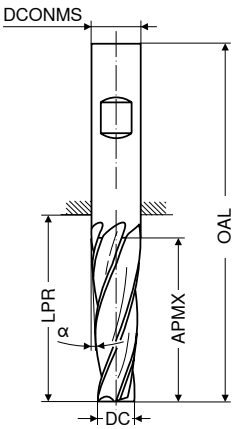
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 350–353

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Die milling cutter

N | λ_s=30° γ_s=15° | ZEFP







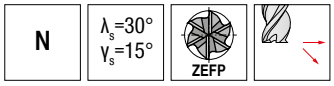
DC ±0,1 mm	α°	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA Article no. 52 291 ...	Factory standard HB Article no. 52 291 ...
2,0	0,5	10	22	50	3	4	000	
2,5	0,5	10	22	50	3	4	001	
2,5	0,5	20	32	60	4	4	002	
3,0	0,5	20	32	60	4	4	003	
4,0	0,5	20	32	60	5	4	004	
5,0	0,5	30	34	75	6	6		005
6,0	0,5	30	35	75	8	6		006
8,0	0,5	30	35	80	10	6		007
10,0	0,5	30	36	85	12	6		008
12,0	0,5	30	36	85	14	6		009
12,0	0,5	50	57	110	14	6		010
16,0	0,5	60	72	120	18	6		011
2,0	1	10	22	50	3	4	100	
2,5	1	10	22	50	3	4	101	
2,5	1	20	32	60	4	4	102	
3,0	1	20	32	60	4	4	103	
3,5	1	20	32	60	5	4	104	
4,0	1	20	32	60	5	4	105	
4,5	1	20	29	65	6	6		106
5,0	1	25	29	70	6	6		107
6,0	1	30	36	75	8	6		108
8,0	1	30	36	80	10	6		109
10,0	1	30	36	85	12	6		110
12,0	1	30	36	85	14	6		111
12,0	1	50	55	110	14	6		112
16,0	1	55	61	115	18	6		113
2,0	1,5	10	22	50	3	4	200	
2,5	1,5	10	22	50	4	4	201	
2,5	1,5	20	32	60	4	4	202	
3,0	1,5	20	32	60	4	4	203	
3,5	1,5	20	32	60	5	4	204	
4,0	1,5	20	32	60	5	4	205	
4,5	1,5	20	25	65	6	4		206
5,0	1,5	30	36	75	8	6		207
6,0	1,5	30	36	75	8	6		208
8,0	1,5	30	36	80	10	6		209
10,0	1,5	30	36	85	12	6		210
12,0	1,5	30	36	85	14	6		211
12,0	1,5	50	56	110	16	6		212
16,0	1,5	60	68	125	20	6		213
2,0	2	10	22	50	3	4	301	
2,5	2	10	22	50	4	4	302	
2,5	2	20	32	60	4	4	303	
3,0	2	20	32	60	5	4	304	
3,5	2	20	32	60	5	4	305	
4,0	2	20	27	65	6	4		306
4,5	2	30	37	75	8	4		307
5,0	2	30	37	75	8	6		308
6,0	2	28	32	75	8	6		309
8,0	2	28	33	75	10	6		310
10,0	2	28	33	85	12	6		311
12,0	2	28	33	85	14	6		312
12,0	2	50	56	110	16	6		313

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

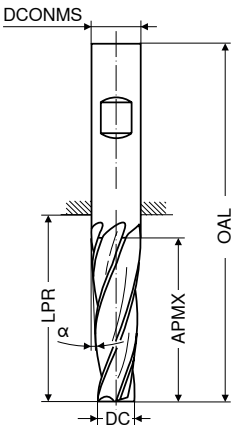
→ v_c/f_z Page 350–353

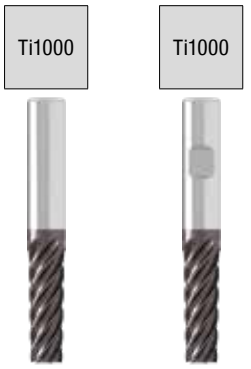
Continued on next page

Die milling cutter









DC ±0,1 mm	α°	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA Article no. 52 291 ...	Factory standard HB Article no. 52 291 ...
16,0	2	55	62	115	20	6		314
2,0	2,5	15	22	50	4	4	401	
2,5	2,5	20	32	60	5	4	402	
3,0	2,5	20	32	60	5	4	403	
4,0	2,5	20	26	65	6	4		404
5,0	2,5	30	35	75	8	6		405
6,0	2,5	30	36	80	10	6		406
8,0	2,5	30	36	85	12	6		407
10,0	2,5	40	46	100	14	6		408
2,0	3	10	22	50	4	4	500	
2,5	3	10	22	50	4	4	501	
2,5	3	20	27	65	6	4		502
3,0	3	25	32	70	6	4		503
3,0	3	30	38	75	8	4		504
3,0	3	40	47	85	8	4		505
4,0	3	25	30	70	8	6		506
4,0	3	30	35	75	8	6		507
5,0	3	40	46	90	10	6		508
6,0	3	30	36	80	10	6		509
8,0	3	30	36	85	12	6		510
8,0	3	50	57	110	14	6		511
10,0	3	30	36	85	14	6		512
10,0	3	50	57	110	16	6		513
12,0	3	30	38	90	16	6		514
12,0	3	50	57	110	18	6		515
2,5	4	25	30	65	6	4		601
3,0	4	20	26	65	6	4		602
3,5	4	25	32	70	8	4		603
4,0	4	28	33	70	8	6		604
5,0	4	30	36	85	10	6		605
5,0	4	45	51	100	12	6		606
6,0	4	30	38	84	12	6		607
6,0	4	50	58	110	14	6		608
8,0	4	30	38	84	14	6		609
8,0	4	50	58	110	16	6		610
10,0	4	30	39	93	16	6		611
10,0	4	50	58	114	18	6		612
2,5	5	20	25	65	6	4		701
3,0	5	28	34	70	8	4		702
3,5	5	30	38	80	10	4		703
4,0	5	30	36	80	10	6		704
4,5	5	30	36	80	10	6		705
5,0	5	30	38	84	12	6		706
5,0	5	40	46	100	12	6		707
6,0	5	30	36	93	12	6		708
6,0	5	55	62	110	16	6		709
8,0	5	30	38	90	14	6		710
8,0	5	50	58	114	18	6		711
10,0	5	30	38	93	16	6		712
10,0	5	55	63	115	20	6		713
12,0	5	30	38	93	18	6		714
12,0	5	45	52	100	20	6		715

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

→ v_c/f_z Page 350–353

14

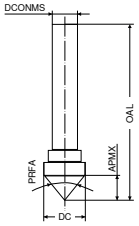
Carbide burrs, similar to DIN 8033

Teeth **Z3**: Application "medium"

Teeth **Z6**: Application "medium"

v_c in m/min = 300–600

KSJ



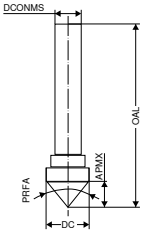

Z3


Z6

DC	APMX	OAL	DCONMS	PRFA	Article no. 50 928 ...		Article no. 50 928 ...	
mm	mm	mm	mm					
6	5	52	6	60°	606		706	
12	10	60	6	60°	612	1)	712	1)

1) Steel shank / carbide head – shank tolerance h9

KSK



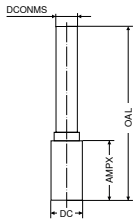

Z3


Z6

DC	APMX	OAL	DCONMS	PRFA	Article no. 50 927 ...		Article no. 50 927 ...	
mm	mm	mm	mm					
6	3	52	6	90°	606		706	
12	6	56	6	90°	612	1)	712	1)

1) Steel shank / carbide head – shank tolerance h9

ZYA



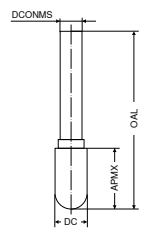

Z3


Z6

DC	APMX	OAL	DCONMS	Article no. 50 921 ...		Article no. 50 921 ...	
mm	mm	mm	mm				
3	13	40	3	303		403	
6	13	48	3	306	1)	406	1)
6	16	55	6	606		706	
8	20	65	6	608	1)	708	1)
10	20	65	6	610	1)	710	1)
12	25	70	6	612	1)	712	2)

1) Steel shank / carbide head – shank tolerance h9
2) Steel shank / carbide head – shank tolerance h7

WRC



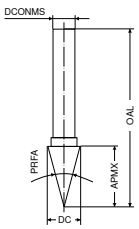

Z3


Z6

DC	APMX	OAL	DCONMS	Article no. 50 922 ...		Article no. 50 922 ...	
mm	mm	mm	mm				
3	13	40	3	303		403	
6	13	48	3	306	1)	406	1)
6	16	50	6	606		706	
8	18	63	6	608	1)	708	1)
10	20	65	6	610	1)	710	1)
12	25	70	6	612	1)	712	1)
16	25	70	6	616	1)	716	1)

1) Steel shank / carbide head – shank tolerance h9

SKM



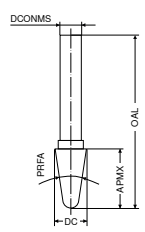

Z3


Z6

DC	APMX	OAL	DCONMS	PRFA	Article no. 50 926 ...		Article no. 50 926 ...	
mm	mm	mm	mm					
3	11	40	3	14°	303		403	
6	13	48	3	23°	306	1)	406	1)
6	18	50	6	16°	606		706	
8	20	65	6	20°	608	1)	708	1)
10	20	65	6	25°	610	1)	710	1)
12	25	70	6	25°	612	1)	712	1)

1) Steel shank / carbide head – shank tolerance h9

KEL




Z3


Z6

DC	APMX	OAL	DCONMS	PRFA	Article no. 50 923 ...		Article no. 50 923 ...	
mm	mm	mm	mm					
3	14	40	3	6°	303		403	
6	20	55	3	12°	306	1)	406	1)
6	20	50	6	10°	606		706	
8	20	65	6	14°	608	1)	708	1)
10	20	65	6	14°	610	1)	710	1)
12	30	75	6	14°	612	1)	712	1)

1) Steel shank / carbide head – shank tolerance h9

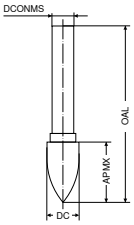
Carbide burrs, similar to DIN 8033

Teeth **Z3**: Application "medium"

Teeth **Z6**: Application "medium"

v_c in m/min = 300–600

SPG



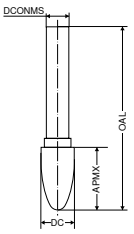

Z3


Z6

DC	APMX	OAL	DCONMS	Article no. 50 925 ...	Article no. 50 925 ...
mm	mm	mm	mm		
3	13	40	3	303	403
6	13	48	3	306 1)	406 1)
6	18	50	6	606	706
8	20	65	6	608 1)	708 1)
10	20	65	6	610 1)	710 1)
12	25	70	6	612 2)	712 1)

1) Steel shank / carbide head – shank tolerance h9
2) Steel shank / carbide head – shank tolerance h7

RBF



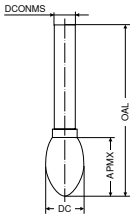

Z3


Z6

DC	APMX	OAL	DCONMS	Article no. 50 924 ...	Article no. 50 924 ...
mm	mm	mm	mm		
3	13	40	3	303	403
6	13	48	3	306 1)	406 1)
6	18	50	6	606	706
8	20	65	6	608 1)	708 1)
10	20	65	6	610 1)	710 1)
12	25	70	6	612 1)	712 1)
16	30	75	6	616 1)	716 1)

1) Steel shank / carbide head – shank tolerance h9

TRE



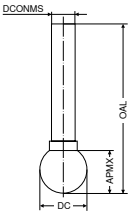

Z3


Z6

DC	APMX	OAL	DCONMS	Article no. 50 929 ...	Article no. 50 929 ...
mm	mm	mm	mm		
3	7	40	3	303	403
6	10	45	3	306 1)	406 1)
6	10	50	6	606	706
8	13	58	6	608 1)	708 1)
10	16	61	6	610 1)	710 1)
12	20	65	6	612 1)	712 1)

1) Steel shank / carbide head – shank tolerance h9

KUD



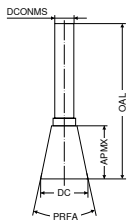

Z3


Z6

DC	APMX	OAL	DCONMS	Article no. 50 930 ...	Article no. 50 930 ...
mm	mm	mm	mm		
3	2,7	40,0	3	303	403
6	5,4	40,4	3	306 1)	406 1)
6	5,0	50,0	6	606	706
8	7,2	52,2	6	608 1)	708 1)
10	9,0	54,0	6	610 1)	710 1)
12	10,8	55,8	6	612 1)	712 1)
16	14,4	59,4	6	616 1)	716 1)

1) Steel shank / carbide head – shank tolerance h9

WKN




Z3


Z6

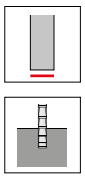
DC	APMX	OAL	DCONMS	PRFA	Article no. 50 931 ...	Article no. 50 931 ...
mm	mm	mm	mm			
3	7	40	3	10°	303	403
6	7	50	6	10°	606	706
12	13	58	6	20°	612 1)	712 1)

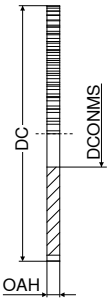
1) Steel shank / carbide head – shank tolerance h9

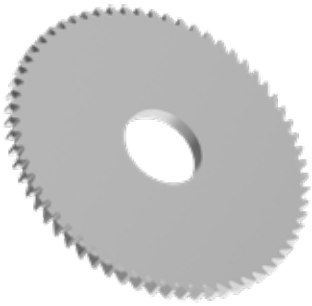
14

Circular saw blades

▲ straight cut







DIN 1837 A

DC js16	OAH ±0,01	DCONMS H6	ZEFP	NEW Article no. 54 700 ...
mm	mm	mm		
15	0,20	5	64	102
15	0,25	5	64	103
15	0,30	5	64	104
15	0,35	5	64	105
15	0,40	5	64	106
15	0,50	5	48	107
15	0,60	5	48	108
15	0,70	5	48	109
15	0,80	5	40	110
15	0,90	5	40	111
15	1,00	5	40	112
15	1,10	5	40	113
15	1,20	5	40	114
15	1,30	5	40	115
15	1,40	5	40	116
15	1,50	5	40	117
15	1,60	5	40	118
15	1,70	5	40	119
15	1,80	5	40	120
15	1,90	5	40	121
15	2,00	5	40	122
15	2,50	5	40	123
15	3,00	5	40	124
15	3,50	5	40	125
15	4,00	5	40	126
15	4,50	5	40	127
15	5,00	5	40	128
15	5,50	5	40	129
15	6,00	5	40	130
20	0,20	5	80	152
20	0,25	5	64	153
20	0,30	5	64	154
20	0,35	5	64	155
20	0,40	5	64	156
20	0,50	5	48	157
20	0,60	5	48	158
20	0,70	5	48	159
20	0,80	5	48	160
20	0,90	5	40	161
20	1,00	5	40	162
20	1,10	5	40	163
20	1,20	5	40	164
20	1,30	5	40	165
20	1,40	5	40	166
20	1,50	5	40	167
20	1,60	5	40	168
20	1,70	5	40	169
20	1,80	5	32	170
20	1,90	5	32	171
20	2,00	5	32	172
20	2,50	5	32	173
20	3,00	5	32	174
20	3,50	5	24	175
20	4,00	5	24	176

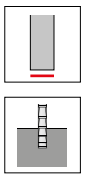
DC js16	OAH ±0,01	DCONMS H6	ZEFP	NEW Article no. 54 700 ...
mm	mm	mm		
20	4,50	5	24	177
20	5,00	5	24	178
20	5,50	5	24	179
20	6,00	5	24	180
25	0,20	8	80	202
25	0,25	8	80	203
25	0,30	8	80	204
25	0,35	8	64	205
25	0,40	8	64	206
25	0,50	8	64	207
25	0,60	8	64	208
25	0,70	8	48	209
25	0,80	8	48	210
25	0,90	8	48	211
25	1,00	8	48	212
25	1,10	8	48	213
25	1,20	8	48	214
25	1,30	8	40	215
25	1,40	8	40	216
25	1,50	8	40	217
25	1,60	8	40	218
25	1,70	8	40	219
25	1,80	8	40	220
25	1,90	8	40	221
25	2,00	8	40	222
25	2,50	8	40	223
25	3,00	8	32	224
25	3,50	8	32	225
25	4,00	8	32	226
25	4,50	8	32	227
25	5,00	8	32	228
25	5,50	8	24	229
25	6,00	8	24	230
30	0,20	8	100	252
30	0,25	8	100	253
30	0,30	8	80	254
30	0,35	8	80	255
30	0,40	8	80	256
30	0,50	8	80	257
30	0,60	8	64	258
30	0,70	8	64	259
30	0,80	8	64	260
30	0,90	8	64	261
30	1,00	8	64	262
30	1,10	8	64	263
30	1,20	8	48	264
30	1,30	8	48	265
30	1,40	8	48	266
30	1,50	8	48	267
30	1,60	8	48	268
30	1,70	8	48	269
30	1,80	8	48	270
30	1,90	8	48	271
30	2,00	8	48	272
30	2,50	8	40	273
30	3,00	8	40	274
30	3,50	8	40	275
30	4,00	8	40	276
30	4,50	8	32	277
30	5,00	8	32	278
30	5,50	8	32	279
30	6,00	8	32	280

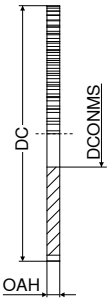
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	○

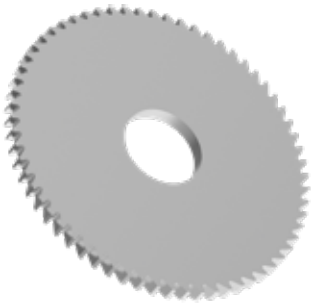
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Circular saw blades

▲ straight cut







DIN 1837 A

DC js16	OAH ±0,01	DCONMS H6	ZEFP	NEW Article no. 54 700 ...
mm	mm	mm		
40	0,20	10	128	302
40	0,25	10	100	303
40	0,30	10	100	304
40	0,35	10	100	305
40	0,40	10	100	306
40	0,50	10	80	307
40	0,60	10	80	308
40	0,70	10	80	309
40	0,80	10	80	310
40	0,90	10	64	311
40	1,00	10	64	312
40	1,10	10	64	313
40	1,20	10	64	314
40	1,30	10	64	315
40	1,40	10	64	316
40	1,50	10	64	317
40	1,60	10	64	318
40	1,70	10	48	319
40	1,80	10	48	320
40	1,90	10	48	321
40	2,00	10	48	322
40	2,50	10	48	323
40	3,00	10	48	324
40	3,50	10	48	325
40	4,00	10	40	326
40	4,50	10	40	327
40	5,00	10	40	328
40	5,50	10	40	329
40	6,00	10	40	330
50	0,20	13	128	352
50	0,25	13	128	353
50	0,30	13	128	354
50	0,35	13	100	355
50	0,40	13	100	356
50	0,50	13	100	357
50	0,60	13	100	358
50	0,70	13	80	359
50	0,80	13	80	360
50	0,90	13	80	361
50	1,00	13	80	362
50	1,10	13	80	363
50	1,20	13	80	364
50	1,30	13	64	365
50	1,40	13	64	366
50	1,50	13	64	367
50	1,60	13	64	368
50	1,70	13	64	369
50	1,80	13	64	370
50	1,90	13	64	371
50	2,00	13	64	372
50	2,50	13	64	373
50	3,00	13	48	374
50	3,50	13	48	375
50	4,00	13	48	376
50	4,50	13	48	377
50	5,00	13	48	378
50	5,50	13	40	379
50	6,00	13	40	380
63	0,20	16	160	402
63	0,25	16	160	403
63	0,30	16	128	404
63	0,35	16	128	405
63	0,40	16	128	406
63	0,50	16	128	407
63	0,60	16	100	408
63	0,70	16	100	409
63	0,80	16	100	410
63	0,90	16	100	411
63	1,00	16	100	412
63	1,10	16	80	413
63	1,20	16	80	414
63	1,30	16	80	415
63	1,40	16	80	416
63	1,50	16	80	417
63	1,60	16	80	418
63	1,70	16	80	419
63	1,80	16	80	420
63	1,90	16	80	421
63	2,00	16	80	422
63	2,50	16	64	423
63	3,00	16	64	424
63	3,50	16	64	425
63	4,00	16	64	426
63	4,50	16	64	427
63	5,00	16	48	428
63	5,50	16	48	429
63	6,00	16	48	430

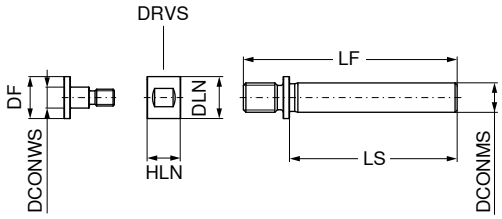
Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	○

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14

Cylindrical shank adapter for circular saw blades

▲ DCONWS = circular saw blade bore diameter





DCONMS h7	DLN	DF	LF	LS	HLN	DCONWS H7	DRVS	NEW Article no. 72 900 ...
mm	mm	mm	mm	mm	mm	mm	mm	
7	10	10	51	40	8	5	9	**005**
7	15	15	51	40	8	8	14	**008**
7	17	17	53	40	10	10	16	**010**
10	10	10	61	50	8	5	9	**105**
10	15	15	61	50	8	8	14	**108**
10	17	17	63	50	10	10	16	**110**
10	20	20	66	50	10	13	18	**113**
10	24	24	66	50	14	16	22	**116**
16	17	17	74	55	10	10	16	**210**
16	20	20	77	55	10	13	18	**213**
16	24	24	79	55	14	16	22	**216**


Screw – SR


Lock nut – KM

Spare parts for Article no.	Article no. 72 945 ...	Article no. 72 945 ...
72 900 005	**000**	**005**
72 900 008	**001**	**006**
72 900 010	**002**	**007**
72 900 105	**000**	**005**
72 900 108	**001**	**006**
72 900 110	**002**	**007**
72 900 113	**003**	**008**
72 900 116	**004**	**009**
72 900 210	**010**	**012**
72 900 213	**003**	**008**
72 900 216	**011**	**013**

Application data for plastics cutters

Material	Strength N/mm² – HB	50 981 ... - 50 988 ...	50 932 ...	50 937 ...	50 936 ...	50 938 ...	50 610 ... 50 611 ...	50 946 ...	50 948 ...	50 947 ...
Aluminium (non alloyed, low alloyed)	< 350 N/mm²						●			
Aluminium	< 500 N/mm²						●			
Aluminium alloy 0,5–10 % Si	< 400 N/mm²						●			
Aluminium alloy 10 – 15 % Si	< 400 N/mm²					●		●	●	●
Aluminium	< 400 N/mm²					●		●	●	
Copper (non alloyed, low alloyed)	< 350 N/mm²						●			
Copper wrought alloys	< 700 N/mm²					●		●	●	●
Special copper alloys	< 200 HB					●		●	●	●
Special copper alloys	< 300 HB					●		●	●	●
Special copper alloys	< 300 HB					●		●	●	●
Short-chipping brass, bronze, red bronze	< 600 N/mm²						●			
Long-chipping brass	< 600 N/mm²						●			
Thermoplastics							●			
Duroplastics		●	●	●			●			
Fibre-reinforced plastics		●	●	●	●	●		●	●	●
Magnesium and Magnesium Alloys	< 850 N/mm²					●		●	●	●
Graphite		●	●	●	●	●		●		●
Tungsten and tungsten alloys									●	●
Molybdenum and molybdenum alloys									●	●
Machining direction		↘	↘	↘	↘	↘	↘	↘	↘	↘
		1	2	3	4	5	6	7	8	9

Tips

1 

▲ Very sharp cutting edges for GFK and CFK and to prevent delamination of the component.

2 

▲ For excellent tool life when machining AFK, CFK and Graphite.

3 

4 

▲ Specialist for machining honeycomb materials; Milling of pockets not fully through the workpiece.

5 

▲ Specialist for machining honeycomb materials.

▲ Milling of recesses that pass through the material, the lower deck is pushed and upper deck pulled therefore the workpiece material is stabilized.

6 

▲ For machining non fibre-reinforced plastics and non-ferrous metals with low silicon content. (PE, PA, PVC, acrylic glass)

7 

8 

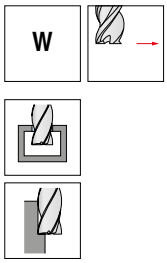
▲ For machining fibre-reinforced plastics and non-ferrous metals with high silicon content.

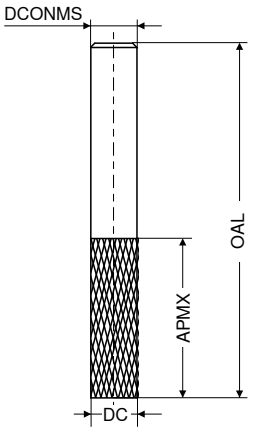
9 

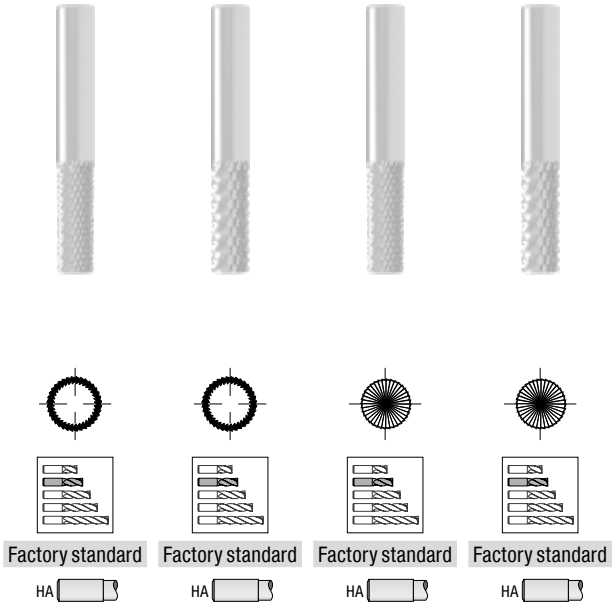
14

Cutter for plastics

- right hand cutting
- cross-pitched
- downward chip evacuation
- 50 981 ... and 50 983 ... = fine pitch
- 50 982 ... and 50 984 ... = medium pitch







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA

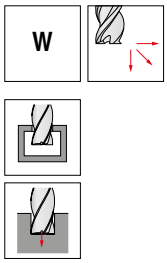
DC h10	APMX	OAL	DCONMS h6	Article no. 50 981 ...	Article no. 50 982 ...	Article no. 50 983 ...	Article no. 50 984 ...
mm	mm	mm	mm				
2,0	7	40	2,0	020	020	020	020
2,0	7	50	6,0	021	021	021	021
3,0	10	40	3,0	030	030	030	030
3,0	12	50	6,0	031	031	031	031
3,5	12	40	3,5	035	035	035	035
4,0	15	40	4,0	040	040	040	040
4,0	20	50	6,0	041	041	041	041
4,5	15	50	4,5	045	045	045	045
5,0	16	50	5,0	050	050	050	050
5,0	25	75	6,0	051	051	051	051
6,0	18	50	6,0	060	060	060	060
6,0	35	75	6,0	061	061	061	061
7,0	22	60	7,0	070	070	070	070
8,0	25	63	8,0	080	080	080	080
8,0	40	100	8,0	081	081	081	081
9,0	25	63	9,0	090	090	090	090
10,0	30	72	10,0	100	100	100	100
12,0	32	83	12,0	120	120	120	120
14,0	32	83	14,0	140	140	140	140
16,0	36	92	16,0	160	160	160	160
18,0	40	92	18,0	180	180	180	180
20,0	45	104	20,0	200	200	200	200

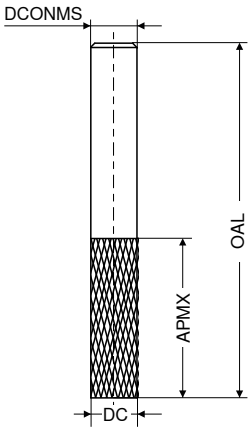
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

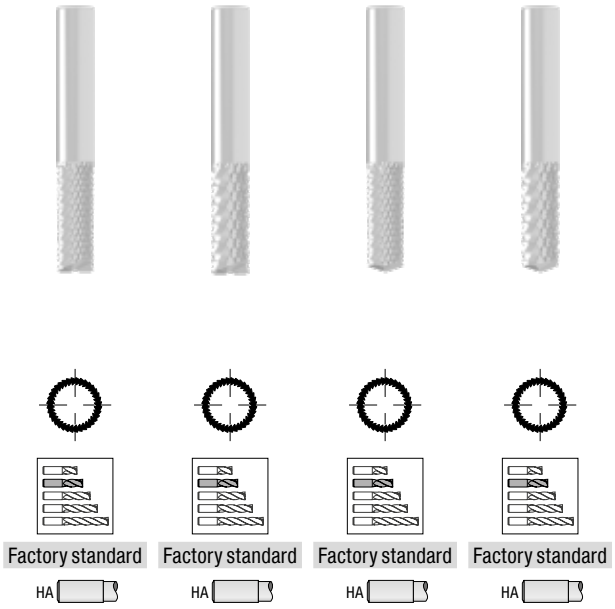
→ v_c/f_z Page 348

Cutter for plastics

- ▲ right hand cutting
- ▲ cross-pitched
- ▲ downward chip evacuation
- ▲ 50 985 ... and 50 987 ... = fine pitch
- ▲ 50 986 ... and 50 988 ... = medium pitch







DC h10	APMX	OAL	DCONMS h6	Article no. 50 985 ...	Article no. 50 986 ...	Article no. 50 987 ...	Article no. 50 988 ...
mm	mm	mm	mm				
2,0	7	40	2,0	020	020	020	020
2,0	7	50	6,0	021	021	021	021
3,0	10	40	3,0	030	030	030	030
3,0	12	50	6,0	031	031	031	031
3,5	12	40	3,5	035	035	035	035
4,0	15	40	4,0	040	040	040	040
4,0	20	50	6,0	041	041	041	041
4,5	15	50	4,5	045	045	045	045
5,0	16	50	5,0	050	050	050	050
5,0	25	75	6,0	051	051	051	051
6,0	18	50	6,0	060	060	060	060
6,0	35	75	6,0	061	061	061	061
7,0	22	60	7,0	070	070	070	070
8,0	25	63	8,0	080	080	080	080
8,0	40	100	8,0	081	081	081	081
9,0	25	63	9,0	090	090	090	090
10,0	30	72	10,0	100	100	100	100
12,0	32	83	12,0	120	120	120	120
14,0	32	83	14,0	140	140	140	140
16,0	36	92	16,0	160	160	160	160
18,0	40	92	18,0	180	180	180	180
20,0	45	104	20,0	200	200	200	200

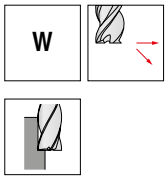
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

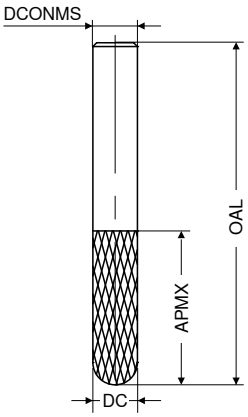
→ v_c/f_z Page 348

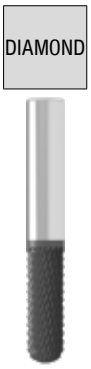
14

Ball nosed cutter for plastics

- right hand cutting
- cross-pitched









Factory standard

HA

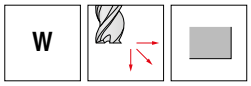
DC $_{h10}$ mm	APMX mm	OAL mm	DCONMS $_{h6}$ mm	Article no. 50 932 ...
2	7	40	2	**020**
2	7	50	6	**022**
3	10	40	3	**030**
3	12	50	6	**032**
4	15	40	4	**040**
4	20	50	6	**042**
5	16	50	5	**050**
5	25	75	6	**052**
6	18	50	6	**060**
6	35	75	6	**062**
8	25	63	8	**080**
8	40	100	8	**082**
10	30	72	10	**100**
12	32	83	12	**120**
16	36	92	16	**160**
20	40	104	20	**200**

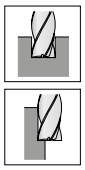
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

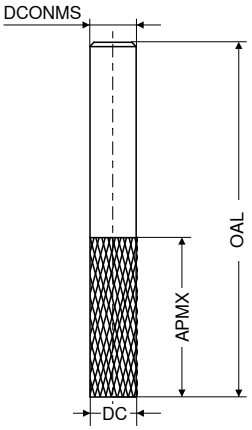
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Cutter for plastics

▲ right hand cutting
▲ cross-pitched













Factory standard



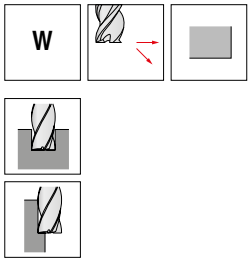
DC h10	APMX	OAL	DCONMS h6	Article no. 50 937 ...
mm	mm	mm	mm	
5	16	60	6	**050**
5	28	75	6	**052**
6	20	60	6	**060**
6	35	75	6	**062**
8	22	63	8	**080**
8	40	100	8	**082**
10	25	72	10	**100**
10	50	100	10	**102**
12	30	83	12	**120**
12	50	100	12	**122**
16	35	92	16	**160**
16	60	125	16	**162**

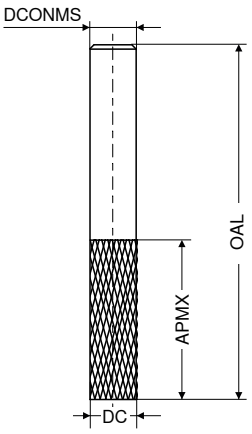
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

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14

Cutter for honeycomb materials











Factory standard



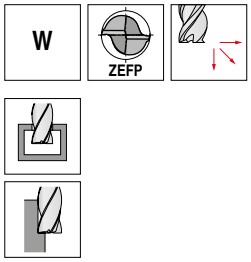
DC $_{h10}$ mm	APMX mm	OAL mm	DCONMS $_{h6}$ mm	Article no. 50 936 ...
6	16	50	6	**006**
8	19	63	8	**008**
10	22	72	10	**010**
12	26	83	12	**012**
14	17	100	12	**014**
16	17	100	12	**016**
20	17	100	12	**020**
24	10	100	12	**024**
24	17	100	12	**025**
44	17	100	12	**044** 1)

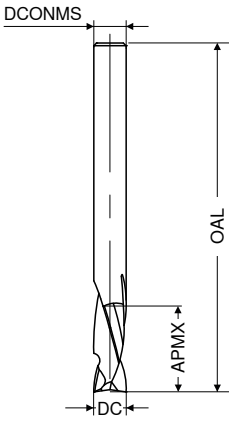
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

1) vertical plunging not possible

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Right and left hand helix cutter for fibre re-inforced plastics









Factory standard



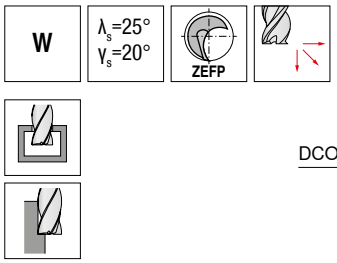
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 50 938 ...
2	6	40	6	2	**020**
3	12	40	3	2	**030**
3	12	50	6	2	**032**
4	14	40	4	2	**040**
5	16	50	5	2	**050**
6	18	50	6	2	**060**
8	20	63	8	2	**080**
10	25	72	10	2	**100**
12	30	83	12	2	**120**

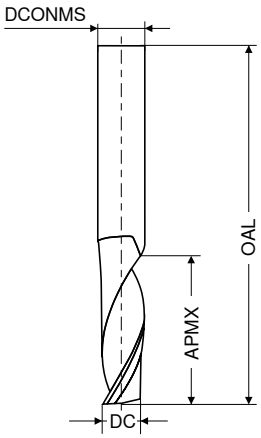
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

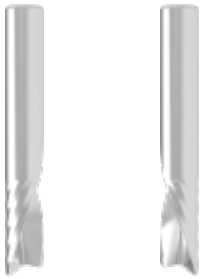
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Single flute cutter

▲ with polished chip flutes









Right-hand helix
right-hand cutting



Left-hand helix
right-hand cutting

Factory standard

HA



Factory standard

HA



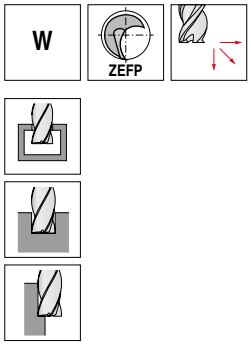
DC h10	APMX	OAL	DCONMS h6	ZEFP	Article no. 50 610 ...	Article no. 50 611 ...
mm	mm	mm	mm			
1,5	6	40	3,0	1	015	015
2,0	6	40	3,0	1	019	019
2,0	10	40	2,0	1	020	020
2,0	10	60	6,0	1	022	022
2,0	12	60	6,0	1	024	024
2,5	6	40	2,5	1	025	025
3,0	12	40	3,0	1	030	030
3,0	10	40	6,0	1	032	032
3,0	12	60	6,0	1	034	034
3,0	15	60	6,0	1	036	036
4,0	15	40	4,0	1	040	040
4,0	15	60	6,0	1	042	042
4,0	20	75	6,0	1	044	044
5,0	16	50	5,0	1	050	050
5,0	16	60	6,0	1	052	052
5,0	28	75	6,0	1	054	054
6,0	20	60	6,0	1	060	060
6,0	30	60	6,0	1	062	062
6,0	35	75	6,0	1	064	064
8,0	22	63	8,0	1	080	080
8,0	40	100	8,0	1	084	084
10,0	25	72	10,0	1	100	100
10,0	55	100	10,0	1	105	105
12,0	30	83	12,0	1	120	120
14,0	30	83	14,0	1	140	140
16,0	35	92	16,0	1	160	160
18,0	35	92	18,0	1	180	180
20,0	40	104	20,0	1	200	200

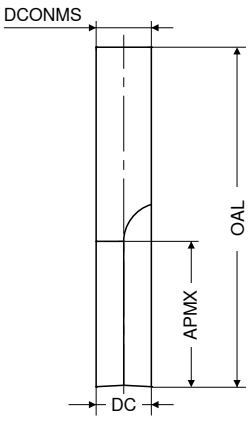
Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

→ v_c/f_z Page 348

Cutter for plastics

▲ with polished flutes









Factory standard



DC $_{h10}$ mm	APMX mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	Article no. 50 946 ...
1,5	6	40	3	1	**015**
2,0	6	40	3	1	**020**
2,0	10	40	2	1	**022**
2,0	10	60	6	1	**024**
2,0	12	60	6	1	**026**
3,0	12	40	3	1	**030**
3,0	12	60	6	1	**032**
3,0	15	60	6	1	**034**
4,0	15	60	6	1	**040**
4,0	20	75	6	1	**042**
5,0	16	60	6	1	**050**
5,0	28	75	6	1	**052**
6,0	20	60	6	1	**060**
6,0	30	60	6	1	**062**
6,0	35	75	6	1	**064**
8,0	22	63	8	1	**080**
8,0	40	100	8	1	**082**
10,0	25	72	10	1	**100**
10,0	55	100	10	1	**102**
12,0	30	83	12	1	**120**

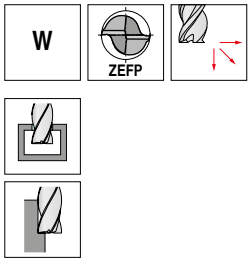
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

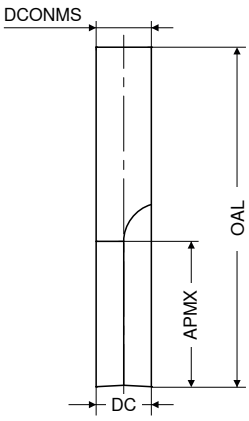
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14

Cutter for plastics

▲ with polished flutes









Factory standard

HA

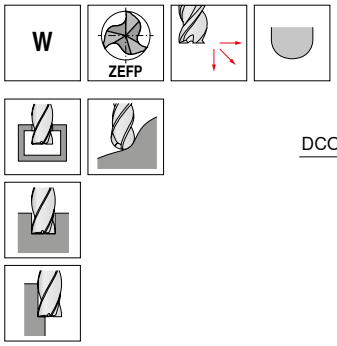
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 50 948 ...
2	6	40	6	2	**020**
3	12	40	3	2	**030**
3	12	50	6	2	**031**
4	14	40	6	2	**040**
5	16	50	5	2	**050**
6	18	50	6	2	**060**
8	20	63	8	2	**080**
10	25	72	10	2	**100**
12	30	83	12	2	**120**

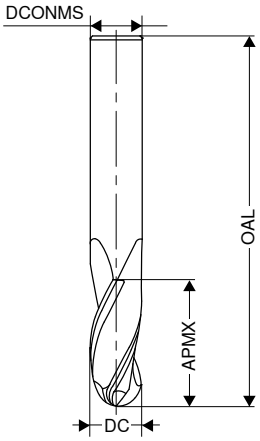
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

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Ball nosed cutter for plastics

- with polished flutes
- irregular pitch









DIN 6527 L

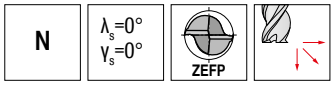
HA

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 50 947 ...
3	10	57	6	3	**030**
4	13	57	6	3	**040**
5	15	57	6	3	**050**
6	18	57	6	3	**060**
7	20	63	8	3	**070**
8	20	63	8	3	**080**
9	22	72	10	3	**090**
10	25	72	10	3	**100**
12	30	83	12	3	**120**
14	30	83	14	3	**140**
16	35	92	16	3	**160**
18	35	92	18	3	**180**
20	45	104	20	3	**200**

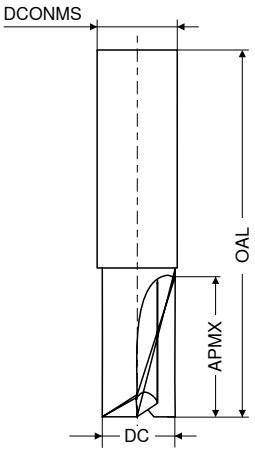
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

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Slot milling cutter











Factory standard

HA

DC e8 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 52 168 ...
2	8	50	3	2	020
3	12	50	3	2	030
4	13	60	4	2	040
5	14	60	5	2	050
6	16	58	6	2	060
7	20	65	8	2	070
8	20	65	8	2	080
9	22	70	10	2	090
10	22	70	10	2	100
12	25	70	12	2	120

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

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Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting Data – MonsterMill – End Mills – SCR, short – long

Index	Emulsion	Compressed air	MMS	short	long	Ø DC = 3,0–3,5 mm			Ø DC = 4,0–4,5 mm			short	long	Ø DC = 5,0–5,5 mm			Ø DC = 6,0–7,5 mm			Ø DC = 8,0–9,5 mm		
						a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c m/min			$a_{p\,max.}$ x DC		f_z mm			f_z mm			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm		
1.1	105–140	190–240		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.2	105–140	200–250		1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
1.3	90–120	160–210		1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
1.4	80–115	140–190		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.5	90–120	150–200		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.6	90–120	140–190		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.7	80–115	140–190		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.8	70–100	120–170		1,0	1,0	0,025	0,019	0,014	0,035	0,027	0,020	1,0	1,0*	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
1.9	70–100	120–170		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.10	70–100	140–190		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.11	70–100	120–170		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.12	70–100	140–190		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.13	70–100	90–150		1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
1.14	50–80	70–120		1,0	1,0	0,017	0,013	0,010	0,024	0,018	0,013	1,0	1,0*	0,034	0,025	0,017	0,046	0,034	0,023	0,06	0,05	0,03
1.15	70–100	130–180		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.16	80–120	110–160		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
2.1	90–130			1,0	1,0	0,025	0,019	0,014	0,035	0,027	0,020	1,0	1,0*	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
2.2	80–120			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.3	80–120			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.4	80–120			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.5	80–120			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.6	80–120			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.7	40–60			1,0	1,0	0,017	0,013	0,010	0,024	0,018	0,013	1,0	1,0*	0,035	0,025	0,017	0,046	0,034	0,023	0,06	0,05	0,03
3.1		200–240		1,0	1,0	0,040	0,031	0,022	0,055	0,043	0,031	1,0	1,0*	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
3.2		180–220		1,0	1,0	0,040	0,031	0,022	0,055	0,043	0,031	1,0	1,0*	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
3.3		200–240		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
3.4		180–220		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
3.5		160–200		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
3.6		140–180		1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
3.7		160–200		1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
3.8		140–180		1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
4.1																						
4.2																						
4.3																						
4.4																						
4.5																						
4.6	140–160	230–280		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.7	120–140	200–300		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.8	110–140	140–180		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.9	90–130	120–160		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.10	80–120	100–140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.11	150–200	280–350		1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
4.12	140–180	260–300		1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
4.13																						
4.14	180–280	300–400		1,0	1,0	0,067	0,052	0,038	0,094	0,073	0,053	1,0	1,0*	0,135	0,101	0,068	0,180	0,134	0,090	0,24	0,18	0,12
4.15																						
4.16																						
4.17																						
4.18	60–90	80–120		0,5	0,5	0,027	0,021	0,015	0,038	0,029	0,021	1,0	1,0	0,054	0,040	0,027	0,072	0,054	0,036	0,10	0,07	0,05
4.19	40–60	60–80		0,5	0,5	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0	0,045	0,018	0,023	0,060	0,045	0,030	0,08	0,06	0,04
5.1	30			0,5	0,5	0,022	0,017	0,012	0,030	0,023	0,017	0,5	0,5	0,043	0,032	0,022	0,058	0,043	0,029	0,08	0,06	0,04
5.2	30			0,5	0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,5	0,5	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
5.3	30			0,5	0,5	0,018	0,014	0,010	0,025	0,019	0,014	0,5	0,5	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
5.4	30			0,5	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
5.5	30			0,5	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
5.6	30			0,5	0,5	0,011	0,009	0,006	0,016	0,012	0,009	0,5	0,5	0,023	0,017	0,011	0,030	0,022	0,015	0,04	0,03	0,02
5.7	45			0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
5.8	30			0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
5.9	80–160			0,5	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,5	0,5	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
5.10	80–140			0,5	0,5	0,025	0,019	0,014	0,035	0,027	0,019	0,5	0,5	0,050	0,037	0,025	0,066	0,049	0,033	0,09	0,07	0,04
5.11	50–100			0,5	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,5	0,5	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
6.1		120–160		0,5	0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,5	0,5	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
6.2		80–120		0,3	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,3	0,3	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
6.3		60–100		0,15	0,15	0,016	0,012	0,009	0,022	0,017	0,012	0,15	0,15	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
6.4																						
6.5																						

* = With an a_p of 1.5xD, the feed rate per tooth f_z should be multiplied by 0.8

SCR ball nosed cutters at full slot, reduce f_z by 25 %!

Plunging angle for ramping and helical milling: No. of teeth 4 = 4° / No. of teeth 6 = 1°

Index	Ø DC = 10,0–11,5 mm			Ø DC = 12,0 mm			Ø DC = 14,0–15,5 mm			Ø DC = 16,0–17,0 mm			Ø DC = 18,0–19,5 mm			Ø DC = 20,0 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
1.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.2	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
1.3	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
1.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.6	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.7	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.8	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
1.9	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.10	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.11	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.12	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.13	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	○	●	○
1.14	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	○	●	○
1.15	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.16	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
2.1	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
2.2	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.3	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.4	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.5	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.6	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.7	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
3.1	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,21	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16		●	
3.2	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,21	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16		●	
3.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
3.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
3.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
3.6	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
3.7	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
3.8	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
4.1																					
4.2																					
4.3																					
4.4																					
4.5																					
4.6	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.7	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.8	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.9	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.10	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.11	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
4.12	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
4.13																					
4.14	0,30	0,22	0,15	0,33	0,25	0,17	0,33	0,26	0,18	0,36	0,27	0,21	0,38	0,31	0,24	0,43	0,35	0,27	●		○
4.15																					
4.16																					
4.17																					
4.18	0,12	0,09	0,06	0,10	0,10	0,07	0,13	0,10	0,07	0,14	0,11	0,08	0,15	0,12	0,10	0,17	0,14	0,11	●		○
4.19	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		○
5.1	0,10	0,07	0,05	0,11	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,14	0,11	0,09	●		
5.2	0,09	0,07	0,05	0,10	0,04	0,05	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08	●		
5.3	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07	●		
5.4	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.5	0,07	0,05	0,04	0,08	0,03	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.6	0,05	0,04	0,03	0,06	0,04	0,03	0,06	0,04	0,03	0,06	0,05	0,04	0,06	0,05	0,04	0,07	0,06	0,05	●		
5.7	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.8	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.9	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
5.10	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,11	0,09	0,16	0,13	0,10	●		
5.11	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
6.1	0,09	0,07	0,05	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08		●	
6.2	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
6.3	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06		●	
6.4																					
6.5																					

Feed rate guide values for ball nosed and torus cutters on → **Page 356**

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Cutting Data – MonsterMill – End Mills – SCR, extra long

	Emulsion	Compressed air	MMS	extra long		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
						a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	90–130	130–180		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.2	90–130	130–180		1,0*	0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
1.3	70–100	110–160		1,0*	0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
1.4	70–100	90–140		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.5	70–100	110–160		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.6	70–100	110–160		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.7	70–100	90–140		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.8	50–80	70–120		1,0*	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
1.9	50–80	70–120		1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.10	50–80	70–120		1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.11	50–80	70–120		1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.12	50–80	70–120		1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.13	50–80	70–120		1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
1.14	40–70	50–80		1,0*	0,5	0,017	0,013	0,010	0,024	0,018	0,013	0,034	0,025	0,017	0,046	0,034	0,023	0,06	0,05	0,03
1.15	50–80	70–120		1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.16	60–90	90–140		1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
2.1	60–100			1,0*	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
2.2	50–80			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.3	50–80			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.4	50–80			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.5	50–80			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.6	50–80			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.7	30–50			1,0*	0,5	0,017	0,013	0,010	0,024	0,018	0,013	0,034	0,025	0,017	0,047	0,034	0,023	0,06	0,05	0,03
3.1		160–200		1,0*	0,5	0,040	0,031	0,022	0,055	0,043	0,031	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
3.2		120–160		1,0*	0,5	0,040	0,031	0,022	0,055	0,043	0,031	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
3.3		160–200		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
3.4		120–160		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
3.5		120–160		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
3.6		100–140		1,0*	0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
3.7		120–160		1,0*	0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
3.8		100–140		1,0*	0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
4.1																				
4.2																				
4.3																				
4.4																				
4.5																				
4.6	100–130	220–240		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.7	90–110	180–220		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.8	80–110	140–180		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.9	60–90	120–160		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.10	60–90	100–140		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.11	110–150	280–320		1,0*	0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
4.12	100–140	260–300		1,0*	0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
4.13																				
4.14	120–180	300–400		1,0*	0,5	0,067	0,052	0,038	0,094	0,073	0,053	0,135	0,101	0,068	0,180	0,134	0,090	0,24	0,18	0,12
4.15																				
4.16																				
4.17																				
4.18	40–75	80–120		0,5*	0,25	0,027	0,021	0,015	0,038	0,029	0,021	0,054	0,040	0,027	0,072	0,054	0,036	0,10	0,07	0,05
4.19	30–50	60–80		0,5*	0,25	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,018	0,023	0,060	0,045	0,030	0,08	0,06	0,04
5.1	30			0,5*	0,25	0,022	0,017	0,012	0,030	0,023	0,017	0,043	0,032	0,022	0,058	0,043	0,029	0,08	0,06	0,04
5.2	30			0,5*	0,25	0,020	0,016	0,011	0,028	0,022	0,016	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
5.3	25			0,5*	0,25	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
5.4	25			0,5*	0,25	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
5.5	25			0,5*	0,25	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
5.6	25			0,5*	0,25	0,011	0,009	0,006	0,016	0,012	0,009	0,023	0,017	0,011	0,030	0,022	0,015	0,04	0,03	0,02
5.7	45			0,5*	0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
5.8	25			0,5*	0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
5.9	35–65			0,5*	0,25	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
5.10	30–55			0,5*	0,25	0,025	0,019	0,014	0,035	0,027	0,019	0,050	0,037	0,025	0,066	0,049	0,033	0,09	0,07	0,04
5.11	30–55			0,5*	0,25	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
6.1		80–120		0,5*	0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
6.2		60–100		0,5*	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
6.3		50–90		0,5*	0,15	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
6.4																				
6.5																				

* = Trimming and trochoidal slot milling

Plunging angle for ramping and helical milling: No. of teeth 4 = 4° / No. of teeth 6 = 1°

	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
1.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.2	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
1.3	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
1.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.6	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.7	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.8	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
1.9	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.10	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.11	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.12	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.13	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	○	●	○
1.14	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	○	●	○
1.15	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.16	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
2.1	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
2.2	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.3	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.4	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.5	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.6	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.7	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
3.1	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,20	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16	○	●	○
3.2	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,20	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16	○	●	○
3.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
3.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
3.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
3.6	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
3.7	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
3.8	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
4.1																					
4.2																					
4.3																					
4.4																					
4.5																					
4.6	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.7	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.8	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.9	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.10	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.11	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
4.12	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
4.13																					
4.14	0,30	0,22	0,15	0,33	0,25	0,17	0,33	0,26	0,18	0,33	0,27	0,21	0,38	0,31	0,24	0,43	0,35	0,27	●		○
4.15																					
4.16																					
4.17																					
4.18	0,12	0,09	0,06	0,10	0,10	0,07	0,13	0,10	0,07	0,13	0,11	0,08	0,15	0,12	0,10	0,17	0,14	0,11	●		○
4.19	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		○
5.1	0,10	0,07	0,05	0,11	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,14	0,11	0,09	●		
5.2	0,09	0,07	0,05	0,10	0,04	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08	●		
5.3	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07	●		
5.4	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.5	0,07	0,05	0,04	0,08	0,03	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.6	0,05	0,04	0,03	0,06	0,04	0,03	0,06	0,04	0,03	0,06	0,05	0,04	0,06	0,05	0,04	0,07	0,06	0,05	●		
5.7	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.8	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.9	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
5.10	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,09	0,07	0,12	0,10	0,08	0,14	0,11	0,09	0,16	0,13	0,10	●		
5.11	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
6.1	0,09	0,07	0,05	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08		●	
6.2	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
6.3	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06		●	
6.4																					
6.5																					

14

Cutting data – MonsterMill – Torus End Mills – SCR, long

		long	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	170–200	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,08	0,06	0,04
1.2	170–200	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,08	0,06	0,04
1.3	150–180	1,0	0,019	0,017	0,012	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
1.4	150–180	1,0	0,019	0,017	0,012	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
1.5	130–160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.6	140–170	1,0	0,019	0,017	0,012	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.7	150–180	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
1.8	130–160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.9	150–180	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
1.10	130–160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.11	130–160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.12	130–160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.13	130–160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.14	130–160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.15	150–180	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
1.16	130–160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
2.1																	
2.2																	
2.3																	
2.4																	
2.5																	
2.6																	
2.7																	
3.1	170–200	1,0	0,028	0,025	0,018	0,043	0,033	0,024	0,056	0,042	0,028	0,072	0,054	0,036	0,10	0,07	0,05
3.2	170–200	1,0	0,028	0,025	0,018	0,043	0,033	0,024	0,056	0,042	0,028	0,072	0,054	0,036	0,10	0,07	0,05
3.3	150–180	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,046	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
3.4	150–180	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,046	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
3.5	100–120	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
3.6	80–100	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
3.7	100–120	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
3.8	80–100	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
4.1																	
4.2																	
4.3																	
4.4																	
4.5																	
4.6																	
4.7																	
4.8																	
4.9																	
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4.12																	
4.13																	
4.14																	
4.15																	
4.16																	
4.17																	
4.18	80–100	0,5	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
4.19																	
5.1																	
5.2																	
5.3																	
5.4																	
5.5																	
5.6																	
5.7																	
5.8																	
5.9																	
5.10																	
5.11																	
6.1	100–120	0,5	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
6.2	80–100	0,3	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
6.3	60–70	0,15	0,009	0,008	0,006	0,014	0,011	0,008	0,020	0,015	0,010	0,024	0,018	0,012	0,03	0,02	0,02
6.4																	
6.5																	

	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
1.1	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
1.2	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
1.3	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.4	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.5	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.6	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.7	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.8	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.9	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.10	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.11	0,06	0,05	0,03	0,00	0,00	0,00	0,08	0,06	0,05	○	●	
1.12	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.13	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.14	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.15	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.16	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
2.1												
2.2												
2.3												
2.4												
2.5												
2.6												
2.7												
3.1	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
3.2	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
3.3	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
3.4	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
3.5	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
3.6	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
3.7	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
3.8	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
4.1												
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4.16												
4.17												
4.18	0,06	0,05	0,03	0,05	0,05	0,04	0,08	0,06	0,05	○		○
4.19												
5.1												
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5.8												
5.9												
5.10												
5.11												
6.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
6.2	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
6.3	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03		●	
6.4												
6.5												

Cutting data – MonsterMill – Torus End Mills – SCR, extra long

				Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			● 1st choice		○ suitable
		extra long		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	v_c m/min	$a_{p\,max}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm					
1.1	120–140	1,0*	0,5	0,08	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
1.2	120–140	1,0*	0,5	0,08	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
1.3	100–130	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.4	100–130	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.5	90–110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.6	100–120	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.7	100–130	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.8	90–110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.9	100–130	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.10	90–110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.11	90–110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,00	0,00	0,00	0,08	0,06	0,05	○	●	
1.12	90–110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.13	90–110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.14	90–110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.15	100–130	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.16	90–110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
2.1																		
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2.7																		
3.1	120–140	1,0*	0,5	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
3.2	120–140	1,0*	0,5	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
3.3	100–130	1,0*	0,5	0,08	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
3.4	100–130	1,0*	0,5	0,08	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
3.5	70–85	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
3.6	60–70	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
3.7	70–85	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
3.8	60–70	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
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4.17																		
4.18	60–70	0,5*	0,25	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	●		○
4.19																		
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5.10																		
5.11																		
6.1	70–85	0,5*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
6.2	60–70	0,5*	0,3	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
6.3	50–60	0,5*	0,15	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03		●	
6.4																		
6.5																		

* = Trimming and trochoidal slot milling

Cutting data – MonsterMill – Torus End Mills – SCR, extra long, HSC machining

● 1st choice ○ suitable

Index	v_c m/min	a_p x DC	a_e x DC	Ø DC = 3 mm f_z mm	Ø DC = 4 mm f_z mm	Ø DC = 5 mm f_z mm	Ø DC = 6 mm f_z mm	Ø DC = 8 mm f_z mm	Ø DC = 10 mm f_z mm	Ø DC = 12 mm f_z mm	Ø DC = 16 mm f_z mm	Emulsion	Compressed air	MMS
1.1	230–250	0,05	0,6	0,110	0,152	0,190	0,228	0,30	0,38	0,46	0,60	○	●	
1.2	230–250	0,05	0,6	0,110	0,152	0,190	0,228	0,30	0,38	0,46	0,60	○	●	
1.3	200–220	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
1.4	200–220	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
1.5	170–190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
1.6	190–210	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
1.7	200–220	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
1.8	170–190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
1.9	200–220	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
1.10	170–190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
1.11	170–190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
1.12	170–190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
1.13	170–190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
1.14	170–190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
1.15	200–220	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
1.16	170–190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
2.1														
2.2														
2.3														
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2.5														
2.6														
2.7														
3.1	230–250	0,05	0,6	0,120	0,160	0,200	0,240	0,32	0,40	0,48	0,64	○	●	
3.2	230–250	0,05	0,6	0,120	0,160	0,200	0,240	0,32	0,40	0,48	0,64	○	●	
3.3	200–220	0,04	0,5	0,096	0,130	0,160	0,192	0,26	0,32	0,38	0,51	○	●	
3.4	200–220	0,04	0,5	0,096	0,130	0,160	0,192	0,26	0,32	0,38	0,51	○	●	
3.5	130–150	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
3.6	100–120	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
3.7	130–150	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
3.8	100–120	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
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4.16														
4.17														
4.18	100–120	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	●		○
4.19														
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5.9														
5.10														
5.11														
6.1	130–150	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38		●	
6.2	100–120	0,03	0,3	0,060	0,080	0,100	0,120	0,16	0,20	0,24	0,32		●	
6.3	90–110	0,02	0,3	0,048	0,064	0,080	0,096	0,13	0,16	0,19	0,26		●	
6.4	80–100	0,02	0,2	0,024	0,056	0,070	0,084	0,11	0,14	0,17	0,22		●	
6.5	60–80	0,02	0,2	0,036	0,048	0,060	0,072	0,10	0,12	0,14	0,19		●	

Cutting data standard values – MonsterMill – End mills – ICR, short

	Emulsion	Compressed air	MMS	short	Ø DC = 1,5 mm			Ø DC = 2 mm			Ø DC = 2,5 mm			● 1st choice		○ suitable
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	v_c m/min			$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm					
1.1	130–180	150–200		0,25	0,020	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	○	●	○
1.2	130–180	150–200		0,25	0,012	0,013	0,010	0,020	0,019	0,014	0,029	0,024	0,018	○	●	○
1.3	140–160	130–180		0,25	0,014	0,013	0,010	0,020	0,019	0,014	0,029	0,024	0,018	○	●	○
1.4	120–140	110–160		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
1.5	140–160	130–180		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
1.6	140–160	130–180		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
1.7	120–160	110–160		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
1.8	80–120	90–140		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	○	●	○
1.9	80–120	90–140		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
1.10	80–120	90–140		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
1.11	80–120	90–140		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
1.12	80–120	90–140		0,25	0,011	0,010	0,008	0,013	0,012	0,009	0,020	0,017	0,012	○	●	○
1.13	80–120	90–140		0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	○	●	○
1.14	60–100	50–100		0,25	0,009	0,008	0,006	0,011	0,010	0,008	0,016	0,013	0,010	○	●	○
1.15	80–120	90–140		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
1.16	100–140	110–160		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
2.1	**100–140**			0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	●		
2.2	**100–120**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
2.3	**80 –100**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
2.4	**80 –100**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
2.5	**100–120**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
2.6	**100–120**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
2.7	**40–60**			0,25	0,009	0,008	0,006	0,011	0,010	0,008	0,016	0,013	0,010	●		
3.1		180–220		0,25	0,020	0,019	0,014	0,025	0,024	0,018	0,036	0,030	0,022		●	
3.2		160–200		0,25	0,020	0,019	0,014	0,025	0,024	0,018	0,036	0,030	0,022		●	
3.3		180 –220		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019		●	
3.4		160 –200		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019		●	
3.5		140 –180		0,25	0,014	0,013	0,010	0,022	0,020	0,015	0,028	0,023	0,017		●	
3.6		120–160		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●	
3.7		140 –180		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●	
3.8		120 –160		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●	
4.1																
4.2																
4.3																
4.4																
4.5																
4.6	220–240	220–240		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
4.7	220–240	220–240		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
4.8	140–160	140–160		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
4.9	120–140	120–140		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
4.10	100–120	100–120		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
4.11	280–300	280–300		0,25	0,007	0,007	0,005	0,020	0,019	0,014	0,029	0,024	0,018	●		○
4.12	280–300	280–300		0,25	0,014	0,013	0,010	0,020	0,019	0,014	0,029	0,024	0,018	●		○
4.13																
4.14	300–340	300–340		0,25	0,029	0,027	0,020	0,043	0,040	0,030	0,051	0,043	0,032	●		○
4.15																
4.16																
4.17																
4.18	80–120	80–120		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●		
4.19	60–80	60–80		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
5.1	**30**			0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	●		
5.2	**30**			0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	●		
5.3	**25**			0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
5.4	**25**			0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
5.5	**25**			0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
5.6	**25**			0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
5.7	**45**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
5.8	**30**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
5.9	**80–100**			0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	●		
5.10	**60–80**			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●		
5.11	**60–80**			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●		
6.1		80–100		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015		●	
6.2		80–120		0,20	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013		●	
6.3		60–80		0,15	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012		●	
6.4																
6.5																

Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

Cutting Data – MonsterMill – End Mills – ICR, short – long

	Emulsion	Compressed air	MMS	short	long	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			● 1st choice		○ suitable
						a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	v_c m/min			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
1.1	130–180	150–200		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	○	●	○
1.2	130–180	150–200		1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	○	●	○
1.3	140–160	130–180		1,0	1,0*	0,0382	0,0295	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	○	●	○
1.4	120–140	110–160		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
1.5	140–160	130–180		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
1.6	140–160	130–180		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
1.7	120–160	110–160		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
1.8	80–120	90–140		1,0	1,0*	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	○	●	○
1.9	80–120	90–140		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
1.10	80–120	90–140		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
1.11	80–120	90–140		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
1.12	80–120	90–140		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
1.13	80–120	90–140		1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	○	●	○
1.14	60–100	50–100		1,0	1,0*	0,020	0,016	0,011	0,027	0,021	0,015	0,034	0,026	0,019	0,040	0,031	0,023	○	●	○
1.15	80–120	90–140		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
1.16	100–140	110–160		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
2.1	**100–140**			1,0	1,0*	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	●		
2.2	**100–120**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
2.3	**80 –100**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
2.4	**80 –100**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
2.5	**100–120**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
2.6	**100–120**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
2.7	**40–60**			1,0	1,0*	0,020	0,016	0,011	0,027	0,021	0,015	0,034	0,026	0,019	0,038	0,029	0,021	●		
3.1		180–220		1,0	1,0*	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053		●	
3.2		160–200		1,0	1,0*	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053		●	
3.3		180 –220		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045		●	
3.4		160 –200		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045		●	
3.5		140 –180		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●	
3.6		120–160		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●	
3.7		140 –180		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●	
3.8		120 –160		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●	
4.1																				
4.2																				
4.3																				
4.4																				
4.5																				
4.6	220–240	220–240		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○
4.7	220–240	220–240		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○
4.8	140–160	140–160		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○
4.9	120–140	120–140		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○
4.10	100–120	100–120		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○
4.11	280–300	280–300		1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,741	0,572	0,413	●		○
4.12	280–300	280–300		1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	●		○
4.13																				
4.14	300–340	300–340		1,0	1,0*	0,058	0,045	0,033	0,108	0,083	0,060	0,135	0,104	0,075	0,162	0,125	0,090	●		○
4.15																				
4.16																				
4.17																				
4.18	80–120	80–120		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●		
4.19	60–80	60–80		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,021	0,025	0,054	0,042	0,030	●		
5.1	**30**			0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	●		
5.2	**30**			0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	●		
5.3	**25**			0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●		
5.4	**25**			0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●		
5.5	**25**			0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●		
5.6	**25**			0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●		
5.7	**45**			0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
5.8	**30**			0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
5.9	**80–100**			0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	●		
5.10	**60–80**			0,5	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●		
5.11	**60–80**			0,5	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●		
6.1		80–100		0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034		●	
6.2		80–120		0,3	0,3	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030		●	
6.3		60–80		0,15	0,15	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026		●	
6.4																				
6.5																				

* = with an a_p of 1.5 x DC the f_z should be multiplied by 0.8

Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

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Cutting Data – MonsterMill – End Mills – ICR, short – long

	Emulsion	Compressed air	MMS	short	long	Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm		
						a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm		
1.1	130–180	150–200		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,18	0,14	0,10
1.2	130–180	150–200		1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10
1.3	140–160	130–180		1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10
1.4	120–140	110–160		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
1.5	140–160	130–180		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
1.6	140–160	130–180		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
1.7	120–160	110–160		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
1.8	80–120	90–140		1,0	1,0*	0,08	0,06	0,05	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08
1.9	80–120	90–140		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
1.10	80–120	90–140		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
1.11	80–120	90–140		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
1.12	80–120	90–140		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
1.13	80–120	90–140		1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
1.14	60–100	50–100		1,0	1,0*	0,05	0,04	0,03	0,07	0,05	0,04	0,11	0,08	0,06	0,09	0,07	0,05
1.15	80–120	90–140		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
1.16	100–140	110–160		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
2.1	**100–140**			1,0	1,0*	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08
2.2	**100–120**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06
2.3	**80 –100**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
2.4	**80 –100**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
2.5	**100–120**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
2.6	**100–120**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
2.7	**40–60**			1,0	1,0*	0,05	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,05	0,09	0,07	0,05
3.1		180–220		1,0	1,0*	0,13	0,10	0,07	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12
3.2		160–200		1,0	1,0*	0,13	0,10	0,07	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12
3.3		180 –220		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,14	0,11	0,08	0,19	0,15	0,11
3.4		160 –200		1,0	1,0*	0,11	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,19	0,15	0,11
3.5		140 –180		1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
3.6		120–160		1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
3.7		140 –180		1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
3.8		120 –160		1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
4.1																	
4.2																	
4.3																	
4.4																	
4.5																	
4.6	220–240	220–240		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
4.7	220–240	220–240		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
4.8	140–160	140–160		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
4.9	120–140	120–140		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
4.10	100–120	100–120		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
4.11	280–300	280–300		1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10
4.12	280–300	280–300		1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10
4.13																	
4.14	300–340	300–340		1,0	1,0*	0,22	0,17	0,12	0,27	0,21	0,15	0,32	0,25	0,18	0,38	0,29	0,21
4.15																	
4.16																	
4.17																	
4.18	80–120	80–120		1,0	1,0*	0,09	0,07	0,05	0,14	0,10	0,08	0,11	0,11	0,08	0,16	0,12	0,09
4.19	60–80	60–80		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
5.1	**30**			0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08
5.2	**30**			0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,06	0,07	0,14	0,11	0,08
5.3	**25**			0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
5.4	**25**			0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
5.5	**25**			0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,05	0,06	0,13	0,10	0,07
5.6	**25**			0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,11	0,09	0,06
5.7	**45**			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
5.8	**30**			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
5.9	**80–100**			0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08
5.10	**60–80**			0,5	0,5	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
5.11	**60–80**			0,5	0,5	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
6.1		80–100		0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08
6.2		80–120		0,3	0,3	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
6.3		60–80		0,15	0,15	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
6.4																	
6.5																	

* = with an a_p of 1.5 x DC the f_z should be multiplied by 0.8

Plunging angle for ramping and helical milling: No. of teeth 3 = 5° / No. of teeth 4 = 4° / No. of teeth 5 = 3°

	Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
1.1	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15	○	●	○
1.2	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
1.3	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
1.4	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
1.5	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
1.6	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
1.7	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
1.8	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
1.9	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.10	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.11	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.12	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.13	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	○	●	○
1.14	0,10	0,08	0,06	0,10	0,09	0,07	0,14	0,13	0,10	○	●	○
1.15	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.16	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
2.1	0,14	0,12	0,09	0,12	0,10	0,08	0,16	0,14	0,11	●		
2.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.3	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.4	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.5	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.6	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.7	0,10	0,08	0,06	0,10	0,09	0,07	0,11	0,09	0,08	●		
3.1	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
3.2	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
3.3	0,19	0,16	0,12	0,20	0,17	0,13	0,25	0,22	0,18		●	
3.4	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15		●	
3.5	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
3.6	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
3.7	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
3.8	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
4.1												
4.2												
4.3												
4.4												
4.5												
4.6	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.7	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.8	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.9	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.10	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.11	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
4.12	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
4.13												
4.14	0,38	0,31	0,24	0,41	0,35	0,27	0,43	0,38	0,30	●		○
4.15												
4.16												
4.17												
4.18	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
4.19	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.1	0,15	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
5.2	0,15	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
5.3	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.4	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.5	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.6	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.7	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
5.8	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
5.9	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
5.10	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
5.11	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
6.1	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11		●	
6.2	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10		●	
6.3	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09		●	
6.4												
6.5												

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Cutting Data – MonsterMill – End Mills – ICR, extra long

Index	Emulsion	Compressed air	MMS	$a_{p\,max.}$ x DC		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
						a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c m/min					f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	110–155	130–180		1	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
1.2	110–155	130–180		1	0,5	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	0,10	0,08	0,06
1.3	120–140	110–160		1	0,5	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	0,10	0,08	0,06
1.4	100–120	90–140		1	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
1.5	120–140	110–160		1	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
1.6	120–140	110–160		1	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
1.7	100–140	90–140		1	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
1.8	70–105	70–120		1	0,5	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
1.9	70–105	70–120		1	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
1.10	70–105	70–120		1	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
1.11	70–105	70–120		1	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
1.12	70–105	70–120		1	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
1.13	70–105	70–120		1	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
1.14	55–85	50–80		1	0,5	0,020	0,016	0,011	0,027	0,021	0,015	0,034	0,026	0,019	0,040	0,031	0,023	0,05	0,04	0,03
1.15	70–105	70–120		1	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
1.16	85–120	90–140		1	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
2.1	**85–120**			1	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
2.2	**85–105**			1	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
2.3	**70–90**			1	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
2.4	**70–90**			1	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
2.5	**85–105**			1	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
2.6	**85–105**			1	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
2.7	**35–55**			1	0,5	0,020	0,016	0,011	0,027	0,021	0,015	0,034	0,026	0,019	0,038	0,029	0,021	0,05	0,04	0,03
3.1		150–190		1	0,5	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053	0,13	0,10	0,07
3.2		140–170		1	0,5	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053	0,13	0,10	0,07
3.3		150–190		1	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
3.4		140–170		1	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
3.5		120–150		1	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
3.6		105–140		1	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
3.7		120–150		1	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
3.8		105–140		1	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
4.1																				
4.2																				
4.3																				
4.4																				
4.5																				
4.6	190–205	190–205		1	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
4.7	190–205	190–205		1	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
4.8	120–140	120–140		1	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
4.9	105–120	105–120		1	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
4.10	85–105	85–105		1	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
4.11	240–260	240–260		1	0,5	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,741	0,572	0,413	0,10	0,08	0,06
4.12	240–260	240–260		1	0,5	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	0,10	0,08	0,06
4.13																				
4.14	250–290	250–290		1	0,5	0,058	0,045	0,033	0,108	0,083	0,060	0,135	0,104	0,075	0,162	0,125	0,090	0,22	0,17	0,12
4.15																				
4.16																				
4.17																				
4.18	70–105	70–105		1	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
4.19	50–70	50–70		1	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,021	0,025	0,054	0,042	0,030	0,07	0,06	0,04
5.1	**27**			0,5	0,25	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
5.2	**27**			0,5	0,25	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
5.3	**23**			0,5	0,25	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
5.4	**23**			0,5	0,25	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
5.5	**23**			0,5	0,25	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
5.6	**23**			0,5	0,25	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
5.7	**38**			0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
5.8	**27**			0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
5.9	**70–85**			0,5	0,25	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
5.10	**50–70**			0,5	0,25	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
5.11	**50–70**			0,5	0,25	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
6.1		70–85		0,5*		0,031	0,024		0,040	0,031		0,052	0,040		0,061	0,047		0,08	0,06	
6.2		70–105		0,5*		0,027	0,021		0,036	0,028		0,045	0,035		0,054	0,042		0,07	0,06	
6.3		50–70		0,5*		0,025	0,019		0,031	0,024		0,040	0,031		0,047	0,036		0,06	0,05	
6.4																				
6.5																				

* = Edge Milling and Trochoidal Milling

Plunging angle for ramping and helical milling: No. of teeth 3 = 5 ° / No. of teeth 4 = 4° / No. of teeth 5 = 3°

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
1.1	0,14	0,10	0,08	0,16	0,13	0,09	0,18	0,14	0,10	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15	○	●	○
1.2	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
1.3	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
1.4	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
1.5	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
1.6	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
1.7	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
1.8	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
1.9	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.10	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.11	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.12	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.13	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	○	●	○
1.14	0,07	0,05	0,04	0,11	0,08	0,06	0,09	0,07	0,05	0,10	0,08	0,06	0,10	0,09	0,07	0,14	0,13	0,10	○	●	○
1.15	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.16	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
2.1	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,12	0,10	0,08	0,16	0,14	0,11	●		
2.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.3	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.4	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.5	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.6	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.7	0,07	0,05	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,10	0,09	0,07	0,11	0,09	0,08	●		
3.1	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
3.2	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
3.3	0,14	0,10	0,08	0,14	0,11	0,08	0,19	0,15	0,11	0,19	0,16	0,12	0,20	0,17	0,13	0,25	0,22	0,18		●	
3.4	0,12	0,09	0,07	0,14	0,11	0,08	0,19	0,15	0,11	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15		●	
3.5	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
3.6	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
3.7	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
3.8	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
4.1																					
4.2																					
4.3																					
4.4																					
4.5																					
4.6	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.7	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.8	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.9	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.10	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.11	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
4.12	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
4.13																					
4.14	0,27	0,21	0,15	0,32	0,25	0,18	0,38	0,29	0,21	0,38	0,31	0,24	0,41	0,35	0,27	0,43	0,38	0,30	●		○
4.15																					
4.16																					
4.17																					
4.18	0,14	0,10	0,08	0,11	0,11	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
4.19	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.1	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,15	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
5.2	0,10	0,08	0,06	0,12	0,06	0,07	0,14	0,11	0,08	0,15	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
5.3	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.4	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.5	0,09	0,07	0,05	0,11	0,05	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.6	0,09	0,07	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.7	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
5.8	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
5.9	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
5.10	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
5.11	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
6.1	0,10	0,08		0,12	0,09		0,14	0,11		0,14	0,12		0,16	0,13		0,16	0,14			●	
6.2	0,09	0,07		0,11	0,08		0,13	0,10		0,13	0,10		0,14	0,12		0,14	0,13			●	
6.3	0,08	0,06		0,09	0,07		0,11	0,09		0,11	0,09		0,12	0,10		0,13	0,11			●	
6.4																					
6.5																					

Cutting data standard values – MonsterMill – TCR, end mills 52 503 ... / 52 504 ... /

	long	extra long	long	extra long	Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,06–0,1 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,06–0,1 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,06–0,1 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,06–0,1 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
2.1	110	88	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,050	0,037	0,025
2.2	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,050	0,037	0,025
2.3	80	64	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,050	0,037	0,025
2.4	80	64	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,050	0,037	0,025
2.5	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,050	0,037	0,025
2.6	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,050	0,037	0,025
2.7	55	44	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.1	**55**	**44**	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.2	**55**	**44**	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.3	**55**	**44**	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.4	**55**	**44**	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.5	**55**	**44**	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.6	**55**	**44**	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.7	**55**	**44**	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.8	**55**	**44**	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.9	**120**	**96**	1,0	0,5	0,045	0,035	0,025	0,060	0,045	0,030	0,070	0,052	0,035	0,100	0,075	0,050
5.10	**100**	**80**	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.11	**80**	**64**	1,0	0,5	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,045	0,030

Cutting data standard values – MonsterMill – TCR, end mills 52 505 ... / 52 506 ...

	long	long	Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12mm		Ø DC = 16 mm	
			a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
2.1	110	1,0	0,017	0,012	0,024	0,016	0,031	0,021	0,037	0,025	0,048	0,032	0,060	0,040	0,065	0,050
2.2	100	1,0	0,017	0,012	0,024	0,016	0,031	0,021	0,037	0,025	0,048	0,032	0,060	0,040	0,065	0,050
2.3	80	1,0	0,017	0,012	0,024	0,016	0,031	0,021	0,037	0,025	0,048	0,032	0,060	0,040	0,065	0,050
2.4	80	1,0	0,017	0,012	0,024	0,016	0,031	0,021	0,037	0,025	0,048	0,032	0,060	0,040	0,065	0,050
2.5	100	1,0	0,017	0,012	0,024	0,016	0,031	0,021	0,037	0,025	0,048	0,032	0,060	0,040	0,065	0,050
2.6	100	1,0	0,017	0,012	0,024	0,016	0,031	0,021	0,037	0,025	0,048	0,032	0,060	0,040	0,065	0,050
2.7	55	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060
5.1	**55**	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060
5.2	**55**	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060
5.3	**55**	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060
5.4	**55**	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060
5.5	**55**	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060
5.6	**55**	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060
5.7	**55**	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060
5.8	**55**	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060
5.9	**120**	1,0	0,035	0,025	0,045	0,030	0,052	0,035	0,075	0,050	0,089	0,060	0,104	0,070	0,077	0,060
5.10	**100**	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,089	0,060	0,077	0,060
5.11	**80**	1,0	0,021	0,015	0,030	0,020	0,037	0,025	0,045	0,030	0,060	0,040	0,075	0,050	0,077	0,060

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	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,06–0,1 x DC			
Index	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
2.1	0,064	0,048	0,032	0,080	0,060	0,040	0,085	0,065	0,050	0,111	0,090	0,070	●		
2.2	0,064	0,048	0,032	0,080	0,060	0,040	0,085	0,065	0,050	0,111	0,090	0,070	●		
2.3	0,064	0,048	0,032	0,080	0,060	0,040	0,085	0,065	0,050	0,111	0,090	0,070	●		
2.4	0,064	0,048	0,032	0,080	0,060	0,040	0,085	0,065	0,050	0,111	0,090	0,070	●		
2.5	0,064	0,048	0,032	0,080	0,060	0,040	0,085	0,065	0,050	0,111	0,090	0,070	●		
2.6	0,064	0,048	0,032	0,080	0,060	0,040	0,085	0,065	0,050	0,111	0,090	0,070	●		
2.7	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.1	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.2	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.3	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.4	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.5	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.6	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.7	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.8	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.9	0,120	0,089	0,060	0,140	0,104	0,070	0,101	0,077	0,060	0,190	0,155	0,120	●		
5.10	0,100	0,075	0,050	0,120	0,089	0,060	0,101	0,077	0,060	0,158	0,129	0,100	●		
5.11	0,080	0,060	0,040	0,100	0,075	0,050	0,101	0,077	0,060	0,126	0,103	0,080	●		

	Ø DC = 20 mm		● 1st choice		○ suitable
	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC			
Index	f_z mm	f_z mm	Emulsion	Compressed air	MMS
2.1	0,090	0,070	●		
2.2	0,090	0,070	●		
2.3	0,090	0,070	●		
2.4	0,090	0,070	●		
2.5	0,090	0,070	●		
2.6	0,090	0,070	●		
2.7	0,090	0,070	●		
5.1	0,090	0,070	●		
5.2	0,090	0,070	●		
5.3	0,090	0,070	●		
5.4	0,090	0,070	●		
5.5	0,090	0,070	●		
5.6	0,090	0,070	●		
5.7	0,090	0,070	●		
5.8	0,090	0,070	●		
5.9	0,155	0,120	●		
5.10	0,129	0,100	●		
5.11	0,103	0,080	●		

Cutting data standard values – MonsterMill – TCR, ball-nosed end mills 52 513 ... /

	long	extra long		Ø DC = 2 mm		Ø DC = 3 mm		Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm	
				a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
2.1	**60**	**55**	0,1–0,2	0,009	0,007	0,011	0,008	0,012	0,009	0,012	0,009	0,018	0,014	0,029	0,023
2.2	**55**	**50**	0,1–0,2	0,009	0,007	0,011	0,008	0,012	0,009	0,012	0,009	0,018	0,014	0,029	0,023
2.3	**45**	**40**	0,1–0,2	0,009	0,007	0,011	0,008	0,012	0,009	0,012	0,009	0,018	0,014	0,029	0,023
2.4	**45**	**40**	0,1–0,2	0,009	0,007	0,011	0,008	0,012	0,009	0,012	0,009	0,018	0,014	0,029	0,023
2.5	**55**	**50**	0,1–0,2	0,009	0,007	0,011	0,008	0,012	0,009	0,012	0,009	0,018	0,014	0,029	0,023
2.6	**55**	**50**	0,1–0,2	0,009	0,007	0,010	0,008	0,012	0,010	0,012	0,010	0,020	0,015	0,025	0,020
2.7	**33**	**28**	0,1–0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030
5.1	**33**	**28**	0,1–0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030
5.2	**33**	**28**	0,1–0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030
5.3	**33**	**28**	0,1–0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030
5.4	**33**	**28**	0,1–0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030
5.5	**33**	**28**	0,1–0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030
5.6	**33**	**28**	0,1–0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030
5.7	**33**	**28**	0,1–0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030
5.8	**33**	**28**	0,1–0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030
5.9	**65**	**60**	0,1–0,2	0,017	0,013	0,020	0,014	0,022	0,017	0,022	0,017	0,034	0,025	0,053	0,042
5.10	**55**	**50**	0,1–0,2	0,014	0,011	0,017	0,012	0,019	0,014	0,019	0,014	0,029	0,022	0,046	0,036
5.11	**45**	**40**	0,1–0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030

Cutting data standard values – MonsterMill – TCR, torus cutters 52 511 ... / 52 512 ...

	long	extra long		Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	● 1st choice		○ suitable
				a_e 0,01–1,0 x DC	a_e 0,01–1,0 x DC	a_e 0,01–1,0 x DC	a_e 0,01–1,0 x DC	a_e 0,01–1,0 x DC	a_e 0,01–1,0 x DC	a_e 0,01–1,0 x DC	a_e 0,01–1,0 x DC	a_e 0,01–1,0 x DC	Emulsion	Compressed air	MMS
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
2.1	**120**	**110**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		
2.2	**110**	**100**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		
2.3	**90**	**80**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		
2.4	**90**	**80**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		
2.5	**110**	**100**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		
2.6	**110**	**100**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		
2.7															
5.1	**65**	**55**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		
5.2	**65**	**55**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		
5.3	**65**	**55**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		
5.4	**65**	**55**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		
5.5	**65**	**55**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		
5.6	**65**	**55**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		
5.7	**65**	**55**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		
5.8	**65**	**55**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		
5.9	**130**	**120**	0,06	0,040	0,060	0,070	0,090	0,120	0,150	0,180	0,210	0,300	●		
5.10	**110**	**100**	0,06	0,030	0,040	0,060	0,080	0,100	0,120	0,150	0,180	0,240	●		
5.11	**90**	**80**	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●		

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	Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		● 1st choice		○ suitable
	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	Emulsion	Compressed air	MMS
Index	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
2.1	0,032	0,025	0,035	0,030	0,039	0,034	●		
2.2	0,032	0,025	0,035	0,030	0,039	0,034	●		
2.3	0,032	0,025	0,035	0,030	0,039	0,034	●		
2.4	0,032	0,025	0,035	0,030	0,039	0,034	●		
2.5	0,032	0,025	0,035	0,030	0,039	0,034	●		
2.6	0,030	0,025	0,035	0,030	0,040	0,035	●		
2.7	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.1	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.2	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.3	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.4	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.5	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.6	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.7	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.8	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.9	0,059	0,046	0,066	0,056	0,073	0,063	●		
5.10	0,050	0,040	0,056	0,048	0,062	0,054	●		
5.11	0,042	0,033	0,047	0,040	0,052	0,045	●		

Cutting data standard values – MonsterMill – Ball-nosed end mills – HCR, 53 600 ... /

$T_x \leq 2,5$ x DC

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
			f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
1.15	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
1.16	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
6.1	200	0,05	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
6.2	180	0,05	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
6.3	160	0,05	**0,002**	**0,005**	**0,006**	**0,008**	**0,012**	**0,014**	**0,017**	**0,022**	**0,026**	**0,029**
6.4	150	0,03	**0,002**	**0,004**	**0,005**	**0,007**	**0,010**	**0,012**	**0,014**	**0,018**	**0,022**	**0,024**
6.5	130	0,03	**0,002**	**0,003**	**0,004**	**0,006**	**0,008**	**0,010**	**0,011**	**0,014**	**0,018**	**0,019**

T_x = 2,6–5 x DC

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
			f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
1.15	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
1.16	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
6.1	120	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
6.2	108	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
6.3	96	0,05	**0,002**	**0,004**	**0,005**	**0,007**	**0,010**	**0,011**	**0,014**	**0,017**	**0,020**	**0,023**
6.4	90	0,03	**0,002**	**0,003**	**0,004**	**0,006**	**0,008**	**0,010**	**0,012**	**0,015**	**0,017**	**0,019**
6.5	78	0,03	**0,001**	**0,002**	**0,003**	**0,004**	**0,006**	**0,008**	**0,009**	**0,012**	**0,014**	**0,015**

T_x = 5,1–10 x DC

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
			f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
1.15	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
1.16	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
6.1	90	0,04	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
6.2	81	0,04	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
6.3	72	0,04	**0,001**	**0,002**	**0,004**	**0,005**	**0,007**	**0,008**	**0,011**	**0,013**	**0,014**	**0,017**
6.4	68	0,02	**0,001**	**0,002**	**0,003**	**0,004**	**0,006**	**0,007**	**0,009**	**0,011**	**0,012**	**0,014**
6.5	59	0,02	**0,001**	**0,002**	**0,002**	**0,003**	**0,005**	**0,006**	**0,007**	**0,009**	**0,010**	**0,011**

T_x = 10,1–15 x DC

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,04 x DC									
			f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
1.15	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
1.16	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
6.1	70	0,03	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
6.2	63	0,03	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
6.3	56	0,03	**0,001**	**0,001**	**0,002**	**0,004**	**0,005**	**0,006**	**0,007**	**0,008**	**0,010**	**0,012**
6.4	53	0,01	**0,001**	**0,001**	**0,002**	**0,003**	**0,004**	**0,005**	**0,006**	**0,007**	**0,008**	**0,010**
6.5	46	0,01	**0,001**	**0,001**	**0,002**	**0,002**	**0,003**	**0,004**	**0,005**	**0,006**	**0,006**	**0,008**

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30 %!

53 601 ...

$T_x \leq 2,5 \times DC$

			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		○ suitable
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
1.14	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
1.15	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
1.16	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
6.1	200	0,05	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
6.2	180	0,05	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
6.3	160	0,05	**0,036**	**0,043**	**0,058**	**0,086**	**0,115**	**0,144**	**0,173**	○	●	●
6.4	150	0,03	**0,030**	**0,036**	**0,048**	**0,072**	**0,096**	**0,120**	**0,144**	○	●	●
6.5	130	0,03	**0,024**	**0,029**	**0,038**	**0,058**	**0,077**	**0,096**	**0,115**	○	●	●

$T_x = 2,6–5 \times DC$

			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		○ suitable
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
1.14	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
1.15	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
1.16	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
6.1	120	0,05	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
6.2	108	0,05	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
6.3	96	0,05	**0,029**	**0,035**	**0,046**	**0,060**	**0,084**	**0,107**	**0,130**	○	●	●
6.4	90	0,03	**0,024**	**0,029**	**0,039**	**0,050**	**0,070**	**0,089**	**0,108**	○	●	●
6.5	78	0,03	**0,019**	**0,023**	**0,031**	**0,040**	**0,056**	**0,071**	**0,086**	○	●	●

$T_x = 5,1–10 \times DC$

			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		○ suitable
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
1.14	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
1.15	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
1.16	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
6.1	90	0,04	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
6.2	81	0,04	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
6.3	72	0,04	**0,022**	**0,026**	**0,035**	**0,035**	**0,052**	**0,069**	**0,086**	○	●	●
6.4	68	0,02	**0,018**	**0,022**	**0,029**	**0,029**	**0,043**	**0,058**	**0,072**	○	●	●
6.5	59	0,02	**0,014**	**0,018**	**0,023**	**0,023**	**0,035**	**0,046**	**0,058**	○	●	●

$T_x = 10,1–15 \times DC$

			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		○ suitable
			a_e 0,04 x DC		a_e 0,05 x DC							
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
1.14	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
1.15	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
1.16	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
6.1	70	0,03	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
6.2	63	0,03	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
6.3	56	0,03	**0,017**	**0,022**	**0,028**	**0,028**	**0,041**	**0,055**	**0,069**	○	●	●
6.4	53	0,01	**0,014**	**0,018**	**0,023**	**0,023**	**0,035**	**0,046**	**0,058**	○	●	●
6.5	46	0,01	**0,011**	**0,014**	**0,019**	**0,018**	**0,028**	**0,037**	**0,046**	○	●	●

Cutting data standard values – MonsterMill – End mills – HCR, 53 603 ... and 53 604 ...

Peripheral milling

			$T_x \leq 2,5 \times DC$									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
1.15	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
1.16	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
6.1	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
6.2	170	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
6.3	160	1,0	**0,005**	**0,005**	**0,010**	**0,010**	**0,014**	**0,014**	**0,019**	**0,024**	**0,029**	**0,034**
6.4	150	1,0	**0,004**	**0,004**	**0,008**	**0,008**	**0,012**	**0,012**	**0,016**	**0,020**	**0,024**	**0,028**
6.5	110	1,0	**0,003**	**0,003**	**0,006**	**0,006**	**0,010**	**0,010**	**0,013**	**0,016**	**0,019**	**0,022**

Z-layer milling / face milling

			$T_x \leq 2,5 \times DC$									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
1.15	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
1.16	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
6.1	120	0,05	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
6.2	110	0,05	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
6.3	100	0,05	**0,002**	**0,002**	**0,005**	**0,005**	**0,007**	**0,007**	**0,010**	**0,012**	**0,014**	**0,017**
6.4	80	0,03	**0,002**	**0,002**	**0,004**	**0,004**	**0,006**	**0,006**	**0,008**	**0,010**	**0,012**	**0,014**
6.5	60	0,03	**0,002**	**0,002**	**0,003**	**0,003**	**0,005**	**0,005**	**0,006**	**0,008**	**0,010**	**0,011**

Full slot

			$T_x \leq 2,5 \times DC$									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 1,0 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
1.15	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
1.16	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
6.1	65	0,05	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
6.2	55	0,05	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
6.3	45	0,05	**0,001**	**0,001**	**0,003**	**0,003**	**0,004**	**0,005**	**0,006**	**0,007**	**0,008**	**0,010**

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30 %!

$T_x \leq 2,5 \times DC$

Peripheral milling

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Emulsion	Compressed air	MMS
			a_e 0,05 x DC							● 1st choice		○ suitable
			f_z mm									
1.14	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
1.15	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
1.16	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
6.1	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
6.2	170	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
6.3	160	1,0	**0,043**	**0,048**	**0,067**	**0,101**	**0,134**	**0,168**	**0,192**	○	●	●
6.4	150	1,0	**0,036**	**0,040**	**0,056**	**0,084**	**0,112**	**0,140**	**0,160**	○	●	●
6.5	110	1,0	**0,029**	**0,032**	**0,045**	**0,067**	**0,090**	**0,112**	**0,128**	○	●	●

$T_x \leq 2,5 \times DC$

Z-layer milling / face milling

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Emulsion	Compressed air	MMS
			a_e 0,3 x DC							● 1st choice		○ suitable
			f_z mm									
1.14	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
1.15	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
1.16	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
6.1	120	0,05	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
6.2	110	0,05	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
6.3	100	0,05	**0,022**	**0,024**	**0,034**	**0,050**	**0,067**	**0,084**	**0,096**	○	●	●
6.4	80	0,03	**0,018**	**0,020**	**0,028**	**0,042**	**0,056**	**0,070**	**0,080**	○	●	●
6.5	60	0,03	**0,014**	**0,016**	**0,022**	**0,034**	**0,045**	**0,056**	**0,064**	○	●	●

$T_x \leq 2,5 \times DC$

Full slot

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Emulsion	Compressed air	MMS
			a_e 1,0 x DC							● 1st choice		○ suitable
			f_z mm									
1.14	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
1.15	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
1.16	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
6.1	65	0,05	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
6.2	55	0,05	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
6.3	45	0,05	**0,012**	**0,015**	**0,020**	**0,030**	**0,033**	**0,035**	**0,040**	○	●	●

Cutting data standard values – MonsterMill – End mills – HCR, 53 603 ... and 53 604 ...

Peripheral milling

			T_x = 2,6–5 x DC									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
1.15	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
1.16	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
6.1	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
6.2	119	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
6.3	112	1,0	**0,004**	**0,004**	**0,007**	**0,007**	**0,011**	**0,011**	**0,014**	**0,018**	**0,022**	**0,025**
6.4	105	1,0	**0,003**	**0,003**	**0,006**	**0,006**	**0,009**	**0,009**	**0,012**	**0,015**	**0,018**	**0,021**
6.5	77	1,0	**0,002**	**0,002**	**0,005**	**0,005**	**0,007**	**0,007**	**0,010**	**0,012**	**0,014**	**0,017**

Z-layer milling / face milling

			T_x = 2,6–5 x DC									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
1.15	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
1.16	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
6.1	84	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
6.2	77	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
6.3	70	0,05	**0,002**	**0,002**	**0,004**	**0,004**	**0,005**	**0,005**	**0,007**	**0,009**	**0,011**	**0,013**
6.4	56	0,03	**0,002**	**0,002**	**0,003**	**0,003**	**0,005**	**0,005**	**0,006**	**0,008**	**0,009**	**0,011**
6.5	42	0,03	**0,001**	**0,001**	**0,002**	**0,002**	**0,004**	**0,004**	**0,005**	**0,006**	**0,007**	**0,008**

Full slot

			T_x = 2,6–5 x DC									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 1,0 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
1.15	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
1.16	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
6.1	46	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
6.2	39	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
6.3	32	0,05	**0,001**	**0,001**	**0,002**	**0,002**	**0,003**	**0,003**	**0,004**	**0,005**	**0,006**	**0,007**

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30 %!

T_x = 2,6–5 x DC

Peripheral milling

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice: Emulsion	● 1st choice: Compressed air	● 1st choice: MMS	○ suitable: Emulsion	○ suitable: Compressed air	○ suitable: MMS
			a_e 0,05 x DC												
			f_z mm												
1.14	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180		●	●			
1.15	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180		●	●			
1.16	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180		●	●			
6.1	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180		●	●			
6.2	119	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180		●	●			
6.3	112	1,0	**0,032**	**0,036**	**0,050**	**0,076**	**0,101**	**0,126**	**0,144**		●	●			
6.4	105	1,0	**0,027**	**0,030**	**0,042**	**0,063**	**0,084**	**0,105**	**0,120**		●	●			
6.5	77	1,0	**0,022**	**0,024**	**0,034**	**0,050**	**0,067**	**0,084**	**0,096**		●	●			

T_x = 2,6–5 x DC

Z-layer milling / face milling

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice: Emulsion	● 1st choice: Compressed air	● 1st choice: MMS	○ suitable: Emulsion	○ suitable: Compressed air	○ suitable: MMS
			a_e 0,3 x DC												
			f_z mm												
1.14	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090		●	●			
1.15	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090		●	●			
1.16	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090		●	●			
6.1	84	0,05	0,020	0,023	0,032	0,047	0,063	0,079	0,090		●	●			
6.2	77	0,05	0,020	0,023	0,032	0,047	0,063	0,079	0,090		●	●			
6.3	70	0,05	**0,016**	**0,018**	**0,025**	**0,038**	**0,050**	**0,063**	**0,072**		●	●			
6.4	56	0,03	**0,014**	**0,015**	**0,021**	**0,032**	**0,042**	**0,053**	**0,060**		●	●			
6.5	42	0,03	**0,011**	**0,012**	**0,017**	**0,025**	**0,034**	**0,042**	**0,048**		●	●			

T_x = 2,6–5 x DC

Full slot

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice: Emulsion	● 1st choice: Compressed air	● 1st choice: MMS	○ suitable: Emulsion	○ suitable: Compressed air	○ suitable: MMS
			a_e 1,0 x DC												
			f_z mm												
1.14	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060		●	●			
1.15	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060		●	●			
1.16	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060		●	●			
6.1	46	0,05	0,014	0,015	0,021	0,032	0,042	0,053	0,060		●	●			
6.2	39	0,05	0,014	0,015	0,021	0,032	0,042	0,053	0,060		●	●			
6.3	32	0,05	**0,009**	**0,010**	**0,014**	**0,021**	**0,028**	**0,035**	**0,040**		●	●			

Cutting data standard values – MonsterMill – End mills – HCR, 53 603 ... and 53 604 ...

Peripheral milling

			T_x = 5,1–10 x DC									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
1.15	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
1.16	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
6.1	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
6.2	94	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
6.3	88	0,75	**0,002**	**0,002**	**0,005**	**0,005**	**0,007**	**0,007**	**0,010**	**0,012**	**0,014**	**0,017**
6.4	83	0,75	**0,002**	**0,002**	**0,004**	**0,004**	**0,006**	**0,006**	**0,008**	**0,010**	**0,012**	**0,014**
6.5	61	0,75	**0,002**	**0,002**	**0,003**	**0,003**	**0,005**	**0,005**	**0,006**	**0,008**	**0,010**	**0,011**

Z-layer milling / face milling

			T_x = 5,1–10 x DC									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
1.15	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
1.16	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
6.1	66	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
6.2	61	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
6.3	55	0,05	**0,001**	**0,001**	**0,002**	**0,002**	**0,004**	**0,004**	**0,005**	**0,006**	**0,007**	**0,008**
6.4	44	0,03	**0,001**	**0,001**	**0,002**	**0,002**	**0,003**	**0,003**	**0,004**	**0,005**	**0,006**	**0,007**
6.5	33	0,03	**0,001**	**0,001**	**0,002**	**0,002**	**0,002**	**0,002**	**0,003**	**0,004**	**0,005**	**0,006**

Peripheral milling

			T_x = 10,1–15 x DC									
			Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm	Ø DC = 2,5 mm	Ø DC = 3 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
1.15	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
1.16	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
6.1	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
6.2	77	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
6.3	72	0,5	**0,004**	**0,004**	**0,006**	**0,006**	**0,008**	**0,010**	**0,012**	**0,013**	**0,017**	**0,019**
6.4	68	0,5	**0,003**	**0,003**	**0,005**	**0,005**	**0,006**	**0,008**	**0,010**	**0,011**	**0,014**	**0,016**
6.5	50	0,5	**0,003**	**0,003**	**0,004**	**0,004**	**0,005**	**0,006**	**0,008**	**0,009**	**0,012**	**0,013**

Z-layer milling / face milling

			T_x = 10,1–15 x DC									
			Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm	Ø DC = 2,5 mm	Ø DC = 3 mm
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	54	0,05	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008	0,011	0,012
1.15	54	0,05	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008	0,011	0,012
1.16	54	0,05	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008	0,011	0,012
6.1	54	0,03	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008	0,011	0,012
6.2	50	0,03	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008	0,011	0,012
6.3	45	0,03	**0,002**	**0,002**	**0,003**	**0,003**	**0,004**	**0,005**	**0,006**	**0,007**	**0,009**	**0,010**
6.4	36	0,01	**0,002**	**0,002**	**0,002**	**0,002**	**0,003**	**0,004**	**0,005**	**0,006**	**0,007**	**0,008**
6.5	27	0,01	**0,001**	**0,001**	**0,002**	**0,002**	**0,003**	**0,003**	**0,004**	**0,004**	**0,006**	**0,006**

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30 %!

T_x = 5,1–10 x DC

Peripheral milling

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		○ suitable
			a_e 0,05 x DC							Emulsion	Compressed air	MMS
			f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
1.14	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
1.15	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
1.16	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
6.1	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
6.2	94	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
6.3	88	0,75	**0,022**	**0,024**	**0,034**	**0,050**	**0,067**	**0,084**	**0,096**	○	●	●
6.4	83	0,75	**0,018**	**0,020**	**0,028**	**0,042**	**0,056**	**0,070**	**0,080**	○	●	●
6.5	61	0,75	**0,014**	**0,016**	**0,022**	**0,034**	**0,045**	**0,056**	**0,064**	○	●	●

T_x = 5,1–10 x DC

Z-layer milling / face milling

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		○ suitable
			a_e 0,3 x DC							Emulsion	Compressed air	MMS
			f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
1.14	66	0,07	**0,014**	**0,015**	**0,021**	**0,032**	**0,042**	**0,053**	**0,060**	○	●	●
1.15	66	0,07	**0,014**	**0,015**	**0,021**	**0,032**	**0,042**	**0,053**	**0,060**	○	●	●
1.16	66	0,07	**0,014**	**0,015**	**0,021**	**0,032**	**0,042**	**0,053**	**0,060**	○	●	●
6.1	66	0,05	**0,014**	**0,015**	**0,021**	**0,032**	**0,042**	**0,053**	**0,060**	○	●	●
6.2	61	0,05	**0,014**	**0,015**	**0,021**	**0,032**	**0,042**	**0,053**	**0,060**	○	●	●
6.3	55	0,05	**0,011**	**0,012**	**0,017**	**0,025**	**0,034**	**0,042**	**0,048**	○	●	●
6.4	44	0,03	**0,009**	**0,010**	**0,014**	**0,021**	**0,028**	**0,035**	**0,040**	○	●	●
6.5	33	0,03	**0,007**	**0,008**	**0,011**	**0,017**	**0,022**	**0,028**	**0,032**	○	●	●

T_x = 10,1–15 x DC

Peripheral milling

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 4mm	● 1st choice		○ suitable
			a_e 0,05 x DC			
			f_z mm	Emulsion	Compressed air	MMS
1.14	90	0,5	0,034	○	●	●
1.15	90	0,5	0,034	○	●	●
1.16	90	0,5	0,034	○	●	●
6.1	90	0,5	0,034	○	●	●
6.2	77	0,5	0,034	○	●	●
6.3	72	0,5	**0,027**	○	●	●
6.4	68	0,5	**0,022**	○	●	●
6.5	50	0,5	**0,018**	○	●	●

T_x = 10,1–15 x DC

Z-layer milling / face milling

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 4 mm	● 1st choice		○ suitable
			a_e 0,3 x DC			
			f_z mm	Emulsion	Compressed air	MMS
1.14	54	0,05	0,017	○	●	●
1.15	54	0,05	0,017	○	●	●
1.16	54	0,05	0,017	○	●	●
6.1	54	0,03	0,017	○	●	●
6.2	50	0,03	0,017	○	●	●
6.3	45	0,03	**0,013**	○	●	●
6.4	36	0,01	**0,011**	○	●	●
6.5	27	0,01	**0,009**	○	●	●

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Cutting data standard values – MonsterMill – End mills – HCR, 53 605 ...

Peripheral milling

			$T_x \leq 2 \times DC$										
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		○ suitable
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
1.14	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
1.15	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
1.16	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
6.1	190	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
6.2	160	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
6.3	130	2,0	**0,014**	**0,022**	**0,030**	**0,041**	**0,060**	**0,074**	**0,096**	**0,108**	○	●	●
6.4	120	2,0	**0,012**	**0,018**	**0,025**	**0,034**	**0,050**	**0,062**	**0,080**	**0,090**	○	●	●
6.5	110	2,0	**0,010**	**0,014**	**0,020**	**0,027**	**0,040**	**0,050**	**0,064**	**0,072**	○	●	●

Face milling

			$T_x \leq 2 \times DC$										
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		○ suitable
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
1.14	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
1.15	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
1.16	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
6.1	120	0,05	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
6.2	110	0,05	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
6.3	90	0,05	**0,012**	**0,017**	**0,024**	**0,034**	**0,050**	**0,067**	**0,084**	**0,096**	○	●	●
6.4	75	0,03	**0,010**	**0,014**	**0,020**	**0,028**	**0,042**	**0,056**	**0,070**	**0,080**	○	●	●
6.5	60	0,03	**0,008**	**0,011**	**0,016**	**0,022**	**0,034**	**0,045**	**0,056**	**0,064**	○	●	●

Cutting data standard values – MonsterMill – End mills – HCR, 53 606 ...

Peripheral milling

			$T_x \leq 3 \times DC$										
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		○ suitable
			a_e 0,05 x DC		a_e 0,04 x DC								
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
1.14	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
1.15	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
1.16	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
6.1	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
6.2	119	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
6.3	112	2,0	**0,011**	**0,019**	**0,026**	**0,036**	**0,053**	**0,066**	**0,084**	**0,096**	○	●	●
6.4	105	2,0	**0,009**	**0,016**	**0,022**	**0,030**	**0,044**	**0,055**	**0,070**	**0,080**	○	●	●
6.5	77	2,0	**0,007**	**0,013**	**0,018**	**0,024**	**0,035**	**0,044**	**0,056**	**0,064**	○	●	●

Face milling

			$T_x \leq 3 \times DC$										
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		○ suitable
			a_e 0,05 x DC		a_e 0,04 x DC								
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
1.14	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
1.15	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
1.16	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
6.1	91	0,05	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
6.2	84	0,05	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
6.3	77	0,05	**0,007**	**0,011**	**0,018**	**0,029**	**0,043**	**0,058**	**0,072**	**0,084**	○	●	●
6.4	63	0,03	**0,006**	**0,009**	**0,015**	**0,024**	**0,036**	**0,048**	**0,060**	**0,070**	○	●	●
6.5	42	0,03	**0,005**	**0,007**	**0,012**	**0,019**	**0,029**	**0,038**	**0,048**	**0,056**	○	●	●

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30 %!

Cutting data standard values – MonsterMill – Ball-nosed end mills – HCR, 53 602 ...

$T_x \leq 2{,}5 \times DC$

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice / ○ suitable: Emulsion	Compressed air	MMS
			a_e 0,05 x DC								
			f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
1.14	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
1.15	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
1.16	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
6.1	200	0,05	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
6.2	180	0,05	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
6.3	160	0,05	**0,030**	**0,040**	**0,060**	**0,081**	**0,101**	**0,121**	○	●	●
6.4	150	0,03	**0,025**	**0,034**	**0,050**	**0,067**	**0,084**	**0,101**	○	●	●
6.5	130	0,03	**0,020**	**0,027**	**0,040**	**0,054**	**0,067**	**0,081**	○	●	●

$T_x = 2{,}6–5 \times DC$

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice / ○ suitable: Emulsion	Compressed air	MMS
			a_e 0,05 x DC								
			f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
1.14	120	0,07	0,030	0,040	0,053	0,073	0,093	0,113	○	●	●
1.15	120	0,07	0,030	0,040	0,053	0,073	0,093	0,113	○	●	●
1.16	120	0,07	0,030	0,040	0,053	0,073	0,093	0,113	○	●	●
6.1	120	0,05	0,030	0,040	0,053	0,073	0,093	0,113	○	●	●
6.2	108	0,05	0,030	0,040	0,053	0,073	0,093	0,113	○	●	●
6.3	96	0,05	**0,024**	**0,032**	**0,042**	**0,058**	**0,075**	**0,091**	○	●	●
6.4	90	0,03	**0,020**	**0,027**	**0,035**	**0,049**	**0,062**	**0,076**	○	●	●
6.5	78	0,03	**0,016**	**0,022**	**0,028**	**0,039**	**0,050**	**0,060**	○	●	●

$T_x = 5{,}1–10 \times DC$

Index	v_c m/min	$a_{p\,max.}$ x DC	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice / ○ suitable: Emulsion	Compressed air	MMS
			a_e 0,04 x DC								
			f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
1.14	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
1.15	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
1.16	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
6.1	90	0,04	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
6.2	81	0,04	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
6.3	72	0,04	**0,018**	**0,024**	**0,024**	**0,036**	**0,048**	**0,060**	○	●	●
6.4	68	0,02	**0,015**	**0,020**	**0,020**	**0,030**	**0,040**	**0,050**	○	●	●
6.5	59	0,02	**0,012**	**0,016**	**0,016**	**0,024**	**0,032**	**0,040**	○	●	●

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30 %!

Cutting data standard values– MonsterMill – End mills – PCR-UNI

	Type short / long / extra long		Ø DC = 5,7–6,0 mm			Ø DC = 6,7–7,0 mm			Ø DC = 7,7–8,0 mm			Ø DC = 8,7–9,0 mm			Ø DC = 9,7–10,0 mm			Ø DC = 11,7–12,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	**220**	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.2	**220**	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.3	**220**	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.4	**200**	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.5	**220**	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.6	**180**	1,0	0,069	0,054	0,038	0,080	0,062	0,044	0,089	0,069	0,049	0,100	0,078	0,055	0,110	0,085	0,060	0,128	0,099	0,070
1.7	**200**	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.8	**140**	1,0	0,062	0,048	0,034	0,071	0,055	0,039	0,080	0,062	0,044	0,089	0,069	0,049	0,097	0,075	0,053	0,113	0,088	0,062
1.9	**135**	1,0	0,060	0,047	0,033	0,069	0,054	0,038	0,079	0,061	0,043	0,088	0,068	0,048	0,095	0,074	0,052	0,111	0,086	0,061
1.10	**200**	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.11	**140**	1,0	0,062	0,048	0,034	0,071	0,055	0,039	0,080	0,062	0,044	0,089	0,069	0,049	0,097	0,075	0,053	0,113	0,088	0,062
1.12	**130**	1,0	0,071	0,055	0,039	0,082	0,064	0,045	0,091	0,071	0,050	0,102	0,079	0,056	0,111	0,086	0,061	0,130	0,100	0,071
1.13	**110**	1,0	0,066	0,051	0,036	0,075	0,058	0,041	0,084	0,065	0,046	0,093	0,072	0,051	0,102	0,079	0,056	0,119	0,092	0,065
1.14	**110**	1,0	0,066	0,051	0,036	0,075	0,058	0,041	0,084	0,065	0,046	0,093	0,072	0,051	0,102	0,079	0,056	0,119	0,092	0,065
1.15	**110**	1,0	0,066	0,051	0,036	0,075	0,058	0,041	0,084	0,065	0,046	0,093	0,072	0,051	0,102	0,079	0,056	0,119	0,092	0,065
1.16	**130**	1,0	0,071	0,055	0,039	0,082	0,064	0,045	0,093	0,072	0,051	0,104	0,081	0,057	0,113	0,088	0,062	0,131	0,102	0,072
2.1	60	1,0	0,044	0,034	0,024	0,049	0,038	0,027	0,057	0,044	0,031	0,062	0,048	0,034	0,068	0,052	0,037	0,080	0,062	0,044
2.2	65	1,0	0,047	0,037	0,026	0,055	0,042	0,030	0,060	0,047	0,033	0,068	0,052	0,037	0,075	0,058	0,041	0,086	0,066	0,047
2.3	65	1,0	0,047	0,037	0,026	0,055	0,042	0,030	0,060	0,047	0,033	0,068	0,052	0,037	0,075	0,058	0,041	0,086	0,066	0,047
2.4	65	1,0	0,047	0,037	0,026	0,055	0,042	0,030	0,060	0,047	0,033	0,068	0,052	0,037	0,075	0,058	0,041	0,086	0,066	0,047
2.5	55	1,0	0,037	0,028	0,020	0,042	0,033	0,023	0,047	0,037	0,026	0,051	0,040	0,028	0,057	0,044	0,031	0,066	0,051	0,036
2.6	60	1,0	0,044	0,034	0,024	0,049	0,038	0,027	0,057	0,044	0,031	0,062	0,048	0,034	0,068	0,052	0,037	0,080	0,062	0,044
2.7	60	1,0	0,038	0,030	0,021	0,042	0,033	0,023	0,047	0,037	0,026	0,053	0,041	0,029	0,058	0,045	0,032	0,068	0,052	0,037
3.1	**240**	1,0	0,124	0,096	0,068	0,142	0,110	0,078	0,161	0,124	0,088	0,177	0,137	0,097	0,195	0,151	0,107	0,226	0,175	0,124
3.2	**180**	1,0	0,088	0,068	0,048	0,100	0,078	0,055	0,113	0,088	0,062	0,124	0,096	0,068	0,137	0,106	0,075	0,159	0,123	0,087
3.3	**220**	1,0	0,106	0,082	0,058	0,122	0,095	0,067	0,137	0,106	0,075	0,152	0,117	0,083	0,166	0,129	0,091	0,194	0,150	0,106
3.4	**180**	1,0	0,088	0,068	0,048	0,100	0,078	0,055	0,113	0,088	0,062	0,124	0,096	0,068	0,137	0,106	0,075	0,159	0,123	0,087
3.5	**160**	1,0	0,088	0,068	0,048	0,100	0,078	0,055	0,113	0,088	0,062	0,124	0,096	0,068	0,137	0,106	0,075	0,159	0,123	0,087
3.6	**150**	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
3.7	**160**	1,0	0,088	0,068	0,048	0,100	0,078	0,055	0,113	0,088	0,062	0,124	0,096	0,068	0,137	0,106	0,075	0,159	0,123	0,087
3.8	**150**	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
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With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

Index	Ø DC = 13,7–14,0 mm			Ø DC = 15,5–16,0 mm			Ø DC = 17,5–20,0 mm			Ramping	Helical milling			Drilling	● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	1,0 x DC		Hole diameter		1,0 x DC			
	f_z mm			f_z mm			f_z mm			Max. plunging angle	$\alpha_{R\,max.}$*	$D_{min.}$ DC x 1,5	$D_{max.}$ DC x 1,8	f_z Factor	Emulsion	Compressed air	MMS
1.1	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○
1.2	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○
1.3	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○
1.4	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○
1.5	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○
1.6	0,142	0,110	0,078	0,159	0,123	0,087	0,173	0,134	0,095	45°	0,75xD	25°	16°	0,8	○	●	○
1.7	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○
1.8	0,128	0,099	0,070	0,142	0,110	0,078	0,155	0,120	0,085	45°	0,75xD	25°	16°	0,7	●		○
1.9	0,126	0,098	0,069	0,141	0,109	0,077	0,153	0,119	0,084	45°	0,75xD	25°	16°	0,7	●		○
1.10	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○
1.11	0,128	0,099	0,070	0,142	0,110	0,078	0,155	0,120	0,085	45°	0,75xD	25°	16°	0,8	●		○
1.12	0,146	0,113	0,080	0,162	0,126	0,089	0,177	0,137	0,097	30°	0,5xD	18°	11°	0,8	○	●	○
1.13	0,133	0,103	0,073	0,148	0,115	0,081	0,161	0,124	0,088	30°	0,5xD	18°	11°	0,7	●		○
1.14	0,133	0,103	0,073	0,148	0,115	0,081	0,161	0,124	0,088	30°	0,5xD	18°	11°	0,7	●		○
1.15	0,133	0,103	0,073	0,148	0,115	0,081	0,161	0,124	0,088	30°	0,5xD	18°	11°	0,7	●		○
1.16	0,148	0,115	0,081	0,164	0,127	0,090	0,179	0,139	0,098	30°	0,5xD	18°	11°	0,7	○	●	○
2.1	0,089	0,069	0,049	0,099	0,076	0,054	0,108	0,083	0,059	15°	0,5xD	18°	11°		●		○
2.2	0,097	0,075	0,053	0,108	0,083	0,059	0,117	0,091	0,064	15°	0,5xD	18°	11°		●		○
2.3	0,097	0,075	0,053	0,108	0,083	0,059	0,117	0,091	0,064	15°	0,5xD	18°	11°		●		○
2.4	0,097	0,075	0,053	0,108	0,083	0,059	0,117	0,091	0,064	15°	0,5xD	18°	11°		●		○
2.5	0,075	0,058	0,041	0,082	0,064	0,045	0,089	0,069	0,049	15°	0,5xD	18°	11°		●		
2.6	0,089	0,069	0,049	0,099	0,076	0,054	0,108	0,083	0,059	15°	0,5xD	18°	11°		●		○
2.7	0,077	0,059	0,042	0,086	0,066	0,047	0,093	0,072	0,051	15°	0,5xD	18°	11°		●		
3.1	0,256	0,198	0,140	0,285	0,221	0,156	0,310	0,240	0,170	45°	0,75xD	25°	25°	0,8	○	●	○
3.2	0,179	0,139	0,098	0,199	0,154	0,109	0,217	0,168	0,119	45°	0,75xD	25°	25°	0,8	○	●	○
3.3	0,217	0,168	0,119	0,241	0,187	0,132	0,263	0,204	0,144	45°	0,75xD	25°	25°	0,8	○	●	○
3.4	0,179	0,139	0,098	0,199	0,154	0,109	0,217	0,168	0,119	45°	0,75xD	25°	25°	0,8	○	●	○
3.5	0,179	0,139	0,098	0,199	0,154	0,109	0,217	0,168	0,119	45°	0,75xD	25°	25°	0,8	○	●	○
3.6	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	25°	0,8	○	●	○
3.7	0,179	0,139	0,098	0,199	0,154	0,109	0,217	0,168	0,119	45°	0,75xD	25°	25°	0,8	○	●	○
3.8	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	25°	0,8	○	●	○
4.1																	
4.2																	
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14

* Width of cut per helical revolution

Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values – MonsterMill – End mills – PCR-ALU

	long	extra long		Ø DC = 5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–8,0 mm			Ø DC = 8,7–10,0 mm			Ø DC =11,7–12,0 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1																		
1.2																		
1.3																		
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3.3																		
3.4																		
3.5																		
3.6																		
3.7																		
3.8																		
4.1	700	300	1	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,130	0,097	0,065	0,140	0,104	0,070
4.2	700	300	1	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,130	0,097	0,065	0,140	0,104	0,070
4.3	420	200	1	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070
4.4	420	180	1	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070
4.5	280	140	1	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070
4.6	200	110	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.7	180	100	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.8	175	75	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.9	175	75	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.10	175	75	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.11	280	125	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.12	210	100	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.13																		
4.14																		
4.15																		
4.16	220	130	1	0,07	0,052	0,035	0,08	0,06	0,04	0,1	0,075	0,05	0,12	0,089	0,06	0,14	0,104	0,07
4.17																		
4.18																		
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With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

Index	Ø DC = 13,7–14,0 mm			Ø DC = 15,5–16,0 mm			Ø DC = 17,5–18,0 mm			Ø DC = 19,5–20,0 mm			Ramping	Helical milling			Drilling	● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	1,0 x DC		Hole diameter		1,0 x DC			
	f_z mm			f_z mm			f_z mm			f_z mm			Max. plunging angle	$\alpha_{R\,max.}$*	$D_{min.}$ DC x 1,5	$D_{max.}$ DC x 1,8	v_c Factor	Emulsion	Compressed air	MMS
1.1																				
1.2																				
1.3																				
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3.1																				
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3.4																				
3.5																				
3.6																				
3.7																				
3.8																				
4.1	0,146	0,113	0,080	0,152	0,116	0,090	0,166	0,136	0,105	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,75	●		○
4.2	0,146	0,113	0,080	0,152	0,116	0,090	0,166	0,136	0,105	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,75	●		○
4.3	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	45°	0,75xD	25°	16°	0,75	●		○
4.4	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	45°	0,75xD	25°	16°	0,75	●		○
4.5	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	45°	0,75xD	25°	16°	0,7	●		○
4.6	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●		○
4.7	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●		○
4.8	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●		○
4.9	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●		○
4.10	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●		○
4.11	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●		○
4.12	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●		○
4.13																				
4.14																				
4.15																				
4.16	0,164	0,127	0,09	0,203	0,155	0,12	0,221	0,181	0,14	0,269	0,219	0,17	45°	0,75xD	25°	16°	0,7	●		○
4.17																				
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* Width of cut per helical revolution

Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values – MonsterMill – End Mills – MCR, short – long

			Ø DC = 1 mm			Ø DC = 2 mm					Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm		
		short	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	short	long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm		
1.1	120–140	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
1.2	120–140	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
1.3	100–120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.4	100–120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.5	100–120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.6	100–120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.7	100–120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.8	100–120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.9	100–120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.10	100–120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.11	100–120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.12	100–120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.13	100–120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.14	100–120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.15	100–120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.16	100–120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
2.1	60–80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
2.2	60–80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
2.3	60–80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
2.4																			
2.5	60–80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
2.6	60–80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
2.7																			
3.1	120–140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
3.2	120–140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
3.3	120–140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
3.4	120–140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
3.5	100–120	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
3.6	100–120	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
3.7	100–120	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
3.8	100–120	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
4.1																			
4.2																			
4.3																			
4.4																			
4.5																			
4.6	120–140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
4.7	120–140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
4.8																			
4.9																			
4.10																			
4.11	120–140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
4.12	120–140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
4.13																			
4.14																			
4.15																			
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5.1																			
5.2																			
5.3																			
5.4																			
5.5																			
5.6																			
5.7																			
5.8																			
5.9	60–80	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
5.10	60–80	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
5.11	60–80	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
6.1	80–100	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
6.2																			
6.3																			
6.4																			
6.5																			

* = with an a_p of 1.5 x DC the f_z should be multiplied by 0.8

Plunging angle for ramping and helical milling: Diameter 3–5 = 3° / Diameter 6–9 = 5° / Diameter 10–20 = 8°

Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		○ suitable
a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
0,077	0,057	0,036	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
0,077	0,057	0,036	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
0,077	0,057	0,036	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
0,077	0,057	0,036	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
0,077	0,057	0,036	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
0,077	0,057	0,036	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
0,051	0,038	0,024	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
0,051	0,038	0,024	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
0,051	0,038	0,024	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	

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Cutting data standard values – MonsterMill – End Mills – MCR, extra long

		extra long		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	120–140	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
1.2	120–140	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
1.3	100–120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.4	100–120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.5	100–120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.6	100–120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.7	100–120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.8	100–120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.9	100–120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.10	100–120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.11	100–120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.12	100–120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.13	100–120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.14	100–120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.15	100–120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.16	100–120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
2.1	50–70	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
2.2	50–70	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
2.3	50–70	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
2.4																		
2.5	50–70	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
2.6	50–70	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
2.7																		
3.1	120–140	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
3.2	120–140	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
3.3	120–140	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
3.4	120–140	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
3.5	100–120	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
3.6	100–120	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
3.7	100–120	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
3.8	100–120	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
4.1																		
4.2																		
4.3																		
4.4																		
4.5																		
4.6	120–140	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
4.7	120–140	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
4.8																		
4.9																		
4.10																		
4.11	120–140	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
4.12	120–140	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
4.13																		
4.14																		
4.15																		
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4.17																		
4.18																		
4.19																		
5.1																		
5.2																		
5.3																		
5.4																		
5.5																		
5.6																		
5.7																		
5.8																		
5.9	60–80	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
5.10	60–80	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
5.11	60–80	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
6.1	80–100	0,5*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
6.2																		
6.3																		
6.4																		
6.5																		

* = Trimming and trochoidal slot milling

Plunging angle for ramping and helical milling: Diameter 3–5 = 3° / Diameter 6–9 = 5° / Diameter 10–20 = 8°

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
1.1	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
1.2	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
1.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.4	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.5	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.6	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.7	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.8	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.9	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.10	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.11	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.12	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.13	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.14	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.15	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.16	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
2.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
2.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
2.3	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
2.4																		
2.5	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
2.6	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
2.7																		
3.1	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
3.2	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
3.3	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
3.4	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
3.5	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
3.6	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
3.7	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
3.8	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
4.1																		
4.2																		
4.3																		
4.4																		
4.5																		
4.6	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
4.7	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
4.8																		
4.9																		
4.10																		
4.11	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
4.12	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
4.13																		
4.14																		
4.15																		
4.16																		
4.17																		
4.18																		
4.19																		
5.1																		
5.2																		
5.3																		
5.4																		
5.5																		
5.6																		
5.7																		
5.8																		
5.9	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
5.10	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
5.11	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
6.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
6.2																		
6.3																		
6.4																		
6.5																		

Cutting data – CircularLine – End Mills – CCR-UNI, short – long

Index	short, long v_c m/min	max. angle of engagement	Ø DC = 6 mm a_e 0,05 x DC f_z mm	Ø DC = 6 mm a_e 0,1 x DC f_z mm	Ø DC = 6 mm a_e 0,15 x DC f_z mm	Ø DC = 6 mm h_m	Ø DC = 8 mm a_e 0,05 x DC f_z mm	Ø DC = 8 mm a_e 0,1 x DC f_z mm	Ø DC = 8 mm a_e 0,15 x DC f_z mm	Ø DC = 8 mm h_m	Ø DC = 10 mm a_e 0,05 x DC f_z mm	Ø DC = 10 mm a_e 0,1 x DC f_z mm	Ø DC = 10 mm a_e 0,15 x DC f_z mm	Ø DC = 10 mm h_m
1.1	**300**	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
1.2	**300**	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
1.3	**280**	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
1.4	**280**	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
1.5	**280**	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.6	**260**	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.7	**280**	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.8	**260**	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.9	**260**	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.10	**240**	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.11	**240**	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.12	**240**	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.13	**240**	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.14														
1.15	**220**	45°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.16	**220**	45°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
2.1	200	45°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028
2.2	180	45°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028
2.3	160	45°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028
2.4	160	45°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028
2.5	140	45°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028
2.6	140	45°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028
2.7														
3.1	**300**	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
3.2	**300**	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
3.3	**300**	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
3.4	**260**	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
3.5	**260**	50°	0,11	0,08	0,06	0,025	0,16	0,11	0,09	0,035	0,18	0,13	0,10	0,040
3.6	**240**	50°	0,11	0,08	0,06	0,025	0,16	0,11	0,09	0,035	0,18	0,13	0,10	0,040
3.7	**240**	50°	0,11	0,08	0,06	0,025	0,16	0,11	0,09	0,035	0,18	0,13	0,10	0,040
3.8	**200**	50°	0,11	0,08	0,06	0,025	0,16	0,11	0,09	0,035	0,18	0,13	0,10	0,040
4.1														
4.2														
4.3														
4.4														
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4.17														
4.18														
4.19														
5.1	120	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.2	80	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.3	80	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.4	60	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.5	60	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.6	60	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.7	60	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.8	60	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.9	140	40°	0,06	0,04	0,03	0,01	0,07	0,05	0,04	0,016	0,09	0,06	0,05	0,020
5.10	120	40°	0,06	0,04	0,03	0,01	0,07	0,05	0,04	0,016	0,09	0,06	0,05	0,020
5.11	100	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
6.1														
6.2														
6.3														
6.4														
6.5														

Depth of cut corresponds to the flute length

	Ø DC = 12 mm				Ø DC = 16 mm				Ø DC = 20 mm				● 1st choice		○ suitable
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC				
Index	f_z mm			h_m	f_z mm			h_m	f_z mm			h_m	Emulsion	Compressed air	MMS
1.1	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○
1.2	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○
1.3	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○
1.4	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○
1.5	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
1.6	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
1.7	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
1.8	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
1.9	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
1.10	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
1.11	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
1.12	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
1.13	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
1.14															
1.15	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
1.16	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
2.1	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,042	0,27	0,19	0,15	0,06	●		
2.2	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,042	0,27	0,19	0,15	0,06	●		
2.3	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,042	0,27	0,19	0,15	0,06	●		
2.4	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,042	0,27	0,19	0,15	0,06	●		
2.5	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,042	0,27	0,19	0,15	0,06	●		
2.6	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,042	0,27	0,19	0,15	0,06	●		
2.7															
3.1	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○
3.2	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○
3.3	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○
3.4	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○
3.5	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
3.6	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
3.7	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
3.8	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○
4.1															
4.2															
4.3															
4.4															
4.5															
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4.13															
4.14															
4.15															
4.16															
4.17															
4.18															
4.19															
5.1	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●		
5.2	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●		
5.3	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●		
5.4	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●		
5.5	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●		
5.6	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●		
5.7	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●		
5.8	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●		
5.9	0,11	0,08	0,07	0,025	0,16	0,11	0,09	0,035	0,22	0,15	0,13	0,049	●		
5.10	0,11	0,08	0,07	0,025	0,16	0,11	0,09	0,035	0,22	0,15	0,13	0,049	●		
5.11	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●		
6.1															
6.2															
6.3															
6.4															
6.5															

Cutting data – CircularLine – End Mills – CCR-UNI, extra long

	extra long	max. angle of engagement	Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm		
			a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC	
Index	v_c in m/min		f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m
1.1	260	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032
1.2	260	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032
1.3	250	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032
1.4	250	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032
1.5	250	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030
1.6	230	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030
1.7	250	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030
1.8	230	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030
1.9	230	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030
1.10	210	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030
1.11	210	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030
1.12	210	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030
1.13	210	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030
1.14																	
1.15	200	45°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030
1.16	200	45°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030
2.1	170	45°	0,04	0,03	0,009	0,05	0,03	0,011	0,06	0,04	0,014	0,08	0,06	0,018	0,09	0,07	0,021
2.2	150	45°	0,04	0,03	0,009	0,05	0,03	0,011	0,06	0,04	0,014	0,08	0,06	0,018	0,09	0,07	0,021
2.3	130	45°	0,04	0,03	0,009	0,05	0,03	0,011	0,06	0,04	0,014	0,08	0,06	0,018	0,09	0,07	0,021
2.4	130	45°	0,04	0,03	0,009	0,05	0,03	0,011	0,06	0,04	0,014	0,08	0,06	0,018	0,09	0,07	0,021
2.5	110	45°	0,04	0,03	0,009	0,05	0,03	0,011	0,06	0,04	0,014	0,08	0,06	0,018	0,09	0,07	0,021
2.6	110	45°	0,04	0,03	0,009	0,05	0,03	0,011	0,06	0,04	0,014	0,08	0,06	0,018	0,09	0,07	0,021
2.7																	
3.1	260	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032
3.2	260	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032
3.3	260	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032
3.4	230	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032
3.5	230	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030
3.6	210	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030
3.7	210	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030
3.8	180	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,10	0,030
4.1																	
4.2																	
4.3																	
4.4																	
4.5																	
4.6																	
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4.13																	
4.14																	
4.15																	
4.16																	
4.17																	
4.18																	
4.19																	
5.1	100	40°	0,02	0,02	0,005	0,03	0,02	0,006	0,04	0,03	0,008	0,04	0,03	0,010	0,06	0,04	0,013
5.2	70	40°	0,02	0,02	0,005	0,03	0,02	0,006	0,04	0,03	0,008	0,04	0,03	0,010	0,06	0,04	0,013
5.3	70	40°	0,02	0,02	0,005	0,03	0,02	0,006	0,04	0,03	0,008	0,04	0,03	0,010	0,06	0,04	0,013
5.4																	
5.5																	
5.6																	
5.7																	
5.8																	
5.9	120	40°	0,03	0,02	0,007	0,04	0,03	0,008	0,04	0,03	0,010	0,05	0,04	0,012	0,08	0,05	0,017
5.10	100	40°	0,03	0,02	0,007	0,04	0,03	0,008	0,04	0,03	0,010	0,05	0,04	0,012	0,08	0,05	0,017
5.11	90	40°	0,02	0,02	0,005	0,03	0,02	0,006	0,04	0,03	0,008	0,04	0,03	0,010	0,06	0,04	0,013
6.1																	
6.2																	
6.3																	
6.4																	
6.5																	

Depth of cut corresponds to the flute length

	Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,05 x DC	a_e 0,1 x DC				
Index	f_z mm		h_m	Emulsion	Compressed air	MMS
1.1	0,17	0,12	0,037	○	●	○
1.2	0,17	0,12	0,037	○	●	○
1.3	0,17	0,12	0,037	○	●	○
1.4	0,17	0,12	0,037	○	●	○
1.5	0,14	0,10	0,032	○	●	○
1.6	0,14	0,10	0,032	○	●	○
1.7	0,14	0,10	0,032	○	●	○
1.8	0,14	0,10	0,032	○	●	○
1.9	0,14	0,10	0,032	○	●	○
1.10	0,14	0,10	0,032	○	●	○
1.11	0,14	0,10	0,032	○	●	○
1.12	0,14	0,10	0,032	○	●	○
1.13	0,14	0,10	0,032	○	●	○
1.14						
1.15	0,14	0,10	0,032	○	●	○
1.16	0,14	0,10	0,032	○	●	○
2.1	0,13	0,09	0,03	●		
2.2	0,13	0,09	0,03	●		
2.3	0,13	0,09	0,03	●		
2.4	0,13	0,09	0,03	●		
2.5	0,13	0,09	0,03	●		
2.6	0,13	0,09	0,03	●		
2.7						
3.1	0,17	0,12	0,037	○	●	○
3.2	0,17	0,12	0,037	○	●	○
3.3	0,17	0,12	0,037	○	●	○
3.4	0,17	0,12	0,037	○	●	○
3.5	0,14	0,10	0,032	○	●	○
3.6	0,14	0,10	0,032	○	●	○
3.7	0,14	0,10	0,032	○	●	○
3.8	0,14	0,10	0,032	○	●	○
4.1						
4.2						
4.3						
4.4						
4.5						
4.6						
4.7						
4.8						
4.9						
4.10						
4.11						
4.12						
4.13						
4.14						
4.15						
4.16						
4.17						
4.18						
4.19						
5.1	0,08	0,06	0,018	●		
5.2	0,08	0,06	0,018	●		
5.3	0,08	0,06	0,018	●		
5.4						
5.5						
5.6						
5.7						
5.8						
5.9	0,11	0,08	0,024	●		
5.10	0,11	0,08	0,024	●		
5.11	0,08	0,06	0,018	●		
6.1						
6.2						
6.3						
6.4						
6.5						

Cutting data – CircularLine – End Mills – CCR-AL, long – extra long

Index	long	extra long	max. angle of engagement	Ø DC = 6 mm				Ø DC = 8 mm				● 1st choice		○ suitable
				a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,4 x DC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,4 x DC				
	v_c m/min			f_z mm			h_m	f_z mm			h_m	Emulsion	Compressed air	MMS
4.1	500	400	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●		○
4.2	500	400	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●		○
4.3	500	400	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●		○
4.4	500	400	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●		○
4.5	400	350	60°	0,35	0,25	0,17	0,110	0,44	0,31	0,22	0,140	●		○
4.6	300	250	60°	0,35	0,25	0,17	0,110	0,38	0,27	0,19	0,120	●		○
4.7	300	250	60°	0,35	0,25	0,17	0,110	0,38	0,27	0,19	0,120	●		○
4.8	300	250	60°	0,35	0,25	0,17	0,110	0,38	0,27	0,19	0,120	●		○
4.9	300	250	60°	0,35	0,25	0,17	0,110	0,38	0,27	0,19	0,120	●		○
4.10	300	250	60°	0,35	0,25	0,17	0,110	0,38	0,27	0,19	0,120	●		○
4.11	400	350	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●		○
4.12	400	350	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●		○

Index	long	extra long	max. angle of engagement	Ø DC = 10 mm				Ø DC = 12 mm				● 1st choice		○ suitable
				a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,4 x DC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,4 x DC				
	v_c m/min			f_z mm			h_m	f_z mm			h_m	Emulsion	Compressed air	MMS
4.1	500	400	60°	0,47	0,34	0,24	0,150	0,51	0,36	0,25	0,160	●		○
4.2	500	400	60°	0,47	0,34	0,24	0,150	0,51	0,36	0,25	0,160	●		○
4.3	500	400	60°	0,47	0,34	0,24	0,150	0,51	0,36	0,25	0,160	●		○
4.4	500	400	60°	0,47	0,34	0,24	0,150	0,51	0,36	0,25	0,160	●		○
4.5	400	350	60°	0,47	0,34	0,24	0,150	0,51	0,36	0,25	0,160	●		○
4.6	300	250	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●		○
4.7	300	250	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●		○
4.8	300	250	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●		○
4.9	300	250	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●		○
4.10	300	250	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●		○
4.11	400	350	60°	0,47	0,34	0,24	0,150	0,51	0,36	0,25	0,160	●		○
4.12	400	350	60°	0,47	0,34	0,24	0,150	0,51	0,36	0,25	0,160	●		○

Index	long	extra long	max. angle of engagement	Ø DC = 16 mm				Ø DC = 20 mm				● 1st choice		○ suitable
				a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,4 x DC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,4 x DC				
	v_c m/min			f_z mm			h_m	f_z mm			h_m	Emulsion	Compressed air	MMS
4.1	500	400	60°	0,63	0,45	0,32	0,2	0,76	0,54	0,38	0,24	●		○
4.2	500	400	60°	0,63	0,45	0,32	0,2	0,76	0,54	0,38	0,24	●		○
4.3	500	400	60°	0,63	0,45	0,32	0,2	0,76	0,54	0,38	0,24	●		○
4.4	500	400	60°	0,63	0,45	0,32	0,2	0,76	0,54	0,38	0,24	●		○
4.5	400	350	60°	0,63	0,45	0,32	0,2	0,76	0,54	0,38	0,24	●		○
4.6	300	250	60°	0,57	0,40	0,29	0,18	0,63	0,45	0,32	0,2	●		○
4.7	300	250	60°	0,57	0,40	0,29	0,18	0,63	0,45	0,32	0,2	●		○
4.8	300	250	60°	0,57	0,40	0,29	0,18	0,63	0,45	0,32	0,2	●		○
4.9	300	250	60°	0,57	0,40	0,29	0,18	0,63	0,45	0,32	0,2	●		○
4.10	300	250	60°	0,57	0,40	0,29	0,18	0,63	0,45	0,32	0,2	●		○
4.11	400	350	60°	0,63	0,45	0,32	0,2	0,76	0,54	0,38	0,24	●		○
4.12	400	350	60°	0,63	0,45	0,32	0,2	0,76	0,54	0,38	0,24	●		○

Depth of cut corresponds to the flute length

Plunging angle for ramping and helical milling: 4°

Cutting data standard values – CircularLine – End mills – CCR-H, 53 596 ...

Index	long v_c m/min	max. angle of engagement	Ø DC = 6 mm a_e 0,02 x DC f_z mm	Ø DC = 6 mm a_e 0,05 x DC f_z mm	Ø DC = 6 mm a_e 0,10 x DC f_z mm	Ø DC = 6 mm h_m	Ø DC = 8 mm a_e 0,02 x DC f_z mm	Ø DC = 8 mm a_e 0,05 x DC f_z mm	Ø DC = 8 mm a_e 0,10 x DC f_z mm	Ø DC = 8 mm h_m	Ø DC = 10 mm a_e 0,02 x DC f_z mm	Ø DC = 10 mm a_e 0,05 x DC f_z mm	Ø DC = 10 mm a_e 0,10 x DC f_z mm	Ø DC = 10 mm h_m	● 1st choice Emulsion	● 1st choice Compressed air	○ suitable MMS
6.1	150	30°	**0,13**	**0,08**	**0,06**	**0,018**	**0,14**	**0,09**	**0,06**	**0,020**	**0,18**	**0,11**	**0,08**	**0,025**		●	○
6.2	130	30°	**0,09**	**0,06**	**0,04**	**0,013**	**0,11**	**0,07**	**0,05**	**0,016**	**0,14**	**0,09**	**0,06**	**0,020**		●	○
6.3	120	30°	**0,04**	**0,03**	**0,02**	**0,006**	**0,06**	**0,04**	**0,03**	**0,008**	**0,07**	**0,04**	**0,03**	**0,010**		●	○
6.4	115	30°	**0,03**	**0,02**		**0,004**	**0,04**	**0,03**		**0,006**	**0,05**	**0,03**		**0,007**		●	○
6.5	110	30°	**0,02**			**0,003**	**0,03**			**0,004**	**0,04**			**0,005**		●	○

Index	long v_c m/min	max. angle of engagement	Ø DC = 12 mm a_e 0,02 x DC f_z mm	Ø DC = 12 mm a_e 0,05 x DC f_z mm	Ø DC = 12 mm a_e 0,10 x DC f_z mm	Ø DC = 12 mm h_m	Ø DC = 16 mm a_e 0,02 x DC f_z mm	Ø DC = 16 mm a_e 0,05 x DC f_z mm	Ø DC = 16 mm a_e 0,10 x DC f_z mm	Ø DC = 16 mm h_m	Ø DC = 20 mm a_e 0,02 x DC f_z mm	Ø DC = 20 mm a_e 0,05 x DC f_z mm	Ø DC = 20 mm a_e 0,10 x DC f_z mm	Ø DC = 20 mm h_m	● 1st choice Emulsion	● 1st choice Compressed air	○ suitable MMS
6.1	150	30°	**0,21**	**0,13**	**0,09**	**0,030**	**0,28**	**0,18**	**0,13**	**0,040**	**0,35**	**0,22**	**0,16**	**0,050**		●	○
6.2	130	30°	**0,18**	**0,11**	**0,08**	**0,025**	**0,25**	**0,16**		**0,035**	**0,34**	**0,22**		**0,049**		●	○
6.3	120	30°	**0,08**	**0,05**	**0,04**	**0,012**	**0,13**	**0,08**		**0,018**	**0,17**	**0,11**		**0,024**		●	○
6.4	115	30°	**0,06**	**0,04**		**0,009**	**0,09**			**0,013**	**0,13**			**0,018**		●	○
6.5	110	30°	**0,04**			**0,006**	**0,06**			**0,009**	**0,08**			**0,012**		●	○

Depth of cut corresponds to the flute length

Cutting data standard values – CircularLine – CCR-Ti, long

Index	long v_c m/min	max. angle of engagement	Ø DC = 6 mm a_e 0,05 x DC f_z mm	a_e 0,10 x DC f_z mm	a_e 0,15 x DC f_z mm	h_m	Ø DC = 8 mm a_e 0,05 x DC f_z mm	a_e 0,10 x DC f_z mm	a_e 0,15 x DC f_z mm	h_m	Ø DC = 10 mm a_e 0,05 x DC f_z mm	a_e 0,10 x DC f_z mm	a_e 0,15 x DC f_z mm	h_m
2.1	200	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028
2.2	180	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028
2.3	160	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028
2.4	160	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028
2.5	140	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028
2.6	140	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028
2.7														
5.1	**120**	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.2	**80**	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.3	**80**	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.4	**60**	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.5	**60**	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.6	**60**	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.7	**60**	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.8	**60**	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.9	**140**	40°	0,060	0,042	0,034	0,013	0,070	0,049	0,040	0,016	0,089	0,063	0,052	0,020
5.10	**120**	40°	0,060	0,042	0,034	0,013	0,070	0,049	0,040	0,016	0,089	0,063	0,052	0,020
5.11	**100**	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015

Cutting data standard values – CircularLine – CCR-Ti, extra long

Index	extra long v_c m/min	max. angle of engagement	Ø DC = 6 mm a_e 0,05 x DC f_z mm	a_e 0,10 x DC f_z mm	h_m	Ø DC = 8 mm a_e 0,05 x DC f_z mm	a_e 0,10 x DC f_z mm	h_m	Ø DC = 10 mm a_e 0,05 x DC f_z mm	a_e 0,10 x DC f_z mm	h_m	Ø DC = 12 mm a_e 0,05 x DC f_z mm	a_e 0,10 x DC f_z mm	h_m
2.1	170	45°	0,080	0,057	0,018	0,098	0,070	0,022	0,125	0,089	0,028	0,125	0,089	0,028
2.2	150	45°	0,080	0,057	0,018	0,098	0,070	0,022	0,125	0,089	0,028	0,125	0,089	0,028
2.3	130	45°	0,080	0,057	0,018	0,098	0,070	0,022	0,125	0,089	0,028	0,125	0,089	0,028
2.4	130	45°	0,080	0,057	0,018	0,098	0,070	0,022	0,125	0,089	0,028	0,125	0,089	0,028
2.5	110	45°	0,080	0,057	0,018	0,098	0,070	0,022	0,125	0,089	0,028	0,125	0,089	0,028
2.6	110	45°	0,080	0,057	0,018	0,098	0,070	0,022	0,125	0,089	0,028	0,125	0,089	0,028
2.7														
5.1	**100**	40°	0,022	0,016	0,005	0,027	0,019	0,006	0,036	0,025	0,008	0,045	0,032	0,010
5.2	**70**	40°	0,022	0,016	0,005	0,027	0,019	0,006	0,036	0,025	0,008	0,045	0,032	0,010
5.3	**70**	40°	0,022	0,016	0,005	0,027	0,019	0,006	0,036	0,025	0,008	0,045	0,032	0,010
5.4														
5.5														
5.6														
5.7														
5.8														
5.9	**120**	40°	0,031	0,022	0,007	0,036	0,025	0,008	0,045	0,032	0,010	0,054	0,038	0,012
5.10	**100**	40°	0,031	0,022	0,007	0,036	0,025	0,008	0,045	0,032	0,010	0,054	0,038	0,012
5.11	**90**	40°	0,022	0,016	0,005	0,027	0,019	0,006	0,036	0,025	0,008	0,045	0,032	0,010

Depth of cut corresponds to the flute length

	Ø DC = 12 mm				Ø DC = 16 mm				Ø DC = 20 mm				● 1st choice		○ suitable
	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m			
Index	f_z mm	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm		Emulsion	Compressed air	MMS
2.1	0,161	0,114	0,093	0,036	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,06	●		
2.2	0,161	0,114	0,093	0,036	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,06	●		
2.3	0,161	0,114	0,093	0,036	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,06	●		
2.4	0,161	0,114	0,093	0,036	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,06	●		
2.5	0,161	0,114	0,093	0,036	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,06	●		
2.6	0,161	0,114	0,093	0,036	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,06	●		
2.7															
5.1	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●		
5.2	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●		
5.3	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●		
5.4	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●		
5.5	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●		
5.6	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●		
5.7	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●		
5.8	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●		
5.9	0,113	0,080	0,065	0,025	0,157	0,111	0,090	0,035	0,217	0,153	0,125	0,049	●		
5.10	0,113	0,080	0,065	0,025	0,157	0,111	0,090	0,035	0,217	0,153	0,125	0,049	●		
5.11	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●		

	Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m			
Index	f_z mm	f_z mm		f_z mm	f_z mm		Emulsion	Compressed air	MMS
2.1	0,161	0,114	0,036	0,188	0,133	0,042	●		
2.2	0,161	0,114	0,036	0,188	0,133	0,042	●		
2.3	0,161	0,114	0,036	0,188	0,133	0,042	●		
2.4	0,161	0,114	0,036	0,188	0,133	0,042	●		
2.5	0,161	0,114	0,036	0,188	0,133	0,042	●		
2.6	0,161	0,114	0,036	0,188	0,133	0,042	●		
2.7									
5.1	0,058	0,041	0,013	0,080	0,057	0,018	●		
5.2	0,058	0,041	0,013	0,080	0,057	0,018	●		
5.3	0,058	0,041	0,013	0,080	0,057	0,018	●		
5.4									
5.5									
5.6									
5.7									
5.8									
5.9	0,076	0,054	0,017	0,107	0,076	0,024	●		
5.10	0,076	0,054	0,017	0,107	0,076	0,024	●		
5.11	0,058	0,041	0,013	0,080	0,057	0,018	●		

Cutting data standard values – AluLine – End mills – ZEFP = 2

	Type short / medium length	Type long / extra long		Ø DC = 2 mm			Ø DC = 2,5 mm			Ø DC = 3,0–3,5 mm			Ø DC = 4,0–4,5 mm			Ø DC = 5,0–5,5 mm			Ø DC = 6,0–7,5 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
4.1	700	300	1,0	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,072	0,055	0,040	0,090	0,067	0,045	0,100	0,075	0,050
4.2	700	300	1,0	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,072	0,055	0,040	0,090	0,067	0,045	0,100	0,075	0,050
4.3	420	200	1,0	0,027	0,021	0,015	0,034	0,026	0,019	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040
4.4	420	180	1,0	0,027	0,021	0,015	0,034	0,026	0,019	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040
4.5	280	140	1,0	0,027	0,021	0,015	0,034	0,026	0,019	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040
4.6	200	110	1,0	0,018	0,014	0,010	0,022	0,017	0,013	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030
4.7	180	100	1,0	0,018	0,014	0,010	0,022	0,017	0,013	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030
4.8	175	75	1,0	0,018	0,014	0,010	0,022	0,017	0,013	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030
4.9	175	75	1,0	0,018	0,014	0,010	0,022	0,017	0,013	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030
4.10	175	75	1,0	0,018	0,014	0,010	0,022	0,017	0,013	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030
4.11	280	125	1,0	0,018	0,014	0,010	0,022	0,017	0,013	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030
4.12	210	100	1,0	0,018	0,014	0,010	0,022	0,017	0,013	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030
4.13																					
4.14																					
4.15																					
4.16	220	130	1,0	0,027	0,021	0,015	0,034	0,026	0,019	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040
4.17																					
4.18																					
4.19																					

Cutting data standard values – AluLine – End mills – ZEFP = 3–4

	Type short / medium length	Type long / extra long		Ø DC = 3,0–3,5 mm			Ø DC = 4,0–4,5 mm			Ø DC = 5,0–5,5 mm			Ø DC = 6,0–7,5 mm			Ø DC = 8,0–8,5 mm			Ø DC = 10 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
4.1	700	300	1,0	0,048	0,037	0,027	0,063	0,048	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,130	0,097	0,065
4.2	700	300	1,0	0,048	0,037	0,027	0,063	0,048	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,130	0,097	0,065
4.3	420	200	1,0	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.4	420	180	1,0	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.5	280	140	1,0	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.6	200	110	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.7	180	100	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.8	175	75	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.9	175	75	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.10	175	75	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.11	280	125	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.12	210	100	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.13																					
4.14																					
4.15																					
4.16	220	130	1,0	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.17																					
4.18																					
4.19																					

Index	Ø DC = 8,0–9,5 mm			Ø DC = 10,0–11,5 mm			Ø DC = 12,0–13,5 mm			Ø DC = 14,0–15,5 mm			Ø DC = 16,0–17,5 mm			Ø DC = 18,0–19,5 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
4.1	0,120	0,089	0,060	0,140	0,104	0,070	0,160	0,119	0,080	0,201	0,156	0,110	0,254	0,194	0,150	0,269	0,219	0,170	0,316	0,258	0,200	●	○*	○
4.2	0,120	0,089	0,060	0,140	0,104	0,070	0,160	0,119	0,080	0,201	0,156	0,110	0,254	0,194	0,150	0,269	0,219	0,170	0,316	0,258	0,200	●	○*	○
4.3	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	●	○*	○
4.4	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	●	○*	○
4.5	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	●	○*	○
4.6	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	●	○*	○
4.7	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	●	○*	○
4.8	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	●	○*	○
4.9	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	●	○*	○
4.10	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	●	○*	○
4.11	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	●	○*	○
4.12	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	●	○*	○
4.13																								
4.14																								
4.15																								
4.16	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	●	○*	○
4.17																								
4.18																								
4.19																								

* = only suitable for DLC coated cutters

Index	Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			Ø DC = 25 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
4.1	0,140	0,104	0,070	0,146	0,113	0,080	0,152	0,116	0,090	0,166	0,136	0,105	0,190	0,155	0,120	0,213	0,174	0,135	●	○*	○
4.2	0,140	0,104	0,070	0,146	0,113	0,080	0,152	0,116	0,090	0,166	0,136	0,105	0,190	0,155	0,120	0,213	0,174	0,135	●	○*	○
4.3	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	0,316	0,258	0,200	●	○*	○
4.4	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	0,316	0,258	0,200	●	○*	○
4.5	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	0,316	0,258	0,200	●	○*	○
4.6	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	0,221	0,181	0,140	●	○*	○
4.7	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	0,221	0,181	0,140	●	○*	○
4.8	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	0,221	0,181	0,140	●	○*	○
4.9	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	0,221	0,181	0,140	●	○*	○
4.10	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	0,221	0,181	0,140	●	○*	○
4.11	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	0,221	0,181	0,140	●	○*	○
4.12	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	0,221	0,181	0,140	●	○*	○
4.13																					
4.14																					
4.15																					
4.16	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	0,316	0,258	0,200	●	○*	○
4.17																					
4.18																					
4.19																					

* = only suitable for DLC coated cutters

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Cutting data – AluLine – Ball Nosed End Mills

	Type short / medium length	Type long / extra long		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
4.1	750	450	0,03	0,054	0,042	0,030	0,072	0,055	0,040	0,090	0,067	0,045	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070
4.2	750	450	0,03	0,054	0,042	0,030	0,072	0,055	0,040	0,090	0,067	0,045	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070
4.3	600	360	0,03	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.4	400	240	0,03	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.5	400	240	0,03	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.6	230	170	0,03	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.7	190	145	0,03	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.8	80	55	0,03	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.9	80	55	0,03	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.10	80	55	0,03	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.11	145	85	0,03	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.12	135	105	0,03	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.13	240	145	0,03				0,135	0,104	0,075	0,200	0,149	0,100	0,240	0,179	0,120	0,300	0,224	0,150	0,400	0,298	0,200
4.14	65	40	0,03				0,135	0,104	0,075	0,200	0,149	0,100	0,240	0,179	0,120	0,300	0,224	0,150	0,400	0,298	0,200
4.15																					
4.16	350	210	0,03	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.17																					
4.18																					
4.19																					

Feed rate guide values for ball nosed and torus cutters on → **Page 356**

Cutting data – AluLine – High Accuracy Finishing Cutters

	Type short / medium length	Type long / extra long		Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
4.1	500	360	2,0	0,030	0,018		0,040	0,024		0,045	0,027		0,050	0,030		0,060	0,036	
4.2	500	360	2,0	0,030	0,018		0,040	0,024		0,045	0,027		0,050	0,030		0,060	0,036	
4.3	300	220	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.4	210	150	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.5	210	150	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.6	150	110	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.7	140	100	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.8	60	40	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.9	60	40	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.10	60	40	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.11	140	100	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.12	150	110	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.13																		
4.14																		
4.15																		
4.16	200	140	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.17																		
4.18																		
4.19																		

	Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm					
4.1	0,160	0,119	0,080	0,201	0,156	0,110	0,254	0,194	0,150	0,316	0,258	0,200	●		○
4.2	0,160	0,119	0,080	0,201	0,156	0,110	0,254	0,194	0,150	0,316	0,258	0,200	●		○
4.3	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,269	0,219	0,170	●		○
4.4	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,269	0,219	0,170	●		○
4.5	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,269	0,219	0,170	●		○
4.6	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,190	0,155	0,120	●		○
4.7	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,190	0,155	0,120	●		○
4.8	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,190	0,155	0,120	●		○
4.9	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,190	0,155	0,120	●		○
4.10	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,190	0,155	0,120	●		○
4.11	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,190	0,155	0,120	●		○
4.12	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,190	0,155	0,120	●		○
4.13	0,500	0,373	0,250	0,548	0,424	0,300	0,592	0,452	0,350	0,712	0,581	0,450	●		○
4.14	0,500	0,373	0,250	0,548	0,424	0,300	0,592	0,452	0,350	0,712	0,581	0,450	●		○
4.15															
4.16	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,269	0,219	0,170	●		○
4.17															
4.18															
4.19															

	Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm					
4.1	0,070	0,042		●		○
4.2	0,070	0,042		●		○
4.3	0,060	0,036		●		○
4.4	0,060	0,036		●		○
4.5	0,060	0,036		●		○
4.6	0,060	0,036		●		○
4.7	0,060	0,036		●		○
4.8	0,060	0,036		●		○
4.9	0,060	0,036		●		○
4.10	0,060	0,036		●		○
4.11	0,060	0,036		●		○
4.12	0,060	0,036		●		○
4.13						
4.14						
4.15						
4.16	0,060	0,036		●		○
4.17						
4.18						
4.19						

Cutting data – SilverLine – End Mills – 50 951 ... / 50 952 ... / 50 953 ...

	Type short	Type long / extra long	Type short / long	Type extra long	Ø DC = 3,0–3,5 mm			Ø DC = 4,0–4,5 mm			Ø DC = 5,0–5,5 mm			Ø DC = 6,0–7,5 mm			Ø DC = 8,0–9,5 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max}$ x DC	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	**230**	**184**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.2	**240**	**192**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.3	**210**	**168**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.4	**200**	**160**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.5	**200**	**160**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.6	**190**	**152**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.7	**190**	**152**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.8	**180**	**144**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.9	**160**	**128**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.10	**190**	**152**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.11	**170**	**136**	1,0*	0,5	0,019	0,015	0,011	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03
1.12	**180**	**144**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.13																			
1.14																			
1.15																			
1.16																			
2.1	**130**	**104**	1,0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03
2.2	**120**	**96**	1,0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03
2.3	**100**	**80**	1,0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03
2.4	**120**	**96**	1,0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03
2.5	**120**	**96**	1,0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03
2.6	**120**	**96**	1,0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03
2.7	**30**	**24**	1,0*	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02
3.1	200	160	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
3.2	180	144	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
3.3	190	152	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.4	170	136	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.5	180	144	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.6	160	128	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.7	180	144	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.8	160	128	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
4.1																			
4.2																			
4.3																			
4.4																			
4.5																			
4.6	280	224	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
4.7	300	240	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
4.8	160	128	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
4.9	140	112	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
4.10	120	96	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
4.11	350	280	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
4.12	300	240	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
4.13																			
4.14																			
4.15																			
4.16																			
4.17																			
4.18																			
4.19																			
5.1																			
5.2																			
5.3	**30**	**24**	0,5	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02
5.4	**30**	**24**	0,5	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02
5.5	**30**	**24**	0,5	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02
5.6	**30**	**24**	0,5	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02
5.7	**30**	**24**	0,5	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02
5.8	**30**	**24**	0,5	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02
5.9	**160**	**128**	0,5	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
5.10	**140**	**112**	0,5	0,5	0,019	0,015	0,011	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03
5.11	**100**	**80**	0,5	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03
6.1																			
6.2																			
6.3																			
6.4																			
6.5																			

* = long version: $a_{p\,max.}$ 1.5 x DC at f_z x 0.75 / ball-nosed end mill: $a_{p\,max.}$ 0.5 x DC

„Extra long“ version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
1.1	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.2	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.3	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.4	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.5	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.6	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.7	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.8	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.9	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.10	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.11	0,08	0,06	0,04	0,10	0,08	0,05	0,10	0,08	0,06	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●	○	○
1.12	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.13																					
1.14																					
1.15																					
1.16																					
2.1	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.2	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.3	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.4	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.5	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.6	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.7	0,05	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
3.1	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●	●	●
3.2	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,16	0,13	0,10	●	●	●
3.3	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.4	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.5	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.6	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.7	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.8	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
4.1																					
4.2																					
4.3																					
4.4																					
4.5																					
4.6	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●		
4.7	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●		
4.8	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●		
4.9	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●		
4.10	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●		
4.11	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●		
4.12	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●		
4.13																					
4.14																					
4.15																					
4.16																					
4.17																					
4.18																					
4.19																					
5.1																					
5.2																					
5.3	0,05	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
5.4	0,05	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
5.5	0,05	0,04	0,03	0,06	0,03	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
5.6	0,05	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
5.7	0,05	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
5.8	0,05	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
5.9	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,08	0,07	0,05	●		
5.10	0,08	0,06	0,04	0,10	0,08	0,05	0,10	0,08	0,06	0,10	0,08	0,06	0,11	0,09	0,07	0,08	0,07	0,05	●		
5.11	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,08	0,07	0,05	●		
6.1																					
6.2																					
6.3																					
6.4																					
6.5																					

Plunging angle for ramping and helical milling: 3°

Cutting data – SilverLine – End Mills – 50 955 ... / 50 964 ... / 50 965 ... / 50 968 ...

	Type short	Type long / extra long	Type short / long	Type extra long	Ø DC = 3,0–3,5 mm			Ø DC = 4,0–4,5 mm			Ø DC = 5,0–5,5 mm			Ø DC = 6,0–7,0 mm			Ø DC = 8,0–9,0 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max}$ x DC	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	**240**	**192**	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
1.2	**250**	**200**	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
1.3	**210**	**168**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.4	**190**	**152**	1,0*	0,5	0,019	0,015	0,011	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03
1.5	**200**	**160**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.6	**190**	**152**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.7	**190**	**152**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.8	**170**	**136**	1,0*	0,5	0,019	0,015	0,011	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03
1.9	**160**	**128**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.10	**190**	**152**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.11	**170**	**136**	1,0*	0,5	0,019	0,015	0,011	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03
1.12	**190**	**152**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.13																			
1.14																			
1.15	**180**	**144**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.16	**150**	**120**	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
2.1	**130**	**100**	1,0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03
2.2	**120**	**90**	1,0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03
2.3	**100**	**80**	1,0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03
2.4	**100**	**80**	1,0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03
2.5	**120**	**90**	1,0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03
2.6	**120**	**90**	1,0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03
2.7	**30**	**24**	1,0*	0,5	0,011	0,010	0,007	0,016	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,00	0,03	0,02
3.1	200	160	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
3.2	160	128	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.3	190	152	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.4	150	120	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.5	180	144	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.6	160	128	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.7	180	144	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.8	160	128	1,0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
4.1																			
4.2																			
4.3																			
4.4																			
4.5																			
4.6	280	224	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
4.7	300	240	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
4.8	160	128	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
4.9	140	112	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
4.10	120	96	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
4.11	350	280	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
4.12	300	240	1,0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
4.13																			
4.14																			
4.15																			
4.16																			
4.17																			
4.18																			
4.19																			
5.1																			
5.2																			
5.3	**30**	**24**	0,5	0,25	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02
5.4	**30**	**24**	0,5	0,25	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02
5.5	**30**	**24**	0,5	0,25	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02
5.6	**30**	**24**	0,5	0,25	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02
5.7	**30**	**24**	0,5	0,25	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02
5.8	**30**	**24**	0,5	0,25	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02
5.9	**110**	**80**	0,5	0,25	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
5.10	**90**	**70**	0,5	0,25	0,019	0,015	0,011	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03
5.11	**70**	**60**	0,5	0,25	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03
6.1																			
6.2																			
6.3																			
6.4																			
6.5																			

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

„Extra long“ version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

Index	Ø DC = 10,0–11,0 mm			Ø DC = 12,0 mm			Ø DC = 14,0–15,0 mm			Ø DC = 16,0–17,0 mm			Ø DC = 18,0–19,0 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
1.1	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●	○	○
1.2	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●	○	○
1.3	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.4	0,08	0,06	0,04	0,10	0,08	0,05	0,10	0,08	0,06	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●	○	○
1.5	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.6	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.7	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.8	0,08	0,06	0,04	0,10	0,08	0,05	0,10	0,08	0,06	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●	○	○
1.9	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.10	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.11	0,08	0,06	0,04	0,10	0,08	0,05	0,10	0,08	0,06	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●	○	○
1.12	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.13																					
1.14																					
1.15	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.16	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
2.1	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.2	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.3	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.4	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.5	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.6	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.7	0,01	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
3.1	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●	●	●
3.2	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.3	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.4	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.5	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.6	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.7	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.8	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
4.1																					
4.2																					
4.3																					
4.4																					
4.5																					
4.6	0,12	0,09	0,06	0,17	0,13	0,09	0,18	0,14	0,10	0,19	0,14	0,11	0,19	0,16	0,12	0,22	0,18	0,14	●		
4.7	0,12	0,09	0,06	0,17	0,13	0,09	0,18	0,14	0,10	0,19	0,14	0,11	0,19	0,16	0,12	0,22	0,18	0,14	●		
4.8	0,12	0,09	0,06	0,17	0,13	0,09	0,18	0,14	0,10	0,19	0,14	0,11	0,19	0,16	0,12	0,22	0,18	0,14	●		
4.9	0,12	0,09	0,06	0,17	0,13	0,09	0,18	0,14	0,10	0,19	0,14	0,11	0,19	0,16	0,12	0,22	0,18	0,14	●		
4.10	0,12	0,09	0,06	0,17	0,13	0,09	0,18	0,14	0,10	0,19	0,14	0,11	0,19	0,16	0,12	0,22	0,18	0,14	●		
4.11	0,12	0,09	0,06	0,17	0,13	0,09	0,18	0,14	0,10	0,19	0,14	0,11	0,18	0,14	0,11	0,19	0,15	0,12	●		
4.12	0,12	0,09	0,06	0,17	0,13	0,09	0,18	0,14	0,10	0,19	0,14	0,11	0,18	0,14	0,11	0,19	0,15	0,12	●		
4.13																					
4.14																					
4.15																					
4.16																					
4.17																					
4.18																					
4.19																					
5.1																					
5.2																					
5.3	0,05	0,04	0,03	0,07	0,05	0,04	0,07	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,09	0,07	0,05	●		
5.4	0,05	0,04	0,03	0,07	0,05	0,04	0,07	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,09	0,07	0,05	●		
5.5	0,05	0,04	0,03	0,07	0,03	0,04	0,07	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,09	0,07	0,05	●		
5.6	0,05	0,04	0,03	0,07	0,05	0,04	0,07	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,09	0,07	0,05	●		
5.7	0,05	0,04	0,03	0,07	0,05	0,04	0,07	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,09	0,07	0,05	●		
5.8	0,05	0,04	0,03	0,07	0,05	0,04	0,07	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,09	0,07	0,05	●		
5.9	0,10	0,08	0,05	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,09	0,16	0,13	0,10	0,17	0,14	0,11	●		
5.10	0,08	0,06	0,04	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
5.11	0,06	0,05	0,03	0,09	0,07	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,12	0,10	0,08	●		
6.1																					
6.2																					
6.3																					
6.4																					
6.5																					

14

Plunging angle for ramping and helical milling: 3°

Cutting data – SilverLine – End Mills – 50 954 ...

	Type short	Type long		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	240	192	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.2	250	200	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.3	210	168	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.4	190	152	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.5	200	160	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.6	190	152	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.7	190	152	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.8	170	136	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.9	160	128	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.10	190	152	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.11	170	136	1,0*	0,019	0,015	0,011	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03
1.12	180	144	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.13																		
1.14																		
1.15	170	136	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.16	160	128	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
2.1																		
2.2																		
2.3																		
2.4																		
2.5																		
2.6																		
2.7																		
3.1	200	160	1,0*	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
3.2	180	144	1,0*	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
3.3	190	152	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.4	170	136	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.5	180	144	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.6	160	128	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.7	180	144	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.8	160	128	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
4.1																		
4.2																		
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4.5																		
4.6																		
4.7																		
4.8																		
4.9																		
4.10																		
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4.18																		
4.19																		
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5.4																		
5.5																		
5.6																		
5.7																		
5.8																		
5.9																		
5.10																		
5.11																		
6.1																		
6.2																		
6.3																		
6.4																		
6.5																		

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

Plunging angle for ramping and helical milling: 3°

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
1.1	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.2	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.3	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.4	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.5	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.6	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.7	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.8	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.9	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.10	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.11	0,08	0,06	0,04	0,10	0,08	0,05	0,10	0,08	0,06	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●	○	○
1.12	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.13																					
1.14																					
1.15	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	○
1.16	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	○
2.1																					
2.2																					
2.3																					
2.4																					
2.5																					
2.6																					
2.7																					
3.1	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●	●	●
3.2	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●	●	●
3.3	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.4	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.5	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.6	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.7	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.8	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
4.1																					
4.2																					
4.3																					
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Cutting data standard values – SilverLine – End Mills – 50 959 ...

	Type long	Type extra long		Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm
				$a_{e\,max.}$ 0,05 x DC	$a_{e\,max.}$ 0,05 x DC	$a_{e\,max.}$ 0,05 x DC	$a_{e\,max.}$ 0,05 x DC	$a_{e\,max.}$ 0,05 x DC
Index	v_c m/min		$a_{p\,max.}$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.1	290	232	2xDC	0,066	0,08	0,10	0,12	0,14
1.2	300	240	2xDC	0,066	0,08	0,10	0,12	0,14
1.3	260	208	2xDC	0,066	0,08	0,10	0,12	0,14
1.4	250	200	2xDC	0,066	0,08	0,10	0,12	0,14
1.5	250	200	2xDC	0,066	0,08	0,10	0,12	0,14
1.6	230	184	2xDC	0,066	0,08	0,10	0,12	0,14
1.7	230	184	2xDC	0,066	0,08	0,10	0,12	0,14
1.8	220	176	2xDC	0,066	0,08	0,10	0,12	0,14
1.9	200	160	2xDC	0,066	0,08	0,10	0,12	0,14
1.10	230	184	2xDC	0,066	0,08	0,10	0,12	0,14
1.11	210	168	2xDC	0,050	0,06	0,08	0,10	0,10
1.12	220	176	2xDC	0,066	0,08	0,10	0,12	0,14
1.13	150	120	2xDC	0,042	0,05	0,06	0,08	0,09
1.14								
1.15	210	168	2xDC	0,066	0,08	0,10	0,12	0,14
1.16	200	160	2xDC	0,066	0,08	0,10	0,12	0,14
2.1	160	128	2xDC	0,042	0,05	0,06	0,08	0,09
2.2	150	120	2xDC	0,042	0,05	0,06	0,08	0,09
2.3	125	100	2xDC	0,042	0,05	0,06	0,08	0,09
2.4	150	120	2xDC	0,042	0,05	0,06	0,08	0,09
2.5	150	120	2xDC	0,042	0,05	0,06	0,08	0,09
2.6	150	120	2xDC	0,042	0,05	0,06	0,08	0,09
2.7	40	32	2xDC	0,034	0,04	0,05	0,06	0,07
3.1	250	200	2xDC	0,076	0,09	0,12	0,14	0,17
3.2	220	176	2xDC	0,076	0,09	0,12	0,14	0,17
3.3	230	184	2xDC	0,066	0,08	0,10	0,12	0,14
3.4	210	168	2xDC	0,066	0,08	0,10	0,12	0,14
3.5	220	176	2xDC	0,066	0,08	0,10	0,12	0,14
3.6	200	160	2xDC	0,066	0,08	0,10	0,12	0,14
3.7	220	176	2xDC	0,066	0,08	0,10	0,12	0,14
3.8	200	160	2xDC	0,066	0,08	0,10	0,12	0,14
4.1								
4.2								
4.3								
4.4								
4.5								
4.6	350	280	2xDC	0,076	0,09	0,12	0,14	0,17
4.7	370	296	2xDC	0,076	0,09	0,12	0,14	0,17
4.8	300	240	2xDC	0,076	0,09	0,12	0,14	0,17
4.9	220	176	2xDC	0,076	0,09	0,12	0,14	0,17
4.10	180	144	2xDC	0,076	0,09	0,12	0,14	0,17
4.11	430	344	2xDC	0,076	0,09	0,12	0,14	0,17
4.12	370	296	2xDC	0,076	0,09	0,12	0,14	0,17
4.13								
4.14								
4.15								
4.16								
4.17								
4.18								
4.19								
5.1								
5.2								
5.3	40	32	2xDC	0,034	0,04	0,05	0,06	0,07
5.4	40	32	2xDC	0,034	0,04	0,05	0,06	0,07
5.5	40	32	2xDC	0,034	0,04	0,05	0,06	0,07
5.6	40	32	2xDC	0,034	0,04	0,05	0,06	0,07
5.7	40	32	2xDC	0,034	0,04	0,05	0,06	0,07
5.8	40	32	2xDC	0,034	0,04	0,05	0,06	0,07
5.9	200	160	2xDC	0,066	0,08	0,10	0,12	0,14
5.10	175	140	2xDC	0,050	0,06	0,08	0,10	0,10
5.11	125	100	2xDC	0,042	0,05	0,06	0,08	0,09
6.1								
6.2								
6.3								
6.4								
6.5								

	Ø DC = 20 mm	Ø DC = 25 mm	● 1st choice		○ suitable
	$a_{e\,max.}$ 0,05 x DC	$a_{e\,max.}$ 0,05 x DC			
Index	f_z mm	f_z mm	Emulsion	Compressed air	MMS
1.1	0,16	0,18	●	○	○
1.2	0,16	0,18	●	○	○
1.3	0,16	0,18	●	○	○
1.4	0,16	0,18	●	○	○
1.5	0,16	0,18	●	○	○
1.6	0,16	0,18	●	○	○
1.7	0,16	0,18	●	○	○
1.8	0,16	0,18	●	○	○
1.9	0,16	0,18	●	○	○
1.10	0,16	0,18	●	○	○
1.11	0,13	0,14	●	○	○
1.12	0,16	0,18	●	○	○
1.13	0,11	0,12	●	○	○
1.14					
1.15	0,16	0,18	●	○	○
1.16	0,16	0,18	●	○	○
2.1	0,11	0,12	●		
2.2	0,11	0,12	●		
2.3	0,11	0,12	●		
2.4	0,11	0,12	●		
2.5	0,11	0,12	●		
2.6	0,11	0,12	●		
2.7	0,08	0,09	●		
3.1	0,19	0,21	●	●	●
3.2	0,19	0,21	●	●	●
3.3	0,16	0,18	●	●	●
3.4	0,16	0,18	●	●	●
3.5	0,16	0,18	●	●	●
3.6	0,16	0,18	●	●	●
3.7	0,16	0,18	●	●	●
3.8	0,16	0,18	●	●	●
4.1					
4.2					
4.3					
4.4					
4.5					
4.6	0,19	0,21	●		
4.7	0,19	0,21	●		
4.8	0,19	0,21	●		
4.9	0,19	0,21	●		
4.10	0,19	0,21	●		
4.11	0,19	0,21	●		
4.12	0,19	0,21	●		
4.13					
4.14					
4.15					
4.16					
4.17					
4.18					
4.19					
5.1					
5.2					
5.3	0,08	0,09	●		
5.4	0,08	0,09	●		
5.5	0,08	0,09	●		
5.6	0,08	0,09	●		
5.7	0,08	0,09	●		
5.8	0,08	0,09	●		
5.9	0,16	0,18	●		
5.10	0,13	0,14	●		
5.11	0,11	0,12	●		
6.1					
6.2					
6.3					
6.4					
6.5					

Cutting data – SilverLine – Torus End Mills – 50 962 ...

	Type short	Type long	Ø DCX = 6 mm			Ø DCX = 8 mm			Ø DCX = 10 mm			Ø DCX = 12 mm			Ø DCX = 14 mm			Ø DCX = 16 mm		
			a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX	a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX	a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX	a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX	a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX	a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX
Index	v_c m/min		f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1																				
1.2																				
1.3																				
1.4																				
1.5																				
1.6																				
1.7																				
1.8	170	136	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
1.9																				
1.10																				
1.11	170	136	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
1.12	190	152	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
1.13	130	104	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
1.14																				
1.15	120	96	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
1.16	120	96	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
2.1																				
2.2																				
2.3																				
2.4																				
2.5																				
2.6																				
2.7																				
3.1	250	200	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
3.2	230	184	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
3.3	200	160	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
3.4	180	144	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
3.5	220	176	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
3.6	210	168	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
3.7	220	176	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
3.8	210	168	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
4.1																				
4.2																				
4.3																				
4.4																				
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5.7																				
5.8																				
5.9																				
5.10																				
5.11																				
6.1	**160**	**128**	0,20	0,15	0,10	0,30	0,22	0,15	0,40	0,30	0,20	0,50	0,37	0,25	0,55	0,42	0,30	0,59	0,45	0,35
6.2	**120**	**96**	0,20	0,15	0,10	0,30	0,22	0,15	0,40	0,30	0,20	0,50	0,37	0,25	0,55	0,42	0,30	0,59	0,45	0,35
6.3	**80**	**64**	0,20	0,15	0,10	0,30	0,22	0,15	0,40	0,30	0,20	0,50	0,37	0,25	0,55	0,42	0,30	0,59	0,45	0,35
6.4																				
6.5																				

$a_{e\,max.}$ = 0.5 x DC / $a_{p\,max.}$ = 0.03 x DC

Plunging angle for ramping and helical milling: 3°

Index	Ø DCX = 18 mm			Ø DCX = 20 mm			● 1st choice		○ suitable
	a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX	a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX	Emulsion	Compressed air	MMS
	f_z mm			f_z mm					
1.1									
1.2									
1.3									
1.4									
1.5									
1.6									
1.7									
1.8	0,79	0,65	0,50	0,87	0,71	0,55	●	○	○
1.9									
1.10									
1.11	0,79	0,65	0,50	0,87	0,71	0,55	●	○	○
1.12	0,79	0,65	0,50	0,87	0,71	0,55	●	○	○
1.13	0,79	0,65	0,50	0,87	0,71	0,55	●	○	○
1.14									
1.15	0,79	0,65	0,50	0,87	0,71	0,55	●	○	○
1.16	0,79	0,65	0,50	0,87	0,71	0,55	●	○	○
2.1									
2.2									
2.3									
2.4									
2.5									
2.6									
2.7									
3.1	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
3.2	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
3.3	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
3.4	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
3.5	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
3.6	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
3.7	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
3.8	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
4.1									
4.2									
4.3									
4.4									
4.5									
4.6									
4.7									
4.8									
4.9									
4.10									
4.11									
4.12									
4.13									
4.14									
4.15									
4.16									
4.17									
4.18									
4.19									
5.1									
5.2									
5.3									
5.4									
5.5									
5.6									
5.7									
5.8									
5.9									
5.10									
5.11									
6.1	0,63	0,52	0,40	0,71	0,58	0,45		●	●
6.2	0,63	0,52	0,40	0,71	0,58	0,45		●	●
6.3	0,63	0,52	0,40	0,71	0,58	0,45		●	●
6.4									
6.5									

Cutting data – SilverLine – Torus End Mills – 50 961 ...

	Type short	Type long	Ø DCX = 6 mm			Ø DCX = 8 mm			Ø DCX = 10 mm			Ø DCX = 12 mm			Ø DCX = 14 mm			Ø DCX = 16 mm		
			a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX	a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX	a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX	a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX	a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX	a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX
Index	v_c m/min		f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	220	176	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
1.2	230	184	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
1.3	240	192	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
1.4	220	176	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
1.5	210	168	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
1.6	190	152	0,20	0,15	0,10	0,30	0,22	0,15	0,40	0,30	0,20	0,50	0,37	0,25	0,55	0,42	0,30	0,59	0,45	0,35
1.7	200	160	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
1.8	180	144	0,20	0,15	0,10	0,30	0,22	0,15	0,40	0,30	0,20	0,50	0,37	0,25	0,73	0,57	0,40	0,59	0,45	0,35
1.9																				
1.10	180	144	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
1.11	170	136	0,20	0,15	0,10	0,30	0,22	0,15	0,40	0,30	0,20	0,50	0,37	0,25	0,55	0,42	0,30	0,59	0,45	0,35
1.12	180	144	0,20	0,15	0,10	0,30	0,22	0,15	0,40	0,30	0,20	0,50	0,37	0,25	0,55	0,42	0,30	0,59	0,45	0,35
1.13	150	120	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
1.14																				
1.15	150	120	0,20	0,15	0,10	0,30	0,22	0,15	0,40	0,30	0,20	0,50	0,37	0,25	0,55	0,42	0,30	0,59	0,45	0,35
1.16	150	120	0,20	0,15	0,10	0,30	0,22	0,15	0,40	0,30	0,20	0,50	0,37	0,25	0,55	0,42	0,30	0,59	0,45	0,35
2.1																				
2.2																				
2.3																				
2.4																				
2.5																				
2.6																				
2.7																				
3.1	250	200	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
3.2	230	184	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
3.3	200	160	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
3.4	180	144	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
3.5	220	176	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
3.6	210	168	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
3.7	220	176	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
3.8	210	168	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
4.1																				
4.2																				
4.3																				
4.4																				
4.5																				
4.6	250	200	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
4.7																				
4.8	220	176	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
4.9																				
4.10	180	144	0,40	0,30	0,20	0,50	0,37	0,25	0,60	0,45	0,30	0,70	0,52	0,35	0,73	0,57	0,40	0,76	0,58	0,45
4.11																				
4.12																				
4.13																				
4.14																				
4.15																				
4.16																				
4.17																				
4.18																				
4.19																				
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5.6																				
5.7																				
5.8																				
5.9																				
5.10																				
5.11																				
6.1																				
6.2	120	96	0,10	0,07	0,05	0,20	0,15	0,10	0,30	0,22	0,15	0,40	0,30	0,20	0,46	0,35	0,25	0,51	0,39	0,30
6.3																				
6.4																				
6.5																				

$a_{e\,max.}$ = 0.5 x DC / $a_{p\,max.}$ = 0.05 x DC

Plunging angle for ramping and helical milling: 3°

Index	Ø DCX = 18 mm			Ø DCX = 20 mm			● 1st choice		○ suitable
	a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX	a_p 0,1–0,2 x DCX	a_p 0,3–0,4 x DCX	a_p 0,6–1,0 x DCX	Emulsion	Compressed air	MMS
	f_z mm			f_z mm					
1.1	0,79	0,65	0,50	0,87	0,71	0,55	●	○	○
1.2	0,79	0,65	0,50	0,87	0,71	0,55	●	○	○
1.3	0,79	0,65	0,50	0,87	0,71	0,55	●	○	○
1.4	0,79	0,65	0,50	0,87	0,71	0,55	●	○	○
1.5	0,79	0,65	0,50	0,87	0,71	0,55	●	○	○
1.6	0,63	0,52	0,40	0,71	0,58	0,45	●	○	○
1.7	0,79	0,65	0,50	0,87	0,71	0,55	●	○	○
1.8	0,63	0,52	0,40	0,71	0,58	0,45	●	○	○
1.9									
1.10	0,79	0,65	0,50	0,87	0,71	0,55	●	○	○
1.11	0,63	0,52	0,40	0,71	0,58	0,45	●	○	○
1.12	0,63	0,52	0,40	0,71	0,58	0,45	●	○	○
1.13	0,79	0,65	0,50	0,87	0,71	0,55	●	○	○
1.14									
1.15	0,63	0,52	0,40	0,71	0,58	0,45	●	○	○
1.16	0,63	0,52	0,40	0,71	0,58	0,45	●	○	○
2.1									
2.2									
2.3									
2.4									
2.5									
2.6									
2.7									
3.1	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
3.2	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
3.3	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
3.4	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
3.5	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
3.6	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
3.7	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
3.8	0,79	0,65	0,50	0,87	0,71	0,55	●	●	●
4.1									
4.2									
4.3									
4.4									
4.5									
4.6	0,79	0,65	0,50	0,87	0,71	0,55	●		
4.7									
4.8	0,87	0,71	0,55	0,87	0,71	0,55	●		
4.9									
4.10	0,79	0,65	0,50	0,87	0,71	0,55	●		
4.11									
4.12									
4.13									
4.14									
4.15									
4.16									
4.17									
4.18									
4.19									
5.1									
5.2									
5.3									
5.4									
5.5									
5.6									
5.7									
5.8									
5.9									
5.10									
5.11									
6.1									
6.2	0,55	0,45	0,35	0,63	0,52	0,40		●	●
6.3									
6.4									
6.5									

Cutting data standard values – S-Cut – End mills – SC-UNI, short – long

	Type short / long		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	105–240	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
1.2	105–250	1,0	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
1.3	90–210	1,0	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
1.4	80–190	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
1.5	90–200	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
1.6	90–190	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
1.7	80–190	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
1.8	70–170	1,0	0,029	0,022	0,016	0,040	0,031	0,023	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058
1.9	70–170	1,0	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
1.10	70–190	1,0	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
1.11	70–170	1,0	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
1.12	70–190	1,0	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
1.13	70–150	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046
1.14	50–120	1,0	0,020	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,020	0,053	0,039	0,026	0,069	0,058	0,035
1.15	70–180	1,0	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
1.16	80–160	1,0	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
2.1	90–130	1,0	0,029	0,022	0,016	0,040	0,031	0,023	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058
2.2	80–120	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046
2.3	80–120	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046
2.4	80–120	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046
2.5	80–120	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046
2.6	80–120	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046
2.7	40–60	1,0	0,020	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,020	0,053	0,039	0,026	0,069	0,029	0,035
3.1	200–240	1,0	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
3.2	180–220	1,0	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
3.3	200–240	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
3.4	180–220	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
3.5	160–200	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
3.6	140–180	1,0	0,032	0,025	0,018	0,046	0,036	0,025	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058
3.7	160–200	1,0	0,032	0,025	0,018	0,046	0,036	0,025	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058
3.8	140–180	1,0	0,032	0,025	0,018	0,046	0,036	0,025	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058
4.1																	
4.2																	
4.3																	
4.4																	
4.5																	
4.6	140–280	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
4.7	120–300	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
4.8	110–180	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
4.9	90–160	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
4.10	80–140	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
4.11	150–350	1,0	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
4.12	140–300	1,0	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
4.13																	
4.14	180–400	1,0	0,077	0,060	0,044	0,108	0,084	0,061	0,155	0,116	0,078	0,207	0,154	0,104	0,276	0,207	0,138
4.15																	
4.16																	
4.17																	
4.18	60–120	0,5	0,031	0,024	0,017	0,044	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,115	0,081	0,058
4.19	40–80	0,5	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,021	0,026	0,069	0,052	0,035	0,092	0,069	0,046
5.1	30	0,5	0,025	0,020	0,014	0,035	0,026	0,020	0,049	0,037	0,025	0,067	0,049	0,033	0,092	0,069	0,046
5.2	30	0,5	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
5.3	30	0,5	0,021	0,016	0,012	0,029	0,022	0,016	0,041	0,031	0,021	0,055	0,041	0,028	0,069	0,058	0,035
5.4	30	0,5	0,018	0,014	0,010	0,025	0,020	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
5.5	30	0,5	0,018	0,014	0,010	0,025	0,020	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
5.6	30	0,5	0,013	0,014	0,007	0,018	0,014	0,010	0,026	0,020	0,013	0,035	0,025	0,017	0,046	0,035	0,023
5.7	45	0,5	0,018	0,008	0,010	0,025	0,020	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
5.8	30	0,5	0,018	0,008	0,010	0,025	0,020	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
5.9	80–160	0,5	0,029	0,022	0,016	0,040	0,031	0,023	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058
5.10	80–140	0,5	0,029	0,022	0,016	0,040	0,031	0,022	0,058	0,043	0,029	0,076	0,056	0,038	0,104	0,081	0,058
5.11	50–100	0,5	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
6.1	120–160	0,5	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
6.2	80–120	0,3	0,021	0,016	0,012	0,029	0,022	0,016	0,041	0,031	0,021	0,055	0,041	0,028	0,069	0,058	0,035
6.3	60–100	0,2	0,018	0,014	0,010	0,025	0,020	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
6.4																	
6.5																	

With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.
With an a_p of 2.0 x DC the f_z should be multiplied by 0.5.

Plunging angle for ramping and helical milling: 3°

	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			Ø DC = 25 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
1.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
1.2	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,150	0,115	0,230	0,184	0,138	0,292	0,234	0,175	●	○	○
1.3	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,150	0,115	0,230	0,184	0,138	0,292	0,234	0,175	●	○	○
1.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
1.5	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
1.6	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
1.7	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
1.8	0,127	0,092	0,069	0,138	0,104	0,069	0,150	0,115	0,092	0,184	0,150	0,115	0,234	0,190	0,146	●	○	○
1.9	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
1.10	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
1.11	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
1.12	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
1.13	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●	○	○
1.14	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●	○	○
1.15	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
1.16	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
2.1	0,127	0,092	0,069	0,138	0,104	0,069	0,150	0,115	0,092	0,184	0,150	0,115	0,234	0,190	0,146	●		
2.2	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
2.3	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
2.4	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
2.5	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
2.6	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
2.7	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
3.1	0,207	0,150	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,230	0,184	0,365	0,292	0,234		●	
3.2	0,207	0,150	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,230	0,184	0,365	0,292	0,234		●	
3.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204		●	
3.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204		●	
3.5	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204		●	
3.6	0,150	0,104	0,069	0,161	0,115	0,081	0,173	0,127	0,104	0,207	0,173	0,127	0,263	0,219	0,161		●	
3.7	0,150	0,104	0,069	0,161	0,115	0,081	0,173	0,127	0,104	0,207	0,173	0,127	0,263	0,219	0,161		●	
3.8	0,150	0,104	0,069	0,161	0,115	0,081	0,173	0,127	0,104	0,207	0,173	0,127	0,263	0,219	0,161		●	
4.1																		
4.2																		
4.3																		
4.4																		
4.5																		
4.6	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●		○
4.7	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●		○
4.8	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●		○
4.9	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●		○
4.10	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●		○
4.11	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,150	0,127	0,230	0,184	0,138	0,292	0,234	0,175	●		○
4.12	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,150	0,115	0,230	0,184	0,138	0,292	0,234	0,175	●		○
4.13																		
4.14	0,345	0,253	0,173	0,380	0,288	0,196	0,414	0,311	0,242	0,495	0,403	0,311	0,628	0,511	0,394	●		○
4.15																		
4.16																		
4.17																		
4.18	0,138	0,104	0,069	0,115	0,115	0,081	0,161	0,127	0,092	0,196	0,161	0,127	0,248	0,204	0,161	●		○
4.19	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●		○
5.1	0,115	0,081	0,058	0,127	0,092	0,058	0,127	0,104	0,081	0,161	0,127	0,104	0,204	0,161	0,131	●		
5.2	0,104	0,081	0,058	0,115	0,046	0,058	0,127	0,092	0,069	0,150	0,127	0,092	0,190	0,161	0,117	●		
5.3	0,092	0,069	0,046	0,104	0,081	0,046	0,115	0,081	0,069	0,127	0,104	0,081	0,161	0,131	0,102	●		
5.4	0,081	0,058	0,046	0,092	0,069	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
5.5	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
5.6	0,058	0,046	0,035	0,069	0,046	0,035	0,069	0,058	0,046	0,081	0,069	0,058	0,102	0,088	0,073	●		
5.7	0,081	0,058	0,046	0,092	0,069	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
5.8	0,081	0,058	0,046	0,092	0,069	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
5.9	0,127	0,092	0,069	0,138	0,104	0,069	0,150	0,115	0,092	0,184	0,150	0,115	0,234	0,190	0,146	●		
5.10	0,127	0,092	0,069	0,138	0,104	0,069	0,150	0,115	0,092	0,184	0,150	0,115	0,234	0,190	0,146	●		
5.11	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●		
6.1	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,150	0,127	0,092	0,190	0,161	0,117	●		
6.2	0,092	0,069	0,046	0,104	0,081	0,046	0,115	0,081	0,069	0,127	0,104	0,081	0,161	0,131	0,102	●		
6.3	0,081	0,058	0,046	0,092	0,069	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
6.4																		
6.5																		

Cutting data standard values – S-Cut – End mills – SC-UNI, extra long

	Type extra long			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,5 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,5 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,5 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,5 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,5 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	90–180	1,0	0,5	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	0,173	0,127	0,092	0,196	0,138	0,092
1.2	90–180	1,0	0,5	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069	0,161	0,115	0,081	0,173	0,127	0,092
1.3	70–160	1,0	0,5	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069	0,161	0,115	0,081	0,173	0,127	0,092
1.4	70–140	1,0	0,5	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	0,173	0,127	0,092	0,196	0,138	0,092
1.5	70–160	1,0	0,5	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	0,173	0,127	0,092	0,196	0,138	0,092
1.6	70–160	1,0	0,5	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	0,173	0,127	0,092	0,196	0,138	0,092
1.7	70–140	1,0	0,5	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	0,173	0,127	0,092	0,196	0,138	0,092
1.8	50–120	1,0	0,5	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058	0,127	0,092	0,069	0,138	0,104	0,069
1.9	50–120	1,0	0,5	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046	0,115	0,092	0,058	0,127	0,092	0,069
1.10	50–120	1,0	0,5	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046	0,115	0,092	0,058	0,127	0,092	0,069
1.11	50–120	1,0	0,5	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046	0,115	0,092	0,058	0,127	0,092	0,069
1.12	50–120	1,0	0,5	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046	0,115	0,092	0,058	0,127	0,092	0,069
1.13	50–120	1,0	0,5	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	0,104	0,081	0,046	0,115	0,081	0,058
1.14	40–80	1,0	0,5	0,039	0,029	0,020	0,053	0,039	0,026	0,069	0,058	0,035	0,092	0,069	0,046	0,092	0,069	0,046
1.15	50–120	1,0	0,5	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046	0,115	0,092	0,058	0,127	0,092	0,069
1.16	60–140	1,0	0,5	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046	0,115	0,092	0,058	0,127	0,092	0,069
2.1	60–100	1,0	0,5	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058	0,127	0,092	0,069	0,138	0,104	0,069
2.2	50–80	1,0	0,5	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	0,104	0,081	0,046	0,115	0,081	0,058
2.3	50–80	1,0	0,5	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	0,104	0,081	0,046	0,115	0,081	0,058
2.4	50–80	1,0	0,5	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	0,104	0,081	0,046	0,115	0,081	0,058
2.5	50–80	1,0	0,5	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	0,104	0,081	0,046	0,115	0,081	0,058
2.6	50–80	1,0	0,5	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	0,104	0,081	0,046	0,115	0,081	0,058
2.7	30–50	1,0	0,5	0,039	0,029	0,020	0,054	0,039	0,026	0,069	0,058	0,035	0,092	0,069	0,046	0,092	0,069	0,046
3.1	160–200	1,0	0,5	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081	0,207	0,150	0,104	0,219	0,161	0,115
3.2	120–160	1,0	0,5	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081	0,207	0,150	0,104	0,219	0,161	0,115
3.3	160–200	1,0	0,5	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	0,173	0,127	0,092	0,196	0,138	0,092
3.4	120–160	1,0	0,5	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	0,173	0,127	0,092	0,196	0,138	0,092
3.5	120–160	1,0	0,5	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	0,173	0,127	0,092	0,196	0,138	0,092
3.6	100–140	1,0	0,5	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058	0,150	0,104	0,069	0,161	0,115	0,081
3.7	120–160	1,0	0,5	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058	0,150	0,104	0,069	0,161	0,115	0,081
3.8	100–140	1,0	0,5	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058	0,150	0,104	0,069	0,161	0,115	0,081
4.1																		
4.2																		
4.3																		
4.4																		
4.5																		
4.6	100–240	1,0	0,5	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	0,173	0,127	0,092	0,196	0,138	0,092
4.7	90–220	1,0	0,5	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	0,173	0,127	0,092	0,196	0,138	0,092
4.8	80–180	1,0	0,5	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	0,173	0,127	0,092	0,196	0,138	0,092
4.9	60–160	1,0	0,5	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	0,173	0,127	0,092	0,196	0,138	0,092
4.10	60–140	1,0	0,5	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	0,173	0,127	0,092	0,196	0,138	0,092
4.11	110–320	1,0	0,5	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069	0,161	0,115	0,081	0,173	0,127	0,092
4.12	100–300	1,0	0,5	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069	0,161	0,115	0,081	0,173	0,127	0,092
4.13																		
4.14	120–400	1,0	0,5	0,155	0,116	0,078	0,207	0,154	0,104	0,276	0,207	0,138	0,345	0,253	0,173	0,380	0,288	0,196
4.15																		
4.16																		
4.17																		
4.18	40–120	0,5	0,25	0,062	0,046	0,031	0,083	0,062	0,041	0,115	0,081	0,058	0,138	0,104	0,069	0,115	0,115	0,081
4.19	30–80	0,5	0,25	0,052	0,021	0,026	0,069	0,052	0,035	0,092	0,069	0,046	0,115	0,092	0,058	0,127	0,092	0,069
5.1	30	0,5	0,25	0,049	0,037	0,025	0,067	0,049	0,033	0,092	0,069	0,046	0,115	0,081	0,058	0,127	0,092	0,058
5.2	30	0,5	0,25	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046	0,104	0,081	0,058	0,115	0,046	0,058
5.3	25	0,5	0,25	0,041	0,031	0,021	0,055	0,041	0,028	0,069	0,058	0,035	0,092	0,069	0,046	0,104	0,081	0,046
5.4	25	0,5	0,25	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035	0,081	0,058	0,046	0,092	0,069	0,046
5.5	25	0,5	0,25	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035	0,081	0,058	0,046	0,092	0,069	0,046
5.6	25	0,5	0,25	0,026	0,020	0,013	0,035	0,025	0,017	0,046	0,035	0,023	0,058	0,046	0,035	0,069	0,046	0,035
5.7	45	0,5	0,25	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035	0,081	0,058	0,046	0,092	0,069	0,046
5.8	25	0,5	0,25	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035	0,081	0,058	0,046	0,092	0,069	0,046
5.9	35–65	0,5	0,25	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058	0,127	0,092	0,069	0,138	0,104	0,069
5.10	30–55	0,5	0,25	0,058	0,043	0,029	0,076	0,056	0,038	0,104	0,081	0,046	0,127	0,092	0,069	0,138	0,104	0,069
5.11	30–55	0,5	0,25	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046	0,115	0,092	0,058	0,127	0,092	0,069
6.1	80–120	0,5	0,5	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046	0,104	0,081	0,058	0,115	0,081	0,058
6.2	60–100	0,5	0,3	0,041	0,031	0,021	0,055	0,041	0,028	0,069	0,058	0,035	0,092	0,069	0,046	0,104	0,081	0,046
6.3	50–90	0,5	0,15	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035	0,081	0,058	0,046	0,092	0,069	0,046
6.4																		
6.5																		

Plunging angle for ramping and helical milling: 3°

	Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm			Ø DC = 25 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,5 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,5 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,5 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,5 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
1.1	0,184	0,150	0,104	0,196	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
1.2	0,173	0,138	0,092	0,173	0,150	0,115	0,230	0,184	0,138	0,276	0,230	0,184	●	○	○
1.3	0,173	0,138	0,092	0,173	0,150	0,115	0,230	0,184	0,138	0,276	0,230	0,184	●	○	○
1.4	0,184	0,150	0,104	0,196	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
1.5	0,184	0,150	0,104	0,196	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
1.6	0,184	0,150	0,104	0,196	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
1.7	0,184	0,150	0,104	0,196	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
1.8	0,138	0,115	0,081	0,138	0,115	0,092	0,184	0,150	0,115	0,219	0,184	0,150	●	○	○
1.9	0,127	0,104	0,069	0,127	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
1.10	0,127	0,104	0,069	0,127	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
1.11	0,127	0,104	0,069	0,127	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
1.12	0,127	0,104	0,069	0,127	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
1.13	0,115	0,092	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,184	0,150	0,115	●	○	○
1.14	0,092	0,069	0,058	0,092	0,081	0,058	0,127	0,104	0,081	0,150	0,127	0,104	●	○	○
1.15	0,127	0,104	0,069	0,127	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
1.16	0,127	0,104	0,069	0,127	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
2.1	0,138	0,115	0,081	0,138	0,115	0,092	0,184	0,150	0,115	0,219	0,184	0,150	●		
2.2	0,115	0,092	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,184	0,150	0,115	●		
2.3	0,115	0,092	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,184	0,150	0,115	●		
2.4	0,115	0,092	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,184	0,150	0,115	●		
2.5	0,115	0,092	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,184	0,150	0,115	●		
2.6	0,115	0,092	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,184	0,150	0,115	●		
2.7	0,092	0,069	0,058	0,092	0,081	0,058	0,127	0,104	0,081	0,150	0,127	0,104	●		
3.1	0,219	0,173	0,127	0,230	0,184	0,138	0,288	0,230	0,184	0,345	0,288	0,230	○	●	○
3.2	0,219	0,173	0,127	0,230	0,184	0,138	0,288	0,230	0,184	0,345	0,288	0,230	○	●	○
3.3	0,184	0,150	0,104	0,196	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
3.4	0,184	0,150	0,104	0,196	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
3.5	0,184	0,150	0,104	0,196	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
3.6	0,161	0,127	0,092	0,161	0,127	0,104	0,207	0,173	0,127	0,242	0,207	0,173	○	●	○
3.7	0,161	0,127	0,092	0,161	0,127	0,104	0,207	0,173	0,127	0,242	0,207	0,173	○	●	○
3.8	0,161	0,127	0,092	0,161	0,127	0,104	0,207	0,173	0,127	0,242	0,207	0,173	○	●	○
4.1															
4.2															
4.3															
4.4															
4.5															
4.6	0,184	0,150	0,104	0,196	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●		○
4.7	0,184	0,150	0,104	0,196	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●		○
4.8	0,184	0,150	0,104	0,196	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●		○
4.9	0,184	0,150	0,104	0,196	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●		○
4.10	0,184	0,150	0,104	0,196	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●		○
4.11	0,173	0,138	0,092	0,173	0,150	0,115	0,230	0,184	0,138	0,276	0,230	0,184	●		○
4.12	0,173	0,138	0,092	0,173	0,150	0,115	0,230	0,184	0,138	0,276	0,230	0,184	●		○
4.13															
4.14	0,380	0,299	0,207	0,380	0,311	0,242	0,495	0,403	0,311	0,587	0,495	0,403	●		○
4.15															
4.16															
4.17															
4.18	0,150	0,115	0,081	0,150	0,127	0,092	0,196	0,161	0,127	0,230	0,196	0,161	●		○
4.19	0,127	0,104	0,069	0,127	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●		○
5.1	0,127	0,092	0,069	0,127	0,104	0,081	0,161	0,127	0,104	0,196	0,161	0,127	●		
5.2	0,115	0,092	0,058	0,115	0,092	0,069	0,150	0,127	0,092	0,173	0,150	0,127	●		
5.3	0,104	0,081	0,058	0,104	0,081	0,069	0,127	0,104	0,081	0,150	0,127	0,104	●		
5.4	0,092	0,069	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
5.5	0,092	0,069	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
5.6	0,069	0,046	0,035	0,069	0,058	0,046	0,081	0,069	0,058	0,092	0,081	0,069	●		
5.7	0,092	0,069	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
5.8	0,092	0,069	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
5.9	0,138	0,115	0,081	0,138	0,115	0,092	0,184	0,150	0,115	0,219	0,184	0,150	●		
5.10	0,138	0,104	0,081	0,138	0,115	0,092	0,184	0,150	0,115	0,219	0,184	0,150	●		
5.11	0,127	0,104	0,069	0,127	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●		
6.1	0,115	0,092	0,058	0,115	0,092	0,069	0,150	0,127	0,092	0,173	0,150	0,127		●	
6.2	0,104	0,081	0,058	0,104	0,081	0,069	0,127	0,104	0,081	0,150	0,127	0,104		●	
6.3	0,092	0,069	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092		●	
6.4															
6.5															

14

Cutting data standard values – S-Cut – End mills – SC-UNI, ZEFP = 5, long

Index	Type long	max. angle of engagement	Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm			
			a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
	v_c m/min		f_z mm				f_z mm				f_z mm				f_z mm			
1.1	300	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
1.2	300	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
1.3	280	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
1.4	280	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
1.5	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
1.6	260	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
1.7	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
1.8	260	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
1.9	260	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
1.10	240	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
1.11	240	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
1.12	240	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
1.13	240	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
1.14																		
1.15	220	45°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
1.16	220	45°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
2.1	200	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
2.2	180	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
2.3	160	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
2.4	160	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
2.5	140	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
2.6	140	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
2.7	140	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
3.1	300	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
3.2	300	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
3.3	300	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
3.4	260	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
3.5	260	50°	0,112	0,079	0,065	0,025	0,157	0,111	0,090	0,035	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
3.6	240	50°	0,112	0,079	0,065	0,025	0,157	0,111	0,090	0,035	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
3.7	240	50°	0,112	0,079	0,065	0,025	0,157	0,111	0,090	0,035	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
3.8	200	50°	0,112	0,079	0,065	0,025	0,157	0,111	0,090	0,035	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
4.1																		
4.2																		
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4.18																		
4.19																		
5.1	120	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
5.2	80	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
5.3	80	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
5.4	60	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
5.5	60	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
5.6	60	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
5.7	60	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
5.8	60	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
5.9	140	40°	0,045	0,032	0,026	0,010	0,072	0,051	0,041	0,016	0,089	0,063	0,052	0,020	0,112	0,079	0,065	0,025
5.10	120	40°	0,045	0,032	0,026	0,010	0,072	0,051	0,041	0,016	0,089	0,063	0,052	0,020	0,112	0,079	0,065	0,025
5.11	100	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
6.1																		
6.2																		
6.3																		
6.4																		
6.5																		

Cutting depth corresponding to the cutting length

Index	Ø DC = 16 mm				Ø DC = 20 mm				● 1st choice		○ suitable
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
	f_z mm				f_z mm						
1.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
1.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
1.3	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
1.4	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
1.5	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
1.6	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
1.7	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
1.8	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
1.9	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
1.10	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
1.11	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
1.12	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
1.13	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
1.14											
1.15	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
1.16	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
2.1	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
2.2	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
2.3	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
2.4	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
2.5	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
2.6	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
2.7	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
3.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
3.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
3.3	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
3.4	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
3.5	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
3.6	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
3.7	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
3.8	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
4.1											
4.2											
4.3											
4.4											
4.5											
4.6											
4.7											
4.8											
4.9											
4.10											
4.11											
4.12											
4.13											
4.14											
4.15											
4.16											
4.17											
4.18											
4.19											
5.1	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
5.2	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
5.3	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
5.4	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
5.5	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
5.6	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
5.7	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
5.8	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
5.9	0,157	0,111	0,090	0,035	0,219	0,155	0,127	0,049	●		
5.10	0,157	0,111	0,090	0,035	0,219	0,155	0,127	0,049	●		
5.11	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
6.1											
6.2											
6.3											
6.4											
6.5											

Cutting data standard values – BlueLine – End mills 52 133 ... / 52 134 ... / 52 140 ... /



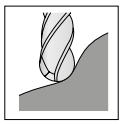
	52 140... 52 141...	52 133... 52 134... 52 324...		Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm
	Compressed air	Compressed air		a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	190	160	1,0	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040
1.15	190	160	1,0	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040
1.16	190	160	1,0	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040
6.1	**180**	**160**	1,0	0,015	0,015	0,018	0,020	0,022	0,026	0,030	0,033	0,035
6.2	**160**	**140**	1,0	0,013	0,013	0,016	0,018	0,020	0,023	0,025	0,029	0,032
6.3	**140**	**130**	1,0	0,011	0,011	0,014	0,016	0,018	0,020	0,022	0,025	0,027
6.4	**100**	**90**	1,0	0,010	0,010	0,012	0,014	0,016	0,018	0,020	0,023	0,025

Cutting data standard values – BlueLine – End mills 52 135 ... / 52 136 ... / 52 325 ... /



	Compressed air		Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	140	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035
1.15	140	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035
1.16	140	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035
6.1	**140**	**1,0**	0,010	0,011	0,012	0,015	0,018	0,023	0,028	0,029	0,030
6.2	**125**	**1,0**	0,008	0,009	0,011	0,014	0,016	0,020	0,023	0,026	0,028
6.3	**115**	**1,0**	0,007	0,008	0,009	0,012	0,014	0,017	0,020	0,023	0,025
6.4	**80**	**1,0**	0,005	0,006	0,007	0,010	0,012	0,015	0,017	0,019	0,020

Cutting data standard values – BlueLine – Ball-nosed end mills 52 258 ... / 52 259 ...



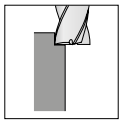
	Compressed air		Ø DC = 0,1–0,5 mm	Ø DC = 0,5–1,0 mm	Ø DC = 1,5–2,0 mm	Ø DC = 2,0–2,5 mm	Ø DC = 2,5–3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	190	0,05	0,008	0,010	0,012	0,016	0,020	0,025	0,030	0,040	0,050	0,060
1.15	190	0,05	0,008	0,010	0,012	0,016	0,020	0,025	0,030	0,040	0,050	0,060
1.16	190	0,05	0,008	0,010	0,012	0,016	0,020	0,025	0,030	0,040	0,050	0,060
6.1	**185**	**0,05**	0,005	0,005	0,006	0,008	0,010	0,015	0,020	0,030	0,040	0,050
6.2	**165**	**0,05**	0,004	0,005	0,006	0,008	0,010	0,014	0,017	0,028	0,038	0,048
6.3	**145**	**0,05**	0,004	0,004	0,005	0,006	0,008	0,012	0,015	0,025	0,035	0,045
6.4	**105**	**0,05**	0,003	0,004	0,005	0,005	0,006	0,010	0,014	0,022	0,030	0,040

Cutting data standard values – BlueLine – Ball-nosed end mills 52 256 ... / 52 257 ... /



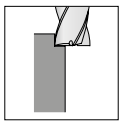
	Compressed air		Ø DC = 0,1–0,5 mm	Ø DC = 0,5–1,0 mm	Ø DC = 1,0–1,5 mm	Ø DC = 1,5–2,0 mm	Ø DC = 2,0–2,5 mm	Ø DC = 2,5–3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 7 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	200	0,05	0,010	0,011	0,012	0,015	0,019	0,025	0,030	0,033	0,036	0,040
1.15	200	0,05	0,010	0,011	0,012	0,015	0,019	0,025	0,030	0,033	0,036	0,040
1.16	200	0,05	0,010	0,011	0,012	0,015	0,019	0,025	0,030	0,033	0,036	0,040
6.1	**190**	**0,05**	0,006	0,006	0,006	0,008	0,011	0,015	0,020	0,025	0,030	0,038
6.2	**170**	**0,05**	0,005	0,006	0,006	0,008	0,011	0,015	0,020	0,024	0,027	0,035
6.3	**150**	**0,05**	0,005	0,006	0,006	0,008	0,010	0,013	0,018	0,022	0,025	0,032
6.4	**110**	**0,05**	0,004	0,005	0,005	0,007	0,009	0,013	0,016	0,021	0,025	0,030

52 141 ... / 52 324 ...



	52 140... 52 141...	52 133... 52 134... 52 324...		Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm
	Compressed air	Compressed air		a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	190	160	0,05	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040
1.15	190	160	0,05	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040
1.16	190	160	0,05	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040
6.1	**180**	**160**	0,05	0,015	0,015	0,018	0,020	0,022	0,026	0,030	0,033	0,035
6.2	**160**	**140**	0,05	0,013	0,013	0,016	0,018	0,020	0,023	0,025	0,029	0,032
6.3	**140**	**130**	0,05	0,011	0,011	0,014	0,016	0,018	0,020	0,022	0,025	0,027
6.4	**100**	**90**	0,05	0,010	0,010	0,012	0,014	0,016	0,018	0,020	0,023	0,025

52 326 ...



	Compressed air		Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm
			a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	140	0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035
1.15	140	0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035
1.16	140	0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035
6.1	**140**	0,05	0,010	0,011	0,012	0,015	0,018	0,023	0,028	0,029	0,030
6.2	**125**	0,05	0,008	0,009	0,011	0,014	0,016	0,020	0,023	0,026	0,028
6.3	**115**	0,05	0,007	0,008	0,009	0,012	0,014	0,017	0,020	0,023	0,025
6.4	**80**	0,05	0,005	0,006	0,007	0,010	0,012	0,015	0,017	0,019	0,020

	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm
	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	f_z mm	f_z mm	f_z mm
1.14	0,070	0,090	0,100
1.15	0,070	0,090	0,100
1.16	0,070	0,090	0,100
6.1	0,060	0,080	0,090
6.2	0,058	0,078	0,085
6.3	0,055	0,075	0,080
6.4	0,050	0,070	0,070

52 302 ... / 52 303 ... / 52 404 ... / 52 405 ...

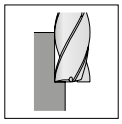
	Ø DC = 8 mm	Ø DC = 9 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 14 mm	Ø DC = 16 mm	Ø DC = 20 mm
	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	0,050	0,060	0,070	0,080	0,090	0,100	0,120
1.15	0,050	0,060	0,070	0,080	0,090	0,100	0,120
1.16	0,050	0,060	0,070	0,080	0,090	0,100	0,120
6.1	0,044	0,050	0,060	0,070	0,080	0,090	0,110
6.2	0,042	0,048	0,058	0,068	0,078	0,088	0,105
6.3	0,039	0,045	0,055	0,065	0,075	0,085	0,100
6.4	0,035	0,040	0,050	0,060	0,070	0,080	0,090

Cutting data standard values – BlueLine – torus cutters 52 304 ...

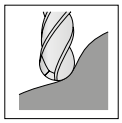


	Compressed air		Ø DC = 0,5–1,5 mm	Ø DC = 2,0–3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,090	0,100	0,120
1.15	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,090	0,100	0,120
1.16	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,090	0,100	0,120
6.1	**180**	1,0	0,008	0,025	0,050	0,050	0,060	0,070	0,085	0,095	0,115
6.2	**160**	1,0	0,007	0,023	0,040	0,040	0,055	0,070	0,082	0,090	0,110
6.3	**140**	1,0	0,006	0,020	0,038	0,038	0,058	0,065	0,080	0,085	0,105
6.4	**100**	1,0	0,005	0,018	0,035	0,035	0,060	0,060	0,075	0,080	0,100

Cutting data standard values – BlueLine – torus cutters 52 305 ...



	Compressed air		Ø DC = 1,0–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	190	1,0	0,010	0,025	0,025	0,050	0,050	0,060
1.15	190	1,0	0,010	0,025	0,025	0,050	0,050	0,060
1.16	190	1,0	0,010	0,025	0,025	0,050	0,050	0,060
6.1	**180**	1,0	0,006	0,022	0,022	0,045	0,045	0,055
6.2	**160**	1,0	0,005	0,020	0,020	0,035	0,035	0,050
6.3	**140**	1,0	0,004	0,017	0,017	0,033	0,033	0,053
6.4	**100**	1,0	0,003	0,015	0,015	0,030	0,030	0,050



	Compressed air		Ø DC = 0,5–1,5 mm	Ø DC = 2,0–3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	190	0,05	0,016	0,032	0,060	0,060	0,080	0,090	0,100	0,120	0,140
1.15	190	0,05	0,016	0,032	0,060	0,060	0,080	0,090	0,100	0,120	0,140
1.16	190	0,05	0,016	0,032	0,060	0,060	0,080	0,090	0,100	0,120	0,140
6.1	**180**	0,05	0,012	0,030	0,055	0,055	0,075	0,085	0,095	0,105	0,135
6.2	**160**	0,05	0,011	0,028	0,050	0,050	0,070	0,080	0,090	0,100	0,130
6.3	**140**	0,05	0,010	0,025	0,044	0,044	0,070	0,075	0,088	0,085	0,125
6.4	**100**	0,05	0,090	0,021	0,040	0,040	0,065	0,070	0,085	0,090	0,120

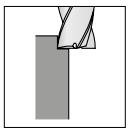


	Compressed air		Ø DC = 1,0–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	190	0,05	0,014	0,030	0,030	0,055	0,055	0,070
1.15	190	0,05	0,014	0,030	0,030	0,055	0,055	0,070
1.16	190	0,05	0,014	0,030	0,030	0,055	0,055	0,070
6.1	**180**	0,05	0,010	0,027	0,027	0,050	0,050	0,065
6.2	**160**	0,05	0,009	0,025	0,025	0,045	0,045	0,060
6.3	**140**	0,05	0,008	0,022	0,022	0,040	0,039	0,063
6.4	**100**	0,05	0,007	0,018	0,018	0,035	0,035	0,060

Cutting data standard values – BlueLine – End mills – 52 344 ...

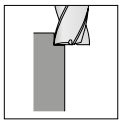
Index	Compressed air		Ø DC = 0,5 mm			Ø DC = 1,0–1,5 mm			Ø DC = 2,0–2,5 mm			Ø DC = 3,0–3,5 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.14	120	**0,5**	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,020	0,014
1.15	120	**0,5**	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,020	0,014
1.16	120	**0,5**	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,020	0,014
6.1	110	**0,5**	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,020	0,014
6.2	80	**0,5**	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,020	0,014
6.3	60	**0,5**	0,004	0,004	0,003	0,006	0,005	0,004	0,009	0,007	0,005	0,013	0,010	0,007	0,017	0,013	0,010	0,022	0,016	0,011
6.4	50	**0,5**	0,004	0,003	0,002	0,005	0,004	0,003	0,007	0,006	0,004	0,011	0,008	0,006	0,014	0,011	0,008	0,018	0,013	0,009

Cutting data standard values – BlueLine – torus cutters – 52 361 ...



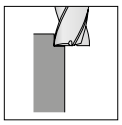
Index	Compressed air		Ø DC = 0,8–1,0 mm	Ø DC = 1,2–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm
			a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC
	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	200	**0,05**	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120
1.15	200	**0,05**	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120
1.16	200	**0,05**	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120
6.1	190	**0,05**	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120
6.2	170	**0,05**	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120
6.3	150	**0,05**	0,006	0,008	0,012	0,024	0,036	0,060	0,072	0,084	0,096
6.4	110	**0,05**	0,005	0,007	0,010	0,020	0,030	0,050	0,060	0,070	0,080

Cutting data standard values – BlueLine – End mills – 52 353 ...



Index	Compressed air		Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm
			a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC
	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	200	**0,05**	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135
1.15	200	**0,05**	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135
1.16	200	**0,05**	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135
6.1	190	**0,05**	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135
6.2	170	**0,05**	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135
6.3	150	**0,05**	0,006	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096	0,108
6.4	110	**0,05**	0,005	0,010	0,020	0,030	0,040	0,050	0,060	0,070	0,080	0,090

Cutting data standard values – BlueLine – End mills – 52 354 ...

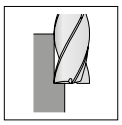


Index	Compressed air		Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm
			a_e 0,6-1,0 x DC	a_e 0,6-1,0 x DC	a_e 0,6-1,0 x DC	a_e 0,6-1,0 x DC	a_e 0,6-1,0 x DC	a_e 0,6-1,0 x DC	a_e 0,6-1,0 x DC	a_e 0,6-1,0 x DC	a_e 0,6-1,0 x DC	a_e 0,6-1,0 x DC
	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	200	**0,05**	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068
1.15	200	**0,05**	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068
1.16	200	**0,05**	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068
6.1	190	**0,05**	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068
6.2	170	**0,05**	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068
6.3	150	**0,05**	0,004	0,006	0,012	0,018	0,024	0,030	0,036	0,042	0,048	0,054
6.4	110	**0,05**	0,003	0,005	0,010	0,015	0,020	0,025	0,030	0,035	0,040	0,045

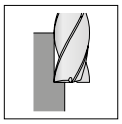
Cutting data standard values – BlueLine – Ball nosed end mills – 52 352 ... / 52 355 ...

Index	Compressed air		Ø DC = 0,6–0,8 mm	Ø DC = 1 mm	Ø DC = 1,2–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	200	**0,05**	0,006	0,008	0,010	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120
1.15	200	**0,05**	0,006	0,008	0,010	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120
1.16	200	**0,05**	0,006	0,008	0,010	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120
6.1	190	**0,05**	0,006	0,008	0,010	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120
6.2	170	**0,05**	0,006	0,008	0,010	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120
6.3	150	**0,05**	0,004	0,006	0,008	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096
6.4	110	**0,05**	0,004	0,005	0,007	0,010	0,020	0,030	0,040	0,050	0,060	0,070	0,080

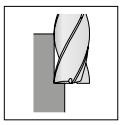
	Ø DC = 6,0 mm			Ø DC = 8,0 mm			Ø DC = 10,0 mm			Ø DC = 12,0 mm			Ø DC = 16,0 mm			Ø DC = 20,0 mm		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.14	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,040	0,027	0,060	0,045	0,030	0,076	0,058	0,045	0,095	0,077	0,060
1.15	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,040	0,027	0,060	0,045	0,030	0,076	0,058	0,045	0,095	0,077	0,060
1.16	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,040	0,027	0,060	0,045	0,030	0,076	0,058	0,045	0,095	0,077	0,060
6.1	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,040	0,027	0,060	0,045	0,030	0,076	0,058	0,045	0,095	0,077	0,060
6.2	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,040	0,027	0,060	0,045	0,030	0,076	0,058	0,045	0,095	0,077	0,060
6.3	0,029	0,021	0,014	0,038	0,029	0,019	0,043	0,032	0,022	0,048	0,036	0,024	0,061	0,046	0,036	0,076	0,062	0,048
6.4	0,024	0,018	0,012	0,032	0,024	0,016	0,036	0,027	0,018	0,040	0,030	0,020	0,051	0,039	0,030	0,063	0,052	0,040



	Compressed air		Ø DC = 0,8–1,0 mm	Ø DC = 1,2–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm
			a_e 0,1 x DC	a_e 0,1 x DC	a_e 0,1 x DC	a_e 0,1 x DC	a_e 0,1 x DC	a_e 0,1 x DC	a_e 0,1 x DC	a_e 0,1 x DC	a_e 0,1 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	200	**0,50**	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120
1.15	200	**0,50**	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120
1.16	200	**0,50**	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120
6.1	**190**	**0,50**	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120
6.2	**170**	**0,50**	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120
6.3	**150**	**0,50**	0,006	0,008	0,012	0,024	0,036	0,060	0,072	0,084	0,096
6.4	**110**	**0,50**	0,005	0,007	0,010	0,020	0,030	0,050	0,060	0,070	0,080



	Compressed air		Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	200	**0,50**	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135
1.15	200	**0,50**	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135
1.16	200	**0,50**	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135
6.1	**190**	**0,50**	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135
6.2	**170**	**0,50**	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135
6.3	**150**	**0,50**	0,006	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096	0,108
6.4	**110**	**0,50**	0,005	0,010	0,020	0,030	0,040	0,050	0,060	0,070	0,080	0,090



	Compressed air		Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	200	**0,50**	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068
1.15	200	**0,50**	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068
1.16	200	**0,50**	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068
6.1	**190**	**0,50**	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068
6.2	**170**	**0,50**	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068
6.3	**150**	**0,50**	0,004	0,006	0,012	0,018	0,024	0,030	0,036	0,042	0,048	0,054
6.4	**110**	**0,50**	0,003	0,005	0,010	0,015	0,020	0,025	0,030	0,035	0,040	0,045

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Cutting data standard values – BlueLine – End mills – 52 348 ...

	Compressed air		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm	
			a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,07 x DC	a_e 0,1 x DC	a_e 0,07 x DC	a_e 0,1 x DC	a_e 0,07 x DC	a_e 0,1 x DC	a_e 0,07 x DC	a_e 0,1 x DC	a_e 0,07 x DC	a_e 0,1 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
1.14	120	**2,0**		0,021		0,024		0,027		0,032		0,038		0,045
1.15	120	**2,0**		0,021		0,024		0,027		0,032		0,038		0,045
1.16	120	**2,0**		0,021		0,024		0,027		0,032		0,038		0,045
6.1	**115**	**2,0**		0,021		0,024		0,027		0,032		0,038		0,045
6.2	**100**	**2,0**		0,021		0,024		0,027		0,032		0,038		0,045
6.3	**90**	**2,0**		0,017		0,019		0,022		0,025		0,030		0,036
6.4	**60**	**2,0**	0,014		0,016		0,018		0,021		0,025		0,030	

Cutting data standard values – BlueLine – End mills – 52 345 ... – 52 351 ... / 52 362 ...

	Compressed air		$T_X \leq 2,5 \times DC$											
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	190	**0,50**	0,0038	0,0045	0,0150	0,0078	0,0093	0,0131	0,0165	0,0180	0,0195	0,0210	0,0225	0,0240
1.15	190	**0,50**	0,0038	0,0045	0,0150	0,0078	0,0093	0,0131	0,0165	0,0180	0,0195	0,0210	0,0225	0,0240
1.16	190	**0,50**	0,0038	0,0045	0,0150	0,0078	0,0093	0,0131	0,0165	0,0180	0,0195	0,0210	0,0225	0,0240
6.1	**180**	**0,50**	0,0038	0,0045	0,0150	0,0078	0,0093	0,0131	0,0165	0,0180	0,0195	0,0210	0,0225	0,0240
6.2	**120**	**0,50**	0,0038	0,0045	0,0150	0,0078	0,0093	0,0131	0,0165	0,0180	0,0195	0,0210	0,0225	0,0240
6.3	**70**	**0,50**	0,0030	0,0036	0,0120	0,0062	0,0074	0,0104	0,0132	0,0144	0,0156	0,0168	0,0180	0,0192
6.4	**50**	**0,50**	0,0025	0,0030	0,0100	0,0052	0,0062	0,0087	0,0110	0,0120	0,0130	0,0140	0,0150	0,0160

	Compressed air		$T_X = 2,6–5,0 \times DC$											
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	171	**0,50**	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195
1.15	171	**0,50**	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195
1.16	171	**0,50**	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195
6.1	**162**	**0,50**	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195
6.2	**108**	**0,50**	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195
6.3	**63**	**0,50**	0,0030	0,0032	0,0036	0,0050	0,0060	0,0082	0,0107	0,0121	0,0126	0,0140	0,0156	0,0156
6.4	**45**	**0,50**	0,0025	0,0027	0,0030	0,0042	0,0050	0,0068	0,0089	0,0101	0,0105	0,0117	0,0130	0,0130

	Compressed air		$T_X = 5,1–10,0 \times DC$											
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	152	**0,50**	0,0030	0,0038	0,0045	0,0060	0,0068	0,0075	0,0083	0,0090	0,0105	0,0113	0,0120	0,0128
1.15	152	**0,50**	0,0030	0,0038	0,0045	0,0060	0,0068	0,0075	0,0083	0,0090	0,0105	0,0113	0,0120	0,0128
1.16	152	**0,50**	0,0030	0,0038	0,0045	0,0060	0,0068	0,0075	0,0083	0,0090	0,0105	0,0113	0,0120	0,0128
6.1	**144**	**0,50**	0,0030	0,0038	0,0045	0,0060	0,0068	0,0075	0,0083	0,0090	0,0105	0,0113	0,0120	0,0128
6.2	**96**	**0,50**	0,0030	0,0038	0,0045	0,0060	0,0068	0,0075	0,0083	0,0090	0,0105	0,0113	0,0120	0,0128
6.3	**56**	**0,50**	0,0024	0,0030	0,0036	0,0048	0,0054	0,0060	0,0066	0,0072	0,0084	0,0090	0,0096	0,0102
6.4	**40**	**0,50**	0,0020	0,0025	0,0030	0,0040	0,0045	0,0050	0,0055	0,0060	0,0070	0,0075	0,0080	0,0085

Cutting data standard values – BlueLine – End mills – 52 356 ...-52 360 ...

	Compressed air		$T_X \leq 2,5 \times DC$											
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	190	0,50	0,0015	0,0023	0,0030	0,0038	0,0045	0,0053	0,0060	0,0063	0,0066	0,0069	0,0072	0,0075
1.15	190	0,50	0,0015	0,0023	0,0030	0,0038	0,0045	0,0053	0,0060	0,0063	0,0066	0,0069	0,0072	0,0075
1.16	190	0,50	0,0015	0,0023	0,0030	0,0038	0,0045	0,0053	0,0060	0,0063	0,0066	0,0069	0,0072	0,0075
6.1	180	0,50	0,0015	0,0023	0,0030	0,0038	0,0045	0,0053	0,0060	0,0063	0,0066	0,0069	0,0072	0,0075
6.2	120	0,50	0,0015	0,0023	0,0030	0,0038	0,0045	0,0053	0,0060	0,0063	0,0066	0,0069	0,0072	0,0075
6.3	70	0,50	0,0012	0,0018	0,0024	0,0030	0,0036	0,0042	0,0048	0,0050	0,0053	0,0055	0,0058	0,0060
6.4	50	0,50	0,0010	0,0015	0,0020	0,0025	0,0030	0,0035	0,0040	0,0042	0,0044	0,0046	0,0048	0,0050

	Compressed air		$T_X = 2,6–5,0 \times DC$											
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	171	**0,50**	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048
1.15	171	**0,50**	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048
1.16	171	**0,50**	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048
6.1	**162**	**0,50**	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048
6.2	**108**	**0,50**	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048
6.3	**63**	**0,50**	0,0008	0,0011	0,0014	0,0018	0,0020	0,0023	0,0025	0,0028	0,0030	0,0032	0,0035	0,0038
6.4	**45**	**0,50**	0,0007	0,0009	0,0012	0,0015	0,0017	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032

			T_x = 10,1–15,0 x DC											
	Compressed air	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	114	**0,50**	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	0,0066
1.15	114	**0,50**	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	0,0066
1.16	114	**0,50**	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	0,0066
6.1	**108**	**0,50**	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	0,0066
6.2	**72**	**0,50**	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	0,0066
6.3	**42**	**0,50**	0,0012	0,0018	0,0024	0,0030	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,0050	0,0053
6.4	**30**	**0,50**	0,0010	0,0015	0,0020	0,0025	0,0030	0,0032	0,0034	0,0036	0,0038	0,0040	0,0042	0,0044

			T_x = 15,1–20,0 x DC											
	Compressed air	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	76	**0,50**	0,0015	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063
1.15	76	**0,50**	0,0015	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063
1.16	76	**0,50**	0,0015	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063
6.1	**72**	**0,50**	0,0015	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063
6.2	**48**	**0,50**	0,0015	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063
6.3	**28**	**0,50**	0,0012	0,0012	0,0018	0,0024	0,0030	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,0050
6.4	**20**	**0,50**	0,0010	0,0010	0,0015	0,0020	0,0025	0,0030	0,0032	0,0034	0,0036	0,0038	0,0040	0,0042

			T_x = 20,1–30,0 x DC											
	Compressed air	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	57	**0,50**	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005
1.15	57	**0,50**	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005
1.16	57	**0,50**	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005
6.1	**54**	**0,50**	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005
6.2	**36**	**0,50**	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005
6.3	**21**	**0,50**	0,001	0,001	0,002	0,002	0,002	0,003	0,003	0,003	0,003	0,004	0,004	0,004
6.4	**15**	**0,50**	0,0008	0,0010	0,0013	0,0017	0,0019	0,0022	0,0025	0,0027	0,0029	0,0030	0,0031	0,0032

			T_x = 5,1–10,0 x DC											
	Compressed air	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	152	**0,50**	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	0,0039
1.15	152	**0,50**	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	0,0039
1.16	152	**0,50**	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	0,0039
6.1	**144**	**0,50**	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	0,0039
6.2	**96**	**0,50**	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	0,0039
6.3	**56**	**0,50**	0,0005	0,0007	0,0010	0,0012	0,0014	0,0017	0,0019	0,0022	0,0024	0,0026	0,0029	0,0031
6.4	**40**	**0,50**	0,0004	0,0006	0,0008	0,0010	0,0012	0,0014	0,0016	0,0018	0,0020	0,0022	0,0024	0,0026

			T_x = 10,1–15,0 x DC											
	Compressed air	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	114	**0,50**	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036
1.15	114	**0,50**	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036
1.16	114	**0,50**	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036
6.1	**108**	**0,50**	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036
6.2	**72**	**0,50**	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036
6.3	**42**	**0,50**	0,0002	0,0005	0,0007	0,0010	0,0012	0,0014	0,0017	0,0019	0,0022	0,0024	0,0026	0,0029
6.4	**30**	**0,50**	0,0002	0,0004	0,0006	0,0008	0,0010	0,0012	0,0014	0,0016	0,0018	0,0020	0,0022	0,0024

Cutting data – Micro End Mills – 2.2xD

		Ø DC = 0,2 mm					Ø DC = 0,5 mm					Ø DC = 0,8 mm				
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC
	$a_{p\,max.}$	0,02	0,02	0,02	0,01	0,01	0,1	0,1	0,1	0,1	0,05	$a_{p\,max.}$	0,2	0,2	0,2	0,2	0,12
	$n_{min.}$	30.000					12.000					$n_{min.}$	8.000				
Index	n	v_f mm/min.					v_f mm/min.					n	v_f mm/min.				
1.1	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.2	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.3	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.4	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.5	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.6	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
1.7	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.8	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
1.9	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.10	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
1.11	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
1.12	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
1.13	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
1.14	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
1.15	50.000	232	202	174	144	116	274	238	205	170	137	50.000	485	422	364	301	242
1.16	50.000	201	175	151	125	101	237	206	178	147	119	50.000	420	365	315	260	210
2.1	50.000	232	202	174	144	116	219	191	164	136	110	38.000	346	301	260	215	173
2.2	50.000	232	202	174	144	116	219	191	164	136	110	38.000	346	301	260	215	173
2.3	50.000	232	202	174	144	116	219	191	164	136	110	38.000	346	301	260	215	173
2.4	50.000	232	202	174	144	116	219	191	164	136	110	32.000	346	301	260	215	173
2.5	50.000	232	202	174	144	116	219	191	164	136	110	38.000	346	301	260	215	173
2.6	50.000	232	202	174	144	116	219	191	164	136	110	38.000	346	301	260	215	173
2.7	50.000	232	202	174	144	116	219	191	164	136	110	25.000	312	271	234	193	156
3.1	50.000	232	202	174	144	116	219	191	164	136	110	50.000	485	422	364	301	242
3.2	50.000	232	202	174	144	116	219	191	164	136	110	50.000	485	422	364	301	242
3.3	50.000	232	202	174	144	116	219	191	164	136	110	50.000	485	422	364	301	242
3.4	50.000	232	202	174	144	116	219	191	164	136	110	50.000	485	422	364	301	242
3.5	50.000	141	123	106	88	71	175	152	131	109	88	32.000	285	248	213	176	142
3.6	50.000	141	123	106	88	71	175	152	131	109	88	32.000	285	248	213	176	142
3.7	50.000	141	123	106	88	71	175	152	131	109	88	32.000	285	248	213	176	142
3.8	50.000	141	123	106	88	71	175	152	131	109	88	32.000	285	248	213	176	142
4.1	50.000	232	202	174	144	116	274	238	205	170	137	50.000	582	506	436	361	291
4.2	50.000	232	202	174	144	116	274	238	205	170	137	50.000	582	506	436	361	291
4.3																	
4.4																	
4.5																	
4.6	50.000	232	202	174	144	116	274	238	205	170	137	50.000	582	506	436	361	291
4.7	50.000	232	202	174	144	116	274	238	205	170	137	44.000	485	422	364	301	242
4.8	50.000	126	110	95	78	63	134	117	101	83	67	25.000	170	148	127	105	85
4.9	50.000	126	110	95	78	63	107	93	80	67	54	19.000	147	128	110	91	74
4.10	50.000	126	110	95	78	63	112	97	84	69	56	19.000	158	138	119	98	79
4.11	50.000	232	202	174	144	116	274	238	205	170	137	44.000	485	422	364	301	242
4.12	50.000	232	202	174	144	116	274	238	205	170	137	44.000	485	422	364	301	242
4.13	50.000	232	202	174	144	116	274	238	205	170	137	50.000	582	506	436	361	291
4.14	50.000	232	202	174	144	116	274	238	205	170	137	50.000	582	506	436	361	291
4.15	50.000	212	185	159	132	106	200	174	150	124	100	38.000	316	275	237	196	158
4.16	50.000	212	185	159	132	106	250	218	188	155	125	50.000	531	462	398	329	266
4.17																	
4.18	50.000	141	123	106	88	71	150	131	113	93	75	31.000	221	193	166	137	111
4.19																	
5.1	50.000	72	62	54	44	36	89	77	66	55	44	25.000	102	89	76	63	51
5.2	50.000	72	62	54	44	36	89	77	66	55	44	25.000	102	89	76	63	51
5.3	50.000	72	62	54	44	36	89	77	66	55	44	25.000	91	79	68	56	45
5.4	50.000	54	47	41	34	27	66	57	49	41	33	12.000	78	68	59	49	39
5.5	50.000	54	47	41	34	27	66	57	49	41	33	12.000	78	68	59	49	39
5.6	50.000	63	54	47	39	31	76	66	57	47	38	19.000	91	79	68	56	45
5.7	50.000	46	40	35	29	23	55	48	41	34	27	19.000	69	60	51	43	34
5.8	50.000	46	40	35	29	23	55	48	41	34	27	19.000	78	68	59	49	39
5.9	50.000	114	99	85	71	57	164	143	123	102	82	44.000	114	99	85	71	57
5.10	50.000	114	99	85	71	57	164	143	123	102	82	44.000	164	143	123	102	82
5.11	50.000	70	61	53	43	35	85	74	64	53	42	38.000	101	88	76	63	51
6.1	50.000	219	191	164	136	110	232	202	174	144	116	50.000	388	338	291	241	194
6.2	50.000	201	175	151	125	101	285	248	213	176	142	38.000	336	292	252	208	168
6.3	50.000	114	99	85	71	57	134	117	101	83	67	25.000	156	136	117	97	78
6.4	50.000	107	93	80	67	54	126	110	95	78	63	25.000	141	123	106	88	71
6.5																	

		Ø DC = 1,0 mm					Ø DC = 1,5 mm					●	○
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6 –1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	1st choice	suitable
	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\,max.}$	0,45	0,45	0,45	0,45	0,3		
	$n_{min.}$	6.500					$n_{min.}$	6.500						
Index	n	v_f mm/min.					n	v_f mm/min.					Emulsion	Compressed air / MMS
1.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		● / ○
1.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		● / ○
1.3	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		● / ○
1.4	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		● / ○
1.5	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		● / ○
1.6	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		● / ○
1.7	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		● / ○
1.8	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		● / ○
1.9	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		● / ○
1.10	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		● / ○
1.11	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		● / ○
1.12	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		● / ○
1.13	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		● / ○
1.14	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		● / ○
1.15	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		● / ○
1.16	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		● / ○
2.1	38.000	589	512	442	365	294	25.000	850	740	638	527	425		● / ○
2.2	38.000	589	512	442	365	294	25.000	850	740	638	527	425		● / ○
2.3	38.000	589	512	442	365	294	25.000	850	740	638	527	425		● / ○
2.4	32.000	496	431	372	307	248	21.000	760	661	570	471	380		● / ○
2.5	38.000	589	512	442	365	294	25.000	850	740	638	527	425		● / ○
2.6	38.000	589	512	442	365	294	25.000	850	740	638	527	425		● / ○
2.7	25.000	465	404	349	288	232	16.000	640	557	480	397	320		● / ○
3.1	50.000	775	674	581	480	387	38.000	1200	1044	900	744	600		● / ○
3.2	50.000	775	674	581	480	387	38.000	1200	1044	900	744	600		● / ○
3.3	50.000	775	674	581	480	387	38.000	1200	1044	900	744	600		● / ○
3.4	50.000	775	674	581	480	387	38.000	1200	1044	900	744	600		● / ○
3.5	32.000	389	338	292	241	194	21.000	548	477	411	340	274		● / ○
3.6	32.000	389	338	292	241	194	21.000	548	477	411	340	274		● / ○
3.7	32.000	389	338	292	241	194	21.000	548	477	411	340	274		● / ○
3.8	32.000	389	338	292	241	194	21.000	548	477	411	340	274		● / ○
4.1	50.000	930	809	697	576	465	50.000	1500	1305	1125	930	750		● / ○
4.2	50.000	930	809	697	576	465	50.000	1500	1305	1125	930	750		● / ○
4.3														
4.4														
4.5														
4.6	50.000	930	809	697	576	465	38.000	1400	1218	1050	868	700		● / ○
4.7	44.000	775	674	581	480	387	29.000	1160	1009	870	719	580		● / ○
4.8	25.000	266	231	199	165	133	16.000	392	341	294	243	196		● / ○
4.9	19.000	202	176	152	125	101	12.000	286	249	214	177	143		● / ○
4.10	19.000	202	176	152	125	101	12.000	286	249	214	177	143		● / ○
4.11	44.000	775	674	581	480	387	29.000	1160	1009	870	719	580		● / ○
4.12	44.000	775	674	581	480	387	29.000	1160	1009	870	719	580		● / ○
4.13	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660		● / ○
4.14	50.000	930	809	697	576	465	38.000	1520	1322	1140	942	760		● / ○
4.15	38.000	495	431	371	307	247	25.000	685	596	513	424	342		● / ○
4.16	50.000	849	738	636	526	424	38.000	1388	1207	1041	860	694		● / ○
4.17														
4.18	31.000	354	308	265	219	177	21.000	529	461	397	328	265		● / ○
4.19														
5.1	25.000	152	132	114	94	76	16.000	294	256	220	182	147		● / ○
5.2	25.000	152	132	114	94	76	16.000	294	256	220	182	147		● / ○
5.3	25.000	152	132	114	94	76	16.000	294	256	220	182	147		● / ○
5.4	12.000	110	95	82	68	55	8.000	170	148	127	105	85		● / ○
5.5	12.000	131	114	99	82	66	8.000	255	221	191	158	127		● / ○
5.6	19.000	152	132	114	94	76	12.000	294	256	220	182	147		● / ○
5.7	19.000	99	86	74	61	49	12.000	170	148	127	105	85		● / ○
5.8	19.000	131	114	99	82	66	12.000	255	221	191	158	127		● / ○
5.9	44.000	170	148	127	105	85	29.000	329	286	246	204	164		● / ○
5.10	44.000	247	215	186	153	124	29.000	365	318	274	226	183		● / ○
5.11	38.000	170	148	127	105	85	25.000	329	286	246	204	164		● / ○
6.1	50.000	620	539	465	384	310	33.000	850	740	638	527	425		●
6.2	38.000	537	467	402	333	268	25.000	779	678	585	483	390		●
6.3	25.000	235	204	176	146	117	16.000	346	301	260	215	173		●
6.4	25.000	221	193	166	137	111	16.000	327	284	245	202	163		●
6.5														

Cutting data – Micro End Mills – 2.2xD

		Ø DC = 1,8 mm					Ø DC = 2,0 mm					●	○	
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	1st choice		suitable
	$a_{p\,max.}$	0,54	0,54	0,54	0,54	0,36	0,6	0,6	0,6	0,6	0,4	Emulsion	Compressed air	MMS
	$n_{min.}$	5.500					5.000							
Index	n	v_f mm/min.					n	v_f mm/min.						
1.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.3	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.4	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.5	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.6	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.7	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.8	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.9	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.10	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.11	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.12	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.13	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.14	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.15	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
1.16	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
2.1	22.000	950	827	713	589	475	19.000	1140	990	855	700	570		●	○
2.2	22.000	950	827	713	589	475	19.000	1140	990	855	700	570		●	○
2.3	22.000	950	827	713	589	475	19.000	1140	990	855	700	570		●	○
2.4	18.000	800	696	600	496	400	15.000	840	730	630	520	420		●	○
2.5	22.000	950	827	713	589	475	19.000	1140	990	855	700	570		●	○
2.6	22.000	950	827	713	589	475	19.000	1140	990	855	700	570		●	○
2.7	14.000	680	592	510	422	340	12.000	720	620	540	450	360		●	○
3.1	32.000	1400	1218	1050	868	700	25.000	1500	1300	1125	930	750		●	○
3.2	32.000	1400	1218	1050	868	700	25.000	1500	1300	1125	930	750		●	○
3.3	32.000	1400	1218	1050	868	700	25.000	1500	1300	1125	930	750		●	○
3.4	32.000	1400	1218	1050	868	700	25.000	1500	1300	1125	930	750		●	○
3.5	18.000	630	548	473	391	315	25.000	1500	1300	1125	930	750		●	○
3.6	18.000	630	548	473	391	315	25.000	1500	1300	1125	930	750		●	○
3.7	18.000	630	548	473	391	315	25.000	1500	1300	1125	930	750		●	○
3.8	18.000	630	548	473	391	315	25.000	1500	1300	1125	930	750		●	○
4.1	44.000	1800	1566	1350	1116	900	25.000	1500	1300	1125	930	750		●	○
4.2	44.000	1800	1566	1350	1116	900	25.000	1500	1300	1125	930	750		●	○
4.3															
4.4															
4.5															
4.6	32.000	1520	1322	1140	942	760	25.000	1500	1300	1125	930	750		●	○
4.7	25.000	1250	1088	938	775	625	25.000	1500	1300	1125	930	750		●	○
4.8	14.000	500	435	375	310	250	25.000	1500	1300	1125	930	750		●	○
4.9	10.000	370	322	278	229	185	19.000	1140	990	855	700	570		●	○
4.10	10.000	370	322	278	229	185	19.000	1140	990	855	700	570		●	○
4.11	25.000	1250	1088	938	775	625	19.000	1140	990	855	700	570		●	○
4.12	25.000	1250	1088	938	775	625	15.000	840	730	630	520	420		●	○
4.13	28.000	1400	1218	1050	868	700	19.000	1140	990	855	700	570		●	○
4.14	33.000	1560	1357	1170	967	780	19.000	1140	990	855	700	570		●	○
4.15	22.000	800	696	600	496	400	12.000	720	630	540	450	360		●	○
4.16	33.000	1560	1357	1170	967	780	25.000	1500	1300	1125	930	750		●	○
4.17															
4.18	29.000	300	261	225	186	150	25.000	1500	1300	1125	930	750		●	○
4.19															
5.1	14.000	400	348	300	248	200	25.000	1500	1300	1125	930	750		●	○
5.2	14.000	400	348	300	248	200	25.000	1500	1300	1125	930	750		●	○
5.3	14.000	420	365	315	260	210	25.000	1500	1300	1125	930	750		●	○
5.4	7.000	250	218	188	155	125	25.000	1500	1300	1125	930	750		●	○
5.5	7.000	370	322	278	229	185	25.000	1500	1300	1125	930	750		●	○
5.6	10.000	370	322	278	229	185	25.000	1500	1300	1125	930	750		●	○
5.7	10.000	280	244	210	174	140	25.000	1500	1300	1125	930	750		●	○
5.8	10.000	370	322	278	229	185	25.000	1500	1300	1125	930	750		●	○
5.9	25.000	400	348	300	248	200	25.000	1500	1300	1125	930	750		●	○
5.10	25.000	480	418	360	298	240	25.000	1500	1300	1125	930	750		●	○
5.11	22.000	380	331	285	236	190	25.000	1500	1300	1125	930	750		●	○
6.1	29.000	1200	1044	900	744	600	25.000	1500	1300	1125	930	750		●	
6.2	22.000	1000	870	750	620	500	19.000	1140	990	855	700	570		●	
6.3	14.000	420	365	315	260	210	19.000	1140	990	855	700	570		●	
6.4	14.000	420	365	315	260	210	19.000	1140	990	855	700	570		●	
6.5															

Cutting data – Micro End Mills – 5xD

		Ø DC = 0,2 mm					Ø DC = 0,5 mm					Ø DC = 0,8 mm					● 1st choice		○ suitable
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	Emulsion	Compressed air	MMS
	$a_{p\,max.}$	0,012	0,012	0,012	0,012	$a_{p\,max.}$	0,06	0,06	0,06	0,06	$a_{p\,max.}$	0,12	0,12	0,12	0,12	0,064			
	$n_{min.}$	30.000				$n_{min.}$	12.000				$n_{min.}$	8.000							
Index	n	v_f mm/min.				n	v_f mm/min.				n	v_f mm/min.							
1.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
1.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
1.3	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
1.4	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
1.5	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
1.6	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
1.7	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
1.8	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
1.9	50.000	232	202	174	144	50.000	274	238	205	170	31.000	381	332	286	236	191		●	○
1.10	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
1.11	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
1.12	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
1.13	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
1.14	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
1.15	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
1.16	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
2.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173		●	○
2.2	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173		●	○
2.3	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173		●	○
2.4	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173		●	○
2.5	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173		●	○
2.6	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173		●	○
2.7	50.000	232	202	174	144	38.000	192	167	144	119	19.000	263	229	197	163	132		●	○
3.1	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208		●	○
3.2	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208		●	○
3.3	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208		●	○
3.4	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208		●	○
3.5	50.000	141	123	106	88	50.000	175	152	131	109	25.000	240	209	180	149	120		●	○
3.6	50.000	141	123	106	88	50.000	175	152	131	109	25.000	240	209	180	149	120		●	○
3.7	50.000	141	123	106	88	50.000	175	152	131	109	25.000	240	209	180	149	120		●	○
3.8	50.000	141	123	106	88	50.000	175	152	131	109	25.000	240	209	180	149	120		●	○
4.1	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277		●	○
4.2	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277		●	○
4.3																			
4.4																			
4.5																			
4.6	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277		●	○
4.7	50.000	232	202	174	144	50.000	274	238	205	170	38.000	554	482	416	344	277		●	○
4.8	50.000	126	110	95	78	44.000	134	117	101	83	22.000	204	177	153	126	102		●	○
4.9	50.000	126	110	95	78	31.000	112	97	84	69	15.000	170	148	127	105	85		●	○
4.10	50.000	126	110	95	78	31.000	112	97	84	69	15.000	170	148	127	105	85		●	○
4.11	50.000	232	202	174	144	50.000	274	238	205	170	38.000	485	422	364	301	242		●	○
4.12	50.000	232	202	174	144	50.000	274	238	205	170	38.000	485	422	364	301	242		●	○
4.13	50.000	232	202	174	144	50.000	274	238	205	170	44.000	554	482	416	344	277		●	○
4.14	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277		●	○
4.15	50.000	141	123	106	88	50.000	200	174	150	124	31.000	316	275	237	196	158		●	○
4.16	50.000	212	185	159	132	50.000	250	218	188	155	50.000	506	440	379	314	253		●	○
4.17																			
4.18	50.000	141	123	106	88	50.000	150	131	113	93	25.000	253	220	190	157	126		●	○
4.19																			
5.1	50.000	63	54	47	39	44.000	76	66	57	47	22.000	91	79	68	56	45		●	○
5.2	50.000	63	54	47	39	44.000	76	66	57	47	22.000	91	79	68	56	45		●	○
5.3	50.000	63	54	47	39	44.000	76	66	57	47	22.000	91	79	68	56	45		●	○
5.4	50.000	46	40	35	29	25.000	55	48	41	34	12.000	88	77	66	55	44		●	○
5.5	50.000	46	40	35	29	25.000	55	48	41	34	12.000	78	68	59	49	39		●	○
5.6	50.000	54	47	40	33	31.000	63	55	47	39	15.000	91	79	68	56	45		●	○
5.7	50.000	55	48	41	32	31.000	58	51	44	36	15.000	98	85	73	61	49		●	○
5.8	50.000	55	47	40	32	31.000	58	51	44	36	15.000	98	85	73	61	49		●	○
5.9	50.000	60	61	48	41	50.000	71	62	53	44	38.000	114	99	85	71	57		●	○
5.10	50.000	60	61	48	41	50.000	71	62	53	44	38.000	126	110	95	78	63		●	○
5.11	50.000	60	52	45	37	50.000	71	62	49	39	31.000	89	77	66	55	44		●	○
6.1	50.000	155	135	116	96	50.000	164	143	123	102	44.000	346	301	260	215	173		●	
6.2	50.000	95	83	71	59	50.000	134	117	101	83	31.000	180	157	135	112	90		●	
6.3	50.000	95	83	71	59	44.000	134	117	101	83	22.000	180	157	135	112	90		●	
6.4	50.000	89	78	67	55	44.000	126	110	95	78	22.000	170	148	127	105	85		●	
6.5																			

a_e = 0.6–1.0 x DC: If values are missing, only trochoidal slot milling and profiling are permitted. Otherwise, there is the risk of tool breakage.

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Cutting data – Micro End Mills – 5xD

		Ø DC = 1,0 mm					Ø DC = 1,5 mm					Ø DC = 1,8 mm				
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC
	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\,max.}$	0,54	0,54	0,54	0,54	0,36
	$n_{min.}$	6.500					$n_{min.}$	6.500					$n_{min.}$	5.500				
Index	n	v_f mm/min.					n	v_f mm/min.					n	v_f mm/min.				
1.1	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
1.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
1.3	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
1.4	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
1.5	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
1.6	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
1.7	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
1.8	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
1.9	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
1.10	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
1.11	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
1.12	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
1.13	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
1.14	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
1.15	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
1.16	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
2.1	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
2.2	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
2.3	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
2.4	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
2.5	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
2.6	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
2.7	19.000	310	270	232	192	155	12.000	480	418	360	298	240	10.000	500	435	375	310	250
3.1	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
3.2	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
3.3	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
3.4	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
3.5	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
3.6	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
3.7	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
3.8	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
4.1	50.000	775	674	581	480	387	42.000	1200	1044	900	744	600	36.000	1500	1305	1125	930	750
4.2	50.000	775	674	581	480	387	42.000	1200	1044	900	744	600	36.000	1500	1305	1125	930	750
4.3																		
4.4																		
4.5																		
4.6	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
4.7	38.000	705	613	529	437	352	25.000	1000	870	750	620	500	22.000	1080	940	810	670	540
4.8	22.000	278	242	209	173	139	14.000	343	298	257	213	171	12.000	450	392	338	279	225
4.9	15.000	190	165	142	118	95	10.000	245	213	184	152	122	8.000	300	261	225	186	150
4.10	15.000	190	165	142	118	95	10.000	245	213	184	152	122	8.000	300	261	225	186	150
4.11	38.000	697	607	523	432	349	25.000	1000	870	750	620	500	22.000	1100	957	825	682	550
4.12	38.000	697	607	523	432	349	25.000	1000	870	750	620	500	22.000	1100	957	825	682	550
4.13	44.000	813	708	610	504	407	29.000	1160	1009	870	719	580	25.000	1200	1044	900	744	600
4.14	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
4.15	31.000	438	381	329	272	219	21.000	575	500	431	357	288	18.000	650	566	488	403	325
4.16	50.000	849	738	636	526	424	33.000	1205	1048	904	747	602	28.000	1400	1218	1050	868	700
4.17																		
4.18	25.000	318	277	239	197	159	16.000	438	381	329	272	219	14.000	500	435	375	310	250
4.19																		
5.1	22.000	114	99	85	71	57	14.000	196	170	147	121	98	12.000	300	261	225	186	150
5.2	22.000	114	99	85	71	57	14.000	196	170	147	121	98	12.000	300	261	225	186	150
5.3	22.000	114	99	85	71	57	14.000	196	170	147	121	98	12.000	300	261	225	186	150
5.4	12.000	110	95	82	68	55	8.000	170	148	127	105	85	7.000	240	209	180	149	120
5.5	12.000	131	114	99	82	66	8.000	170	148	127	105	85	7.000	240	209	180	149	120
5.6	15.000	152	132	114	94	76	10.000	245	213	184	152	122	8.000	300	261	225	186	150
5.7	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
5.8	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
5.9	38.000	156	135	117	96	78	25.000	274	238	205	170	137	22.000	380	331	285	236	190
5.10	38.000	212	185	159	132	106	25.000	365	318	274	226	183	22.000	450	392	338	279	225
5.11	31.000	127	111	95	79	64	21.000	201	175	151	125	100	18.000	300	261	225	186	150
6.1	44.000	426	371	320	264	213	29.000	600	522	450	372	300	25.000	800	696	600	496	400
6.2	31.000	201	175	151	125	101	21.000	346	301	260	215	173	16.000	500	435	375	310	250
6.3	22.000	235	204	176	146	117	14.000	346	301	260	215	173	12.000	450	392	338	279	225
6.4	22.000	221	193	166	137	111	14.000	327	284	245	202	163	12.000	450	392	338	279	225
6.5																		

		Ø DC = 2,0 mm					●		○
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	1st choice		suitable
	$a_{p\,max.}$	0,6	0,6	0,6	0,6	0,4	Emulsion	Compressed air	MMS
	$n_{min.}$	5.000							
Index	n	v_f mm/min.							
1.1	22.000	1320	1148	990	818	660		●	○
1.2	22.000	1320	1148	990	818	660		●	○
1.3	22.000	1320	1148	990	818	660		●	○
1.4	22.000	1320	1148	990	818	660		●	○
1.5	22.000	1320	1148	990	818	660		●	○
1.6	15.000	900	783	675	558	450		●	○
1.7	22.000	1320	1148	990	818	660		●	○
1.8	15.000	900	783	675	558	450		●	○
1.9	15.000	900	783	675	558	450		●	○
1.10	15.000	900	783	675	558	450		●	○
1.11	15.000	900	783	675	558	450		●	○
1.12	15.000	900	783	675	558	450		●	○
1.13	15.000	900	783	675	558	450		●	○
1.14	15.000	900	783	675	558	450		●	○
1.15	22.000	1320	1148	990	818	660		●	○
1.16	15.000	900	783	675	558	450		●	○
2.1	15.000	900	783	675	558	450		●	○
2.2	15.000	900	783	675	558	450		●	○
2.3	15.000	900	783	675	558	450		●	○
2.4	15.000	900	783	675	558	450		●	○
2.5	15.000	900	783	675	558	450		●	○
2.6	15.000	900	783	675	558	450		●	○
2.7	9.000	540	470	405	335	270		●	○
3.1	25.000	1500	1305	1125	930	750		●	○
3.2	25.000	1500	1305	1125	930	750		●	○
3.3	25.000	1500	1305	1125	930	750		●	○
3.4	25.000	1500	1305	1125	930	750		●	○
3.5	12.000	520	452	390	322	260		●	○
3.6	12.000	520	452	390	322	260		●	○
3.7	12.000	520	452	390	322	260		●	○
3.8	12.000	520	452	390	322	260		●	○
4.1	31.000	1860	1618	1395	1153	930		●	○
4.2	31.000	1860	1618	1395	1153	930		●	○
4.3									
4.4									
4.5									
4.6	25.000	1500	1305	1125	930	750		●	○
4.7	19.000	1140	992	855	707	570		●	○
4.8	11.000	480	418	360	298	240		●	○
4.9	7.000	300	261	225	186	150		●	○
4.10	7.000	300	261	225	186	150		●	○
4.11	19.000	1140	992	855	707	570		●	○
4.12	19.000	1140	992	855	707	570		●	○
4.13	22.000	1320	1148	990	818	660		●	○
4.14	25.000	1500	1305	1125	930	750		●	○
4.15	15.000	660	574	495	409	330		●	○
4.16	25.000	1500	1305	1125	930	750		●	○
4.17									
4.18	12.000	520	452	390	322	260		●	○
4.19									
5.1	11.000	400	348	300	248	200		●	○
5.2	11.000	400	348	300	248	200		●	○
5.3	11.000	400	348	300	248	200		●	○
5.4	6.000	260	226	195	161	130		●	○
5.5	6.000	260	226	195	161	130		●	○
5.6	7.000	300	261	225	186	150		●	○
5.7	7.000	300	261	225	186	150		●	○
5.8	7.000	300	261	225	186	150		●	○
5.9	19.000	420	365	315	260	210		●	○
5.10	19.000	500	435	375	310	250		●	○
5.11	15.000	400	348	300	248	200		●	○
6.1	22.000	1000	870	750	620	500		●	
6.2	15.000	500	435	375	310	250		●	
6.3	11.000	480	418	360	298	240		●	
6.4	11.000	480	418	360	298	240		●	
6.5									

Cutting data – Micro end mills – 10xD

		Ø DC = 0,2 mm				Ø DC = 0,5 mm					Ø DC = 0,8 mm				Ø DC = 1,0 mm			
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC
	$a_{p\,max.}$	0,006	0,006	0,006	0,006	0,015	0,015	0,015	0,015	$a_{p\,max.}$	0,024	0,024	0,024	0,024	0,03	0,03	0,03	0,03
	$n_{min.}$	30.000				12.000				$n_{min.}$	8.000				6.500			
Index	n	v_f mm/min.				v_f mm/min.				n	v_f mm/min.				v_f mm/min.			
1.1	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
1.2	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
1.3	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
1.4	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
1.5	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
1.6	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
1.7	50.000	232	202	174	144	219	191	164	136	38.000	450	392	338	279	589	512	442	365
1.8	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
1.9	50.000	232	202	174	144	219	191	164	136	38.000	450	392	338	279	589	512	442	365
1.10	50.000	201	175	151	125	190	165	142	118	25.000	270	235	203	167	335	292	252	208
1.11	50.000	201	175	151	125	190	165	142	118	25.000	270	235	203	167	335	292	252	208
1.12	50.000	201	175	151	125	190	165	142	118	25.000	270	235	203	167	335	292	252	208
1.13	50.000	201	175	151	125	190	165	142	118	25.000	270	235	203	167	335	292	252	208
1.14	50.000	201	175	151	125	190	165	142	118	25.000	270	235	203	167	335	292	252	208
1.15	50.000	232	202	174	144	219	191	164	136	38.000	450	392	338	279	589	512	442	365
1.16	50.000	201	175	151	125	190	165	142	118	25.000	270	235	203	167	335	292	252	208
2.1	50.000	155	135	116	96	208	181	156	129	25.000	312	271	234	193	387	337	290	240
2.2	50.000	155	135	116	96	208	181	156	129	25.000	312	271	234	193	387	337	290	240
2.3	50.000	155	135	116	96	208	181	156	129	25.000	312	271	234	193	387	337	290	240
2.4	50.000	155	135	116	96	164	143	123	102	19.000	242	211	182	150	294	256	221	182
2.5	50.000	155	135	116	96	219	191	164	136	25.000	312	271	234	193	387	337	290	240
2.6	50.000	155	135	116	96	219	191	164	136	25.000	312	271	234	193	387	337	290	240
2.7	50.000	155	135	116	96	170	148	127	105	15.000	236	205	177	146	279	243	209	173
3.1	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
3.2	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
3.3	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
3.4	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
3.5	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	269	234	202	167
3.6	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	269	234	202	167
3.7	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	269	234	202	167
3.8	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	269	234	202	167
4.1	50.000	232	202	174	144	438	381	329	272	50.000	693	603	520	430	930	809	697	576
4.2	50.000	232	202	174	144	438	381	329	272	50.000	693	603	520	430	930	809	697	576
4.3																		
4.4																		
4.5																		
4.6	50.000	232	202	174	144	274	238	205	170	44.000	416	362	312	258	542	472	407	336
4.7	50.000	232	202	174	144	274	238	205	170	31.000	402	350	301	249	480	418	360	298
4.8	50.000	126	110	95	78	134	117	101	83	19.000	170	148	127	105	190	165	142	118
4.9	50.000	126	110	95	78	89	78	67	55	12.000	136	118	102	84	152	132	114	94
4.10	50.000	126	110	95	78	89	78	67	55	12.000	136	118	102	84	152	132	114	94
4.11	50.000	232	202	174	144	274	238	205	170	31.000	402	350	301	249	480	418	360	298
4.12	50.000	232	202	174	144	274	238	205	170	31.000	402	350	301	249	480	418	360	298
4.13	50.000	232	202	174	144	329	286	246	204	38.000	554	482	416	344	705	613	529	437
4.14	50.000	232	202	174	144	329	286	246	204	44.000	554	482	416	344	813	708	610	504
4.15	50.000	141	123	106	88	200	174	150	124	25.000	285	248	213	176	339	295	255	210
4.16	50.000	212	185	159	132	300	261	225	186	44.000	506	440	379	314	742	646	557	460
4.17																		
4.18	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	255	221	191	158
4.19																		
5.1	50.000	54	47	40	33	63	55	47	39	19.000	79	69	59	49	101	88	76	63
5.2	50.000	54	47	40	33	63	55	47	39	19.000	91	79	68	56	114	99	85	71
5.3	50.000	54	47	40	33	63	55	47	39	19.000	102	89	76	63	126	110	95	78
5.4	50.000	46	40	35	29	55	48	41	34	12.000	88	77	66	55	110	95	82	68
5.5	50.000	46	40	35	29	55	48	41	34	12.000	59	51	44	36	82	71	62	51
5.6	50.000	54	47	40	33	63	55	47	39	12.000	79	69	59	49	101	88	76	63
5.7	50.000	46	40	35	29	55	48	41	34	12.000	69	60	51	43	88	76	66	54
5.8	50.000	46	40	35	29	55	48	41	34	12.000	69	60	51	43	88	76	66	54
5.9	50.000	60	52	45	37	71	62	53	44	31.000	101	88	76	63	141	123	106	88
5.10	50.000	60	52	45	37	71	62	53	44	31.000	101	88	76	63	177	154	133	110
5.11	50.000	60	52	45	37	71	62	53	44	25.000	89	77	66	55	141	123	106	88
6.1	50.000	77	67	58	48	82	71	62	51	38.000	173	151	130	107	194	168	145	120
6.2	50.000	47	41	36	29	67	58	50	42	25.000	90	78	68	56	101	88	75	62
6.3	50.000	47	41	36	29	67	58	50	42	19.000	90	78	68	56	101	88	75	62
6.4	50.000	45	39	34	28	63	55	47	39	19.000	85	74	64	53	95	83	71	59
6.5																		

a_e = 0,6–1,0 x DC: Missing values only trochodial slotting and milling is recommended. Otherwise there is the risk of tool breakage.

		Ø DC = 1,5 mm				Ø DC = 1,8 mm					Ø DC = 2,0 mm					●	○
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	1st choice	suitable
	$a_{p\,max.}$	0,06	0,06	0,06	0,06	$a_{p\,max.}$	0,072	0,072	0,072	0,072	$a_{p\,max.}$	0,08	0,08	0,08	0,08	Emulsion	Compressed air	MMS
	$n_{min.}$	6.500				$n_{min.}$	5.500				$n_{min.}$	5.000						
Index	n	v_f mm/min.				n	v_f mm/min.				n	v_f mm/min.						
1.1	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.3	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.4	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.5	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.6	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
1.7	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.8	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
1.9	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.10	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
1.11	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
1.12	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
1.13	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
1.14	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
1.15	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
1.16	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
2.1	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446		●	○
2.2	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446		●	○
2.3	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446		●	○
2.4	12.000	400	348	300	248	10.000	450	392	338	279	9.000	540	470	405	335		●	○
2.5	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446		●	○
2.6	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446		●	○
2.7	10.000	380	331	285	236	8.000	400	348	300	248	7.000	420	365	315	260		●	○
3.1	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818		●	○
3.2	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818		●	○
3.3	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818		●	○
3.4	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818		●	○
3.5	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	○
3.6	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	○
3.7	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	○
3.8	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	○
4.1	38.000	1520	1322	1140	942	33.000	1600	1392	1200	992	28.000	1680	1462	1260	1042		●	○
4.2	38.000	1520	1322	1140	942	33.000	1600	1392	1200	992	28.000	1680	1462	1260	1042		●	○
4.3																		
4.4																		
4.5																		
4.6	29.000	900	783	675	558	25.000	1000	870	750	620	22.000	1140	992	855	707		●	○
4.7	21.000	800	696	600	496	18.000	900	783	675	558	15.000	900	783	675	558		●	○
4.8	12.000	294	256	220	182	10.000	260	226	195	161	9.000	390	339	293	242		●	○
4.9	8.000	196	170	147	121	7.000	260	226	195	161	6.000	260	226	195	161		●	○
4.10	8.000	196	170	147	121	7.000	260	226	195	161	6.000	260	226	195	161		●	○
4.11	21.000	800	696	600	496	18.000	850	740	638	527	15.000	900	783	675	558		●	○
4.12	21.000	800	696	600	496	18.000	850	740	638	527	15.000	900	783	675	558		●	○
4.13	25.000	1000	870	750	620	18.000	1000	870	750	620	19.000	1140	992	855	707		●	○
4.14	29.000	1160	1009	870	719	25.000	1200	1044	900	744	22.000	1320	1148	990	818		●	○
4.15	16.000	438	381	329	272	14.000	500	435	375	310	12.000	520	452	390	322		●	○
4.16	29.000	1059	921	794	657	25.000	1200	1044	900	744	22.000	1320	1148	990	818		●	○
4.17																		
4.18	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	○
4.19																		
5.1	12.000	163	142	122	101	10.000	300	261	225	186	9.000	380	331	285	236		●	○
5.2	12.000	204	178	153	127	10.000	300	261	225	186	9.000	380	331	285	236		●	○
5.3	12.000	204	178	153	127	10.000	300	261	225	186	9.000	350	305	263	217		●	○
5.4	8.000	177	154	133	110	7.000	300	261	225	186	6.000	350	305	263	217		●	○
5.5	8.000	106	92	80	66	7.000	200	174	150	124	6.000	220	191	165	136		●	○
5.6	8.000	147	128	110	91	7.000	220	191	165	136	6.000	250	218	188	155		●	○
5.7	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155		●	○
5.8	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155		●	○
5.9	21.000	228	199	171	141	18.000	300	261	225	186	15.000	380	331	285	236		●	○
5.10	21.000	274	238	205	170	18.000	400	348	300	248	15.000	450	392	338	279		●	○
5.11	16.000	237	206	178	147	14.000	300	261	225	186	12.000	380	331	285	236		●	○
6.1	25.000	300	261	225	186	21.000	400	348	300	248	19.000	500	435	375	310		●	
6.2	16.000	173	151	130	107	14.000	200	174	150	124	12.000	240	209	180	149		●	
6.3	12.000	173	151	130	107	10.000	200	174	150	124	9.000	240	209	180	149		●	
6.4	12.000	163	142	122	101	10.000	200	174	150	124	9.000	240	209	180	149		●	
6.5																		

Cutting data standard values – MultiChange – PCR-UNI – 52 871 ...

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	a_p max.	Feedrates for extra short and short holder											
					Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0	24,7–25,0	Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0	24,7–25,0
					a_e 0,25 x DC						a_e 1 x DC					
					v_c m/min	f_z mm					v_c m/min	f_z mm				
1.1	0,9	0,7*	0,6*	0,56xDC	445	0,050	0,058	0,072	0,084	0,094	220	0,025	0,029	0,036	0,042	0,047
1.2	0,9	0,7*	0,6*	0,56xDC	445	0,050	0,058	0,072	0,084	0,094	220	0,025	0,029	0,036	0,042	0,047
1.3	0,9	0,7*	0,6*	0,56xDC	445	0,050	0,058	0,072	0,084	0,094	220	0,025	0,029	0,036	0,042	0,047
1.4	0,9	0,7*	0,6*	0,56xDC	405	0,050	0,058	0,072	0,084	0,094	200	0,025	0,029	0,036	0,042	0,047
1.5	0,9	0,7*	0,6*	0,56xDC	445	0,050	0,058	0,072	0,084	0,094	220	0,025	0,029	0,036	0,042	0,047
1.6	0,9	0,7*	0,6*	0,56xDC	365	0,047	0,054	0,068	0,078	0,087	180	0,023	0,027	0,034	0,039	0,044
1.7	0,9	0,7*	0,6*	0,56xDC	405	0,050	0,058	0,072	0,084	0,094	200	0,025	0,029	0,036	0,042	0,047
1.8	0,9	0,7*	0,6*	0,56xDC	285	0,042	0,048	0,060	0,070	0,078	140	0,021	0,024	0,030	0,035	0,039
1.9	0,9	0,7*	0,6*	0,56xDC	270	0,048	0,056	0,070	0,081	0,090	135	0,024	0,028	0,035	0,041	0,045
1.10	0,9	0,7*	0,6*	0,56xDC	405	0,050	0,058	0,072	0,084	0,094	200	0,025	0,029	0,036	0,042	0,047
1.11	0,9	0,7*	0,6*	0,56xDC	285	0,042	0,048	0,060	0,070	0,078	140	0,021	0,024	0,030	0,035	0,039
1.12	0,9	0,7*	0,6*	0,56xDC	265	0,048	0,055	0,069	0,080	0,089	130	0,024	0,028	0,034	0,040	0,044
1.13	0,9	0,7*	0,6*	0,56xDC	225	0,043	0,050	0,063	0,073	0,081	110	0,022	0,025	0,031	0,036	0,041
1.14	0,9	0,7*	0,6*	0,56xDC	225	0,043	0,050	0,063	0,073	0,081	110	0,022	0,025	0,031	0,036	0,041
1.15	0,9	0,7*	0,6*	0,56xDC	225	0,043	0,050	0,063	0,073	0,081	110	0,022	0,025	0,031	0,036	0,041
1.16	0,9	0,7*	0,6*	0,56xDC	265	0,048	0,055	0,069	0,080	0,089	130	0,024	0,028	0,034	0,040	0,044
2.1	0,9	0,7*	0,6*	0,56xDC	120	0,029	0,034	0,042	0,049	0,055	60	0,015	0,017	0,021	0,024	0,027
2.2	0,9	0,7*	0,6*	0,56xDC	135	0,032	0,037	0,046	0,053	0,059	65	0,016	0,018	0,023	0,027	0,030
2.3	0,9	0,7*	0,6*	0,56xDC	135	0,032	0,037	0,046	0,053	0,059	65	0,016	0,018	0,023	0,027	0,030
2.4	0,9	0,7*	0,6*	0,56xDC	135	0,032	0,037	0,046	0,053	0,059	65	0,016	0,018	0,023	0,027	0,030
2.5	0,9	0,7*	0,6*	0,56xDC	115	0,024	0,028	0,035	0,041	0,045	55	0,012	0,014	0,017	0,020	0,023
2.6	0,9	0,7*	0,6*	0,56xDC	120	0,029	0,034	0,042	0,049	0,055	60	0,015	0,017	0,021	0,024	0,027
2.7	0,9	0,7*	0,6*	0,56xDC	120	0,025	0,029	0,036	0,042	0,047	60	0,013	0,015	0,018	0,021	0,023
3.1	0,9	0,7*	0,6*	0,56xDC	485	0,083	0,097	0,121	0,140	0,156	240	0,042	0,048	0,060	0,070	0,078
3.2	0,9	0,7*	0,6*	0,56xDC	365	0,058	0,068	0,084	0,098	0,109	180	0,029	0,034	0,042	0,049	0,055
3.3	0,9	0,7*	0,6*	0,56xDC	445	0,071	0,082	0,103	0,119	0,132	220	0,035	0,041	0,051	0,059	0,066
3.4	0,9	0,7*	0,6*	0,56xDC	365	0,058	0,068	0,084	0,098	0,109	180	0,029	0,034	0,042	0,049	0,055
3.5	0,9	0,7*	0,6*	0,56xDC	325	0,058	0,068	0,084	0,098	0,109	160	0,029	0,034	0,042	0,049	0,055
3.6	0,9	0,7*	0,6*	0,56xDC	305	0,050	0,058	0,072	0,084	0,094	150	0,025	0,029	0,036	0,042	0,047
3.7	0,9	0,7*	0,6*	0,56xDC	325	0,058	0,068	0,084	0,098	0,109	160	0,029	0,034	0,042	0,049	0,055
3.8	0,9	0,7*	0,6*	0,56xDC	305	0,050	0,058	0,072	0,084	0,094	150	0,025	0,029	0,036	0,042	0,047

* = Trimming and trochoidal slot milling

Cutting data standard values – MultiChange – PCR-ALU – 52 872 ...

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	a_p max.	Feedrates for extra short and short holder											
					Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0	24,7–25,0	Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0	24,7–25,0
					a_e 0,25 x DC						a_e 1 x DC					
					v_c m/min	f_z mm					v_c m/min	f_z mm				
4.1	0,9	0,7*	0,6*	0,56xDC	1085	0,142	0,169	0,211	0,245	0,273	605	0,071	0,085	0,106	0,122	0,136
4.2	0,9	0,7*	0,6*	0,56xDC	1085	0,142	0,169	0,211	0,245	0,273	605	0,071	0,085	0,106	0,122	0,136
4.3	0,9	0,7*	0,6*	0,56xDC	720	0,149	0,178	0,222	0,257	0,286	405	0,075	0,089	0,106	0,128	0,143
4.4	0,9	0,7*	0,6*	0,56xDC	575	0,156	0,186	0,232	0,269	0,300	320	0,078	0,093	0,116	0,135	0,150
4.5	0,9	0,7*	0,6*	0,56xDC	415	0,171	0,203	0,253	0,294	0,327	230	0,085	0,102	0,127	0,147	0,164
4.6	0,9	0,7*	0,6*	0,56xDC	415	0,114	0,136	0,169	0,196	0,218	230	0,057	0,068	0,084	0,098	0,109
4.7	0,9	0,7*	0,6*	0,56xDC	520	0,071	0,085	0,106	0,122	0,136	290	0,036	0,042	0,053	0,061	0,068
4.8	0,9	0,7*	0,6*	0,56xDC	310	0,114	0,136	0,169	0,196	0,218	175	0,057	0,068	0,084	0,098	0,109
4.9	0,9	0,7*	0,6*	0,56xDC	520	0,071	0,085	0,106	0,122	0,136	290	0,036	0,042	0,053	0,061	0,068
4.10	0,9	0,7*	0,6*	0,56xDC	520	0,071	0,085	0,106	0,122	0,136	290	0,036	0,042	0,053	0,061	0,068
4.11	0,9	0,7*	0,6*	0,56xDC	520	0,071	0,085	0,106	0,122	0,136	290	0,036	0,042	0,053	0,061	0,068
4.12	0,9	0,7*	0,6*	0,56xDC	520	0,071	0,085	0,106	0,122	0,136	290	0,036	0,042	0,053	0,061	0,068
4.13																
4.14																
4.15																
4.16																
4.17																
4.18																
4.19																

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

		Ramping	Drilling	Helical milling			● 1st choice		○ suitable
					Max. plunging angle				
	v_c m/min	Max. angle	f_z factor	$a_{R\,max.}$**	$D_{min.}$ 1,5	$D_{max.}$ 1,8	Emulsion	Compressed air	MMS
	1.1	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	○	●	○
	1.2	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	○	●	○
	1.3	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	○	●	○
	1.4	**45°**	**0,8**	**0,56xDC**	**20°**	**13°**	○	●	○
	1.5	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	○	●	○
	1.6	**45°**	**0,8**	**0,56xDC**	**20°**	**13°**	○	●	○
	1.7	**45°**	**0,8**	**0,56xDC**	**20°**	**13°**	○	●	○
	1.8	**45°**	**0,7**	**0,56xDC**	**20°**	**13°**	●		○
	1.9	**30°**		**0,5xDC**	**18°**	**11°**	●		○
	1.10	**45°**	**0,8**	**0,56xDC**	**20°**	**13°**	○	●	○
	1.11	**45°**	**0,7**	**0,56xDC**	**20°**	**13°**	●		○
	1.12	**30°**	**0,8**	**0,5xDC**	**18°**	**11°**	○	●	○
	1.13	**30°**	**0,7**	**0,5xDC**	**18°**	**11°**	●		○
	1.14	**30°**	**0,7**	**0,5xDC**	**18°**	**11°**	●		○
	1.15	**30°**	**0,7**	**0,5xDC**	**18°**	**11°**	●		○
	1.16	**30°**	**0,8**	**0,5xDC**	**18°**	**11°**	○	●	○
	2.1	15°		0,4xDC	14°	9°	●		○
	2.2	15°		0,4xDC	14°	9°	●		○
	2.3	15°		0,4xDC	14°	9°	●		○
	2.4	15°		0,4xDC	14°	9°	●		○
	2.5	15°		0,4xDC	14°	9°	●		
	2.6	15°		0,4xDC	14°	9°	●		○
	2.7	15°		0,4xDC	14°	9°	●		
	3.1	**45°**	**0,8**	**0,56xDC**	**20°**	**13°**	○	●	○
	3.2	**45°**	**0,8**	**0,56xDC**	**20°**	**13°**	○	●	○
	3.3	**45°**	**0,8**	**0,56xDC**	**20°**	**13°**	○	●	○
	3.4	**45°**	**0,8**	**0,56xDC**	**20°**	**13°**	○	●	○
	3.5	**45°**	**0,8**	**0,56xDC**	**20°**	**13°**	○	●	○
	3.6	**45°**	**0,8**	**0,56xDC**	**20°**	**13°**	○	●	○
	3.7	**45°**	**0,8**	**0,56xDC**	**20°**	**13°**	○	●	○
	3.8	**45°**	**0,8**	**0,56xDC**	**20°**	**13°**	○	●	○

		Ramping	Drilling	Helical milling			● 1st choice		○ suitable
					Max. plunging angle				
	v_c m/min	Max. angle	f_z factor	$a_{R\,max.}$**	$D_{min.}$ 1,5	$D_{max.}$ 1,8	Emulsion	Compressed air	MMS
	4.1	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	●		○
	4.2	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	●		○
	4.3	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	●		○
	4.4	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	●		○
	4.5	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	●		○
	4.6	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	●		○
	4.7	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	●		○
	4.8	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	●		○
	4.9	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	●		○
	4.10	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	●		○
	4.11	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	●		○
	4.12	**45°**	**0,9**	**0,56xDC**	**20°**	**13°**	●		○
	4.13								
	4.14								
	4.15								
	4.16								
	4.17								
	4.18								
	4.19								

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** Width of cut per helical revolution

Cutting data standard values – MultiChange – PCD milling heads

Index	Correction factor v_c, a_p and f_z Medium Holder	Correction factor v_c, a_p and f_z Long Holder	Correction factor v_c, a_p and f_z Extra Long Holder	$n_{max.}$ rpm	v_c m/min	Feedrates for extra short and short holder Ø DC = 8 mm a_e 0,1–0,4 x DC a_p max. in mm 6 f_z in mm	Ø DC = 8 mm a_e 0,6–1,0 x DC a_p max. in mm 3 f_z in mm	v_c m/min	Ø DC = 10 mm a_e 0,1–0,4 x DC a_p max. in mm 8 f_z in mm	Ø DC = 10 mm a_e 0,6–1,0 x DC a_p max. in mm 4 f_z in mm	● 1st choice Emulsion	○ suitable Compressed air	○ suitable MMS
4.1	0,9	0,7*	0,6*	**18000**	**300–450**	0,08	0,08	**350–550**	0,08	0,08	●	○	○
4.2	0,9	0,7*	0,6*		**300–450**	0,08	0,08	**350–550**	0,08	0,08	●	○	○
4.3	0,9	0,7*	0,6*		**300–450**	0,16	0,08	**350–550**	0,16	0,08	●	○	○
4.4	0,9	0,7*	0,6*		**300–450**	0,16	0,08	**350–550**	0,16	0,08	●	○	○
4.5	0,9	0,7*	0,6*		**300–450**	0,20	0,10	**350–550**	0,20	0,10	●	○	○
4.6	0,9	0,7*	0,6*		**300–450**	0,24	0,12	**350–550**	0,24	0,12	●	○	○
4.7	0,9	0,7*	0,6*		**300–450**	0,16	0,08	**350–550**	0,16	0,08	●	○	○
4.8	0,9	0,7*	0,6*		**300–450**	0,24	0,12	**350–550**	0,24	0,12	●	○	○
4.9	0,9	0,7*	0,6*		**300–450**	0,24	0,12	**350–550**	0,24	0,12	●	○	○
4.10	0,9	0,7*	0,6*		**300–450**	0,24	0,12	**350–550**	0,24	0,12	●	○	○
4.11	0,9	0,7*	0,6*		**300–450**	0,16	0,08	**350–550**	0,16	0,08	●	○	○
4.12	0,9	0,7*	0,6*		**300–450**	0,16	0,08	**350–550**	0,16	0,08	●	○	○
4.13	0,9	0,7*	0,6*		**300–450**	0,16	0,08	**350–550**	0,16	0,08	●	○	○
4.14	0,9	0,7*	0,6*		**300–450**	0,16	0,08	**350–550**	0,16	0,08	●	○	○
4.15	0,9	0,7*	0,6*		**300–450**	0,16	0,08	**350–550**	0,16	0,08	●	○	○
4.16	0,9	0,7*	0,6*		**300–450**	0,20	0,12	**350–550**	0,20	0,12	●	○	○
4.17	0,9	0,7*	0,6*		**300–450**	0,20	0,12	**350–550**	0,20	0,12	●	○	○
4.18	0,9	0,7*	0,6*		**300–450**	0,20	0,12	**350–550**	0,20	0,12	●	○	○
4.19	0,9	0,7*	0,6*		**300–450**	0,20	0,12	**350–550**	0,20	0,12	●	○	○

*= Edge Milling and Trochoidal Milling

Index	Correction factor v_c, a_p and f_z Medium Holder	Correction factor v_c, a_p and f_z Long Holder	Correction factor v_c, a_p and f_z Extra Long Holder	$n_{max.}$ rpm	v_c m/min	Feedrates for extra short and short holder Ø DC = 12 mm a_e 0,1–0,4 x DC a_p max. in mm 8 f_z in mm	Ø DC = 12 mm a_e 0,6–1,0 x DC a_p max. in mm 4 f_z in mm	v_c m/min	Ø DC = 16 mm a_e 0,1–0,4 x DC a_p max. in mm 8 f_z in mm	Ø DC = 16 mm a_e 0,6–1,0 x DC a_p max. in mm 4 f_z in mm	● 1st choice Emulsion	○ suitable Compressed air	○ suitable MMS
4.1	0,9	0,7*	0,6*	**18000**	**400–600**	0,08	0,08	**450–700**	0,08	0,08	●	○	○
4.2	0,9	0,7*	0,6*		**400–600**	0,08	0,08	**450–700**	0,08	0,08	●	○	○
4.3	0,9	0,7*	0,6*		**400–600**	0,16	0,08	**450–700**	0,16	0,08	●	○	○
4.4	0,9	0,7*	0,6*		**400–600**	0,16	0,08	**450–700**	0,16	0,08	●	○	○
4.5	0,9	0,7*	0,6*		**400–600**	0,20	0,10	**450–700**	0,20	0,10	●	○	○
4.6	0,9	0,7*	0,6*		**400–600**	0,24	0,12	**450–700**	0,24	0,12	●	○	○
4.7	0,9	0,7*	0,6*		**400–600**	0,16	0,08	**450–700**	0,16	0,08	●	○	○
4.8	0,9	0,7*	0,6*		**400–600**	0,24	0,12	**450–700**	0,24	0,12	●	○	○
4.9	0,9	0,7*	0,6*		**400–600**	0,24	0,12	**450–700**	0,24	0,12	●	○	○
4.10	0,9	0,7*	0,6*		**400–600**	0,24	0,12	**450–700**	0,24	0,12	●	○	○
4.11	0,9	0,7*	0,6*		**400–600**	0,16	0,08	**450–700**	0,16	0,08	●	○	○
4.12	0,9	0,7*	0,6*		**400–600**	0,16	0,08	**450–700**	0,16	0,08	●	○	○
4.13	0,9	0,7*	0,6*		**400–600**	0,16	0,08	**450–700**	0,16	0,08	●	○	○
4.14	0,9	0,7*	0,6*		**400–600**	0,16	0,08	**450–700**	0,16	0,08	●	○	○
4.15	0,9	0,7*	0,6*		**400–600**	0,16	0,08	**450–700**	0,16	0,08	●	○	○
4.16	0,9	0,7*	0,6*		**400–600**	0,20	0,12	**450–700**	0,20	0,12	●	○	○
4.17	0,9	0,7*	0,6*		**400–600**	0,20	0,12	**450–700**	0,20	0,12	●	○	○
4.18	0,9	0,7*	0,6*		**400–600**	0,20	0,12	**450–700**	0,20	0,12	●	○	○
4.19	0,9	0,7*	0,6*		**400–600**	0,20	0,12	**450–700**	0,20	0,12	●	○	○

*= Edge Milling and Trochoidal Milling

All tools should be mounted using torque wrench.
In unstable applications, the machining parameters can be reduced.

Cutting data standard values – MultiChange – End milling heads – 52 860 ... / 52 861 ...

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	Feedrates for extra short and short holder															● 1st choice		○ suitable
					Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm					
				$a_{p\,max.}$	5,2 mm	4,4 mm	3,6 mm	6,5 mm	5,5 mm	4,5 mm	7,8 mm	6,6 mm	5,4 mm	10,4 mm	8,8 mm	7,2 mm	13 mm	11 mm	9 mm			
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
					f_z mm															Emulsion	Compressed air	MMS
1.1	0,9	0,7*	0,6*	180	0,05	0,04	0,03	0,07	0,06	0,04	0,08	0,07	0,05	0,11	0,09	0,07	0,14	0,12	0,08	○	●	○
1.2	0,9	0,7*	0,6*	200	0,06	0,05	0,03	0,08	0,07	0,05	0,09	0,08	0,06	0,13	0,11	0,08	0,16	0,14	0,10	○	●	○
1.3	0,9	0,7*	0,6*	180	0,05	0,04	0,03	0,07	0,06	0,04	0,08	0,07	0,05	0,11	0,09	0,07	0,14	0,12	0,08	○	●	○
1.4	0,9	0,7*	0,6*	150	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,04	0,10	0,08	0,06	0,13	0,11	0,08	○	●	○
1.5	0,9	0,7*	0,6*	160	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,07	0,05	0,12	0,10	0,07	0,15	0,13	0,09	○	●	○
1.6	0,9	0,7*	0,6*	140	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,04	0,10	0,08	0,06	0,13	0,11	0,08	○	●	○
1.7	0,9	0,7*	0,6*	140	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,07	0,05	0,12	0,10	0,07	0,15	0,13	0,09	○	●	○
1.8	0,9	0,7*	0,6*	100	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,08	0,07	0,05	0,10	0,09	0,06	○	●	○
1.9	0,9	0,7*	0,6*	140	0,05	0,04	0,03	0,07	0,06	0,04	0,08	0,07	0,05	0,11	0,09	0,07	0,14	0,12	0,08	○	●	○
1.10	0,9	0,7*	0,6*	120	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,08	0,07	0,05	0,10	0,09	0,06	○	●	○
1.11	0,9	0,7*	0,6*	100	0,03	0,03	0,02	0,04	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04	0,09	0,08	0,06	○	●	○
1.12	0,9	0,7*	0,6*	90	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,08	0,07	0,05	0,10	0,09	0,06	○	●	○
1.13	0,9	0,7*	0,6*	70	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,08	0,07	0,05	0,10	0,09	0,06	○	●	○
1.14																						
1.15	0,9	0,7*	0,6*	80	0,03	0,03	0,02	0,04	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04	0,09	0,08	0,06	○	●	○
1.16	0,9	0,7*	0,6*	80	0,03	0,03	0,02	0,04	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04	0,09	0,08	0,06	○	●	○
2.1	0,9	0,7*	0,6*	60	0,04	0,04		0,06	0,05		0,07	0,06		0,09	0,08		0,12	0,10		●		
2.2	0,9	0,7*	0,6*	60	0,04	0,03		0,05	0,04		0,06	0,05		0,08	0,07		0,10	0,09		●		
2.3	0,9	0,7*	0,6*	50	0,04	0,03		0,05	0,04		0,06	0,05		0,08	0,07		0,10	0,09		●		
2.4	0,9	0,7*	0,6*	40	0,03	0,02		0,04	0,03		0,04	0,04		0,06	0,05		0,08	0,07		●		
2.5	0,9	0,7*	0,6*	50	0,03	0,03		0,04	0,04		0,05	0,04		0,07	0,06		0,09	0,08		●		
2.6	0,9	0,7*	0,6*	50	0,03	0,03		0,04	0,04		0,05	0,04		0,07	0,06		0,09	0,08		●		
2.7	0,9	0,7*	0,6*	40	0,03	0,02		0,04	0,03		0,04	0,04		0,06	0,05		0,08	0,07		●		
3.1	0,9	0,7*	0,6*	150	0,06	0,05	0,03	0,08	0,07	0,05	0,09	0,08	0,06	0,13	0,11	0,08	0,16	0,14	0,10		●	
3.2	0,9	0,7*	0,6*	120	0,05	0,04	0,03	0,07	0,06	0,04	0,08	0,07	0,05	0,11	0,09	0,07	0,14	0,12	0,08		●	
3.3	0,9	0,7*	0,6*	140	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,07	0,05	0,12	0,10	0,07	0,15	0,13	0,09		●	
3.4	0,9	0,7*	0,6*	120	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,04	0,10	0,08	0,06	0,13	0,11	0,08		●	
3.5	0,9	0,7*	0,6*	120	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,07	0,05	0,12	0,10	0,07	0,15	0,13	0,09		●	
3.6	0,9	0,7*	0,6*	100	0,05	0,04	0,03	0,07	0,06	0,04	0,08	0,07	0,05	0,11	0,09	0,07	0,14	0,12	0,08		●	
3.7	0,9	0,7*	0,6*	120	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,07	0,05	0,12	0,10	0,07	0,15	0,13	0,09		●	
3.8	0,9	0,7*	0,6*	100	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,04	0,10	0,08	0,06	0,13	0,11	0,08		●	
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4.10	0,9	0,7*	0,6*	160	0,03	0,03	0,02	0,04	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04	0,09	0,08	0,06	●		○
4.11	0,9	0,7*	0,6*	220	0,06	0,05	0,03	0,08	0,07	0,05	0,09	0,08	0,06	0,13	0,11	0,08	0,16	0,14	0,10	●		○
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* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

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Cutting Data – MultiChange – Roughing finishing milling heads – 52 862 ...

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	Feedrates for extra short and short holder										Emulsion	Compressed air	MMS
					Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		● 1st choice		○ suitable
				$a_{p\,max.}$	7,5 mm		9,4 mm		11,3 mm		15,0 mm		18,8 mm				
					a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC			
					f_z mm		f_z mm		f_z mm		f_z mm		f_z mm				
1.1	**0,9**	**0,7***	**0,6***	**215**	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,07	0,10	0,08	○	●	○
1.2	**0,9**	**0,7***	**0,6***	**240**	0,04	0,04	0,06	0,05	0,07	0,06	0,09	0,08	0,12	0,10	○	●	○
1.3	**0,9**	**0,7***	**0,6***	**215**	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,07	0,10	0,08	○	●	○
1.4	**0,9**	**0,7***	**0,6***	**180**	0,03	0,03	0,04	0,04	0,06	0,05	0,07	0,06	0,09	0,08	○	●	○
1.5	**0,9**	**0,7***	**0,6***	**190**	0,04	0,04	0,06	0,05	0,07	0,06	0,09	0,07	0,10	0,09	○	●	○
1.6	**0,9**	**0,7***	**0,6***	**170**	0,03	0,03	0,04	0,04	0,06	0,05	0,07	0,06	0,09	0,08	○	●	○
1.7	**0,9**	**0,7***	**0,6***	**170**	0,04	0,04	0,06	0,05	0,07	0,06	0,09	0,07	0,10	0,09	○	●	○
1.8	**0,9**	**0,7***	**0,6***	**120**	0,03	0,02	0,04	0,03	0,04	0,04	0,06	0,05	0,07	0,06	○	●	○
1.9	**0,9**	**0,7***	**0,6***	**170**	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,07	0,10	0,08	○	●	○
1.10	**0,9**	**0,7***	**0,6***	**145**	0,03	0,02	0,04	0,03	0,04	0,04	0,06	0,05	0,07	0,06	○	●	○
1.11	**0,9**	**0,7***	**0,6***	**120**	0,03	0,02	0,03	0,03	0,04	0,03	0,05	0,04	0,06	0,05	○	●	○
1.12	**0,9**	**0,7***	**0,6***	**110**	0,03	0,02	0,04	0,03	0,04	0,04	0,06	0,05	0,07	0,06	○	●	○
1.13	**0,9**	**0,7***	**0,6***	**85**	0,03	0,02	0,04	0,03	0,04	0,04	0,06	0,05	0,07	0,06	○	●	○
1.14																	
1.15	**0,9**	**0,7***	**0,6***	**95**	0,03	0,02	0,03	0,03	0,04	0,03	0,05	0,04	0,06	0,05	○	●	○
1.16	**0,9**	**0,7***	**0,6***	**95**	0,03	0,02	0,03	0,03	0,04	0,03	0,05	0,04	0,06	0,05	○	●	○
2.1	0,9	0,7*	0,6*	70	0,03	0,03	0,04	0,04	0,05	0,04	0,07	0,06	0,08	0,07	●		
2.2	0,9	0,7*	0,6*	70	0,03	0,02	0,04	0,03	0,04	0,04	0,06	0,05	0,07	0,06	●		
2.3	0,9	0,7*	0,6*	60	0,03	0,02	0,04	0,03	0,04	0,04	0,06	0,05	0,07	0,06	●		
2.4	0,9	0,7*	0,6*	50	0,02	0,02	0,03	0,02	0,03	0,03	0,04	0,04	0,06	0,05	●		
2.5	0,9	0,7*	0,6*	60	0,03	0,02	0,03	0,03	0,04	0,03	0,05	0,04	0,06	0,05	●		
2.6	0,9	0,7*	0,6*	60	0,03	0,02	0,03	0,03	0,04	0,03	0,05	0,04	0,06	0,05	●		
2.7	0,9	0,7*	0,6*	50	0,02	0,02	0,03	0,02	0,03	0,03	0,04	0,04	0,06	0,05	●		
3.1	**0,9**	**0,7***	**0,6***	**180**	0,04	0,04	0,06	0,05	0,07	0,06	0,09	0,08	0,12	0,10		●	
3.2	**0,9**	**0,7***	**0,6***	**140**	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,07	0,10	0,08		●	
3.3	**0,9**	**0,7***	**0,6***	**170**	0,04	0,04	0,06	0,05	0,07	0,06	0,09	0,07	0,10	0,09		●	
3.4	**0,9**	**0,7***	**0,6***	**140**	0,03	0,03	0,04	0,04	0,06	0,05	0,07	0,06	0,09	0,08		●	
3.5	**0,9**	**0,7***	**0,6***	**140**	0,04	0,04	0,06	0,05	0,07	0,06	0,09	0,07	0,10	0,09		●	
3.6	**0,9**	**0,7***	**0,6***	**120**	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,07	0,10	0,08		●	
3.7	**0,9**	**0,7***	**0,6***	**140**	0,04	0,04	0,06	0,05	0,07	0,06	0,09	0,07	0,10	0,09		●	
3.8	**0,9**	**0,7***	**0,6***	**120**	0,03	0,03	0,04	0,04	0,06	0,05	0,07	0,06	0,09	0,08		●	
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4.9																	
4.10	**0,9**	**0,7***	**0,6***	**190**	0,03	0,02	0,03	0,03	0,04	0,03	0,05	0,04	0,06	0,05	●		○
4.11	**0,9**	**0,7***	**0,6***	**260**	0,04	0,04	0,06	0,05	0,07	0,06	0,09	0,08	0,12	0,10	●		○
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* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – HFC milling heads – 52 864 ...

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	$a_{p\,max.}$ x DCX	Feedrates for extra short and short holder																	
						Ø DCX = 8 mm			Ø DCX = 10 mm			Ø DCX = 12 mm			Ø DCX = 16 mm			Ø DCX = 20 mm			● 1st choice		○ suitable
						a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX	a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX	a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX	a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX	a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX	Emulsion	Compressed air	MMS
						f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
1.1	**0,9**	**0,7***	**0,6***	**200**	0,05	0,36	0,30	0,21	0,54	0,45	0,32	0,60	0,50	0,35	0,84	0,70	0,49	1,08	0,90	0,63	○	●	○
1.2	**0,9**	**0,7***	**0,6***	**220**	0,05	0,43	0,36	0,25	0,64	0,53	0,37	0,71	0,59	0,42	0,99	0,83	0,58	1,28	1,07	0,75	○	●	○
1.3	**0,9**	**0,7***	**0,6***	**200**	0,05	0,36	0,30	0,21	0,54	0,45	0,32	0,60	0,50	0,35	0,84	0,70	0,49	1,08	0,90	0,63	○	●	○
1.4	**0,9**	**0,7***	**0,6***	**170**	0,05	0,33	0,28	0,20	0,49	0,41	0,29	0,55	0,46	0,32	0,76	0,64	0,45	0,99	0,82	0,58	○	●	○
1.5	**0,9**	**0,7***	**0,6***	**180**	0,05	0,39	0,33	0,23	0,59	0,49	0,35	0,66	0,55	0,38	0,92	0,77	0,54	1,18	0,98	0,69	○	●	○
1.6	**0,9**	**0,7***	**0,6***	**150**	0,05	0,33	0,28	0,20	0,49	0,41	0,29	0,55	0,46	0,32	0,76	0,64	0,45	0,99	0,82	0,58	○	●	○
1.7	**0,9**	**0,7***	**0,6***	**150**	0,05	0,39	0,33	0,23	0,59	0,49	0,35	0,66	0,55	0,38	0,92	0,77	0,54	1,18	0,98	0,69	○	●	○
1.8	**0,9**	**0,7***	**0,6***	**110**	0,05	0,27	0,22	0,16	0,39	0,33	0,23	0,44	0,37	0,26	0,61	0,51	0,36	0,79	0,66	0,46	○	●	○
1.9	**0,9**	**0,7***	**0,6***	**150**	0,05	0,36	0,30	0,21	0,54	0,45	0,32	0,60	0,50	0,35	0,84	0,70	0,49	1,08	0,90	0,63	○	●	○
1.10	**0,9**	**0,7***	**0,6***	**130**	0,05	0,27	0,22	0,16	0,39	0,33	0,23	0,44	0,37	0,26	0,61	0,51	0,36	0,79	0,66	0,46	○	●	○
1.11	**0,9**	**0,7***	**0,6***	**110**	0,05	0,23	0,19	0,14	0,34	0,29	0,20	0,39	0,32	0,23	0,54	0,45	0,31	0,69	0,58	0,41	○	●	○
1.12	**0,9**	**0,7***	**0,6***	**100**	0,05	0,27	0,22	0,16	0,39	0,33	0,23	0,44	0,37	0,26	0,61	0,51	0,36	0,79	0,66	0,46	○	●	○
1.13	**0,9**	**0,7***	**0,6***	**80**	0,05	0,27	0,22	0,16	0,39	0,33	0,23	0,44	0,37	0,26	0,61	0,51	0,36	0,79	0,66	0,46	○	●	○
1.14																							
1.15	**0,9**	**0,7***	**0,6***	**90**	0,05	0,23	0,19	0,14	0,34	0,29	0,20	0,39	0,32	0,23	0,54	0,45	0,31	0,69	0,58	0,41	○	●	○
1.16	**0,9**	**0,7***	**0,6***	**90**	0,05	0,23	0,19	0,14	0,34	0,29	0,20	0,39	0,32	0,23	0,54	0,45	0,31	0,69	0,58	0,41	○	●	○
2.1	0,9	0,7*	0,6*	70	0,025	0,45	0,37	0,26	0,66	0,55	0,39	0,74	0,62	0,43	1,03	0,86	0,60	1,33	1,11	0,78	●		
2.2	0,9	0,7*	0,6*	70	0,025	0,39	0,33	0,23	0,59	0,49	0,35	0,66	0,55	0,38	0,92	0,77	0,54	1,18	0,98	0,69	●		
2.3	0,9	0,7*	0,6*	60	0,025	0,39	0,33	0,23	0,59	0,49	0,35	0,66	0,55	0,38	0,92	0,77	0,54	1,18	0,98	0,69	●		
2.4	0,9	0,7*	0,6*	40	0,025	0,30	0,25	0,17	0,45	0,37	0,26	0,49	0,41	0,29	0,69	0,58	0,41	0,88	0,74	0,52	●		
2.5	0,9	0,7*	0,6*	60	0,025	0,34	0,29	0,20	0,52	0,43	0,30	0,57	0,48	0,34	0,81	0,67	0,47	1,03	0,86	0,60	●		
2.6	0,9	0,7*	0,6*	55	0,025	0,34	0,29	0,20	0,52	0,43	0,30	0,57	0,48	0,34	0,81	0,67	0,47	1,03	0,86	0,60	●		
2.7	0,9	0,7*	0,6*	40	0,025	0,30	0,25	0,17	0,45	0,37	0,26	0,49	0,41	0,29	0,69	0,58	0,41	0,88	0,74	0,52	●		
3.1	**0,9**	**0,7***	**0,6***	**170**	0,05	0,43	0,36	0,25	0,64	0,53	0,37	0,71	0,59	0,42	0,99	0,83	0,58	1,28	1,07	0,75		●	
3.2	**0,9**	**0,7***	**0,6***	**130**	0,05	0,36	0,30	0,21	0,54	0,45	0,32	0,60	0,50	0,35	0,84	0,70	0,49	1,08	0,90	0,63		●	
3.3	**0,9**	**0,7***	**0,6***	**150**	0,05	0,39	0,33	0,23	0,59	0,49	0,35	0,66	0,55	0,38	0,92	0,77	0,54	1,18	0,98	0,69		●	
3.4	**0,9**	**0,7***	**0,6***	**130**	0,05	0,33	0,28	0,20	0,49	0,41	0,29	0,55	0,46	0,32	0,76	0,64	0,45	0,99	0,82	0,58		●	
3.5	**0,9**	**0,7***	**0,6***	**130**	0,05	0,39	0,33	0,23	0,59	0,49	0,35	0,66	0,55	0,38	0,92	0,77	0,54	1,18	0,98	0,69		●	
3.6	**0,9**	**0,7***	**0,6***	**110**	0,05	0,36	0,30	0,21	0,54	0,45	0,32	0,60	0,50	0,35	0,84	0,70	0,49	1,08	0,90	0,63		●	
3.7	**0,9**	**0,7***	**0,6***	**130**	0,05	0,39	0,33	0,23	0,59	0,49	0,35	0,66	0,55	0,38	0,92	0,77	0,54	1,18	0,98	0,69		●	
3.8	**0,9**	**0,7***	**0,6***	**110**	0,05	0,33	0,28	0,20	0,49	0,41	0,29	0,55	0,46	0,32	0,76	0,64	0,45	0,99	0,82	0,58		●	
4.1																							
4.2																							
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5.8																							
5.9																							
5.10																							
5.11																							
6.1	0,9	0,7*	0,6*	70	0,025	0,20			0,30			0,33			0,46			0,49				●	
6.2	0,9	0,7*	0,6*	60	0,025	0,17			0,25			0,28			0,38			0,41				●	
6.3																							
6.4																							
6.5																							

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

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Cutting Data – MultiChange – Finish milling heads – 52 863 ...

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder		Feedrates for extra short and short holder							
					Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	●		○
				$a_{p\,max.}$	7,5 mm	9,4 mm	11,3 mm	15,0 mm	18,8 mm	1st choice		suitable
					a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC	Emulsion	Compressed air	MMS
				v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
1.1	**0,9**	**0,7***	**0,6***	**250**	0,05	0,06	0,08	0,10	0,13	○	●	○
1.2	**0,9**	**0,7***	**0,6***	**280**	0,06	0,07	0,09	0,11	0,15	○	●	○
1.3	**0,9**	**0,7***	**0,6***	**250**	0,05	0,06	0,08	0,10	0,13	○	●	○
1.4	**0,9**	**0,7***	**0,6***	**210**	0,05	0,06	0,07	0,09	0,12	○	●	○
1.5	**0,9**	**0,7***	**0,6***	**220**	0,06	0,07	0,08	0,11	0,14	○	●	○
1.6	**0,9**	**0,7***	**0,6***	**200**	0,05	0,06	0,07	0,09	0,12	○	●	○
1.7	**0,9**	**0,7***	**0,6***	**200**	0,06	0,07	0,08	0,11	0,14	○	●	○
1.8	**0,9**	**0,7***	**0,6***	**140**	0,04	0,05	0,06	0,07	0,09	○	●	○
1.9	**0,9**	**0,7***	**0,6***	**200**	0,05	0,06	0,08	0,10	0,13	○	●	○
1.10	**0,9**	**0,7***	**0,6***	**170**	0,04	0,05	0,06	0,07	0,09	○	●	○
1.11	**0,9**	**0,7***	**0,6***	**140**	0,03	0,04	0,05	0,06	0,08	○	●	○
1.12	**0,9**	**0,7***	**0,6***	**130**	0,04	0,05	0,06	0,07	0,09	○	●	○
1.13	**0,9**	**0,7***	**0,6***	**100**	0,04	0,05	0,06	0,07	0,09	○	●	○
1.14												
1.15	**0,9**	**0,7***	**0,6***	**110**	0,03	0,04	0,05	0,06	0,08	○	●	○
1.16	**0,9**	**0,7***	**0,6***	**110**	0,03	0,04	0,05	0,06	0,08	○	●	○
2.1	0,9	0,7*	0,6*	80	0,04	0,05	0,06	0,08	0,10	●		
2.2	0,9	0,7*	0,6*	80	0,04	0,05	0,06	0,07	0,09	●		
2.3	0,9	0,7*	0,6*	70	0,04	0,05	0,06	0,07	0,09	●		
2.4	0,9	0,7*	0,6*	60	0,03	0,04	0,04	0,05	0,07	●		
2.5	0,9	0,7*	0,6*	70	0,03	0,04	0,05	0,06	0,08	●		
2.6	0,9	0,7*	0,6*	70	0,03	0,04	0,05	0,06	0,08	●		
2.7	0,9	0,7*	0,6*	60	0,03	0,04	0,04	0,05	0,07	●		
3.1	**0,9**	**0,7***	**0,6***	**210**	0,06	0,07	0,09	0,11	0,15		●	
3.2	**0,9**	**0,7***	**0,6***	**170**	0,05	0,06	0,08	0,10	0,13		●	
3.3	**0,9**	**0,7***	**0,6***	**200**	0,06	0,07	0,08	0,11	0,14		●	
3.4	**0,9**	**0,7***	**0,6***	**170**	0,05	0,06	0,07	0,09	0,12		●	
3.5	**0,9**	**0,7***	**0,6***	**170**	0,06	0,07	0,08	0,11	0,14		●	
3.6	**0,9**	**0,7***	**0,6***	**140**	0,05	0,06	0,08	0,10	0,13		●	
3.7	**0,9**	**0,7***	**0,6***	**170**	0,06	0,07	0,08	0,11	0,14		●	
3.8	**0,9**	**0,7***	**0,6***	**140**	0,05	0,06	0,07	0,09	0,12		●	
4.1												
4.2												
4.3												
4.4												
4.5												
4.6												
4.7												
4.8												
4.9												
4.10	**0,9**	**0,7***	**0,6***	220	0,03	0,04	0,05	0,06	0,08	●		○
4.11	**0,9**	**0,7***	**0,6***	310	0,06	0,07	0,09	0,11	0,15	●		○
4.12												
4.13												
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5.9												
5.10												
5.11												
6.1												
6.2												
6.3												
6.4												
6.5												

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting Data – MultiChange – Ball nosed and torus milling heads – 52 866 ... / 52 865 ...

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	Feedrates for extra short and short holder															● 1st choice		○ suitable
					Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm					
				$a_{p\,max.}$	4,8 mm	1,6 mm	0,8 mm	5,6 mm	2,0 mm	1,0 mm	6,8 mm	2,4 mm	1,2 mm	9,0 mm	3,2 mm	1,6 mm	11,3 mm	4,0 mm	2,0 mm			
					a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Emulsion	Compressed air	MMS
					f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
1.1	0,9	0,7*	0,6*	180	0,07	0,06	0,05	0,07	0,06	0,05	0,12	0,10	0,08	0,15	0,12	0,10	0,18	0,15	0,12	○	●	○
1.2	0,9	0,7*	0,6*	200	0,08	0,07	0,05	0,08	0,07	0,05	0,13	0,11	0,09	0,17	0,14	0,11	0,21	0,17	0,14	○	●	○
1.3	0,9	0,7*	0,6*	180	0,07	0,06	0,05	0,07	0,06	0,05	0,12	0,10	0,08	0,15	0,12	0,10	0,18	0,15	0,12	○	●	○
1.4	0,9	0,7*	0,6*	150	0,06	0,05	0,04	0,06	0,05	0,04	0,10	0,09	0,07	0,13	0,11	0,09	0,16	0,13	0,11	○	●	○
1.5	0,9	0,7*	0,6*	160	0,07	0,06	0,05	0,07	0,06	0,05	0,13	0,11	0,09	0,16	0,13	0,11	0,19	0,16	0,13	○	●	○
1.6	0,9	0,7*	0,6*	140	0,06	0,05	0,04	0,06	0,05	0,04	0,10	0,09	0,07	0,13	0,11	0,09	0,16	0,13	0,11	○	●	○
1.7	0,9	0,7*	0,6*	140	0,07	0,06	0,05	0,07	0,06	0,05	0,13	0,11	0,09	0,16	0,13	0,11	0,19	0,16	0,13	○	●	○
1.8	0,9	0,7*	0,6*	100	0,05	0,04	0,03	0,05	0,04	0,03	0,09	0,07	0,06	0,10	0,09	0,07	0,13	0,11	0,09	○	●	○
1.9	0,9	0,7*	0,6*	140	0,07	0,06	0,05	0,07	0,06	0,05	0,12	0,10	0,08	0,15	0,12	0,10	0,18	0,15	0,12	○	●	○
1.10	0,9	0,7*	0,6*	120	0,05	0,04	0,03	0,05	0,04	0,03	0,09	0,07	0,06	0,10	0,09	0,07	0,13	0,11	0,09	○	●	○
1.11	0,9	0,7*	0,6*	100	0,04	0,04	0,03	0,04	0,04	0,03	0,07	0,06	0,05	0,09	0,08	0,06	0,11	0,09	0,07	○	●	○
1.12	0,9	0,7*	0,6*	90	0,05	0,04	0,03	0,05	0,04	0,03	0,09	0,07	0,06	0,10	0,09	0,07	0,13	0,11	0,09	○	●	○
1.13	0,9	0,7*	0,6*	70	0,05	0,04	0,03	0,05	0,04	0,03	0,09	0,07	0,06	0,10	0,09	0,07	0,13	0,11	0,09	○	●	○
1.14																						
1.15	0,9	0,7*	0,6*	80	0,04	0,04	0,03	0,04	0,04	0,03	0,07	0,06	0,05	0,09	0,08	0,06	0,11	0,09	0,07	○	●	○
1.16	0,9	0,7*	0,6*	80	0,04	0,04	0,03	0,04	0,04	0,03	0,07	0,06	0,05	0,09	0,08	0,06	0,11	0,09	0,07	○	●	○
2.1	0,9	0,7*	0,6*	60	0,06	0,05	0,04	0,06	0,05	0,04	0,10	0,08	0,07	0,12	0,10	0,08	0,15	0,12	0,10	●		
2.2	0,9	0,7*	0,6*	60	0,05	0,04	0,03	0,05	0,04	0,03	0,09	0,07	0,06	0,10	0,09	0,07	0,13	0,11	0,09	●		
2.3	0,9	0,7*	0,6*	50	0,05	0,04	0,03	0,05	0,04	0,03	0,09	0,07	0,06	0,10	0,09	0,07	0,13	0,11	0,09	●		
2.4	0,9	0,7*	0,6*	40	0,04	0,03	0,03	0,04	0,03	0,03	0,06	0,05	0,04	0,08	0,07	0,05	0,10	0,08	0,07	●		
2.5	0,9	0,7*	0,6*	50	0,04	0,04	0,03	0,04	0,04	0,03	0,07	0,06	0,05	0,09	0,08	0,06	0,11	0,09	0,07	●		
2.6	0,9	0,7*	0,6*	50	0,04	0,04	0,03	0,04	0,04	0,03	0,07	0,06	0,05	0,09	0,08	0,06	0,11	0,09	0,07	●		
2.7	0,9	0,7*	0,6*	40	0,04	0,03	0,03	0,04	0,03	0,03	0,06	0,05	0,04	0,08	0,07	0,05	0,10	0,08	0,07	●		
3.1	0,9	0,7*	0,6*	150	0,08	0,07	0,05	0,08	0,07	0,05	0,13	0,11	0,09	0,17	0,14	0,11	0,21	0,17	0,14		●	
3.2	0,9	0,7*	0,6*	120	0,07	0,06	0,05	0,07	0,06	0,05	0,12	0,10	0,08	0,15	0,12	0,10	0,18	0,15	0,12		●	
3.3	0,9	0,7*	0,6*	140	0,07	0,06	0,05	0,07	0,06	0,05	0,13	0,11	0,09	0,16	0,13	0,11	0,19	0,16	0,13		●	
3.4	0,9	0,7*	0,6*	120	0,06	0,05	0,04	0,06	0,05	0,04	0,10	0,09	0,07	0,13	0,11	0,09	0,16	0,13	0,11		●	
3.5	0,9	0,7*	0,6*	120	0,07	0,06	0,05	0,07	0,06	0,05	0,13	0,11	0,09	0,16	0,13	0,11	0,19	0,16	0,13		●	
3.6	0,9	0,7*	0,6*	100	0,07	0,06	0,05	0,07	0,06	0,05	0,12	0,10	0,08	0,15	0,12	0,10	0,18	0,15	0,12		●	
3.7	0,9	0,7*	0,6*	120	0,07	0,06	0,05	0,07	0,06	0,05	0,13	0,11	0,09	0,16	0,13	0,11	0,19	0,16	0,13		●	
3.8	0,9	0,7*	0,6*	100	0,06	0,05	0,04	0,06	0,05	0,04	0,10	0,09	0,07	0,13	0,11	0,09	0,16	0,13	0,11		●	
4.1	0,9	0,7*	0,6*	500	0,12	0,10	0,08	0,12	0,10	0,08	0,20	0,17	0,13	0,25	0,21	0,17	0,30	0,25	0,20	●		○
4.2	0,9	0,7*	0,6*	450	0,12	0,10	0,08	0,12	0,10	0,08	0,20	0,17	0,13	0,25	0,21	0,17	0,30	0,25	0,20	●		○
4.3	0,9	0,7*	0,6*	380	0,11	0,09	0,07	0,11	0,09	0,07	0,19	0,16	0,13	0,24	0,20	0,16	0,28	0,24	0,19	●		○
4.4	0,9	0,7*	0,6*	300	0,10	0,09	0,07	0,10	0,09	0,07	0,18	0,15	0,12	0,22	0,19	0,15	0,27	0,23	0,18	●		○
4.5	0,9	0,7*	0,6*	150	0,09	0,08	0,06	0,09	0,08	0,06	0,16	0,13	0,11	0,20	0,17	0,13	0,24	0,20	0,16	●		○
4.6	0,9	0,7*	0,6*	250	0,07	0,06	0,05	0,07	0,06	0,05	0,13	0,11	0,09	0,16	0,13	0,11	0,19	0,16	0,13	●		○
4.7	0,9	0,7*	0,6*	200	0,07	0,06	0,05	0,07	0,06	0,05	0,12	0,10	0,08	0,15	0,12	0,10	0,18	0,15	0,12	●		○
4.8	0,9	0,7*	0,6*	220	0,06	0,05	0,04	0,06	0,05	0,04	0,10	0,08	0,07	0,12	0,10	0,08	0,15	0,12	0,10	●		○
4.9	0,9	0,7*	0,6*	200	0,04	0,04	0,03	0,04	0,04	0,03	0,07	0,06	0,05	0,09	0,08	0,06	0,11	0,09	0,07	●		○
4.10	0,9	0,7*	0,6*	160	0,04	0,04	0,03	0,04	0,04	0,03	0,07	0,06	0,05	0,09	0,08	0,06	0,11	0,09	0,07	●		○
4.11	0,9	0,7*	0,6*	220	0,08	0,07	0,05	0,08	0,07	0,05	0,13	0,11	0,09	0,17	0,14	0,11	0,21	0,17	0,14	●		○
4.12	0,9	0,7*	0,6*	190	0,08	0,07	0,05	0,08	0,07	0,05	0,13	0,11	0,09	0,17	0,14	0,11	0,21	0,17	0,14	●		○
4.13																						
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* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

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Cutting Data – MultiChange – HSC Ball nosed and torus milling heads – 52 866 ... / 52 865 ...

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder		Feedrates for extra short and short holder							
					Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	● 1st choice		○ suitable
					a_e/a_p = 0,04	a_e/a_p = 0,05	a_e/a_p = 0,06	a_e/a_p = 0,08	a_e/a_p = 0,10	Emulsion	Compressed air	MMS
				v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
1.1	**0,9**	**0,7***	**0,6***	**540**	0,08	0,09	0,08	0,11	0,13	○	●	○
1.2	**0,9**	**0,7***	**0,6***	**600**	0,10	0,11	0,10	0,13	0,16	○	●	○
1.3	**0,9**	**0,7***	**0,6***	**540**	0,08	0,09	0,08	0,11	0,13	○	●	○
1.4	**0,9**	**0,7***	**0,6***	**450**	0,08	0,08	0,08	0,10	0,12	○	●	○
1.5	**0,9**	**0,7***	**0,6***	**480**	0,09	0,10	0,09	0,12	0,14	○	●	○
1.6	**0,9**	**0,7***	**0,6***	**420**	0,08	0,08	0,08	0,10	0,12	○	●	○
1.7	**0,9**	**0,7***	**0,6***	**420**	0,09	0,10	0,09	0,12	0,14	○	●	○
1.8	**0,9**	**0,7***	**0,6***	**300**	0,06	0,07	0,06	0,08	0,10	○	●	○
1.9	**0,9**	**0,7***	**0,6***	**420**	0,08	0,09	0,08	0,11	0,13	○	●	○
1.10	**0,9**	**0,7***	**0,6***	**360**	0,06	0,07	0,06	0,08	0,10	○	●	○
1.11	**0,9**	**0,7***	**0,6***	**300**	0,05	0,06	0,05	0,07	0,09	○	●	○
1.12	**0,9**	**0,7***	**0,6***	**270**	0,06	0,07	0,06	0,08	0,10	○	●	○
1.13	**0,9**	**0,7***	**0,6***	**210**	0,06	0,07	0,06	0,08	0,10	○	●	○
1.14												
1.15	**0,9**	**0,7***	**0,6***	**240**	0,05	0,06	0,05	0,07	0,09	○	●	○
1.16	**0,9**	**0,7***	**0,6***	**240**	0,05	0,06	0,05	0,07	0,09	○	●	○
2.1	0,9	0,7*	0,6*	180	0,07	0,08	0,07	0,09	0,11	●		
2.2	0,9	0,7*	0,6*	180	0,06	0,07	0,06	0,08	0,10	●		
2.3	0,9	0,7*	0,6*	150	0,06	0,07	0,06	0,08	0,10	●		
2.4	0,9	0,7*	0,6*	120	0,05	0,05	0,05	0,06	0,07	●		
2.5	0,9	0,7*	0,6*	150	0,05	0,06	0,05	0,07	0,09	●		
2.6	0,9	0,7*	0,6*	150	0,05	0,06	0,05	0,07	0,09	●		
2.7	0,9	0,7*	0,6*	120	0,05	0,05	0,05	0,06	0,07	●		
3.1	**0,9**	**0,7***	**0,6***	**450**	0,10	0,11	0,10	0,13	0,16		●	
3.2	**0,9**	**0,7***	**0,6***	**360**	0,08	0,09	0,08	0,11	0,13		●	
3.3	**0,9**	**0,7***	**0,6***	**420**	0,09	0,10	0,09	0,12	0,14		●	
3.4	**0,9**	**0,7***	**0,6***	**360**	0,08	0,08	0,08	0,10	0,12		●	
3.5	**0,9**	**0,7***	**0,6***	**360**	0,09	0,10	0,09	0,12	0,14		●	
3.6	**0,9**	**0,7***	**0,6***	**300**	0,08	0,09	0,08	0,11	0,13		●	
3.7	**0,9**	**0,7***	**0,6***	**360**	0,09	0,10	0,09	0,12	0,14		●	
3.8	**0,9**	**0,7***	**0,6***	**300**	0,08	0,08	0,08	0,10	0,12		●	
4.1	0,9	0,7*	0,6*	1500	0,14	0,16	0,14	0,19	0,23	●		○
4.2	0,9	0,7*	0,6*	1350	0,14	0,16	0,14	0,19	0,23	●		○
4.3	0,9	0,7*	0,6*	1140	0,13	0,15	0,13	0,18	0,22	●		○
4.4	0,9	0,7*	0,6*	900	0,13	0,14	0,13	0,17	0,20	●		○
4.5	0,9	0,7*	0,6*	450	0,11	0,13	0,11	0,15	0,18	●		○
4.6	0,9	0,7*	0,6*	750	0,09	0,10	0,09	0,12	0,14	●		○
4.7	0,9	0,7*	0,6*	600	0,08	0,09	0,08	0,11	0,13	●		○
4.8	0,9	0,7*	0,6*	660	0,07	0,08	0,07	0,09	0,11	●		○
4.9	0,9	0,7*	0,6*	600	0,05	0,06	0,05	0,07	0,09	●		○
4.10	0,9	0,7*	0,6*	480	0,05	0,06	0,05	0,07	0,09	●		○
4.11	0,9	0,7*	0,6*	660	0,10	0,11	0,10	0,13	0,16	●		○
4.12	0,9	0,7*	0,6*	570	0,10	0,11	0,10	0,13	0,16	●		○
4.13												
4.14												
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* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Torus milling heads – 52 870 ...

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	Feedrates for extra short and short holder								Emulsion	Compressed air	MMS
					Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		●		○
				$a_{p\,max.}$	5,0 mm	3,0 mm	6,0 mm	3,6 mm	8,0 mm	4,8 mm	10,0 mm	6,0 mm	1st choice		suitable
					a_e = DC		a_e = DC		a_e = DC		a_e = DC				
					f_z mm		f_z mm		f_z mm		f_z mm				
1.1															
1.2															
1.3															
1.4															
1.5															
1.6															
1.7															
1.8															
1.9															
1.10															
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1.13															
1.14															
1.15															
1.16															
2.1															
2.2															
2.3															
2.4															
2.5															
2.6															
2.7															
3.1															
3.2															
3.3															
3.4															
3.5															
3.6															
3.7															
3.8															
4.1	0,9	0,7	0,6	290–650	0,19–0,21	0,24–0,27	0,21–0,23	0,27–0,29	0,23–0,25	0,29–0,31	0,25–0,27	0,30–0,32	●		○
4.2	0,9	0,7	0,6	290–650	0,19–0,21	0,24–0,27	0,21–0,23	0,27–0,29	0,23–0,25	0,29–0,31	0,25–0,27	0,30–0,32	●		○
4.3	0,9	0,7	0,6	250–550	0,19–0,21	0,24–0,27	0,21–0,23	0,27–0,29	0,23–0,25	0,29–0,31	0,25–0,27	0,30–0,32	●		○
4.4	0,9	0,7	0,6	210–500	0,19–0,21	0,24–0,27	0,21–0,23	0,27–0,29	0,23–0,25	0,29–0,31	0,25–0,27	0,30–0,32	●		○
4.5	0,9	0,7	0,6	280–450	0,19–0,21	0,24–0,27	0,21–0,23	0,27–0,29	0,23–0,25	0,29–0,31	0,25–0,27	0,30–0,32	●		○
4.6															
4.7															
4.8															
4.9															
4.10															
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5.7															
5.8															
5.9															
5.10															
5.11															
6.1															
6.2															
6.3															
6.4															
6.5															

14

For unstable applications, the cutting data can be reduced.

Cutting Data – MultiChange – Quarter round milling heads – 52 869 ...

		Ø DCX = 8 mm		Ø DCX = 10 mm		Ø DCX = 12 mm			Ø DCX = 16 mm			Ø DCX = 20 mm		● 1st choice		○ suitable
		PRFRAD = 0,5	PRFRAD = 1,0	PRFRAD = 1,5	PRFRAD = 2,0	PRFRAD = 2,5	PRFRAD = 3,0	PRFRAD = 3,5	PRFRAD = 4,0	PRFRAD = 4,5	PRFRAD = 5,0	PRFRAD = 5,0	PRFRAD = 6,0			
Index	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
1.1	150	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08	○	●	○
1.2	170	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	○	●	○
1.3	150	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08	○	●	○
1.4	130	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07	○	●	○
1.5	140	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
1.6	120	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07	○	●	○
1.7	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
1.8	90	0,02	0,02	0,03	0,02	0,03	0,03	0,03	0,05	0,05	0,04	0,06	0,06	○	●	○
1.9	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08	○	●	○
1.10	100	0,02	0,02	0,03	0,02	0,03	0,03	0,03	0,05	0,05	0,04	0,06	0,06	○	●	○
1.11	90	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
1.12	80	0,02	0,02	0,03	0,02	0,03	0,03	0,03	0,05	0,05	0,04	0,06	0,06	○	●	○
1.13	60	0,02	0,02	0,03	0,02	0,03	0,03	0,03	0,05	0,05	0,04	0,06	0,06	○	●	○
1.14																
1.15	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
1.16	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
2.1	50	0,03	0,02	0,03	0,02	0,04	0,04	0,03	0,06	0,05	0,05	0,07	0,06	●		
2.2	50	0,02	0,02	0,03	0,02	0,03	0,03	0,03	0,05	0,05	0,04	0,06	0,06	●		
2.3	40	0,02	0,02	0,03	0,02	0,03	0,03	0,03	0,05	0,05	0,04	0,06	0,06	●		
2.4	30	0,02	0,01	0,02	0,02	0,03	0,02	0,02	0,04	0,04	0,03	0,05	0,04	●		
2.5	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
2.6	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
2.7	30	0,02	0,01	0,02	0,02	0,03	0,02	0,02	0,04	0,04	0,03	0,05	0,04	●		
3.1	130	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09		●	
3.2	100	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08		●	
3.3	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08		●	
3.4	100	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07		●	
3.5	100	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08		●	
3.6	90	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08		●	
3.7	100	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08		●	
3.8	90	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07		●	
4.1	430	0,05	0,04	0,06	0,05	0,09	0,08	0,07	0,12	0,11	0,10	0,14	0,13	●		○
4.2	380	0,05	0,04	0,06	0,05	0,09	0,08	0,07	0,12	0,11	0,10	0,14	0,13	●		○
4.3	320	0,05	0,04	0,06	0,05	0,08	0,07	0,07	0,11	0,11	0,10	0,13	0,12	●		○
4.4	260	0,05	0,04	0,05	0,05	0,08	0,07	0,06	0,11	0,10	0,09	0,12	0,12	●		○
4.5	130	0,04	0,03	0,05	0,04	0,07	0,06	0,05	0,10	0,09	0,08	0,11	0,10	●		○
4.6	210	0,03	0,03	0,04	0,03	0,06	0,05	0,04	0,08	0,07	0,07	0,09	0,08	●		○
4.7	170	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08	●		○
4.8	190	0,02	0,02	0,03	0,02	0,04	0,04	0,03	0,06	0,05	0,05	0,07	0,06	●		○
4.9	170	0,02	0,02	0,02	0,02	0,03	0,03	0,03	0,04	0,04	0,04	0,05	0,05	●		○
4.10	140	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		○
4.11	190	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	●		○
4.12																
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Cutting Data – MultiChange – Deburring heads – 52 867 ... / 52 868 ...

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder		Feedrates for extra short and short holder						
					Ø DCX = 10 mm	Ø DCX = 12 mm	Ø DCX = 16 mm	Ø DCX = 20 mm	● 1st choice		○ suitable
				$a_{p\,max.}$ 52 867 ...	5,0 mm	6,0 mm	4,8 mm	6,0 mm			
				$a_{p\,max.}$ 52 868 ...	1,25 mm	1,5 mm	2,0 mm	2,5 mm			
					a_e 0,1–0,2 x DCX	a_e 0,1–0,2 x DCX	a_e 0,1–0,2 x DCX	a_e 0,1–0,2 x DCX	Emulsion	Compressed air	MMS
				v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm			
1.1	**0,9**	**0,7**	**0,6**	**200**	0,07	0,09	0,12	0,14	○	●	○
1.2	**0,9**	**0,7**	**0,6**	**220**	0,09	0,11	0,14	0,17	○	●	○
1.3	**0,9**	**0,7**	**0,6**	**200**	0,07	0,09	0,12	0,17	○	●	○
1.4	**0,9**	**0,7**	**0,6**	**170**	0,07	0,08	0,11	0,15	○	●	○
1.5	**0,9**	**0,7**	**0,6**	**180**	0,08	0,10	0,13	0,17	○	●	○
1.6	**0,9**	**0,7**	**0,6**	**150**	0,07	0,08	0,11	0,15	○	●	○
1.7	**0,9**	**0,7**	**0,6**	**150**	0,08	0,10	0,13	0,17	○	●	○
1.8	**0,9**	**0,7**	**0,6**	**110**	0,05	0,07	0,09	0,12	○	●	○
1.9	**0,9**	**0,7**	**0,6**	**150**	0,07	0,09	0,12	0,12	○	●	○
1.10	**0,9**	**0,7**	**0,6**	**130**	0,05	0,07	0,09	0,09	○	●	○
1.11	**0,9**	**0,7**	**0,6**	**110**	0,05	0,06	0,08	0,06	○	●	○
1.12	**0,9**	**0,7**	**0,6**	**100**	0,05	0,07	0,09	0,04	○	●	○
1.13	**0,9**	**0,7**	**0,6**	**80**	0,05	0,07	0,09	0,03	○	●	○
1.14											
1.15	**0,9**	**0,7**	**0,6**	**90**	0,05	0,06	0,08	0,09	○	●	○
1.16	**0,9**	**0,7**	**0,6**	**90**	0,05	0,06	0,08	0,09	○	●	○
2.1	0,9	0,7	0,6	70	0,06	0,08	0,10	0,12	●		
2.2	0,9	0,7	0,6	70	0,05	0,07	0,09	0,11	●		
2.3	0,9	0,7	0,6	60	0,05	0,07	0,09	0,11	●		
2.4	0,9	0,7	0,6	40	0,04	0,05	0,07	0,08	●		
2.5	0,9	0,7	0,6	60	0,05	0,06	0,08	0,09	●		
2.6	0,9	0,7	0,6	60	0,05	0,06	0,08	0,09	●		
2.7	0,9	0,7	0,6	40	0,04	0,05	0,07	0,08	●		
3.1	**0,9**	**0,7**	**0,6**	**170**	0,09	0,11	0,14	0,17		●	
3.2	**0,9**	**0,7**	**0,6**	**130**	0,07	0,09	0,12	0,15		●	
3.3	**0,9**	**0,7**	**0,6**	**150**	0,08	0,10	0,13	0,16		●	
3.4	**0,9**	**0,7**	**0,6**	**130**	0,07	0,08	0,11	0,13		●	
3.5	**0,9**	**0,7**	**0,6**	**130**	0,08	0,10	0,13	0,16		●	
3.6	**0,9**	**0,7**	**0,6**	**110**	0,07	0,09	0,12	0,15		●	
3.7	**0,9**	**0,7**	**0,6**	**130**	0,08	0,10	0,13	0,16		●	
3.8	**0,9**	**0,7**	**0,6**	**110**	0,07	0,08	0,11	0,13		●	
4.1	**0,9**	**0,7**	**0,6**	**550**	0,12	0,16	0,21	0,25	●		○
4.2	**0,9**	**0,7**	**0,6**	**500**	0,12	0,16	0,21	0,25	●		○
4.3	**0,9**	**0,7**	**0,6**	**420**	0,12	0,15	0,20	0,24	●		○
4.4	**0,9**	**0,7**	**0,6**	**330**	0,11	0,14	0,19	0,23	●		○
4.5	**0,9**	**0,7**	**0,6**	**170**	0,10	0,13	0,17	0,20	●		○
4.6	**0,9**	**0,7**	**0,6**	**280**	0,08	0,10	0,13	0,16	●		○
4.7	**0,9**	**0,7**	**0,6**	**220**	0,07	0,09	0,12	0,15	●		○
4.8	**0,9**	**0,7**	**0,6**	**240**	0,06	0,08	0,10	0,12	●		○
4.9	**0,9**	**0,7**	**0,6**	**220**	0,05	0,06	0,08	0,09	●		○
4.10	**0,9**	**0,7**	**0,6**	**180**	0,05	0,06	0,08	0,09	●		○
4.11	**0,9**	**0,7**	**0,6**	**240**	0,09	0,11	0,14	0,17	●		○
4.12	**0,9**	**0,7**	**0,6**	**210**	0,09	0,11	0,14	0,17	●		○
4.13											
4.14											
4.15											
4.16											
4.17											
4.18											
4.19											
5.1											
5.2											
5.3											
5.4											
5.5											
5.6											
5.7											
5.8											
5.9											
5.10											
5.11											
6.1											
6.2											
6.3											
6.4											
6.5											

For unstable applications the machining parameters must be reduced.

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Cutting data – End Mills – W/HPC, short

	Emulsion	MMS		Ø DC = 2,7–3,0 mm			Ø DC = 3,7–4,0 mm			Ø DC = 4,7–5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–9,0 mm			Ø DC = 9,7–11,0 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm																		
4.1	700	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,20	0,15	0,10	0,24	0,18	0,12
4.2	700	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,20	0,15	0,10	0,24	0,18	0,12
4.3	420	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,20	0,15	0,10	0,24	0,18	0,12
4.4	420	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,20	0,15	0,10	0,24	0,18	0,12
4.5	280	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,20	0,15	0,10	0,24	0,18	0,12
4.6	200	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,16	0,12	0,08	0,20	0,15	0,10
4.7	180	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,16	0,12	0,08	0,20	0,15	0,10
4.8	175	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,16	0,12	0,08	0,20	0,15	0,10
4.9	175	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,16	0,12	0,08	0,20	0,15	0,10
4.10	175	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,16	0,12	0,08	0,20	0,15	0,10
4.11	280	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,16	0,12	0,08	0,20	0,15	0,10
4.12	210	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,16	0,12	0,08	0,20	0,15	0,10

* = use a_p 1.5 x DC only in a_e range 0.1–0.4 x DC

Cutting data – End Mills – W/HPC, long

	Emulsion	MMS		Ø DC = 2,7–3,0 mm			Ø DC = 3,7–4,0 mm			Ø DC = 4,7–5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–9,0 mm			Ø DC = 9,7–11,0 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm																		
4.1	400	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,16	0,12	0,08	0,20	0,15	0,10
4.2	400	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,16	0,12	0,08	0,20	0,15	0,10
4.3	240	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,16	0,12	0,08	0,20	0,15	0,10
4.4	240	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,16	0,12	0,08	0,20	0,15	0,10
4.5	160	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,16	0,12	0,08	0,20	0,15	0,10
4.6	115	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,14	0,10	0,07	0,18	0,13	0,09
4.7	120	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,14	0,10	0,07	0,18	0,13	0,09
4.8	100	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,14	0,10	0,07	0,18	0,13	0,09
4.9	100	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,14	0,10	0,07	0,18	0,13	0,09
4.10	100	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,14	0,10	0,07	0,18	0,13	0,09
4.11	160	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,14	0,10	0,07	0,18	0,13	0,09
4.12	120	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,14	0,10	0,07	0,18	0,13	0,09

* = use a_p 1.5 x DC only in a_e range 0.1–0.4 x DC

Cutting data – End Mills – W and WR/HPC, extra long

	Emulsion	MMS		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6–7 mm			Ø DC = 8–9 mm			Ø DC = 10–11 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm																		
4.1	300	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	0,07	0,05	0,04
4.2	300	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	0,07	0,05	0,04
4.3	180	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	0,07	0,05	0,04
4.4	180	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	0,07	0,05	0,04
4.5	125	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	0,07	0,05	0,04
4.6	90	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,04	0,03	0,02	0,05	0,04	0,03
4.7	90	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,04	0,03	0,02	0,05	0,04	0,03
4.8	75	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,04	0,03	0,02	0,05	0,04	0,03
4.9	75	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,04	0,03	0,02	0,05	0,04	0,03
4.10	75	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,04	0,03	0,02	0,05	0,04	0,03
4.11	125	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,04	0,03	0,02	0,05	0,04	0,03
4.12	90	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,04	0,03	0,02	0,05	0,04	0,03

* = use a_p 1.25 x DC only in a_e range 0.1–0.4 x DC

Cooling lubrication with emulsion

Feed rate guide values for ball nosed and torus cutters on → **Page 356**

	Ø DC = 11,7–13,0 mm			Ø DC = 13,7–15,0 mm			Ø DC = 15,7–16,0 mm			Ø DC = 18,0 mm			Ø DC = 19,7–20,0 mm			Ø DC = 24,7–25,0 mm		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
4.1	0,27	0,22	0,15	0,29	0,23	0,16	0,31	0,24	0,17	0,33	0,25	0,18	0,34	0,27	0,27	0,35	0,28	0,22
4.2	0,27	0,22	0,15	0,29	0,23	0,16	0,31	0,24	0,17	0,33	0,25	0,18	0,34	0,27	0,27	0,35	0,28	0,22
4.3	0,27	0,22	0,15	0,29	0,23	0,16	0,31	0,24	0,17	0,33	0,25	0,18	0,34	0,27	0,27	0,35	0,28	0,22
4.4	0,27	0,22	0,15	0,29	0,23	0,16	0,31	0,24	0,17	0,33	0,25	0,18	0,34	0,27	0,27	0,35	0,28	0,22
4.5	0,27	0,22	0,15	0,29	0,23	0,16	0,31	0,24	0,17	0,33	0,25	0,18	0,34	0,27	0,27	0,35	0,28	0,22
4.6	0,22	0,17	0,12	0,24	0,18	0,13	0,25	0,20	0,14	0,27	0,21	0,15	0,30	0,24	0,24	0,32	0,26	0,20
4.7	0,22	0,17	0,12	0,24	0,18	0,13	0,25	0,20	0,14	0,27	0,21	0,15	0,30	0,24	0,24	0,32	0,26	0,20
4.8	0,22	0,17	0,12	0,24	0,18	0,13	0,25	0,20	0,14	0,27	0,21	0,15	0,30	0,24	0,24	0,32	0,26	0,20
4.9	0,22	0,17	0,12	0,24	0,18	0,13	0,25	0,20	0,14	0,27	0,21	0,15	0,30	0,24	0,24	0,32	0,26	0,20
4.10	0,22	0,17	0,12	0,24	0,18	0,13	0,25	0,20	0,14	0,27	0,21	0,15	0,30	0,24	0,24	0,32	0,26	0,20
4.11	0,22	0,17	0,12	0,24	0,18	0,13	0,25	0,20	0,14	0,27	0,21	0,15	0,30	0,24	0,24	0,32	0,26	0,20
4.12	0,22	0,17	0,12	0,24	0,18	0,13	0,25	0,20	0,14	0,27	0,21	0,15	0,30	0,24	0,24	0,32	0,26	0,20

	Ø DC = 11,7–13,0 mm			Ø DC = 13,7–15,0 mm			Ø DC = 15,7–16,0 mm			Ø DC = 18,0 mm			Ø DC = 19,7–20,0 mm			Ø DC = 24,7–25,0 mm		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
4.1	0,22	0,17	0,12	0,24	0,18	0,13	0,25	0,20	0,14	0,27	0,21	0,15	0,30	0,24	0,17	0,32	0,26	0,20
4.2	0,22	0,17	0,12	0,24	0,18	0,13	0,25	0,20	0,14	0,27	0,21	0,15	0,30	0,24	0,17	0,32	0,26	0,20
4.3	0,22	0,17	0,12	0,24	0,18	0,13	0,25	0,20	0,14	0,27	0,21	0,15	0,30	0,24	0,17	0,32	0,26	0,20
4.4	0,22	0,17	0,12	0,24	0,18	0,13	0,25	0,20	0,14	0,27	0,21	0,15	0,30	0,24	0,17	0,32	0,26	0,20
4.5	0,22	0,17	0,12	0,24	0,18	0,13	0,25	0,20	0,14	0,27	0,21	0,15	0,30	0,24	0,17	0,32	0,26	0,20
4.6	0,20	0,16	0,11	0,22	0,17	0,12	0,23	0,18	0,13	0,26	0,20	0,14	0,26	0,21	0,15	0,29	0,23	0,18
4.7	0,20	0,16	0,11	0,22	0,17	0,12	0,23	0,18	0,13	0,26	0,20	0,14	0,26	0,21	0,15	0,29	0,23	0,18
4.8	0,20	0,16	0,11	0,22	0,17	0,12	0,23	0,18	0,13	0,26	0,20	0,14	0,26	0,21	0,15	0,29	0,23	0,18
4.9	0,20	0,16	0,11	0,22	0,17	0,12	0,23	0,18	0,13	0,26	0,20	0,14	0,26	0,21	0,15	0,29	0,23	0,18
4.10	0,20	0,16	0,11	0,22	0,17	0,12	0,23	0,18	0,13	0,26	0,20	0,14	0,26	0,21	0,15	0,29	0,23	0,18
4.11	0,20	0,16	0,11	0,22	0,17	0,12	0,23	0,18	0,13	0,26	0,20	0,14	0,26	0,21	0,15	0,29	0,23	0,18
4.12	0,20	0,16	0,11	0,22	0,17	0,12	0,23	0,18	0,13	0,26	0,20	0,14	0,26	0,21	0,15	0,29	0,23	0,18

	Ø DC = 12–13 mm			Ø DC = 14–15 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			Ø DC = 25 mm		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
4.1	0,08	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,16	0,13	0,10
4.2	0,08	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,16	0,13	0,10
4.3	0,08	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,16	0,13	0,10
4.4	0,08	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,16	0,13	0,10
4.5	0,08	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,16	0,13	0,10
4.6	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,14	0,12	0,09
4.7	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,14	0,12	0,09
4.8	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,14	0,12	0,09
4.9	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,14	0,12	0,09
4.10	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,14	0,12	0,09
4.11	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,14	0,12	0,09
4.12	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,14	0,12	0,09

Cutting data standard values – End mills – 54 001 ... – 54 003 ... / 54 050 ... – 54 054 ...

	Type short	Type long / extra long	Type short / long	Type extra long	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max.}$ x DC	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	**210**	**170**	1,0	0,5	0,027	0,021	0,015	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.2	**220**	**180**	1,0	0,5	0,027	0,021	0,015	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.3	**190**	**150**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.4	**170**	**140**	1,0	0,5	0,014	0,011	0,008	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.5	**180**	**145**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.6	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.7	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.8	**150**	**125**	1,0	0,5	0,014	0,011	0,008	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.9	**150**	**120**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.10	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.11	**150**	**125**	1,0	0,5	0,014	0,011	0,008	0,024	0,019	0,014	0,036	0,027	0,018	0,045	0,034	0,023	0,05	0,04	0,03
1.12	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.13																			
1.14																			
1.15	**160**	**130**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
1.16	**140**	**110**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
2.1																			
2.2																			
2.3																			
2.4																			
2.5																			
2.6																			
2.7																			
3.1	**180**	**145**	1,0	0,5	0,027	0,021	0,015	0,04	0,031	0,023	0,058	0,043	0,029	0,068	0,051	0,034	0,08	0,06	0,04
3.2	**160**	**130**	1,0	0,5	0,021	0,016	0,011	0,04	0,031	0,023	0,058	0,043	0,029	0,068	0,051	0,034	0,08	0,06	0,04
3.3	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
3.4	**155**	**125**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
3.5	**160**	**130**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
3.6	**150**	**120**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
3.7	**160**	**130**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
3.8	**145**	**120**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,03	0,07	0,05	0,04
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„Extra long“ version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

Plunging angle for ramping and helical milling: 3°

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			f_z mm					
1.1	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	○	○
1.2	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	○	○
1.3	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	○	○
1.4	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	○	○
1.5	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	○	○
1.6	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	○	○
1.7	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	○	○
1.8	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	○	○
1.9	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	○	○
1.10	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	○	○
1.11	0,07	0,05	0,04	0,09	0,07	0,05	0,09	0,07	0,05	0,11	0,09	0,07	●	○	○
1.12	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	○	○
1.13															
1.14															
1.15	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	●	○
1.16	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	●	○
2.1															
2.2															
2.3															
2.4															
2.5															
2.6															
2.7															
3.1	0,1	0,08	0,05	0,13	0,09	0,06	0,15	0,12	0,09	0,17	0,14	0,11	●	●	●
3.2	0,1	0,08	0,05	0,13	0,09	0,06	0,15	0,12	0,09	0,17	0,14	0,11	●	●	●
3.3	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	●	●
3.4	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	●	●
3.5	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	●	●
3.6	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	●	●
3.7	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	●	●
3.8	0,09	0,07	0,05	0,11	0,08	0,05	0,12	0,09	0,07	0,14	0,12	0,09	●	●	●
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6.3															
6.4															
6.5															

Feed rate guide values for ball nosed and torus cutters on → **Page 356**

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Cutting data standard values – End mills – 54 004 ... – 54 006 ... / 54 060 ... – 54 064 ...

	Type short	Type long / extra long	Type short / long	Type extra long	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max.}$ x DC	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	**200**	**160**	1,0	0,5	0,024	0,019	0,014	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.2	**210**	**170**	1,0	0,5	0,024	0,019	0,014	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.3	**180**	**140**	1,0	0,5	0,017	0,013	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.4	**160**	**130**	1,0	0,5	0,012	0,009	0,007	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.5	**170**	**135**	1,0	0,5	0,017	0,013	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.6	**160**	**130**	1,0	0,5	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.7	**160**	**130**	1,0	0,5	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.8	**140**	**115**	1,0	0,5	0,012	0,009	0,007	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.9	**140**	**110**	1,0	0,5	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.10	**160**	**130**	1,0	0,5	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.11	**140**	**115**	1,0	0,5	0,012	0,009	0,007	0,022	0,017	0,012	0,032	0,024	0,016	0,04	0,03	0,02	0,05	0,04	0,02
1.12	**160**	**130**	1,0	0,5	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.13																			
1.14																			
1.15	**150**	**120**	1,0	0,5	0,017	0,013	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
1.16	**130**	**100**	1,0	0,5	0,017	0,013	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
2.1	**110**	**90**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,01	0,027	0,02	0,014	0,036	0,027	0,018	0,04	0,03	0,02
2.2	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,01	0,027	0,02	0,014	0,036	0,027	0,018	0,04	0,03	0,02
2.3	**85**	**70**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,01	0,027	0,02	0,014	0,036	0,027	0,018	0,04	0,03	0,02
2.4	**85**	**70**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,01	0,027	0,02	0,014	0,036	0,027	0,018	0,04	0,03	0,02
2.5	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,01	0,027	0,02	0,014	0,036	0,027	0,018	0,04	0,03	0,02
2.6	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,01	0,027	0,02	0,014	0,036	0,027	0,018	0,04	0,03	0,02
2.7	**25**	**20**	1,0	0,5	0,009	0,007	0,005	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,03	0,03	0,02
3.1	170	135	1,0	0,5	0,024	0,019	0,014	0,036	0,028	0,02	0,051	0,038	0,026	0,061	0,045	0,03	0,07	0,05	0,04
3.2	140	110	1,0	0,5	0,018	0,014	0,01	0,036	0,028	0,02	0,051	0,038	0,026	0,061	0,045	0,03	0,07	0,05	0,04
3.3	160	130	1,0	0,5	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
3.4	130	100	1,0	0,5	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
3.5	150	120	1,0	0,5	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
3.6	140	110	1,0	0,5	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
3.7	150	120	1,0	0,5	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
3.8	135	110	1,0	0,5	0,018	0,014	0,01	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,06	0,05	0,03
4.1																			
4.2																			
4.3																			
4.4																			
4.5																			
4.6	240	190	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,08	0,06	0,04
4.7	260	200	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,08	0,06	0,04
4.8	140	110	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,08	0,06	0,04
4.9	120	95	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,08	0,06	0,04
4.10	100	80	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,08	0,06	0,04
4.11	300	240	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,08	0,06	0,04
4.12	260	200	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,08	0,06	0,04
4.13																			
4.14																			
4.15																			
4.16																			
4.17																			
4.18																			
4.19																			
5.1																			
5.2																			
5.3	**25**	**20**	0,5	0,25	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,03	0,03	0,02
5.4	**25**	**20**	0,5	0,25	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,03	0,03	0,02
5.5	**25**	**20**	0,5	0,25	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,03	0,03	0,02
5.6	**25**	**20**	0,5	0,25	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,03	0,03	0,02
5.7	**25**	**20**	0,5	0,25	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,03	0,03	0,02
5.8	**25**	**20**	0,5	0,25	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,03	0,03	0,02
5.9	**100**	**70**	0,5	0,25	0,021	0,017	0,012	0,031	0,024	0,017	0,046	0,034	0,023	0,056	0,042	0,028	0,07	0,05	0,03
5.10	**80**	**60**	0,5	0,25	0,015	0,012	0,009	0,023	0,018	0,013	0,034	0,025	0,017	0,043	0,032	0,021	0,05	0,04	0,03
5.11	**60**	**50**	0,5	0,25	0,012	0,009	0,007	0,018	0,014	0,01	0,027	0,02	0,014	0,036	0,027	0,018	0,04	0,03	0,02
6.1																			
6.2																			
6.3																			
6.4																			
6.5																			

„Extra-long“ version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

Plunging angle for ramping and helical milling: 3°

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			f_z mm					
1.1	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	○	○
1.2	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	○	○
1.3	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	○	○
1.4	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	○	○
1.5	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	○	○
1.6	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	○	○
1.7	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	○	○
1.8	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	○	○
1.9	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	○	○
1.10	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	○	○
1.11	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,1	0,08	0,06	●	○	○
1.12	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	○	○
1.13															
1.14															
1.15	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	○	○
1.16	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	○	○
2.1	0,05	0,04	0,03	0,07	0,05	0,03	0,07	0,05	0,04	0,09	0,08	0,06	●		
2.2	0,05	0,04	0,03	0,07	0,05	0,03	0,07	0,05	0,04	0,09	0,08	0,06	●		
2.3	0,05	0,04	0,03	0,07	0,05	0,03	0,07	0,05	0,04	0,09	0,08	0,06	●		
2.4	0,05	0,04	0,03	0,07	0,05	0,03	0,07	0,05	0,04	0,09	0,08	0,06	●		
2.5	0,05	0,04	0,03	0,07	0,05	0,03	0,07	0,05	0,04	0,09	0,08	0,06	●		
2.6	0,05	0,04	0,03	0,07	0,05	0,03	0,07	0,05	0,04	0,09	0,08	0,06	●		
2.7	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	●		
3.1	0,09	0,07	0,05	0,11	0,08	0,06	0,14	0,1	0,08	0,15	0,12	0,1	●	●	●
3.2	0,09	0,07	0,05	0,11	0,08	0,06	0,14	0,1	0,08	0,15	0,12	0,1	●	●	●
3.3	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	●	●
3.4	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	●	●
3.5	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	●	●
3.6	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	●	●
3.7	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	●	●
3.8	0,08	0,06	0,04	0,1	0,07	0,05	0,11	0,08	0,06	0,13	0,1	0,08	●	●	●
4.1															
4.2															
4.3															
4.4															
4.5															
4.6	0,1	0,07	0,05	0,14	0,11	0,07	0,16	0,12	0,09	0,19	0,15	0,12	●		
4.7	0,1	0,07	0,05	0,14	0,11	0,07	0,16	0,12	0,09	0,19	0,15	0,12	●		
4.8	0,1	0,07	0,05	0,14	0,11	0,07	0,16	0,12	0,09	0,19	0,15	0,12	●		
4.9	0,1	0,07	0,05	0,14	0,11	0,07	0,16	0,12	0,09	0,19	0,15	0,12	●		
4.10	0,1	0,07	0,05	0,14	0,11	0,07	0,16	0,12	0,09	0,19	0,15	0,12	●		
4.11	0,1	0,07	0,05	0,14	0,11	0,07	0,16	0,12	0,09	0,16	0,13	0,1	●		
4.12	0,1	0,07	0,05	0,14	0,11	0,07	0,16	0,12	0,09	0,16	0,13	0,1	●		
4.13															
4.14															
4.15															
4.16															
4.17															
4.18															
4.19															
5.1															
5.2															
5.3	0,04	0,03	0,02	0,06	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	●		
5.4	0,04	0,03	0,02	0,06	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	●		
5.5	0,04	0,03	0,02	0,06	0,02	0,03	0,06	0,05	0,04	0,07	0,06	0,05	●		
5.6	0,04	0,03	0,02	0,06	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	●		
5.7	0,04	0,03	0,02	0,06	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	●		
5.8	0,04	0,03	0,02	0,06	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	●		
5.9	0,09	0,06	0,04	0,12	0,09	0,06	0,13	0,1	0,08	0,15	0,12	0,09	●		
5.10	0,07	0,05	0,03	0,09	0,07	0,05	0,1	0,08	0,06	0,12	0,1	0,08	●		
5.11	0,05	0,04	0,03	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,07	●		
6.1															
6.2															
6.3															
6.4															
6.5															

Feed rate guide values for ball nosed and torus cutters on → **Page 356**

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Cutting data – Roughing Cutters – 52 338 ... – 52 343 ...

Index	Full slot milling v_c m/min	Contour milling v_c m/min	Ti1000 Ø DC = 6 mm f_z in mm		Ø DC = 8 mm f_z in mm		Ø DC = 10 mm f_z in mm		Ø DC = 12 mm f_z in mm	
1.1	150–170	170–200	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
1.2	170–190	190–220	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
1.3	140–170	170–190	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
1.4	100–140	140–180	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
1.5	140–170	170–190	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
1.6	120–140	140–160	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
1.7	100–140	140–170	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
1.8	100–120	120–160	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
1.9	150–170	170–200	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
1.10										
1.11										
1.12	140–170	170–190	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
1.13										
1.14										
1.15	80–120	120–150	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
1.16	80–120	120–150	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
2.1	45-65	65-85	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06
2.2	45-65	65-85	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06
2.3	30-50	45-60	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06
2.4	25-40	40-50	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06
2.5	40-60	60-85	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06
2.6	50-70	70-90	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06
2.7										
3.1	100–130	130–150	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
3.2	100–120	120–140	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
3.3	100–120	120–140	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
3.4	80–100	100–120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
3.5	100–120	120–140	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
3.6	80–100	100–120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
3.7	100–120	120–140	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
3.8	80–100	100–120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07
4.1										
4.2										
4.3										
4.4										
4.5										
4.6										
4.7										
4.8										
4.9										
4.10										
4.11										
4.12										
4.13										
4.14										
4.15										
4.16										
4.17										
4.18										
4.19										
5.1	30-40	40-50	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06
5.2										
5.3										
5.4										
5.5										
5.6										
5.7										
5.8										
5.9										
5.10	35-50	50-60	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06
5.11	30-40	40-50	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06
6.1										
6.2										
6.3										
6.4										
6.5										

For **Full slot milling** the values indicated in the table are based on:

a_e = 1,0 x DC / a_p = 1,0 x DC

For **Contour milling** the values indicated in the table are based on:

a_e = 0,4 x DC / a_p = 1,0 x DC

	Ti1000										● 1st choice		○ suitable
	Ø DC = 14 mm f_z in mm		Ø DC = 16 mm f_z in mm		Ø DC = 18 mm f_z in mm		Ø DC = 20 mm f_z in mm		Ø DC = 25 mm f_z in mm				
Index											Emulsion	Compressed air	MMS
1.1	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
1.2	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
1.3	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
1.4	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
1.5	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
1.6	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
1.7	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
1.8	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
1.9	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
1.10													
1.11													
1.12	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
1.13													
1.14													
1.15	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
1.16	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
2.1	0,06	0,07	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
2.2	0,06	0,07	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
2.3	0,06	0,07	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
2.4	0,06	0,07	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
2.5	0,06	0,07	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
2.6	0,06	0,07	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
2.7													
3.1	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
3.2	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
3.3	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
3.4	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
3.5	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
3.6	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
3.7	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
3.8	0,07	0,08	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
4.1													
4.2													
4.3													
4.4													
4.5													
4.6													
4.7													
4.8													
4.9													
4.10													
4.11													
4.12													
4.13													
4.14													
4.15													
4.16													
4.17													
4.18													
4.19													
5.1	0,06	0,07	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
5.2													
5.3													
5.4													
5.5													
5.6													
5.7													
5.8													
5.9													
5.10	0,06	0,07	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
5.11	0,06	0,07	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
6.1													
6.2													
6.3													
6.4													
6.5													

With tools with internal cooling (52 338.../52 339...) the cutting speed (v_c) can be increased by 20–30 %!

14

Cutting data – High Feed Cutters 56 900 ... / 56 902 ... / 56 904 ...

			TiAlN							
			Medium	Roughing	Medium	Roughing	Medium	Roughing	Medium	Roughing
	Medium machining	Rough machining	**Ø DCX = 6 mm**	**Ø DCX = 6 mm**	**Ø DCX = 8 mm**	**Ø DCX = 8 mm**	**Ø DCX = 10 mm**	**Ø DCX = 10 mm**	**Ø DCX = 12 mm**	**Ø DCX = 12 mm**
			a_p = 0,1–0,2	a_p = 0,2–0,3	a_p = 0,1–0,2	a_p = 0,2–0,3	a_p = 0,1–0,2	a_p = 0,2–0,3	a_p = 0,1–0,2	a_p = 0,2–0,3
Index	v_c m/min	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.1	**250–300**	**150–250**	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
1.2	**250–300**	**150–250**	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
1.3	**250–300**	**150–250**	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
1.4	**200–250**	**180–200**	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
1.5	**220–250**	**200–220**	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
1.6	**220–250**	**200–220**	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
1.7	**170–190**	**170–190**	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
1.8	**160–180**	**160–180**	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
1.9	**220–250**	**200–220**	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
1.10	**170–190**	**170–190**	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
1.11	**160–180**	**160–180**	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
1.12	**170–190**	**170–190**	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
1.13	**100–120**	**100–120**	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
1.14	**80–100**	**80–100**	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
1.15	**140–180**	**140–180**	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
1.16	**140–180**	**140–180**	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
2.1	110–150	70–110	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
2.2	110–150	70–110	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
2.3	110–150	70–110	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
2.4	110–150	70–110	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
2.5	110–150	70–110	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
2.6	80–110	60–90	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
2.7	80–110	60–90	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
3.1	300–350	250–300	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
3.2	180–250	180–250	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
3.3	200–250	150–200	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
3.4	200–250	150–200	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
3.5	200–250	150–200	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
3.6	200–250	150–200	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
3.7	200–250	150–200	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
3.8	200–250	150–200	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
4.1	400–600	400–600	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
4.2	400–600	400–600	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
4.3	400–600	400–600	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
4.4	400–600	400–600	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
4.5	400–600	400–600	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
4.6	300–500	300–500	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
4.7	300–500	300–500	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
4.8	300–500	300–500	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
4.9	300–500	300–500	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
4.10	300–500	300–500	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
4.11	300–500	300–500	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
4.12	300–500	300–500	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
4.13										
4.14										
4.15										
4.16										
4.17										
4.18										
4.19										
5.1										
5.2										
5.3										
5.4	50–80	30–50	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
5.5										
5.6										
5.7	50–80	30–50	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
5.8										
5.9										
5.10	60–80	60–80	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
5.11	40–80	40–80	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
6.1	**160–190**	**160–190**	0,1–0,22	0,22–0,35	0,1–0,3	0,3–0,5	0,1–0,4	0,4–0,7	0,1–0,45	0,45–0,8
6.2	**150–180**	**80–120**	0,1–0,22	0,22–0,35	0,1–0,25	0,25–0,4	0,1–0,25	0,25–0,4	0,1–0,35	0,35–0,6
6.3	**120–150**	**80–100**	0,1–0,22	0,2–0,3	0,1–0,25	0,2–0,3	0,1–0,25	0,25–0,35	0,1–0,35	0,3–0,4
6.4	**80–110**	**60–90**	0,1–0,22	0,2–0,3	0,1–0,25	0,2–0,3	0,1–0,25	0,25–0,35	0,1–0,35	0,3–0,4
6.5										

The width of cut (a_e) in steel should be 60–95 % of the cutter diameter (Ø DC), with high-grade steels and for sticking materials 40 % of Ø DC maximum!

	TiAlN		● 1st choice		○ suitable
	Medium	Roughing			
	Ø DCX = 16 mm	Ø DCX = 16 mm			
	a_p = 0,1–0,25	a_p = 0,2–0,4			
Index	f_z mm	f_z mm	Emulsion	Compressed air	MMS
1.1	0,1–0,45	0,45–0,8		○	●
1.2	0,1–0,45	0,45–0,8		○	●
1.3	0,1–0,45	0,45–0,8		○	●
1.4	0,1–0,35	0,35–0,6		○	●
1.5	0,1–0,35	0,35–0,6		○	●
1.6	0,1–0,35	0,35–0,6		○	●
1.7	0,1–0,35	0,35–0,6		○	●
1.8	0,1–0,35	0,35–0,6		○	●
1.9	0,1–0,35	0,35–0,6		○	●
1.10	0,1–0,35	0,35–0,6		○	●
1.11	0,1–0,35	0,35–0,6		○	●
1.12	0,1–0,35	0,35–0,6		○	●
1.13	0,1–0,35	0,35–0,6		○	●
1.14	0,1–0,35	0,35–0,6		○	●
1.15	0,1–0,35	0,35–0,6		○	●
1.16	0,1–0,35	0,35–0,6		○	●
2.1	0,1–0,35	0,35–0,6	●		○
2.2	0,1–0,35	0,35–0,6	●		○
2.3	0,1–0,35	0,35–0,6	●		○
2.4	0,1–0,35	0,35–0,6	●		○
2.5	0,1–0,35	0,35–0,6	●		○
2.6	0,1–0,35	0,35–0,6	●		○
2.7	0,1–0,35	0,35–0,6	●		○
3.1	0,1–0,45	0,45–0,8		●	○
3.2	0,1–0,45	0,45–0,8		●	○
3.3	0,1–0,35	0,35–0,6		●	○
3.4	0,1–0,35	0,35–0,6		●	○
3.5	0,1–0,35	0,35–0,6		●	○
3.6	0,1–0,35	0,35–0,6		●	○
3.7	0,1–0,35	0,35–0,6		●	○
3.8	0,1–0,35	0,35–0,6		●	○
4.1	0,1–0,45	0,45–0,8	●		○
4.2	0,1–0,45	0,45–0,8	●		○
4.3	0,1–0,45	0,45–0,8	●		○
4.4	0,1–0,45	0,45–0,8	●		○
4.5	0,1–0,45	0,45–0,8	●		○
4.6	0,1–0,45	0,45–0,8	●		○
4.7	0,1–0,45	0,45–0,8	●		○
4.8	0,1–0,45	0,45–0,8	●		○
4.9	0,1–0,45	0,45–0,8	●		○
4.10	0,1–0,45	0,45–0,8	●		○
4.11	0,1–0,45	0,45–0,8	●		○
4.12	0,1–0,45	0,45–0,8	●		○
4.13					
4.14					
4.15					
4.16					
4.17					
4.18					
4.19					
5.1					
5.2					
5.3					
5.4	0,1–0,45	0,45–0,8	○		●
5.5					
5.6					
5.7	0,1–0,45	0,45–0,8	○		●
5.8					
5.9					
5.10	0,1–0,45	0,45–0,8	○		●
5.11	0,1–0,45	0,45–0,8	○		●
6.1	0,1–0,45	0,45–0,8		●	○
6.2	0,1–0,35	0,35–0,6		●	○
6.3	0,1–0,35	0,35–0,45		●	○
6.4	0,1–0,35	0,35–0,45		●	○
6.5					

Cutting data – Cutters for plastic machining

	Suitable for:	Strength N/mm² – HB	50 981 ...	50 982 ...	50 983 ...	50 984 ...	50 985 ...	50 986 ...	50 987 ...	50 988 ...	50 932 ...	50 937 ...	50 936 ...	50 938 ...	50 610 ...	50 611 ...	52 76. ...	50 91. ...	50 946 ...	50 948 ...	50 947 ...
4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²													400–450			400–450			
4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²													400–450			400–450			
4.3	Aluminium alloys 0.5–10 % Si	< 400 N/mm²													350–400			350–400			
4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²												300–400					300–400	300–400	300–400
4.5	Aluminum alloys > 15 % Si	< 400 N/mm²												300–400					250–300	250–300	250–300
4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²													400–450			400–450			
4.7	Wrought Copper Alloys	< 700 N/mm²												200–250					200–250	200–250	200–250
4.8	Special copper alloys	< 200 HB												200–250					200–250	200–250	200–250
4.9	Special copper alloys	< 300 HB												200–250					200–250	200–250	200–250
4.10	Special copper alloys	> 300 HB												200–250					200–250	200–250	200–250
4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²													350–400			350–400			
4.12	Long-chipping brass	< 600 N/mm²													350–400			350–400			
4.13	Thermoplastics														500–550			500–550			
4.14	Duroplastics					300–350						300–350			500–550			500–550			
4.15	Fibre-reinforced plastics					150–200						150–200	500–600	150–200					150–200	150–200	150–200
4.16	Magnesium and magnesium alloys	< 850 N/mm²												250					250	250	250
4.17	Graphite					300–400						500–600	500–600	300–400				300	300–400		300–400
4.18	Tungsten and tungsten alloys																			200–250	250–300
4.19	Molybdenum and molybdenum alloys																			200–250	250–300

	Plastics, Thermoset, Hardwood, Pressed Cardboard					Plastic, Thermoplast, Polycarbonate, Non-ferrous metal, Hard rubber				
	End milling cutter Type W			Ball nosed cutter Type W		End milling cutter Type W			Ball nosed cutter Type W	
	Shoulder milling, trimming		Slot milling	Copy milling – Line milling		Shoulder milling, trimming		Slot milling	Copy milling – Line milling	
	Roughing	Finishing		Roughing	Finishing	Roughing	Finishing		Roughing	Finishing
	a_p = 1,0 x DC a_e = 0,4 x DC	a_p = 1,0 x DC a_e = 0,1 x DC		a_p = 0,5 x DC a_e = 0,5 x DC	a_p = 0,03 x DC a_e = 0,02 x DC	a_p = 1,5 x DC a_e = 0,8 x DC	a_p = 1,0 x DC a_e = 0,1 x DC		a_p = 0,5 x DC a_e = 0,5 x DC	a_p = 0,03 x DC a_e = 0,02 x DC
DC in mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
2	0,024	0,018	0,016	0,028	0,024	0,024	0,022	0,017	0,037	0,03
3	0,036	0,027	0,024	0,042	0,036	0,036	0,033	0,026	0,056	0,045
4	0,048	0,036	0,032	0,056	0,048	0,048	0,044	0,034	0,074	0,06
5	0,060	0,045	0,04	0,07	0,06	0,060	0,055	0,043	0,093	0,075
6	0,072	0,054	0,048	0,084	0,072	0,072	0,066	0,051	0,111	0,09
8	0,10	0,07	0,06	0,11	0,10	0,10	0,09	0,07	0,15	0,12
10	0,12	0,09	0,08	0,14	0,12	0,12	0,11	0,09	0,19	0,15
12	0,14	0,11	0,10	0,17	0,14	0,14	0,13	0,10	0,22	0,18
14	0,17	0,13	0,11	0,20	0,17	0,17	0,15	0,12	0,26	0,21
16	0,19	0,14	0,13	0,22	0,19	0,19	0,18	0,14	0,30	0,24
18	0,22	0,16	0,14	0,25	0,22	0,22	0,20	0,15	0,33	0,27
20	0,24	0,18	0,16	0,28	0,24	0,24	0,22	0,17	0,37	0,30

	Fiber reinforced plastics AFK, CFK, GFK			
	End mill staggered teeth			
	Shoulder milling, trimming		Copy milling – Line milling	
	a_p = 1,0 x DC a_e = 0,05 x DC	a_p = 1,0 x DC a_e = 0,05 x DC	a_p = 0,35 x DC	a_p = 0,35 x DC
	fine	Medium	fine	Medium
DC in mm	f	f	f	f
2	0,16	0,14	0,14	0,12
3	0,24	0,21	0,21	0,18
4	0,32	0,28	0,28	0,24
5	0,40	0,35	0,35	0,30
6	0,48	0,42	0,42	0,36
8	0,64	0,56	0,56	0,48
10	0,80	0,70	0,70	0,60
12	0,96	0,84	0,84	0,72
16	1,28	1,12	1,12	0,96
20	1,60	1,40	1,40	1,20

Feed rate guide values for ball nosed and torus cutters on → **Page 356**

Cutting data standard values – Circular saw blades

	Circular saws Solid carbide Fine	
Index	v_c m/min	f_z mm
1.1	100–160	0,005–0,01
1.2	100–160	0,005–0,01
1.3	100–160	0,005–0,01
1.4	80–130	0,003–0,007
1.5	80–130	0,003–0,007
1.6	80–130	0,003–0,007
1.7	100–160	0,005–0,01
1.8	50–100	0,003–0,007
1.9	80–130	0,003–0,007
1.10	80–130	0,003–0,007
1.11	50–100	0,003–0,007
1.12	50–100	0,003–0,007
1.13	50–100	0,003–0,007
1.14	50–100	0,003–0,007
1.15	50–100	0,003–0,007
1.16	50–100	0,003–0,007
2.1	80–130	0,003–0,007
2.2	80–130	0,003–0,007
2.3	80–130	0,003–0,007
2.4	50–100	0,003–0,007
2.5	80–130	0,003–0,007
2.6	100–160	0,003–0,007
2.7	50–100	0,003–0,007
3.1	80–130	0,003–0,007
3.2	50–100	0,003–0,007
3.3	50–100	0,003–0,007
3.4	50–100	0,003–0,007
3.5	80–130	0,003–0,007
3.6	80–130	0,003–0,007
3.7	80–130	0,003–0,007
3.8	50–100	0,003–0,007
4.1	200–500	0,005–0,01
4.2	200–500	0,005–0,01
4.3	200–500	0,005–0,01
4.4	200–450	0,005–0,01
4.5	200–450	0,005–0,01
4.6	200–450	0,005–0,01
4.7	150–300	0,005–0,01
4.8	150–300	0,005–0,01
4.9	150–300	0,005–0,01
4.10	150–300	0,005–0,01
4.11	200–400	0,005–0,01
4.12		
4.13	150–300	0,005–0,01
4.14	80–250	0,005–0,01
4.15		
4.16		
4.17		
4.18		
4.19		
5.1		
5.2	50–100	0,003–0,007
5.3	50–100	0,003–0,007
5.4	20–30	0,003–0,007
5.5	20–30	0,003–0,007
5.6	20–30	0,003–0,007
5.7	20–30	0,003–0,007
5.8	20–30	0,003–0,007
5.9	30–70	0,003–0,007
5.10	30–70	0,003–0,007
5.11	30–70	0,003–0,007
6.1	50–100	0,003–0,007
6.2		
6.3		
6.4		
6.5		

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

Cutting Speeds – Depending upon Coating

			TiCN		Ti400		● 1st choice		○ suitable	Ti1000 / Ti1002		● 1st choice		○ suitable
							Emulsion	Compressed air	MMS			Emulsion	Compressed air	MMS
Index	v_c m/min		v_c m/min		v_c m/min					v_c m/min				
1.1	90–110	130–160	110–130	160–200	90–130	140–200	●	○	○	150–170	220–240	○	●	○
1.2	90–110	130–160	110–130	160–200	90–130	140–200	●	○	○	150–170	220–240	○	●	○
1.3	90–110	130–160	110–130	160–200	90–130	140–200	●	○	○	150–170	220–240	○	●	○
1.4	70–90	100–130	90–110	120–160	80–100	100–150	●	○	○	120–140	170–200	○	●	○
1.5	80–100	120–140	100–120	150–170	90–110	100–160	●	○	○	130–150	180–220	○	●	○
1.6	50–60	70–90	60–80	80–110	60–70	80–110	●	○	○	70–100	100–140	○	●	○
1.7	70–90	100–130	90–110	120–160	80–100	140–160	●	○	○	120–140	170–200	○	●	○
1.8	40–60	60–80	50–70	70–100	50–70	70–100	●	○	○	60–80	90–120	○	●	○
1.9	60–70	80–100	70–80	100–120	70–90	100–140	●	○	○	80–100	120–150	○	●	○
1.10	50–60	70–90	60–80	80–110	60–80	70–110	●	○	○	70–100	100–140	○	●	○
1.11	40–50	60–70	50–60	70–85	50–70	70–90	●	○	○	60–80	90–120	○	●	○
1.12	50–60		60–80	80–110	60–70	70–100	●	○	○	70–100	100–140	○	●	○
1.13	30–40	40–60	30–50	50–70	40–50	60–80	●	○	○	60–70	80–100	○	●	○
1.14	10–20	15–30	15–30	20–40	20–40	30–40	●	○	○	25–35	40–50	○	●	○
1.15	30–50	40–70	30–60	50–80	40–60	70–100	●	○	○	60–80	80–120	○	●	○
1.16	25–40	40–60	30–50	50–70	40–60	70–100	●	○	○	50–80	70–110	○	●	○
2.1	40–50	60–70	50–60	70–80	50–60	70–100	●	○	○	60–80	90–120	●		○
2.2	40–50	60–70	50–60	70–80	40–50	60–80	●	○	○	60–80	90–120	●		○
2.3	30–40	40–50	30–40	50–60	40–50	50–90	●	○	○	50–70	80–100	●		○
2.4	20–30	30–40	25–35	40–50	25–35	40–70	●	○	○	40–60	60–80	●		○
2.5	30–40	40–50	30–40	50–60	40–50	70–100	●	○	○	50–70	80–100	●		○
2.6	40–50	60–70	50–60	70–80	50–60	80–110	●	○	○	70–80	100–120	●		○
2.7	20–30	30–40	25–35	40–50	20–30	50–90	●	○	○	40–60	60–80	●		○
3.1	60–80	90–120	70–100	110–140	70–90	100–130	●	○	○	100–110	140–160	○	●	○
3.2	60–70	80–100	70–90	100–120	60–80	90–120	●	○	○	80–100	120–140	○	●	○
3.3	60–70	80–100	70–90	100–120	70–90	100–130	●	○	○	80–100	120–140	○	●	○
3.4	50–60	70–90	60–80	80–110	60–80	90–120	●	○	○	70–80	100–120	○	●	○
3.5	60–80	90–120	80–100	110–150	70–90	100–130	●	○	○	100–110	140–160	○	●	○
3.6	60–80	90–120	80–100	110–150	60–80	90–120	●	○	○	100–110	140–160	○	●	○
3.7	60–70	80–100	70–90	100–120	70–90	100–130	●	○	○	80–100	120–140	○	●	○
3.8	50–60	70–90	60–80	90–110	60–80	90–120	●	○	○	70–80	100–120	○	●	○
4.1	<300	<400	<300	<450	280–320	250–350	●	○	○	180–350	250–500	●		○
4.2	<300	<400	<300	<450	280–320	220–320	●	○	○	180–350	250–500	●		○
4.3	130–180	200–250	170–210	240–300	220–270	200–300	●	○	○	140–200	200–300	●		○
4.4	100–120	140–170	120–140	170–200	170–200	200–250	●	○	○	110–130	160–180	●		○
4.5	40–60	60–80	50–70	70–90	120–180	150–200	●	○	○	50–70	80–100	●		○
4.6	150–180	210–260	180–210	250–310	100–130	120–180	●	○	○	180–210	250–300	●		○
4.7	110–150	160–200	130–170	190–240	100–130	140–200	●	○	○	130–170	180–240	●		○
4.8	140–180	200–250	170–210	240–300	120–160	160–220	●	○	○	160–200	220–280	●		○
4.9	120–160	170–230	140–180	210–270	120–160	160–220	●	○	○	140–180	200–250	●		○
4.10	80–120	120–150	100–140	150–180	120–160	160–220	●	○	○	100–140	150–200	●		○
4.11	160–200	230–280	180–210	280–330	100–130	120–200	●	○	○	180–210	250–300	●	○	○
4.12	120–160	170–230	140–180	210–270	100–130	120–200	●	○	○	140–180	200–250	●	○	○
4.13	40–60	60–90	40–70	70–100	70–90	90–120	●	○	○	40–70	60–100	○	●	○
4.14	50–70	70–100	60–80	80–120	120–180	150–220	●	○	○	60–80	80–120	○	●	○
4.15	30–50	40–70	40–60	50–80	50–70	70–110	●	○	○	40–60	60–80	○	●	○
4.16	150–180	220–260	180–210	270–310	170–200	170–250		●	○	180–210	250–300		●	○
4.17	70–100	100–140	80–120	120–170	100–120	130–180		●	○	80–120	120–180		●	○
4.18	50–60	60–80	60–70	70–100	60–80	80–100	●	○	○	60–70	80–100	○	●	○
4.19	50–70	70–90	60–80	80–110	60–80	80–100	●	○	○	60–80	90–120	○	●	○
5.1	15–25	20–35	35–50	50–70	30–50	50–70	●	○	○	40–60	60–80	●	○	○
5.2	10–20	15–30	25–35	40–50	25–40	40–60	●	○	○	30–40	40–60	●	○	○
5.3	15–25	20–35	30–40	40–60	40–60	50–80	●	○	○	35–50	50–70	●	○	○
5.4			30–50	50–60	30–50	50–70	●	○	○	40–60	60–80	●	○	○
5.5			25–35	40–50	30–40	40–60	●	○	○	30–40	40–60	●	○	○
5.6			10–20	30–40	30–40	40–60	●	○	○	20–30	30–40	●	○	○
5.7			20–30	40–50	25–35	30–50	●	○	○	30–40	40–60	●	○	○
5.8			20–30	40–50	30–40	40–60	●	○	○	30–40	40–60	●	○	○
5.9	30–50	40–70	50–60	60–80	40–50	70–100	●	○	○	50–70	80–100	●	○	○
5.10	30–40	40–50	40–50	60–70	50–60	80–120	●	○	○	50–60	70–90	●	○	○
5.11			15–20	30–40	30–40	40–60	●	○	○	20–30	30–40	●	○	○
6.1							●	○	○	70–80	100–120		●	○
6.2							●	○	○	60–70	80–100		●	○
6.3							●	○	○	40–60	60–80		●	○
6.4							●	○	○	30–40	40–60		●	○
6.5							●	○	○	20–30	30–40		●	○

Index	Ti1001 v_c m/min		● 1st choice / ○ suitable: Emulsion	Compressed air	MMS	Ti10 / Ti20 v_c m/min		● 1st choice / ○ suitable: Emulsion	Compressed air	MMS
1.1										
1.2										
1.3										
1.4										
1.5										
1.6										
1.7										
1.8										
1.9										
1.10										
1.11										
1.12										
1.13										
1.14										
1.15										
1.16										
2.1										
2.2										
2.3										
2.4										
2.5										
2.6										
2.7										
3.1										
3.2										
3.3										
3.4										
3.5										
3.6										
3.7										
3.8										
4.1	300–400	300–500	●		○	150–350	250–500	●		○
4.2	300–400	300–500	●		○	120–220	150–300	●		○
4.3	250–300	300–450	●		○	150–180	220–250	●		○
4.4	200–250	250–350	●		○	100–130	150–180	●		○
4.5	150–200	200–250	●		○					
4.6	220–280	250–330	●		○	120–150	170–220	●		○
4.7	180–220	200–280	●		○	140–150	200–220	●		○
4.8	160–200	180–250	●		○					
4.9	150–200	160–250	●		○					
4.10	140–200	150–250	●		○					
4.11						170–180	240–260	●		○
4.12						180–200	260–280	●		○
4.13						140–170	200–240	●		○
4.14						220–280	300–400	●		○
4.15						70–100	100–140	●		○
4.16						140–170	200–250		●	
4.17										
4.18										
4.19										
5.1										
5.2										
5.3										
5.4										
5.5										
5.6										
5.7										
5.8										
5.9							80–100	●		○
5.10										
5.11										
6.1										
6.2										
6.3										
6.4										
6.5										

Depths of Cut Reference Values – Milling Cutters – extra short – long

Index	$a_{p\,max.}$ x DC		Ø DC = 2,5 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 2,5 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 2,5 mm a_e 0,6–1,0 x DC f_z mm	Ø DC = 3 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 3 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 3 mm a_e 0,6–1,0 x DC f_z mm	$a_{p\,max.}$ x DC		Ø DC = 4 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 4 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 4 mm a_e 0,6–1,0 x DC f_z mm	Ø DC = 5 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 5 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 5 mm a_e 0,6–1,0 x DC f_z mm	Ø DC = 6 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 6 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 6 mm a_e 0,6–1,0 x DC f_z mm
1.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
1.2	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
1.3	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1	0,033	0,022	0,016	0,041	0,027	0,020	0,054	0,035	0,026
1.4	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
1.5	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
1.6	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
1.7	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
1.8	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
1.9	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
1.10	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
1.11	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
1.12	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
1.13	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
1.14	1,0	0,4	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
1.15	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
1.16	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
2.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
2.2	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
2.3	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
2.4	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
2.5	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
2.6	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
2.7	1,0	0,5	0,011	0,007	0,005	0,016	0,010	0,008	1,5	1	0,021	0,014	0,010	0,028	0,018	0,014	0,035	0,023	0,017
3.1	1,0	0,5	0,020	0,013	0,010	0,029	0,019	0,014	1,5	1	0,039	0,026	0,019	0,052	0,034	0,025	0,064	0,042	0,031
3.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
3.3	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
3.4	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
3.5	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
3.6	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
3.7	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
3.8	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
4.1	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
4.2	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
4.3	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
4.4	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
4.5	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
4.6	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
4.7	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
4.8	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
4.9	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
4.10	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
4.11	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
4.12	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
4.13	1,0	0,5	0,040	0,026	0,019	0,058	0,038	0,028	1,5	1	0,078	0,051	0,038	0,103	0,068	0,050	0,128	0,084	0,062
4.14	1,0	0,5	0,044	0,029	0,021	0,064	0,042	0,031	1,5	1	0,086	0,057	0,042	0,114	0,074	0,055	0,141	0,092	0,068
4.15	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
4.16	1,0	0,5	0,026	0,017	0,012	0,038	0,025	0,018	1,5	1	0,051	0,033	0,025	0,067	0,044	0,033	0,083	0,054	0,040
4.17	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
4.18	1,0	0,5	0,016	0,010	0,008	0,023	0,015	0,011	1,5	1	0,031	0,021	0,015	0,041	0,027	0,020	0,051	0,034	0,025
4.19	1,0	0,5	0,012	0,008	0,006	0,017	0,011	0,008	1,5	1	0,024	0,015	0,011	0,031	0,020	0,015	0,038	0,025	0,019
5.1	0,7	0,3	0,017	0,011	0,008	0,024	0,016	0,012	1,0	1	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
5.2	0,7	0,3	0,017	0,011	0,008	0,024	0,016	0,012	1,0	1	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
5.3	0,7	0,3	0,015	0,010	0,007	0,022	0,014	0,011	1,0	1	0,030	0,020	0,014	0,039	0,026	0,019	0,049	0,032	0,024
5.4	0,7	0,3	0,015	0,010	0,007	0,022	0,014	0,011	1,0	1	0,030	0,020	0,014	0,039	0,026	0,019	0,049	0,032	0,024
5.5	0,7	0,3	0,015	0,010	0,007	0,022	0,014	0,011	1,0	1	0,030	0,020	0,014	0,039	0,026	0,019	0,049	0,032	0,024
5.6	0,7	0,3	0,015	0,010	0,007	0,022	0,014	0,011	1,0	1	0,030	0,020	0,014	0,039	0,026	0,019	0,049	0,032	0,024
5.7	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
5.8	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
5.9	0,7	0,3	0,017	0,011	0,008	0,024	0,016	0,012	1,0	1	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
5.10	0,7	0,3	0,018	0,012	0,009	0,026	0,017	0,013	1,0	1	0,035	0,023	0,017	0,046	0,030	0,023	0,058	0,038	0,028
5.11	0,7	0,3	0,018	0,012	0,009	0,026	0,017	0,013	1,0	1	0,035	0,023	0,017	0,046	0,030	0,023	0,058	0,038	0,028

Index	$a_{p\,max.}$	a_e : 0,1 x DC	a_e : 0,1 x DC	$a_{p\,max.}$	a_e : 0,1 x DC	a_e : 0,1 x DC	a_e : 0,1 x DC
6.1	0,5[1]	0,021	0,030	1,0[1]	0,041	0,054	0,067
6.2	0,5[1]	0,019	0,027	1,0[1]	0,037	0,049	0,061
6.3	0,5[1]	0,017	0,025	1,0[1]	0,034	0,045	0,056
6.4	0,5[1]	0,015	0,022	1,0[1]	0,030	0,040	0,050
6.5	0,5[1]	0,013	0,020	1,0[1]	0,026	0,035	0,043

Finishing cutter

$a_{p\,max.}$			$a_{p\,max.}$	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm
0,7			1,5	0,08*	0,09*	0,1*

[1] = Trimming and trochoidal slot milling

* = To improve the surface quality reduce the f_z

Cutting data for Micro-Mini cutters for milling with diameter < 2.5 mm → v_c/f_z Page 318–325

Index	Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20–25 mm		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	0,08	0,05	0,04	0,10	0,07	0,05	0,11	0,07	0,05	0,13	0,08	0,06	0,15	0,10	0,07	0,17	0,11	0,07	0,19	0,12	0,08
1.2	0,08	0,05	0,04	0,10	0,07	0,05	0,11	0,07	0,05	0,13	0,08	0,06	0,15	0,10	0,07	0,17	0,11	0,07	0,19	0,12	0,08
1.3	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,13	0,09	0,06	0,15	0,10	0,06	0,16	0,11	0,07
1.4	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,05	0,04	0,10	0,06	0,04	0,11	0,07	0,05	0,12	0,08	0,05	0,14	0,09	0,06
1.5	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,13	0,09	0,06	0,15	0,10	0,06	0,16	0,11	0,07
1.6	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,13	0,09	0,06	0,15	0,10	0,06	0,16	0,11	0,07
1.7	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,13	0,09	0,06	0,15	0,10	0,06	0,16	0,11	0,07
1.8	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,05	0,04	0,10	0,06	0,04	0,11	0,07	0,05	0,12	0,08	0,05	0,14	0,09	0,06
1.9	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,13	0,09	0,06	0,15	0,10	0,06	0,16	0,11	0,07
1.10	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,13	0,09	0,06	0,15	0,10	0,06	0,16	0,11	0,07
1.11	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,05	0,04	0,10	0,06	0,04	0,11	0,07	0,05	0,12	0,08	0,05	0,14	0,09	0,06
1.12	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,13	0,09	0,06	0,15	0,10	0,06	0,16	0,11	0,07
1.13	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,05	0,04	0,10	0,06	0,04	0,11	0,07	0,05	0,12	0,08	0,05	0,14	0,09	0,06
1.14	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,05	0,04	0,10	0,06	0,04	0,11	0,07	0,05	0,12	0,08	0,05	0,14	0,09	0,06
1.15	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,13	0,09	0,06	0,15	0,10	0,06	0,16	0,11	0,07
1.16	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,13	0,09	0,06	0,15	0,10	0,06	0,16	0,11	0,07
2.1	0,05	0,03	0,02	0,06	0,04	0,03	0,06	0,04	0,03	0,08	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,04	0,11	0,07	0,05
2.2	0,05	0,03	0,02	0,06	0,04	0,03	0,06	0,04	0,03	0,08	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,04	0,11	0,07	0,05
2.3	0,05	0,03	0,02	0,06	0,04	0,03	0,06	0,04	0,03	0,08	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,04	0,11	0,07	0,05
2.4	0,05	0,03	0,02	0,06	0,04	0,03	0,06	0,04	0,03	0,08	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,04	0,11	0,07	0,05
2.5	0,05	0,03	0,02	0,06	0,04	0,03	0,06	0,04	0,03	0,08	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,04	0,11	0,07	0,05
2.6	0,05	0,03	0,02	0,06	0,04	0,03	0,06	0,04	0,03	0,08	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,04	0,11	0,07	0,05
2.7	0,05	0,03	0,02	0,06	0,04	0,03	0,06	0,04	0,03	0,08	0,04	0,03	0,09	0,06	0,04	0,09	0,06	0,04	0,11	0,07	0,05
3.1	0,08	0,05	0,04	0,10	0,07	0,05	0,11	0,07	0,06	0,14	0,08	0,06	0,16	0,10	0,07	0,17	0,11	0,08	0,20	0,13	0,08
3.2	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,14	0,09	0,06	0,15	0,10	0,07	0,17	0,11	0,07
3.3	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,14	0,09	0,06	0,15	0,10	0,07	0,17	0,11	0,07
3.4	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,14	0,09	0,06	0,15	0,10	0,07	0,17	0,11	0,07
3.5	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,14	0,09	0,06	0,15	0,10	0,07	0,17	0,11	0,07
3.6	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,14	0,09	0,06	0,15	0,10	0,07	0,17	0,11	0,07
3.7	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,14	0,09	0,06	0,15	0,10	0,07	0,17	0,11	0,07
3.8	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,14	0,09	0,06	0,15	0,10	0,07	0,17	0,11	0,07
4.1	0,12	0,08	0,06	0,15	0,10	0,07	0,16	0,10	0,08	0,20	0,11	0,08	0,22	0,15	0,10	0,24	0,16	0,11	0,27	0,18	0,12
4.2	0,12	0,08	0,06	0,15	0,10	0,07	0,16	0,10	0,08	0,20	0,11	0,08	0,22	0,15	0,10	0,24	0,16	0,11	0,27	0,18	0,12
4.3	0,12	0,08	0,06	0,15	0,10	0,07	0,16	0,10	0,08	0,20	0,11	0,08	0,22	0,15	0,10	0,24	0,16	0,11	0,27	0,18	0,12
4.4	0,12	0,08	0,06	0,15	0,10	0,07	0,16	0,10	0,08	0,20	0,11	0,08	0,22	0,15	0,10	0,24	0,16	0,11	0,27	0,18	0,12
4.5	0,12	0,08	0,06	0,15	0,10	0,07	0,16	0,10	0,08	0,20	0,11	0,08	0,22	0,15	0,10	0,24	0,16	0,11	0,27	0,18	0,12
4.6	0,08	0,05	0,04	0,10	0,07	0,05	0,11	0,07	0,05	0,13	0,08	0,06	0,15	0,10	0,07	0,17	0,11	0,07	0,19	0,12	0,08
4.7	0,08	0,05	0,04	0,10	0,07	0,05	0,11	0,07	0,05	0,13	0,08	0,06	0,15	0,10	0,07	0,17	0,11	0,07	0,19	0,12	0,08
4.8	0,08	0,05	0,04	0,10	0,07	0,05	0,11	0,07	0,05	0,13	0,08	0,06	0,15	0,10	0,07	0,17	0,11	0,07	0,19	0,12	0,08
4.9	0,08	0,05	0,04	0,10	0,07	0,05	0,11	0,07	0,05	0,13	0,08	0,06	0,15	0,10	0,07	0,17	0,11	0,07	0,19	0,12	0,08
4.10	0,08	0,05	0,04	0,10	0,07	0,05	0,11	0,07	0,05	0,13	0,08	0,06	0,15	0,10	0,07	0,17	0,11	0,07	0,19	0,12	0,08
4.11	0,08	0,05	0,04	0,10	0,07	0,05	0,11	0,07	0,05	0,13	0,08	0,06	0,15	0,10	0,07	0,17	0,11	0,07	0,19	0,12	0,08
4.12	0,08	0,05	0,04	0,10	0,07	0,05	0,11	0,07	0,05	0,13	0,08	0,06	0,15	0,10	0,07	0,17	0,11	0,07	0,19	0,12	0,08
4.13	0,17	0,11	0,08	0,21	0,14	0,10	0,23	0,15	0,11	0,28	0,16	0,12	0,32	0,21	0,14	0,35	0,23	0,15	0,39	0,26	0,17
4.14	0,18	0,12	0,09	0,23	0,15	0,11	0,25	0,16	0,12	0,31	0,18	0,13	0,35	0,23	0,15	0,38	0,25	0,17	0,43	0,28	0,19
4.15	0,08	0,05	0,04	0,10	0,07	0,05	0,11	0,07	0,05	0,13	0,08	0,06	0,15	0,10	0,07	0,17	0,11	0,07	0,19	0,12	0,08
4.16	0,11	0,07	0,05	0,13	0,09	0,07	0,15	0,10	0,07	0,18	0,11	0,08	0,21	0,13	0,09	0,23	0,15	0,10	0,25	0,17	0,11
4.17	0,08	0,05	0,04	0,10	0,07	0,05	0,11	0,07	0,05	0,13	0,08	0,06	0,15	0,10	0,07	0,17	0,11	0,07	0,19	0,12	0,08
4.18	0,07	0,04	0,03	0,08	0,05	0,04	0,09	0,06	0,04	0,11	0,07	0,05	0,13	0,08	0,05	0,14	0,09	0,06	0,16	0,10	0,07
4.19	0,05	0,03	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,05	0,04	0,10	0,06	0,04	0,11	0,07	0,05	0,12	0,08	0,05
5.1	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,13	0,09	0,06	0,15	0,10	0,06	0,16	0,11	0,07
5.2	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,13	0,09	0,06	0,15	0,10	0,06	0,16	0,11	0,07
5.3	0,06	0,04	0,03	0,08	0,05	0,04	0,09	0,06	0,04	0,11	0,06	0,05	0,12	0,08	0,05	0,13	0,09	0,06	0,15	0,10	0,06
5.4	0,06	0,04	0,03	0,08	0,05	0,04	0,09	0,06	0,04	0,11	0,06	0,05	0,12	0,08	0,05	0,13	0,09	0,06	0,15	0,10	0,06
5.5	0,06	0,04	0,03	0,08	0,05	0,04	0,09	0,06	0,04	0,11	0,06	0,05	0,12	0,08	0,05	0,13	0,09	0,06	0,15	0,10	0,06
5.6	0,06	0,04	0,03	0,08	0,05	0,04	0,09	0,06	0,04	0,11	0,06	0,05	0,12	0,08	0,05	0,13	0,09	0,06	0,15	0,10	0,06
5.7	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,05	0,04	0,10	0,06	0,04	0,11	0,07	0,05	0,12	0,08	0,05	0,14	0,09	0,06
5.8	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,05	0,04	0,10	0,06	0,04	0,11	0,07	0,05	0,12	0,08	0,05	0,14	0,09	0,06
5.9	0,07	0,05	0,03	0,09	0,06	0,04	0,10	0,06	0,05	0,12	0,07	0,05	0,13	0,09	0,06	0,15	0,10	0,06	0,16	0,11	0,07
5.10	0,07	0,05	0,04	0,09	0,06	0,05	0,10	0,07	0,05	0,13	0,07	0,05	0,14	0,09	0,06	0,16	0,10	0,07	0,18	0,12	0,08
5.11	0,07	0,05	0,04	0,09	0,06	0,05	0,10	0,07	0,05	0,13	0,07	0,05	0,14	0,09	0,06	0,16	0,10	0,07	0,18	0,12	0,08
	a_e : 0,1 x DC			a_e : 0,1 x DC			a_e : 0,1 x DC			a_e : 0,1 x DC			a_e : 0,1 x DC			a_e : 0,1 x DC			a_e : 0,1 x DC		
6.1	0,09			0,11			0,12			0,13			0,15			0,16			0,18		
6.2	0,08			0,10			0,11			0,12			0,13			0,15			0,17		
6.3	0,07			0,09			0,10			0,11			0,12			0,14			0,15		
6.4	0,06			0,08			0,09			0,10			0,11			0,12			0,13		
6.5	0,06			0,07			0,08			0,08			0,10			0,11			0,12		
	Finishing cutter																				
	a_e : 0,2–0,3 mm			a_e : 0,2–0,3 mm			a_e : 0,2–0,3 mm			a_e : 0,2–0,3 mm			a_e : 0,2–0,3 mm			a_e : 0,2–0,3 mm			a_e : 0,2–0,3 mm		
	0,11*			0,13*			0,15*			0,17*			0,19*			0,21*			0,23*		

Plunging angle for ramping and helical milling: 3°

Feed rate guide values for ball nosed and torus cutters on → **Page 356**

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Depths of Cut Reference Values – Milling Cutters – extra long

Index	$a_{p\,max.}$ x DC	Ø DC = 2,5 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 2,5 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 3 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 3 mm a_e 0,3–0,4 x DC f_z mm	$a_{p\,max.}$ x DC	Ø DC = 4 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 4 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 5 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 5 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 6 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 6 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 8 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 8 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 10 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 10 mm a_e 0,3–0,4 x DC f_z mm
1.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,07	0,05	0,09	0,06
1.2	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,07	0,05	0,09	0,06
1.3	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,052	0,034	0,049	0,032	0,07	0,04	0,08	0,05
1.4	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,05	0,04	0,07	0,04
1.5	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,07	0,04	0,08	0,05
1.6	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,07	0,04	0,08	0,05
1.7	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,07	0,04	0,08	0,05
1.8	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,05	0,04	0,07	0,04
1.9	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,07	0,04	0,08	0,05
1.10	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,07	0,04	0,08	0,05
1.11	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,05	0,04	0,07	0,04
1.12	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,07	0,04	0,08	0,05
1.13	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,05	0,04	0,07	0,04
1.14	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,05	0,04	0,07	0,04
1.15	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,07	0,04	0,08	0,05
1.16	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,07	0,04	0,08	0,05
2.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,04	0,03	0,05	0,04
2.2	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,04	0,03	0,05	0,04
2.3	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,04	0,03	0,05	0,04
2.4	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,04	0,03	0,05	0,04
2.5	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,04	0,03	0,05	0,04
2.6	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,04	0,03	0,05	0,04
2.7	0,6	0,008	0,005	0,016	0,010	1,0	0,021	0,014	0,026	0,017	0,031	0,021	0,04	0,03	0,05	0,03
3.1	0,6	0,015	0,010	0,029	0,019	1,0	0,039	0,025	0,048	0,032	0,058	0,038	0,08	0,05	0,10	0,06
3.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,07	0,04	0,08	0,06
3.3	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,07	0,04	0,08	0,06
3.4	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,07	0,04	0,08	0,06
3.5	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,07	0,04	0,08	0,06
3.6	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,07	0,04	0,08	0,06
3.7	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,07	0,04	0,08	0,06
3.8	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,07	0,04	0,08	0,06
4.1	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,11	0,07	0,14	0,09
4.2	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,11	0,07	0,14	0,09
4.3	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,11	0,07	0,14	0,09
4.4	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,11	0,07	0,14	0,09
4.5	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,11	0,07	0,14	0,09
4.6	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,07	0,05	0,09	0,06
4.7	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,07	0,05	0,09	0,06
4.8	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,07	0,05	0,09	0,06
4.9	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,07	0,05	0,09	0,06
4.10	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,07	0,05	0,09	0,06
4.11	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,07	0,05	0,09	0,06
4.12	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,07	0,05	0,09	0,06
4.13	0,6	0,031	0,020	0,058	0,038	1,0	0,077	0,051	0,097	0,063	0,116	0,076	0,16	0,10	0,19	0,13
4.14	0,6	0,034	0,022	0,064	0,042	1,0	0,085	0,056	0,107	0,070	0,128	0,084	0,17	0,11	0,21	0,14
4.15	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,07	0,05	0,09	0,06
4.16	0,6	0,020	0,013	0,038	0,025	1,0	0,050	0,033	0,063	0,041	0,076	0,049	0,10	0,07	0,13	0,08
4.17	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,07	0,05	0,09	0,06
4.18	0,6	0,012	0,008	0,023	0,015	1,0	0,031	0,020	0,039	0,025	0,046	0,030	0,06	0,04	0,08	0,05
4.19	0,6	0,009	0,006	0,017	0,011	1,0	0,023	0,015	0,029	0,019	0,035	0,023	0,05	0,03	0,06	0,04
5.1	0,3	0,013	0,009	0,024	0,016	0,5	0,033	0,021	0,041	0,027	0,049	0,032	0,07	0,04	0,08	0,05
5.2	0,3	0,013	0,009	0,024	0,016	0,5	0,033	0,021	0,041	0,027	0,049	0,032	0,07	0,04	0,08	0,05
5.3	0,3	0,012	0,008	0,022	0,014	0,5	0,029	0,019	0,037	0,024	0,044	0,029	0,06	0,04	0,07	0,05
5.4	0,3	0,012	0,008	0,022	0,014	0,5	0,029	0,019	0,037	0,024	0,044	0,029	0,06	0,04	0,07	0,05
5.5	0,3	0,012	0,008	0,022	0,014	0,5	0,029	0,019	0,037	0,024	0,044	0,029	0,06	0,04	0,07	0,05
5.6	0,3	0,012	0,008	0,022	0,014	0,5	0,029	0,019	0,037	0,024	0,044	0,029	0,06	0,04	0,07	0,05
5.7	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,05	0,04	0,07	0,04
5.8	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,05	0,04	0,07	0,04
5.9	0,3	0,013	0,009	0,024	0,016	0,5	0,033	0,021	0,041	0,027	0,049	0,032	0,07	0,04	0,08	0,05
5.10	0,3	0,014	0,009	0,026	0,017	0,5	0,035	0,023	0,044	0,029	0,052	0,034	0,07	0,05	0,09	0,06
5.11	0,3	0,014	0,009	0,026	0,017	0,5	0,035	0,023	0,044	0,029	0,052	0,034	0,07	0,05	0,09	0,06
	$a_{p\,max.}$	a_e : 0,1 x DC		a_e : 0,1 x DC		$a_{p\,max.}$	a_e : 0,1 x DC		a_e : 0,1 x DC		a_e : 0,1 x DC		a_e : 0,1 x DC		a_e : 0,1 x DC	
6.1	0,3[1]	0,013		0,024		0,5[1]	0,033		0,041		0,049		0,07		0,08	
6.2	0,3[1]	0,012		0,022		0,5[1]	0,029		0,037		0,044		0,06		0,07	
6.3	0,3[1]	0,011		0,020		0,5[1]	0,027		0,034		0,041		0,05		0,07	
6.4	0,3[1]	0,010		0,018		0,5[1]	0,024		0,030		0,036		0,05		0,06	
6.5	0,3[1]	0,008		0,016		0,5[1]	0,021		0,026		0,031		0,04		0,05	

Finishing cutter

$a_{p\,max.}$	$a_{p\,max.}$	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm
0,6	1,5	0,08*	0,09*	0,1*	0,11*	0,13*

[1] = Trimming and trochoidal slot milling

* = With an a_p of 1.5 x DC the f_z should be multiplied by 0.75

Cutting data for Micro-Mini cutters for milling with diameter < 2.5 mm

→ v_c/f_z Page 318–325

Index	Ø DC = 12 mm		Ø DC = 14 mm		Ø DC = 16 mm		Ø DC = 18 mm		Ø DC = 20–25 mm	
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
	f_z mm		f_z mm		f_z mm		f_z mm		f_z mm	
1.1	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09	0,16	0,10
1.2	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09	0,16	0,10
1.3	0,09	0,06	0,10	0,06	0,11	0,07	0,12	0,08	0,14	0,09
1.4	0,08	0,05	0,08	0,05	0,09	0,06	0,10	0,07	0,11	0,08
1.5	0,09	0,06	0,10	0,06	0,11	0,07	0,12	0,08	0,14	0,09
1.6	0,09	0,06	0,10	0,06	0,11	0,07	0,12	0,08	0,14	0,09
1.7	0,09	0,06	0,10	0,06	0,11	0,07	0,12	0,08	0,14	0,09
1.8	0,08	0,05	0,08	0,05	0,09	0,06	0,10	0,07	0,11	0,08
1.9	0,09	0,06	0,10	0,06	0,11	0,07	0,12	0,08	0,14	0,09
1.10	0,09	0,06	0,10	0,06	0,11	0,07	0,12	0,08	0,14	0,09
1.11	0,08	0,05	0,08	0,05	0,09	0,06	0,10	0,07	0,11	0,08
1.12	0,09	0,06	0,10	0,06	0,11	0,07	0,12	0,08	0,14	0,09
1.13	0,08	0,05	0,08	0,05	0,09	0,06	0,10	0,07	0,11	0,08
1.14	0,08	0,05	0,08	0,05	0,09	0,06	0,10	0,07	0,11	0,08
1.15	0,09	0,06	0,10	0,06	0,11	0,07	0,12	0,08	0,14	0,09
1.16	0,09	0,06	0,10	0,06	0,11	0,07	0,12	0,08	0,14	0,09
2.1	0,06	0,04	0,07	0,04	0,07	0,05	0,08	0,05	0,09	0,06
2.2	0,06	0,04	0,07	0,04	0,07	0,05	0,08	0,05	0,09	0,06
2.3	0,06	0,04	0,07	0,04	0,07	0,05	0,08	0,05	0,09	0,06
2.4	0,06	0,04	0,07	0,04	0,07	0,05	0,08	0,05	0,09	0,06
2.5	0,06	0,04	0,07	0,04	0,07	0,05	0,08	0,05	0,09	0,06
2.6	0,06	0,04	0,07	0,04	0,07	0,05	0,08	0,05	0,09	0,06
2.7	0,06	0,04	0,06	0,04	0,07	0,05	0,08	0,05	0,09	0,06
3.1	0,11	0,07	0,12	0,08	0,13	0,09	0,15	0,10	0,16	0,11
3.2	0,09	0,06	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09
3.3	0,09	0,06	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09
3.4	0,09	0,06	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09
3.5	0,09	0,06	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09
3.6	0,09	0,06	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09
3.7	0,09	0,06	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09
3.8	0,09	0,06	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09
4.1	0,15	0,10	0,16	0,11	0,18	0,12	0,20	0,13	0,23	0,15
4.2	0,15	0,10	0,16	0,11	0,18	0,12	0,20	0,13	0,23	0,15
4.3	0,15	0,10	0,16	0,11	0,18	0,12	0,20	0,13	0,23	0,15
4.4	0,15	0,10	0,16	0,11	0,18	0,12	0,20	0,13	0,23	0,15
4.5	0,15	0,10	0,16	0,11	0,18	0,12	0,20	0,13	0,23	0,15
4.6	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09	0,16	0,10
4.7	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09	0,16	0,10
4.8	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09	0,16	0,10
4.9	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09	0,16	0,10
4.10	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09	0,16	0,10
4.11	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09	0,16	0,10
4.12	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09	0,16	0,10
4.13	0,21	0,14	0,23	0,15	0,26	0,17	0,29	0,19	0,33	0,21
4.14	0,23	0,15	0,26	0,17	0,29	0,19	0,32	0,21	0,36	0,23
4.15	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09	0,16	0,10
4.16	0,14	0,09	0,15	0,10	0,17	0,11	0,19	0,12	0,21	0,14
4.17	0,10	0,07	0,11	0,07	0,13	0,08	0,14	0,09	0,16	0,10
4.18	0,09	0,06	0,09	0,06	0,11	0,07	0,12	0,08	0,13	0,09
4.19	0,06	0,04	0,07	0,05	0,08	0,05	0,09	0,06	0,10	0,06
5.1	0,09	0,06	0,10	0,06	0,11	0,07	0,12	0,08	0,14	0,09
5.2	0,09	0,06	0,10	0,06	0,11	0,07	0,12	0,08	0,14	0,09
5.3	0,08	0,05	0,09	0,06	0,10	0,07	0,11	0,07	0,12	0,08
5.4	0,08	0,05	0,09	0,06	0,10	0,07	0,11	0,07	0,12	0,08
5.5	0,08	0,05	0,09	0,06	0,10	0,07	0,11	0,07	0,12	0,08
5.6	0,08	0,05	0,09	0,06	0,10	0,07	0,11	0,07	0,12	0,08
5.7	0,08	0,05	0,08	0,05	0,09	0,06	0,10	0,07	0,11	0,08
5.8	0,08	0,05	0,08	0,05	0,09	0,06	0,10	0,07	0,11	0,08
5.9	0,09	0,06	0,10	0,06	0,11	0,07	0,12	0,08	0,14	0,09
5.10	0,10	0,06	0,11	0,07	0,12	0,08	0,13	0,09	0,15	0,10
5.11	0,10	0,06	0,11	0,07	0,12	0,08	0,13	0,09	0,15	0,10
	a_e : 0,1 x DC		a_e : 0,1 x DC		a_e : 0,1 x DC		a_e : 0,1 x DC		a_e : 0,1 x DC	
6.1	0,09		0,10		0,11		0,12		0,14	
6.2	0,08		0,09		0,10		0,11		0,12	
6.3	0,08		0,08		0,09		0,10		0,11	
6.4	0,07		0,07		0,08		0,09		0,10	
6.5	0,06		0,06		0,07		0,08		0,09	
	Finishing cutter									
	a_e : 0,2–0,3 mm		a_e : 0,2–0,3 mm		a_e : 0,2–0,3 mm		a_e : 0,2–0,3 mm		a_e : 0,2–0,3 mm	
	0,15*		0,17*		0,19*		0,21*		0,23*	

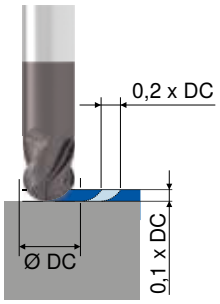
Plunging angle for ramping and helical milling: 3°

Feed rate guide values for ball nosed and torus cutters on → **Page 356**

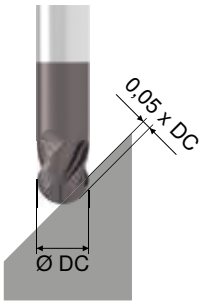
14

Feedrate for machining in steel, iron and non-ferrous materials with torus and ball nosed end mills

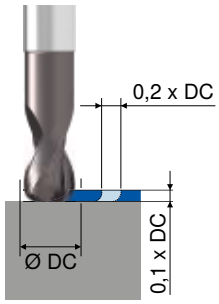
Ball nose end milling cutters



Ball nosed and torus cutters



Torus end milling cutters



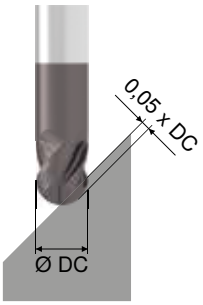
Ø DC mm	f_z mm	f_z mm	f_z mm
2	0,015	0,010	0,010
3	0,030	0,020	0,015
4	0,040	0,030	0,020
5	0,060	0,050	0,030
6	0,070	0,060	0,050
8	0,100	0,080	0,070
10	0,120	0,100	0,080
12	0,150	0,120	0,100
16	0,180	0,150	0,120
18	0,200	0,180	0,140
20	0,220	0,200	0,150

The feed should be reduced by 10–20 % for uncoated tools.

Feedrates for the machining of hardened materials with Ti1000 coated torus and ball nosed cutters

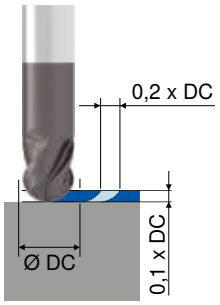
Ball nosed and torus cutters

Hardness = 40–60 HRC
v_c = 80–120 m/min



Ball nosed and torus cutters

Hardness = 40–60 HRC
v_c = 80–120 m/min



Ø DC mm	f_z mm	f_z mm
2	0,005	0,005
3	0,015	0,010
4	0,030	0,015
5	0,050	0,020
6	0,060	0,030
8	0,070	0,035
10	0,080	0,040
12	0,080	0,050
16	0,100	0,080

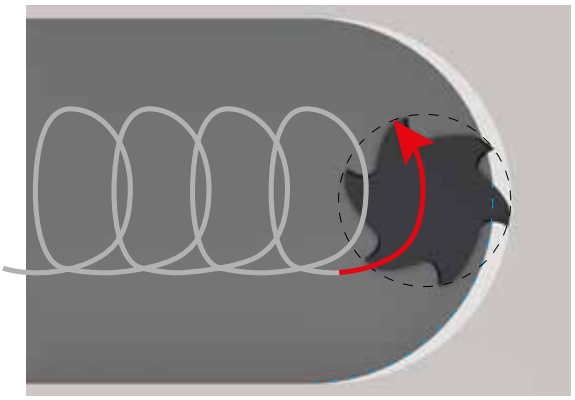
Trochoidal milling

The trochoidal milling process means that large depths of cut with unstable or lower powered machines are possible.

Depending on the strength of the material, radial step over of between 5–20 % of the cutting diameter should be used. Since the trochoidal milling is only peripheral milling, the cutting forces are far less.

Advantages/Benefits

- Reduced tool wear
- Reduced cycle time
- Protection of the machine tool components
- Exploiting the full length of the cutting edge
- Reduced cutting pressure



Most CAM providers offer an application for trochoidal milling. Our recommendations for this application are as follows:

Material	Depth of Cut	Radial Infeed	Feed rate Correction Factor	v_c Correction Factor
Steel	2xD	0,05xD	3,5	1,6
	2xD	0,10xD	2,5	1,3
Stainless steel	2xD	0,05xD	3,5	1,4
	2xD	0,10xD	2,5	1,2
Cast iron	2xD	0,05xD	3,5	1,6
	2xD	0,10xD	2,5	1,3
Non-ferrous metals	2xD	0,05xD	3,5	1,8
	2xD	0,10xD	2,5	1,4
	2xD	0,20xD	1,5	1,2

Please note that the indicated values may require reducing due to the component design, machine rigidity and machine dynamics. In optimal conditions, the values can also be increased.

Technical references

Feedrate Adjustment

If the rpm indicated in the tables cannot be obtained by the machine spindle, the feed rate is to be reduced proportionally to the max rpm.

Example:
according to table = n 50000 1/min. and v_f 1000 mm/min.,
maximum machine rpm = 40000 1/min.

Calculation of feed rate which can be applied:
40000 = 80 % of 50000 1/min. accordingly 80 % of 1000 = 800 mm/min.

Feed rate which can be applied = **800 mm/min.**

Cutting data for tapered milling cutters

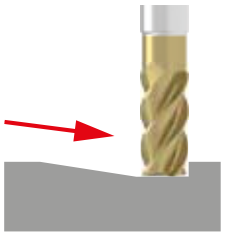
Using tapered milling cutters in various positions of the cutting edge different effective diameters cut into the material, the following has to be observed when calculating the cutting parameters:

- To determine the rpm, the largest diameter must be used in line with the cutting data table
- To determine the feedrate, the smallest diameter must be used in line with the cutting data table



Angled ramping with solid carbide cutters

Angled ramping with solid carbide cutters is possible at an angle of 3° to 6° depending on the cutter type.
A protective edge chamfer or corner radius is an advantage.

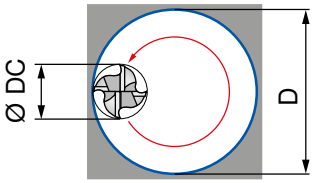
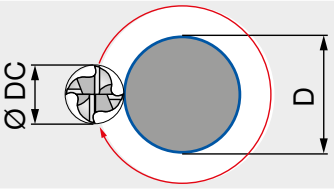
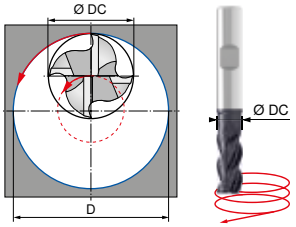


General formula for calculating the cutting parameters

Designation	Abbreviation	Unit	Formula	Example	
Number of revolutions	**n**	**min^{-1}**	$n = \frac{v_c \times 1000}{DC \times \pi}$	v_c = 25 m/min DC = 20 mm	$n = \frac{25 \times 1000}{20 \times \pi}$ = 398 min^{-1}
Cutting speed	**v_c**	**m/min**	$v_c = \frac{DC \times \pi \times n}{1000}$	n = 400 min^{-1} DC = 20 mm	$v_c = \frac{20 \times \pi \times 400}{1000}$ = 25 m/min
Feed per tooth	**f_z**	**mm**	$f_z = \frac{v_f}{ZEFP \times n}$	v_f = 320 mm/min. n = 400 min^{-1} ZEFP = 4	$f_z = \frac{320}{4 \times 400}$ = 0,2 mm
Feed per revolution	**f**	**mm**	$f = f_z \times ZEFP$	f_z = 0,2 mm ZEFP = 4	f = 0,2 x 4 = 0,8 mm
Feed rate	**v_f**	**mm/min.**	$v_f = f_z \times ZEFP \times n$	f_z = 0,2 mm ZEFP = 4 n = 400 min^{-1}	v_f = 0,2 x 4 x 400 = 320 mm/min.
Average chip thickness	**h_m**	**mm**	$h_m = f_z \times \sqrt{\frac{a_e}{DC}}$	f_z = 0,2 mm a_e = 0,3 mm DC = 20 mm	h_m = 0,2 x $\sqrt{\frac{0,3}{20}}$ = 0,024 mm

ZEFP = Number of teeth
a_e = cutting width

Calculation of the feed rate on the midpoint path of the milling cutter (v_{fM})

Designation	Abbreviation	Unit	Formula	Example
Internal contour	**v_{fM}**	**mm/min.**	$V_{fM} = \frac{v_f \times (D - DC)}{D}$	
Outside profile	**v_{fM}**	**mm/min.**	$V_{fM} = \frac{v_f \times (D + DC)}{D}$	
Helical ramping	**v_{fM}**	**mm/min.**	$V_{fM} = \frac{n \times f_z \times ZEFP \times (D - D_C)}{D}$	

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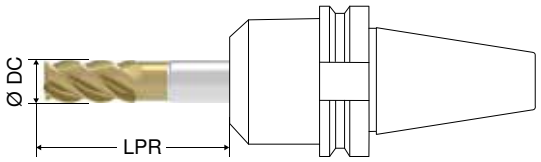
Tips for Tool Selection

Rake and helix angles combined with the coating are decisive factors for the operational area.

Characteristics	Benefits
Helix angle with slow spiral	
▲ For soft steels, non ferrous metals, etc.	▲ High edge stability
▲ For high material removal rates	▲ Low tendency to edge chipping
▲ For slot milling, pocket milling, rough milling	
Helix angle with quick spiral	
▲ For materials with high tensile strength	▲ Soft cut
▲ For low material removal rates	▲ Low cutting forces
▲ Typical for finishing processes	
Small rake angles are applied	
▲ For hard, brittle materials	▲ High edge stability
▲ For high material removal rates	▲ Low tendency to edge chipping
▲ For rough machining	
Large rake angles are applied	
▲ For soft materials	▲ Soft cut
▲ For low material removal rates	▲ Low cutting forces
▲ For finishing	▲ Favorable chip flow
	▲ Low tendency to stick

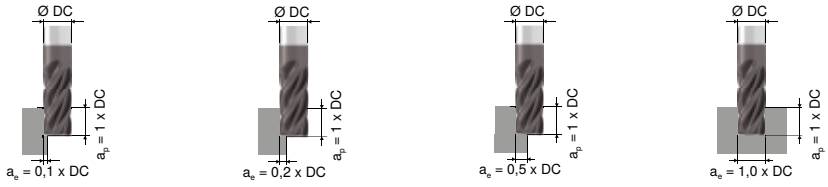
Correction factor for solid carbide milling cutters

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the overhang length (LPR)



Length					
Overhang length (LPR)	1,5 x DC	4 x DC	8 x DC	12 x DC	> 12 x DC
Factor for v_c (Kf v_c)	1,0	1,0	0,9	0,85	0,7
Factor for f_z (Kf f_z)	1,2	1,0	0,8	0,7	0,5

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the cutting depth (a_p) and cutting width (a_e)



Factor for v_c (Kf v_c)	1,3	1,1	1,0	0,85
Factor for f_z (Kf f_z)	1,5	1,3	1,0	0,8

Calculation aid for copy milling

Theoretical surface roughness (R_{th}) and step over (b_r)

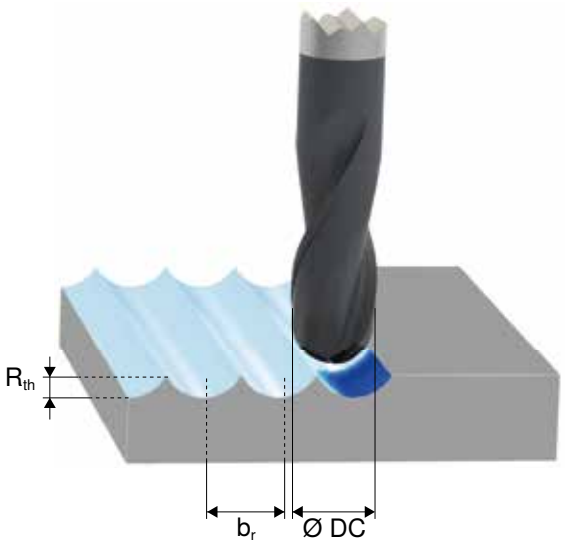
$$R_{th} = r - \sqrt{\frac{(r \times 2)^2 - b_r^2}{4}}$$

$$b_r = 2 \times \sqrt{R_{th} \times (r \times 2 - R_{th})}$$

$$R_{th} \simeq R_a / 0{,}1$$

$$R_a \simeq 0{,}1 \times R_{th}$$

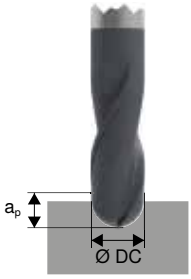
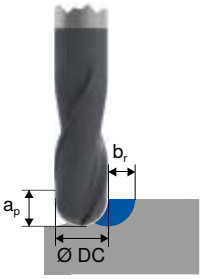
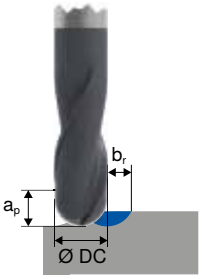
When copy milling, in order to achieve as smooth a surface as possible, the step over b_r should be adapted to the cutter diameter DC. The smaller the cutter diameter DC is, the smaller the step over b_r must be.



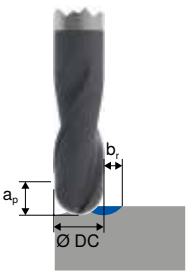
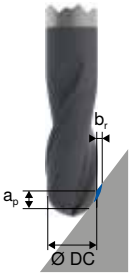
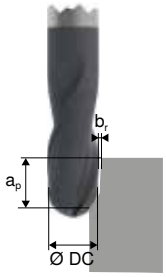
RPM correction factor (Kf n) for copy milling

$$n = \frac{v_c \times 1000}{DC \times \pi} \times Kf\,n$$

Rough machining

	Peripheral and ball nose copy milling	Ball nose copy milling	
			
Axial milling depth a_p	0,5 x DC	> 0,5 x DC	0,2 x DC – 0,5 x DC
Step over b_r	1 x DC	0,2 x DC – 0,5 x DC	0,2 x DC – 0,5 x DC
Correction factor (Kf n)	1	1	1,1

Finish milling

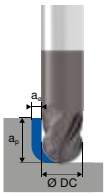
	Ball nose copy milling		
			
Axial milling depth a_p	< 0,2 x DC	0,2 x DC – 0,5 x DC	> 0,5 x DC
Step over b_r	< 0,2 x DC	< 0,2 x DC	< 0,2 x DC
Correction factor (Kf n)	2	1,3	1

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Calculation aid for copy milling

For peripheral milling or ball nosed copy milling at cutting depths of $\mathbf{a_p} \geq 0.5 \times DC$ and $\mathbf{a_e} = 0.2$ to $0.5 \times DC$ the rpm can be calculated with the following fomula:

$$n = \frac{v_C \times 1000}{DC \times \pi}$$



When ball milling the effective milling diameter $\mathbf{d_{eff.}}$ must be determined using the following formula:

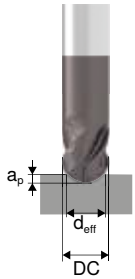
Ball nose milling cutters

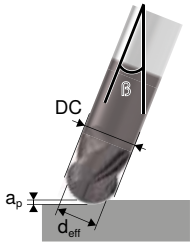
$$d_{eff.} = 2 \times \sqrt{a_p \times (DC - a_p)}$$

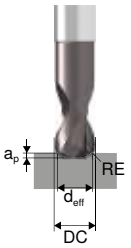
$$d_{eff.} = DC \times \sin\left(\beta \pm \arccos\left(\frac{DC - 2a_p}{DC}\right)\right)$$

Torus end milling cutters

$$d_{eff.} = (DC - 2RE) + 2 \times \sqrt{a_p \times (2RE - a_p)}$$





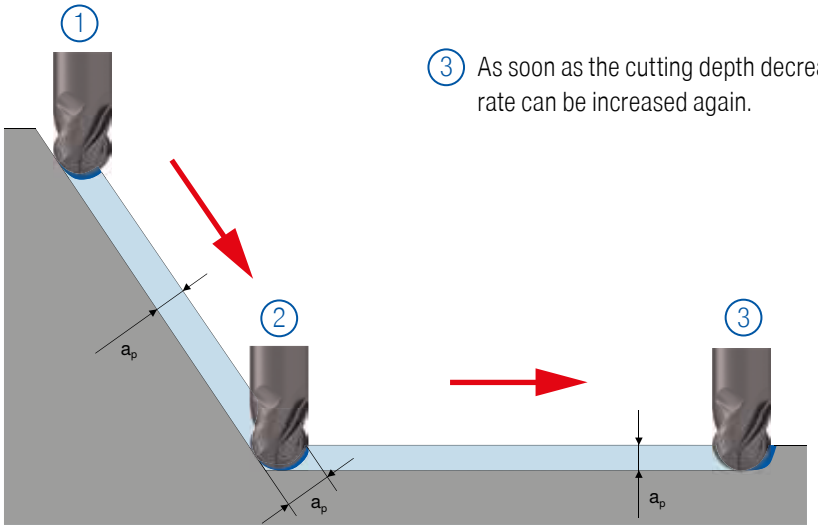


Information concerning plunge and draw milling

(1) When machining the profile flanks relatively high feed rates are possible as the cutting depth is relatively low (area highlighted in blue).

(2) A large increase in cutting depth occurs when the base of the profile is reached. Here the feed rate must be reduced as othwerwise tool breakage can occur due to vibrations, misalignment or chattering.

(3) As soon as the cutting depth decreases during the machining of the profile base, the feed rate can be increased again.



Rule:
The steeper the angle, the lower the feed rate.
The shallower the angle, the larger the feed rate.

When plunge or draw milling dies, the feed rate has to be adapted to the various milling positions. Otherwise the cutting edge can be damaged due to overload (vibrations, misalignment or chattering).

Coatings

APA72S
- AlCrN multilayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1100 °C

APB72S
- Special nanolayer coating
- HV0.05 = 3300
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 900 °C

APX72S
- Special nanolayer coating
- HV0.05 = 3800
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 1100 °C

DIA-MOND
- Diamond monolayer coating
- HV0.025 = 10,000
- Coefficient of friction (against steel) = 0.2
- Maximum application temperature: 700 °C

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

DPX52S
- TiSiN multilayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 1000 °C

DPX62S
- TiAlN multilayer coating
- HV0.05 = 3800
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 800 °C

DPX62U
- Special TiAlN coating
- HV0.05 = 4000
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 1150 °C

DPA72S
- Special nanolayer coating
- HV0.05 = 3200
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 1000 °C

DPX72S
- Special multilayer coating
- HV0.05 = 3400
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 900 °C

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

TiCN
- TiCN multilayer coating
- Maximum application temperature: 450 °C

Ti28
- Ti multilayer coating
- HV0.05 = 2800
- Coefficient of friction (against steel) = 0.1
- Maximum application temperature: 500 °C

Ti40
- Ti monolayer coating
- HV0.05 = 4000
- Maximum application temperature: 900 °C

Ti400
- Ti multilayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 400 °C

Ti1000
- Ti monolayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.3
- Maximum application temperature: 800 °C

Ti1001
- Ti monolayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 800 °C

Ti1002
- Ti monolayer coating
- HV0.05 = 3300
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 900 °C

Ti1005
- Ti multilayer coating
- HV0.05 = 2800
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 600 °C

Ti1010
- Ti multilayer coating
- HV0.05 = 3600
- Coefficient of friction (against steel) = 0.2
- Maximum application temperature: 800 °C

Ti1050
- Ti multilayer coating
- HV0.005 = 3300
- Coefficient of friction (against steel) = 0.3-0.5
- Maximum application temperature: 900 °C

Ti1100
- Ti multilayer coating
- HV0.05 = 3200
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1100 °C

Ti1200
- Ti nanolayer coating
- Maximum application temperature: 1100–1200 °C

Ti1500
- Ti nanolayer coating
- HV0.05 = 3400
- Coefficient of friction (against steel) = 0.7
- Maximum application temperature: 900 °C

Ti2000
- Ti multilayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 900 °C

New products for machining technicians

NEW DHFC



Double-sided high-feed milling system

NEW HPC-04



PCD and CBN milling system Ø 20–40 mm

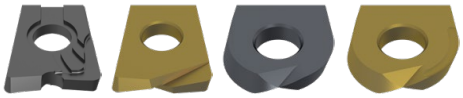
NEW CTCS245



New Dragonskin high-performance coating for the ISO S application range

---

NEW K2000 system grade update



New high-performance grades for mold & die production

NEW MaxiMill 270-19 addition



New system size with a 19 mm indexable insert for heavy machining

---

NEW MaxiMill 273 addition



Adjustable milling cutter with length adjustment

NEW MaxiMill 491 addition



Indexable insert range expansion to include the sizes SNHU 09.. RE 1.2 and RE 1.6 as well as additional grades for the ISO M and S application range



Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut
11 Grooving Tools
12 Miniature turning tools

Milling

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

Tool Clamping

16 Adapters
17 Accessories

18 Material examples and article no. index

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CERATIZIT \ Performance

Premium quality tools for high performance.

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

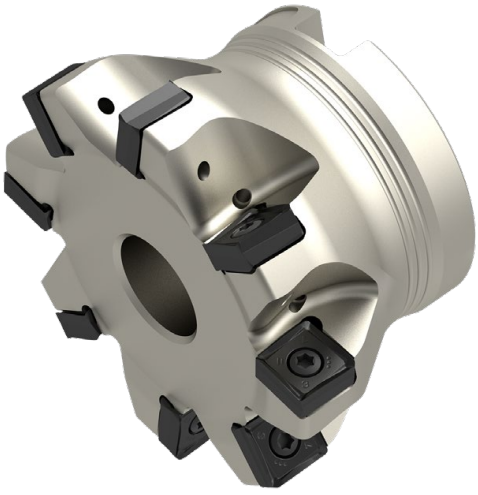
Symbol explanation



central internal coolant



lateral internal coolant



ZNF = Number of teeth

● = **Main Application**

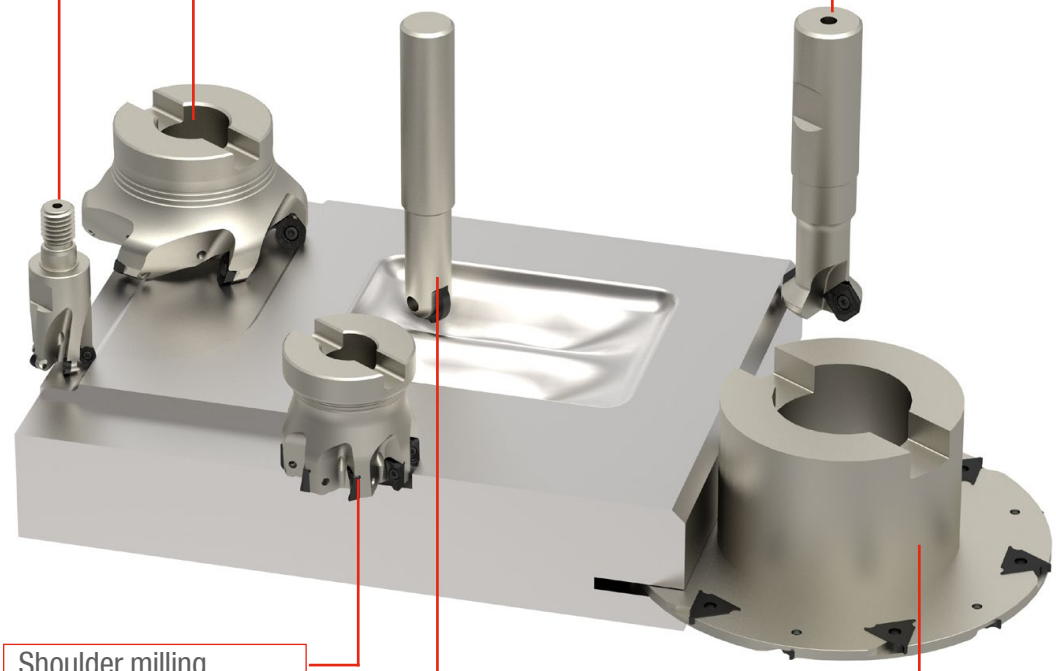
○ = Extended application

Toolfinder – Application Selection Guide

Form milling
→ System Selection:
8+9

Face milling
→ System Selection:
4+5

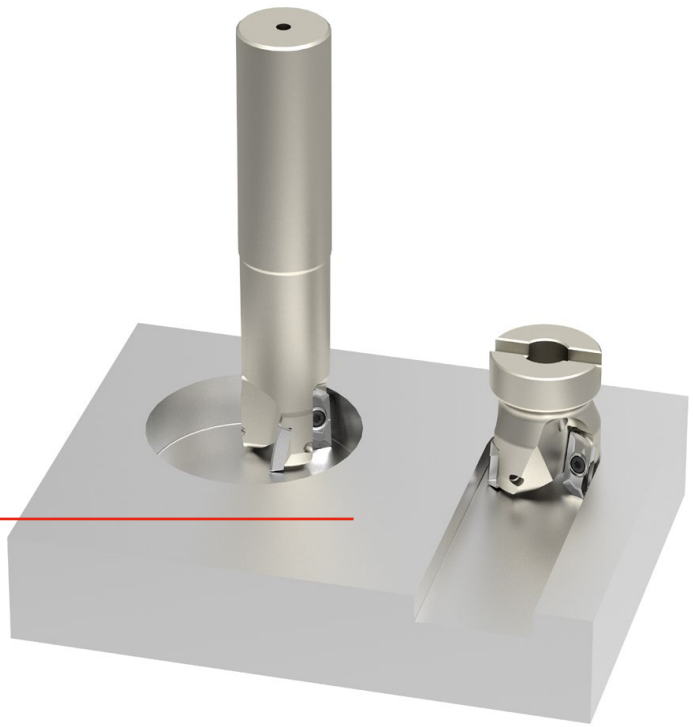
Chamfer/Angle milling cutters
→ System Selection:
10



Shoulder milling
→ System Selection:
6+7

Slot milling and saws
→ System Selection:
10

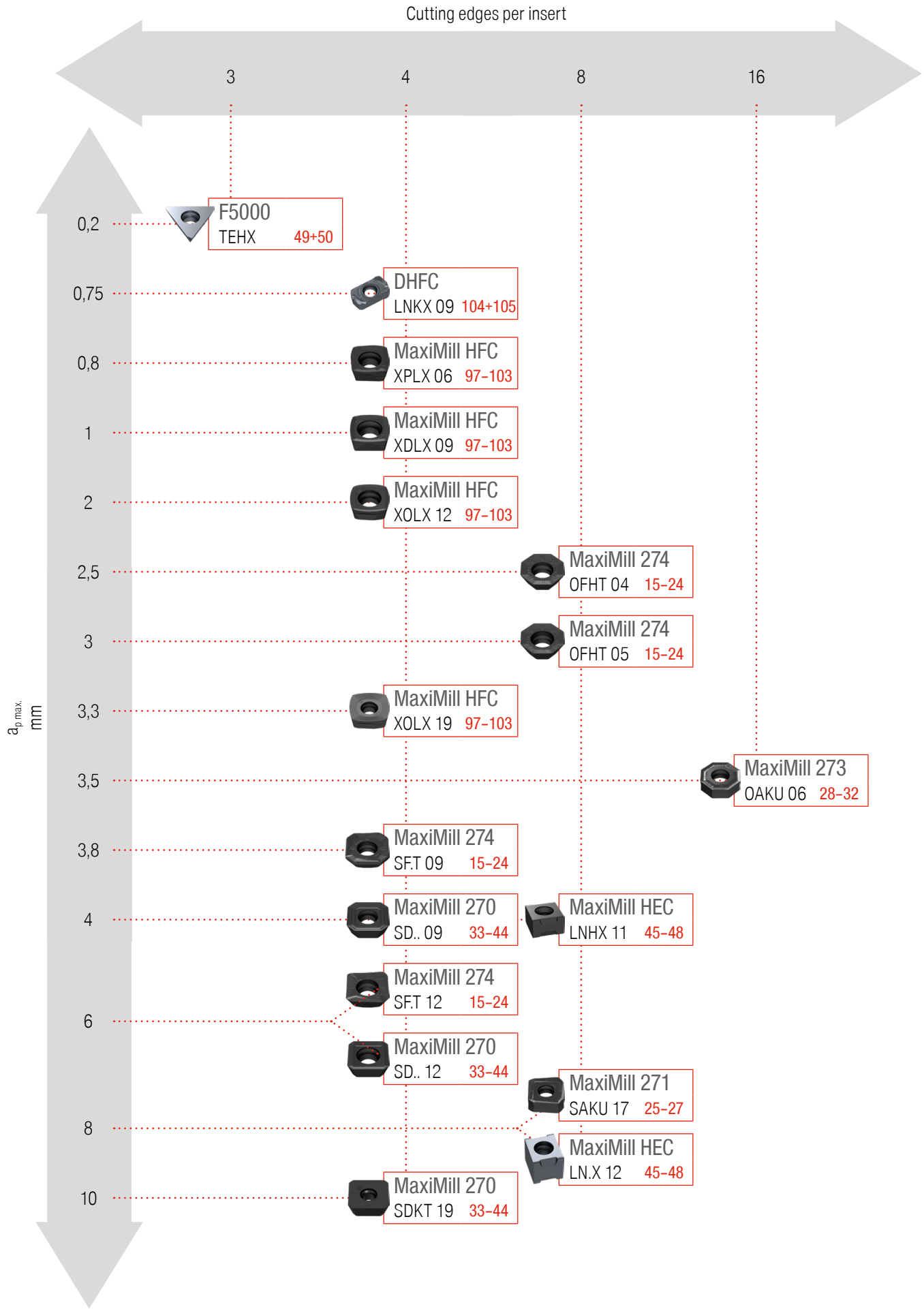
Form milling
→ System Selection:
8+9



HSC-/HPC-milling
→ System Selection:
6+7

15

Toolfinder – Face Milling Cutters



Overview – Face Milling Cutters

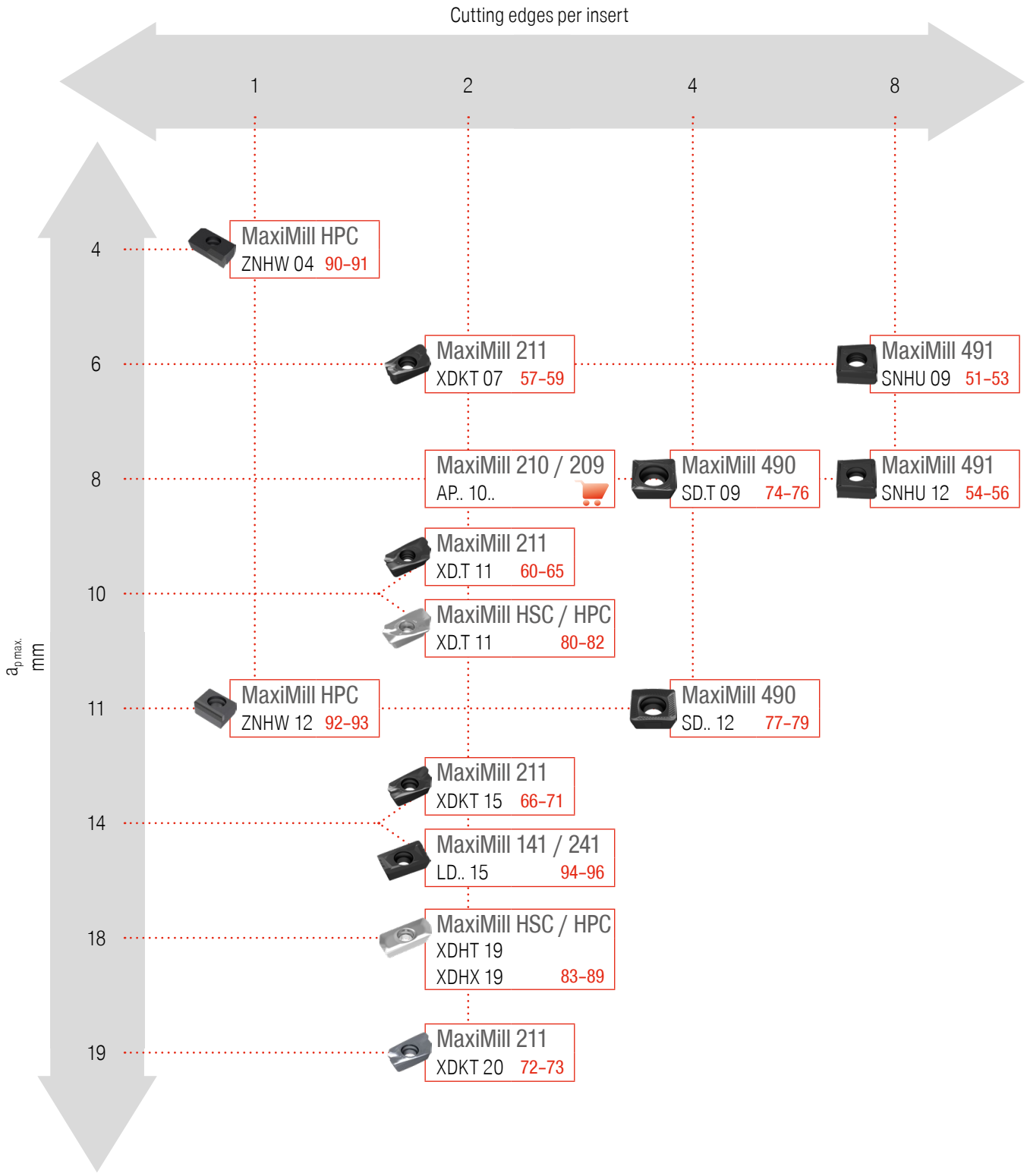
System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Pages
MaxiMill 274	OFH. 04.. / 05.. | SF.T 09.. / 12..	8 / 4	2,5–6	Ø 20–32	Ø 20–32	Ø 32–160	●	●	●	●	●		15–24
MaxiMill 271	SAKU 1706..	8	8,4			Ø 50–250	●	●	●		●		25–27
MaxiMill 273	OAKU 0605..	16	3,5		Ø 32–40	Ø 40–250	●	●	●		●		28–32
MaxiMill 270	SD.. 0903.. / 1204.. / 19..	4	4–10	Ø 16–32	Ø 6–32	Ø 32–315	●	●	●	●	●		33–44
MaxiMill HEC	LNHX 1106.. | LN.X 1210..	8	4–8			Ø 50–160	●	○	●				45–48
F 5000	TEHX 16T3..	3	0,2			Ø 42–100	●	○	●	○		●	49–50
MaxiMill HFC	X..X 06.. / 09.. / 12.. / 19..	4	0,8–3,3	Ø 16–42	Ø 16–35	Ø 32–160	●	●	●		●		97–103
DHFC	LNKX 09..	4	0,75	Ø 16–42	Ø 16–20		●	●	●		●	●	104–105

Additional diameters are available upon request

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

15

Toolfinder – shoulder milling



Overview – Shoulder Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm				Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Pages
MaxiMill 491	SNHU 09T3.. / 1204..	8	6–8	Ø 25–32	Ø 25–32	Ø 40–160		●	●	●	●	●		51–56
MaxiMill 211	XD.T 0703.. / 11T3.. / 1505.. / 2007..	2	6–19	Ø 16–40	Ø 10–40	Ø 32–160		●	●	●	●	●	○	57–73
MaxiMill 211 K	XD.T 11T3.. / 1505.. / 2007..	2	27–75,5		Ø 25–50	Ø 40–50		●	●	●	●	●		57–73
MaxiMill 490	SD.. 09T3.. / 1205..	4	8–11	Ø 25–40	Ø 25–32	Ø 40–160		●	●	●	●	●		74–79
MaxiMill 490 K	SD.. 09T3..	4	41			Ø 40–63		●	●	●	●	●		74–79
MaxiMill HSC / HPC	XD.. 11T3.. / 1904..	2	10–18	Ø 16–40	Ø 16–32	Ø 40–125	Ø 25–50			○	●			80–89
MaxiMill HPC	ZNHW 04T3.. / 1205..	1	4–11	Ø 20–40	Ø 20–40	Ø 40–315	Ø 40–160			●	●		○	90–93
MaxiMill 141 / 241	LD.. 1504..	2	14	Ø 25–40	Ø 20–32	Ø 40–100		●	●	●	●			94–96
MaxiMill 210 / 209	AP.. 1003..	2	8	Ø 16,0–31,7	Ø 9,7–32	Ø 40–125		●	●	●	●	●	●	

Additional diameters are available upon request

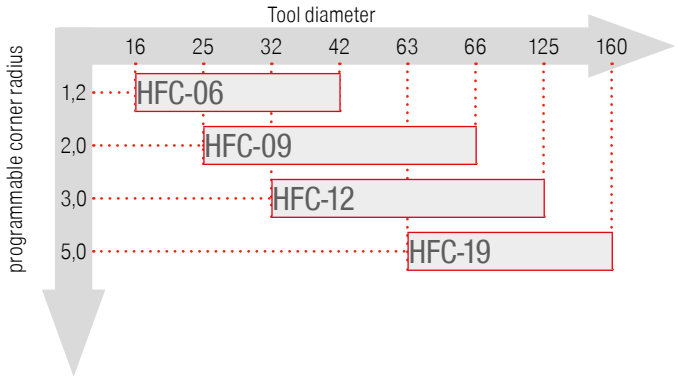
Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

This article can be found in our online shop at cuttingtools.ceratizit.com

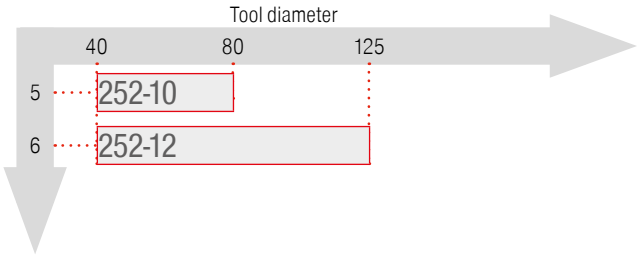
15

Toolfinder – form milling

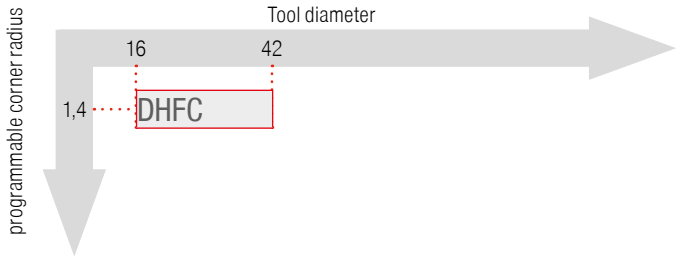
MaxiMill HFC 97–103



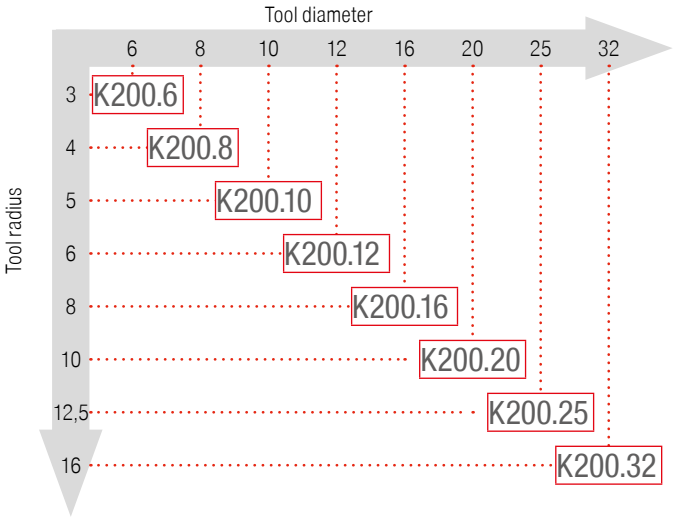
MaxiMill 252 119+120



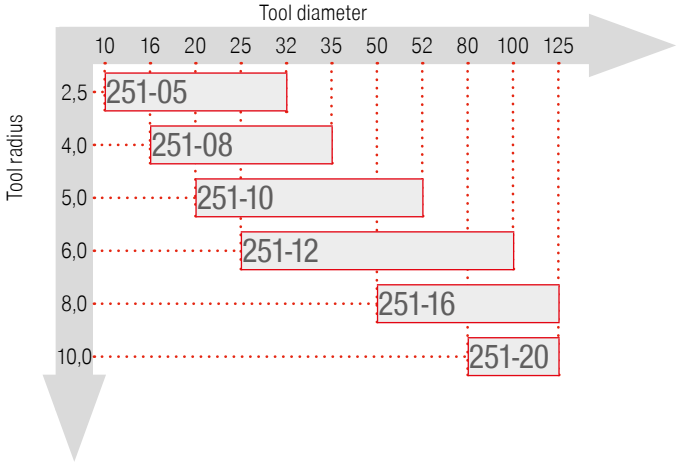
DHFC 104+105



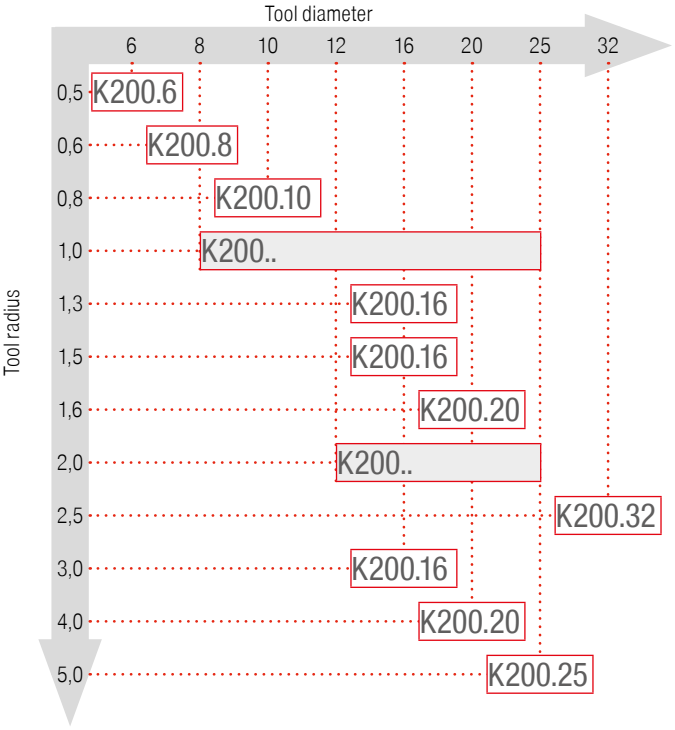
K200. Ball Nosed 121–125



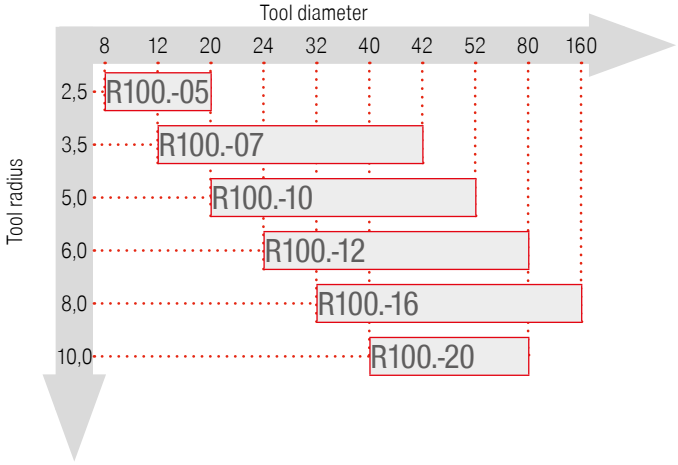
MaxiMill 251 106–113



K200. Torus 126–129



R100. 114–118



Application range

Tool diameter

Overview – form milling

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Pages
MaxiMill HFC	X.LX 06.. / 09.. / 12.. / 19..	4	0,8–3,3	Ø 16–42	Ø 16–35	Ø 32–160	●	●	●		●		97–103
DHFC	LNKX 09..	4	0,75	Ø 16–42	Ø 16–20		●	●	●		○	○	104+105
MaxiMill 251	R..X 05.. / 08.. / 10.. / 12.. / 16.. / 20..	8	2,5–10	Ø 10–42	Ø 10–32	Ø 40–125	●	●	●	●	●		106–113
R100.	RD.X 05.. / 07.. / 10.. / 12.. / 16.. / 20..	8	5	Ø 12–42	Ø 8–20	Ø 42–160	●	●	●	●	○	●	114–118
MaxiMill 252	RNHU 10.. / 12..	8	3			Ø 40–125	●	●	○		●		119+120
K200. Ball Nosed	RO.X .... / XOHX	1	0,4–8	Ø 8–32	Ø 6–32		●	●	●	●	●	●	121–125
K200. Torus	XO.X	1	0,5–8	Ø 8–32	Ø 8–32		●	●	●	●	●	●	126–129

Additional diameters are available upon request

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

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Overview – Chamfer / Angle Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm		Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Pages
MaxiMill 272	SD.. 0903..	4	4	Ø 6–25		●	●	○	●	●		35+36
4500	SD.. 09T3..	4	4	Ø 16–25		●	●	●	●	●		75+76
4500	SD.. 1205..	4	4	Ø 20–32	Ø 20–32	●	●	●	●	●		78+79
MaxiMill 242	LD.. 1504..	2			Ø 50–92	○	●			●		95+96

Additional diameters are available upon request.

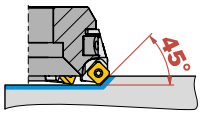
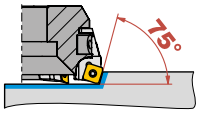
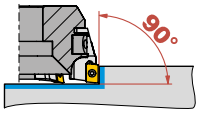
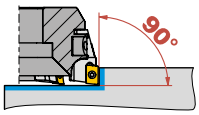
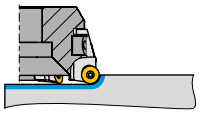
Overview – Slot / Multipurpose Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm		Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Pages
FM	FM..	1	49	Ø 100–160		●	●	●	●			130+131
TX	TX.. R/L	3	64	Ø 80–160	Ø 100–200	●	●	●	●	●		132–134

Additional diameters are available upon request.

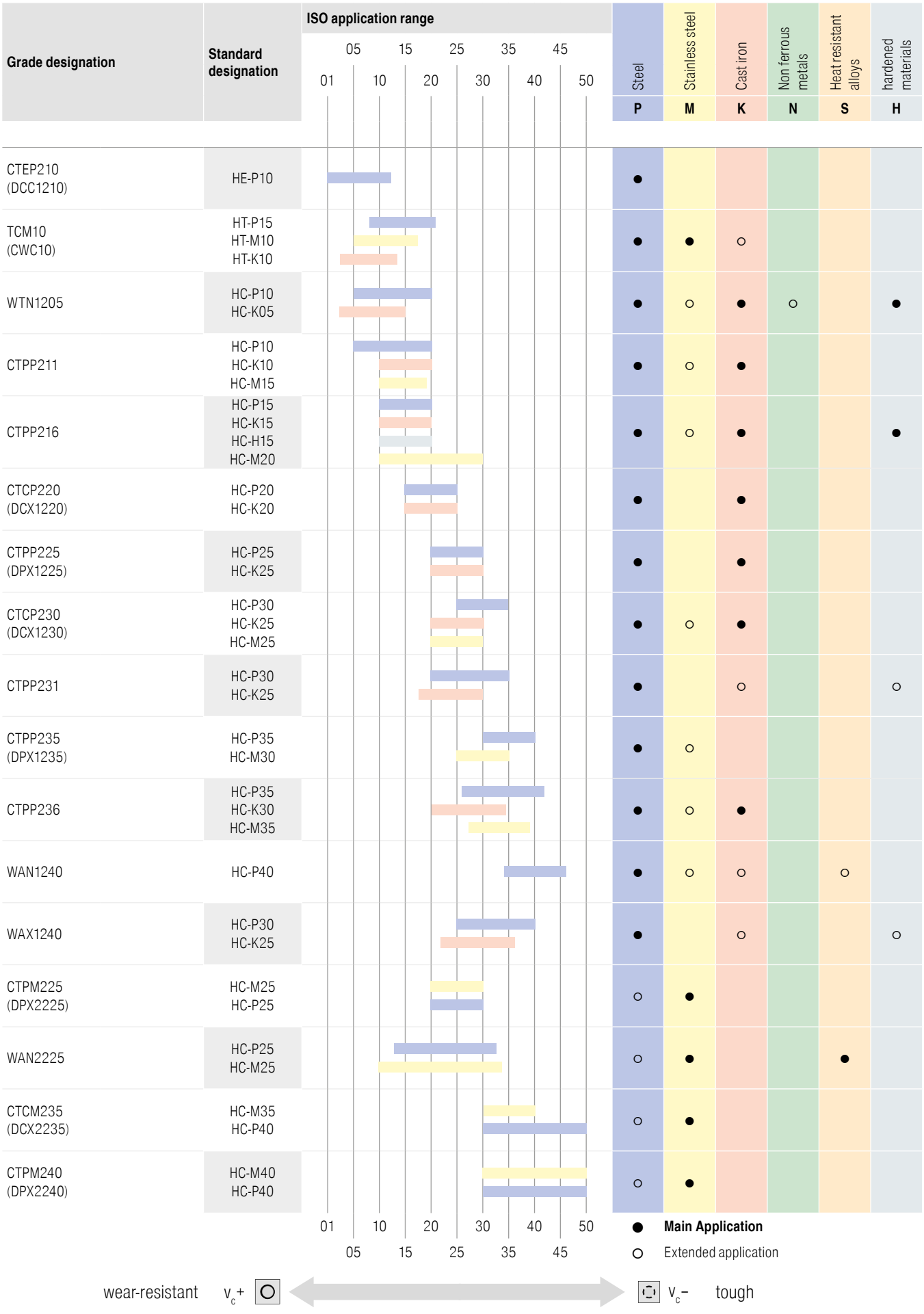
Overview – Combi Milling Cutters

System	Ø-range mm	Pages
		
MaxiMill 260	80–400	135

													Pages
	Cartridge no.	041	031			029		032		057			
													136
		SD.. 0903..		SD.. 1204.. XD.. 1204..		SE.. 1204..		SD.. 1504..		OA.. 0605.. XA.. 0605..			
	Cartridge no.	018											
													136
			SP.. 1204..										
	Cartridge no.	042		039		051		025					
													136
			AP.. 1003..		SD.. 1205..		LD.. 1504..		TP.. 2204..				
	Cartridge no.	055		054		056							
													136
			SD.. 09T3		XD.. 11T3		XD.. 1505						
	Cartridge no.	052		053									
													136
			RP.X 1204..		RP.X 1604..								

15

Toolfinder – Grade Selection



Toolfinder – Grade Selection

Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant alloys S	hardened materials H
CTPM241	HC-M40 HC-P40		○	●			●	
CTPM245 (DPX2245)	HC-M45 HC-P50		○	●				
CTN3105 (CTS3105)	CN-K05				●			
CTL3215 (CWB3215)	BC-K10 BC-H10				●			
CTCK215 (DCX3215)	HC-K15				●			
CTPK220 (DPX3220)	HC-K20				●			
CTPK221	HC-K10 HC-M15			○	●		○	○
CTPK226	HC-K15 HC-H15 HC-P15		○		●			●
CTPK231	HC-P30 HC-K30		●		●			
CTD4205 (CWD4205)	DP-N05					●		
AMZ (AMZ)	HC-N10 HC-P10 HC-K10		○		○	●		
WUN4210	HT-N10 HT-M15			○		●		
CTCN211	HC-N10					●		
H216T	HW-N15 HW-K15 HW-S15				●	●	○	
CTC5240 (HCF5240)	HC-S35 HC-M35			●			●	
CTCS245	HC-S40						●	
CTP6215 (CCN6215)	HC-K15 HC-H15		○		●			●

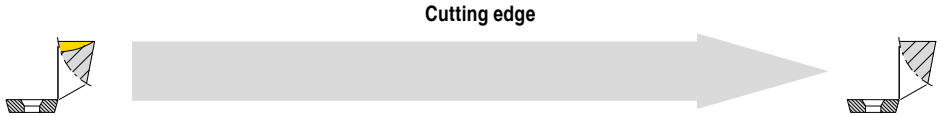
ISO application range: 01 05 10 15 20 25 30 35 40 45 50

● Main Application
○ Extended application

wear-resistant v_c+ ⟷ v_c– tough

15

Toolfinder – Chip Former Type



			sharp ●		medium ● ●		stable ● ● ●	
			10	20	30	40	50	60
increasing wedge angle	fine	F	**-F10**	**-F20**		**-F40**	**-F50**	**-33**
	medium	M			**-M31** **-M30** **-M32**		**-M50** **-31**	**-29**
	rough	R			**-R30**		**-R50**	**-R60**

A detailed overview of chip breakers can be found on → **Page 196–208**

Chip breaker code

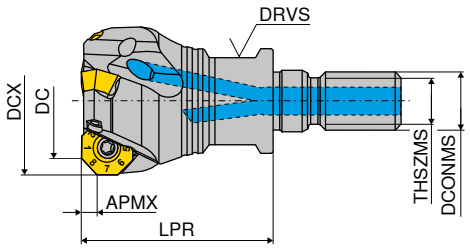
			Cutting edge		
			sharp 10–20	medium 30–40	stable 50–60
Application type	light	F	●	● ●	● ● ●
	universal	M	●	● ●	● ● ●
	difficult	R	●	● ●	● ● ●

Example: Chip breaker -M50



MaxiMill – Screw in cutter G 274-04/-09



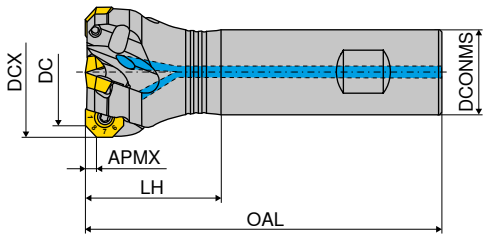




Designation	DC	DCX	ZNF	APMX	LPR	THSZMS	DCONMS	DRVS	torque moment	Insert	Article no. 50 742 ...
	mm	mm		mm	mm		mm	mm	Nm		
G274.20.R.03-09	20	25,5	3	3,8	35	M12	12,5	17	1,2	OF.. 0403 / SF.. 0903	**020**
G274.25.R.04-09	25	30,6	4	3,8	35	M12	12,5	17	1,2	OF.. 0403 / SF.. 0903	**025**
G274.32.R.05-09	32	37,6	5	3,8	35	M16	17,0	24	1,2	OF.. 0403 / SF.. 0903	**032**

MaxiMill – End milling cutter C 274-04/-09









A



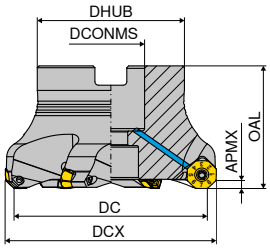
B

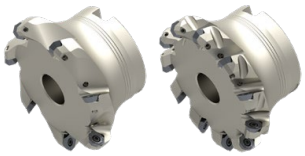


Designation	DC	DCX	ZNF	APMX	OAL	LH	DCONMS	torque moment	Insert	Article no. 50 743 ...	Article no. 50 743 ...
	mm	mm		mm	mm	mm	mm	Nm			
C274.20.R.03-09-A/B20-25	20	25,5	3	3,8	77	25	20	1,2	OF.. 0403 / SF.. 0903	**020**	**120**
C274.25.R.04-09-A/B20-32	25	30,6	4	3,8	84	32	20	1,2	OF.. 0403 / SF.. 0903	**025**	**125**
C274.32.R.05-09-A/B25-40	32	37,6	5	3,8	98	40	25	1,2	OF.. 0403 / SF.. 0903	**032**	**132**

MaxiMill – Shell mill A 274-04/-09







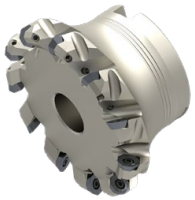
Designation	DC	DCX	ZNF	APMX	OAL	DHUB	DCONMS $_{H6}$	torque moment	Insert	Article no. 50 744 ...	Article no. 50 744 ...
	mm	mm		mm	mm	mm	mm	Nm			
A274.32.R.05-09	32	37,7	5	3,8	40	38	16	1,2	OF.. 0403 / SF.. 0903		032
A274.40.R.04-09	40	45,7	4	3,8	40	38	16	1,2	OF.. 0403 / SF.. 0903	040	
A274.40.R.06-09	40	45,7	6	3,8	40	38	16	1,2	OF.. 0403 / SF.. 0903		140
A274.50.R.05-09	50	55,7	5	3,8	40	48	22	1,2	OF.. 0403 / SF.. 0903	050	
A274.50.R.07-09	50	55,7	7	3,8	40	48	22	1,2	OF.. 0403 / SF.. 0903		150
A274.63.R.06-09	63	68,7	6	3,8	40	48	22	1,2	OF.. 0403 / SF.. 0903	063	
A274.63.R.09-09	63	68,7	9	3,8	40	48	22	1,2	OF.. 0403 / SF.. 0903		163
A274.80.R.07-09	80	85,7	7	3,8	50	58	27	1,2	OF.. 0403 / SF.. 0903	080	
A274.80.R.11-09	80	85,7	11	3,8	50	58	27	1,2	OF.. 0403 / SF.. 0903		180
A274.100.R.09-09	100	105,7	9	3,8	50	78	32	1,2	OF.. 0403 / SF.. 0903	100	
A274.100.R.13-09	100	105,7	13	3,8	50	78	32	1,2	OF.. 0403 / SF.. 0903		200
A274.125.R.12-09	125	130,7	12	3,8	63	88	40	1,2	OF.. 0403 / SF.. 0903	125	

	TORX® blade	 Clamping key – T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
Spare parts DC	**Article no. 80 950 ...**	**Article no. 80 397 ...**	**Article no. 80 950 ...**	**Article no. 70 950 ...**	**Article no. 70 950 ...**	**Article no. 70 950 ...**	**Article no. 80 950 ...**
20 - 25	043		125		303	133	191
32 - 40	043	040	125	151	303	133	191
50 - 125	043		125		303	133	191

Two insert types – ONE Cutter



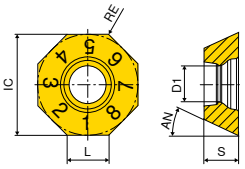




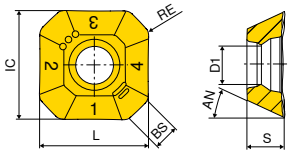


OFHT / OFHW / SFHT / SFKT

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
OFH. 0403..	9,52	3,35	3,94	-	3,18	25
SF.T 0903..	9,80	3,35	9,00	2,25	3,50	25



OF..

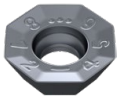
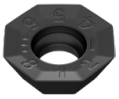
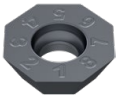


SF.T

OFHT

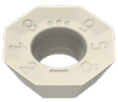
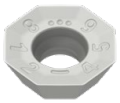
	-F50 CTCP220	-F50 CTPP225	-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
	-F50 DCX1220	-F50 DPX1225	-F50 DCX1230	-M50 DCX1230	-F50 DPX1235	-M50 DPX1235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	OFHT	OFHT	OFHT	OFHT	OFHT	OFHT
ISO RE mm	**Article no. 51 002 ...**	**Article no. 51 002 ...**	**Article no. 51 002 ...**	**Article no. 51 003 ...**	**Article no. 51 002 ...**	**Article no. 51 003 ...**
040305SN 0,5	**255**	**055**	**005**	**005**	**105**	**105**
Steel	●	●	●	●	●	●
Stainless steel			○	○	○	○
Cast iron						
Non ferrous metals						
Heat resistant alloys						
hardened materials						

OFHT / OFHW

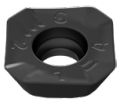
	-F50 CTPM225	-F50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245	CTPM245
	-F50 DPX2225	-F50 DCX2235	-F50 DPX2240	-M50 DPX2240	-F50 DPX2245	DPX2245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	OFHT	OFHT	OFHT	OFHT	OFHT	OFHW
ISO RE mm	**Article no. 51 002 ...**	**Article no. 51 002 ...**	**Article no. 51 002 ...**	**Article no. 51 003 ...**	**Article no. 51 002 ...**	**Article no. 51 105 ...**
040302EN 0,2						**452**
040305SN 0,5	**205**	**305**	**405**	**405**	**455**	
Steel	○	○	○	○	●	●
Stainless steel	●	●	●	●	●	●
Cast iron						
Non ferrous metals						
Heat resistant alloys						
hardened materials						

15

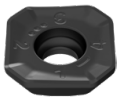
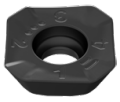
OFHT / OFHW

		-M50 CTCK215	-F10 CTWN215	-F50 CTC5240	CTC5240	-F50 CTCS245
		-M50 DCX3215	-F10 CWK4615		HCF5240	
		DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		OFHT	OFHT	OFHT	OFHW	OFHT
				NEW		NEW
ISO	RE	Article no. 51 003 ...	Article no. 50 459 ...	Article no. 51 002 ...	Article no. 50 457 ...	Article no. 51 002 ...
	mm					
040302EN	0,2				504	
040305FN	0,5		505			
040305SN	0,5	505		15500		555
Steel		○				
Stainless steel						
Cast iron		●	○			
Non ferrous metals			●			
Heat resistant alloys				●	●	●
hardened materials						

SFHT / SFKT

		-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
		-F50 DCX1220	-M50 DCX1220	-F50 DPX1225	-M50 DPX1225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SFHT	SFKT	SFHT	SFKT
ISO	RE	Article no. 51 012 ...	Article no. 51 013 ...	Article no. 51 012 ...	Article no. 51 013 ...
	mm				
0903AFSR	1,0	270	270	070	070
Steel		●	●	●	●
Stainless steel					
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

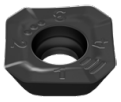
SFHT / SFKT

		-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		-F50 DCX1230	-M50 DCX1230	-F50 DPX1235	-M50 DPX1235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SFHT	SFKT	SFHT	SFKT
ISO	RE	Article no. 51 012 ...	Article no. 51 013 ...	Article no. 51 012 ...	Article no. 51 013 ...
	mm				
0903AFSR	1,0	020	020	120	120
Steel		●	●	●	●
Stainless steel		○	○	○	○
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

SFHT / SFKT

		-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245
		-F50 DPX2225	-M50 DPX2225	-F50 DCX2235	-F50 DPX2240		-F50 DPX2245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SFHT	SFKT	SFHT	SFHT	SFKT	SFHT
						NEW	
ISO	RE	Article no. 51 012 ...	Article no. 51 013 ...	Article no. 51 012 ...	Article no. 51 012 ...	Article no. 51 013 ...	Article no. 51 012 ...
	mm	220	220	320	420	42000	470
0903AFSR	1,0						
Steel		○	○	○	○	○	●
Stainless steel		●	●	●	●	●	●
Cast iron							
Non ferrous metals							
Heat resistant alloys							
hardened materials							

SFKT / SFHT

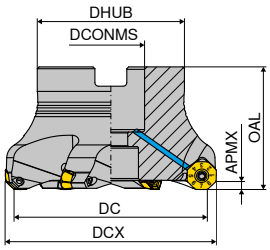
		-R50 CTCK215	-R50 CTPK220	-F10 CTWN215	-F40 CTC5240
		-R50 DCX3215	-R50 DPX3220	-F10 CWK4615	-F40 HCF5240
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN
					
		SFKT	SFKT	SFHT	SFHT
ISO	RE	Article no. 51 065 ...	Article no. 51 065 ...	Article no. 50 514 ...	Article no. 50 514 ...
	mm	520	620	505	504
0903AFFR	1,0				
0903AFSR	1,0				
Steel		○	○		
Stainless steel					
Cast iron		●	●	○	
Non ferrous metals				●	
Heat resistant alloys					●
hardened materials					

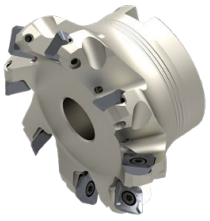
Milling guide

Machining strategy	→ 140	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 140
Starting Parameter	→ 141		

MaxiMill – Shell mill A 274-05/-12







Designation	DC	DCX	ZNF	APMX	OAL	DHUB	DCONMS $_{H6}$	torque moment	Insert	Article no. 50 772 ...
	mm	mm		mm	mm	mm	mm	Nm		
A274.40.R.03-12	40	48,0	3	6	40	38	16	3,2	OFHT 0504 / SFKT 1204	**24000**
A274.40.R.04-12	40	48,0	4	6	40	38	16	3,2	OFHT 0504 / SFKT 1204	**04000**
A274.50.R.05-12	50	58,0	5	6	40	43	22	3,2	OFHT 0504 / SFKT 1204	**050**
A274.50.R.04-12	50	58,1	4	6	40	43	22	3,2	OFHT 0504 / SFKT 1204	**25000**
A274.63.R.06-12	63	71,0	6	6	40	48	22	3,2	OFHT 0504 / SFKT 1204	**063**
A274.63.R.05-12	63	71,1	5	6	40	48	22	3,2	OFHT 0504 / SFKT 1204	**26300**
A274.80.R.06-12	80	88,0	6	6	50	58	27	3,2	OFHT 0504 / SFKT 1204	**28000**
A274.80.R.08-12	80	88,0	8	6	50	58	27	3,2	OFHT 0504 / SFKT 1204	**080**
A274.100.R.10-12	100	107,9	10	6	50	78	32	3,2	OFHT 0504 / SFKT 1204	**100**
A274.100.R.08-12	100	108,0	8	6	50	78	32	3,2	OFHT 0504 / SFKT 1204	**30000**
A274.125.R.12-12	125	132,9	12	6	63	88	40	3,2	OFHT 0504 / SFKT 1204	**125**
A274.125.R.09-12	125	133,0	9	6	63	88	40	3,2	OFHT 0504 / SFKT 1204	**32500**
A274.160.R.11-12	160	133,0	11	6	63	88	40	3,2	OFHT 0504 / SFKT 1204	**36000** [1]
A274.160.R.14-12	160	167,9	14	6	63	98	40	3,2	OFHT 0504 / SFKT 1204	**16000** [1]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm

TORX® blade


Key D


Molykote


Clamping screw


Torque screwdriver

Spare parts DC	Article no. 80 950 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
40 - 160	054	128	303	340	193

Two insert types – ONE Cutter

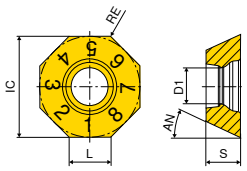




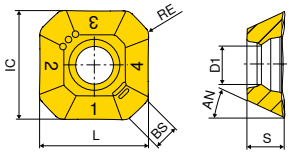
15

OFHT / SFHT / SFKT

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
OFHT 0504..	12,7	4,8	4,5	-	4,76	25
SF.T 1204..	12,7	4,8	12,7	1,42	4,76	25



OF..

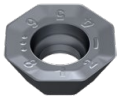
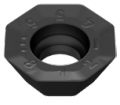
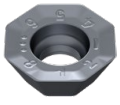
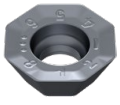


SF.T

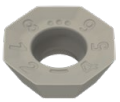
OFHT

ISO	RE	-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		-F50 DCX1230		-F50 DPX1235	
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		OFHT	OFHT	OFHT	OFHT
			NEW		NEW
		Article no. 51 002 ...	Article no. 51 003 ...	Article no. 51 002 ...	Article no. 51 003 ...
	mm				
050410SN	1,0	010	01000	110	11000
Steel		●	●	●	●
Stainless steel		○	○	○	○
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

OFHT

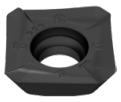
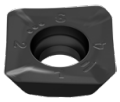
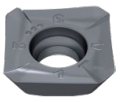
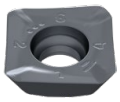
ISO	RE	-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245
		-F50 DPX2225	-M50 DPX2225	-F50 DCX2235	-F50 DPX2240		-F50 DPX2245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		OFHT	OFHT	OFHT	OFHT	OFHT	OFHT
						NEW	
		Article no. 51 002 ...	Article no. 51 003 ...	Article no. 51 002 ...	Article no. 51 002 ...	Article no. 51 003 ...	Article no. 51 002 ...
	mm						
050410SN	1,0	210	210	310	410	41000	460
Steel		○	○	○	○	○	●
Stainless steel		●	●	●	●	●	●
Cast iron							
Non ferrous metals							
Heat resistant alloys							
hardened materials							

OFHT



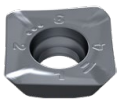
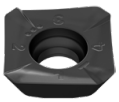
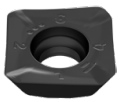
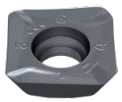

ISO	RE	-F10 CTWN215	-F50 CTC5240
		OFHT	OFHT
		NEW	NEW
		Article no. 51 122 ...	Article no. 51 002 ...
	mm		
050410FN	1,0	36000	
050410SN	1,0		16000
Steel			
Stainless steel			
Cast iron		○	
Non ferrous metals		●	
Heat resistant alloys			●
hardened materials			

SFHT / SFKT

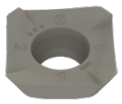





ISO	RE	-F50 CTCP230	-M50 CTCP230 -M50 DCX1230	-F50 CTPP235	-M50 CTPP235 -M50 DPX1235
		SFHT	SFKT	SFHT	SFKT
		NEW		NEW	
		Article no. 51 012 ...	Article no. 51 013 ...	Article no. 51 012 ...	Article no. 51 013 ...
	mm				
1204AFSR	1,0	02500	025	12500	125
Steel		●	●	●	●
Stainless steel		○	○	○	○
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

SFHT / SFKT

		-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-M50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245
		-F50 DPX2225	-M50 DPX2225	-F50 DCX2235	-M50 DCX2235		-M50 DPX2240	
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		SFHT	SFKT	SFHT	SFKT	SFHT	SFKT	SFHT
ISO	RE mm	Article no. 51 012 ...	Article no. 51 013 ...	Article no. 51 012 ...	Article no. 51 013 ...	NEW Article no. 51 012 ...	Article no. 51 013 ...	NEW Article no. 51 012 ...
1204AFSR	1,0	225	225	325	325	42500	425	47500
Steel		○	○	○	○	○	○	●
Stainless steel		●	●	●	●	●	●	●
Cast iron								
Non ferrous metals								
Heat resistant alloys								
hardened materials								

SFHT

		-F10 CTWN215	-F40 CTC5240
			DRAGONSKIN
			
		SFHT	SFHT
ISO	RE mm	NEW Article no. 51 123 ...	NEW Article no. 50 514 ...
1204AFER	1,0		50900
1204AFFR	1,0	37000	
Steel			
Stainless steel			
Cast iron		○	
Non ferrous metals		●	
Heat resistant alloys			●
hardened materials			

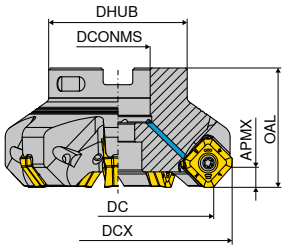
Milling guide

Machining strategy	→ 142	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 142
Starting Parameter	→ 143		

MaxiMill – A 271 Face mill

▲ 8 cutting edges per insert







Designation	DC	DCX	ZNF	APMX	OAL	DCONMS	DHUB	torque moment	Insert	Article no. 50 767 ...
	mm	mm		mm	mm	mm	mm	Nm		
A271.50.R.04-17	50	66,1	4	8,4	40	22	43	5	SAKU 1706	**050**
A271.63.R.06-17	63	79,1	6	8,4	40	22	48	5	SAKU 1706	**063**
A271.80.R.07-17	80	96,1	7	8,4	50	27	58	5	SAKU 1706	**080**
A271.100.R.08-17	100	116,1	8	8,4	50	32	78	5	SAKU 1706	**100**
A271.125.R.10-17	125	141,1	10	8,4	63	40	88	5	SAKU 1706	**125**
A271.160.R.12-17	160	176,1	12	8,4	63	40	104	5	SAKU 1706	**16000** [1]
A271.200.R.13-17	200	216,1	13	8,4	63	60	134	5	SAKU 1706	**20000** [2]
A271.250.R.15-17	250	266,1	15	8,4	63	60	134	5	SAKU 1706	**25000** [2]

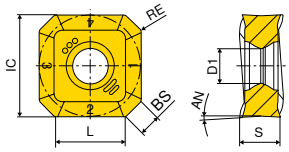
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm

Spare parts DC	TORX® blade	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	Article no. 80 950 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
50 - 250	**037**	**114**	**303**	**302**	**193**

15

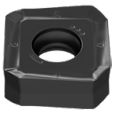
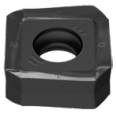
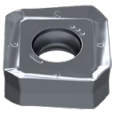
SAKU

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
SAKU 1706..	17	5,8	11,85	3,7	6,35	3

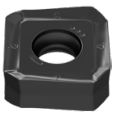
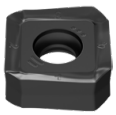
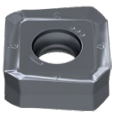
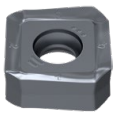


SAKU

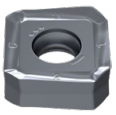
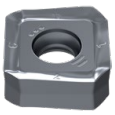
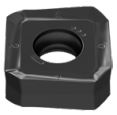
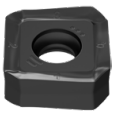
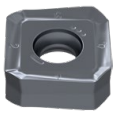
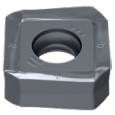
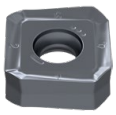
SAKU

ISO	RE	-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
		-F50 DCX1220	-M50 DCX1220	-F50 DPX1225	-M50 DPX1225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		 SAKU	 SAKU	 SAKU	 SAKU
		Article no. 51 004 ...	Article no. 51 005 ...	Article no. 51 004 ...	Article no. 51 005 ...
	mm				
1706ABSR	0,8	270	270	070	070
Steel		●	●	●	●
Stainless steel					
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

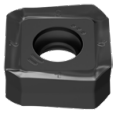
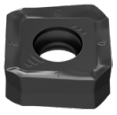
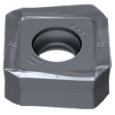
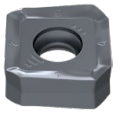
SAKU

ISO	RE	-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		-F50 DCX1230	-M50 DCX1230	-F50 DPX1235	-M50 DPX1235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		 SAKU	 SAKU	 SAKU	 SAKU
		Article no. 51 004 ...	Article no. 51 005 ...	Article no. 51 004 ...	Article no. 51 005 ...
	mm				
1706ABSR	0,8	020	020	120	120
Steel		●	●	●	●
Stainless steel		○	○	○	○
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

SAKU

		-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-M50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245
		-F50 DPX2225	-M50 DPX2225	-F50 DCX2235	-M50 DCX2235	-F50 DPX2240	-M50 DPX2240	-F50 DPX2245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		SAKU	SAKU	SAKU	SAKU	SAKU	SAKU	SAKU
ISO	RE	Article no. 51 004 ...	Article no. 51 005 ...	Article no. 51 004 ...	Article no. 51 005 ...	Article no. 51 004 ...	Article no. 51 005 ...	Article no. 51 004 ...
	mm							
1706ABSR	0,8	220	220	320	320	420	420	470
Steel		○	○	○	○	○	○	●
Stainless steel		●	●	●	●	●	●	●
Cast iron								
Non ferrous metals								
Heat resistant alloys								
hardened materials								

SAKU

		-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-R50 CTPK220	-F50 CTC5240	-F50 CTCS245
		-M50 DCX3215	-R50 DCX3215	-M50 DPX3220	-R50 DPX3220	-F50 HCF5240	
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SAKU	SAKU	SAKU	SAKU	SAKU	SAKU
							NEW
ISO	RE	Article no. 51 005 ...	Article no. 51 058 ...	Article no. 51 005 ...	Article no. 51 058 ...	Article no. 50 306 ...	Article no. 51 004 ...
	mm						
1706ABSR	0,8	520	520	620	620	520	570
Steel		○	○	○	○		
Stainless steel							
Cast iron		●	●	●	●		
Non ferrous metals							
Heat resistant alloys						●	●
hardened materials							

Milling guide

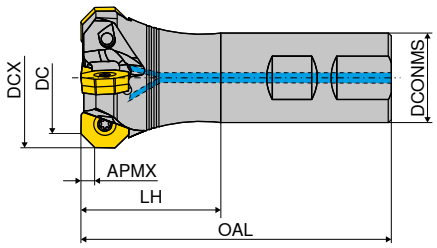
Starting Parameter	→ 144	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 144

15

MaxiMill – End milling cutter C 273

▲ 16 cutting edges per insert







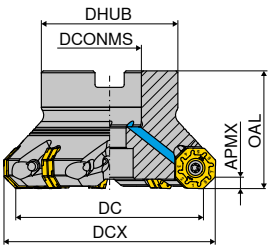
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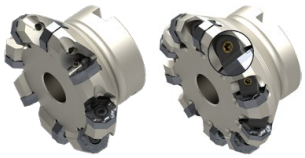
Designation	DC	DCX	ZNF	APMX	DCONMS h6	LH	OAL	torque moment	Insert	Article no. 50 762 ...
	mm	mm		mm	mm	mm	mm	Nm		
C273.32.R.03-06-B-40	32	42,1	3	3,5	32	40	101	5	OAKU / XAHT 0605	032
C273.40.R.04-06-B32-50	40	50,1	4	3,5	32	50	111	5	OAKU / XAHT 0605	040

MaxiMill – Shell mill A 273

▲ 16 cutting edges per insert







Designation	DC	DCX	ZNF	APMX	OAL	DCONMS H6	DHUB	torque moment	Insert	Article no. 50 741 ...	Article no. 50 741 ...
	mm	mm		mm	mm	mm	mm	Nm			
A273.40.R.04-06	40	50,2	3	3,5	40	16	38	5	OAKU / XAHT 0605	040	
A273.40.R.04-06	40	50,2	4	3,5	40	16	38	5	OAKU / XAHT 0605	140 5)	
A273.50.R.05-06	50	60,2	5	3,5	40	22	43	5	OAKU / XAHT 0605	050	
A273.63.R.07-06	63	73,2	7	3,5	40	22	48	5	OAKU / XAHT 0605	063	
A273.80.R.08-06	80	90,2	8	3,5	50	27	58	5	OAKU / XAHT 0605	080	
A273.80.R.10-06	80	90,2	10	3,5	50	27	58	5	OAKU / XAHT 0605		180 1)
A273.100.R.10-06	100	110,2	10	3,5	50	32	78	5	OAKU / XAHT 0605	100	
A273.100.R.14-06	100	110,2	14	3,5	50	32	78	5	OAKU / XAHT 0605		200 1)
A273.125.R.12-06	125	135,2	12	3,5	63	40	88	5	OAKU / XAHT 0605	125	
A273.125.R.17-06	125	135,2	17	3,5	63	40	88	5	OAKU / XAHT 0605		225 1)
A273.160.R.14-06	160	170,2	14	3,5	63	40	104	5	OAKU / XAHT 0605	160 4)	
A273.160.R.20-06	160	170,2	20	3,5	63	40	104	5	OAKU / XAHT 0605		260 2)
A273.200.R.25-06	200	210,2	25	3,5	63	60	153	5	OAKU / XAHT 0605		300 3)
A273.250.R.31-06	250	260,2	31	3,5	63	60	153	5	OAKU / XAHT 0605		25031 3)

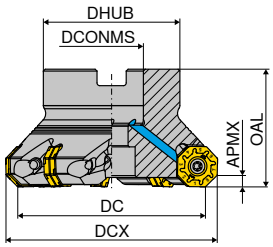
1) Version with Wedge, without internal coolant supply
2) Version with Wedge, without internal coolant supply / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm
3) Version with Wedge, without internal coolant supply / With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm
4) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
5) Without Through Coolant

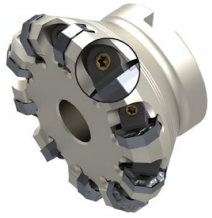
Spare parts IDNR	TORX® blade	 Clamping key – T	 Clamping wedge screw	 Clamping wedge Face mill	 Key D	 Power Screw	 Clamping screw	 Torque screwdriver
	Article no. 80 950 ...	Article no. 80 397 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
50741040	037	040			114	151	302	193
50741050	037	050			114	154	302	193
50741063 - 50741125	037				114		302	193
50741140	037	040			114	151	302	193
50741160	037				114		302	193
50741180 - 50741300	036		844	845	113			193
50762032 - 50762040	037				114		302	193
5074125031	036		844	845	113			193

MaxiMill – Shell mill A 273

- 16 cutting edges per indexable insert
- Axially adjustable







Designation	DC	DCX	ZNF	APMX	OAL	DCONMS $_{H6}$	DHUB	torque moment	Insert	NEW Article no. 50 777 ...
	mm	mm		mm	mm	mm	mm	Nm		
A273.80.R.10A10-06	80	90,2	10	3,5	50	27	58	5	OAKU / XAHT 0605	**08010** [1]
A273.100.R.14A14-06	100	110,2	14	3,5	50	32	78	5	OAKU / XAHT 0605	**10014** [1]
A273.125.R.17A17-06	125	135,2	17	3,5	63	40	88	5	OAKU / XAHT 0605	**12517** [1]
A273.160.R.20A20-06	160	170,2	20	3,5	63	40	104	5	OAKU / XAHT 0605	**16020** [2]
A273.200.R.25A25-06	200	210,2	25	3,5	63	60	153	5	OAKU / XAHT 0605	**20025** [3]
A273.250.R.31A31-06	250	260,2	31	3,5	63	60	153	5	OAKU / XAHT 0605	**25031** [3]

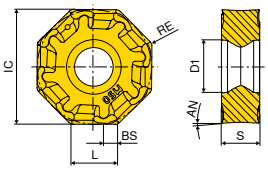
1) Version with Wedge, without internal coolant supply
2) Version with Wedge, without internal coolant supply / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm
3) Version with Wedge, without internal coolant supply / With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm

Spare parts DC	TORX® blade	 Clamping wedge screw	 Clamping wedge Face mill	 Key D	 Molykote	 Wedge	 Torque screwdriver
	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
80 - 250	036	844	845	113	303	199	193

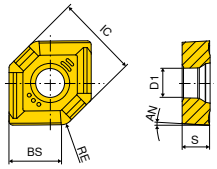
15

OAKU / XAHT

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
XAHT 0605..	17,08	6,0	-	11,95	5,56	3
OAKU 0605..	17,10	5,8	6	2,00	5,66	3

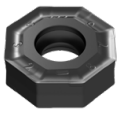
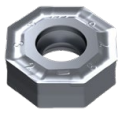


OAKU

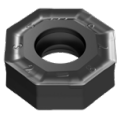
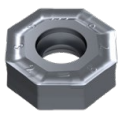


XAHT

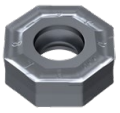
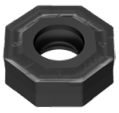
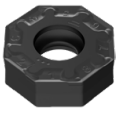
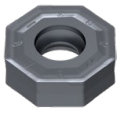
OAKU

		-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
		-F50 DCX1220	-M50 DCX1220	-F50 DPX1225	-M50 DPX1225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		OAKU	OAKU	OAKU	OAKU
ISO	RE	**Article no. 51 000 ...**	**Article no. 51 001 ...**	**Article no. 51 000 ...**	**Article no. 51 001 ...**
	mm				
060508SR	0,8	**258**	**258**	**058**	**058**
Steel		●	●	●	●
Stainless steel					
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

OAKU

		-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		-F50 DCX1230	-M50 DCX1230	-F50 DPX1235	-M50 DPX1235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		OAKU	OAKU	OAKU	OAKU
ISO	RE	**Article no. 51 000 ...**	**Article no. 51 001 ...**	**Article no. 51 000 ...**	**Article no. 51 001 ...**
	mm				
060508SL	0,8				**10900**
060508SR	0,8	**008**	**008**	**108**	**108**
Steel		●	●	●	●
Stainless steel		○	○	○	○
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

OAKU

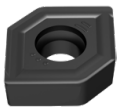
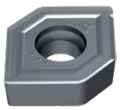
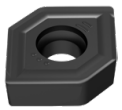
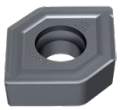
		-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-M50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245
		-F50 DPX2225	-M50 DPX2225	-F50 DCX2235	-M50 DCX2235	-F50 DPX2240	-M50 DPX2240	-F40 DPX2245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		OAKU	OAKU	OAKU	OAKU	OAKU	OAKU	OAKU
ISO	RE mm	**Article no. 51 000 ...**	**Article no. 51 001 ...**	**Article no. 51 000 ...**	**Article no. 51 001 ...**	**Article no. 51 000 ...**	**Article no. 51 001 ...**	**Article no. 51 104 ...**
060508ER	0,8							**458**
060508SR	0,8	**208**	**208**	**308**	**308**	**408**	**408**	
Steel		○	○	○	○	○	○	●
Stainless steel		●	●	●	●	●	●	●
Cast iron								
Non ferrous metals								
Heat resistant alloys								
hardened materials								

OAKU

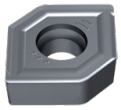
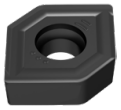
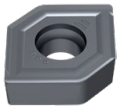
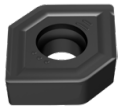
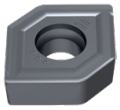
		-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-R50 CTPK220	-F40 CTC5240
		-M50 DCX3215	-R50 DCX3215	-M50 DPX3220	-R50 DPX3220	-F40 HCF5240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		OAKU	OAKU	OAKU	OAKU	OAKU
ISO	RE mm	**Article no. 51 001 ...**	**Article no. 51 027 ...**	**Article no. 51 001 ...**	**Article no. 51 027 ...**	**Article no. 50 446 ...**
060508ER	0,8					**550**
060508SL	0,8	**50900**		**60900**		
060508SR	0,8	**508**	**508**	**608**	**608**	
Steel		○	○	○	○	
Stainless steel						
Cast iron		●	●	●	●	
Non ferrous metals						
Heat resistant alloys						●
hardened materials						

15

XAHT

		-M50 CTCP220	-M50 CTPP225	-M50 CTCP230	-M50 CTPP235
		-M50 DCX1220	-M50 DPX1225	-M50 DCX1230	-M50 DPX1235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XAHT	XAHT	XAHT	XAHT
ISO	RE mm	**Article no. 51 014 ...**	**Article no. 51 014 ...**	**Article no. 51 014 ...**	**Article no. 51 014 ...**
		275	075	025	125
060525SR	2,5				
Steel		●	●	●	●
Stainless steel				○	○
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

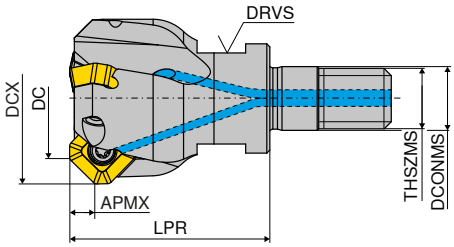
XAHT

		-M50 CTPM225	-M50 CTCM235	-M50 CTPM240	-M50 CTCK215	-M50 CTPK220
		-M50 DPX2225	-M50 DCX2235	-M50 DPX2240	-M50 DCX3215	-M50 DPX3220
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XAHT	XAHT	XAHT	XAHT	XAHT
ISO	RE mm	**Article no. 51 014 ...**	**Article no. 51 014 ...**	**Article no. 51 014 ...**	**Article no. 51 014 ...**	**Article no. 51 014 ...**
		225	325	425	525	625
060525SL	2,5				52600	
060525SR	2,5					
Steel		○	○	○	○	○
Stainless steel		●	●	●		
Cast iron					●	●
Non ferrous metals						
Heat resistant alloys						
hardened materials						

Milling guide

Starting Parameter	→ 145	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 145

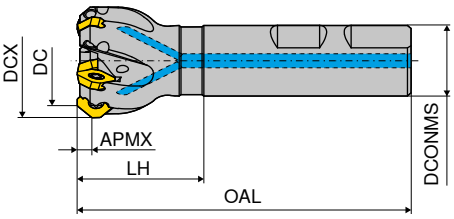
MaxiMill – Screw in cutter 45° G 270-09





Designation	DC mm	DCX mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	Article no. 55 202 ...
G270.ESF.16.R.02-09	16	24,4	2	4	27	M8	8,5	10	1,8	SD.. 0903..	016
G270.ESF.20.R.03-09	20	28,4	3	4	33	M10	10,5	15	1,8	SD.. 0903..	020
G270.ESF.25.R.04-09	25	33,4	4	4	35	M12	12,5	17	1,8	SD.. 0903..	025
G270.ESF.32.R.05-09	32	40,4	5	4	35	M16	17,0	17	1,8	SD.. 0903..	032

MaxiMill – End milling cutter 45° C 270-09



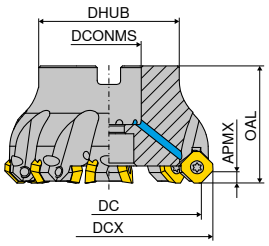


B

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	Article no. 50 666 ...
C270.06.R.01-09	6	14,4	1	4	80	32	16	1,2	SD.. 0903..	006
C270.12.R.01-09	12	20,4	1	4	80	32	16	1,2	SD.. 0903..	012
C270.16.R.02-09	16	24,4	2	4	90	40	20	1,8	SD.. 0903..	016
C270.20.R.03-09	20	28,4	3	4	90	40	20	1,8	SD.. 0903..	020
C270.25.R.04-09	25	33,4	4	4	100	44	25	1,8	SD.. 0903..	025
C270.32.R.05-09	32	40,4	5	4	95	36	25	1,8	SD.. 0903..	032

MaxiMill – Shell mill 45° A 270-09










Designation	DC	DCX	ZNF	APMX	OAL	DHUB	DCONMS $_{H6}$	torque moment	right Article no. 50 704 ...		right Article no. 50 705 ...		right Article no. 50 706 ...		left Article no. 50 707 ...	
	mm	mm		mm	mm	mm	mm	Nm								
A270.32.R.05-09	32	40,4	5	4	40	34	16	1,8						**532**		
A270.40.R.04-09	40	48,4	4	4	40	38	16	1,8				**540**				
A270.40.R.06-09	40	48,4	6	4	40	38	16	1,8						**540**		
A270.42.R.06-09	42	50,4	6	4	40	38	16	1,8						**542**		
A270.50.R.06-09	50	58,4	6	4	40	43	22	1,8				**550**				
A270.50.R.08-09	50	58,4	8	4	40	43	22	1,8						**550**		
A270.50.L.08-09	50	58,4	8	4	40	43	22	1,8								**550**
A270.52.R.08-09	52	60,4	8	4	40	43	22	1,8						**552**		
A270.63.R.05-09	63	71,4	5	4	40	48	22	1,8		**563**						
A270.63.R.08-09	63	71,4	8	4	40	48	22	1,8				**563**				
A270.63.R.10-09	63	71,4	10	4	40	48	22	1,8						**563**		
A270.63.L.10-09	63	71,4	10	4	40	48	22	1,8								**563**
A270.66.R.10-09	66	74,4	10	4	40	48	22	1,8						**566**		
A270.80.R.06-09	80	88,4	6	4	50	58	27	1,8		**580**						
A270.80.R.10-09	80	88,4	10	4	50	58	27	1,8				**580**				
A270.80.R.12-09	80	88,4	12	4	50	58	27	1,8						**580**		
A270.80.L.12-09	80	88,4	12	4	50	58	27	1,8								**580**
A270.100.R.07-09	100	108,4	7	4	50	78	32	1,8		**600**						
A270.100.R.12-09	100	108,4	12	4	50	78	32	1,8				**600**				
A270.100.R.14-09	100	108,4	14	4	50	78	32	1,8						**600**		
A270.125.R.12-09	125	133,4	12	4	63	88	40	1,8				**625**				
A270.160.R.12-09	160	168,4	12	4	63	93	40	1,8		**660** [1]						

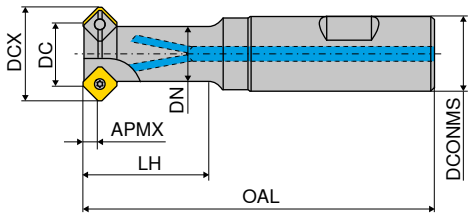
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm

- ▲ 50 704 ... Open pitch for use on aluminum alloys, non-ferrous metals and plastics
- ▲ 50 705 ... Normal pitch for a broad spectrum of use on aluminum alloys, non-ferrous metals, and soft steel materials
- ▲ 50 706 ... Fine pitch for highest feed rates, predominantly used on steel and cast materials
- ▲ 50 707 ... As 50 706 ..., but **left hand** version

MaxiMill – Chamfer milling cutter C 272-09

▲ Usable on front and rear cutting edges







B

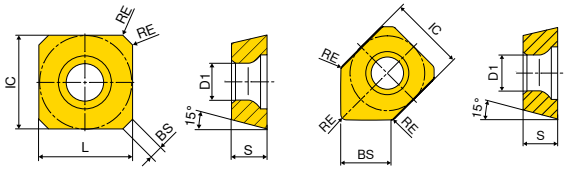
Designation	DC mm	DCX mm	ZNF	APMX mm	DN mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	Article no. 50 669 ...
C272.06.R.01-09	6	14,4	1	4	10	91	24,0	16	1,2	SD.. 0903..	**006**
C272.08.R.01-09	8	16,4	1	4	10	91	25,5	16	1,2	SD.. 0903..	**008**
C272.12.R.01-09	12	20,4	1	4	12	91	26,0	16	1,2	SD.. 0903..	**012**
C272.16.R.02-09	16	24,4	2	4	15	97	30,0	20	1,8	SD.. 0903..	**016**
C272.18.R.02-09	18	26,4	2	4	16	97	30,0	20	1,8	SD.. 0903..	**018**
C272.25.R.03-09	25	33,4	3	4	21	109	35,0	25	1,8	SD.. 0903..	**025**

Spare parts DC	TORX® blade Article no. 80 950 ...	 Key D Article no. 80 950 ...	 Molykote Article no. 70 950 ...	 Clamping screw Article no. 70 950 ...	 Torque screwdriver Article no. 80 950 ...
6 - 12	**033**	**110**	**303**	**365**	**191**
16 - 160	**033**	**110**	**303**	**115**	**191**

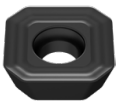
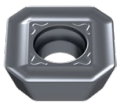
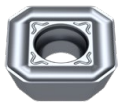
15

SDHW / SDNT / SDHT / XDHW

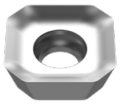
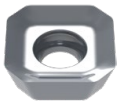
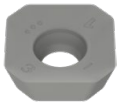
Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDHW 0903..	9,52	3,4	-	5,50	3,18
SD.. 0903..	9,52	3,4	9,52	1,68	3,18



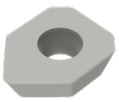
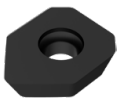
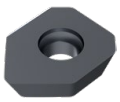
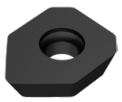
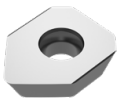
SDHW / SDNT / SDHT

	TCM10	-29 CTCP230	-29 CTPP235	-33 CTPM240	-33P CTPM240	-F50 CTPM245
	CWC10	-29 DCX1230	-29 DPX1235	-33 DPX2240	-33P DPX2240	-F50 DPX2245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	CERMET					
	SDHW	SDNT	SDNT	SDHT	SDHT	SDHT
ISO RE mm	Article no. 50 428 ...	Article no. 51 011 ...	Article no. 51 011 ...	Article no. 51 028 ...	Article no. 51 086 ...	Article no. 51 109 ...
0903AESN 1,0	898	020	120	420	420	470
Steel	●	●	●	○	○	●
Stainless steel	●	○	○	●	●	●
Cast iron	○					
Non ferrous metals						
Heat resistant alloys						
hardened materials						

SDNT / SDHT

	-31 CTCK215	-27P H216T	-27P AMZ	-M31 CTC5240	-F50 CTCS245
	-31 DCX3215	-ALP CWK26	-ALP AMZ	-M31 HCF5240	
	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN
					
	SDNT	SDHT	SDHT	SDHT	SDHT
					NEW
ISO RE mm	Article no. 51 029 ...	Article no. 50 426 ...	Article no. 50 426 ...	Article no. 50 421 ...	Article no. 51 109 ...
0903AEFN 1,0		548	848		
0903AESN 1,0	520			509	57100
Steel	○				
Stainless steel					
Cast iron	●	○	○		
Non ferrous metals		●	●		
Heat resistant alloys				●	●
hardened materials					

XDHW

		TCM10	CTCP230	CTPP235	CTCK215	H216T
		CWC10	DCX1230	DPX1235	DCX3215	CWK26
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
						
		CERMET XDHW	XDHW	XDHW	XDHW	XDHW
ISO	RE	Article no. 50 449 ...	Article no. 51 015 ...	Article no. 51 015 ...	Article no. 51 015 ...	Article no. 50 449 ...
	mm					
0903AEEN	1				520	
0903AEFN	1					548
0903AESN	1	898	020	120		
Steel		●	●	●	○	
Stainless steel		●	○	○		
Cast iron		○			●	○
Non ferrous metals						●
Heat resistant alloys						
hardened materials						

Milling guide

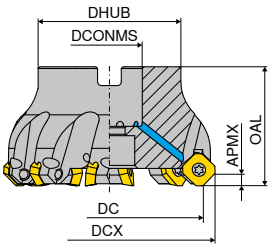
Machining strategy	→ 146	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 146

15

MaxiMill – Shell mill 45° A 270-12

- ▲ 50 705 ... Normal pitch for a broad spectrum of use on aluminum alloys, non-ferrous metals, up to soft steel materials
- ▲ 50 706 ... Predominantly fine pitch for highest feed rates, use on steel and cast materials







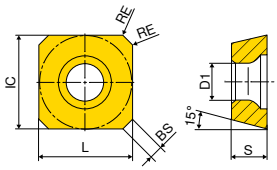
Designation	DC	DCX	ZNF	APMX	DCONMS $_{H6}$	OAL	DHUB	torque moment	Insert	Article no. 50 705 ...	Article no. 50 706 ...
	mm	mm		mm	mm	mm	mm	Nm			
A270.32.R.03-12	32	46	3	6	16	40	32	5	SD../XD.. 1204..	**032**	
A270.40.R.03-12	40	54	3	6	16	40	38	5	SD../XD.. 1204..	**040**	
A270.40.R.04-12	40	54	4	6	16	40	38	5	SD../XD.. 1204..		**040**
A270.50.R.04-12	50	64	4	6	22	40	43	5	SD../XD.. 1204..	**050**	
A270.50.R.05-12	50	64	5	6	22	40	43	5	SD../XD.. 1204..		**050**
A270.63.R.04-12	63	77	4	6	22	40	48	5	SD../XD.. 1204..	**063**	
A270.63.R.06-12	63	77	6	6	22	40	48	5	SD../XD.. 1204..		**063**
A270.80.R.05-12	80	94	5	6	27	50	58	5	SD../XD.. 1204..	**080**	
A270.80.R.08-12	80	94	8	6	27	50	58	5	SD../XD.. 1204..		**080**
A270.100.R.06-12	100	114	6	6	32	50	78	5	SD../XD.. 1204..	**100**	
A270.100.R.10-12	100	114	10	6	32	50	78	5	SD../XD.. 1204..		**100**
A270.125.R.07-12	125	139	7	6	40	63	88	5	SD../XD.. 1204..	**125**	
A270.125.R.12-12	125	139	12	6	40	63	88	5	SD../XD.. 1204..		**125**
A270.160.R.08-12	160	174	8	6	40	63	94	5	SD../XD.. 1204..	**160** 1)	

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm

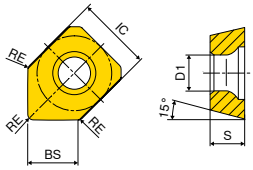
Spare parts DC	TORX® blade	Clamping key – T	Key D	Power Screw	Molykote	Clamping screw	Torque screwdriver
	Article no. 80 950 ...	Article no. 80 397 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
32 - 40	**037**	**040**	**114**	**151**	**303**	**280**	**193**
50 - 160	**037**		**114**		**303**	**280**	**193**

SDHT / SDHW / SDMT / XDHW

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDHW 1204..	12,7	5,5	-	7,50	4,76
SD.. 1204..	12,7	5,5	12,7	1,74	4,76



SD..

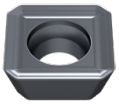
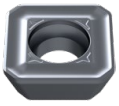


XDHW

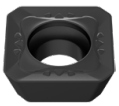
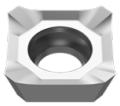
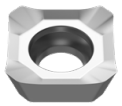
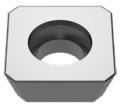
SDHT / SDHW / SDMT

	TCM10	-R TCM10	-29R CTCP230	-R CTCP230	CTCP230
	CWC10	-R CWC10	-29R DCX1230	-R DCX1230	DCX1230
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	CERMET SDHT	**CERMET** SDHW	SDMT	SDHT	SDHW
ISO RE mm	**Article no. 50 426 ...**	**Article no. 50 428 ...**	**Article no. 51 010 ...**	**Article no. 51 006 ...**	**Article no. 51 008 ...**
1204AESN 0,2	**900**	**899**	**020**	**020**	**020**
1204AESN 1,0					
Steel	●	●	●	●	●
Stainless steel	●	●	○	○	○
Cast iron	○	○			
Non ferrous metals					
Heat resistant alloys					
hardened materials					

SDMT / SDHT / SDHW

	-29 CTPP235	-R CTPP235	-R CTPP235	-F50 CTPM245	-33 CTPM240
	-29 DPX1235	-R DPX1235	-R DPX1235	-F50 DPX2245	-33 DPX2240
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	SDMT	SDHT	SDHW	SDHT	SDHT
ISO RE mm	**Article no. 51 010 ...**	**Article no. 51 006 ...**	**Article no. 51 008 ...**	**Article no. 51 109 ...**	**Article no. 51 028 ...**
1204AESN 1,0	**120**	**120**	**120**	**475**	**425**
Steel	●	●	●	●	○
Stainless steel	○	○	○	●	●
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

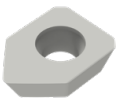
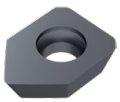
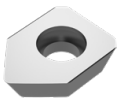
SDMT / SDHW / SDHT

		-31 CTCK215	-R CTCK215	-27 H216T	-27P H216T	H216T
		-31 DCX3215	-R DCX3215	-AL CWK26	-ALP CWK26	CWK26
		DRAGONSKIN	DRAGONSKIN			
						
		SDMT	SDHW	SDHT	SDHT	SDHW
ISO	RE	Article no. 51 059 ...	Article no. 51 008 ...	Article no. 50 426 ...	Article no. 50 426 ...	Article no. 50 428 ...
	mm					
1204AEEN	1,0	520	520			
1204AEFN	0,2			504		
1204AEFN	1,0				554	
1204AESN	0,2					600
Steel		○	○			
Stainless steel						
Cast iron		●	●	○	○	○
Non ferrous metals				●	●	●
Heat resistant alloys						
hardened materials						

SDHT

		-M31 CTC5240	-F50 CTCS245
		-M31 HCF5240	
		DRAGONSKIN	DRAGONSKIN
			
		SDHT	SDHT
			NEW
ISO	RE	Article no. 50 421 ...	Article no. 51 109 ...
	mm		
1204AESN	1,0	512	57600
Steel			
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys		●	●
hardened materials			

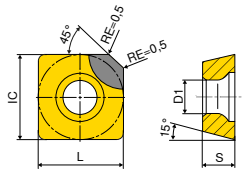
XDHW

		TCM10	CTCP230	CTPP235	CTCK215	H216T
		CWC10	DCX1230	DPX1235	DCX3215	CWK26
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
						
		CERMET XDHW	XDHW	XDHW	XDHW	XDHW
ISO	RE	**Article no. 50 449 ...**	**Article no. 51 015 ...**	**Article no. 51 015 ...**	**Article no. 51 015 ...**	**Article no. 50 449 ...**
	mm					
1204AEEN	1				525	
1204AEFN	1					600
1204AESN	1	900	025	125		
Steel		●	●	●	○	
Stainless steel		●	○	○		
Cast iron		○			●	○
Non ferrous metals						●
Heat resistant alloys						
hardened materials						

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SDHW

Designation	IC	D1	L	S
	mm	mm	mm	mm
SDHW 1204..	12,7	5,5	12,7	4,76

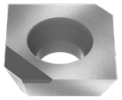


SDHW

SDHW

CTBS10U

PBC10



CBN
SDHW

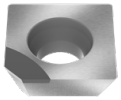
ISO	Article no. 51 900 ...
1204AETN-2	**300** [1]
Steel	
Stainless steel	
Cast iron	●
Non ferrous metals	
Heat resistant alloys	●
hardened materials	

1) $a_{p\,max.}$ = 2.0 mm

SDHW

CTDPS30

PDC



DIAMOND
SDHW

ISO	Article no. 51 900 ...
1204AEFN-2	**100** [1]
1204AEFN-3	**102** [2]
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

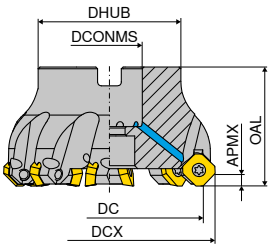
1) $a_{p\,max.}$ = 2.0 mm
2) $a_{p\,max.}$ = 3,5 mm

Milling guide

Machining strategy	→ 147	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 147

MaxiMill – Shell mill 45° A 270-19







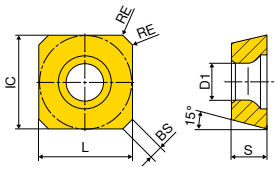
Designation	DC	DCX	ZNF	APMX	DCONMS $_{H6}$	OAL	DHUB	torque moment	Insert	Left-hand NEW Article no. 50 698 ...	Right-hand NEW Article no. 50 698 ...
	mm	mm		mm	mm	mm	mm	Nm			
A270.125.R.07-19	125	146,4	7	10	40	63	88	5	SD.. 1907..		**12507**
A270.160.R.09-19	160	181,4	9	10	40	63	104	5	SD.. 1907..		**16009** [1]
A270.200.R.11-19	200	221,1	11	10	60	63	134	5	SD.. 1907..		**20011** [2]
A270.250.L.14-19	250	271,4	14	10	60	63	134	5	SD.. 1907..	**75014** [2]	
A270.250.R.14-19	250	271,4	14	10	60	63	134	5	SD.. 1907..		**25014** [2]
A270.315.L.17-19	315	336,4	17	10	60	63	226	5	SD.. 1907..	**81517** [3]	
A270.315.R.17-19	315	336,4	17	10	60	63	226	5	SD.. 1907..		**31517** [3]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm
3) With 4 threaded holes M16 on the front face, pitch circle diameter = 101.6 mm and with 4 threaded holes M20 on the front face, pitch circle diameter = 177.8 mm

Spare parts DC	TORX® blade Article no. 80 950 ...	 Key D Article no. 80 950 ...	 Molykote Article no. 70 950 ...	 Clamping screw Article no. 70 950 ...	 Torque screwdriver Article no. 80 950 ...
125 - 315	**037**	**114**	**303**	**302**	**193**

SDKT

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
SDKT 1907..	19,15	6	19,15	1,5	7,35	15
SDKT 1907..	19,15	6	19,15	1,5	7,16	15



SD..

SDKT

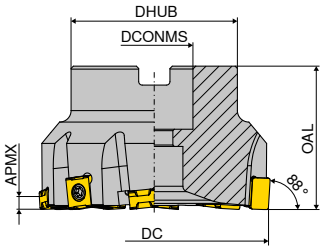
		-R50 CTCP230	-M50 CTPP235	-R50 CTPP235	-R50 CTPM225	-R50 CTCK215
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		 SDKT	 SDKT	 SDKT	 SDKT	 SDKT
		NEW	NEW	NEW	NEW	NEW
ISO	RE	Article no. 51 132 ...	Article no. 51 131 ...	Article no. 51 132 ...	Article no. 51 132 ...	Article no. 51 132 ...
	mm					
1907AESN	1,6	**02100**	**12000**	**12300**	**22200**	**52000**
Steel		●	●	●	○	○
Stainless steel		○	○	○	●	
Cast iron						●
Non ferrous metals						
Heat resistant alloys						
hardened materials						

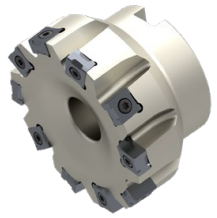
Milling guide

Grade description	→ 209	ISO Designation System	→ 194+195
Cutting data appoximate values	→ 148		

MaxiMill – Shell mill HEC 11

▲ not adjustable



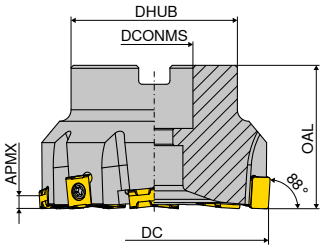


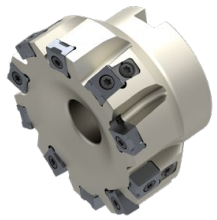
Designation	DC	ZNF	APMX	OAL	DHUB	DCONMS $_{H6}$	RPMX	torque moment	Insert	Article no. 50 725 ...
	mm		mm	mm	mm	mm	1/min.	Nm		
AHEC.50.R.06-11	50	6	6	40	48	22	12700	3,2	LNHX 1106	**050**
AHEC.63.R.08-11	63	8	6	40	48	22	10100	3,2	LNHX 1106	**063**
AHEC.80.R.10-11	80	10	6	50	58	27	8000	3,2	LNHX 1106	**080**
AHEC.100.R.12-11	100	12	6	50	78	32	6400	3,2	LNHX 1106	**100**
AHEC.125.R.12-11	125	12	6	63	88	40	5100	3,2	LNHX 1106	**125**
AHEC.125.R.16-11	125	16	6	63	88	40	5100	3,2	LNHX 1106	**12516**
AHEC.160.R.20-11	160	20	6	63	100	40	4000	3,2	LNHX 1106	**160** [1]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm

MaxiMill – Shell mill HEC 11

▲ Axially adjustable with same tooth pitch



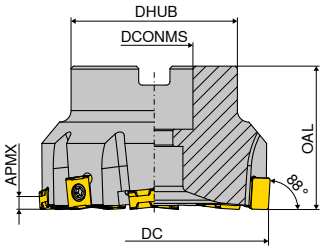


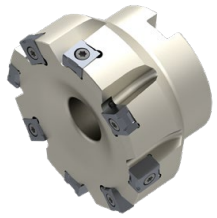
Designation	DC	ZNF	APMX	OAL	DHUB	DCONMS $_{H6}$	RPMX	torque moment	Insert	Article no. 50 733 ...
	mm		mm	mm	mm	mm	1/min.	Nm		
AHEC.50.R.06A03-11	50	6	6	40	48	22	12700	3,2	LNHX 1106	**050**
AHEC.63.R.08A04-11	63	8	6	40	48	22	10100	3,2	LNHX 1106	**063**
AHEC.80.R.10A05-11	80	10	6	50	58	27	8000	3,2	LNHX 1106	**080**
AHEC.100.R.12A06-11	100	12	6	50	78	32	6400	3,2	LNHX 1106	**100**
AHEC.125.R.16A08-11	125	16	6	63	88	40	5100	3,2	LNHX 1106	**125**
AHEC.160.R.20A10-11	160	20	6	63	100	40	4000	3,2	LNHX 1106	**160** [1]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm

MaxiMill – Shell mill HEC 11

▲ with irregular pitch, non adjustable





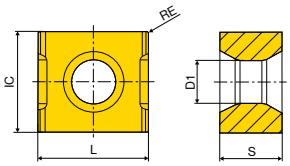
Designation	DC	ZNF	APMX	OAL	DHUB	DCONMS $_{H6}$	RPMX	torque moment	Insert	Article no. 50 733 ...
	mm		mm	mm	mm	mm	1/min.	Nm		
AHEC.50.R.04B-11	50	4	6	40	48	22	12700	3,2	LNHX 1106	**550**
AHEC.63.R.06B-11	63	6	6	40	48	22	10100	3,2	LNHX 1106	**563**
AHEC.80.R.08B-11	80	8	6	50	58	27	8000	3,2	LNHX 1106	**580**
AHEC.100.R.10B-11	100	10	6	50	78	32	6400	3,2	LNHX 1106	**600**
AHEC.125.R.12B-11	125	12	6	63	88	40	5100	3,2	LNHX 1106	**625**
AHEC.160.R.14B-11	160	14	6	63	100	40	4000	3,2	LNHX 1106	**660** [1]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm

Spare parts DC	TORX® blade	 Molykote	 Coolant Disc	 Clamping screw	 Wedge	 Torque screwdriver
	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
50 - 63	**036**	**303**	**852**	**113**	**199**	**193**
80	**036**	**303**	**853**	**113**	**199**	**193**
100	**036**	**303**	**854**	**113**	**199**	**193**
125	**036**	**303**	**855**	**113**	**199**	**193**
160	**036**	**303**		**113**	**199**	**193**

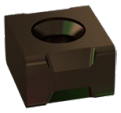
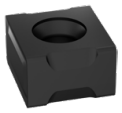
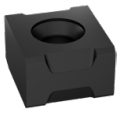
LNHX

Designation	IC	D1	L	S
	mm	mm	mm	mm
LNHX 1106..	10	4,27	11	6,35



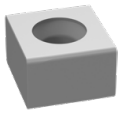
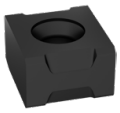
LNHX

LNHX

		CTEP210	CTCK215	-R50 CTCK215	-Q CTCK215
		DCC1210	DCX3215	-R50 DCX3215	-Q DCX3215
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		CERMET LNHX	LNHX	LNHX	LNHX
ISO	RE	Article no. 51 046 ...	Article no. 51 046 ...	Article no. 51 024 ...	Article no. 51 045 ...
	mm				
1106PNEN	0,5		51600		
1106PNER	0,5		520	520	
1106PNER	0,8	820			
1106ZZER	0,5				520 1)
Steel		●	○	○	○
Stainless steel					
Cast iron		●	●	●	●
Non ferrous metals					
Heat resistant alloys					
hardened materials					

1) -Q = Wiper insert

LNHX

		CTPK220	-R50 CTPK220	CTN3105	CTL3215	-Q CTL3215
		DPX3220	-R50 DPX3220	CTS3105	CWB3215	
		DRAGONSKIN	DRAGONSKIN			
						
		LNHX	LNHX	CERAMIC LNHX	CBN LNHX	CBN LNHX
ISO	RE	Article no. 51 046 ...	Article no. 51 024 ...	Article no. 50 500 ...	Article no. 51 046 ...	Article no. 51 045 ...
	mm					
110608EN	0,8		608			
1106PNER	0,5	620	620			
1106PNSR	0,5			904		
1106PNSR					87200	
1106ZZER						87000 1)
Steel		○	○			
Stainless steel						
Cast iron		●	●	●	●	●
Non ferrous metals						
Heat resistant alloys						
hardened materials					○	○

1) -Q = Wiper insert

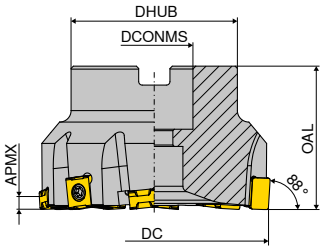
Milling guide

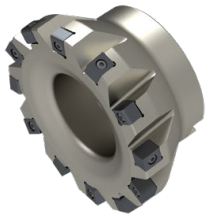
Grade description	→ 209+210	ISO Designation System	→ 194+195
Cutting data appoximate values	→ 148		

15

MaxiMill – Shell mill HEC 12

▲ not adjustable





Designation	DC	ZNF	APMX	OAL	DHUB	DCONMS $_{H6}$	RPMX	torque moment	Insert	NEW Article no. 50 725 ...
	mm		mm	mm	mm	mm	1/min.	Nm		
AHEC.125.R.12-1210	125	12	8	63	88	40	5000	3,2	LN.. 1210..	**32512**
AHEC.160.R.16-1210	160	16	8	63	88	40	3900	3,2	LN.. 1210..	**36016** [1)]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm

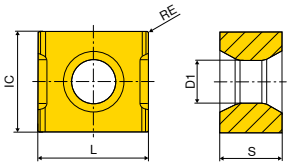

Key D


Coolant Disc

Spare parts DC	Article no. 80 950 ...	Article no. 70 950 ...
125 - 160	**105**	**855**

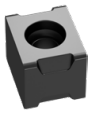
LNHX / LNEX

Designation	IC	D1	L	S
	mm	mm	mm	mm
LN.X 1210..	10	4,4	12,7	10,00



LNHX

LNHX / LNEX

	CTCK215	CTPK220	-R50 CTPK220
	 LNHX	 LNEX	 LNHX

ISO	RE	NEW Article no. 51 135 ...	NEW Article no. 51 133 ...	NEW Article no. 51 134 ...
	mm			
121008EN	0,8			**60800**
121008SN	0,8	**50900**		
121020EN			**62000**	
121020SN	2,0	**52100**		
Steel		○	○	○
Stainless steel				
Cast iron		●	●	●
Non ferrous metals				
Heat resistant alloys				
hardened materials				

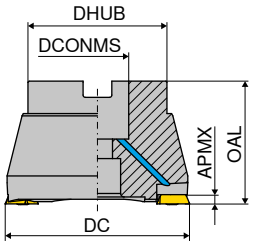
Milling guide

Grade description	→ 209+210	ISO Designation System	→ 194+195
Cutting data appoximate values	→ 148		

Finishing cutter F 5000 A

- With µm-adjustable inserts
- Adjust with screw (56 950 017) and set with Torx 20 key (80 950 114)







Designation	DC	ZNF	APMX	OAL	DCONMS	DHUB	torque moment	Insert	Article no. 56 511 ...
	mm		mm	mm	mm	mm	Nm		
F5000A.42.2.43.IK	42	2	0,2	43	16	35	3,2	TEHX 16T3..	**421**
F5000A.52.2.43.IK	52	2	0,2	43	22	48	3,2	TEHX 16T3..	**521**
F5000A.66.2.53.IK	66	2	0,2	53	27	60	3,2	TEHX 16T3..	**661**
F5000A.80.2.53.IK	80	2	0,2	53	27	60	3,2	TEHX 16T3..	**801**
F5000A.100.2.53	100	2	0,2	53	32	70	3,2	TEHX 16T3..	**910** 1)

1) Without Through Coolant

Spare parts DC	TORX® blade Article no. 80 950 ...	 Key-T Article no. 80 950 ...	 Key D Article no. 80 950 ...	 Axial runout adjustment screw Article no. 56 950 ...	 Molykote Article no. 70 950 ...	 Clamping screw Article no. 56 950 ...	 Grubscrew Article no. 56 950 ...	 Torque screwdriver Article no. 80 950 ...
42	**036**	**088**	**114**	**017**	**303**	**028**	**121**	**193**
52	**036**	**088**	**113**	**017**	**303**	**028**		**193**
66	**036**	**088**	**113**	**017**	**303**	**028**		**193**
80	**036**	**088**	**113**	**017**	**303**	**028**		**193**
100	**036**	**088**	**113**	**017**	**303**	**028**	**121**	**193**

Description of article

- Tightening torque of the indexable insert clamping screw 56 950 028 is 3.2 Nm.
- This tool produces surfaces with excellent surface quality Rz ≤ 2.5 µm with high axial run-out precision.
- The two precision adjustment screws make adjustment to µm accuracy possible.
- Additional grinding is therefore avoided, so machining time and costs are reduced.
- The tool is also well-suited for unstable workpieces and low power machines.

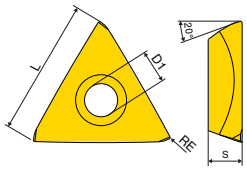
The screws for the adjustment of the axial run-out are mounted on every milling cutter and have to be tightened to a preset value. Otherwise there is the danger that the screws loosen during the machining operation. This can result in damage of the workpiece or tool and also cause danger for the machine operator. Should the screws for fine adjustment not be needed we recommend to remove them from the tool.

Material	v_c m/min	f_z mm	a_p mm
Steel	150–250*)	0,5–2	0,05–0,2
Cast iron	150–250*)	0,5–2	0,05–0,2
Hardened materials ≤ 56 HRC	35–200*)	0,2–1	0,05–0,1

*) Depending on the machining and structural state of the processed workpiece.

TEHX

Designation	L	S	D1
	mm	mm	mm
TEHX 16T3..	14,32	4,00	3,9



TEHX

WTN1205



TEHX

ISO	RE	Article no. 56 327 ...
	mm	
16T3ZF	0,2	**151**

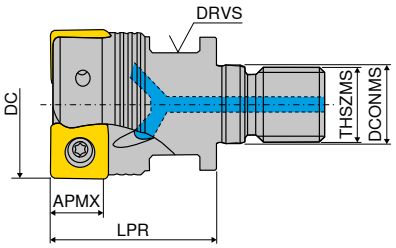
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	
hardened materials	●

Milling guide

Grade description	→ 209+210	ISO Designation System	→ 194+195
Cutting data appoximate values	→ 49		

MaxiMill – Screw in cutter G 491



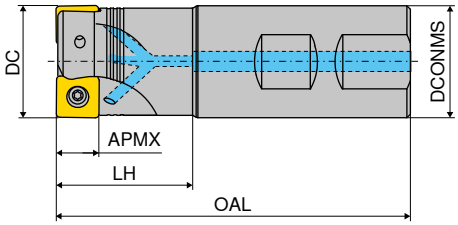




Designation	DC	ZNF	APMX	LPR	THSZMS	DCONMS	DRVS	torque moment	Insert	Article no. 50 773 ...
	mm		mm	mm		mm	mm	Nm		
G491.25.R.03-09	25	3	6	35	M12	12,5	17	3,2	SNHU 09T3	**125**
G491.32.R.03-09	32	3	6	35	M16	17,0	24	3,2	SNHU 09T3	**132**
G491.32.R.04-09	32	4	6	35	M16	17,0	24	3,2	SNHU 09T3	**232**

MaxiMill – End milling cutter C 491









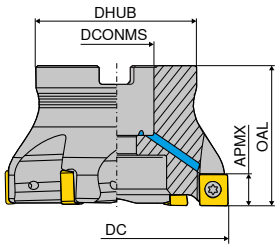
A 

B 

Designation	DC	ZNF	APMX	OAL	LH	DCONMS $_{h6}$	RPMX	torque moment	Insert	Article no. 50 774 ...	Article no. 50 774 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
C491.25.R.03-09-B-32	25	3	6	59	32	25	23500	3,2	SNHU 09T3		**425**
C491.25.R.03-09-A-50-225	25	3	6	225	50	25	23500	3,2	SNHU 09T3	**325**	
C491.32.R.03-09-B-40	32	3	6	101	40	32	19600	3,2	SNHU 09T3		**632**
C491.32.R.04-09-B-40	32	4	6	101	40	32	19600	3,2	SNHU 09T3		**432**
C491.32.R.03-09-A-63-250	32	3	6	250	63	32	19600	3,2	SNHU 09T3	**532**	
C491.32.R.04-09-A-63-250	32	4	6	250	63	32	19600	3,2	SNHU 09T3	**332**	

MaxiMill – Shell mill A 491





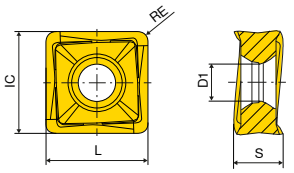


Designation	DC	ZNF	APMX	OAL	DHUB	DCONMS $_{H6}$	RPMX	torque moment	Insert	Article no. 50 776 ...	Article no. 50 775 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
A491.40.R.03-09	40	3	6	40	38	16	16800	3,2	SNHU 09T3		240
A491.40.R.05-09	40	5	6	40	38	16	16800	3,2	SNHU 09T3	240	
A491.50.R.04-09	50	4	6	40	43	22	14600	3,2	SNHU 09T3		250
A491.50.R.06-09	50	6	6	40	43	22	14600	3,2	SNHU 09T3	250	
A491.63.R.05-09	63	5	6	40	48	22	12700	3,2	SNHU 09T3		263
A491.63.R.08-09	63	8	6	40	48	22	12700	3,2	SNHU 09T3	263	
A491.80.R.06-09	80	6	6	50	58	27	11100	3,2	SNHU 09T3		280
A491.80.R.10-09	80	10	6	50	58	27	11100	3,2	SNHU 09T3	280	
A491.100.R.07-09	100	7	6	50	78	32	9800	3,2	SNHU 09T3		300
A491.100.R.12-09	100	12	6	50	78	32	9800	3,2	SNHU 09T3	300	
A491.125.R.08-09	125	8	6	63	88	40	8700	3,2	SNHU 09T3		325
A491.125.R.15-09	125	15	6	63	88	40	8700	3,2	SNHU 09T3	325	

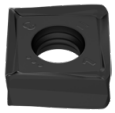
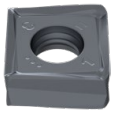
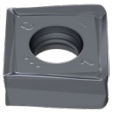
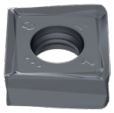
Spare parts DC	TORX® blade	 Clamping key – T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	Article no. 80 950 ...	Article no. 80 397 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
25 - 32	053		119		303	710	193
40	053	040	119	151	303	710	193
50 - 125	053		119		303	710	193

SNHU

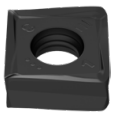
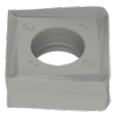
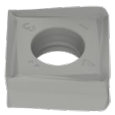
Designation	IC	L	S	D1
	mm	mm	mm	mm
SNHU 09T3..	9,15	9,15	3,70	3,85



SNHU

ISO	RE	-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245
		-M50 DCX1230	-M50 DPX1235	-F50 DPX2240	-M50 DPX2240	
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		SNHU	SNHU	SNHU	SNHU	SNHU
						NEW
	mm	Article no. 51 120 ...	Article no. 51 120 ...	Article no. 51 119 ...	Article no. 51 120 ...	Article no. 51 126 ...
09T308ER	0,8					45800
09T308SR	0,8	008	108	408	408	
09T312SR	1,2	01200	11200	41200	41200	
09T316SR	1,6	01600	11600	41600	41600	
Steel		●	●	○	○	●
Stainless steel		○	○	●	●	●
Cast iron						
Non ferrous metals						
Heat resistant alloys						
hardened materials						

SNHU

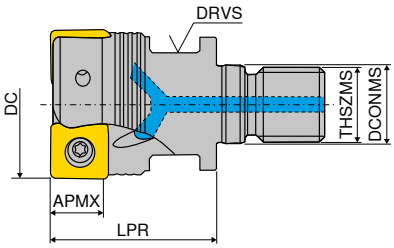
ISO	RE	-R50 CTCK215	-F10 CTWN215	-F40 CTC5240	-F40 CTCS245
		-R50 DCX3215	-F10 CWK4615		
		DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
					
		SNHU	SNHU	SNHU	SNHU
				NEW	NEW
	mm	Article no. 51 121 ...	Article no. 51 118 ...	Article no. 51 126 ...	Article no. 51 126 ...
09T308ER	0,8			15800	55800
09T308FR	0,8		358		
09T308SR	0,8	508			
09T312FR	1,2		36200		
09T312SR	1,2	51200			
09T316FR	1,6		36600		
09T316SR	1,6	51600			
Steel		○			
Stainless steel					
Cast iron		●	○		
Non ferrous metals			●		
Heat resistant alloys				●	●
hardened materials					

15

Milling guide

Starting Parameter	→ 150	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 150

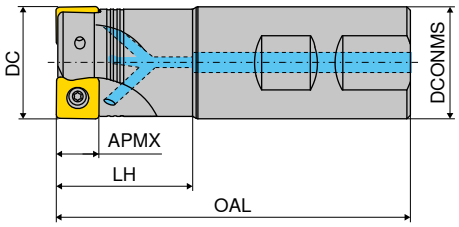
MaxiMill – Screw in cutter G 491





Designation	DC	ZNF	APMX	LPR	THSZMS	DCONMS	DRVS	torque moment	Insert	Article no. 50 773 ...
	mm		mm	mm		mm	mm	Nm		
G491.32.R.02-12	32	2	8	35	M16	17	24	5	SNHU 1204	032

MaxiMill – End milling cutter C 491







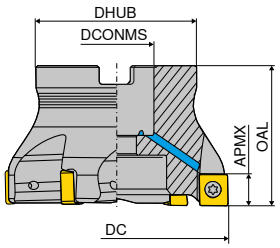
A 

B 

Designation	DC	ZNF	APMX	OAL	LH	DCONMS $_{h6}$	RPMX	torque moment	Insert	Article no. 50 774 ...	Article no. 50 774 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
C491.32.R.02-12-B-40	32	2	8	102	40	32	13600	5	SNHU 1204		032
C491.32.R.02-12-A-63-250	32	2	8	250	63	32	10200	5	SNHU 1204	232	

MaxiMill – Shell mill A 491







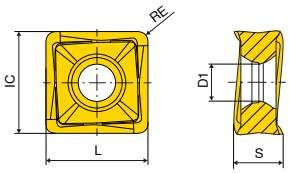
Designation	DC	ZNF	APMX	OAL	DHUB	DCONMS $_{H6}$	RPMX	torque moment	Insert	Article no. 50 776 ...	Article no. 50 775 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
A491.40.R.03-12	40	3	8	40	38	16	11500	5	SNHU 1204		**040**
A491.40.R.04-12	40	4	8	40	38	16	11500	5	SNHU 1204	**040**	
A491.50.R.04-12	50	4	8	40	43	22	9800	5	SNHU 1204		**050**
A491.50.R.05-12	50	5	8	40	43	22	9800	5	SNHU 1204	**050**	
A491.63.R.05-12	63	5	8	40	48	22	8500	5	SNHU 1204		**063**
A491.63.R.06-12	63	6	8	40	48	22	8500	5	SNHU 1204	**063**	
A491.80.R.06-12	80	6	8	50	58	27	7400	5	SNHU 1204		**080**
A491.80.R.08-12	80	8	8	50	58	27	7400	5	SNHU 1204	**080**	
A491.100.R.07-12	100	7	8	50	78	32	6500	5	SNHU 1204		**100**
A491.100.R.10-12	100	10	8	50	78	32	6500	5	SNHU 1204	**100**	
A491.125.R.08-12	125	8	8	63	88	40	5700	5	SNHU 1204		**125**
A491.125.R.12-12	125	12	8	63	88	40	5700	5	SNHU 1204	**125**	
A491.160.R.09-12	160	9	8	63	98	40	5000	5	SNHU 1204		**160** [1]
A491.160.R.14-12	160	14	8	63	98	40	5000	5	SNHU 1204	**160** [1]	

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm

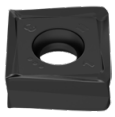
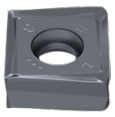
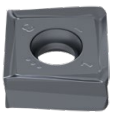
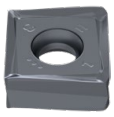
Spare parts DC	TORX® blade	 Clamping key – T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	Article no. 80 950 ...	Article no. 80 397 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
32	**054**		**128**		**303**	**859**	**193**
40	**054**	**040**	**128**	**151**	**303**	**859**	**193**
50 - 160	**054**		**128**		**303**	**859**	**193**

SNHU

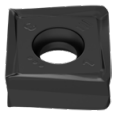
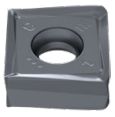
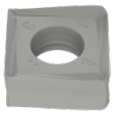
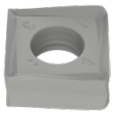
Designation	IC	L	S	D1
	mm	mm	mm	mm
SNHU 1204..	12,2	12,2	5,00	4,4



SNHU

ISO	RE	-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245
		-M50 DCX1230	-M50 DPX1235	-F50 DPX2240	-M50 DPX2240	
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		SNHU	SNHU	SNHU	SNHU	SNHU
						NEW
	mm	Article no. 51 100 ...	Article no. 51 100 ...	Article no. 51 102 ...	Article no. 51 100 ...	Article no. 51 128 ...
120408ER	0,8					45800
120408SR	0,8	008	108	408	408	
120412SR	1,2		112	412		
120416SR	1,6		116	416		
120420SR	2,0		120	420		
Steel		●	●	○	○	●
Stainless steel		○	○	●	●	●
Cast iron						
Non ferrous metals						
Heat resistant alloys						
hardened materials						

SNHU

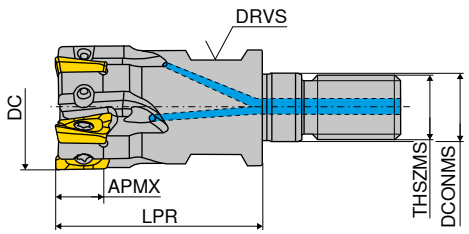
ISO	RE	-R50 CTCK215	-R50 CTPK220	-F10 CTWN215	-F40 CTC5240	-F40 CTCS245
		-R50 DCX3215	-R50 DPX3220	-F10 CWK4615		
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
						
		SNHU	SNHU	SNHU	SNHU	SNHU
					NEW	NEW
	mm	Article no. 51 103 ...	Article no. 51 103 ...	Article no. 51 101 ...	Article no. 51 128 ...	Article no. 51 128 ...
120408ER	0,8				15800	55800
120408FR	0,8			358		
120408SR	0,8	508	608			
120412FR	1,2			362		
120412SR	1,2	512				
120416FR	1,6			366		
120416SR	1,6	516				
120420FR	2,0			370		
120420SR	2,0	520				
Steel		○	○			
Stainless steel						
Cast iron		●	●	○		
Non ferrous metals				●		
Heat resistant alloys					●	●
hardened materials						

Milling guide

Starting Parameter	→ 151	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 151

MaxiMill – Screw in cutter G 211-07



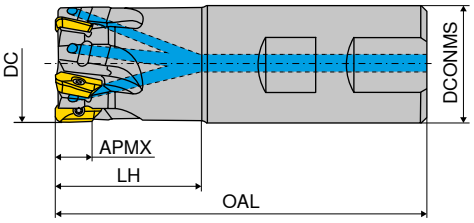




Designation	DC	ZNF	APMX	LPR	DCONMS	THSZMS	DRVS	RPMX	torque moment	Insert	Article no. 50 751 ...
	mm		mm	mm	mm		mm	1/min.	Nm		
G211.16.R.04-07	16	4	6	27	8,5	M8	10	50400	1	XD.T 0703	016
G211.20.R.05-07	20	5	6	33	10,5	M10	15	44280	1	XD.T 0703	020
G211.25.R.06-07	25	6	6	35	12,5	M12	17	39480	1	XD.T 0703	025
G211.32.R.08-07	32	8	6	35	17,0	M16	24	36240	1	XD.T 0703	032

MaxiMill – End milling cutter C 211-07







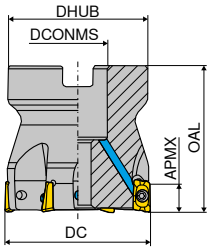


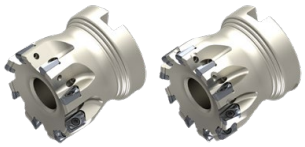
A B

Designation	DC	ZNF	APMX	OAL	LH	DCONMS	RPMX	torque moment	Insert	Article no. 50 752 ...	Article no. 50 752 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
C211.10.R.01-07-A-20	10	1	6	61,0	20	10	72000	1	XD.T 0703	010	
C211.12.R.02-07-A-20	12	2	6	66,5	20	12	66600	1	XD.T 0703	012	
C211.16.R.04-07-A/B-25	16	4	6	74,5	25	16	50400	1	XD.T 0703	016	216
C211.16.R.03-07-A-32-165	16	3	6	165,0	32	16	17760	1	XD.T 0703	116	
C211.20.R.05-07-A/B-25	20	5	6	77,0	25	20	44280	1	XD.T 0703	020	220
C211.20.R.04-07-A-40-200	20	4	6	200,0	40	20	12600	1	XD.T 0703	120	
C211.25.R.06-07-A/B20-32	25	6	6	84,0	32	20	39840	1	XD.T 0703	025	225
C211.25.R.05-07-A20-50-225	25	5	6	225,0	50	20	11280	1	XD.T 0703	125	
C211.32.R.08-07-A/B25-40	32	8	6	98,0	40	25	36240	1	XD.T 0703	032	232

MaxiMill – Shell mill A 211-07





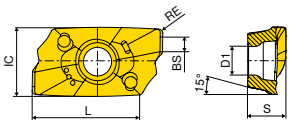


Designation	DC	ZNF	APMX	OAL	DCONMS $_{H6}$	DHUB	RPMX	torque moment	Insert	Article no. 50 753 ...	Article no. 50 754 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
A211.32.R.06-07	32	6	6	40	16	38	36240	1	XD.T 0703	**032**	
A211.32.R.08-07	32	8	6	40	16	38	36240	1	XD.T 0703		**032**
A211.40.R.08-07	40	8	6	40	16	38	33240	1	XD.T 0703	**040**	
A211.40.R.10-07	40	10	6	40	16	38	33240	1	XD.T 0703		**040**
A211.50.R.10-07	50	10	6	40	22	43	30480	1	XD.T 0703	**050**	
A211.50.R.12-07	50	12	6	40	22	43	30480	1	XD.T 0703		**050**

Spare parts DC	TORX® blade	Clamping key – T	Key D	Power Screw	Molykote	Clamping screw	Torque screwdriver
							
	Article no. 80 950 ...	Article no. 80 397 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
10 - 32	**051**		**124**		**303**	**137**	**191**
32	**051**	**040**	**124**	**151**	**303**	**137**	**191**
40 - 50	**051**		**124**		**303**	**137**	**191**

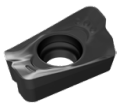
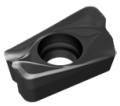
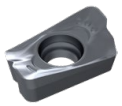
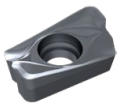
XDKT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDKT 0703..	4,9	2,5	7,8	1,2	3,18

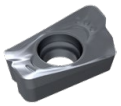
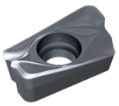
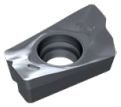


XDKT

XDKT

	-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
	-F50 DCX1230	-M50 DCX1230	-F50 DPX1235	-M50 DPX1235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	XDKT	XDKT	XDKT	XDKT
ISO / RE mm	Article no. 51 033 ...	Article no. 51 036 ...	Article no. 51 033 ...	Article no. 51 036 ...
070304SR 0,4	004	004	104	104
070308SR 0,8	008	008	108	108
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron				
Non ferrous metals				
Heat resistant alloys				
hardened materials				

XDKT

	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245	-F20 CTWN215	-F40 CTC5240	-F40 CTCS245
	-F50 DPX2240	-M50 DPX2240	-F40 DPX2245	-F20 CWK4615	-F40 HCF5240	
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
						
	XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
						NEW
ISO / RE mm	Article no. 51 033 ...	Article no. 51 036 ...	Article no. 51 112 ...	Article no. 50 507 ...	Article no. 50 498 ...	Article no. 51 112 ...
070304ER 0,4			454		544	
070304FR 0,4				504		
070304SR 0,4	404	404				
070308ER 0,8			458		548	558
070308FR 0,8				508		
070308SR 0,8	408	408				
Steel	○	○	●			
Stainless steel	●	●	●			
Cast iron				○		
Non ferrous metals				●		
Heat resistant alloys					●	●
hardened materials						

15

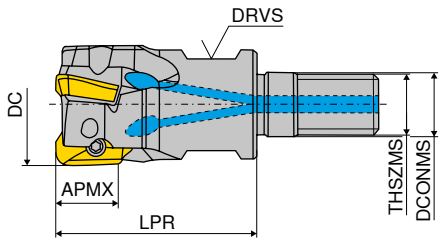
Milling guide

Machining strategy	→ 152	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 152
Starting Parameter	→ 152	Correction of the tooth load f_z	→ 157

MaxiMill – Screw in cutter G 211-11

▲ Insert radius > 1,6 mm: Modify cutter body





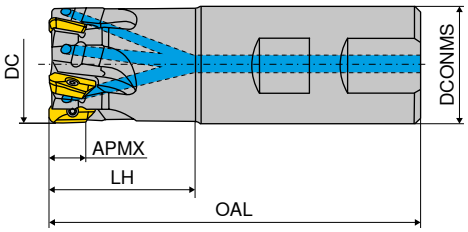


Designation	DC	ZNF	APMX	LPR	DCONMS	THSZMS	DRVS	RPMX	torque moment	Insert	Article no. 50 736 ...
	mm		mm	mm	mm		mm	1/min.	Nm		
G211.16.R.02-11	16	2	10	27	8,5	M8	10	42000	1,2	XD.T 11T3	016
G211.20.R.03-11	20	3	10	33	10,5	M10	15	36900	1,2	XD.T 11T3	020
G211.25.R.03-11	25	3	10	35	12,5	M12	17	33200	1,2	XD.T 11T3	12500
G211.25.R.04-11	25	4	10	35	12,5	M12	17	33200	1,2	XD.T 11T3	025
G211.32.R.04-11	32	4	10	35	17,0	M16	24	30200	1,2	XD.T 11T3	13200
G211.32.R.05-11	32	5	10	35	17,0	M16	24	30200	1,2	XD.T 11T3	032
G211.40.R.06-11	40	6	10	35	17,0	M16	27	27700	1,8	XD.T 11T3	040

MaxiMill – End milling cutter C 211-11

▲ Insert radius > 1,6 mm: Modify cutter body









A 

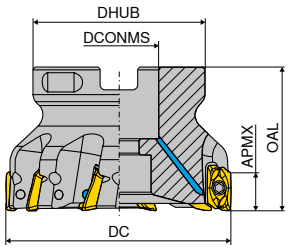
B 

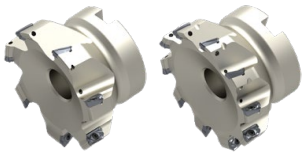
Designation	DC	ZNF	APMX	OAL	LH	DCONMS $_{h6}$	RPMX	torque moment	Insert	Article no. 50 737 ...	Article no. 50 737 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
C211.12.R.01-11-B-20	12	1	10	75	20	16	55000	1,2	XD.T 11T3		012
C211.16.R.02-11-A/B-25	16	2	10	75	25	16	42000	1,2	XD.T 11T3	116	016
C211.16.R.02-11-A15-32-165	16	2	10	165	32	15	14800	1,2	XD.T 11T3	316	
C211.16.R.02-11-A-32-165	16	2	10	165	32	16	14800	1,2	XD.T 11T3	216	
C211.20.R.03-11-A-25	20	3	10	77	25	20	36900	1,2	XD.T 11T3	120	
C211.20.R.02-11-B-25	20	2	10	77	25	20	36900	1,2	XD.T 11T3		02002
C211.20.R.02-11-A-25	20	2	10	77	25	20	36900	1,2	XD.T 11T3	12002	
C211.20.R.03-11-B-25	20	3	10	77	25	20	36900	1,2	XD.T 11T3		020
C211.20.R.03-11-A-32-165	20	3	10	165	32	20	15800	1,2	XD.T 11T3	320	
C211.20.R.02-11-A-40-200	20	2	10	200	40	20	10500	1,2	XD.T 11T3	420	
C211.20.R.02-11-A19-40-200	20	2	10	200	40	19	10500	1,2	XD.T 11T3	620	
C211.25.R.03-11-A/B-32	25	3	10	90	32	25	33200	1,2	XD.T 11T3	625	725
C211.25.R.04-11-A/B-32	25	4	10	90	32	25	33200	1,2	XD.T 11T3	125	025
C211.25.R.04-11-A-40-165	25	4	10	165	40	25	19900	1,2	XD.T 11T3	325	
C211.25.R.03-11-A-50-225	25	3	10	225	50	25	9400	1,2	XD.T 11T3	425	
C211.25.R.02-11-A-50-225	25	2	10	225	50	25	9400	1,2	XD.T 11T3	02502	
C211.25.R.03-11-A24-50-225	25	3	10	225	50	24	9400	1,2	XD.T 11T3	825	
C211.32.R.04-11-A-40	32	4	10	102	40	32	30200	1,2	XD.T 11T3	13204	
C211.32.R.05-11-B5-40	32	5	10	102	40	25	30200	1,2	XD.T 11T3		73200
C211.32.R.04-11-B-25	32	4	10	102	40	32	30200	1,2	XD.T 11T3		83200
C211.32.R.04-11-A25-40	32	4	10	102	40	25	30200	1,2	XD.T 11T3	53204	
C211.32.R.05-11-A/B-40	32	5	10	102	40	32	30200	1,2	XD.T 11T3	132	032
C211.32.R.05-11-A-50-165	32	5	10	165	50	32	20900	1,2	XD.T 11T3	332	
C211.32.R.04-11-A-64-250	32	4	10	250	64	32	8500	1,2	XD.T 11T3	432	
C211.40.R.06-11-B32-50	40	6	10	110	50	32	27700	1,8	XD.T 11T3		04000
C211.40.R.06-11-B-50	40	6	10	122	50	40	27700	1,8	XD.T 11T3		14000

MaxiMill – Shell mill A 211-11

▲ Insert radius > 1,6 mm: Modify cutter body







Designation	DC	ZNF	APMX	OAL	DCONMS $_{H6}$	DHUB	RPMX	torque moment	Insert	Article no. 50 738 ...	Article no. 50 739 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
A211.40.R.04-11	40	4	10	40	16	38	27700	1,8	XD.T 11T3	**040**	
A211.40.R.06-11	40	6	10	40	16	38	27700	1,8	XD.T 11T3		**040**
A211.50.R.05-11	50	5	10	40	22	43	25400	1,8	XD.T 11T3	**050**	
A211.50.R.08-11	50	8	10	40	22	43	25400	1,8	XD.T 11T3		**050**
A211.63.R.06-11	63	6	10	40	22	48	23300	1,8	XD.T 11T3	**063**	
A211.63.R.10-11	63	10	10	40	22	48	23300	1,8	XD.T 11T3		**063**
A211.80.R.07-11	80	7	10	50	27	58	21300	1,8	XD.T 11T3	**080**	
A211.80.R.10-11	80	10	10	50	27	58	21300	1,8	XD.T 11T3		**180**
A211.100.R.08-11	100	8	10	50	32	78	19600	1,8	XD.T 11T3	**10000**	
A211.125.R.10-11	125	10	10	63	40	88	17900	1,8	XD.T 11T3	**12500**	

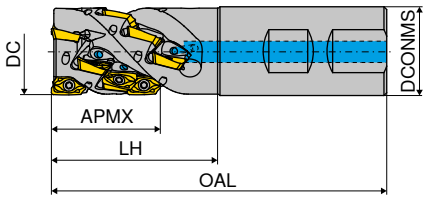
Spare parts DC	TORX® blade Article no. 80 950 ...	Clamping key – T Article no. 80 397 ...	Key D Article no. 80 950 ...	Power Screw Article no. 70 950 ...	Molykote Article no. 70 950 ...	Clamping screw Article no. 70 950 ...	Torque screwdriver Article no. 80 950 ...
12	**043**		**125**		**303**	**116**	**191**
16 - 32	**043**		**125**		**303**	**128**	**191**
40	**043**	**040**	**125**	**151**	**303**	**131**	**191**
50	**043**	**050**	**125**	**154**	**303**	**131**	**191**
63 - 125	**043**		**125**		**303**	**131**	**191**

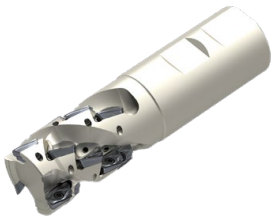
15

MaxiMill – Extended flute cutter C 211-11K

▲ ZEFP = Number of inserts
▲ ZNP = Number of teeth







B

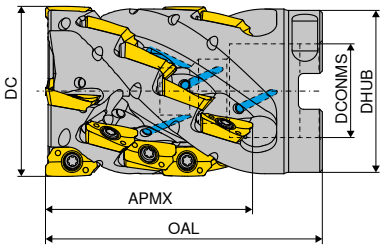
Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	ZEFP	ZNP	torque moment Nm	Insert	Article no. 50 758 ...
C211.25.R.02K3-11-B-40	25	2	27,0	97	40	25	6	3	1,2	XD.T 11T3	025
C211.25.R.02K4-11-B-50	25	2	37,0	107	50	25	8	4	1,2	XD.T 11T3	125
C211.25.R.02K5-11-B-60	25	2	45,5	117	60	25	10	5	1,2	XD.T 11T3	225 1)
C211.32.R.02K4-11-B-50	32	2	37,0	111	50	32	8	4	1,2	XD.T 11T3	032
C211.32.R.03K5-11-B-60	32	3	45,5	121	60	32	15	5	1,2	XD.T 11T3	132
C211.40.R.03K4-11-B32-50	40	3	37,0	110	50	32	12	4	1,8	XD.T 11T3	040
C211.40.R.04K5-11-B32-60	40	4	45,5	120	60	32	20	5	1,8	XD.T 11T3	140

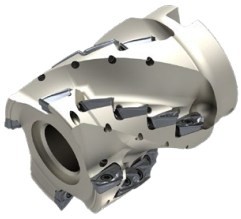
1) only for profile milling

MaxiMill – Extended flute cutter A 211-11K

▲ ZEFP = Number of inserts
▲ ZNP = Number of teeth







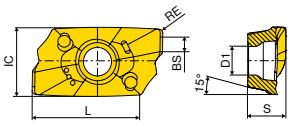
Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	Article no. 50 757 ...
A211.40.R.03K4-11	40	3	37,0	12	4	56	16	38	1,8	XD.T 11T3	040
A211.40.R.04K4-11	40	4	37,0	16	4	55	16	38	1,8	XD.T 11T3	140
A211.40.R.04K5-11	40	4	45,5	20	5	65	16	38	1,8	XD.T 11T3	240 1)
A211.50.R.04K5-11	50	4	45,5	20	5	65	22	43	1,8	XD.T 11T3	150
A211.50.R.05K5-11	50	5	45,5	25	5	65	22	43	1,8	XD.T 11T3	050
A211.50.R.05K6-11	50	5	54,5	30	6	74	22	43	1,8	XD.T 11T3	250 1)

1) only for profile milling

Spare parts	 Cylindrical screw Article no. 70 950 ...	TORX® blade Article no. 80 950 ...	 Key D Article no. 80 950 ...	 Molykote Article no. 70 950 ...	 Clamping screw Article no. 70 950 ...	 Socket head screw Article no. 70 950 ...	 Torque screwdriver Article no. 80 950 ...
25 (50758...)		043	125	303	128		191
32 - 40 (50758...)		043	125	303	131		191
40 (50757...)	001	043	125	303	131	179	191
50 (50757...)	002	043	125	303	131	180	191

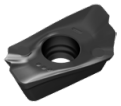
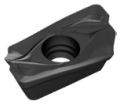
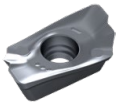
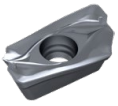
XDKT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDKT 11T302..	6,8	2,8	10,6	2	3,80
XDKT 11T304..	6,8	2,8	10,6	1,8	3,80
XDKT 11T308..	6,8	2,8	10,6	1,4	3,80
XDKT 11T312..	6,8	2,8	10,6	1,4	3,80
XDKT 11T316..	6,8	2,8	10,6	1,4	3,80
XDKT 11T320..	6,8	2,8	10,6	1,4	3,80
XDKT 11T325..	6,8	2,8	10,6	1,4	3,80
XDKT 11T332..	6,8	2,8	10,6	-	3,80
XDKT 11T332..	6,8	2,8	10,6	1,4	3,80
XDKT 11T332..	6,8	2,8	10,6	0,8	3,80
XDKT 11T340..	6,8	2,8	10,6	-	3,80

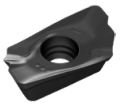
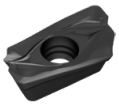
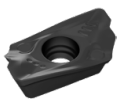
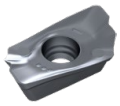
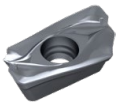
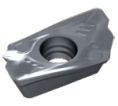


XDKT

XDKT

	-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
	-F50 DCX1220	-M50 DCX1220	-F50 DPX1225	-M50 DPX1225
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	XDKT	XDKT	XDKT	XDKT
ISO / RE mm	Article no. 51 034 ...	Article no. 51 037 ...	Article no. 51 034 ...	Article no. 51 037 ...
11T308SR / 0,8	258	258	058	058
Steel	●	●	●	●
Stainless steel				
Cast iron				
Non ferrous metals				
Heat resistant alloys				
hardened materials				

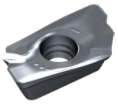
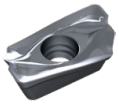
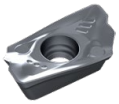
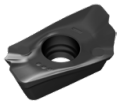
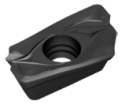
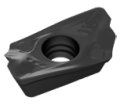
XDKT

	-F50 CTCP230	-M50 CTCP230	-R50 CTCP230	-F50 CTPP235	-M50 CTPP235	-R50 CTPP235
	-F50 DCX1230	-M50 DCX1230	-R50 DCX1230	-F50 DPX1235	-M50 DPX1235	-R50 DPX1235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
ISO / RE mm	Article no. 51 034 ...	Article no. 51 037 ...	Article no. 51 039 ...	Article no. 51 034 ...	Article no. 51 037 ...	Article no. 51 039 ...
11T304SR / 0,4	004	004	004	104	104	104
11T308SR / 0,8	008	008	008	108	108	108
11T312SR / 1,2		012			112	
11T320SR / 2,0	020 1)	020 1)	020 1)	120 1)	120 1)	120 1)
11T325SR / 2,5	025 1)	025 1)	025 1)	125 1)	125 1)	125 1)
11T332SR / 3,2				13200		
11T340SR / 4,0				14000		
Steel	●	●	●	●	●	●
Stainless steel	○	○	○	○	○	○
Cast iron						
Non ferrous metals						
Heat resistant alloys						
hardened materials						

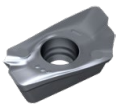
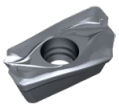
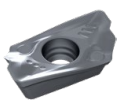
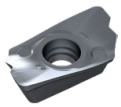
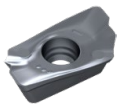
1) Insert radius > 1.6 mm: Modify cutter body

15

XDKT

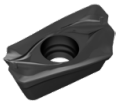
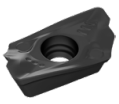
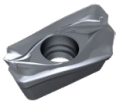
		-F50 CTPM225	-M50 CTPM225	-R50 CTPM225	-F50 CTCM235	-M50 CTCM235	-R50 CTCM235
		-F50 DPX2225	-M50 DPX2225	-R50 DPX2225	-F50 DCX2235	-M50 DCX2235	-R50 DCX2235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
ISO	RE mm	Article no. 51 034 ...	Article no. 51 037 ...	Article no. 51 039 ...	Article no. 51 034 ...	Article no. 51 037 ...	Article no. 51 039 ...
11T308SR	0,8	208	208	208	308	308	308
Steel		○	○	○	○	○	○
Stainless steel		●	●	●	●	●	●
Cast iron							
Non ferrous metals							
Heat resistant alloys							
hardened materials							

XDKT

		-F50 CTPM240	-M50 CTPM240	-R50 CTPM240	-F40 CTPM245	-F50 CTPM245
		-F50 DPX2240	-M50 DPX2240	-R50 DPX2240	-F40 DPX2245	-F50 DPX2245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XDKT	XDKT	XDKT	XDKT	XDKT
ISO	RE mm	Article no. 51 034 ...	Article no. 51 037 ...	Article no. 51 039 ...	Article no. 51 113 ...	Article no. 51 034 ...
11T304ER	0,4				454	
11T304SR	0,4		404			
11T308ER	0,8				458	
11T308SR	0,8	408	408	408		458
11T312ER	1,2				462	
11T312SR	1,2	412	412	412		
11T316ER	1,6				466	
11T320ER	2,0				470 [1]	
11T320SR	2,0	420 [1]	420 [1]	420 [1]		
11T325ER	2,5				475 [1]	
11T332ER	3,2				482 [1]	
11T332SR	3,2	432 [1]	432 [1]	432 [1]		
11T340ER	4,0				490 [1]	
Steel		○	○	○	●	●
Stainless steel		●	●	●	●	●
Cast iron						
Non ferrous metals						
Heat resistant alloys						
hardened materials						

1) Insert radius > 1.6 mm: Modify cutter body

XDKT

	-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-F20 CTWN215	-F40 CTC5240	-F40 CTCS245	-R60 CTP6215
	-M50 DCX3215	-R50 DCX3215	-M50 DPX3220	-F20 CWK4615	-F40 HCF5240		-R60 CCN6215
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	
							
	XDKT	XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
						NEW	
ISO	RE	Article no. 51 037 ...	Article no. 51 039 ...	Article no. 51 037 ...	Article no. 50 478 ...	Article no. 50 463 ...	Article no. 51 113 ...	Article no. 50 464 ...
	mm							
11T302FR	0,2				502			
11T304ER	0,4					504		
11T304FR	0,4				504			
11T304SR	0,4	504						
11T308ER	0,8					500	558	
11T308FR	0,8				508			
11T308SR	0,8	508	508	608				300
11T312ER	1,2					512	562	
11T316ER	1,6					516	566	
11T320ER	2,0					520 [1]	570	
11T320FR	2,0				520 [1]			
11T325ER	2,5					525 [1]	57500 [1]	
11T325FR	2,5				525 [1]			
11T332ER	3,2					532 [1]	582	
11T340ER	4,0					540 [1]	59000 [1]	
Steel		○	○	○				
Stainless steel								
Cast iron		●	●	●	○			●
Non ferrous metals					●			
Heat resistant alloys						●	●	
hardened materials								●

1) Insert radius > 1.6 mm: Modify cutter body

Milling guide

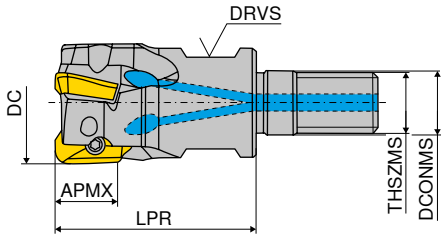
Machining strategy	→ 153	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 153
Starting Parameter	→ 155	Correction of the tooth load f_z	→ 157

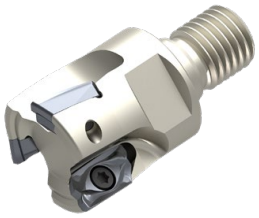
15

MaxiMill – Screw in cutter G 211-15

▲ Insert radius > 2,5 mm: Modify cutter body





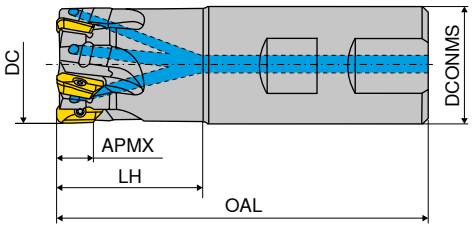


Designation	DC	ZNF	APMX	LPR	DCONMS	THSZMS	DRVS	RPMX	torque moment	Insert	Article no. 50 746 ...
	mm		mm	mm	mm		mm	1/min.	Nm		
G211.25.R.02-15	25	2	14	35	12,5	M12	17	26560	3,2	XD.T 1505	025
G211.32.R.03-15	32	3	14	35	17,0	M16	24	30200	3,2	XD.T 1505	032
G211.40.R.04-15	40	4	14	40	17,0	M16	27	27700	3,2	XD.T 1505	040

MaxiMill – End milling cutter C 211-15

▲ Insert radius > 2,5 mm: Modify cutter body











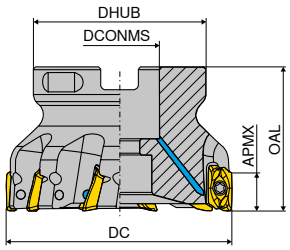


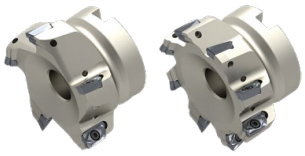
Designation	DC	ZNF	APMX	OAL	LH	DCONMS	RPMX	torque moment	Insert	Article no. 50 747 ...	Article no. 50 747 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
C211.25.R.02-15-B20-32	25	2	14	83	32	20	26560	3,2	XD.T 1505		125
C211.25.R.02-15-B/A-32	25	2	14	90	32	25	26560	3,2	XD.T 1505	225	025
C211.25.R.02-15-A-50-225	25	2	14	225	50	25	7520	3,2	XD.T 1505	325	
C211.32.R.03-15-B25-40	32	3	14	96	40	25	22160	3,2	XD.T 1505		132
C211.32.R.03-15-A-40	32	3	14	103	40	32	24160	3,2	XD.T 1505	232	
C211.32.R.03-15-B-40	32	3	14	103	40	32	24160	3,2	XD.T 1505		032
C211.32.R.03-15-A-63-250	32	3	14	250	63	32	6800	3,2	XD.T 1505	332	
C211.40.R.04-15-A-50	40	4	14	110	50	32	22160	3,2	XD.T 1505	240	
C211.40.R.04-15-B32-50	40	4	14	110	50	32	22160	3,2	XD.T 1505		040
C211.40.R.03-15-A-50-275	40	3	14	275	50	32	6120	3,2	XD.T 1505	340	

MaxiMill – Shell mill A 211-15

▲ Insert radius > 2,5 mm: Modify cutter body







Designation	DC	ZNF	APMX	OAL	DCONMS $_{H6}$	DHUB	RPMX	torque moment	Insert	Article no. 50 748 ...	Article no. 50 749 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
A211.40.R.03-15	40	3	14	40	16	38	22160	3,2	XD.T 1505	040	
A211.40.R.04-15	40	4	14	40	16	38	22160	3,2	XD.T 1505		040
A211.50.R.03-15	50	3	14	40	22	43	20320	3,2	XD.T 1505	050	
A211.50.R.05-15	50	5	14	40	22	43	20320	3,2	XD.T 1505		050
A211.63.R.04-15	63	4	14	45	22	48	18640	3,2	XD.T 1505	063	
A211.63.R.06-15	63	6	14	45	22	48	18640	3,2	XD.T 1505		063
A211.80.R.05-15	80	5	14	50	27	58	17040	3,2	XD.T 1505	080	
A211.80.R.08-15	80	8	14	50	27	58	17040	3,2	XD.T 1505		080
A211.100.R.06-15	100	6	14	50	32	78	15680	3,2	XD.T 1505	100	
A211.100.R.10-15	100	10	14	50	32	78	15680	3,2	XD.T 1505		100
A211.125.R.07-15	125	7	14	63	40	88	14320	3,2	XD.T 1505	125	
A211.125.R.11-15	125	11	14	63	40	88	14320	3,2	XD.T 1505		125
A211.160.R.08-15	160	8	14	63	40	93	13200	3,2	XD.T 1505	160	
A211.160.R.12-15	160	12	14	63	40	93	13200	3,2	XD.T 1505		160

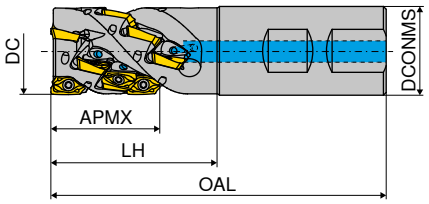
Spare parts DC	TORX® blade	 Clamping key – T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	Article no. 80 950 ...	Article no. 80 397 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
25 - 32	054		128		303	839	193
40	054	040	128	151	303	839	193
50	054	050	128	154	303	839	193
63 - 160	054		128		303	839	193

15

MaxiMill – Extended flute cutter C 211-15K

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows







B

Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	ZEFP	ZNP	torque moment Nm	Insert	NEW Article no. 50 782 ...
C211.40.R.02K3-15-B32-60	40	2	38,0	120	60	32	6	3	3,2	XD.T 1505	**04002**
C211.50.R.03K4-15-B40-64	50	3	50,5	134	64	40	12	4	3,2	XD.T 1505	**05003**


Key D

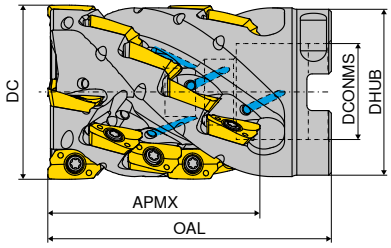

Clamping screw

Spare parts DC	Article no. 80 950 ...	Article no. 70 950 ...
40 - 50	**120**	**839**

MaxiMill – Extended flute cutter A 211-15K

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows







Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	torque moment Nm	Insert	Article no. 50 759 ...
A211.50.R.03K4-15	50	3	50,5	12	4	74	22	43	3,2	XD.T 1505	**050**
A211.50.R.03K5-15	50	3	63,0	15	5	88	22	43	3,2	XD.T 1505	**150**
A211.63.R.03K4-15	63	3	50,5	12	4	74	27	58	3,2	XD.T 1505	**063**
A211.63.R.04K6-15	63	4	75,5	24	6	102	27	58	3,2	XD.T 1505	**163**
A211.80.R.04K5-15	80	4	63,0	20	5	88	32	78	3,2	XD.T 1505	**080**
A211.80.R.05K6-15	80	5	75,5	30	6	102	32	78	3,2	XD.T 1505	**180**


Cylindrical screw

TORX® blade


Key D


Molykote


Clamping screw

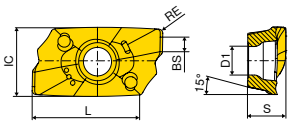

Socket head screw


Torque screwdriver

Spare parts DC	Article no. 70 950 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
50	**002**	**054**	**128**	**303**	**839**	**180**	**193**
63	**003**	**054**	**128**	**303**	**839**	**181**	**193**
80	**004**	**054**	**128**	**303**	**839**	**234**	**193**

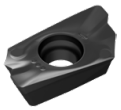
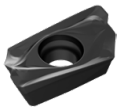
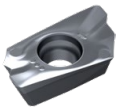
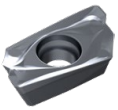
XDKT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDKT 150508..	9,3	4,4	14,8	1,6	5,56
XDKT 150512..	9,3	4,4	14,8	1,6	5,56
XDKT 150516..	9,3	4,4	14,8	1,6	5,56
XDKT 150520..	9,3	4,4	14,8	1,6	5,56
XDKT 150530..	9,3	4,4	14,8	1,6	5,56
XDKT 150532..	9,3	4,4	14,8	1,9	5,56
XDKT 150540..	9,3	4,4	14,8	1,2	5,56

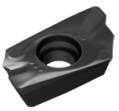
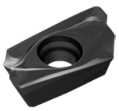
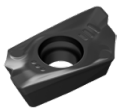
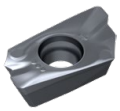
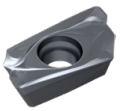
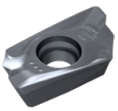


XDKT

XDKT

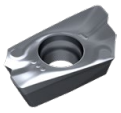
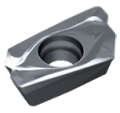
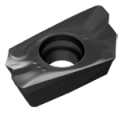
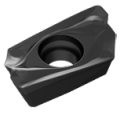
	-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
	-F50 DCX1220	-M50 DCX1220	-F50 DPX1225	-M50 DPX1225
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	 XDKT	 XDKT	 XDKT	 XDKT
ISO / RE mm	Article no. 51 035 ...	Article no. 51 038 ...	Article no. 51 035 ...	Article no. 51 038 ...
150508SR 0,8	258	258	058	058
Steel	●	●	●	●
Stainless steel				
Cast iron				
Non ferrous metals				
Heat resistant alloys				
hardened materials				

XDKT

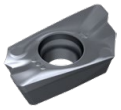
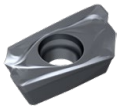
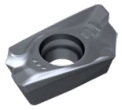
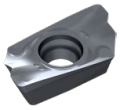
	-F50 CTCP230	-M50 CTCP230	-R50 CTCP230	-F50 CTPP235	-M50 CTPP235	-R50 CTPP235
	-F50 DCX1230	-M50 DCX1230	-R50 DCX1230	-F50 DPX1235	-M50 DPX1235	-R50 DPX1235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	 XDKT	 XDKT	 XDKT	 XDKT	 XDKT	 XDKT
ISO / RE mm	Article no. 51 035 ...	Article no. 51 038 ...	Article no. 51 040 ...	Article no. 51 035 ...	Article no. 51 038 ...	Article no. 51 040 ...
150508SR 0,8	008	008	008	108	108	108
150512SR 1,2		012			112	
150516SR 1,6		016			116	
150520SR 2,0			020		120	120
150530SR 3,0		030			130	
150540SR 4,0		040			140	
Steel	●	●	●	●	●	●
Stainless steel	○	○	○	○	○	○
Cast iron						
Non ferrous metals						
Heat resistant alloys						
hardened materials						

15

XDKT

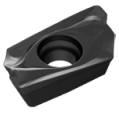
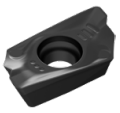
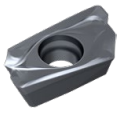
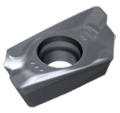
		-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-M50 CTCM235
		-F50 DPX2225	-M50 DPX2225	-F50 DCX2235	-M50 DCX2235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XDKT	XDKT	XDKT	XDKT
ISO	RE	**Article no. 51 035 ...**	**Article no. 51 038 ...**	**Article no. 51 035 ...**	**Article no. 51 038 ...**
	mm				
150508SR	0,8	**208**	**208**	**308**	**308**
Steel		○	○	○	○
Stainless steel		●	●	●	●
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

XDKT

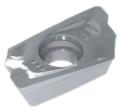
		-F50 CTPM240	-M50 CTPM240	-R50 CTPM240	-F40 CTPM245
		-F50 DPX2240	-M50 DPX2240	-R50 DPX2240	-F40 DPX2245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XDKT	XDKT	XDKT	XDKT
ISO	RE	**Article no. 51 035 ...**	**Article no. 51 038 ...**	**Article no. 51 040 ...**	**Article no. 51 114 ...**
	mm				
150508ER	0,8				**458**
150508SR	0,8	**408**	**408**	**408**	
150512SR	1,2		**412**		
150516SR	1,6		**416**		
150530SR	3,0		**430**		
150532ER	3,2				**482** [1]
150540ER	4,0				**490** [1]
150540SR	4,0		**440**		
Steel		○	○	○	●
Stainless steel		●	●	●	●
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

1) Insert radius >1.6 mm: Modify cutter body

XDKT

		-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-R50 CTPK220	-F20 CTWN215
		-M50 DCX3215	-R50 DCX3215	-M50 DPX3220	-R50 DPX3220	-F20 CWK4615
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
						
		XDKT	XDKT	XDKT	XDKT	XDKT
ISO	RE	Article no. 51 038 ...	Article no. 51 040 ...	Article no. 51 038 ...	Article no. 51 040 ...	Article no. 50 479 ...
	mm					
150508FR	0,8					508
150508SR	0,8	508	508	608	608	
Steel		○	○	○	○	
Stainless steel						
Cast iron		●	●	●	●	○
Non ferrous metals						●
Heat resistant alloys						
hardened materials						

XDKT

		-F40 CTC5240	-F40 CTCS245	-R60 CTP6215
		-F40 HCF5240		-R60 CCN6215
		DRAGONSKIN	DRAGONSKIN	
				
		XDKT	XDKT	XDKT
			NEW	
ISO	RE	Article no. 50 473 ...	Article no. 51 114 ...	Article no. 50 469 ...
	mm			
150508ER	0,8	508	558	
150508SR	0,8			300
150532ER	3,2	532 [1]		
150540ER	4,0	540 [1]	59000 [1]	
Steel				
Stainless steel				
Cast iron				●
Non ferrous metals				
Heat resistant alloys		●	●	
hardened materials				●

1) Insert radius >2.5 mm: Modify cutter body

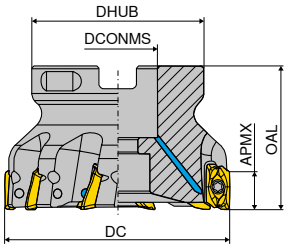
Milling guide

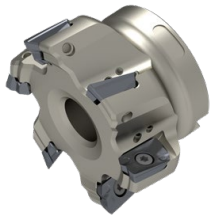
Machining strategy	→ 154	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 154
Starting Parameter	→ 155	Correction of the tooth load f_z	→ 157

15

MaxiMill – Shell mill A 211-20





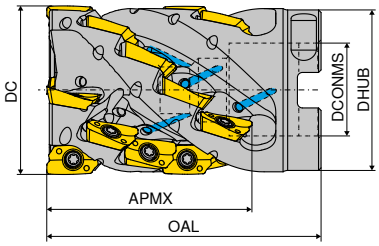


Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	NEW Article no. 50 778 ...
A211.63.R.05-20	63	5	19	45	22	48	14400	5	XD.. 2007..	**06305**
A211.80.R.06-20	80	6	19	50	27	58	12400	5	XD.. 2007..	**08006**
A211.100.R.07-20	100	7	19	50	32	78	10900	5	XD.. 2007..	**10007**

MaxiMill – Extended flute cutter A 211-20K

- ZEFP = Number of Inserts
- ZNP = Number of rows





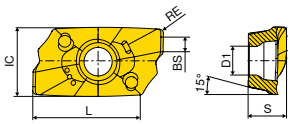


Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	torque moment Nm	Insert	NEW Article no. 50 780 ...
A211.63.R.04K4-20	63	4	68	16	4	92	27	58	3,2	XD.. 2007..	**06304**
A211.80.R.05K4-20	80	5	68	20	4	92	32	76	3,2	XD.. 2007..	**08005**

Spare parts DC	 Cylindrical screw Article no. 70 950 ...	TORX® blade Article no. 80 950 ...	 Key D Article no. 80 950 ...	 Molykote Article no. 70 950 ...	 Clamping screw Article no. 70 950 ...	 Socket head screw Article no. 70 950 ...	 Torque screwdriver Article no. 80 950 ...
63	**003**	**037**	**106**	**303**	**280**	**181**	**193**
80	**004**	**037**	**106**	**303**	**280**	**234**	**193**
100		**037**	**106**	**303**	**280**		**193**

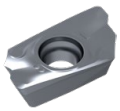
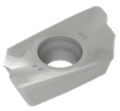
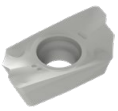
XDKT

Designation	IC	D1	L	S
	mm	mm	mm	mm
XDKT 200708..	12,5	5,5	18,8	6,93
XDKT 200732..	12,5	5,5	18,8	6,82



XDKT

XDKT

	-F40 CTPM245	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN	DRAGONSKIN
	 XDKT	 XDKT	 XDKT
	NEW	NEW	NEW
	Article no. 51 127 ...	Article no. 51 127 ...	Article no. 51 127 ...
ISO RE mm			
200708ER 0,8	**45800**	**15800**	**55800**
200732ER 3,2		**18200**	
Steel	●		
Stainless steel	●		
Cast iron			
Non ferrous metals			
Heat resistant alloys		●	●
hardened materials			

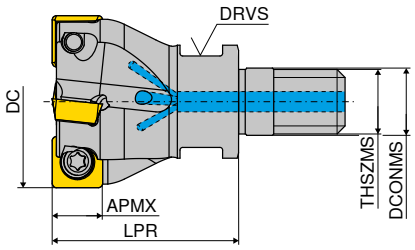
Milling guide

Machining strategy	→ 156	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 156
Starting Parameter	→ 156	Correction of the tooth load f_z	→ 157

15

MaxiMill – Screw in cutter G 490-09



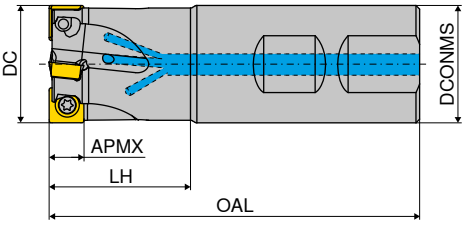




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	Article no. 50 726 ...
G490.25.R.03-09	25	3	8	35	M12	12,5	17	3,2	SD.. 09T3..	025
G490.32.R.04-09	32	4	8	35	M16	17,0	24	3,2	SD.. 09T3..	032

MaxiMill – End milling cutter C 490-09









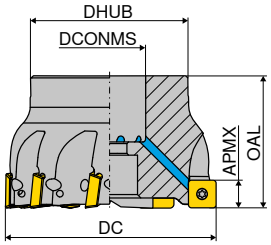


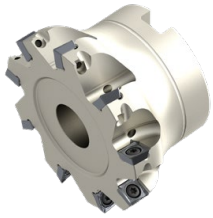


Designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	torque moment Nm	Insert	Article no. 50 727 ... A	Article no. 50 727 ... B
C490.25.R.03-09-B-32	25	3	8	25	88	32	3,2	SD.. 09T3..		025
C490.25.R.02-09-A-20	25	2	8	20	165	40	3,2	SD.. 09T3..	225	
C490.25.R.02-09-A-40-165	25	2	8	25	165	40	3,2	SD.. 09T3..	125	
C490.32.R.04-09-B-25	32	4	8	25	100	40	3,2	SD.. 09T3..		132
C490.32.R.04-09-B-40	32	4	8	32	100	40	3,2	SD.. 09T3..		032

MaxiMill – Shell mill A 490-09



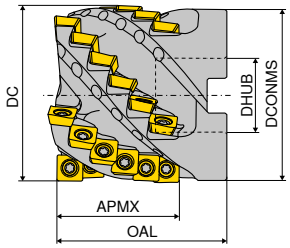


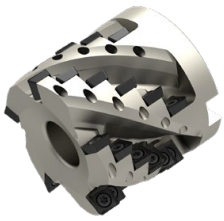


Designation	DC mm	ZNF	APMX mm	DHUB mm	DCONMS H6 mm	OAL mm	torque moment Nm	Insert	Article no. 50 728 ...
A490.40.R.05-09	40	5	8	38	16	40	3,2	SD.. 09T3..	040
A490.42.R.06-09	42	6	8	38	16	40	3,2	SD.. 09T3..	042
A490.50.R.06-09	50	6	8	43	22	40	3,2	SD.. 09T3..	050
A490.52.R.07-09	52	7	8	43	22	40	3,2	SD.. 09T3..	052
A490.63.R.07-09	63	7	8	48	22	40	3,2	SD.. 09T3..	063
A490.66.R.08-09	66	8	8	48	22	40	3,2	SD.. 09T3..	066
A490.80.R.09-09	80	9	8	58	27	50	3,2	SD.. 09T3..	080
A490.100.R.10-09	100	10	8	78	32	50	3,2	SD.. 09T3..	100
A490.160.R.14-09	160	14	8	88	40	62	3,2	SD.. 09T3..	160

MaxiMill – Extended flute cutter A 490K

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows





Designation	DC	ZNF	APMX	ZEFP	ZNP	OAL	DCONMS $_{H6}$	DHUB	torque moment	Insert	Article no. 50 761 ...
	mm		mm			mm	mm	mm	Nm		
A490.40.R.03K6-09	40	3	41	18	6	55	16	38	3,2	SD.. 09T3..	**040**
A490.50.R.04K6-09	50	4	41	24	6	55	22	48	3,2	SD.. 09T3..	**050**
A490.63.R.05K6-09	63	5	41	30	6	60	27	61	3,2	SD.. 09T3..	**063**

TORX® blade


Clamping key – T


Key D


Power Screw

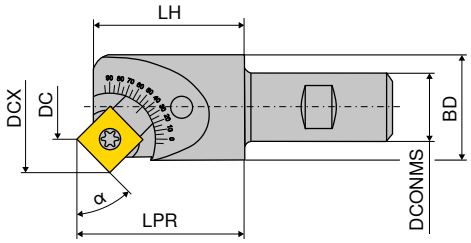

Molykote


Clamping screw


Torque screwdriver

Spare parts DC	Article no. 80 950 ...	Article no. 80 397 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
25 - 32	**036**		**113**		**303**	**110**	**192**
40 - 42	**036**	**040**	**113**	**151**	**303**	**110**	**192**
50 - 160	**036**		**113**		**303**	**110**	**192**

Adjustable single angle milling cutter C 4500







Designation	DC	DCX	ZNF	LPR	DCONMS	LH	BD	torque moment	Insert	Article no. 50 668 ...
	mm	mm		mm	mm	mm	mm	Nm		
C4500.16.R.01	3,0 - 20,8	20,3 - 23,9	1	33,0 - 35,0	16	32	18,65	3,2	SD.. 09T3..	**116**


Cylindrical screw


Adjustment wedge

TORX® blade


Key D


Molykote


Clamping screw

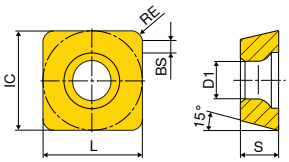

Torque screwdriver

Spare parts Insert	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
SD.. 09T3..	**709**	**708**	**036**	**113**	**303**	**110**	**192**

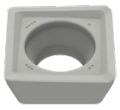
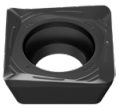
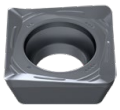
15

SDHT / SDNT

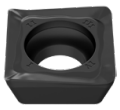
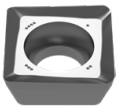
Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
SD.T 09T3..	9,52	4,4	9,52	2,5	3,97



SDHT / SDNT

	TCM10	-29 CTCP230	CTPP235	-29 CTPP235	-33 CTPM240	-F50 CTPM245
	CWC10	-29 DCX1230	DPX1235	-29 DPX1235	-33 DPX2240	-F50 DPX2245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	CERMET					
	SDHT	SDNT	SDNT	SDNT	SDNT	SDNT
ISO RE mm	Article no. 50 424 ...	Article no. 51 011 ...	Article no. 51 082 ...	Article no. 51 011 ...	Article no. 51 030 ...	Article no. 51 111 ...
09T308ER 0,8			108			458
09T308SR 0,8	900	008		108	408	
Steel	●	●	●	●	○	●
Stainless steel	●	○	○	○	●	●
Cast iron	○					
Non ferrous metals						
Heat resistant alloys						
hardened materials						

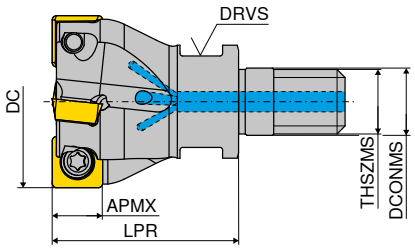
SDNT / SDHT

	-31 CTCK215	-27P H216T	-27P AMZ	-27 CTC5240	-M31 CTC5240	-F10 CTCS245
	-31 DCX3215	-27P CWK26	-27P AMZ	-AL HCF5240	-M31 HCF5240	
	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	SDNT	SDHT	SDHT	SDHT	SDNT	SDHT
						NEW
ISO RE mm	Article no. 51 029 ...	Article no. 50 424 ...	Article no. 50 424 ...	Article no. 50 496 ...	Article no. 50 425 ...	Article no. 51 125 ...
09T308ER 0,8				508	508	55800
09T308FR 0,8		550	650			
09T308SR 0,8	508					
Steel	○					
Stainless steel						
Cast iron	●	○	○			
Non ferrous metals		●	●			
Heat resistant alloys				●	●	●
hardened materials						

Milling guide

Machining strategy	→ 157+186	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 157+186
Starting Parameter	→ 157	Correction of the tooth load f_z	→ 157

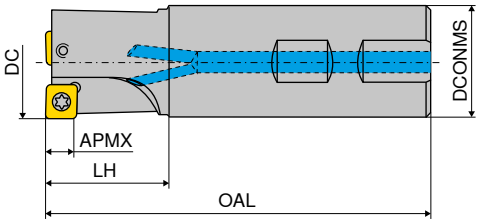
MaxiMill – Screw in cutter G 490-12





Designation	DC	ZNF	APMX	LPR	THSZMS	DCONMS	DRVS	torque moment	Insert	Article no. 50 726 ...
	mm		mm	mm		mm	mm	Nm		
G490.32.R.03-12	32	3	10,7	35	M16	17	24	3,2	SD.. 1205..	13200
G490.40.R.04-12	40	4	10,7	40	M16	17	24	3,2	SD.. 1205..	14000

MaxiMill – End milling cutter C 490-12

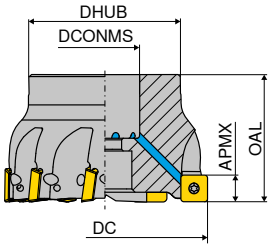


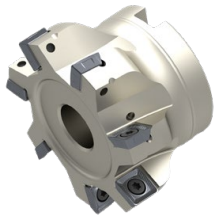


B

Designation	DC	ZNF	APMX	DCONMS	OAL	LH	torque moment	Insert	Article no. 50 703 ...
	mm		mm	mm	mm	mm	Nm		
C490.32.R.02	32	2	11	32	110	40	5	SD.. 1205..	032
C490.32.R.03-12-B-40	32	3	11	32	101	40	5	SD.. 1205..	13200
C490.40.R.03	40	3	11	32	115	45	5	SD.. 1205..	040
C490.40.R.04-12-B32-50	40	4	11	32	112	50	5	SD.. 1205..	14000

MaxiMill – Shell mill A 490-12



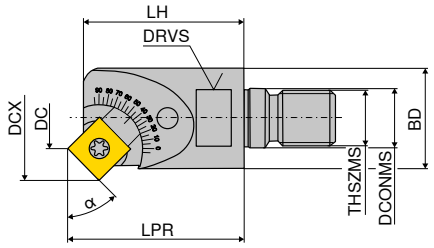


Designation	DC	ZNF	APMX	DHUB	DCONMS	OAL	torque moment	Insert	Article no. 50 703 ...
	mm		mm	mm	mm	mm	Nm		
A490.40.R.04-12	40	4	11	38	16	40	5	SD.. 1205..	54000
A490.50.R.05-12	50	5	11	43	22	40	5	SD.. 1205..	550
A490.63.R.06-12	63	6	11	48	22	40	5	SD.. 1205..	563
A490.80.R.07-12	80	7	11	58	27	50	5	SD.. 1205..	580
A490.100.R.08-12	100	8	11	75	32	50	5	SD.. 1205..	600
A490.125.R.10-12	125	10	11	88	40	63	5	SD.. 1205..	625

15

	TORX® blade	 Clamping key – T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
Spare parts DC	**Article no. 80 950 ...**	**Article no. 80 397 ...**	**Article no. 80 950 ...**	**Article no. 70 950 ...**	**Article no. 70 950 ...**	**Article no. 70 950 ...**	**Article no. 80 950 ...**
32 - 40	037		114		303	280	193
50 - 125	037	040	114	151	303	280	193

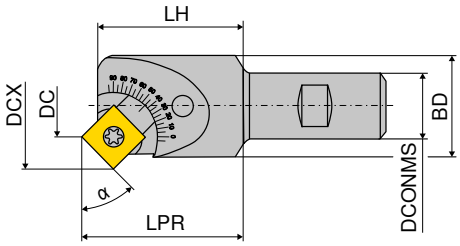
Adjustable single angle milling cutter with threaded shank G 4500





Designation	DC	DCX	ZNF	LPR	THSZMS	DCONMS	LH	BD	DRVS	torque moment	Insert	Article no. 55 210 ...
	mm	mm		mm		mm	mm	mm	mm	Nm		
G4500.20.R.01	7,1 - 31,0	30,5 - 35,45	1	48 - 50	M16	17	46	28,5	24	5	SD.. 1205..	**020**

Adjustable single angle milling cutter C 4500





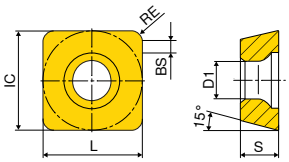


Designation	DC	DCX	ZNF	LPR	DCONMS	LH	BD	torque moment	Insert	Article no. 50 668 ...
	mm	mm		mm	mm	mm	mm	Nm		
C4500.20.R.01	3,7 - 27,8	27,3 - 32,2	1	35,9 - 40,5	20	37	25	5	SD.. 1205..	**020**

	 Cylindrical screw	 Adjustment wedge	TORX® blade	Key D	 Molykote	 Clamping screw	 Torque screwdriver
Spare parts	**Article no. 70 950 ...**	**Article no. 70 950 ...**	**Article no. 80 950 ...**	**Article no. 80 950 ...**	**Article no. 70 950 ...**	**Article no. 70 950 ...**	**Article no. 80 950 ...**
Insert							
SD.. 1205..	**706**	**705**	**037**	**114**	**303**	**280**	**193**

SDHW / SDMT / SDHT

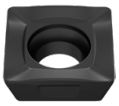
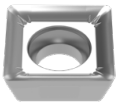
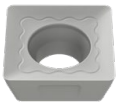
Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
SDH. 120508..	12,7	5,5	12,7	2,2	5,00
SDHT 120512..	12,7	5,5	12,7	1,8	5,00
SDHT 120520..	12,7	5,5	12,7	1,0	5,00
SDHT 120525..	12,7	5,5	12,7	1,5	5,00
SDMT 120508..	12,7	5,5	12,7	3,0	5,00
SDMT 1205ZZ..	12,7	5,5	12,7	0,9	5,00



SDHW / SDMT / SDHT

	TCM10	-29 CTCP230	-29 CTPP235	-29 CTPM240	-33 CTPM240	-F50 CTPM245
	CWC10	-29 DCX1230	-29 DPX1235	-29 DPX2240	-33 DPX2240	-F50 DPX2245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	CERMET SDHW	SDMT	SDMT	SDMT	SDHT	SDMT
ISO / RE mm	Article no. 50 428 ...	Article no. 51 081 ...	Article no. 51 081 ...	Article no. 51 081 ...	Article no. 51 028 ...	Article no. 51 110 ...
120508ER 0,8						458
120508SR 0,8	901					
120512SR 1,2					412	
120520SR 2,0					421	
1205ZZSN 0,8		020	120	420		
Steel	●	●	●	○	○	●
Stainless steel	●	○	○	●	●	●
Cast iron	○					
Non ferrous metals						
Heat resistant alloys						
hardened materials						

SDMT / SDHT

	-31 CTCK215	-27P H216T	-27P AMZ	-M31 CTC5240	-F50 CTCS245
	-31 DCX3215	-ALP CWK26	-ALP AMZ	-M31 HCF5240	
	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN
					
	SDMT	SDHT	SDHT	SDMT	SDMT
ISO / RE mm	Article no. 51 059 ...	Article no. 50 426 ...	Article no. 50 426 ...	Article no. 50 580 ...	NEW Article no. 51 110 ...
120508ER 0,8				508	55800
120508FR 0,8		555	655		
120525FR 2,5		559			
1205ZZSN 0,8	521				
Steel	○				
Stainless steel					
Cast iron	●	○	○		
Non ferrous metals		●	●		
Heat resistant alloys				●	●
hardened materials					

Milling guide

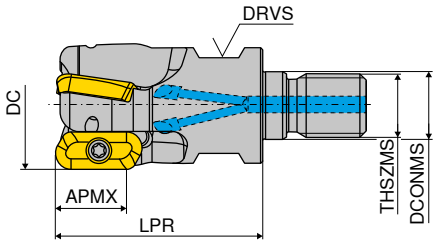
Machining strategy	→ 158+186	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 158+186
Starting Parameter	→ 158		

15

MaxiMill – Screw in cutter 90° G HSC-11

▲ Insert radius > 3.2 mm: Modify cutter body





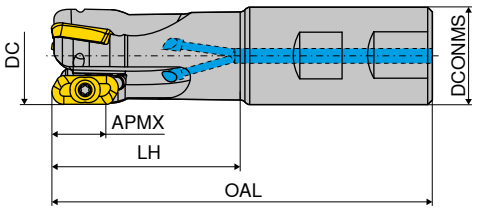


Designation	DC	ZNF	APMX	DCONMS	LPR	THSZMS	RPMX	DRVS	torque moment	Insert	Article no. 55 107 ...
	mm		mm	mm	mm		1/min.	mm	Nm		
GHSC.16.R.02-11	16	2	10	8,5	27	M8	56000	10	1,8	XDHT 11T3..	016
GHSC.18.R.02-11	18	2	10	8,5	27	M8	53100	10	1,8	XDHT 11T3..	018
GHSC.20.R.02-11	20	2	10	10,5	33	M10	50100	15	1,8	XDHT 11T3..	020
GHSC.25.R.03-11	25	3	10	12,5	35	M12	45000	17	1,8	XDHT 11T3..	025
GHSC.32.R.03-11	32	3	10	17,0	35	M16	39800	24	1,8	XDHT 11T3..	032
GHSC.40.R.03-11	40	3	10	17,0	35	M16	35500	24	1,8	XDHT 11T3..	040

MaxiMill – End milling cutter 90° C HSC-11

▲ Insert radius > 3.2 mm: Modify cutter body







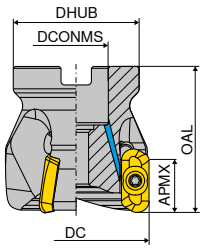


Designation	DC	ZNF	APMX	DCONMS h6	OAL	LH	RPMX	torque moment	Insert	Article no. 50 675 ...	Article no. 50 675 ...
	mm		mm	mm	mm	mm	1/min.	Nm		A	B
CHSC.16.R.02-11-B/A-25	16	2	10	16	75	25	56200	1,8	XDHT 11T3..	016	416
CHSC.16.R.02-11-A-32	16	2	10	16	165	32	18800	1,8	XDHT 11T3..	116	
CHSC.18.R.02-11-A-25	18	2	10	20	78	25	56100	1,8	XDHT 11T3..	018	
CHSC.18.R.02-11-A-32	18	2	10	20	165	32	23900	1,8	XDHT 11T3..	118	
CHSC.19.R.02-11-A-25	19	2	10	20	78	25	51700	1,8	XDHT 11T3..	019	
CHSC.19.R.02-11-A-32	19	2	10	20	165	32	25400	1,8	XDHT 11T3..	119	
CHSC.20.R.02-11-A-32	20	2	10	20	84	32	50100	1,8	XDHT 11T3..	020	
CHSC.20.R.03-11-B-32	20	3	10	20	84	32	50100	1,8	XDHT 11T3..		420
CHSC.20.R.02-11-A-40	20	2	10	20	165	40	26700	1,8	XDHT 11T3..	120	
CHSC.22.R.02-11-A-32	22	2	10	25	91	32	47800	1,8	XDHT 11T3..	022	
CHSC.22.R.02-11-A-40	22	2	10	25	165	40	30200	1,8	XDHT 11T3..	122	
CHSC.25.R.02-11-A-40	25	2	10	25	98	40	45000	1,8	XDHT 11T3..	025	
CHSC.25.R.03-11-A-40	25	3	10	25	98	40	45000	1,8	XDHT 11T3..	225	
CHSC.25.R.04-11-B-40	25	4	10	25	98	40	45000	1,8	XDHT 11T3..		425
CHSC.25.R.02-11-A-50	25	2	10	25	165	50	31700	1,8	XDHT 11T3..	125	
CHSC.25.R.03-11-A-50	25	3	10	25	165	50	31700	1,8	XDHT 11T3..	325	
CHSC.32.R.03-11-A-50	32	3	10	32	112	50	39800	1,8	XDHT 11T3..	032	
CHSC.32.R.05-11-B-50	32	5	10	25	112	50	39800	1,8	XDHT 11T3..		432
CHSC.32.R.03-11-A-63	32	3	10	32	165	63	33400	1,8	XDHT 11T3..	132	

MaxiMill – Shell mill 90° A HSC-11

▲ Insert radius > 3.2 mm: Modify cutter body







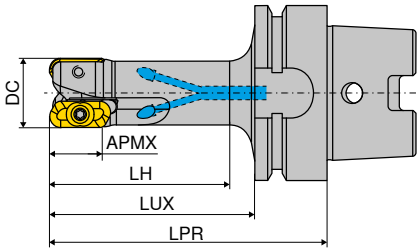
Designation	DC	ZNF	APMX	DCONMS $_{H6}$	DHUB	OAL	RPMX	torque moment	Insert	Article no. 50 718 ...
	mm		mm	mm	mm	mm	1/min.	Nm		
AHSC.40.R.04-11	40	4	10	16	38	50	35500	1,8	XDHT 11T3..	**040**
AHSC.50.R.04-11	50	4	10	22	43	50	31800	1,8	XDHT 11T3..	**050**
AHSC.63.R.05-11	63	5	10	22	43	50	28300	1,8	XDHT 11T3..	**063**
AHSC.80.R.05-11	80	5	10	27	58	50	25100	1,8	XDHT 11T3..	**080**
AHSC.100.R.05-11	100	5	10	32	78	50	22400	1,8	XDHT 11T3..	**100**

MaxiMill – Milling cutter 90° M HSC-11 with HSK 63-A

▲ balanced to G 6,3

▲ Insert radius > 3.2 mm: Modify cutter body







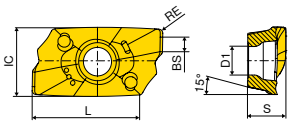
Designation	DC	ZNF	APMX	LPR	LH	LUX	RPMX	torque moment	Insert	Article no. 50 722 ...
	mm		mm	mm	mm	mm	1/min.	Nm		
MHSC.25.R.03-11-H63A-50	25	3	10	90	50	64	45000	1,8	XDHT 11T3..	**025**
MHSC.25.R.03-11-H63A-63	25	3	10	100	63	74	42000	1,8	XDHT 11T3..	**125**
MHSC.32.R.03-11-H63A-63	32	3	10	100	63	74	39800	1,8	XDHT 11T3..	**032**
MHSC.32.R.03-11-H63A-80	32	3	10	120	80	94	37200	1,8	XDHT 11T3..	**132**
MHSC.40.R.04-11-H63A-63	40	4	10	100	63	74	35500	1,8	XDHT 11T3..	**040**
MHSC.40.R.04-11-H63A-80	40	4	10	120	80	94	35500	1,8	XDHT 11T3..	**140**
MHSC.50.R.04-11-H63A-63	50	4	10	100	63	74	31800	1,8	XDHT 11T3..	**050**
MHSC.50.R.04-11-H63A-100	50	4	10	140	100	114	31800	1,8	XDHT 11T3..	**150**

Spare parts DC	TORX® blade Article no. 80 950 ...	 Clamping key – T Article no. 80 397 ...	 Key D Article no. 80 950 ...	 Power Screw Article no. 70 950 ...	 Molykote Article no. 70 950 ...	 Clamping screw Article no. 70 950 ...	 Torque screwdriver Article no. 80 950 ...
16 - 25	**043**		**125**		**303**	**128**	**192**
32	**043**		**125**		**303**	**131**	**192**
40	**043**	**040**	**125**	**151**	**303**	**131**	**192**
50 - 63	**043**	**050**	**125**	**154**	**303**	**131**	**192**
80 - 100	**043**		**125**		**303**	**131**	**192**

15

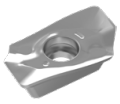
XDKT / XDHT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XD.T 11T302FR	6,8	2,8	10,6	2	3,80
XD.T 11T304FR	6,8	2,8	10,6	1,8	3,80
XD.T 11T308FR	6,8	2,8	10,6	1,4	3,80
XD.T 11T320FR	6,8	2,8	10,6	1,4	3,80
XD.T 11T325FR	6,8	2,8	10,6	1,4	3,80
XDHT 11T312FR	6,8	2,8	10,6	1,4	3,80
XDHT 11T316FR	6,8	2,8	10,6	1,4	3,80
XDHT 11T332FR	6,8	2,8	10,6	0,8	3,80
XDHT 11T340FR	6,8	2,8	10,6	-	3,80
XDHT 11T350FR	6,8	2,8	10,6	-	3,80



XDKT

XDKT / XDHT

		-F20 CTWN215	-27P H216T
		-F20 CWK4615	-ALP CWK26
		 XDKT	 XDHT
ISO	RE	**Article no. 50 478 ...**	**Article no. 50 477 ...**
	mm		
11T302FR	0,2	**502**	**502**
11T304FR	0,4	**504**	**504**
11T308FR	0,8	**508**	**508**
11T312FR	1,2		**512**
11T316FR	1,6		**516**
11T320FR	2,0	**520** [1]	**520** [1]
11T325FR	2,5	**525** [1]	**525** [1]
11T332FR	3,2		**532** [1]
11T340FR	4,0		**540** [1]
11T350FR	5,0		**550** [1]
Steel			
Stainless steel			
Cast iron		○	○
Non ferrous metals		●	●
Heat resistant alloys			
hardened materials			

1) Insert radius >1.6 mm: Modify cutter body

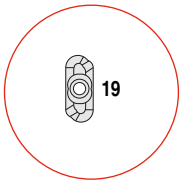
Milling guide

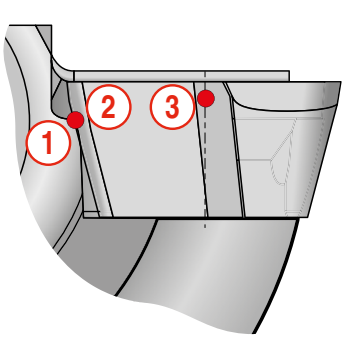
Machining strategy	→ 161–165	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 160+163
Safety advice	→ 159		

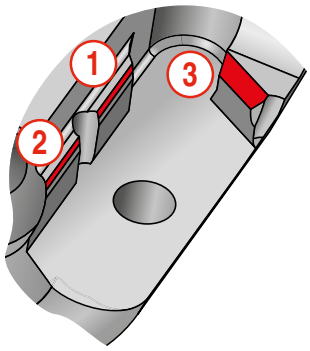
MaxiMill HSC-19

For medium – high number of revolutions

n_{max} = 34400 min^{-1}
$a_{p\,max}$ = 18 mm







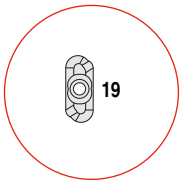
(1) (2) Radial contact points
- ▲ Guaranteed 90° corner angles and exact radial run-out

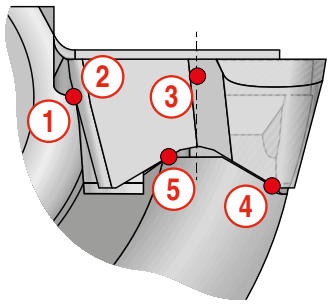
(3) Axial contact point
- ▲ guarantees precise axial run-out

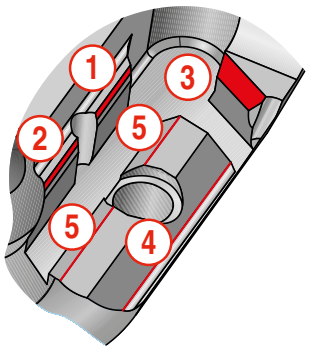
MaxiMill HPC-19

For maximum number of revolutions

n_{max} = 45200 min^{-1}
$a_{p\,max}$ = 18 mm







Roof-shaped surface, included angle 140°
- ▲ greater stability, higher security
- ▲ guaranteed positive connection between insert and tool

(1) (2) Radial contact points
- ▲ Guaranteed 90° corner angles and exact radial run-out

(3) Axial contact point
- ▲ guarantees precise axial run-out

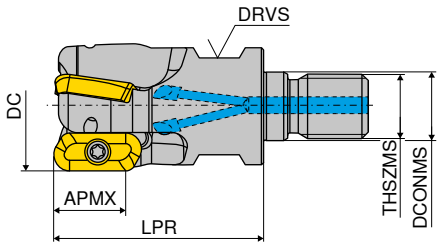
(4) (5) Contact Point
- ▲ resist machining and centrifugal forces

15

MaxiMill – Screw-in cutter 90° G HSC-19

▲ Insert radius > 4.0 mm: Modify cutter body





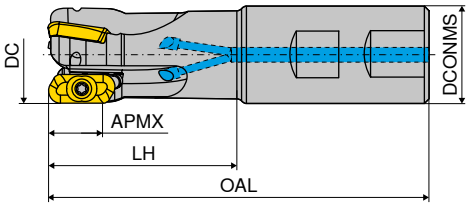


Designation	DC	ZNF	APMX	DCONMS	LPR	THSZMS	DRVS	RPMX	torque moment	Insert	Article no. 55 108 ...
	mm		mm	mm	mm		mm	1/min.	Nm		
GHSC.25.R.02-19	25	2	18	12,5	45	M12	17	34400	5	XDHT 1904..	025
GHSC.32.R.03-19	32	3	18	17,0	52	M16	24	29100	5	XDHT 1904..	032
GHSC.40.R.03-19	40	3	18	17,0	52	M16	24	24900	5	XDHT 1904..	040

MaxiMill – End milling cutter 90° C HSC-19

▲ Insert radius > 4.0 mm: Modify cutter body











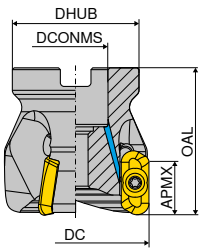


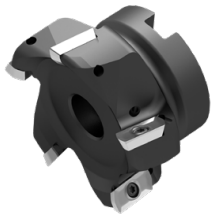
Designation	DC	ZNF	APMX	DCONMS $_{h5}$	OAL	LH	RPMX	torque moment	Insert	Article no. 50 679 ...	Article no. 50 679 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
CHSC.25.R.02-19-A-50	25	2	18	25	121	50	32400	5	XDHT 1904..	225	
CHSC.25.R.02-19	25	2	18	25	121	65	32400	5	XDHT 1904..		025
CHSC.25.R.02-19-A-63	25	2	18	25	165	63	24700	5	XDHT 1904..	325	
CHSC.32.R.02-19-A-63	32	2	18	32	125	63	28900	5	XDHT 1904..	232	
CHSC.32.R.03-19-A-63	32	3	18	32	125	63	28900	5	XDHT 1904..	432	
CHSC.32.R.03-19	32	3	18	32	125	65	28900	5	XDHT 1904..		033
CHSC.32.R.02-19	32	2	18	32	125	65	28900	5	XDHT 1904..		032
CHSC.32.R.02-19-A-80	32	2	18	32	165	80	24400	5	XDHT 1904..	332	
CHSC.32.R.03-19-A-80	32	3	18	32	165	80	24400	5	XDHT 1904..	532	

MaxiMill – Shell mill 90° A HSC-19

▲ Insert radius > 4.0 mm: Modify cutter body







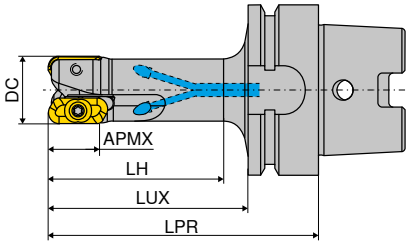
Designation	DC	ZNF	APMX	DCONMS H6	DHUB	OAL	RPMX	torque moment	Insert	Article no. 50 716 ...
	mm		mm	mm	mm	mm	1/min.	Nm		
AHSC.40.R.03-19	40	3	18	16	38	50	24900	5	XDHT 1904..	**040**
AHSC.50.R.04-19	50	4	18	22	43	50	21600	5	XDHT 1904..	**050**
AHSC.63.R.04-19	63	4	18	22	48	50	18800	5	XDHT 1904..	**163**
AHSC.63.R.05-19	63	5	18	22	48	50	18800	5	XDHT 1904..	**063**
AHSC.80.R.04-19	80	4	18	27	58	50	16400	5	XDHT 1904..	**180**
AHSC.80.R.05-19	80	5	18	27	58	50	16400	5	XDHT 1904..	**080**
AHSC.100.R.04-19	100	4	18	32	78	50	14500	5	XDHT 1904..	**200**
AHSC.100.R.05-19	100	5	18	32	78	50	14500	5	XDHT 1904..	**100**
AHSC.125.R.05-19	125	5	18	40	88	63	12800	5	XDHT 1904..	**125**
AHSC.125.R.06-19	125	6	18	40	88	63	12800	5	XDHT 1904..	**225**

MaxiMill – Milling cutter 90° M HSC-19 with HSK 63-A

▲ balanced to G 6,3

▲ Insert radius > 4.0 mm: Modify cutter body







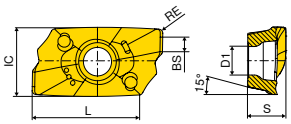
Designation	DC	ZNF	APMX	LPR	LH	LUX	RPMX	torque moment	Insert	Article no. 50 720 ...
	mm		mm	mm	mm	mm	1/min.	Nm		
MHSC.25.R.02-19-H63A-50	25	2	18	90	50	64	35000	5	XDHT 1904..	**525**
MHSC.25.R.02-19-H63A-63	25	2	18	100	63	74	32700	5	XDHT 1904..	**625**
MHSC.32.R.02-19-H63A-63	32	2	18	100	63	74	29100	5	XDHT 1904..	**532**
MHSC.32.R.02-19-H63A-80	32	2	18	120	80	94	27200	5	XDHT 1904..	**632**
MHSC.32.R.03-19-H63A-63	32	3	18	100	63	74	29100	5	XDHT 1904..	**732**
MHSC.32.R.03-19-H63A-80	32	3	18	120	80	94	27200	5	XDHT 1904..	**832**
MHSC.40.R.03-19-H63A-63	40	3	18	100	63	74	24900	5	XDHT 1904..	**540**
MHSC.40.R.03-19-H63A-80	40	3	18	120	80	94	24900	5	XDHT 1904..	**640**
MHSC.50.R.03-19-H63A-100	50	3	18	140	100	114	21600	5	XDHT 1904..	**550**

Spare parts DC	TORX® blade Article no. 80 950 ...	 Clamping key – T Article no. 80 397 ...	 Key D Article no. 80 950 ...	 Power Screw Article no. 70 950 ...	 Molykote Article no. 70 950 ...	 Clamping screw Article no. 70 950 ...	 Torque screwdriver Article no. 80 950 ...
25	**036**		**113**		**303**	**172**	**193**
32	**036**		**113**		**303**	**173**	**193**
40	**036**	**040**	**113**	**151**	**303**	**173**	**193**
50 - 63	**036**	**050**	**113**	**154**	**303**	**174**	**193**
80 - 125	**036**		**113**		**303**	**174**	**193**

15

XDHT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDHT 190402..	9,52	4,65	19	2	4,76
XDHT 190404..	9,52	4,65	19	2	4,76
XDHT 190408..	9,52	4,65	19	2	4,76
XDHT 190412..	9,52	4,65	19	2	4,76
XDHT 190416..	9,52	4,65	19	2	4,76
XDHT 190420..	9,52	4,65	19	2	4,76
XDHT 190425..	9,52	4,65	19	1,4	4,76
XDHT 190432..	9,52	4,65	19	1	4,76
XDHT 190440..	9,52	4,65	19	1	4,76
XDHT 190450..	9,52	4,65	19	-	4,76

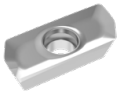


XDKT

XDHT

-27P
H216T

-ALP
CWK26


XDHT

ISO	RE	Article no. 50 487 ...
	mm	
190402FR	0,2	**552**
190404FR	0,4	**554**
190408FR	0,8	**556**
190412FR	1,2	**557**
190416FR	1,6	**558**
190420FR	2,0	**560**
190425FR	2,5	**562**
190432FR	3,2	**564**
190440FR	4,0	**566**
190450FR	5,0	**568** 1)

Steel	
Stainless steel	
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

1) Insert radius >4.0 mm: Modify cutter body

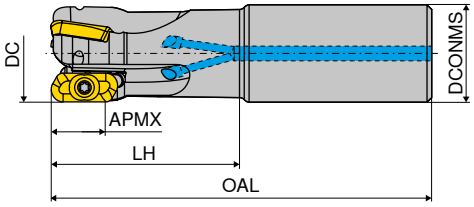
Milling guide

Machining strategy	→ 161–165	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 160+163
Safety advice	→ 159		

MaxiMill – End milling cutter 90° C HPC-19

▲ Shank type to DIN 1835-A
▲ Insert radius > 4.0 mm: Modify cutter body







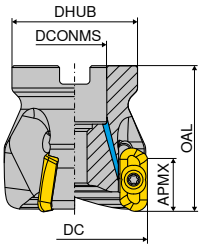
A

Designation	DC mm	ZNF	APMX mm	DCONMS $_{h5}$ mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	Article no. 50 680 ...
CHPC.22.R.02-19-A-40	22	2	18	22	165	40	31900	5	XDHX 1904..	**122**
CHPC.25.R.02-19-A-50	25	2	18	25	121	50	41800	5	XDHX 1904..	**125**
CHPC.25.R.02-19-A-63	25	2	18	25	165	63	31900	5	XDHX 1904..	**225**
CHPC.32.R.02-19-A-63	32	2	18	32	125	63	39800	5	XDHX 1904..	**132**
CHPC.32.R.02-19-A-80	32	2	18	32	165	80	33500	5	XDHX 1904..	**232**
CHPC.32.R.03-19-A-63	32	3	18	32	125	63	39800	5	XDHX 1904..	**332**
CHPC.32.R.03-19-A-80	32	3	18	32	165	80	33500	5	XDHX 1904..	**432**

MaxiMill – Shell mill 90° A HPC-19

▲ Insert radius > 4.0 mm: Modify cutter body





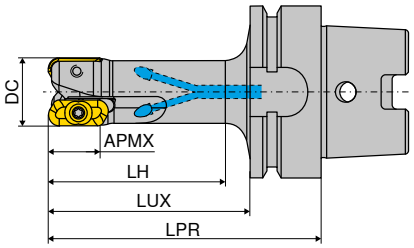


Designation	DC mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	RPMX 1/min.	torque moment Nm	Insert	Article no. 50 717 ...
AHPC.40.R.03-19	40	3	18	16	38	50	35700	5	XDHX 1904..	**040**
AHPC.50.R.03-19	50	3	18	22	43	50	31900	5	XDHX 1904..	**050**
AHPC.63.R.03-19	63	3	18	22	48	50	28500	5	XDHX 1904..	**063**
AHPC.63.R.04-19	63	4	18	22	48	50	28500	5	XDHX 1904..	**163**

MaxiMill – Milling cutter 90° M HPC-19 with HSK 63-A

- balanced to G 6,3
- Insert radius > 4.0 mm: Modify cutter body





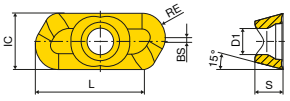


Designation	DC	ZNF	APMX	LPR	LH	LUX	RPMX	torque moment	Insert	Article no. 50 721 ...
	mm		mm	mm	mm	mm	1/min.	Nm		
MHPC.25.R.02-19-H63A-50	25	2	18	90	50	64	45200	5	XDHX 1904..	**025**
MHPC.25.R.02-19-H63A-63	25	2	18	100	63	74	42300	5	XDHX 1904..	**125**
MHPC.25.R.02-19-H63A-80	25	2	18	120	80	94	38400	5	XDHX 1904..	**225**
MHPC.25.R.02-19-H63A-100	25	2	18	140	100	114	33900	5	XDHX 1904..	**325**
MHPC.32.R.02-19-H63A-63	32	2	18	100	63	74	40000	5	XDHX 1904..	**032**
MHPC.32.R.03-19-H63A-63	32	3	18	100	63	74	40000	5	XDHX 1904..	**532**
MHPC.32.R.02-19-H63A-80	32	2	18	120	80	94	37500	5	XDHX 1904..	**132**
MHPC.32.R.03-19-H63A-80	32	3	18	120	80	94	37500	5	XDHX 1904..	**632**
MHPC.32.R.02-19-H63A-100	32	2	18	140	100	114	34300	5	XDHX 1904..	**232**
MHPC.40.R.03-19-H63A-63	40	3	18	100	63	74	35700	5	XDHX 1904..	**040**
MHPC.40.R.03-19-H63A-80	40	3	18	120	80	94	35700	5	XDHX 1904..	**140**
MHPC.40.R.03-19-H63A-100	40	3	18	140	100	114	33500	5	XDHX 1904..	**240**
MHPC.50.R.03-19-H63A-63	50	3	18	100	63	74	31900	5	XDHX 1904..	**050**
MHPC.50.R.03-19-H63A-80	50	3	18	120	80	94	31900	5	XDHX 1904..	**150**
MHPC.50.R.03-19-H63A-100	50	3	18	140	100	114	31900	5	XDHX 1904..	**250**

Spare parts DC	TORX® blade	 Clamping key – T	Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	Article no. 80 950 ...	Article no. 80 397 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
22 - 25	**036**		**113**		**303**	**172**	**193**
32	**036**		**113**		**303**	**173**	**193**
40	**036**	**040**	**113**	**151**	**303**	**173**	**193**
50 - 63	**036**	**050**	**113**	**154**	**303**	**174**	**193**

XDHX

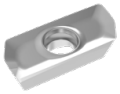
Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDHX 190402..	9,52	4,65	19	2	4,76
XDHX 190404..	9,52	4,65	19	2	4,76
XDHX 190408..	9,52	4,65	19	2	4,76
XDHX 190412..	9,52	4,65	19	2	4,76
XDHX 190416..	9,52	4,65	19	2	4,76
XDHX 190420..	9,52	4,65	19	2	4,76
XDHX 190425..	9,52	4,65	19	1,4	4,76
XDHX 190432..	9,52	4,65	19	1	4,76
XDHX 190440..	9,52	4,65	19	1	4,76
XDHX 190450..	9,52	4,65	19	-	4,76



XDHX

-27P
H216T

-ALP
CWK26



XDHX

ISO	RE	Article no. 50 488 ...
	mm	
190402FR	0,2	**552**
190404FR	0,4	**554**
190408FR	0,8	**556**
190412FR	1,2	**557**
190416FR	1,6	**558**
190420FR	2,0	**560**
190425FR	2,5	**562**
190432FR	3,2	**564**
190440FR	4,0	**566**
190450FR	5,0	**568** 1)

Steel	
Stainless steel	
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

1) Insert radius > 4.0 mm: Modify cutter body

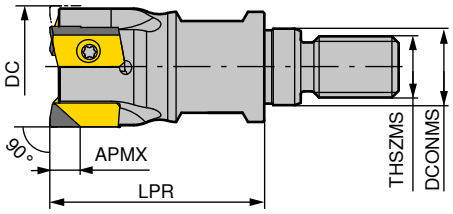
Milling guide

Machining strategy	→ 163–165	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 163
Safety advice	→ 159		

15

MaxiMill – Screw-in cutter G HPC 04



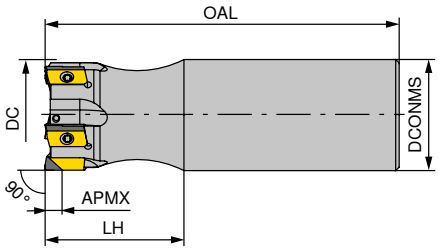




Designation	DC	ZNF	APMX	THSZMS	DCONMS	LPR	RPMX	torque moment	Insert	NEW Article no. 50 785 ...
	mm		mm		mm	mm	1/min.	Nm		
GHPC.20.R.03-04	20	3	4	M10	10,5	35	52000	5	ZNHW 04T3..	**20003**
GHPC.25.R.04-04	25	4	4	M12	12,5	35	45000	5	ZNHW 04T3..	**25004**
GHPC.32.R.05-04	32	5	4	M16	17,0	35	38000	5	ZNHW 04T3..	**32005**
GHPC.40.R.06-04	40	6	4	M16	17,0	35	34000	5	ZNHW 04T3..	**40006**

MaxiMill – End Mill C HPC 04







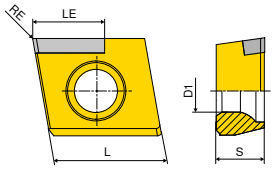
A

Designation	DC	ZNF	APMX	DCONMS	OAL	LH	RPMX	torque moment	Insert	NEW Article no. 50 680 ...
	mm		mm	mm	mm	mm	1/min.	Nm		
CHPC.20.R.03-04-A-25	20	3	4	20	77	25	52000	5	ZNHW 04T3..	**02003**
CHPC.25.R.04-04-A-32	25	4	4	25	90	32	45000	5	ZNHW 04T3..	**02504**
CHPC.32.R.05-04-A-40	32	5	4	32	102	40	38000	5	ZNHW 04T3..	**03205**
CHPC.40.R.06-04-A-50	40	6	4	32	112	50	34000	5	ZNHW 04T3..	**04006**

Spare parts DC	TORX® blade	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	Article no. 80 950 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
20 - 40	**043**	**125**	**303**	**131**	**191**

ZNHW

Designation	LE	D1	L	S
	mm	mm	mm	mm
ZNHW 04T3..	4	2,8	11	3,97
ZNHW 04T3..	4	2,8	11	3,97
ZNHW 04T3..	4	2,8	11	3,97
ZNHW 04T3..	4	2,8	11	3,97



ZNHW

ISO	RE	CTD4205 DIAMOND ZNHW NEW Article no. 51 137 ...	CTL3215 CBN ZNHW NEW Article no. 51 137 ...	CWB3215 CBN ZNHW NEW Article no. 51 137 ...
	mm			
04T304ER	0,4	75400		
04T305ER	0,5			85500
04T308ER	0,8	75800		
04T3POER		77000		

Steel			
Stainless steel			
Cast iron			●
Non ferrous metals	●		
Heat resistant alloys			
hardened materials			○

Milling guide

Machining strategy	→ 166	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 166

15

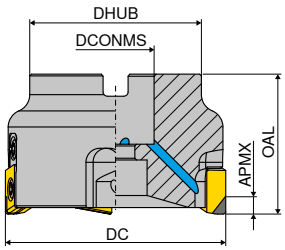
MaxiMill – Shell mill HPC 12

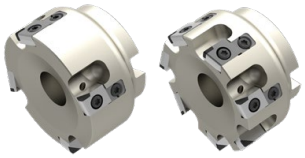
- ▲ 50 723 ... normal pitch
- ▲ 50 724 ... fine pitch

Scope of supply:

Tool, adjustment wedges and setting key; incl. wooden box







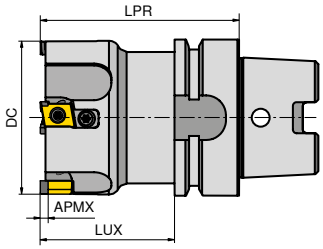
Designation	DC	ZNF	APMX	OAL	DHUB	DCONMS $_{H6}$	RPMX	torque moment	Insert	Article no. 50 723 ...	Article no. 50 724 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
AHPC.40.R.04-12	40	4	11	40	34	16	32000	5	ZNHW 1205..	**040**	
AHPC.50.R.04-12	50	4	11	40	49	22	32000	5	ZNHW 1205..	**050**	
AHPC.50.R.05-12	50	5	11	40	49	22	32000	5	ZNHW 1205..		**050**
AHPC.63.R.04-12	63	4	11	40	49	22	29000	5	ZNHW 1205..	**063**	
AHPC.63.R.07-12	63	7	11	40	49	22	29000	5	ZNHW 1205..		**063**
AHPC.80.R.09-12	80	9	11	50	60	27	26000	5	ZNHW 1205..		**080**
AHPC.80.R.05-12	80	5	11	50	60	27	26000	5	ZNHW 1205..	**080**	
AHPC.100.R.06-12	100	6	11	50	70	32	24000	5	ZNHW 1205..	**100**	
AHPC.100.R.12-12	100	12	11	50	70	32	24000	5	ZNHW 1205..		**100**
AHPC.125.R.08-12	125	8	11	63	72	40	22000	5	ZNHW 1205..	**125**	
AHPC.125.R.14-12	125	14	11	63	72	40	22000	5	ZNHW 1205..		**12514**
AHPC.160.R.10-12	160	10	11	63	118	40	18000	5	ZNHW 1205..	**16010**	
AHPC.160.R.16-12	160	16	11	63	118	40	18000	5	ZNHW 1205..		**16016**
AHPC.200.R.12-12	200	12	11	63	153	60	16000	5	ZNHW 1205..	**20000**	
AHPC.250.R.14-12	250	14	11	63	200	60	14000	5	ZNHW 1205..	**25014**	
AHPC.315.R.18-12	315	18	11	80	265	60	12000	5	ZNHW 1205..	**31518**	

MaxiMill – Monoblock HPC 12

- ▲ balanced to G 6,3

Scope of supply:

Tool, adjustment wedges and setting key; incl. wooden box



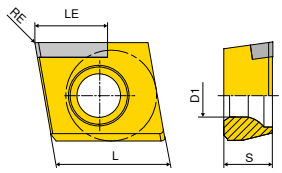


Designation	DC	ZNF	APMX	LPR	LUX	RPMX	torque moment	Insert	Article no. 50 721 ...	Article no. 50 721 ...
	mm		mm	mm	mm	1/min.	Nm			
MHPC.40.R.04-12-H63A-70	40	4	11	70	44	32000	5	ZNHW 1205..		**04004**
MHPC.50.R.04-12-H63A-80	50	4	11	80	54	32000	5	ZNHW 1205..		**05004**
MHPC.50.R.05-12-H63A-80	50	5	11	80	54	32000	5	ZNHW 1205..	**05005**	
MHPC.63.R.04-12-H63A-80	63	4	11	80	54	29000	5	ZNHW 1205..		**06304**
MHPC.63.R.07-12-H63A-80	63	7	11	80	54	29000	5	ZNHW 1205..	**06307**	
MHPC.80.R.05-12-H63A-90	80	5	11	90	64	26000	5	ZNHW 1205..		**08005**
MHPC.80.R.09-12-H63A-90	80	9	11	90	64	26000	5	ZNHW 1205..	**08009**	
MHPC.100.R.06-12-H63A-90	100	6	11	90	64	24000	5	ZNHW 1205..		**10006**
MHPC.100.R.12-12-H63A-90	100	12	11	90	64	24000	5	ZNHW 1205..	**10012**	
MHPC.125.R.08-12-H63A-123	125	8	11	123	97	22000	5	ZNHW 1205..		**12508**
MHPC.160.R.10-12-H63A-123	160	10	11	123	97	18000	5	ZNHW 1205..		**16010**

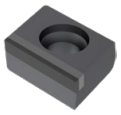
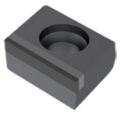
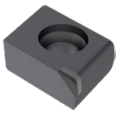
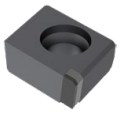
Spare parts		TORX® blade	 Molykote	 Clamping screw	 Wedge	 Torque screwdriver
DC		**Article no. 80 950 ...**	**Article no. 70 950 ...**	**Article no. 70 950 ...**	**Article no. 70 950 ...**	**Article no. 80 950 ...**
40 - 315		**036**	**303**	**174**	**199**	**193**

ZNHW

Designation	LE	D1	L	S
	mm	mm	mm	mm
ZNHW 120504ER-1503	3	4,85	12,7	5,40
ZNHW 120504FR-0007	7	4,85	12,7	5,40
ZNHW 120508ER-1503	3	4,85	12,7	5,40
ZNHW 120508SR-0003	3	4,85	12,7	5,40
ZNHW 1205EOER-1002	2	4,85	12,7	5,40
ZNHW 1205POER-1511	11	4,85	12,7	5,40
ZNHW 1205POSR-1003	3	4,85	12,7	5,40
ZNHW 1205POSR-1503	3	4,85	12,7	5,40
ZNHW 1205POSR-1506	6	4,85	12,7	5,40
ZNHW 1205POSR-3003	3	4,85	12,7	5,40
ZNHW 1205ZZSR-5003	3	4,85	12,7	5,40

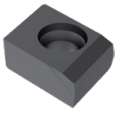


ZNHW

	CTD4205	-R CTD4205	CTD4205	-Q CTD4205
	CWD4205	CWD4205	CWD4205	-Q CWD4205
				
	DIAMOND ZNHW	DIAMOND ZNHW	DIAMOND ZNHW	DIAMOND ZNHW
		NEW		
ISO	Article no. 50 467 ...	Article no. 50 517 ...	Article no. 50 468 ...	Article no. 50 466 ...
RE mm				
120504ER-1503	0,4			906
120504FR-0007	0,4			904
120508ER-1503	0,8			910
120508SR-0003	0,8			908
1205POER-1511				
1205POSR-1003				
1205POSR-1503				
1205POSR-1506				
1205POSR-3003				
1205ZZSR-5003				
	902			
	90600			
	900			
	90800	90800		
	904			
				900 [1]
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

1) -Q = Wiper insert

ZNHW

	CTL3215
	CWB3215
	
	CBN ZNHW
ISO	Article no. 50 515 ...
1205EOER-1002	952
Steel	
Stainless steel	
Cast iron	●
Non ferrous metals	
Heat resistant alloys	
hardened materials	○

Milling guide

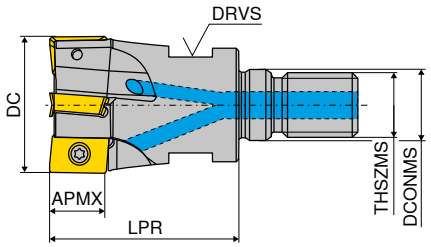
Machining strategy	→ 166+167
ISO Designation System	→ 194+195
Grade description	→ 209+210
Cutting data appoximate values	→ 166

15

MaxiMill – Screw in cutter G 141

▲ Insert radius > 3.2 mm: Modify cutter body





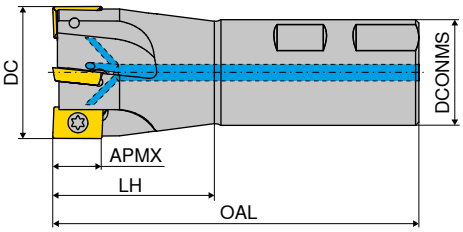


Designation	DC	ZNF	APMX	LPR	THSZMS	DCONMS	DRVS	torque moment	Insert	Article no. 50 770 ...
	mm		mm	mm		mm	mm	Nm		
G141.25.R.02.IK	25	2	14	35	M12	12,5	17	3,2	LD.. 1504..	**025**
G141.32.R.03.IK	32	3	14	40	M16	17,0	24	3,2	LD.. 1504..	**032**
G141.40.R.04.IK	40	4	14	40	M16	17,0	24	3,2	LD.. 1504..	**040**

MaxiMill – End milling cutter C 141

▲ Insert radius > 3.2 mm: Modify cutter body







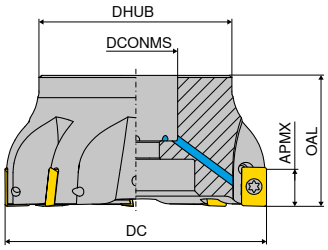


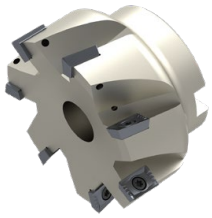
Designation	DC	ZNF	APMX	DCONMS	OAL	LH	torque moment	Insert	Article no. 50 771 ...
	mm		mm	mm	mm	mm	Nm		
C141.20.R.01	20	1	14	25	95	39	3,2	LD.. 1504..	**020**
C141.25.R.02	25	2	14	25	100	44	3,2	LD.. 1504..	**025**
C141.32.R.03	32	3	14	32	108	48	3,2	LD.. 1504..	**032**

MaxiMill – Shell mill A 241

▲ Insert radius > 3.2 mm: Modify cutter body







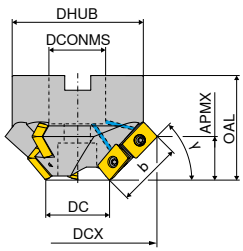
Designation	DC	ZNF	APMX	DHUB	DCONMS	OAL	torque moment	Insert	Article no. 50 769 ...
	mm		mm	mm	mm	mm	Nm		
A241.40.R.04	40	4	14	33	16	40	3,2	LD.. 1504..	**040**
A241.50.R.05	50	5	14	43	22	40	3,2	LD.. 1504..	**050**
A241.52.R.05	52	5	14	43	22	40	3,2	LD.. 1504..	**052**
A241.63.R.06	63	6	14	48	22	40	3,2	LD.. 1504..	**063**
A241.66.R.06	66	6	14	58	27	50	3,2	LD.. 1504..	**066**
A241.80.R.07	80	7	14	58	27	50	3,2	LD.. 1504..	**080**
A241.100.R.08	100	8	14	75	32	50	3,2	LD.. 1504..	**100**

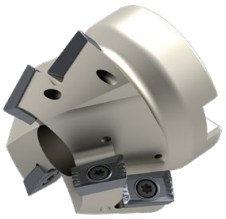
Spare parts DC	TORX® blade	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	Article no. 80 950 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
20 - 40	**036**	**113**	**303**	**110**	**192**
50 - 100	**036**	**113**	**303**	**304**	**192**

MaxiMill – Chamfer Cutter A 242

▲ Caution: Use only inserts with a corner radius of less than 1.6 mm
▲ ZEFP = number of inserts
▲ ZNP = tooth rows

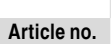
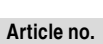
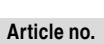






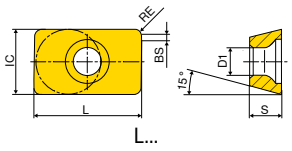
KAPR	DC	DCX ±0,3	ZNF	APMX ±0,3	ZEFP	b ±0,3	OAL	DCONMS	DHUB	ZNP	torque moment	Insert	Article no. 50 768 ...
°	mm	mm		mm		mm	mm	mm	mm		Nm		
15	35	92,2	3	7,6	6	29,6	50	27	62,5	2	3,2	LD.. 1504..	**015**
30	35	86,3	3	14,8	6	29,6	50	27	62,5	2	3,2	LD.. 1504..	**030**
45	35	76,9	3	20,9	6	29,6	50	27	62,5	2	3,2	LD.. 1504..	**045**
60	35	64,6	3	25,6	6	29,6	50	22	62,5	2	3,2	LD.. 1504..	**060** 1)
75	35	50,3	3	28,5	6	29,6	60	22	49,0	2	3,2	LD.. 1504..	**075** 1)

1) Version with Powerscrew

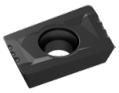
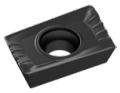
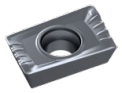
Spare parts KAPR	 TORX® blade	 Clamping key – T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver	 Clamping screw
	Article no. 80 950 ...	Article no. 80 397 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...	Article no. 83 950 ...
15 - 45	**036**		**113**		**303**	**304**	**192**	**125**
60 - 75	**036**	**050**	**113**	**154**	**303**	**304**	**192**	

LDFW / LDFT / LDMT

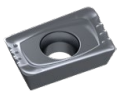
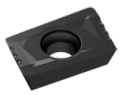
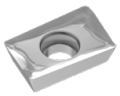
Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
LD.. 1504PD..	9,52	4,4	15	1,2	4,76
LDFT 150408..	9,52	4,4	15	1,2	4,76
LDFT 1504PD..	9,52	4,4	15	0,8	4,76



LDFW / LDFT / LDMT

		CTCP230	-29 CTCP230	-29 CTCP230	-29 CTPP235	-29 CTPP235
		DCX1230	-29 DCX1230	-29 DCX1230	-29 DPX1235	-29 DPX1235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		LDFW	LDFT	LDMT	LDFT	LDMT
ISO	RE	Article no. 51 043 ...	Article no. 51 079 ...	Article no. 51 080 ...	Article no. 51 079 ...	Article no. 51 080 ...
	mm					
1504PDSR	0,8	020	020	020	120	120
Steel		●	●	●	●	●
Stainless steel		○	○	○	○	○
Cast iron						
Non ferrous metals						
Heat resistant alloys						
hardened materials						

LDFT / LDFW

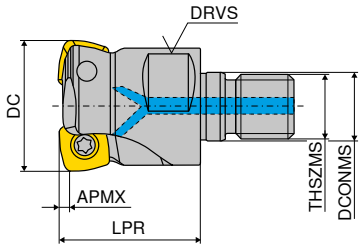
		-33 CTPM240	CTCK215	-27P H216T
		-33 DPX2240	DCX3215	-ALP CWK26
		DRAGONSKIN	DRAGONSKIN	
				
		LDFT	LDFW	LDFT
ISO	RE	Article no. 51 042 ...	Article no. 51 043 ...	Article no. 50 409 ...
	mm			
150408FR	0,8			550
1504PDSR	0,8		520	
1504PDSR	1,2	420		
Steel		○	○	
Stainless steel		●		
Cast iron			●	○
Non ferrous metals				●
Heat resistant alloys				
hardened materials				

Milling guide

Machining strategy	→ 168	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 168

MaxiMill – Screw in cutter G HFC



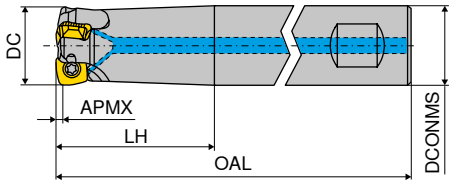




Designation	DC	ZNF	APMX	LPR	DCONMS	THSZMS	DRVS	RPMX	torque moment	Insert	Article no. 50 682 ...
	mm		mm	mm	mm		mm	1/min.	Nm		
GHFC.16.R.02-06	16	2	0,8	27	8,5	M8	10	20800	1,2	XPLX 0603..	616
GHFC.20.R.03-06	20	3	0,8	33	10,5	M10	15	19800	1,2	XPLX 0603..	620
GHFC.25.R.04-06	25	4	0,8	35	12,5	M12	17	18700	1,2	XPLX 0603..	625
GHFC.32.R.05-06	32	5	0,8	35	17,0	M16	24	22000	1,2	XPLX 0603..	632
GHFC.42.R.07-06	42	7	0,8	35	17,0	M16		15000	1,2	XPLX 0603..	04207
GHFC.25.R.02-09	25	2	1,0	35	12,5	M12	17	30000	3,2	XDLX 09T3..	025
GHFC.25.R.03-09	25	3	1,0	35	12,5	M12	17	30000	3,2	XDLX 09T3..	125
GHFC.32.R.03-09	32	3	1,0	35	17,0	M16	24	27000	3,2	XDLX 09T3..	032
GHFC.42.R.05-19	42	5	1,0	35	17,0	M16		26100	3,2	XDLX 09T3..	04205
GHFC.32.R.02-12	32	2	2,0	35	17,0	M16	24	21600	5	XOLX 1204..	132
GHFC.35.R.03-12	35	3	2,0	35	17,0	M16	24	21360	5	XOLX 1204..	035
GHFC.42.R.04-12	42	4	2,0	35	17,0	M16		20800	5	XOLX 1204..	04204

MaxiMill – End milling cutter C HFC



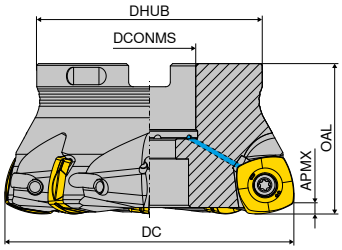


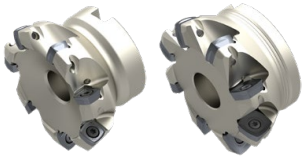


Designation	DC	ZNF	APMX	OAL	LH	DCONMS $_{h6}$	RPMX	torque moment	Insert	Article no. 50 681 ... A	Article no. 50 681 ... B
	mm		mm	mm	mm	mm	1/min.	Nm			
CHFC.16.R.02-06-A-40-200	16	2	0,8	200	40	16	4600	1,2	XPLX 0603..	716	
CHFC.16.R.02-06-B-40	16	2	0,8	89	40	16	17300	1,2	XPLX 0603..		616
CHFC.20.R.03-06-B-50	20	3	0,8	101	50	20	14500	1,2	XPLX 0603..		620
CHFC.20.R.03-06-A-50-225	20	3	0,8	225	50	20	4200	1,2	XPLX 0603..	720	
CHFC.25.R.04-06-B-50	25	4	0,8	107	50	25	15600	1,2	XPLX 0603..		625
CHFC.25.R.04-06-A-50-225	25	4	0,8	225	50	25	4600	1,2	XPLX 0603..	725	
CHFC.32.R.05-06-B-25-60	32	5	0,8	117	60	25	11000	1,2	XPLX 0603..		632
CHFC.32.R.05-06-A-25-60-225	32	5	0,8	225	60	25	3900	1,2	XPLX 0603..	732	
CHFC.25.R.02-09-A-50-225	25	2	1,0	225	50	25	9000	3,2	XDLX 09T3..	025	
CHFC.25.R.03-09-A-50-225	25	3	1,0	225	50	25	9000	3,2	XDLX 09T3..	125	
CHFC.32.R.03-09-A-63-250	32	3	1,0	250	63	32	8100	3,2	XDLX 09T3..	032	
CHFC.32.R.02-12-A-63-250	32	2	2,0	250	63	32	6480	5	XOLX 1204..	132	
CHFC.35.R.03-12-A-63-250	35	3	2,0	250	63	32	6480	5	XOLX 1204..	035	

MaxiMill – Shell mill A HFC







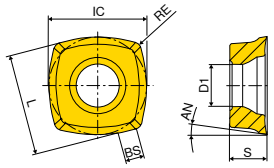
Designation	DC	ZNF	APMX	OAL	DCONMS H6	DHUB	RPMX	torque moment	Insert	Article no. 50 683 ...	Article no. 50 683 ...
	mm		mm	mm	mm	mm	1/min.	Nm			
AHFC.32.R.03-09	32	3	1,0	40	16	38	27700	3,2	XDLX 09T3..	**032**	
AHFC.35.R.04-09	35	4	1,0	40	16	38	26700	3,2	XDLX 09T3..	**035**	
AHFC.40.R.04-09	40	4	1,0	40	16	38	26400	3,2	XDLX 09T3..	**140**	
AHFC.42.R.05-09	42	5	1,0	40	16	38	26100	3,2	XDLX 09T3..	**142**	
AHFC.50.R.05-09	50	5	1,0	40	22	43	23500	3,2	XDLX 09T3..	**150**	
AHFC.52.R.06-09	52	6	1,0	40	22	43	23000	3,2	XDLX 09T3..	**152**	
AHFC.63.R.06-09	63	6	1,0	40	22	48	20500	3,2	XDLX 09T3..	**163**	
AHFC.66.R.07-09	66	7	1,0	40	22	48	20000	3,2	XDLX 09T3..	**16600**	
AHFC.40.R.03-12	40	3	2,0	40	16	38	21120	5	XOLX 1204..	**040**	
AHFC.42.R.04-12	42	4	2,0	40	16	38	20880	5	XOLX 1204..	**042**	
AHFC.50.R.04-12	50	4	2,0	40	22	43	18800	5	XOLX 1204..	**050**	
AHFC.52.R.05-12	52	5	2,0	40	22	43	18400	5	XOLX 1204..	**052**	
AHFC.63.R.05-12	63	5	2,0	40	22	48	16400	5	XOLX 1204..	**063**	
AHFC.66.R.06-12	66	6	2,0	40	22	48	16000	5	XOLX 1204..	**066**	
AHFC.80.R.07-12	80	7	2,0	50	27	58	14000	5	XOLX 1204..	**080**	
AHFC.100.R.08-12	100	8	2,0	50	32	78	12000	5	XOLX 1204..	**100**	
AHFC.63.R.05-19	63	5	3,3	40	22	48	5500	5	XOLX 1906..		**263**
AHFC.80.R.06-19	80	6	3,3	50	27	58	4700	5	XOLX 1906..		**280**
AHFC.100.R.08-19	100	8	3,3	52	32	78	4100	5	XOLX 1906..		**300**
AHFC.125.R.10-19	125	10	3,3	63	40	88	3600	5	XOLX 1906..		**325**
AHFC.160.R.11-19	160	11	3,3	63	40	98	3100	5	XOLX 1906..		**360** [1]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm

Spare parts	TORX® blade	 Clamping key – T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	Article no. 80 950 ...	**Article no. 80 397 ...**	**Article no. 80 950 ...**	**Article no. 70 950 ...**	**Article no. 70 950 ...**	**Article no. 70 950 ...**	**Article no. 80 950 ...**
XDLX 09T3..	**036**		**113**		**303**	**110**	**192**
XDLX 09T3.. (Ø32 – Ø42)	**036**	**040**	**113**	**151**	**303**	**110**	**192**
XOLX 1204..	**037**		**114**		**303**	**280**	**193**
XOLX 1204.. (Ø40 – Ø42)	**037**	**040**	**114**	**151**	**303**	**280**	**193**
XOLX 1906..	**037**		**114**		**303**	**302**	**193**
XPLX 0603..	**033**		**110**		**303**	**116**	**192**

XPLX / XDLX / XOLX

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
XPLX 0603..	6,35	2,8	6	1	2,75	11
XDLX 09T3..	9,52	4,4	9	1,9	3,97	15
XOLX 1204..	12,70	5,5	12	1,3	4,76	-
XOLX 1906..	19,14	6,0	19	-	6,35	10



XPLX

		-M50 CTCP220	-M50 CTPP225	-M50 CTPP235	-M50 CTPM225	-M50 CTPM240	-F40 CTPM245
		-M50 DCX1220	-M50 DPX1225	-M50 DPX1235	-M50 DPX2225	-M50 DPX2240	-F40 DPX2245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		XPLX	XPLX	XPLX	XPLX	XPLX	XPLX
ISO	RE	**Article no. 51 019 ...**	**Article no. 51 019 ...**	**Article no. 51 019 ...**	**Article no. 51 019 ...**	**Article no. 51 019 ...**	**Article no. 51 116 ...**
	mm						
060305ER	0,5						**455**
060305SR	0,5	**255**	**055**	**105**	**205**	**405**	
Steel		●	●	●	○	○	●
Stainless steel				○	●	●	●
Cast iron							
Non ferrous metals							
Heat resistant alloys							
hardened materials							

15

XPLX

		-M50 CTCK215	-F40 CTC5240	-F40 CTCS245
		-M50 DCX3215	-F40 HCF5240	
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
		XPLX	XPLX	XPLX
				NEW
ISO	RE	Article no. 51 019 ...	Article no. 50 518 ...	Article no. 51 116 ...
	mm			
060305ER	0,5	505	558	55500
060305SR	0,5			
Steel		○		
Stainless steel				
Cast iron		●		
Non ferrous metals				
Heat resistant alloys			●	●
hardened materials				

XDLX

		-M50 CTCP220	-M50 CTPP225	-M50 CTCP230	-M50 CTPP235
		-M50 DCX1220	-M50 DPX1225	-M50 DCX1230	-M50 DPX1235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XDLX	XDLX	XDLX	XDLX
ISO	RE	Article no. 51 016 ...	Article no. 51 016 ...	Article no. 51 016 ...	Article no. 51 016 ...
	mm				
09T308SR	0,8	258	058	008	108
Steel		●	●	●	●
Stainless steel				○	○
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

XDLX

		-M50 CTPM225	-M50 CTCM235	-M50 CTPM240	-F40 CTPM245	-M50 CTPM245
		-M50 DPX2225	-M50 DCX2235	-M50 DPX2240	-F40 DPX2245	-M50 DPX2245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XDLX	XDLX	XDLX	XDLX	XDLX
ISO	RE mm	Article no. 51 016 ...	Article no. 51 016 ...	Article no. 51 016 ...	Article no. 51 115 ...	Article no. 51 016 ...
09T308ER	0,8	208	308	408	458	458
09T308SR	0,8					
Steel		○	○	○	●	●
Stainless steel		●	●	●	●	●
Cast iron						
Non ferrous metals						
Heat resistant alloys						
hardened materials						

XDLX

		-M50 CTCK215	-F40 CTC5240	-F40 CTCS245
		-M50 DCX3215	-F40 HCF5240	
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
		XDLX	XDLX	XDLX
				NEW
ISO	RE mm	Article no. 51 016 ...	Article no. 50 503 ...	Article no. 51 115 ...
09T308ER	0,8	508	558	558
09T308SR	0,8			
Steel		○		
Stainless steel				
Cast iron		●		
Non ferrous metals				
Heat resistant alloys			●	●
hardened materials				

15

XOLX

		-M50 CTCP220	-M50 CTPP225	-M50 CTCP230	-M50 CTPP235	-R50 CTPP235
		-M50 DCX1220	-M50 DPX1225	-M50 DCX1230	-M50 DPX1235	-R50 DPX1235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XOLX	XOLX	XOLX	XOLX	XOLX
ISO	RE	Article no. 51 017 ...	Article no. 51 017 ...	Article no. 51 017 ...	Article no. 51 017 ...	Article no. 51 018 ...
	mm					
120410SR	1,0	260	060	010	110	110
Steel		●	●	●	●	●
Stainless steel				○	○	○
Cast iron						
Non ferrous metals						
Heat resistant alloys						
hardened materials						

XOLX

		-M50 CTPM225	-M50 CTCM235	-M50 CTPM240	-F40 CTPM245	-M50 CTPM245
		-M50 DPX2225	-M50 DCX2235	-M50 DPX2240	-F40 DPX2245	-M50 DPX2245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XOLX	XOLX	XOLX	XOLX	XOLX
ISO	RE	Article no. 51 017 ...	Article no. 51 017 ...	Article no. 51 017 ...	Article no. 51 022 ...	Article no. 51 017 ...
	mm					
120410ER	1,0				460	
120410SR	1,0	210	310	410		460
Steel		○	○	○	●	●
Stainless steel		●	●	●	●	●
Cast iron						
Non ferrous metals						
Heat resistant alloys						
hardened materials						

XOLX / XOHX

		-M50 CTCK215	-F40 CTC5240	-F50 CTC5240	-F40 CTCS245	-F50 CTCS245
		-M50 DCX3215	-F40 HCF5240			
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XOLX	XOLX	XOHX	XOLX	XOLX
				NEW	NEW	NEW
ISO	RE	Article no. 51 017 ...	Article no. 50 504 ...	Article no. 51 124 ...	Article no. 51 022 ...	Article no. 51 124 ...
	mm					
120410ER	1,0	510	558	16000	560	56000
120410SR	1,0					
Steel		○				
Stainless steel						
Cast iron		●				
Non ferrous metals						
Heat resistant alloys			●	●	●	●
hardened materials						

XOLX

		-M50 CTCP230	-M50 CTPP235	-M50 CTPM240	-F40 CTPM245	-M50 CTCK215	-F40 CTC5240	-F40 CTCS245
		-M50 DCX1230	-M50 DPX1235	-M50 DPX2240	-F40 DPX2245	-M50 DCX3215	-F40 HCF5240	
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		XOLX	XOLX	XOLX	XOLX	XOLX	XOLX	XOLX
								NEW
ISO	RE	Article no. 51 017 ...	Article no. 51 017 ...	Article no. 51 017 ...	Article no. 51 022 ...	Article no. 51 017 ...	Article no. 50 504 ...	Article no. 51 022 ...
	mm							
190615ER	1,5	015	115	415	465	515	515	56500
190615SR	1,5							
Steel		●	●	○	●	○		
Stainless steel		○	○	●	●			
Cast iron						●		
Non ferrous metals								
Heat resistant alloys							●	●
hardened materials								

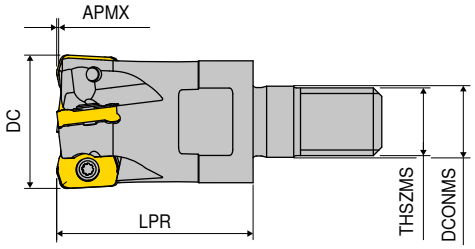
Milling guide

Machining strategy	→ 170–173	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 170–173
Starting Parameter	→ 170–173		

15

MaxiMill – Screw in cutter G DHFC



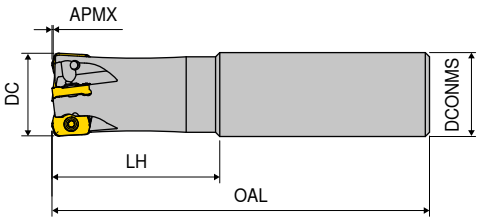




Designation	DC	ZNF	APMX	LPR	DCONMS	THSZMS	torque moment	Insert	NEW Article no. 56 411 ...
	mm		mm	mm	mm		Nm		
GDHFC.16.R.02-09	16	2	0,75	29	8,5	M8	3,2	LNKX 0925..	01602
GDHFC.16.R.03-09	16	3	0,75	29	8,5	M8	3,2	LNKX 0925..	01603
GDHFC.20.R.04-09	20	4	0,75	29	10,5	M10	3,2	LNKX 0925..	02004
GDHFC.25.R.05-09	25	5	0,75	33	12,5	M12	3,2	LNKX 0925..	02505
GDHFC.32.R.05-09	32	5	0,75	42	17,0	M16	3,2	LNKX 0925..	03205
GDHFC.35.R.06-09	35	6	0,75	42	17,0	M16	3,2	LNKX 0925..	03506
GDHFC.42.R.06-09	42	6	0,75	42	17,0	M16	3,2	LNKX 0925..	04206

MaxiMill – End milling cutter C DHFC







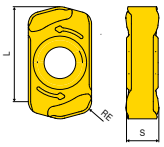
A

Designation	DC	ZNF	APMX	OAL	LH	DCONMS $_{h6}$	torque moment	Insert	NEW Article no. 56 417 ...
	mm		mm	mm	mm	mm	Nm		
CDHFC.16.R.05-09-A-32	16	3	0,75	80	32	16	3,2	LNKX 0925..	01603
CDHFC.20.R.04-09-A-40	20	4	0,75	90	40	20	3,2	LNKX 0925..	02004

Spare parts DC	TORX® blade	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	Article no. 80 950 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 56 950 ...	Article no. 80 950 ...
16 - 42	051	117	303	15000	193

LNKX

Designation	L	S
	mm	mm
LNKX 0925..	9	2,50



LNKX

		-R50 CTPP231	-M50 CTPP231	-R50 CTPP236	-M50 CTPM241	-R50 CTPK221
						
		LNKX	LNKX	LNKX	LNKX	LNKX
		NEW	NEW	NEW	NEW	NEW
ISO	RE	Article no. 56 353 ...	Article no. 56 355 ...	Article no. 56 353 ...	Article no. 56 355 ...	Article no. 56 353 ...
	mm					
0925ZSR	1	12000	02500	02000	42500	27000
Steel		●	●	●	●	●
Stainless steel					●	
Cast iron		●	●	●		●
Non ferrous metals						
Heat resistant alloys					●	
hardened materials		●	●	●		●

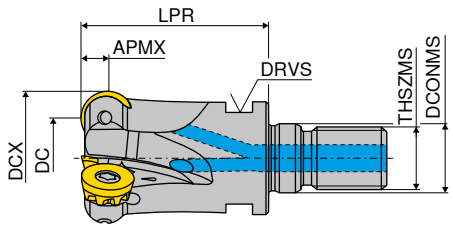
Milling guide

Machining strategy	→ 174	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 174

15

MaxiMill – Screw in cutter G 251 RS



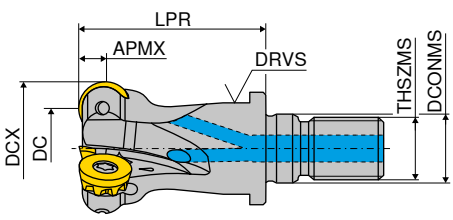




Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	Article no. 50 684 ...
G251.20.R.05-05-RS	15	20	5	2,5	10,5	33	M10	15	31800	0,7	RDHX 0501..	220
G251.25.R.06-05-RS	20	25	6	2,5	12,5	35	M12	17	24450	0,7	RDHX 0501..	225
G251.32.R.07-05-RS	27	32	7	2,5	17,0	35	M16	24	19850	0,7	RDHX 0501..	232
G251.20.R.03-08-RS	12	20	3	4,0	10,5	33	M10	15	25000	1,2	RDHX 0802..	120
G251.25.R.04-08-RS	17	25	4	4,0	12,5	35	M12	17	19000	1,2	RDHX 0802..	125
G251.32.R.05-08-35-RS	24	32	5	4,0	17,0	35	M16	24	19000	1,2	RDHX 0802..	132
G251.20.R.02-10-RS	10	20	2	5,0	10,5	33	M10	15	30000	2	RP.X 10T3..	020
G251.25.R.03-10-RS	15	25	3	5,0	12,5	35	M12	17	30000	2	RP.X 10T3..	025
G251.32.R.04-10-RS	22	32	4	5,0	17,0	35	M16	24	25000	2	RP.X 10T3..	032
G251.25.R.02-12-35-RS	13	25	2	6,0	12,5	35	M12	17	25000	3,2	RP.X 1204..	525
G251.32.R.03-12-35-RS	20	32	3	6,0	17,0	35	M16	24	19850	3,2	RP.X 1204..	532
G251.35.R.03-12-35-RS	23	35	3	6,0	17,0	35	M16	24	15900	3,2	RP.X 1204..	535
G251.42.R.04-12-42-RS	30	42	4	6,0	17,0	42	M16	24	15000	3,2	RP.X 1204..	542

MaxiMill – Screw in cutter G 251



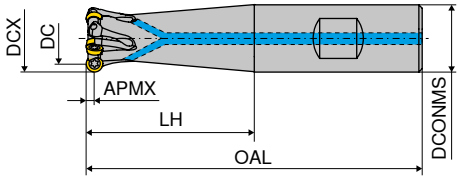




Designation	DC mm	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	DRVS mm	torque moment Nm	Insert	Article no. 55 112 ...
G251.10.R.02-05	5	10	2	2,5	M8	20	8,5	10	0,7	RDHX 0501..	110
G251.12.R.03-05	7	12	3	2,5	M8	20	8,5	10	0,7	RDHX 0501..	112
G251.15.R.04-05	10	15	4	2,5	M8	20	8,5	10	0,7	RDHX 0501..	115
G251.16.R.04-05	11	16	4	2,5	M8	20	8,5	10	0,7	RDHX 0501..	216
G251.20.R.05-05	15	20	5	2,5	M10	25	10,5	15	0,7	RDHX 0501..	320
G251.20.R.03-08	12	20	3	4,0	M10	28	10,5	15	1,2	RDHX 0802..	420
G251.25.R.04-08	17	25	4	4,0	M12	28	12,5	17	1,2	RDHX 0802..	425
G251.32.R.06-08	24	32	6	4,0	M16	28	17,0	24	1,2	RDHX 0802..	432
G251.35.R.06-08	27	35	6	4,0	M16	28	17,0	24	1,2	RDHX 0802..	435
G251.20.R.02-10	10	20	2	5,0	M10	33	10,5	15	2	RP.X 10T3..	220
G251.32.R.04-10	22	32	4	5,0	M16	35	17,0	24	2	RP.X 10T3..	232
G251.35.R.05-10	25	35	5	5,0	M16	35	17,0	24	2	RP.X 10T3..	235
G251.25.R.02-12.IK	13	25	2	6,0	M12	35	12,5	17	3,2	RP.X 1204..	525
G251.32.R.03-12.IK	20	32	3	6,0	M16	35	17,0	24	3,2	RP.X 1204..	532
G251.35.R.03-12.IK	23	35	3	6,0	M16	35	17,0	24	3,2	RP.X 1204..	535
G251.42.R.04-12.IK	30	42	4	6,0	M16	42	17,0	24	3,2	RP.X 1204..	542

MaxiMill – End milling cutter C 251 RS



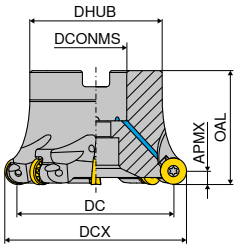


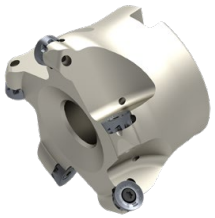


Designation	DC	DCX	ZNF	APMX	OAL	LH	DCONMS	RPMX	Insert	Article no. 50 685 ... A	Article no. 50 685 ... B
	mm	mm		mm	mm	mm	mm	1/min.			
C251.10.R-02-05-B-12-20-RS	5	10	2	2,5	67	21,5	12	40000	RDHX 0501..		010
C251.10.R-02-05-A-25-165-RS	5	10	2	2,5	165	25,0	10	12000	RDHX 0501..	110	
C251.12.R-03-05-B-16-25-RS	7	12	3	2,5	75	25,0	16	40000	RDHX 0501..		012
C251.12.R-03-05-A-32-165-RS	7	12	3	2,5	165	32,0	12	16000	RDHX 0501..	112	
C251.16.R-04-05-B-32-RS	11	16	4	2,5	81	32,0	16	40000	RDHX 0501..		316
C251.16.R-04-05-A-40-165-RS	11	16	4	2,5	165	40,0	16	18000	RDHX 0501..	016	
C251.20.R-05-05-B-40-RS	15	20	5	2,5	91	40,0	20	31800	RDHX 0501..		620
C251.20.R-05-05-A-50-165-RS	15	20	5	2,5	165	50,0	20	18000	RDHX 0501..	120	
C251.16.R-02-08-B-32-RS	8	16	2	4,0	81	32,0	16	40000	RDHX 0802..		116
C251.16.R-02-08-A-40-165-RS	8	16	2	4,0	165	40,0	16	18000	RDHX 0802..	216	
C251.20.R-03-08-B-40-RS	12	20	3	4,0	91	40,0	20	31800	RDHX 0802..		220
C251.20.R-03-08-A-60-RS	12	20	3	4,0	110	50,0	20	30000	RDHX 0802..	020	
C251.20.R-03-08-A-50-200-RS	12	20	3	4,0	200	50,0	20	25000	RDHX 0802..	320	
C251.25.R-04-08-B-50-RS	17	25	4	4,0	107	50,0	25	25500	RDHX 0802..		625
C251.25.R-04-08-A-60-RS	17	25	4	4,0	116	60,0	25	19000	RDHX 0802..	125	
C251.25.R-04-08-A-60-225-RS	17	25	4	4,0	225	60,0	25	18000	RDHX 0802..	225	
C251.20.R-02-10-A-50-RS	10	20	2	5,0	102	50,0	20	25000	RP.X 10T3..	420	
C251.20.R-02-10-A-50-200-RS	10	20	2	5,0	200	50,0	20	25000	RP.X 10T3..	520	
C251.25.R.03-10-A-60-RS	15	25	3	5,0	116	60,0	25	25000	RP.X 10T3..	025	
C251.25.R-03-10-B-60-RS	15	25	3	5,0	116	60,0	25	20000	RP.X 10T3..		325
C251.25.R-03-10-A-60-225-RS	15	25	3	5,0	225	60,0	25	18000	RP.X 10T3..	425	
C251.32.R.04-10-A-70-RS	22	32	4	5,0	127	70,0	32	25000	RP.X 10T3..	032	
C251.25.R-02-12-B-30-RS	13	25	2	6,0	86	30,0	25	25000	RP.X 1204..		525
C251.32.R-03-12-A-RS	20	32	3	6,0	100	40,0	32	19000	RP.X 1204..	232	
C251.32.R-03-12-B-40-RS	20	32	3	6,0	100	40,0	32	19000	RP.X 1204..		132

MaxiMill – Shell mill A 251 RS





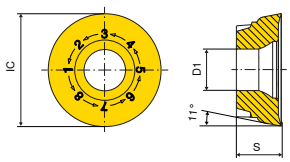


Designation	DC	DCX	ZNF	APMX	OAL	DHUB	DCONMS $_{H6}$	RPMX	torque moment	Insert	Article no. 50 686 ...
	mm	mm		mm	mm	mm	mm	1/min.	Nm		
A251.40.R.03-10-RS	30	40	3	5	40	38	16	15900	2	RP.X 10T3..	**240**
A251.40.R.05-10-RS	30	40	5	5	40	38	16	16000	2	RP.X 10T3..	**140**
A251.42.R.06-10-RS	32	42	6	5	40	38	16	16000	2	RP.X 10T3..	**142**
A251.50.R.04-10-RS	40	50	4	5	40	43	22	12700	2	RP.X 10T3..	**350**
A251.50.R.06-10-RS	40	50	6	5	40	43	22	12500	2	RP.X 10T3..	**150**
A251.52.R.06-10-RS	42	52	6	5	40	43	22	12500	2	RP.X 10T3..	**152**
A251.40.R.04-12-RS	28	40	4	6	40	38	16	15900	3,2	RP.X 1204..	**340**
A251.50.R.04-12-RS	38	50	4	6	40	43	22	12700	3,2	RP.X 1204..	**250**
A251.50.R.05-12-RS	38	50	5	6	40	43	22	12500	3,2	RP.X 1204..	**050**
A251.52.R.05-12-RS	40	52	5	6	40	43	22	12500	3,2	RP.X 1204..	**052**
A251.63.R.06-12-RS	51	63	6	6	40	48	22	10000	3,2	RP.X 1204..	**063**
A251.66.R.07-12-RS	54	66	7	6	40	48	22	9000	3,2	RP.X 1204..	**166**
A251.80.R.05-12-RS	68	80	5	6	50	58	27	7950	3,2	RP.X 1204..	**180**
A251.80.R.07-12-RS	68	80	7	6	50	58	27	8000	3,2	RP.X 1204..	**080**
A251.100.R.06-12-RS	88	100	6	6	50	78	32	6350	3,2	RP.X 1204..	**100**
A251.100.R.10-12-RS	88	100	10	6	50	78	32	6350	3,2	RP.X 1204..	**200**
A251.50.R.04-16-RS	34	50	4	8	40	48	22	12700	5	RP.X 1605..	**450**
A251.52.R.04-16-RS	36	52	4	8	40	48	22	10100	5	RP.X 1605..	**452**
A251.63.R.05-16-RS	47	63	5	8	40	48	22	10100	5	RP.X 1605..	**163**
A251.66.R.05-16-RS	50	66	5	8	40	48	22	7950	5	RP.X 1605..	**466**
A251.80.R.06-16-RS	64	80	6	8	50	58	27	7950	5	RP.X 1605..	**280**
A251.100.R.07-16-RS	84	100	7	8	50	78	32	6350	5	RP.X 1605..	**300**
A251.125.R.08-16-RS	109	125	8	8	63	88	40	5050	5	RP.X 1605..	**225**
A251.80.R.05-20-RS	60	80	5	10	50	58	27	7950	5	RP.X 2006..	**380**
A251.100.R.06-20-RS	80	100	6	10	50	78	32	6350	5	RP.X 2006..	**400**
A251.125.R.06-20-RS	105	125	6	10	63	88	40	5050	5	RP.X 2006..	**125**

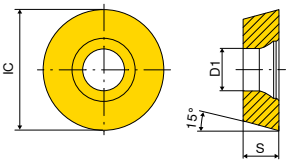
Spare parts	TORX® blade	 Clamping key – T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	Article no. 80 950 ...	Article no. 80 397 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
Insert							
RDHX 0501..	**031**		**108**		**303**	**149**	**191**
RDHX 0802..	**033**		**110**		**303**	**116**	**191**
RP.X 10T3..	**035**	**040**	**112**	**151**	**303**	**840**	**192**
RP.X 1204..	**036**	**040**	**113**	**151**	**303**	**304**	**192**
RP.X 1605..	**037**	**050**	**114**	**154**	**303**	**280**	**193**
RP.X 2006..	**037**		**114**		**303**	**302**	**193**

RDHX / RPHX / RPNX

Designation	IC	D1	S
	mm	mm	mm
RDHX 0501..	5	2,5	1,59
RDHX 0802..	8	2,8	2,38
RP.X 10T3..	10	3,4	3,97
RP.X 1204..	12	4,4	4,76
RP.X 1605..	16	5,5	5,56
RP.X 2006..	20	6,0	6,35



RP.X 10T3.. / RP.X 1204.. / RP.X 1605.. / RPNX 2006..

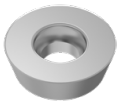


RDHX 0501.. / RDHX 0802..

RDHX

	-SN CTCP230	-SN CTPP235	-F50 CTPM240	-F50 CTPM245
	-SN DCX1230	-SN DPX1235	-F50 DPX2240	-F50 DPX2245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	RDHX	RDHX	RDHX	RDHX
			NEW	
ISO	Article no. 51 048 ...	Article no. 51 048 ...	Article no. 51 083 ...	Article no. 51 083 ...
0501MOSN	020	120		465
0802M4SN				471
0802MOSN	025	125	420	470
Steel	●	●	○	●
Stainless steel	○	○	●	●
Cast iron				
Non ferrous metals				
Heat resistant alloys				
hardened materials				

RDHX

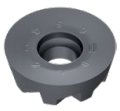
	-EN CTCK215	-FN H216T	-M31 CTC5240	-F50 CTCS245
	-EN DCX3215	-FN CWK26	-M31 HCF5240	
	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
				
	RDHX	RDHX	RDHX	RDHX
				NEW
ISO	Article no. 51 048 ...	Article no. 50 481 ...	Article no. 50 481 ...	Article no. 51 083 ...
0501MOFN		600		
0802M4EN			50100	
0802MOEN	520		500	570
0802MOFN		602		
Steel	○			
Stainless steel				
Cast iron	●	○		
Non ferrous metals		●		
Heat resistant alloys			●	●
hardened materials				

15

RPHX / RPNX

	-SN TCM10	-F50 CTCP230	-M50 CTCP230	-SN CTCP230	-SN CTCP230
	-SN CWC10	-F50 DCX1230	-M50 DCX1230	-SN DCX1230	-SN DCX1230
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	CERMET RPHX	RPNX	RPNX	RPHX	RPNX
ISO	Article no. 50 483 ...	Article no. 51 055 ...	Article no. 51 054 ...	Article no. 51 052 ...	Article no. 51 057 ...
10T3MOEN		020			
10T3MOSN	900		020	020	
1204MOEN		025			
1204MOSN	902		025	025	025
1605MOSN			030	030	030
2006MOSN					035
Steel	●	●	●	●	●
Stainless steel	●	○	○	○	○
Cast iron	○				
Non ferrous metals					
Heat resistant alloys					
hardened materials					

RPHX / RPNX

	-F50 CTPP235	-F50 CTPP235	-M30 CTPP235	-M30 CTPP235
	-F50 DPX1235	-F50 DPX1235	-M30 DPX1235	-M30 DPX1235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	RPHX	RPNX	RPHX	RPNX
ISO	Article no. 51 051 ...	Article no. 51 055 ...	Article no. 51 049 ...	Article no. 51 053 ...
10T3MOEN			120	
10T3MOSN	12000	120		
1204MOEN		125		
1204MOSN	125			
1605MOSN		130		
2006MOEN				120
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron				
Non ferrous metals				
Heat resistant alloys				
hardened materials				

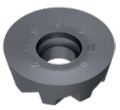
RPNX / RPHX

	-M50 CTPP235	-M50 CTPP235	-SN CTPP235	-SN CTPP235
	-M50 DPX1235	-M50 DPX1235	-SN DPX1235	-SN DPX1235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	RPNX	RPHX	RPHX	RPNX
		NEW		
ISO	**Article no. 51 054 ...**	**Article no. 51 050 ...**	**Article no. 51 052 ...**	**Article no. 51 057 ...**
10T3MOSN	12000	12000	120	
1204MOSN	125		125	125
1605MOSN	130		130	130
2006MOSN				135
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron				
Non ferrous metals				
Heat resistant alloys				
hardened materials				

RPHX

	-F50 CTPM225	-M30 CTPM225	-SN CTPM225	-F50 CTCM235	-M30 CTCM235
	-F50 DPX2225	-M30 DPX2225	-SN DPX2225	-F50 DCX2235	-M30 DCX2235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	RPHX	RPHX	RPHX	RPHX	RPHX
ISO	**Article no. 51 051 ...**	**Article no. 51 049 ...**	**Article no. 51 052 ...**	**Article no. 51 051 ...**	**Article no. 51 049 ...**
1204MOEN	225	225	225	325	
1204MOSN					325
Steel	○	○	○	○	○
Stainless steel	●	●	●	●	●
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

RPHX / RPNX

	-F50 CTPM240	-F50 CTPM240	-M30 CTPM240	-M30 CTPM240	-M50 CTPM240
	-F50 DPX2240	-F50 DPX2240	-M30 DPX2240	-M30 DPX2240	-M50 DPX2240
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	RPHX	RPNX	RPHX	RPNX	RPHX
ISO	**Article no. 51 051 ...**	**Article no. 51 055 ...**	**Article no. 51 049 ...**	**Article no. 51 053 ...**	**Article no. 51 050 ...**
10T3MOEN			420		420
10T3MOSN	420				
1204MOEN			425		425
1204MOSN	425				
1605MOEN			430		
1605MOSN	430				
2006MOEN				420	
2006MOSN		435			
Steel	○	○	○	○	○
Stainless steel	●	●	●	●	●
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

RPHX / RPNX

	CTPM245	-F50 CTPM245	-F50 CTPM245	-M32 CTPM245	-M50 CTPM245
	DPX2245	-F50 DPX2245	-F50 DPX2245	-M32 DPX2245	-M50 DPX2245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	RPHX	RPHX	RPNX	RPHX	RPHX
ISO	**Article no. 51 052 ...**	**Article no. 51 051 ...**	**Article no. 51 055 ...**	**Article no. 51 108 ...**	**Article no. 51 050 ...**
10T3M4SN		470 [1]	470 [1]		470 [1]
10T3M8SN		471	471		471
1204M4EN	475 [1]			475 [1]	
1204M4SN		475 [1]	475 [1]		475 [1]
1204M6SN		476			476
1204M8SN		477	476		477
1605M8SN		480			
2006M4SN		485 [1]			
2006M8SN			485		
Steel	●	●	●	●	●
Stainless steel	●	●	●	●	●
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials					

1) Insert with 4 indexes

RPNX / RPHX

	-R30 CTCK215	-SN CTCK215	-SN CTCK215	-SN CTPK220	-27P H216T
	-R30 DCX3215	-SN DCX3215	-SN DCX3215	-SN DPX3220	-ALP CWK26
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
					
	RPNX	RPHX	RPNX	RPNX	RPHX
ISO	**Article no. 51 056 ...**	**Article no. 51 052 ...**	**Article no. 51 057 ...**	**Article no. 51 057 ...**	**Article no. 50 483 ...**
10T3MOEN	520				
10T3MOFN					600
10T3MOSN		520		620	
1204MOEN	525				
1204MOFN					602
1204MOSN		525	525	625	
1605MOFN					604
1605MOSN		530	530	630	
2006MOSN			535	635	
Steel	○	○	○	○	
Stainless steel					
Cast iron	●	●	●	●	○
Non ferrous metals					●
Heat resistant alloys					
hardened materials					

RPHX / RPNX

	-M31 CTC5240	-F50 CTCS245	-F50 CTCS245	-R60 CTP6215
	-M31 HCF5240			-R60 CCN6215
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
				
	RPHX	RPHX	RPNX	RPNX
		NEW	NEW	
ISO	**Article no. 50 493 ...**	**Article no. 51 051 ...**	**Article no. 51 055 ...**	**Article no. 50 508 ...**
10T3M4EN	550 [1]			
10T3M4SN		570 [1]		
10T3M8EN	551			
10T3M8SN		571		
1204M4EN	552 [1]			
1204M4SN		575		
1204M6EN	56200	57800		
1204M8EN	582			300
1204M8SN		577		
1605M8EN	555	58100		
2006M8SN			585	
Steel				
Stainless steel				
Cast iron				●
Non ferrous metals				
Heat resistant alloys	●	●	●	
hardened materials				●

1) Insert with 4 indexes

15

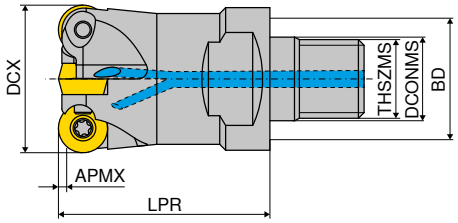
Milling guide

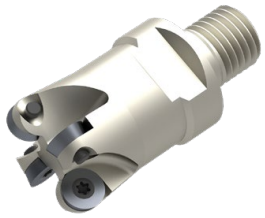
Machining strategy	→ 176	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 175

Button insert milling cutter R 1000 G

▲ Insert angle 0°





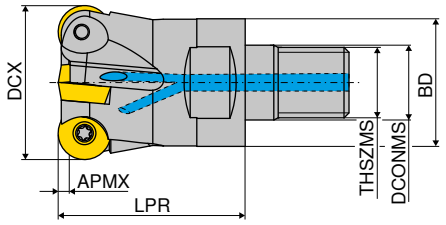


Designation	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	BD mm	torque moment Nm	Insert	Article no. 56 403 ...
R1000G.15.4.M8-05.IK	15	4	1,3	M8	20,5	8,5	13,8	0,43	RDHX 0501..	**151**
R1000G.20.5.M10-05.IK	20	5	1,3	M10	25,5	10,5	18,0	0,43	RDHX 0501..	**201**
R1000G.12.2.M8-07.IK	12	2	1,5	M8	28,5	8,5	11,8	0,75	RD.X 07T1..	**123**
R1000G.15.3.M8-07.IK	15	3	1,5	M8	28,5	8,5	13,8	0,75	RD.X 07T1..	**152**
R1000G.20.4.M10-07.IK	20	4	1,5	M10	28,5	10,5	18,0	0,75	RD.X 07T1..	**202**
R1000G.25.5.M12-07.IK	25	5	1,5	M12	28,5	10,5	21,0	0,75	RD.X 07T1..	**251**
R1000G.15.2.M8-07.IK	15	2	1,5	M8	28,5	8,5	13,8	0,9	RD.X 0702..	**153**
R1000G.16.3.M8-07.IK	16	3	1,5	M8	28,5	8,5	13,8	0,9	RD.X 0702..	**161**
R1000G.20.4.M10-07.IK	20	4	1,5	M10	28,5	10,5	18,0	0,9	RD.X 0702..	**203**
R1000G.25.5.M12-07.IK	25	5	1,5	M12	28,5	12,5	21,0	0,9	RD.X 0702..	**252**
R1000G.30.5.M16-07.IK	30	5	1,5	M16	28,5	17,0	29,0	0,9	RD.X 0702..	**301**
R1000G.35.6.M16-07.IK	35	6	1,5	M16	28,5	17,0	29,0	0,9	RD.X 0702..	**351**
R1000G.42.7.M16-07.IK	42	7	1,5	M16	42,5	17,0	29,0	0,9	RD.X 0702..	**421**
R1000G.20.2.M10-10.IK	20	2	2,8	M10	29,0	10,5	18,0	2,4	RD.X 1003..	**204**
R1000G.25.2.M12-10.IK	25	2	2,8	M12	33,0	12,5	21,0	2,4	RD.X 1003..	**253**
R1000G.25.3.M12-10.IK	25	3	2,8	M12	33,0	12,5	21,0	2,4	RD.X 1003..	**254**
R1000G.30.4.M12-10.IK	30	4	2,3	M12	33,0	12,5	21,0	2,4	RD.X 1003..	**302**
R1000G.30.4.M16-10.IK	30	4	2,8	M16	43,0	17,0	23,0	2,4	RD.X 1003..	**303**
R1000G.35.5.M16-10.IK	35	5	2,8	M16	43,0	17,0	29,0	2,4	RD.X 1003..	**352**
R1000G.42.5.M16-10.IK	42	5	2,8	M16	43,0	17,0	29,0	2,4	RD.X 1003..	**422**
R1000G.42.6.M16-10.IK	42	6	2,8	M16	43,0	17,0	29,0	2,4	RD.X 1003..	**423**
R1000G.24.2.M12-12.IK	24	2	3,0	M12	33,0	12,5	21,0	2,4	RD.X 12T3..	**241**
R1000G.35.3.M16-12.IK	35	3	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	**353**
R1000G.35.4.M16-12.IK	35	4	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	**354**
R1000G.42.4.M16-12.IK	42	4	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	**424**
R1000G.42.5.M16-12.IK	42	5	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	**425**
R1000G.32.2.M16-16.IK	32	2	4,0	M16	43,5	17,0	29,0	4,3	RD.X 1604..	**321**
R1000G.35.3.M16-16.IK	35	3	4,0	M16	43,5	17,0	29,0	4,3	RD.X 1604..	**355**
R1000G.40.2.M16-20.IK	40	2	7,0	M16	53,5	17,0	29,0	4,3	RD.X 2006..	**401**

Button insert milling cutter R 1007 G

- Insert angle 7°
- for Steel < 10 % Cr



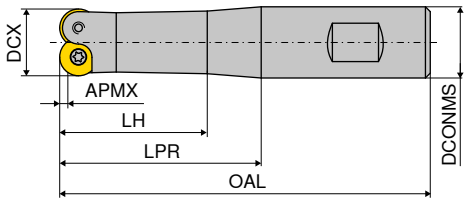




Designation	DCX	ZNF	APMX	THSZMS	LPR	DCONMS	BD	torque moment	Insert	Article no. 56 405 ...
	mm		mm		mm	mm	mm	Nm		
R1007G.25.3.M12-10.IK	25	3	2,5	M12	32,5	12,5	21	2,4	RD.X 1003..	**251**
R1007G.42.6.M16-10.IK	42	6	2,5	M16	42,5	17,0	29	2,4	RD.X 1003..	**421**
R1007G.35.3.M16-12.IK	35	3	3,0	M16	42,5	17,0	29	2,4	RD.X 12T3..	**351**
R1007G.35.4.M16-12.IK	35	4	3,0	M16	42,5	17,0	29	2,4	RD.X 12T3..	**352**

Button insert milling cutter R 1000 C

- Insert angle 0°





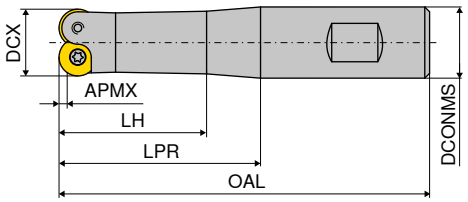


Designation	DCX	ZNF	APMX	OAL	LPR	LH	DCONMS	torque moment	Insert	Article no. 56 441 ...
	mm		mm	mm	mm	mm	mm	Nm		
R1000C.8.1.30-05	8	1	1,3	75	30	18	10	0,43	RDHX 0501..	**081**
R1000C.10.2.30-05	10	2	1,3	75	30	23	10	0,43	RDHX 0501..	**101**
R1000C.12.3.30-05	12	3	1,3	81	30	23	12	0,43	RDHX 0501..	**121**
R1000C.12.2.30-07	12	2	1,5	76	30	23	12	0,75	RD.X 07T1..	**122**

15

Button insert milling cutter R 1002 C

▲ Insert angle 0°





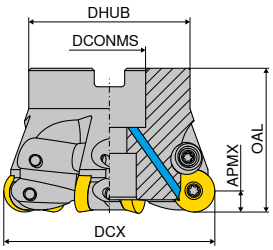


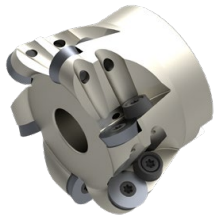
Designation	DCX	ZNF	APMX	OAL	LPR	LH	DCONMS	Insert	Article no. 56 443 ...
	mm		mm	mm	mm	mm	mm		
R1002C.12.2.40-07	12	2	1,5	89	40	19,5	16	RD.X 07T1..	**121**
R1002C.12.2.60-07	12	2	1,5	110	60	19,5	16	RD.X 07T1..	**122**
R1002C.12.2.80-07	12	2	1,5	129	80	19,5	16	RD.X 07T1..	**123**
R1002C.15.2.40-07	15	2	2,6	89	40	23,0	16	RD.X 0702..	**151**
R1002C.15.2.60-07	15	2	2,6	109	60	23,0	16	RD.X 0702..	**152**
R1002C.15.2.80-07	15	2	2,6	131	80	22,0	20	RD.X 0702..	**153**
R1002C.15.2.100-07	15	2	2,6	151	100	22,0	20	RD.X 0702..	**154**
R1002C.20.2.40-10	20	2	4,0	91	40	23,0	20	RD.X 1003..	**201**
R1002C.20.2.60-10	20	2	4,0	111	60	23,0	20	RD.X 1003..	**202**
R1002C.20.2.80-10	20	2	4,0	137	80	23,0	25	RD.X 1003..	**203**
R1002C.20.2.100-10	20	2	4,0	157	100	23,0	25	RD.X 1003..	**204**
R1002C.20.2.120-10	20	2	4,0	177	125	23,0	25	RD.X 1003..	**205**

Button insert milling cutter R 1000 A

▲ Insert angle 0°





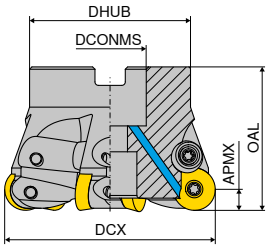


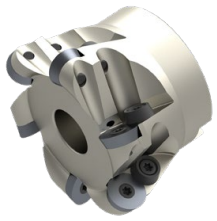
Designation	DCX	ZNF	APMX	OAL	DCONMS	DHUB	torque moment	Insert	Article no. 56 407 ...
	mm		mm	mm	mm	mm	Nm		
R1000A.42.6.43-10.IK	42	6	2,8	43,0	16	35	2,4	RD.X 1003..	**420**
R1000A.42.4.43-12.IK	42	4	3,0	43,0	16	35	2,4	RD.X 12T3..	**421**
R1000A.42.5.43-12.IK	42	5	3,0	43,0	16	35	2,4	RD.X 12T3..	**422**
R1000A.52.5.53-12.IK	52	5	3,5	53,0	22	40	2,4	RD.X 12T3..	**521**
R1000A.52.4.53,5-16.IK	52	4	4,7	53,5	22	40	4,3	RD.X 1604..	**522**
R1000A.66.5.53,5-16.IK	66	5	5,1	53,5	27	48	4,3	RD.X 1604..	**661**
R1000A.80.6.53,5-16.IK	80	6	5,8	53,5	27	60	4,3	RD.X 1604..	**801**

Button insert milling cutter R 1007 A

- ▲ Insert angle 7°
- ▲ for Steel < 10 % Cr + Milling machines with low power







Designation	DCX	ZNF	APMX	OAL	DCONMS	DHUB	torque moment	Insert	Article no. 56 409 ...
	mm		mm	mm	mm	mm	Nm		
R1007A.42.6.42,5-10.IK	42	6	3,5	42,5	16	35	2,4	RD.X 1003..	**421**
R1007A.52.7.52,5-10.IK	52	7	3,5	52,5	22	40	2,4	RD.X 1003..	**521**
R1007A.52.5.52,5-12.IK	52	5	3,5	52,5	22	40	2,4	RD.X 12T3..	**522**
R1007A.66.6.52,5-12.IK	66	6	3,5	52,5	27	48	2,4	RD.X 12T3..	**661**
R1007A.80.7.54,5-12.IK	80	7	3,5	54,5	27	60	2,4	RD.X 12T3..	**801**
R1007A.52.5.53-16.IK	52	5	4,1	53,0	22	40	4,3	RD.X 1604..	**523**
R1007A.66.5.53-16.IK	66	5	4,6	53,0	27	48	4,3	RD.X 1604..	**662**
R1007A.66.6.53-16.IK	66	6	5,1	53,0	27	48	4,3	RD.X 1604..	**663**
R1007A.80.6.53-16.IK	80	6	5,1	53,0	27	60	4,3	RD.X 1604..	**802**
R1007A.100.7.53-16	100	7	5,1	53,0	32	70	4,3	RD.X 1604..	**910** [1]
R1007A.125.8.53-16	125	8	5,2	53,0	40	90	4,3	RD.X 1604..	**925** [1]
R1007A.160.9.53-16	160	9	5,1	53,0	40	120	4,3	RD.X 1604..	**960** [1]
R1007A.66.5.53-20.IK	66	5	7,0	53,0	27	48	4,3	RD.X 2006..	**664**
R1007A.80.5.53-20.IK	80	5	7,4	53,0	27	60	4,3	RD.X 2006..	**803**

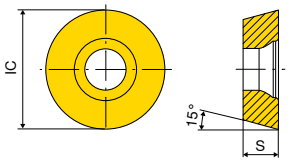
1) Without Through Coolant

Spare parts	TORX® blade Article no. 80 950 ...	Clamping Screw Article no. 56 950 ...	over clamp Article no. 56 950 ...	Key D Article no. 80 950 ...	Molykote Article no. 70 950 ...	Clamping screw Article no. 56 950 ...	Torque screwdriver Article no. 80 950 ...
Insert							
RD.X 0702..	**032**			**109**	**303**	**006**	**191**
RD.X 07T1..	**032**			**109**	**303**	**004**	**191**
RD.X 1003..	**036**			**113**	**303**	**010**	**192**
RD.X 12T3..	**036**	**022**		**113**	**303**	**010**	**192**
RD.X 1604..	**037**		**210**	**114**	**303**	**012**	**192**
RD.X 2006..	**037**		**210**	**114**	**303**	**012**	**192**
RDHX 0501..				**108**	**303**	**002**	**191**

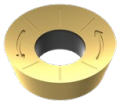
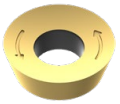
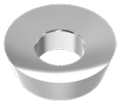
15

RDHX / RDMX / RDEX / RDPX

Designation	IC	S
	mm	mm
RDHX 0501..	5	1,50
RD.X 07T1..	7	1,99
RD.X 0702..	7	2,38
RD.X 1003..	10	3,18
RD.X 12T3..	12	3,97
RD.X 1604..	16	4,76
RDHX 2006..	20	6,00



RDHX / RDMX / RDEX / RDPX

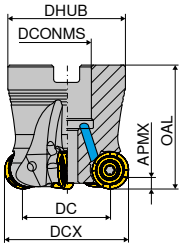
	WTN1205	WAN1240	WAX1240	-HP WAN2225	-F30P WUN4210
					
	RDHX	RDMX	RDEX	RDPX	RDHX
ISO	Article no. 56 302 ...	Article no. 56 309 ...	Article no. 56 314 ...	Article no. 56 348 ...	Article no. 56 304 ...
0501MOT	100				
0702MOE					611
0702MOT	111		611		
07T1MOE					621
07T1MOT	121		621		
1003MOS				231	
1003MOT	131	731	631		631
12T3MOS				241	
12T3MOT	141	741	641		641
1604MOS				251	
1604MOT	151	751	651		651
2006MOT	161				661
Steel	●	●	●		
Stainless steel	○	○		●	
Cast iron	●	○	○		
Non ferrous metals	○				●
Heat resistant alloys		○		○	
hardened materials	●		○		

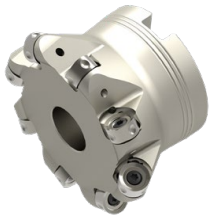
Milling guide

Machining strategy	→ 180+181	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 177–179

MaxiMill – Shell mill A 252





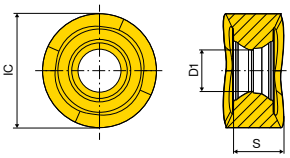


Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS mm	torque moment Nm	Insert	Article no. 50 689 ...
A252.40.R.05-10	30	40	5	2,5	40	38	16	2	RNHU 1004..	**140**
A252.42.R.05-10	32	42	5	2,5	40	38	16	2	RNHU 1004..	**142**
A252.50.R.06-10	40	50	6	2,5	40	43	22	2	RNHU 1004..	**150**
A252.52.R.07-10	42	52	7	2,5	40	43	22	2	RNHU 1004..	**152**
A252.63.R.08-10	53	63	8	2,5	40	48	22	2	RNHU 1004..	**16300**
A252.80.R.10-10	70	80	10	2,5	50	58	27	2	RNHU 1004..	**18000**
A252.40.R.04-12	28	40	4	3,0	40	38	16	3,2	RNHU 1205..	**240**
A252.50.R.05-12	38	50	5	3,0	40	43	22	3,2	RNHU 1205..	**250**
A252.52.R.05-12	40	52	5	3,0	40	43	22	3,2	RNHU 1205..	**252**
A252.63.R.06-12	51	63	6	3,0	40	48	22	3,2	RNHU 1205..	**263**
A252.66.R.07-12	54	66	7	3,0	40	48	22	3,2	RNHU 1205..	**266**
A252.80.R.08-12	68	80	8	3,0	50	58	27	3,2	RNHU 1205..	**280**
A252.100.R.10-12	88	100	10	3,0	50	78	32	3,2	RNHU 1205..	**30000**
A252.125.R.12-12	113	125	12	3,0	63	88	40	3,2	RNHU 1205..	**32500**

Spare parts	TORX® blade Article no. 80 950 ...	 Clamping key – T Article no. 80 397 ...	 Key D Article no. 80 950 ...	 Power Screw Article no. 70 950 ...	 Molykote Article no. 70 950 ...	 Clamping screw Article no. 70 950 ...	 Torque screwdriver Article no. 80 950 ...
RNHU 1004.. (Ø40 – Ø80)	**053**		**127**		**303**	**710**	**192**
RNHU 1205.. (Ø40)	**054**	**040**	**128**	**151**	**303**	**839**	**192**
RNHU 1205.. (Ø50 – Ø125)	**054**		**128**		**303**	**839**	**192**

RNHU

Designation	IC	D1	S
	mm	mm	mm
RNHU 1004..	10	3,4	4,60
RNHU 1205..	12	4,4	5,30



RNHU

	-M50 CTPP235	-F50 CTPM240	-M31 CTPM245	-M32 CTPM245	-M31 CTC5240	-M31 CTC5240
			-M31 DPX2245	-M32 DPX2245	-M31 HCF5240	-M31 HCF5240
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	RNHU	RNHU	RNHU	RNHU	RNHU	RNHU
	NEW	NEW				
ISO	Article no. 51 130 ...	Article no. 51 129 ...	Article no. 51 106 ...	Article no. 51 107 ...	Article no. 50 520 ...	Article no. 50 521 ...
1004M4ER	12000	42000	470	470	550	
1205M4ER		42500	475	475		552
1205M4SR	12500					
Steel	●	○	●	●		
Stainless steel	○	●	●	●		
Cast iron						
Non ferrous metals						
Heat resistant alloys					●	●
hardened materials						

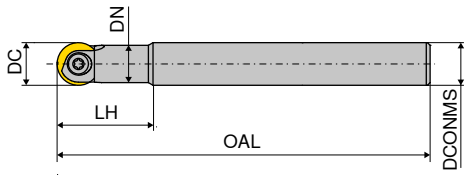
Milling guide

Grade description	→ 209+210	Cutting data appoximate values	→ 182
ISO Designation System	→ 194+195		

Copy milling cutter K 2000C / K 2001C

▲ with carbide shank









Designation	DC	DN	LH	OAL	DCONMS $_{h6}$	torque moment	Article no. 56 100 ...	Article no. 56 101 ...
	mm	mm	mm	mm	mm	Nm		
K2000C.6.16.100	6	5,3	16	100	8	0,6	**060** [1]	
K2000C.6.20.100	6	5,8	20	100	6	0,6	**061** [1]	
K2000C.6.70.150	6	5,8	70	150	6	0,6	**062** [1]	
K2000C.6.100.200	6	5,8	100	200	6	0,6	**063** [1]	
K2000C.8.25.80	8	7,0	25	80	8	1	**081** [1]	
K2000C.8.25.100	8	7,0	25	100	8	1	**082** [1]	
K2000C.8.25.150	8	7,0	40	150	8	1	**083** [1]	
K2000C.10.35.80	10	8,8	35	80	10	5	**101** [1]	
K2000C.10.35.120	10	8,8	35	120	10	5	**102** [1]	
K2000C.10.50.150	10	8,8	50	150	10	5	**103** [1]	
K2000C/K2001C.12.35.80	12	10,5	35	80	12	5	**121** [1]	**121**
K2000C/K2001C.12.35.120	12	10,5	35	120	12	5	**122** [1]	**122**
K2000C/K2001C.12.50.160	12	10,5	50	160	12	5	**123** [1]	**123**
K2001C.16.40.100	16	14,0	40	100	16	5		**161**
K2001C.16.40.140	16	14,0	40	140	16	5		**162**
K2001C.16.55.175	16	14,0	55	175	16	5		**163**
K2001C.20.50.100	20	18,0	50	100	20	5		**201**
K2001C.20.50.140	20	18,0	50	140	20	5		**202**
K2001C.20.75.190	20	18,0	75	190	20	5		**203**
K2001C.25.60.160	25	22,4	60	160	25	5		**252**
K2001C.25.90.210	25	22,4	90	210	25	5		**253**

1) Without Through Coolant

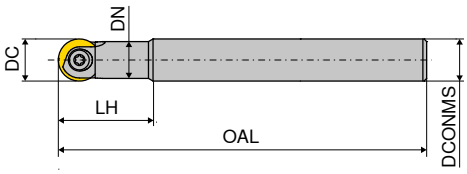
Applicable inserts

	**ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4**

	**XOHX06.. -MR2, XOHX-FM1**

Copy milling cutter K 2002C

▲ cylindrical steel shank version





Designation	DC	DN	LH	OAL	DCONMS $_{h6}$	torque moment	Article no. 56 102 ...
	mm	mm	mm	mm	mm	Nm	
K2002C.12.32.90	12	10,5	32	90	12	5	**121**
K2002C.12.32.130	12	10,5	32	130	12	5	**122**
K2002C.12.46.150	12	10,5	46	150	12	5	**123**
K2002C.16.36.100	16	14,0	36	100	16	5	**161**
K2002C.16.36.140	16	14,0	36	140	16	5	**162**
K2002C.16.53.160	16	14,0	53	160	16	5	**163**
K2002C.20.45.160	20	18,0	45	160	20	5	**202**
K2002C.20.61.175	20	18,0	61	175	20	5	**203**
K2002C.25.45.160	25	22,4	45	160	25	5	**252**
K2002C.25.70.190	25	22,4	70	190	25	5	**253**
K2002C.32.56.175	32	28,6	56	175	32	5	**322**
K2002C.32.80.210	32	28,6	80	210	32	5	**323**

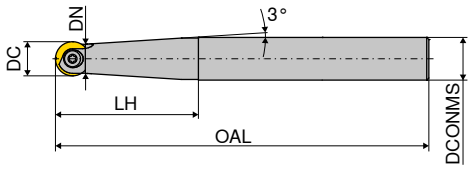
Applicable inserts

	**ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4**

	**XOHX-FM1**

Copy milling cutter K 2003C

▲ tapered execution





Designation	DC	DN	LH	OAL	DCONMS $_{h6}$	torque moment	Article no. 56 104 ...
	mm	mm	mm	mm	mm	Nm	
K2003C.6.16.90	6	5,3	16	90	10	0,6	**061**
K2003C.8.50.85	8	7,5	50	85	12	1	**081**
K2003C.8.50.140	8	7,5	50	140	12	1	**082**
K2003C.10.35.85	10	9,0	35	85	12	5	**101**
K2003C.10.35.150	10	9,0	35	150	12	5	**102**
K2003C.12.60.110	12	10,5	60	110	16	5	**121**
K2003C.12.60.160	12	10,5	60	160	16	5	**122**
K2003C.16.67.120	16	14,0	67	120	20	5	**161**
K2003C.16.67.175	16	14,0	67	175	20	5	**162**
K2003C.20.80.190	20	18,0	80	190	25	5	**201**
K2003C.25.100.210	25	22,4	100	210	32	5	**251**
K2003C.32.123.240	32	28,6	123	240	40	5	**321**

Applicable inserts

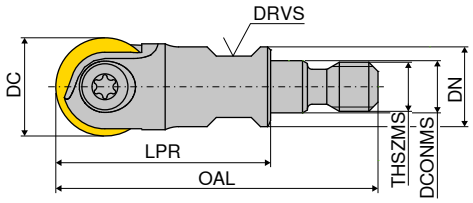
	**ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4**

	**XOHX-FM1**

15

Copy milling cutter K 2000G







Designation	DC	LPR	DN	OAL	DCONMS	THSZMS	DRVS	torque moment	Article no. 56 120 ...
	mm	mm	mm	mm	mm		mm	Nm	
K2000G.8.25.M6	8	25	10	39,5	6,5	M6	8	1	081 [1]
K2000G.10.25.M6	10	25	10	39,5	6,5	M6	8	5	101 [1]
K2000G.12.25.M6	12	25	10	39,5	6,5	M6	8	5	121 [1]
K2000G.12.26.M8	12	26	13	43,5	8,5	M8	10	5	122
K2000G.16.26.M8	16	26	13	43,5	8,5	M8	10	5	161
K2000G.20.30.M10	20	30	18	49,5	10,5	M10	15	5	201
K2000G.25.40.M12	25	40	21	62,0	12,5	M12	17	5	251
K2000G.32.45.M16	32	45	30	69,0	17,0	M16	26	5	321

1) Without Through Coolant

Applicable inserts

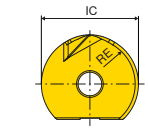
	**ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4**

	**XOHX-FM1**

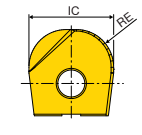
Spare parts DC	TORX® blade Article no. 80 950 ...	 Key D Article no. 80 950 ...	 Molykote Article no. 70 950 ...	 Clamping screw Article no. 56 950 ...	 Torque screwdriver Article no. 80 950 ...
6	031	108	303	041	191
8	033	110	303	042	191
10	036	113	303	043	193
12	037	114	303	044	193
16	037	114	303	045	193
20	037	114	303	046	193
25		131	303	047	
32		131	303	048	

ROHX / XOHX / ROGX

Designation	IC	S
	mm	mm
ROHX0616R..	6	1,60
ROHX0820R..	8	2,00
XOHX10254..	10	2,50
ROHX1025R..	10	2,50
XOHX12255..	12	2,50
RO.X1225R..	12	2,50
XOHX16307..	16	3,00
RO.X1630R..	16	3,00
XOHX20309..	20	3,00
RO.X2030R..	20	3,00
RO.X2540R..	25	4,00
RO.X3250R..	32	5,00



RO.X



XOHX

ROHX / XOHX / ROGX

	-MR5 CTPP211	-FM1 CTPP216	-FM3 CTPP216	-FM4 CTPP216	-FM4 CTPK226	-MR4 CTPK231	-FM6 CTCN211
							
	ROHX	XOHX	ROHX	ROHX	ROHX	ROGX	ROHX
	NEW	NEW	NEW	NEW	NEW	NEW	
ISO	Article no. 56 149 ...	Article no. 56 169 ...	Article no. 56 147 ...	Article no. 56 141 ...	Article no. 56 141 ...	Article no. 56 143 ...	Article no. 56 145 ...
RE mm							
0616 R3 / 3,0			30200	90200			602 [1]
0820 R4 / 4,0	71300		31300	71300	11300		613 [1]
1025 R5 / 5,0	72400		32400	72400	12400		624 [1]
102540 / 4,0		92400					
1225 R6 / 6,0			33500	73500	13500	53500	635 [1]
122550 / 5,0		93500					
1630 R8 / 8,0			34600	74600	14600	54600	646 [1]
163070 / 7,0		94700					
2030 R10 / 10,0			35700	75700	15700	55700	
203090 / 9,0		95900					
2540 R12,5 / 12,5			36800	76800	16800	56800	
3250 R16 / 16,0			37900	77900	17900	57900	
Steel	●	●	●	●	●	●	
Stainless steel	●	●	●	●	○	●	
Cast iron	●	●	●	●	○	●	
Non ferrous metals	○				○		●
Heat resistant alloys	●	●	●	●	○	●	
hardened materials	○	●	●	●	●		

1) Specifically for machining graphite !

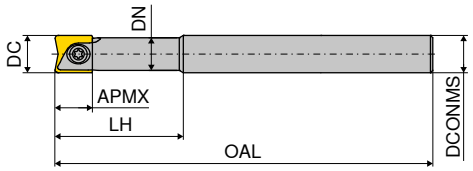
Milling guide

Depth of Cut	→ 185	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 183+184

Copy milling cutter K 2005C / K 2006C

▲ with carbide shank









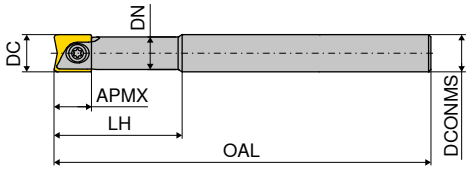
Designation	DC	APMX	DN	LH	OAL	DCONMS $_{h6}$	torque moment	Article no. 56 110 ...	Article no. 56 111 ...
	mm	mm	mm	mm	mm	mm	Nm		
K2005C.8.27.82	8	9,5	7,0	27	82	8	1	081 [1]	
K2005C.8.27.102	8	9,5	7,0	27	102	8	1	082 [1]	
K2005C.8.42.152	8	9,5	7,0	42	152	8	1	083 [1]	
K2005C.10.37.82	10	11,5	8,8	37	82	10	5	101 [1]	
K2005C.10.37.122	10	11,5	8,8	37	122	10	5	102 [1]	
K2005C.10.52.152	10	11,5	8,8	52	152	10	5	103 [1]	
K2005C/K2006C.12.37.82	12	14,0	10,5	37	82	12	5	121 [1]	121
K2005C/K2006C.12.37.122	12	14,0	10,5	37	122	12	5	122 [1]	122
K2005C/K2006C.12.52.162	12	14,0	10,5	52	162	12	5	123 [1]	123
K2006C.16.42.102	16	16,0	14,0	42	102	16	5		161
K2006C.16.42.142	16	16,0	14,0	42	142	16	5		162
K2006C.16.57.177	16	16,0	14,0	57	177	16	5		163
K2006C.20.52.102	20	18,0	18,0	52	102	20	5		201
K2006C.20.52.142	20	18,0	18,0	52	142	20	5		202
K2006C.20.77.192	20	18,0	18,0	77	192	20	5		203
K2006C.25.62.162	25	23,5	22,4	62	162	25	5		252
K2006C.25.92.212	25	23,5	22,4	92	212	25	5		253

1) Without Through Coolant

Applicable inserts

	XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6
	XOGX-MF4

Copy milling cutter K 2007C





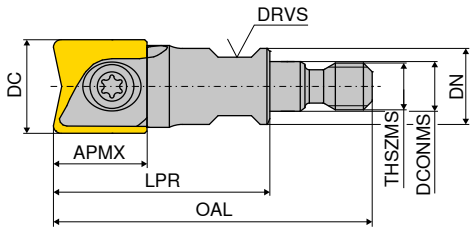
Designation	DC	APMX	DN	LH	OAL	DCONMS $_{h6}$	torque moment	Article no. 56 112 ...
	mm	mm	mm	mm	mm	mm	Nm	
K2007C.12.34.92	12	14,0	10,5	34	92	12	5	**121**
K2007C.12.34.132	12	14,0	10,5	34	132	12	5	**122**
K2007C.12.48.152	12	14,0	10,5	48	152	12	5	**123**
K2007C.16.38.102	16	16,0	14,0	38	102	16	5	**161**
K2007C.16.38.142	16	16,0	14,0	38	142	16	5	**162**
K2007C.16.55.162	16	16,0	14,0	55	162	16	5	**163**
K2007C.20.47.162	20	18,0	18,0	47	162	20	5	**202**
K2007C.20.63.177	20	18,0	18,0	63	177	20	5	**203**
K2007C.25.47.162	25	23,5	22,4	47	162	25	5	**252**
K2007C.25.72.192	25	23,5	22,4	72	192	25	5	**253**
K2007C.32.58.177	32	28,0	28,6	58	177	32	5	**322**
K2007C.32.82.212	32	28,0	28,6	82	212	32	5	**323**

Applicable inserts

	XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6
	XOGX-MF4

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Copy milling cutter K 2005G





Designation	DC	APMX	DN	LPR	OAL	DCONMS	THSZMS	DRVS	torque moment	Article no. 56 130 ...
	mm	mm	mm	mm	mm	mm		mm	Nm	
K2005G.8.25.M6	8	9,5	10	25	39,5	6,5	M6	8	1	**081** 1)
K2005G.10.25.M6	10	11,5	10	25	39,5	6,5	M6	8	5	**101** 1)
K2005G.12.25.M6	12	14,0	10	25	39,5	6,5	M6	8	5	**121** 1)
K2005G.12.28.M8	12	14,0	13	28	45,5	8,5	M8	8	5	**122**
K2005G.16.28.M8	16	16,0	13	28	45,5	8,5	M8	10	5	**161**
K2005G.20.32.M10	20	18,0	18	32	51,5	10,5	M10	15	5	**201**
K2005G.25.42.M12	25	23,5	21	42	64,0	12,5	M12	17	5	**251**
K2005G.32.47.M16	32	28,0	30	47	71,0	17,0	M16	26	5	**321**

1) Without Through Coolant

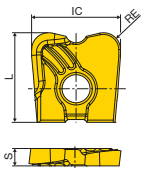
Applicable inserts

	XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6
	XOGX-MF4

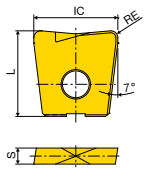
Spare parts DC	TORX® blade Article no. 80 950 ...	 Key D Article no. 80 950 ...	 Molykote Article no. 70 950 ...	 Clamping screw Article no. 56 950 ...	 Torque screwdriver Article no. 80 950 ...
8	**033**	**110**	**303**	**042**	**191**
10	**036**	**113**	**303**	**043**	**193**
12	**037**	**114**	**303**	**044**	**193**
16	**037**	**114**	**303**	**045**	**193**
20	**037**	**114**	**303**	**046**	**193**
25		**131**	**303**	**047**	
32		**131**	**303**	**048**	

XOHX / XOGX

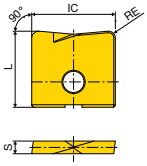
Designation	IC	S	L
	mm	mm	mm
XO.X10251..	10	2,50	11,5
XO.X12251..	12	2,50	14,0
XO.X12252..	12	2,50	14,0
XO.X16301..	16	3,00	16,0
XO.X16303..	16	3,00	16,0
XO.X20301..	20	3,00	18,0
XO.X20304..	20	3,00	18,0
XOHX06160..	6	1,60	8,0
XOHX08200..	8	2,00	9,5
XOHX08201..	8	2,00	9,5
XOHX10250..	10	2,50	11,5
XOHX12252..	12	3,00	14,0
XOHX20302..	20	3,00	18,0
XOHX25401..	25	4,00	23,5
XOHX25402..	25	4,00	23,5
XOHX25405..	25	4,00	23,5
XOHX32502..	32	5,00	28,0



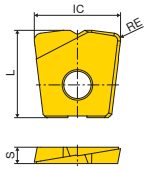
XOGX -MF4



XOHX -FM2, -MR2

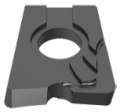
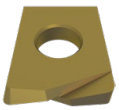


XOHX -FM5, -MR6



XOHX -MR3

XOHX / XOGX

ISO	RE	-MR2 CTPP211	-MR6 CTPP211	-FM2 CTPP216	-FM5 CTPP216	-MF4 CTPP216	-MR3 CTPK231	-MR2 CTCN211
		 XOHX	 XOHX	 XOHX	 XOHX	 XOGX	 XOHX	 XOHX
		NEW Article no. 56 167 ...	NEW Article no. 56 163 ...	NEW Article no. 56 165 ...	NEW Article no. 56 159 ...	NEW Article no. 56 161 ...	NEW Article no. 56 171 ...	Article no. 56 168 ...
	mm							
061605	0,5	71000						610 1)
082006	0,6		71000	71000	71000			
082010	1,0	71200		71200				612 1)
102508	0,8		72100	72100	72100		32100	
102510	1,0	72200		72200		92200		622 1)
122510	1,0	73200	73200	73200	73200	93200	53200	632 1)
122520	2,0	73500		73500		93500		
163010	1,0	74200		74200		94200		642 1)
163013	1,3		74300	74300	74300			
163015	1,5						54400	
163030	3,0	74700		74500		94700		
203010	1,0	75200		75200		95200		
203016	1,6		75400	75400	75400			
203020	2,0						55500	
203040	4,0	75800		75800		95800		
254010	1,0	76200		76200				
254020	2,0		76500	76500	76500			
254050	5,0	76900		76900				
325025	2,5		77600		77600			

Steel	●	●	●	●	●	●		
Stainless steel	●	●	●	●	●	●		
Cast iron	●	●	●	●	●	●		
Non ferrous metals	○	○						●
Heat resistant alloys	●	●	●	●	●	●		
hardened materials	○	○	●	●	●			

1) Specifically for machining graphite !

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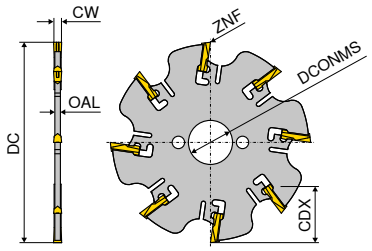
Milling guide

Depth of Cut	→ 185	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 183+184

Side and Face milling System FM

▲ For safety reasons the cutting speed must not exceed 250 m/min!

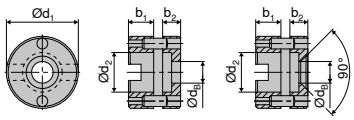
Scope of supply:
incl. ejector





Designation	DC	CW	ZNF	CDX	OAL	DCONMS	RPMX	Insert	Article no. 50 756 ...
	mm	mm		mm	mm	mm	1/min.		
SF-1,8-Z 8-100	100	2,3	8	28	1,8	22	800	FM-2.3 ...	**100**
SF-2,4-Z 8-100	100	3,0	8	28	2,4	22	800	FM-3.0 ...	**102**
SF-2,8-Z 8-100	100	4,0	8	28	2,8	22	800	FM-4.0 ...	**104**
SF-3,7-Z 8-100	100	5,0	8	28	3,7	22	800	FM-5.0 ...	**106**
SF-4,7-Z 8-100	100	6,0	8	28	4,7	22	800	FM-6.0 ...	**108**
SF-1,8-Z 10-125	125	2,3	10	40	1,8	22	650	FM-2.3 ...	**110**
SF-2,4-Z 10-125	125	3,0	10	40	2,4	22	650	FM-3.0 ...	**112**
SF-2,8-Z 10-125	125	4,0	10	40	2,8	22	650	FM-4.0 ...	**114**
SF-3,7-Z 10-125	125	5,0	10	40	3,7	22	650	FM-5.0 ...	**116**
SF-4,7-Z 10-125	125	6,0	10	40	4,7	22	650	FM-6.0 ...	**118**
SF-2,4-Z 15-160	160	3,0	15	49	2,4	32	500	FM-3.0 ...	**120**
SF-2,8-Z 15-160	160	4,0	15	49	2,8	32	500	FM-4.0 ...	**122**
SF-3,7-Z 15-160	160	5,0	15	49	3,7	32	500	FM-5.0 ...	**124**
SF-4,7-Z 15-160	160	6,0	15	49	4,7	32	500	FM-6.0 ...	**126**

Drive dogs



M../2N M../2S

Type	d_1 mm	d_2 mm	d_B mm	b_1 mm	b_2 mm	Ø mm	Article no. 70 950 ...
M22/2N	40	22	12	14,5	10	100/125	**800**
M32/2N	58	32	18	17,5	15	160	**801**
M22/2S	40	22	12	14,5	10	100/125	**802**
M32/2S	58	32	18	17,5	15	160	**803**

Ejector



Article no. 70 950 ...
804

FM

	-N CWN35	-KXF CWN35	-N CWK12
			
	FM	FM	FM
ISO	**Article no. 50 491 ...**	**Article no. 50 492 ...**	**Article no. 50 491 ...**
FM-2.3-8	023	023	123
FM-3.0-8	030	030	130
FM-4.0-8	040	040	140
FM-5.0-8	050		150
FM-6.0-8	060		160
Steel	●	●	
Stainless steel	●	●	
Cast iron			●
Non ferrous metals			●
Heat resistant alloys			
hardened materials			

Milling guide

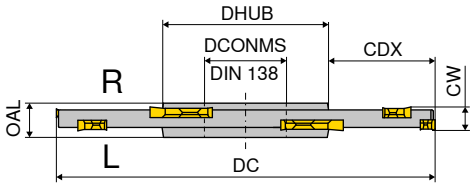
Machining strategy	→ 188	ISO Designation System	→ 194+195
Grade description	→ 209+210	Cutting data appoximate values	→ 187

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Saw Cutter TX

- ▲ Note: side and face milling cutters TX are cross-pitched and equipped with indexable inserts for both right-hand and left-hand version.
- ▲ ZEFP = number of inserts

Scope of supply:
side and face milling cutter, 2 spare clamping screws and 1 Torx key





Designation	DC	CW	ZNF	CDX	DCONMS	DHUB	OAL	ZEFP	Insert	torque moment	Article no. 50 730 ...
	mm	mm		mm	mm	mm	mm			Nm	
TX.STF.80X27.03.Z4	80	3	4	18,0	27	40	8	8	TX. 161702	0,9	**083**
TX.STF.100X32.03.Z5	100	3	5	25,0	32	46	8	10	TX. 161702	0,9	**103**
TX.STF.125X40.03.Z6	125	3	6	32,0	40	54	10	12	TX. 161702	0,9	**123**
TX.STF.160X40.03.Z8	160	3	8	50,0	40	54	10	16	TX. 161702	0,9	**163**
TX.STF.80X27.04.Z4	80	4	4	18,0	27	40	8	8	TX. 162302	1,3	**084**
TX.STF.100X32.04.Z5	100	4	5	25,0	32	46	8	10	TX. 162302	1,3	**104**
TX.STF.125X40.04.Z6	125	4	6	32,0	40	54	10	12	TX. 162302	1,3	**124**
TX.STF.160X40.04.Z8	160	4	8	50,0	40	54	10	16	TX. 162302	1,3	**164**
TX.STF.80X27.06.Z4	80	6	4	21,0	27	36	10	8	TX. 223202	2	**086**
TX.STF.80X22.06.Z4	80	6	4	22,0	22	33	10	8	TX. 223202	2	**080**
TX.STF.100X32.06.Z5	100	6	5	25,5	32	47	10	10	TX. 223202	2	**106**
TX.STF.125X40.06.Z6	125	6	6	32,5	40	58	10	12	TX. 223202	2	**136**
TX.STF.160X40.06.Z8	160	6	8	50,0	40	58	10	16	TX. 223202	2	**166**
TX.STF.80X27.08.Z4	80	8	4	21,0	27	36	12	8	TX. 224302	2,8	**088**
TX.STF.100X32.08.Z5	100	8	5	25,5	32	47	12	10	TX. 224302	2,8	**108**
TX.STF.125X40.08.Z6	125	8	6	32,5	40	58	12	12	TX. 224302	2,8	**138**
TX.STF.160X40.08.Z8	160	8	8	50,0	40	58	12	16	TX. 224302	2,8	**168**
TX.STF.80X27.10.Z4	80	10	4	21,0	27	36	12	8	TX. 225402	3	**090**
TX.STF.100X32.10.Z5	100	10	5	25,5	32	47	12	10	TX. 225402	3	**110**
TX.STF.125X40.10.Z6	125	10	6	32,5	40	58	14	12	TX. 225402	3	**140**
TX.STF.160X40.10.Z8	160	10	8	50,0	40	58	14	16	TX. 225402	3	**170**

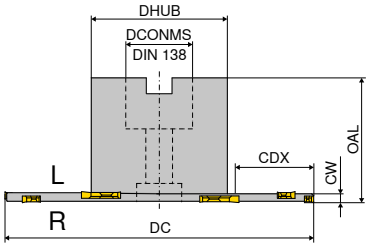
Spare parts CW	TORX® blade Article no. 80 950 ...	 Key D Article no. 80 950 ...	 Molykote Article no. 70 950 ...	 Clamping screw Article no. 70 950 ...	 Torque screwdriver Article no. 80 950 ...
3	**032**	**109**	**303**	**858**	**191**
4	**033**	**110**	**303**	**218**	**191**
6	**036**	**113**	**303**	**101**	**192**
8	**037**	**114**	**303**	**135**	**192**
10	**037**	**114**	**303**	**146**	**192**

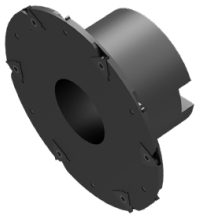
Shell side and face milling cutter TX

- ▲ Note: side and face milling cutters TX are cross-pitched and equipped with indexable inserts for both right-hand and left-hand version.
- ▲ ZEFP = number of inserts

Scope of supply:

side and face milling cutter, 2 spare clamping screws and 1 Torx key



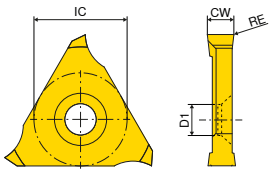


Designation	DC	CW	ZNF	CDX	DCONMS	DHUB	OAL	ZEFP	torque moment	Insert	Article no. 50 734 ...
	mm	mm		mm	mm	mm	mm		Nm		
TX.ASF.100.R.03.Z5	100	3	5	25,0	27	48	50	10	0,9	TX. 161702	**300**
TX.ASF.125.R.03.Z6	125	3	6	37,5	27	48	50	12	0,9	TX. 161702	**225**
TX.ASF.160.R.03.Z8	160	3	8	44,0	40	70	50	16	0,9	TX. 161702	**260**
TX.ASF.100.R.04.Z5	100	4	5	25,0	27	48	50	10	3,2	TX. 162302	**100**
TX.ASF.125.R.04.Z6	125	4	6	37,5	27	48	50	12	3,2	TX. 162302	**025**
TX.ASF.125.R.04.Z6	125	4	6	26,5	40	70	50	12	3,2	TX. 162302	**125**
TX.ASF.160.R.04.Z8	160	4	8	55,0	27	48	50	16	3,2	TX. 162302	**060**
TX.ASF.160.R.04.Z8	160	4	8	44,0	40	70	50	16	3,2	TX. 162302	**160**
TX.ASF.180.R.04.Z9	180	4	9	54,0	40	70	50	18	3,2	TX. 162302	**180**
TX.ASF.200.R.04.Z10	200	4	10	64,0	40	70	50	20	3,2	TX. 162302	**200**

Spare parts CW	DCONMS	 Washer	TORX® blade	 Clamping Screw	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
		Article no. 70 950 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 80 950 ...
3	40	**222**	**032**	**220**	**109**	**303**	**858**	**191**
3	27	**221**	**032**	**219**	**109**	**303**	**858**	**191**
4	27	**221**	**033**	**219**	**110**	**303**	**218**	**192**
4	40	**222**	**033**	**220**	**110**	**303**	**218**	**192**

TX-L / TX-R

Designation	IC	D1	CW
	mm	mm	mm
TX . 1617..	10	3,95	1,7
TX . 1623..	10	3,95	2,3
TX . 2232..	13	5,50	3,2
TX . 2243..	13	5,50	4,3
TX . 2254..	13	5,50	5,4



TX-L / TX-R

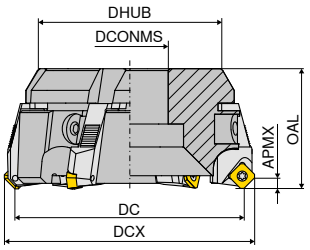
		CWX500	CWX500	CWK10	CWK10
					
		TX-L	TX-R	TX-L	TX-R
ISO	RE	Article no. 50 382 ...	Article no. 50 381 ...	Article no. 50 382 ...	Article no. 50 381 ...
	mm				
TX 161702	0,2	217	217		
TX 162302	0,2	223	223		
TX 223202	0,2	232	232	532	532
TX 224302	0,2	243	243	543	543
TX 225402	0,2	254	254	554	554
Steel		●	●		
Stainless steel		●	●		
Cast iron		●	●		
Non ferrous metals				●	●
Heat resistant alloys		●	●		
hardened materials					

Milling guide

Grade description → 209+210
Cutting data appoximate values → 187
ISO Designation System → 194+195

MaxiMill – Combi Mill Base Holder 260

▲ Basic body with clamping wedges, without cartridges





DC	ZNF	DCONMS	DHUB	OAL	WT	Article no. 50 715 ...
mm		mm	mm	mm	kg	
80	5	27	66	52	1	080
100	6	32	86	52	2	100
125	7	40	95	63	3	125
160	10	40	130	63	6	160
200	12	60	172	63	9	200
250	14	60	222	63	17	250
315	18	60	280	80	31	315
400	22	60	365	80	52	400

For information on axial runout setting, see → **page 189**

Spare parts DC	 Clamping wedge screw	 Clamping Wedge	 Key-T	 Molykote	 Eccentric Key
	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
80 - 400	297	296	317	303	298

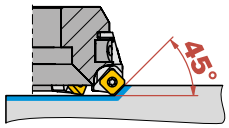
Insert related diameter

		Nominal Ø in mm															
		80		100		120		160		200		250		315		400	
	Inserts	DC mm	DCX mm	DC mm	DCX mm	DC mm	DCX mm	DC mm	DCX mm	DC mm	DCX mm	DC mm	DCX mm	DC mm	DCX mm	DC mm	DCX mm
	SD.. 0903..	80	88,4	100	108,4	123	131,4	158	166,4	198	206,4	248	256,4	313	321,4	398	406,4
	SD.. 1204..	80	94,5	100	114,5	123	137,5	158	172,5	198	212,5	248	262,5	313	327,5	398	412,5
	SE.. 1204..	80	93	100	113	123	136	158	171	198	211	248	261	313	326	398	411
	SD.. 1504..	75	94	95	114	118	137	153	172	193	212	243	262	308	327	393	412
	SP.. 1204..	82	88	102	108	125	131	160	166	200	206	250	256	315	321	400	406
	OA.. 0605..	80	85,6	100	105,6	123	128,6	158	163,6	198	203,6	248	253,6	313	318,6	398	403,6
	RP.X 1204..	80	92	100	112	123	135	158	170	198	210	248	260	313	325	398	410
	RP.X 16..	76	92	96	112	119	135	154	170	194	210	244	260	309	325	394	410
	SD.. 1205..	89		109		132		167		207		257		322		407	
	SD.. 09T3	89		109		132		167		207		257		322		407	
	LD..1504..	89		109		132		167		207		257		322		407	
	XD.T 11T3	89		109		132		167		207		257		322		407	
	XDKT 1505	89		109		132		167		207		257		322		407	
	AP.. 1003..	89		109		132		167		207		257		322		407	
	TPKW 2204..	89		109		132		167		207		257		322		407	

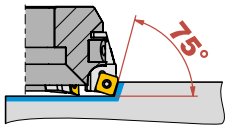
System MaxiMill 260/Combi Mill

Cassette for inserts

Face milling

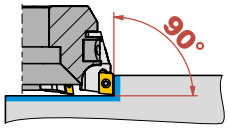


		 SD.. 0903..	 SD.. 1204..	 SE.. 1204..	 SD.. 1504..	 OA.. 0605..	
Cartridge no.		041	031	029	032	057	
Article no.	70 950 ...	329	411	306	412	338	



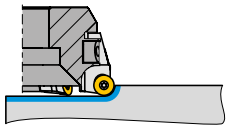
		 SP.. 1204..
Cartridge no.		018
Article no.	70 950 ...	310

Shoulder milling



		 AP.. 1003..	 LD.. 1504..	 XD.T 11T3..	 XDKT 1505..	 SD.. 1205..	 SD.. 09T3..	 TPKW 2204..	
Cartridge no.		042	051	054	056	039	055	025	
Article no.	70 950 ...	307	300	336	339	311	337	313	

Face/Copy milling



		 RP.X 1204..	 RP.X 16....
Cartridge no.		052	053
Article no.	70 950 ...	333	707

Insert	APMX	Cassette Article no. 70 950 ...
	mm	
AP.. 1003..	8,0	**307**
LD.. 1504..	14,0	**300**
OA.. 0605..	3,5	**338**
RP.X 1204..	6,0	**333**
RP.X 16..	8,0	**707**
SD.. 0903..	4,0	**329**
SD.. 09T3..	8,0	**337**
SD.. 1204..	6,0	**411**
SD.. 1205..	6,0	**311**
SD.. 1504..	9,0	**412**
SE.. 1204..	6,0	**306**
SP.. 1204..	9,0	**310**
TPKW 2204..	18,0	**313**
XD.T 11T3	10,0	**336**
XDKT 1505..	14,0	**339**

Spare parts	TORX® blade Article no. 80 950 ...		 Key D Article no. 80 950 ...		 Molykote Article no. 70 950 ...		 Clamping screw Article no. 70 950 ...		 Torque screwdriver Article no. 80 950 ...	
AP.. 1003..	033	7,80	110		303		112		191	
OA.. 0605..	037	9,95	114		303		302		193	
RP.X 1204.. / LD.. 1504..	036	9,28	113		303		304		192	
SD.. 0903..	033	7,80	110		303		115		191	
SD.. 09T3..	036	9,28	113		303		110		192	
SD.. 1204.. / SE.. 1204.. / SP.. 1204.. / SD.. 1205.. / SD.. 1504.. / RP.X 16.. / TPKW 2204..	037	9,95	114		303		280		193	
XD.T.. 11T3..	043	10,20	125		303		131		191	
XDKT 1505..	054	11,89	128		303		839		192	

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data appoximate values

Cutting Material **hard** (v_c↑) → **tough** (v_c↓)

	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN				DRAGONSKIN				DRAGONSKIN		DRAGONSKIN		DRAGONSKIN					
	CERMET		CERMET																							
	CTEP210 (DCC1210)		TCM10 (CWC10)		CTCP220 (DCX1220)		CTPP225 (DPX1225)		CTCP230 (DCX1230)		CTPP231		CTPP235 (DPX1235)		CTPP236		CTPM225 (DPX2225)		CTCM235 (DCX2235)		CTPM240 (DPX2240)		CTPM241		CTPM245 (DPX2245)	
Index																										
1.1	320		280		320	170	300	160	280	170	200	100	240	140	300	180	270	160	240	140	220	130	200	100		
1.2	400		350		280	150	250	130	230	140	170	90	190	110	250	150	220	130	190	110	170	100	170	90		
1.3	350		300		320	170	300	160	280	170	200	100	240	140	300	180	270	160	240	140	220	130	200	100		
1.4	330		300		300	150	280	140	250	150	170	90	220	130	270	160	240	140	210	130	200	120	170	90	250	
1.5	400		350		300	150	280	140	250	150	170	90	210	130	270	160	230	140	210	130	190	110	170	90		
1.6	350		300		300	150	280	140	250	150	170	90	210	130	270	160	230	140	210	130	190	110	170	90		
1.7	280		250		300	150	280	140	250	150	170	90	220	130	270	160	240	140	210	130	200	120	170	90	220	
1.8	320		280		250	120	220	110	190	110	150	80	160	100	210	120	180	100	150	90	140	80	150	80	180	
1.9	250		230		280	140	250	130	230	140	200	110	200	120	250	150	220	130	200	120	180	100	180	100	250	
1.10	280		250		300	150	280	140	250	150	170	90	220	130	270	160	240	140	210	130	200	120	170	100	220	
1.11	300		250		190	100	170	90	140	90	120	70	120	70	160	100	140	80	100	60	100	60	120	80	180	
1.12	300		250		300	150	280	140	250	150	170	90	220	130	270	160	240	140	210	130	200	120	170	100	250	
1.13					300	150	280	140	250	150	170	90	210	130	270	160	230	140	210	130	190	110	170	100	250	
1.14					150	70	130	70	100	60	120	70	90	50	150	100	170	100	120	70	90	50	120	80	120	
1.15	280		250		180	90	150	90	130	80	140	80	110	70	180	140	180	110	150	90	120	70	140	90	220	
1.16	280		250		180	90	150	90	130	80	140	80	110	70	180	140	180	110	150	90	120	70	180	100	160	
2.1									90	60			80	50			170	100	110	70	80	50	210	100	240	
2.2			280						130	80			110	70			180	110	150	90	120	70	210	100	240	
2.3			250						90	60			80	50			170	100	110	70	80	50	210	100	260	
2.4									130	80			110	70			180	110	150	90	120	70	210	100	280	
2.5													190	110			280	160	250	140	190	110	210	100	180	160
2.6													190	110			280	160	260	150	210	120	210	100	200	180
2.7													190	110			280	160	260	150	210	120	210	100	150	130
3.1	380										150	110			360	90										
3.2	300		250								150	110			360	90										
3.3	400		350								150	110			230	170										
3.4	350		300								150	110			160	110										
3.5	380		330												250	180										
3.6	250														250	180										
3.7	350		300												210	160										
3.8	280														210	160										
4.1																										
4.2																										
4.3																										
4.4																										
4.5																										
4.6																										
4.7																										
4.8																										
4.9																										
4.10																										
4.11																										
4.12																										
4.13																										
4.14																										
4.15																										
4.16																										
4.17																										
4.18																										
4.19																										
5.1																							80	40		
5.2																							80	40		
5.3																							80	40		
5.4																							80	40		
5.5																							80	40		
5.6																							80	40		
5.7																							80	40		
5.8																							80	40		
5.9																							80	40		
5.10																							90	50		
5.11																							90	50		
6.1											120	50			130	60										
6.2																										
6.3																										
6.4																										
6.5																										

Cutting data appoximate values

Cutting Material **hard** (v_c↑) → **tough** (v_c↓)

	CERAMIC		CBN																			
	CTN3105 CTS3105		CTL3215 CWB3215		CTPK221		CTCK215 DCX3215		CTPK220 DPX3220		H216T CWK 26		AMZ AMZ		CTWN215 CWK 4615		CTC5240 HCF 5240		CTCS245		CTP6215 CCN6215	
Index																						
1.1					**190**	**120**	350	210	300	180												
1.2					**180**	**100**	300	180	250	150												
1.3					**190**	**120**	350	210	300	180												
1.4					**180**	**100**																
1.5					**180**	**100**	320	190	270	160												
1.6					**180**	**100**	320	190	270	160												
1.7					**180**	**100**																
1.8					**180**	**100**																
1.9					**200**	**120**	300	180	260	160												
1.10					**180**	**100**																
1.11					**120**	**70**																
1.12					**180**	**100**																
1.13					**180**	**100**	320	190	270	160												
1.14					**120**	**70**																
1.15					**210**	**120**																
1.16					**210**	**120**																
2.1																						
2.2																						
2.3																						
2.4																						
2.5																						
2.6																						
2.7																						
3.1	**400–1500**		**500–1000**		**270**	**200**	**360**	160	**320**	160	110	110	140		80	80					**280**	250
3.2	**300–800**		**500–1000**		**270**	**200**	**360**	160	**320**	160	110	110	140		80	80					**280**	250
3.3					**250**	**180**	**230**	140	**210**	130	130	130	150		80	80					**180**	150
3.4			**350–650**		**180**	**120**	**160**	100	**140**	80	130	130	150		80	80					**180**	150
3.5					**270**	**190**	**250**	150	**200**	120	130	130	150		80	80					**250**	220
3.6					**270**	**190**	**250**	150	**200**	120	130	130	150		80	80					**250**	220
3.7					**220**	**170**	**210**	130	**170**	100	130	130	150		80	80					**190**	160
3.8					**220**	**170**	**210**	130	**170**	100	130	130	150		80	80					**190**	160
4.1												**1500**		**1500**		**280**						
4.2												**1500**		**1500**		**250**						
4.3												**400**		**400**		**800**						
4.4												**350**		**350**		**800**						
4.5																**500**						
4.6												**500**		**500**		**200**						
4.7												**500**		**500**	80	**80**						
4.8												**500**		**500**	80	**80**						
4.9												**500**		**500**	80	**80**						
4.10												**300**		**300**	70	**70**						
4.11												**800**		**800**	80	**80**						
4.12												**800**		**800**	80	**80**						
4.13												**350**		**350**	80	**80**						
4.14												**350**		**350**	80	**80**						
4.15												**350**		**350**	80	**80**						
4.16												**150**		**150**	80	**110**						
4.17											**90**				80	**80**						
4.18												**90**		**90**		**90**						
4.19												**130**		**130**		**130**						
5.1																		**50**		**30–50**		
5.2																		**50**		**30–50**		
5.3																		**50**		**30–50**		
5.4																		**40**		**30–50**		
5.5																		**40**		**30–50**		
5.6																		**40**		**30–50**		
5.7																		**40**		**30–50**		
5.8																		**40**		**30–50**		
5.9																		**90**				
5.10																		**60**				
5.11																		**60**				
6.1					**180**	**120**															**50**	
6.2					**160**	**100**															**50**	
6.3			110–190																		**40**	
6.4																						
6.5																						

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System MaxiMill 274-04/-09

Cutting data recommendations/Technology data

System Maximill 274 OFHT-04

	F			M			R		
Material	m/min	f_z mm	a_p mm	m/min	f_z mm	a_p mm	m/min	f_z mm	a_p mm
Steel	50–350	0,1–0,25	2,5	60–280	0,1–0,3	2,5	60–280	0,1–0,3	2,5
Stainless steel	60–270	0,1–0,25	2,5	60–270	0,1–0,3	2,5	60–270	0,1–0,3	2,5
Cast iron				130–360	0,1–0,3	2,5	130–360	0,1–0,3	2,5
Non-ferrous metals	160–1500	0,05–0,4	2,5	160–1500	0,05–0,4	2,5	160–1500	0,05–0,4	2,5
Heat resistant alloys	25–80	0,1–0,25	2,5	25–80	0,1–0,25	2,5			
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

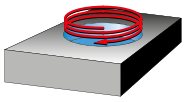
System MaxiMill 274 SFKT-09

	F			M			R		
Material	m/min	f_z mm	a_p mm	m/min	f_z mm	a_p mm	m/min	f_z mm	a_p mm
Steel	50–350	0,1–0,25	3,8	60–280	0,1–0,3	3,8	60–280	0,1–0,3	3,8
Stainless steel	60–270	0,1–0,25	3,8	60–270	0,1–0,3	3,8	60–270	0,1–0,3	3,8
Cast iron	110–130	0,05–0,4		130–360	0,1–0,35	3,8	130–360	0,1–0,35	3,8
Non-ferrous metals	160–1500	0,05–0,4	3,8	160–1500	0,05–0,4	3,8	160–1500	0,05–0,4	3,8
Heat resistant alloys	25–80	0,1–0,25	3,8	25–80	0,1–0,25	3,8	25–80	0,1–0,25	3,8
hardened materials									

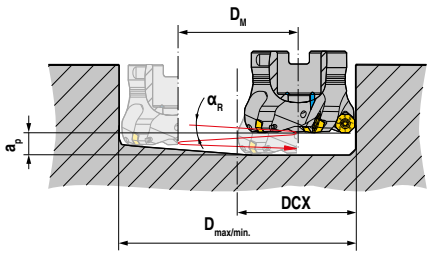
Detailed information on cutting speed for each grade can be found on → page 138+139

Machining strategy

Helical plunge milling



$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface
D_M = D_{max} – DCX and D_{min} – DCX



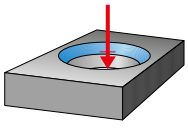
OF..04

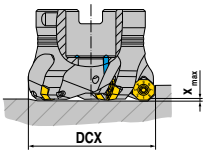
DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
25,6	45	39	2,3
30,7	55	49	1,9
37,7	69	63	1,4
45,7	85	79	1,2
55,7	105	99	0,9
68,7	131	125	0,7
85,7	165	159	0,6
105,7	205	199	0,5
130,7	255	249	0,4

SF..09

DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
27,4	45,00	42,0	1,9
32,5	55,00	52,0	1,5
39,2	69,00	66,0	1,1
47,6	85,00	82,0	0,9
57,6	105,00	102,0	0,7
70,5	131,00	128,0	0,5
87,5	165,00	162,0	0,4
107,5	205,00	202,0	0,3
132,5	255,00	252,0	0,3

Axial plunging





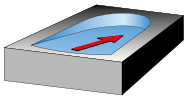
OF..04

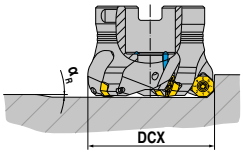
DCX mm	x_{max} mm
25,6	2,5
30,7	2,5
37,7	2,5
45,7	2,5
55,7	2,5
68,7	2,5
85,7	2,5
105,7	2,5
130,7	2,5

SF..09

DCX mm	x_{max} mm
27,4	3,7
32,5	3,5
39,2	3,2
47,6	3,1
57,6	3,1
70,5	3,0
87,5	2,9
107,5	2,7
132,5	2,7

Angled ramping





OF..04

DCX mm	$\alpha_{R\,max}$ °
25,6	14,2
30,7	9,5
37,7	6,5
45,7	4,7
55,7	3,5
68,7	2,7
85,7	2,0
105,7	1,6
130,7	1,2

SF..09

DCX mm	$\alpha_{R\,max}$ °
27,4	20,4
32,5	13,0
39,2	8,0
47,6	5,8
57,6	4,3
70,5	3,2
87,5	2,3
107,5	1,7
132,5	1,3

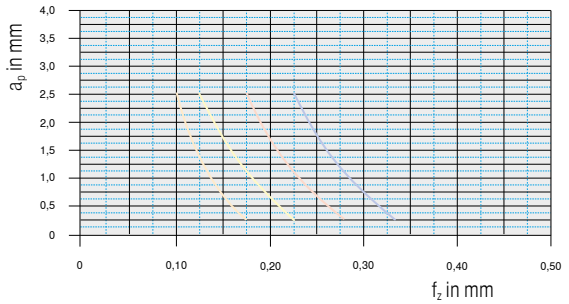
System MaxiMill 274-04

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



OF.. 04



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**OFHT040305SN-M50**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**OFHT040305SN-F50**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301	**OFHT040305SN-M50**	**CTCK215** (DCX3215)	250	Dry
Heat resistant alloys	2.4856	**OFHT040305SN-F50**	**CTC5240** (HCF5240)	35	Emulsion

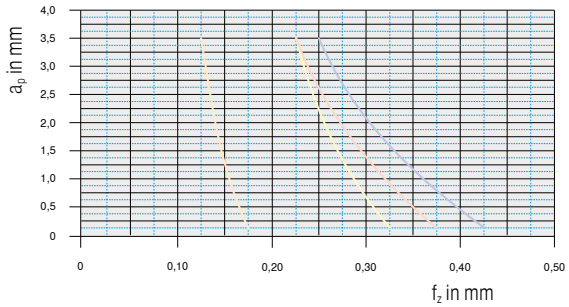
System MaxiMill 274-09

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



SF.. 09



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**SFKT0903AFSR-M50**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**SFHT0903AFSR-F50**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301	**SFKT0903AFSR-R50**	**CTCK215** (DCX3215)	250	Dry
Heat resistant alloys	2.4856	**SFHT0903AFSR-F50**	**CTC5240** (HCF5240)	35	Emulsion

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 274-05/-12

Cutting data recommendations/Technology data

System MaxiMill 274 OFHT-05

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	50–350	0,1–0,25	3	60–280	0,1–0,3	3	60–280	0,1–0,3	3
Stainless steel	60–270	0,1–0,25	3	60–270	0,1–0,3	3	60–270	0,1–0,3	3
Cast iron				130–360	0,1–0,3	3	130–360	0,1–0,3	3
Non-ferrous metals	160–1500	0,05–0,4	3	160–1500	0,05–0,4	3	160–1500	0,05–0,4	3
Heat resistant alloys	25–80	0,1–0,25	3	25–80	0,1–0,25	3			
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

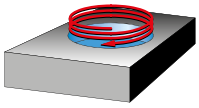
System MaxiMill 274 SFKT-12

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	50–350	0,1–0,25	6	60–280	0,1–0,3	6	60–280	0,1–0,3	6
Stainless steel	60–270	0,1–0,25	6	60–270	0,1–0,3	6	60–270	0,1–0,3	6
Cast iron	110–130	0,05–0,4		130–360	0,1–0,35	6	130–360	0,1–0,35	6
Non-ferrous metals	160–1500	0,05–0,4	6	160–1500	0,05–0,4	6	160–1500	0,05–0,4	6
Heat resistant alloys	25–80	0,1–0,25	6	25–80	0,1–0,25	6	25–80	0,1–0,25	6
hardened materials									

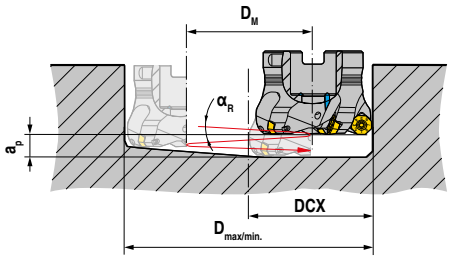
Detailed information on cutting speed for each grade can be found on → page 138+139

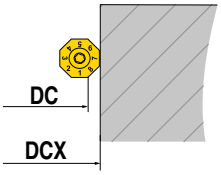
Machining strategy

Helical plunge milling



$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface
D_M = D_{max} – DCX and D_{min} – DCX





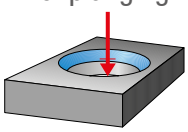
OF..05

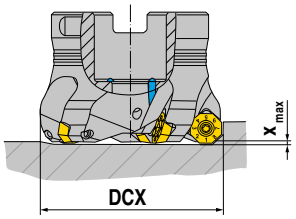
DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
50	**58**	107	99	1,1
63	**71**	133	125	0,9
80	**88**	167	159	0,7
100	**107,9**	207	199	0,5
125	**132,9**	257	249	0,4

SF..12

DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
47,0	**61,0**	107	105	0,5
59,9	**74,0**	133	131	0,4
76,9	**90,9**	167	165	0,3
96,9	**110,9**	207	205	0,25
121,9	**135,9**	257	255	0,2

Axial plunging





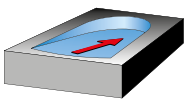
OF..05

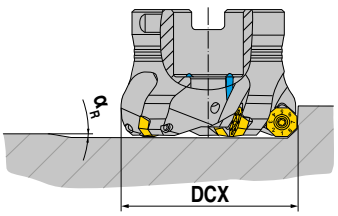
DC mm	DCX mm	X_{max} mm
50	**58**	2,2
63	**71**	1,9
80	**88**	1,8
100	**107,9**	1,1
125	**132,9**	1,4

SF..12

DC mm	DCX mm	X_{max} mm
47,0	**61,0**	3,4
59,9	**74,0**	3,2
76,9	**90,9**	3,0
96,9	**110,9**	2,5
121,9	**135,9**	2,6

Angled ramping





OF..05

DC mm	DCX mm	$\alpha_{R\,max}$ °
50	**58**	3,2
63	**71**	2,0
80	**88**	1,5
100	**107,9**	0,7
125	**132,9**	0,7

SF..12

DC mm	DCX mm	$\alpha_{R\,max}$ °
47,0	**61,0**	4,9
59,9	**74,0**	3,4
76,9	**90,9**	2,4
96,9	**110,9**	1,6
121,9	**135,9**	1,3

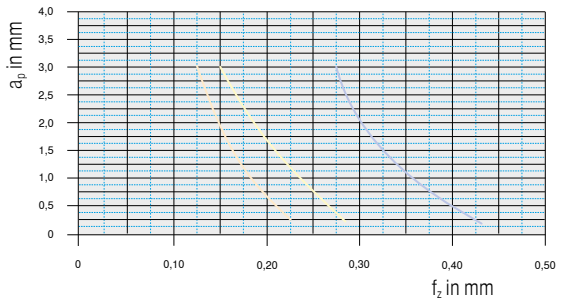
System MaxiMill 274-05

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



OF.. 05



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**OFHT050410SN-M50**	**CTCP230** (DCX1230)	200	Dry
Stainless steel	1.4571	**OFHT050410SN-F50**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301				
Heat resistant alloys	2.4856	**OFHT050410SN-F50**	**CTC5240** (HCF5240)	35	Emulsion

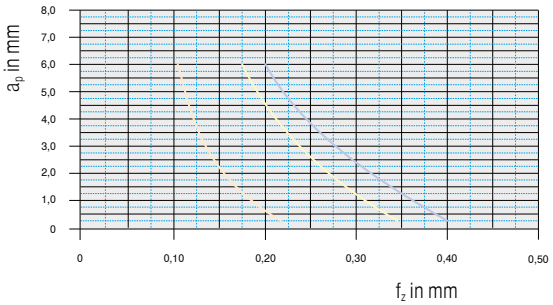
System MaxiMill 274-12

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



SF.. 12



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**SFKT1204AFSR-M50**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**SFKT1204AFSR-M50**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301				
Heat resistant alloys	2.4856	**SFHT1204AFER-F40**	**CTC5240** (HCF5240	35	Emulsion

15

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 271

Cutting data appoximate values

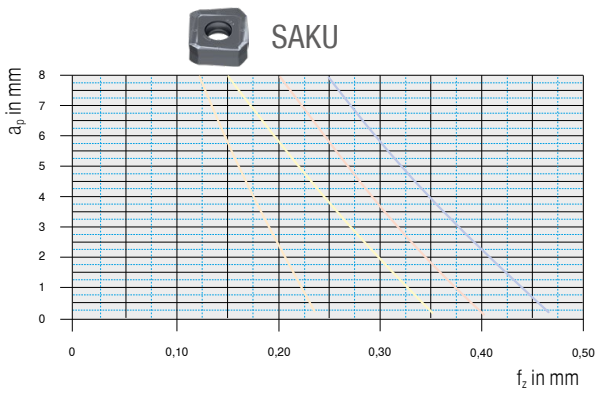
MaxiMill 271

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	50–340	0,2–0,3	8,4	50–340	0,2–0,5	8,4	50–340	0,2–0,5	8,4
Stainless steel	60–270	0,2–0,3	8,4	60–270	0,2–0,5	8,4	60–270	0,2–0,5	8,4
Cast iron				130–360	0,2–0,5	8,4	130–360	0,2–0,5	8,4
Non-ferrous metals									
Heat resistant alloys	25–80	0,2–0,3	8,4	25–80	0,2–0,3	8,4	25–80	0,2–0,3	8,4
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**SAKU 1706ABSR-M50**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**SAKU 1706ABSR-F50**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301	**SAKU 1706ABSR-R50**	**CTCK215** (DCX3215)	250	Dry
Heat resistant alloys	2.4856	**SAKU 1706ABSR-F50**	**CTC5240** (HCF5240)	35	Emulsion

From v_c > 400 m/min, the tool must be balanced!

MaxiMill 273 / 273 XAHT system

Cutting data appoximate values

MaxiMill 273

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	60–280	0,2–0,25	3,5	60–280	0,2–0,5	3,5	60–280	0,2–0,5	3,5
Stainless steel	130–240	0,2–0,5	3,5	60–270	0,2–0,5	3,5	60–270	0,2–0,5	3,5
Cast iron				130–360	0,2–0,5	3,5	130–360	0,2–0,5	3,5
Non-ferrous metals									
Heat resistant alloys	25–80	0,2–0,25	3,5	25–80	0,2–0,25	3,5	25–80	0,2–0,25	3,5
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

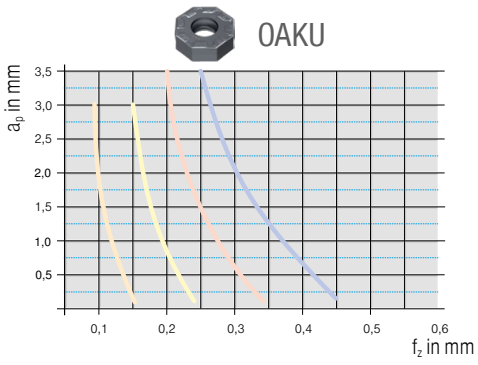
System MaxiMill 273 Wiper insert XAHT

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm						
Steel	60–350	0,05–0,15	0,20–1,00						
Stainless steel	40–250	0,05–0,15	0,20–1,00						
Cast iron	70–280	0,05–0,15	0,20–1,00						
Non-ferrous metals									
Heat resistant alloys	10–100	0,05	0,20–1,00						
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**OAKU 060508SR-M50**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**OAKU 060508SR-F50**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301	**OAKU 060508SR-R50**	**CTCK215** (DCX3215)	250	Dry
Heat resistant alloys	2.4856	**OAKU 060508ER-F40**	**CTC5240** (HCF5240)	35	Emulsion

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 270-09

Cutting data recommendations/Technology data

for standard inserts

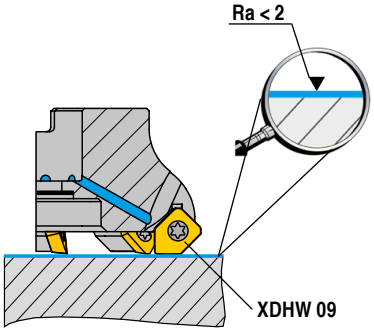
	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	60–280	0,1–0,3	4	60–280	0,1–0,3	4	60–280	0,1–0,3	4
Stainless steel	60–270	0,1–0,25	4	60–270	0,1–0,25	4	60–270	0,1–0,25	4
Cast iron	110–130	0,05–0,4		130–360	0,1–0,35	4	130–360	0,1–0,35	4
Non-ferrous metals	160–1500	0,05–0,4	4	160–1500	0,05–0,4	4	160–1500	0,05–0,4	4
Heat resistant alloys	25–80	0,1–0,25	4	25–80	0,1–0,25	4	25–80	0,1–0,25	4
hardened materials									

for wiper inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	150–350	0,05–0,25	0,10–2,0						
Stainless steel	110–200	0,05–0,25	0,10–2,0						
Cast iron	150–280	0,05–0,25	0,10–2,0						
Non-ferrous metals	< 2000	0,05–0,25	0,10–2,0						
Heat resistant alloys									
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

Machining strategy



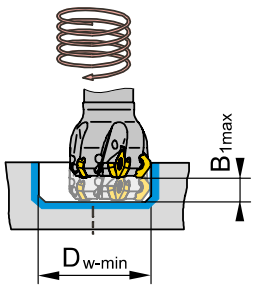
Finish milling with wiper inserts

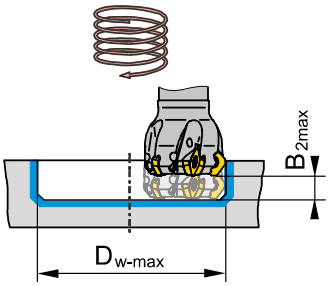
Two wiper inserts are mounted in each 125mm head




Steel	SDNT	0903AESN-29	DPX 1235	+	XDHW	0903AESN	DPX 1235
	SDNT	0903AESN-29	DCX 1230	+	XDHW	0903AESN	DCX 1230
	SDHT	0903AESN-33	DCX 1230	+	XDHW	0903AESN	DCX 1230
	SDHW	0903AESN	CWC 10	+	XDHW	0903AESN	CWC 10
Cast iron	SDNT	0903AESN-31	DCX 3215	+	XDHW	0903AEEN	DCX 3215
Non-ferrous metals	SDHT	0903AEFN-ALP	CWK 26	+	XDHW	0903AEFN	CWK 26

Helical plunge milling (without start hole)





C 270-09

DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm
6	14,4	1,5	19,0	1,5
12	28,5	1,5	31,0	1,5
16	36,5	1,5	39,0	1,5
20	44,5	1,5	47,0	1,5
25	54,5	1,5	57,0	1,5
32	68,5	1,5	71,0	1,5

A 270-09

DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm
32	68,5	1,5	71,0	1,5
40	84,5	1,5	87,0	1,5
50	104,5	1,5	107,0	1,5
63	130,5	1,5	133,0	1,5
80	164,5	1,5	167,0	1,5
100	204,5	1,5	207,0	1,5
125	254,5	1,5	257,0	1,5
160	324,5	1,5	327,0	1,5

System MaxiMill 270-12

Cutting data recommendations/Technology data

for standard inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	30–280	0,1–0,3	6	60–280	0,1–0,3	6	60–280	0,1–0,3	6
Stainless steel	60–270	0,1–0,25	6	60–270	0,1–0,25	6	60–270	0,1–0,25	6
Cast iron	150–200	0,05–0,4	6	130–360	0,1–0,35	6	130–360	0,1–0,3	6
Non-ferrous metals	160–3500	0,05–0,4	6	160–1500	0,05–0,4	6	160–1500	0,05–0,4	6
Heat resistant alloys	25–80	0,1–0,25	6	25–80	0,1–0,25	6	25–80	0,1–0,25	6
hardened materials									

for wiper inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	20–350	0,10–0,25	0,10–4,00						
Stainless steel	40–120	0,10–0,25	0,10–4,00						
Cast iron	120–290	0,10– 0,25	0,10–4,00						
Non-ferrous metals	< 2000	0,10–0,25	0,10–4,00						
Heat resistant alloys									
hardened materials									

for CBN inserts

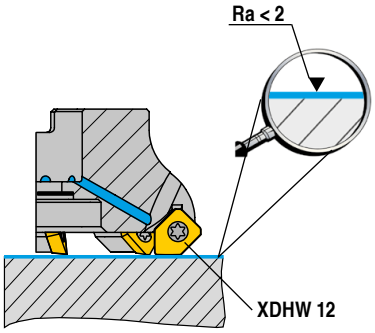
	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel									
Stainless steel									
Cast iron	600–1600	0,10–0,25	0,20–1,50						
Non-ferrous metals									
Heat resistant alloys	350–700	0,08–0,15	0,20–1,00						
hardened materials	350–600	0,08–0,12	0,20–0,40						

for PCD / MDC inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel									
Stainless steel									
Cast iron									
Non-ferrous metals	< 2000	0,05–0,25	0,10–2,00						
Heat resistant alloys									
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

Machining strategy



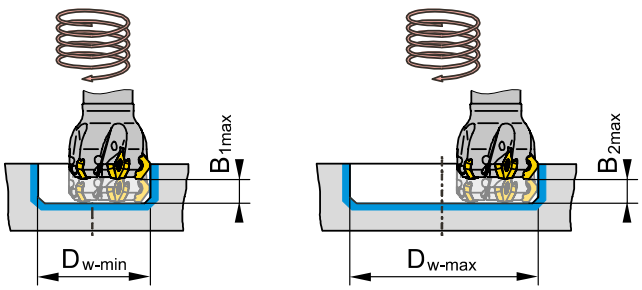
Finish milling with wiper inserts

Two wiper inserts are mounted in each 125mm head




Steel	SDMT 1204AESN-29R	DPX 1235	+	XDHW 1204AESN DPX 1235
	SDMT 1204AESN-29R	DCX 1230	+	XDHW 1204AESN DCX 1230
	SDHW 1204AESN-R	CWC 10	+	XDHW 1204AESN CWC 10
Cast iron	SDMT 1204AEEN-31	DCX 3215	+	XDHW 1204AEEN DCX 3215
	SDHW 1204AESN-R	DCX 3215	+	XDHW 1204AEEN DCX 3215
Non-ferrous metals	SDHT 1204AEFN-ALP	CWK 26	+	XDHW 1204AEFN CWK 26

Helical plunge milling (without start hole)



DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm
32	74,5	1,5	78,0	1,5
40	90,5	1,5	94,0	1,5
50	110,5	1,5	114,0	1,5
63	136,5	1,5	140,0	1,5
80	170,5	1,5	174,0	1,5
100	210,5	1,5	214,0	1,5
125	260,5	1,5	264,0	1,5
160	330,5	1,5	334,0	1,5

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 270-19

Cutting data appoximate values

for standard inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel				40–180	0,15–0,6	10	40–180	0,3–0,7	10
Stainless steel				40–120	0,15–0,5	10	40–120	0,3–0,6	10
Cast iron							50–200	0,3–0,9	10
Non-ferrous metals									
Heat resistant alloys				20–70	0,15–0,5	10			
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill HEC

Cutting data appoximate values

MaxiMill HEC 11

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel									
Stainless steel									
Cast iron	100–800	0,08–0,3	6	100–360	0,08–0,3	6	100–360	0,1–0,45	6
Non-ferrous metals									
Heat resistant alloys									
hardened materials									

MaxiMill HEC 12

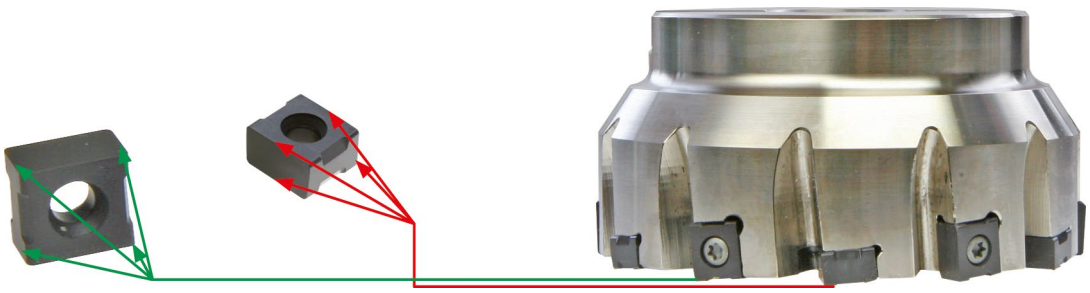
	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel									
Stainless steel									
Cast iron	100–360	0,08–0,3	8	100–360	0,08–0,3	8	100–360	0,1–0,45	8
Non-ferrous metals									
Heat resistant alloys									
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

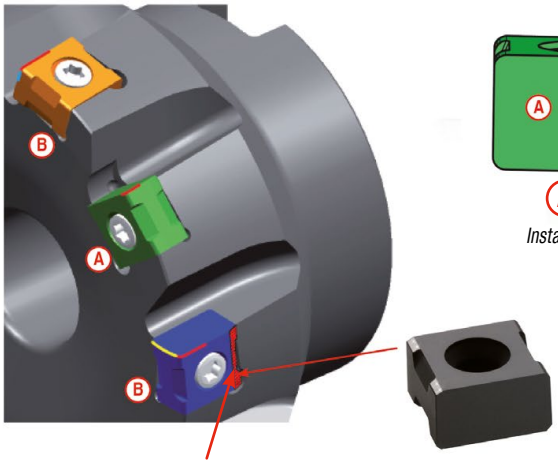
From v_c > 400 m/min, the tool must be balanced!

System MaxiMill HEC 11

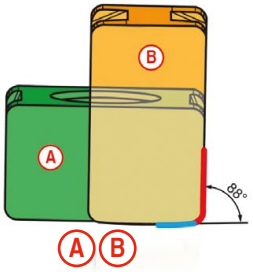
4 cutting edges per installation position



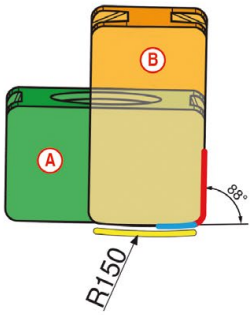
Correct assembly of standard and wiper inserts



Marking for the correct assembly



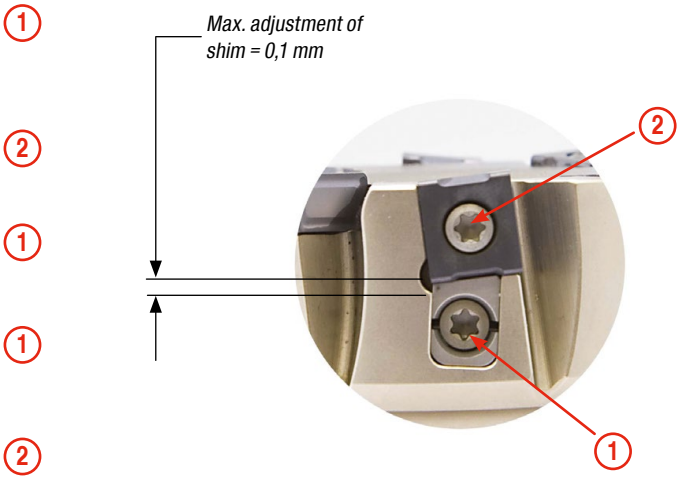
Installation position



Face machining insert — B
Insert main cutting edge — A B
Wiper Facet — B

Adjust the tools in axial direction

- Install the wedge into the cutter body and lightly clamp the clamping screw so as not to clamp.
- Install the inserts as shown and tighten to 1,0 Nm torque.
- Using pre-setting equipment, mark the highest cutting edge.
- With small adjustments of the setting screw set all cutting edges to the same height by 0,005 mm or better.
- Clamp insert with 3,2 Nm torque.



MaxiMill 491-09 system

Cutting data appoximate values

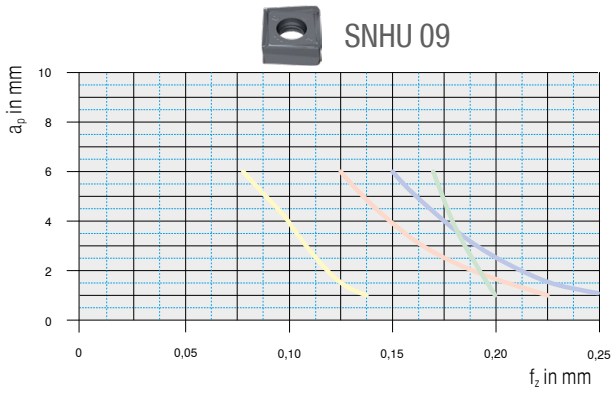
MaxiMill 491-09

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	60–280	0,1–0,2	6	60–280	0,1–0,2	6	60–280	0,1–0,2	6
Stainless steel	60–280	0,05–0,2	6	130–240	0,05–0,25	6	130–240	0,1–0,25	6
Cast iron	110–130	0,05–0,25	6	100–360	0,1–0,25	6	100–360	0,1–0,25	6
Non-ferrous metals	160–1500	0,05–0,25	6	160–1500	0,05–0,25	6	160–1500	0,05–0,25	6
Heat resistant alloys	25–75	0,08–0,15	6	25–75	0,08–0,15	6	25–75	0,08–0,15	6
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Non-ferrous metals	450 N/mm²	4.3	3.2315	AlMgSi1



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**SNHU09T308SR-M50**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**SNHU09T308SR-F50**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301	**SNHU09T308SR-R50**	**CTCK215** (DCX3215)	250	Dry
Non-ferrous metals	3.2315	**SNHU09T308FR-F10**	**CTWN215** (CWK4615)	500	Emulsion

From v_c > 400 m/min, the tool must be balanced!

MaxiMill 491-12 system

Cutting data appoximate values

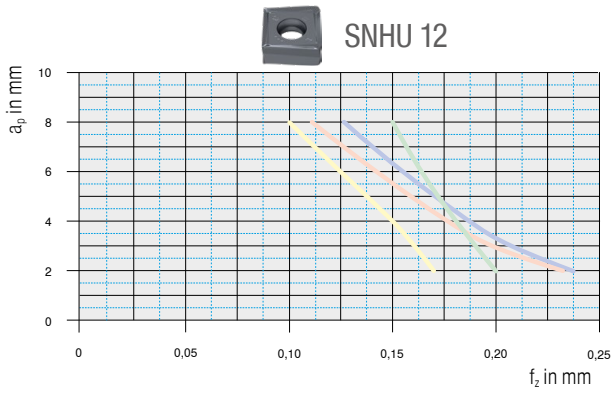
MaxiMill 491-12

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	60–280	0,1–0,2	8	60–280	0,1–0,2	8	60–280	0,1–0,2	8
Stainless steel	60–280	0,05–0,2	8	130–240	0,05–0,25	8	130–240	0,1–0,25	8
Cast iron	110–130	0,05–0,25	8	100–360	0,1–0,25	8	100–360	0,1–0,25	8
Non-ferrous metals	160–1500	0,05–0,25	8	160–1500	0,05–0,25	8	160–1500	0,05–0,25	8
Heat resistant alloys	25–75	0,08–0,15	8	25–75	0,08–0,15	8	25–75	0,08–0,15	8
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Non-ferrous metals	450 N/mm²	4.3	3.2315	AlMgSi1



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**SNHU120408SR-M50**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**SNHU120408SR-F50**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301	**SNHU120408SR-R50**	**CTCK215** (DCX3215)	250	Dry
Non-ferrous metals	3.2315	**SNHU120408FR-F10**	**CTWN215** (CWK4615)	500	Emulsion

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 211-07

Cutting data recommendations/Technology data

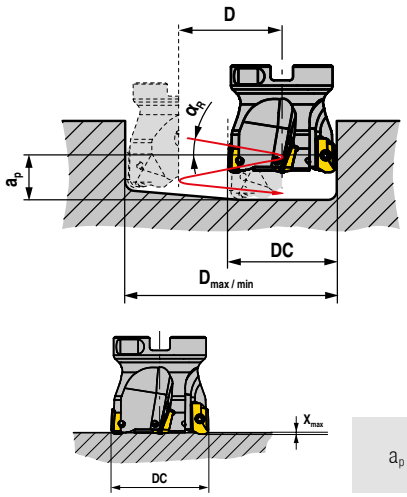
for standard inserts

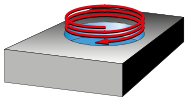
	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	50–340	0,1–0,2	6	50–340	0,1–0,2	6	50–340	0,1–0,2	6
Stainless steel	60–280	0,05–0,2	6	60–280	0,05–0,3	6	60–280	0,1–0,3	6
Cast iron				100–360	0,1–0,3	6	100–360	0,1–0,3	6
Non-ferrous metals	160–1500	0,1–0,2	6	160–1500	0,1–0,2	6	160–1500	0,1–0,2	6
Heat resistant alloys	25–75	0,05–0,15	6	25–75	0,05–0,15	6	25–75	0,05–0,15	6
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

Machining strategy

Helical plunge milling



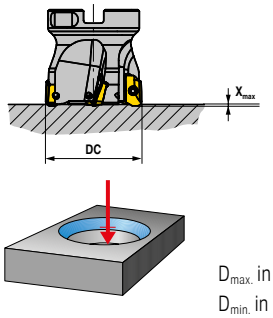


DC mm	D_{max} / RE 0,4 mm	D_{min} mm	$\alpha_{R\,max}$ °
10	19	13	5,5
12	23	17	6,0
16	31	25	3,0
20	39	33	2,0
25	49	43	1,5
32	63	57	1,2
40	79	73	0,8
50	99	93	0,7

DC mm	D mm	$\alpha_{R\,max\,360°}$ °
10	13	5,5
12	17	6,0
16	25	3,0
20	33	2,0
25	43	1,5
32	57	1,2
40	73	0,8
50	93	0,7

a_p in mm = $D * \pi * \tan \alpha_R$

Axial plunging

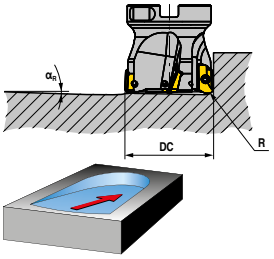


DC mm	X_{max} mm
10	0,8
12	0,8
16	0,8
20	0,8
25	0,8
32	0,8
40	0,8
50	0,8

$D_{max.}$ in mm = largest diameter for flat bottom hole

$D_{min.}$ in mm = smallest hole diameter for flat bottom surface

Angled ramping



DC mm	α °
10	11,0
12	7,9
16	4,3
20	3,0
25	2,5
32	1,6
40	1,2
50	1,0

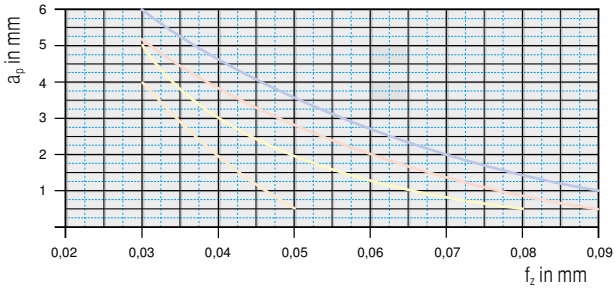
$D = D_{max} - DC / D_{min} - DC$

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



XDKT 07



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**XDKT070308SR-M50**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**XDKT070308SR-F50**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301		**CTCK215** (DCX3215)	250	Dry
Heat resistant alloys	2.4856	**XDKT070308ER-F40**	**CTC5240** (HCF5240)	35	Emulsion

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 211-11

Cutting data recommendations/Technology data

for standard inserts

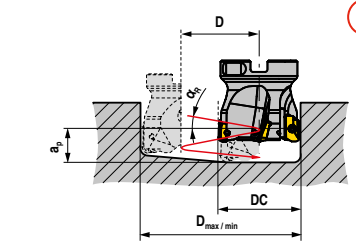
	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	50–340	0,1–0,2	10	50–340	0,1–0,2	10	50–340	0,1–0,2	10
Stainless steel	60–280	0,05–0,2	10	60–280	0,05–0,25	10	60–280	0,1–0,25	10
Cast iron				100–360	0,1–0,25	10	100–360	0,1–0,25	10
Non-ferrous metals	160–1500	0,1–0,2	10	160–1500	0,1–0,2	10	160–1500	0,1–0,2	10
Heat resistant alloys	25–75	0,05–0,15	10	25–75	0,05–0,15	10	25–75	0,05–0,15	10
hardened materials				40–60	0,05–0,2	10			

for shell end mill

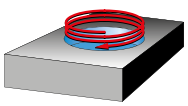
	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	100–300	0,05–0,20	≤ APMX						
Stainless steel	80–200	0,05–0,20	≤ APMX						
Cast iron	110–300	0,05–0,20	≤ APMX						
Non-ferrous metals	300–2000	0,10–0,25	≤ APMX						
Heat resistant alloys	40–80	0,05–0,15	≤ APMX						
hardened materials	30–50	0,05–0,10	≤ APMX						

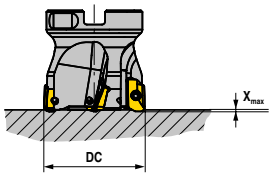
Detailed information on cutting speed for each grade can be found on → page 138+139

Machining strategy

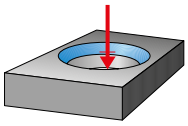


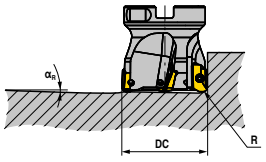
1 Helical plunge milling



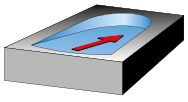


2 Axial plunging





3 Angled ramping



DC mm	1 Helical plunge milling RE = 0,8 mm		2 Axial plunging X_{max}	3 Angled ramping α_R
12	α_R	16°	1,3 mm	18°
	D_{max}	21 mm		
	D_{min}	14 mm		
16	α_R	9,5°	1,5 mm	10,8°
	D_{max}	29 mm		
	D_{min}	21 mm		
20	α_R	7°	2,0 mm	9,8°
	D_{max}	37 mm		
	D_{min}	30 mm		
25	α_R	4,5°	2,0 mm	7,5°
	D_{max}	47 mm		
	D_{min}	40 mm		
32	α_R	3,2°	1,0 mm	4,8°
	D_{max}	61 mm		
	D_{min}	53 mm		
40	α_R	2,2°	1,6 mm	2,9°
	D_{max}	77 mm		
	D_{min}	72 mm		
50	α_R	1,7°	1,6 mm	2,2°
	D_{max}	98 mm		
	D_{min}	93 mm		
63	α_R	1,5°	1,6 mm	1,8°
	D_{max}	123 mm		
	D_{min}	116 mm		
80	α_R	1,0°	1,6 mm	1,4°
	D_{max}	157 mm		
	D_{min}	153 mm		
100	α_R	0,8°	1,6 mm	1,1°
	D_{max}	107 mm		
	D_{min}	101 mm		

	maximum rpm based on overhang length. n_{max} in min^{-1}				
DC mm	l_a = 1–2 x Ø mm	l_a = 2,5 x Ø mm	l_a = 3 x Ø mm	l_a = 4 x Ø mm	l_a = 5 x Ø mm
12	55000	51500	47000	42000	37000
16	42000	38500	34100	28900	24200
20	36900	33000	28500	23900	19500
25	33200	29000	24400	19900	15400
32	30200	26000	20900	16600	11900
40	27700	23000	18000	13500	9000
50	25400	20400	15400	10800	6100
63	23300	18300	12900	8300	3700
80	21300	16100	10600	5800	
100	19600	14100	8400		

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest diameter for flat bottom hole

a_p in mm = $D \times \pi \times \tan(\alpha_R)$ = Pitch

l_a in mm = Overhang length

System MaxiMill 211-15

Cutting data recommendations/Technology data

for standard inserts

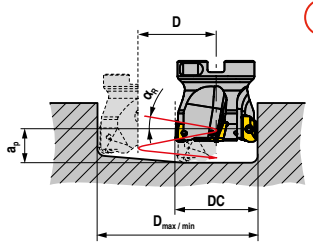
	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	50–340	0,1–0,2	14	50–340	0,1–0,2	14	50–340	0,1–0,2	14
Stainless steel	60–280	0,05–0,2	14	60–280	0,05–0,25	14	60–280	0,1–0,25	14
Cast iron				100–360	0,1–0,25	14	100–360	0,1–0,25	14
Non-ferrous metals	160–1500	0,1–0,2	14	160–1500	0,1–0,2	14	160–1500	0,1–0,2	14
Heat resistant alloys	25–75	0,05–0,15	14	25–75	0,05–0,15	14	25–75	0,05–0,15	14
hardened materials				40–60	0,05–0,2	14			

for shell end mill

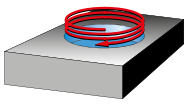
	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	120–300	0,08–0,35	≤ APMX						
Stainless steel	150–200	0,08–0,35	≤ APMX						
Cast iron	130–300	0,08–0,35	≤ APMX						
Non-ferrous metals	400–2500	0,12–0,40	≤ APMX						
Heat resistant alloys	25–80	0,08–0,20	≤ APMX						
hardened materials									

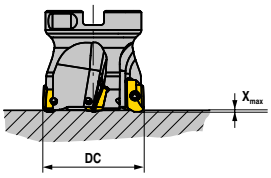
Detailed information on cutting speed for each grade can be found on → page 138+139

Machining strategy

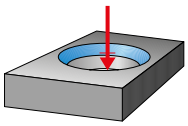


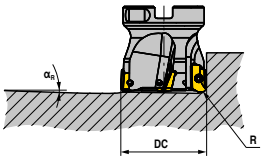
1 Helical plunge milling



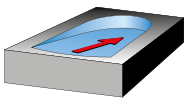


2 Axial plunging





3 Angled ramping



	1	2	3
DC mm	Helical plunge milling RE = 0,8 mm	Axial plunging X_{max}	Angled ramping α_R
25	α_R 7,5° D_{max} 48 mm D_{min} 37 mm	2,7 mm	9,5°
32	α_R 5° D_{max} 62 mm D_{min} 47 mm	2,5 mm	6,8°
40	α_R 3,2° D_{max} 78 mm D_{min} 63 mm	2,5 mm	5,1°
50	α_R 2,5° D_{max} 98 mm D_{min} 86 mm	2,5 mm	2,5°
63	α_R 1,5° D_{max} 124 mm D_{min} 111 mm	2,5 mm	2,5°
80	α_R 1,3° D_{max} 158 mm D_{min} 147 mm	2,5 mm	2,0°
100	α_R 1,1° D_{max} 198 mm D_{min} 190 mm	2,5 mm	1,5°
125	α_R 0,9° D_{max} 248 mm D_{min} 240 mm	2,5 mm	0,9°
160	α_R 0,6° D_{max} 318 mm D_{min} 310 mm	2,5 mm	0,7°

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest diameter for flat bottom hole

a_p in mm = D x π x tan (α_R) = Pitch

l_a in mm = Overhang length

DC mm	maximum rpm based on overhang length. n_{max} in min^{-1} $l_a = 2 \times Ø$ mm	$l_a = 3 \times Ø$ mm	$l_a = 5 \times Ø$ mm
25	26560	19520	13320
32	24160	16720	9520
40	22160	14400	7200
50	20320	12320	4880
63	18640	10320	2960
80	17040	8480	
100	15680	6720	
125	14320		
160	13200		

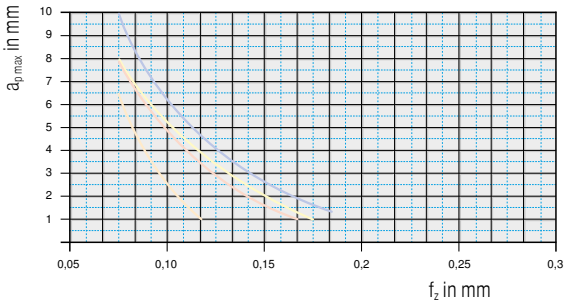
System MaxiMill 211-11

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



XDKT 11



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**XDKT11T308SR-M50**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**XDKT11T308SR-F50**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301	**XDKT11T308SR-R50**	**CTCK215** (DCX3215)	250	Dry
Heat resistant alloys	2.4856	**XDKT11T308ER-F50**	**CTC5240** (HCF5240)	35	Emulsion

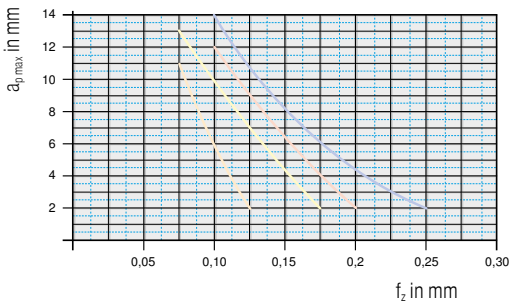
System MaxiMill 211-15

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



XDKT 15



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**XDKT150508SR-M50**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571		**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301	**XDKT150508SR-R50**	**CTCK215** (DCX3215)	250	Dry
Heat resistant alloys	2.4856	**XDKT150508ER-F40**	**CTC5240** (HCF5240)	35	Emulsion

15

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 211-20

Cutting data recommendations/Technology data

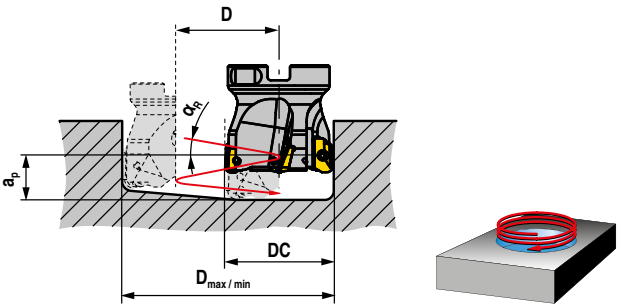
for standard inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel									
Stainless steel	130–280	0,08–0,2	19	130–280	0,08–0,3	19	180–280	0,1–0,25	19
Cast iron									
Non-ferrous metals									
Heat resistant alloys	25–80	0,08–0,2	19	25–80	0,08–0,3	19	25–80	0,1–0,15	19
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

Machining strategy

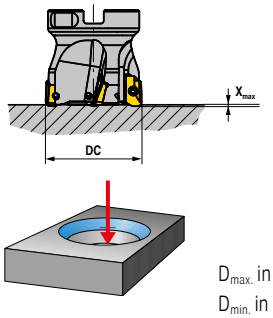
Helical plunge milling



DC mm	D_{max} / RE 0,4 mm	D_{min} mm	$\alpha_{R\,max}$ °
63	124	107	2,2
80	158	143	1,7
100	198	183	1,3

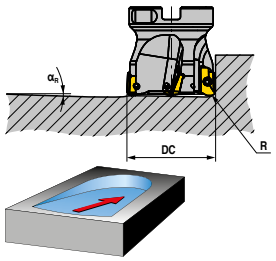
a_p in mm = $D * \pi * \tan \alpha_R$

Axial plunging



DC mm	X_{max} mm
63	2,0
80	2,0
100	2,0

Angled ramping



DC mm	α °
63	2,2
80	1,7
100	1,3

$D_{max.}$ in mm = largest diameter for flat bottom hole

$D_{min.}$ in mm = smallest hole diameter for flat bottom surface

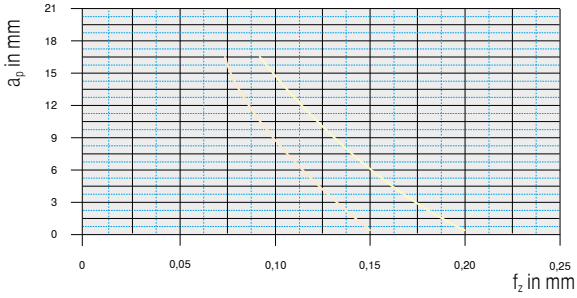
$D = D_{max} - DC / D_{min} - DC$

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



XDKT 20



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312				
Stainless steel	1.4571	**XDKT200708ER-F40**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301				
Heat resistant alloys	2.4856	**XDKT200708ER-F40**	**CTC5240** (HCF5240)	35	Emulsion

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 490-09

Cutting data recommendations/Technology data

for standard inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	50–350	0,05–0,25	7,3	50–350	0,05–0,3	7,3	50–270	0,1–0,3	7,3
Stainless steel	130–280	0,1–0,2	7,3	60–280	0,1–0,2	7,3	60–280	0,1–0,2	7,3
Cast iron	100–360	0,05–0,25	7,3	100–360	0,05–0,3	7,3	100–360	0,1–0,3	7,3
Non-ferrous metals	160–1500	0,08–0,35	7,3	160–1500	0,08–0,35	7,3	160–1500	0,08–0,35	7,3
Heat resistant alloys	25–75	0,1–0,2	7,3	25–75	0,1–0,2	7,3	25–75	0,1–0,2	7,3
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

Machining strategy

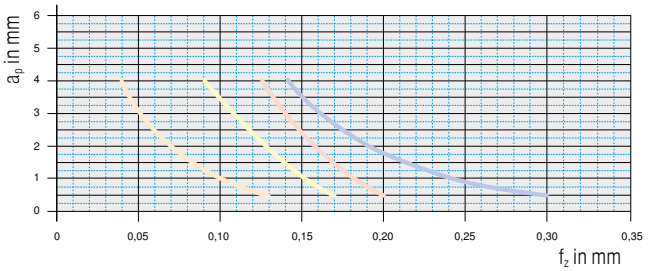
System MaxiMill 490-09 is not suitable for plunging!

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



SDNT 09

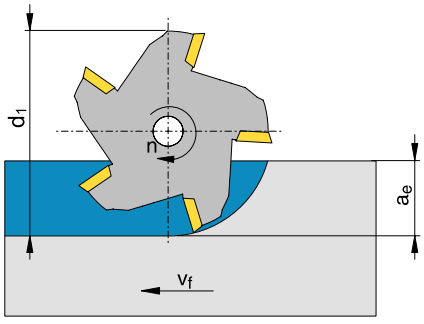


Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**SDNT09T308SR-29**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**SDNT09T308SR-33**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301	**SDNT09T308SR-31**	**CTCK215** (DCX3215)	250	Dry
Heat resistant alloys	2.4856	**SDNT09T308ER-M31**	**CTC5240** (HCF5240)	35	Emulsion

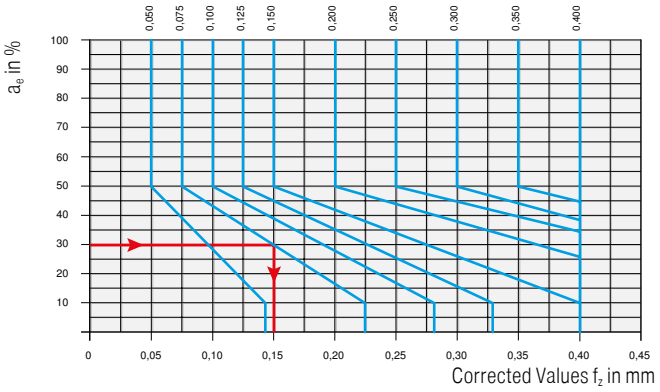
Correction of the tooth load f_z

for System 211-07/-11/-15/-20 and 490-09/-12

These values apply to an engagement width (a_e) below 50 %!



Start values f_z in mm from starting parameter diagram



Example:
Start value (f_z) = 0.075 mm
a_e = 30 %
corrected value (f_z) = 0.15 mm

System MaxiMill 490-12

Cutting data appoximate values

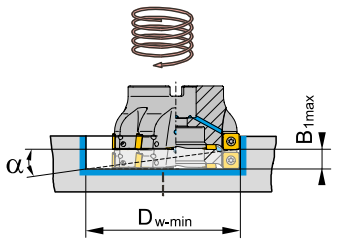
for standard inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	50–350	0,05–0,25	10,7	50–350	0,05–0,3	10,7	50–270	0,1–0,3	10,7
Stainless steel	130–280	0,1–0,2	10,7	60–280	0,1–0,2	10,7	60–280	0,1–0,2	10,7
Cast iron	100–360	0,05–0,25	10,7	100–360	0,05–0,3	10,7	100–360	0,1–0,3	10,7
Non-ferrous metals	160–1500	0,08–0,35	10,7	160–1500	0,08–0,35	10,7	160–1500	0,08–0,35	10,7
Heat resistant alloys	25–75	0,1–0,2	10,7	25–75	0,1–0,2	10,7	25–75	0,1–0,2	10,7
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

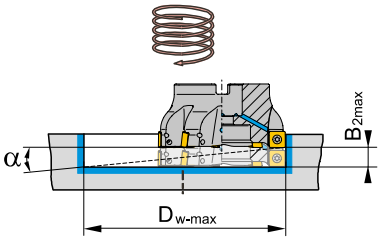
Machining strategy

Helical plunge milling (without start hole)



$$B = (D_W - DC) \times \pi \times \tan \alpha$$

D_w = Diameter of bore to be produced
DC = Nominal diameter of milling cutter
B = Depth of cut calculated for 360° helical movement



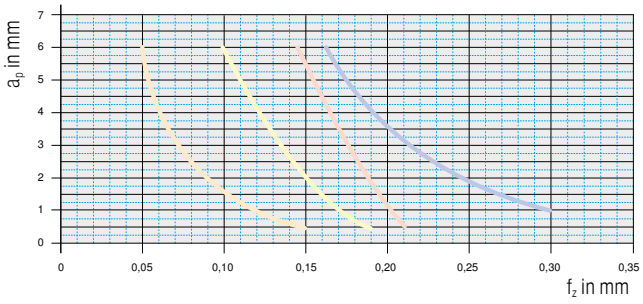
DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm	α °
50	77	2,5	98	4,8	2,0
63	103	1,8	124	3,0	1,0
80	137	2,1	158	3,0	0,8
100	177	2,1	198	2,9	0,6
125	227	1,8	248	2,4	0,4

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



SDMT 12



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**SDMT1205ZZSN-29**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**SDMT120512SR-33**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301	**SDMT1205ZZSN-31**	**CTCK215** (DCX3215)	250	Dry
Heat resistant alloys	2.4856	**SDMT120508ER-M31**	**CTC5240** (HCF5240)	35	Emulsion

HSC/HPC machining

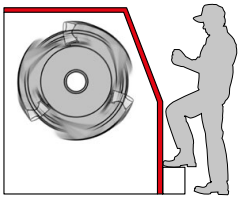
Safety advice

Suitability of the tool for HSC machining

HSC tools from CERATIZIT have been specially developed for this machining strategy and guarantee maximum operational reliability.

Observation of safety precautions of the machine manufacturer

Make sure that all safety precautions of the machine-manufacturer are observed (e.g.: closed machine guards).

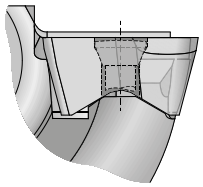


Suitability of the adapters for HSC machining

According to the milling situation, choose the optimum tool/clamping device combination.
For high speed milling applications it is necessary to dynamically balance tool and tool adapter together (see ISO 1940 directives).

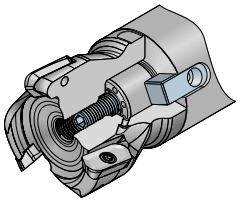
Mounting the indexable insert with centrifugal force protection

Insert clamping: EURO-patent EP 1083017A1
Make sure that the insert pocket is cleaned and the threading bore for the clamping screw is in good condition.
Check the axial and radial contact points of the insert in the pocket.
The clamping screws for positive insert clamping must be tightened with a torque of (XDHT11 = 1,8 Nm; XDH.19 = 6,0 Nm).



Optimum mounting of HSC milling cutters (DC = Ø 40–63) to milling arbors using power screw

The power screw guarantees a stable connection of tool and milling adapter and is easy to use.



Power Screw

Maximum admissible number of revolutions

Please note the maximum number of revolutions stated on the tool. This number is exclusively valid for the specific tool and must be adapted according to the selected tool adapter, total overhang length and the respective machining situation.



Optimum application range of the tool (a_e, a_p, f_z, n)

In order to guarantee productive milling, please observe the recommendations regarding the cutting parameters.

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Failure to comply with these safety regulations automatically excludes CERATIZIT from any liability

System MaxiMill HSC-11

Cutting data appoximate values

for standard inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel									
Stainless steel									
Cast iron	110–130	0,05–0,35	10						
Non-ferrous metals	160–3000	0,05–0,35	10	160–3000	0,05–0,35	10	160–3000	0,05–0,35	10
Heat resistant alloys									
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

	Workpiece material	Treatment / alloy		VDI 3323 Group	Hardness HB	H216T (CWK26) v_c in m/min	H216T (CWK26) v_c in m/min
N	Forged aluminium alloy	non hardenable		21	60		200–3000
		hardenable		22	100		200–2000
	Cast aluminum alloy	non hardenable	< 12% Si	23	80		200–2000
		hardenable	< 12% Si	24	90		200–1800
		non hardenable	> 12% Si	25	130		200–1000
	Copper and Copper alloys (Bronze, Brass)		Free-cutting steel alloy (1% Pb)	26			200–600
			brass, red bronze	27	90	250–1000	250–1000
			bronze	28	100		150–400
			lead-free copper and electrolytic copper	29	100		300–800
	Non metal materials		Duroplastics	29		80–1000	80–1000
			Fibre-reinforced plastics	29		70–500	70–500
			hard rubber	30		80–300	80–300

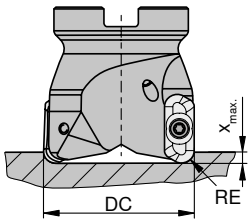
= full lubricant = minimum quantity lubrication = dry machining

System MaxiMill HSC-11

Technical data

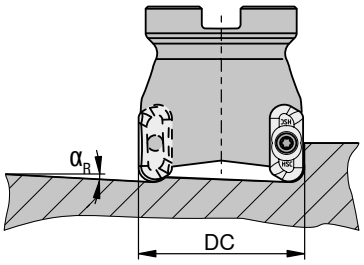
Machining strategy

Plunging



DC mm	11 RE 0,2-4,0 $x_{max.}$ mm
16	1,70
18	2,11
19	2,24
20	2,39
22	2,70
25	2,55
32	2,40
40	2,28
50	2,26
63	2,10
80	1,75
100	1,79

Linear ramping



DC mm	α_R °
16	18,8
18	16,3
19	15,3
20	14,8
22	13,8
25	10,3
32	6,8
40	4,8
50	3,5
63	2,5
80	1,8
100	1,3

Milling strategy for roughing and finishing

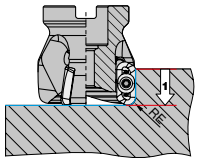
With maximum chip volume

Indexable Insert	RE mm	a_p mm	$a_{p\,max.}$ mm
XDHT 11T302FR-ALP	0,2	10	9,8
XDHT 11T304FR-ALP	0,4	10	9,6
XDHT 11T308FR-ALP	0,8	10	9,2
XDHT 11T312FR-ALP	1,2	10	8,8
XDHT 11T316FR-ALP	1,6	10	8,4
XDHT 11T320FR-ALP	2,0	10	8,0
XDHT 11T325FR-ALP	2,5	10	7,5
XDHT 11T332FR-ALP	3,2	10	6,8
XDHT 11T340FR-ALP	4,0	10	6,0
XDHT 11T350FR-ALP	5,0	10	5,0

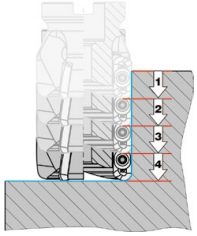
With maximum side wall quality

Indexable Insert	RE mm	$a_{p\,max.}$ mm
XDHT 11T302FR-ALP	0,2	7,8
XDHT 11T304FR-ALP	0,4	7,6
XDHT 11T308FR-ALP	0,8	7,2
XDHT 11T312FR-ALP	1,2	6,5
XDHT 11T316FR-ALP	1,6	6,8
XDHT 11T320FR-ALP	2,0	6,4
XDHT 11T325FR-ALP	2,5	5,5
XDHT 11T332FR-ALP	3,2	4,8
XDHT 11T340FR-ALP	4,0	4,0
XDHT 11T350FR-ALP	5,0	3,0

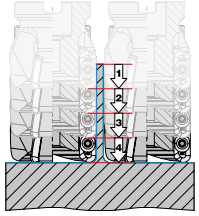
Shoulder milling



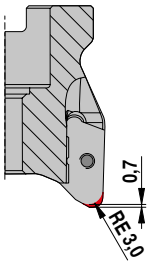
Pocket milling

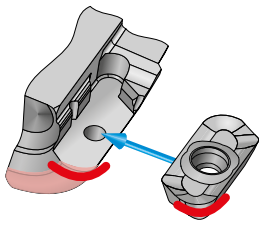


Pocket milling with thin walled components



Modification to front profile





For inserts with a corner radius larger than 3.2 mm the basic body of the tool must be modified according to the drawing above.

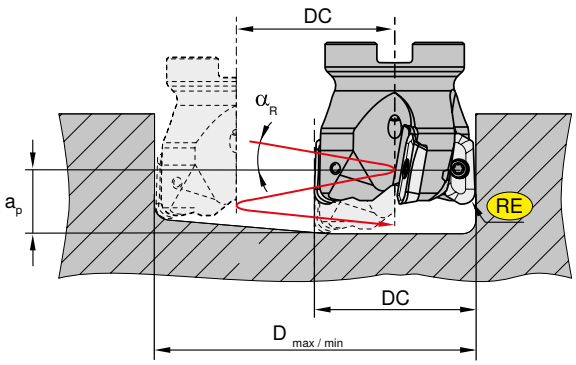
15

System MaxiMill HSC-11

Technical data

Machining strategy

Circular ramping



RE = Insert radius
α_R in mm = Maximum ramping angle (related to centre of tool)

a_p in mm = pitch → $D \times \pi \times \tan(\alpha_R)$

D in mm = pitch → D_{max} – DC and/or D_{min} – DC

For flat bottom hole

$D_{max.}$ in mm = largest drilling diameter
$D_{min.}$ in mm = smallest drilling diameter
$DN_{max.}$ in mm = Maximum hole diameter for non flat bottom

DC in mm		XDHT-11 (HSC-11)								
(DN_{max})		RE = 0,2	RE = 0,4	RE = 0,8	RE = 1,2	RE = 1,6	RE = 2,0	RE = 2,5	RE = 3,2	RE = 4,0
16	α_R	9,7°	10,0°	9,9°	9,4°	8,9°	8,4°	7,9°	7,0°	6,1°
	D_{max}	30	30	29	28	27	27	26	24	23
(31)	D_{min}	18	18	18	18	18	18	18	18	18
18	α_R	9,4°	9,1°	8,7°	8,3°	7,9°	7,5°	6,9°	6,2°	5,3°
	D_{max}	34	34	33	32	31	31	30	28	27
(35)	D_{min}	22	22	22	22	22	22	22	22	22
19	α_R	8,8°	8,6°	8,3°	7,9°	7,5°	7,5°	6,5°	5,9°	5,1°
	D_{max}	36	36	35	34	33	33	32	30	29
(37)	D_{min}	24	24	24	24	24	24	24	24	24
20	α_R	8,4°	8,2°	7,8°	7,4°	7,7°	6,7°	6,2°	5,5°	4,8°
	D_{max}	38	38	37	36	35	35	34	32	31
(39)	D_{min}	26	26	26	26	26	26	26	26	26
22	α_R	7,6°	7,4°	7,8°	6,7°	6,4°	6,5°	5,6°	5,2°	4,3°
	D_{max}	42	42	41	40	39	39	38	36	35
(43)	D_{min}	30	30	30	30	30	30	30	30	30
25	α_R	6,7°	6,5°	6,2°	5,9°	5,6°	5,3°	4,9°	4,4°	3,8°
	D_{max}	48	48	47	46	45	45	44	42	41
(49)	D_{min}	36	36	36	36	36	36	36	36	36
32	α_R	4,7°	4,7°	4,8°	4,6°	4,3°	4,1°	3,8°	3,4°	2,9°
	D_{max}	62	62	61	60	59	59	58	56	55
(63)	D_{min}	50	50	50	50	50	50	50	50	50
40	α_R	3,3°	3,3°	3,4°	3,4°	3,5°	3,3°	3,0°	2,7°	2,3°
	D_{max}	78	78	77	76	75	75	74	72	71
(79)	D_{min}	66	66	66	66	66	66	66	66	66
50	α_R	2,4°	2,5°	2,5°	2,5°	2,6°	2,6°	2,4°	2,2°	1,9°
	D_{max}	98	98	97	96	95	95	94	92	91
(99)	D_{min}	86	86	86	86	86	86	86	86	86
63	α_R	1,7°	1,7°	1,7°	1,8°	1,8°	1,8°	1,8°	1,7°	1,5°
	D_{max}	124	124	123	122	121	121	120	118	117
(125)	D_{min}	112	112	112	112	112	112	112	112	112
80	α_R	1,1°	1,1°	1,1°	1,1°	1,1°	1,1°	1,1°	1,2°	1,2°
	D_{max}	158	158	157	156	155	155	154	152	151
(159)	D_{min}	146	146	146	146	146	146	146	146	146
100	α_R	0,8°	0,8°	0,9°	0,9°	0,9°	0,9°	0,9°	0,9°	0,9°
	D_{max}	198	198	197	196	195	195	194	192	191
(199)	D_{min}	186	186	186	186	186	186	186	186	186

System MaxiMill HSC/HPC-19

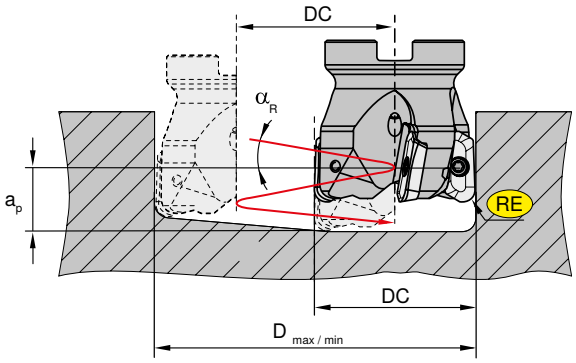
Cutting data recommendations/Technology data

for standard inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel									
Stainless steel									
Cast iron	110–130	0,05–0,35	18						
Non-ferrous metals	160–3000	0,05–0,35	18	160–3000	0,05–0,35	18	160–3000	0,05–0,35	18
Heat resistant alloys									
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

Circular ramping



RE = Insert radius
α_R in mm = Maximum ramping angle (related to centre of tool)

a_p in mm = pitch → D x π x tan (α_R)

D in mm = pitch → D_{max} – DC and/or D_{min} – DC

For flat bottom hole

$D_{max.}$ in mm = largest drilling diameter
$D_{min.}$ in mm = smallest drilling diameter
$DN_{max.}$ in mm = Maximum hole diameter for non flat bottom

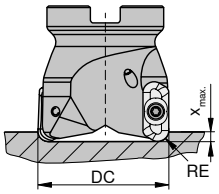
	DC mm	DN_{max} mm	α_R °	D_{max} mm	D_{min} mm
RE = 0,2 mm	**25**	49	7°02‘	48	32
	32	63	4°34‘	62	46
	40	79	3°47‘	78	62
	50	99	3°01‘	97	81
	63	125	2°17‘	124	107
	80	159		158	141
	100	199		198	181
RE = 0,4 mm	**25**	49	7°08‘	48	32
	32	63	4°37‘	62	46
	40	79	3°49‘	78	62
	50	99	3°02‘	98	81
	63	125	2°18‘	124	107
	80	159		158	141
	100	199		198	181
RE = 0,8 mm	**25**	49	7°21‘	47	32
	32	63	4°44‘	61	46
	40	79	3°53‘	77	62
	50	99	3°05‘	97	81
	63	125	2°20‘	123	107
	80	159		157	141
	100	199		197	181
RE = 2,0 mm	**25**	49	8°40‘	45	32
	32	63	5°04‘	59	46
	40	79	4°06‘	75	62
	50	99	3°13‘	95	81
	63	125	2°25‘	121	107
	80	159		155	141
	100	199		195	181
RE = 2,5 mm	**25**	49	8°24‘	44	32
	32	63	5°13‘	58	46
	40	79	4°12‘	74	62
	50	99	3°17‘	94	81
	63	125	2°27‘	120	107
	80	159		154	141
	100	199		194	181
RE = 3,2 mm	**25**	49	8°54‘	42	32
	32	63	5°26‘	56	46
	40	79	4°20‘	72	62
	50	99	3°21‘	92	81
	63	125	2°30‘	118	107
	80	159		152	141
	100	199		192	181
RE = 4,0 mm	**25**	49	9°32‘	41	32
	32	63	5°42‘	55	46
	40	79	4°30‘	71	62
	50	99	3°28‘	91	81
	63	125	2°33‘	117	107
	80	159		151	141
	100	199		191	181
RE = 5,0 mm	**25**	49	6°49‘	39	32
	32	63	3°59‘	53	46
	40	79	3°20‘	69	62
	50	99	2°13‘	89	81
	63	125	1°52‘	115	107
	80	159		149	141
	100	199		189	181

System MaxiMill HSC/HPC-19

Technical data

Machining strategy

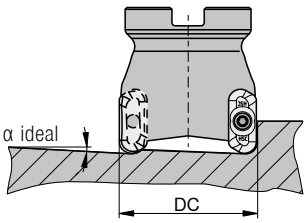
Plunging



HSC 19	DC mm	19 RE 0,2–4,0 $x_{max.}$ mm	19 RE 5,0 $x_{max.}$ mm
CHSC 19 / GHSC 19 / MHSC 19	25	5,0	4,0
CHSC 19 / GHSC 19 / MHSC 19	32–40	4,0	3,0
AHSC 19	40–100	4,0	3,0

HPC 19	DC mm	19 RE 0,2–4,0 $x_{max.}$ mm	19 RE 5,0 $x_{max.}$ mm
CHPC 19 / MHPC 19	22–25	5,0	4,0
CHPC 19 / MHPC 19	32–50	6,0	5,0
AHPC 19	40–63	6,0	5,0

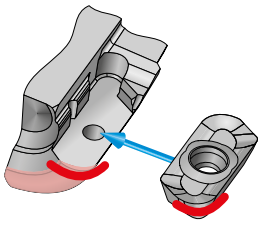
Linear ramping

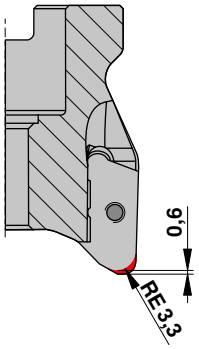


DC mm	α ideal HSC 19	α ideal HPC 19
25	11°	11°
32	7°	7°
40	5°	5°
50	4°	4°
63	3°	3°
80	2°	
100	2°	

Modification to basic body

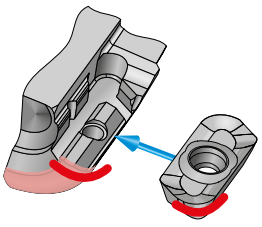
HSC 19





Modification to front profile

HPC 19



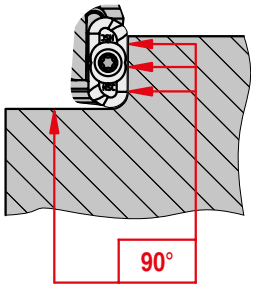
For inserts with a corner radius larger than 4.0 mm the basic body of the tool must be modified according to the drawing above.

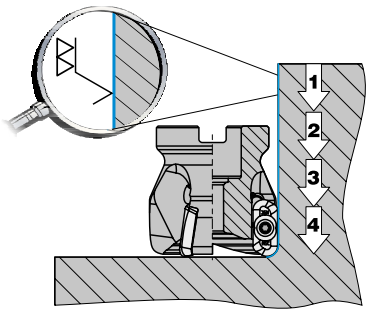
System MaxiMill HSC/HPC-19

Technical data

Machining strategy

▽ + ▽▽ Excellent side wall quality after roughing operation.
Additional finishing operations minimized or no longer required.





Milling strategy for roughing and finishing

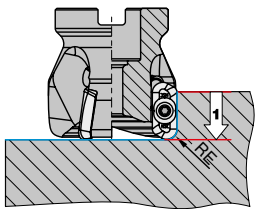
With maximum chip volume

Indexable Insert	RE mm	a_p mm	$a_{p\ max.}$ mm
XDH. 190402FR-ALP	0,2	18,0	17,8
XDH. 190404FR-ALP	0,4	18,0	17,6
XDH. 190408FR-ALP	0,8	18,0	17,2
XDH. 190420FR-ALP	2,0	18,0	16,0
XDH. 190425FR-ALP	2,5	18,0	15,0
XDH. 190432FR-ALP	3,2	18,0	14,8
XDH. 190440FR-ALP	4,0	18,0	14,0
XDH. 190450FR-ALP	5,0	17,0	13,0

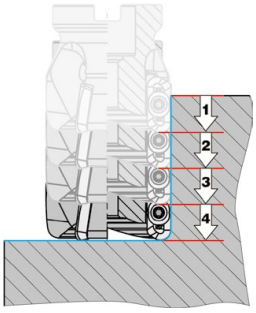
With maximum side wall quality

Shoulder milling	RE mm	$a_{p\ max.}$ mm
XDH. 190402FR-ALP	0,2	11,8
XDH. 190404FR-ALP	0,4	11,6
XDH. 190408FR-ALP	0,8	11,2
XDH. 190420FR-ALP	2,0	10,0
XDH. 190425FR-ALP	2,5	9,5
XDH. 190432FR-ALP	3,2	8,8
XDH. 190440FR-ALP	4,0	8,0
XDH. 190450FR-ALP	5,0	7,0

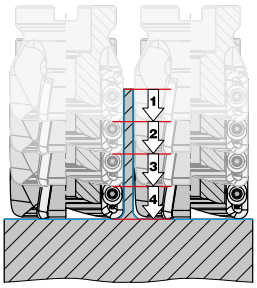
Shoulder milling



Pocket milling



Pocket milling with thin walled components



15

This information applies to the inserts type XDHT 19 and XDHX 19.

System MaxiMill HPC-04/12

Cutting data recommendations/Technology data

MaxiMill HPC-04

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel									
Stainless steel									
Cast iron	450–800	0,05–0,2	4						
Non-ferrous metals	350–3500	0,05–0,2	4	350–3500	0,05–0,2	4			
Heat resistant alloys									
hardened materials									

MaxiMill HPC-12

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel									
Stainless steel									
Cast iron	450–800	0,05–0,2	2						
Non-ferrous metals	350–3500	0,1–0,35	11	350–3500	0,1–0,35	11	350–3500	0,1–0,4	11
Heat resistant alloys									
hardened materials									

Machining strategy

What do you have to take into account?

- Machine stability.
- Stable work piece clamping and tool adapter.
- Use of coolant generally not necessary, however, this will facilitate the removal of the chips - also improved surface quality.
- Take into account thermal stress and critical temperature of 600 °C! If required for material, work with coolant.
- Avoid vibration.
- Observe balancing quality class.
- Observe chemical reactions of diamond to carbide forming elements (Fe, Ti, Ta, Co, Ni)

Excellent suitability

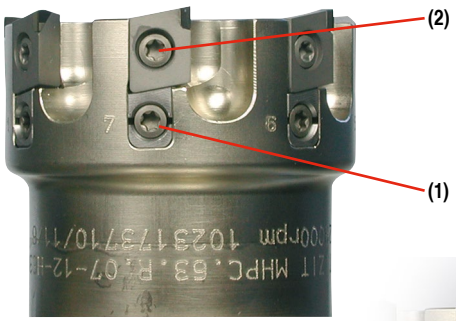
- for components made of light metals and non-ferrous metals, plastic, fibre composite materials, graphite ...
- when the simplest setting method saves cost for tool presetting.
- for high-volume production.
- for high surface quality of the work pieces.
- when long tool life is necessary to reduce tool changes and expensive machine downtime.
- when the tool is already on site (presetting, etc.)

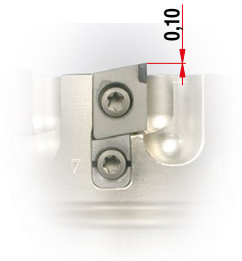
Quality class check

After assembly, clamping of the inserts and adjustment of the axial run-out the balancing quality class of the tools should be checked. When applying shell milling cutters, after assembly with an adapter balancing is necessary.

Setting wiper inserts

As in the setting procedure described above the standard inserts are adjusted to a radial run-out of = 0.02 mm. The inserts with wiper edge are then set to 0.02–0.03 mm above the highest cutting edge.





The adjustment procedure

1 Mount Adjustment wedgesin the tools (as delivered). Tighten adjustment screw (1) without deforming the wedges.

2 Mount the PCD inserts and tighten the clamping screws (2) with 1.0 Nm.

3 Mark „ highest edge“ with the help of pre-setting equipment.

4 Adjust the PCD insert by 0.02 mm turning the clamping screw (1) clockwise.

Pre-loading must be reached. Use the angled TORX screwdrivers

5 Set other cutting edges to this level, maximum deviation of 0.005 mm. Maximum length adjustment = 0.10 mm.

6 Tighten all insert tightening screws (2) to 5,0 Nm.

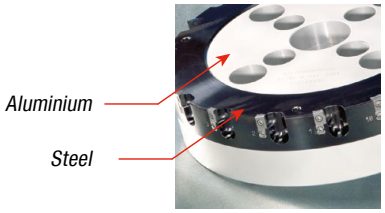
7 Check axial run-out of all inserts: Target = 0.005 mm.

Perfect precision – MaxiMill HPC-12

The adjustable high-performance tool for the finishing of aluminium components

Tool body made of steel

- For highest stability
- Maximum abrasion resistance
- Bimetallic version from diameter 160 mm easier handling and spindle protection with large tools



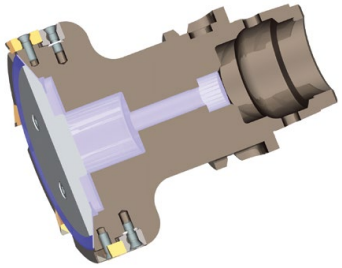
Picture shows bimetallic version

Available as shell milling cutters and monobloc type

- Direct HSK63 connection as monobloc type
- Monobloc tools balanced to G2.5 at n=20,000 min^{-1} (ISO1940)

Particularly for HSC applications with internal coolant supply

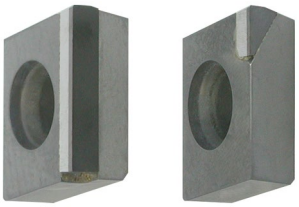
- Improved chip evacuation
- High surface quality
- Optimum application conditions
- Suitability for minimum quantity lubrication



Time is money – the system MaxiMill HPC-12 is simple and quick to adjust!

Highly positive rake angle of +25°

- Low cutting forces
- Increased parallelism of surfaces
- Minimised component deformation



Tangential concept

- Stable location for the PCD segment and maximum process security

Adapted PCD cutting edge

- High impact strength when milling!
- Maximum edge stability
- Reduced built-up edge on the work piece
- The machining of Al-Si alloys with over 12 % silicon is possible without problems

Inserts Selection

- Standard insert
- Insert with corner radius
- Insert with wiper edge

System MaxiMill 141 / 241

Cutting data recommendations/Technology data

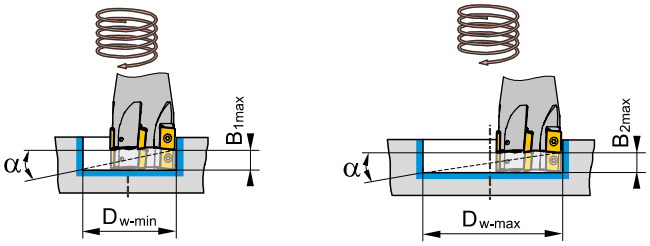
for standard inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	60–280	0,1–0,2	14	60–280	0,1–0,2	14	60–280	0,1–0,2	14
Stainless steel	130–240	0,05–0,2	14	130–240	0,05–0,25	14	130–240	0,1–0,25	14
Cast iron				100–360	0,1–0,25	14			
Non-ferrous metals	160–1500	0,1–0,2	14	160–1500	0,1–0,2	14	160–1500	0,1–0,2	14
Heat resistant alloys									
hardened materials									

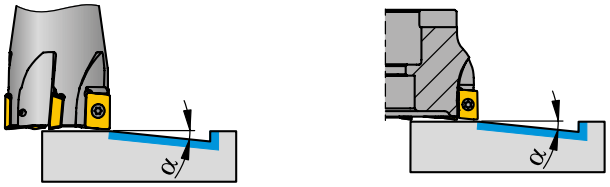
Detailed information on cutting speed for each grade can be found on → page 138+139

Machining strategy

Helical plunge milling (without start hole)



Angled ramping



D_w = Diameter of bore to be produced
DC = Nominal diameter of milling cutter
B = Depth of cut calculated for 360° helical movement

$$B = (D_w - DC) \times \pi \times \tan \alpha$$

C 141

DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm	α °
16	20,0	0,4	30,0	1,5	2,0
20	24,0	0,4	38,0	1,9	2,0
25	34,0	0,9	48,0	2,5	2,0
32	48,0	1,7	62,0	3,2	2,0
40	64,0	1,9	78,0	3,1	1,5

A 241

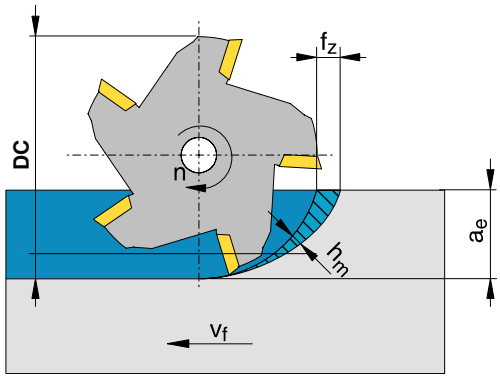
DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm	α °
40	64,0	1,9	78,0	3,1	1,5
50	84,0	1,8	98,0	2,6	1,0
63	110,0	1,2	124,0	1,6	0,5
80	144,0	1,4	158,0	1,7	0,4
100	184,0	1,3	198,0	1,6	0,3
125	234,0	1,2	248,0	1,3	0,2

Average chip thickness [h_m] – the approach

Shoulder milling

1 Select appropriate average chip thickness [h_m] for the steel from the table.

Material	Tensile strength N/mm²	h_m mm
for steel	...–800	0,16
for steel	800–1000	0,14
for steel	1000–1200	0,12
for steel	1200–...	0,10
for stainless steel	...–750	0,15
for stainless steel	750–900	0,13
for stainless steel	900–1150	0,11
for stainless steel	1150–...	0,09 *



2 Select the corrected feed rate value from the table based on the appropriate chip thickness [h_m] and depth of cut [a_e].

h_m mm	Corrected feed value f_z for h_m				
0,16	0,36	0,29	0,25	0,18	0,16
0,14	0,31	0,26	0,22	0,16	0,14
0,12	0,27	0,22	0,19	0,14	0,12
0,10	0,22	0,18	0,16	0,12	0,10
0,15	0,34	0,27	0,24	0,17	0,15
0,13	0,29	0,24	0,21	0,15	0,13
0,11	0,25	0,20	0,17	0,13	0,11
0,09 *	0,20	0,16	0,14	0,10	0,09 *
a_e =	**0,2 x DC**	**0,3 x DC**	**0,4 x DC**	**0,75 x DC**	**1 x DC**

Face milling

Material	Tensile strength N/mm²	h_m mm
for steel	...–800	0,2
for steel	800–1000	0,18
for steel	1000–1200	0,16
for steel	1200–...	0,14
for stainless steel	... –750	0,21
for stainless steel	750–900	0,19
for stainless steel	900–1150	0,17
for stainless steel	1150– ...	0,15

Procedure as shoulder milling.

h_m mm	Corrected feed value f_z for h_m			
0,20	0,40 **	0,40 **	0,33	0,28
0,18	0,40 **	0,40 **	0,29	0,25
0,16	0,40 **	0,36	0,26	0,23
0,14	0,36	0,31	0,23	0,20
0,21	0,40 **	0,40 **	0,34	0,30
0,19	0,40 **	0,40 **	0,31	0,27
0,17	0,40 **	0,38	0,28	0,24
0,15	0,39	0,34	0,24	0,21
a_e =	**0,3 x DC**	**0,4 x DC**	**0,75 x DC**	**1 x DC**

* f_z < 0,08 mm: Danger, as tool is not working and cutting
** f_z > 0,4 mm: Danger of an open space contact

System MaxiMill HFC-06

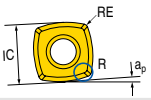
Cutting data recommendations/Technology data

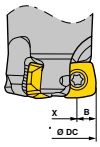
	F			M			R		
Material	v_c in m/min	f_z in mm	a_p in mm	v_c in m/min	f_z in mm	a_p in mm	v_c in m/min	f_z in mm	a_p in mm
Steel				60–280	0,2–1,25	0,8	60–280	0,2–1,25	0,8
Stainless steel				60–270	0,2–1,25	0,8	60–270	0,2–1,25	0,8
Cast iron				130–360	0,2–1,25	0,8	130–360	0,2–1,25	0,8
Non-ferrous metals									
Heat resistant alloys				25–75	0,2–1,25	0,8	25–75	0,2–1,25	0,8
hardened materials									

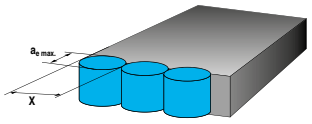
Detailed information on cutting speed for each grade can be found on → page 138+139

Machining strategy

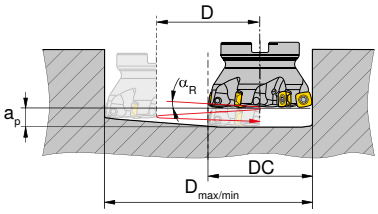
Programmed radius R = 1.2 mm

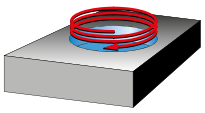


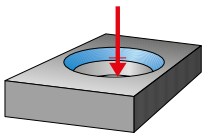


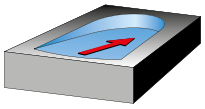


Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
6,35	0,5	0,8	16–32	DC–(2 x B)	4,3	5,3	0,10	0,08	0,15	<0,7 x DC









	circular		
	Helical plunging (helical plunging into solid material)		
DC mm	$D_{max.}$ mm	$D_{min.}$ mm	$\alpha_{R\,max.}$ °
16	31	22	4,5°
20	39	30	2,3°
25	49	40	1,3°
32	63	54	0,9°

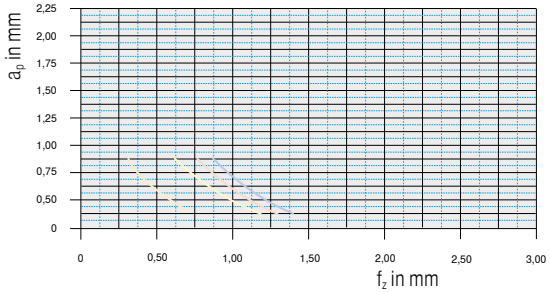
	axial	Angled
	Plunging	
DC mm	$X_{max.}$ mm	$\alpha_{R\,max.}$ °
16	0,5	5,9°
20		3,2°
25		2°
32		1,3°

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



XPLX 06



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**XPLX 060305SR-M50**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**XPLX 060305ER-M40**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301	**XPLX 060305ER-M50**	**CTCK215** (DCX3215)	250	Dry
Heat resistant alloys	2.4856	**XPLX 060305SR-F40**	**CTC5240** (HCF5240)	35	Emulsion

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill HFC-09

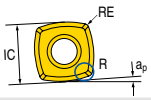
Cutting data recommendations/Technology data

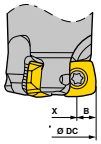
	F			M			R		
Material	v_c in m/min	f_z in mm	a_p in mm	v_c in m/min	f_z in mm	a_p in mm	v_c in m/min	f_z in mm	a_p in mm
Steel				60–280	0,2–2,5	1	60–280	0,2–2,5	1
Stainless steel				60–270	0,2–2,5	1	60–270	0,2–2,5	1
Cast iron				130–360	0,2–2,5	1	130–360	0,2–2,5	1
Non-ferrous metals									
Heat resistant alloys				25–75	0,2–2,5	1	25–75	0,2–2,5	1
hardened materials									

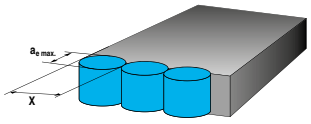
Detailed information on cutting speed for each grade can be found on → page 138+139

Machining strategy

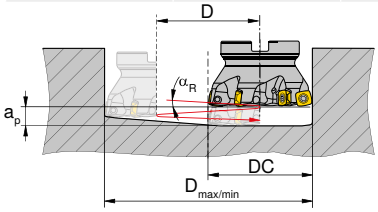
Programmed radius R = 2 mm

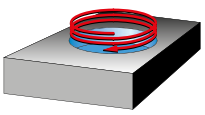


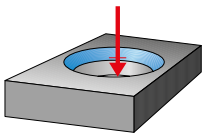


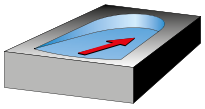


Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
9	0,8	1	25–66	DC–(2 x B)	5,9	7,5	0,10	0,08	0,15	<0,7 x DC









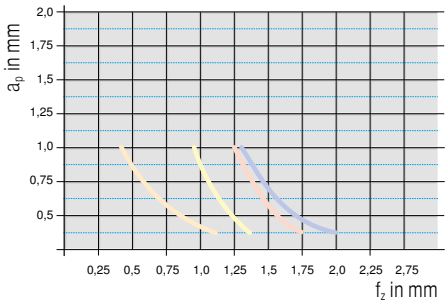
	circular				axial	Angled
	Helical plunging (helical plunging into solid material)				Plunging	
DC mm	$D_{max.}$ mm	$D_{min.}$ mm	$\alpha_{R\,max.}$ °	**DC mm**	$X_{max.}$ mm	$\alpha_{R\,max.}$ °
25	48	35	3,1°	**25**		3,6°
32	62	49	1,7°	**32**		2,0°
35	68	55	1,4°	**35**		1,6°
40	78	65	1,0°	**40**		1,2°
42	82	69	0,9°	**42**	0,75	1,1°
50	98	85	0,8°	**50**		0,9°
52	102	89	0,7°	**52**		0,8°
63	124	111	0,7°	**63**		0,8°
66	130	117	0,6°	**66**		0,7°

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



XDLX 09



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**XDLX09T308SR-M50**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**XDLX09T308SR-M50**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301	**XDLX09T308SR-M50**	**CTCK215** (DCX3215)	250	Dry
Heat resistant alloys	2.4856	**XDLX09T308ER-F40**	**CTC5240** (HCF5240)	35	Emulsion

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill HFC-12

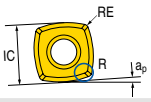
Cutting data recommendations/Technology data

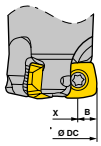
	F			M			R		
Material	v_c in m/min	f_z in mm	a_p in mm	v_c in m/min	f_z in mm	a_p in mm	v_c in m/min	f_z in mm	a_p in mm
Steel				60–280	0,2–3,0	2	60–280	0,2–3,0	2
Stainless steel				60–270	0,2–3,0	2	60–270	0,2–3,0	2
Cast iron				130–360	0,2–3,0	2	130–360	0,2–3,0	2
Non-ferrous metals									
Heat resistant alloys				25–75	0,2–3,0	2	25–75	0,2–3,0	2
hardened materials									

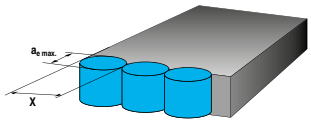
Detailed information on cutting speed for each grade can be found on → page 138+139

Machining strategy

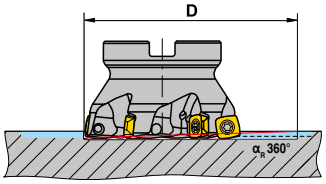
Programmed radius R = 3 mm

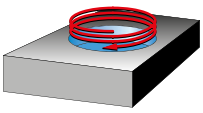


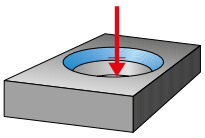


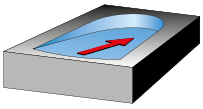


Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
12	1,0	2	32–100	DC–(2 x B)	8,3	10	0,15	0,10	0,20	<0,7 x DC









	circular		
	Helical plunging (helical plunging into solid material)		
DC mm	$D_{max.}$ mm	$D_{min.}$ mm	$\alpha_{R\,max.}$ °
32	62	44	6,1°
35	68	50	3,7°
40	78	60	2,5°
42	82	64	2,3°
50	98	80	1,3°
52	102	84	1,3°
63	124	106	0,9°
66	130	112	0,9°
80	158	140	1,1°
100	198	180	0,6°

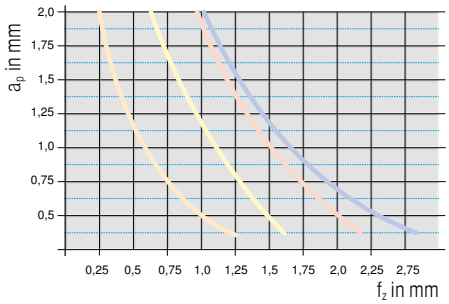
	axial	Angled
	Plunging	
DC mm	$X_{max.}$ mm	$\alpha_{R\,max.}$ °
32	1,15	7,2°
35		4,4°
40		2,9°
42		2,7°
50 + 52		1,5°
63 + 66		1,1°
80		1,3°
100		0,7°

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



XOLX 12



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**XOLX120410SR-M50**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**XOLX120410ER-M50**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301	**XOLX120410ER-M50**	**CTCK215** (DCX3215)	250	Dry
Heat resistant alloys	2.4856	**XOLX120410ER-F40**	**CTC5240** (HCF5240)	35	Emulsion

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill HFC-19

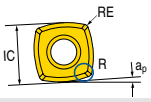
Cutting data recommendations/Technology data

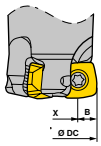
	F			M			R		
Material	v_c in m/min	f_z in mm	a_p in mm	v_c in m/min	f_z in mm	a_p in mm	v_c in m/min	f_z in mm	a_p in mm
Steel				60–280	0,2–3,0	3,3	60–280	0,2–3,0	3,3
Stainless steel				60–270	0,2–3,0	3,3	60–270	0,2–3,0	3,3
Cast iron				130–360	0,2–3,0	3,3	130–360	0,2–3,0	3,3
Non-ferrous metals									
Heat resistant alloys				25–75	0,2–3,0	3,3	25–75	0,2–3,0	3,3
hardened materials									

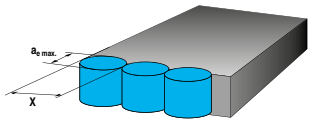
Detailed information on cutting speed for each grade can be found on → page 138+139

Machining strategy

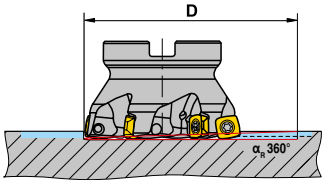
Programmed radius R = 3 mm

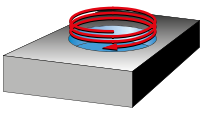


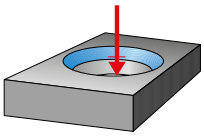


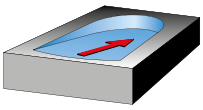


Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
19,14	1,5	3,3	63–160	DC–(2 x B)	13,1	12	0,2	0,10	0,25	<0,65 x DC









	circular		
	Helical plunging (helical plunging into solid material)		
DC mm	$D_{max.}$ mm	$D_{min.}$ mm	$\alpha_{R\,max.}$ °
63	97	123	2,5
80	131	157	1,4
100	171	197	1,0
125	221	247	0,7
160	291	317	0,5

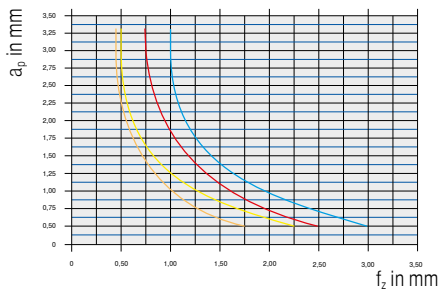
	axial	Angled	
	Plunging		
DC mm	$X_{max.}$ mm	$\alpha_{R\,max.}$ °	$a_{p\,max}$ mm
63		2,9	
80		1,8	
100	1,7	1,3	3,3
125		1,0	
160		0,7	

Starting Parameter

Example materials				
Steel	1000 N/mm²	1.15	1.2312	40CrMnMoS 8-6
Stainless steel	600 N/mm²	2.6	1.4571	X6CrNiMoTi 1712 2
Cast iron	180 HB	3.1	EN-GJL-250	EN-GJL-250 (GG25)
Heat resistant alloys	1450 N/mm²	5.8	Inconel 625	Inconel 718



XOLX 19



Material		Inserts		v_c in m/min	Coolant
Steel	1.2312	**XOLX190615SR-M50**	**CTPP235** (DPX1235)	200	Dry
Stainless steel	1.4571	**XOLX190615SR-M50**	**CTPM240** (DPX2240)	180	Dry
Cast iron	5.1301	**XOLX190615SR-M50**	**CTCK215** (DCX3215)	250	Dry
Heat resistant alloys	2.4856	**XOLX190615ER-F40**	**CTC5240** (HCF5240)	35	Emulsion

From v_c > 400 m/min, the tool must be balanced!

System DHFC

Cutting data recommendations/Technology data

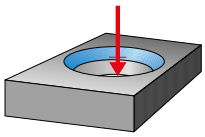
for standard inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	130–300	0,25–1,0	0,7						
Stainless steel				80–210	0,25–1,0	0,6			
Cast iron				120–250	0,2–1,1	0,7	120–270	0,2–1,2	0,75
Non-ferrous metals									
Heat resistant alloys				30–90	0,15–0,75	0,6			
hardened materials									

Detailed information on cutting speed for each grade can be found on → page 138+139

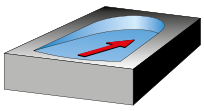
Machining strategy

Axial plunging into solid material



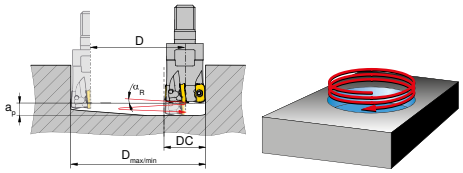
DC mm	X_{max} mm
16	0,35
20	0,40
25	0,45
32–35	0,50
40	0,55

Angled ramping



DC mm	α°	y mm
16	<2,5	7
20	<1,9	11
25	<1,5	16
32	<1,2	23
35	<1,0	26
42	<0,9	33

Circular Milling



DC mm	D_{min} mm	D_{max} mm
16	23	31
20	31	39
25	41	49
32	55	63
35	61	69
42	75	83

System MaxiMill 251

Cutting data recommendations/Technology data

for standard inserts

	F				
		05		08	
Material	v_c m/min	f_z mm	a_p mm	f_z mm	a_p mm
Steel	50–350	0,08–0,35	2,5	0,08–0,35	4
Stainless steel	130–280	0,08–0,35	2,5	0,08–0,35	4
Cast iron	100–360			0,1–0,4	4
Non-ferrous metals	160–1500	0,05–0,4	2,5	0,05–0,4	4
Heat resistant alloys	25–75			0,08–0,35	4
hardened materials					

	M						
		10		12		16	
Material	v_c m/min	f_z mm	a_p mm	f_z mm	a_p mm	f_z mm	a_p mm
Steel	50–350	0,08–0,4	5	0,08–0,4	6	0,08–0,4	8
Stainless steel	60–280	0,08–0,35	5	0,08–0,35	6	0,08–0,35	8
Cast iron	100–360	0,1–0,4	5	0,1–0,4	6	0,1–0,4	8
Non-ferrous metals	160–1500	0,05–0,4	5	0,05–0,4	6	0,05–0,4	8
Heat resistant alloys	25–75	0,08–0,38	5	0,08–0,38	6	0,08–0,38	8
hardened materials	40–60			0,05–0,35	6		

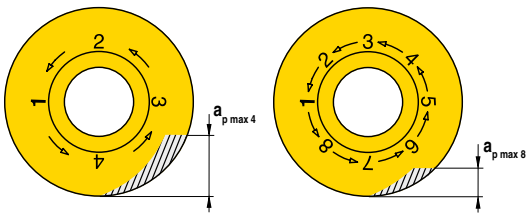
	R						
		20					
Material	v_c m/min	f_z mm	a_p mm	f_z mm	a_p mm	f_z mm	a_p mm
Steel	50–350	0,1–0,4	10				
Stainless steel	60–280	0,08–0,35	10				
Cast iron	100–360	0,1–0,4	10				
Non-ferrous metals	160–1500	0,05–0,4	10				
Heat resistant alloys	25–75	0,08–0,38	10				
hardened materials							

Detailed information on cutting speed for each grade can be found on → page 138+139

Recommended cutting depth

Ø mm	4-position $a_{p\,max.}$ mm	4-position $a_{p\,max}$ theoretical mm	8-face $a_{p\,max.}$ mm
5	1,0	2,0	0,7
8	1,5	3,5	1,1
10	2,5	4,5	1,4
12	3,0	5,5	1,7
16	4,0	7,5	2,3
20	4,0	9,5	2,9

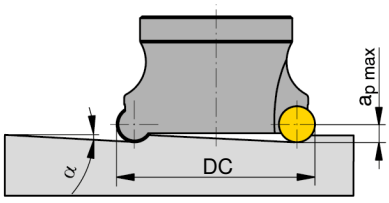
Average depth for the 4/8 index use of the insert



System MaxiMill 251

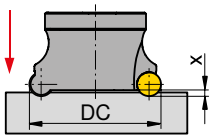
Technical data

Linear ramping



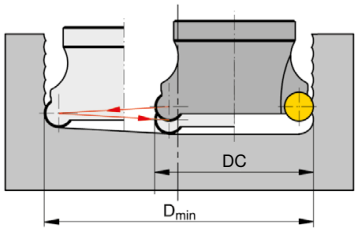
Ø DC mm	05 α °	08 α °	10 α °	12 α °	16 α °	20 α °
10	3,4					
12	16,0					
16	8,0	5,0				
20	5,5	20,0	1,3			
25	4,0	13,0	2,0	6,0		
32	3,0	8,0	3,0	4,0		
40			3,3	2,8		
42			3,1			
50			2,4	2,6	4,0	
52			2,2	2,3		
63				1,9	2,8	
66				1,6		
80				1,3	2,0	3,2
100				1,0	1,5	2,3
125						1,7

Plunging

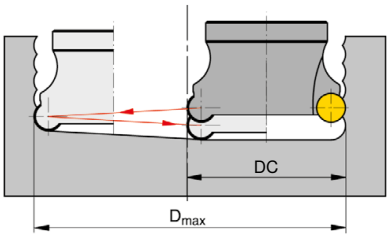


Ø DC mm	05 X max. mm	08 X max. mm	10 X max. mm	12 X max. mm	16 X max. mm	20 X max. mm
10	0,5					
12	1,3					
16	1,3	0,5				
20	1,3	2,7	0,2			
25	1,3	2,7	0,4	1,0		
32	1,3	2,7	0,8	1,1		
40			1,5	1,2		
42			1,5	1,5		
50			1,5	1,5	2,0	
52			1,5	1,5	2,0	
63				1,5	2,0	
66				1,5	2,0	
80				1,5	2,0	3,0
100				1,5	2,0	3,0
125						3,0

Circular milling into solid



$D_{min.}$ = smallest drilling diameter depending on the tool diameter



$D_{max.}$ = Maximum hole diameter Depending on the tool diameter

maximum possible hole diameter = 2 x DC – 1 mm

Ø DC mm	05 D_{min} mm	05 D_{max} mm	05 α_R °	08 D_{min} mm	08 D_{max} mm	08 α_R °	10 D_{min} mm	10 D_{max} mm	10 α_R °	12 D_{min} mm	12 D_{max} mm	12 α_R °	16 D_{min} mm	16 D_{max} mm	16 α_R °	20 D_{min} mm	20 D_{max} mm	20 α_R °
10	12	15	2,5															
12	16	19	2,1															
16	24	27	1,5	21	24	2,4												
20	32	35	1,2	27	32	1,9	26	30	1,3									
25	42	45	1,0	37	42	1,5	37	40	1,8	31	38	2,2						
32	56	59	0,7	51	56	1,2	50	54	1,5	46	52	1,7						
40							64	70	1,1	62	68	1,4						
42							68	74	1,1									
50							84	90	0,9	81	88	1,1	75	84	1,5			
52							88	94	0,9	86	92	1,0						
63										107	114	0,9	101	110	1,1			
66										113	120	0,8						
80										142	148	0,7	135	144	0,9	128	140	1,1
100										181	188	0,5	175	184	0,7	168	180	0,9
125																218	230	0,7

R100. system

Cutting data appoximate values

	v_c m/min	WTN 1205	WAN 2225	WAN 1240	WAX 1240	WUN 4210
Steel						
Non alloyed steel	**R**	150–250		100–250	100–300	
	F	200–400			150–350	
Alloyed tool steel Cast steel	**R**	150–250		100–200	100–250	
	F	200–350			150–300	
High alloyed tool steel	**R**	120–200		100–150	150–180	
	F	150–300			150–250	
Stainless steel						
	R		80–200			
	F	100–200	80–230			
Cast iron						
Grey Iron GG	**R**	150–200			160–220	
	F	200–350			160–220	
Cast iron with spheroidal graphite GGG	**R**	150–200			160–220	
	F	200–350			160–220	
Tempered cast iron	**R**	100–180			160–220	
	F	200–350			160–220	
Non-ferrous metals						
Aluminium	**R**					100–800
	F					100–800
Copper	**R**					100–400
	F					100–400
Graphite	**R**	200–800				200–800
	F	200–800				200–800
Plastics	**R**	200–800				200–800
	F	200–800				200–800
Heat resistant alloys						
Heat resistant alloys	**R**					
	F					
Titanium alloys	**R**		40–50			
	F		40–60			
hardened materials						
to 48 HRC	**R**	150–250			80–150	
	F	150–250				
to 55 HRC	**R**	100–180				
	F	100–180				
to 65 HRC	**R**	35–150				
	F	35–150				

R (Roughing)
F (Finishing)

15

System R 1000, 1002, 1007

Cutting data appoximate values

		f_z, a_p mm	WTN1205	WUN 4210	WAN2225	WAX1240	WAN1240
Steel							
	0501	f_z	0,1–0,3				
		a_p	0,1–0,3				
	07T1	f_z	0,1–0,3	0,1–0,2		0,1–0,3	
		a_p	0,1–0,5	0,1–0,2		0,1–0,7	
	0702	f_z	0,1–0,3			0,2–0,5	
		a_p	0,1–0,7			0,1–0,75	
	1003	f_z	0,1–0,3	0,15–0,3		0,2–0,7	0,2–0,9
		a_p	0,1–1,0	0,1–0,3		0,2–1,5	0,2–1,5
	12T3	f_z	0,1–0,3	0,15–0,3		0,2–0,8	0,25–1,0
		a_p	0,1–1,5	0,1–0,3		0,2–2,0	0,2–2,0
	1604	f_z	0,2–0,3			0,25–1,0	0,3–1,2
		a_p	0,2–1,5			0,2–3,0	0,25–3,0
	2006	f_z	0,25–0,4				
		a_p	0,2–2,0				
Stainless steel							
	0501	f_z	0,1–0,15				
		a_p	0,1–0,15				
	07T1	f_z	0,1–0,2	0,1–0,2			
		a_p	0,1–0,2	0,1–0,2			
	0702	f_z	0,1–0,2	0,1–0,2			
		a_p	0,1–0,2	0,1–0,2			
	1003	f_z	0,15–0,3	0,15–0,3	0,15–0,6		
		a_p	0,1–0,3	0,1–0,3	0,4–1,0		
	12T3	f_z	0,15–0,3	0,15–0,3	0,2–0,8		
		a_p	0,1–0,3	0,1–0,3	0,5–2,0		
	1604	f_z	0,15–0,3	0,15–0,3	0,3–1,0		
		a_p	0,1–0,3	0,1–0,3	0,6–3,0		
	2006	f_z		0,15–0,3			
		a_p		0,1–0,4			
Cast iron							
	0501	f_z	0,1–0,2				
		a_p	0,1–03				
	07T1	f_z	0,1–0,3	0,1–0,3		0,1–0,3	
		a_p	0,1–0,5	0,1–0,5		0,1–0,5	
	0702	f_z	0,1–0,3	0,1–0,3		0,1–0,3	
		a_p	0,1–0,7	0,1–1,0		0,1–0,7	
	1003	f_z	0,15–0,3	0,15–0,3		0,1–0,3	0,1–0,3
		a_p	0,1–1,0	0,1–1,5		0,1–1,0	0,1–1,0
	12T3	f_z	0,15–0,4	0,15–0,4		0,1–0,4	0,1–0,4
		a_p	0,1–1,5	0,1–2,0		0,1–1,5	0,1–1,5
	1604	f_z	0,2–0,5	0,2–0,5		0,2–0,5	0,2–0,5
		a_p	0,2–3,0	0,2–3,0		0,2–3,0	0,2–2,0
	2006	f_z	0,25–0,6	0,25–0,6			
		a_p	0,2–4,0	0,2–4,0			

System R 1000, 1002, 1007

Cutting data appoximate values

		f_z, a_p mm	WTN1205	WUN4210	WAN2225	WAX1240	WAN1240
Non-ferrous metals							
	0501	f_z	0,1–0,2				
		a_p	0,1–0,3				
	07T1	f_z	0,1–0,3				
		a_p	0,1–0,7				
	0702	f_z	0,1–0,3				
		a_p	0,1–1,0				
	1003	f_z	0,1–0,3				
		a_p	0,1–1,5				
	12T3	f_z	0,1–0,4				
		a_p	0,1–2,0				
	1604	f_z	0,2–0,5				
		a_p	0,2–4,0				
	2006	f_z	0,25–0,6				
		a_p	0,2–5,0				
Heat resistant alloys							
	0501	f_z					
		a_p					
	07T1	f_z					
		a_p					
	0702	f_z					
		a_p					
	1003	f_z			0,1–0,4		
		a_p			0,2–1,0		
	12T3	f_z			0,15–0,5		
		a_p			0,3–1,5		
	1604	f_z			0,15–0,5		
		a_p			0,3–2,0		
	2006	f_z					
		a_p					
hardened materials							
	0501	f_z	0,1–0,15				
		a_p	0,1–0,2				
	07T1	f_z	0,1–0,15			0,1–0,2	
		a_p	0,1–0,2			0,1–0,3	
	0702	f_z	0,1–0,2			0,1–0,2	
		a_p	0,1–0,3			0,1–0,3	
	1003	f_z	0,1–0,2			0,1–0,2	
		a_p	0,1–0,5			0,1–0,5	
	12T3	f_z	0,1–0,25			0,1–0,25	
		a_p	0,1–0,7			0,1–0,7	
	1604	f_z	0,15–0,3			0,15–0,3	
		a_p	0,2–1,0			0,2–1,0	
	2006	f_z	0,2–0,4				
		a_p	0,2–1,0				

WTN 1205

Up to 48 HRC: a_p-range as indicated in the table
Up to 55 HRC: maximum value a_p x 0,7
Up to 65 HRC: maximum value a_p x 0,5

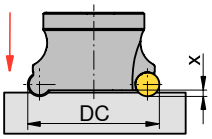
15

System R 1000, 1002, 1007

Technical data

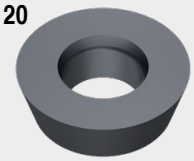
Machining strategy

Plunging

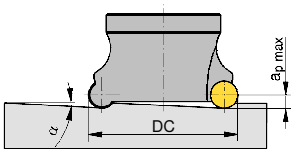


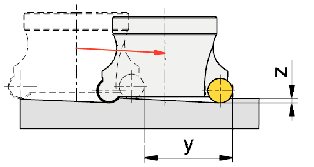
reduce f_z according to table by 30 %

→ v_c Page 178+179

	05	07	10	12	16	20
						
Ø DC mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm
8–160	1,0	1,2	2,5	3,0	4,0	5,0

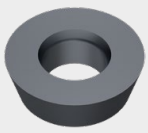
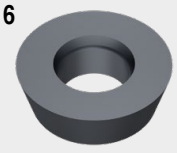
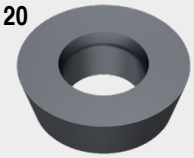
Linear ramping





y = minimum cutter movement
z = minimum cutter movement
a_p / f_z application table

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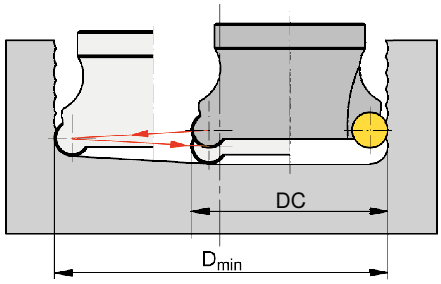
	05			07			10			12			16			20		
																		
Ø DC mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm
8	26,5	2	< 1,0															
10																		
12	14,0	4	< 1,0															
14	9,5	6	< 1,0															
15	8,1	7	< 1,0	26,5	2	< 1,2												
16	7,1	8	< 1,0	14,0	4	< 1,2												
18	5,7	10	< 1,0	11,3	6	< 1,2												
20	4,7	12	< 1,0	8,5	8	< 1,2												
22																		
24																		
25				5,3	13	< 1,2	19,7	7	< 2,5									
30				3,8	18	< 1,2	11,7	12	< 2,5									
32																		
35				3,0	23	< 1,2	8,4	17	< 2,5	13,0	13	< 3,0	38,7	5	< 4,0			
40																		
42				2,3	30	< 1,2	5,9	24	< 2,5	8,5	20	< 3,0						
50																22,6	12	< 5,0
52							4,2	34	< 2,5	5,7	30	< 3,0	10,3	22	< 4,0			
66										3,9	44	< 3,0	6,4	36	< 4,0	10,1	28	< 5,0
80										3,0	58	< 3,0	4,6	50	< 4,0	6,8	42	< 5,0
100													3,3	70	< 4,0	4,6	62	< 5,0
125													2,4	95	< 4,0	3,3	87	< 5,0
160													1,8	130	< 4,0	2,3	122	< 5,0

System R 1000, 1002, 1007

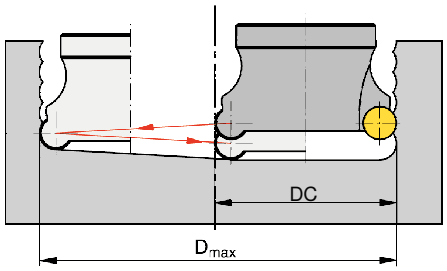
Technical data

Machining strategy

Circular ramping



D_{min} = smallest drilling diameter depending on the tool diameter



D_{max} = largest drilling diameter depending on the tool diameter

a_p / f_z according to table

→ v_c Page 178+179

	05		07		10		12		16		20	
Ø DC mm	D_{min} mm	D_{max} mm	D_{min} mm	D_{max} mm	D_{min} mm	D_{max} mm	D_{min} mm	D_{max} mm	D_{min} mm	D_{max} mm	D_{min} mm	D_{max} mm
8	10	16										
10	12	20										
12	16	24	14	24								
14	20	28	16	28								
15	22	30	17	30								
16	24	30	20	32								
18	28	36	24	36	20	36						
20	32	40	28	40	22	40						
22							24	44				
24							26	48				
25			38	50	32	50						
30			48	60	42	60						
32									34	64		
35			58	80	72	70	48	70	40	70		
40											42	80
42			72	84	66	84	62	84				
50											62	100
52					86	104	82	104	74	104		
66							110	132	102	132	94	132
80							138	160	130	160	122	160
100									170	200	162	200
125									220	250	212	250
160									290	320	282	320

System MaxiMill 252

Cutting data recommendations/Technology data

for standard inserts

	M						
		10		12			
Material	v_c m/min	f_z mm	a_p mm	f_z mm	a_p mm	f_z mm	a_p mm
Steel	60–240	0,08–0,35	2,5	0,08–0,35	3		
Stainless steel	60–280	0,05–0,35	2,5	0,05–0,35	3		
Cast iron							
Non-ferrous metals							
Heat resistant alloys	25–75	0,08–0,35	2,5	0,08–0,35	3		
hardened materials							

Detailed information on cutting speed for each grade can be found on → page 138+139

MaxiMill 252 – recommended cutting depth

	4-position	
Ø mm	$a_{p\,max}$ mm	$a_{p\,max}$ theoretical mm
10	2,5	4,5
12	3,0	5,5

Cutting data standard values for copy milling cutter K200.

● 1st choice ○ suitable

	R	F	R	F	R	F	R	F	suitable coolant types		
	CTPK226		CTPP211		CTPK231		CTCN211				
Index	v_c m/min	v_c m/min	v_c m/min	v_c m/min	v_c m/min	v_c m/min	v_c m/min	v_c m/min	Emulsion	Com-pressed air	MMS
1.1		280–300	180–220	220–300	160–200				○	●	●
1.2		280–300	180–220	220–300	160–200				○		●
1.3		280–300	180–220	220–300	160–200				○		●
1.4		280–300	180–220	220–300	160–200				○		●
1.5		220–240	180–220	220–240	160–200				○	●	●
1.6		220–240	180–220	220–240	160–200				○		●
1.7		220–240	180–220	220–240	160–200				○	●	●
1.8		220–240	180–220	220–240	160–200				○		●
1.9		220–240	180–220	220–240	160–200				○		●
1.10		280–300	140–220	200–300	140–180				○	●	●
1.11		280–300	140–220	200–300	140–180				○		●
1.12		280–300	140–220	200–300	140–180				○		●
1.13		280–300	140–220	200–300	140–180				○		●
1.14		280–300	140–220	200–300	140–180				○		●
1.15		280–320	180–220	240–320	160–200				○	●	●
1.16		280–320	180–220	240–320	160–200				○	●	●
2.1		220–220	140–180	200–240	120–180				●		
2.2		220–220	140–180	200–240	120–180				●		
2.3		220–220	140–180	200–240	120–180				●		
2.4		220–220	140–180	200–240	120–180				●	○	
2.5		220–220	140–180	200–240	120–160				●		
2.6		180–200	140–160	180–200	120–160				●	○	
2.7		180–200	140–160	180–200	120–160				●		
3.1		280–300	160–200	200–300	120–200					●	○
3.2		280–300	160–200	200–300	120–200					●	○
3.3		280–300	160–200	200–300	120–200					●	○
3.4		300–350	180–220	240–350	180–200					●	○
3.5		300–350	180–220	240–350	180–200					●	○
3.6		300–350	180–220	240–350	180–200					●	○
3.7		300–350	180–220	240–350	180–200					●	○
3.8		240–260	160–200	220–260	160–200					●	○
4.1			240–280	300–600	300–600				●		
4.2			240–280	300–600	300–600				●		
4.3			240–280	300–600	300–600				●		
4.4			240–280	300–600	300–600				●		
4.5									●		
4.6			240–280	300–600	240–280				●		
4.7			240–280	300–600	240–280				●		
4.8			240–280	300–600	240–280				●		
4.9			240–280	300–600	240–280				●		
4.10			240–280	280–320	240–280				●		
4.11			240–280	280–320	240–280				●		
4.12			240–280	280–320	240–280				●		
4.13			500–600	500–600			400–600	600–800		●	
4.14			300–400	300–400						●	
4.15			300–400	300–400				250–300		●	
4.16			300–400	300–400				300–400	●		
4.17							400–600	600–800		●	
4.18							100–140	160–180	●		
4.19							100–140	100–140	●		
5.1					80–120				●		
5.2				80–120	80–120				●		
5.3				80–120	80–120				●		
5.4				80–120	80–120				●		
5.5				80–120	80–120				●		
5.6				80–120	80–120				●		
5.7				80–120	80–120				●		
5.8				80–120	80–120				●		
5.9				80–120	80–120				●		
5.10				60–80	60–80				●	○	
5.11				60–80	80–100				●	○	
6.1		240–260		60–80	140–160						
6.2		240–260	140–200	220–300	140–160					●	○
6.3		200–220	120–160	180–300	80–100					●	○
6.4		120–140	100–120	120–200						●	○
6.5											

Cutting data standard values for copy milling cutter K200.

● 1st choice ○ suitable

	R	F	Roughing (R)		Finishing (F)		only for -MR3 Roughing (R)		suitable coolant types		
	CTPP216		Ø 6–16	Ø 20–32	Ø 6–16	Ø 20–32	Ø 6–16	Ø 20–32	Emulsion	Compressed air	MMS
Index	v_c m/min	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
1.1	220-300	280-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,8	1,2-1,5	○	●	●
1.2	220-300	280-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,8	1,2-1,5	○		●
1.3	220-300	280-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,8	1,2-1,5	○		●
1.4	220-300	280-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,8	1,2-1,5	○		●
1.5	220-300	280-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,8	1,2-1,5	○	●	●
1.6	220-300	280-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,25	○		●
1.7	260-340	280-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,25	○	●	●
1.8	260-340	280-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,25	○		●
1.9	260-340	280-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,25	○		●
1.10	240-340	240-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,20	○	●	●
1.11	240-340	240-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,8	1,0-1,5	○		●
1.12	240-340	240-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,8	1,0-1,5	○		●
1.13	240-340	240-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,8	1,0-1,5	○		●
1.14	240-340	240-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,8	1,0-1,5	○		●
1.15	250-360	240-320	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,8	1,0-1,5	○	●	●
1.16	250-360	240-320	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,8	1,0-1,5	○	●	●
2.1	220-300	220-240	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,25	●		
2.2	220-300	220-240	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,25	●		
2.3	220-300	220-240	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,25	●		
2.4	220-300	220-240	0,08-0,4	0,25-0,45	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,25	●	○	
2.5	220-300	220-240	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,25	●		
2.6	220-250	220-240	0,08-0,4	0,25-0,45	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,5	●	○	
2.7	220-250	220-240	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,5	●		
3.1	240-350	240-260	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,8	1,0-1,5		●	○
3.2	240-350	240-260	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,8	1,0-1,5		●	○
3.3	240-350	240-260	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,8	1,0-1,5		●	○
3.4	340-400	240-360	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,25		●	○
3.5	340-400	240-360	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,25		●	○
3.6	340-400	240-360	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,25		●	○
3.7	340-400	240-360	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,25		●	○
3.8	280-340	220-300	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,3-0,6	0,8-1,25		●	○
4.1		400-450	0,08-0,35	0,25,0,45	0,06-0,25	0,025-0,45			●		
4.2		400-450	0,08-0,35	0,25,0,45	0,06-0,25	0,025-0,45			●		
4.3		400-450	0,08-0,35	0,25,0,45	0,06-0,25	0,025-0,45			●		
4.4		400-450	0,08-0,35	0,25,0,45	0,06-0,25	0,025-0,45			●		
4.5		300-400	0,08-0,35	0,25,0,45	0,06-0,25	0,025-0,45			●		
4.6		300-400	0,08-0,35	0,25,0,45	0,06-0,25	0,025-0,45			●		
4.7		300-400	0,08-0,35	0,25,0,45	0,06-0,25	0,025-0,45			●		
4.8		300-400	0,08-0,35	0,25,0,45	0,06-0,25	0,025-0,45			●		
4.9		300-400	0,08-0,35	0,25,0,45	0,06-0,25	0,025-0,45			●		
4.10		300-400	0,08-0,35	0,25,0,45	0,06-0,25	0,025-0,45			●		
4.11		300-400	0,08-0,35	0,25,0,45	0,06-0,25	0,025-0,45			●		
4.12		300-400	0,08-0,35	0,25,0,45	0,06-0,25	0,025-0,45			●		
4.13		600-800	0,25-0,35	0,4-0,5	0,08-0,3	0,25-0,4				●	
4.14		300-350	0,25-0,35	0,4-0,5	0,08-0,3	0,25-0,4				●	
4.15			0,25-0,35	0,4-0,5	0,08-0,3	0,25-0,4				●	
4.16			0,25-0,35	0,4-0,5	0,08-0,3	0,25-0,4			●		
4.17			0,25-0,35	0,4-0,5	0,08-0,3	0,25-0,4				●	
4.18							0,20-0,4	0,4-0,8	●		
4.19							0,20-0,4	0,4-0,8	●		
5.1		60-80	0,08-0,3	0,15-0,4	0,05-0,2	0,15-0,25	0,20-0,4	0,4-0,8	●		
5.2		60-80	0,08-0,3	0,15-0,4	0,05-0,2	0,15-0,25	0,20-0,4	0,4-0,8	●		
5.3		60-80	0,08-0,3	0,15-0,4	0,05-0,2	0,15-0,25	0,20-0,4	0,4-0,8	●		
5.4		60-80	0,08-0,3	0,15-0,4	0,05-0,2	0,15-0,25	0,20-0,4	0,4-0,8	●		
5.5		60-80	0,08-0,3	0,15-0,4	0,05-0,2	0,15-0,25	0,20-0,4	0,4-0,8	●		
5.6		60-80	0,08-0,3	0,15-0,4	0,05-0,2	0,15-0,25	0,20-0,4	0,4-0,8	●		
5.7		60-80	0,08-0,3	0,15-0,4	0,05-0,2	0,15-0,25	0,25-0,5	0,6-1,0	●		
5.8		60-80	0,08-0,3	0,15-0,4	0,05-0,2	0,15-0,25	0,25-0,5	0,6-1,0	●		
5.9		60-80	0,08-0,3	0,15-0,4	0,05-0,2	0,15-0,25	0,25-0,5	0,6-1,0	●		
5.10		60-80	0,08-0,35	0,4-0,5	0,08-0,3	0,25-0,4	0,25-0,5	0,6-1,0	●	○	
5.11		60-80	0,08-0,35	0,4-0,5	0,08-0,3	0,25-0,4	0,25-0,5	0,6-1,0	●	○	
6.1	240-260	240-260	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,25-0,5	0,6-1,0			
6.2	240-260	240-260	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5	0,25-0,5	0,6-1,0		●	○
6.3	220-240	160-240	0,08-0,4	0,25-0,5	0,08-0,3	0,2-0,5				●	○
6.4	120-140	100-140	0,25-0,35	0,4-0,5	0,08-0,2	0,18-0,35				●	○
6.5											

Maximum axial depths of cut a_p for copy milling cutter K200.



Ball nose insert									
Insert Ø in mm		6	8	10	12	16	20	25	32
		$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{pmax.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$
ROHX-FM3	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROHX-FM4	**R**	0,8	1,0	2,0	3,0	4,0	5,0	6,0	8,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROHX-FM6	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROGX-MR4	**R***				4,0	6,0	8,0	12,0	16,0
	F				2,0	3,0	4,0	5,0	6,0
ROHX-MR5	**R**		1,5	2,0					
	F		0,8	1,0					

*a_p with full interference 25 % of Ø DC maximum!



Torus inserts									
Insert Ø in mm		6	8	10	12	16	20	25	32
		$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{pmax.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$
XOHX-FM5	**R**		2,0	3,0	3,0	4,0	5,0	6,0	8,0
	F		0,6	2,0	2,4	3,2	4,0	5,0	6,4
XOHX-MR6	**R**		2,0	3,0	3,0	4,0	5,0	6,0	8,0
	F		0,6	2,0	2,4	3,2	4,0	5,0	6,4
XOHX-FM1	**R**			1,5	2,0	3,0	4,0		
	F			0,8	0,8	1,0	1,0		
XOHX-FM2	**R**		1,0	1,5	2,0	3,0	4,0	5,0	
	F		0,5	0,7	0,8	1,0	1,0	1,5	
XOHX-MR2	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	
	F	0,5	0,5	0,7	0,8	1,0	1,0	1,5	
XOGX-MF4	**R**			1,5	2,0	3,0	4,0		
	F			0,7	0,8	1,0	1,0		
XOHX-MR3	**R**			0,5	0,6	0,8	1,0		
	F								

Ranges of application of geometry

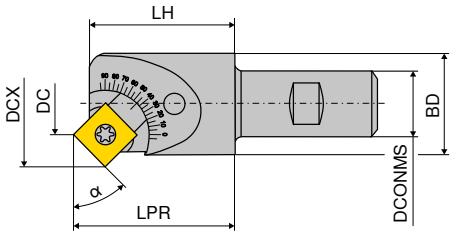
Inserts	F	M	R	Main Application
XOHX-FM1	●	●		Steel, steel casting, heat resistant steel, hardened steel to 63 HRC
XOHX-FM2	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRC
ROHX-FM3	●	●		Steel, steel casting, heat resistant steel
ROHX-FM4	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRC
XOHX-FM5	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRC
ROHX-FM6	●	●	●	Non ferrous metals, plastics, graphite
XOHX-MR2		●	●	long-chipping ferrous metals
XOHX-MR3		●	●	Steel, steel casting, heat resistant steel
ROGX-MR4		●	●	Steel, steel casting, heat resistant steel
XOGX-MF4	●	●		Steel, steel casting, heat resistant steel
ROHX-MR5		●	●	long-chipping ferrous metals
XOHX-MR6		●	●	long-chipping ferrous metals

System 4500-09

Cutting data recommendations/Technology data

for standard inserts

Material	09 m/min	f_z mm
Steel	120–250	0,05–0,30
Stainless steel	110–220	0,08–0,30
Cast iron	120–240	0,10–0,35
Non-ferrous metals	200–280	0,10–0,35
Heat resistant alloys		
hardened materials		



Machining strategy

Cutting angle α	$D_{min.}$ mm	$D_{max.}$ mm
0°	3,0	20,30
5°	3,8	20,90
10°	4,9	21,60
15°	5,8	22,10
20°	6,8	22,60
25°	7,9	23,00
30°	8,9	23,50
35°	10,0	23,60
40°	11,0	23,85
45°	12,3	23,90
50°	13,3	23,85
55°	14,3	23,80
60°	15,5	23,60
65°	16,4	23,40
70°	17,4	23,10
75°	18,4	22,60
80°	19,3	22,20
85°	20,0	21,50
90°	20,8	20,80

Detailed information on cutting speed for each grade can be found on → page 138+139

System 4500-12

Cutting data recommendations/Technology data

for standard inserts

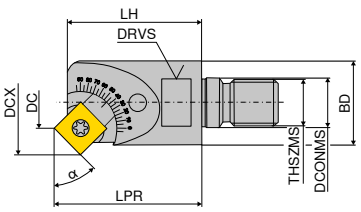
Material	12 m/min	f_z mm
Steel	120–250	0,05–0,25
Stainless steel	110–220	0,08–0,20
Cast iron	120–240	0,10–0,25
Non-ferrous metals	200–280	0,10–0,25
Heat resistant alloys		
hardened materials		

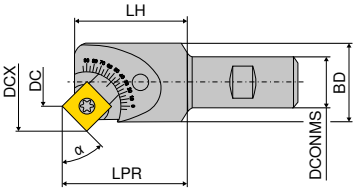
Machining strategy

Cutting angle α	$D_{min.}$ mm	$D_{max.}$ mm
0°	7,1	30,50
5°	7,8	31,40
10°	9,4	32,40
15°	10,7	33,20
20°	12,0	33,80
25°	13,4	34,40
30°	14,9	34,80
35°	16,5	35,20
40°	17,9	35,40
45°	19,3	35,45
50°	20,8	35,40
55°	22,3	35,20
60°	23,6	34,90
65°	25,0	34,60
70°	26,5	34,00
75°	27,7	33,40
80°	28,8	32,70
85°	29,9	31,90
90°	31,0	31,00

Machining strategy

Cutting angle α	$D_{min.}$ mm	$D_{max.}$ mm
0°	3,7	27,30
5°	4,7	28,20
10°	6,0	29,00
15°	7,3	29,80
20°	8,8	30,50
25°	10,0	31,00
30°	11,5	31,50
35°	13,1	31,90
40°	14,7	32,15
45°	16,0	32,20
50°	17,5	32,15
55°	19,0	32,00
60°	20,4	31,80
65°	21,8	31,30
70°	23,0	30,90
75°	24,4	30,20
80°	25,7	29,50
85°	26,7	28,70
90°	27,8	27,80





Detailed information on cutting speed for each grade can be found on → page 138+139

Cutting data for side and face milling cutters FM

Material	v_c m/min		f_z mm/z	
	CWN 35 **ISO (P35)**	CWK 12 **ISO (K10)**	FM-N	FM-KXF
St 37 / C 15	90–180		0,05–0,08	0,07–0,2
St 50 / C 50	80–150		0,04–0,08	0,07–0,2
St 60–70 / C 60	70–140		0,04–0,08	0,07–0,18
16 Mn Cr 5	50–120		0,04–0,09	0,07–0,2
42 Cr Mo4 / 50 Cr V 4	40–120		0,04–0,09	0,08–0,25
Tool steels and HSS	40–90		0,04–0,08	0,07–0,18
Corrosion resistant X-CrNi steel	30–80		0,04–0,08	0,07–0,15
Ferritic, austenitic steels	10–40		0,03–0,09	0,07–0,15
GG-10		60–180	0,04–0,1	
GG-30		60–150	0,04–0,1	
Malleable iron GT		40–100	0,04–0,11	
Aluminium		200–250	0,04–0,12	
G Al Si		200–250	0,06–0,1	
brass		50–250	0,05–0,08	
Copper Cu-E		120–250	0,04–0,08	
Red bronze		120–250	0,05–0,09	
bronze		100–250	0,05–0,1	
hard rubber		200–250	0,03–0,15	
Novotex, Pertinax		50–250	0,03–0,1	
Bakelite		50–250	0,03–0,1	

Cutting data for side and face milling cutters TX

	Material			HB	v_c m/min	h_m mm
P	Unalloyed steel	1.0711 9 S 20 1.0037 ST 37 1.0050 ST 50		125–300	160–240	0,1
	low-alloy steel	1.0070 ST 70 1.7131 16 MnCr 5 1.7218 25 CrMo 4		180–350	70–150	0,08
	High-alloy steel	1.2842 90 MnCr V 8 1.7225 42 CrMo4 V 1.2344 X 40 CrMoV		200–350	50–70	0,05
	Stainless steel	1.4002 X 6 CrA 13 1.4510 X 6 CrTi 17 1.4104 X 12 CrMoS 17		200–325	80–120	0,08
M	Stainless steel	1.4057 20 CrNi 17 2 1.4301 X 5 CrNi 18 10 1.4571 X 6 CrNiMoTi 17 12 2		180–330	120–130	0,08
K	Grey cast iron	0.6020 GG 20 0.6040 GG 40		180–260	90–100	0,1
	Cast iron with spheroidal graphite	0.7040 GGG 40 0.7070 GGG 70		160–250	60–100	0,08
N	Wrought Aluminium Alloys	non hardenable	Al Mn Al Mg Al Mg Mn	60	500–700	0,12
		hardenable	Al Mg Si Al Cu Mg Al Cu Si Mn	100	200–500	0,12
	Cast Aluminium Alloys	non hardenable < 12 % Si hardenable < 12 % Si non hardenable > 12 % Si		80–130	80–220	0,1
	Copper and copper alloys	non hardenable	Cu Ag Cu As	90–100	200–500	0,12
S	Heat resistant alloys	1.4962 X 12 CrNiWTi 16 13 1.4923 X 22 CrMoV 12 1		200–320	80–140	0,05
	Titanium alloys	3.7024 Ti 99,5 3.7154 TiAl6Zr5		120–310	80–120	0,06

Average Chip Thickness

h_m in mm

$$h_m = f_z \sqrt{\frac{a_e}{DC}}$$

Feed per tooth

f_z in mm

$$f_z = h_m \sqrt{\frac{DC}{a_e}}$$

Feed rate

v_f in mm/min

$$v_f = f_z \times z \times n$$

DC = Ø of the disc cutters

ZNF = Number of teeth of the cutter

15

System FM

Technical data

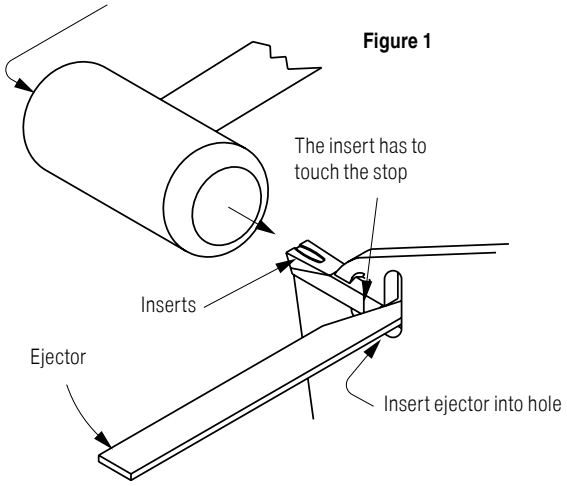
Machining strategy

Advantages:

- Self-clamping insert with double prismatic support and precise location.
- Clamping pressure increases as a function of cutting pressure (lever principle).
- No additional clamping elements like claws, screws or clamping wedges in the tool.
- The special shape of the chip groove crimps the chips, so they become smaller than the milled groove, which allows continuous chip flow.
- Every cutting insert cuts the entire width of cut, therefore the feed rate can be doubled per tool revolution compared to cross-pitched cutters (rough and finishing cutter).
- Changing the insert takes only 15 seconds per cutting edge and can be carried out in the machine without dismantling the side and face miling cutter. The insert is removed from the prism using the ejector (included in the delivery) (picture 1).
- Side and face miling cutters of the FM system can be used for both climb and conventional miling.

Move inserts to the stop using a plastic hammer

Figure 1



Remove insert with lever movement

Figure 2

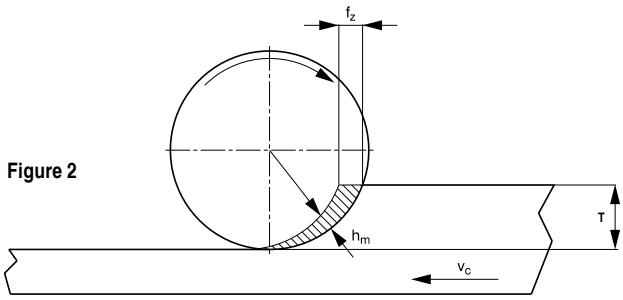
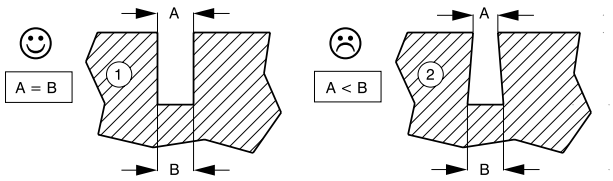


Figure 3



Information on application:

When the side and face milling cutter cuts into the workpiece a 'comma' chip is produced. The depth of cut „a_e" is important with regard to the feed rate. The average chip thickness is indicated by the parameter „h_m", which is always smaller than the feed per tooth „f_z" (see picture 2).

Make sure the chips are not too thin, as they would cause early wear of the cutting edge.

Guide values for the feed rate„f_z":

1) The feed values„f_z" in the cutting data table apply for 50–100 % of the maximum cutting depth „a_e".
2) With „a_e" < 50 % and > 30 % the feed rate should be increased by approx. 30–40 %.
3) With „a_e" < 30 % the feed rate should be increased by approx. 50 %.

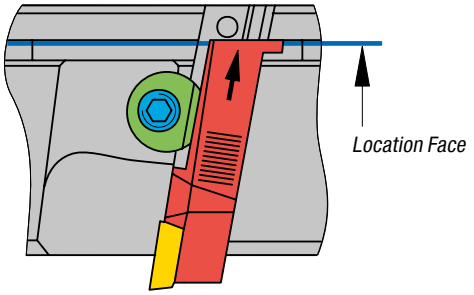
Side and face milling cutters are preferably used for climb milling (see picture 2). When climb milling, the cutting edge first cuts the largest section, therefore less friction wear is caused than in conventional milling (cutting edge goes into workpiece first).
Another advantage of climb milling is that the workpiece is pressed onto the support face - lifting of the workpiece is not possible..

Specially when slot milling make sure that the slot which is being produced does not close during machining, because otherwise the inserts are pulled out of their seat and the tool is destroyed (see picture 3).

For safety reasons the maximum cutting speed of 250 m/min. must not be exceeded.

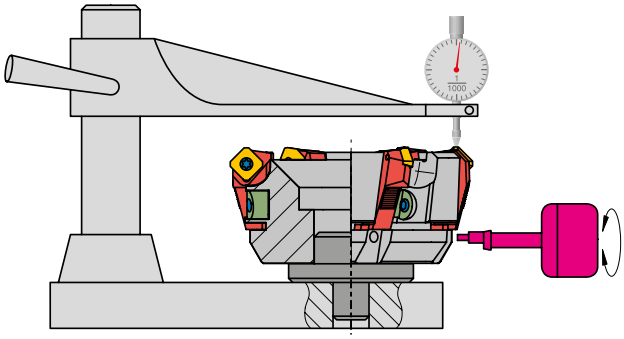
System MaxiMill 260

Setting of axial run-out for roughing



For assembly simply press cartridges onto the location face of the radial groove. The axial run-out amounts to 0.03 mm measured on the master insert.

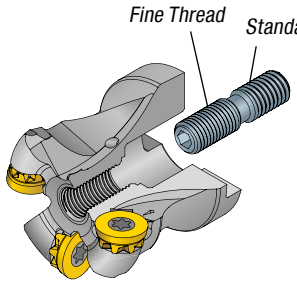
Setting of axial run-out with eccentric key and clock gauge or on optical presetting equipment



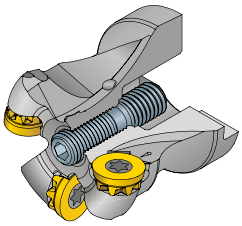
Exact setting of axial run-out up to 0.002 mm

- Clean the milling tools
- Mount cutter on appropriate setting equipment
- Loosen clamping wedge, push cassette to face and tighten wedge lightly
- Insert ecentric key into hole and turn until cassette is in desired position
- Keep ecentric key in contact with the cassette so that it remains in position.
  Tighten wedge (torque moment 10 Nm)
- The tool is now ready for use

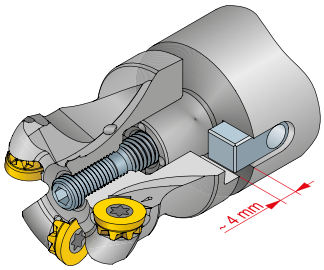
Easy and safe clamping – with the CERATIZIT power screw



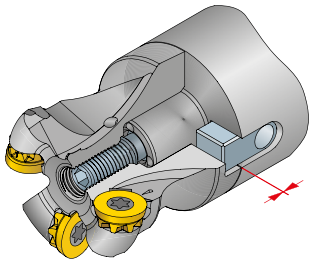
The fine-pitch part of the power screw is threaded into the milling cutter.



The power screw is turned carefully until the stop (as screw was delivered).

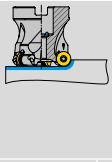
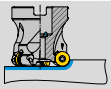
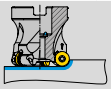


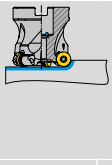
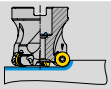
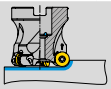
In order to guarantee an optimum connection of tool and shank, a gap of 4 mm is required between cutter body and adapter prior to final clamping.
Using standardised adpaters this is automatically guaranteed.
If necessary, you can readjust by means of the power screw with 0.5 mm/rev.



Turn clamping screw to tighten

Torque moments for clamping screws for mounting the milling cutter to the shell mill adapter

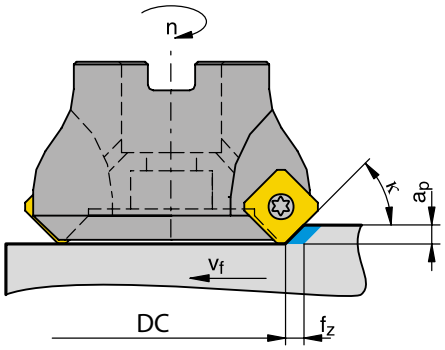
	 10 				 12 				 16 			
Cutter Ø mm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm
40			70 950 151	10			70 950 151	10				
42			70 950 151	10			70 950 151	10				
50	M10x25	80			M10x25	80					70 950 154	15
52					M10x25	80					70 950 154	15
63					M10x25	80			M10x25	80		
66					M10x25	80			M10x25	80		

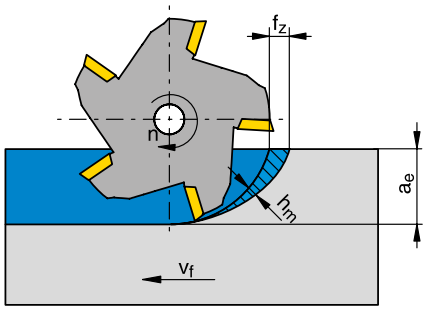
	 12 				 16 				 20 			
Cutter Ø mm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm
80	M12x30	140			M12x30	140			M12x30	140		
100	M16x35	180			M16x35	180			M16x35	180		
125					M16x35	180			M16x35	180		

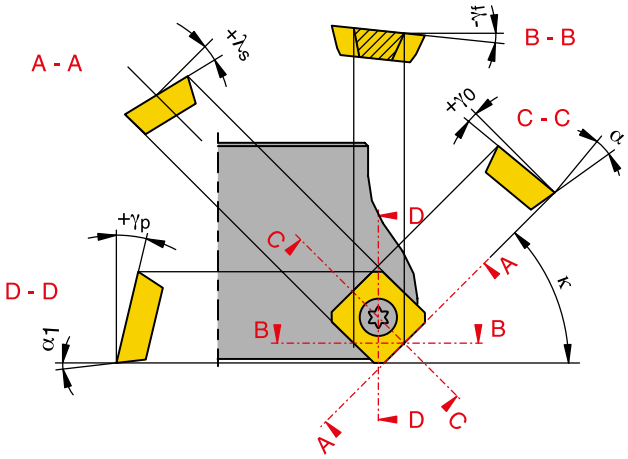
Abbreviations & dimensions

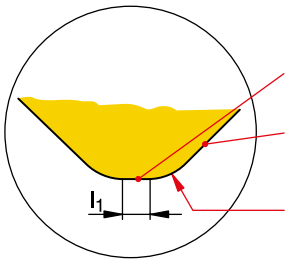
a_e	cutting width	mm
a_p	Cutting depth	mm
DC	Tool diameter	mm
D_w	Workpiece diameter	mm
f_z	Feed per tooth	mm
h_m	Average Chip Thickness	mm
ZNP	Number of teeth	
k_c	Specific cutting force	N/mm²
$k_{c1.1}$	Specific cutting force for 1 mm² chip area	N/mm²
BS	Length of wiper land	mm
m_c	Increase of specific cutting force	
n	rpm	rpm
Q	Chip volume	cm³/min
v_c	Cutting speed	m/min
v_f	Feed rate	mm/min.
ZNF	Number of Effective Teeth	

γ_0	Effective cutting angle	degree
γ_f	Side clearance angle	degree
γ_p	Axial cutting angle	degree
κ	Cutting edge angle	degree
λ_s	Angle of inclination	degree
α	Clearance angle	degree
α_1	Side clearance angle	degree









Wiper land

Main cutting edge

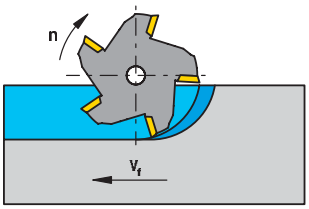
Corner radius

15

Engagement conditions

Recommended

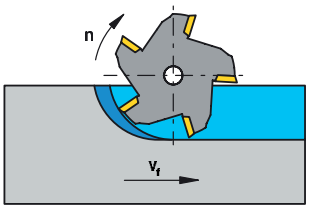
Climb milling



The feed direction of the workpiece is the same as the direction of rotation of the milling cutter in the cutting zone. The chips have maximum thickness at the beginning, chip thickness then decreases until it becomes zero at the end of the cut.

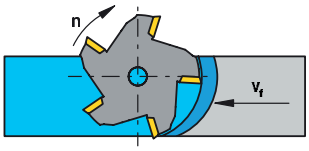
Unsuitable

Conventional milling

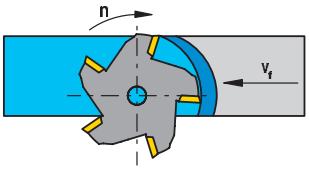


The feed direction of the workpiece is opposite to the direction of rotation of the milling cutter in the cutting zone. Chip thickness is zero at the beginning and increases until it reaches its maximum at the end of the cut.

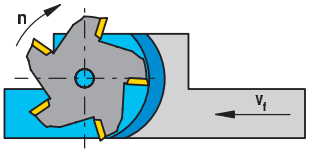
Cutter positioning



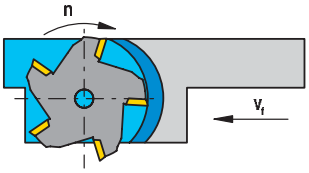
If possible the cutter should exit tangentially of the workpiece.



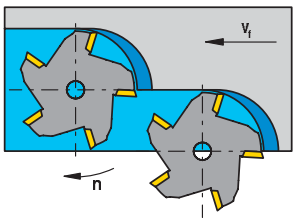
Workpiece situation



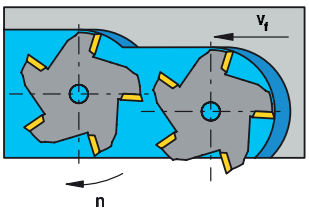
The workpiece should be clamped in such a way as to allow the cutter to emerge tangentially of the workpiece along the whole machining length.



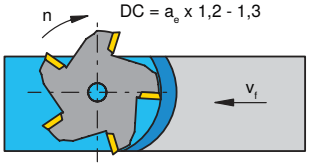
Overlapping



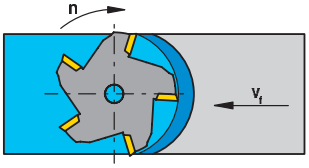
Either employ climb milling or ensure that the cutter comes out of the workpiece tangentially, as in the illustration on the left.



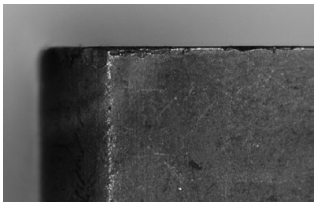
Cutter size

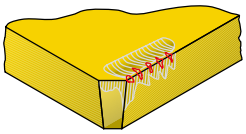


When face milling the diameter of the cutter should be 20–30 % larger than that of the workpiece.



Cutting demands when milling

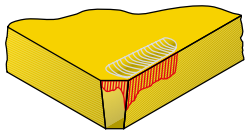




Edge chipping

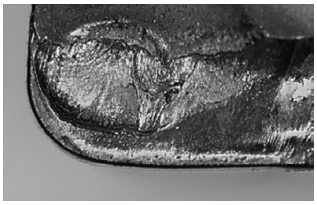
Cutting speed ↑
Feed per tooth ↓
Toughness of grade ↑
Cutting edge chamfer ↑

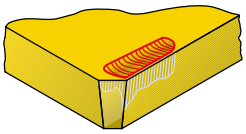




Wear on clearance face

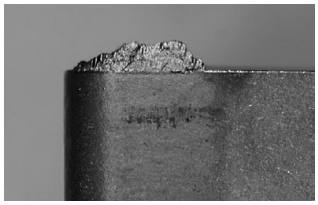
Cutting speed ↓
Feed per tooth ↑
Abrasion resistant grade ↑

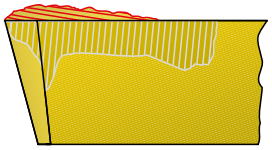




Cratering

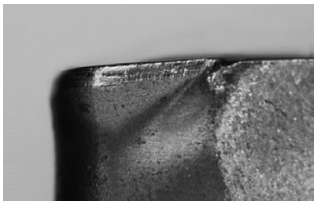
Cutting speed ↓
Feed per tooth ↓
Abrasion resistant grade ↑

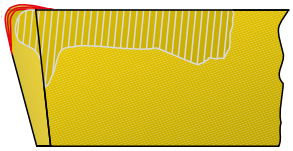




Built-up edge

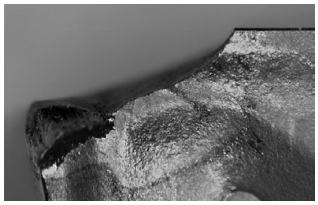
Cutting speed ↑
Feed per tooth ↑
Wear resistance ↑

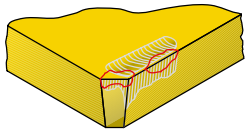




Cutting-edge deformation

Cutting speed ↓
Feed per tooth ↓
Abrasion resistant grade ↑





Cutting Edge Breakage

Cutting speed ↓
Toughness of grade ↑

15

ISO designation indexable milling inserts

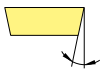
X	D	K	T	11	T3	08	S	R	-	F50
1	2	3	4	5	6	7	8	9		10

Z	N	H	W	12	05	PO	S	R	-	15	06	-	R
1	2	3	4	5	6	7	8	9		11	12		13

1 Insert shape

A	85°	
B	82°	
K	55°	
H	120°	
L	90°	
O	135°	
P	108°	
C	80°	
D	55°	
E	75°	
M	86°	
V	35°	
R		
S	90°	
T	60°	
W	80°	
X Z	Special version	

2 Clearance angle



	α
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Special version

3 Tolerances

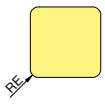


	IC ±mm	BS ±mm	S ±mm	IC = 6,35 / 9,52	IC = 12,7	IC = 15,8 / 19,05
A	0,025	0,005	0,025	●	●	●
C	0,025	0,013	0,025	●	●	●
E	0,025	0,025	0,025	●	●	●
F	0,013	0,005	0,025	●	●	●
G	0,025	0,025	0,13	●	●	●
H	0,013	0,013	0,025	●	●	●
J	0,05	0,005	0,025	●		
	0,08	0,005	0,025		●	
	0,10	0,005	0,025			●
K	0,05	0,013	0,025	●		
	0,08	0,013	0,02		●	
	0,10	0,013	0,02			●



	IC ±mm	BS ±mm	S ±mm	IC = 6,35 / 9,52	IC = 12,7	IC = 15,8 / 19,05
M	0,05	0,08	0,13	●		
	0,08	0,13	0,13		●	
	0,10	0,15	0,13			●
N	0,05	0,08	0,025	●		
	0,08	0,13	0,025		●	
	0,10	0,15	0,025			●
U	0,08	0,13	0,13	●		
	0,13	0,20	0,13		●	
	0,18	0,27	0,13			●

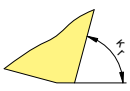
7 Wiper land / corner radius



Radius

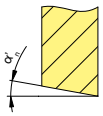
	RE in mm
M0*	
02	0,2
04	0,4
08	0,8
12	1,2

* Only with insert type "R"



1. Designation

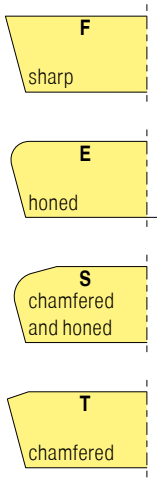
	K_r
A	45°
D	60°
E	75°
F	85°
P	90°
Z	Alternative



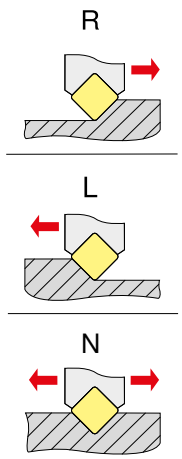
2. Designation

	α'_n
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
Z O	Alternative

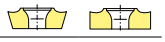
8 Cutting edge



9 Direction of cut



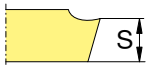
4 Characteristics

A	
F	
G	
M	
N	
Q	
R	
T	
U	
W	
X	Special version

5 Cutting length

IC mm	A	T	C/S	H	L	R	V	W	O	X	Z
4,90										07	
5,00						05					
5,56			05		08			03			
6,00											
6,35		11	06		10			04		06	
6,65	10										
6,80										11	
7,00											04
7,94			07								
8,00						08					
9,00					12						
9,30										15	
9,52	16	16	09		15			06	04		
9,57	15										
9,60										09	
10,00			10		11	10					12
12,00						12					
12,50										20	
12,70		12/22	12		20		22	08		12	
15,81			15		22			10			
16,00						16					
16,20				09							
16,74			16								
17,00			17								
17,18									06		
18,18									07		
19,05			19					13			
20,00						20					

6 Insert thickness



	S mm
01	1,59
T1	1,98
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
09	9,52

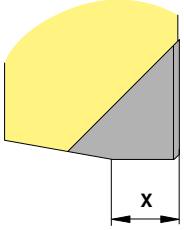
10 Chip groove

Chip breaker designation
F.. = fine
M.. = medium
R.. = roughing

Additional characteristics:
R = transition radius main/ secondary cutting edge
Q = Masterfinish

11 Manufacturer specification

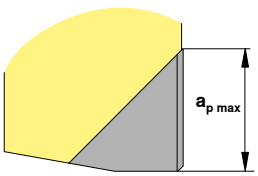
Length of the finishing cutting edge



00 = 0,0 mm
10 = 1,0 mm
12 = 1,2 mm
15 = 1,5 mm
30 = 3,0 mm
50 = 5,0 mm

12 Manufacturer specification

$a_{p\,max}$



02 = 2,0 mm
03 = 3,0 mm
04 = 4,0 mm
06 = 6,0 mm
07 = 7,0 mm
11 = 11,0 mm

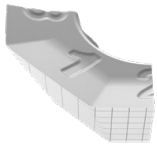
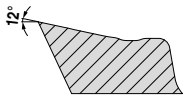
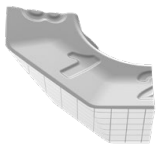
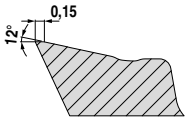
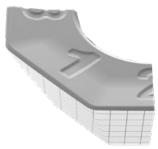
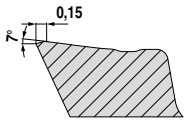
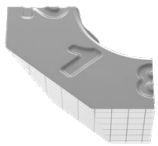
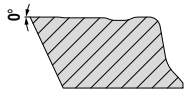
13 Manufacturer specification

F = Fine
M = Medium
R = Rough

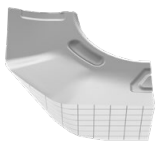
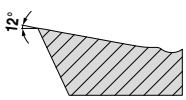
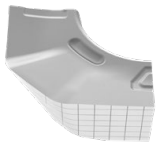
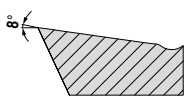
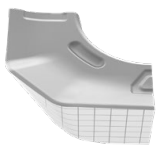
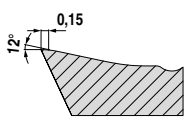
15

Chip Breakers Overview

MaxiMill 274 (OF..)

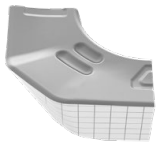
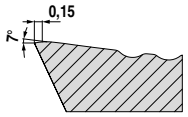
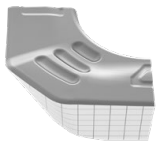
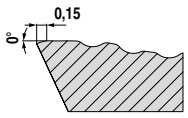
Model	Machining			sectional illustration	f_z in mm
	fine	medium	rough		
-F10 ▲ Highly positive geometry ▲ Sharp cutting edges ▲ First choice for non-ferrous metals					0,05–0,40
	CTWN215 (CWK4615)	**CTWN215 (CWK4615)**	**CTWN215 (CWK4615)**		
-F50 ▲ Positive Geometry ▲ Light rough machining ▲ For unstable workholding ▲ First choice for stainless steel materials					0,10–0,25
	CTCP220/CTPP225 **(DCX1220**/DPX1225) CTPM225/**CTCM235** (DPX2225 /**DCX2235)**	CTCP230/**CTPP235** (DCX1230/**DPX1235)** CTPM225/**CTCM235 CTPM240**/CTPM245 (DPX2225/**DCX2235 DPX2240**/ DPX2245)	CTPM240/**CTPM245** (DPX2240/**DPX2245)**		
	CTC5240/CTCS245 (HCF5240)	**CTC5240/CTCS245 (HCF5240)**			
-M50 ▲ Universal Geometry ▲ Light to medium rough machining ▲ First choice for general steel materials					0,10–0,30
		CTCP230/CTPP235 **(DCX1230**/DPX1235) **CTPM240/CTPM225 (DPX2240/DPX2225)** **CTCK215 (DCX3215)**	CTCP230/**CTPP235** (DCX1230/**DPX1235)** **CTPM240 (DPX2240)** **CTCK215 (DCX3215)**		
EN ▲ Universal Geometry ▲ Low cutting force ▲ First choice for good flatness					0,10–0,25
	CTPM245 (DPX2245)	**CTPM245 (DPX2245)**			
	CTC5240 (HCF5240)	**CTC5240 (HCF5240)**			

MaxiMill 274 (SF..)

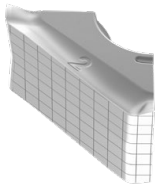
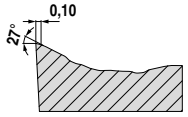
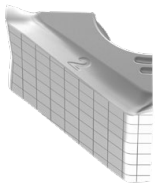
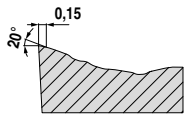
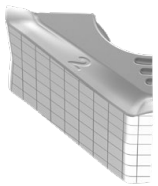
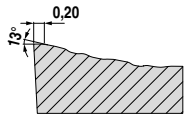
-F10 ▲ Highly positive geometry ▲ Sharp cutting edges ▲ First choice for non-ferrous metals					0,05–0,40
	CTWN215 (CWK4615)	**CTWN215 (CWK4615)**	**CTWN215 (CWK4615)**		
-F40 ▲ Positive Geometry ▲ Finishing and rough machining ▲ For unstable workholding ▲ For heat resistant materials, titanium and super alloys					0,10–0,25
	CTC5240 (HCF5240)	**CTC5240 (HCF5240)**			
-F50 ▲ Positive Geometry ▲ Light rough machining ▲ For unstable workholding ▲ First choice for stainless steel materials					0,10–0,25
	CTCP220/CTPP225 **(DCX1220**/DPX1225) CTPM225/**CTCM235** (DPX2225 /**DCX2235)**	CTCP230/**CTPP235** (DCX1230/**DPX1235)** CTPM225/**CTCM235 CTPM240**/CTPM245 (DPX2225/**DCX2235 DPX2240**/ DPX2245)	CTPM240/**CTPM245** (DPX2240/**DPX2245)**		
	CTC5240/CTCS245 (HCF5240)	**CTC5240/CTCS245 (HCF5240)**			

Chip Breakers Overview

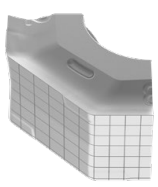
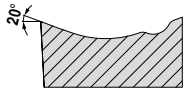
MaxiMill 274 (SF..)

	Model	Machining fine	Machining medium	Machining rough	sectional illustration	f_z in mm
-M50 ▲ Universal Geometry ▲ Light to medium rough machining ▲ First choice for general steel materials		**CTCP220**/CTPP225 **(DCX1220**/DPX1225) CTPM225 (DPX2225)	**CTCP230**/CTPP235 **(DCX1230**/DPX1235) **CTPM225/CTPM240** **(DPX2225/DPX2240)**	CTCP230/**CTPP235** (DCX1230/**DPX1235)** CTPM240 (DPX2240)		0,10–0,30
-R50 ▲ Stable Geometry ▲ Medium rough machining ▲ For interrupted cuts ▲ First choice for cast iron materials			**CTCK215/CTPK220** **(DCX3215/DPX3220)**	**CTCK215/CTPK220** **(DCX3215/DPX3220)**		0,10–0,35

MaxiMill 271

-F50 ▲ Positive Geometry ▲ Medium rough machining ▲ For unstable clamoing with steel machining ▲ First choice for stainless steel materials		**CTCP220**/CTPP225 **(DCX1220**/DPX1225) **CTCM235**/CTPM225 **(DCX2235/**DPX2225) **CTCS245/CTC5240** **(HCF5240)**	**CTCP230**/CTPP235 **(DCX1230**/DPX1235) CTPM225/**CTPM240**/CTPM245 (DPX2225/**DPX2240**/ DPX2245) **CTCS245/CTC5240** **(HCF5240)**	**CTPP235** **(DPX1235)** **CTPM245** **(DPX2245)** **CTCS245/CTC5240** **(HCF5240)**		0,20–0,30
-M50 ▲ Universal Geometry ▲ Medium to heavy rough machining ▲ First choice for general steel materials		**CTCP220**/CTPP225 **(DCX1220**/DPX1225)	CTPP225/**CTCP230**/CTPP235 (DPX1225/**DCX1230**/DPX1235) CTPM225/**CTCM235**/**CTPM240** (DPX2225/**DCX2235**/**DPX2240**) **CTCK215**/CTPK220 **(DCX3215**/DPX3220)	CTCP230/**CTPP235** (DCX1230/**DPX1235)** CTCM235/**CTPM240** (DCX2235/**DPX2240)** CTCK215/**CTPK220** (DCX3215/**DPX3220)**		0,20–0,50
-R50 ▲ Stable Geometry ▲ Heavy rough machining ▲ For heavily interrupted cuts ▲ First choice for cast iron materials			**CTCK215**/CTPK220 **(DCX3215**/DPX3220)	CTCK215/**CTPK220** (DCX3215/**DPX3220)**		0,20–0,50

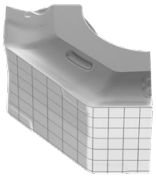
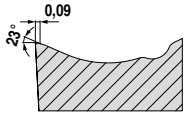
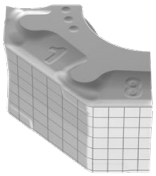
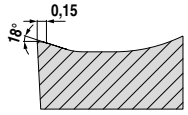
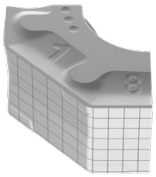
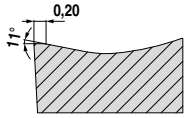
MaxiMill 273

-F40 ▲ Positive Geometry ▲ Finishing and rough machining ▲ For unstable workholding ▲ For heat resistant materials, titanium and super alloys		CTPM245 (DPX2245) **CTC5240** **(HCF5240)**	CTPM245 (DPX2245) **CTC5240** **(HCF5240)**	CTC5240 (HCF5240)		0,20–0,25

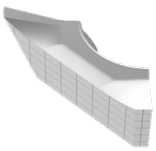
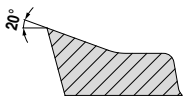
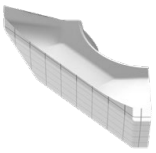
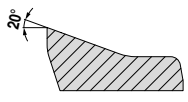
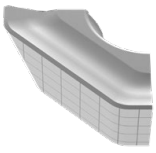
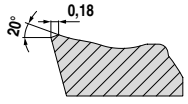
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Chip Breakers Overview

MaxiMill 273

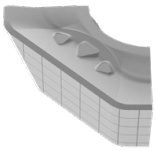
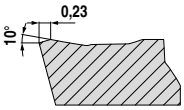
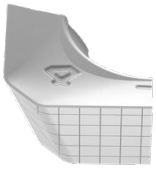
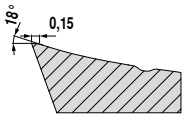
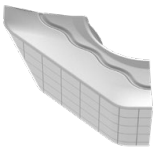
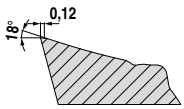
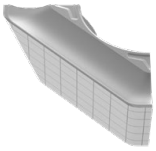
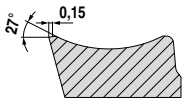
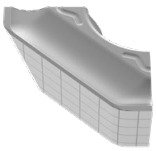
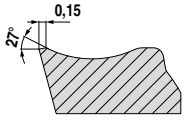
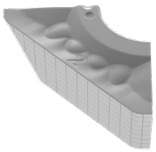
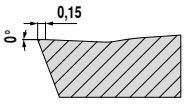
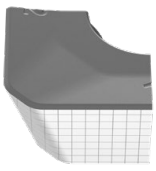
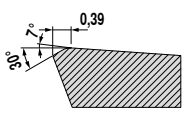
Model	Machining			sectional illustration	f_z in mm
	fine	medium	rough		
-F50 ▲ Positive Geometry ▲ Light rough machining ▲ For unstable workholding ▲ First choice for stainless steel materials		**CTCP220/**CTPP225 **(DCX1220/**DPX1225)	CTPP225/**CTCP230/**CTPP235 (DPX1225/**DCX1230/**DPX1235) CTPP225/**CTPM240** (DPX1225/**DPX2240)**	CTPM240 (DPX2240)		0,20–0,25
-M50 ▲ Universal Geometry ▲ Light to medium rough machining ▲ First choice for general steel materials		**CTCP220/**CTPP225 **(DCX1220/**DPX1225) CTPM225/CTCM235 (DPX2225/ DCX2235)	CTPP225/**CTCP230/**CTPP235 (DPX1225/**DCX1230/**DPX1235) CTPP225/**CTPM240** (DPX1225/**DPX2240)** **CTCK215**/CTPK220 **(DCX3215/**DPX3220)	CTCP230/**CTPP235** (DCX1230/**DPX1235)** CTCM235/**CTPM240** (DCX2235/**DPX2240)** CTCK215/**CTPK220** (DCX3215/**DPX3220)**		0,20–0,50
-R50 ▲ Stable Geometry ▲ Heavy rough machining ▲ For heavily interrupted cuts ▲ First choice for cast iron materials			CTCK215/CTPK220 (DCX3215/DPX3220) **CTCK215**/CTPK220 **(DCX3215/**DPX3220)	CTCK215/CTPK220 (DCX3215/DPX3220) CTCK215/**CTPK220** (DCX3215/**DPX3220)**		0,20–0,50

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-27 ▲ Highly positive geometry ▲ Sharp cutting edges ▲ First choice for non-ferrous metals		**H216T** **(CWK26)**	**H216T** **(CWK26)**	**H216T** **(CWK26)**		0,05–0,40
-27P ▲ Highly positive geometry ▲ Sharp cutting edges ▲ Reduced built up edge ▲ First choice for non-ferrous metals		**H216T**/AMZ **(CWK26**/AMZ)	**H216T**/AMZ **(CWK26**/AMZ)	**H216T**/AMZ **(CWK26**/AMZ)		0,05–0,40
-29 ▲ Universal Geometry ▲ Light to medium rough machining ▲ First choice for general steel materials		**CTCP230**/CTPP235 **(DCX1230**/DPX1235)	CTCP230/**CTPP235** (DCX1230/**DPX1235)**	CTCP230/**CTPP235** (DCX1230/**DPX1235)**		0,10–0,30

Chip Breakers Overview

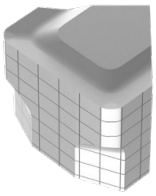
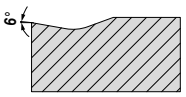
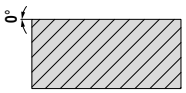
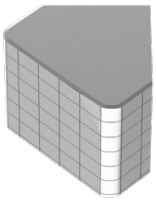
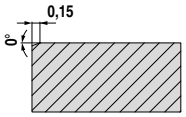
MaxiMill 270

	Model	Machining			sectional illustration	f_z in mm
		fine	medium	rough		
-31 ▲ Stable Geometry ▲ Heavy rough machining ▲ For heavily interrupted cuts ▲ First choice for cast iron materials			**CTCK215 (DCX3215)**	**CTCK215 (DCX3215)**		0,10–0,35
-F50 ▲ Positive Geometry ▲ Light rough machining ▲ For unstable workholding ▲ First choice for stainless steel materials		**CTPM245 (DPX2245)** CTCS245	**CTPM245 (DPX2245)** **CTCS245**	CTPM245 (DPX2245) CTCS245		0,10–0,20
-M31 ▲ Positive Geometry ▲ Smooth running ▲ Universal application ▲ For heat resistant materials, titanium and super alloys		CTC5240 (HCF5240)	CTC5240 (HCF5240)	CTC5240 (HCF5240)		0,10–0,25
-33 ▲ Positive Geometry ▲ Light rough machining ▲ First choice for stainless steel materials		**CTPM240 (DPX2240)**	**CTPM240 (DPX2240)**	**CTPM240 (DPX2240)**		0,10–0,25
-33P ▲ Positive Geometry ▲ Reduced built up edge ▲ First choice for stainless steel materials			**CTPM240 (DPX2240)**	**CTPM240 (DPX2240)**		0,10–0,25
-M50 ▲ Universal Geometry ▲ Light to medium rough machining ▲ First choice for general steel materials		CTPP235 (DPX1235)	**CTPP235 (DPX1235)**	**CTPP235 (DPX1235)**		0,20–0,60
-R50 ▲ Stable Geometry ▲ Medium rough machining ▲ For interrupted cuts ▲ First choice for cast iron materials		**CTCP230**/CTPP235 (**DCX1230**/DPX1235) **CTPM225** **CTCK215**	CTCP230/**CTPP235** (DCX1230/**DPX1235**) **CTPM225** **CTCK215**	**CTCP230/CTPP235** (**DCX1230/DPX1235**) **CTPM225** **CTCK215**		0,30–0,80

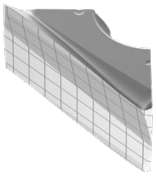
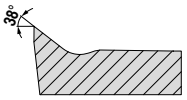
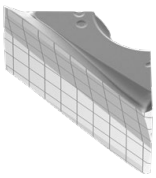
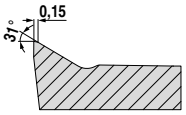
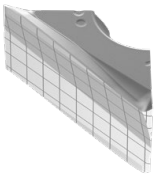
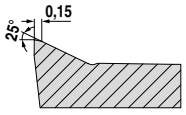
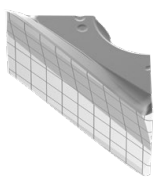
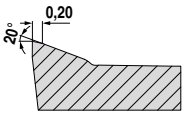
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Chip Breakers Overview

MaxiMill HEC

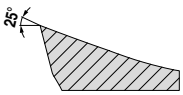
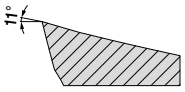
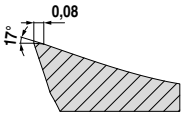
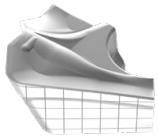
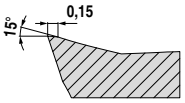
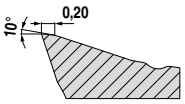
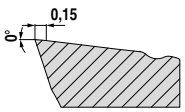
Model	Machining			sectional illustration	f_z in mm
	fine	medium	rough		
-R50 ▲ Positive Geometry ▲ For thin-walled components ▲ For low powered machines ▲ For cast iron materials	 **CTCK215 (DCX3215)**	**CTPK220 (DPX3220)**			0,08–0,25
-ER ▲ Stable cutting edge ▲ Universal application ▲ High surface quality through parallel land ▲ First choice for cast iron materials	 **CTEP210 (DCC1210)** **CTCK215**/CTEP210 **(DCX3215**/DCC1210)	**CTPK220 (DPX3220)**			0,08–0,30
-SR ▲ Stable cutting edge ▲ Aligned with ceramics & CBN as a cutting material ▲ Stable component clamping and machine ▲ For cast iron materials	 **CTN3105**/CTL3215 **(CTS3105)**				0,10–0,25

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Model	Machining			sectional illustration	f_z in mm
	fine	medium	rough		
-F10 ▲ Very positive geometry ▲ Sharp cutting edge ▲ Prevents sticking and edge build up ▲ First Choice for non-ferrous metal	 CTWN215 (CWK4615) **CTWN215 (CWK4615)**	**CTWN215 (CWK4615)**	**CTWN215 (CWK4615)**		0,05–0,25
-F50 ▲ Positive geometry ▲ Finishing and light roughing ▲ First choice for stainless steel materials	 **CTPM240 (DPX2240)**	**CTPM240 (DPX2240)**			0,10–0,20
-M50 ▲ Universal geometry ▲ Light to medium roughing ▲ First choice for general steel materials		**CTCP230**/CTPP235 **(DCX1230**/DPX1235) **CTPM240 (DPX2240)**	**CTPP235/**CTCP230 **(DPX1235**/DCX1230) **CTPM240 (DPX2240)**		0,10–0,25
-R50 ▲ Stable geometry ▲ Strong roughing geometry ▲ For heavily interrupted cutting ▲ First choice for cast iron materials		**CTCK215**/CTPK220 **(DCX3215**/DPX3220)	**CTPK220**/CTCK215 **(DPX3220**/DCX3215)		0,10–0,30

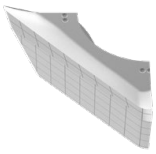
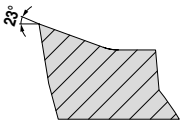
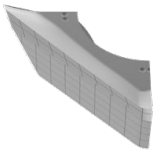
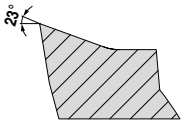
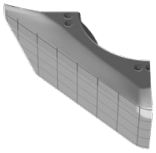
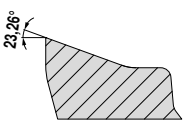
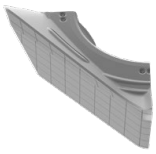
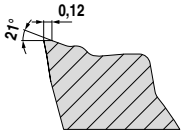
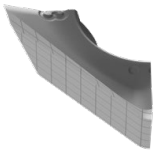
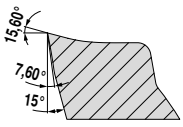
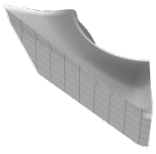
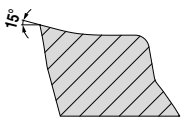
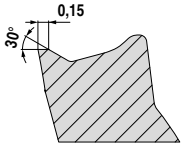
Chip Breakers Overview

MaxiMill 211

	Model	Machining			sectional illustration	f_z in mm
		fine	medium	rough		
-F20 ▲ Highly positive geometry ▲ First choice for non-ferrous metals		**CTWN215 (CWK4615)**	**CTWN215 (CWK4615)**	**CTWN215 (CWK4615)**		0,10–0,20
-F40 ▲ Positive Geometry ▲ Finishing and rough machining ▲ For unstable workholding ▲ For heat resistant materials, titanium and super alloys		**CTC5240/CTCS245**	CTPM245 **CTC5240/CTCS245**	**CTPM245** **CTC5240/CTCS245**		0,05–0,15
-F50 ▲ Positive Geometry ▲ Light rough machining ▲ For unstable workholding ▲ First choice for stainless steel materials		**CTCP220**/CTPP225 (**DCX1220**/DPX1225) **CTCM235**/CTPM225 (**DCX2235**/DPX2225)	**CTCP230**/CTPP235 (**DCX1230**/DPX1235) CTPM225/**CTPM240/CTPM245** (DPX2225/**DPX2240/ DPX2245**)	CTCP230/**CTPP235** (DCX1230/**DPX1235**) CTPM240/**CTPM245** (DPX2240/**DPX2245**)		0,10–0,20
-M50 ▲ Universal Geometry ▲ Light to medium rough machining ▲ First choice for general steel materials		**CTCM235**/CTPM225 (**DCX2235**/DPX2225)	**CTCP230**/CTPP235 (**DCX1230**/DPX1235) CTPM225/**CTPM240** (DPX2225/**DPX2240**) **CTCK215**/CTPK220 (**DCX3215**/DPX3220)	CTCP230/CTPP235 (DCX1230/DPX1235) CTPM225/CTPM240 (DPX2225/DPX2240) CTCK215/**CTPK220** (DCX3215/**DPX3220**)		0,10–0,25
-R50 ▲ Stable Geometry ▲ Heavy rough machining ▲ For heavily interrupted cuts ▲ First choice for cast iron materials		**CTCK215 (DCX3215)**	CTPM225/**CTPM240/CTCM235** (DPX2225/**DPX2240/DCX2235**) **CTCK215 (DCX3215)**	CTCP230/CTPP235 (DCX1230/DPX1235) CTPM225/**CTPM240/CTCM235** (DPX2225/**DPX2240/DCX2235**) **CTCK215 (DCX3215)**		0,10–0,30
-R60 ▲ Highly stable geometry ▲ For stable clamping ▲ First choice for hard machining		**CTP6215 (CCN6215)**	**CTP6215 (CCN6215)**	**CTP6215 (CCN6215)**		0,05–0,20

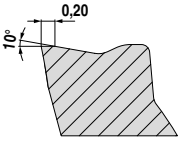
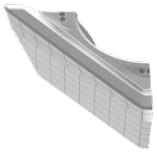
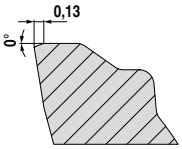
Chip Breakers Overview

MaxiMill 490

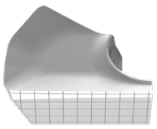
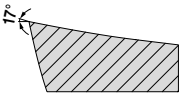
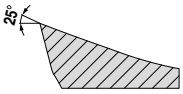
Model	Machining			sectional illustration	f_z in mm
	fine	medium	rough		
-27 ▲ Highly positive geometry ▲ Sharp cutting edges ▲ For finish machining of titanium alloys		**CTC5240 (HCF5240)**	**CTC5240 (HCF5240)**		0,10–0,20
-27P ▲ Highly positive geometry ▲ Sharp cutting edges ▲ Reduced built up edge ▲ First choice for non-ferrous metals		**AMZ**/H216T **(AMZ**/CWK26) AMZ/**H216T** (AMZ/**CWK26)**	AMZ/H216T **(AMZ/CWK26)**	AMZ/H216T **(AMZ**/CWK26)		0,08–0,35
-F10 ▲ Positive Geometry ▲ Light rough machining ▲ For unstable workholding ▲ For heat resistant materials		**CTCS245**	**CTCS245**		0,05–0,20
-29 ▲ Universal Geometry ▲ Light to medium rough machining ▲ First choice for general steel materials		CTCP230/**CTPP235** (DCX1230/**DPX1235)** CTPM240 (DPX2240)	CTCP230/**CTPP235** (DCX1230/**DPX1235)**		0,10–0,25
-F50 ▲ Positive Geometry ▲ Light rough machining ▲ For unstable workholding ▲ First choice for stainless steel materials		CTPM245 (DPX2245)	**CTPM245 (DPX2245)** **CTCS245**	**CTCS245**		0,10–0,20
-M31 ▲ Positive Geometry ▲ Universal application ▲ Smooth running ▲ For heat resistant materials, titanium and super alloys		**CTC5240 (HCF5240)**	**CTC5240 (HCF5240)**		0,10–0,20
-33 ▲ Positive Geometry ▲ Light rough machining ▲ First choice for stainless steel materials		CTPM240 (DPX2240)	**CTPM240 (DPX2240)**		0,10–0,20

Chip Breakers Overview

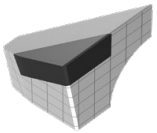
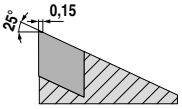
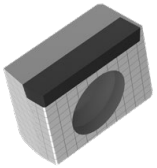
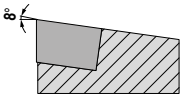
MaxiMill 490

Model	Machining			sectional illustration	f_z in mm
	fine	medium	rough		
-31 ▲ Stable Geometry ▲ Heavy rough machining ▲ For heavily interrupted cuts ▲ First choice for cast iron materials		**CTCK215 (DCX3215)**	**CTCK215 (DCX3215)**		0,10–0,30
-SR ▲ Stable Geometry ▲ Light to medium finishing ▲ Aligned with cermet ▲ For steel materials		**TCM10 (CWC10)** TCM10 (CWC10) TCM10 (CWC10)	**TCM10/CTPP235 (CWC10/DPX1235)**	**CTPP235 (DPX1235)**		0,05–0,25

MaxiMill HSC/HPC

-27P ▲ Highly positive geometry ▲ Sharp cutting edges ▲ Reduced built up edge ▲ First choice for non-ferrous metals		H216T (CWK26) **H216T (CWK26)**	**H216T (CWK26)**	**H216T (CWK26)**		0,05–0,35
-F20 ▲ Highly positive geometry ▲ First choice for non-ferrous metals		**CTWN215 (CWK4615)**	**CTWN215 (CWK4615)**	**CTWN215 (CWK4615)**		0,10–0,20

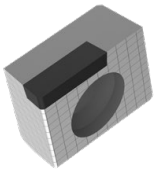
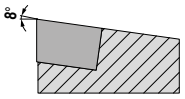
MaxiMill HPC

-SR ▲ Highly positive geometry ▲ Universal application ▲ Low cutting forces ▲ Minimum burr formation ▲ High surface quality through parallel land		**CTD4205 (CWD4205)**	**CTD4205 (CWD4205)**	**CTD4205 (CWD4205)**		0,10–0,30
-ER ▲ Positive Geometry ▲ Medium to heavy rough machining ▲ Reduced burr formation ▲ Finishing of cast iron and hardened steel		**CTL3215 (CWB3215)** **CTD4205 (CWD4205)** **CTL3215 (CWB3215)**	**CTL3215 (CWB3215)** **CTD4205 (CWD4205)**	**CTD4205 (CWD4205)**		0,10–0,35

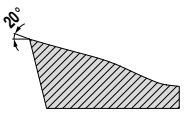
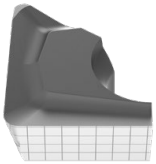
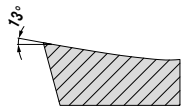
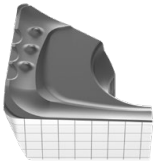
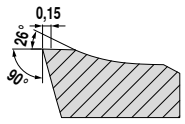
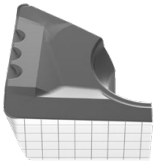
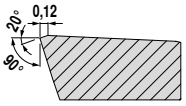
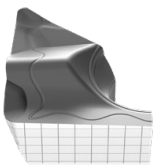
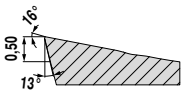
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Chip Breakers Overview

MaxiMill HPC

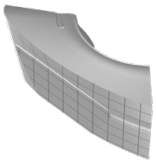
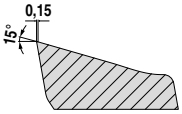
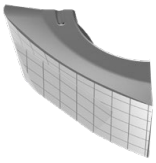
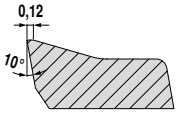
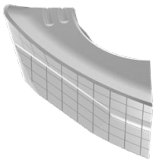
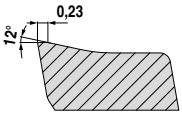
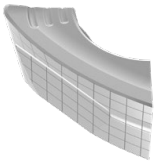
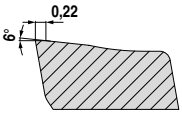
Model	Machining			sectional illustration	f_z in mm
	fine	medium	rough		
-FR ▲ Positive Geometry ▲ For medium to heavy rough machining ▲ Reduced burr formation					0,10–0,35
	CTD4205 (CWD4205)	**CTD4205 (CWD4205)**	**CTD4205 (CWD4205)**		

MaxiMill 141/241/242

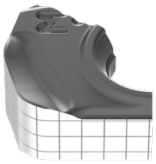
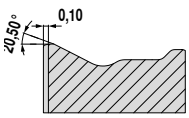
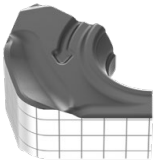
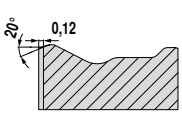
-27P ▲ Highly positive geometry ▲ Sharp cutting edges ▲ Reduced built up edge ▲ First choice for non-ferrous metals					0,05–0,25
	H216T (CWK26)	**H216T (CWK26)**	**H216T (CWK26)**		
-29 ▲ Universal Geometry ▲ Light to medium rough machining ▲ First choice for general steel materials		**CTCP230**/CTPP235 **(DCX1230)**/DPX1235)	CTCP230/**CTPP235** (DCX1230/**DPX1235)**		0,10–0,30
-33 ▲ Positive Geometry ▲ Light rough machining ▲ First choice for stainless steel materials		**CTPM240 (DPX2240)**	**CTPM240 (DPX2240)**		0,10–0,30
-SR ▲ Stable Geometry ▲ Light to medium finishing ▲ Aligned with cermet ▲ For steel materials		**CTCP230 (DCX1230)**	**CTCP230 (DCX1230)**		0,15–0,35
-ER ▲ Positive Geometry ▲ Finishing and rough machining ▲ For unstable workholding ▲ For heat resistant materials, titanium and super alloys		CTC5240 (HCF5240)	**CTC5240 (HCF5240)**	**CTC5240 (HCF5240)**		0,10–0,25

Chip Breakers Overview

MaxiMill HFC

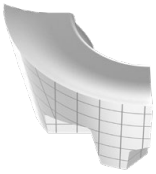
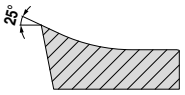
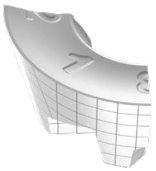
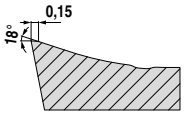
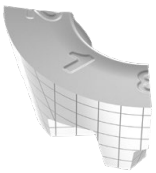
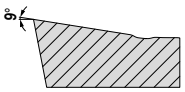
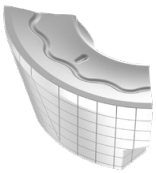
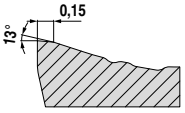
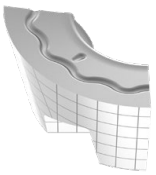
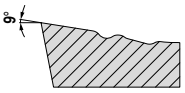
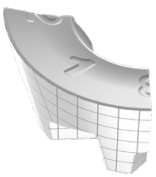
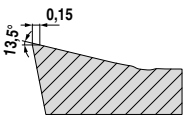
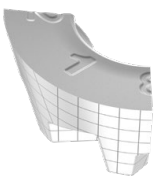
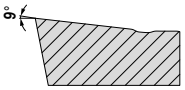
	Model	Machining			sectional illustration	f_z in mm
		fine	medium	rough		
-F40 ▲ Positive Geometry ▲ Finishing and rough machining ▲ For unstable workholding ▲ For heat resistant materials, titanium and super alloys						0,20–1,25
			CTPM245 (DPX2245)	CTPM245 (DPX2245)		
		CTC5240/CTCS245 (HCF5240)	**CTC5240/CTCS245 (HCF5240)**	**CTC5240/CTCS245 (HCF5240)**		
-F50 ▲ Positive Geometry ▲ Light rough machining ▲ For unstable workholding ▲ For heat resistant materials						0,20–1,50
		CTC5240/CTCS245 (HCF5240)	**CTC5240/CTCS245 (HCF5240)**	**CTC5240/CTCS245 (HCF5240)**		
-M50 ▲ Universal Geometry ▲ Light to medium rough machining ▲ First choice for general steel materials		CTCP220/**CTPP225/CTCP230** (DCX1220/**DPX1225/DCX1230**)	CTPP225/**CTCP230/CTPP235** (DPX1225/**DCX1230/DPX1235**)	CTCP230/**CTPP235** (DCX1230/**DPX1235**)		0,50–3,00
		CTPM225 (DPX2225)	**CTCM235/CTPM240**/CTPM245 **(DCX2235/DPX2240**/DPX2245)	**CTPM240/CTPM245 (DPX2240/DPX2245)**		
			CTCK215 (DCX3215)	**CTCK215 (DCX3215)**		
-R50 ▲ Stable Geometry ▲ For stable machining conditions ▲ First choice for heavily interrupted cuts ▲ First choice for general steel materials			**CTPP235 (DPX1235)**	**CTPP235 (DPX1235)**		0,50–3,00

DHFC

-M50 ▲ Universal Geometry ▲ Light to medium rough machining ▲ First choice for general steel materials		CTPP236	**CTPP236**	CTPP236		0,25–1,20
		CTPM241	**CTPM241**	CTPM241		
-R50 ▲ Stable Geometry ▲ For stable machining conditions ▲ First choice for heavily interrupted cuts ▲ First choice for general steel materials			**CTPP231**/CTPP236	CTPP231/**CTPP236**		0,30–1,20
			CTPK221	**CTPK221**		

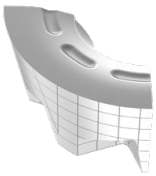
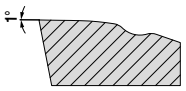
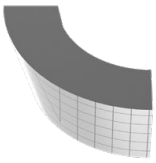
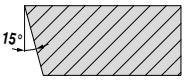
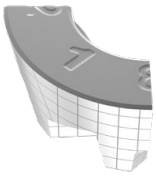
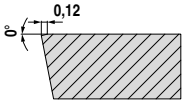
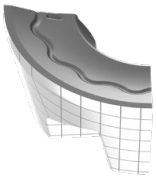
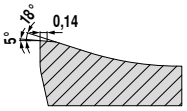
Chip Breakers Overview

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	Model	Machining fine	Machining Medium	Machining rough	sectional illustration	f_z in mm
-27P ▲ Highly positive geometry ▲ Sharp cutting edges ▲ Reduced built up edge ▲ First choice for non-ferrous metals		H216T (CWK26) **H216T (CWK26)**	**H216T (CWK26)**	**H216T (CWK26)**		0,05–0,40
-F50 ▲ Positive Geometry ▲ Low cutting forces ▲ For unstable workholding ▲ First choice for austenitic stainless steel materials		CTCP230/**CTPP235** (DCX1230/**DPX1235**) CTPP225/**CTCM235**/CTPM240 (DPX1225/**DCX2235**/DPX2240) **CTCS245**	CTCP230/**CTPP235** (DCX1230/**DPX1235**) CTPP225/**CTCM235/CTPM240** (DPX1225/**DCX2235/DPX2240**) **CTCS245**	CTCM235/**CTPM240** (DCX2235/**DPX2240**) **CTCS245**		0,08–0,35
-M30 ▲ Medium rough machining ▲ Combines low cutting force and stability ▲ First choice for martensitic stainless steel materials		CTPP225/**CTCM235**/CTPM240 (DPX1225/**DCX2235**/DPX2240)	**CTPP235 (DPX1235)** CTPP225/**CTCM235/CTPM240** (DPX1225/**DCX2235/DPX2240**)	**CTPP235 (DPX1235)** CTPP225/CTCM235/**CTPM240** (DPX1225/DCX2235/**DPX2240**)		0,08–0,35
-M31 ▲ Positive Geometry ▲ Universal application ▲ Smooth running ▲ For heat resistant materials, titanium and super alloys		**CTC5240 (HCF5240)**	**CTC5240 (HCF5240)**	**CTC5240 (HCF5240)**		0,08–0,35
-M32 ▲ Medium rough machining ▲ Low cutting force and good stability ▲ First choice for martensitic stainless steel materials		CTPM245 (DPX2245)	**CTPM245 (DPX2245)**	**CTPM245 (DPX2245)**		0,08–0,35
-M50 ▲ Universal Geometry ▲ Light to medium rough machining ▲ First choice for general steel materials		**CTCP230**/CTPP235 (**DCX1230**/DPX1235)	**CTCP230/CTPP235 (DCX1230/DPX1235)**	CTCP230/**CTPP235** (DCX1230/**DPX1235**)		0,10–0,40
-R30 ▲ Sateble Geometry ▲ Heavy rough machining ▲ For heavily interrupted cuts ▲ First choice for cast iron materials			**CTCK215 (DCX3215)**	**CTCK215 (DCX3215)**		0,10–0,40

Chip Breakers Overview

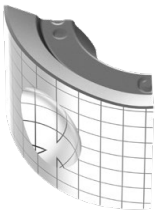
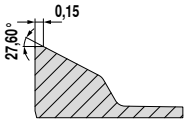
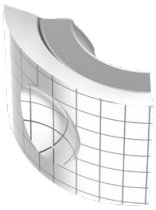
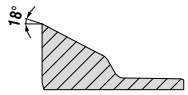
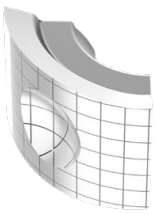
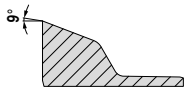
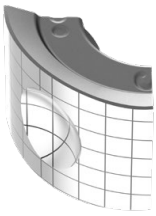
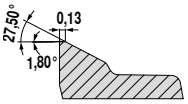
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Model	Machining			sectional illustration	f_z in mm
	fine	Medium	rough		
-R60 ▲ Highly stable geometry ▲ For stable clamping ▲ First choice for hard machining					0,05–0,35
	CTP6215 (CCN6215)	**CTP6215 (CCN6215)**	**CTP6215 (CCN6215)**		
-FN ▲ Highly positive geometry ▲ First choice for non-ferrous metals					0,10–0,40
	H216T (CWK26)	**H216T (CWK26)**	**H216T (CWK26)**		
-SN ▲ Robust insert ▲ For poor machining conditions ▲ First choice for cast iron/steel matrerials					0,10–0,40
	TCM10/CTCP230 **(CWC10**/DCX1230)	TCM10/**CTCP230/CTPP235** (CWC10/**DCX1230/DPX1235**)	CTCP230/**CTPP235** (DCX1230/**DPX1235**)		
	TCM10/CTPM225 (CWC10/ DPX2225)	**CTPM225 (DPX2225)**	CTPM225 (DPX2225)		
	TCM10/CTCK215 (CWC10/DCX3215)	**CTCK215 (DCX3215)**	**CTCK215 (DCX3215)**		
-EN ▲ Universal Geometry ▲ Low cutting force ▲ First choice for good flatness					0,15–0,50
	CTCK215 (DCX3215)	**CTCK215 (DCX3215)**	**CTCK215 (DCX3215)**		

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Chip Breakers Overview

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Model	Machining			sectional illustration	f_z in mm
	fine	Medium	rough		
-F50 ▲ Positive Geometry ▲ Light rough machining ▲ For unstable workholding ▲ First choice for stainless steel materials		**CTPM240 (DPX2240)**	CTPM240 (DPX2240)		0,08–0,35
-M31 ▲ Positive Geometry ▲ Universal application ▲ Smooth running ▲ For heat resistant materials, titanium and super alloys		CTPM245 (DPX2245) **CTC5240 (HCF5240)**	**CTPM245 (DPX2245)** **CTC5240 (HCF5240)**		0,08–0,35
-M32 ▲ Medium rough machining ▲ Low cutting force and good stability ▲ First choice for martensitic stainless steel materials		CTPM245 (DPX2245)	**CTPM245 (DPX2245)**		0,05–0,35
-M50 ▲ Universal Geometry ▲ Light to medium rough machining ▲ First choice for general steel materials		CTPP235 (DPX1235)	**CTPP235 (DPX1235)**		0,10–0,40

Grade description

CTCP220 / DCX1220
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P20**
- The wear-resistant grade for dry machining steels

CTCP225 / DPX1225
- Carbide, TiAlTaN-coated
- ISO | **P25** | **K25**
- The wear-resistant grade for wet machining of steels

CTCP230 / DCX1230
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P30** | **K25** | M25
- The first choice for dry machining steel at high cutting speeds

CTPP235 / DPX1235
- Carbide, TiAlTaN-coated
- ISO | **P25** | **K25**
- The wear-resistant grade for wet machining of steels

CTPM225 / DPX2225
- Carbide, TiAlTaN-coated
- ISO | P25 | **M25**
- The wear-resistant choice for machining austenitic steels

CTCM235 / DCX2235
- Carbide, TiCN-Al_2O_3-coated
- ISO | P40 | **M35**
- The tough alternative for general steel machining
- Well suited to martensitic steel materials

CTPM240 / DPX2240
- Carbide, TiAlTaN-coated
- ISO | P40 | **M40**
- The first choice for machining austenitic steels

CTCK215 / DCX3215
- Carbide, TiCN-Al_2O_3-coated
- ISO | **K15**
- The first choice for machining cast iron materials at high cutting speeds

CTPK220 / DPX3220
- Carbide, TiAlTaN-coated
- ISO | **K20**
- Optimal for machining high-strength cast iron materials in the tougher application range

CTEP210 / DCC1210
- Cermet, TiCN-Al_2O_3-coated
- ISO | **P10** | **K05**
- The coated cermet grade with reserves of toughness for finish machining at high cutting speeds

CTWN215 / CWK4615
- Carbide, uncoated
- ISO | K15 | **N15**
- Uncoated carbide grade for machining non-ferrous metals

AMZ
- Carbide, TiAlN-coated
- ISO | P10 | K10 | **N10** | S10
- The coated carbide grade for aluminium machining

CTC5240 / HCF5240
- Carbide, TiN-TiB_2-coated
- ISO | **S40**
- The special grade for machining titanium and titanium alloys

CTD4205 / CWD4205
- Carbide, uncoated
- ISO | **N05**
- Polycrystalline diamond grade for machining non-ferrous metals and non-metallic materials

H216T / CWK26
- Carbide, uncoated
- ISO | **K15** | **N15**
- The uncoated carbide grade for machining aluminium and other non-ferrous metals
- Also highly suitable for HSC machining

TCM10 / CWC10
- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

CTP6215 / CCN6215
- Carbide, TiAlN-coated
- ISO | **K15** | **H15**
- The coated carbide grade for hard machining

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Grade description

WAN1240
- Carbide, coated
- ISO | **P40** | M40 | K40
- Coated, tough special grade for machining steel at medium to high cutting speeds
- Also suitable for machining cast iron as a secondary application

WAX1240
- Carbide, coated
- ISO | **P40** | K40
- High-strength special grades for medium and rough machining of steel at medium cutting speeds and an extremely high feed per tooth

WAN2225
- Carbide, coated
- ISO | **M25** | S25
- Fine grain size with high toughness and temperature resistance
- For rough and finish machining of rust and acid-resistant steels in both wet and dry cutting

WUN4210
- Carbide, uncoated
- ISO | **N10**
- Uncoated standard grade for medium machining of non-ferrous metals and graphite

WTN1205
- Carbide, coated
- ISO | **P05** | **K05** | N05 | S05 | **H05**
- Coated special grade for machining steel, hardened steel, cast iron, graphite and plastics

CTPK211
- Carbide, TiAlN-coated
- ISO | M15 | **K10** | **N10** | S10 | H10
- The coated standard grade for fine machining of cast iron and non-ferrous metals at medium cutting speeds

CTPP236
- Carbide, TiAlN-TiN coated
- ISO | **P35** | M35 | **K30**
- The tough special grade for medium and rough machining of steel at high cutting speeds
- This grade is also suitable for machining cast iron and stainless steel

CTCP231
- Carbide, coated
- ISO | **P30** | K25
- A very tough special grade for medium and rough machining of steel at medium cutting speeds and an extremely high feed per tooth

CTPM241
- Carbide, AlTiN-coated
- ISO | P40 | **M40** | **S40**
- The tough carbide grade for machining stainless and heat-resistant steels

CTPP216
- Carbide, TiAlN-coated
- ISO | **P10** | M10 | **K10** | H10
- Highly wear-resistant carbide grade with high cutting edge stability for finish machining of high-strength materials, unalloyed tool steels, cast iron and hardened steel up to 54 HRC

CTPP211
- Carbide, coated
- ISO | **P10** | **M10** | K10
- Wear-resistant carbide grade for medium and rough machining of steel and stainless steel
- Well suited to dry machining

CTPK231
- Carbide, coated
- ISO | **P30** | **K30**
- Tough carbide grade for medium and rough machining of steel and cast iron materials
- Well suited to dry machining

CTPK226
- Carbide, coated
- ISO | P30 | **K30** | **H30**
- Extremely wear-resistant ultra-fine grain carbide grade for machining cast iron materials and hardened steels up to 62 HRC

CTCN211
- Carbide, coated
- ISO | **N10**
- Diamond-coated carbide grade especially for machining graphite and non-ferrous metals

Grade description

C	T	C	P	2	2	0
D	C	X	1	2	2	0

(Example)

Main application – material

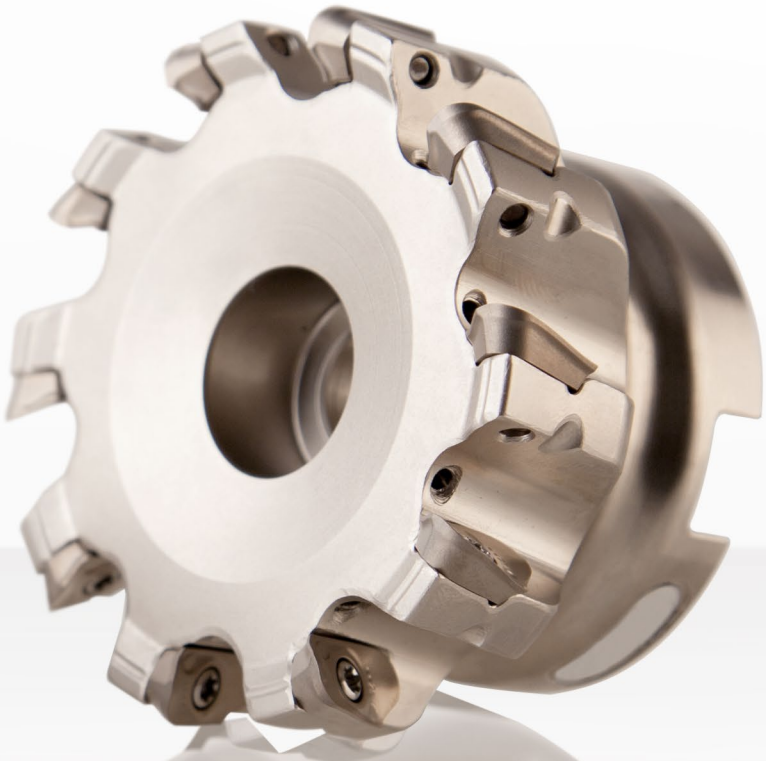
1|P	Steel
2|M	Stainless steel
3|K	Cast iron
4|N	Light and non ferrous metals
5|S	Super alloys, titanium
6|H	Hard materials
7|X	Universal application

Application

1	Turning
2	Milling
3	Grooving
4	Drilling
5	Thread turning
6	Others
7	Several processes

Degree of hardness

05	ISO 05
10	ISO 10
15	ISO 15
	...



New products for machining technicians

NEW ABS adapters



Work with flexibility and process-security with the modular ABS coupling system for rotating and stationary tools.



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 EcoCut

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Tool Clamping

16 Adapters

17 Accessories

18 Material examples and article no. index

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WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Version


Without coolant supply (Form A)


Axial coolant (Form AD)


Coolant supply either via the flange, or central (Form AD / B)


With eroded cooling ducts


Adapter with two additional coolant holes

SZID = For tool size

Types

Centro-P – Precision collet chuck with high holding forces, suitable for all machining

Centro-P WD – Collet with pull-out protection, specifically for use with Centro-P precision collet chucks

Centro-P Coated – Coated precision collet for Centro-P precision collet chuck

TG – Specially matched adapter for ThermoGrip® shrinking process

NC 2010 – Short drill chuck for all drilling applications

Coated – Coated collet for universal application

ER-B 2 µm
Collets Description
▲ Type - Version
▲ Concentricity

ABS – **KOMET ABS** – modular coupling system for rotating and stationary tools

Toolfinder – Machine interface

DIN 69871 – SK steep taper adapters



- SK 30
- SK 40
- SK 50

Toolfinder – Adapters, rotating 4+5
Product programme 10–49

JIS B 6339 – BT steep taper adapters



MAS-BT / MAS-BT-FC with face contact

- BT 30
- BT 40
- BT 50
- BT-FC 30
- BT-FC 40
- BT-FC 50

Toolfinder – Adapters, rotating 4+5
MAS-BT product range 50–83
MAS-BT-FC product range 84–92

HSK hollow taper adapters with face contact



ISO 12164 – HSK-A / HSK-E

- HSK-A 32
- HSK-A 40
- HSK-A 50
- HSK-A 63
- HSK-A 100
- HSK-E 25
- HSK-E 32
- HSK-E 40
- HSK-E 50

Toolfinder – Adapters, rotating 4+5
HSK-A product range 93–133
HSK-E product range 134–138

ISO 12164-3 – HSK-T

- HSK-T 63
- HSK-T 100

Toolfinder – Adapters, stationary 6+7
Product programme 139–156

ISO 26623-1 – PSC polygon hollow adapters with face contact



PSC, rotating

- PSC 32
- PSC 40
- PSC 50
- PSC 63
- PSC 80

Toolfinder – Adapters, rotating 4+5
Product programme 157–173

PSC, stationary

- PSC 32
- PSC 40
- PSC 50
- PSC 63
- PSC 80
- PSC 80X

Toolfinder – Adapters, stationary 6+7
Product programme 174–187

ISO 10889 – VDI tool holders with cylindrical shank



- VDI 16
- VDI 20
- VDI 25
- VDI 30
- VDI 40
- VDI 50

Toolfinder – Adapters, stationary 8+9
Product programme 188–205
Driven Tools 224–226

Toolfinder – Adapters, rotating

	Holder Type		Finishing	Roughing – Finishing	Roughing	DIN 69871	JIS B 6339		ISO 12164		ISO 26623-1
						SK	MAS-BT	MAS-BT-FC	HSK-A	HSK-E	PSC
Accuracy	Maximum	Centro-P									
		▲ ER Precision Collet chuck	●	●	●	10–12	50–52	84	93–95	134+135	157
		▲ OZ precision collet chuck	●	●	●	13	53		96		
		High Pressure Milling Chuck	●	●	○	14–16	54–56	86	97–99		158
		Hydraulic chuck	●			17+18	57+58	87	100+101		
		Heat Shrink Adapter	●	○		19–22	59+60	85	102–107	136	159+160
		Micro-Precision Collet Chuck	●						119	137	
	High	Cylindrical shank adapter									
		▲ Weldon		○	●	23–25	61+62	88	108–112		161
		▲ Whistle Notch		○	●	26+27	63+64		113		162
		Indexable insert drill adapter				28	65		114		163
		Collet Chuck									
		▲ ER Collet chuck	●	○		29	66	89	115–117		164+165
		▲ OZ Collet Chuck	●	○		30	67				
		NC 2010 short drill chuck				31	68		118		
		Quick change tapping chuck with minimum length compensation				32+33	69+70		120+121		166
		Quick change tap chuck with length compensation				34	71		122		167
		Quick change tap chuck without length compensation				34	71		122		
		ABS adapters				35+36	72+73		123+124		

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

Toolfinder – Adapters, rotating

	Holder Type		Finishing	Roughing – Finishing	Roughing	DIN 69871 SK	JIS B 6339 MAS-BT	JIS B 6339 MAS-BT-FC	ISO 12164 HSK-A	ISO 12164 HSK-E	ISO 26623-1 PSC
Accuracy	Medium	Adapter for milling cutters with threaded end		○	●	37+38	74		125+126		168
		Face mill adapter									
		▲ Combination shell mill adapter	●	●	●	39	75		127		169+170
		▲ Shell mill adapter	●	●	●	40+41	76+77	90	128–130		
		▲ Large diameter facemill adapter	●	●	●	42	78				
		Drill chuck adapter				43	79				
		Milling adapter sleeve for Morse taper shanks with external thread		○	●	44	80				
		Taper adapter for Morse taper				45	81		131		171

Overview Accessories

		DIN 69871 SK	JIS B 6339 MAS-BT	JIS B 6339 MAS-BT-FC	ISO 12164 HSK-A	ISO 12164 HSK-E	ISO 26623-1 PSC
Intermediate/reducing adapter for SK adapters		46	82				
Blank		47	83		132		172
Test bar		47	83		133		173
Pull stud		48+49	91+92				
Coolant pipe/key					138		173

Collets and quick change adapters can be found on → **Pages 206–223.**

Toolfinder – Stationary adapters – HSK-T and PSC tool holders

Toolholders for negative turning inserts

	Type Machining	Illustration	HSK-T ISO 12164	PSC ISO 26623
	DCLN 95° Internal + External		139	174
CN..	DCMN 95° External		139	
	DCMN+ DDMN External		140	
	DCMN+ DDMN External		140	
	DDUN 93° Internal + External		140	
DN..	DDJN 93° Internal + External		141	174
	DDHN 107,5° Internal + External		141	
	DDMN 48° External		142	
SN..	DSDN 45° External		142	
VN..	DVMN 50° External		143	
WN..	DWLN 95° Internal + External		143	175

Toolholders for positive turning inserts

	Type Machining	Illustration	HSK-T ISO 12164	PSC ISO 26623
	SCLC 95° Internal + External		144	
CC..	SCMC 50° External		144	
	SDJC 93° Internal + External		145	175
DC..	SDNC 62,5° Internal + External			176
	SDMC 48° External		145	
	PRDC 0° External		146	
RC..	PRSC Internal + External		146	
	SVUC 93° Internal + External		147	
	SVJC 93° Internal + External		147	
VC..	SVHC 107,5° Internal + External		148	
	SVMC 50° External		148	

Multifunction tools – EcoCut

Type	Illustration	HSK-T ISO 12164	PSC ISO 26623
2,25xD		152	

Toolfinder – Stationary adapters – HSK-T and PSC tool holders

Holders for grooving and threading inserts

Type	Illustration	HSK-T ISO 12164	PSC ISO 26623
0°		153	
90°		153	

Toolholders for threading inserts

Type	Illustration	HSK-T ISO 12164	PSC ISO 26623
Internal thread			179
External thread			179

Boring bars for negative inserts

	Type	Illustration	HSK-T ISO 12164	PSC ISO 26623
 CN..	DCLN 95°		149	
 DN..	DDUN 93°		149	
 WN..	DWLN 95°		150	

Boring bars for positive inserts

	Type	Illustration	HSK-T ISO 12164	PSC ISO 26623
 CC..	SCLC 95°		151	177
 DC..	SDUC 93°		151	177
 VC..	SVUC 93°		152	
	SVQC 107,5°			178

Basic holder

Type	Illustration	HSK-T ISO 12164	PSC ISO 26623
Square shank holder 0°		155	180
Square shank holder 45°		155	181
Square shank holder 90°		156	180
Square shank holder 2 face 0°			181
Square shank holder 3 face 0°		155	181
Boring bar holder		156	182+183

Extension / Reduction / Adapter

Type	Illustration	HSK-T ISO 12164	PSC ISO 26623
Extension			184
Reduction			185+186

Parting blade holders

Type	Illustration	HSK-T ISO 12164	PSC ISO 26623
Parting Blade Holder GX / LX / FX / SX		154	
Radial Grooving Holders, right / left			180

Others

Protection plug			187
Hollow nose keys			187

16

Toolfinder – Stationary adapters – VDI adapters for star turrets







Toolholders above

Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters	B2/B3/B6/B7/C1/C2/D1/D2	188–191	B2/B3/B6/B7/C3/C4/D1/D2	188–191
	Part Off Holder	double	201	double – overhead	201
	Adapter VDI to VDI	left-hand	202	left-hand	202
	Boring bar holder	left-hand	202+203	left-hand	202+203

Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters	B2/B3/B6/B7/C3/C4/D1/D2	188–191	B2/B3/B6/B7/C1/C2/D1/D2	188–191
	Part Off Holder	double – overhead	201	double	201
	Adapter VDI to VDI	right-hand	202	right-hand	202
	Boring bar holder	right-hand	202+203	right-hand	202+203

Toolholders below

Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters	B2/B3/B6/B7/C3/C4/D1/D2	188–191	B2/B3/B6/B7/C1/C2/D1/D2	188–191
	Part Off Holder	double	201	double – overhead	201
	Adapter VDI to VDI	right-hand	202	right-hand	202
	Boring bar holder	right-hand	202+203	right-hand	202+203

Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters	B2/B3/B6/B7/C1/C2/D1/D2	188–191	B2/B3/B6/B7/C3/C4/D1/D2	188–191
	Part Off Holder	double – overhead	201	double	201
	Adapter VDI to VDI	left-hand	202	left-hand	202
	Boring bar holder	left-hand	202+203	left-hand	202+203

Toolfinder – Stationary adapters – VDI adapters for disc turrets







Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	**Square Shank Adapters**	B1/B5/C1/C2/D1	188–191	B3/B7/C3/C4/D2	188–191
	**Cylindrical Shank Adapters**	E/E1/E2/E3/E4	191–194	E/E1/E2/E3/E4	191–194
	**Taper Adapters**	F1	195	F1	195
	**Part Off Holder**	right-hand	196+197	overhead right	196+197
	**Drill Chucks**	NC 2010	198	NC 2010	198
	**Tapping Chucks**	GSF/GML	199	GSF/GML	199

Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	**Square Shank Adapters**	B4/B8/C3/C4/D2	188–191	B2/B6/C1/C2/D1	188–191
	**Cylindrical Shank Adapters**	E/E1/E2/E3/E4	191–194	E/E1/E2/E3/E4	191–194
	**Taper Adapters**	F1	195	F1	195
	**Part Off Holder**	overhead left	196+197	left-hand	196+197
	**Drill Chucks**	NC 2010	198	NC 2010	198
	**Tapping Chucks**	GSF/GML	199	GSF/GML	199

Accessories

 **Bar stop** 198

 **Test arbors** 200

 **Tool holders** 200+201

 **Bar pullers** 204

 **Gripper accessories** 205

 **Protection plug** 205

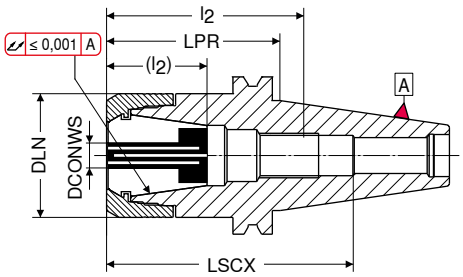
16

ER Precision Collet chuck

- For standard or sealed nuts
- Maximum size collet to ISO tolerance field H10
- For clamping a roll key is required
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P






AD
G 2,5 n_{max} 25000


AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	Article no. 84 424 ...	Article no. 84 414 ...
SK 30	2 - 16	70	40	66	35 - 49 (18 - 31)	430E (ER25)	016	
SK 30	2 - 20	70	50	75	50 - 75 (29 - 40)	470E (ER32)	020	
SK 40	1 - 10	70	30	110	28 - 45 (16 - 31)	426E (ER16)	102	
SK 40	1 - 10	100	30	140	28 - 45 (16 - 31)	426E (ER16)	103	
SK 40	1 - 10	130	30	140	28 - 50 (14 - 34)	426E (ER16)		510
SK 40	1 - 10	160	30	200	28 - 45 (16 - 31)	426E (ER16)		910
SK 40	2 - 16	45	40	85	35 - 60 (20 - 42)	430E (ER25)		816
SK 40	2 - 16	70	40	110	35 - 60 (20 - 42)	430E (ER25)	162	
SK 40	2 - 16	100	40	113	35 - 60 (20 - 42)	430E (ER25)	163	
SK 40	2 - 16	130	40	140	38 - 67 (21 - 49)	430E (ER25)		516
SK 40	2 - 16	160	40	118	35 - 60 (20 - 42)	430E (ER25)		916
SK 40	2 - 16	200	40	148	35 - 60 (20 - 42)	430E (ER25)		917
SK 40	2 - 20	50	50	85	52 - 70 (26 - 52)	470E (ER32)	201	
SK 40	2 - 20	70	50	111	55 - 75 (42 - 62)	470E (ER32)	202	
SK 40	2 - 20	100	50	114	52 - 70 (32 - 52)	470E (ER32)	203	
SK 40	2 - 20	130	50	114	50 - 74 (36 - 55)	470E (ER32)		620
SK 40	2 - 20	160	50	119	52 - 70 (32 - 52)	470E (ER32)		920
SK 40	3 - 26	70	63	105	48 - 55	472E (ER40)	261 1)	
SK 40	3 - 26	100	63	120	48 - 62	472E (ER40)	262 1)	
SK 50	1 - 10	70	30	100	28 - 45 (16 - 35)	426E (ER16)	106	
SK 50	1 - 10	100	30	130	28 - 55 (16 - 41)	426E (ER16)	107	
SK 50	1 - 10	160	30	190	28 - 55 (16 - 41)	426E (ER16)	108	
SK 50	2 - 16	70	40	120	35 - 64 (20 - 48)	430E (ER25)	166	
SK 50	2 - 16	100	40	150	35 - 64 (20 - 48)	430E (ER25)	167	
SK 50	2 - 20	70	50	120	59 - 85 (40 - 70)	470E (ER32)		320
SK 50	2 - 20	100	50	150	53 - 81 (35 - 63)	470E (ER32)		520
SK 50	2 - 20	160	50	200	53 - 83 (35 - 65)	470E (ER32)		720
SK 50	3 - 26	70	63	120	48 - 60	472E (ER40)	266	

1) Non standard groove before tool change collar not according to DIN, not suitable for automatic tool change

→ Transmittable torque moments, page 233

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets ( ) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 3 mm longer

Spare parts, ER precision collet chuck

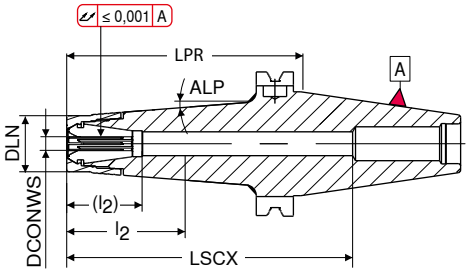
Spare parts	 Lock nut IK	 Lock nut		 Stop screw 2		 Stop screw 1
	Article no. 84 950 ...	Article no. 84 950 ...		Article no. 83 950 ...		Article no. 83 950 ...
for collet						
426E (ER16)	011	001	M11x1 - SW6	341	M11x1 - SW6	337
430E (ER25)	013	003	M18x1,5 - SW6	432	M18x1,5 - SW6	431
470E (ER32)	015	005	M22x1,5 - SW6	402	M22x1,5 - SW6	401
472E (ER40)	017	007			M28x1,5 - SW6	400

ER Precision tapered collet chuck

- For special tapered nuts
- Maximum clamping range covered according to ISO tolerance field H10
- Roll key required for clamping
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P






AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	ALP	Article no. 84 417 ...
SK 40	1 - 10	100	24	140	28 - 48 (20 - 35)	426E (ER16)	4,5°	410
SK 40	1 - 10	160	24	200	28 - 48 (20 - 35)	426E (ER16)	2,5°	910

→ Transmittable torque moments, page 233

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets ( ) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

Spare parts	 Tapered lock nut IK	 Tapered lock nut		 Stop screw 2		 Stop screw 1
	Article no. 84 950 ...	Article no. 84 950 ...		Article no. 83 950 ...		Article no. 83 950 ...
for collet						
426E (ER16)	033	031	M11x1 - SW6	341	M11x1 - SW6	337

Accessories


ER collet
→ 208–211, 213


Sealing ring
→ 207


Roll key
→ 17|36


Roll key device
→ 17|36


Pull studs
→ 48–49

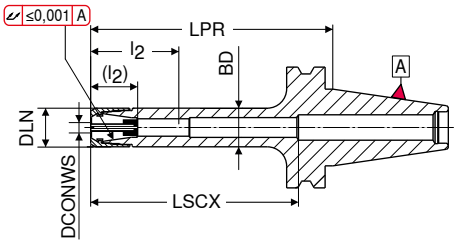

Others
→ 17|34

ER Precision collet chuck, slim version

- For Mini Clamping Nuts
- Maximum clamping range covered according to ISO tolerance field H10
- Roll key required for clamping
- p_{max} 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P





Adapter	DCONWS mm	LPR mm	DLN mm	BD mm	LSCX mm	l_2 (l_2) mm	for collet	AD G 2,5 n_{max} 25000 Article no. 84 411 ...	AD/B G 2,5 n_{max} 25000 Article no. 84 412 ...
SK 30	1 - 7	50	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	**007**	
SK 30	1 - 7	100	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	**008**	
SK 40	1 - 7	70	16	16	60	15 - 32 (7 - 22)	4008E (ER11)		**207**
SK 40	1 - 7	100	16	16	68	18 - 36 (12 - 26)	4008E (ER11)		**407**
SK 40	1 - 7	130	16	16	110	15 - 32 (7 - 22)	4008E (ER11)		**607**
SK 40	1 - 7	160	16	16	68	18 - 36 (12 - 26)	4008E (ER11)		**907**
SK 40	1 - 10	70	22	22	90	28 - 50 (14 - 36)	426E (ER16)		**210**
SK 40	1 - 10	100	22	22	110	28 - 50 (14 - 36)	426E (ER16)		**310**
SK 40	1 - 10	130	22	22	140	28 - 50 (14 - 36)	426E (ER16)		**410**
SK 40	1 - 10	160	22	22	170	28 - 50 (14 - 36)	426E (ER16)		**510**

→ Transmittable torque moments, page 233

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets ( ) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer






Spare parts	Mini lock nut IK Article no. 84 950 ...	Mini lock nut Article no. 84 950 ...	Stop screw 2 Article no. 83 950 ...		Stop screw 1 Article no. 83 950 ...	
for collet						
4008E (ER11)		**041**	M8x1 - SW4	**340**	M8x1 - SW4	**336**
426E (ER16)	**035**	**034**	M11x1 - SW6	**341**	M11x1 - SW6	**337**

Accessories









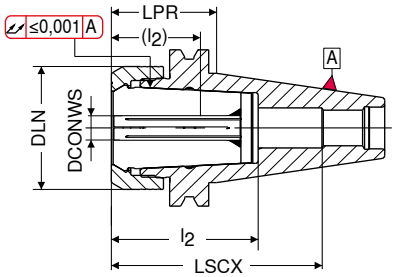
ER collet	Sealing ring	Device	Roll key	Roll key device	Pull studs	Others
→ 208–211, 213	→ 207	→ 17|35	→ 17|36	→ 17|36	→ 48–49	→ 17|34

OZ Precision Collet Chuck

- Maximum clamping range covered according to ISO tolerance field H10
- Roll key required for clamping
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P







AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	Article no. 84 406 ...
SK 40	2 - 25	43	50	80	53 - 65 (37 - 48)	462E	**025**
SK 50	2 - 25	50	50	110	55 - 66 (36 - 50)	462E	**725**

→ Transmittable torque moments, Page 233

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets ( ) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer


Lock nut IK


Stop screw 2


Stop screw 1

Spare parts for collet	Article no. 84 950 ...		Article no. 83 950 ...		Article no. 83 950 ...	
462E	**020**	M22x1,5 - SW6	**402**	M22x1,5 - SW6	**401**	

Accessories


OZ Collet → 217


Sealing ring → 217


Roll key → 17|36


Roll key device → 17|36


Pull studs → 48–49


Others → 17|34

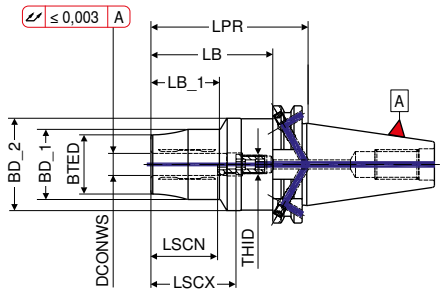
16

High pressure chuck, short version

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:

Base body with backstop screw and pressure screw







AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BTED	BD_1	BD_2	LB_1	LSCX	LSCN	LB	THID	Article no. 83 422 ...
		mm	mm	mm	mm	mm	mm	mm	mm	mm		
short	SK 40	16	90	36	42	50	42	49	39	71	M12x1	116
	SK 40	20	95	42	48	50	45	51	41	76	M16x1	120
	SK 40	25	110	51	57	50	60	57	47	91	M16x1	125
	SK 40	32	120	57	63	50	65	61	51	101	M16x1	132

→ Min clamping depth, page 233

LSCX = maximum insertion depth
LSCN = minimum insertion depth



Clamping key - T



Pressure pin



Pressure screw



Stop screw IK

Spare parts DCONWS		Article no. 80 397 ...		Article no. 83 950 ...		Article no. 83 950 ...		Article no. 83 950 ...	
16	SW5	050	Ø5 x 16	433	TR10x1,5x14	430	M12x1x18	446
20	SW5	050	Ø6 x 16	434	TR10x1,5x14	430	M16x1x18,5	448
25	SW5	050	Ø6 x 16	434	TR10x1,5x14	430	M16x1x22	449
32	SW5	050	Ø6 x 16	434	TR10x1,5x14	430	M16x1x25	450

Accessories



Reduction sleeve
→ 17|32



Pull studs
→ 48–49

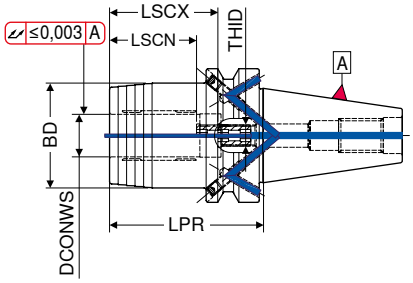


Others
→ 17|34

High pressure chuck, short and stable version

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:
Base body with backstop screw and pressure screw







AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS	LPR	BD	LSCX	LSCN	THID	Article no. 83 427 ...
	mm	mm	mm	mm	mm		
SK 40	20	64,5	49	51	40	M16x1x13,5	**120**

→ Min. clamping depth, Page 233

LSCX = maximum insertion depth
LSCN = minimum insertion depth

Spare parts	 Cylindrical screw		 Clamping key – T		 Pressure screw		 Stop screw IK	
	Article no. 83 950 ...		Article no. 80 397 ...		Article no. 83 950 ...		Article no. 83 950 ...	
83 427 120	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x14	**429**	M16x1x13,5 - SW8	**424**

Accessories


Reduction sleeve
→ 17|32


Pull studs
→ 48–49

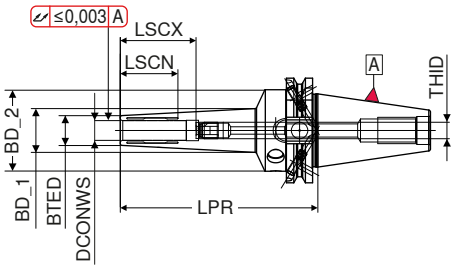

Others
→ 17|34

High pressure chuck, slim 3°

▲ For solid carbide and HSS shanks to h6 tolerance or better

Scope of supply:

Base body with backstop screw, pressure screw and screw plug





AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BTED	BD_1	BD_2	LSCX	LSCN	THID	Article no. 83 421 ...
		mm	mm	mm	mm	mm	mm	mm		
long	SK 40	3	120	9	17,40	49,5	28	12	M3	103
	SK 40	4	120	10	18,40	49,5	28	16	M3	104
	SK 40	5	120	11	19,40	49,5	28	20	M3	105
	SK 40	6	120	12	20,40	49,5	37	27	M5	106
	SK 40	8	120	14	22,40	49,5	37	27	M6	108
	SK 40	10	120	16	24,50	49,5	41	31	M8x1	110
	SK 40	12	120	18	26,60	49,5	46	36	M10x1	112
	SK 40	16	120	24	32,30	49,5	49	39	M12x1	116
	SK 40	20	120	28	36,40	49,5	51	41	M16x1	120
	SK 40	6	160	16	34,37	49,5	37	27	M5	206
	SK 40	8	160	18	35,45	49,5	37	27	M6	208
	SK 40	10	160	20	37,10	49,5	41	31	M8x1	210
	SK 40	12	160	22	38,72	49,5	46	36	M10x1	212
	SK 40	6	200	16	38,72	49,5	37	27	M5	306
	SK 40	8	200	18	39,74	49,5	37	27	M6	308
	SK 40	10	200	20	41,40	49,5	41	31	M8x1	310
	SK 40	12	200	22	43,02	49,5	46	36	M10x1	312

→ Min. clamping depth, Page 233

LSCX = maximum insertion depth
LSCN = minimum insertion depth


Cylindrical screw


Clamping key - T


Pressure screw


Stop screw IK

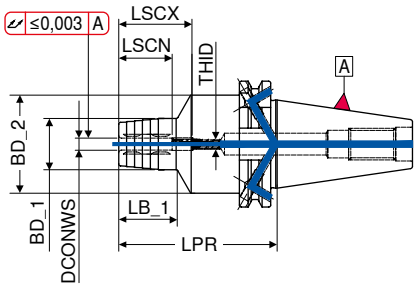
Spare parts		Article no. 83 950 ...		Article no. 80 397 ...		Article no. 83 950 ...		Article no. 83 950 ...
for Article no.								
83 421 103	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M3x20 - SW1,5	172
83 421 104	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M3x20 - SW1,5	172
83 421 105	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M3x20 - SW1,5	172
83 421 106	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M5x12,5 - SW2,5	418
83 421 108	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M6x12,5 - SW3	419
83 421 110	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M8x1x13,5 - SW3	420
83 421 112	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M10x1x13,5 - SW5	421
83 421 116	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M12x1x13,5 - SW5	422
83 421 120	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M16x1x13,5 - SW8	424
83 421 206	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M5x12,5 - SW2,5	418
83 421 208	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M6x12,5 - SW3	419
83 421 210	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M8x1x13,5 - SW3	420
83 421 212	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M8x1x13,5 - SW3	420
83 421 306	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M5x12,5 - SW2,5	418
83 421 308	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M6x12,5 - SW3	419
83 421 310	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M8x1x13,5 - SW3	420
83 421 312	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M8x1x13,5 - SW3	420

Hydraulic chuck, short and slim version

▲ For solid carbide and HSS shanks to h6 tolerance or better

Scope of supply:

Base body with backstop screw and pressure screw







AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BD_1	BD_2	LSCX	LSCN	LB_1	THID	Article no. 83 402 ...
		mm	mm	mm	mm	mm	mm	mm		
short and slim	SK 40	6	80,5	26	49,5	37	27	29,5	M5	106
	SK 40	8	80,5	28	49,5	37	27	30,0	M6	108
	SK 40	10	80,5	30	49,5	41	31	35,0	M8x1	110
	SK 40	12	80,5	32	49,5	46	36	40,0	M10x1	112
	SK 40	16	80,5	38	49,5	49	39	45,0	M12x1	116
	SK 40	20	80,5	42	49,5	51	41	47,0	M16x1	120
	SK 40	25	80,5	55	63,0	57	47	28,0	M16x1	125
	SK 40	32	80,5	63	70,0	61	51	25,5	M16x1	132
	SK 50	6	80,5	26	49,5	37	27	29,5	M5	306
	SK 50	8	80,5	28	49,5	37	27	30,0	M6	308
	SK 50	10	80,5	30	49,5	41	31	35,0	M8x1	310
	SK 50	12	80,5	32	49,5	46	36	40,0	M10x1	312
	SK 50	16	80,5	38	49,5	49	39	45,0	M12x1	316
	SK 50	20	80,5	42	49,5	51	41	42,0	M16x1	320
	SK 50	25	100,0	55	63,0	57	47	48,0	M16x1	325
	SK 50	32	100,0	63	70,0	61	51	61,0	M16x1	332

→ Min. clamping depth, Page 233


Pressure screw


Stop screw IK


Stop screw IK

Spare parts DCONWS		Article no. 83 950 ...		Article no. 83 950 ...		Article no. 83 950 ...
6	M8x1x10	439			M5x12,5 - SW2,5	418
8	M8x1x10	439	M6x14 - SW2	417	M6x12,5 - SW3	419
10	M10x1x12	440			M8x1x13,5 - SW3	420
12	M10x1x12	440			M10x1x13,5 - SW5	421
16	M10x1x12	440			M12x1x13,5 - SW5	422
20 - 32	M10x1x12	440			M16x1x13,5 - SW8	424

Accessories


Reduction sleeve
→ 17|32


Pull studs
→ 48–49

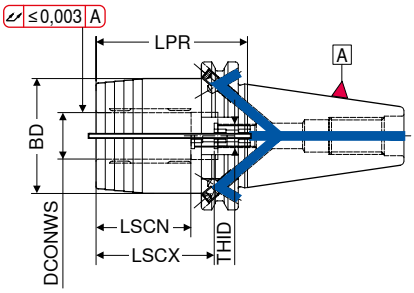

Others
→ 17|34

Hydraulic chuck, short and stable version

▲ For solid carbide and HSS shanks to h6 tolerance or better

Scope of supply:

Base body with backstop screw and pressure screw







AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS	LPR	BD	LSCX	LSCN	THID	Article no. 83 425 ...
	mm	mm	mm	mm	mm		
SK 40	20	64,5	49,5	51	41	M16x1	120
SK 50	32	81,0	72,0	61	51	M16x1	332

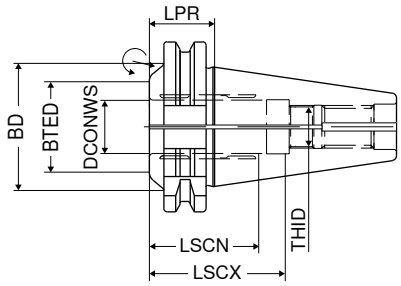
→ Min. clamping depth, Page 233

Hydraulic chuck, extra short

▲ For solid carbide and HSS shanks to h6 tolerance or better

Scope of supply:

Base body with backstop screw and pressure screw







AD
G 2,5 n_{max} 25000

Adapter	DCONWS	LPR	BTED	BD	LSCX	LSCN	THID	Article no. 83 403 ...
	mm	mm	mm	mm	mm	mm		
SK 40	20	24,5	34	48	51	41	M16x1	120

→ Min. clamping depth, Page 233



Pressure screw



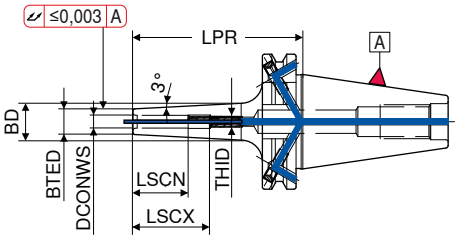
Stop screw IK

Spare parts DCONWS	Pressure screw Article no. 83 950 ...		Stop screw IK Article no. 83 950 ...	
20 - 32	M10x1x12	440	M16x1x13,5 - SW8	424

Heat shrink adapter, slim 3°

▲ For solid carbide and HSS shanks to h6 tolerance or better

TG





AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	Article no. 84 320 ...
short	SK 40	3	80	9	14	28	12	M6	103
	SK 40	4	80	10	15	28	16	M6	104
	SK 40	5	80	11	16	30	20	M6	105
	SK 40	6	80	12	17	36	26	M5	106
	SK 40	8	80	14	19	36	26	M6	108
	SK 40	10	80	16	21	41	31	M8x1	110
	SK 40	12	80	18	23	47	37	M10x1	112
	SK 40	14	80	20	26	47	37	M10x1	114
	SK 40	16	80	22	28	50	40	M12x1	116
	SK 40	18	80	24	30	50	40	M12x1	118
	SK 40	20	80	26	32	52	42	M16x1	120
long	SK 40	3	120	9	16	12	12		203
	SK 40	4	120	10	17	16	16		204
	SK 40	5	120	11	18	20	20		205
	SK 40	6	120	12	22	36	26	M5	206
	SK 40	8	120	14	24	36	26	M6	208
	SK 40	10	120	16	26	41	31	M8x1	210
	SK 40	12	120	18	28	47	37	M10x1	212
	SK 40	14	120	20	30	47	37	M10x1	214
	SK 40	16	120	22	32	50	40	M12x1	216
	SK 40	18	120	24	34	50	40	M12x1	218
	SK 40	20	120	26	36	52	42	M16x1	220
extra-long	SK 40	3	160	9	19	12	12		303
	SK 40	4	160	10	20	16	16		304
	SK 40	5	160	11	21	20	20		305
	SK 40	6	160	12	24	36	26	M5	306
	SK 40	8	160	14	26	36	26	M6	308
	SK 40	10	160	16	28	41	31	M8x1	310
	SK 40	12	160	18	30	47	37	M10x1	312
	SK 40	14	160	20	32	47	37	M10x1	314
	SK 40	16	160	22	34	50	40	M12x1	316
	SK 40	18	160	24	36	50	40	M12x1	318
	SK 40	20	160	26	38	52	42	M16x1	320

→ Min. clamping depth, Page 233



Stop screw IK



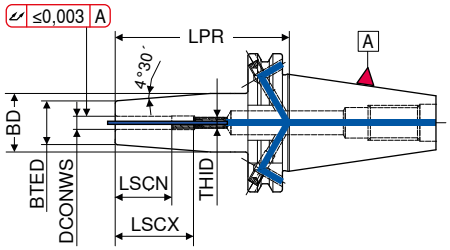
Stop screw IK

Spare parts DCONWS		Article no. 83 950 ...		Article no. 83 950 ...
3 - 5	M6x14 - SW2	417		
6			M5x12,5 - SW2,5	418
8			M6x12,5 - SW3	419
10			M8x1x13,5 - SW3	420
12 - 14			M10x1x13,5 - SW5	421
16 - 18			M12x1x13,5 - SW5	422
20			M16x1x13,5 - SW8	424

Shrink fit adapters 4.5°

▲ For solid carbide and HSS shanks to h6 tolerance or better

TG







AD/B
G 2,5 n_{max} 25000



AD
G 2,5 n_{max} 25000

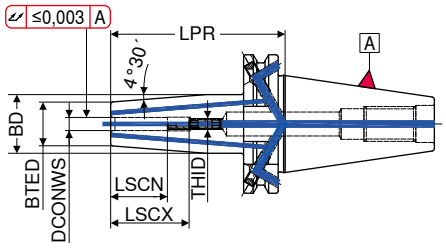
	Adapter	DCONWS	LPR	BTED	BD	LSCX	LSCN	THID	Article no. 84 300 ...	Article no. 84 300 ...
		mm	mm	mm	mm	mm	mm			
short	SK 30	3	80	10	17	22	12	M6		003
	SK 30	4	80	15	22	26	16	M6		004
	SK 30	5	80	15	22	30	20	M6		005
	SK 30	6	80	21	27	36	26	M5		006
	SK 30	8	80	21	27	36	26	M6		008
	SK 30	10	80	24	32	41	31	M8x1		010
	SK 30	12	80	24	32	47	37	M10x1		012
	SK 30	14	80	27	34	47	37	M10x1		014
	SK 30	16	80	27	34	50	40	M12x1		016
	SK 30	18	80	33	42	50	40	M12x1		018
	SK 30	20	80	33	42	52	42	M16x1		020
	SK 40	3	80	10	17	22	12	M6	103	
	SK 40	4	80	15	22	26	16	M6	104	
	SK 40	5	80	15	22	30	20	M6	105	
	SK 40	6	80	21	27	36	26	M5	106	
	SK 40	8	80	21	27	26	26	M6	108	
	SK 40	10	80	24	32	41	31	M8x1	110	
	SK 40	12	80	24	32	47	37	M10x1	112	
	SK 40	14	80	27	34	47	37	M10x1	114	
	SK 40	16	80	27	34	50	40	M12x1	116	
	SK 40	18	80	33	42	50	40	M12x1	118	
	SK 40	20	80	33	42	52	42	M16x1	120	
	SK 40	25	100	44	53	58	48	M16x1	125	
long	SK 40	3	120	10	20	12	12		203	
	SK 40	4	120	15	22	16	16		204	
	SK 40	5	120	15	22	20	20		205	
	SK 40	6	120	21	27	36	26	M5	206	
	SK 40	8	120	21	27	36	26	M6	208	
	SK 40	10	120	24	32	41	31	M8x1	210	
	SK 40	12	120	24	32	47	37	M10x1	212	
	SK 40	14	120	27	34	47	37	M10x1	214	
	SK 40	16	120	27	34	50	40	M12x1	216	
	SK 40	18	120	33	42	50	40	M12x1	218	
	SK 40	20	120	33	42	52	42	M16x1	220	
	SK 40	25	120	44	53	58	48	M16x1	225	
extra-long	SK 40	3	160	10	20	12	12		303	
	SK 40	4	160	15	22	16	16		304	
	SK 40	5	160	15	22	20	20		305	
	SK 40	6	160	21	27	36	26	M5	306	
	SK 40	8	160	21	27	36	26	M6	308	
	SK 40	10	160	24	32	41	31	M8x1	310	
	SK 40	12	160	24	32	47	37	M10x1	312	
	SK 40	14	160	27	34	47	37	M10x1	314	
	SK 40	16	160	27	34	50	40	M12x1	316	
	SK 40	18	160	33	42	50	40	M12x1	318	
	SK 40	20	160	33	42	52	42	M16x1	320	
	SK 40	25	160	44	53	58	48	M16x1	325	

→ Min. clamping depth, Page 233

Shrink fit adapters 4.5°

▲ For solid carbide and HSS shanks with h6 tolerance or better

TG







AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	NEW Article no. 84 317 ...
short	SK 40	3	80	10	17	28	12	M6	103
	SK 40	4	80	15	22	28	16	M6	104
	SK 40	5	80	15	22	30	20	M6	105
	SK 40	6	80	21	27	36	26	M5	106
	SK 40	8	80	21	27	36	26	M6	108
	SK 40	10	80	24	32	41	31	M8x1	110
	SK 40	12	80	24	32	47	37	M10x1	112
	SK 40	14	80	27	34	47	37	M10x1	114
	SK 40	16	80	27	34	50	40	M12x1	116
	SK 40	18	80	33	42	50	40	M12x1	118
	SK 40	20	80	33	42	52	42	M16x1	120
	SK 40	25	100	44	53	58	48	M16x1	125
	SK 40	32	100	44	53	62	52	M16x1	132

→ Min. clamping depth, Page 233

LSCX = maximum insertion depth
LSCN = minimum insertion depth



Stop screw IK



Stop screw IK



Sealing screw

Spare parts DCONWS		Article no. 83 950 ...		Article no. 83 950 ...		Article no. 83 950 ...
3 - 5	M6x14 - SW2	417			M2x6	512
6			M5x12,5 - SW2,5	418	M2x6	512
8			M6x12,5 - SW3	419	M2x6	512
10			M8x1x13,5 - SW3	420	M2x6	512
12 - 14			M10x1x13,5 - SW5	421	M2x6	512
16 - 18			M12x1x13,5 - SW5	422	M2x6	512
20 - 25			M16x1x13,5 - SW8	424	M2x6	512
32	M16x1 - SW5	511			M2x6	512

Accessories



Shrink fit extension
→ 17|10



Pull studs
→ 48–49



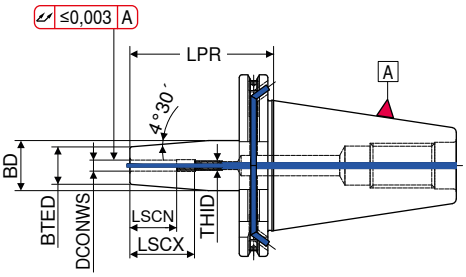
Others
→ 17|34

16

Shrink fit adapters 4.5°

▲ For solid carbide and HSS shanks to h6 tolerance or better

TG







AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BTED	BD	LSCX	LSCN	THID	Article no. 84 301 ...
		mm	mm	mm	mm	mm	mm		
short	SK 50	6	80	21	27	36	26	M5	106
	SK 50	8	80	21	27	36	26	M6	108
	SK 50	10	80	24	32	41	31	M8x1	110
	SK 50	12	80	24	32	47	37	M10x1	112
	SK 50	14	80	27	34	47	37	M10x1	114
	SK 50	16	80	27	34	50	40	M12x1	116
	SK 50	18	80	33	42	50	40	M12x1	118
	SK 50	20	80	33	42	52	42	M16x1	120
	SK 50	25	100	44	53	58	48	M16x1	125
	SK 50	32	100	44	53	62	52	M16x1	132
long	SK 50	6	120	21	27	36	26	M5	206
	SK 50	8	120	21	27	36	26	M6	208
	SK 50	10	120	24	32	41	31	M8x1	210
	SK 50	12	120	24	32	47	37	M10x1	212
	SK 50	14	120	27	34	47	37	M10x1	214
	SK 50	16	120	27	34	50	40	M12x1	216
	SK 50	18	120	33	42	50	40	M12x1	218
	SK 50	20	120	33	42	52	42	M16x1	220
	SK 50	25	120	44	53	58	48	M16x1	225
	SK 50	32	120	44	53	62	52	M16x1	232
extra-long	SK 50	6	160	21	27	36	26	M5	306
	SK 50	8	160	21	27	36	26	M6	308
	SK 50	10	160	24	32	41	31	M8x1	310
	SK 50	12	160	24	32	47	37	M10x1	312
	SK 50	14	160	27	34	47	37	M10x1	314
	SK 50	16	160	27	34	50	40	M12x1	316
	SK 50	18	160	33	42	50	40	M12x1	318
	SK 50	20	160	33	42	52	42	M16x1	320
	SK 50	25	160	44	53	58	48	M16x1	325
	SK 50	32	160	44	53	62	52	M16x1	332

→ Min. clamping depth, Page 233



Stop screw IK

Spare parts DCONWS	Article no. 83 950 ...
6	M5x12,5 - SW2,5 418
8	M6x12,5 - SW3 419
10	M8x1x13,5 - SW3 420
12 - 14	M10x1x13,5 - SW5 421
16 - 18	M12x1x13,5 - SW5 422
20 - 32	M16x1x13,5 - SW8 424

Accessories



Shrink fit extension
→ 17|10



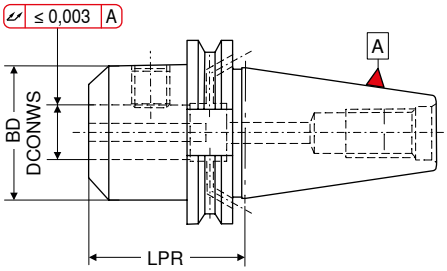
Pull studs
→ 48–49



Others
→ 17|34

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat





	Adapter	DCONWS $_{H4}$	LPR	BD	AD G 6,3 n_{max} 8000	AD G 6,3 n_{max} 8000	AD G 2,5 n_{max} 18000	ADe G 6,3 n_{max} 8000
		mm	mm	mm	**Article no. 81 402 ...**	**Article no. 82 402 ...**	**Article no. 82 401 ...**	**Article no. 82 403 ...**
short	SK 30	6	50	25	**006**			
	SK 30	8	50	28	**008**			
	SK 30	10	50	35	**010**			
	SK 30	12	50	42	**012**			
	SK 30	14	63	44	**014**			
	SK 30	16	63	48	**016**			
	SK 30	18	63	50	**018**			
	SK 30	20	70	52	**020**			
extra short	SK 40	16	35	48		**416**	**416**	**416**
	SK 40	20	35	50		**420**	**420**	**420**
	SK 40	25	40	50		**425**	**425**	**425**
	SK 40	32	75	72		**432**		**432**

SK 50 adapters and other lengths can be found on the next 2 pages


Grubscrew


Grubscrew

Spare parts DCONWS $_{H4}$		**Article no. 83 950 ...**		**Article no. 62 950 ...**
6			M6x10	**006**
8			M8x10	**008**
10			M10x12	**010**
12			M12x16	**012**
14			M12x16	**012**
16			M14x16	**016**
18			M14x16	**016**
20			M16x16	**020**
25	M16x10	**275**		
32	M14x10	**259**		

Accessories

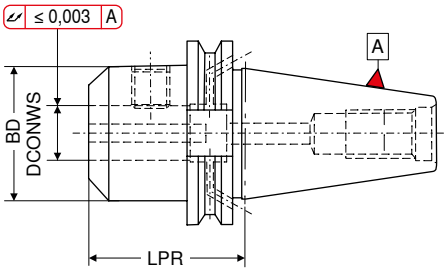

Pull studs
→ 48–49


Others
→ 17|34

16

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat



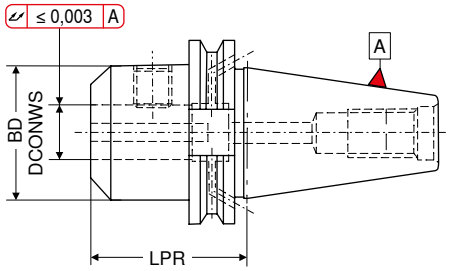


	Adapter	DCONWS $_{H4}$	LPR	BD	AD/B G 6,3 n_{max} 8000	AD/B G 2,5 n_{max} 18000	AD/Be G 6,3 n_{max} 8000	AD/Be G 6,3 n_{max} 8000	AD/Be G 2,5 n_{max} 18000
		mm	mm	mm	**Article no. 82 402 ...**	**Article no. 82 401 ...**	**Article no. 81 403 ...**	**Article no. 82 403 ...**	**Article no. 82 404 ...**
short	SK 40	6	50	25	**106**	**106**		**106**	**106**
	SK 40	8	50	28	**108**	**108**		**108**	**108**
	SK 40	10	50	35	**110**	**110**		**110**	**110**
	SK 40	12	50	42	**112**	**112**		**112**	**112**
	SK 40	14	50	44	**114**	**114**		**114**	**114**
	SK 40	16	63	48	**116**	**116**		**116**	**116**
	SK 40	18	63	50	**118**	**118**		**118**	**118**
	SK 40	20	63	52	**120**	**120**		**120**	**120**
	SK 40	25	100	65	**125**	**125**		**125**	**125**
	SK 40	32	100	72	**132**	**132**		**132**	
	SK 40	40	120	90	**140**				
	SK 50	6	63	25	**306**	**306**		**306**	
	SK 50	8	63	28	**308**	**308**		**308**	
	SK 50	10	63	35	**310**	**310**		**310**	
	SK 50	12	63	42	**312**	**312**		**312**	
	SK 50	14	63	44	**314**	**314**		**314**	
	SK 50	16	63	48	**316**	**316**		**316**	
	SK 50	18	63	50	**318**	**318**		**318**	
	SK 50	20	63	52	**320**	**320**		**320**	
	SK 50	25	80	65	**325**	**325**		**325**	
	SK 50	32	100	72	**332**	**332**		**332**	
	SK 50	40	120	90	**340**				
long	SK 40	6	100	25	**506**	**506**	**506**		
	SK 40	8	100	28	**508**	**508**	**508**		
	SK 40	10	100	35	**510**	**510**	**510**		
	SK 40	12	100	42	**512**	**512**	**512**		
	SK 40	14	100	44	**514**	**514**	**514**		
	SK 40	16	100	48	**516**	**516**	**516**		
	SK 40	18	100	50	**518**	**518**	**518**		
	SK 40	20	100	52	**520**	**520**	**520**		
	SK 40	40	120	80			**540**		
	SK 50	6	100	25	**706**				
	SK 50	8	100	28	**708**				
	SK 50	10	100	35	**710**				
	SK 50	12	100	42	**712**				
	SK 50	14	100	44	**714**				
	SK 50	16	100	48	**716**				
	SK 50	18	100	50	**718**				
	SK 50	20	100	52	**720**				
	SK 50	25	100	65	**725**				

Spare parts and accessories on → **page 23**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat



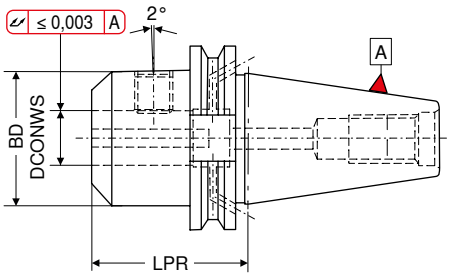


	Adapter	DCONWS $_{H4}$	LPR	BD	AD/B G 6,3 n_{max} 8000	AD/B G 2,5 n_{max} 18000	AD/Be G 6,3 n_{max} 8000	AD/Be G 2,5 n_{max} 18000
		mm	mm	mm	Article no. 82 402 ...	Article no. 82 401 ...	Article no. 82 403 ...	Article no. 82 404 ...
medium length	SK 40	6	130	25	206	206		206
	SK 40	8	130	28	208	208		208
	SK 40	10	130	35	210	210		210
	SK 40	12	130	42	212	212		212
	SK 40	14	130	44	214	214		214
	SK 40	16	130	48	216	216		216
	SK 40	18	130	50	218	218		218
	SK 40	20	130	52	220	220		220
	SK 50	6	130	25	906		906	
	SK 50	8	130	28	908		908	
	SK 50	10	130	35	910		910	
	SK 50	12	130	42	912		912	
	SK 50	14	130	44	914		914	
	SK 50	16	130	48	916		916	
	SK 50	18	130	50	918		918	
	SK 50	20	130	52	920		920	
	SK 50	25	130	65	925		925	
extra-long	SK 40	6	160	25	606	606		
	SK 40	8	160	28	608	608		
	SK 40	10	160	35	610	610		
	SK 40	12	160	42	612	612		
	SK 40	14	160	44	614	614		
	SK 40	16	160	48	616	616		
	SK 40	18	160	50	618	618		
	SK 40	20	160	52	620	620		
	SK 40	25	160	65	625	625		
	SK 50	6	160	25	806			
	SK 50	8	160	28	808			
	SK 50	10	160	35	810			
	SK 50	12	160	42	812			
	SK 50	14	160	44	814			
	SK 50	16	160	48	816			
	SK 50	18	160	50	818			
	SK 50	20	160	52	820			
	SK 50	25	160	65	825			
	SK 50	32	160	72	832			

Spare parts and accessories on → **page 23**

Cylindrical Shank Adapter (Whistle Notch)

- For shanks according to DIN 6535 HE / 1835 E with angled clamping flat
- The groove in the flat face is a characteristic feature of the Whistle Notch version







AD/B
G 6,3 n_{max} 8000



AD/B
G 2,5 n_{max} 18000

	Adapter	DCONWS $_{H4}$	LPR	BD	Article no. 82 406 ...	Article no. 82 407 ...
		mm	mm	mm		
short	SK 40	6	50	25	106	106
	SK 40	8	50	28	108	108
	SK 40	10	50	35	110	110
	SK 40	12	50	42	112	112
	SK 40	14	50	44	114	114
	SK 40	16	63	48	116	116
	SK 40	18	63	50	118	118
	SK 40	20	63	52	120	120
	SK 40	25	100	65	125	
	SK 40	32	100	72	132	
	SK 50	6	63	25	306	
	SK 50	8	63	28	308	
	SK 50	10	63	35	310	
	SK 50	12	63	42	312	
	SK 50	14	63	44	314	
	SK 50	16	63	48	316	
	SK 50	18	63	50	318	
	SK 50	20	63	52	320	
	SK 50	25	80	65	325	
	SK 50	32	100	72	332	
medium length	SK 40	6	130	25	206	206
	SK 40	8	130	28	208	208
	SK 40	10	130	35	210	210
	SK 40	12	130	42	212	212
	SK 40	16	130	48	216	216
	SK 40	20	130	52	220	220
	SK 40	25	130	65	225	225
	SK 50	6	130	25	406	
	SK 50	8	130	28	408	
	SK 50	10	130	35	410	
	SK 50	12	130	42	412	
	SK 50	16	130	48	416	
	SK 50	20	130	52	420	
	SK 50	25	130	65	425	
	SK 50	32	130	72	432	

Spare parts cylindrical shank adapters (Whistle Notch)



Grubscrew



Stop screw IK

Spare parts DCONWS H4		Article no. 62 950 ...		Article no. 83 950 ...
6	M6x10	006	M5x35	033
8	M8x10	008	M6x35	034
10	M10x12	010	M8x35	035
12 - 14	M12x16	012	M10x35	036
16 - 18	M14x16	016	M12x40	037
20	M16x16	020	M16x45	272
25	M18x2x20	025	M20x35	290
32	M20x2x20	032	M20x35	290

Accessories



Pull studs

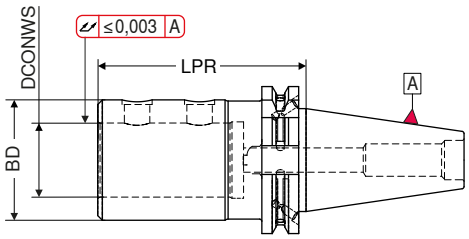
→ 48–49



Others

→ 17|34

Indexable insert drill adapter DIN 69871 SK







AD/B
G 6,3 n_{max} 15000

Adapter	DCONWS	LPR	BD	Article no. 10 840 ...
	mm	mm	mm	
SK 40	20	80	40	**120**
SK 40	25	85	45	**125**
SK 40	32	90	52	**132**
SK 50	20	80	40	**220**
SK 50	25	85	45	**225**
SK 50	32	90	52	**232**
SK 50	40	90	65	**240**
SK 50	50	100	75	**250**

Suitable eccentric sleeves can be found in → **Chapter 3, Indexable insert drilling.**



Grubscrew

Spare parts DCONWS		Article no. 10 950 ...
20	M10x1x10	**001**
25 - 32	M12x1x10	**002**
40 - 50	M16x1x12	**003**

Accessories



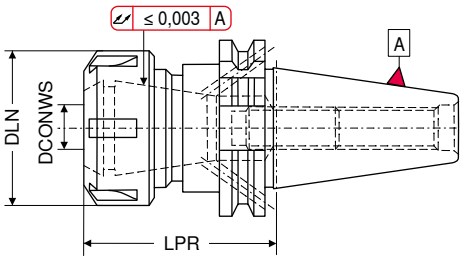
Pull studs
→ 48–49



Others
→ 17|34

ER Collet chuck

Scope of supply:
Holder with lock nut and adjustable back stop






AD
G 6,3 n_{max} 12000


AD/B
G 6,3 n_{max} 12000


AD/B
G 6,3 n_{max} 8000


AD/B
G 2,5 n_{max} 18000

	Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	Article no. 81 414 ...	Article no. 81 414 ...	Article no. 82 414 ...	Article no. 82 415 ...
short	SK 30	1 - 10	70	28	8 - 56	426E (ER16)	010			
	SK 30	1 - 16	70	42	24 - 104	430E (ER25)	016			
	SK 30	2 - 20	70	50	24 - 136	470E (ER32)	020			
	SK 40	1 - 10	60	32	8 - 56	426E (ER16)			110	110
	SK 40	1 - 16	70	42	24 - 104	430E (ER25)			116	116
	SK 40	2 - 20	70	50	24 - 136	470E (ER32)			120	120
	SK 40	3 - 26	70	63	176	472E (ER40)			126	126
	SK 50	1 - 10	60	32	8 - 56	426E (ER16)			310	
	SK 50	1 - 16	70	42	24 - 104	430E (ER25)			316	
	SK 50	2 - 20	70	50	24 - 136	470E (ER32)			320	
	SK 50	3 - 26	70	63	176	472E (ER40)			326	
long	SK 30	1 - 10	100	28	8 - 56	426E (ER16)	210			
	SK 30	1 - 16	100	42	24 - 104	430E (ER25)	216			
	SK 30	2 - 20	100	50	24 - 136	470E (ER32)	220			
	SK 40	1 - 10	120	32	8 - 56	426E (ER16)			410	410
	SK 40	1 - 16	120	42	24 - 104	430E (ER25)			416	416
	SK 40	2 - 20	120	50	24 - 136	470E (ER32)			420	420
	SK 40	3 - 26	100	63	176	472E (ER40)		426		
	SK 50	1 - 10	100	32	8 - 56	426E (ER16)			510	
	SK 50	1 - 16	100	42	24 - 104	430E (ER25)			516	
	SK 50	2 - 20	100	50	24 - 136	470E (ER32)			520	
	SK 50	3 - 26	100	63	176	472E (ER40)			526	
extra-long	SK 40	1 - 10	160	28	8 - 56	426E (ER16)		610		
	SK 40	2 - 16	160	42	24 - 104	430E (ER25)		616		
	SK 40	2 - 20	160	50	24 - 136	470E (ER32)		620		
	SK 40	3 - 26	160	63	176	472E (ER40)		626		
	SK 50	1 - 16	160	42	24 - 104	430E (ER25)			616	
	SK 50	2 - 20	160	50	24 - 136	470E (ER32)			620	


Lock nut


Lock nut IK


Lock nut


Y clamping key


Stop screw IK


Stop screw IK

Spare parts for collet	Article no. 62 950 ...	Article no. 83 950 ...	Article no. 62 950 ...	Article no. 83 357 ...	Article no. 81 950 ...	Article no. 83 950 ...
426E (ER16) / SK30-SK50	044		054	116	053	
430E (ER25) / SK30		055	055	125	054	
430E (ER25) / SK40, SK50		055	055	125	055	010
470E (ER32) / SK30		056	056	132	053	
470E (ER32) / SK40, SK50		056	056	132	057	010
472E (ER40) / SK40, SK50		057	057	140	054	011

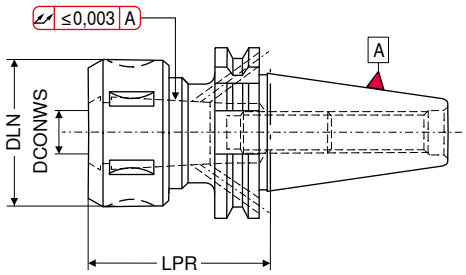
Backstop screws 81 950 ... and nut 62 950 044 only for use with article 81 414 ...!

16

OZ Collet Chuck

▲ Clamping nut with ball bearings

Scope of supply:
Holder with lock nut and adjustable back stop





	Adapter	DCONWS	LPR	DLN	TQX	for collet	AD G 6,3 n_{max} 12000 Article no. 81 410 ...	AD/B G 6,3 n_{max} 12000 Article no. 81 410 ...	AD/B G 6,3 n_{max} 8000 Article no. 82 410 ...	AD/B G 2,5 n_{max} 18000 Article no. 82 411 ...
		mm	mm	mm	Nm					
short	SK 30	2 - 16	60	43	24 - 104	415E / 421E	016			
	SK 30	2 - 25	80	60	24 - 176	459E / 462E	025			
	SK 40	2 - 16	70	43	80 - 90	415E / 421E			116	116
	SK 40	2 - 25	70	60	90 - 100	459E / 462E			125	125
	SK 50	2 - 16	70	43	80 - 90	415E / 421E			225	
	SK 50	2 - 25	70	60	90 - 100	459E / 462E			232	
	SK 50	4 - 32	70	72	110 - 120	460E / 467E			240	
long	SK 40	2 - 16	120	43	80 - 90	415E / 421E			416	416
	SK 40	2 - 25	120	60	90 - 100	459E / 462E			425	425
	SK 40	4 - 32	100	72	227	460E / 467E		432		
	SK 50	2 - 16	100	43	80 - 90	415E / 421E			525	
	SK 50	2 - 25	100	60	90 - 100	459E / 462E			532	


Lock nut

Hook clamping key


Stop screw IK


Stop screw IK

Spare parts		Article no. 62 950 ...	Article no. 83 354 ...		Article no. 81 950 ...		Article no. 83 950 ...
for collet							
415E / 421E	M33x1,5	050	116	M16x15	055	M10x50	010
459E / 462E	M48x2	051	125	M16x15	055	M10x50	010
460E / 467E	M60x2,5	052	132	M16x15	055	M12x50	011

Spare part 81 950 ... only use for article 81 410 ...!

Accessories


OZ Collet → 218


Pull studs → 48–49


Others → 17|34

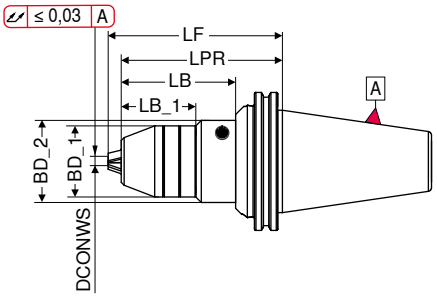
Short drill chuck

- ▲ Independent of direction of rotation
- ▲ Torque Moment = 12 Nm

Scope of supply:

Toolholder including clamping key SW4

NC 2010





	A G 6,3 n_{max} 10000	AD G 6,3 n_{max} 10000	AD/B G 6,3 n_{max} 10000
Adapter	**Article no. 84 418 ...**	**Article no. 84 419 ...**	**Article no. 84 420 ...**

Adapter	DCONWS	LPR	BD_1	BD_2	LB_1	LB	LF			
	mm	mm	mm	mm	mm	mm	mm			
SK 30	0,5 - 10	80	43,0			59,9	89,0	**313**		
SK 40	0,5 - 13	80	48,5			60,8	89,0	**413**	**413**	
SK 40	0,5 - 13	80	48,5		50,9		89,0			**413**
SK 40	2,5 - 16	80	51,0			60,0	90,5		**416**	
SK 40	2,5 - 16	80	51,0			60,8	90,5	**416**		
SK 40	2,5 - 16	80	51,0		50,9		90,5			**416**
SK 50	0,5 - 13	110	48,5	56	50,9	78,0	119,0		**513**	
SK 50	0,5 - 13	110	48,5	56	50,9	78,1	119,0	**513**		
SK 50	2,5 - 16	110	51,0	56	50,9	78,0	120,5		**516**	
SK 50	2,5 - 16	110	56,0		50,9	78,0	120,5	**516**		

Can be used at G 2.5 to 30,000 1/min after additional balancing !

Accessories



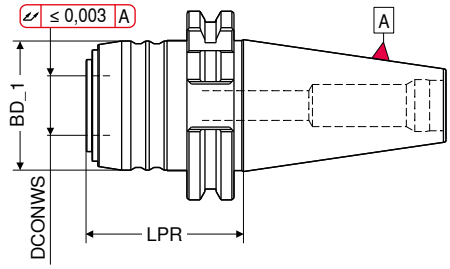

Pull studs → 48–49

Others → 17|34

Synchro tapping chuck with minimum length compensation

- For collet
- With length compensation under tension and compression (LZD)
- For synchro use
- $p_{max.}$ = 50 bar

Scope of supply:
Without insert







AD

Adapter	cutting range	SZID	LPR	BD_1	DCONWS	LZD±	Article no. 83 416 ...
			mm	mm	mm	mm	
SK 40	M3 - M12	1	53	43	20	1,0 / 0,2	**012**
SK 40	M6 - M20	2	90	60	32	1,0 / 0,2	**020**
SK 50	M3 - M12	1	53	43	20	1,0 / 0,2	**112**
SK 50	M6 - M20	2	74	60	32	1,0 / 0,2	**120**

Accessories



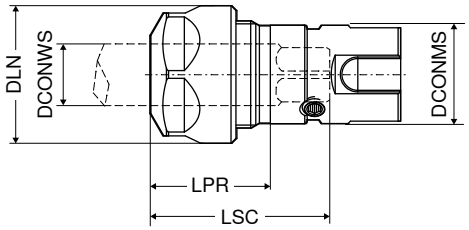
Pull studs
→ 48–49



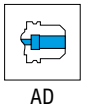
Others
→ 17|34

Insert for synchro quick change tapping chuck with minimum length compensation

Scope of supply:
Includes lock nut







AD

SZID	DCONWS	cutting range	LPR	DLN	LSC	for collet	DCONMS	Article no. 83 608 ...
	mm		mm	mm	mm		mm	
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	**012**
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	**020**

Spare parts for synchronous tapping chucks

		 Lock nut		 Lock nut IK		 Lock nut		 Y clamping key
Spare parts		**Article no. 62 950 ...**		**Article no. 83 950 ...**		**Article no. 62 950 ...**		**Article no. 83 357 ...**
for Article no.								
83 608 012	M22x1,5 - SW25	**044**	M22x1,5	**054**				**116**
83 608 020			M32x1,5	**055**	M32x1,5	**055**		**125**

Accessories

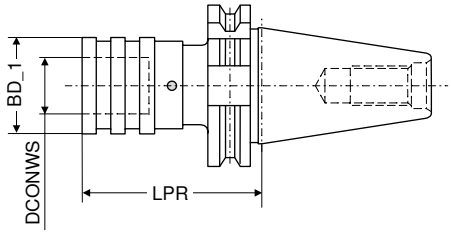


ER collet

→ 212, 214–215

Quick change tap chuck with length compensation

▲ With length compensation under tension and compression (LZD)



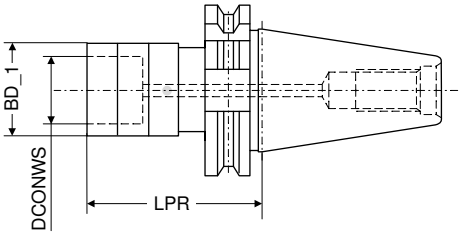




A

Adapter	cutting range	SZID	LPR	BD_1	DCONWS	LZD±	Article no. 83 428 ...
			mm	mm	mm	mm	
SK 30	M3 - M12	01	60	38	19	9	**312**
SK 30	M6 - M20	02	101	55	31	15	**320**
SK 40	M3 - M12	01	60	38	19	9	**412**
SK 40	M6 - M20	02	100	55	31	15	**420**
SK 50	M3 - M12	01	62	38	19	9	**512**
SK 50	M6 - M20	02	83	55	31	15	**520**

Quick change tap chuck without length compensation







AD

Adapter	cutting range	SZID	LPR	BD_1	DCONWS	Article no. 83 423 ...
			mm	mm	mm	
SK 30	M3 - M12	01	59	33	19	**312**
SK 30	M6 - M20	02	80	50	31	**320**
SK 40	M3 - M12	01	59	33	19	**412**
SK 40	M6 - M20	02	86	50	31	**420**
SK 50	M3 - M12	01	75	33	19	**512**
SK 50	M6 - M20	02	98	50	31	**520**

Accessories



Collet
→ 219–223



Pull studs
→ 48–49

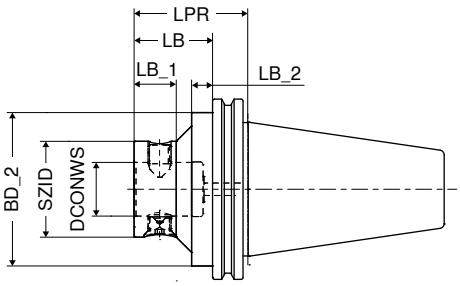


Others
→ 17|34

Adapter with ABS Connection

Scope of supply:
Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc

ABS







AD/B
G 6,3 n_{max} 8000

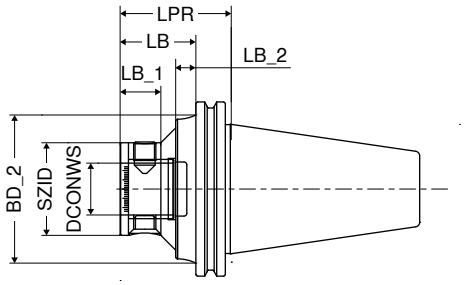
Adapter	KOMET no.	SZID	DCONWS	LPR	LB	LB_1	LB_2	BD_2	NEW Article no. 84 201 ...
			mm	mm	mm	mm	mm	mm	
SK 40	A5055150	ABS 50	28	50	30,0				**04097**
SK 50	A5055350	ABS 50	28	60	40,9	22	10,9	80	**05097**

Eccentric adjuster with ABS Connection

▲ Adjustment ± 0.25 mm on diameter

Scope of supply:
Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc

ABS







AD/B

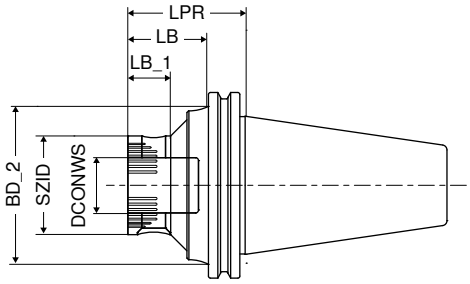
Adapter	KOMET no.	SZID	DCONWS	LPR	LB	LB_1	LB_2	BD_2	NEW Article no. 84 204 ...
			mm	mm	mm	mm	mm	mm	
SK 40	A5056150	ABS 50	28	50	30,0				**04097**
SK 50	A5056350	ABS 50	28	60	40,9	22	10,9	80	**05097**

16

Torsional vibration dampers with ABS Connection

Scope of supply:
Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc

ABS





AD/B

Adapter	KOMET no.	SZID	DCONWS	LPR	LB	BD_2	LB_1	NEW Article no. 84 207 ...
			mm	mm	mm	mm	mm	
SK 40	A5001351	ABS 50	28	50	30,0			**04097**
SK 50	A5001451	ABS 50	28	60	40,9	80	22	**05097**

Spare parts SZID	 Clamping screw Article no. 84 950 ...	 Taper screw Article no. 84 950 ...	 Set Article no. 84 950 ...
ABS 50	**20300**	**20400**	**99800**

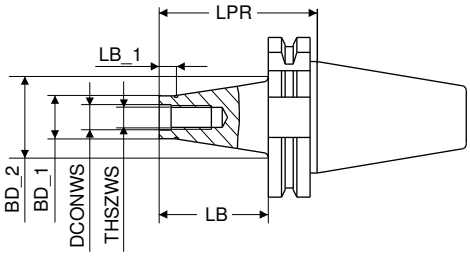
Accessories


Pull studs
→ 48–49


Extension
→ 17|27


Others
→ 17|34

Adapter for milling cutters with threaded end





Adapter	THSZWS	DCONWS	LB	BD_1	BD_2	LB_1	LPR	AD G 16 n_{max} 8000	AD G 6,3 n_{max} 18000	AD G 2,5 n_{max} 30000
		mm	mm	mm	mm	mm	mm	Article no. 56 707 ...	Article no. 56 705 ...	Article no. 56 703 ...
SK 30	M8	8,5	25	13,8	18,0	12	44			**081**
SK 30	M8	8,5	50	13,8	23,0	12	69			**082**
SK 30	M10	10,5	25	18,0	23,0	12	44			**101**
SK 30	M10	10,5	50	18,0	25,0	12	69			**102**
SK 30	M12	12,5	25	21,0	24,0	12	44			**121**
SK 30	M12	12,5	50	21,0	30,0	12	69			**122**
SK 30	M16	17,0	25	29,0	30,5	12	44			**161**
SK 30	M16	17,0	50	29,0	34,0	12	69			**162**
SK 40	M8	8,5	25	13,8	15,0	12	44		**081**	
SK 40	M8	8,5	50	13,8	23,0	12	69		**082**	
SK 40	M8	8,5	75	13,8	25,0	12	94		**083**	
SK 40	M10	10,5	25	18,0	23,0	12	44		**101**	
SK 40	M10	10,5	50	18,0	25,0	12	69		**102**	
SK 40	M10	10,5	75	18,0	30,0	12	94		**103**	
SK 40	M10	10,5	100	18,0	35,0	12	119		**104**	
SK 40	M12	12,5	25	21,0	24,0	12	44		**121**	
SK 40	M12	12,5	50	21,0	30,0	12	69		**122**	
SK 40	M12	12,5	75	21,0	35,0	12	94		**123**	
SK 40	M12	12,5	100	21,0	38,0	12	119		**124**	
SK 40	M16	17,0	25	29,0	29,0	12	44		**161**	
SK 40	M16	17,0	50	29,0	34,0	12	69		**162**	
SK 40	M16	17,0	75	29,0	35,0	12	94		**163**	
SK 40	M16	17,0	100	29,0	40,0	12	119		**164**	
SK 40	M16	17,0	125	29,0	44,0	12	144		**165**	
SK 40	M16	17,0	150	29,0	48,0	12	169		**166**	
SK 40	M16	17,0	200	29,0	50,0	12	219		**167**	
SK 50	M12	12,5	50	21,0	30,0	12	69	**122**		
SK 50	M12	12,5	100	21,0	38,0	12	119	**124**		
SK 50	M12	12,5	150	21,0	52,0	12	169	**126**		
SK 50	M16	17,0	50	29,0	34,0	12	69	**162**		
SK 50	M16	17,0	100	29,0	40,0	12	119	**164**		
SK 50	M16	17,0	150	29,0	48,0	12	169	**166**		
SK 50	M16	17,0	200	29,0	58,0	12	219	**167**		
SK 50	M16	17,0	250	29,0	62,0	12	269	**168**		

Accessories

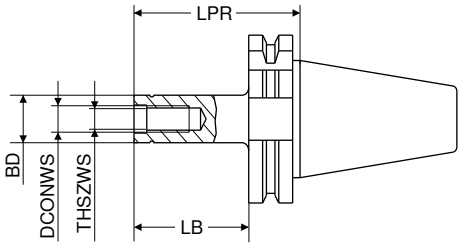




Extension-Reduction set	Pull studs	Others
→ 17|19	→ 48–49	→ 17|34

16

Adapter for milling cutters with threaded end







AD
G 6,3 n_{max} 18000

Adapter	THSZWS	DCONWS	LB	BD	LPR	Article no. 56 709 ...
		mm	mm	mm	mm	
SK 40	M8	8,5	50	13,8	69	**082**
SK 40	M10	10,5	50	18,0	69	**102**
SK 40	M10	10,5	75	18,0	94	**103**
SK 40	M10	10,5	100	18,0	119	**104**
SK 40	M12	12,5	50	21,0	69	**122**
SK 40	M12	12,5	75	21,0	94	**123**
SK 40	M12	12,5	100	21,0	119	**124**
SK 40	M16	17,0	50	29,0	69	**162**
SK 40	M16	17,0	75	29,0	94	**163**
SK 40	M16	17,0	100	29,0	119	**164**

Accessories


Extension-Reduction set
→ 17|19

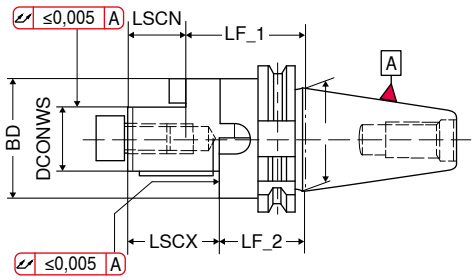

Pull studs
→ 48–49


Others
→ 17|34

Combination shell mill adapter

▲ For milling cutters with transverse or longitudinal groove according to DIN 6358

Scope of supply:
Toolholder with retaining screw, driving ring and dowel spring






A
G 6,3 n_{max} 8000


A
G 6,3 n_{max} 8000

	Adapter	DCONWS	LF_1	BD	LSCX	LSCN	LF_2	Article no. 81 429 ...	Article no. 82 429 ...
		mm	mm	mm	mm	mm	mm		
short	SK 30	16	50	32	27	17	40	016 [1]	
	SK 30	22	50	40	31	19	38	022 [1]	
	SK 30	27	55	48	33	21	43	027 [1]	
	SK 30	32	60	58	38	24	46	032 [1]	
	SK 40	16	55	32	27	17	45		116
	SK 40	22	55	40	31	19	43		122
	SK 40	27	55	48	33	21	43		127
	SK 40	32	60	58	38	24	46		132
	SK 40	40	60	70	41	27	46		140 [1]
	SK 50	16	55	32	27	17	45		316
	SK 50	22	55	40	31	19	43		322
	SK 50	27	55	48	33	21	43		327
	SK 50	32	55	58	38	24	41		332
	SK 50	40	55	70	41	27	41		340 [1]
	SK 50	50	70	90	46	30	54		350 [1]
long	SK 40	16	100	32	27	17	90	216	
	SK 40	22	100	40	31	19	88	222	
	SK 40	27	100	48	33	21	88	227	
	SK 40	32	100	58	38	24	86	232	
	SK 40	40	100	70	41	27	86	240	

1) With cross screw


Parallel key


Drive ring


Cross nut key


Retaining screw


Retaining screw


Clamping screw

Spare parts DCONWS	Parallel key Article no. 83 950 ...	Drive ring Article no. 83 370 ...	Cross nut key Article no. 83 368 ...	Retaining screw Article no. 83 367 ...	Retaining screw Article no. 81 950 ...	Clamping screw Article no. 83 950 ...
16	284	116	116	016	020	113
22	285	122	122	022	021	124
27	286	127	127	027	022	125
32	287	132	132	032	023	126
40	288	140	140	040		112
50	289	150	150	050		

Spare part 81 950 ... only use for article 81 429 ...!

Accessories


Pull studs
→ 48–49


Milling Adapter Rings
→ 17|28

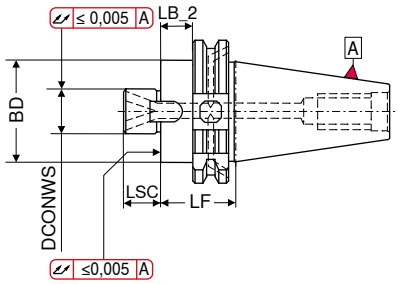

Others
→ 17|34

16

Shell mill adapter

▲ Screwed drive dogs

Scope of supply:
Toolholder with retaining screw






A
G 6,3 n_{max} 8000


AD/B
G 6,3 n_{max} 8000

	Adapter	DCONWS	LB_2	LF	BD	LSC	Article no. 81 428 ...	Article no. 82 428 ...
		mm	mm	mm	mm	mm		
short	SK 30	16	21	40	38	17	016 [2]	
	SK 30	22	21	40	43	19	022 [2]	
	SK 30	27	21	40	43	21	027 [2]	
	SK 30	32	31	50	78	24	032 [2]	
	SK 40	16	25	44	38	17		116
	SK 40	22	25	44	48	19		122
	SK 40	27	36	55	58	21		127
	SK 40	32	31	50	78	24		132
	SK 40	40	31	50	88	27		140 [1]
	SK 50	16	25	44	38	17		316
	SK 50	22	25	44	48	19		322
	SK 50	27	25	44	58	21		327
	SK 50	32	21	40	78	24		332
	SK 50	40	31	50	88	27		340 [1]
long	SK 40	16	81	100	38	17		416
	SK 40	22	81	100	48	19		422
	SK 40	27	81	100	58	21		427
	SK 40	32	81	100	78	24		432
	SK 40	40	81	100	88	27		440 [1]
	SK 50	16	81	100	38	17		616
	SK 50	22	81	100	48	19		622
	SK 50	27	81	100	58	21		627
	SK 50	32	81	100	78	24		632
	SK 50	40	81	100	88	27		640 [1]
medium length	SK 40	16	111	130	38	17		816
	SK 40	22	111	130	48	19		822
	SK 40	27	111	130	58	21		827
	SK 40	32	111	130	78	24		832
	SK 40	40	111	130	88	27		840 [1]
	SK 50	16	111	130	38	17		916
	SK 50	22	111	130	48	19		922
	SK 50	27	111	130	58	21		927
	SK 50	32	111	130	78	24		932
	SK 50	40	111	130	88	27		940
extra-long	SK 40	16	141	160	38	17		516
	SK 40	22	141	160	48	19		522
	SK 40	27	141	160	58	21		527
	SK 40	32	141	160	78	24		532
	SK 40	40	141	160	88	27		540 [1]
	SK 50	16	141	160	38	17		716
	SK 50	22	141	160	48	19		722
	SK 50	27	141	160	58	21		727
	SK 50	32	141	160	78	24		732
	SK 50	40	141	160	88	27		740 [1]

1) With cross screw and 4 holes M12, Pitch Circle diameter = 66.7 mm, coolant outlet on the outer diameter of the spigot (DCONWS)!
2) With cross screw

Spare parts facemill adapters


Driver


Cross nut key


Retaining screw


Clamping screw

Spare parts DCONWS		Article no. 83 950 ...	Article no. 83 368 ...		Article no. 83 367 ...		Article no. 83 950 ...
16	8x9x17,5	120	116	M8	016	M8x25	113
22	10x11x20,5	121	122	M10	022	M10x25	124
27	12x13x24,3	122	127	M12	027	M12x30	125
32	14x21x21,2	123	132	M16	032	M16x35	126
40	15,9x16,3x19,5	295	140	M20	040	M20x40	112


Drive dogs


Drive screw


Screw for drivers

DCONWS		Article no. 81 950 ...		Article no. 81 950 ...		Article no. 83 950 ...
16	8x8x14	001	M3x8	010	M3x8	296
22	10x10x17	002	M4x8	011	M4x12	297
27	12x14x20	003	M4x14	012	M5x12	136
32	14x14x22	004	M5x13	013	M5x20	137
40					M6x16	138

Spare part 81 950 ... only use for article 81 428 ...!

Accessories


Pull studs
→ 48–49

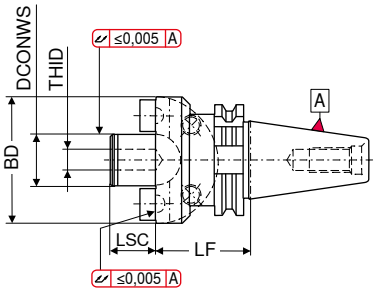

Extensions
→ 17|26


Others
→ 17|34

Large diameter facemill adapter

▲ For milling cutters with keyway or drive slot DIN 6357

Scope of supply:
Holder with integrated drive dogs according to DIN 2079 and 4 fixation screws







A
G 6,3 n_{max} 8000

Adapter	DCONWS	LF	BD	LSC	THID	Article no. 82 432 ...
	mm	mm	mm	mm		
SK 40	40	60	89	30	M20	**040**
SK 50	40	70	89	30	M20	**240**
SK 50	60	70	129	40	M30	**260**


Screw for drivers


Driver


Socket head screw


Clamping screw

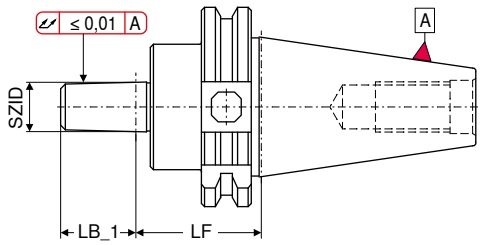
Spare parts DCONWS		Article no. 83 950 ...		Article no. 83 950 ...		Article no. 70 950 ...		Article no. 83 950 ...
40	M6x16	**138**	15,9x16,3x19,5	**295**			M12x50	**140**
60			25,4x16,3x26,5	**298**	M12x30	**181**	M16x45	**160**

Accessories


Pull studs
→ 48–49


Others
→ 17|34

Drill chuck adapter







A
G 6,3 n_{max} 8000

Adapter	SZID	LF	LB_1	Article no. 82 423 ...
		mm	mm	
SK 40	B12	40	18,5	**112**
SK 40	B16	40	24,0	**116**
SK 50	B16	40	24,0	**316**
SK 50	B18	40	32,0	**318**



Drill chuck



Drill chuck

Spare parts SZID	Article no. 83 636 ...		Article no. 83 636 ...	
B12	0 - 8 mm	**012**	0 - 10 mm	**112**
B16	1 - 13 mm	**016**	3 - 16 mm	**116**
B18			3 - 16 mm	**018**

Accessories



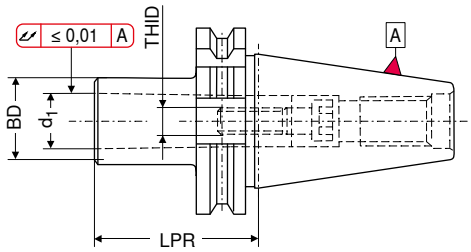
Pull studs
→ 48–49



Others
→ 17|34

Milling sleeve adapters DIN 6364 for DIN 228-2C Morse taper shanks with thread

Scope of supply:
Holder with retaining screw







A
G 6,3 n_{max} 8000

	Adapter	d_1	LPR mm	BD mm	THID	Article no. 82 446 ...
short	SK 40	MK1	50	25	M6	110
	SK 40	MK2	50	32	M10	120
	SK 40	MK3	70	40	M12	130
	SK 40	MK4	95	48	M16	140
	SK 50	MK1	45	25	M6	310
	SK 50	MK2	60	32	M10	320
	SK 50	MK3	65	40	M12	330
	SK 50	MK4	95	48	M16	340
	SK 50	MK5	120	63	M20	350

Disassembly instructions can be found in → **Chapter 17, Accessories.**


Morse taper clamping screw


Counterscrew


Hollow key with nose


Fixing ring

Spare parts for Article no.		Article no. 83 950 ...		Article no. 83 950 ...		Article no. 83 359 ...		Article no. 83 950 ...
82 446 110	M6x30	260	M5x6	030	16 x 32	013	M16x8x6,5	265
82 446 120	M10x30	261	M5x8	031	16 x 32	013	M16x8x10,5	267
82 446 130	M12x35	018	M5x6	030	17 x 117	017	M20x1,5x10x13	269
82 446 140	M16x40	019	M5x8	031	23 x 145	023	M26x1,5x17	270
82 446 310	M6x30	260	M5x8	031	20 x 135	020	M24x10x6,5	266
82 446 320	M10x30	017	M5x8	031	20 x 135	020	M24x10x10,5	268
82 446 330	M10x30	017	M5x8	031	17 x 117	017	M20x1,5x10x13	269
82 446 340	M16x40	019	M5x8	031	23 x 145	023	M26x1,5x17	270
82 446 350	M20x50	262	M5x8	031	33 x 175	033	M36x1,5x21	271

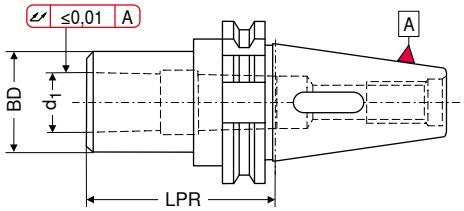
Accessories


Morse taper adapter sleeve
→ 17|4


Pull studs
→ 48–49


Others
→ 17|34

Taper sleeve DIN6383 for DIN 228-2D Morse taper shanks






AD
G 6,3 n_{max} 8000


AD
G 6,3 n_{max} 8000

	Adapter	d_1	LPR	BD	Article no. 81 439 ...	Article no. 82 439 ...
			mm	mm		
short	SK 30	MK1	50	25	010	
	SK 30	MK2	65	32	020	
	SK 30	MK3	80	40	030	
	SK 40	MK1	50	25		110
	SK 40	MK2	50	32		120
	SK 40	MK3	70	40		130
	SK 40	MK4	95	48		140
	SK 50	MK1	50	25		310
	SK 50	MK2	60	32		320
	SK 50	MK3	65	40		330
	SK 50	MK4	95	48		340
	SK 50	MK5	105	63		350
long	SK 40	MK2	117	32	220	
	SK 40	MK3	133	40	230	
	SK 40	MK4	156	48	240	

Accessories


Morse taper adapter sleeve
→ 17|4


Pull studs
→ 48–49

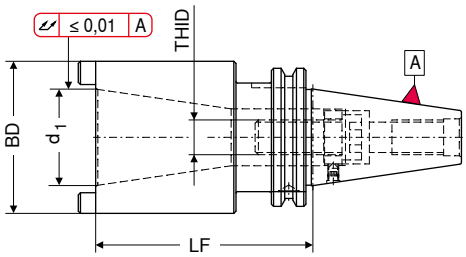

Others
→ 17|34

16

Milling adapter sleeve

- For mounting tool holders according to DIN 2080
- With an extended retaining screw also tool holders according to DIN 69871, MAS-BT and ANSI-CAT can be clamped

Scope of supply:
Holder with clamping screw for DIN 2080 adapters






A
G 6,3 n_{max} 8000


A
G 6,3 n_{max} 8000

Adapter	d_1	LF	BD	THID	Article no. 81 453 ...	Article no. 82 453 ...
		mm	mm			
SK 40	SK 30	40	51	M12	**030**	
SK 40	SK 40	100	70	M16		**040**
SK 50	SK 40	80	70	M16		**240**
SK 50	SK 50	120	100	M24		**250**


Clamping screw SK


Clamping Screw


Counterscrew


Counterscrew


Hollow key with nose


Fixing ring


Fixing ring

Spare parts for Article no.	Article no. 83 950 ...	Article no. 81 950 ...	Article no. 81 950 ...	Article no. 83 950 ...	Article no. 83 359 ...	Article no. 81 950 ...	Article no. 83 950 ...
81 453 030	**263**	**160**	**033**		**017**	**170**	
82 453 040	**009**			**030**	**023**		**270**
82 453 240	**264**						
82 453 250	**256**			**031**	**133**		**257**

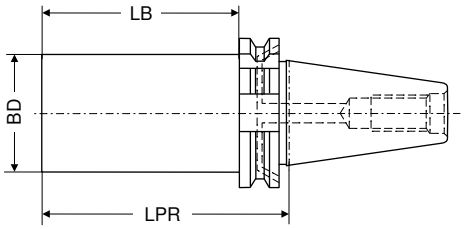
Auxiliary table for finding the required spare parts and accessories for intermediate sleeves for SK-adapters

DIN 69871	Norm of the SK-shank		Clamping screw length				
Suitable for article no.	Ø d_1 DIN 69871	Ø d_1 DIN 2080	THID	Clamping screw SK Article No.	Retaining ring Article No.	Lock screw Article No.	Hollow key Article No.
81 453 030		SK 30	M12 x 35	81 950 160	81 950 170	81 950 033	83 359 017
82 453 040	SK 40		M16 x 70	83 950 264	83 950 270	83 950 030	83 359 023
82 453 040		SK 40	M16 x 40	83 950 009	83 950 270	83 950 030	83 359 023
82 453 240	SK 40		M16 x 70	83 950 264			
82 453 240		SK 40	M16 x 40	83 950 009			
82 453 250	SK 50		M24 x 80	83 950 256	83 950 257	83 950 031	83 359 133
82 453 250		SK 50	M24 x 50	83 950 263	83 950 257	83 950 031	83 359 133

Spare part 81 950 ... only use for article 81 453 ...!

Blank

- Material: Steel 17CrNiMo5
- For production of special tools
- Diameter BD turned with 0.5 mm oversize
- Taper hardened and ground
- Special tool area in soft state







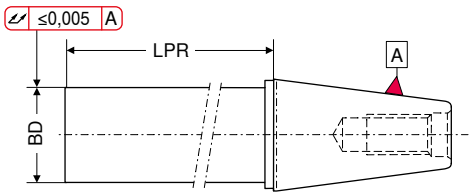
AD/B

Adapter	BD	LPR	LB	Article no. 82 458 ...
	mm	mm	mm	
SK 40	63,0	250	231	**040**
SK 50	63,5	300	281	**050**

Test bar

- Without clamping slots
- MAS BT 40 special pull stud with LF = 32 mm

Scope of supply:
In wooden box





Adapter	BD	LPR	Article no. 82 456 ...
	mm	mm	
SK / BT 40	40	330	**040**
SK / BT 50	50	330	**050**

Accessories





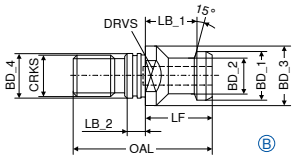
Pull studs	Others
→ 48–49	→ 17|34

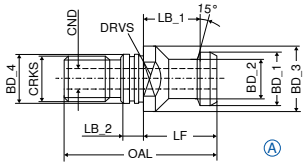
16

Pull studs for tool holders according to DIN 69871

- DIN 69872 form A and B
- For tools with or without axial coolant supply

Scope of supply:
Including O-Ring





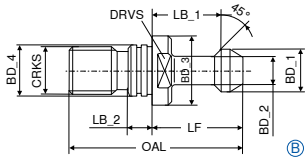


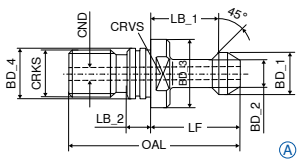
Adapter	BD_1	BD_2	BD_3	BD_4	CRKS	OAL	LF	LB_1	LB_2	CND	DRVS	TQX	form	Article no. 82 468 ...	Article no. 82 475 ...
	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm	Nm			
SK 30	13	9	17	13	M12	44	24	19	5	3,5	14	60	A	**030**	
SK 40	19	14	23	17	M16	54	26	20	7	7,0	19	90	A	**040**	
SK 50	28	21	36	25	M24	74	34	25	10	11,5	30	145	A	**050**	
SK 30	13	9	17	13	M12	44	24	19	5		14	60	B		**030**
SK 40	19	14	23	17	M16	54	26	20	7		19	90	B		**040**
SK 50	28	21	36	25	M24	74	34	25	10		30	145	B		**050**

Pull studs for tool holders according to DIN 69871

- Similar to BT 45°, but 3 mm shorter
- For Haas, Micron and Hurco machines

Scope of supply:
Including O-Ring







Adapter	BD_1	BD_2	BD_3	BD_4	CRKS	OAL	LF	LB_1	LB_2	CND	DRVS	TQX	form	Article no. 83 535 ...	Article no. 83 538 ...
	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm	Nm			
SK 40	15	10	23	17	M16	57	32	25	5	4	19	90	A	**040**	
SK 40	15	10	23	17	M16	57	32	25	5		19	90	B		**040**



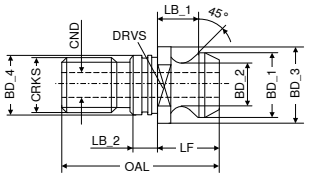
O-Ring

Spare parts BD_4		Article no. 83 476 ...
17	BT / SK 40	**040**
25	BT / SK 50	**050**

Pull studs for tool holders according to DIN 69871

▲ Similar to ISO / DIS 7388 (ANSI-CAT only for SK 40) Form A

Scope of supply:
SK 50 including O-ring
SK 40 without O-ring groove

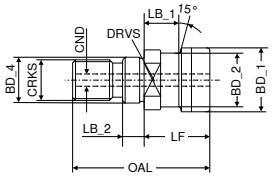




Adapter	BD_1	BD_2	BD_3	BD_4	CRKS	OAL	LF	LB_1	LB_2	CND	DRVS	TQX	Article no. 82 487 ...
	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm	Nm	
SK 40	18,95	12,95	22,5	17	M16	41,26	16,40	11,15	4,0	6,0	19	90	**040**
SK 50	29,10	19,60	37,0	25	M24	65,50	25,55	17,95	5,5	11,5	30	145	**050**

Pull studs for tool holders according to DIN 69871

▲ SK 40 with circlip groove and edge protection, with and without internal thread
▲ SK 50 with circlip groove, with and without internal thread
▲ For tools according to DIN 69871 for conversion to DIN 2080



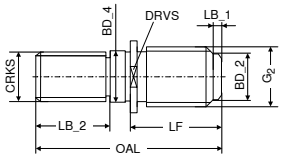


Adapter	BD_1	BD_2	BD_4	CRKS	OAL	LF	LB_1	LB_2	CND	DRVS	TQX	With internal thread Article no. 82 493 ...	Without internal thread Article no. 82 494 ...
	mm	mm	mm		mm	mm	mm	mm	mm	mm	Nm		
SK 40	25,0	21,1	17	M16	53	25	13,6	8	7	19	90	**040**	**040**
SK 50	39,3	32,0	25	M24	65	25	13,3	10		30	145	**050** 1)	**050**

1) With O ring

Pull studs for tool holders according to DIN 69871

▲ DECKEL thread S 20 x 2





Adapter	G_2	CRKS	OAL	LF	LB_1	LB_2	BD_2	BD_4	DRVS	Article no. 83 471 ...
			mm	mm	mm	mm	mm	mm	mm	
SK 40	S 20 x 2	M16	55	33	4	17	16,7	17	22	**040**

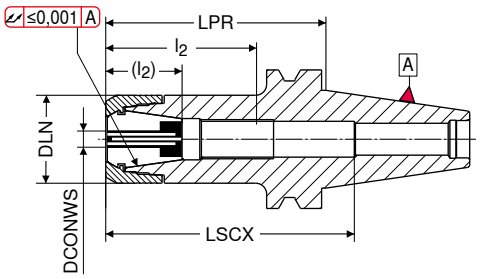
16

ER Precision Collet chuck

- For standard or sealed nuts
- Maximum size collet to ISO tolerance field H10
- For clamping a roll key is required
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P





AD
G 2,5 n_{max} 25000

Adapter	DCONWS	LPR	DLN	LSCX	l_2 (l_2)	for collet	Article no. 84 524 ...
	mm	mm	mm	mm	mm		
BT 30	1 - 10	50	30	73	28 - 44 (16 - 31)	426E (ER16)	**001**
BT 30	1 - 10	75	30	97	28 - 45 (14 - 31)	426E (ER16)	**002**
BT 30	1 - 10	100	30	123	28 - 44 (16 - 31)	426E (ER16)	**003**
BT 30	1 - 10	120	30	112	28 - 45 (14 - 31)	426E (ER16)	**004**
BT 30	2 - 16	60	40	77	35 - 59 (30 - 42)	430E (ER25)	**160**
BT 30	2 - 16	75	40	72	38 - 56 (23 - 39)	430E (ER25)	**161**
BT 30	2 - 16	90	40	87	38 - 56 (23 - 39)	430E (ER25)	**162**
BT 30	2 - 16	120	40	115	38 - 56 (23 - 39)	430E (ER25)	**164**
BT 30	2 - 20	60	50	69	42 - 52	470E (ER32)	**207**
BT 30	2 - 20	75	50	84	42 - 62 (24 - 45)	470E (ER32)	**208**
BT 30	2 - 20	90	50	94	42 - 62 (24 - 45)	470E (ER32)	**209**
BT 40	1 - 10	75	30	90	38 - 53 (29 - 39)	426E (ER16)	**210**
BT 40	1 - 10	90	30	120	30 - 50 (29 - 36)	426E (ER16)	**310**
BT 40	1 - 10	120	30	140	29 - 45 (29 - 35)	426E (ER16)	**410**
BT 40	1 - 10	150	30	180	29 - 45 (29 - 32)	426E (ER16)	**510**
BT 40	1 - 10	200	30	220	29 - 50 (29 - 36)	426E (ER16)	**610**
BT 40	2 - 16	60	40	92	44 - 64 (36 - 46)	430E (ER25)	**116**
BT 40	2 - 16	75	40	100	42 - 59 (36 - 41)	430E (ER25)	**216**
BT 40	2 - 16	90	40	91	42 - 59 (36 - 41)	430E (ER25)	**316**
BT 40	2 - 16	105	40	100	35 - 60 (20 - 42)	430E (ER25)	**168**
BT 40	2 - 16	120	40	91	40 - 65 (36 - 47)	430E (ER25)	**416**
BT 40	2 - 16	150	40	100	40 - 64 (36 - 45)	430E (ER25)	**516**
BT 40	2 - 16	200	40	150	40 - 64 (36 - 45)	430E (ER25)	**616**
BT 40	2 - 20	60	50	55	45 - 64 (42 - 46)	470E (ER32)	**120**
BT 40	2 - 20	75	50	100	42 - 76 (42 - 52)	470E (ER32)	**220**
BT 40	2 - 20	90	50	100	42 - 76 (42 - 52)	470E (ER32)	**320**
BT 40	2 - 20	120	50	110	42 - 71 (42 - 53)	470E (ER32)	**420**
BT 40	2 - 20	150	50	110	42 - 71 (42 - 53)	470E (ER32)	**520**
BT 40	3 - 26	75	63	78	54 - 59	472E (ER40)	**226**
BT 40	3 - 26	105	63	93	55 - 71 (48 - 53)	472E (ER40)	**326**
BT 50	2 - 20	75	50	110	45 - 70 (42 - 53)	470E (ER32)	**720**
BT 50	2 - 20	105	50	140	45 - 63 (42 - 45)	470E (ER32)	**820**
BT 50	2 - 20	165	50	200	45 - 74 (42 - 56)	470E (ER32)	**920**
BT 50	3 - 26	75	63	100	48 - 58	472E (ER40)	**726**
BT 50	3 - 26	105	63	100	48 - 58	472E (ER40)	**826**

→ Transmittable torque moments, Page 233

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets ( ) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 3 mm longer

Spare parts, ER precision collet chuck


Lock nut IK


Lock nut


Stop screw 2


Stop screw 1

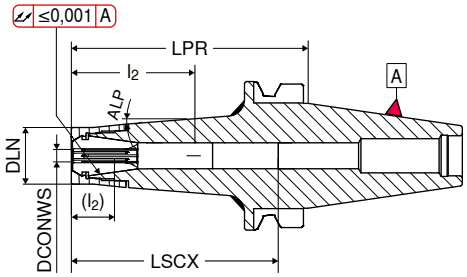
Spare parts	Article no. 84 950 ...		Article no. 84 950 ...		Article no. 83 950 ...		Article no. 83 950 ...	
for collet								
426E (ER16)		011		001	M11x1 - SW6	341	M11x1 - SW6	337
430E (ER25)		013		003	M18x1,5 - SW6	432	M18x1,5 - SW6	431
470E (ER32)		015		005	M22x1,5 - SW6	402	M22x1,5 - SW6	401
472E (ER40)		017		007			M28x1,5 - SW6	400

ER Precision tapered collet chuck

- for special tapered nuts
- Maximum clamping range covered according to ISO tolerance field H10
- Roll key required for clamping
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P






AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	ALP	Article no. 84 517 ...
BT 40	1 - 10	100	24	72	28 - 48 (20 - 35)	426E (ER16)	4,5°	**410**
BT 40	1 - 10	160	24	180	28 - 48 (20 - 35)	426E (ER16)	4,5°	**510**

→ Transmittable torque moments, page 233

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets ( ) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer


Tapered lock nut IK


Tapered lock nut


Stop screw 2


Stop screw 1

Spare parts	Article no. 84 950 ...		Article no. 84 950 ...		Article no. 83 950 ...		Article no. 83 950 ...	
for collet								
426E (ER16)		033		031	M11x1 - SW6	341	M11x1 - SW6	337

Accessories


ER collet
→ 208–211, 213


Sealing ring
→ 207


roll key
→ 17|36


roll key device
→ 17|36


Pull studs
→ 91–92

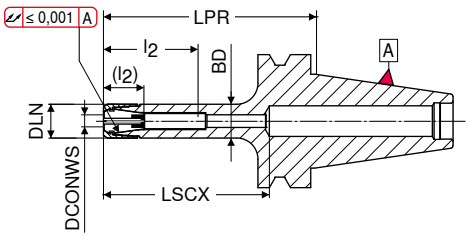

Others
→ 17|34

ER Precision collet chuck, slim version

- For Mini Clamping Nuts
- Maximum clamping range covered according to ISO tolerance field H10
- Roll key required for clamping
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P





Adapter	DCONWS mm	LPR mm	DLN mm	BD mm	LSCX mm	l_2 (l_2) mm	for collet	AD/B G 2,5 n_{max} 25000 Article no. 84 508 ...	AD G 2,5 n_{max} 25000 Article no. 84 507 ...
BT 30	1 - 7	50	16	16	68	18 - 32 (12 - 22)	4008E (ER11)		**007**
BT 30	1 - 7	100	16	16	68	18 - 36 (12 - 26)	4008E (ER11)		**008**
BT 40	1 - 7	75	16	16	100	15 - 30 (8 - 21)	4008E (ER11)	**307**	
BT 40	1 - 7	90	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	**40600**	
BT 40	1 - 7	120	16	16	140	15 - 30 (8 - 21)	4008E (ER11)	**507**	
BT 40	1 - 7	150	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	**90600**	
BT 40	1 - 10	75	22	22	100	27 - 49 (16 - 32)	426E (ER16)	**216**	
BT 40	1 - 10	90	22	22	115	27 - 49 (16 - 32)	426E (ER16)	**316**	
BT 40	1 - 10	120	22	22	145	27 - 49 (16 - 32)	426E (ER16)	**416**	
BT 40	1 - 10	150	22	22	175	27 - 49 (16 - 32)	426E (ER16)	**516**	

→ Transmittable torque moments, Page 233

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets ( ) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer


Mini lock nut IK


Mini lock nut


Stop screw 2


Stop screw 1

Spare parts for collet	Article no. 84 950 ...	Article no. 84 950 ...	Article no. 83 950 ...		Article no. 83 950 ...	
4008E (ER11)		**041**	M8x1 - SW4	**340**	M8x1 - SW4	**336**
426E (ER16)	**035**	**034**	M11x1 - SW6	**341**	M11x1 - SW6	**337**

Accessories


ER collet
→ 208–211, 213


Sealing ring
→ 207


Device
→ 17|35


Roll key
→ 17|36


Roll key device
→ 17|36


Pull studs
→ 91–92

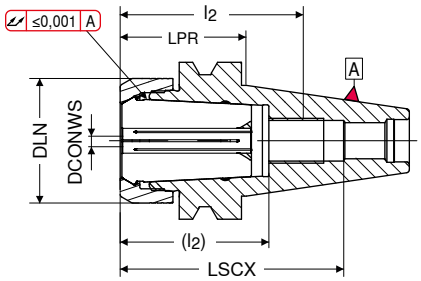

Others
→ 17|34

OZ Precision Collet Chuck

- Maximum clamping range covered according to ISO tolerance field H10
- Roll key required for clamping
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P







AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS	LPR	DLN	LSCX	l_2 (l_2)	for collet	Article no. 84 513 ...
	mm	mm	mm	mm	mm		
BT 40	2 - 25	51	50	89	70 (56)	462E	**225**

→ Transmittable torque moments, Page 233

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets ( ) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer


Lock nut IK


Stop screw 2


Stop screw 1

Spare parts	Article no. 84 950 ...		Article no. 83 950 ...		Article no. 83 950 ...	
for collet						
462E	**020**	M22x1,5 - SW6	**402**	M22x1,5 - SW6	**401**	

Accessories


OZ Collet → 217


Sealing ring → 217


Roll key → 17|36


Roll key device → 17|36

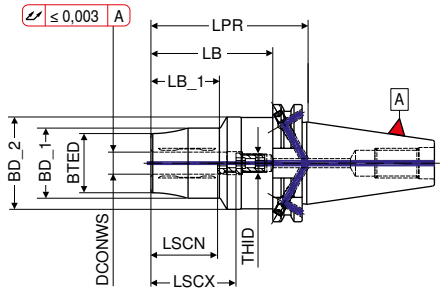

Pull studs → 91–92


Others → 17|34

16

High pressure chuck, short version

Scope of supply:
Base body with backstop screw and pressure screw







AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BTED	BD_1	BD_2	LB_1	LSCX	LSCN	LB	THID	Article no. 83 526 ...
		mm	mm	mm	mm	mm	mm	mm	mm	mm		
Short	BT 40	16	95	36	42	50	42	49	39	71	M12x1	116
	BT 40	20	100	42	48	50	45	51	41	76	M16x1	120
	BT 40	25	110	51	57	50	60	57	47	91	M16x1	125
	BT 40	32	120	57	63	50	65	61	51	101	M16x1	132

→ Min. clamping depth, Page 233

LSCX = Maximum insertion depth
LSCN = Minimum insertion depth


Pressure pin


Pressure screw


Stop screw IK

Spare parts for Article no.		Article no. 83 950 ...		Article no. 83 950 ...		Article no. 83 950 ...
83 526 116	Ø5 x 16	433	M10x1x14	429	M12x1x18	446
83 526 120	Ø6 x 16	434	M10x1x12	159	M16x1x18,5	448
83 526 125	Ø6 x 16	434	M10x1x12	159	M16x1x22	449
83 526 132	Ø6 x 16	434	M10x1x14	429	M16x1x25	450


Cylindrical screw


Clamping key – T

Spare parts for Article no.		Article no. 83 950 ...		Article no. 80 397 ...
83 526 116	M5x5 - SW2,5	157	SW5	050
83 526 120	M5x5 - SW2,5	157	SW5	050
83 526 125	M5x5 - SW2,5	157	SW5	050
83 526 132	M5x5 - SW2,5	157	SW5	050

Accessories


Reduction sleeve
→ 17|32

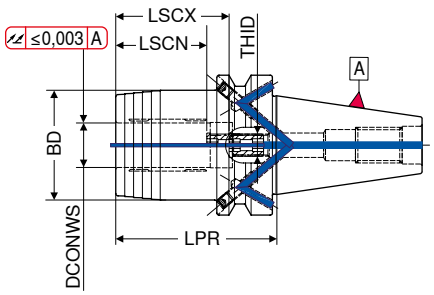

Pull studs
→ 48–49


Others
→ 17|34

High pressure chuck, short and stable version

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:
Base body with backstop screw and pressure screw







AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS	LPR	BD	LSCX	LSCN	THID	Article no. 83 513 ...
	mm	mm	mm	mm	mm		
BT 40	20	72,5	49	51	40	M16x1x13,5	**120**

→ Min. clamping depth, Page 233

LSCX = Maximum insertion depth
LSCN = Minimum insertion depth

Cylindrical screw


Clamping key– T


Pressure screw


Stop screw IK

Spare parts		Article no. 83 950 ...		Article no. 80 397 ...		Article no. 83 950 ...		Article no. 83 950 ...
for Article no.								
83 513 120	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x14	**429**	M16x1x13,5 - SW8	**424**

Accessories


Reduction sleeve
→ 17|32


Pull studs
→ 91–92

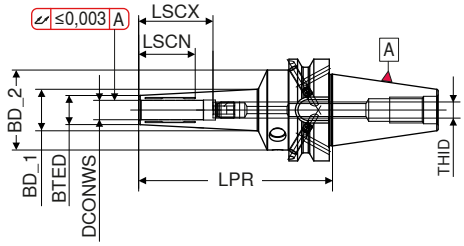

Others
→ 17|34

High pressure chuck, slim 3°

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:

Base body with backstop screw, pressure screw and screw plug







AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BTED	BD_1	BD_2	LSCX	LSCN	THID	Article no. 83 522 ...
		mm	mm	mm	mm	mm	mm	mm		
long	BT40	3	120	9	16,55	49,5	28	12	M3	103
	BT40	4	120	10	17,55	49,5	28	16	M3	104
	BT40	5	120	11	18,55	49,5	28	20	M3	105
	BT40	6	120	12	19,55	49,5	37	27	M5	106
	BT40	8	120	14	21,55	49,5	37	27	M6	108
	BT40	10	120	16	23,65	49,5	41	31	M8x1	110
	BT40	12	120	18	25,76	49,5	46	36	M10x1	112
	BT40	16	120	24	31,45	49,5	49	39	M12x1	116
	BT40	20	120	28	35,55	49,5	51	41	M16x1	120
	BT40	6	160	16	33,53	49,5	37	27	M5	206
	BT40	8	160	18	34,60	49,5	37	27	M6	208
	BT40	10	160	20	36,27	49,5	41	31	M8x1	210
	BT40	12	160	22	37,88	49,5	46	36	M10x1	212
	BT40	6	200	16	37,88	49,5	37	27	M5	306
	BT40	8	200	18	38,90	49,5	37	27	M6	308
	BT40	10	200	20	40,57	49,5	41	31	M8x1	310
	BT40	12	200	22	42,18	49,5	46	36	M10x1	312

→ Min. clamping depth, Page 233

LSCX = Maximum insertion depth
LSCN = Minimum insertion depth


Cylindrical screw


Clamping key – T


Pressure screw


Stop screw IK

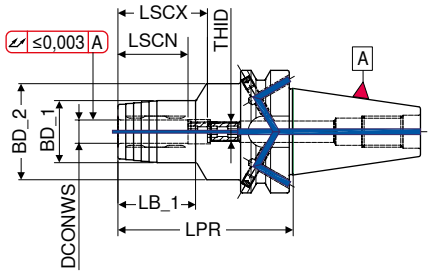
Spare parts for Article no.		Article no. 83 950 ...		Article no. 80 397 ...		Article no. 83 950 ...		Article no. 83 950 ...
83 522 103	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M3x20 - SW1,5	172
83 522 104	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M3x20 - SW1,5	172
83 522 105	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M3x20 - SW1,5	172
83 522 106	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M5x12,5 - SW2,5	418
83 522 108	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M6x12,5 - SW3	419
83 522 110	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M8x1x13,5 - SW3	420
83 522 112	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M10x1x13,5 - SW5	421
83 522 116	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M12x1x13,5 - SW5	422
83 522 120	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M16x1x13,5 - SW8	424
83 522 206	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M5x12,5 - SW2,5	418
83 522 208	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M6x12,5 - SW3	419
83 522 210	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M8x1x13,5 - SW3	420
83 522 212	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M10x1x13,5 - SW5	421
83 522 306	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M5x12,5 - SW2,5	418
83 522 308	M5x5 - SW2,5	157	SW5	050	M10x1x10	158	M6x12,5 - SW3	419
83 522 310	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M8x1x13,5 - SW3	420
83 522 312	M5x5 - SW2,5	157	SW5	050	M10x1x12	159	M10x1x13,5 - SW5	421

Hydraulic chuck MAS BT, short and slim version

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:

Base body with backstop screw and pressure screw







AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS	LPR	BD_1	BD_2	LSCX	LSCN	LB_1	THID	Article no. 83 521 ...
	mm	mm	mm	mm	mm	mm	mm		
BT 40	6	90	26	49,5	37	27	29	M5	**106**
BT 40	8	90	28	49,5	37	27	30	M6	**108**
BT 40	10	90	30	49,5	41	31	35	M8x1	**110**
BT 40	12	90	32	49,5	46	36	40	M10x1	**112**
BT 40	16	90	38	49,5	49	39	45	M12x1	**116**
BT 40	20	90	42	49,5	51	41	47	M16x1	**120**
BT 40	25	90	55	52,0	57	47	50	M16x1	**125**
BT 40	32	90	63	62,0	61	51	48	M16x1	**132**
BT 50	6	90	26	49,5	37	27	29	M5	**306**
BT 50	8	90	28	49,5	37	27	30	M6	**308**
BT 50	10	90	30	49,5	41	31	34	M8x1	**310**
BT 50	12	90	32	49,5	46	36	34	M10x1	**312**
BT 50	16	90	38	49,5	49	39	35	M12x1	**316**
BT 50	20	90	42	49,5	51	41	35	M16x1	**320**
BT 50	25	110	55	63,0	57	47	48	M16x1	**325**
BT 50	32	110	63	70,0	61	51	50	M16x1	**332**

→ Min. clamping depth, Page 233


Pressure screw


Stop screw IK


Stop screw IK

Spare parts DCONWS		Article no. 83 950 ...		Article no. 83 950 ...		Article no. 83 950 ...
6	M8x1x10	**439**			M5x12,5 - SW2,5	**418**
8	M8x1x10	**439**	M6x14 - SW2	**417**	M6x12,5 - SW3	**419**
10	M10x1x12	**440**			M8x1x13,5 - SW3	**420**
12	M10x1x12	**440**			M10x1x13,5 - SW5	**421**
16	M10x1x12	**440**			M12x1x13,5 - SW5	**422**
20 - 32	M10x1x12	**440**			M16x1x13,5 - SW8	**424**

Accessories


Reduction sleeve
→ 17|32

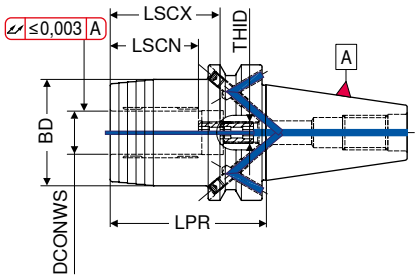

Pull studs
→ 91–92


Others
→ 17|34

Hydraulic chuck MAS BT, short and stable version

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:
Base body with backstop screw and pressure screw







AD/B
G 2,5 n_{max} 25000

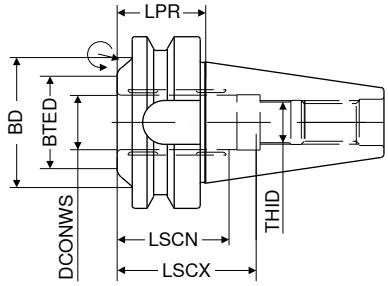
Adapter	DCONWS	LPR	BD	LSCX	LSCN	THID	Article no. 83 518 ...
	mm	mm	mm	mm	mm		
BT 40	20	72,5	49,5	51	41	M16x1	120
BT 50	32	90,0	72,0	61	51	M16x1	332

→ Min. clamping depth, Page 233

Hydraulic chuck, extra short

▲ For solid carbide and HSS shanks to h6 tolerance or better

Scope of supply:
Base body with backstop screw and pressure screw







AD
G 2,5 n_{max} 25000

Adapter	DCONWS	LPR	BTED	BD	LSCX	LSCN	THID	Article no. 83 523 ...
	mm	mm	mm	mm	mm	mm		
BT 40	20	32,5	34	48	51	41	M16x1	120

→ Min. clamping depth, Page 233



Pressure screw



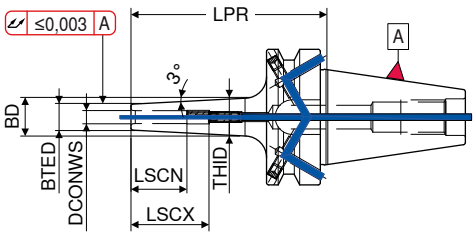
Stop screw IK

Spare parts DCONWS	Pressure screw Article no. 83 950 ...		Stop screw IK Article no. 83 950 ...	
20 - 32	M10x1x12	440	M16x1x13,5 - SW8	424

Shrink adapter, Slim 3°

▲ For solid carbide and HSS shanks to h6 tolerance or better

TG







AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	Article no. 84 323 ...
short	BT 40	3	90	9	15	28	12	M6	103
	BT 40	4	90	10	16	28	16	M6	104
	BT 40	5	90	11	17	30	20	M6	105
	BT 40	6	90	12	18	36	26	M5	106
	BT 40	8	90	14	20	36	26	M6	108
	BT 40	10	90	16	22	41	31	M8x1	110
	BT 40	12	90	18	24	47	37	M10x1	112
	BT 40	14	90	20	26	47	37	M10x1	114
	BT 40	16	90	22	28	50	40	M12x1	116
	BT 40	18	90	24	30	50	40	M12x1	118
	BT 40	20	90	26	32	52	42	M16x1	120
long	BT 40	3	120	9	16	12	12		203
	BT 40	4	120	10	17	16	16		204
	BT 40	5	120	11	18	20	20		205
	BT 40	6	120	12	21	36	26	M5	206
	BT 40	8	120	14	23	36	26	M6	208
	BT 40	10	120	16	25	41	31	M8x1	210
	BT 40	12	120	18	27	47	37	M10x1	212
	BT 40	14	120	20	29	47	37	M10x1	214
	BT 40	16	120	22	31	50	40	M12x1	216
	BT 40	18	120	24	33	50	40	M12x1	218
	BT 40	20	120	26	35	52	42	M16x1	220
extra-long	BT 40	3	160	9	19	12	12		303
	BT 40	4	160	10	20	16	16		304
	BT 40	5	160	11	21	20	20		305
	BT 40	6	160	12	24	36	26	M5	306
	BT 40	8	160	14	26	36	26	M6	308
	BT 40	10	160	16	28	41	31	M8x1	310
	BT 40	12	160	18	30	47	37	M10x1	312
	BT 40	14	160	20	32	47	37	M10x1	314
	BT 40	16	160	22	34	50	40	M12x1	316
	BT 40	18	160	24	36	50	40	M12x1	318
	BT 40	20	160	26	38	52	42	M16x1	320

→ Min. clamping depth, Page 233



Stop screw IK



Stop screw IK

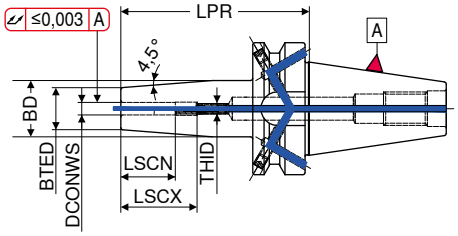
Spare parts DCONWS	Article no. 83 950 ...		Article no. 83 950 ...	
3 - 5	M6x14 - SW2	417		
6			M5x12,5 - SW2,5	418
8			M6x12,5 - SW3	419
10			M8x1x13,5 - SW3	420
12 - 14			M10x1x13,5 - SW5	421
16 - 18			M12x1x13,5 - SW5	422
20			M16x1x13,5 - SW8	424

16

Shrink fit adapters 4.5°

▲ For solid carbide and HSS shanks to h6 tolerance or better

TG







AD/B
G 2,5 n_{max} 25000



AD
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BTED	BD	LSCX	LSCN	THID	Article no. 84 303 ...	Article no. 84 303 ...
		mm	mm	mm	mm	mm	mm			
Short	BT 30	3	85	10	17	28	12	M6		003
	BT 30	4	85	15	22	28	16	M6		004
	BT 30	5	85	15	22	30	20	M6		005
	BT 30	6	85	21	27	36	26	M5		006
	BT 30	8	85	21	27	36	26	M6		008
	BT 30	10	85	24	32	41	31	M8x1		010
	BT 30	12	85	24	32	47	37	M10x1		012
	BT 30	14	85	27	34	47	37	M10x1		014
	BT 30	16	85	27	34	50	40	M12x1		016
	BT 30	18	85	33	42	50	40	M12x1		018
	BT 30	20	85	33	42	52	42	M16x1		020
	BT 40	3	90	10	17	28	12	M6	103	
	BT 40	4	90	15	22	28	16	M6	104	
	BT 40	5	90	15	22	30	20	M6	105	
	BT 40	6	90	21	27	36	26	M5	106	
	BT 40	8	90	21	27	36	26	M6	108	
	BT 40	10	90	24	32	41	31	M8x1	110	
	BT 40	12	90	24	32	47	37	M10x1	112	
	BT 40	14	90	27	34	47	37	M10x1	114	
	BT 40	16	90	27	34	50	40	M12x1	116	
	BT 40	18	90	33	42	50	40	M12x1	118	
	BT 40	20	90	33	42	52	42	M16x1	120	
	BT 40	25	100	44	53	58	48	M16x1	125	
Long	BT 40	3	120	10	20	12	12		203	
	BT 40	4	120	15	22	16	16		204	
	BT 40	5	120	15	22	20	20		205	
	BT 40	6	120	21	27	36	26	M5	206	
	BT 40	8	120	21	27	36	26	M6	208	
	BT 40	10	120	24	32	41	31	M8x1	210	
	BT 40	12	120	24	32	47	37	M10x1	212	
	BT 40	14	120	27	34	47	37	M10x1	214	
	BT 40	16	120	27	34	50	40	M12x1	216	
	BT 40	18	120	33	42	50	40	M12x1	218	
	BT 40	20	120	33	42	52	42	M16x1	220	
	BT 40	25	120	44	53	58	48	M16x1	225	
Extra-long	BT 40	3	160	10	20	12	12		303	
	BT 40	4	160	15	22	16	16		304	
	BT 40	5	160	15	22	20	20		305	
	BT 40	6	160	21	27	36	26	M5	306	
	BT 40	8	160	21	27	36	26	M6	308	
	BT 40	10	160	24	32	41	31	M8x1	310	
	BT 40	12	160	24	32	47	37	M10x1	312	
	BT 40	14	160	27	34	47	37	M10x1	314	
	BT 40	16	160	27	34	50	40	M12x1	316	
	BT 40	18	160	33	42	50	40	M12x1	318	
	BT 40	20	160	33	42	52	42	M16x1	320	
	BT 40	25	160	44	53	58	48	M16x1	325	

→ Min. clamping depth, Page 233



Stop screw IK

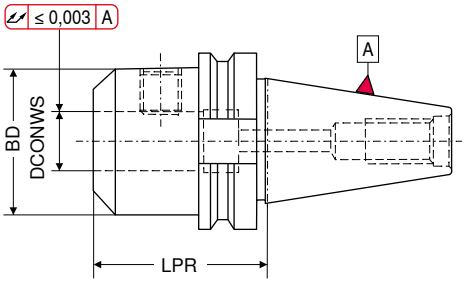


Stop screw IK

Spare parts DCONWS		Article no. 83 950 ...		Article no. 83 950 ...
3 - 5	M6x14 - SW2	417		
6			M5x12,5 - SW2,5	418
8			M6x12,5 - SW3	419
10			M8x1x13,5 - SW3	420
12 - 14			M10x1x13,5 - SW5	421
16 - 18			M12x1x13,5 - SW5	422
20 - 25			M16x1x13,5 - SW8	424

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat





	Adapter	DCONWS $_{H4}$	LPR	BD	AD G 6,3 n_{max} 8000	AD G 6,3 n_{max} 8000	AD G 2,5 n_{max} 18000	ADe G 6,3 n_{max} 8000
		mm	mm	mm	**Article no. 81 502 ...**	**Article no. 82 502 ...**	**Article no. 82 501 ...**	**Article no. 82 503 ...**
short	BT 30	6	50	25	**006**			
	BT 30	8	50	28	**008**			
	BT 30	10	50	35	**010**			
	BT 30	12	50	42	**012**			
	BT 30	14	50	44	**014**			
	BT 30	16	63	48	**016**			
	BT 30	18	63	50	**018**			
	BT 30	20	63	52	**020**			
extra short	BT 40	16	35	48		**416**	**416**	**416**
	BT 40	20	35	50		**420**	**420**	**420**
	BT 40	25	40	50		**425**	**425**	**425**
	BT 40	32	75	72		**432**		**432**



Grubscrew

Spare parts DCONWS $_{H4}$		**Article no. 62 950 ...**
6	M6x10	**006**
8	M8x10	**008**
10	M10x12	**010**
12 - 14	M12x16	**012**
16 - 18	M14x16	**016**
20	M16x16	**020**
25	M18x2x20	**025**
32	M20x2x20	**032**

Accessories



Pull studs
→ 91–92

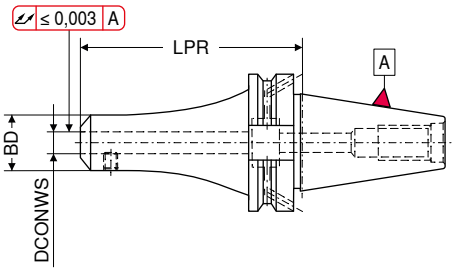


Others
→ 17|34

16

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat

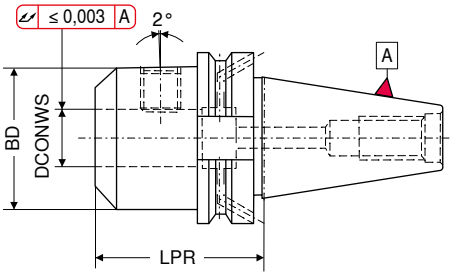




	Adapter	DCONWS $_{H4}$	LPR	BD	AD/B G 6,3 n_{max} 8000	AD/B G 2,5 n_{max} 18000	AD/Be G 6,3 n_{max} 8000	AD/Be G 2,5 n_{max} 18000
		mm	mm	mm	Article no. 82 502 ...	Article no. 82 501 ...	Article no. 82 503 ...	Article no. 82 504 ...
short	BT 40	6	50	25	106	106	106	106
	BT 40	8	50	28	108	108	108	108
	BT 40	10	63	35	110	110	110	110
	BT 40	12	63	42	112	112	112	112
	BT 40	14	63	44	114	114	114	114
	BT 40	16	63	48	116	116	116	116
	BT 40	18	63	50	118	118	118	118
	BT 40	20	63	52	120	120	120	120
	BT 40	25	100	65	125	125	125	125
	BT 40	32	100	72	132	132	132	
	BT 40	40	120	90	140			
	BT 50	6	63	25	206		206	
	BT 50	8	63	28	208		208	
	BT 50	10	80	35	210		210	
	BT 50	12	80	42	212		212	
	BT 50	14	80	44	214		214	
	BT 50	16	80	48	216		216	
	BT 50	18	80	50	218		218	
	BT 50	20	80	52	220		220	
	BT 50	25	100	65	225		225	
	BT 50	32	105	72	232		232	
	BT 50	40	120	90	240			
long	BT 40	6	100	25	506	506		
	BT 40	8	100	28	508	508		
	BT 40	10	100	35	510	510		
	BT 40	12	100	42	512	512		
	BT 40	14	100	44	514	514		
	BT 40	16	100	48	516	516		
	BT 40	18	100	50	518	518		
	BT 40	20	100	52	520	520		
	BT 50	6	100	25	706			
	BT 50	8	100	28	708			
	BT 50	10	100	35	710			
	BT 50	12	100	42	712			
	BT 50	14	100	44	714			
	BT 50	16	100	48	716			
	BT 50	18	100	50	718			
	BT 50	20	100	52	720			
	BT 50	25	120	65	725			
extra-long	BT 40	6	160	25	606	606		
	BT 40	8	160	28	608	608		
	BT 40	10	160	35	610	610		
	BT 40	12	160	42	612	612		
	BT 40	14	160	44	614	614		
	BT 40	16	160	48	616	616		
	BT 40	18	160	50	618	618		
	BT 40	20	160	52	620	620		
	BT 40	25	160	65	625	625		
	BT 50	6	160	25	806			
	BT 50	8	160	28	808			
	BT 50	10	160	35	810			
	BT 50	12	160	42	812			
	BT 50	14	160	44	814			
	BT 50	16	160	48	816			
	BT 50	18	160	50	818			
	BT 50	20	160	52	820			
	BT 50	25	160	65	825			
	BT 50	32	160	72	832			

Cylindrical Shank Adapter (Whistle Notch)

- For shanks according to DIN 6535 HE / 1835 E with angled clamping flat
- The groove in the flat face is a characteristic feature of the Whistle Notch version






AD/B
G 6,3 n_{max} 8000


AD/B
G 6,3 n_{max} 8000


AD/B
G 2,5 n_{max} 18000

	Adapter	DCONWS $_{H4}$	LPR	BD	Article no. 81 506 ...	Article no. 82 506 ...	Article no. 82 507 ...
		mm	mm	mm			
short	BT 40	6	50	25		106	106
	BT 40	8	50	28		108	108
	BT 40	10	63	35		110	110
	BT 40	12	63	42		112	112
	BT 40	14	63	44		114	114
	BT 40	16	63	48		116	116
	BT 40	18	63	50		118	118
	BT 40	20	63	52		120	120
	BT 40	25	100	65		125	
	BT 40	32	100	72		132	
	BT 40	40	120	80	140		
	BT 50	6	63	25		306	
	BT 50	8	63	28		308	
	BT 50	10	80	35		310	
	BT 50	12	80	42		312	
	BT 50	14	80	44		314	
	BT 50	16	80	48		316	
	BT 50	18	80	50		318	
	BT 50	20	80	52		320	
	BT 50	25	100	65		325	
	BT 50	32	105	72		332	
medium length	BT 40	6	130	25		206	206
	BT 40	8	130	28		208	208
	BT 40	10	130	35		210	210
	BT 40	12	130	42		212	212
	BT 40	16	130	48		216	216
	BT 40	20	130	52		220	220
	BT 40	25	130	65		225	225
	BT 50	6	130	25		406	
	BT 50	8	130	28		408	
	BT 50	10	130	35		410	
	BT 50	12	130	42		412	
	BT 50	16	130	48		416	
	BT 50	20	130	52		420	
	BT 50	25	130	65		425	
	BT 50	32	130	72		432	

Spare parts cylindrical shank adapters (Whistle Notch)

Spare parts DCONWS H4		Grubscrew Article no. 62 950 ...		Stop screw IK Article no. 81 950 ...		Stop screw IK Article no. 83 950 ...
6	M6x10	006			M5x35	033
8	M8x10	008			M6x35	034
10	M10x12	010			M8x35	035
12 - 14	M12x16	012			M10x35	036
16 - 18	M14x16	016			M12x40	037
20	M16x16	020			M16x45	272
25	M18x2x20	025			M20x35	290
32	M20x2x20	032			M20x35	290
40	M20x2x20	032	M22x1,5x15	057		

Stop screw 81 950 ... only use for Article 81 506 ...!

Accessories

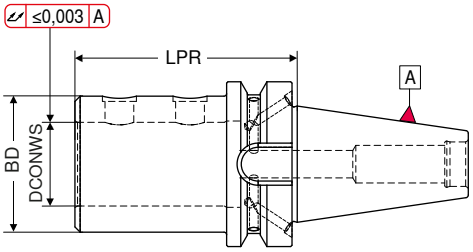


Pull studs
→ 91–92



Others
→ 17|34

Indexable insert drill adapter JIS B 6339 MAS-BT







AD/B
G 6,3 n_{max} 15000

Adapter	DCONWS	LPR	BD	Article no. 10 841 ...
	mm	mm	mm	
BT 40	20	75	40	**120**
BT 40	25	80	45	**125**
BT 40	32	85	52	**132**
BT 50	20	85	40	**220**
BT 50	25	90	45	**225**
BT 50	32	95	52	**232**
BT 50	40	105	65	**240**
BT 50	50	113	75	**250**

Suitable eccentric sleeves can be found in → **Chapter 3, Indexable insert drilling.**



Grubscrew

Spare parts DCONWS		Article no. 10 950 ...
20	M10x1x10	**001**
25 - 32	M12x1x10	**002**
40 - 50	M16x1x12	**003**

Accessories



Pull studs
→ 91–92

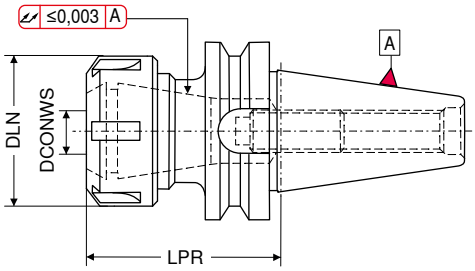


Others
→ 17|34

16

ER-Collet chuck

Scope of supply:
Holder with lock nut and adjustable back stop





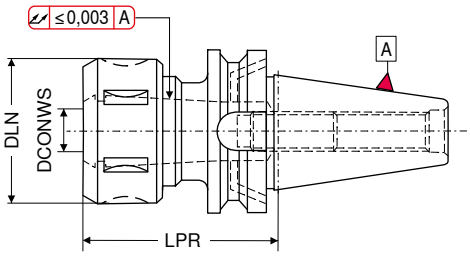
	Adapter	DCONWS	LPR	DLN	TQX	for collet	AD G 6,3 n_{max} 12000	AD/B G 6,3 n_{max} 12000	AD G 6,3 n_{max} 8000	AD/B G 6,3 n_{max} 8000	AD/B G 2,5 n_{max} 18000
		mm	mm	mm	Nm		Article no. 81 508 ...	Article no. 81 508 ...	Article no. 82 508 ...	Article no. 82 508 ...	Article no. 82 509 ...
short	BT 30	1 - 10	70	28	8 - 56	426E (ER16)	010				
	BT 30	1 - 16	70	42	24 - 104	430E (ER25)	016				
	BT 30	2 - 20	70	50	24 - 136	470E (ER32)	020				
	BT 40	1 - 10	60	32	8 - 56	426E (ER16)				110	110
	BT 40	1 - 16	70	42	24 - 104	430E (ER25)				116	116
	BT 40	2 - 20	70	50	24 - 136	470E (ER32)				120	120
	BT 40	3 - 26	70	63	176	472E (ER40)				126	126
	BT 50	1 - 10	75	32	8 - 56	426E (ER16)			910		
	BT 50	1 - 16	75	42	24 - 104	430E (ER25)			916		
	BT 50	2 - 20	75	50	24 - 136	470E (ER32)			220		
	BT 50	4 - 26	75	63	176	472E (ER40)			226		
long	BT 30	1 - 10	100	28	8 - 56	426E (ER16)	210				
	BT 30	1 - 16	100	42	24 - 104	430E (ER25)	216				
	BT 40	1 - 10	120	32	8 - 56	426E (ER16)				410	410
	BT 40	1 - 16	120	42	24 - 104	430E (ER25)				416	416
	BT 40	2 - 20	120	50	24 - 136	470E (ER32)				420	420
	BT 40	3 - 26	100	63	176	472E (ER40)		426			
	BT 50	1 - 10	100	32	8 - 56	426E (ER16)			510		
	BT 50	1 - 16	100	42	24 - 104	430E (ER25)			516		
	BT 50	2 - 20	100	50	24 - 136	470E (ER32)			520		
	BT 50	3 - 26	100	63	176	472E (ER40)			526		
extra-long	BT 40	1 - 10	160	28	8 - 56	426E (ER16)		510			
	BT 40	1 - 16	160	42	24 - 104	430E (ER25)		516			
	BT 40	2 - 20	160	50	24 - 136	470E (ER32)		520			
	BT 40	3 - 26	160	63	176	472E (ER40)		526			
	BT 50	1 - 16	160	42	24 - 104	430E (ER25)			616		
	BT 50	2 - 20	160	50	24 - 136	470E (ER32)			620		

Spare parts	Lock nut	Lock nut IK	Lock nut	Y clamping key	Stop screw IK	Stop screw IK
	Article no. 62 950 ...	Article no. 83 950 ...	Article no. 62 950 ...	Article no. 83 357 ...	Article no. 81 950 ...	Article no. 83 950 ...
for collet						
426E (ER16) / BT30-BT50	044		054	116	053	
430E (ER25) / BT30		055	055	125	054	
430E (ER25) / BT40, BT50		055	055	125	055	010
470E (ER32) / BT30		056	056	132	053	
470E (ER32) / BT40, BT50		056	056	132	057	010
472E (ER40) / BT30-BT50		057	057	140	057	011

Backstop screw 81 950... and nut 62 950 044 only for use with article 81 508...!

OZ-Collet chuck

▲ Clamping nut with ball bearings





	Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	AD G 6,3 n_{max} 12000 Article no. 81 512 ...	AD G 6,3 n_{max} 8000 Article no. 82 505 ...	AD/B G 6,3 n_{max} 8000 Article no. 82 505 ...	AD/B G 2,5 n_{max} 18000 Article no. 82 512 ...
short	BT 30	2 - 16	60	43	24 - 104	415E / 421E	025			
	BT 30	2 - 25	80	60	24 - 176	459E / 462E	035			
	BT 40	2 - 16	70	43	80 - 90	415E / 421E			116	116
	BT 40	2 - 25	70	60	90 - 100	459E / 462E			125	125
	BT 50	2 - 25	90	60	90 - 100	459E / 462E		325		
	BT 50	4 - 32	100	72	110 - 120	460E / 467E		332		
long	BT 40	2 - 16	120	43	80 - 90	415E / 421E			416	416
	BT 40	2 - 25	120	60	90 - 100	459E / 462E			425	425
	BT 50	2 - 25	120	60	90 - 100	459E / 462E		525		
	BT 50	4 - 32	120	72	110 - 120	460E / 467E		532		

Spare parts

for collet		Lock nut Article no. 62 950 ...	Hook clamping key Article no. 83 354 ...		Stop screw IK Article no. 81 950 ...		Stop screw IK Article no. 83 950 ...
415E / 421E			116	M16x15	055		
415E / 421E	M33x1,5	050	116			M10x50	010
459E / 462E	M48x2	051	125			M10x50	010
459E / 462E			125	M16x15	055		
460E / 467E	M60x2,5	052	132			M10x50	010

Spare part 81 950 ... only use for article 81 512 ...!

Accessories


OZ Collet → 218


Pull studs → 91–92


Others → 17|34

16

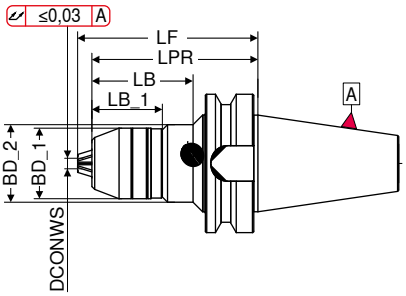
Short drill chuck

- Independent of direction of rotation
- Torque Moment = 12 Nm

Scope of supply:

Toolholder including clamping key SW4

NC 2010





Adapter	DCONWS	BD_1	BD_2	LB_1	LB	LPR	LF	A G 6,3 n_{max} 10000 Article no. 84 509 ...	AD G 6,3 n_{max} 10000 Article no. 84 510 ...	AD/B G 6,3 n_{max} 10000 Article no. 84 511 ...
	mm	mm	mm	mm	mm	mm	mm			
BT 40	0,5 - 13	48,5		50,9		80	89,0	**413**	**413**	
BT 40	0,5 - 13	48,5		50,9		90	99,0			**413**
BT 40	2,5 - 16	51,0		50,9		80	90,5	**416**	**416**	
BT 50	2,5 - 16	51,0	56	50,9	73	120	130,5	**516**	**516**	

Accessories



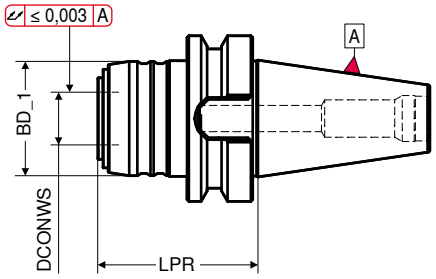

Pull studs → 91–92

Others → 17|34

Can be used with G 2.5 to 30,000 1/min by subsequent balancing !

Synchro tapping chuck with minimum length compensation

- For collets according to DIN 6499
- With length compensation under tension 1,0 mm and under compression 0,2 mm (LZD)
- p_{max} = 50 bar
- For synchro use





AD

Adapter	cutting range	SZID	LPR	BD_1	DCONWS	LZD±	Article no. 83 515 ...
			mm	mm	mm	mm	
BT 40	M3 - M12	1	61	43	20	1,0 / 0,2	**012**
BT 40	M6 - M20	2	82	60	32	1,0 / 0,2	**020**
BT 50	M3 - M12	1	72	43	20	1,0 / 0,2	**112**
BT 50	M6 - M20	2	93	60	32	1,0 / 0,2	**120**

Accessories



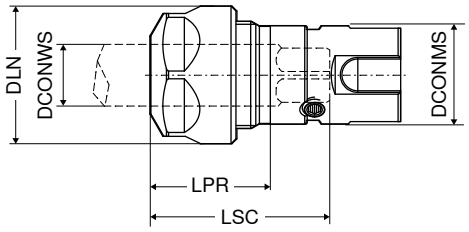
Pull studs
→ 91–92



Others
→ 17|34

Insert for synchro quick change tapping chuck with minimum length compensation

Scope of supply:
Includes lock nut





AD

SZID	DCONWS	cutting range	LPR	DLN	LSC	for collet	DCONMS	Article no. 83 608 ...
	mm		mm	mm	mm		mm	
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	**012**
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	**020**

16

Spare parts for synchronous tapping chucks

		 Lock nut		 Lock nut IK		 Lock nut		 Y clamping key
Spare parts		**Article no. 62 950 ...**		**Article no. 83 950 ...**		**Article no. 62 950 ...**		**Article no. 83 357 ...**
for Article no.								
83 608 012	M22x1,5 - SW25	**044**	M22x1,5	**054**				**116**
83 608 020			M32x1,5	**055**	M32x1,5	**055**		**125**

Accessories

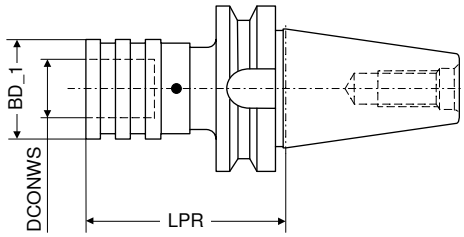


ER collet

→ 212, 214–215

Quick change tap chuck with length compensation

▲ With length compensation under tension and compression (LZD)





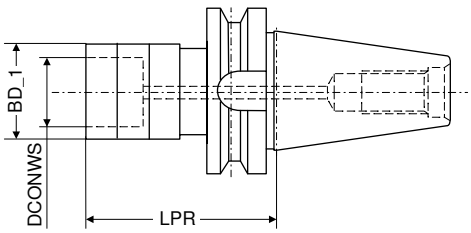


A

Adapter	cutting range	SZID	LPR	BD_1	DCONWS	LZD±	Article no. 83 528 ...
			mm	mm	mm	mm	
BT 30	M3 - M12	01	63	38	19	9	**312**
BT 30	M6 - M20	02	96	55	31	15	**320**
BT 40	M3 - M12	01	68	38	19	9	**412**
BT 40	M6 - M20	02	93	55	31	15	**420**
BT 50	M3 - M12	01	80	38	19	9	**512**
BT 50	M6 - M20	02	102	55	31	15	**520**

Quick change tap chuck without length compensation

▲ Without length compensation under tension and compression (LZD)







AD

Adapter	cutting range	SZID	LPR	BD_1	DCONWS	Article no. 83 525 ...
			mm	mm	mm	
BT 40	M3 - M12	01	67	33	19	**412**
BT 40	M6 - M20	02	90	50	31	**420**
BT 50	M3 - M12	01	78	33	19	**512**
BT 50	M6 - M20	02	101	50	31	**520**

16

Accessories

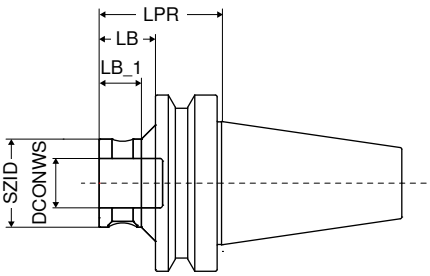




Collet	Pull studs	Others
→ 219–223	→ 91–92	→ 17|34

Adapter with ABS Connection

ABS







AD

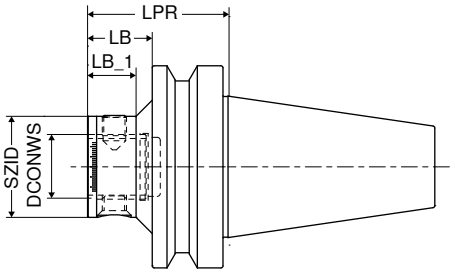
Adapter	KOMET no.	SZID	DCONWS	LPR	LB	LB_1	NEW Article no. 84 202 ...
			mm	mm	mm	mm	
BT 40	A5500150	ABS 50	28	60	33		**04097**
BT 50	A5500350	ABS 50	28	70	32	24	**05097**

Eccentric adjuster with ABS Connection

▲ Adjustment ± 0.25 mm on diameter

Scope of supply:
Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc

ABS







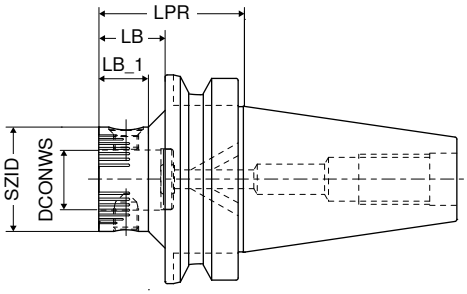
AD/B

Adapter	KOMET no.	SZID	DCONWS	LPR	LB	LB_1	NEW Article no. 84 205 ...
			mm	mm	mm	mm	
BT 40	A5556150	ABS 50	28	60	33		**04097**
BT 50	A5556350	ABS 50	28	70	32	24	**05097**

Torsional vibration dampers with ABS Connection

Scope of supply:
Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc

ABS





AD/B

Adapter	KOMET no.	SZID	DCONWS mm	LPR mm	LB mm	LB_1 mm	NEW Article no. 84 208 ...
BT 40	A5502150	ABS 50	28	60	33		**04097**
BT 50	A5502350	ABS 50	28	70	32	24	**05097**

Spare parts SZID	 Clamping screw Article no. 84 950 ...	 Taper screw Article no. 84 950 ...	 Set Article no. 84 950 ...
ABS 50	**20300**	**20400**	**99800**

Accessories

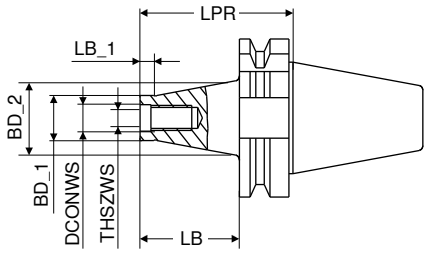

Pull studs
→ 91–92


Extension
→ 17|27


Others
→ 17|34

16

Adapter for milling cutters with threaded end







AD
G 6,3 n_{max} 18000

Adapter	THSZWS	DCONWS	LB	BD_1	BD_2	LB_1	LPR	Article no. 56 711 ...
		mm	mm	mm	mm	mm	mm	
BT 40	M8	8,5	25	13,8	15	12	52	**081**
BT 40	M8	8,5	50	13,8	23	12	77	**082**
BT 40	M8	8,5	75	13,8	25	12	102	**083**
BT 40	M10	10,5	25	18,0	23	12	52	**101**
BT 40	M10	10,5	50	18,0	25	12	77	**102**
BT 40	M10	10,5	75	18,0	30	12	102	**103**
BT 40	M12	12,5	25	21,0	24	12	52	**121**
BT 40	M12	12,5	50	21,0	30	12	77	**122**
BT 40	M12	12,5	75	21,0	35	12	102	**123**
BT 40	M12	12,5	100	21,0	38	12	127	**124**
BT 40	M16	17,0	25	29,0	29	12	52	**161**
BT 40	M16	17,0	50	29,0	34	12	77	**162**
BT 40	M16	17,0	75	29,0	35	12	102	**163**
BT 40	M16	17,0	100	29,0	40	12	127	**164**

Accessories


Extension-Reduction set
→ 17|19

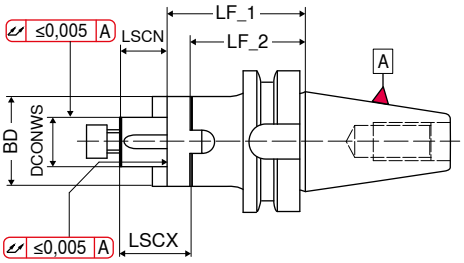

Pull studs
→ 91–92


Others
→ 17|34

Combination shell mill adapter

▲ For milling cutters with transverse or longitudinal groove according to DIN 6358

Scope of supply:
Toolholder with retaining screw, driving ring and dowel spring






A
G 6,3 n_{max} 8000


A
G 6,3 n_{max} 8000

	Adapter	DCONWS	LF_1	BD	LSCX	LSCN	LF_2	Article no. 81 516 ...	Article no. 82 516 ...
		mm	mm	mm	mm	mm	mm		
short	BT 30	16	45	32	27	17	35	016 [1]	
	BT 30	22	47	40	31	19	35	022 [1]	
	BT 30	27	49	46	33	21	37	027 [1]	
	BT 40	16	55	32	27	17	45		116
	BT 40	22	55	40	31	19	43		122
	BT 40	27	55	48	33	21	43		127
	BT 40	32	60	58	38	24	46		132
	BT 40	40	60	70	41	27	46		140 [1]
	BT 50	16	70	32	27	17	60		216
	BT 50	22	70	40	31	19	58		222
	BT 50	27	70	48	33	21	58		227
	BT 50	32	70	58	38	24	56		232
	BT 50	40	70	70	41	27	56		240 [1]
long	BT 30	16	80	32	27	17	70	916 [1]	
	BT 30	22	80	40	31	19	68	922 [1]	
	BT 30	27	90	48	33	21	78	927 [1]	
	BT 40	16	100	32	27	17	90	216	
	BT 40	22	100	40	31	19	88	222	
	BT 40	27	100	48	33	21	88	227	
	BT 40	32	100	58	38	24	86	232	
	BT 40	40	100	70	41	27	86	240	

1) With cross screw


Parallel key


Drive ring


Cross nut key


Retaining screw


Clamping screw

Spare parts DCONWS	Article no. 83 950 ...	Article no. 83 370 ...	Article no. 83 368 ...	Article no. 83 367 ...	Article no. 83 950 ...
16	284	116	116	016	113
22	285	122	122	022	124
27	286	127	127	027	125
32	287	132	132	032	126
40	288	140	140	040	112

Accessories


Pull studs
→ 91–92


Milling Adapter Rings
→ 17|28

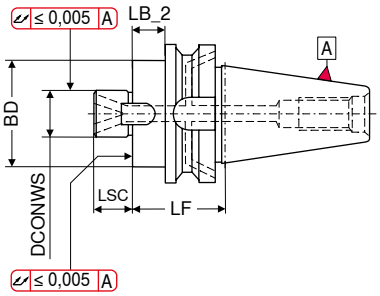

Others
→ 17|34

16

Shell mill adapter

▲ With fixed drive dogs and enlarged contact face for milling cutters with transverse groove

Scope of supply:
Toolholder with retaining screw





	Adapter	DCONWS	LB_2	LF	BD	LSC	A G 6,3 n_{max} 8000	AD G 6,3 n_{max} 8000	AD/B G 6,3 n_{max} 8000
		mm	mm	mm	mm	mm	**Article no. 81 514 ...**	**Article no. 82 514 ...**	**Article no. 82 514 ...**
short	BT 30	16	18	40	38	17	**016** [2]		
	BT 30	22	18	40	48	19	**022** [2]		
	BT 30	27	18	40	58	21	**027** [2]		
	BT 30	32	28	50	78	24	**032** [2]		
	BT 40	16	25	52	38	17			**116**
	BT 40	22	25	52	48	19			**122**
	BT 40	27	25	52	58	21			**127**
	BT 40	32	23	50	78	24			**132**
	BT 40	40	23	50	88	27			**140** [1]
	BT 50	16	25	63	38	17		**316**	
	BT 50	22	25	63	48	19		**322**	
	BT 50	27	25	63	58	21		**327**	
	BT 50	32	22	60	78	24		**332**	
	BT 50	40	22	60	88	27		**340** [1]	
long	BT 40	16	73	100	38	17			**416**
	BT 40	22	73	100	48	19			**422**
	BT 40	27	73	100	58	21			**427**
	BT 40	32	73	100	78	24			**432**
	BT 40	40	73	100	88	27			**440** [1]
	BT 50	16	62	100	38	17		**616**	
	BT 50	22	62	100	48	19		**622**	
	BT 50	27	62	100	58	21		**627**	
	BT 50	32	62	100	78	24		**632**	
	BT 50	40	62	100	88	27		**640** [1]	
medium length	BT 40	16	103	130	38	17			**816**
	BT 40	22	103	130	48	19			**822**
	BT 40	27	103	130	58	21			**827**
	BT 40	32	103	130	78	24			**832**
	BT 40	40	103	130	88	27			**840** [1]
	BT 50	16	92	130	38	17		**916**	
	BT 50	22	92	130	48	19		**922**	
	BT 50	27	92	130	58	21		**927**	
	BT 50	32	92	130	78	24		**932**	
	BT 50	40	92	130	88	27		**940** [1]	
extra-long	BT 40	16	133	160	38	17			**516**
	BT 40	22	133	160	48	19			**522**
	BT 40	27	133	160	58	21			**527**
	BT 40	32	133	160	78	24			**532**
	BT 40	40	133	160	88	27			**540** [1]
	BT 50	16	122	160	38	17		**716**	
	BT 50	22	122	160	48	19		**722**	
	BT 50	27	122	160	58	21		**727**	
	BT 50	32	122	160	78	24		**732**	
	BT 50	40	122	160	88	27		**740** [1]	

1) With cross screw and 4 holes M12, Pitch Circle diameter = 66.7 mm, coolant outlet on the outer diameter of the spigot (DCONWS)!
2) With cross screw

Spare parts facemill adapters


Driver


Cross nut key


Retaining screw


Clamping screw

Spare parts DCONWS		Article no. 83 950 ...	Article no. 83 368 ...		Article no. 83 367 ...		Article no. 83 950 ...
16	8x9x17,5	120	116	M8	016	M8x25	113
22	10x11x20,5	121	122	M10	022	M10x25	124
27	12x13x24,3	122	127	M12	027	M12x30	125
32	14x21x21,2	123	132	M16	032	M16x35	126
40	15,9x16,3x19,5	295	140	M20	040	M20x40	112


Drive dogs


Drive screw


Screw for drivers

DCONWS		Article no. 81 950 ...		Article no. 81 950 ...		Article no. 83 950 ...
16	8x8x14	001	M3x8	010	M3x8	296
22	10x10x17	002	M4x8	011	M4x12	297
27	12x14x20	003	M4x14	012	M5x12	136
32	14x14x22	004	M5x13	013	M5x20	137
40					M6x16	138

Spare part 81 950 ... only use for article 81 514 ...!

Accessories


Pull studs
→ 91–92


Extensions
→ 17|26

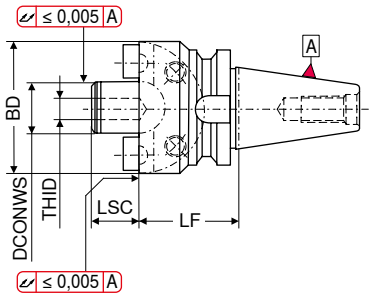

Others
→ 17|34

16

Large diameter facemill adapter

▲ For milling cutters with keyway or drive slot DIN 6357

Scope of supply:
Holder with integrated drive dogs according to DIN 2079 and 4 fixation screws






A

Adapter	DCONWS	LF	BD	LSC	THID	Article no. 82 519 ...
	mm	mm	mm	mm		
BT 50	40	70	89	30	M20	**240**
BT 50	60	80	129	40	M30	**260**


Screw for drivers


Driver


Socket head screw


clamping screw

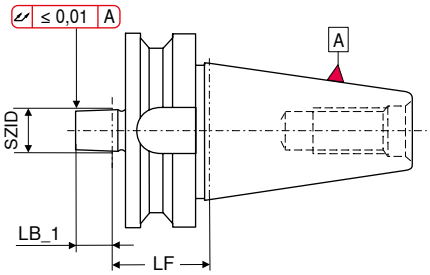
Spare parts DCONWS	Article no. 83 950 ...	Article no. 83 950 ...	Article no. 70 950 ...	Article no. 83 950 ...
40	M6x16 **138**	15,9x16,3x19,5 **295**		M12x50 **140**
60		25,4x16,3x26,5 **298**	M12x30 **181**	M16x45 **160**

Accessories


Pull studs
→ 91–92


Others
→ 17|34

Drill chuck adapter





Adapter	SZID	LF	LB_1	A G 6,3 n_{max} 8000 Article no. 81 513 ...	A G 6,3 n_{max} 8000 Article no. 82 513 ...
		mm	mm		
BT 30	B12	25	18,5	**012**	
BT 30	B16	25	24,0	**016**	
BT 40	B12	40	18,5		**112**
BT 40	B16	40	24,0		**116**
BT 40	B18	32	32,0	**118**	
BT 50	B16	50	24,0		**216**
BT 50	B18	50	32,0		**218**

Spare parts SZID		 Drill chuck Article no. 83 636 ...		 Drill chuck Article no. 83 636 ...
B12	0 - 8 mm	**012**	0 - 10 mm	**112**
B16	1 - 13 mm	**016**	3 - 16 mm	**116**
B18			3 - 16 mm	**018**

Accessories

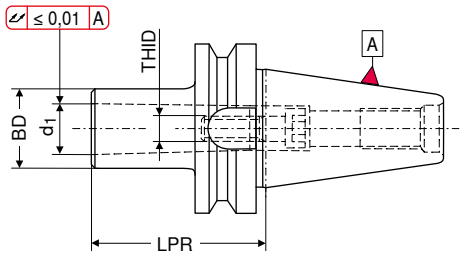



Pull studs	Others
→ 91–92	→ 17|34

16

Milling sleeve adapters DIN 6364 for DIN 228-2C Morse taper shanks with thread

Scope of supply:
Holder with retaining screw






AD
G 6,3 n_{max} 8000


AD
G 6,3 n_{max} 8000

	Adapter	d_1	LPR mm	BD mm	THID	Article no. 81 527 ...	Article no. 82 527 ...
short	BT 40	MK1	50	25	M6	010	
	BT 40	MK2	50	32	M10	020	
	BT 40	MK3	70	40	M12		030
	BT 40	MK4	95	48	M16		040
	BT 50	MK1	45	25	M6		210
	BT 50	MK2	60	32	M10		220
	BT 50	MK3	65	40	M12		230
	BT 50	MK4	95	48	M16		240
	BT 50	MK5	118	63	M20		250

Disassembly instructions can be found in → **Chapter 17, Accessories.**


Counterscrew


Hollow key with nose


Fixing ring


Fixing ring

Spare parts for Article no.	Article no. 83 950 ...	Article no. 83 359 ...	Article no. 81 950 ...	Article no. 83 950 ...
81 527 010			M16x10 150	
81 527 020			M16x8 151	
82 527 030	M5x6 030	17 x 117 017		M20x1,5x10x13 269
82 527 040	M5x6 030	23 x 145 023		M26x1,5x17 270
82 527 210	M5x8 031	20 x 135 020		M24x10x6,5 266
82 527 220	M5x8 031	20 x 135 020		M24x10x10,5 268
82 527 230	M5x8 031	17 x 117 017		M20x1,5x10x13 269
82 527 240	M5x8 031	23 x 145 023		M26x1,5x17 270
82 527 250	M5x8 031	33 x 175 033		M36x1,5x21 271

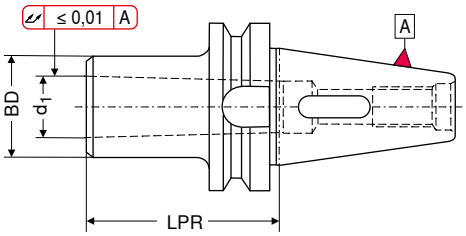

Morse taper clamping screw


Clamping Screw


Counterscrew

Spare parts for Article no.	Article no. 83 950 ...	Article no. 81 950 ...	Article no. 81 950 ...
81 527 010		M6x39 140	M5x6 033
81 527 020		M10x30 141	M5x6 033
82 527 030	M12x35 018		
82 527 040	M16x40 019		
82 527 210	M6x30 260		
82 527 220	M10x30 017		
82 527 230	M12x35 018		
82 527 240	M16x40 019		
82 527 250	M20x50 262		

Taper sleeve adapter DIN6383 for DIN 228-2D Morse taper shanks






AD
G 6,3 n_{max} 8000


AD
G 6,3 n_{max} 8000

Adapter	d_1	LPR	BD	Article no. 81 525 ...	Article no. 82 525 ...
		mm	mm		
BT 30	MK1	45	25	**010**	
BT 30	MK2	60	32	**020**	
BT 30	MK3	75	40	**030**	
BT 40	MK1	50	25		**110**
BT 40	MK2	50	32		**120**
BT 40	MK3	70	40		**130**
BT 40	MK4	95	48		**140**
BT 50	MK1	45	25		**210**
BT 50	MK2	60	32		**220**
BT 50	MK3	65	40		**230**
BT 50	MK4	95	48		**240**
BT 50	MK5	105	63		**250**

Accessories


Morse taper adapter sleeve
→ 17|4

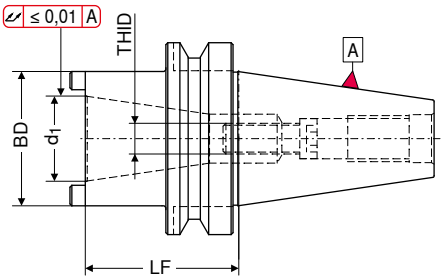

Pull studs
→ 91–92


Others
→ 17|34

Milling adapter sleeve

- For mounting tool holders according to DIN 2080
- With an extended retaining screw also tool holders according to DIN 69871, MAS-BT and ANSI-CAT can be clamped

Scope of supply:
Holder with clamping screw for DIN 2080 adapters





Adapter	d_1	LF	BD	THID	A Article no. 81 518 ...	A Article no. 82 518 ...
		mm	mm			
BT 40	SK 30	60	51	M12	**106**	
BT 40	SK 40	100	63	M16	**110**	
BT 50	SK 40	80	70	M16		**250**

Spare parts for Article no.	 Clamping screw SK Article no. 83 950 ...	 Clamping Screw Article no. 81 950 ...	 Counterscrew Article no. 81 950 ...	 Hollow key with nose Article no. 83 359 ...	 Fixing ring Article no. 81 950 ...
81 518 106		160	033	017	170
81 518 110		161	033	023	171
82 518 250	009				

Required screw length when retracting of DIN 69871, MAS-BT or DIN 2080 shanks

MAS-BT Suitable for article no.:	Taper Shank Ø d_1	Clamping screw length DIN 69871, MAS-BT THID	Clamping screw length DIN 2080 THID
81 518 106	SK 30 – BT 30	M12x55	M12x35 – **81 950 160**
81 518 110	SK 40 – BT 40	M16x60	M16x35 – **81 950 161**
82 518 250	SK 50 – BT 50	M16x70 – **83 950 256**	M16x40 – **83 950 009**

Spare part 81 950 ... only use for article 81 518 ...!

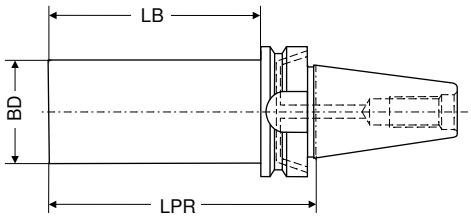
Accessories


Pull studs
→ 91–92


Others
→ 17|34

Blank

- Material: Steel 17CrNiMo5
- For production of special tools
- Diameter BD turned with 0.5 mm oversize
- Taper hardened and ground
- Special tool area in soft state






AD/B

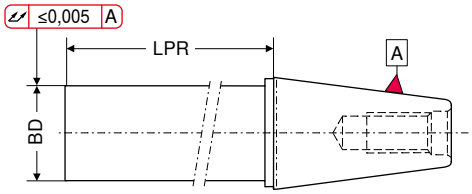

A

Adapter	BD	LPR	LB	Article no. 82 523 ...	Article no. 82 523 ...
	mm	mm	mm		
BT 40	63,0	250	223	**040**	
BT 50	63,5	300	262		**050**

Test bar

- Without clamping slots
- MAS BT 40 special pull stud with LF = 32 mm

Scope of supply:
In wooden box





Adapter	BD	LPR	Article no. 82 456 ...
	mm	mm	
SK / BT 40	40	330	**040**
SK / BT 50	50	330	**050**

Accessories


Pull studs
→ 49, 91–92


Others
→ 17|34

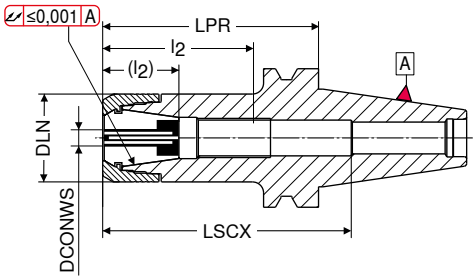
16

ER Precision Collet chuck – BT-FC

- With face contact
- For standard or sealed nuts
- Maximum clamping range covered according to ISO tolerance field H10
- For clamping a roll key is required
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P





AD
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	Article no. 84 525 ...
BT-FC 30	1 - 10	75	30	97	28 - 45 (14 - 31)	426E (ER16)	**002**
BT-FC 30	2 - 16	75	40	72	38 - 56 (23 - 39)	430E (ER25)	**012**
BT-FC 30	2 - 20	75	50	84	42 - 62 (24 - 45)	470E (ER32)	**022**
BT-FC 40	1 - 10	75	30	90	38 - 53 (29 - 39)	426E (ER16)	**102**
BT-FC 40	2 - 16	75	40	100	42 - 59 (36 - 41)	430E (ER25)	**112**
BT-FC 40	2 - 20	75	50	100	42 - 76 (42 - 52)	470E (ER32)	**122**

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets ( ) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer


Lock nut IK


Lock nut


Stop screw 2


Stop screw 1

Spare parts	Article no. 84 950 ...	Article no. 84 950 ...		Article no. 83 950 ...		Article no. 83 950 ...
for Article no.						
84 525 002	**011**	**001**	M11x1 - SW6	**341**	M11x1 - SW6	**337**
84 525 012	**013**	**003**	M18x1,5 - SW6	**432**	M18x1,5 - SW6	**431**
84 525 022	**015**	**005**	M22x1,5 - SW6	**402**	M22x1,5 - SW6	**401**
84 525 102	**011**	**001**	M11x1 - SW6	**341**	M11x1 - SW6	**337**
84 525 112	**013**	**003**	M18x1,5 - SW6	**432**	M18x1,5 - SW6	**431**
84 525 122	**015**	**005**	M22x1,5 - SW6	**402**	M22x1,5 - SW6	**401**

Accessories


ER collet
→ 206, 208–211, 213


Sealing ring
→ 207


Roll key
→ 17|36


Roll key device
→ 17|36

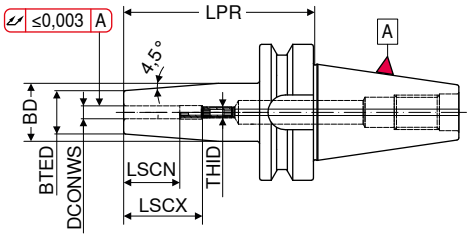

Pull studs
→ 91–92


Others
→ 17|34

Shrink fit adapters 4.5° – BT-FC

▲ For solid carbide and HSS shanks with h6 tolerance or better

TG







AD
G 2,5 n_{max} 25000



AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	Article no. 84 325 ...	Article no. 84 325 ...
short	BT-FC 30	3	85	10	17	28	12	M6	003	
	BT-FC 30	4	85	15	22	28	16	M6	004	
	BT-FC 30	5	85	15	22	30	20	M6	005	
	BT-FC 30	6	85	21	27	36	26	M5	006	
	BT-FC 30	8	85	21	27	36	26	M6	008	
	BT-FC 30	10	85	24	32	41	31	M8x1	010	
	BT-FC 30	12	85	24	32	47	37	M10x1	012	
	BT-FC 30	16	85	27	34	50	40	M12x1	016	
	BT-FC 30	20	85	33	42	52	42	M16x1	020	
	BT-FC 40	3	90	10	17	28	12	M6		103
	BT-FC 40	4	90	15	22	28	16	M6		104
	BT-FC 40	5	90	15	22	30	20	M6		105
	BT-FC 40	6	90	21	27	36	26	M5		106
	BT-FC 40	8	90	21	27	36	26	M6		108
	BT-FC 40	10	90	24	32	41	31	M8x1		110
	BT-FC 40	12	90	24	32	47	37	M10x1		112
	BT-FC 40	16	90	27	34	50	40	M12x1		116
	BT-FC 40	20	90	33	42	52	42	M16x1		120
	BT-FC 40	25	100	44	53	58	48	M16x1		125



Stop screw IK



Stop screw IK

Spare parts DCONWS	Article no. 83 950 ...	Article no. 83 950 ...
3 - 5	M6x14 - SW2 417	
6		M5x12,5 - SW2,5 418
8		M6x12,5 - SW3 419
10		M8x1x13,5 - SW3 420
12		M10x1x13,5 - SW5 421
16		M12x1x13,5 - SW5 422
20 - 25		M16x1x13,5 - SW8 424

Accessories



Shrink fit extension
→ 17|10



Pull studs
→ 91–92



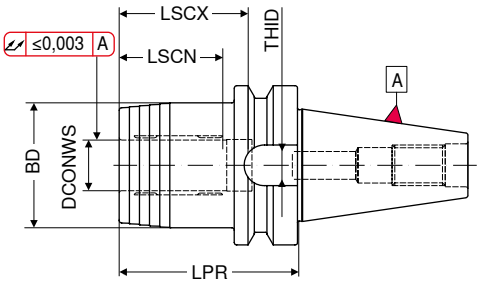
Others
→ 17|34

16

High pressure chuck, short and stable version – BT-FC

▲ With face contact
▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:
Base body with backstop screw and pressure screw







AD
G 2,5 n_{max} 25000

Adapter	DCONWS	LPR	BD	LSCX	LSCN	THID	Article no. 83 527 ...
	mm	mm	mm	mm	mm		
BT-FC 40	20	72,5	49	51	40	M16x1x13,5	**120**

LSCX = Maximum insertion depth
LSCN = Minimum insertion depth


Clamping key – T


Pressure screw


Stop screw IK

Spare parts		Article no. 80 397 ...		Article no. 83 950 ...		Article no. 83 950 ...
for Article no.						
83 527 120	SW5	**050**	M10x1x10	**158**	M8x1x13,5 - SW3	**420**

Accessories


Reduction sleeve
→ 17|32

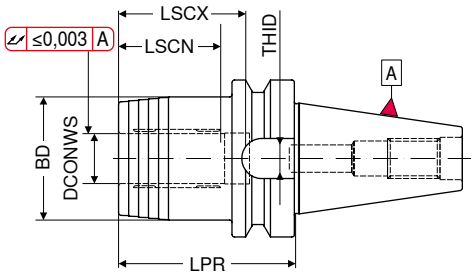

Pull studs
→ 91–92


Others
→ 17|34

Hydraulic chuck MAS BT, short and stable version – BT-FC

- With face contact
- For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:
Base body with backstop screw and pressure screw







AD
G 2,5 n_{max} 25000

Adapter	DCONWS	LPR	BD	LSCX	LSCN	THID	Article no. 84 518 ...
	mm	mm	mm	mm	mm		
BT-FC 40	20	72,5	49,5	51	41	M16x1	**120**
BT-FC 50	32	90,0	72,0	61	51	M16x1	**332**



Pressure screw



Stop screw IK

Spare parts DCONWS	Article no. 83 950 ...		Article no. 83 950 ...	
20 - 32	M10x1x12	**440**	M16x1x13,5 - SW8	**424**

Accessories



Reduction sleeve
→ 17|32



Pull studs
→ 91–92

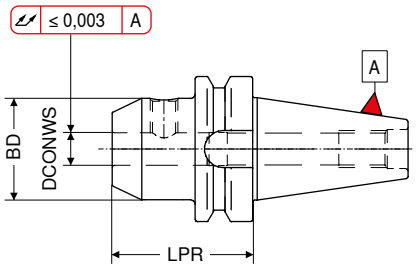


Others
→ 17|34

16

Cylindrical shank adapter (Weldon) – BT-FC

- With face contact
- For shanks according to DIN 6535 / 1835 B with lateral clamping flat







AD
G 2,5 n_{max} 25000

	Adapter	DCONWS $_{H4}$	LPR	BD	Article no. 84 552 ...
		mm	mm	mm	
short	BT-FC 30	6	50	25	006
	BT-FC 30	8	50	28	008
	BT-FC 30	10	50	35	010
	BT-FC 30	12	50	42	012
	BT-FC 30	16	63	48	016
	BT-FC 30	20	63	52	020
	BT-FC 40	6	50	25	106
	BT-FC 40	8	50	28	108
	BT-FC 40	10	63	35	110
	BT-FC 40	12	63	42	112
	BT-FC 40	16	63	48	116
	BT-FC 40	20	63	52	120
	BT-FC 40	25	90	65	125
	BT-FC 40	32	100	72	132
	BT-FC 50	6	63	25	306
	BT-FC 50	8	63	28	308
	BT-FC 50	10	63	35	310
	BT-FC 50	12	80	42	312
	BT-FC 50	16	80	48	316
	BT-FC 50	20	80	52	320
	BT-FC 50	25	100	65	325
	BT-FC 50	32	105	72	332



Grubscrew

Spare parts DCONWS $_{H4}$		Article no. 62 950 ...
6	M6x10	006
8	M8x10	008
10	M10x12	010
12	M12x16	012
16	M14x16	016
20	M16x16	020
25	M18x2x20	025
32	M20x2x20	032

Accessories



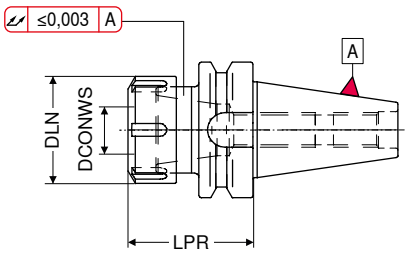


Pull studs → 91–92
Others → 17|34

ER Collet chuck – BT-FC

▲ With face contact

Scope of supply:
Toolholder including nut







AD
G 2,5 n_{max} 20000

	Adapter	DCONWS	LPR	DLN	TQX	for collet	Article no. 84 557 ...
		mm	mm	mm	Nm		
short	BT-FC 30	1 - 10	63	28	56	426E (ER16)	010
	BT-FC 30	1 - 16	60	42	104	430E (ER25)	016
	BT-FC 30	2 - 20	60	50	136	470E (ER32)	020
short	BT-FC 40	1 - 10	63	28	56	426E (ER16)	110
	BT-FC 40	1 - 16	60	42	104	430E (ER25)	116
	BT-FC 40	2 - 20	60	50	136	470E (ER32)	120
	BT-FC 50	1 - 16	70	42	104	430E (ER25)	316
	BT-FC 50	2 - 20	70	50	136	470E (ER32)	320
long	BT-FC 50	1 - 10	100	28	56	426E (ER16)	310


Lock nut


Lock nut


Y clamping key


Stop screw IK

Spare parts		Article no. 62 950 ...		Article no. 62 950 ...		Article no. 83 357 ...		Article no. 81 950 ...
for collet								
426E (ER16) / BT30-BT50	M22x1,5 - SW25	044					M12x15	054
430E (ER25) / BT30-BT50			M32x1,5	055		125	M16x15	055
470E (ER32) / BT30-BT50			M40x1,5	056		132	M16x15	055

Accessories


ER collet
→ 214

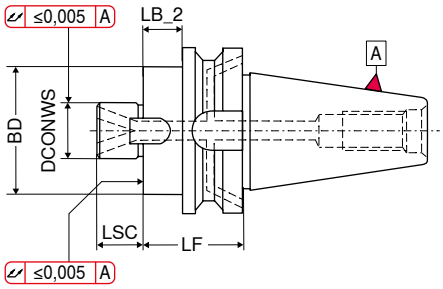

Pull studs
→ 91–92


Others
→ 17|34

16

Shell mill adapter – BT-FC

- With face contact
- With fixed drive dogs and enlarged contact face for milling cutters with transverse slot







AD
G 6,3 n_{max} 15000

	Adapter	DCONWS	LB_2	LF	BD	LSC	Article no. 84 562 ...
		mm	mm	mm	mm	mm	
short	BT-FC 30	16	18	40	40	17	016
	BT-FC 30	22	18	40	50	19	022
	BT-FC 30	27	18	40	60	21	027
	BT-FC 30	32	28	50	80	24	032
	BT-FC 40	16	8	35	40	17	116
	BT-FC 40	22	8	35	50	19	122
	BT-FC 40	27	8	35	60	21	127
	BT-FC 40	32	23	50	80	24	132
	BT-FC 40	40	23	50	89	27	140
	BT-FC 50	22	12	50	50	19	322
	BT-FC 50	27	12	50	60	21	327
	BT-FC 50	32	12	50	80	24	332
	BT-FC 50	40	17	55	89	27	340


Screw for drivers


Driver


Clamping screw

Spare parts for Article no.	Article no. 84 950 ...		Article no. 84 950 ...		Article no. 83 950 ...	
84 562 016	M3x12	162	8x9x11	157	M8x25	113
84 562 022	M4x10	163	10x11,2x13	158	M10x25	124
84 562 027	M4x16	164	12x12,6x15	159	M12x30	125
84 562 032	M5x16	165	14x14x22,5	160	M16x35	126
84 562 116	M3x12	162	8x9x11	157	M8x25	113
84 562 122	M4x10	163	10x11,2x13	158	M10x25	124
84 562 127	M4x16	164	12x12,6x15	159	M12x30	125
84 562 132	M5x16	165	14x14x22,5	160	M16x35	126
84 562 140	M5x16	166	16x16x23	161	M20x40	112
84 562 322	M4x10	163	12x12,6x15	159	M10x25	124
84 562 327	M4x16	164	12x12,6x15	159	M12x30	125
84 562 332	M5x16	165	14x14x22,5	160	M16x35	126
84 562 340	M5x16	166	16x16x23	161	M20x40	112

Accessories

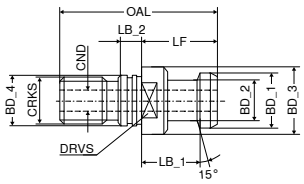

Pull studs
→ 91–92


Others
→ 17|34

Pull stud for tool holders according to JIS B 6339

▲ MAS-BT 15° Form A

Scope of supply:
Including O-Ring



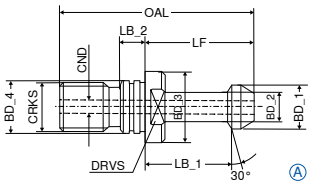


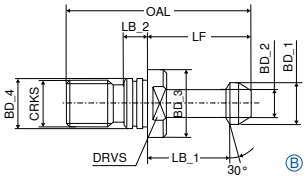
Adapter	BD_1	BD_2	BD_3	BD_4	CRKS	OAL	LF	LB_1	LB_2	CND	DRVS	TQX	Article no. 83 532 ...
	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm	Nm	
BT 40	19	14	23	17	M16	54	29	23	5	5	19	90	**040**

Pull stud for tool holders according to JIS B 6339

▲ MAS-BT 30° Form A and B

Scope of supply:
Including O-Ring







Adapter	BD_1	BD_2	BD_3	BD_4	CRKS	OAL	LF	LB_1	LB_2	CND	DRVS	TQX	form	Article no. 82 533 ...	Article no. 82 531 ...
	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm	Nm			
BT 30	11	7	16,5	12,5	M12	43	23	18	4,0	2,2	13	60	A		**030**
BT 40	15	10	23,0	17,0	M16	60	35	28	5,5	4,0	19	90	A		**040**
BT 50	23	17	38,0	25,0	M24	85	45	35	8,0	6,0	30	145	A		**050**
BT 30	11	7	16,5	12,5	M12	43	23	18	4,0		13	60	B	**030**	
BT 40	15	10	23,0	17,0	M16	60	35	28	5,5		19	90	B	**040**	
BT 50	23	17	38,0	25,0	M24	85	45	35	8,0		30	145	B	**050**	



O-Ring

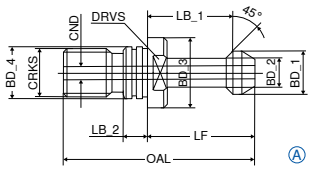
Spare parts BD_4		Article no. 83 476 ...
17	BT / SK 40	**040**
25	BT / SK 50	**050**

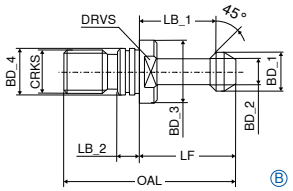
16

Pull stud for tool holders according to JIS B 6339

▲ MAS-BT 45° Form A and B

Scope of supply:
Including O-Ring





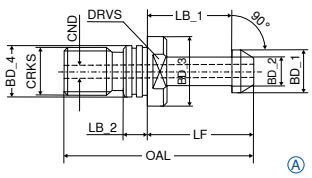


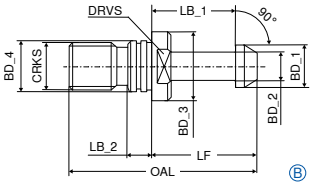
Adapter	BD_1	BD_2	BD_3	BD_4	CRKS	OAL	LF	LB_1	LB_2	CND	DRVS	TQX	form	Article no. 82 530 ...	Article no. 82 534 ...
	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm	Nm			
BT 30	11	7	16,5	12,5	M12	43	23	18	4,0	2,2	13	60	A		030
BT 40	15	10	23,0	17,0	M16	60	35	28	5,5	4,0	19	90	A		040
BT 50	23	17	38,0	25,0	M24	85	45	35	8,0	6,0	30	145	A		050
BT 30	11	7	16,5	12,5	M12	43	23	18	4,0		13	60	B	030	
BT 40	15	10	23,0	17,0	M16	60	35	28	5,5		19	90	B	040	
BT 50	23	17	38,0	25,0	M24	85	45	35	8,0		30	145	B	050	

Pull stud for tool holders according to JIS B 6339

▲ MAS-BT 90° Form A and B

Scope of supply:
Including O-Ring







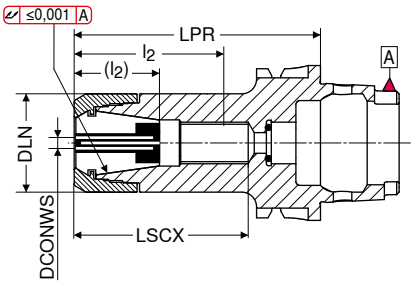
Adapter	BD_1	BD_2	BD_3	BD_4	CRKS	OAL	LF	LB_1	LB_2	CND	DRVS	TQX	form	Article no. 82 536 ...	Article no. 82 537 ...
	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm	Nm			
BT 40	15	10	23	17	M16	60	35	28	5,5	4	19	90	A		040
BT 50	23	17	38	25	M24	85	45	35	8,0	6	30	145	A		050
BT 40	15	10	23	17	M16	60	35	28	5,5		19	90	B	040	
BT 50	23	17	38	25	M24	85	45	35	8,0		30	145	B	050	

ER Precision Collet chuck

- For standard or sealed nuts
- Maximum size collet to ISO tolerance field H10
- For clamping a roll key is required
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P





AD
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	Article no. 84 722 ...
HSK-A 40	1 - 10	60	30	40	32 - 54	426E (ER16)	**401**
HSK-A 40	2 - 16	60	40	40		430E (ER25)	**404**
HSK-A 40	2 - 20	61	50	45		470E (ER32)	**407**
HSK-A 50	2 - 16	60	40	37		430E (ER25)	**504**
HSK-A 50	2 - 16	70	40	49	34 - 35	430E (ER25)	**505**
HSK-A 50	2 - 20	70	50	47		470E (ER32)	**507**
HSK-A 63	1 - 10	55	30	32		426E (ER16)	**609**
HSK-A 63	1 - 10	100	30	71	28 - 45 (16 - 31)	426E (ER16)	**610**
HSK-A 63	1 - 10	130	30	87	26 - 50 (17 - 38)	426E (ER16)	**613**
HSK-A 63	1 - 10	160	30	106	28 - 45 (16 - 31)	426E (ER16)	**611**
HSK-A 63	1 - 10	200	30	136	28 - 45 (16 - 31)	426E (ER16)	**612**
HSK-A 63	2 - 16	60	40	37		430E (ER25)	**615**
HSK-A 63	2 - 16	100	40	70	35 - 55 (24 - 37)	430E (ER25)	**616**
HSK-A 63	2 - 16	130	40	89	37 - 60 (12 - 42)	430E (ER25)	**619**
HSK-A 63	2 - 16	160	40	128	35 - 60 (24 - 42)	430E (ER25)	**617**
HSK-A 63	2 - 16	200	40	148	35 - 60 (24 - 42)	430E (ER25)	**618**
HSK-A 63	2 - 20	70	50	46		470E (ER32)	**620**
HSK-A 63	2 - 20	100	50	71	41 - 57 (26 - 39)	470E (ER32)	**621**
HSK-A 63	2 - 20	130	50	101	42 - 69 (18 - 41)	470E (ER32)	**625**
HSK-A 63	2 - 20	160	50	129	52 - 70 (26 - 60)	470E (ER32)	**622**
HSK-A 63	3 - 26	80	63	56		472E (ER40)	**626** 1)
HSK-A 100	1 - 10	100	30	70	28 - 48 (16 - 35)	426E (ER16)	**110**
HSK-A 100	1 - 10	160	30	130	28 - 48 (16 - 35)	426E (ER16)	**111**
HSK-A 100	2 - 16	100	40	71	38 - 56 (20 - 40)	430E (ER25)	**116**
HSK-A 100	2 - 16	160	40	105	38 - 68 (20 - 50)	430E (ER25)	**117**
HSK-A 100	2 - 20	100	50	70	42 - 59 (24 - 40)	470E (ER32)	**121**
HSK-A 100	2 - 20	160	50	99	42 - 70 (24 - 52)	470E (ER32)	**122**
HSK-A 100	3 - 26	100	63	65		472E (ER40)	**126**

1) Non standard groove before tool change collar not according to DIN, not suitable for automatic tool change

→ Transmittable torque moments, Page 233

16

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets ( ) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

Spare parts, ER precision collet chuck

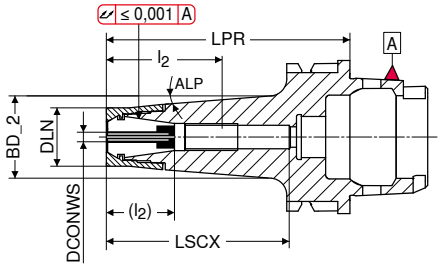
Spare parts	 Lock nut IK	 Lock nut		 Stop screw 2		 Stop screw 1
	Article no. 84 950 ...	Article no. 84 950 ...		Article no. 83 950 ...		Article no. 83 950 ...
for collet						
426E (ER16)	011	001	M11x1 - SW6	341	M11x1 - SW6	337
430E (ER25)	013	003	M18x1,5 - SW6	432	M18x1,5 - SW6	431
470E (ER32)	015	005	M22x1,5 - SW6	402	M22x1,5 - SW6	401
472E (ER40)	017	007			M28x1,5 - SW6	400

ER Precision tapered collet chuck

- For special tapered nuts
- Maximum clamping range covered according to ISO tolerance field H10
- Roll key required for clamping
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P







AD
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	BD_2 mm	LSCX mm	l_2 (l_2) mm	ALP	for collet	Article no. 84 721 ...
HSK-A 40	1 - 7	100	16	25,3	65	15 - 34 (8 - 25)	4,5°	4008E (ER11)	307
HSK-A 40	1 - 10	60	24	28,0	43	26 - 30	2,0°	426E (ER16)	210
HSK-A 40	1 - 10	100	24	30,8	67	26 - 47 (12 - 32)	2,0°	426E (ER16)	310
HSK-A 50	1 - 7	100	16	24,0	65	15 - 34 (8 - 25)	4,5°	4008E (ER11)	507
HSK-A 50	1 - 10	65	24	28,9	44	26 - 32	4,5°	426E (ER16)	710
HSK-A 50	1 - 10	100	24	34,4	77	26 - 47 (12 - 32)	4,5°	426E (ER16)	810
HSK-A 50	1 - 10	130	24	39,4	102	26 - 47 (12 - 32)	4,5°	426E (ER16)	910
HSK-A 63	1 - 10	100	24	33,8	74	28 - 48 (20 - 35)	4,5°	426E (ER16)	610
HSK-A 63	1 - 10	160	24	36,0	106	28 - 48 (20 - 35)	2,5°	426E (ER16)	611
HSK-A 63	2 - 20	75	50		51		4,0°	470E (ER32)	632

→ Transmittable torque moments, Page 233

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets ( ) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

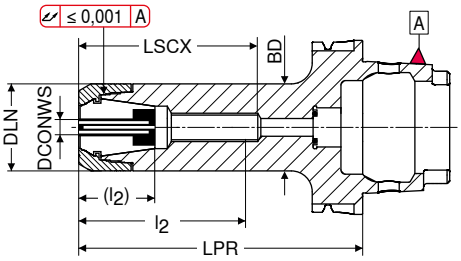
Spare parts	 Tapered lock nut IK	 Tapered lock nut	 Lock nut IK	 Lock nut	 Mini lock nut	 Stop screw 2	 Stop screw 1
	Article no. 84 950 ...	Article no. 84 950 ...	Article no. 84 950 ...	Article no. 84 950 ...	Article no. 84 950 ...	Article no. 83 950 ...	Article no. 83 950 ...
for collet							
4008E (ER11)					041	340	336
426E (ER16)	033	031				341	337
470E (ER32)			015	005		402	401

ER Precision collet chuck, slim version

- For Mini Clamping Nuts
- Maximum clamping range covered according to ISO tolerance field H10
- Roll key required for clamping
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P







AD
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	BD mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	Article no. 84 719 ...
HSK-A 32	1 - 7	40	16	16	24		4008E (ER11)	**107**
HSK-A 32	1 - 10	50	22	22	32		426E (ER16)	**110**
HSK-A 40	1 - 7	60	16	16	40	16 - 24	4008E (ER11)	**207**
HSK-A 50	1 - 7	130	16	16	60	15 - 32 (7 - 22)	4008E (ER11)	**407**
HSK-A 63	1 - 7	70	16	16	48	15 - 32 (7 - 22)	4008E (ER11)	**507**
HSK-A 63	1 - 7	100	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	**607**
HSK-A 63	1 - 7	130	16	16	108	15 - 32 (7 - 22)	4008E (ER11)	**707**
HSK-A 63	1 - 7	160	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	**608**
HSK-A 63	1 - 10	70	22	22	46	27 - 34 (14 - 20)	426E (ER16)	**610**
HSK-A 63	1 - 10	100	22	22	62	27 - 44 (14 - 30)	426E (ER16)	**710**
HSK-A 63	1 - 10	130	22	22	87	27 - 52 (14 - 38)	426E (ER16)	**810**
HSK-A 63	1 - 10	160	22	22	97	27 - 52 (14 - 38)	426E (ER16)	**910**

→ Transmittable torque moments, page 233

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets ( ) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer


Mini lock nut IK


Mini lock nut


Stop screw 2


Stop screw 1

Spare parts	Article no. 84 950 ...	Article no. 84 950 ...		Article no. 83 950 ...		Article no. 83 950 ...
for collet						
4008E (ER11)		041	M8x1 - SW4	340	M8x1 - SW4	336
426E (ER16)	035	034	M11x1 - SW6	341	M11x1 - SW6	337

Accessories


ER collet
→ 208–211, 213


Sealing ring
→ 207


Device
→ 17|35


Roll key
→ 17|36


Roll key device
→ 17|36


Coolant transfer pipe
→ 138


Others
→ 17|34

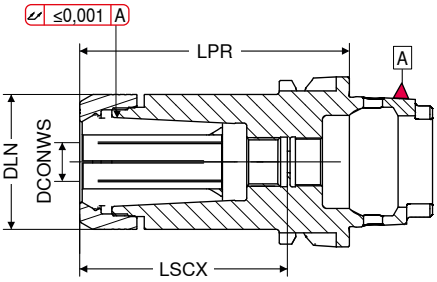
16

OZ Precision Collet Chuck

- Maximum clamping range covered according to ISO tolerance field H10
- Roll key required for clamping
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P







AD
G 2,5 n_{max} 25000

Adapter	DCONWS	LPR	DLN	LSCX	for collet	Article no. 84 724 ...
	mm	mm	mm	mm		
HSK-A 63	2 - 25	85	50	60	462E	**626**
HSK-A 100	2 - 25	90	50	60	462E	**126**

→ Transmittable torque moments, Page 233

LSCX = Clamping depth without back stop screw
Dimension LPR is 4mm longer when using seals



Lock nut IK

Spare parts for collet	Article no. 84 950 ...
462E	**020**

Accessories







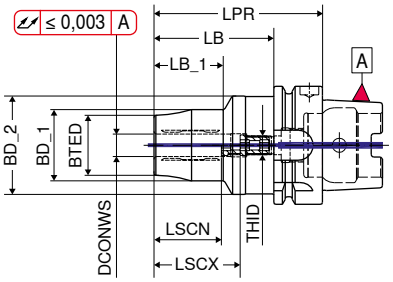

OZ Collet	Sealing ring	Roll key	Roll key device	Coolant transfer pipe	Others
→ 217	→ 217	→ 17|36	→ 17|36	→ 138	→ 17|34

High pressure chuck, short version

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:

Base body with backstop screw and pressure screw







AD
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BTED	BD_1	BD_2	LB_1	LSCX	LSCN	LB	THID	Article no. 83 706 ...
		mm	mm	mm	mm	mm	mm	mm	mm	mm		
short	HSK-A 63	16	95	36	42	52,5	42	49	39	69	M12x1	616
	HSK-A 63	20	100	42	48	52,5	45	51	41	74	M16x1	620
	HSK-A 63	25	120	51	57	53,0	62	57	47	94	M16x1	625
	HSK-A 63	32	125	57	63	53,0	62	61	51	99	M16x1	632

→ Min. clamping depth, Page 233

LSCX = Maximum insertion depth
LSCN = Minimum insertion depth



Clamping key – T



Pressure pin



Pressure screw



Stop screw IK

Spare parts		Article no. 80 397 ...		Article no. 83 950 ...		Article no. 83 950 ...		Article no. 83 950 ...
for Article no.								
83 706 616	SW5	050	Ø5 x 16	433	TR10x1,5x14	430	M12x1x18	446
83 706 620	SW5	050	Ø6 x 16	434	TR10x1,5x14	430	M16x1x18,5	448
83 706 625	SW5	050	Ø6 x 16	434	TR10x1,5x14	430	M16x1x22	449
83 706 632	SW5	050	Ø6 x 16	434	TR10x1,5x14	430	M16x1x25	450

Accessories



Reduction sleeve
→ 17|32



Coolant transfer pipe
→ 138



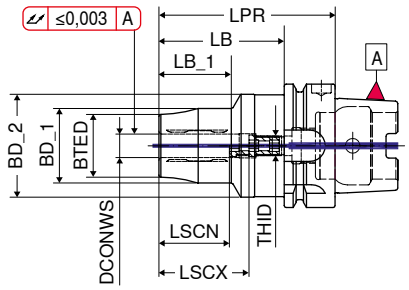
Others
→ 17|34

High pressure chuck, short and stable version

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:

Base body with backstop screw and pressure screw







AD
G 2,5 n_{max} 25000

Adapter	DCONWS	LPR	BTED	BD_1	BD_2	LB_1	LSCX	LSCN	LB	THID	Article no. 83 722 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm		
HSK-A 63	20	80	36	49	52,5	36	51	40	54	M8x1	**120**

→ Min. clamping depth, Page 233

LSCX = Maximum insertion depth
LSCN = Minimum insertion depth


Clamping key – T


Pressure screw


Stop screw IK

Spare parts		Article no. 80 397 ...		Article no. 83 950 ...		Article no. 83 950 ...
for Article no.						
83 722 120	SW5	**050**	M10x1x10	**158**	M8x1x13,5 - SW3	**420**

Accessories


Reduction sleeve
→ 17|32


Coolant transfer pipe
→ 138

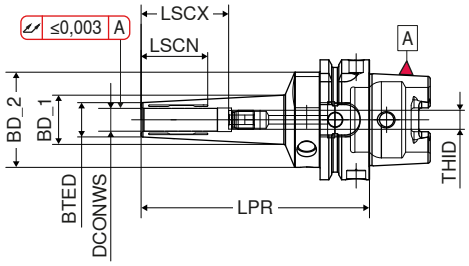

Others
→ 17|34

High pressure chuck, slim 3°

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:

Base body with backstop screw and pressure screw







AD

G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BTED	BD_1	BD_2	LSCX	LSCN	THID	Article no. 83 727 ...
		mm	mm	mm	mm	mm	mm	mm		
Long	HSK-A 63	3	120	9	16,65	50	28	12	M3	603
	HSK-A 63	4	120	10	17,65	50	28	16	M3	604
	HSK-A 63	5	120	11	18,65	50	28	20	M3	605
	HSK-A 63	6	120	12	19,75	50	37	27	M5	606
	HSK-A 63	8	120	14	21,75	50	37	27	M6	608
	HSK-A 63	10	120	16	23,75	50	41	31	M8x1	610
	HSK-A 63	12	120	18	25,86	50	46	36	M10x1	612
	HSK-A 63	16	120	24	31,50	50	49	39	M12x1	616
	HSK-A 63	20	120	28	35,55	50	51	41	M16x1	620
	HSK-A 63	6	160	16	33,53	50	37	27	M5	706
	HSK-A 63	8	160	18	34,55	50	37	27	M6	708
	HSK-A 63	10	160	20	36,27	50	41	31	M8x1	710
	HSK-A 63	12	160	22	37,78	50	46	36	M10x1	712
	HSK-A 63	6	200	16	37,83	50	37	27	M5	806
	HSK-A 63	8	200	18	38,85	50	37	27	M6	808
	HSK-A 63	10	200	20	40,57	50	41	31	M8x1	810
	HSK-A 63	12	200	22	42,07	50	46	36	M10x1	812

→ Min. clamping depth, Page 233

LSCX = Maximum insertion depth
LSCN = Minimum insertion depth



Clamping key – T



Pressure screw



Stop screw IK

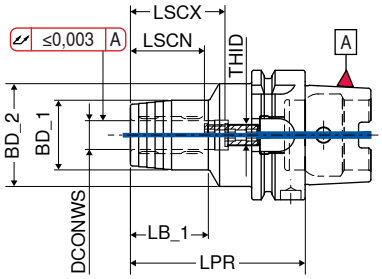
Spare parts		Article no. 80 397 ...		Article no. 83 950 ...		Article no. 83 950 ...
for Article no.						
83 727 603	SW5	050	M10x1x10	158	M3x20 - SW1,5	172
83 727 604	SW5	050	M10x1x10	158	M3x20 - SW1,5	172
83 727 605	SW5	050	M10x1x10	158	M3x20 - SW1,5	172
83 727 606	SW5	050	M10x1x10	158	M5x12,5 - SW2,5	418
83 727 608	SW5	050	M10x1x10	158	M6x12,5 - SW3	419
83 727 610	SW5	050	M10x1x12	159	M8x1x13,5 - SW3	420
83 727 612	SW5	050	M10x1x12	159	M10x1x13,5 - SW5	421
83 727 616	SW5	050	M10x1x12	159	M12x1x13,5 - SW5	422
83 727 620	SW5	050	M10x1x12	159	M16x1x13,5 - SW8	424
83 727 706	SW5	050	M10x1x10	158	M5x12,5 - SW2,5	418
83 727 708	SW5	050	M10x1x10	158	M6x12,5 - SW3	419
83 727 710	SW5	050	M10x1x12	159	M8x1x13,5 - SW3	420
83 727 712	SW5	050	M10x1x12	159	M10x1x13,5 - SW5	421
83 727 806	SW5	050	M10x1x10	158	M6x12,5 - SW3	419
83 727 808	SW5	050	M10x1x10	158	M6x12,5 - SW3	419
83 727 810	SW5	050	M10x1x12	159	M8x1x13,5 - SW3	420
83 727 812	SW5	050	M10x1x12	159	M10x1x13,5 - SW5	421

Hydraulic chuck, short and slim version

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:

Base body with backstop screw and pressure screw







AD
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BD_1	BD_2	LSCX	LSCN	LB_1	THID	Article no. 83 726 ...
		mm	mm	mm	mm	mm	mm	mm		
short	HSK-A 63	6	70	26	49,5	37	27	24	M5	606
	HSK-A 63	8	70	28	49,5	37	27	24	M6	608
	HSK-A 63	10	80	30	49,5	41	31	32	M8x1	610
	HSK-A 63	12	85	32	49,5	46	36	40	M10x1	612
	HSK-A 63	16	90	38	49,5	49	39	46	M12x1	616
	HSK-A 63	20	90	42	49,5	51	41	48	M16x1	620
	HSK-A 63	25	120	57	52,0	57	47	63	M16x1	625
	HSK-A 63	32	125	63	53,0	61	51	61	M16x1	632

→ Min. clamping depth, Page 233

LSCX = Maximum insertion depth
LSCN = Minimum insertion depth


Pressure screw


Stop screw IK

Spare parts DCONWS		Article no. 83 950 ...		Article no. 83 950 ...
6	M8x1x10	439	M5x12,5 - SW2,5	418
8	M8x1x10	439	M6x12,5 - SW3	419
10	M10x1x12	440	M8x1x13,5 - SW3	420
12	M10x1x12	440	M10x1x13,5 - SW5	421
16	M10x1x12	440	M12x1x13,5 - SW5	422
20 - 32	M10x1x12	440	M16x1x13,5 - SW5	423

Accessories


Reduction sleeve
→ 17|32

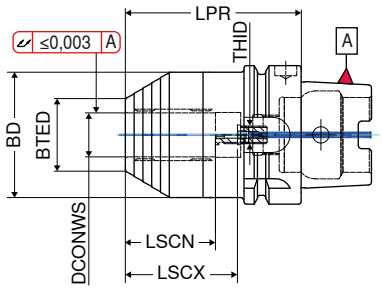

Coolant transfer pipe
→ 138


Others
→ 17|34

Hydraulic chuck, short and stable version

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:
Base body with backstop screw and pressure screw







AD
G 2,5 n_{max} 25000

Adapter	DCONWS	LPR	BTED	BD	LSCX	LSCN	THID	Article no. 83 729 ...
	mm	mm	mm	mm	mm	mm		
HSK-A 63	20	80	33	51,5	51	41	M8x1	**620**

→ Min. clamping depth, Page 233

LSCX = Maximum insertion depth
LSCN = Minimum insertion depth


Pressure screw


Stop screw IK

Spare parts DCONWS	Article no. 83 950 ...		Article no. 83 950 ...	
20	M10x1x12	**440**	M16x1x13,5 - SW5	**423**

Accessories


Reduction sleeve
→ 17|32

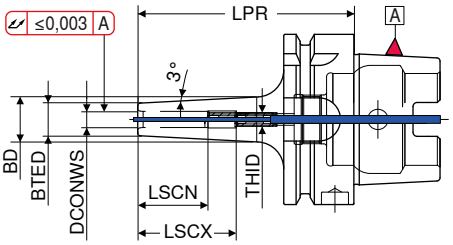

Coolant transfer pipe
→ 138


Others
→ 17|34

Shrink adapter, slim 3°

▲ For solid carbide and HSS shanks with h6 tolerance or better

TG







AD
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BTED	BD	LSCX	LSCN	THID	Article no. 84 324 ...
		mm	mm	mm	mm	mm	mm		
short	HSK-A 63	3	80	9	14	28	12	M6	103
	HSK-A 63	4	80	10	15	28	16	M6	104
	HSK-A 63	5	80	11	16	30	20	M6	105
	HSK-A 63	6	80	12	17	36	26	M5	106
	HSK-A 63	8	80	14	19	36	26	M6	108
	HSK-A 63	10	85	16	21	41	31	M8x1	110
	HSK-A 63	12	90	18	24	47	37	M10x1	112
	HSK-A 63	14	90	20	26	47	37	M10x1	114
	HSK-A 63	16	95	22	28	50	40	M12x1	116
	HSK-A 63	18	95	24	30	50	40	M12x1	118
	HSK-A 63	20	100	26	33	52	42	M16x1	120
long	HSK-A 63	3	120	9	16	12	12		203
	HSK-A 63	4	120	10	17	16	16		204
	HSK-A 63	5	120	11	18	20	20		205
	HSK-A 63	6	120	12	21	36	26	M5	206
	HSK-A 63	8	120	14	23	36	26	M6	208
	HSK-A 63	10	120	16	25	41	31	M8x1	210
	HSK-A 63	12	120	18	27	47	37	M10x1	212
	HSK-A 63	14	120	20	29	47	37	M10x1	214
	HSK-A 63	16	120	22	31	50	40	M12x1	216
	HSK-A 63	18	120	24	33	50	40	M12x1	218
	HSK-A 63	20	120	26	35	52	42	M16x1	220
extra-long	HSK-A 63	3	160	9	19	12	12		303
	HSK-A 63	4	160	10	20	16	16		304
	HSK-A 63	5	160	11	21	20	20		305
	HSK-A 63	6	160	12	24	36	26	M5	306
	HSK-A 63	8	160	14	26	36	26	M6	308
	HSK-A 63	10	160	16	28	41	31	M8x1	310
	HSK-A 63	12	160	18	30	47	37	M10x1	312
	HSK-A 63	14	160	20	32	47	37	M10x1	314
	HSK-A 63	16	160	22	34	50	40	M12x1	316
	HSK-A 63	18	160	24	36	50	40	M12x1	318
	HSK-A 63	20	160	26	38	52	42	M16x1	320

→ Min. clamping depth, Page 233



Stop screw IK



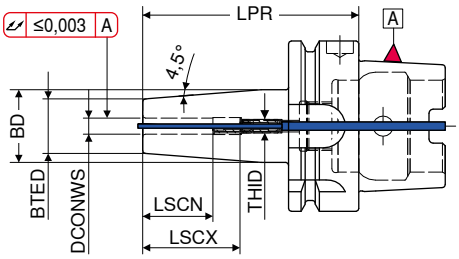
Stop screw IK

Spare parts DCONWS	Article no. 83 950 ...		Article no. 83 950 ...
3 - 5	M6x14 - SW2	417	
6			M5x12,5 - SW2,5 418
8			M6x12,5 - SW3 419
10			M8x1x13,5 - SW3 420
12 - 14			M10x1x13,5 - SW5 421
16 - 18			M12x1x13,5 - SW5 422
20			M16x1x13,5 - SW8 424

Shrink fit adapters 4.5°

▲ For solid carbide and HSS shanks with h6 tolerance or better

TG







AD
G 2,5 n_{max} 25000

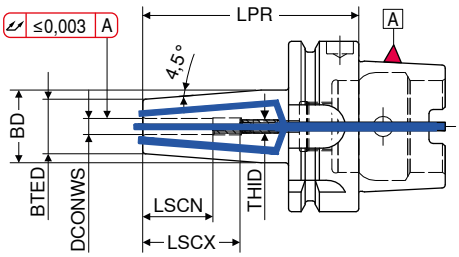
	Adapter	DCONWS	LPR	BTED	BD	LSCX	LSCN	THID	Article no. 84 304 ...
		mm	mm	mm	mm	mm	mm		
short	HSK-A 63	3	80	10	15	22	12	M6	103
	HSK-A 63	4	80	15	22	26	16	M6	104
	HSK-A 63	5	80	15	22	30	20	M6	105
	HSK-A 63	6	80	21	27	36	26	M5	106
	HSK-A 63	8	80	21	27	36	26	M6	108
	HSK-A 63	10	85	24	32	41	31	M8x1	110
	HSK-A 63	12	90	24	32	47	37	M10x1	112
	HSK-A 63	14	90	27	34	47	37	M10x1	114
	HSK-A 63	16	95	27	34	50	40	M12x1	116
	HSK-A 63	18	95	33	42	50	40	M12x1	118
	HSK-A 63	20	100	33	42	52	42	M16x1	120
	HSK-A 63	25	115	44	53	58	48	M16x1	125
	HSK-A 63	32	120	44	53	62	52	M16x1	132
long	HSK-A 63	3	120	10	20	12	12		203
	HSK-A 63	4	120	15	22	16	16		204
	HSK-A 63	5	120	15	22	20	20		205
	HSK-A 63	6	120	21	27	36	26	M5	206
	HSK-A 63	8	120	21	27	36	26	M6	208
	HSK-A 63	10	120	24	32	41	31	M8x1	210
	HSK-A 63	12	120	24	32	47	37	M10x1	212
	HSK-A 63	14	120	27	34	47	37	M10x1	214
	HSK-A 63	16	120	27	34	50	40	M12x1	216
	HSK-A 63	18	120	33	42	50	40	M12x1	218
	HSK-A 63	20	120	33	42	52	42	M16x1	220
	HSK-A 63	25	120	44	53	58	48	M16x1	225
extra-long	HSK-A 63	3	160	10	20	12	12		303
	HSK-A 63	4	160	15	22	16	16		304
	HSK-A 63	5	160	15	22	20	20		305
	HSK-A 63	6	160	21	27	36	26	M5	306
	HSK-A 63	8	160	21	27	36	26	M6	308
	HSK-A 63	10	160	24	32	41	31	M8x1	310
	HSK-A 63	12	160	24	32	47	37	M10x1	312
	HSK-A 63	14	160	27	34	47	37	M10x1	314
	HSK-A 63	16	160	27	34	50	40	M12x1	316
	HSK-A 63	18	160	33	42	50	40	M12x1	318
	HSK-A 63	20	160	33	42	52	42	M16x1	320
	HSK-A 63	25	160	44	53	62	52	M16x1	325
extra long	HSK-A 63	6	200	21	27	36	26	M5	406
	HSK-A 63	8	200	21	27	36	26	M6	408
	HSK-A 63	10	200	24	32	41	31	M8x1	410
	HSK-A 63	12	200	24	32	47	37	M10x1	412
	HSK-A 63	14	200	27	34	47	37	M10x1	414
	HSK-A 63	16	200	27	34	50	40	M12x1	416
	HSK-A 63	18	200	33	42	50	40	M12x1	418
	HSK-A 63	20	200	33	42	52	42	M16x1	420
	HSK-A 63	25	200	44	53	62	52	M16x1	425
	HSK-A 63	32	200	44	53	62	52	M16x1	432

→ Min. clamping depth, Page 233

Shrink fit adapters 4.5°

▲ For solid carbide and HSS shanks with h6 tolerance or better

TG







AD
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BTED	BD	LSCX	LSCN	THID	NEW Article no. 84 316 ...
		mm	mm	mm	mm	mm	mm		
short	HSK-A 63	3	80	10	15	28	12	M6	103
	HSK-A 63	4	80	15	22	28	16	M6	104
	HSK-A 63	5	80	15	22	30	20	M6	105
	HSK-A 63	6	80	21	27	36	26	M5	106
	HSK-A 63	8	80	21	27	36	26	M6	108
	HSK-A 63	10	85	24	32	41	31	M8x1	110
	HSK-A 63	12	90	24	32	47	37	M10x1	112
	HSK-A 63	14	90	27	34	47	37	M10x1	114
	HSK-A 63	16	95	27	34	50	40	M12x1	116
	HSK-A 63	18	95	33	42	50	40	M12x1	118
	HSK-A 63	20	100	33	42	52	42	M16x1	120
	HSK-A 63	25	115	44	53	58	48	M16x1	125
	HSK-A 63	32	120	44	53	62	52	M16x1	132

→ Min. clamping depth, Page 233

LSCX = Maximum insertion depth
LSCN = Minimum insertion depth



Stop screw IK



Stop screw IK



Sealing screw

Spare parts DCONWS		Article no. 83 950 ...		Article no. 83 950 ...		Article no. 83 950 ...
3 - 4	M6x14 - SW2	417			M2x6	512
5			M5x12,5 - SW2,5	418	M2x6	512
6			M6x12,5 - SW3	419	M2x6	512
8			M8x1x13,5 - SW3	420	M2x6	512
10 - 14			M10x1x13,5 - SW5	421	M2x6	512
16 - 18	M12x1 - SW5	510			M2x6	512
20 - 32	M16x1 - SW5	511			M2x6	512

Accessories



Shrink fit extension
→ 17|10



Coolant transfer pipe
→ 138

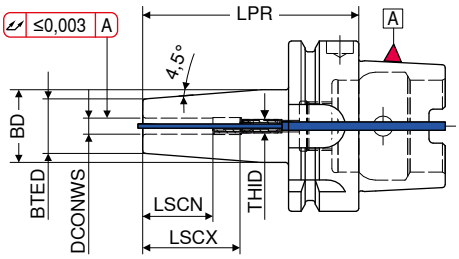


Others
→ 17|34

Shrink fit adapters 4.5°

▲ For solid carbide and HSS shanks with h6 tolerance or better

TG







AD
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BTED	BD	LSCX	LSCN	THID	Article no. 84 305 ...
		mm	mm	mm	mm	mm	mm		
short	HSK-A 100	6	85	21	27	36	26	M5	106
	HSK-A 100	8	85	21	27	36	26	M6	108
	HSK-A 100	10	90	24	32	41	31	M8x1	110
	HSK-A 100	12	95	24	32	47	37	M10x1	112
	HSK-A 100	14	95	27	34	47	37	M10x1	114
	HSK-A 100	16	100	27	34	50	40	M12x1	116
	HSK-A 100	18	100	33	42	50	40	M12x1	118
	HSK-A 100	20	105	33	42	52	42	M16x1	120
	HSK-A 100	25	115	44	53	58	48	M16x1	125
	HSK-A 100	32	120	44	53	62	52	M16x1	132
long	HSK-A 100	6	120	21	27	36	26	M5	206
	HSK-A 100	8	120	21	27	36	26	M6	208
	HSK-A 100	10	120	24	32	41	31	M8x1	210
	HSK-A 100	12	120	24	32	47	37	M10x1	212
	HSK-A 100	14	120	27	34	47	37	M10x1	214
	HSK-A 100	16	120	27	34	50	40	M12x1	216
	HSK-A 100	18	120	33	42	50	40	M12x1	218
	HSK-A 100	20	120	33	42	52	42	M16x1	220
	HSK-A 100	25	120	44	53	58	48	M16x1	225
extra-long	HSK-A 100	6	160	21	27	36	26	M5	306
	HSK-A 100	8	160	21	27	36	26	M6	308
	HSK-A 100	10	160	24	32	41	31	M8x1	310
	HSK-A 100	12	160	24	32	47	37	M10x1	312
	HSK-A 100	14	160	27	34	47	37	M10x1	314
	HSK-A 100	16	160	27	34	50	40	M12x1	316
	HSK-A 100	18	160	33	42	50	40	M12x1	318
	HSK-A 100	20	160	33	42	52	42	M16x1	320
	HSK-A 100	25	160	44	53	58	48	M16x1	325
	HSK-A 100	32	160	44	53	62	52	M16x1	332

→ Min. clamping depth, Page 233



Stop screw IK

Spare parts DCONWS	Article no. 83 950 ...
6	M5x12,5 - SW2,5 418
8	M6x12,5 - SW3 419
10	M8x1x13,5 - SW3 420
12 - 14	M10x1x13,5 - SW5 421
16 - 18	M12x1x13,5 - SW5 422
20 - 32	M16x1x13,5 - SW8 424

Accessories


Shrink fit extension
→ 17|10

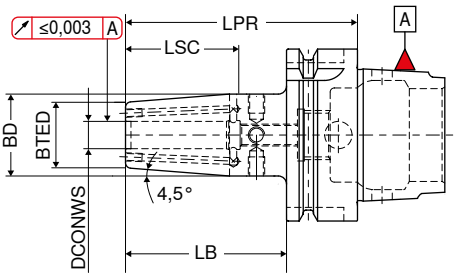

Coolant transfer pipe
→ 138


Others
→ 17|34

Shrink fit adapters 4.5°

- ▲ Version for high clamping force
- ▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:
Holder with adjustable back stop







AD
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BTED	BD	LB	LSC	Article no. 84 717 ...
		mm	mm	mm	mm	mm	mm	
short	HSK-A 63	6	80	21	26	54	36,5	606
	HSK-A 63	8	80	21	26	54	36,5	608
	HSK-A 63	10	85	24	30	59	41,5	610
	HSK-A 63	12	90	24	30	64	46,5	612
	HSK-A 63	14	90	27	34	64	46,5	614
	HSK-A 63	16	95	27	34	69	49,5	616
	HSK-A 63	18	95	33	41	69	49,5	618
	HSK-A 63	20	100	33	41	74	51,5	620
	HSK-A 63	25	115	44	52	89	57,5	625
	HSK-A 63	32	120	44	52	94	61,5	632
	HSK-A 100	6	85	21	26	56	36,5	106
	HSK-A 100	8	85	21	26	56	36,5	108
	HSK-A 100	10	90	24	30	56	41,5	110
	HSK-A 100	12	95	24	30	66	46,5	112
	HSK-A 100	14	95	27	34	66	46,5	114
	HSK-A 100	16	100	27	34	71	49,5	116
	HSK-A 100	18	100	33	42	71	49,5	118
	HSK-A 100	20	105	33	42	76	51,5	120
	HSK-A 100	25	115	44	53	86	57,5	125
	HSK-A 100	32	120	44	53	91	61,5	132

→ Min. clamping depth, Page 233


Stop screw IK


Sealing screw

Spare parts DCONWS	Article no. 62 950 ...		Article no. 62 950 ...	
6	M5x0,8x14	402	M3x6	411
8	M6x1x16	403	M3x6	411
10	M8x1x20	404	M3x6	411
12 - 18	M10x1x20	405	M3x6	411
20	M12x1x20	406	M3x6	411
25 - 32	M12x1x20	406	M4x8	412

Sealing screw for closing of two additional coolant holes.

Accessories


Shrink fit extension
→ 17|10

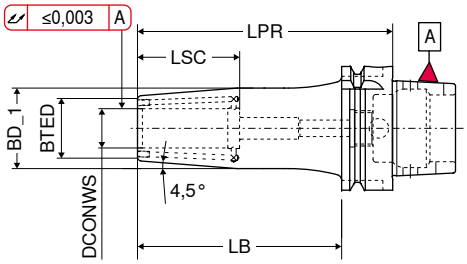

Coolant transfer pipe
→ 138


Others
→ 17|34

Shrink fit adapters 4.5°

- ▲ Version for high clamping force
- ▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:
Holder with adjustable back stop






AD
G 2,5 n_{max} 25000

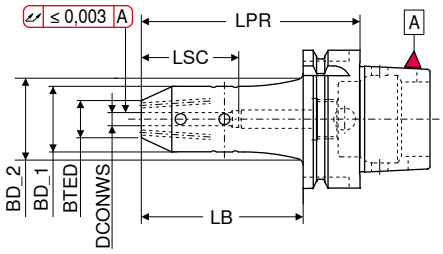

AD
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BTED	BD_1	LB	LSC	Article no. 84 720 ...	Article no. 84 723 ...
		mm	mm	mm	mm	mm	mm		
medium length	HSK-A 63	6	130	21	27	104	36,5	606	
	HSK-A 63	8	130	21	27	104	36,5	608	
	HSK-A 63	10	130	24	32	104	41,5	610	
	HSK-A 63	12	130	24	32	104	46,5	612	
	HSK-A 63	14	130	27	34	104	46,5	614	
	HSK-A 63	16	130	27	34	104	49,5	616	
	HSK-A 63	18	130	33	41	104	49,5	618	
	HSK-A 63	20	130	33	41	104	51,5	620	
	HSK-A 100	6	130	21	27	101	36,5	106	
	HSK-A 100	8	130	21	27	101	36,5	108	
	HSK-A 100	10	130	24	32	101	41,5	110	
	HSK-A 100	12	130	24	32	101	46,5	112	
	HSK-A 100	14	130	27	34	101	46,5	114	
	HSK-A 100	16	130	27	34	101	49,5	116	
	HSK-A 100	18	130	33	41	101	49,5	118	
	HSK-A 100	20	130	33	41	101	51,5	120	
extra-long	HSK-A 63	6	160	21	27	134	36,5		606
	HSK-A 63	8	160	21	27	134	36,5		608
	HSK-A 63	10	160	24	32	134	41,5		610
	HSK-A 63	12	160	24	32	134	46,5		612
	HSK-A 63	14	160	27	34	134	46,5		614
	HSK-A 63	16	160	27	34	134	49,5		616
	HSK-A 63	18	160	33	41	134	49,5		618
	HSK-A 63	20	160	33	41	134	51,5		620
	HSK-A 63	25	160	44	52	134	57,5		625
	HSK-A 100	6	160	21	27	131	36,5		106
	HSK-A 100	8	160	21	27	131	36,5		108
	HSK-A 100	10	160	24	32	131	41,5		110
	HSK-A 100	12	160	24	32	131	46,5		112
	HSK-A 100	14	160	27	34	131	46,5		114
	HSK-A 100	16	160	27	34	131	49,5		116
	HSK-A 100	18	160	33	41	131	49,5		118
	HSK-A 100	20	160	33	41	131	51,5		120
	HSK-A 100	25	160	44	53	131	57,5		125
	HSK-A 100	32	160	44	53	131	61,5		132

→ Min. clamping depth, Page 233

Sidelock holder (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat





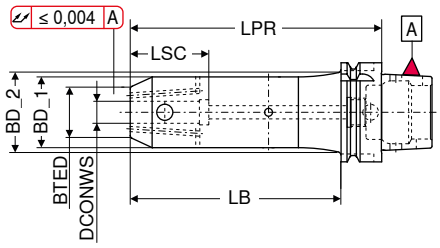
	Adapter	DCONWS $_{H5}$	LPR	BD_1	BTED	LB	LSC	BD_2	AD G 2,5 n_{max} 25000 Article no. 84 700 ...	AD G 2,5 n_{max} 25000 Article no. 84 701 ...	AD G 2,5 n_{max} 25000 Article no. 84 704 ...	AD G 2,5 n_{max} 25000 Article no. 84 705 ...
		mm	mm	mm	mm	mm	mm	mm				
short	HSK-A 63	6	65	30	17	39	34		606	606 [1]		
	HSK-A 63	8	65	32	20	39	34		608	608 [1]		
	HSK-A 63	10	65	35	25	39	39		610	610 [1]		
	HSK-A 63	12	80	42	30	54	44		612	612 [1]		
	HSK-A 63	14	80	45	32	54	44		614	614 [1]		
	HSK-A 63	16	80	48	36	54	47		616	616 [1]		
	HSK-A 63	18	80	48	38	54	47		618	618 [1]		
	HSK-A 63	20	80	52	40	54	49		620	620 [1]		
	HSK-A 63	25	110	63	45	84	54		625	625 [1]		
	HSK-A 63	32	110	72	52	84	58		632	632 [1]		
	HSK-A 100	6	80	30	17	51	34		106			
	HSK-A 100	8	80	32	20	51	34		108			
	HSK-A 100	10	80	35	25	51	39		110			
	HSK-A 100	12	80	42	30	51	44		112			
	HSK-A 100	14	80	45	32	51	44		114			
	HSK-A 100	16	100	48	36	71	47		116			
	HSK-A 100	18	100	48	38	71	47		118			
	HSK-A 100	20	100	52	40	71	49		120			
	HSK-A 100	25	100	65	45	71	54		125			
	HSK-A 100	32	100	72	52	71	58		132			
	HSK-A 100	40	110	80	60	81	68		140			
long	HSK-A 63	6	100	30	17	74	34	36,2			606	606 [1]
	HSK-A 63	8	100	32	20	74	34	38,2			608	608 [1]
	HSK-A 63	10	100	35	25	74	39	41,2			610	610 [1]
	HSK-A 63	12	100	42	30	74	44				612	612 [1]
	HSK-A 63	14	100	45	32	74	44				614	614 [1]
	HSK-A 63	16	100	48	36	74	47				616	616 [1]
	HSK-A 63	18	100	48	38	74	47				618	618 [1]
	HSK-A 63	20	100	52	40	74	49				620	620 [1]

1) Without threads for balancing screws

Spare parts and accessories on → **Page 110**

Sidelock holder (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat







AD
G 2,5 n_{max} 25000



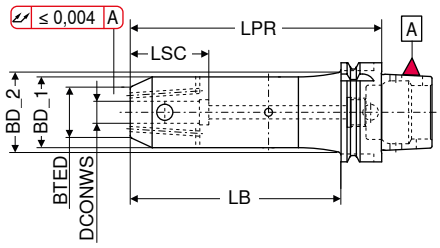
AD
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	BD_1	BTED	LB	LSC	BD_2	Article no. 84 706 ...	Article no. 84 708 ...
		mm	mm	mm	mm	mm	mm	mm		
medium length	HSK-A 63	6	130	30	17	104	34	36,2	606	606
	HSK-A 63	8	130	32	20	104	34	38,2	608	608
	HSK-A 63	10	130	35	25	104	39	41,2	610	610
	HSK-A 63	12	130	42	30	104	44	48,2	612	612
	HSK-A 63	14	130	45	32	104	44	50,5	614	614
	HSK-A 63	16	130	48	36	104	47	50,1	616	616
	HSK-A 63	18	130	48	38	104	47	50,1	618	618
	HSK-A 63	20	130	52	40	104	49		620	620
	HSK-A 63	25	130	63	45	104	54		625	
	HSK-A 63	32	130	72	52	104	58		632	

Spare parts and accessories on → **Page 110**

Sidelock holder (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat







AD
G 2,5 n_{max} 25000

	Adapter	DCONWS $_{H5}$	LPR	BD_1	BTED	LB	LSC	BD_2	Article no. 84 707 ...
		mm	mm	mm	mm	mm	mm	mm	
extra-long	HSK-A 63	6	160	30	17	134	34	36,2	606
	HSK-A 63	8	160	32	20	134	34	38,2	608
	HSK-A 63	10	160	35	25	134	39	41,2	610
	HSK-A 63	12	160	42	30	134	44	48,2	612
	HSK-A 63	14	160	45	32	134	44	50,5	614
	HSK-A 63	16	160	48	36	134	47	50,1	616
	HSK-A 63	18	160	48	38	134	47	50,1	618
	HSK-A 63	20	160	52	40	134	49		620
	HSK-A 63	25	160	63	45	134	54		625
	HSK-A 100	6	160	30	17	131	34	38,2	106
	HSK-A 100	8	160	32	20	131	34	40,2	108
	HSK-A 100	10	160	35	25	131	39	43,2	110
	HSK-A 100	12	160	42	30	131	44	50,2	112
	HSK-A 100	14	160	45	32	131	44	53,2	114
	HSK-A 100	16	160	48	36	131	47	56,2	116
	HSK-A 100	18	160	48	38	131	47	56,2	118
	HSK-A 100	20	160	52	40	131	49	60,2	120
	HSK-A 100	25	160	65	45	131	54	73,2	125
	HSK-A 100	32	160	72	52	134	58	79,5	132


Grubscrew


Sealing screw

Spare parts DCONWS $_{H5}$		Article no. 62 950 ...		Article no. 62 950 ...
6	M6x10	422	M3x6	411
8	M8x10	423	M3x6	411
10	M10x12	424	M3x6	411
12 - 14	M12x16	425	M3x6	411
16 - 18	M14x16	426	M3x6	411
20	M16x16	427	M3x6	411
25	M18x2x20	428	M4x8	412
32 - 40	M20x2x20	429	M4x8	412

Sealing screw for closing of two additional coolant holes.

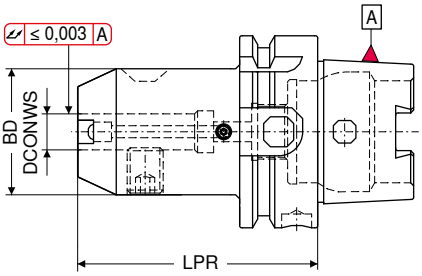
Accessories


Coolant transfer pipe
→ 138


Others
→ 17|34

Sidelock holder (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat



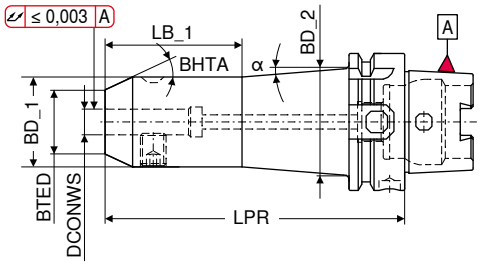


	Adapter	DCONWS $_{H4}$	LPR	BD	AD G 2,5 n_{max} 18000	AD G 2,5 n_{max} 18000	AD G 6,3 n_{max} 15000	ADe G 2,5 n_{max} 18000	ADe G 6,3 n_{max} 15000
		mm	mm	mm	**Article no. 81 736 ...**	**Article no. 81 731 ...**	**Article no. 81 731 ...**	**Article no. 81 730 ...**	**Article no. 81 730 ...**
short	HSK-A 32	6	60	25		306			
	HSK-A 32	8	60	28		308			
	HSK-A 32	10	65	35		310			
	HSK-A 32	12	75	42		312			
	HSK-A 32	16	75	48		316			
	HSK-A 40	6	60	25		406			
	HSK-A 40	8	60	28		408			
	HSK-A 40	10	65	34		410			
	HSK-A 40	12	70	42		412			
	HSK-A 40	16	80	48		416			
	HSK-A 40	20	80	52		420			
	HSK-A 50	6	65	25		506			
	HSK-A 50	8	65	28		508			
	HSK-A 50	10	65	35		510			
	HSK-A 50	12	80	42		512			
	HSK-A 50	16	80	48		516			
	HSK-A 50	20	80	52		520			
	HSK-A 50	25	105	65		525			
	HSK-A 50	32	120	72		532			
	HSK-A 63	6	65	25		606		606	
	HSK-A 63	8	65	28		608		608	
	HSK-A 63	10	65	35		610		610	
	HSK-A 63	12	80	42		612		612	
	HSK-A 63	14	80	44		614		614	
	HSK-A 63	16	80	48		616		616	
	HSK-A 63	18	80	50		618		618	
	HSK-A 63	20	80	52		620		620	
	HSK-A 63	25	110	65		625		625	
	HSK-A 63	32	110	72		632		632	
	HSK-A 63	40	125	80				640	
	HSK-A 100	6	80	25			106		106
	HSK-A 100	8	80	28			108		108
	HSK-A 100	10	80	35			110		110
	HSK-A 100	12	80	42			112		112
	HSK-A 100	14	80	44			114		114
	HSK-A 100	16	100	48			116		116
	HSK-A 100	18	100	50			118		118
	HSK-A 100	20	100	52			120		120
	HSK-A 100	25	100	65			125		125
	HSK-A 100	32	100	72			132		132
	HSK-A 100	40	105	80			140		140
long	HSK-A 63	6	100	25	606				
	HSK-A 63	8	100	28	608				
	HSK-A 63	10	100	35	610				
	HSK-A 63	12	100	42	612				
	HSK-A 63	16	100	48	616				
	HSK-A 63	40	125	80	640				

16

Sidelock holder (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat







AD
G 6,3 n_{max} 15000



AD
G 6,3 n_{max} 10000

	Adapter	DCONWS $_{H4}$	LPR	BD_1	BD_2	BTED	LB_1	BHTA	α°	Article no. 81 732 ...	Article no. 81 732 ...
		mm	mm	mm	mm	mm	mm				
extra-long	HSK-A 63	6	160	25	34,7	15	50	25°	3,5	606	
	HSK-A 63	8	160	28	37,9	20	50	25°	3,5	608	
	HSK-A 63	10	160	35	43,7	25	60	25°	3,5	610	
	HSK-A 63	12	160	42		30		25°		612 [1]	
	HSK-A 63	16	160	48		36		25°		616 [1]	
	HSK-A 63	20	160	52		40		25°		620 [1]	
	HSK-A 100	6	160	25	45,2	15	50	25°	7,5		106
	HSK-A 100	8	160	28	48,7	20	50	25°	7,5		108
	HSK-A 100	10	160	35	51,2	25	65	25°	7,5		110
	HSK-A 100	12	160	42	59,5	30	60	25°	7,5		112
	HSK-A 100	16	160	48	62,9	36	70	25°	7,5		116
	HSK-A 100	20	160	52	69,6	40	60	25°	7,5		120
	HSK-A 100	25	160	65	77,5	45	80	45°	7,5		125

1) Cylindrical shank adapter



Grubscrew

Spare parts DCONWS $_{H4}$		Article no. 62 950 ...
6	M6x10	006
8	M8x10	008
10	M10x12	010
12	M12x16	012
14	M12x16	012
16	M14x16	016
18	M14x16	016
20	M16x16	020
25	M18x2x20	025
32	M20x2x20	032
40	M20x2x20	032

Accessories



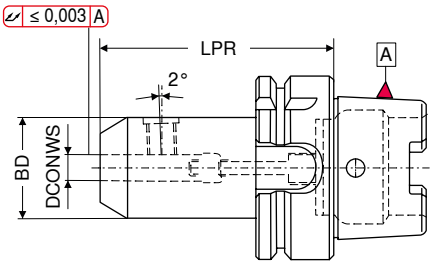
Coolant transfer pipe
→ 138



Others
→ 17|34

Tool holder for tools with angled clamping flat (Whistle Notch)

▲ For shanks according to DIN 6535 HE / 1835 E with angled clamping flat






AD
G 2,5 n_{max} 18000


AD
G 6,3 n_{max} 15000

	Adapter	DCONWS $_{H4}$	LPR	BD	Article no. 81 733 ...	Article no. 81 733 ...
		mm	mm	mm		
short	HSK-A 63	6	80	25	606	
	HSK-A 63	8	80	28	608	
	HSK-A 63	10	80	35	610	
	HSK-A 63	12	90	42	612	
	HSK-A 63	14	90	44	614	
	HSK-A 63	16	100	48	616	
	HSK-A 63	18	100	50	618	
	HSK-A 63	20	100	52	620	
	HSK-A 63	25	110	65	625	
	HSK-A 63	32	110	72	632	
	HSK-A 100	6	90	25		106
	HSK-A 100	8	90	28		108
	HSK-A 100	10	90	35		110
	HSK-A 100	12	100	42		112
	HSK-A 100	14	100	44		114
	HSK-A 100	16	100	48		116
	HSK-A 100	18	100	50		118
	HSK-A 100	20	110	52		120
	HSK-A 100	25	120	65		125
	HSK-A 100	32	120	72		132
	HSK-A 100	40	120	80		140


Grubscrew


Stop screw IK

Spare parts DCONWS $_{H4}$		Article no. 62 950 ...		Article no. 81 950 ...
6	M6x10	006	M5x15	050
8	M8x10	008	M6x15	051
10	M10x12	010	M8x15	052
12 - 14	M12x16	012	M10x15	053
16 - 18	M14x16	016	M12x15	054
20	M16x16	020	M16x15	055
25	M18x2x20	025	M20x15	056
32	M20x2x20	032	M20x15	056
40	M20x2x20	032	M22x1,5x15	057

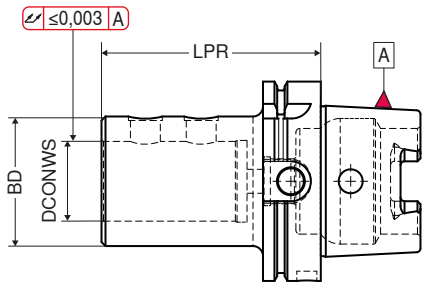
Accessories


Coolant transfer pipe
→ 138


Others
→ 17|34

16

Indexable insert drill adapter ISO 12164 HSK Form A







AD
G 6,3 n_{max} 15000

Adapter	DCONWS	LPR	BD	Article no. 10 842 ...
	mm	mm	mm	
HSK-A 63	20	80	40	**320**
HSK-A 63	25	90	45	**325**
HSK-A 63	32	90	52	**332**
HSK-A 63	40	110	65	**340**
HSK-A 100	20	90	40	**420**
HSK-A 100	25	100	45	**425**
HSK-A 100	32	100	52	**432**
HSK-A 100	40	110	65	**440**
HSK-A 100	50	120	75	**450**

Suitable eccentric sleeves can be found in → **Chapter 3, Indexable insert drilling.**



Grubscrew

Spare parts DCONWS		Article no. 10 950 ...
20	M10x1x10	**001**
25 - 32	M12x1x10	**002**
40 - 50	M16x1x12	**003**

Accessories



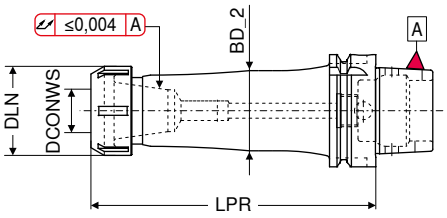
Coolant transfer pipe
→ 138



Others
→ 17|34

ER Collet chuck

Scope of supply:
Holder with lock nut and adjustable back stop






AD
G 2,5 n_{max} 25000


AD
G 2,5 n_{max} 25000


AD
G 2,5 n_{max} 25000

	Adapter	DCONWS	LPR	DLN	BD_2	TQX	for collet	Article no. 84 726 ...	Article no. 84 732 ...	Article no. 84 738 ...
		mm	mm	mm	mm	Nm				
long	HSK-A 63	1 - 10	100	22	27	8 - 56	426E (ER16 mini)	610		
	HSK-A 63	1 - 16	100	42	37	24 - 104	430E (ER25)	616		
	HSK-A 63	2 - 20	100	50	45	24 - 136	470E (ER32)	620		
	HSK-A 63	3 - 26	100	63	52	176	472E (ER40)	626		
	HSK-A 100	1 - 10	100	22	27	8 - 56	426E (ER16 mini)	110		
	HSK-A 100	1 - 16	100	42	37	24 - 104	430E (ER25)	116		
	HSK-A 100	2 - 20	100	50	45	24 - 136	470E (ER32)	120		
	HSK-A 100	3 - 26	100	63	56	176	472E (ER40)	126		
extra-long	HSK-A 63	1 - 10	160	22	27	8 - 56	426E (ER16 mini)			610
	HSK-A 63	1 - 16	160	42	37	24 - 104	430E (ER25)			616
	HSK-A 63	2 - 20	160	50	45	24 - 136	470E (ER32)			620
	HSK-A 63	3 - 26	160	63	52	176	472E (ER40)			626
	HSK-A 100	1 - 10	200	22	27	8 - 56	426E (ER16 mini)			110
	HSK-A 100	1 - 16	200	42	37	24 - 104	430E (ER25)			116
	HSK-A 100	2 - 20	200	50	45	24 - 136	470E (ER32)			120
	HSK-A 100	3 - 26	200	63	56	176	472E (ER40)			126
	HSK-A 100	1 - 10	160	22	27	8 - 56	426E (ER16 mini)		110	
	HSK-A 100	1 - 16	160	42	37	24 - 104	430E (ER25)		116	
	HSK-A 100	2 - 20	160	50	45	24 - 136	470E (ER32)		120	
	HSK-A 100	3 - 26	160	63	56	176	472E (ER40)		126	


Lock nut IK


Lock nut


Y clamping key


ER Mini clamping key


Mini lock nut


Mini IK


Stop screw IK

Spare parts	Article no. 83 950 ...	Article no. 62 950 ...	Article no. 83 357 ...	Article no. 83 950 ...	Article no. 62 950 ...	Article no. 83 950 ...	Article no. 62 950 ...
for collet							
426E (ER16 mini)				101	066	058	403
430E (ER25)	055	055	125				406
470E (ER32)	056	056	132				406
472E (ER40)	057	057	140				406

Accessories


ER collet
→ 206, 211–215

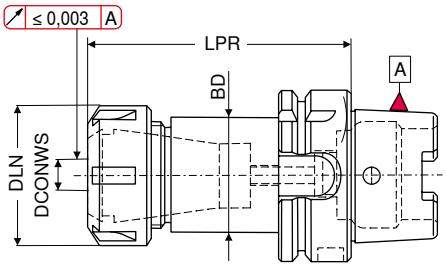

Coolant transfer pipe
→ 138


Others
→ 17|34

16

ER-Collet chuck

Scope of supply:
Toolholder with lock nut and adjustable back stop

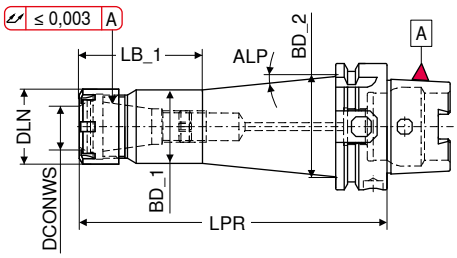




	Adapter	DCONWS	LPR	DLN	BD	TQX	for collet	AD G 6,3 n_{max} 15000	AD G 2,5 n_{max} 18000	AD G 2,5 n_{max} 18000	AD G 6,3 n_{max} 15000	AD G 6,3 n_{max} 10000
		mm	mm	mm	mm	Nm		**Article no. 81 735 ...**	**Article no. 81 735 ...**	**Article no. 81 737 ...**	**Article no. 81 737 ...**	**Article no. 81 737 ...**
short	HSK-A 32	1 - 10	65	22	19	8 - 56	426E (ER16 mini)		**316**			
	HSK-A 32	1 - 16	70	35	30	24 - 104	430E (ER25 mini)		**325**			
	HSK-A 40	1 - 10	70	22	22	8 - 56	426E (ER16 mini)		**416**			
	HSK-A 40	1 - 16	80	42	35	24 - 104	430E (ER25)		**425**			
	HSK-A 50	1 - 10	80	22	22	8 - 56	426E (ER16 mini)		**516**			
	HSK-A 50	1 - 16	95	42	42	24 - 104	430E (ER25)		**525**			
long	HSK-A 40	2 - 20	100	50	40	24 - 136	470E (ER32)		**432**			
	HSK-A 50	2 - 20	100	50	50	24 - 136	470E (ER32)		**532**			
	HSK-A 63	1 - 10	100	22	19	8 - 56	426E (ER16 mini)		**616**			
	HSK-A 63	1 - 16	100	42	32	24 - 104	430E (ER25)		**625**			
	HSK-A 63	2 - 20	100	50	50	24 - 136	470E (ER32)		**632**			
	HSK-A 100	1 - 16	100	42	42	24 - 104	430E (ER25)	**125**				
	HSK-A 100	2 - 20	100	50	50	24 - 136	470E (ER32)	**132**				
medium length	HSK-A 40	1 - 16	120	35	35	24 - 104	430E (ER25 mini)			**425**		
	HSK-A 63	2 - 26	120	63	50	176	472E (ER40)		**640**			
	HSK-A 100	3 - 26	120	63	50	176	472E (ER40)	**140**				
extra-long	HSK-A 63	2 - 20	160	50	50	24 - 136	470E (ER32)				**632**	
	HSK-A 63	3 - 26	160	63	63	176	472E (ER40)				**640**	
	HSK-A 100	1 - 16	160	42	42	24 - 104	430E (ER25)					**125**
	HSK-A 100	2 - 20	160	50	50	24 - 136	470E (ER32)					**132**
	HSK-A 100	3 - 26	160	63	63	176	472E (ER40)					**140**

ER-Collet chuck

Scope of supply:
Toolholder with lock nut and adjustable back stop






AD
G 2,5 n_{max} 18000


AD
G 6,3 n_{max} 15000

	Adapter	DCONWS	LPR	DLN	BD_1	BD_2	LB_1	ALP	TQX	for collet	Article no. 81 737 ...	Article no. 81 737 ...
		mm	mm	mm	mm	mm	mm		Nm			
medium length	HSK-A 40	1 - 10	120	22	22	29,15	47	4°	8 - 56	426E (ER16 mini)	416	
extra-long	HSK-A 63	1 - 10	160	22	22	35,00	57	5°	8 - 56	426E (ER16 mini)		616
	HSK-A 63	1 - 16	160	35	35	46,10	68	5°	24 - 104	430E (ER25 mini)		625


Lock nut IK


Lock nut


Y clamping key


ER Mini clamping key


Mini lock nut


Mini IK


Stop screw IK

Spare parts	Article no. 83 950 ...	Article no. 62 950 ...	Article no. 83 357 ...	Article no. 83 950 ...	Article no. 62 950 ...	Article no. 83 950 ...	Article no. 81 950 ...
for collet							
426E (ER16 mini)				101	066	058	053
430E (ER25 mini)				103	069	060	055
430E (ER25)	055	055	125				055
470E (ER32)	056	056	132				057
472E (ER40)	057	057	140				057

Accessories


ER collet
→ 206, 211–215


Coolant transfer pipe
→ 138


Others
→ 17|34

16

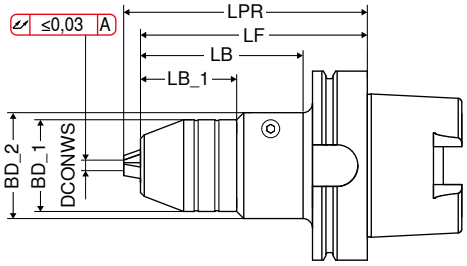
Short drill chuck

- ▲ Independent of direction of rotation
- ▲ Torque Moment = 12 Nm

Scope of supply:

Toolholder including clamping key SW4

NC 2010







AD
G 6,3 n_{max} 10000

Adapter	DCONWS	BD_1	BD_2	LB_1	LB	LPR	LF	Article no. 84 716 ...
	mm	mm	mm	mm	mm	mm	mm	
HSK-A 63	0,5 - 13	48,5	56	50,9		116,9	126,0	**613**
HSK-A 63	2,5 - 16	51,0	56	50,9		116,9	127,5	**616**
HSK-A 100	0,5 - 13	48,5	56	50,9	86	120,0	129,0	**113**
HSK-A 100	2,5 - 16	51,0	56	50,9	86	120,0	130,5	**116**

Can be used with G 2.5 to 30,000 1/min by subsequent balancing !

Accessories



Others

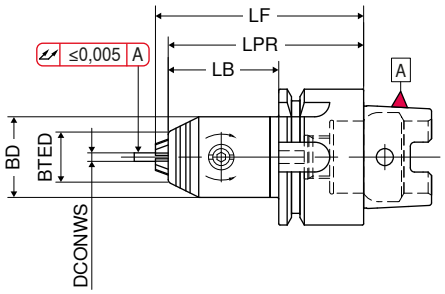
→ 17|34

Micro-precision collet chuck

- Bidirectional
- For speeds up to 60,000 1/min.

Scope of supply:

Holder including clamping wrench SW 2 x 60 mm







AD

G 2,5 n_{max} 25000

Adapter	DCONWS	LB	LPR	LF	BD	BTED	TQX	Article no. 84 710 ...
	mm	mm	mm	mm	mm	mm	Nm	
HSK-A 32	0,2 - 3,4	26	46	49	19	12	2	**334**
HSK-A 40	0,2 - 3,4	26	46	49	19	12	2	**434**
HSK-A 50	0,2 - 3,4	26	52	55	19	12	2	**534**

Torx blade

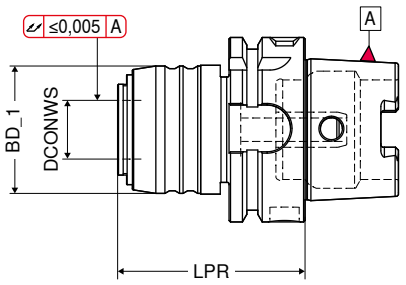


Torque screwdriver

Spare parts	Article no. 80 950 ...		Article no. 80 021 ...
for Article no.			
84 710 334	**152**	1,8 Nm	**018**
84 710 434	**152**	1,8 Nm	**018**
84 710 534	**152**	1,8 Nm	**018**

Synchro tapping chuck with minimum length compensation

- For collets according to DIN 6499
- With length compensation under tension and under compression (LZD)
- $p_{max.}$ = 50 bar







AD

Adapter	cutting range	SZID	DCONWS	LPR	BD_1	LZD±	Article no. 83 724 ...
			mm	mm	mm	mm	
HSK-A 63	M3 - M12	1	20	64	43	1,0 / 0,2	**612**
HSK-A 63	M6 - M20	2	32	97	60	1,0 / 0,2	**620**
HSK-A 100	M3 - M12	1	20	70	43	1,0 / 0,2	**112**
HSK-A 100	M6 - M20	2	32	91	60	1,0 / 0,2	**120**

Accessories

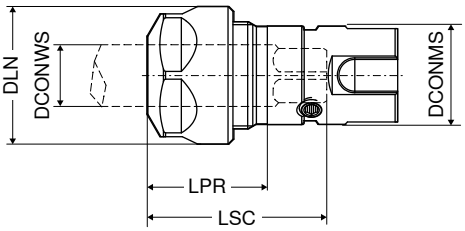


Coolant transfer pipe → 138

Others → 17|34

Insert for synchro quick change tapping chuck with minimum length compensation

Scope of supply:
Includes lock nut







AD

SZID	DCONWS	cutting range	LPR	DLN	LSC	for collet	DCONMS	Article no. 83 608 ...
	mm		mm	mm	mm		mm	
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	**012**
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	**020**

Spare parts for synchronous tapping chucks

		 Lock nut		 Lock nut IK		 Lock nut		 Y clamping key
Spare parts		**Article no. 62 950 ...**		**Article no. 83 950 ...**		**Article no. 62 950 ...**		**Article no. 83 357 ...**
for Article no.								
83 608 012	M22x1,5 - SW25	**044**	M22x1,5	**054**				**116**
83 608 020			M32x1,5	**055**	M32x1,5	**055**		**125**

Accessories



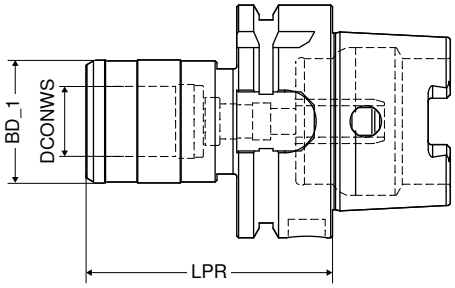
ER collet

→ 212, 214–215

16

Quick change tap chuck with length compensation

▲ With length compensation under tension and under compression (LZD)





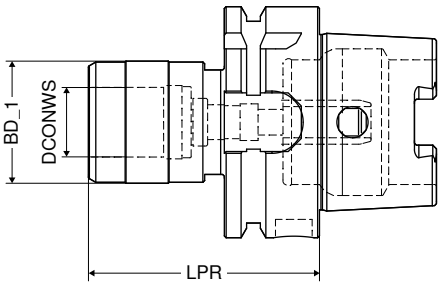


A

Adapter	cutting range	SZID	LPR	BD_1	DCONWS	LZD±	Article no. 83 712 ...
			mm	mm	mm	mm	
HSK-A 63	M3 - M12	01	72	41	19	7,5	**612**
HSK-A 63	M6 - M20	02	110	60	31	10	**620**
HSK-A 100	M3 - M12	01	80	41	19	7,5	**112**
HSK-A 100	M6 - M20	02	100	60	31	10	**120**

Quick change tap chuck without length compensation

▲ $p_{max.}$ = 50 bar







AD

Adapter	cutting range	SZID	LPR	BD_1	DCONWS	Article no. 83 710 ...
			mm	mm	mm	
HSK-A 63	M3 - M12	01	63	33	19	**612**
HSK-A 63	M6 - M20	02	89	50	31	**620**
HSK-A 100	M3 - M12	01	69	33	19	**112**
HSK-A 100	M6 - M20	02	92	50	31	**120**

Accessories



Collet
→ 219–223



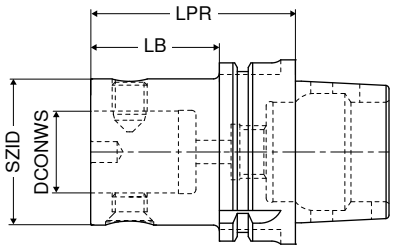
Coolant transfer pipe
→ 138



Others
→ 17|34

Adapter with ABS Connection

ABS





AD
G 6,3 n_{max} 10000

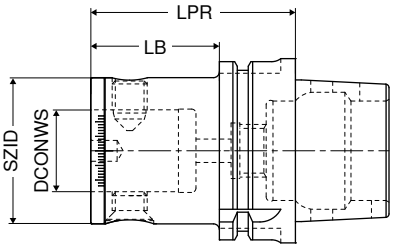
Adapter	KOMET no.	SZID	DCONWS	LPR	LB	NEW Article no. 84 200 ...
			mm	mm	mm	
HSK-A 63	A0630150	ABS 50	28	70	44	**06397**
HSK-A 100	A0650150	ABS 50	28	80	51	**10097**

Eccentric adjuster with ABS Connection

▲ Adjustment ± 0.25 mm on diameter

Scope of supply:
Eccentric adjuster with adjuster key Ø 2.8

ABS



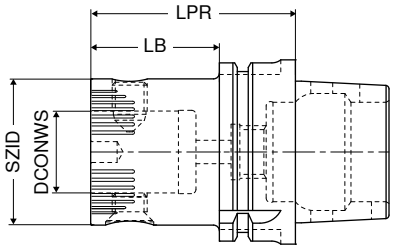


AD

Adapter	KOMET no.	SZID	DCONWS	LPR	LB	NEW Article no. 84 203 ...
			mm	mm	mm	
HSK-A 63	A0636730	ABS 50	28	70	44	**06397**
HSK-A 100	A0656730	ABS 50	28	80	51	**10097**

Torsional vibration dampers with ABS Connection

ABS





AD

Adapter	KOMET no.	SZID	DCONWS	LPR	LB	NEW Article no. 84 206 ...
			mm	mm	mm	
HSK-A 63	A0630251	ABS 50	28	70	44	**06397**
HSK-A 100	A0650251	ABS 50	28	80	51	**10097**

Spare parts SZID	 Clamping screw Article no. 84 950 ...	 Taper screw Article no. 84 950 ...	 Set Article no. 84 950 ...
ABS 50	**20300**	**20400**	**99800**

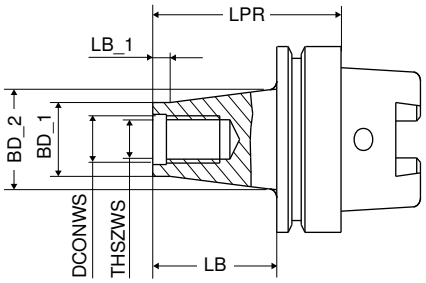
Accessories


Coolant transfer pipe
→ 138


Extension
→ 17|27


Others
→ 17|34

Adapter for milling cutters with threaded end







AD
G 2,5 n_{max} 30000

Adapter	THSZWS	DCONWS	LB	BD_1	BD_2	LB_1	LPR	Article no. 56 714 ...
		mm	mm	mm	mm	mm	mm	
HSK-A 63	M8	8,5	25	13,8	15	12	51	**081**
HSK-A 63	M8	8,5	50	13,8	23	12	76	**082**
HSK-A 63	M8	8,5	75	13,8	25	12	101	**083**
HSK-A 63	M8	8,5	100	13,8	30	12	126	**084**
HSK-A 63	M10	10,5	25	18,0	23	12	51	**101**
HSK-A 63	M10	10,5	50	18,0	25	12	76	**102**
HSK-A 63	M10	10,5	75	18,0	30	12	101	**103**
HSK-A 63	M10	10,5	100	18,0	35	12	126	**104**
HSK-A 63	M12	12,5	25	21,0	24	12	51	**121**
HSK-A 63	M12	12,5	50	21,0	30	12	76	**122**
HSK-A 63	M12	12,5	75	21,0	35	12	101	**123**
HSK-A 63	M12	12,5	100	21,0	38	12	126	**124**
HSK-A 63	M12	12,5	125	21,0	43	12	151	**125**
HSK-A 63	M12	12,5	150	21,0	45	12	176	**126**
HSK-A 63	M16	17,0	25	29,0	29	12	51	**161**
HSK-A 63	M16	17,0	50	29,0	34	12	76	**162**
HSK-A 63	M16	17,0	75	29,0	35	12	101	**163**
HSK-A 63	M16	17,0	100	29,0	40	12	126	**164**
HSK-A 63	M16	17,0	125	29,0	44	12	151	**165**
HSK-A 63	M16	17,0	150	29,0	48	12	176	**166**

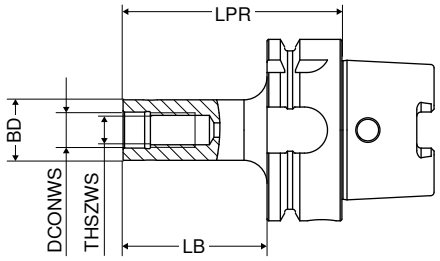
Accessories


Extension-Reduction set
→ 17|19


Coolant transfer pipe
→ 138


Others
→ 17|34

Adapter for milling cutters with threaded end







AD
G 2,5 n_{max} 25000

Adapter	THSZWS	DCONWS	BD	LB	LPR	Article no. 56 719 ...
		mm	mm	mm	mm	
HSK-A 63	M8	8,5	13,8	50	76	**082**
HSK-A 63	M10	10,5	18,0	50	76	**102**
HSK-A 63	M10	10,5	18,0	100	126	**104**
HSK-A 63	M12	12,5	21,0	50	76	**122**
HSK-A 63	M12	12,5	21,0	100	126	**124**
HSK-A 63	M16	17,0	29,0	50	76	**162**
HSK-A 63	M16	17,0	29,0	100	126	**164**

Accessories


Extension-Reduction set
→ 17|19

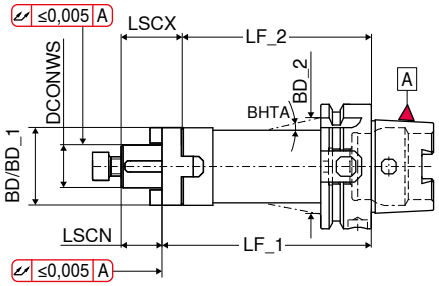

Coolant transfer pipe
→ 138


Others
→ 17|34

Combination shell mill adapter

▲ For milling cutters with transverse or longitudinal groove according to DIN 6358

Scope of supply:
Toolholder with retaining screw, driving ring and dowel spring





	Adapter	DCONWS	LF_1	LF_2	BD	BD_1	BD_2	LSCX	LSCN	BHTA	A G 6,3 n_{max} 15000 Article no. 81 738 ...	A G 6,3 n_{max} 15000 Article no. 81 738 ...	A G 6,3 n_{max} 15000 Article no. 81 739 ...	A G 6,3 n_{max} 15000 Article no. 81 740 ...
		mm	mm	mm	mm	mm	mm	mm	mm					
short	HSK-A 63	16	60	50	32			27	17		616			
	HSK-A 63	22	60	48	40			31	19		622			
	HSK-A 63	27	60	48	48			33	21		627			
	HSK-A 63	32	60	46	53			38	24		632			
	HSK-A 63	40	70	56	70			41	27		640			
	HSK-A 100	16	60	50	32			27	17			116		
	HSK-A 100	22	60	48	40			31	19			122		
	HSK-A 100	27	60	48	48			33	21			127		
	HSK-A 100	32	60	46	58			38	24			132		
	HSK-A 100	40	70	56	70			41	27			140		
long	HSK-A 63	16	100	90	32			27	17				616	
	HSK-A 63	22	100	88	40			31	19				622	
	HSK-A 63	27	100	88	48			33	21				627	
	HSK-A 63	32	100	86	58			38	24				632	
	HSK-A 63	40	100	86	70			41	27				640	
extra-long	HSK-A 63	16	160	150		32	43,21	27	17	4,5°				616
	HSK-A 63	22	160	148		40	47,25	31	19	3,0°				622
	HSK-A 63	27	160	148	48			33	21					627
	HSK-A 63	32	160	146		58	53,00	38	24					632
	HSK-A 63	40	160	146		70	53,00	41	27					640

These combination shell adapters are prebalanced without driving ring, dowel screw and retaining screw.


Parallel key


Drive ring


Retaining screw

Spare parts DCONWS	Article no. 83 950 ...	Article no. 83 370 ...	Article no. 81 950 ...
16	4 x 4 x 20 284	116	M8x20 - 30 Nm 020
16	4 x 4 x 20 284	116	M8x20 - 30 Nm 020
22	6 x 6 x 25 285	122	M10x30 - 50 Nm 021
27	7 x 7 x 25 286	127	M12x35 - 80 Nm 022
32	8 x 7 x 28 287	132	M16x40 - 110 Nm 023
40	10 x 8 x 32 288	140	

Accessories


Milling Adapter Rings → 17|28


Coolant transfer pipe → 138


Others → 17|34

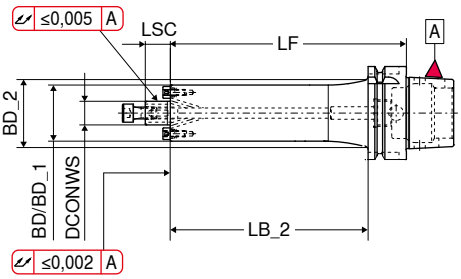
16

Shell mill adapter

▲ For milling cutters with transverse or longitudinal groove ISO 3937

Scope of supply:

Holder with fixed drive dogs, dowel spring and retaining screw





	Adapter	DCONWS	LB_2	LF	BD	BD_1	BD_2	LSC	AD G 2,5 n_{max} 25000 Article no. 84 750 ...	AD G 2,5 n_{max} 25000 Article no. 84 754 ...	AD G 2,5 n_{max} 25000 Article no. 84 755 ...	AD G 2,5 n_{max} 25000 Article no. 84 757 ...
		mm	mm	mm	mm	mm	mm	mm				
short	HSK-A 63	16	34	60	38			17	616			
	HSK-A 63	22	34	60	48			19	622			
	HSK-A 63	27	34	60	58			21	627			
	HSK-A 63	32	34	60	72			24	632			
	HSK-A 63	40	34	70	80			27	640			
	HSK-A 100	16	31	60	38			17	116			
	HSK-A 100	22	31	60	48			19	122			
	HSK-A 100	27	31	60	58			21	127			
	HSK-A 100	32	31	60	72			24	132			
	HSK-A 100	40	41	70	80			27	140			
long	HSK-A 63	16	74	100		38	44,3	17		616		
	HSK-A 63	22	74	100		48	50,3	19		622		
	HSK-A 63	27	74	100	58			21		627		
	HSK-A 63	32	74	100	72			24		632		
	HSK-A 63	40	74	100	80			27		640		
	HSK-A 100	16	71	100		38	46,3	17		116		
	HSK-A 100	22	71	100		48	56,3	19		122		
	HSK-A 100	27	71	100		58	66,3	24		127		
	HSK-A 100	32	71	100		72	80,3	24		132		
	HSK-A 100	40	71	100	80			27		140		
medium length	HSK-A 63	16	104	130		38	44,3	17			616	
	HSK-A 63	22	104	130		48	50,3	19			622	
	HSK-A 63	27	104	130	58			21			627	
	HSK-A 63	32	104	130	72			24			632	
	HSK-A 63	40	104	130	80			27			640	
	HSK-A 100	16	101	130		38	46,3	17			116	
	HSK-A 100	22	101	130		48	56,3	19			122	
	HSK-A 100	27	101	130		58	66,3	21			127	
	HSK-A 100	32	101	130		72	80,3	24			132	
	HSK-A 100	40	101	130	80			27			140	
extra-long	HSK-A 63	16	134	160		38	44,3	17				616
	HSK-A 63	22	134	160		48	50,3	19				622
	HSK-A 63	27	134	160	58			21				627
	HSK-A 63	32	134	160	72			24				632
	HSK-A 63	40	134	160	80			27				640
	HSK-A 100	16	131	160		38	46,3	17				116
	HSK-A 100	22	131	160		48	56,3	19				122
	HSK-A 100	27	131	160		58	66,3	21				127
	HSK-A 100	32	131	160		72	80,3	24				132
	HSK-A 100	40	131	160	80			27				140

Spare parts facemill adapters


Parallel key


Drive dogs


Differential screw

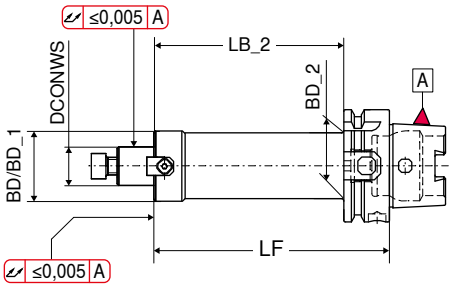

Clamping screw

Spare parts DCONWS		Article no. 83 950 ...		Article no. 62 950 ...		Article no. 62 950 ...		Article no. 83 950 ...
16	4 x 4 x 20	284	M4x15	442	M8x16 - SW6	433	M8x25	113
22	6 x 6 x 25	285	M5x17	443	M10x18 - SW8	434	M10x25	124
27	7 x 7 x 25	286	M6x21	444	M12x20 - SW10	435	M12x30	125
32	8 x 7 x 28	287	M6x22	445	M16x26 - SW12	436	M16x35	126
40	10 x 8 x 32	288	M6x23	446	M20x30 - SW14	437	M20x40	112

Shell mill adapter

- ▲ Enlarged seating surface (Ø BD)
- ▲ For face mills with transverse groove ISO 3937

Scope of supply:
Toolholder with retaining screw and drive dogs






AD
G 2,5 n_{max} 18000


A
G 2,5 n_{max} 18000


A
G 2,5 n_{max} 18000


AD
G 2,5 n_{max} 18000

	Adapter	DCONWS	LB_2	LF	BD	BD_1	BD_2	Article no. 81 728 ...	Article no. 81 741 ...	Article no. 81 742 ...	Article no. 81 747 ...
		mm	mm	mm	mm	mm	mm				
short	HSK-A 63	16	24	50	38			216	616		
	HSK-A 63	22	24	50	48			222	622		
	HSK-A 63	27	34	60	58			227	627		
	HSK-A 63	32	34	60	78			232	632		
	HSK-A 63	40	34	60	88			240 1)	640 1)		
	HSK-A 100	16	21	50	38			116			
	HSK-A 100	22	21	50	48			122			
	HSK-A 100	27	21	50	58			127			
	HSK-A 100	32	21	50	78			132			
	HSK-A 100	40	31	60	88			140 1)			
	HSK-A 100	60	41	70	129			160 2)			
long	HSK-A 63	16	74	100	38					616	616
	HSK-A 63	22	74	100	48					622	622
	HSK-A 63	27	74	100		58	53			627	627
	HSK-A 63	32	74	100		78	53			632	632
	HSK-A 63	40	74	100		88	53			640 1)	640 1)

1) With cross recess screw and threaded holes M12 on the front face, pitch circle diameter = 66.7 mm
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm

Spare parts facemill adapters



Cross nut key



Retaining screw



Retaining screw

Spare parts DCONWS	Article no. 83 368 ...		Article no. 83 367 ...		Article no. 81 950 ...
16	116	M8	016	M8x20 - 30 Nm	020
22	122	M10	022	M10x30 - 50 Nm	021
27	127	M12	027	M12x35 - 80 Nm	022
32	132	M16	032	M16x40 - 110 Nm	023
40	140	M20	040		
60					



Drive dogs



Drive screw

DCONWS		Article no. 81 950 ...		Article no. 81 950 ...
16	8x8x14	001	M3x8	010
22	10x10x17	002	M4x8	011
27	12x14x20	003	M4x14	012
32	14x14x22	004	M5x13	013
40	15,9x16x21	005	M6x16	014
60	25,4x25x31	006	M12x25	015

Accessories



Extensions

→ 17|26



Coolant transfer pipe

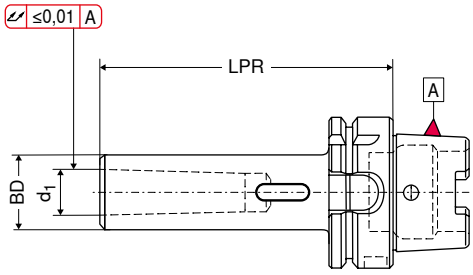
→ 138



Others

→ 17|34

Milling sleeve adapter for Morse taper shanks to DIN 228-2 D





Adapter	d_1	LPR	BD	A G 6,3 n_{max} 15000	A G 6,3 n_{max} 10000
		mm	mm	Article no. 81 744 ...	Article no. 81 744 ...
HSK-A 63	MK1	100	25	**601**	
HSK-A 63	MK2	120	32	**602**	
HSK-A 63	MK3	140	40	**603**	
HSK-A 63	MK4	160	48	**604**	
HSK-A 100	MK1	110	25		**101**
HSK-A 100	MK2	120	32		**102**
HSK-A 100	MK3	150	40		**103**
HSK-A 100	MK4	170	48		**104**
HSK-A 100	MK5	200	63		**105**

Accessories

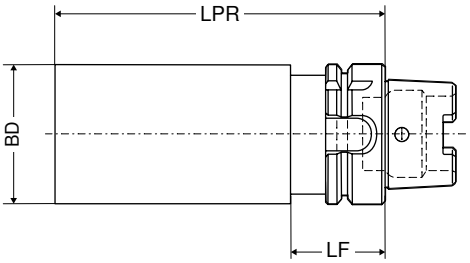

Morse taper adapter sleeve
→ 17|4


Coolant transfer pipe
→ 138


Others
→ 17|34

Blank

- Material: 20NiCrMo2
- For production of special tools
- Taper hardened and ground
- Tool 35^{+3} HRc





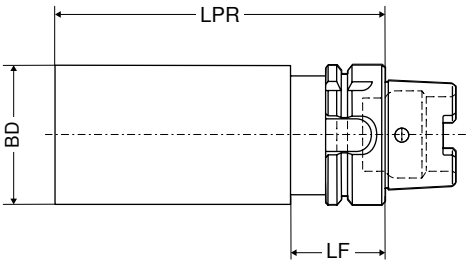


A

Adapter	BD	LPR	LF	Article no. 81 745 ...
	mm	mm	mm	
HSK-A 32	35,0	150	35	**335**
HSK-A 40	40,0	150	35	**440**
HSK-A 40	52,0	200	35	**452**
HSK-A 50	52,0	200	42	**552**
HSK-A 50	63,0	200	42	**563**
HSK-A 63	63,0	200	42	**663**
HSK-A 63	80,0	250	42	**680**
HSK-A 100	63,0	200	45	**163**
HSK-A 100	80,0	250	45	**180**
HSK-A 100	97,5	250	45	**190**

Blank

- For the production of special tools
- Material: case hardened steel 16 MnCr 5
- Taper hardened and ground
- Tool production area = soft





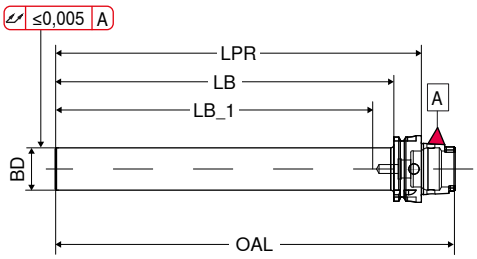


A

Adapter	BD	LPR	LF	Article no. 84 799 ...
	mm	mm	mm	
HSK 63	63	200	42	**663**
HSK 63	80	250	42	**680**

Test arbor

Scope of supply:
In wooden box





Adapter	BD	LPR	LB_1	LB	OAL	Article no. 81 746 ...
	mm	mm	mm	mm	mm	
HSK-A 63	40	346	300	320	378	**063**
HSK-A 100	40	349	300	320	399	**100**

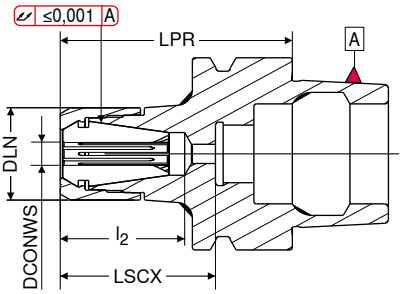
16

ER Precision Collet chuck

- For standard or sealed nuts
- Maximum size collet to ISO tolerance field H10
- For clamping a roll key is required
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P







AD
G 2,5 n_{max} 30000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 mm	for collet	Article no. 84 776 ...
HSK-E 40	2 - 16	60	40	39		430E (ER25)	**417**
HSK-E 50	2 - 16	70	40	49	30 - 39	430E (ER25)	**516**

→ Transmittable torque moments, Page 233

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1
Dimension LPR when using tightening nuts with seals 4 mm longer


Lock nut IK


Lock nut


Stop screw 1

Spare parts for collet	Article no. 84 950 ...	Article no. 84 950 ...	Article no. 83 950 ...
430E (ER25)	**013**	**003**	**338**

Accessories


ER collet
→ 208–211, 213


Sealing ring
→ 207


Roll key
→ 17|36


Roll key device
→ 17|36


Coolant transfer pipe
→ 138

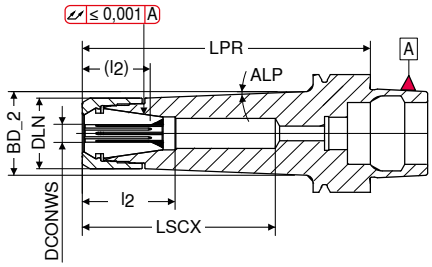

Others
→ 17|34

ER Precision tapered collet chuck

- For special tapered nuts
- Maximum clamping range covered according to ISO tolerance field H10
- Roll key required for clamping
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P





	Adapter	DCONWS	LPR	DLN	BD_2	LSCX	l_2 (l_2)	ALP	for collet	AD G 2,5 n_{max} 30000 Article no. 84 774 ...	AD G 6,3 n_{max} 42000 Article no. 84 774 ...
		mm	mm	mm	mm	mm	mm				
short	HSK-E 25	1 - 5	35	10		16			4004E (ER08 mini)	051	
short	HSK-E 25	1 - 7	35	16		22		2,5°	4008E (ER11 mini)	071	
short	HSK-E 32	1 - 7	50	16	17,5	31	18 - 20	4,5°	4008E (ER11 mini)	307	
short	HSK-E 32	1 - 7	50	16	17,5	31	18 - 20	4,5°	4008E (ER11 mini)		321
short	HSK-E 32	1 - 7	60	16	19,2	41	18 - 28	4,5°	4008E (ER11 mini)		322
short	HSK-E 32	1 - 7	70	16	20,8	45	18 - 32	4,5°	4008E (ER11 mini)		323
short	HSK-E 40	1 - 7	50	16	17,5	31	18 - 20	4,5°	4008E (ER11 mini)	407	
short	HSK-E 50	1 - 7	60	16	19,2	37	15 - 23	4,5°	4008E (ER11 mini)	507	
short	HSK-E 25	1 - 10	45	22		30			426E (ER16 mini)	101	
short	HSK-E 32	1 - 10	55	22	25,8	40	28 - 32 (12 - 22)	4,5°	426E (ER16 mini)	310	
short	HSK-E 40	1 - 10	55	22	25,8	38	28 - 30 (12 - 20)	4,5°	426E (ER16 mini)	410	
short	HSK-E 50	1 - 10	60	22	25,4	39	28 - 31 (12 - 21)	4,5°	426E (ER16 mini)	510	
long	HSK-E 40	1 - 7	100	16	25,4	64	18 - 36 (12 - 26)	4,5°	4008E (ER11 mini)	408	
long	HSK-E 50	1 - 7	100	16	25,4	50	15 - 30 (10 - 21)	4,5°	4008E (ER11 mini)	508	
long	HSK-E 40	1 - 10	100	22	29,0	66	28 - 48 (12 - 38)	2,5°	426E (ER16 mini)	411	
long	HSK-E 50	1 - 10	100	22	28,2	72	28 - 48 (12 - 38)	2,5°	426E (ER16 mini)	511	

→ Transmittable torque moments, Page 233

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, dimension in brackets ( ) = with back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

Spare parts

for collet	 Mini lock nut IK Article no. 84 950 ...	 Mini lock nut Article no. 84 950 ...	 Stop screw 2 Article no. 83 950 ...	 Stop screw 1 Article no. 83 950 ...
4004E (ER08 mini)		040		
4008E (ER11 mini)		041	340	336
426E (ER16 mini)	035	034	341	337

Accessories


ER collet → 208–213


Sealing ring → 207


Device → 17|35


Roll key → 17|36


Roll key device → 17|36


Coolant transfer pipe → 138

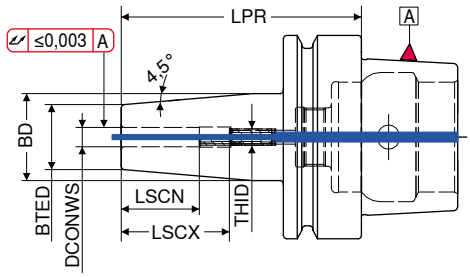

Others → 17|34

16

Shrink fit adapters

▲ For solid carbide and HSS shanks with h6 tolerance or better

TG






AD
G 2,5 n_{max} 25000


AD
G 2,5 n_{max} 25000


AD
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	Article no. 84 307 ...	Article no. 84 308 ...	Article no. 84 309 ...
short	HSK-E 32	3	60	10	15	28	12	M5	103		
	HSK-E 32	4	60	10	15	28	16	M5	104		
	HSK-E 32	5	60	10	15	30	20	M5	105		
	HSK-E 32	6	70	21	25	36	26	M5	106		
	HSK-E 32	8	70	21	25	36	26	M6	108		
	HSK-E 32	10	75	24	29	41	31	M8x1	110		
	HSK-E 32	12	80	24	29	47	37	M10x1	112		
	HSK-E 40	3	60	10	15	28	12	M6		103	
	HSK-E 40	4	60	10	15	28	16	M6		104	
	HSK-E 40	5	60	10	15	30	20	M6		105	
	HSK-E 40	6	80	21	27	36	26	M5		106	
	HSK-E 40	8	80	21	27	36	26	M6		108	
	HSK-E 40	10	80	24	32	41	31	M8x1		110	
	HSK-E 40	12	90	24	32	47	37	M10x1		112	
	HSK-E 40	14	90	27	34	47	37	M10x1		114	
	HSK-E 40	16	90	27	34	50	40	M12x1		116	
	HSK-E 50	3	80	10	15	22	12	M6			103
	HSK-E 50	4	80	15	22	26	16	M6			104
	HSK-E 50	5	80	15	22	30	20	M6			105
	HSK-E 50	6	80	21	27	36	26	M5			106
	HSK-E 50	8	80	21	27	36	26	M6			108
	HSK-E 50	10	85	24	32	41	31	M8x1			110
	HSK-E 50	12	90	24	32	47	37	M10x1			112
	HSK-E 50	14	90	27	34	47	37	M10x1			114
	HSK-E 50	16	95	27	34	50	40	M12x1			116
	HSK-E 50	18	95	33	42	50	40	M12x1			118
	HSK-E 50	20	100	33	42	52	42	M16x1			120

→ Min. clamping depth, Page 233


Stop screw IK


Thro' coolant back stop screw


Stop screw IK

Spare parts DCONWS	Article no. 83 950 ...		Article no. 83 950 ...		Article no. 83 950 ...	
3 - 5	M6x14 - SW2	417	M5x14 - SW2	411		
6					M5x12,5 - SW2,5	418
8					M6x12,5 - SW3	419
10					M8x1x13,5 - SW3	420
12 - 14					M10x1x13,5 - SW5	421
16 - 18					M12x1x13,5 - SW5	422
20					M16x1x13,5 - SW5	423

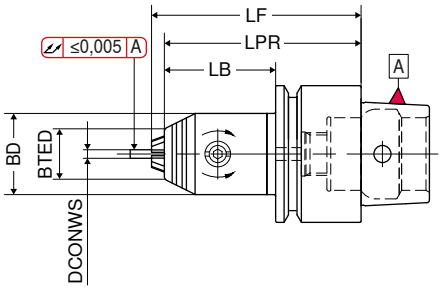
Spare part 83 950 411 only for HSK-E 32. Spare part 83 950 417 for HSK-E 40/HSK-E 50.

Micro-precision collet chuck

- Bidirectional
- For speeds up to 60,000 1/min.

Scope of supply:

Holder including clamping wrench SW 2 x 60 mm







AD
G 2,5 n_{max} 18000

Adapter	DCONWS	LB	LPR	LF	BD	BTED	TQX	Article no. 84 712 ...
	mm	mm	mm	mm	mm	mm	Nm	
HSK-E 25	0,2 - 3,4	27	37	40	19	12	2	**234**
HSK-E 32	0,2 - 3,4	26	46	49	19	12	2	**334**
HSK-E 40	0,2 - 3,4	26	46	49	19	12	2	**434**

Torx blade



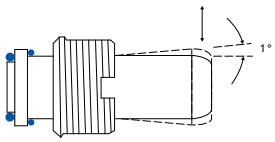
Torque screwdriver

Spare parts for Article no.	Article no. 80 950 ...		Article no. 80 021 ...
84 712 234	**152**	1,8 Nm	**018**
84 712 334	**152**	1,8 Nm	**018**
84 712 434	**152**	1,8 Nm	**018**

16

Coolant pipe

Scope of supply:
Complete, including seals





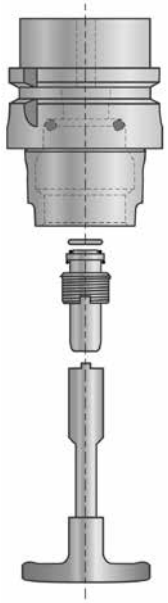
Size	G	Article no. 83 760 ...
HSK 32	M10 x 1	032
HSK 40	M12 x 1	040
HSK 50	M16 x 1	050
HSK 63	M18 x 1	063
HSK 80	M20 x 1,5	080
HSK 100	M24 x 1,5	100

Key



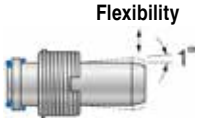
Size	Article no. 83 758 ...
HSK 32	032
HSK 40	040
HSK 50	050
HSK 63	063
HSK 80	080
HSK 100	100

Coolant pipe for HSK tools

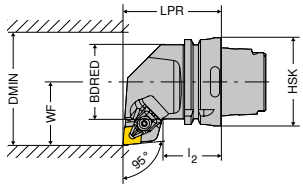


The coolant pipe is ideally mounted in vertical direction – from the bottom to the top. In this manner the sealing ring is prevented from being compressed during locating which would cause the loss of its sealing function. After mounting, the coolant pipe can be moved only to a minimum degree according to DIN (± 1°).

Flexibility



MaxiLock-D – DCLN 95° – Toolholder with top clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	Insert	Left-hand Article no. 74 504 ...	Right-hand Article no. 74 503 ...
HSK T63 DCLN R/L 12	HSK-T 63	70	42	53	45	100	CN.. 1204	**512**	**512**
HSK T63 DCLN R/L 16	HSK-T 63	70	42	53	45	125	CN.. 1606	**516**	**516**
HSK T63 DCLN R/L 19	HSK-T 63	70	42	53	45	125	CN.. 1906	**519**	**519**
HSK T100 DCLN R/L 12	HSK-T 100	80	45	88	55	125	CN.. 1204	**712**	**712**
HSK T100 DCLN R/L 19	HSK-T 100	80	45	88	55	125	CN.. 1906	**719**	**719**


XPress type

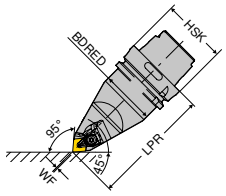
Key D


Clamping screw


Carbide type C

Spare parts for Article no.	XPress type Article no. 70 950 ...		Key D Article no. 80 950 ...		Clamping screw Article no. 70 950 ...		Carbide type C Article no. 70 950 ...
74 504 512 / 74 503 512	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**810**
74 504 516 / 74 503 516	**825**	T20 - IP	**129**	M5x14 - IP	**821**		**814**
74 504 519 / 74 503 519	**826**	T20 - IP	**129**	M5x14 - IP	**821**		**816**
74 504 712 / 74 503 712	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**810**
74 504 719 / 74 503 719	**826**	T20 - IP	**129**	M5x14 - IP	**821**		**816**

MaxiLock-D – DCMN 95° – Toolholder with top clamping





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	Insert	Neutral Article no. 74 506 ...
HSK T63 DCMN N 12	HSK-T 63	115	53	0	CN.. 1204	**512**
HSK T100 DCMN N 12	HSK-T 100	150	88	0	CN.. 1204	**712**


XPress type

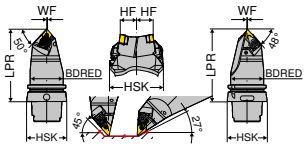
Key D


Clamping screw


Carbide type C

Spare parts for Article no.	XPress type Article no. 70 950 ...		Key D Article no. 80 950 ...		Clamping screw Article no. 70 950 ...		Carbide type C Article no. 70 950 ...
74 506 512	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**810**
74 506 712	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**810**

MaxiLock-D – DCMN + DDMN – Toolholder with top clamping



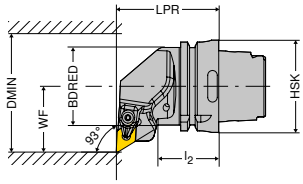


ISO designation	Adapter	LPR	BDRED	WF	HF	Insert	Neutral Article no. 74 600 ...
		mm	mm	mm	mm		
HSK T63 DCMN L 12 + DDMN L 15	HSK-T 63	115	53	0,5	20	CN.. 1204 / DN.. 1506	**501**
HSK T100 DCMN L 12 + DDMN L 15	HSK-T 100	150	88	0,5	20	CN.. 1204 / DN.. 1506	**701**

Face turning maximum 78 mm

Spare parts	XPress type Article no. 70 950 ...	Key D Article no. 80 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide Seat D Article no. 70 950 ...	Carbide type C Article no. 70 950 ...
for Article no.					
74 600 501	**824**	T15 - IP **128**	M4,5x12 - IP **820**	**811**	**810**
74 600 701	**824**	T15 - IP **128**	M4,5x12 - IP **820**	**811**	**810**

MaxiLock-D – DDUN 93° – Toolholder with top clamping





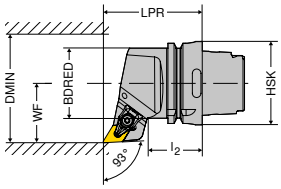
Illustrations show right-hand versions

ISO designation	Adapter	LPR	l_2	BDRED	WF	DMIN	Insert	Left-hand Article no. 74 516 ...	Right-hand Article no. 74 515 ...
		mm	mm	mm	mm	mm			
HSK T63 DDUN R/L 15	HSK-T 63	70	42	53	45	125	DN.. 1506	**515**	**515**
HSK T100 DDUN R/L 15	HSK-T 100	80	45	88	55	125	DN.. 1506	**715**	**715**

Spare parts	XPress type Article no. 70 950 ...	Key D Article no. 80 950 ...	Clamping screw Article no. 70 950 ...	Solid Carbide Seat D Article no. 70 950 ...
for Article no.				
74 516 515 / 74 515 515	**824**	T15 - IP **128**	M4,5x12 - IP **820**	**811**
74 516 715 / 74 515 715	**824**	T15 - IP **128**	M4,5x12 - IP **820**	**811**

MaxiLock-D – DDJN 93° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR	l_2	BDRED	WF	DMIN	Insert	Left-hand Article no. 74 512 ...	Right-hand Article no. 74 511 ...
		mm	mm	mm	mm	mm			
HSK T63 DDJN R/L 15	HSK-T 63	75	42	53	45	125	DN.. 1506	**515**	**515**
HSK T100 DDJN R/L 15	HSK-T 100	85	45	88	55	125	DN.. 1506	**715**	**715**


XPress type

Key D

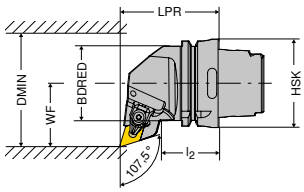

Clamping screw


Solid Carbide Seat D

Spare parts	Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...
for Article no.							
74 512 515 / 74 511 515	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**
74 512 715 / 74 511 715	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**

MaxiLock-D – DDHN 107.5° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR	l_2	BDRED	WF	DMIN	Insert	Left-hand Article no. 74 508 ...	Right-hand Article no. 74 507 ...
		mm	mm	mm	mm	mm			
HSK T63 DDHN R/L 15	HSK-T 63	70	42	53	45	125	DN.. 1506	**515**	**515**


XPress type

Key D

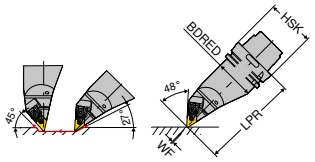

Clamping screw


Solid Carbide Seat D

Spare parts	Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...
for Article no.							
74 508 515 / 74 507 515	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**

MaxiLock-D – DDMN 48° – Toolholder with top clamping







Left-hand

ISO designation	Adapter	LPR	BDRED	WF	Insert	Article no. 74 519 ...
		mm	mm	mm		
HSK T63 DDMN L 15	HSK-T 63	130	53	0	DN.. 1506	**515**
HSK T100 DDMN L 15	HSK-T 100	160	88	0	DN.. 1506	**715**


XPress type

Key D

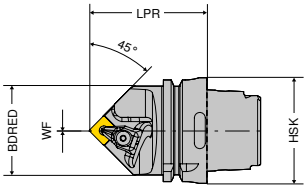

Clamping screw


Solid Carbide Seat D

Spare parts	Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...
for Article no.							
74 519 515	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**
74 519 715	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**

MaxiLock-D – DSDN 45° – Toolholder with top clamping







Neutral

ISO designation	Adapter	LPR	BDRED	WF	Insert	Article no. 74 522 ...
		mm	mm	mm		
HSK T63 DSDN N 12	HSK-T 63	70	53	0	SN.. 1204	**512**
HSK T63 DSDN N 15	HSK-T 63	75	53	0	SN.. 1506	**515**
HSK T100 DSDN N 12	HSK-T 100	80	88	0	SN.. 1204	**712**
HSK T100 DSDN N 19	HSK-T 100	85	88	0	SN.. 1906	**719**


XPress type

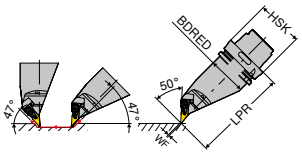
Key D


Clamping screw


Solid Carbide support S

Spare parts	Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...
for Article no.							
74 522 512	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**813**
74 522 515	**825**	T20 - IP	**129**	M5x14 - IP	**821**		**833**
74 522 712	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**813**
74 522 719	**826**	T20 - IP	**129**	M5x14 - IP	**821**		**817**

MaxiLock-D – DVMN 50° – Toolholder with top clamping

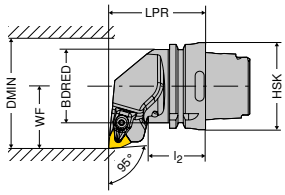




ISO designation	Adapter	LPR	BDRED	WF	Insert	Left-hand Article no. 74 525 ...
		mm	mm	mm		
HSK T63 DVMN L 16	HSK-T 63	130	53	0	VN.. 1604	**516**
HSK T100 DVMN L 16	HSK-T 100	160	88	0	VN.. 1604	**716**

Spare parts	XPress type		Key D		Clamping screw		Solid Carbide Seat V	
	Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
for Article no.								
74 525 516	**835**	T09 - IP	**126**	M3x7 - IP	**819**			**806**
74 525 716	**835**	T09 - IP	**126**	M3x7 - IP	**819**			**806**

MaxiLock-D – DWLN 95° – Toolholder with top clamping





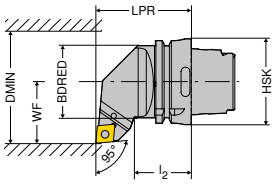
Illustrations show right-hand versions

ISO designation	Adapter	LPR	l_2	BDRED	WF	DMIN	Insert	Left-hand Article no. 74 529 ...	Right-hand Article no. 74 528 ...
		mm	mm	mm	mm	mm			
HSK T63 DWLN R/L 08	HSK-T 63	70	42	53	45	125	WN.. 0804	**508**	**508**
HSK T100 DWLN R/L 08	HSK-T 100	80	45	88	55	125	WN.. 0804	**708**	**708**

Spare parts	XPress type		Key D		Clamping screw		Solid Carbide Seat W	
	Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
for Article no.								
74 529 508 / 74 528 508	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**			**812**
74 529 708 / 74 528 708	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**			**812**

MaxiLock-S – SCLC 95° – Toolholder with screw clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	Insert	Left-hand Article no. 74 541 ...	Right-hand Article no. 74 540 ...
HSK T63 SCLC R/L 12	HSK-T 63	70	42	53	45	100	CC.. 1204	512	512


Combination Key


Clamping screw

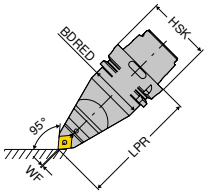

Carbide type C


Threaded sleeve

Spare parts for Article no.		Combination Key Article no. 70 950 ...		Clamping screw Article no. 70 950 ...		Carbide type C Article no. 70 950 ...		Threaded sleeve Article no. 70 950 ...	
74 541 512 / 74 540 512	T15/SW		398	M4,5x12	114		166	M4,5	170

MaxiLock-S – SCMC 50° – Toolholder with screw clamping







ISO designation	Adapter	LPR mm	BDRED mm	WF mm	Insert	Neutral Article no. 74 542 ...
HSK T63 SCMC N 12	HSK-T 63	115	53	0	CC.. 1204	512


Combination Key


Clamping screw

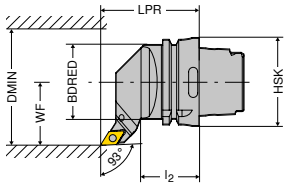

Carbide type C


Threaded sleeve

Spare parts for Article no.		Combination Key Article no. 70 950 ...		Clamping screw Article no. 70 950 ...		Carbide type C Article no. 70 950 ...		Threaded sleeve Article no. 70 950 ...	
74 542 512	T15/SW		398	M4,5x12	114		166	M4,5	170

MaxiLock-S – SDJC 93° – Toolholder with screw clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR	l_2	BDRED	WF	DMIN	Insert	Left-hand Article no. 74 544 ...	Right-hand Article no. 74 543 ...
		mm	mm	mm	mm	mm			
HSK T63 SDJC R/L 11	HSK-T 63	70	42	53	45	100	DC.. 11T3	511	511


Combination Key


Clamping screw

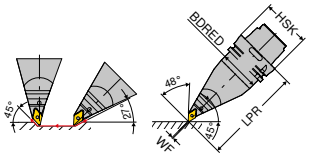

Solid Carbide Seat D


Threaded sleeve

Spare parts		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...
for Article no.								
74 544 511 / 74 543 511	T15/SW	398	M3,5x11	113		106	M3,5	171

MaxiLock-S – SDMC 48° – Toolholder with screw clamping







ISO designation	Adapter	LPR	BDRED	WF	Insert	Left-hand Article no. 74 546 ...
		mm	mm	mm		
HSK T63 SDMC L 11	HSK-T 63	130	53	0	DC.. 11T3	511


Combination Key


Clamping screw


Solid Carbide Seat D

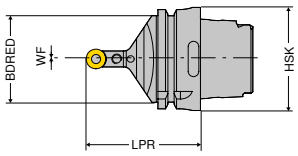

Threaded sleeve

Spare parts		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...
for Article no.								
74 546 511	T15/SW	398	M3,5x11	113		106	M3,5	171

16

MaxiLock-N – PRDC 0° – Toolholder with lever clamping





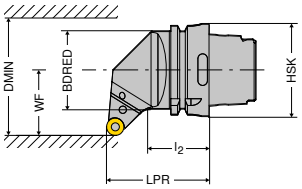


ISO designation	Adapter	LPR	BDRED	WF	Insert	Neutral Article no. 74 548 ...
		mm	mm	mm		
HSK T63 PRDC N 12	HSK-T 63	70	53	0	RC.. 1204 MO	**512**
HSK T100 PRDC N 12	HSK-T 100	80	88	0	RC.. 1204 MO	**712**
HSK T100 PRDC N 16	HSK-T 100	80	88	0	RC.. 1606 MO	**716**

Spare parts		Key I	Shim	Assembly pin	Lever	Clamping screw	Solid carbide support R
		Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
for Article no.							
74 548 512	SW2,5	**175**	**197**	**191**	**178**	**208**	**215**
74 548 712	SW2,5	**175**	**197**	**191**	**178**	**208**	**215**
74 548 716	SW03	**176**	**196**	**192**	**387**	**390**	**384**

MaxiLock-N – PRSC – Toolholder with lever clamping







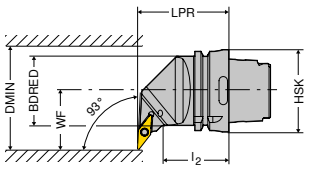
Illustrations show right-hand versions

ISO designation	Adapter	LPR	l_2	BDRED	WF	DMIN	Insert	Left-hand Article no. 74 552 ...	Right-hand Article no. 74 551 ...
		mm	mm	mm	mm	mm			
HSK T63 PRSC R/L 12	HSK-T 63	70	44	53	45	100	RC.. 1204 MO	**512**	**512**
HSK T100 PRSC R/L 12	HSK-T 100	80	57	88	55	106	RC.. 1204 MO	**712**	**712**
HSK T100 PRSC R/L 16	HSK-T 100	80	55	88	55	125	RC.. 1606 MO	**716**	**716**

Spare parts		Key I	Shim	Assembly pin	Lever	Clamping screw	Solid carbide support R
		Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
for Article no.							
74 552 512 / 74 551 512	SW2,5	**175**	**197**	**191**	**178**	**208**	**215**
74 552 712 / 74 551 712	SW2,5	**175**	**197**	**191**	**178**	**208**	**215**
74 552 716 / 74 551 716	SW03	**176**	**196**	**192**	**387**	**390**	**384**

MaxiLock-S – SVUC 93° – Toolholder with screw clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	Insert	Left-hand Article no. 74 557 ...		Right-hand Article no. 74 558 ...	
HSK T63 SVUC R/L 16	HSK-T 63	70	42	53	45	100	VC.. 1604		**516**		**516**


Combination Key


Clamping screw

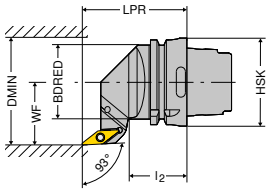

Solid Carbide Seat V


Threaded sleeve

Spare parts		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
for Article no.									
74 557 516 / 74 558 516	T15/SW		**398**	M3,5x11		**113**		**107**	M3,5		**171**

MaxiLock-S – SVJC 93° – Toolholder with screw clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	Insert	Left-hand Article no. 74 556 ...		Right-hand Article no. 74 555 ...	
HSK T63 SVJC R/L 16	HSK-T 63	75	42	53	45	100	VC.. 1604		**516**		**516**


Combination Key


Clamping screw

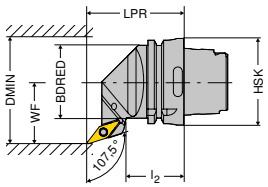

Solid Carbide Seat V


Threaded sleeve

Spare parts		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
for Article no.									
74 556 516 / 74 555 516	T15/SW		**398**	M3,5x11		**113**		**107**	M3,5		**171**

MaxiLock-S – SVHC 107.5° – Toolholder with screw clamping







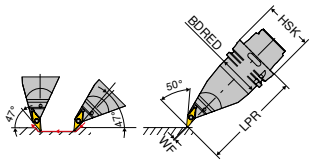
Illustrations show right-hand versions

ISO designation	Adapter	LPR	l_2	BDRED	WF	DMIN	Insert	Left-hand Article no. 74 554 ...	Right-hand Article no. 74 553 ...
		mm	mm	mm	mm	mm			
HSK T63 SVHC R/L 16	HSK-T 63	70	42	53	45	100	VC.. 1604	516	516

Spare parts		Combination Key Article no. 70 950 ...		Clamping screw Article no. 70 950 ...		Solid Carbide Seat V Article no. 70 950 ...		Threaded sleeve Article no. 70 950 ...
for Article no.								
74 554 516 / 74 553 516	T15/SW	398	M3,5x11	113		107	M3,5	171

MaxiLock-S – SVMC 50° – Toolholder with screw clamping



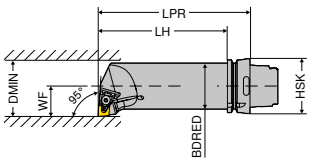




ISO designation	Adapter	LPR	BDRED	WF	Insert	Left-hand Article no. 74 560 ...
		mm	mm	mm		
HSK T63 SVMC L 16	HSK-T 63	130	53	0	VC.. 1604	516

Spare parts		Combination Key Article no. 70 950 ...		Clamping screw Article no. 70 950 ...		Solid Carbide Seat V Article no. 70 950 ...		Threaded sleeve Article no. 70 950 ...
for Article no.								
74 560 516	T15/SW	398	M3,5x11	113		107	M3,5	171

MaxiLock-D – DCLN 95° – Boring bar with top clamping



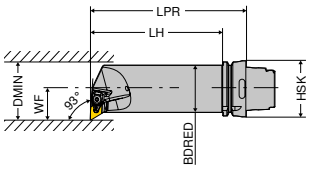


Illustrations show right-hand versions

ISO designation	Adapter	LPR	LH	BDRED	WF	DMIN	Insert	Left-hand Article no. 74 529 ...	Right-hand Article no. 74 528 ...
		mm	mm	mm	mm	mm			
HSK T63 50Q DCLN R/L 12	HSK-T 63	175	149	50	35	63	CN.. 1204	512	512

Spare parts	XPress type Article no. 70 950 ...		Key D Article no. 80 950 ...		Clamping screw Article no. 70 950 ...		Carbide type C Article no. 70 950 ...	
for Article no.								
74 529 512 / 74 528 512		824	T15 - IP	128	M4,5x12 - IP	820		810

MaxiLock-D – DDUN 93° – Boring bar with top clamping





Illustrations show right-hand versions

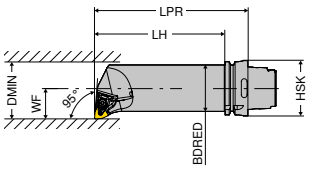
ISO designation	Adapter	LPR	LH	BDRED	WF	DMIN	Insert	Left-hand Article no. 74 533 ...	Right-hand Article no. 74 532 ...
		mm	mm	mm	mm	mm			
HSK T63 50Q DDUN R/L 15	HSK-T 63	175	149	50	35	63	DN.. 1506	515	515

Spare parts	XPress type Article no. 70 950 ...		Key D Article no. 80 950 ...		Clamping screw Article no. 70 950 ...		Solid Carbide Seat D Article no. 70 950 ...	
for Article no.								
74 533 515 / 74 532 515		824	T15 - IP	128	M4,5x12 - IP	820		811

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MaxiLock-D – DWLN 95° – Boring bar with top clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR	LH	BDRED	WF	DMIN	Insert	Left-hand Article no. 74 537 ...	Right-hand Article no. 74 536 ...
		mm	mm	mm	mm	mm			
HSK T63 50Q DWLN R/L 08	HSK-T 63	175	149	50	35	63	WN.. 0804	**508**	**508**



XPress type



Key D



Clamping screw

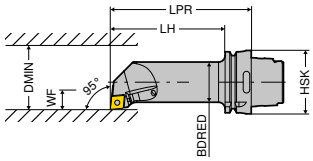


Solid Carbide Seat W

Spare parts	Article no. 70 950 ...	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
for Article no.				
74 537 508 / 74 536 508	**824** T15 - IP	**128** M4,5x12 - IP	**820**	**812**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR	LH	BDRED	WF	DMIN	Insert	Left-hand Article no. 74 564 ...	Right-hand Article no. 74 563 ...
		mm	mm	mm	mm	mm			
HSK T63 40L SCLC R/L 12	HSK-T 63	140	114	40	27	50	CC.. 1204	512	512


Combination Key


Clamping screw

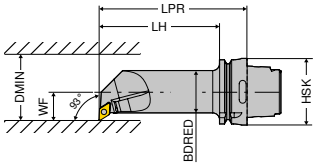

Carbide type C


Threaded sleeve

Spare parts for Article no.		Combination Key Article no. 70 950 ...		Clamping screw Article no. 70 950 ...		Carbide type C Article no. 70 950 ...		Threaded sleeve Article no. 70 950 ...
74 564 512 / 74 563 512	T15/SW	398	M4,5x12	114		166	M4,5	170

MaxiLock-S – SDUC 93° – Boring bar with screw clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR	LH	BDRED	WF	DMIN	Insert	Left-hand Article no. 74 566 ...	Right-hand Article no. 74 565 ...
		mm	mm	mm	mm	mm			
HSK T63 40L SDUC R/L 11	HSK-T 63	140	114	40	27	50	DC.. 11T3	511	511


Combination Key


Clamping screw

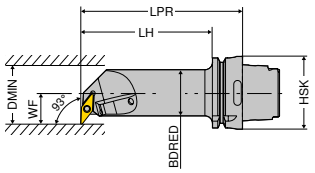

Solid Carbide Seat D


Threaded sleeve

Spare parts for Article no.		Combination Key Article no. 70 950 ...		Clamping screw Article no. 70 950 ...		Solid Carbide Seat D Article no. 70 950 ...		Threaded sleeve Article no. 70 950 ...
74 566 511 / 74 565 511	T15/SW	398	M3,5x11	113		106	M3,5	171

MaxiLock-S – SVUC 93° – Boring bar with screw clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR	LH	BDRED	WF	DMIN	Insert	Left-hand Article no. 74 568 ...	Right-hand Article no. 74 567 ...
		mm	mm	mm	mm	mm			
HSK T63 40L SVUC R/L 16	HSK-T 63	140	114	40	27	50	VC.. 1604	**516**	**516**



Combination Key



Clamping screw



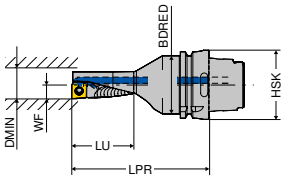
Solid Carbide Seat V



Threaded sleeve

Spare parts		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...
for Article no.								
74 568 516 / 74 567 516	T15/SW	**398**	M3,5x11	**113**		**107**	M3,5	**171**

EcoCut – HSK-T 2.25xD





Illustrations show right-hand versions

ISO designation	Adapter	LPR	LU	BDRED	WF	DMIN	Left-hand Article no. 74 591 ...	Right-hand Article no. 74 590 ...
		mm	mm	mm	mm	mm		
HSK T63 EC 25 R/L 2,25D 13	HSK-T 63	125	56,5	53	12,5	25	**525**	**525**
HSK T63 EC 32 R/L 2,25D 17	HSK-T 63	125	72,0	53	16,0	32	**532**	**532**



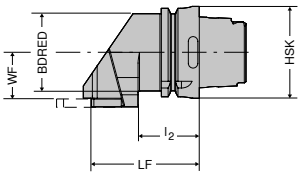
Key D



Clamping screw

Spare parts	Article no. 80 950 ...	Article no. 70 950 ...
for Article no.		
74 590 525 / 74 591 525	**114**	**280**
74 590 532 / 74 591 532	**114**	**280**

ModularClamp MSS – HSK - T Base Holder 0°





Illustrations show right-hand versions

ISO designation	Adapter	LF mm	l_2 mm	BDRED mm	WF mm	for Grooving Module	Left-hand Article no. 74 581 ...	Right-hand Article no. 74 580 ...
HSK T63 E25 R/L 00	HSK-T 63	67	42	53	38,7	E25 R/L...	**525**	**525**
HSK T63 E32 R/L 00	HSK-T 63	74	42	53	38,7	E32 R/L...	**532**	**532**
HSK T100 E32 R/L 00	HSK-T 100	77	45	88	48,7	E32 R/L...	**732**	**732**
HSK T100 E25 R/L 00	HSK-T 100	100	45	88	48,7	E25 R/L...	**725**	**725**

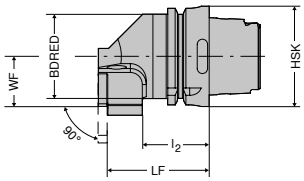

Nozzle


Key D


Clamping screw

Spare parts for Article no.		Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...
74 581 525 / 74 580 525	SD 12 x 8	**850**	T20	**114**	M5x18	**404**
74 581 532 / 74 580 532	SD 12 x 8	**850**	T25	**115**	M6x20	**405**
74 581 732 / 74 580 732	SD 12 x 8	**850**	T25	**115**	M6x20	**405**
74 581 725 / 74 580 725	SD 12 x 8	**850**	T20	**114**	M5x18	**404**

ModularClamp MSS – 90° HSK - T Base Holder





Illustrations show right-hand versions

ISO designation	Adapter	LF mm	l_2 mm	BDRED mm	WF mm	for Grooving Module	Left-hand Article no. 74 583 ...	Right-hand Article no. 74 582 ...
HSK T63 E32 R/L 90	HSK-T 63	63,7	42	53	31,5	E32 R/L...	**532**	**532**
HSK T100 E32 R/L 90	HSK-T 100	73,7	45	88	50,0	E32 R/L...	**732**	**732**


Nozzle

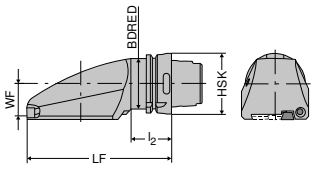

Key D


Clamping screw

Spare parts for Article no.		Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...
74 582 532 / 74 583 532	SD 12 x 8	**850**	T25	**115**	M6x20	**405**
74 582 732 / 74 583 732	SD 12 x 8	**850**	T25	**115**	M6x20	**405**

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MonoClamp – HSK-T Blade Holder GX/LX/FX/SX





Illustrations show right-hand versions

ISO designation	Adapter	LF mm	l_2 mm	BDRED mm	WF mm	for parting blades	Left-hand Article no. 74 585 ...	Right-hand Article no. 74 584 ...
HSK T63 XCLCF 32 R/L 00	HSK-T 63	150	42	53	32	XLCF R/L 32...	**532**	**532**
HSK T100 XCLCF 32 R/L 00	HSK-T 100	160	45	88	45	XLCF R/L 32...	**732**	**732**


Nozzle

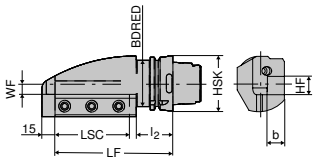
Key D


Clamping wedge


clamping screw

Spare parts for Article no.		Article no. 70 950 ...		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...
74 584 532 / 74 585 532	SD 10 x 7	**849**	T25	**115**		**860**	M6x12	**861**
74 584 732 / 74 585 732	SD 10 x 7	**849**	T25	**115**		**860**	M6x12	**861**

HSK-T square shank adapter 0°

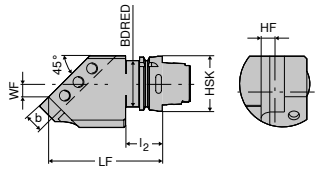




Illustrations show right-hand versions

ISO designation	Adapter	LF	l_2	BDRED	WF	LSC	b	HF	Left-hand Article no. 74 571 ...	Right-hand Article no. 74 570 ...
		mm	mm	mm	mm	mm	mm	mm		
HSK T63 SH R/L 00 2525	HSK-T 63	135	42	53	13	85,5	25	25	**525**	**532**
HSK T100 SH R/L 00 3232	HSK-T 100	145	45	88	15	87,5	32	32	**725**	**732**

HSK-T square shank adapter 45°

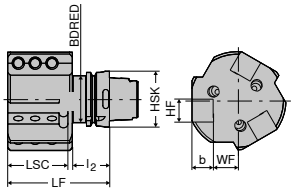




Illustrations show right-hand versions

ISO designation	Adapter	LF	l_2	BDRED	WF	b	HF	Left-hand Article no. 74 573 ...	Right-hand Article no. 74 572 ...
		mm	mm	mm	mm	mm	mm		
HSK T63 SH R/L 45 2525	HSK-T 63	140	42	53	15	25	25	**525**	**525**
HSK T100 SH R/L 45 3232	HSK-T 100	160	45	88	20	32	32	**732**	**732**

HSK-T square shank adapter 3-face 0°





ISO designation	Adapter	LF	l_2	BDRED	WF	LSC	b	HF	Left-hand Article no. 74 576 ...
		mm	mm	mm	mm	mm	mm	mm	
HSK T63 SH3 L 00 2525	HSK-T 63	115	42	53	28	68	25	25	**525**
HSK T100 SH3 L 00 2525	HSK-T 100	120	45	88	33	70	25	25	**725**

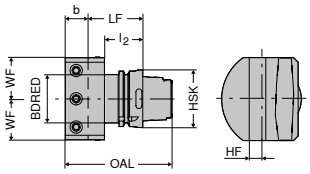

Nozzle


Grubscrew

Spare parts		Article no. 70 950 ...		Article no. 70 950 ...
Adapter				
HSK-T 100	SD 12 x 8	**850**	M12x1,75x25	**851**
HSK-T 63	SD 12 x 8	**850**	M12x1,75x25	**851**

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HSK-T square shank adapter 90°





Neutral

ISO designation	Adapter	LF mm	l_2 mm	BDRED mm	WF mm	OAL mm	HF mm	b mm	Article no. 74 575 ...
HSK T63 SH N 90 2525	HSK-T 63	60	42	53	45	85	25	25	**525**
HSK T100 SH N 90 3232	HSK-T 100	58	45	88	50	90	32	32	**732**



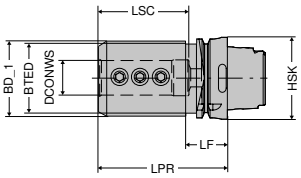
Nozzle



Grubscrew

Spare parts for Article no.		Article no. 70 950 ...		Article no. 70 950 ...
74 575 525	SD 10 x 7	**849**	M12x1,75x25	**851**
74 575 732	SD 12 x 8	**850**	M12x1,75x25	**851**

HSK-T Boring bar holder





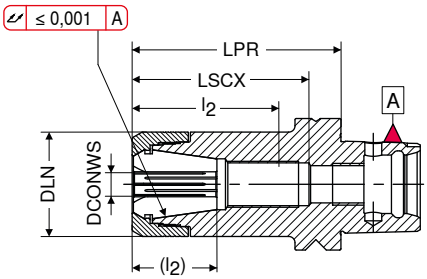
ISO designation	Adapter	LPR mm	DCONWS mm	BD_1 mm	LSC mm	LF mm	BTED mm	Article no. 74 577 ...
HSK T63 BH08 80	HSK-T 63	80	8	32	41			**508**
HSK T63 BH10 80	HSK-T 63	80	10	40	41			**510**
HSK T63 BH12 80	HSK-T 63	80	12	40	41			**512**
HSK T63 BH16 80	HSK-T 63	80	16	40	51			**516**
HSK T63 BH20 80	HSK-T 63	80	20	50	51			**520**
HSK T63 BH25 90	HSK-T 63	90	25	53	61			**525**
HSK T63 BH32 95	HSK-T 63	95	32	68	61	42	53	**532**
HSK T100 BH20 90	HSK-T 100	90	20	55	56			**720**
HSK T100 BH25 95	HSK-T 100	95	25	55	61			**725**
HSK T100 BH32 110	HSK-T 100	110	32	68	61			**732**
HSK T100 BH40 120	HSK-T 100	120	40	83	81			**740**
HSK T100 BH50 125	HSK-T 100	125	50	98	91	45	88	**750**

ER Precision Collet chuck

- For standard or sealed nuts
- Maximum size collet to ISO tolerance field H10
- For clamping a roll key is required
- p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop

Centro-P





AD
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	Article no. 84 112 ...
PSC 40	1 - 10	55	30	47	29 - 38	426E (ER16)	402
PSC 40	1 - 13	55	32	44		428E (ER20)	406
PSC 50	1 - 10	60	30	47	29 - 38	426E (ER16)	501
PSC 50	1 - 10	100	30	87	29 - 51 (29 - 37)	426E (ER16)	502
PSC 50	1 - 16	60	40	48		430E (ER25)	505
PSC 50	2 - 20	60	50	49		470E (ER32)	507
PSC 63	1 - 10	60	30	44		426E (ER16)	601
PSC 63	1 - 10	100	30	83	29 - 53 (25 - 39)	426E (ER16)	602
PSC 63	1 - 13	60	32	44		428E (ER20)	603
PSC 63	1 - 13	100	32	84	33 - 59	428E (ER20)	604
PSC 63	1 - 16	60	40	38		430E (ER25)	605
PSC 63	1 - 16	100	40	78	36 - 62 (30 - 45)	430E (ER25)	606
PSC 63	1 - 16	130	40	99	34 - 70 (30 - 50)	430E (ER25)	607
PSC 63	1 - 16	160	40	118	34 - 70 (30 - 50)	430E (ER25)	608
PSC 63	2 - 20	60	50	42		470E (ER32)	609
PSC 63	2 - 20	100	50	79	45 - 63 (25 - 45)	470E (ER32)	610
PSC 63	2 - 20	130	50	99	45 - 63 (25 - 53)	470E (ER32)	611
PSC 63	3 - 26	65	63	51		472E (ER40)	612
PSC 63	3 - 26	100	63	86	46 - 50	472E (ER40)	613
PSC 80	2 - 20	100	50	86	41 - 63 (27 - 45)	470E (ER32)	804
PSC 80	3 - 26	100	63	86	47 - 55	472E (ER40)	808

→ Transmittable torque moments, Page 233

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets ( ) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer


Lock nut IK


Lock nut


Stop screw 2


Stop screw 1

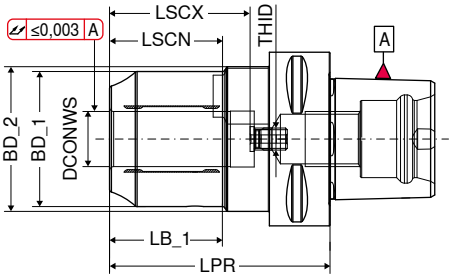
Spare parts for collet	Article no. 84 950 ...	Article no. 84 950 ...		Article no. 83 950 ...		Article no. 83 950 ...
426E (ER16)	011	001	M11x1 - SW6	341	M11x1 - SW6	337
428E (ER20)	012	002			M14x1 - SW6	369
430E (ER25)	013	003	M18x1,5 - SW6	432	M18x1,5 - SW6	431
470E (ER32)	015	005	M22x1,5 - SW6	402	M22x1,5 - SW6	401
472E (ER40)	017	007			M28x1,5 - SW6	400

16

High pressure chuck, short and stable version

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:
Base body with backstop screw and pressure screw





AD
G 2,5 n_{max} 25000

Adapter	DCONWS	LPR	LB_1	BD_1	BD_2	LSCX	LSCN	THID	Article no. 84 108 ...
	mm	mm	mm	mm	mm	mm	mm		
PSC 63	20	80	41	49	52,5	51	41	M8x1	**62000**

→ Min. clamping depth, Page 233

LSCX = Maximum insertion depth
LSCN = Minimum insertion depth


Cylindrical screw


Clamping key – T


Pressure screw


Stop screw IK

Spare parts	Article no. 83 950 ...		Article no. 80 397 ...		Article no. 83 950 ...		Article no. 83 950 ...	
for Article no.								
84 108 62000	M5x5 - SW2,5	**157**	SW5	**050**	M10x1x14	**429**	M16x1x13,5 - SW8	**424**

Accessories


Reduction sleeve
→ 17|32

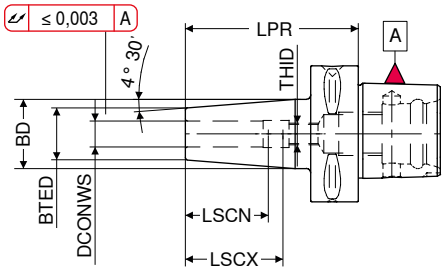

Coolant transfer pipe
→ 173


Others
→ 17|34

Shrink adapters

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:
Holder **without** IK back stop screw






AD
G 6,3 n_{max} 15000


AD
G 6,3 n_{max} 15000


AD
G 6,3 n_{max} 15000

	Adapter	LPR	DCONWS	BTED	BD	LSCX	LSCN	THID	Article no. 84 104 ...	Article no. 84 105 ...	Article no. 84 106 ...
		mm	mm	mm	mm	mm	mm				
short	PSC 32	65	6	21	27	36	26	M5	306		
	PSC 32	65	8	21	27	36	26	M6	308		
	PSC 32	70	10	24	32	41	31	M8x1	310		
	PSC 32	75	12	24	32	47	37	M10x1	312		
	PSC 40	75	6	21	27	36	26	M5	406		
	PSC 40	75	8	21	27	36	26	M6	408		
	PSC 40	75	10	24	32	41	31	M8x1	410		
	PSC 40	75	12	24	32	47	37	M10x1	412		
	PSC 40	80	14	27	34	47	37	M10x1	414		
	PSC 40	80	16	27	34	50	40	M12x1	416		
	PSC 40	80	18	33	42	50	40	M12x1	418		
	PSC 40	85	20	33	42	52	42	M16x1	420		
	PSC 50	65	3	12	17				503		
	PSC 50	65	4	12	17				504		
	PSC 50	65	5	12	17				505		
	PSC 50	75	6	21	30	36	26	M5	506		
	PSC 50	75	8	21	30	36	26	M6	508		
	PSC 50	75	10	24	33	41	31	M8x1	510		
	PSC 50	75	12	24	33	47	37	M10x1	512		
	PSC 50	80	14	27	34	47	37	M10x1	514		
	PSC 50	80	16	27	34	50	40	M12x1	516		
	PSC 50	80	18	33	42	50	40	M12x1	518		
	PSC 50	85	20	33	42	52	42	M16x1	520		
	PSC 50	90	25	44	53	58	48	M16x1	525		
long	PSC 50	120	6	21	32	36	26	M5		506	
	PSC 50	120	8	21	32	36	26	M6		508	
	PSC 50	120	10	24	34	41	31	M8x1		510	
	PSC 50	120	12	24	34	47	37	M10x1		512	
	PSC 50	120	14	27	36	47	37	M10x1		514	
	PSC 50	120	16	27	36	50	40	M12x1		516	
	PSC 50	120	18	33	42	50	40	M12x1		518	
	PSC 50	120	20	33	42	52	42	M16x1		520	
	PSC 50	120	25	44	53	58	48	M16x1		525	
short	PSC 63	80	3	12	17				603		
	PSC 63	80	4	12	17				604		
	PSC 63	80	5	12	17				605		
	PSC 63	80	6	21	27	36	26	M5	606		
	PSC 63	80	8	21	27	36	26	M6	608		
	PSC 63	80	10	24	32	41	31	M8x1	610		
	PSC 63	80	12	24	32	47	37	M10x1	612		
	PSC 63	85	14	27	34	47	37	M10x1	614		
	PSC 63	85	16	27	34	50	40	M12x1	616		
	PSC 63	85	18	33	42	50	40	M12x1	618		
	PSC 63	85	20	33	42	52	42	M16x1	620		
	PSC 63	90	25	44	53	58	48	M16x1	625		
	PSC 63	95	32	44	53	61	51	M16x1	632		
long	PSC 63	120	6	21	32	36	26	M5		606	
	PSC 63	120	8	21	32	36	26	M6		608	
	PSC 63	120	10	24	32	41	31	M8x1		610	
	PSC 63	120	12	24	32	47	37	M10x1		612	
	PSC 63	120	14	27	36	47	37	M10x1		614	
	PSC 63	120	16	27	36	50	40	M12x1		616	
	PSC 63	120	18	33	44	50	40	M12x1		618	
	PSC 63	120	20	33	44	52	42	M16x1		620	
	PSC 63	120	25	44	53	58	48	M16x1		625	
	PSC 63	120	32	44	53	61	51	M16x1		632	

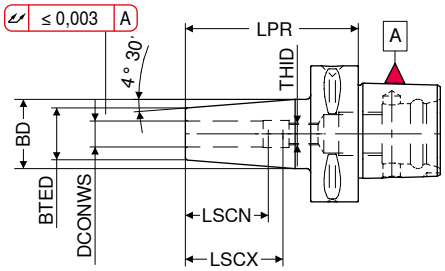
→ Min. clamping depth, Page 233

Continued on next page

Shrink adapters

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:
Holder **without** IK back stop screw






AD
G 6,3 n_{max} 15000


AD
G 6,3 n_{max} 15000


AD
G 6,3 n_{max} 15000

	Adapter	LPR mm	DCONWS mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	Article no. 84 104 ...	Article no. 84 105 ...	Article no. 84 106 ...
extra-long	PSC 63	160	6	21	32	36	26	M5			**606**
	PSC 63	160	8	21	32	36	26	M6			**608**
	PSC 63	160	10	24	34	41	31	M8x1			**610**
	PSC 63	160	12	24	34	47	37	M10x1			**612**
	PSC 63	160	14	27	36	47	37	M10x1			**614**
	PSC 63	160	16	27	36	50	40	M12x1			**616**
	PSC 63	160	18	33	44	50	40	M12x1			**618**
	PSC 63	160	20	33	44	52	42	M16x1			**620**
	PSC 63	160	25	44	53	58	48	M16x1			**625**
	PSC 63	160	32	44	53	61	51	M16x1			**632**
short	PSC 80	85	6	21	27	36	26	M5	**806**		
	PSC 80	85	8	21	27	36	26	M6	**808**		
	PSC 80	85	10	24	32	41	31	M8x1	**810**		
	PSC 80	85	12	24	32	47	37	M10x1	**812**		
	PSC 80	90	14	27	34	47	37	M10x1	**814**		
	PSC 80	90	16	27	34	50	40	M12x1	**816**		
	PSC 80	90	18	33	42	50	40	M12x1	**818**		
	PSC 80	90	20	33	42	52	42	M16x1	**820**		
	PSC 80	95	25	44	53	58	48	M16x1	**825**		
	PSC 80	100	32	44	53	61	51	M16x1	**832**		
long	PSC 80	120	6	21	32	36	26	M5		**806**	
	PSC 80	120	8	21	32	36	26	M6		**808**	
	PSC 80	120	10	24	34	41	31	M8x1		**810**	
	PSC 80	120	12	24	34	47	37	M10x1		**812**	
	PSC 80	120	14	27	36	47	37	M10x1		**814**	
	PSC 80	120	16	27	36	50	40	M12x1		**816**	
	PSC 80	120	18	33	44	50	40	M12x1		**818**	
	PSC 80	120	20	33	44	52	42	M16x1		**820**	
	PSC 80	120	25	44	53	58	48	M16x1		**825**	
	PSC 80	120	32	44	53	61	51	M16x1		**832**	

→ Min. clamping depth, Page 233

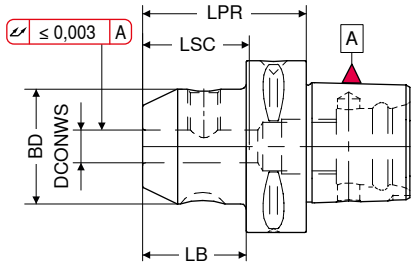

Backstop screw IK

Spare parts
DCONWS

	Article no. 84 950 ...
6	**140**
8	**141**
10	**142**
12 - 14	**143**
16 - 18	**144**
20 - 32	**145**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat





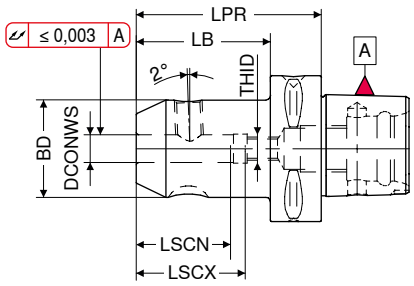


AD
G 6,3 n_{max} 15000

Adapter	DCONWS	LPR	BD	LB	LSC	Article no. 84 100 ...
	mm	mm	mm	mm	mm	
PSC 32	6	45	25	30	35	**306**
PSC 32	8	45	28	30	35	**308**
PSC 32	10	50	35	35	39	**310**
PSC 32	12	55	42	40	44	**312**
PSC 40	6	50	25	30	35	**406**
PSC 40	8	50	28	30	35	**408**
PSC 40	10	50	35	30	39	**410**
PSC 40	12	55	42	35	44	**412**
PSC 40	14	55	44	35	44	**414**
PSC 40	16	55	48	35	47	**416**
PSC 50	6	50	25	30	35	**506**
PSC 50	8	50	28	30	35	**508**
PSC 50	10	55	35	35	39	**510**
PSC 50	12	60	42	40	44	**512**
PSC 50	14	60	44	40	44	**514**
PSC 50	16	60	48	40	47	**516**
PSC 50	18	60	50	40	47	**518**
PSC 50	20	60	52	40	47	**520**
PSC 50	25	80	65	60	54	**525**
PSC 63	6	55	25	33	35	**606**
PSC 63	8	55	28	33	35	**608**
PSC 63	10	60	35	38	39	**610**
PSC 63	12	60	42	38	44	**612**
PSC 63	14	60	44	38	44	**614**
PSC 63	16	65	48	43	47	**616**
PSC 63	18	65	50	43	47	**618**
PSC 63	20	65	52	43	49	**620**
PSC 63	25	80	65	58	54	**625**
PSC 63	32	90	72	68	58	**632**
PSC 63	40	100	80	78	75	**640**
PSC 80	6	70	25	40	35	**806**
PSC 80	8	70	28	40	35	**808**
PSC 80	10	70	35	40	39	**810**
PSC 80	12	70	42	40	44	**812**
PSC 80	14	70	44	40	44	**814**
PSC 80	16	70	48	50	47	**816**
PSC 80	18	70	50	40	47	**818**
PSC 80	20	70	52	40	49	**820**
PSC 80	25	80	65	50	54	**825**
PSC 80	32	80	72	50	58	**832**
PSC 80	40	110	80	80	75	**840**
PSC 80	50	120	100	90	83	**850**

Cylindrical Shank Adapter (Whistle Notch)

▲ For shanks according to DIN 6535 HE / 1835 E with angled clamping flat







AD
G 6,3 n_{max} 15000

Adapter	DCONWS	LPR	BD	LB	LSCX	LSCN	THID	Article no. 84 102 ...
	mm	mm	mm	mm	mm	mm		
PSC 32	6	70	25	55	38	28	M5	**306**
PSC 32	8	70	28	55	38	28	M6	**308**
PSC 32	10	70	35	55	41	31	M8	**310**
PSC 32	12	75	42	60	47	37	M10	**312**
PSC 40	6	70	25	50	38	28	M5	**406**
PSC 40	8	70	28	50	38	28	M6	**408**
PSC 40	10	70	35	50	41	31	M8	**410**
PSC 40	12	75	42	55	47	37	M10	**412**
PSC 40	14	75	44	55	47	37	M10	**414**
PSC 50	6	70	25	50	38	28	M5	**506**
PSC 50	8	70	28	50	38	28	M6	**508**
PSC 50	10	70	35	50	41	31	M8	**510**
PSC 50	12	75	42	55	47	37	M10	**512**
PSC 50	14	75	44	55	47	37	M10	**514**
PSC 50	16	80	48	60	50	40	M12	**516**
PSC 50	18	80	50	60	50	40	M12	**518**
PSC 50	20	85	52	65	52	42	M16	**520**
PSC 63	6	75	25	53	38	28	M5	**606**
PSC 63	8	75	28	53	38	28	M6	**608**
PSC 63	10	75	35	53	41	31	M8	**610**
PSC 63	12	80	42	58	47	37	M10	**612**
PSC 63	14	80	44	58	47	37	M10	**614**
PSC 63	16	80	48	58	50	40	M12	**616**
PSC 63	18	80	50	58	50	40	M12	**618**
PSC 63	20	85	52	63	52	42	M16	**620**
PSC 63	25	90	65	68	58	48	M16	**625**
PSC 63	32	95	72	73	61	51	M16	**632**
PSC 80	6	65	25	35	38	28	M5	**806**
PSC 80	8	65	28	35	38	28	M6	**808**
PSC 80	10	65	35	35	41	31	M8	**810**
PSC 80	12	70	42	40	47	37	M10	**812**
PSC 80	14	70	44	40	47	37	M10	**814**
PSC 80	16	75	48	45	50	40	M12	**816**
PSC 80	18	75	50	45	50	40	M12	**818**
PSC 80	20	80	52	50	52	42	M16	**820**
PSC 80	25	90	65	60	58	48	M16	**825**
PSC 80	32	95	72	65	61	51	M16	**832**

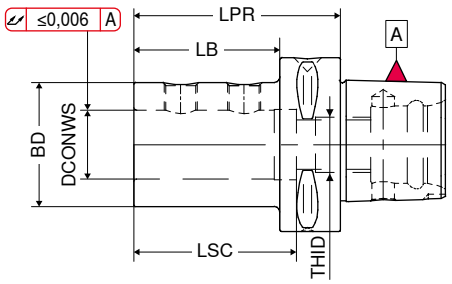


Backstop screw IK

Spare parts DCONWS		Article no. 84 950 ...
6	M5	**146**
8	M6	**147**
10	M8	**148**
12 - 14	M10	**149**
16 - 18	M12	**150**
20 - 32	M16	**151**

Indexable insert drill adapter ISO 26623-1 PSC

▲ Run out ≤ 0.005 mm







AD

Adapter	DCONWS	LPR	BD	LB	LSC	THID	Article no. 84 128 ...
	mm	mm	mm	mm	mm		
PSC 32	16	60	36	45	49	M10x1	**316**
PSC 32	20	60	40	45	54	M10x1	**320**
PSC 40	16	60	36	40	49	M10x1	**416**
PSC 40	20	60	40	40	54	M10x1	**420**
PSC 40	25	80	45	50	59	M12x1	**425**
PSC 50	16	65	36	45	49	M10x1	**516**
PSC 50	20	65	40	45	54	M10x1	**520**
PSC 50	25	70	45	50	59	M12x1	**525**
PSC 50	32	75	52	55	63	M12x1	**532**
PSC 63	16	70	36	48	49	M10x1	**616**
PSC 63	20	70	40	48	54	M10x1	**620**
PSC 63	25	75	45	53	59	M12x1	**625**
PSC 63	32	75	52	53	63	M12x1	**632**
PSC 63	40	85	65	63	73	M16x1	**640**
PSC 63	50	115	75	93	83	M16x1	**650**
PSC 80	16	80	36	50	49	M10x1	**816**
PSC 80	20	80	40	50	54	M10x1	**820**
PSC 80	25	85	45	55	59	M12x1	**825**
PSC 80	32	90	52	60	63	M12x1	**832**
PSC 80	40	95	65	65	73	M16x1	**840**
PSC 80	50	100	75	70	83	M16x1	**850**

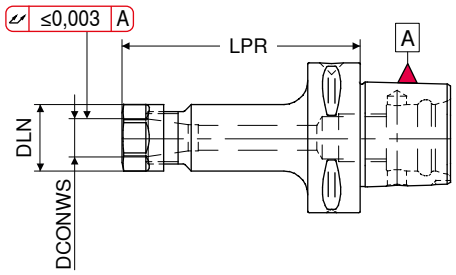


Grubscrew

Spare parts DCONWS		Article no. 83 950 ...
16 - 20	M10x1x10	**180**
25 - 32	M10x1x12	**181**
40 - 50	M16x1x13	**182**

ER Collet chuck

▲ Without an internal thread







AD
G 6,3 n_{max} 15000

Adapter	DCONWS	LPR	DLN	TQX	for collet	Article no. 84 114 ...
	mm	mm	mm	Nm		
PSC 32	1 - 10	45	28	8 - 56	426E (ER16)	**304**
PSC 40	1 - 10	55	28	8 - 56	426E (ER16)	**404**
PSC 50	1 - 10	60	28	8 - 56	426E (ER16)	**504**
PSC 50	1 - 10	100	28	8 - 56	426E (ER16)	**506**
PSC 63	1 - 10	60	28	8 - 56	426E (ER16)	**604**
PSC 63	1 - 10	100	28	8 - 56	426E (ER16)	**606**
PSC 80	1 - 10	60	28	8 - 56	426E (ER16)	**804**
PSC 80	1 - 10	100	28	8 - 56	426E (ER16)	**806**



Lock nut

Spare parts for collet	Article no. 62 950 ...
426E (ER16)	M22x1,5 - SW25 **044**

Accessories

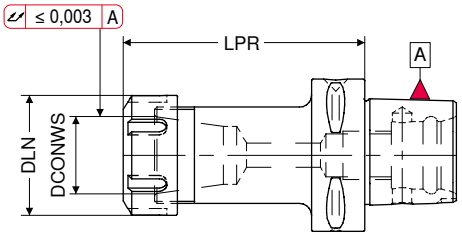


ER collet

→ 211, 213

ER Collet chuck

▲ Without an internal thread







AD
G 6,3 n_{max} 15000

Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	Article no. 84 115 ...
PSC 32	1 - 13	45	34	16 - 80	428E (ER20)	**306**
PSC 40	1 - 13	55	34	16 - 80	428E (ER20)	**404**
PSC 40	1 - 16	55	42	24 - 104	430E (ER25)	**406**
PSC 40	2 - 20	55	50	24 - 136	470E (ER32)	**408**
PSC 50	1 - 13	60	34	16 - 80	428E (ER20)	**502**
PSC 50	1 - 13	100	34	16 - 80	428E (ER20)	**504**
PSC 50	1 - 16	60	42	24 - 104	430E (ER25)	**506**
PSC 50	1 - 16	100	42	24 - 104	430E (ER25)	**508**
PSC 50	2 - 20	60	50	24 - 136	470E (ER32)	**510**
PSC 50	2 - 20	100	50	24 - 136	470E (ER32)	**512**
PSC 50	3 - 26	65	63	176	472E (ER40)	**514**
PSC 50	3 - 26	100	63	176	472E (ER40)	**516**
PSC 63	1 - 13	60	34	16 - 80	428E (ER20)	**602**
PSC 63	1 - 13	100	34	16 - 80	428E (ER20)	**604**
PSC 63	1 - 16	60	42	24 - 104	430E (ER25)	**606**
PSC 63	1 - 16	100	42	24 - 104	430E (ER25)	**608**
PSC 63	2 - 20	60	50	24 - 136	470E (ER32)	**610**
PSC 63	2 - 20	100	50	24 - 136	470E (ER32)	**612**
PSC 63	3 - 26	65	63	176	472E (ER40)	**614**
PSC 63	3 - 26	100	63	176	472E (ER40)	**616**
PSC 80	1 - 13	65	34	16 - 80	428E (ER20)	**802**
PSC 80	1 - 13	100	34	16 - 80	428E (ER20)	**804**
PSC 80	1 - 16	70	42	24 - 104	430E (ER25)	**806**
PSC 80	1 - 16	100	42	24 - 104	430E (ER25)	**808**
PSC 80	2 - 20	70	50	24 - 136	470E (ER32)	**810**
PSC 80	2 - 20	100	50	24 - 136	470E (ER32)	**812**
PSC 80	3 - 26	80	63	176	472E (ER40)	**814**
PSC 80	3 - 26	100	63	176	472E (ER40)	**816**



Lock nut



Lock nut IK



Lock nut

Spare parts for collet	Lock nut Article no. 62 950 ...		Lock nut IK Article no. 83 950 ...		Lock nut Article no. 62 950 ...	
428E (ER20)	M25x1,5 - SW30	**045**				
430E (ER25)			M32x1,5	**055**	M32x1,5	**055**
470E (ER32)			M40x1,5	**056**	M40x1,5	**056**
472E (ER40)			M50x1,5	**057**	M50x1,5	**057**

Accessories



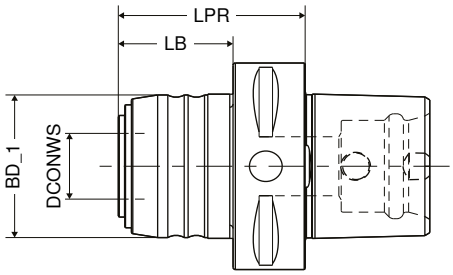
ER collet

→ 211, 213

16

Synchronised quick change tap chuck with minimal length compensation

- Length compensation under tension and compression (LZD)
- For collet types DIN 6499
- $p_{max.}$ = 50 bar





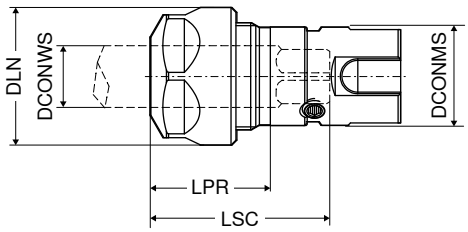


AD

Adapter	cutting range	SZID	LPR	BD_1	DCONWS	LB	LZD±	Article no. 84 140 ...
			mm	mm	mm	mm	mm	
PSC 63	M3 - M12	1	57	43	20	35	1,0 / 0,2	**612**
PSC 63	M6 - M20	2	77	60	32	55	1,0 / 0,2	**620**

Insert for synchro quick change tapping chuck with minimum length compensation

Scope of supply:
Includes lock nut







AD

SZID	DCONWS	cutting range	LPR	DLN	LSC	for collet	DCONMS	Article no. 83 608 ...
	mm		mm	mm	mm		mm	
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	**012**
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	**020**



Lock nut



Lock nut IK



Lock nut



Y clamping key

Spare parts		Article no. 62 950 ...		Article no. 83 950 ...		Article no. 62 950 ...		Article no. 83 357 ...
for Article no.								
83 608 012	M22x1,5 - SW25	**044**	M22x1,5	**054**				**116**
83 608 020			M32x1,5	**055**	M32x1,5	**055**		**125**

Accessories

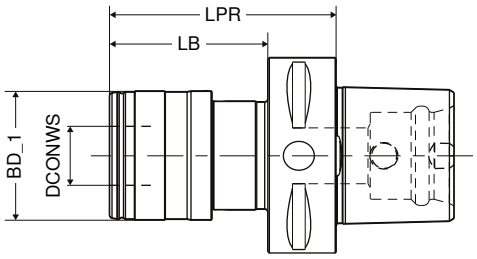


ER collet

→ 212, 214–215

Quick change tap chuck with length compensation

▲ Length compensation under tension and compression (LZD)





A

Adapter	cutting range	SZID	LPR	BD_1	DCONWS	LB	LZD±	Article no. 84 142 ...
			mm	mm	mm	mm	mm	
PSC 63	M3 - M12	01	73	41	19	51	7,5	**612**
PSC 63	M6 - M20	02	97	60	31	75	10	**620**

Accessories

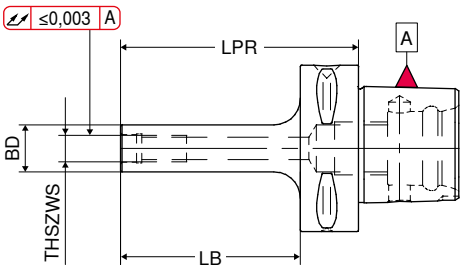


Collet

→ 219–223

16

Adapter for screw-in milling cutter







AD
G 2,5 n_{max} 20000

Adapter	THSZWS	LPR	BD	LB	Article no. 84 110 ...
		mm	mm	mm	
PSC 32	M8	60	13	45	**302**
PSC 32	M10	70	18	55	**306**
PSC 40	M8	70	13	50	**402**
PSC 40	M10	80	18	60	**405**
PSC 40	M12	80	21	60	**408**
PSC 50	M8	70	13	50	**502**
PSC 50	M10	80	18	60	**505**
PSC 50	M12	80	21	60	**508**
PSC 50	M16	80	29	60	**512**
PSC 63	M8	70	13	48	**602**
PSC 63	M10	90	18	68	**605**
PSC 63	M12	100	21	78	**608**
PSC 63	M16	100	29	78	**612**

Accessories



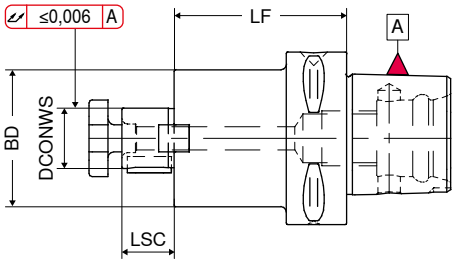
Coolant transfer pipe

→ 173

Shell mill adapters

▲ For cutters with longitudinal or transverse groove

Scope of supply:
Holder with clamping screw and drive key





G 6,3 n_{max} 15000

Adapter	DCONWS	LF	BD	LSC	Article no. 84 122 ...
	mm	mm	mm	mm	
PSC 40	16	28	40	17	**401**
PSC 40	16	63	40	17	**402**
PSC 40	22	40	50	19	**411**
PSC 40	22	63	50	19	**412**
PSC 50	16	28	40	17	**501**
PSC 50	16	63	40	17	**502**
PSC 50	22	28	50	19	**511**
PSC 50	22	63	50	19	**512**
PSC 50	27	32	50	21	**521**
PSC 50	27	63	50	21	**522**
PSC 50	32	40	63	24	**531**
PSC 50	32	63	63	24	**532**
PSC 63	16	63	40	17	**602**
PSC 63	22	28	63	19	**611**
PSC 63	22	63	50	19	**612**
PSC 63	27	28	58	21	**621**
PSC 63	27	63	58	21	**622**
PSC 63	32	22	63	24	**631**
PSC 63	32	86	63	24	**632**
PSC 63	40	40	70	27	**641**
PSC 80	16	63	40	17	**802**
PSC 80	22	30	50	19	**811**
PSC 80	22	63	50	19	**812**
PSC 80	27	30	58	21	**821**
PSC 80	27	63	58	21	**822**
PSC 80	32	30	63	24	**831**
PSC 80	32	86	63	24	**832**
PSC 80	40	40	70	27	**841**


Drive key


Drive dog


Cross nut key


Retaining screw


Clamping screw

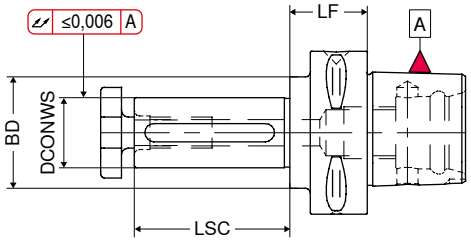
Spare parts DCONWS	Article no. 84 950 ...	Article no. 84 950 ...	Article no. 83 368 ...		Article no. 83 367 ...		Article no. 83 950 ...
16	**108**	**113**	**116**	M8	**016**	M8x25	**113**
22	**109**	**114**	**122**	M10	**022**	M10x25	**124**
27	**110**	**115**	**127**	M12	**027**	M12x30	**125**
32	**111**	**116**	**132**	M16	**032**	M16x35	**126**
40	**112**	**117**	**140**	M20	**040**	M20x40	**112**

16

Milling arbor

- For cutters with long drive slot
- Runout ≤ 0.005 mm

Scope of supply:
Holder with clamping screw and drive key





Adapter	DCONWS	LF	BD	LSC	Article no. 84 124 ...
	mm	mm	mm	mm	
PSC 32	16	20	28	30	**316**
PSC 40	16	25	28	30	**416**
PSC 40	22	25	36	40	**422**
PSC 40	27	25	40	60	**427**
PSC 50	16	25	28	30	**516**
PSC 50	22	25	36	40	**522**
PSC 50	27	25	43	60	**527**
PSC 50	32	25	50	60	**532**
PSC 63	16	30	28	30	**616**
PSC 63	22	30	36	40	**622**
PSC 63	27	30	43	60	**627**
PSC 63	32	25	48	60	**632**
PSC 63	40	25	56	60	**640**
PSC 80	16	40	28	30	**816**
PSC 80	22	40	36	40	**822**
PSC 80	27	30	43	60	**827**
PSC 80	32	30	48	60	**832**
PSC 80	40	30	56	60	**840**
PSC 80	50	30	70	60	**850**
PSC 80	60	30	60	60	**860**

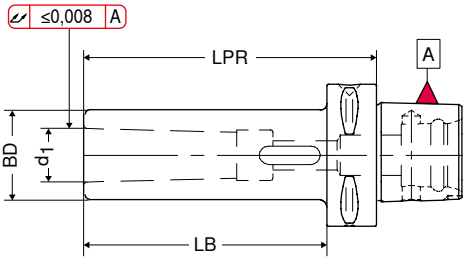

Drive key


Cross nut key


Retaining screw

Spare parts DCONWS	Article no. 84 950 ...	Article no. 83 368 ...		Article no. 83 367 ...
16	**101**	**116**	M8	**016**
22	**102**	**122**	M10	**022**
27	**103**	**127**	M12	**027**
32	**104**	**132**	M16	**032**
40	**105**	**140**	M20	**040**
50	**106**	**150**	M24	**050**
60	**107**			

Taper sleeve DIN6383 for DIN 228-2D Morse taper shanks

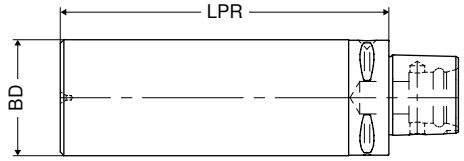




Adapter	d_1	LPR	BD	LB	Article no. 84 126 ...
		mm	mm	mm	
PSC 40	MK2	110	32	90	**402**
PSC 40	MK3	130	40	119	**403**
PSC 50	MK2	110	32	90	**502**
PSC 50	MK3	130	40	110	**503**
PSC 50	MK4	150	48	132	**504**
PSC 63	MK2	110	32	88	**602**
PSC 63	MK3	130	40	108	**603**
PSC 63	MK4	150	48	128	**604**
PSC 80	MK2	120	32	90	**802**
PSC 80	MK3	140	40	110	**803**
PSC 80	MK4	160	48	130	**804**

Blank

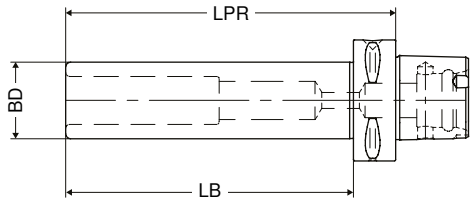
- Material: 25CrMoV4
- For production of special tools
- Taper hardened and ground
- Special tool area in soft state





Adapter	LPR	BD	Article no. 84 134 ...
	mm	mm	
PSC 40	95	40	**402**
PSC 40	120	40	**403**
PSC 40	165	60	**404**
PSC 40	75	80	**405**
PSC 40	120	80	**406**
PSC 40	85	100	**408**
PSC 50	125	50	**502**
PSC 50	150	50	**503**
PSC 50	175	75	**504**
PSC 50	80	90	**506**
PSC 50	150	95	**508**
PSC 50	90	110	**510**
PSC 63	180	63	**602**
PSC 63	195	75	**604**
PSC 63	85	110	**606**
PSC 63	180	120	**608**
PSC 63	95	130	**610**
PSC 80	200	80	**802**
PSC 80	160	120	**804**
PSC 80	90	130	**806**
PSC 80	200	145	**808**

Test bar





Adapter	LPR	BD	LB	Article no. 84 136 ...
	mm	mm	mm	
PSC 32	175	25	160	**030**
PSC 40	180	25	160	**040**
PSC 50	235	32	215	**050**
PSC 63	322	40	300	**060**
PSC 80	330	40	300	**080**

Coolant pipe

Scope of supply:
Complete, including seals



Size	G	Article no. 84 116 ...
PSC 40	M14 x 1,5	**04000**
PSC 50	M16 x 1,5	**05000**
PSC 63	M20 x 1,5	**06300**
PSC 80	M20 x 1,5	**08000**

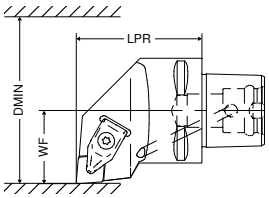
Key



Size	Article no. 84 117 ...
PSC 40	**04000**
PSC 50	**05000**
PSC 63	**06300**
PSC 80	**08000**

16

Toolholder DCLN 95°/80°





Illustrations show right-hand versions

ISO designation	Adapter	WF mm	LPR mm	DMIN mm	Insert	Left-hand Article no. 84 151 ...	Right-hand Article no. 84 150 ...
PSC40 DCLN R/L 27050-12	PSC 40	27	50	75	CN.. 1204	**400**	**400**
PSC50 DCLN R/L 35060-12	PSC 50	35	60	95	CN.. 1204	**500**	**500**
PSC63 DCLN R/L 45065-12	PSC 63	45	65	110	CN.. 1204	**600**	**600**


Clamping claw

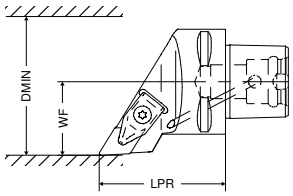

Clamping screw


Carbide seat


Threaded bush

Spare parts	Article no. 84 950 ...	Article no. 84 950 ...	Article no. 84 950 ...	Article no. 84 950 ...
Adapter				
PSC 40	**118**	**132**	**136**	**121**
PSC 50	**118**	**132**	**136**	**121**
PSC 63	**118**	**132**	**136**	**121**

Toolholder – DDJN 93°/55°





Illustrations show right-hand versions

ISO designation	Adapter	WF mm	LPR mm	DMIN mm	Insert	Left-hand Article no. 84 153 ...	Right-hand Article no. 84 152 ...
PSC40 DDJN R/L 27055-15	PSC 40	27	55	85	DN.. 1506	**400**	**400**
PSC50 DDJN R/L 35060-15	PSC 50	35	60	95	DN.. 1506	**500**	**500**
PSC63 DDJN R/L 45065-15	PSC 63	45	65	110	DN.. 1506	**600**	**600**

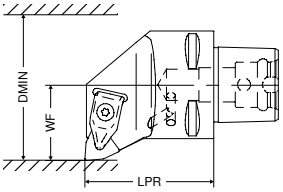

Clamping claw


Clamping screw


Carbide seat

Spare parts	Article no. 84 950 ...	Article no. 84 950 ...	Article no. 84 950 ...
Adapter			
PSC 40	**118**	**132**	**137**
PSC 50	**118**	**132**	**137**
PSC 63	**118**	**132**	**137**

Toolholder – DWLN 95°/80°





Illustrations show right-hand versions

ISO designation	Adapter	WF	LPR	DMIN	Insert	Left-hand Article no. 84 155 ...	Right-hand Article no. 84 154 ...
		mm	mm	mm			
PSC40 DWLN R/L 27050-08	PSC 40	27	50	75	WN.. 0804	**400**	**400**
PSC50 DWLN R/L 35060-08	PSC 50	35	60	95	WN.. 0804	**500**	**500**
PSC63 DWLN R/L 45065-08	PSC 63	45	65	110	WN.. 0804	**600**	**600**

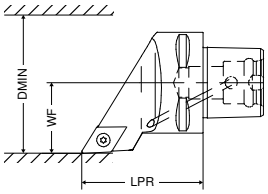

Clamping claw


Clamping screw


Carbide seat

Spare parts	Clamping claw Article no. 84 950 ...	Clamping screw Article no. 84 950 ...	Carbide seat Article no. 84 950 ...
Adapter			
PSC 40	**118**	**133**	**138**
PSC 50	**118**	**133**	**138**
PSC 63	**118**	**133**	**138**

Toolholder – SDJC 93°/55°





Illustrations show right-hand versions

ISO designation	Adapter	WF	LPR	DMIN	Insert	Left-hand Article no. 84 157 ...	Right-hand Article no. 84 156 ...
		mm	mm	mm			
PSC40 SDJC R/L 27050-11	PSC 40	27	50	80	DC.. 11T3	**400**	**400**
PSC50 SDJC R/L 35060-11	PSC 50	35	60	95	DC.. 11T3	**500**	**500**
PSC63 SDJC R/L 45065-11	PSC 63	45	65	110	DC.. 11T3	**600**	**600**

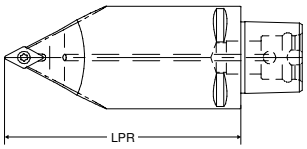

Clamping screw


Carbide seat

Spare parts	Clamping screw Article no. 84 950 ...	Carbide seat Article no. 84 950 ...
Adapter		
PSC 40	**134**	**139**
PSC 50	**134**	**139**
PSC 63	**134**	**139**

16

Toolholder – SDNC 62,5°/55°





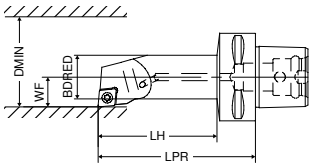
ISO designation	Adapter	LPR mm	Insert	Neutral Article no. 84 158 ...
PSC40 SDNC N 00115-11	PSC 40	115	DC.. 11T3	**400**
PSC50 SDNC N 00115-11	PSC 50	115	DC.. 11T3	**500**
PSC63 SDNC N 00115-11	PSC 63	115	DC.. 11T3	**600**

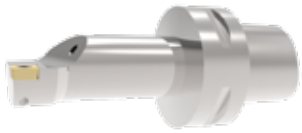

Clamping screw


Carbide seat

Spare parts	Article no. 84 950 ...	Article no. 84 950 ...
Adapter		
PSC 40	**134**	**139**
PSC 50	**134**	**139**
PSC 63	**134**	**139**

Boring bar SCLC 95°/80°





Illustrations show right-hand versions

ISO designation	Adapter	WF	LPR	BDRED	LH	DMIN	Insert	Left-hand Article no. 84 171 ...	Right-hand Article no. 84 170 ...
		mm	mm	mm	mm	mm			
PSC40 SCLC R/L 13080-09	PSC 40	13	80	20	57	25	CC.. 09T3	**400**	**400**
PSC50 SCLC R/L 17090-09	PSC 50	17	90	25	68	32	CC.. 09T3	**500**	**500**

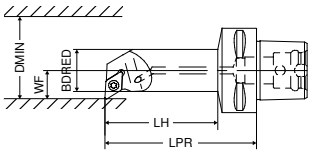


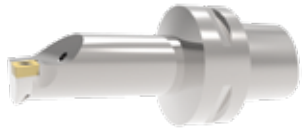
Clamping screw

Spare parts

Adapter	Article no. 84 950 ...
PSC 40	**152**
PSC 50	**152**

Boring bar SDUC 93°/55°





Illustrations show right-hand versions

ISO designation	Adapter	WF	LPR	BDRED	LH	DMIN	Insert	Left-hand Article no. 84 173 ...	Right-hand Article no. 84 172 ...
		mm	mm	mm	mm	mm			
PSC40 SDUC R/L 13080-11	PSC 40	13	80	20	57	25	DC.. 11T3	**400**	**400**
PSC50 SDUC R/L 17090-11	PSC 50	17	90	25	67	32	DC.. 11T3	**500**	**500**
PSC50 SDUC R/L 22110-11	PSC 50	22	110	32	67	40	DC.. 11T3	**501**	**501**



Clamping screw



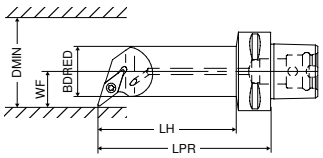
Carbide seat

Spare parts

Adapter	Article no. 84 950 ...	Article no. 84 950 ...
PSC 40	**134**	**139**
PSC 50	**134**	**139**

16

Boring bar SVQC 107,5°/35°





Illustrations show right-hand versions

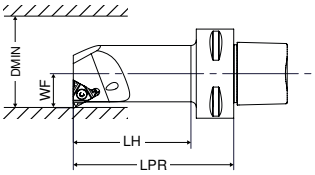
ISO designation	Adapter	WF	LPR	BDRED	LH	DMIN	Insert	Left-hand Article no. 84 175 ...	Right-hand Article no. 84 174 ...
		mm	mm	mm	mm	mm			
PSC40 SVQC R/L 18090-16	PSC 40	18	90	25	68	32	VC.. 1604	**400**	**400**
PSC50 SVQC R/L 22110-16	PSC 50	22	110	32	88	40	VC.. 1604	**500**	**500**
PSC63 SVQC R/L 22120-16	PSC 63	22	120	32	94	40	VC.. 1604	**600**	**600**
PSC63 SVQC R/L 27145-16	PSC 63	27	145	40	120	50	VC.. 1604	**601**	**601**



Clamping screw

Spare parts	Article no. 84 950 ...
Adapter	
PSC 40	**132**
PSC 50	**132**
PSC 63	**132**

Internal threading holder

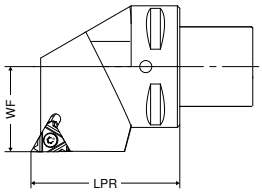




Illustrations show right-hand versions

ISO designation	Adapter	WF	LPR	LH	DMIN	Left-hand Article no. 84 197 ...	Right-hand Article no. 84 196 ...
		mm	mm	mm	mm		
PSC40 SI R/L 12060-16.IK	PSC 40	12	60	37	20	**410**	**410**
PSC40 SI R/L 14060-16.IK	PSC 40	14	60	38	25	**412**	**412**
PSC40 SI R/L 17070-16.IK	PSC 40	17	70	48	32	**414**	**414**
PSC40 SI R/L 22090-16.IK	PSC 40	22	90	69	40	**416**	**416**
PSC40 SI R/L 27080-16.IK	PSC 40	27	80	60	50	**418**	**418**
PSC40 SI R/L 15065-22.IK	PSC 40	15	65	42	25	**420**	**420**
PSC40 SI R/L 19070-22.IK	PSC 40	19	70	48	32	**422**	**422**
PSC40 SI R/L 22090-22.IK	PSC 40	22	90	69	40	**424**	**424**
PSC40 SI R/L 27080-22.IK	PSC 40	27	80	60	50	**426**	**426**
PSC50 SI R/L 12060-16.IK	PSC 50	12	60	35	20	**510**	**510**
PSC50 SI R/L 14060-16.IK	PSC 50	14	60	36	25	**512**	**512**
PSC50 SI R/L 17070-16.IK	PSC 50	17	70	47	32	**514**	**514**
PSC50 SI R/L 22090-16.IK	PSC 50	22	90	68	40	**516**	**516**
PSC50 SI R/L 27105-16.IK	PSC 50	27	105	84	50	**518**	**518**
PSC50 SI R/L 15065-22.IK	PSC 50	15	65	41	25	**520**	**520**
PSC50 SI R/L 19070-22.IK	PSC 50	19	70	47	32	**522**	**522**
PSC50 SI R/L 22090-22.IK	PSC 50	22	90	68	40	**524**	**524**
PSC50 SI R/L 27105-22.IK	PSC 50	27	105	84	50	**526**	**526**
PSC63 SI R/L 14070-16.IK	PSC 63	14	70	42	25	**610**	**610**
PSC63 SI R/L 17075-16.IK	PSC 63	17	75	48	32	**612**	**612**
PSC63 SI R/L 22090-16.IK	PSC 63	22	90	64	40	**614**	**614**
PSC63 SI R/L 27105-16.IK	PSC 63	27	105	80	50	**616**	**616**
PSC63 SI R/L 19075-22.IK	PSC 63	19	75	48	32	**620**	**620**
PSC63 SI R/L 22090-22.IK	PSC 63	22	90	64	40	**622**	**622**
PSC63 SI R/L 27105-22.IK	PSC 63	27	105	80	50	**624**	**624**

External threading holder

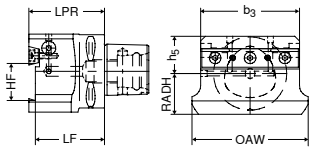




Illustrations show right-hand versions

ISO designation	Adapter	LPR	WF	Left-hand Article no. 84 191 ...	Right-hand Article no. 84 190 ...
		mm	mm		
PSC40 SE R/L 27050-16.IK	PSC 40	50	27	**412**	**412**
PSC40 SE R/L 27050-22.IK	PSC 40	50	27	**422**	**422**
PSC50 SE R/L 35060-16.IK	PSC 50	60	35	**512**	**512**
PSC50 SE R/L 35060-22.IK	PSC 50	60	35	**522**	**522**
PSC63 SE R/L 45065-16.IK	PSC 63	65	45	**612**	**612**
PSC63 SE R/L 45065-22.IK	PSC 63	65	45	**622**	**622**
PSC80 SE R/L 55080-22.IK	PSC 80	80	55	**822**	**822**

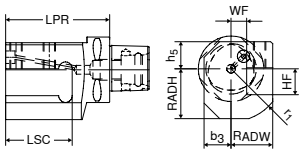
Radial parting blade holder, right / left





Adapter	HF	LPR	OAW	b_3	h_5	RADH	LF	Neutral Article no. 84 132 ...
	mm	mm	mm	mm	mm	mm	mm	
PSC 63	26	65	91	75	30	30	60	626
PSC 63	32	65	100	85	32	35	88	632

Square section adapter, single face

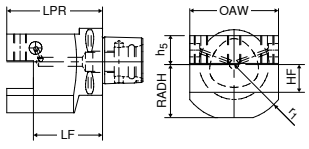




Illustrations show right-hand versions

Adapter	HF	LPR	b_3	RADW	r_1	WF	h_5	RADH	LSC	Left-hand Article no. 84 611 ...	Right-hand Article no. 84 610 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm		
PSC 50	20	80	26	35	45	15	26	43	53	520	520
PSC 50	25	90	26	40	51	15	26	48	64	525	525
PSC 50	32	115	26	47	61	15	26	55	90	532	532
PSC 63	20	90	26	35	45	15	26	43	53	620	620
PSC 63	25	100	26	40	51	15	26	48	64	625	625
PSC 63	32	125	26	47	61	15	26	55	90	632	632
PSC 80	20	90	26	35	45	15	26	43	53	820	820
PSC 80	25	100	26	40	51	15	26	48	64	825	825
PSC 80	32	125	26	47	61	15	26	55	90	832	832

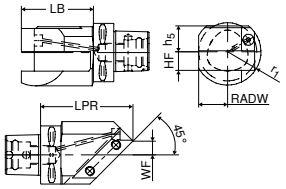
Square section adapter





Adapter	HF	LPR	OAW	r_1	RADH	h_5	LF	Neutral Article no. 84 602 ...
	mm	mm	mm	mm	mm	mm	mm	
PSC 50	20	70	70	45	69	43	50	520
PSC 50	25	80	80	51	74	48	55	525
PSC 50	32	90	90	61	81	55	58	532
PSC 63	20	80	70	45	69	43	60	620
PSC 63	25	90	80	51	74	48	65	625
PSC 63	32	100	90	61	81	55	68	632
PSC 80	20	80	70	45	69	43	60	820
PSC 80	25	90	80	51	74	48	65	825
PSC 80	32	100	90	61	81	55	68	832

Square section adapter 45°

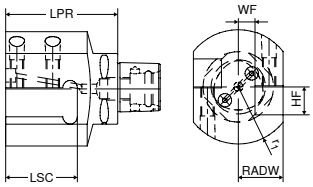




Illustrations show right-hand versions

Adapter	HF	LPR	RADW	r_1	WF	h_5	LB	Left-hand Article no. 84 605 ...	Right-hand Article no. 84 604 ...
	mm	mm	mm	mm	mm	mm	mm		
PSC 50	20	100	31	36	15	26	80	**520**	**520**
PSC 63	20	100	32	36	15	28	78	**620**	**620**
PSC 80	32	135	45	70	17	40	105	**832**	**832**

Square section adapter, double face

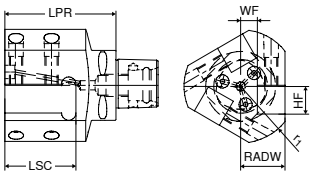




Illustrations show right-hand versions

Adapter	HF	LPR	RADW	r_1	WF	LSC	Left-hand Article no. 84 613 ...	Right-hand Article no. 84 612 ...
	mm	mm	mm	mm	mm	mm		
PSC 50	20	80	35	45	15	53	**520**	**520**
PSC 50	25	90	40	51	15	64	**525**	**525**
PSC 50	32	115	47	61	15	90	**532**	**532**
PSC 63	20	90	35	45	15	53	**620**	**620**
PSC 63	25	100	40	51	15	64	**625**	**625**
PSC 63	32	125	47	61	15	90	**632**	**632**
PSC 80	20	90	35	45	15	53	**820**	**820**
PSC 80	25	100	40	51	15	64	**825**	**825**
PSC 80	32	125	47	61	15	90	**832**	**832**

Square section adapter, triple face

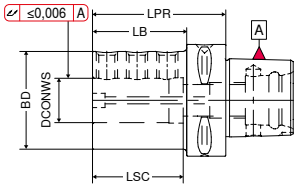




Illustrations show right-hand versions

Adapter	HF	LPR	RADW	r_1	WF	LSC	Left-hand Article no. 84 615 ...	Right-hand Article no. 84 614 ...
	mm	mm	mm	mm	mm	mm		
PSC 50	20	80	35	45	15	53	**520**	**520**
PSC 50	25	90	40	51	15	64	**525**	**525**
PSC 50	32	115	47	61	15	90	**532**	**532**
PSC 63	20	90	35	45	15	53	**620**	**620**
PSC 63	25	100	40	51	15	64	**625**	**625**
PSC 63	32	125	47	61	15	90	**632**	**632**
PSC 80	20	90	35	45	15	53	**820**	**820**
PSC 80	25	100	40	51	15	64	**825**	**825**
PSC 80	32	125	47	61	15	90	**832**	**832**

Boring bar holder





Adapter	DCONWS	LPR	BD	LB	LSC	Article no. 84 130 ...
	mm	mm	mm	mm	mm	
PSC 50	6	70	40	50	40	**506**
PSC 50	8	70	44	50	40	**508**
PSC 50	10	70	44	50	45	**510**
PSC 50	12	70	44	50	45	**512**
PSC 50	16	75	44	55	45	**516**
PSC 50	20	75	50	75	51	**520**
PSC 50	25	80	55	50	51	**525**
PSC 50	32	90	72	70	60	**532**
PSC 63	6	75	40	53	40	**606**
PSC 63	8	75	44	53	40	**608**
PSC 63	10	75	44	53	45	**610**
PSC 63	12	75	44	53	45	**612**
PSC 63	16	75	44	53	45	**616**
PSC 63	20	75	50	53	51	**620**
PSC 63	25	75	55	53	51	**625**
PSC 63	32	75	72	52	60	**632**
PSC 63	40	105	70	82	90	**640**

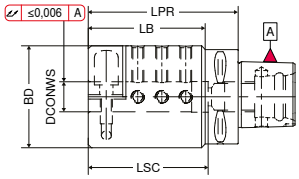


Grubscrew

Spare parts DCONWS		Article no. 84 950 ...
6	M6x16	**153**
8	M8x16	**154**
10	M10x16	**155**
12 - 40	M12x14	**156**

Boring bar adapter, split version

- Vibration-damped
- Ideally suited for large overhangs





Adapter	DCONWS	LPR	BD	LB	LSC	Article no. 84 131 ...
	mm	mm	mm	mm	mm	
PSC 63	6	80	40	58	60	**606**
PSC 63	8	85	45	63	65	**608**
PSC 63	10	85	50	63	65	**610**
PSC 63	12	100	63	78	80	**612**
PSC 63	16	100	63	78	80	**616**
PSC 63	20	100	68	78	80	**620**
PSC 63	25	100	68	78	80	**625**
PSC 63	32	100	72	78	80	**632**


Grubscrew


Grubscrew

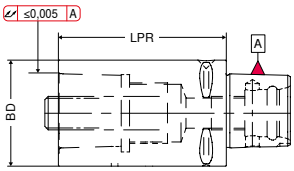

Stop screw IK

Spare parts DCONWS	Article no. 83 950 ...		Article no. 84 950 ...		Article no. 81 950 ...	
6					M5x15	**050**
8	M6x20	**462**				
10			M6x16	**153**		
12 - 20	M8x20	**468**				
25	M8x25	**467**				
32	M10x20	**471**				

16

Extension, axial clamping

▲ Run out ≤ 0,002mm





Adapter	BD	LPR	Article no. 84 620 ...
	mm	mm	
PSC 32	32	60	**301**
PSC 32	32	80	**302**
PSC 40	40	60	**401**
PSC 40	40	80	**402**
PSC 50	50	80	**501**
PSC 50	50	100	**502**
PSC 63	63	100	**601**
PSC 63	63	140	**602**
PSC 80	80	100	**801**
PSC 80	80	125	**802**



Threaded ring



Tightening screw

Spare parts	Article no. 84 950 ...		Article no. 84 950 ...
Adapter			
PSC 32	**127**	SW8	**122**
PSC 40	**128**	SW8	**123**
PSC 50	**129**	SW10	**124**
PSC 63	**130**	SW14	**126**
PSC 80	**130**	SW14	**126**

Accessories

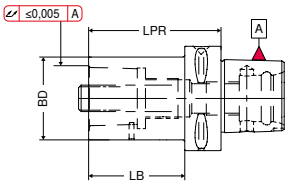


Hollow nose keys

→ 187

Cylindrical reduction

▲ Run out ≤ 0,002mm





Adapter	BD	LPR	LB	Article no. 84 624 ...
	mm	mm	mm	
PSC 40	32	55	35	**403**
PSC 50	32	60	40	**503**
PSC 50	40	65	45	**504**
PSC 63	32	70	48	**603**
PSC 63	40	80	58	**604**
PSC 63	50	80	58	**605**
PSC 80	32	60	30	**803**
PSC 80	40	70	40	**804**
PSC 80	50	80	50	**805**
PSC 80	63	80	50	**806**
PSC 80X	63	80	48	**816**
PSC 80X	80	100	68	**818**



Threaded ring



Tightening screw

Spare parts	Article no. 84 950 ...		Article no. 84 950 ...
Adapter			
PSC 40	**128**	SW8	**123**
PSC 50	**129**	SW10	**124**
PSC 63	**130**	SW14	**126**
PSC 80	**130**	SW14	**126**
PSC 80X	**130**	SW14	**126**

Accessories

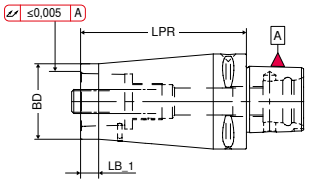


Hollow nose keys

→ 187

Tapered reduction

▲ Run out ≤ 0,002mm





Adapter	BD	LPR	LB_1	Article no. 84 625 ...
	mm	mm	mm	
PSC 40	32	70	12	**403**
PSC 50	40	85	12	**504**
PSC 63	50	110	12	**605**
PSC 80	63	120	12	**806**
PSC 80X	80	150	12	**818**



Threaded ring



Tightening screw

Spare parts	Article no. 84 950 ...		Article no. 84 950 ...
Adapter			
PSC 40	**128**	SW8	**123**
PSC 50	**129**	SW10	**124**
PSC 63	**130**	SW14	**126**
PSC 80	**130**	SW14	**126**
PSC 80X	**130**	SW14	**126**

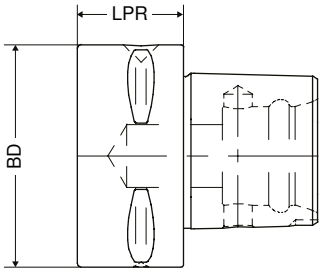
Accessories



Hollow nose keys

→ 187

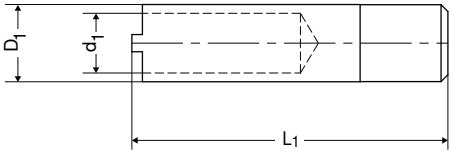
Sealing plugs





Adapter	BD	LPR	Article no. 84 135 ...
	mm	mm	
PSC 40	40	28	040
PSC 50	50	28	050
PSC 63	63	30	060
PSC 80	80	38	080

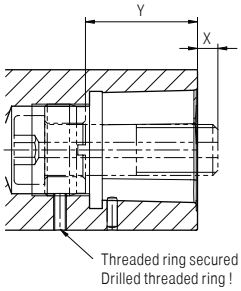
Hollow nose key for clamping screw for PSC extensions and reductions





Adapter	D_1 mm	L_1 mm	d_1 mm	Article no. 84 651 ...
PSC 32	16	80	12,5	032
PSC 40	20	80	15,0	040
PSC 50	22	90	17,0	050
PSC 63/80/80X	34	110	21,0	063

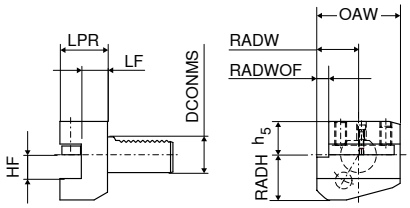
Installation instructions: clamping screw for PSC extensions and reductions



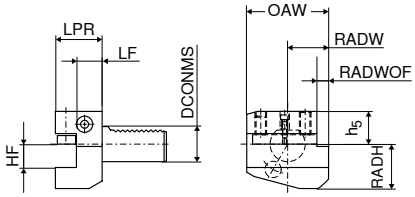
X = Screw leading edge
Y = Threaded ring insertion depth

Adapter	X mm	Y mm
PSC 32	5	24
PSC 40	5	29
PSC 50	6	36
PSC 63	8	44
PSC 80	0	53
PSC 80X	0	53

Radial tool holders, short



B2



B1



B2

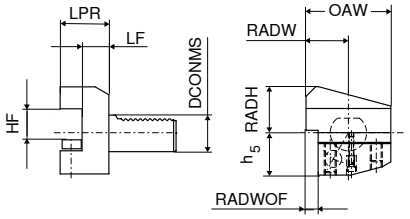


B1

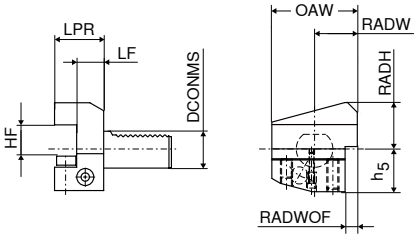
DCONMS h6	HF 0/-0,1	OAW	RADW	RADWOF	h5	RADH	LF 0/+0,5	LPR	Left-hand Article no. 82 189 ...	Right-hand Article no. 82 185 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm		
16	12	42	23,0	5,0	20,0	22	13,0	24	160	160
16	12	42	23,0	5,0	20,0	22	23,0	34	161	
20	16	55	30,0	7,0	25,0	30	16,0	30	200	200
20	16	55	30,0	7,0	25,0	30	26,0	40	201	201
20	16	55	30,0	7,0	25,0	30	18,0	30	202 1)	202 1)
20	16	55	30,0	7,0	25,0	30	25,5	40		203 1)
25	16	55	30,0	7,0	25,0	30	16,0	30	250	250
30	20	70	35,0	10,0	28,0	38	18,5	40	300	300
30	20	70	35,0	10,0	28,0	35	32,0	50		302 1)
30	20	70	35,0	10,0	28,0	38	42,0	60	301	301
40	25	85	42,5	12,5	32,5	48	18,5	44	400	400
50	32	100	50,0	16,0	35,0	60	30,0	55	500	500

1) Height adjustable +/- 1 mm

Radial tool holders, overhead, short



B4



B3



B4



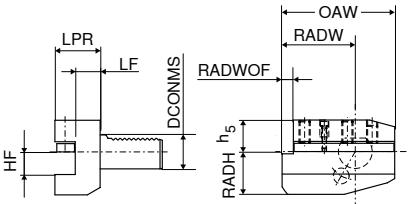
B3

DCONMS h6	HF 0/-0,1	OAW	RADW	RADWOF	h5	RADH	LF 0/+0,5	LPR	Left-hand Article no. 82 196 ...	Right-hand Article no. 82 193 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm		
16	12	42	23,0	5,0	20,0	22	13,0	24		160
20	16	55	30,0	7,0	25,0	30	16,0	30	200	200
20	16	55	30,0	7,0	25,0	30	26,0	40	201	201
20	16	55	30,0	7,0	25,0	30	18,5	30	202 1)	202 1)
20	16	55	30,0	7,0	25,0	30	26,0	40	203 1)	203 1)
25	16	55	30,0	7,0	25,0	30	16,0	30	250	250
30	20	70	35,0	10,0	35,0	38	42,0	60	301	301
30	20	70	35,0	10,0	35,0	38	18,5	40	300	300
40	25	85	42,5	12,5	42,5	48	18,5	44	400	400
50	32	100	50,0	16,0	50,0	60	30,0	55	500	500

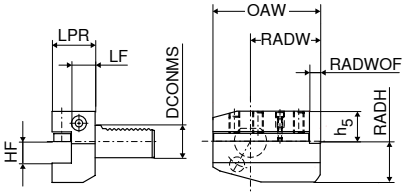
1) Height adjustable +/- 1 mm

Spare parts can be found in → **Chapter 17, Accessories**

Radial tool holders, long



B6



B5

B6



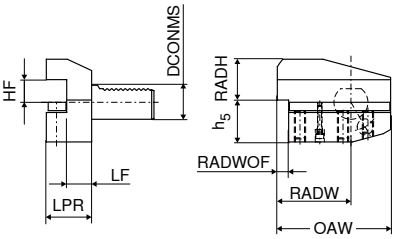
B5



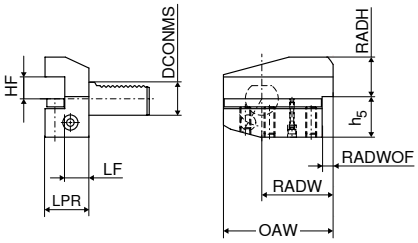
DCONMS h6	HF 0/-0,1	OAW	RADW	RADWOF	h5	RADH	LF 0/+0,5	LPR	Left-hand Article no. 82 202 ...	Right-hand Article no. 82 199 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm		
20	16	75	50,0	7,0	25,0	30	16,0	30	200	200
20	16	75	50,0	7,0	25,0	30	26,0	40	201	201
20	16	75	50,0	7,0	25,0	30	18,0	30		202 1)
30	20	100	65,0	10,0	28,0	38	18,5	40	300	300
30	20	100	65,0	10,0	28,0	38	42,0	60	301	301
40	25	118	75,5	12,5	32,5	48	18,5	44	400	400
50	32	130	80,0	16,0	35,0	60	30,0	55	500	500

1) Height adjustable +/- 1 mm

Radial tool holders, overhead, long



B8



B7

B8



B7



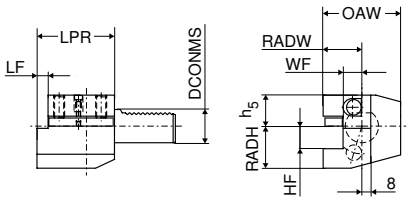
DCONMS h6	HF 0/-0,1	OAW	RADW	RADWOF	h5	RADH	LF 0/+0,5	LPR	Left-hand Article no. 82 208 ...	Right-hand Article no. 82 205 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm		
20	16	75	50,0	7,0	25,0	30	16,0	30	200	200
20	16	75	50,0	7,0	25,0	30	26,0	40		201
20	16	75	50,0	7,0	25,0	30	18,0	30		202 1)
30	20	100	65,0	10,0	35,0	38	18,5	40	300	300
30	20	100	65,0	10,0	35,0	38	42,0	60		301
40	25	118	75,5	12,5	42,5	48	18,5	44	400	400
50	32	130	80,0	16,0	50,0	60	30,0	55	500	500

1) Height adjustable +/- 1 mm

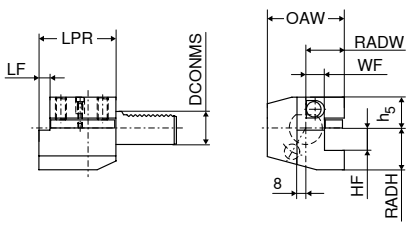
Spare parts can be found in → **Chapter 17, Accessories**

16

Axial tool holders



C2



C1



C2

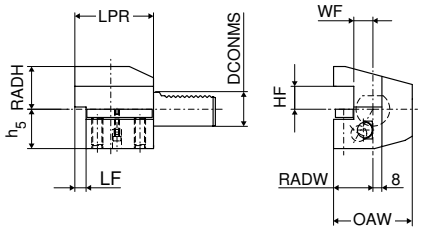


C1

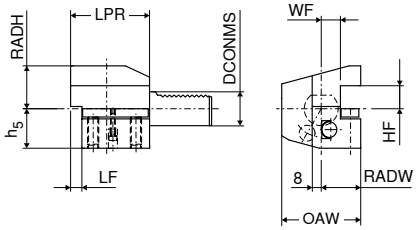
DCONMS h6	HF 0/-0,1	OAW	RADW	WF 0/+0,3	h5	RADH	LPR	LF	Left-hand Article no. 82 214 ...	Right-hand Article no. 82 211 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm		
16	12	43	24,0	13,0	20,0	22	44	5,0		160
20	16	65	40,0	26,0	25,0	30	50		200	201
20	16	65	40,0	25,5	25,0	30	50			202 1)
20	16	52	27,0	13,0	25,0	30	55	7,0		200
25	16	58	33,0	19,0	25,0	30	55	7,0	250	250
30	20	70	35,0	17,0	28,0	38	70	10,0		300
30	20	76	41,0	23,0	28,0	38	70	10,0	300	
40	25	90	47,5	25,5	32,5	48	85	12,5	400	
40	25	85	42,5	20,5	32,5	48	85	12,5		400
50	32	100	50,0	25,5	35,0	60	100	16,0		500
50	32	105	55,0	30,5	35,0	60	100	16,0	500	

1) Height adjustable +/- 1 mm

Axial tool holders, overhead



C4



C3



C4



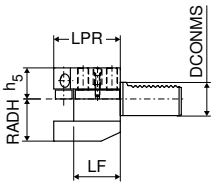
C3

DCONMS h6	HF 0/-0,1	OAW	RADW	WF 0/+0,3	h5	RADH	LPR	LF	Left-hand Article no. 82 220 ...	Right-hand Article no. 82 217 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm		
16	12	43	24,0	13,0	20,0	22	44	5,0		160
20	16	65	40,0	26,0	25,0	30	50		200	201
20	16	65	40,0	25,5	30,0	25	50			202 1)
20	16	65	40,0	25,5	25,0	30	50		201 1)	
20	16	52	27,0	13,0	25,0	30	55	7,0		200
25	16	58	33,0	19,0	25,0	30	55	7,0	250	250
30	20	70	35,0	17,0	35,0	38	70	10,0		300
30	20	76	41,0	23,0	35,0	38	70	10,0	300	
40	25	85	42,5	20,5	42,5	48	85	12,5		400
40	25	90	47,5	25,5	42,5	48	85	12,5	400	
50	32	100	50,0	25,5	50,0	60	100	16,0		500
50	32	105	55,0	30,5	50,0	60	100	16,0	500	

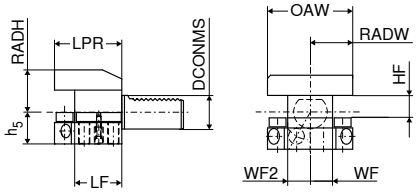
1) Height adjustable +/- 1 mm

Spare parts can be found in → **Chapter 17, Accessories**

Multiple tool holders



D1



D2

D1 D2

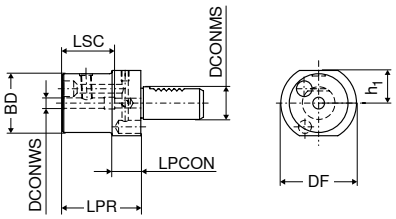




DCONMS h6	HF 0/-0,1	RADW	WF 0/+0,3	WF2 0/+0,3	OAW	h5	RADH	LF 0/+0,5	LPR	Article no. 82 222 ...	Article no. 82 224 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		
25	16	33,0	19,0	19,0	66	22,0	30	34	48	250	
25	16	33,0	19,0	19,0	66	25,0	30	34	48		250
30	20	35,0	17,0	23,0	76	28,0	38	42	60	300	
30	20	35,0	17,0	23,0	76	35,0	38	42	60		300
40	25	42,5	20,5	25,5	90	32,5	48	50	72	400	
40	25	42,5	20,5	25,5	90	42,5	48	50	72		400

Cylindrical tool holders

- For tools with cylindircal shank to DIN 6535 and DIN 1835 Form E (Whistle Notch)
- Coolant supply either centrally through the tool or via the adjustable ball spray nozzles



E



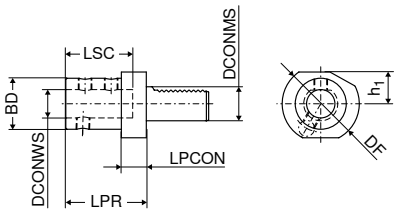
DCONMS h6	DCONWS	DF	BD	h1	LPR	LPCON	LSC	Article no. 83 269 ...
mm	mm	mm	mm	mm	mm	mm	mm	
20	6	50	45	23,0	60	22	40	206
20	8	50	45	23,0	60	22	40	208
20	10	50	45	23,0	60	22	44	210
20	12	50	45	23,0	60	22	49	212
20	14	50	45	23,0	62	22	49	214
20	16	50	45	23,0	67	22	52	216
20	18	50	45	23,0	67	22	52	218
20	20	50	45	23,0	67	22	52	220
30	6	68	52	28,0	67	22	35	306
30	8	68	52	28,0	67	22	35	308
30	10	68	52	28,0	67	22	39	310
30	12	68	52	28,0	67	22	44	312
30	14	68	52	28,0	67	22	44	314
30	16	68	52	28,0	67	22	47	316
30	18	68	52	28,0	67	22	47	318
30	20	68	52	28,0	67	22	52	320
40	6	83	52	32,5	67	22	35	406
40	8	83	52	32,5	67	22	35	408
40	10	83	52	32,5	67	22	39	410
40	12	83	52	32,5	67	22	44	412
40	14	83	52	32,5	67	22	44	414
40	16	83	52	32,5	67	22	47	416
40	18	83	52	32,5	67	22	47	418
40	20	83	52	32,5	67	22	52	420

Spare parts can be found in → **Chapter 17, Accessories**

Cylindrical tool holders for indexable insert drills

▲ For drilling tools with internal coolant supply

E1





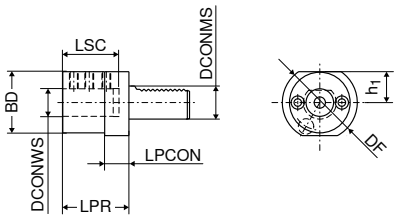
DCONMS h6 mm	DCONWS H6 mm	DF mm	BD mm	h_1 mm	LPR mm	LPCON mm	LSC mm	Article no. 82 274 ...
20	16	50	36	23,0	67	18	54	**200**
20	20	50	40	23,0	67	18	54	**201**
20	25	50	45	23,0	71	18	59	**202**
25	16	58	36	25,0	67	18	54	**250**
25	20	58	40	25,0	67	18	54	**251**
25	25	58	45	25,0	71	18	59	**252**
30	16	68	36	28,0	67	22	54	**300**
30	20	68	40	28,0	67	22	54	**301**
30	25	68	45	28,0	71	22	59	**302**
30	32	68	52	28,0	75	22	63	**303**
30	40	68	60	28,0	87	22	73	**304**
40	16	83	36	32,5	67	22	54	**400**
40	20	83	40	32,5	67	22	54	**401**
40	25	83	45	32,5	75	22	59	**402**
40	32	83	52	32,5	75	22	63	**403**
40	40	83	60	32,5	90	22	73	**404**
50	20	98	40	35,0	80	30	54	**500**
50	25	98	45	35,0	80	30	59	**501**
50	32	98	52	35,0	80	30	63	**502**
50	40	98	60	35,0	90	30	73	**503**
50	50	98	70	35,0	100	30	83	**504**

Spare parts can be found in → **Chapter 17, Accessories**

Boring bar holder

- For turning tools with cylindrical shank
- Coolant supply either through the tool or via the ball-shaped spray nozzle

E2





DCONMS $_{h6}$	DCONWS $_{H7}$	DF	BD	h_1	LPR	LPCON	LSC	Article no. 82 268 ...
mm	mm	mm	mm	mm	mm	mm	mm	
16	6	40	32	18,0	44	13	34	**160** [1]
16	8	40	32	18,0	44	13	34	**161** [1]
16	10	40	32	18,0	44	13	34	**162** [1]
16	12	40	40	18,0	44	13	34	**163** [1]
16	16	40	40	18,0	44	13	34	**164** [1]
20	8	50	40	23,0	50	18	41	**200**
20	10	50	40	23,0	50	18	41	**201**
20	12	50	40	23,0	50	18	41	**202**
20	16	50	40	23,0	50	18	41	**203**
20	20	50	50	23,0	50	18	41	**204**
20	25	50	50	23,0	60	18	51	**205**
25	8	58	40	25,0	50	18	41	**250**
25	10	58	40	25,0	50	18	41	**251**
25	12	58	40	25,0	50	18	41	**252**
25	16	58	40	25,0	50	18	41	**253**
25	20	58	58	25,0	50	18	41	**254**
25	25	58	58	25,0	60	18	51	**255**
30	8	68	55	28,0	60	22	51	**300**
30	10	68	55	28,0	60	22	51	**301**
30	12	68	55	28,0	60	22	51	**302**
30	16	68	55	28,0	60	22	51	**303**
30	20	68	55	28,0	60	22	51	**304**
30	25	68	55	28,0	60	22	51	**305**
30	32	68	68	28,0	75	22	61	**306**
40	8	83	55	32,5	75	22	61	**400**
40	10	83	55	32,5	75	22	61	**401**
40	12	83	55	32,5	75	22	61	**402**
40	16	83	55	32,5	75	22	61	**403**
40	20	83	55	32,5	75	22	61	**404**
40	25	83	55	32,5	75	22	61	**405**
40	32	83	83	32,5	75	22	61	**406**
40	40	83	83	32,5	90	22	76	**407**
50	12	98	68	35,0	90	30	76	**500**
50	16	98	68	35,0	90	30	76	**501**
50	20	98	68	35,0	90	30	76	**502**
50	25	98	68	35,0	90	30	76	**503**
50	32	98	68	35,0	90	30	76	**504**
50	40	98	98	35,0	90	30	76	**505**
50	50	98	98	35,0	100	30	86	**506**

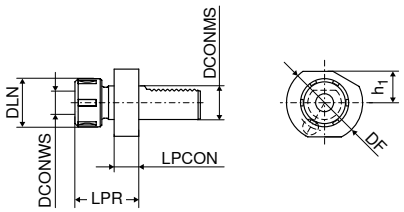
1) Coolant supply through pipe joint

Spare parts + accessories can be found in → **Chapter 17, Accessories**

16

OZ-Collet chuck

E3



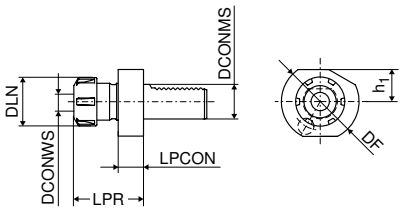


DCONMS h6	DCONWS	DF	DLN	h_1	LPR	LPCON	for collet	Article no. 82 285 ...
mm	mm	mm	mm	mm	mm	mm		
20	2 - 16	50	43	23,0	57	18	415E / 421E (OZ)	**202**
30	2 - 16	68	43	28,0	57	22	415E / 421E (OZ)	**301**
30	2 - 25	68	60	28,0	75	22	459E / 462E (OZ)	**302**
40	2 - 25	83	60	32,5	75	22	459E / 462E (OZ)	**402**
40	4 - 32	83	72	32,5	90	22	460E / 467E (OZ)	**403**
50	2 - 25	98	60	35,0	75	30	459E / 462E (OZ)	**500**
50	4 - 32	98	72	35,0	90	30	460E / 467E (OZ)	**501**

Collets can be found on → **Page 217+218.**

ER Collet chucks

E4





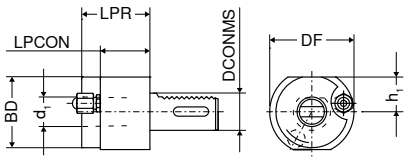
DCONMS h6	DCONWS	DF	DLN	h_1	LPR	LPCON	for collet	Article no. 82 286 ...
mm	mm	mm	mm	mm	mm	mm		
16	1 - 10	40	28	18,0	45,5	14	426E (ER16)	**160**
16	1 - 13	40	34	18,0	44,0	14	428E (ER20)	**161**
20	1 - 16	50	42	23,0	57,0	18	430E (ER25)	**202**
20	2 - 20	50	50	23,0	62,0	18	470E (ER32)	**203**
25	1 - 16	58	42	25,0	57,0	18	430E (ER25)	**250**
25	2 - 20	58	50	25,0	62,0	18	470E (ER32)	**251**
30	1 - 16	68	42	28,0	57,0	22	430E (ER25)	**300**
30	2 - 20	68	50	28,0	75,0	22	470E (ER32)	**301**
40	1 - 16	83	42	32,5	63,0	22	430E (ER25)	**400**
40	2 - 20	83	50	32,5	75,0	22	470E (ER32)	**401**
40	3 - 26	83	63	32,5	75,0	22	472E (ER40)	**402**
50	2 - 20	94	50	35,0	75,0	30	470E (ER32)	**500**
50	3 - 26	94	63	35,0	63,0	30	472E (ER40)	**501**

Collets can be found on → **Page 208–213.**

Morse taper adapters

▲ For taper shanks with ejector tang

F1



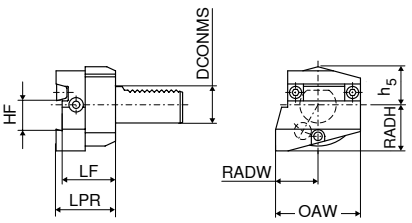


DCONMS $_{h6}$ mm	d_1	BD mm	DF mm	h_1 mm	LPR mm	LPCON mm	Article no. 82 277 ...
20	MK1		50	23,0	23		**200**
20	MK2		50	23,0	87		**201**
30	MK1		68	28,0	27		**300**
30	MK2		68	28,0	27		**301**
30	MK3	58	68	28,0	55	40	**302**
40	MK2	55	83	32,5	36	22	**401**
40	MK3	58	83	32,5	36	22	**402**
40	MK4	68	83	32,5	80	22	**403**
50	MK2	55	98	35,0	36	30	**500**
50	MK3	58	98	35,0	36	30	**501**
50	MK4	68	98	35,0	50	30	**502**

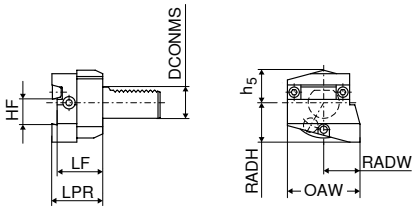
16

Parting blade holders, height adjustable

- Vertical adjustment ± 1 mm
- Suitable for internal cooling through the parting blade
- Axially parallel, adjustable external coolant supply



left



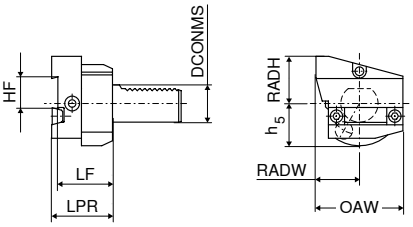
right



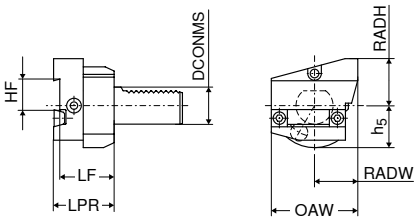
DCONMS h6	OAW	RADW	HF	h_5	RADH	LF	LPR	Left-hand Article no. 82 237 ...	Right-hand Article no. 82 236 ...
mm	mm	mm	mm	mm	mm	mm	mm		
25	53	28,0	26	25,0	30	35	40		250
30	70	35,0	26	28,0	38	44	49	300	300
30	70	35,0	32	30,5	38	44	49	302	302
40	73	42,5	26	32,0	48	44	49	040	040
40	85	42,5	32	32,0	48	44	49	400	400

Parting blade holders, height adjustable, overhead

- Vertical adjustment ± 1 mm
- Suitable for internal cooling through the parting blade
- Axially parallel, adjustable external coolant supply



left



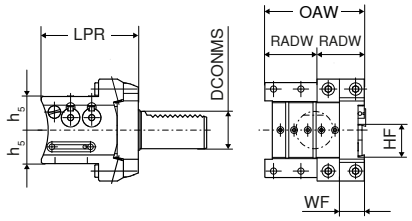
right

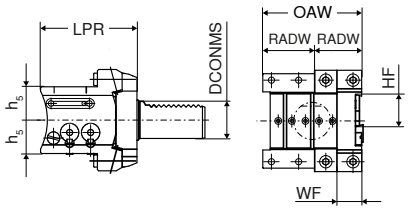


DCONMS h6	OAW	RADW	HF	h_5	RADH	LF	LPR	Left-hand Article no. 82 243 ...	Right-hand Article no. 82 242 ...
mm	mm	mm	mm	mm	mm	mm	mm		
30	70	35,0	26	34,0	38	44	49	300	300
30	70	35,0	32	30,5	38	44	49	302	302
40	73	42,5	26	32,0	48	44	49	040	040
40	85	42,5	32	32,0	48	44	49	400	400

Parting blade holders, height adjustable

- Vertical adjustment ± 1 mm
- Suitable for internal cooling through the parting blade
- Axially parallel, adjustable external coolant supply







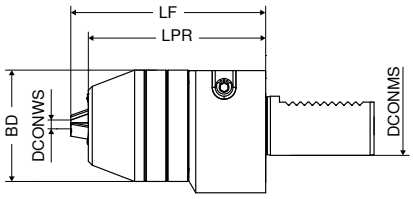
DCONMS h6	OAW	RADW	HF	h5	WF	LPR	Universal	Universal-overhead
							Article no.	Article no.
							82 238 ...	82 244 ...
mm	mm	mm	mm	mm	mm	mm		
30	80	40	26	27	20	78	**300**	**300**
40	80	40	26	27	20	88	**400**	**400**
40	80	40	32	32	20	88	**402**	**402**

Short drill chuck NC2010

- ▲ Coolant supply via 3 adjustable ball-shaped spray nozzles in the housing
- ▲ Independent of direction of rotation

Scope of supply:

Basic body including chuck key SW 4



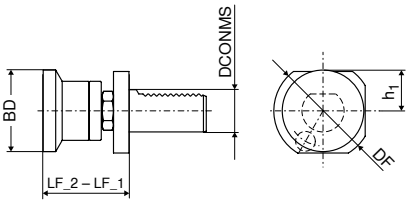


DCONMS h6	DCONWS	BD	LPR	LF	Article no. 84 297 ...
mm	mm	mm	mm	mm	
20	0,5 - 10	48,5	40	50	**210** 1)
30	0,5 - 13	56,5	90	99	**313**
30	2,5 - 16	56,5	90	99	**316**
40	0,5 - 13	56,5	90	99	**413**
40	2,5 - 16	56,5	90	99	**416**

1) Without Through Coolant

Material stops

- ▲ Revolving, length adjustable



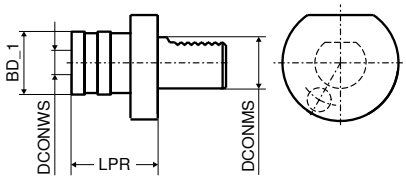


DCONMS h6	BD	DF	h_1	LF_2	LF_1	Article no. 83 292 ...
mm	mm	mm	mm	mm	mm	
20	26	50	23,0	50	70	**200** 1)
20	32	50	23,0	50	70	**201** 1)
20	42	50	23,0	50	70	**202** 1)
30	32	68	28,0	62	95	**300**
30	42	68	28,0	62	95	**301**
30	58	68	28,0	62	95	**302**
40	32	83	32,5	62	95	**400**
40	42	83	32,5	62	95	**401**
40	58	83	32,5	62	95	**402**

1) Without VDI location

Quick-change tap chucks GSF

▲ LZD = Length compensation under tension and compression





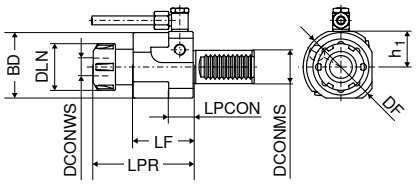
DCONMS $_{h6}$ mm	cutting range	SZID	DCONWS mm	BD_1 mm	LPR mm	LZD± mm	Article no. 83 307 ...
20	M3 - M12	01	19	38	55	9	**112**
25	M3 - M12	01	19	38	55	9	**212**
30	M3 - M12	01	19	38	55	9	**312**
40	M3 - M12	01	19	38	55	9	**412**
20	M6 - M20	02	31	55	77	15	**120**
25	M6 - M20	02	31	55	77	15	**220**
30	M6 - M20	02	31	55	77	15	**320**
40	M6 - M20	02	31	55	77	15	**420**

Quick change adapters can be found on → **Page 219–223.**

Tap holders with length compensation GML

▲ LZD = Length compensation under tension and compression

▲ For ER collets with internal square ISO 15488-A (DIN 6499-A)



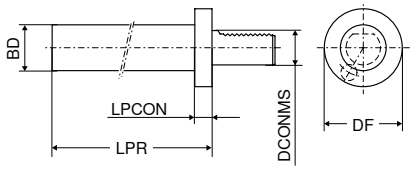


DCONMS mm	DCONWS mm	DLN mm	BD mm	DF mm	h_1 mm	LPR mm	LF mm	LPCON mm	LZD mm	for collet	Article no. 83 290 ...
20	0,5 - 10	28	45	50	23,0	65	40	18	6,0 / 1,5	4031E (ER16)	**213**
30	1 - 16	42	62	68	28,0	90	54	42	8,0 / 2,0	4282E (ER25)	**316**
40	1 - 16	42	62	83	32,5	85	49	42	8,0 / 2,0	4282E (ER25)	**416**

ER collets can be found on → **Pages 208–213.**

Test arbors

▲ Radial run-out ≤ 0.02 mm



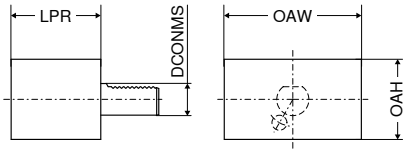


DCONMS	BD h5	DF	LPR	LPCON	Article no. 83 324 ...
mm	mm	mm	mm	mm	
16	30	40	120	15	**016**
20	40	50	150	15	**020**
30	40	68	200	15	**030**
40	40	83	200	15	**040**
50	40	98	200	15	**050**

Tool holders, rough machined, rectangular

▲ Manufactured from C45

A1



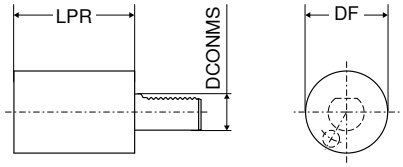


DCONMS h6	LPR	OAW	OAH	Article no. 82 327 ...
mm	mm	mm	mm	
16	44	78	44	**160**
20	65	100	60	**200**
25	75	100	60	**250**
30	85	130	76	**300**
40	100	151	96	**400**
50	125	160	120	**500**

Tool holders, rough machined, round

▲ Manufactured from C45

A2

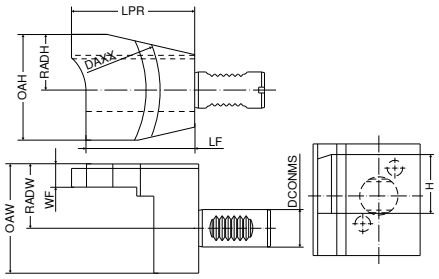




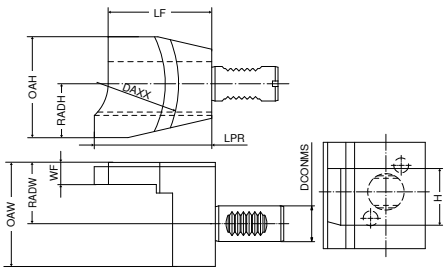
DCONMS $_{h6}$	LPR	DF	Article no. 82 330 ...
mm	mm	mm	
16	60	40	**160**
20	70	50	**200**
25	80	58	**250**
25	200	58	**253**
30	100	68	**300**
30	240	68	**303**
40	120	83	**400**
40	320	83	**403**
50	135	98	**500**
50	400	98	**502**

Parting blade holder

▲ Doubles = reciprocally interlocked VDI shank



double - overhead



double



DCONMS	OAH	RADH	OAW	RADW	WF	LPR	LF	DAXX	H	double-overhead Article no. 65 170 ...	double Article no. 65 170 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		
20	94	47	95	60	15,5	85,5	75	176	26	**040** [1]	**039** [1]
25	73	39	72	43	15,5	85,0	75	176	26	**042** [1]	**041** [1]
25	73	39	72	43	15,5	85,0	75	176	32	**044** [1]	**043** [1]
30	100	50	95	60	15,5	85,5	75	176	26	**046** [1]	**045** [1]
30	100	50	95	60	15,5	85,5	75	176	32	**048** [1]	**047** [1]
40	100	50	95	60	15,5	85,5	75	176	26	**050** [1]	**049** [1]
40	100	50	95	60	15,5	85,5	75	176	32	**052** [1]	**051** [1]

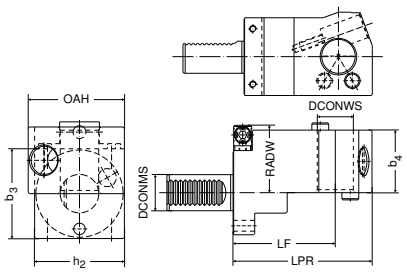
1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

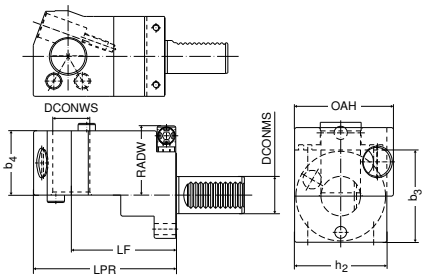
16

90° VDI to VDI adapter, double sided

▲ For rotating toolholder



left



right





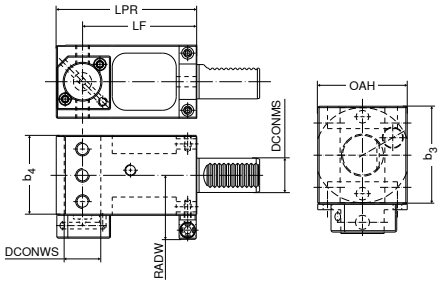
DCONMS	DCONWS	OAH	h_2	b_3	b_4	RADW	LF	LPR	Left-hand Article no. 65 170 ...	Right-hand Article no. 65 170 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm		
25	20	60	54	60	44	48,0	75	100	**012** 1)	**011** 1)
25	25	63	54	60	44	48,0	75	100	**014**	**013** 1)
30	30	75	70	70	52	56,0	85	115	**004**	**006** 1)
30	30	75	70	70	52	56,0	100	130	**003** 1)	**005**
40	40	93	85	85	60	67,5	100	138	**008**	**007**
40	40	93	85	85	60	67,5	120	158	**009**	**010** 1)
50	50	109	90	100	72	73,5	120	165	**002** 1)	**001** 1)

1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

Boring bar holder with through coolant

▲ Delivered as left hand tool
▲ Can be re-assembled as right hand tool
▲ External coolant supply avaialble



left



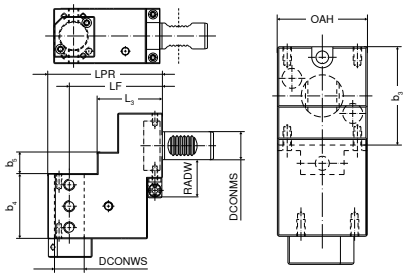
DCONMS	DCONWS	OAH	b_3	b_4	RADW	LF	LPR	right / left Article no. 65 170 ...
mm	mm	mm	mm	mm	mm	mm	mm	
25	25	54	60	60	48,0	75	97,5	**065**
30	32	64	70	70	56,0	85	108,0	**062**
30	32	64	70	70	56,0	100	123,0	**063**
40	40	76	85	85	67,5	100	132,0	**067**
40	40	76	85	85	67,5	120	152,0	**068**
50	50	85	100	100	73,5	120	160,0	**066** 1)

1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

Boring bar holder, with offset, with through coolant

- Doubles = reciprocally interlocked VDI shank
- External coolant supply available





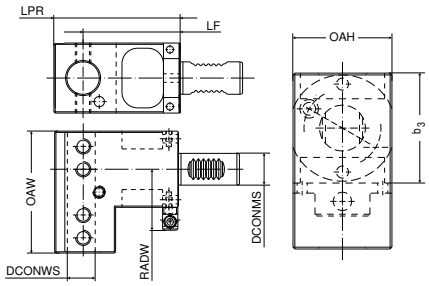
DCONMS	DCONWS	OAH	b_3	b_4	RADW	b_5	LF	LPR	L_3	double Article no. 65 170 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
25	25	54	60	60	48,0	20	75	97,5	48	**069**
30	32	64	70	70	56,0	30	100	123,0	70	**070** 1)
40	40	85	85	85	67,5	40	100	132,0	63	**071** 1)

1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

Double boring bar holder with through coolant

- Doubles = reciprocally interlocked VDI shank
- For use of two boring bars for main and sub-spindle machining
- External coolant supply available





DCONMS	DCONWS	OAH	b_3	OAW	RADW	LF	LPR	double Article no. 65 170 ...
mm	mm	mm	mm	mm	mm	mm	mm	
25	25	54	60	96	48,0	75	97,5	**080** 1)
30	32	64	70	120	56,0	85	108,0	**082** 1)
30	32	64	70	120	56,0	100	123,0	**083** 1)
40	40	76	85	120	67,5	120	152,0	**084**

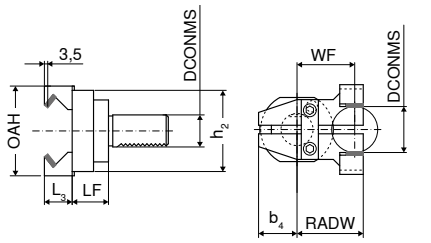
1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

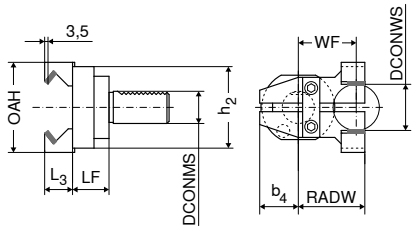
Bar pullers for disc turrets, radial

- Two adjustable, spring-mounted, replaceable grippers are fitted to the main body. Each of these is equipped with a carbide insert. The grippers are set to a slightly smaller diameter than the bar and then pressed onto the bar in an axial direction (x axis) by the tool turret.
- GA = Gripper set

Scope of supply:
Bar puller incl. GA 1 for VDI 16, and GA 3 from VDI 20



left



right



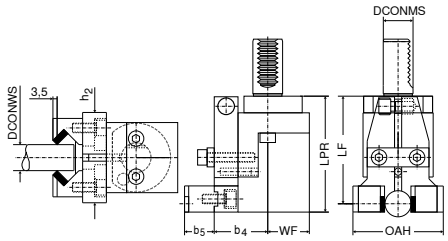


DCONMS h6	DCONWS	RADW	WF	b_4	OAH	h_2	LF	L_3	suitable for GA	Left-hand Article no. 80 309 ...	Right-hand Article no. 80 306 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm			
16	2 - 22	35,0	28,5	26,5	73	55	27,8	24,5	1		**160**
20	2 - 42	60,5	54,0	36,0	86	76	33,7	26,0	3		**200**
30	2 - 65	60,5	54,0	36,0	102	76	33,7	26,0	3 - 4		**300**
30	2 - 65	47,5	41,0	49,0	102	76	33,7	26,0	3 - 4	**300**	
40	2 - 65	60,5	54,0	41,5	122	76	33,7	26,0	3 - 4	**400**	**400**

Bar pullers for star turrets

- Two adjustable, spring-mounted, replaceable grippers are fitted to the main body. Each of these is equipped with a carbide insert. The grippers are set to a slightly smaller diameter than the bar and then pressed onto the bar in an axial direction (x axis) by the tool turret.
- 90° angle head
- GA = Gripper set

Scope of supply:
Bar puller with GA 3



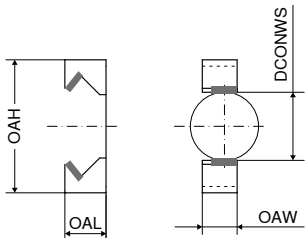


left

DCONMS h6	DCONWS	LPR	LF	OAH	h_2	b_4	b_5	WF	suitable for GA	Left-hand Article no. 80 310 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm		
30	2 - 65	97	90,5	86	76	46,7	26	34,0	3 - 4	**300**
40	2 - 65	97	90,5	102	76	59,7	26	41,5	3 - 4	**400**

Gripper accessories

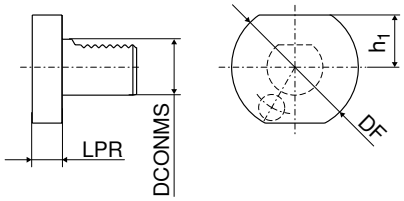
▲ For bar pullers 80 306 ... / 80 309 ... / 80 310 ...
▲ Price per pair



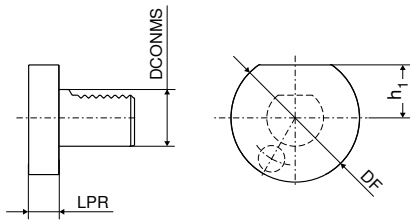


GA	DCONWS	OAL	OAW	OAH	Article no. 80 312 ...
	mm	mm	mm	mm	
1	2 - 22	24,5	13	58	022
3	2 - 42	26,0	22	86	042
4	42 - 65	29,5	22	102	065

Protection plugs



Steel



Plastic

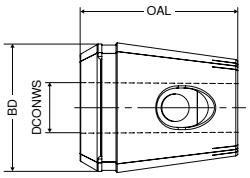


DCONMS h8	DF	h_1	LPR	Steel	Plastic
				Article no. 82 317 ...	Article no. 83 318 ...
mm	mm	mm	mm		
16	40	18,0	16	160	160
20	50	23,0	16	200	200
25	58	25,0	16	250	
30	68	28,0	16	300	300
40	83	32,5	20	400	400
50	98	35,0	20	500	500

ER wedge collet with pull out protection, for precision collet chuck

- Similar to DIN ISO 15488-B
- Slotted
- Double taper collet

Centro-P WD	ER 5 µm





BD = 32,7
OAL = 40
ER 32

DCONWS mm	Article no. 83 629 ...
12	120
14	140
16	160
18	180



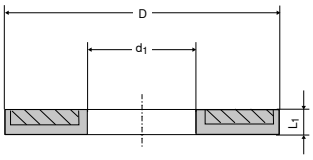
Conical spring

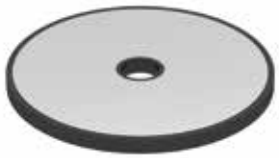
Spare parts DCONWS		Article no. 83 950 ...
12 - 18	CP 32	455

Sealing rings for precision collet chucks

- For sealing when using tools with internal cooling
- Sealing range: nominal diameter –0,1 mm / +0,4 mm
- Can be applied up to 80 bar

Centro-P



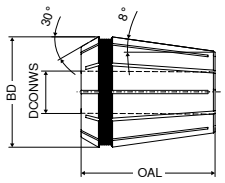


d_1 mm	D = 12,6 L_1 = 2 426E (ER16) Article no. 83 690 ...	D = 15,8 L_1 = 2 428E (ER20) Article no. 83 694 ...	D = 20,2 L_1 = 2 430E (ER25) Article no. 83 691 ...	D = 26,2 L_1 = 2 444E / OZ (ER32) Article no. 83 692 ...	D = 34,2 L_1 = 2 472E (ER40) Article no. 83 693 ...
1,0	010				
1,5	015				
2,0	020	020	020	020	
2,5	025	025	025	025	
3,0	030	030	030	030	030
3,5	035	035	035	035	035
4,0	040	040	040	040	040
4,5	045	045	045	045	045
5,0	050	050	050	050	050
5,5	055	055	055	055	055
6,0	060	060	060	060	060
6,5	065	065	065	065	065
7,0	070	070	070	070	070
7,5	075	075	075	075	075
8,0	080	080	080	080	080
8,5	085	085	085	085	085
9,0	090	090	090	090	090
9,5	095	095	095	095	095
10,0	100	100	100	100	100
10,5		105	105	105	105
11,0		110	110	110	110
11,5		115	115	115	115
12,0		120	120	120	120
12,5		125	125	125	125
13,0		130	130	130	130
13,5			135	135	135
14,0			140	140	140
14,5			145	145	145
15,0			150	150	150
15,5			155	155	155
16,0			160	160	160
16,5				165	165
17,0				170	170
17,5				175	175
18,0				180	180
18,5				185	185
19,0				190	190
19,5				195	195
20,0				200	200
20,5					205
21,0					210
21,5					215
22,0					220
22,5					225
23,0					230
23,5					235
24,0					240
24,5					245
25,0					250
25,5					255
26,0					260

Precision ER collet for precision collet chuck

- DIN ISO 15488-B (old DIN 6499-B)
- 12 times slotted
- Double taper collet
- Coloured ring as identification of precision collet
- ER08: 5 µm runout and repeatability

Centro-P Coated | **ER-B 2 µm**





DCONWS mm	BD = 8,5 OAL = 13,6 4004 E / ER08 Article no. 84 577 ...	BD = 11,5 OAL = 18 4008 E / ER11 Article no. 84 585 ...	BD = 17 OAL = 27,5 426 E / ER16 Article no. 84 596 ...	BD = 26 OAL = 34 430 E / ER25 Article no. 84 597 ...	BD = 33 OAL = 40 470 E / ER32 Article no. 84 598 ...	BD = 41 OAL = 46 472 E / ER40 Article no. 84 599 ...
1,0	010	010	010			
1,1			011			
1,2			012			
1,4			014			
1,5	015	015	015			
1,6			016			
1,8			018			
2,0	020	020	020	020	020	
2,2			022			
2,4			024			
2,5	025	025	025	025		
2,6			026			
2,8			028			
3,0	030	030	030 1)	030	030	030
3,2			032			
3,4			034			
3,5	035	035	035	035		
3,6			036			
3,8			038			
4,0	040	040	040 1)	040	040 1)	040
4,5	045	045	045	045		
5,0	050	050	050 1)	050	050	050
5,5		055	055	055		
5,6			056			
6,0		060	060 1)	060 1)	060 1)	060
6,3			063			
6,5		065	065	065		
7,0		070	070 1)	070	070	070
7,1			071			
7,5			075	075		
8,0			080 1)	080 1)	080 1)	080
8,5			085	085		
9,0			090	090	090	090
9,5			095	095		
10,0			100 1)	100 1)	100 1)	100
10,5				105		
11,0				110	110	110
11,5				115		
12,0				120 1)	120 1)	120
12,5				125		
13,0				130	130	130
13,5				135		
14,0				140 1)	140 1)	140
14,5				145		
15,0				150	150	150
15,5				155		
16,0				160 1)	160 1)	160
17,0					170	170
18,0					180	180
19,0					190	190
20,0					200 1)	200
21,0						210
22,0						220
23,0						230
24,0						240
25,0						250
26,0						260
Set in wooden box			999	999	999	

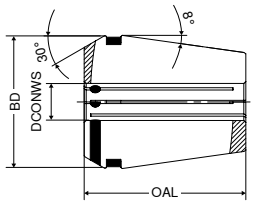
1) Included in the set

Clamping range covered: H10 corresponding to shank Ø DCONWS

ER precision collet, sealed, for precision collet chuck

- Similar to DIN ISO 15488-A
- 8 slotted
- Coloured ring as identification of precision collet
- $p_{max.}$ = 120 bar

Centro-P Coated | **ER-A 2 µm**



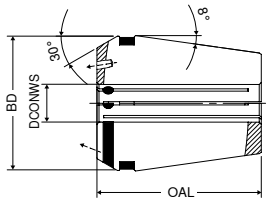


DCONWS	BD = 11,3 OAL = 18 425 E / ER11	BD = 16,7 OAL = 27,5 425 E / ER16	BD = 25,7 OAL = 34 429 E / ER25	BD = 32,7 OAL = 40 469 E / ER32	BD = 40,7 OAL = 46 471 E / ER40
	Article no. 84 536 ...	Article no. 84 537 ...	Article no. 84 538 ...	Article no. 84 539 ...	Article no. 84 540 ...
mm					
3	030	030	030	030	
4	040	040	040	040	
5	050	050	050	050	
6	060	060	060	060	060
7		070	070	070	
8		080	080	080	080
9		090	090	090	
10		100	100	100	100
11			110	110	
12			120	120	120
13			130	130	
14			140	140	140
15			150	150	
16			160	160	160
17				170	
18				180	180
19				190	
20				200	200
22					220
25					250

ER precision collet, sealed with coolant channels, for precision collet chuck

- Similar to DIN ISO 15488-A
- 8 slotted
- Coloured ring as identification of precision collet

Centro-P Coated | ER-A 2 µm



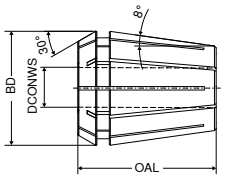


DCONWS	BD = 16,7 OAL = 27,5 425 E / ER16	BD = 25,7 OAL = 34 429 E / ER25	BD = 32,7 OAL = 40 469 E / ER32	BD = 40,7 OAL = 46 471 E / ER40
	Article no. 84 548 ...	Article no. 84 549 ...	Article no. 84 550 ...	Article no. 84 551 ...
mm				
4	040	040	040	
6	060	060	060	
8	080	080	080	
10		100	100	100
12		120	120	120
14		140	140	
16			160	160
18			180	
20			200	200
25				250

ER precision collet

- DIN ISO 15488-B (old DIN 6499-B)
- 12 times slotted
- Double taper collet

Coated | **ER-B 5 µm**





DCONWS mm	BD = 11,5 OAL = 18 4008 E / ER11 Article no. 84 576 ...	BD = 17 OAL = 27,5 426 E / ER16 Article no. 84 578 ...	BD = 21 OAL = 31,5 428 E / ER20 Article no. 84 579 ...	BD = 26 OAL = 34 430 E / ER25 Article no. 84 580 ...	BD = 33 OAL = 40 470 E / ER32 Article no. 84 581 ...	BD = 41 OAL = 46 472 E / ER40 Article no. 84 582 ...
1,0	010	010	010 [1]	010 [1]		
1,5	015	015 [1]	015 [1]	015 [1]		
2,0	020	020	020	020	020 [1]	
2,5	025	025 [1]	025 [1]	025	025 [1]	
3,0	030	030	030	030	030	030 [1]
3,5	035					
4,0	040	040	040	040	040	040
4,5	045					
5,0	050	050	050	050	050	050
5,5	055					
6,0	060	060	060	060	060	060
6,5	065					
7,0	070	070	070	070	070	070
8,0		080	080	080	080	080
9,0		090	090	090	090	090
10,0		100	100	100	100	100
11,0			110	110	110	110
12,0			120	120	120	120
13,0			130	130	130	130
14,0				140	140	140
15,0				150	150	150
16,0				160	160	160
17,0					170	170
18,0					180	180
19,0					190	190
20,0					200	200
21,0						210
22,0						220
23,0						230
24,0						240
25,0						250
26,0						260
Set in wooden box	999	999	999	999	999	999

1) Not included in the set

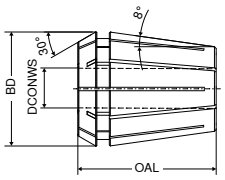
Clamping range covered: up to Ø 2 mm = 0.5 mm, from Ø 2.5 mm = 1 mm

16

ER collet

- DIN ISO 15488-B (old DIN 6499-B)
- 12 times slotted
- Double taper clamping

ER-B
10 µm





DCONWS mm		BD = 8,5 OAL = 13,6 4004 E / ER08 Article no. 84 574 ...	BD = 17 OAL = 27,5 426 E / ER16 Article no. 83 665 ...	BD = 26 OAL = 34 430 E / ER25 Article no. 83 667 ...	BD = 33 OAL = 40 470 E / ER32 Article no. 83 668 ...
1,0		010 [1]			
1,0			010		
1,5		015 [1]			
2,0			020	020	
2,0		020 [1]			
2,5		025 [1]			
3,0		030 [1]			
3,0			030	030	030
3,5		035 [1]			
4,0		040 [1]			
4,0			040	040	040
4,5		045 [1]			
5,0		050 [1]			
5,0			050	050	050
6,0			060	060	060
7,0			070	070	070
8,0			080	080	080
9,0			090	090	090
10,0			100	100	100
11,0				110	110
12,0				120	120
13,0				130	130
14,0				140	140
15,0				150	150
16,0				160	160
17,0					170
18,0					180
19,0					190
20,0					200
	Set in wooden box	999 [1]			

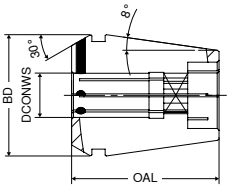
1) Type Coated - coated collet

Clamping range covered: up tp Ø 2 mm = 0.5 mm, from Ø 3 mm = 1 mm

ER precision tap collet

- Similar to DIN ISO 15488-A
- 8 slotted
- For Centro-P and standard collet chucks
- $p_{max.}$ = 120 bar

Coated | **ER-A 10 µm**



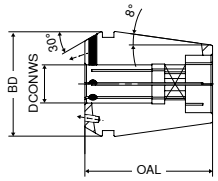


	BD = 16,7 OAL = 27,5 4031 E / ER16	BD = 25,7 OAL = 34 4282 E / ER25	BD = 32,7 OAL = 40 4537 E / ER32
DCONWS	**Article no.** **84 531 ...**	**Article no.** **84 533 ...**	**Article no.** **84 534 ...**
mm			
2,8	**028**		
3,5	**035**	**035**	
4,0	**040**	**040**	**040**
4,5	**045**	**045**	**045**
6,0	**060**	**060**	**060**
7,0	**070**	**070**	**070**
8,0	**080**	**080**	**080**
9,0	**090**	**090**	**090**
10,0		**100**	**100**
11,0		**110**	**110**
12,0		**120**	**120**
14,0		**140**	**140**
16,0		**160**	**160**
18,0			**180**
20,0			**200**

ER precision collet, sealed with coolant channels

- Similar to DIN ISO 15488-A
- 8 slotted
- For Centro-P and standard collet chucks

Coated | **ER-A 10 µm**



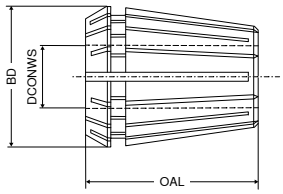


	BD = 16,7 OAL = 27,5 4537 E / ER16	BD = 25,7 OAL = 34 4537 E / ER25	BD = 32,7 OAL = 40 4537 E / ER32
DCONWS	**Article no.** **84 567 ...**	**Article no.** **84 568 ...**	**Article no.** **84 569 ...**
mm			
3,5	**035**		
4,5	**045**	**045**	**045**
6,0	**060**	**060**	**060**
7,0	**070**	**070**	**070**
8,0	**080**	**080**	**080**
9,0		**090**	**090**
10,0		**100**	**100**
11,0		**110**	**110**
12,0		**120**	**120**
14,0		**140**	**140**
16,0			**160**
18,0			**180**
20,0			**200**

ER precision collet

- ▲ DIN ISO 15488-B (old DIN 6499-B)
- ▲ Double taper collet
- ▲ 16 times slotted

ER-B
20 µm





DCONWS mm		BD = 17 OAL = 27,5 426 E / ER16	BD = 21 OAL = 31,5 428 E / ER20	BD = 26 OAL = 34 430 E / ER25	BD = 33 OAL = 40 470 E / ER32	BD = 41 OAL = 46 472 E / ER40
		Article no. 82 673 ...	Article no. 82 674 ...	Article no. 82 675 ...	Article no. 82 676 ...	Article no. 82 677 ...
1		01000	01000 [1]			
2		02000	02000 [1]	02000 [1]		
3		03000	03000	03000	03000	03000
4		04000	04000	04000	04000	04000
5		05000	05000	05000	05000	05000
6		06000	06000	06000	06000	06000
7		07000	07000	07000	07000	07000
8		08000	08000	08000	08000	08000
9		09000	09000	09000	09000	09000
10		10000	10000	10000	10000	10000
11			11000	11000	11000	11000
12			12000	12000	12000	12000
13			13000	13000	13000	13000
14				14000	14000	14000
15				15000	15000	15000
16				16000	16000	16000
17					17000	17000
18					18000	18000
19					19000	19000
20					20000	20000
21						21000
22						22000
23						23000
24						24000
25						25000
26						26000
	Set in wooden box	99900	99900	99900	99900	99900

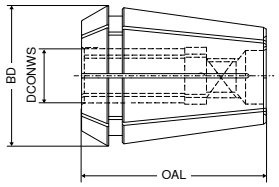
1) Not included in the set

Clamping range covered: up to Ø 3 mm = 0.5 mm, from Ø 4 mm = 1 mm

ER collet with internal square

- DIN ISO 15488-A (old DIN 6499-A)
- 8 times slotted
- Double taper collets for holding taps on synchronised spindle machines, without compensating lengths

ER-A
15 µm





DCONWS	BD = 25,7 OAL = 34 430 E / ER25	BD = 32,7 OAL = 40 470 E / ER32	BD = 40,7 OAL = 46 472 E / ER40
mm	Article no. 82 650 ...	Article no. 82 651 ...	Article no. 82 652 ...
4,5	04500	04500	
5,5	05500	05500	
6,0	06000	06000	
7,0	07000	07000	07000
8,0	08000	08000	08000
9,0	09000	09000	09000
10,0	10000	10000	10000
11,0	11000	11000	11000
12,0	12000	12000	12000
14,0		14000	14000
16,0		16000	16000
18,0			18000
20,0			20000

Wooden boxes for collets

- For collets form A+B



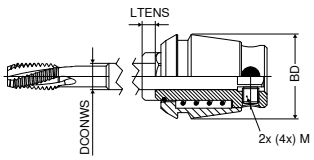
Size	Piece	Article no. 83 689 ...
4004 E / ER08	9	008
4008 E / ER11	13	011
426 E / ER16	10	116
428 E / ER20	11	020
430 E / ER25	14	025
470 E / ER32	18	032
472 E / ER40	24	040

16

Tapping Collet Form ET (ER) with length compensation

- DIN ISO 15488 (old DIN 6499)
- With pull out length compensation (LTENS)
- The spring force is adapted to the thread size
- Anti-rotation by 2 and/or 4 clamping screws on the shank square drive

ER
10 µm





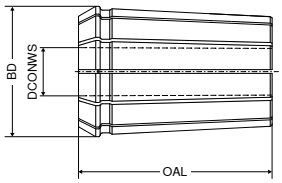
	BD = 17 LTENS = 7 426 E / ER16	BD = 21 LTENS = 7 428 E / ER20	BD = 26 LTENS = 8 430 E / ER25	BD = 33 LTENS = 10 470 E / ER32	BD = 41 LTENS = 13 472 E / ER40
DCONWS	**Article no.** **80 661 ...**	**Article no.** **80 662 ...**	**Article no.** **80 663 ...**	**Article no.** **80 664 ...**	**Article no.** **80 665 ...**
mm					
2,2	**022**	**022**			
2,5	**025**	**025**	**025**		
2,8	**028**	**028**	**028**		
3,0	**030**	**030**	**030**		
3,5	**035**	**035**	**035**		
4,0	**040**	**040**	**040**		
4,5	**045**	**045**	**045**	**045**	
5,0				**050**	
5,5	**055**	**055**	**055**	**055**	
6,0	**060**	**060**	**060**	**060**	**060**
7,0		**070**	**070**	**070**	**070**
8,0			**080**	**080**	**080**
9,0			**090**	**090**	**090**
10,0			**100**	**100**	**100**
11,0				**110**	**110**
12,0				**120**	**120**
14,0					**140**
16,0					**160**

When using CNC machines apply canned cycles with a feed rate or pitch of only 95 % with small threads and up to 99 % with large threads. In this way when reversing the rotation of the spindle an optimum length compensation in both directions is guaranteed.

OZ Precision collet for precision collet chuck

- DIN ISO 10897-B (old DIN 6388-B)
- Ø = 10 mm 10 slots, Ø > 10 mm 12 slots
- Double angle collets

OZ-B 3 µm | **Centro-P**





BD = 35,05
OAL = 52
462 E / OZ

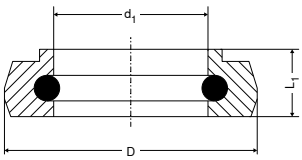
DCONWS mm	Article no. 83 660 ...
3	030
4	040
6	060
8	080
10	100
12	120
14	140
16	160
18	180
20	200
25	250

Clamping range covered: H10 corresponding to shank Ø DCONWS

Sealing ring for OZ Collet Chuck 462E

- For use for sealing tools with through coolant
- Seal diameter: Nominal diameter - 0.5 mm
- Use up to 150 bar

OZ-B 5 µm





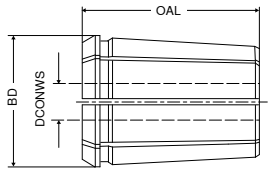
D = 31
L_1 = 4
462E

d_1 mm	Article no. 83 675 ...
4	040
5	050
6	060
8	080
10	100
12	120
14	140
16	160
18	180
20	200
22	220
25	250

16

OZ-collets

- DIN ISO 10897-B (old DIN 6388-B)
- Ø = 10 mm 10 slots, Ø > 10 mm 12 slots



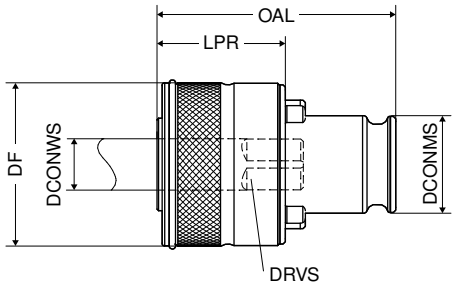


DCONWS	OZ-B 6 µm BD = 25,5 OAL = 40 415 E / OZ Article no. 83 651 ...	OZ-B 6 µm BD = 35,05 OAL = 52 462 E / OZ Article no. 83 652 ...	OZ-B 10 µm BD = 43,7 OAL = 60 467 E / OZ Article no. 83 653 ...	OZ-B 20 µm BD = 25,5 OAL = 40 415 E / OZ Article no. 82 653 ...	OZ-B 20 µm BD = 35,05 OAL = 52 462 E / OZ Article no. 82 654 ...	OZ-B 20 µm BD = 43,7 OAL = 60 467 E / OZ Article no. 82 655 ...
mm						
2,0				02000	02000	
2,5				02500	02500	
3,0	030			03000	03000	
3,5				03500	03500	
4,0	040	040		04000	04000	04000
4,5				04500	04500	04500
5,0	050	050		05000	05000	05000
5,5				05500	05500	05500
6,0	060	060		06000	06000	06000
6,5				06500	06500	06500
7,0				07000	07000	07000
7,5				07500	07500	07500
8,0	080	080		08000	08000	08000
8,5				08500	08500	08500
9,0				09000	09000	09000
9,5				09500	09500	09500
10,0	100	100	100	10000	10000	10000
10,5				10500	10500	10500
11,0				11000	11000	11000
11,5				11500	11500	11500
12,0	120	120	120	12000	12000	12000
12,5				12500	12500	12500
13,0				13000	13000	13000
13,5				13500	13500	13500
14,0		140	140	14000	14000	14000
14,5				14500	14500	14500
15,0				15000	15000	15000
15,5				15500	15500	15500
16,0	160	160	160	16000	16000	16000
16,5					16500	16500
17,0					17000	17000
17,5					17500	17500
18,0		180	180		18000	18000
18,5					18500	18500
19,0					19000	19000
19,5					19500	19500
20,0		200	200		20000	20000
20,5					20500	20500
21,0					21000	21000
21,5					21500	21500
22,0					22000	22000
22,5					22500	22500
23,0					23000	23000
23,5					23500	23500
24,0					24000	24000
24,5					24500	24500
25,0		250	250		25000	25000
25,5						25500
26,0						26000
26,5						26500
27,0						27000
27,5						27500
28,0						28000
28,5						28500
29,0						29000
29,5						29500
30,0			300			30000
30,5						30500
31,0						31000
31,5						31500
32,0			320			32000

The collet has a clamping range of 0.5 mm (+0.1 / -0.4 mm)

Quick change tap adapter with overload clutch

- Adapter with adjustable overload clutch
- For use with taps





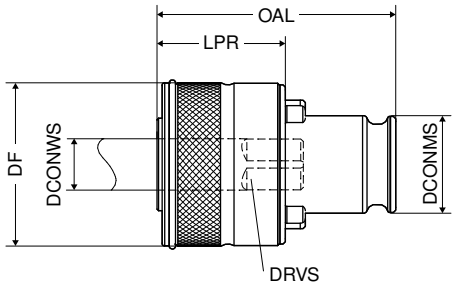


A

SZID	DCONWS	DRVS	DIN 371	DIN 374 / 376	DF	DCONMS	OAL	LPR	Article no. 83 612 ...
	mm	mm			mm	mm	mm	mm	
01	2,8	2,1	M2		33	19	46,5	25	100
01	2,8	2,1	M2,5		33	19	46,5	25	101
01	3,5	2,7	M3		33	19	46,5	25	102
01	4,0	3,0	M3,5		33	19	46,5	25	103
01	4,5	3,4	M4		33	19	46,5	25	104
01	6,0	4,9	M4,5		33	19	46,5	25	105
01	6,0	4,9	M5		33	19	46,5	25	106
01	4,5	3,4		M6	33	19	46,5	25	107
01	6,0	4,9	M6		33	19	46,5	25	108
01	5,5	4,3		M7	33	19	46,5	25	109
01	7,0	5,5	M7		33	19	46,5	25	110
01	6,0	4,9		M8	33	19	46,5	25	111
01	8,0	6,2	M8		33	19	46,5	25	112
01	9,0	7,0	M9		33	19	46,5	25	113
01	7,0	5,5		M10	33	19	46,5	25	114
01	10,0	8,0	M10		33	19	46,5	25	115
01	8,0	6,2		M11	33	19	46,5	25	116
01	9,0	7,0		M12	33	19	46,5	25	117
02	6,0	4,9	M4,5 - M6		50	31	69,0	34	200
02	6,0	4,9	M7 (DIN 352)		50	31	69,0	34	201
02	7,0	5,5	M7		50	31	69,0	34	202
02	6,0	4,9		M8	50	31	69,0	34	203
02	8,0	6,2	M8		50	31	69,0	34	204
02	9,0	7,0	M9		50	31	69,0	34	205
02	7,0	5,5		M10	50	31	69,0	34	206
02	10,0	8,0	M10		50	31	69,0	34	207
02	8,0	6,2		M11	50	31	69,0	34	208
02	9,0	7,0		M12	50	31	69,0	34	209
02	11,0	9,0		M14	50	31	69,0	34	210
02	12,0	9,0		M16	50	31	69,0	34	211
02	14,0	11,0		M18	50	31	69,0	34	212
02	16,0	12,0		M20	50	31	69,0	34	213

Quick change tap adapter with overload clutch, with through coolant

- Adapter with adjustable overload clutch
- For use with taps





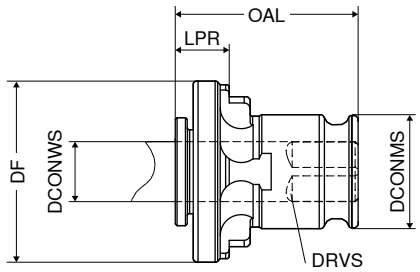


AD

SZID	DCONWS	DRVS	DIN 371	DIN 374 / 376	DF	DCONMS	OAL	LPR	Article no. 83 616 ...
	mm	mm			mm	mm	mm	mm	
01	3,5	2,7	M3	M4,5 - M5	33	19	46,5	25	**100**
01	4,5	3,4	M4	M6	33	19	46,5	25	**102**
01	5,5	4,3		M7	33	19	46,5	25	**104**
01	6,0	4,9	M4,5 - M6	M8	33	19	46,5	25	**106**
01	7,0	5,5	M7	M10	33	19	46,5	25	**108**
01	8,0	6,2	M8	M11	33	19	46,5	25	**110**
01	9,0	7,0	M9	M12	33	19	46,5	25	**112**
01	10,0	8,0	M10		33	19	46,5	25	**114**
01	11,0	9,0		M14	33	19	46,5	25	**116**
02	6,0	4,9	M4,5 - M6	M8	50	31	69,0	34	**200**
02	7,0	5,5	M7	M10	50	31	69,0	34	**202**
02	8,0	6,2	M8	M11	50	31	69,0	34	**204**
02	9,0	7,0	M9	M12	50	31	69,0	34	**206**
02	10,0	8,0	M10		50	31	69,0	34	**208**
02	11,0	9,0		M14	50	31	69,0	34	**210**
02	12,0	9,0	M12	M16	50	31	69,0	34	**212**
02	14,0	11,0		M18	50	31	69,0	34	**214**
02	16,0	12,0		M20	50	31	69,0	34	**216**

Quick change tap adapter

- Normal version without overload clutch
- For mounting taps
- For right-hand and left-hand threads





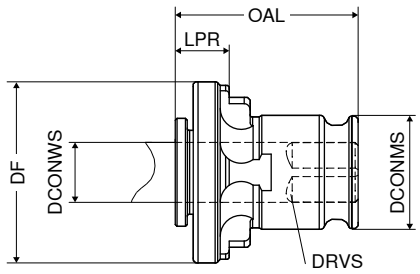


A

SZID	DCONWS	DRVS	DIN 371	DIN 374 / 376	DF	DCONMS	OAL	LPR	Article no. 83 610 ...
	mm	mm			mm	mm	mm	mm	
01	3,5	2,7	M3		30	19	28,5	7	100
01	4,5	3,4	M4		30	19	28,5	7	101
01	4,0	3,0	M3,5		30	19	28,5	7	102
01	2,8	2,1	M2 - M2,6		30	19	28,5	7	103
01	5,5	4,3		M7	30	19	28,5	7	104
01	6,0	4,9	M4,5 - M6	M8	30	19	28,5	7	105
01	7,0	5,5	M7	M10	30	19	28,5	7	106
01	8,0	6,2	M8	M11	30	19	28,5	7	107
01	9,0	7,0	M9	M12	30	19	28,5	7	108
01	10,0	8,0	M10		30	19	28,5	7	109
01	11,0	9,0		M14	30	19	28,5	7	110
02	6,0	4,9	M4,5 - M6		46	31	46,0	11	200
02	7,0	5,5	M7		46	31	46,0	11	201
02	8,0	6,2	M8		46	31	46,0	11	202
02	9,0	7,0	M9		46	31	46,0	11	203
02	10,0	8,0	M10		46	31	46,0	11	204
02	11,0	9,0		M14	46	31	46,0	11	205
02	12,0	9,0		M16	46	31	46,0	11	206
02	14,0	11,0		M18	46	31	46,0	11	207
02	16,0	12,0		M20	46	31	46,0	11	208
02	18,0	14,5		M22 - M24	46	31	46,0	11	209

Quick change tap adapter, with through coolant

- Normal version without overload clutch
- For mounting taps
- For right-hand and left-hand threads



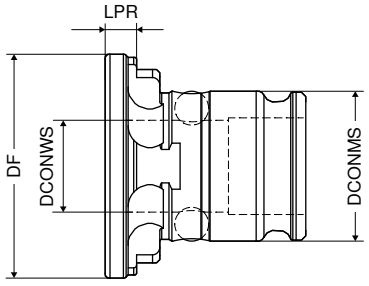


AD

SZID	DCONWS	DRVS	DIN 371	DIN 374 / 376	DF	DCONMS	OAL	LPR	Article no. 83 614 ...
	mm	mm			mm	mm	mm	mm	
01	3,5	2,7		M4,5 - M5	30	19	28,5	7	100
01	4,5	3,4	M4	M6	30	19	28,5	7	102
01	5,5	4,3		M7	30	19	28,5	7	104
01	6,0	4,9	M4,5 - M6	M8	30	19	28,5	7	106
01	7,0	5,5	M7	M10	30	19	28,5	7	108
01	8,0	6,2	M8	M11	30	19	28,5	7	110
01	9,0	7,0	M9	M12	30	19	28,5	7	112
01	10,0	8,0	M10		30	19	28,5	7	114
02	6,0	4,9	M4,5 - M6	M8	46	31	46,0	11	200
02	7,0	5,5	M7	M10	46	31	46,0	11	202
02	8,0	6,2	M8	M11	46	31	46,0	11	204
02	9,0	7,0	M9	M12	46	31	46,0	11	206
02	10,0	8,0	M10		46	31	46,0	11	208
02	11,0	9,0		M14	46	31	46,0	11	210
02	12,0	9,0	M12	M16	46	31	46,0	11	212
02	14,0	11,0		M18	46	31	46,0	11	214
02	16,0	12,0		M20	46	31	46,0	11	216

Reducing adapter for quick change adapters

- Reducing adapter for reducing size 02 to 01. In this way the clamping ranges can be extended to smaller sizes.



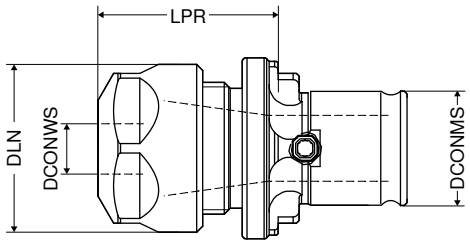


AD

SZID	DF	DCONMS	DCONWS	LPR	Article no. 83 624 ...
	mm	mm	mm	mm	
02	46	31	19	8,5	200

Quick change tap adapters

▲ Adapters for collets ER 16 / ER 25





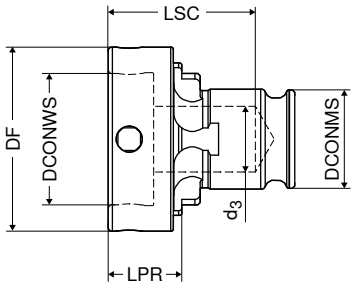


AD

SZID	DCONWS	DLN	DCONMS	LPR	for collet	Article no. 83 618 ...
	mm	mm	mm	mm		
01	1 - 10	28	19	29,5	ER 16	**010**
02	2 - 16	42	31	38,5	ER 25	**016**

Quick change adapter for dies

▲ For mounting dies according to DIN 223







A

SZID	for size	cutting range	DF	DCONMS	DCONWS	LPR	d_3	LSC	Article no. 83 622 ...
			mm	mm	mm	mm	mm	mm	
01	16 x 5	M1 - M4	25	19	16	9	12,5	23	**116**
01	20 x 5	M3 - M4	30	19	20	9	12,5	23	**120**
01	20 x 7	M4,5 - M6	30	19	20	11	12,5	25	**121**
01	25 x 9	M7 - M9	35	19	25	14	12,5	28	**125**
01	30 x 11	M10 - M11	40	19	30	16	12,5	30	**130**
01	38 x 10	M12x1 - M15x1,5	48	19	38	15	14,2	29	**138**
01	38 x 14	M12 - M14	48	19	38	19	14,2	33	**139**
02	20 x 5	M3 - M4	30	31	20	22	15,0	57	**220**
02	20 x 7	M4,5 - M6	30	31	20	22	15,0	57	**221**
02	25 x 9	M7 - M9	35	31	35	22	15,0	57	**225**
02	30 x 11	M10 - M11	40	31	30	22	22,0	57	**230**
02	38 x 10	M12x1 - M15x1,5	48	31	38	22	22,0	57	**238**
02	38 x 14	M12 - M14	48	31	38	25	22,0	60	**239**
02	45 x 14	M16x1 - M20x2	57	31	45	29	22,0	64	**245**
02	45 x 14	M16 - M20	57	31	45	29	22,0	64	**246**

Driven Tools

CERATIZIT offers an extensive range of driven tool holders to suit the turrets and machines of the leading manufacturers. There are virtually no limits to the types available. Below is a small selection of our holder portfolio.

Examples from our driven tooling range



Axial drilling and milling head



Radial drilling and milling head



Double radial drilling and milling head



Rear offset radial drilling and milling head



Double axial drilling and milling head



Offset axial drilling and milling head



Swivel head



Modular milling

Summary of machine turret manufacturers and interfaces for which CERATIZIT can supply driven tools

- Sauter
- Baruffaldi
- Duplomatic
- DIN1809
- DIN5480
- DIN5482
- Baruffaldi Toem
- Bevel gear milling
- Spline / tooth milling
- BMT (bolt on)

Technical Advice

Are you interested in our driven tools ? If so please contact your technical sales engineer who will be glad to assist you. Alternatively, you can contact our office based internal technical sales engineers who can be reached on our freephone number.

Enquiry Form

Should you have questions about driven tools you can find a detailed questionnaire on our website in the download area. Carefully complete the form and send it via e-mail or printed fax.

Modular quick-change system for driven tools

You want to optimize your setup time? CERATIZIT offers you several options!
With each axial and radial driven tool you are prepared through the exchange of different modules for different machining demands.

Varia VX

The new quick change system for heavy duty machining



The face & taper contact interface ensures maximum concentricity.
The torque is transmitted via a form-fitting polygon, which can transmit up to 200 Nm.

Clamping and releasing takes place via a segmented gear wheel equipped with 3 multifunctional cams. When tightened with a radially mounted clamping screw, the 3-point clamping pulls the tool evenly into its operating position. When releasing the tool force is applied mechanically via a sliding cam and the tool is released for removal from the adapter.

The advantages at a glance

- Cutting tools are preset off the machine
- Quick change thanks to only one clamping point
- No risk of injury when changing tools
- Transverse force-free clamping of the tools
- Safe torque transmission
- No loose parts



System Preci-Flex® – The stable solution for long tool life and high surface quality

The internal cone of the driven tool is suitable for any commercial type ER collets.Through taper & face contact ≤ 0.01 mm system concentricity and ≤ 0.005 mm repeatability is achieved and four plane-side clamp screws achieve maximum system stability and rigidity.







The program includes base holders for the collet sizes ER20, ER25, ER32, ER40 and ER50 and collet holders with male or female nut, adapters Weldon, Whistle Notch, shrink, boring bars, Shell mill arbors, hydraulic chucks, Test arbors and blanks.
Also available for static VDI holders and rotating SK and HSK holders.

Solidfix® – The quick way to change (≤ 20 seconds), a module

Solidfix® Modules can be mounted with one hand. Simply insert the module, so that twisting the security bayonet retains the module. Tighten with an allen-key through 180 ° rotation.

Through centering taper and large square face a concentricity of ≤ 0.005 mm is obtained at 30 mm distance from the end face.

































The program includes basic holders in accordance with the collet sizes ER11M, ER16M, ER20, ER25, ER32 and ER40 and collet holders with male or female nut, Weldon, Whistle Notch, shrink, boring adapters, Shell mill arbors, hydraulic chucks, control pins, blanks and plugs. Also available for static VDI holders and rotating SK and HSK holders.

Modifix® – The universal solution for driven standard collet chucks

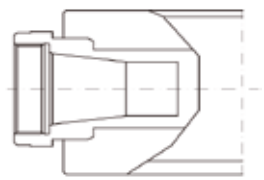
Modifix® adapters are available for both collet chucks with internal and external locknut.
You use your existing collet holder driven units and only require the relevant Modifix® adapter.
It offers high flexibility and low investment.

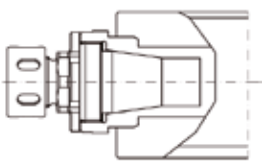


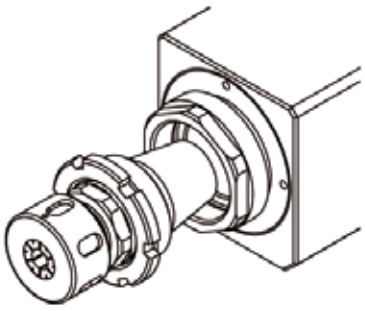
Modifix® for driven tools with internal threads



Modifix® for driven tools with external threads







The program includes adapters for the collet sizes ER20, ER25, ER32 and ER40.
Collet holders, Weldon tool holders and Shell mill arbors are available.

For orders please contact our your local Technical Sales Engineer or our Technicians in the office

Quick-Change

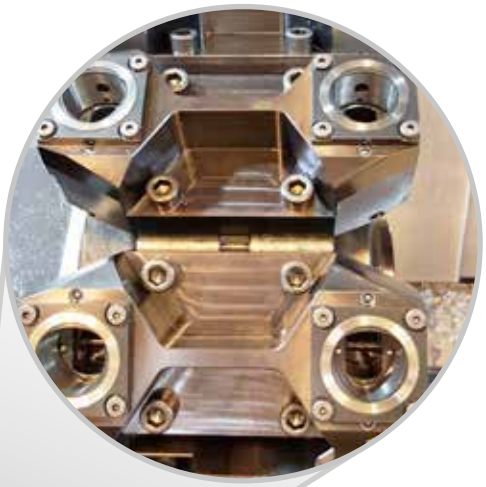


The tool holder range comprises both innovative and technologically proven solutions for all common CNC turning centres. We offer solutions that are perfectly tailored to the make of machine, regardless of whether the machine has a BMT, VDI or other connection type.

Every Quick-Change system has a standardised interface to DIN/ISO requirements and is available for HSK-T 40/63/100 and PSC 40/50/63 sizes. The tool change itself is carried out quickly and easily, minimising idle times and thus boosting productivity.



Tool holder single and straight





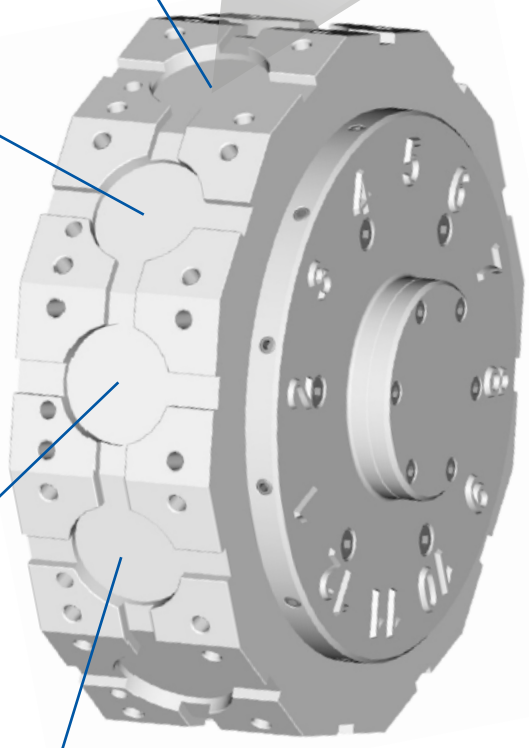
Tool holder double and straight



Single angle tool holder



Double angle tool holder



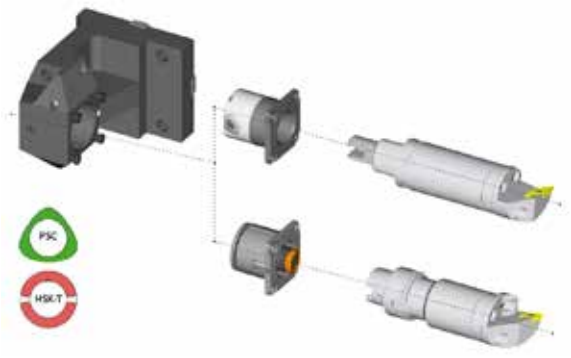
Turret BMT/VDI/...

16

HSK/PSC clamping units

The tool holders are fitted with either an HSK or PSC clamping unit.

Clamping units are available in sizes HSK 40/63/100 and PSC 40/50/63.

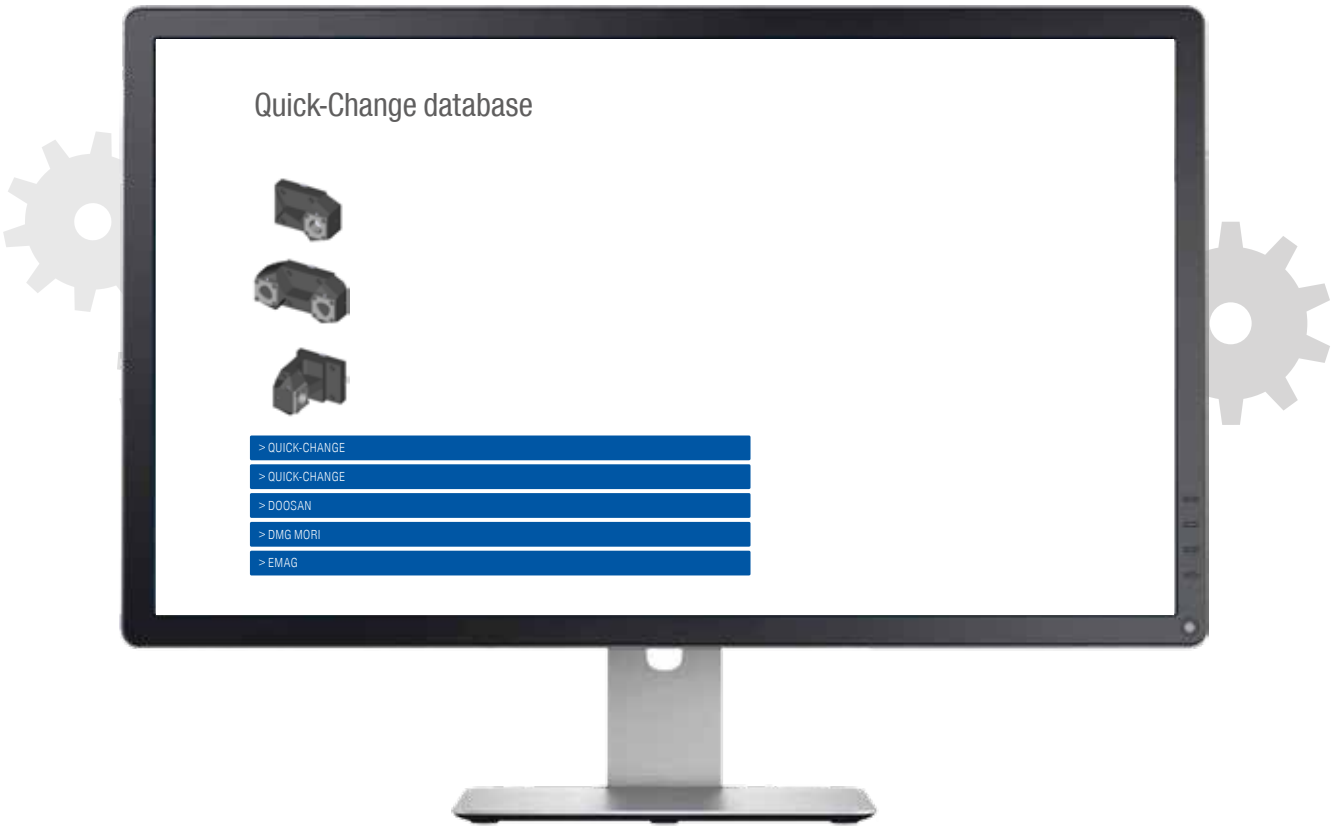


The toolholders permit the flexibility to be adapted to the customer's requirements.



Online database

Our Quick-Change tool holders are individually adapted to turning machines to ensure the greatest-possible levels of flexibility and efficiency. Using the online database, systems of previously specified machine types can be evaluated in order to obtain an initial overview.



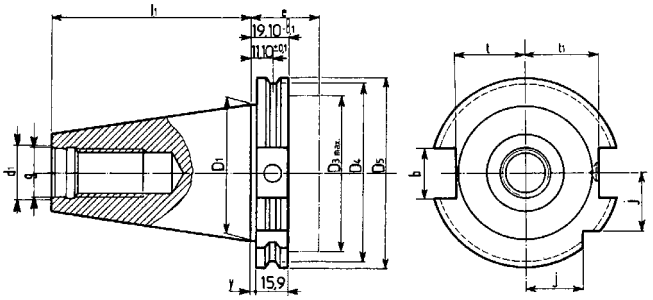
Information on enquiry process

To make the enquiry process as easy as possible, please use our enquiry form to enter the most important machine data and information on the machining process. Please fill in this form carefully and send it to us via email or fax.
→ **cutting.tools/en/download**

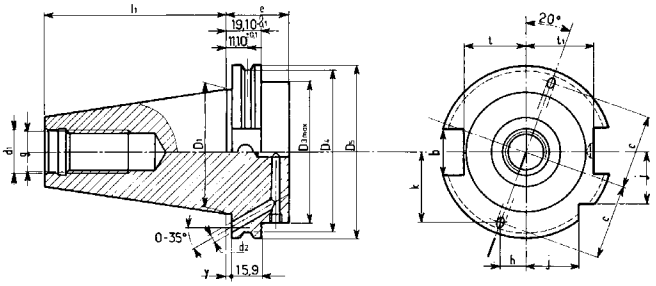
If you have any questions regarding the ordering process or the form itself, your Technical Sales Engineer will be happy to help.

Technical data for steep taper tools

DIN 69871 Form A

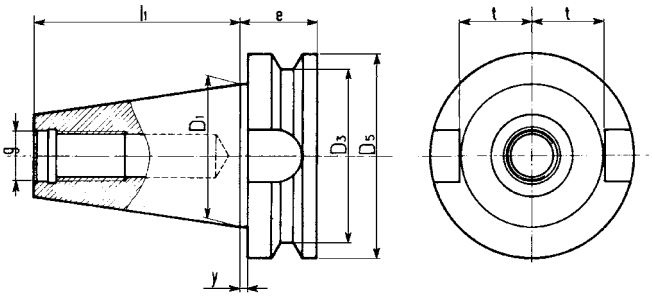


DIN 69871 Form B



	D_1 mm	$D_{3\,max}$ mm	D_4 mm	D_5 mm	$l_{10}^{+0,2}$ mm	g	d_1 H7 mm	e mm	y ±0,1 mm	t mm	t_1 mm	j mm	d_2 mm	h mm	k mm	c mm	b mm
SK 30	31,75	45	44,30	50	47,8	M 12	13	35	3,2	16,4	19	15					16,1
SK 40	44,45	50	56,25	63,55	68,4	M 16	17	35	3,2	22,8	25	18,5	4	9,2	25,4	27	16,1
SK 50	69,85	80	91,25	97,5	101,75	M 24	25	35	3,2	35,5	37,7	30	6	14,4	39,5	42	25,7

MAS-BT

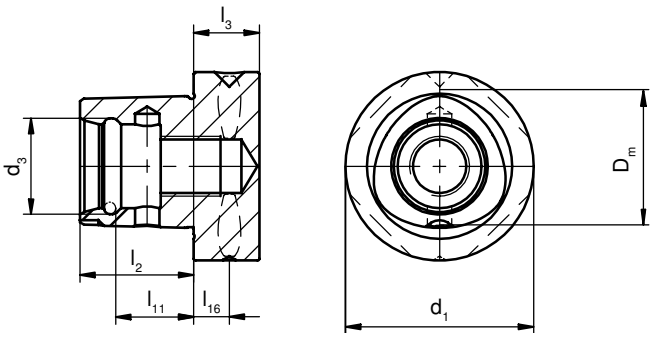


Maximum recommended rpm for steep taper toolholders:

SK / BT 30 to 20,000 $^1/_{min.}$
SK / BT 40 to 20,000 $^1/_{min.}$
SK / BT 50 to 16,000 $^1/_{min.}$

	D_1 mm	D_3 mm	D_5 mm	l_1 mm	g	e mm	t mm	y mm	b mm
BT 30	31,75	38	46	48,4	M 12	22	16,3	2	16,1
BT 40	44,45	53	63	65,4	M 16	27	22,5	2	16,1
BT 50	69,85	85	100	101,8	M 24	38	35,3	3,2	25,7

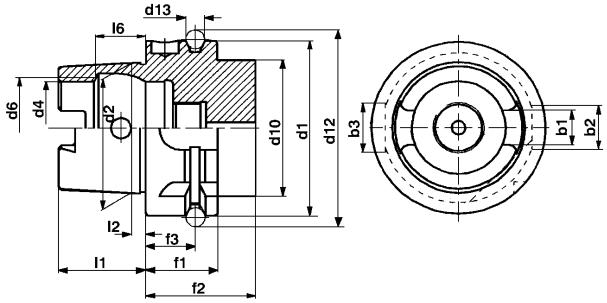
Technical Data for Polygon shank adapters



Shank size	d_1 mm	d_3 ±0,05 mm	l_2 ±0,1 mm	l_3 mm	l_{11} ±0,1 mm	l_{16} mm	D_m mm
32	32	16,5	19	15	13,5	9	22
40	40	20	24	20	17,5	12	28
50	50	24	30	20	22	12	35
63	63	32	38	22	26	12	44
80	80	38	48	30	34	12	55

Technical Data for HSK Adapters

HSK DIN 69893 A+C



Maximum rpm recommended for HSK adapters:

HSK-A 32 to 50.000 $^{1}/_{min.}$
HSK-A 40 to 42.000 $^{1}/_{min.}$
HSK-A 50 to 30.000 $^{1}/_{min.}$
HSK-A 63 to 25.000 $^{1}/_{min.}$
HSK-A 100 to 16.000 $^{1}/_{min.}$

	b_1 mm	b_2 mm	b_3 mm	d_1 mm	d_2 mm	d_4 mm	d_6 mm	d_{10} mm	d_{12} mm	d_{13} mm	f_1 mm	f_2 mm	f_3 mm	l_1 mm	l_2 mm	l_6 mm
HSK 32	7,05	7	9	32	24	17	19	26	37	4	20	35	16	16	3,2	8,92
HSK 40	8,05	9	11	40	30	21	23	34	45	4	20	35	16	20	4	11,42
HSK 50	10,54	12	14	50	38	26	29	42	59,3	7	26	42	18	25	5	14,13
HSK 63	12,54	16	18	63	48	34	37	53	72,3	7	26	42	18	32	6,3	18,13
HSK 100	20,02	20	22	100	75	53	58	88	109,75	7	29	45	20	50	10	28,56

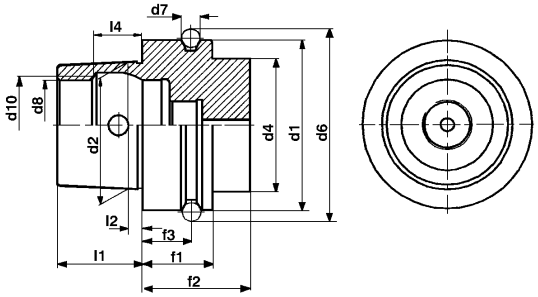
DIN 69893 Form A

- Applied for machining centres, milling and special machines with automatic tool change
- **Central axial coolant supply via the coolant pipe**
- Torque transmission via 2 driving grooves at the taper end
- 2 grooves on the flange for the tool magazine, positioning notch, bore for data storage medium DIN 69873 in the flange

DIN 69893 Form C

- Applied for machine spindles without automatic tool change as well as tool extensions and reducers
- **Central axial coolant supply via the coolant pipe**
- Torque transmission via 2 driving grooves at the taper end

HSK DIN 69893 E



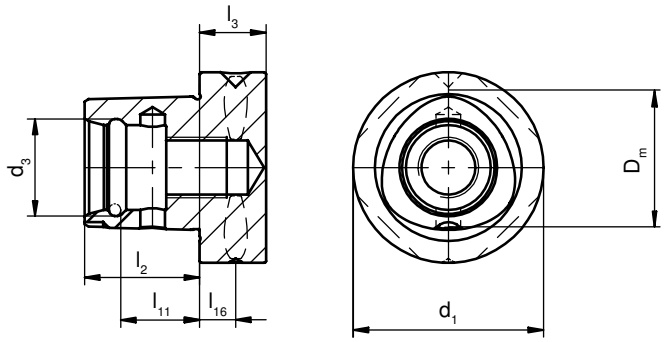
	d_1 mm	d_2 mm	d_4 mm	d_6 mm	d_7 mm	d_8 mm	d_{10} mm	f_1 mm	f_2 mm	f_3 mm	l_1 mm	l_2 mm	l_4 mm
HSK 40	40	30	34	45	4	21	23	20	35	16	20	4	11,42
HSK 50	50	38	42	59,3	7	26	29	26	42	18	25	5	14,13
HSK 63	63	48	53	72,3	7	34	37	26	42	18	32	6,3	18,13

DIN 69893 Form E

- Applied for high rpm (HSC) for high speed spindles with automatic tool change
- Rotation symmetrical, without driving grooves
- Torque transmission through friction
- **Possibility of central coolant supply via coolant pipe**

Technical Information for Polygon Shank Adapters

To dimensions of ISO 26623-1



Shank size	d_1	d_3 ± 0,05	l_2 ± 0,1	l_3	l_{11} ± 0,1	l_{16}	D_m
32	32	16,5	19	15	13,5	9	22
40	40	20	24	20	17,5	12	28
50	50	24	30	20	22	12	35
63	63	32	38	22	26	12	44
80	80	38	48	30	34	12	55

Advantages of the PSC interface

The repeatability of the PSC shank is ± 2 microns



The tapered polygon in conjunction with the tight tolerance provides backlash-free centering also acts as pull back. The PSC cone has very high rigidity and bending strength. The main advantages of this interface are the transmittable torque stability, the resistance against radial forces acting on the tool and the exact center height. This means high feed rates can be achieved on large material cross sections. The PSC interface is ideally suited for all machining operations such as drilling, turning and milling.

High Pressure Chuck – Ideal for the MonsterMill Solid Carbide Milling Cutters

HPC milling with optimum damping

High pressure clamping with optimum damping properties was the aim in the development of the high-pressure chuck. Here, all applications over a continuous operation test were covered over thousands of machining operations. In addition, extensive continuous pressure and positive pressure tests, and vibration measurements were carried out directly on the machine spindle.

The main technical characteristics of the high-pressure Milling Chuck are

- High damping properties
- Spindle-friendly
- Maximum stability and strength
- High holding force and torque transmission
- 3 µm radial run-out
- Balanced to G2,5 at $n_{max.}$ 25.000 1/min.
- Short tool change time
- No additional peripherals required
- MMS suitable
- Maintenance free



Clamping of shanks with flats possible with or without reduction sleeve

HSS shank DIN1835 and
Solid Carbide shank DIN6535



Clamping Force Comparison with Different Systems

This comparison shows the higher retention forces of the Milling Chuck. Especially with larger diameters high holding force is important when HPC machining so that the tool is not pulled out of the holder.
Milling Chuck now offers this process reliability.

The main applications for Milling Chuck

- HPC Milling
- HSC Milling
- Hard Machining
- Drilling
- Reaming

Key Benefits

- Increased Process Security
- Longer Tool Life
- Improved Surface Quality
- Extended spindle life

Shank diameter in mm	16	18	20	25	32
Holder Type	Maximum transmissible torque with shank tolerance h6 in Nm				
Shrink fit adapter	200	290	450	530	700
Standard hydraulic chucks	160	200	330	400	650
High Pressure Milling Chuck	280 - 380	360 - 450	550 - 650	650 - 750	800 - 890

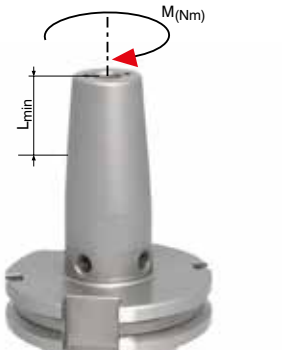
Minimum clamping depth the same as for hydraulic chucks

Transmittable torques and static clamping torques

Static clamping moments of the CentroP collet chuck with different torque values measured at the tightening nut

Clamping diameter (d1 h6)	2	3	3,5	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	mm
ER 16 torque moment 30 Nm	2	3,5	5																						Nm
ER 16 torque moment 50 Nm				12	20	30	45	60	72	80															Nm
ER 25 torque moment 40 Nm				10	20	40																			Nm
ER 25 torque moment 75 Nm							62	75	85	95															Nm
ER 25 torque moment 90 Nm											122	145	160	175	190	200									Nm
ER 32 torque moment 60 Nm				20	30	40																			Nm
ER 32 torque moment 120 Nm							75	90	110	120	135	150	160	180	190										Nm
ER 32 torque moment 140 Nm																220	240	260	280	300					Nm
ER 40 torque moment 70 Nm				60	75	90	100																		Nm
ER 40 torque moment 110 Nm								110	125	140	150														Nm
ER 40 torque moment 150 Nm												200	220	240	260	300	350								Nm
ER 40 torque moment 200 Nm																			420	440	460	480	515	530	Nm
OZ 462 E torque moment 200 Nm				10	35	55	75	95	120	140	160	185	205	230	250	270	295	315	340						Nm

Permissible transmitted torque (Md) for Hydraulic Chucks



For direct clamping

Clamping diameter (d1 h6)	6	8	10	12	14	16	18	20	25	32	mm
Md with shank at minimum size	20	30	47	80	100	160	200	330	400	650	Nm
Md with shank at maximum size	30	45	85	140	160	230	270	400	470	730	Nm

For clamping with reduction Ø 32 mm

Clamping diameter (d1 h6)	6	8	10	12	14	16	18	20	25	mm
Md with shank at minimum size	30	45	60	120	120	180	220	250	330	Nm
Md with shank at maximum size	45	65	110	170	170	230	300	320	440	Nm

For clamping with reduction Ø 20 mm

Clamping diameter (d1 h6)	3	4	5	6	8	10	12	14	16	mm
Md with shank at minimum size	6	9	16	30	55	90	120	135	190	Nm
Md with shank at maximum size	10	12	22	40	75	120	150	170	260	Nm

For clamping with reduction Ø 12 mm

Clamping diameter (d1 h6)	3	4	5	6	8	mm
Md with shank at minimum size	3	4	7	12	18	Nm
Md with shank at maximum size	4	8	12	20	26	Nm

Minimum shank clamping depths for hydraulic chucks

Shank diameter	6	8	10	12	14	16	18	20	25	32	mm
Minimum clamping depth	27	27	31	36	36	39	39	41	47	51	mm

Permissible transmitted torque (Md) for high pressure chuck



Minimum shank clamping depths for high pressure chuck

Shank diameter	16	18	20	25	32	mm
Minimum clamping depth	39	39	41	47	51	mm

For direct clamping

Clamping diameter (d1 h6)	16	18	20	25	32	mm
Md with shank at minimum size	280	360	550	650	800	Nm
Md with shank at maximum size	380	450	650	750	890	Nm

Minimum permissible shank torques and clamping depths for shrink fit holders

Shank diameter	3	4	5	6	8	10	12	14	16	18	20	25	32	mm
Minimum clamping depth	12	16	20	26	26	31	37	37	40	40	42	48	52	mm
Permissible torque moment	4	11	17	24	45	82	145	190	200	290	450	530	700	Nm





Solid drilling and bore machining

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

Threading

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

Turning

9 Turning Tools
10 EcoCut
11 Grooving Tools
12 Miniature turning tools

Milling

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

Tool Clamping

16 Adapters
17 Accessories 17

18 Material examples and article no. index

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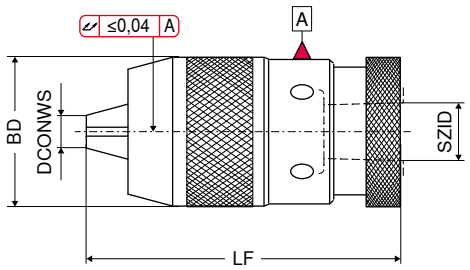
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Drill chuck

- ▲ for manual and key clamping
- ▲ through-hardened and ground

Scope of supply:
Holder with clamping key





SZID	DCONWS	LF	BD	Article no. 83 636 ...
	mm	mm	mm	
B12	0 - 8	73	35	**012**
B12	0 - 10	92	43	**112**
B16	1 - 13	106	50	**016**
B16	3 - 16	110	57	**116**
B18	3 - 16	110	57	**018**

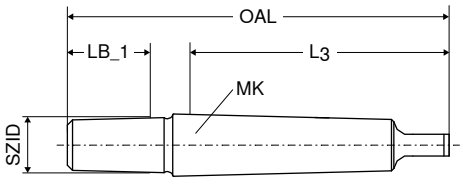

NC clamping key

Spare parts DCONWS	Article no. 83 302 ...
0 - 10	**010**
0 - 8	**008**
1 - 13	**013**
3 - 16	**016**

Suitable adapters can be found in → **Chapter 16 Adapters, Page 43+79.**

Drill chuck adapter DIN 238

▲ through-hardened and ground

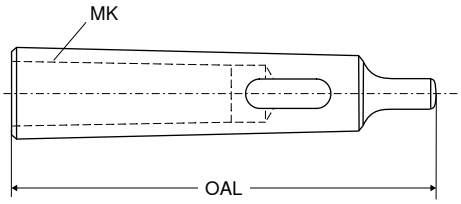




Adapter	SZID	L_3 mm	LB_1 mm	OAL mm	Article no. 83 642 ...
MK1	B12	62,0	18,5	89,0	**120**
MK1	B16	62,0	24,0	97,0	**160**
MK1	B18	62,0	32,0	106,0	**180**
MK2	B12	75,0	18,5	106,5	**121**
MK2	B16	75,0	24,0	110,5	**161**
MK2	B18	75,0	32,0	117,5	**181**
MK3	B12	94,0	18,5	125,0	**122**
MK3	B16	94,0	24,0	134,0	**162**
MK3	B18	94,0	32,0	141,0	**182**
MK4	B16	117,5	24,0	159,0	**163**
MK4	B18	117,5	32,0	168,0	**183**
MK5	B16	149,5	24,0	196,0	**164**
MK5	B18	149,5	32,0	204,5	**184**

Reduction sleeve DIN 2185

▲ through-hardened, ground internally and externally





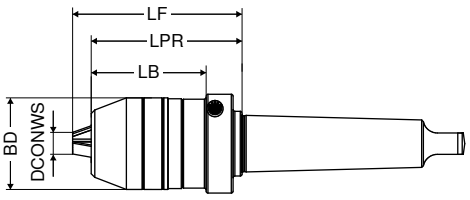
for size	OAL mm	Article no. 83 644 ...
MK1 - MK0	80	**010**
MK2 - MK1	92	**020**
MK3 - MK1	99	**130**
MK3 - MK2	112	**030**
MK4 - MK1	124	**240**
MK4 - MK2	124	**140**
MK4 - MK3	140	**040**
MK5 - MK2	156	**250**
MK5 - MK3	156	**150**
MK5 - MK4	171	**050**

Short drill chuck

- bidirectional
- torque moment = 12 Nm
- with Morse taper

Scope of supply:
Holder with clamping key

NC 2010






A

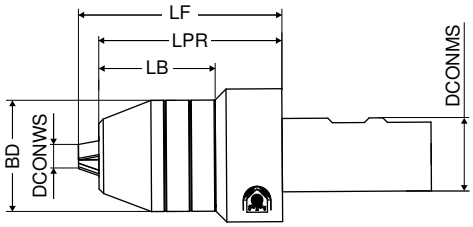
Adapter	DCONWS	BD	LB	LPR	LF	Article no. 84 314 ...
	mm	mm	mm	mm	mm	
MK3	0,5 - 13	48,5	64	84	93,0	**313**
MK3	2,5 - 16	51,0	64	84	94,5	**316**
MK4	2,5 - 16	51,0	64	84	94,5	**416**

Short drill chuck

- bidirectional
- torque moment = 12 Nm
- with cylindrical shank

Scope of supply:
Holder with clamping key

NC 2010





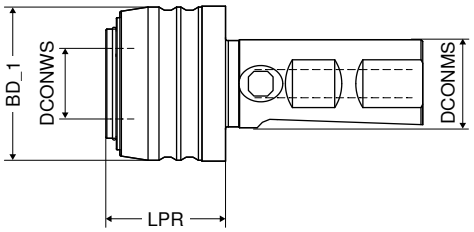


A
G 6,3 n_{max} 10000

DCONMS	DCONWS	BD	LB	LPR	LF	Article no. 84 311 ...
mm	mm	mm	mm	mm	mm	
25	0,5 - 13	48,5	50,9	80	89,0	**213**
32	0,5 - 13	48,5	50,9	80	89,0	**313**
32	2,5 - 16	51,0	50,9	80	90,5	**316**

Synchro quick change tapping chuck with minimum length compensation

- for collets according to DIN 6499
- with length compensation under tension and under compression (LZD)
- $p_{max.}$ = 50 bar
- SZID = for tool size







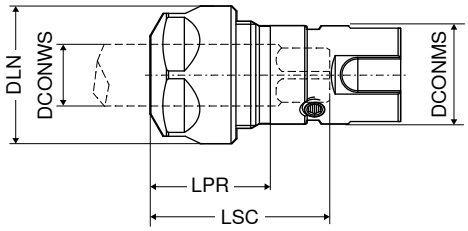
AD

DCONWS mm	cutting range	SZID	LPR mm	BD_1 mm	DCONMS mm	LZD± mm	Article no. 83 641 ...
20	M3 - M12	1	35	43,5	25	1,0 / 0,2	**012**
32	M6 - M20	2	56	60,0	25	1,0 / 0,2	**020**

Insert for synchro quick change tapping chuck with minimum length compensation

Scope of supply:
Includes lock nut

- SZID = for tool size







AD

SZID	DCONWS mm	cutting range	LPR mm	DLN mm	LSC mm	for collet	DCONMS mm	Article no. 83 608 ...
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	**012**
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	**020**



Lock nut



Lock nut



Lock nut IK



Y clamping key

Spare parts		Article no. 62 950 ...		Article no. 62 950 ...		Article no. 83 950 ...		Article no. 83 357 ...
for Article no.								
83 608 012	M22x1,5 - SW25	**044**			M22x1,5	**054**		**116**
83 608 020			M32x1,5	**055**	M32x1,5	**055**		**125**

Accessories



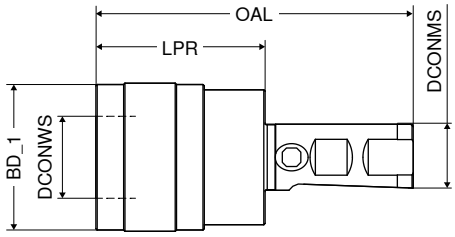
ER collet

→ 16|212, 214–215

17

Quick change tap chuck with length compensation

- with cylindrical shank
- with length compensation under tension and compression (LZD)
- Quick change adapters
- SZID = for tool size





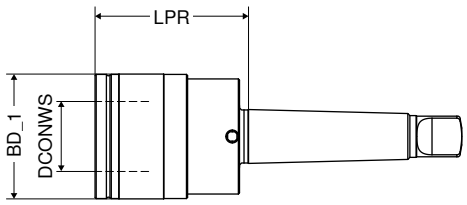


A

DCONMS mm	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	OAL mm	LZD± mm	Article no. 83 648 ...
20	M3 - M12	01	41	38	19	91	9	**112**
20	M6 - M20	02	63	55	31	138	15	**120**
25	M3 - M12	01	41	38	19	97	9	**212**
25	M6 - M20	02	63	55	31	119	15	**220**
32	M3 - M12	01	41	38	19	102	9	**312**
32	M6 - M20	02	63	55	31	124	15	**320**

DIN 228B – Quick change tap chuck with length compensation

- with Morse taper shank
- with length compensation under tension and compression (LZD)
- SZID = for tool size







A

Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LZD± mm	Article no. 83 646 ...
MK 2	M3 - M12	01	46	38	19	9	**212**
MK 3	M3 - M12	01	46	38	19	9	**312**
MK 3	M6 - M20	02	69	55	31	15	**320**
MK 4	M6 - M20	02	70	55	31	15	**420**

Accessories

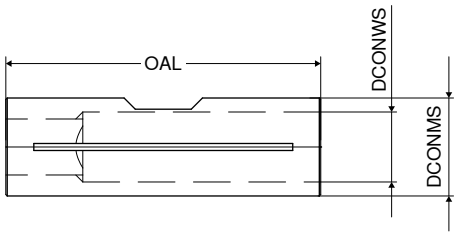


Collet

→ 16|219, 221–223

Clamping sleeve for taps in Weldon chucks

- ▲ for machines with rigid tapping
- ▲ for safe clamping of taps



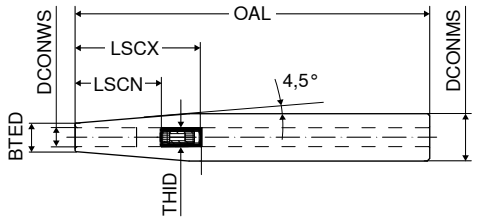


DCONWS $_{H7}$	DCONMS $_{f6}$	OAL	**Article no. 80 696 ...**
mm	mm	mm	
3,5	6	26	**035**
4,0	8	26	**040**
4,5	8	26	**045**
6,0	10	30	**060**
7,0	10	31	**070**
8,0	12	38	**080**
9,0	12	38	**090**
10,0	14	42	**100**
11,0	14	42	**110**
12,0	16	44	**120**
14,0	18	45	**140**
16,0	20	46	**160**

Shrink fit extension

- For solid carbide and HSS shanks with h6 tolerance or better
- DRVS = Key size of the adjustment screw

TG





AD

DCONMS h6	DCONWS	BTED	OAL	LSCX	LSCN	THID	DRVS	Article no. 84 310 ...
mm	mm	mm	mm	mm	mm		mm	
12	3	8	150					**003**
12	4	8	150					**004**
12	5	10	150					**005**
12	6	10	150	36	26	M5	2,5	**006**
16	3	10	150					**103**
16	4	10	150					**104**
16	5	10	150					**105**
16	6	10	150	36	26	M5	2,5	**106**
16	8	12	150	36	26	M6	3,0	**108**
20	3	10	150					**203**
20	4	10	150					**204**
20	5	10	150					**205**
20	6	10	150	36	26	M5	2,5	**206**
20	8	12	150	36	26	M6	3,0	**208**
20	10	14	150	42	32	M8x1	3,0	**210**
20	12	16	150	47	37	M10x1	5,0	**212**
25	3	10	150					**303**
25	4	10	150					**304**
25	5	15	150					**305**
25	6	20	150	36	26	M5	2,5	**306**
25	8	20	150	36	26	M6	3,0	**308**
25	10	20	150	42	32	M8x1	3,0	**310**
25	12	20	150	47	37	M10x1	5,0	**312**
25	14	20	150	47	37	M10x1	5,0	**314**
25	16	22	150	50	40	M10x1	5,0	**316**
32	6	20	150	36	26	M5	2,5	**406**
32	8	20	150	36	26	M6	3,0	**408**
32	10	24	150	42	32	M8x1	3,0	**410**
32	12	24	150	47	37	M10x1	5,0	**412**
32	14	27	150	47	37	M10x1	5,0	**414**
32	16	27	150	50	40	M10x1	5,0	**416**
32	18	27	150	50	40	M10x1	5,0	**418**
32	20	27	150	52	42	M10x1	5,0	**420**

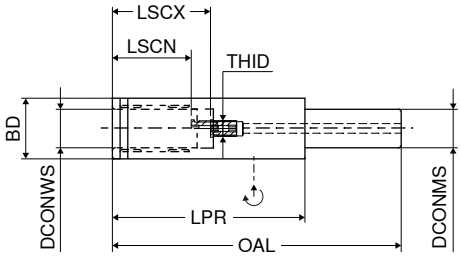
Note the minimum clamping depth in → **Chapter 16 Adapters, Page 233.**

Hydraulic expansion extension especially for Hydraulic Chucks

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:

Base body with backstop screw and pressure screw







AD
G 2,5 n_{max} 25000

DCONWS	DCONMS	BD	LPR	OAL	LSCX	LSCN	THID	Article no. 84 313 ...
mm	mm	mm	mm	mm	mm	mm		
12	20	25,0	100	150	46	36	M6	**112**
20	20	31,5	100	150	51	41	M10x1	**120**
20	32	31,5	90	150	51	41	M10x1	**132**
20	32	31,5	90	200	51	41	M10x1	**232**

Note the minimum clamping depth in → **Chapter 16 Adapters, Page 233.**



Stop screw IK

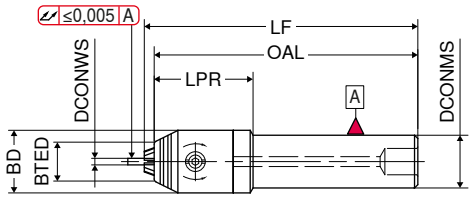
Spare parts		Article no. 83 950 ...
for Article no.		
84 313 112	M6x12,5 - SW3	**419**
84 313 120	M10x1x13,5 - SW5	**421**
84 313 132	M10x1x13,5 - SW5	**421**
84 313 232	M10x1x13,5 - SW5	**421**

Micro-precision collet chuck

- bidirectional
- for speeds up to 60,000 1/min.

Scope of supply:

Holder including clamping wrench SW 2 x 60 mm







AD

G 2,5 n_{max} 18000

DCONMS	DCONWS	LPR	OAL	LF	BD	BTED	TQX	Article no. 84 315 ...
mm	mm	mm	mm	mm	mm	mm	Nm	
16	0,2 - 3,4	30	80	83	19	12	2	**161**
16	0,2 - 3,4	30	100	103	19	12	2	**162**
16	0,2 - 3,4	30	160	163	19	12	2	**163**
20	0,2 - 3,4	28	80	83	19	12	2	**201**
20	0,2 - 3,4	28	100	103	19	12	2	**202**
20	0,2 - 3,4	28	160	163	19	12	2	**203**

Torx blade



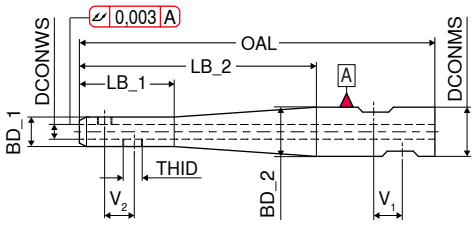
Torque screwdriver

Spare parts for Article no.	Article no. 80 950 ...		Article no. 80 021 ...
84 315 161	**152**	1,8 Nm	**018**
84 315 162	**152**	1,8 Nm	**018**
84 315 163	**152**	1,8 Nm	**018**
84 315 201	**152**	1,8 Nm	**018**
84 315 202	**152**	1,8 Nm	**018**
84 315 203	**152**	1,8 Nm	**018**

Micro-extension

- ▲ for shanks with lateral claming flat to DIN 6535 HB / 1835 B
- ▲ with option for Synchro-Plus tapping (available on request)

Scope of supply:
Holder with shank clamping screw






AD

DCONWS mm	BD_1 mm	LB_1 mm	LB_2 mm	OAL mm	DCONMS mm	BD_2 mm	V_1 mm	V_2 mm	THID	TQX Nm	Article no. 80 641 ...
6	12	40	40	85	12	12	10	10	M6 x 0,5	7	**006**
6	12	40	100	150	20	20	10	10	M6 x 0,5	7	**106**
8	15	40	40	88	16	15	10	10	M8 x 0,75	8	**008**
8	15	40	100	150	20	20	10	10	M8 x 0,75	8	**108**
10	18	40	40	90	20	18	10	10	M10 x 1	12	**010**
10	18	40	100	150	20	20	10	10	M10 x 1	12	**110**
12	21	40	40	90	20	21	10	10	M12 x 1	15	**012**
12	21	40	100	150	20	21	10	10	M12 x 1	15	**112**
14	23	40	40	90	20	23	10	10	M12 x 1	15	**014**
14	23	40	100	150	20	23	10	10	M12 x 1	15	**114**
16	26	40	50	106	25	26	10	12	M14 x 1	18	**016** 1)
16	26	40	100	156	25	26	10	12	M14 x 1	18	**116** 1)
18	28	40	50	106	25	28	10	12	M14 x 1	18	**018** 1)
18	28	40	100	156	25	28	10	12	M14 x 1	18	**118** 1)
20	31	40	50	110	32	31	10	14	M16 x 1	20	**020** 1)
20	31	40	100	160	32	31	10	14	M16 x 1	20	**120** 1)

1) only pre-balanced design


Clamping screw

Spare parts DCONWS		Article no. 80 950 ...
6	M6x0,5 TX10	**206**
8	M8x0,75 TX10	**208**
10	M10x1 SW-5	**210**
12 - 14	M12x1 SW-5	**212**
16 - 18	M14x1 SW-5	**214**
20	M16x1 SW-5	**216**

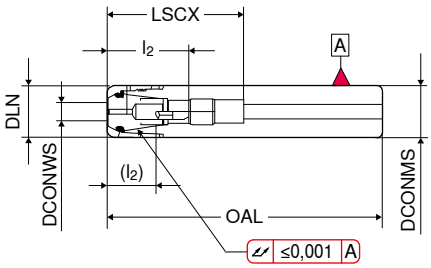
Mini ER precision collet chuck

- ▲ maximum clamping range covered according to ISO tolerance field H10
- ▲ roll key required for clamping

Scope of supply:

Holder without nut, without backstop

Centro-P





AD

DCONMS mm	DCONWS mm	DLN mm	OAL mm	LSCX mm	l_2 (l_2) mm	for collet	Article no. 84 456 ...
10	1 - 5	10	150	16		4004E (ER08)	**005**
10	1 - 5	10	200	16		4004E (ER08)	**006**
16	1 - 7	16	150	68	18 - 36 (12 - 26)	4008E (ER11)	**007**
16	1 - 7	16	200	68	18 - 36 (12 - 26)	4008E (ER11)	**008**
16	1 - 10	22	150	68	28 - 48 (16 - 35)	426E (ER16)	**010**
20	1 - 10	22	150	68	28 - 48 (16 - 35)	426E (ER16)	**102**
20	1 - 10	22	200	68	28 - 48 (16 - 35)	426E (ER16)	**104**

LSCX = clamping depth without back stop screw for shanks
l_2 = with back stop screw 1, dimension in brackets ( ) = with back stop screw 2
dimension OAL when using tightening nuts with seals 4 mm longer


Mini lock nut IK


Mini lock nut


Stop screw 2


Stop screw 1

Spare parts for collet	Article no. 84 950 ...	Article no. 84 950 ...		Article no. 83 950 ...		Article no. 83 950 ...
4004E (ER08)		**040**				
4008E (ER11)		**041**	M8x1 - SW4	**340**	M8x1 - SW4	**336**
426E (ER16)	**035**	**034**	M11x1 - SW6	**341**	M11x1 - SW6	**337**

Accessories


ER collet → 16|208–213


Device → 35

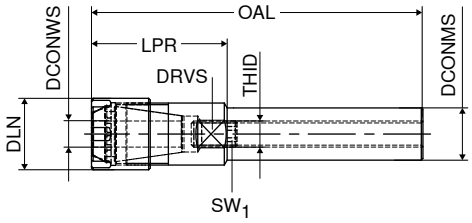

roll key → 36


roll key device → 36

The transferable torques can be found in → **Chapter 16 Adapters, Page 233.**

ER collet chuck with mini clamping nut

▲ with cylindrical shank



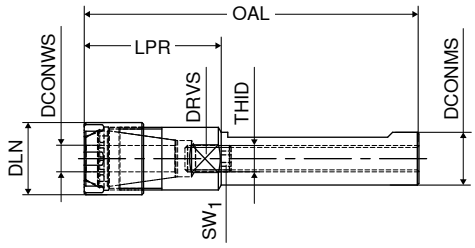


AD

DCONMS h6 mm	DCONWS mm	OAL mm	LPR mm	DLN mm	THID	DRVS mm	SW1 mm	for collet	Article no. 83 453 ...
8	1 - 5	79	24	12		9		4004E (ER08)	**081**
12	1 - 5	155	18	12	M5	10	2,5	4004E (ER08)	**122**
16	1 - 7	182	22	16	M7,5x0,5	14	4,0	4008E (ER11)	**163**
16	1 - 10	117	37	22	M11x1	17	4,0	426E (ER16)	**164**
16	1 - 10	197	37	22	M11x1	17	4,0	426E (ER16)	**165**
20	1 - 10	166	25	22	M11x1	17	5,0	426E (ER16)	**204**
25	1 - 13	166	37	28	M14x1	22	5,0	428E (ER20)	**254**
25	1 - 16	190	40	35	M18x1	27		430E (ER25)	**256**

ER collet chuck with mini clamping nut

▲ with cylindrical shank and clamping flat





AD

DCONMS h6 mm	DCONWS mm	OAL mm	LPR mm	DLN mm	THID	DRVS mm	SW1 mm	for collet	Article no. 83 454 ...
20	1 - 10	166	25	22	M11x1	17	5	426E (ER16)	**204**
20	1 - 13	137	37	28	M11x1	22	5	428E (ER20)	**206**
20	1 - 16	146	46	35	M11x1	27	5	430E (ER25)	**208**
25	1 - 13	166	28	28	M14x1	22	5	428E (ER20)	**254**
25	1 - 16	190	40	35	M18x1	27		430E (ER25)	**256**

Spare parts for ER collet chuck with mini lock nut


ER Mini clamping key

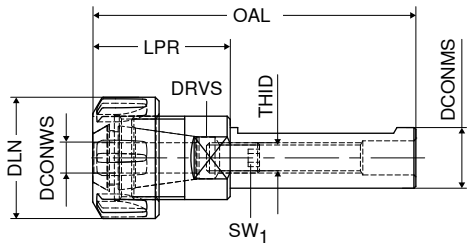

Mini lock nut


Stop screw IK

Spare parts	Article no. 83 950 ...		Article no. 62 950 ...		Article no. 83 950 ...
for collet					
4004E (ER08)	**099**	M10x0,75	**067**	M5x0,8	**003**
4008E (ER11)	**100**	M13x0,75	**065**	M7,5x0,5	**004**
426E (ER16)	**101**	M19x1	**066**	M11x1	**006**
426E (ER16)	**101**	M19x1	**066**	M8x1,25	**005**
428E (ER20)	**102**	M24x1	**068**	M14x1	**007**
430E (ER25)	**103**	M30x1	**069**	M18x1	**008**

ER Collet Chuck

▲ with cylindrical shank and clamping flat






AD

DCONMS h6 mm	DCONWS mm	OAL mm	LPR mm	DLN mm	THID	DRVS mm	SW_1 mm	for collet	Article no. 83 455 ...
40	2 - 20	100		50	M22x1,5	36		470E (ER32)	**401**
40	2 - 20	160		50	M22x1,5	36		470E (ER32)	**402**
40	3 - 30	139	59	63	M28x1,5	40	6	472E (ER40)	**405**


Lock nut


Y clamping key


Stop screw IK


Stop screw

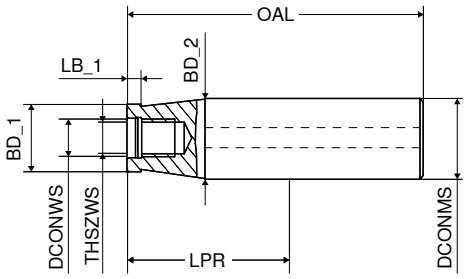
Spare parts		Article no. 62 950 ...	Article no. 83 357 ...		Article no. 83 950 ...		Article no. 83 950 ...
for collet							
470E (ER32)	M40x1,5	**056**	**132**			M22x1,5x20	**095**
472E (ER40)	M50x1,5	**057**	**140**	M28x1,5x25	**096**		

Accessories


ER collet

→ 16|206, 211–215

Cylindrical milling bar for cutters with threaded end

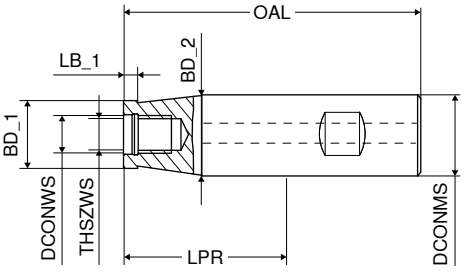




AD

DCONMS h6	THSZWS	DCONWS	LPR	BD_1	LB_1	BD_2	OAL	Article no. 56 727 ...
mm		mm	mm	mm	mm	mm	mm	
12	M5	5,5	20	9,5	7,8	11,5	65	**052**
12	M6	6,5	20	11,5	7,8	11,5	65	**060**
12	M6	6,5	40	11,5	7,8	11,5	85	**062**
16	M8	8,5	20	13,8	7,8	15,8	68	**081**
16	M8	8,5	40	13,8	7,8	15,8	88	**082**
20	M10	10,5	25	18,0	7,8	19,8	75	**101**
20	M10	10,5	45	18,0	7,8	19,8	95	**102**
25	M12	12,5	50	21,0	7,8	24,8	106	**122**
32	M16	17,0	50	29,0	12,0	31,8	110	**162**

Milling bar for cutters with threaded end (Weldon)



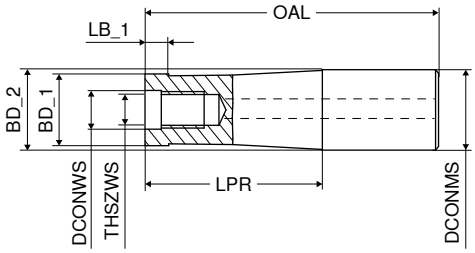


AD

DCONMS h6	THSZWS	DCONWS	LPR	BD_1	LB_1	BD_2	OAL	Article no. 56 729 ...
mm		mm	mm	mm	mm	mm	mm	
12	M6	6,5	20	11,5	7,8	11,5	65	**060**
12	M6	6,5	40	11,5	7,8	11,5	85	**062**
16	M8	8,5	20	13,8	12,0	15,8	68	**081**
16	M8	8,5	40	13,8	8,0	15,8	88	**082**
20	M10	10,5	25	18,0	8,0	19,8	75	**101**
20	M10	10,5	45	18,0	12,0	19,8	95	**102**
25	M12	12,5	30	21,0	12,0	24,9	86	**121**
25	M12	12,5	50	21,0	8,0	24,9	106	**122**
32	M16	17,0	50	29,0	12,0	31,8	110	**162**

Screw-in adapter with cylindrical shank

▲ vibration-damped

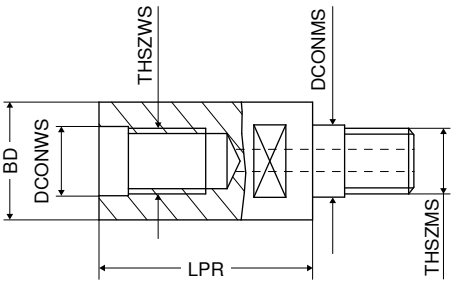




DCONMS h6	THSZWS	DCONWS	LPR	BD_1	LB_1	BD_2	OAL	AD VHM Article no. 56 743 ...	AD Densimet Article no. 56 744 ...	A Densimet Article no. 56 721 ...
mm		mm	mm	mm	mm	mm	mm			
12	M5	5,5	40	9,5	9	11,3	85		052	052
12	M5	5,5	60	9,5	9	11,3	105		053	053
12	M5	5,5	80	9,5	9	11,3	125		054	054
12	M6	6,5	20	11,5		11,5	65	060		
12	M6	6,5	40	11,5		11,5	85	062		
12	M6	6,5	60	11,5		11,5	105	063		
12	M6	6,5	80	11,5		11,5	125	064		
12	M6	6,5	100	11,5		11,5	145	065		
16	M8	8,5	40	14,2	9	15,3	88	082	082	082
16	M8	8,5	60	14,2	9	15,3	108	083	083	083
16	M8	8,5	80	14,2	9	15,3	128	084	084	084
16	M8	8,5	100	14,2	9	15,3	148	085	085	085
16	M8	8,5	120	14,2	9	15,3	168	086	086	086
16	M8	8,5	150	14,2	9	15,3	198		087	087
20	M10	10,5	60	18,5	9	19,3	110	103	103	103
20	M10	10,5	80	18,5	9	19,3	130	104	104	104
20	M10	10,5	100	18,5	9	19,3	150	105	105	105
20	M10	10,5	120	18,5	9	19,3	170	106	106	106
20	M10	10,5	140	18,5	9	19,3	190	107	107	107
25	M12	12,5	75	23,0	9	24,3	131		124	124
25	M12	12,5	80	23,0	9	24,3	136	124		
25	M12	12,5	100	23,0	9	24,3	156	125	125	125
25	M12	12,5	120	23,0	9	24,3	176	126		
25	M12	12,5	125	23,0	9	24,3	181		126	126
25	M12	12,5	140	23,0	9	24,3	196	127		
25	M12	12,5	150	23,0	9	24,3	206		127	127
25	M12	12,5	160	23,0	9	24,3	216	128		
25	M12	12,5	175	23,0	9	24,3	231		128	128
32	M16	17,0	100	29,0	9	31,5	160	165 1)		
32	M16	17,0	150	29,0	9	31,5	210	166 1)		
32	M16	17,0	200	29,0	9	31,5	260	167 1)		
32	M16	17,0	250	29,0	9	31,5	310	168 1)		
32	M16	17,0	300	29,0	9	31,5	360	169 1)		
36	M16	17,0	100	31,5	9	34,3	160			165 1)
36	M16	17,0	150	31,5	9	34,3	210			166 1)
36	M16	17,0	200	31,5	9	34,3	260			167 1)

1) On request

Extensions for milling cutters with threaded end



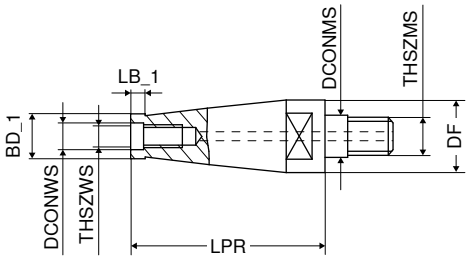




AD

THSZWS	THSZMS	DCONWS	DCONMS	LPR	BD	Article no. 56 733 ...
		mm	mm	mm	mm	
M8	M8	8,5	8,5	40	13,8	**081**
M8	M8	8,5	8,5	60	13,8	**082**
M10	M10	10,5	10,5	40	18,0	**101**
M10	M10	10,5	10,5	60	18,0	**102**
M12	M12	12,5	12,5	40	21,0	**121**
M12	M12	12,5	12,5	60	21,0	**122**
M16	M16	17,0	17,0	40	29,0	**161**
M16	M16	17,0	17,0	60	29,0	**162**

Reductions for milling cutters with threaded end



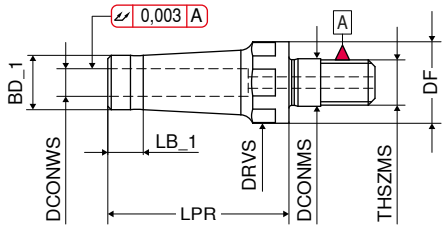




AD

THSZWS	THSZMS	DCONMS	DCONWS	LPR	BD_1	DF	LB_1	Article no. 56 735 ...
		mm	mm	mm	mm	mm	mm	
M6	M8	8,5	6,5	20	9,5	13,8	7,8	**060**
M8	M10	10,5	8,5	40	13,8	18,0	7,8	**081**
M8	M12	12,5	8,5	60	13,8	21,0	7,8	**082**
M10	M12	12,5	10,5	40	18,0	21,0	7,8	**101**
M10	M16	17,0	10,5	60	18,0	29,0	7,8	**102**
M12	M16	17,0	12,5	40	21,0	29,0	7,8	**121**

Threaded shrink adapter





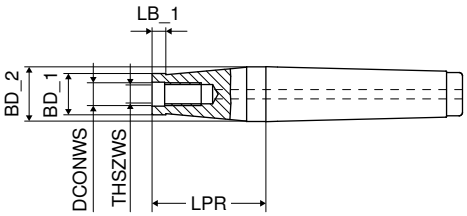


AD

THSZMS	DCONWS	BD_1	LPR	LB_1	DF	DCONMS	TQX	DRVS	Article no. 56 708 ...
	mm	mm	mm	mm	mm	mm	Nm	mm	
M10	6	12	40	7,8	18	10,5	30	17	**061**
M12	6	12	40	7,8	21	12,5	50	19	**062**
M16	6	12	40	7,8	29	17,0	100	27	**063**
M10	8	16	40	7,8	18	10,5	30	17	**081**
M12	8	16	40	7,8	21	12,5	50	19	**082**
M16	8	16	40	7,8	29	17,0	100	27	**083**
M10	10	18	60		18	10,5	30	17	**101**
M12	10	20	60	7,8	21	12,5	50	19	**102**
M16	10	20	60	7,8	29	17,0	100	27	**103**
M12	12	21	60		21	12,5	50	19	**122**
M16	12	24	60	7,8	29	17,0	100	27	**123**

Note the minimum clamping depth in → **Chapter 16 Adapters, Page 233.**

Morse taper milling bar for cutters with threaded end







AD

Adapter	THSZWS	DCONWS	BD_1	LB_1	BD_2	LPR	Article no. 56 731 ...
		mm	mm	mm	mm	mm	
MK2	M8	8,5	13,8	8,5	18,0	20	**081**
MK2	M8	8,5	13,8	8,5	18,0	40	**082**
MK2	M8	8,5	13,8	8,5	18,0	60	**083**
MK3	M8	8,5	13,8	8,5	24,1	80	**084**
MK3	M8	8,5	13,8	8,5	24,1	100	**085**
MK2	M10	10,5	18,0		18,0	20	**101**
MK2	M10	10,5	18,0		18,0	40	**102**
MK2	M10	10,5	18,0		18,0	60	**103**
MK3	M10	10,5	18,0	8,5	24,1	80	**104**
MK3	M10	10,5	18,0	8,5	24,1	100	**105**
MK3	M12	12,5	21,0	8,5	24,0	10	**121**
MK3	M12	12,5	21,0	8,5	24,1	30	**122**
MK3	M12	12,5	21,0	8,5	24,1	45	**123**
MK3	M12	12,5	21,0	8,5	24,1	60	**124**
MK3	M12	12,5	21,0	8,5	24,1	75	**125**
MK3	M12	12,5	21,0	8,5	24,1	85	**126**
MK3	M12	12,5	21,0	8,5	24,1	95	**127**
MK4	M12	12,5	21,0	8,5	31,6	120	**129**
MK4	M16	17,0	29,0	12,0	31,6	10	**161**
MK4	M16	17,0	29,0	12,0	31,6	35	**162**
MK4	M16	17,0	29,0	12,0	31,6	50	**163**
MK4	M16	17,0	29,0	9,0	31,6	65	**164**
MK4	M16	17,0	29,0	12,0	31,6	80	**165**
MK4	M16	17,0	29,0	12,0	31,6	95	**166**
MK5	M16	17,0	29,0	9,0	44,7	150	**168**
MK5	M16	17,0	29,0	9,0	44,7	180	**169**

MultiChange Programme Overview

The highly stable "MultiChange" exchangeable head system enables an extremely fast tool change. Designed to be durable and for a very high radial run-out accuracy, this exchangeable head system is probably the most stable and precise exchangeable head system on the market. The following chapters contain suitable exchangeable heads for almost every application.

Solid carbide drilling



- Solid Carbide NC Spot Drill
  ◁ 90°, 120°, 142° / Ø 8, 10, 12, 16, 20 mm / ZEFP* 2

→ **Chapter 2, Solid carbide drilling**

*ZEFP = Number of teeth

Reaming and Countersinking



- Through hole reamers
  Ø 8–30.2 mm incl. special diameters / ZEFP 4-6
- Blind hold reamers
  Ø 12.2–30.2 mm incl. special diameters / ZEFP 6

→ **Chapter 4, Reaming and countersinking**

*ZEFP = Number of teeth

Solid Carbide milling cutters



- PCD shoulder mills
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 2
- Solid carbide shoulder mills
  Type N, PCR-UNI, PCR-ALU / Ø 8, 10, 12, 16, 20 mm / ZEFP 3+4
- Solid carbide rough and finish milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 4–6
- Solid carbide finish milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 6
- Solid carbide high-feed cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 6
- Solid carbide ball-nosed end mills
  Ø 10, 12, 16, 20 mm / ZEFP* 4
- Solid carbide torus bull nose milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 3+4
- Solid carbide quarter round cutter
  Ø 8, 10, 12, 16, 20 mm
- Solid carbide deburring cutters
  Ø 10, 12, 16, 20 mm / ZEFP* 4+6

→ **Chapter 14, Solid carbide milling cutters**

*ZEFP = Number of teeth

Tool holder



- Steel Holder Extra Short
  Cylindrical / Tapered 87°
  Length 60–90 mm
  for KLG 8, 10, 12, 16, 20 mm 23+24



- Short Holder Steel/Solid Carbide
  cylindrical
  Length 85–120 mm
  for KLG 8, 10, 12, 16, 20 mm 24+25



- Holder Steel /Solid Carbide, Short
  87° taper
  Length 85–120 mm
  for KLG 8, 10, 12, 16, 20 mm 23



- Solid Carbide Holder Medium
  Cylindrical / Tapered 87°
  Length 110–150 mm
  for KLG 8, 10, 12, 16, 20 mm 23+25



- Holder Steel/Solid Carbide, Long
  cylindrical
  Length 150–200 mm
  for KLG 8, 10, 12, 16, 20 mm 24+25



- Holder Steel/Solid Carbide, Long
  87° taper
  Length 150–200 mm
  for KLG 8, 10, 12, 16, 20 mm 23



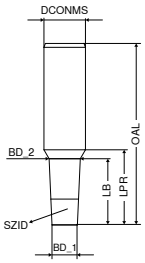
- Steel/Solid Carbide Holder Extra Long
  cylindrical
  Length 200–250 mm
  For Ø 16 and 20 mm 24+25

MultiChange – Holders

▲ tapered 87°
▲ SZID = Coupling Size

Scope of supply:
Holder without mounting key









Steel

A



Steel

A



Solid carbide

HA



Solid carbide

HA



Solid carbide

HA

SZID	BD_1	BD_2	DCONMS	OAL	LB	LPR	Article no. 84 001 ...	Article no. 84 004 ...	Article no. 84 005 ...	Article no. 84 007 ...	Article no. 84 010 ...
	mm	mm	mm	mm	mm	mm					
06	7,8	9,4	10	60	18	19	**080**				
06	7,8	9,4	10	85	43	44		**080**	**080**		
06	7,8	9,4	10	110	68	69				**080**	
06	7,8	9,4	10	150	108	109					**080**
08	9,8	12,0	16	70	25	29	**100**				
08	9,8	13,0	16	90	38	41		**100**	**100**		
08	9,8	14,9	16	110	60	61				**100**	
08	9,8	15,4	16	150	100	101					**100**
10	11,8	14,2	16	70	27	29	**120**				
10	11,8	15,2	16	90	40	41		**120**	**120**		
10	11,8	16,6	20	110	56	59				**120**	
10	11,8	19,5	20	150	98	99					**120**
12	15,8	18,2	20	80	27	29	**160**				
12	15,8	19,5	20	105	53	54		**160**	**160**		
12	15,8	19,5	20	130	78	79				**160**	
12	15,8	19,5	20	150	98	99					**160**
16	19,8	23,2	25	90	39	41	**200**				
16	19,8	24,5	25	120	60	61		**200**	**200**		
16	19,8	24,5	25	150	90	91				**200**	
16	19,8	24,5	25	200	140	141					**200**

Assembly instructions can be found on → **Page 38**

Accessories



insertion key
→ 38



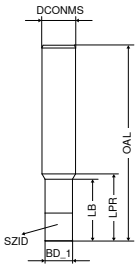
adjustable wrench
→ 38

MultiChange – Holders

- ▲ cylindrical
- ▲ only suitable for milling
- ▲ SZID = Coupling Size

Scope of supply:
Holder without mounting key







Steel | Steel | Steel | Steel

A | A | A | A

SZID	BD_1	DCONMS	OAL	LB	LPR	Article no. 84 000 ...	Article no. 84 002 ...	Article no. 84 008 ...	Article no. 84 011 ...
	mm	mm	mm	mm	mm				
06	7,8	10	60	17	19	080			
06	7,8	10	85	42	44		080		
06	7,8	10	150	107	109			080	
08	9,8	12	70	22	24	100			
08	9,8	12	90	42	44		100		
08	9,8	12	150	102	104			100	
10	11,8	16	70	17	21	120			
10	11,8	16	90	37	41		120		
10	11,8	16	150	97	101			120	
12	15,8	16	80	30	31	160			
12	15,8	16	105	55	56		160		
12	15,8	16	150	100	101			160	
12	15,8	16	200	150	151				160
16	19,8	25	90	26	31	200			
16	19,8	25	120	56	61		200		
16	19,8	25	200	136	141			200	
16	19,8	25	250	186	191				200

Assembly instructions can be found on → **Page 38**

Accessories



insertion key
→ 38



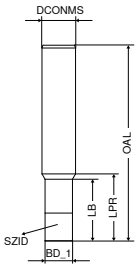
adjustable wrench
→ 38

MultiChange – Holders

- ▲ cylindrical
- ▲ only suitable for milling
- ▲ SZID = Coupling Size

Scope of supply:
Holder without mounting key



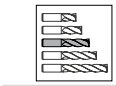






Solid carbide

HA 



Solid carbide

HA 



Solid carbide

HA 



Solid carbide

HA 

SZID	BD_1	DCONMS	OAL	LB	LPR	Article no. 84 003 ...	Article no. 84 006 ...	Article no. 84 009 ...	Article no. 84 012 ...
	mm	mm	mm	mm	mm				
06	7,8	10	85	42	44	080			
06	7,8	10	110	67	69		080		
06	7,8	10	150	107	109			080	
08	9,8	12	90	42	44	100			
08	9,8	12	110	62	64		100		
08	9,8	12	150	102	104			100	
10	11,8	16	90	37	41	120			
10	11,8	16	110	57	61		120		
10	11,8	16	150	97	101			120	
12	15,8	16	105	55	56	160			
12	15,8	16	130	80	81		160		
12	15,8	16	150	100	101			160	
12	15,8	16	200	150	151				160
16	19,8	25	120	56	61	200			
16	19,8	25	150	86	91		200		
16	19,8	25	200	136	141			200	
16	19,8	25	250	186	191				200

Assembly instructions can be found on → **Page 38**

Accessories



insertion key
→ 38

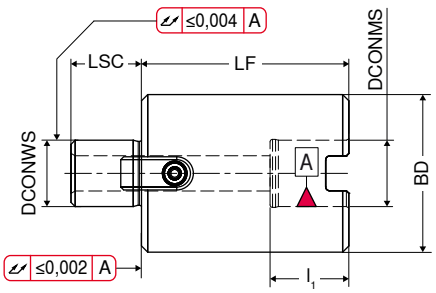


adjustable wrench
→ 38

Extension for Shell mill arbors

▲ variable applications through usage of one or two extensions (max. 2 x 50 mm possible)

Scope of supply:
Holder without clamping screw





DCONWS $_{h5}$ mm	DCONMS $_{H5}$ mm	LF mm	BD mm	LSC mm	l_1 mm	Article no. 82 648 ...
16	16	75	38	17	19	**075**
16	16	50	38	17	19	**050**
22	22	50	48	19	21	**150**
22	22	75	48	19	21	**175**
27	27	75	58	21	23	**275**
27	27	50	58	21	23	**250**
32	32	75	78	24	26	**375**
32	32	50	78	24	26	**350**
40	40	50	88	27	29	**450**
40	40	75	88	27	29	**475**


Screw for drivers


Driver

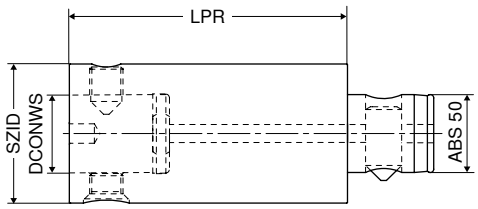

Retaining screw


Retaining screw

Spare parts for Article no.		Article no. 83 950 ...		Article no. 83 950 ...		Article no. 82 649 ...		Article no. 82 649 ...	
82 648 075	M3x8	**296**	8x9x17,5	**120**			M8x100	**075**
82 648 050	M3x8	**296**	8x9x17,5	**120**	M8x125	**001**	M8x80	**050**
82 648 150	M4x12	**297**	10x11x20,5	**121**	M10x125	**100**	M10x80	**150**
82 648 175	M4x12	**297**	10x11x20,5	**121**			M10x100	**175**
82 648 275	M5x12	**136**	12x13x24,3	**122**			M12x100	**275**
82 648 250	M5x12	**136**	12x13x24,3	**122**	M12x125	**200**	M12x80	**250**
82 648 375	M5x20	**137**	14x21x21,2	**123**			M16x100	**375**
82 648 350	M5x20	**137**	14x21x21,2	**123**	M16x125	**300**	M16x80	**350**
82 648 450	M6x16	**138**	15,9x16,3x19,5	**295**				
82 648 475	M6x16	**138**	15,9x16,3x19,5	**295**				

When using two extension pieces (max. 2x50 mm) please use a tightening bolt with a length of 125 mm.

Extension with ABS Connection





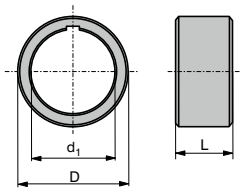


AD

Adapter	KOMET no.	SZID	DCONWS	LPR	NEW Article no. 84 209 ...
			mm	mm	
ABS 50	A2000550	ABS 50	28	50	**05097**
ABS 50	A2000050	ABS 50	28	65	**06597**
ABS 50	A2000250	ABS 50	28	100	**10097**
ABS 50	A2000150	ABS 50	28	150	**15097**

Spare parts	 Clamping screw	 Set	 Set	 Positioning pin	 Pendulum bolt	 Coolant pipe	 Taper screw
Adapter	**Article no. 84 950 ...**	**Article no. 84 950 ...**	**Article no. 84 950 ...**	**Article no. 84 950 ...**	**Article no. 84 950 ...**	**Article no. 84 950 ...**	**Article no. 84 950 ...**
ABS 50	**20300**	**99900**	**99800**	**20200**	**20000**	**20100**	**20400**

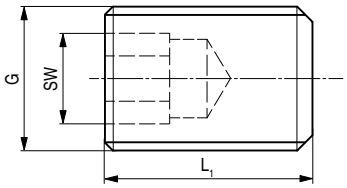
Milling Adapter Rings DIN 2084 Form B





d_1 mm	D mm	L mm	Article no. 83 385 ...
13	22	2	013
	22	3	113
	22	4	213
	22	5	313
	22	6	413
	22	10	513
16	26	2	016
	26	3	116
	26	4	216
	26	5	316
	26	6	416
	26	10	516
	26	20	616
	26	30	716
22	34	2	022
	34	3	122
	34	4	222
	34	5	322
	34	6	422
	34	10	522
	34	20	622
	34	30	722
27	41	2	027
	41	3	127
	41	4	227
	41	5	327
	41	6	427
	41	10	527
	41	20	627
	41	30	727
32	47	2	032
	47	3	132
	47	4	232
	47	5	332
	47	6	432
	47	10	532
	47	20	632
	47	30	732
40	55	2	040
	55	3	140
	55	4	240
	55	5	340
	55	6	440
	55	10	540
	55	20	640
	55	30	740

Screw for cylindrical adapters E2

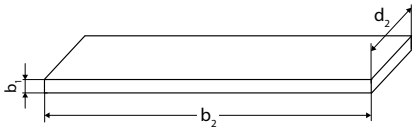




G	L_1 mm	SW mm	Article no. 83 950 ...
M6	12	3	461
M6	16	3	462
M6	25	3	463
M8	10	4	464
M8	12	4	465
M8	16	4	466
M8	20	4	467
M8	25	4	468
M8	30	4	469
M10	16	5	470
M10	20	5	471
M10	25	5	472
M10	30	5	473
M12	12	6	474
M12	16	6	475
M12	20	6	476
M12	25	6	477

Levelling plates

- ▲ for axial and radial tool holders
- ▲ without mounting thread





b_1 mm	b_2 mm	d_2 mm	Article no. 83 950 ...
4	38	14	210
4	48	14	211
4	54	14	212
4	55	12	213
4	69	16	214
4	73	14	215
4	75	12	216
4	99	16	217
5	84	20	218
5	117	20	219
7	99	25	220
7	120	25	221
7	129	25	222
7	143	25	223

Clamping screw for cylindrical adapters E1



Thread	Article no. 83 950 ...
M10x1x10	180
M12x1x12	181
M16x1x13	182

17

Lock nut with external thread form ER for sealing rings with internal cooling



for size	Thread	SW mm	Article no. 83 950 ...
ER 16	M24x1	19	328
ER 20	M28x1,5	22	329
ER 25	M32x1,5	24	330
ER 32	M40x1,5	32	335

Zeta® – Clamping adapter



for size	Article no. 83 950 ...
ER 16	495
ER 20	496
ER 25	497
ER 32	498
ER 40	499

Zeta® – Nut



for size	Thread	$M_{max.}$ Nm	Article no. 83 950 ...
ER 16	M24x1	60	480
ER 20	M28x1,5	75	481
ER 25	M32x1,5	100	482
ER 32	M40x1,5	130	483
ER 40	M50x1,5	150	484

Zeta® – Torque Socket



for size		Article no. 83 950 ...
ER 16	3/8"	500
ER 20	3/8"	501
ER 25	1/2"	502
ER 32	1/2"	503
ER 40	1/2"	504

Zeta® – Torque Wrench Adapter

▲ Warning: interface of torque adapter is a 16 mm diameter round shank adapter



for size	Article no. 83 950 ...
ER 16	505
ER 20	506
ER 25	507
ER 32	508
ER 40	509

Zeta® – Clamping key



for size	Article no. 83 950 ...
ER 16	490
ER 20	491
ER 25	492
ER 32	493
ER 40	494

Pipe joints

▲ steel pipe



Thread	Pipe Ø mm	form	Article no. 83 950 ...
M8x1	5	A	372
M10x1	6	A	373
M10x1	8	A	374
M8x1	5	B	375
M10x1	6	B	376
M10x1	8	B	377

Ball-shaped spray nozzle



	Article no. 83 950 ...
Ø 8 - M 5	200
Ø 10 - M 6	201
Ø 14 - M 8	202

O-Ring



for Ø	Article no. 83 950 ...
VDI 16 15 x 1,5	205
VDI 20 18,77 x 1,78	206
VDI 30 28,3 x 1,78	207
VDI 40 37,77 x 2,62	208
VDI 50 47,29 x 2,62	209

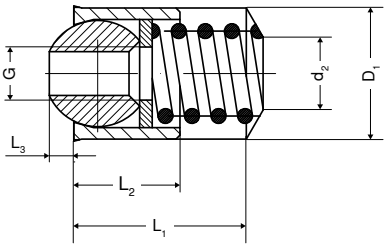
Coolant pipe with ball pin

▲ p_{max} = 80 bar



	Article no. 83 950 ...
Ø 9	441
Ø 11	442

Spray nozzle element



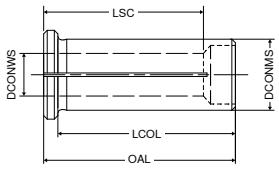


D_1 mm	G	L_1 mm	L_2 mm	L_3 mm	d_2 mm	Article no. 83 950 ...
9,88	M4	13	8	2,2	5,5	247
11,88	M6	15	10	3,0	6,8	248
13,88	M6	17	12	4,0	6,8	249

17

Reducing sleeves for hydraulic and high pressure chucks

▲ thro' coolant to 80 bar

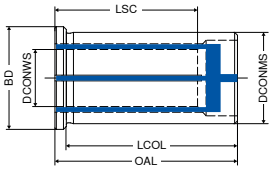




DCONMS	DCONWS	OAL	LCOL	LSC	Article no. 83 609 ...
mm	mm	mm	mm	mm	
12	3	40	36	29	103
12	4	40	36	29	104
12	5	40	36	29	105
12	6	40	36	36	106
12	8	40	36	37	108
20	3	54	50	28	203
20	4	54	50	28	204
20	5	54	50	28	205
20	6	54	50	36	206
20	8	54	50	37	208
20	10	54	50	40	210
20	12	54	50	45	212
20	14	54	50	45	214
20	16	54	50	48	216
25	6	60	56	37	256
25	8	60	56	37	258
25	10	60	56	40	260
25	12	60	56	46	262
25	14	60	56	47	264
25	16	60	56	48	266
25	18	60	56	48	268
25	20	60	56	50	270
32	6	64	60	36	306
32	8	64	60	36	308
32	10	64	60	40	310
32	12	64	60	45	312
32	14	64	60	46	314
32	16	64	60	48	316
32	18	64	60	49	318
32	20	64	60	50	320
32	25	64	60	56	325

Reduction sleeves with coolant hole for hydraulic and high pressure chucks

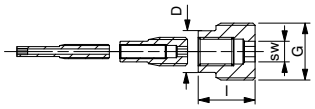
▲ with coolant holes, for flexible diameter application





DCONMS	DCONWS	BD	OAL	LCOL	LSC	NEW Article no. 83 611 ...
mm	mm	mm	mm	mm	mm	
12	3	16	44	40	29	10300
12	4	16	44	40	29	10400
12	5	16	44	40	29	10500
12	6	16	44	40	36	10600
12	8	16	44	40	37	10800
20	3	25	54	50	28	20300
20	4	25	54	50	28	20400
20	5	25	54	50	28	20500
20	6	25	54	50	36	20600
20	8	25	54	50	37	20800
20	10	25	54	50	40	21000
20	12	25	54	50	45	21200
20	14	25	54	50	45	21400
20	16	25	54	50	48	21600
32	6	36	64	60	36	30600
32	8	36	64	60	36	30800
32	10	36	64	60	40	31000
32	12	36	64	60	45	31200
32	14	36	64	60	46	31400
32	16	36	64	60	48	31600
32	18	36	64	60	49	31800
32	20	36	64	60	50	32000
32	25	36	64	60	56	32500

Stop screw for use with reducing sleeves in hydraulic chuck





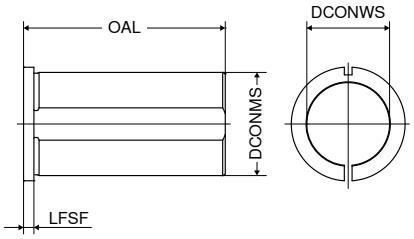
G	D mm	Article no. 83 950 ...
M4x0,5x26 - SW2	2,8	425
M8x1x19 - SW2,5	5,8	428
M10x1x16 - SW3	5,8	426
M16x1x16 - SW5	11,7	427

Adaptation for the use of stop screws for reducing sleeves

DCONMS in mm			
12		83 950 425	83 950 426
20	83 950 425	83 950 428	83 950 427
25	83 950 425	83 950 428	83 950 427
32		83 950 428	83 950 427

Slotted reduction sleeves

- for cylindrical and other tool holders
- for tools with cylindrical shank

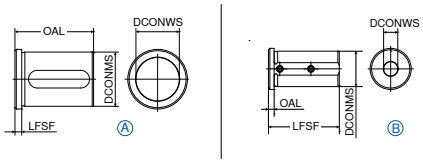




DCONMS	DCONWS	OAL	LFSF	Article no. 83 271 ...
mm	mm	mm	mm	
20	6	30	4	206
20	8	30	4	208
20	10	30	4	210
20	12	30	4	212
20	15	30	4	215
20	16	30	4	216
25	6	40	4	256
25	8	40	4	258
25	10	40	4	260
25	12	40	4	262
25	15	40	4	265
25	16	40	4	266
25	20	40	4	270
32	6	50	4	326
32	8	50	4	328
32	10	50	4	330
32	12	50	4	332
32	15	50	4	335
32	16	50	4	336
32	20	50	4	340
40	10	78	4	410
40	12	78	4	412
40	15	78	4	415
40	16	78	4	416
40	20	78	4	420
40	25	78	4	425
40	32	78	4	432
50	20	88	4	520
50	25	88	4	525
50	32	88	4	532
50	40	88	4	540

Reduction sleeves for direct clamping

- for tools with cylindrical shank

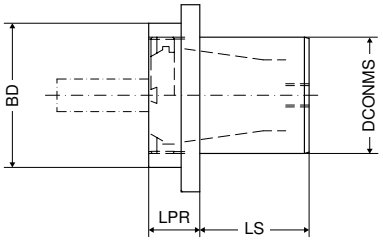




DCONMS	DCONWS	OAL	LFSF	Fig.	Article no. 83 272 ...
mm	mm	mm	mm		
25	6	50	4	B	256
25	8	50	4	B	258
25	10	50	4	B	260
25	12	50	4	B	262
25	14	50	4	A	264
25	16	50	4	A	266
25	20	50	4	A	270
32	6	58	5	B	326
32	8	58	5	B	328
32	10	58	5	B	330
32	12	58	5	B	332
32	16	58	5	A	336
32	20	58	5	A	340
32	25	58	5	A	345
40	8	58	5	B	408
40	10	58	5	B	410
40	12	58	5	B	412
40	16	58	5	A	416
40	20	58	5	A	420
40	25	58	5	A	425
40	32	58	5	A	432
50	12	75	5	B	512
50	16	75	5	A	516
50	20	75	5	A	520
50	25	75	5	A	525
50	32	75	5	A	532
50	40	75	5	A	540

Collet chuck for boring bar holder

Scope of supply:
Collet adapter with lock nut





DCONMS	for collet	BD	LS	LPR	Article no. 83 950 ...
mm		mm	mm	mm	
25	428E (ER20)	35	29	18	390
32	430E (ER25)	40	32	20	391 1)
40	470E (ER32)	50	38	20	392 1)

1) Not ex-stock

Taper wiper

▲ version made from hard wood with suede inserts



Adapter	Article no. 83 715 ...
MK 1	001
MK 2	002
MK 3	003
MK 4	004
MK 5	005
HSK 32	320
HSK 40	400
HSK 50	500
HSK 63	630
HSK 80	800
HSK 100	100
SK 30	130
SK 40	140
SK 50	150

Assembly device for ISO adapters

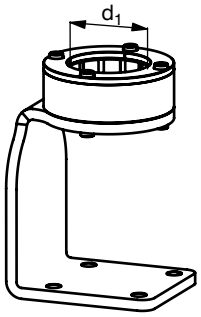
▲ aluminium



Adapter	Article no. 80 720 ...
SK 30	030
SK 40	040
SK 50	050

Assembly fixture for tool holders

▲ gripping by roller
▲ secure clamping
▲ quick assembly, no additional clamping necessary



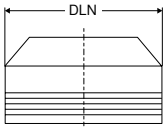


Adapter	d_1 mm	Article no. 80 722 ...
HSK 32, PSC 32	32,0	032
HSK 40, PSC 40	40,0	040
MAS-BT 30	46,0	046
DIN 69871 / DIN 2080 - SK 30, HSK 50, PSC 50	50,0	050
DIN 69871 / DIN 2080 - SK 40, HSK 63, PSC 63, MAS-BT 40, ANSI-CAT 40	63,0	063
DIN 69871 - SK 50	97,5	097
HSK 100, MAS-BT 50, ANSI-CAT 50	100,0	100

Safety Note: The clamping devices must be free of oil and grease to avoid slipping!

ER Standard lock nut for precision collet chuck

Centro-P





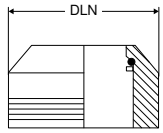
for seals

for collet	clamping range mm	DLN mm	TQX Nm	Article no. 84 950 ...	Article no. 84 950 ...
426E (ER16)	1 - 10	30	50	001	011
428E (ER20)	1 - 13	32	70	002	012
430E (ER25)	2 - 16	40	85	003	013
470E (ER32)	2 - 20	50	135	005	015
472E (ER40)	3 - 26	63	190	007	017

OZ Standard lock nut for precision collet chuck

▲ can be used without sealing ring

Centro-P



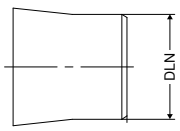


for seals

for collet	clamping range mm	DLN mm	TQX Nm	Article no. 84 950 ...	Article no. 84 950 ...
462E (OZ)	2 - 25	50	140	009	020

Tapered lock nut for precision collet chuck

Centro-P



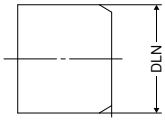


for seals

for collet	clamping range mm	DLN mm	TQX Nm	Article no. 84 950 ...	Article no. 84 950 ...
426E (ER16)	1 - 10	24	50	031	
426E (ER16)	1 - 10	24	25		033

Mini lock nut for precision collet chuck

Centro-P





for seals

for collet	clamping range mm	DLN mm	TQX Nm	Article no. 84 950 ...	Article no. 84 950 ...
4004E (ER08)	1 - 5	10	5 - 8	040	
4008E (ER11)	1 - 7	16	10	041	
4008E (ER11)	Ø 3,0	16	10	042 [1]	
4008E (ER11)	Ø 4,0	16	10	043 [1]	
4008E (ER11)	Ø 5,0	16	10	044 [1]	
4008E (ER11)	Ø 6,0	16	10	045 [1]	
4008E (ER11)	Ø 7,0	16	10	046 [1]	
426E (ER16)	1 - 10	22	28	034	035

1) directly sealed

Collet removal aid for Mini lock nut for precision collet chuck

Centro-P



for collet	Article no. 84 950 ...
4004E / ER 08	070
4008E / ER 11	072

17

Roll key

- ▲ version CP = for Centro-P lock nuts
- ▲ version STD = for standard lock nuts



for size	d_1 mm	Article no. 84 950 ...
4004E / ER08 CP mini	10	**050**
4008E / ER 11 CP mini / mini	16	**080** [1]
426E / ER 16 CP / ER 16 mini	22	**026**
426E / ER 16 CP konisch / CP mini	24	**082** [2]
426E / ER 16 CP	30	**027**
426E / ER 16 STD	32	**028**
428E / ER 20 STD	35	**029**
430E / ER 25 CP	40	**054**
430E / ER 25 STD	42	**055**
470E / ER 32 CP + STD / OZ462E CP	50	**056**
472E / ER 40 CP + STD	63	**057**

1) Special key for mini lock nuts

2) Key for tapered lock nuts / Special key for mini lock nuts

Additional roll key device for torque key

- ▲ version CP = for Centro-P lock nuts
- ▲ version STD = for standard lock nuts



for size	d_1 mm	$M_{max.}$ Nm	Square mm	Article no. 84 950 ...
4008E / ER 11 CP	16	20 - 100	9 x 12	**060** [1]
426E / ER 16 CP / ER 16 mini	22	20 - 100	9 x 12	**170**
426E / ER 16 CP	24	20 - 100	9 x 12	**061** [1]
426E / ER 16 CP	30	20 - 100	14 x 18	**171**
426E / ER 16 STD	32	20 - 100	14 x 18	**172**
426E / ER 20 STD	35	20 - 100	14 x 18	**173**
430E / ER 25 CP	40	40 - 200	14 x 18	**065**
430E / ER 25 STD	42	40 - 200	14 x 18	**066**
470E / ER 32 CP + STD / OZ 462E CP	50	40 - 200	14 x 18	**067**
472E / ER 40 CP + STD	63	40 - 200	14 x 18	**068**

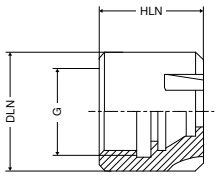
1) for mini and tapered lock nuts

Torque key



$M_{max.}$ Nm	Square mm	Article no. 84 435 ...
5-30	9 x 12	**030**
10-80	9 x 12	**080**
20 - 200	14 x 18	**200**

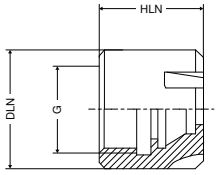
Mini ER lock nut





for collet	G	DLN	HLN	TQX	Article no. 62 950 ...
		mm	mm	Nm	
4004E (ER08)	M10x0,75	12	11,0	8	067
4008E (ER11)	M13x0,75	16	12,0	18	065
426E (ER16)	M19x1	22	18,0	28	066
428E (ER20)	M24x1	28	19,5	35	068
430E (ER25)	M30x1	35	21,0	40	069

Mini ER lock nut for sealing rings

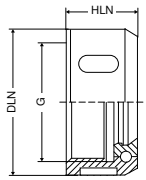




for collet	G	DLN	HLN	TQX	for seals Article no. 83 950 ...
		mm	mm	Nm	
426E (ER16-DS)	M19x1	22	22,0	28	058
428E (ER20-DS)	M24x1	28	23,2	35	059
430E (ER25-DS)	M30x1	35	24,7	40	060

OZ lock nut Form B + C

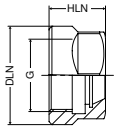
▲ with ball bearings





for collet	G	DLN	HLN	TQX	Article no. 62 950 ...
		mm	mm	Nm	
415E / 421E (OZ)	M33x1,5	43	24,0	85	050
459E / 462E (OZ)	M48x2	60	30,0	140	051
460E / 467E (OZ)	M60x2,5	72	33,5	170	052

ER Lock nut

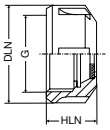






for collet	G	DLN	HLN	Article no. 62 950 ...	for seals Article no. 83 950 ...
		mm	mm		
426E (ER16)	M22x1,5 - SW25	28	18,0	044	
428E (ER20)	M25x1,5 - SW30	34	19,5	045	
428E (ER20)	M25x1,5 - SW30	34	22,5		053

ER Lock nut







for collet	G	DLN	HLN	Article no. 62 950 ...	for seals Article no. 83 950 ...
		mm	mm		
426E (ER16)	M22x1,5	32	17,0	054	
426E (ER16)	M22x1,5	32	22,0		054
430E (ER25)	M32x1,5	42	20,0	055	
430E (ER25)	M32x1,5	42	24,7		055
470E (ER32)	M40x1,5	50	22,3	056	
470E (ER32)	M40x1,5	50	27,0		056
472E (ER40)	M50x1,5	63	25,3	057	
472E (ER40)	M50x1,5	63	30,7		057

MultiChange – Spanner



SW mm	$M_{max.}$ Nm	Article no. 84 357 ...
6	5	006
8	12,5	008
10	15	010
13	20	013
16	25	016
19	25	019 1)
21	25	021 1)
24	25	024 1)

1) only for MultiChange reamers

MultiChange – Spanner Head



SW mm	$M_{max.}$ Nm	Square mm	Article no. 84 358 ...
6	5	9 x 12	006
8	12,5	9 x 12	008
10	15	9 x 12	010
13	20	9 x 12	013
16	25	9 x 12	016
19	25	9 x 12	190
21	25	9 x 12	210
24	25	9 x 12	240
19	25	14 x 18	019 1)
21	25	14 x 18	021 1)
24	25	14 x 18	024 1)

1) only for MultiChange reamers

Suitable torque keys can be found on → **Page 36.**

Assembly instructions for MultiChange head

- Cleaning of cone, thread and face of the milling head
- Cleaning of cone and thread face of the holder
- Cleaning of cone, thread and face of the holders
- Cutter head screwed clockwise by hand into the holder (be careful if using gloves)
- Clamp the exchange milling head with the torque wrench and the correct spanner to the specified tightening torque (according to table).
- The gap between the head and holder must be closed (force and positive connection)



Torque wrench must be horizontally aligned to key area, take care not to tilt in the key area



Important for the sensitive tuning is an additional placing of the hand on the exchange milling head. This means the torque can be better maintained.

TORX® Screwdriver



	Article no. 80 950 ...
T06 - 60 mm	100
T07 - 60 mm	101
T08 - 60 mm	102
T09 - 60 mm	103
T10 - 80 mm	104
T15 - 80 mm	105
T20 - 100 mm	106
T25 - 100 mm	107
T30 115	092

TORX® MagicSpring®



	Article no. 80 950 ...
MS T06 - 60 mm	108
MS T07 - 60 mm	109
MS T08 - 60 mm	110
MS T09 - 60 mm	111
MS T10 - 80 mm	112
MS T15 - 80 mm	113
MS T20 - 100 mm	114
MS T25 - 100 mm	115
MS T30 - 100 mm	131

TORX PLUS® MagicSpring®



	Article no. 80 950 ...
MS T06 - IP - 60 mm	123
MS T07 - IP - 60 mm	124
MS T08 - IP - 60 mm	125
MS T09 - IP - 60 mm	126
MS T10 - IP - 80 mm	127
MS T15 - IP - 80 mm	128
MS T20 - IP - 100 mm	129
MS T25 - IP - 100 mm	130

A stainless steel spring holds MagicSpring ® Torx and Torx Plus screws in place.





TORX PLUS® Screwdriver



	Article no. 80 950 ...
T06 - IP - 60 mm	116
T07 - IP - 60 mm	117
T08 - IP - 60 mm	039
T09 - IP - 60 mm	118
T10 - IP - 80 mm	119
T15 - IP - 80 mm	120
T20 - IP - 100 mm	121
T25 - IP - 100 mm	122

TorqueFix® Handle

- ▲ with fixed torque moment
- ▲ Standard: EN ISO 6798, BS EN 26789, ASME B107.14M
- ▲ Accuracy: ± 6 %, based on national standards
- ▲ Bits to be clamped in the universal holder only



$M_{max.}$ Nm	Article no. 80 021 ...
0,6	006
0,7	007
0,8	008
1,0	010
1,2	012
1,6	016
1,8	018
2,0	020
2,2	022
3,0	030
3,2	032
4,0	040
5,0	050
5,5	055
6,0	060

TorqueVario®-S

- ▲ Patented handle

Scope of supply:

incl. Torque-Setter setting tool



$M_{max.}$ Nm	Article no. 80 950 ...
0,4 - 1,0	046
0,5 - 2,0	191
0,8 - 5,0	192
2,0 - 7,0	193

17

Torque-Fix-Tplus T-handle torque wrench

- with fixed torque
- Standards: EN ISO 6798, BS EN 26789, ASME B107.14M
- Accuracy: ± 6%, based on national standards
- for holding Tplus interchangeable torque blades

Scope of supply:
incl. Plastic box and inspection report



$M_{max.}$ Nm	SW mm	Article no. 80 950 ...
8	6	183
12	6	140

Torque Vario-STplus torque tool handle

- with variable torque adjustment
- Norm: EN ISO 6798, BS EN 26789, ASME B107.14M
- Accuracy: ± 6%, traceable to national standards
- for holding Torque Tplus interchangeable blades

Scope of supply:
incl. Plastic box and inspection report



$M_{max.}$ Nm	SW mm	Article no. 80 950 ...
5 - 14	6	182

Tplus interchangeable torque blade

- for T-handle torque tools



$M_{max.}$ Nm	SW mm	Article no. 80 950 ...
12	(6) 4	144

Interchangeable blade for Hex drive for Micro Precision Chucks

- 175 mm long



for size	$M_{max.}$ Nm	Article no. 80 950 ...
SW1,5	0,9	151
SW2	1,8	152
SW2,5	3,8	153
SW3	5,5	154
SW4	8,0	155

Replaceable Blade for TORX®

- 175 mm long



for size	$M_{max.}$ Nm	Article no. 80 950 ...
T5 -SW4	0,4	048
T6 -SW4	0,6	031
T7 -SW4	0,9	032
T8 -SW4	1,3	033
T9 -SW4	2,5	034
T10 -SW4	3,8	035
T15 -SW4	5,5	036
T20 -SW4	8,0	037
T25 -SW4	8,0	038

Replaceable Blade for TORX PLUS®

- 175 mm long



for size	$M_{max.}$ Nm	Article no. 80 950 ...
T05IP -SW4	0,5	049
T06IP -SW4	0,8	050
T07 - IP -SW4	1,3	051
T08 - IP -SW4	2,0	043
T09IP -SW4	3,0	052
T10IP -SW4	4,5	053
T15 - IP -SW4	6,6	054
T20 - IP -SW4	8,0	055
T25IP -SW4	8,0	056

Universal holder for Bits

▲ 162 mm long



	Article no. 80 950 ...
DIN3126-C/E 6,3-1/4"	014

Quick change holder for Torque Tplus Bits

▲ for T handle torque tool



	Article no. 80 950 ...
DIN3126-C/E 6,3-1/4"	172

TORX® Bits short (25 mm)

▲ DIN3126-C 6,3 - 1/4"



for size	$M_{max.}$ Nm	Article no. 80 950 ...
T06	0,9	015
T07	1,7	016
T08	2,6	017
T09	3,4	018
T10	4,5	019
T15	7,7	020
T20	12,7	021
T25	19,0	022
T30	37,4	093

TORX® Bits long (50 mm)

▲ DIN3126-E 6,3 - 1/4"



for size	$M_{max.}$ Nm	Article no. 80 950 ...
T06	0,9	023
T07	1,7	024
T08	2,6	025
T09	3,4	026
T10	4,5	027
T15	7,7	028
T20	12,7	029
T25	19,0	030
T30	37,4	094

TORX® Bits long (70 mm)

▲ DIN3126-E 6,3 - 1/4"



for size	$M_{max.}$ Nm	Article no. 80 950 ...
T06	0,9	173
T07	1,7	174
T08	2,6	175
T09	3,4	176
T10	4,5	177
T15	7,7	178
T20	12,7	179
T25	19,0	180
T30	37,4	181

TORX PLUS® Bits short (25 mm)

▲ DIN3126-C 6,3 - 1/4"



for size	$M_{max.}$ Nm	Article no. 80 950 ...
T05 - IP	0,5	065
T06 - IP	0,9	066
T07 - IP	1,7	067
T08 - IP	2,6	068
T09 - IP	3,4	069
T10 - IP	4,5	070
T15 - IP	7,7	071
T20 - IP	12,7	072
T25 - IP	19,0	073

TORX PLUS® Bits long (50 mm)

▲ DIN3126-E 6,3 - 1/4"



for size	$M_{max.}$ Nm	Article no. 80 950 ...
T05 - IP	0,5	074
T06 - IP	0,9	075
T07 - IP	1,7	076
T08 - IP	2,6	040
T09 - IP	3,4	077
T10 - IP	4,5	078
T15 - IP	7,7	079
T20 - IP	12,7	080
T25 - IP	19,0	081

TORX® Screwdriver



for size	$M_{max.}$ Nm	Article no. 80 950 ...
T05x35	0,5	082
T06x35	0,9	083
T07x35	1,7	084
T08x40	2,6	085
T09x40	3,4	086
T10x40	4,5	087
T15x45	7,7	088
T20x45	12,7	089

Clamping key



Size	$M_{max.}$ Nm	Article no. 80 397 ...
SW 2	1,9	020
SW 2,5	3,8	025
SW 3	6,6	030
SW 4	16	040
SW 5	30	050
SW 6	52	060
SW 8	120	080
SW 10	220	100

TORX® Screwdriver sets



	Article no. 80 950 ...
T06, T07, T08, T09, T10, T15, T20	090

TORX PLUS® Screwdriver



for size	$M_{max.}$ Nm	Article no. 80 950 ...
T05 - IP x35	0,5	057
T06 - IP x35	0,9	058
T07 - IP x35	1,7	059
T08 - IP x40	2,6	060
T09 - IP x40	3,4	061
T10 - IPx40	4,5	062
T15 - IP x45	7,7	063
T20 - IP x45	12,7	064

TORX PLUS® Screwdriver sets



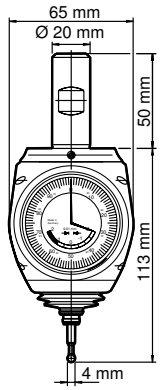
	Article no. 80 950 ...
IP06, IP07, IP08, IP09, IP10, IP15, IP20	091

Universal 3D-Tester

- quick and accurate positioning
- for locating and/or setting the zero point of the workpiece
- with adjustable concentricity
- usable in all 3 axes (x, y, z)
- for all CNC and erosion machines (insulation between stylus and case)
- reading of actual dimensions is independent of direction
- reading precision 0.01 mm

Scope of supply:

3D tester including tracer insert, Allen key and pin key for the replacement of the tracer insert





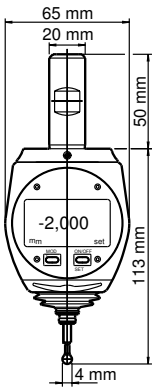
	Article no. 85 290 ...
Universal 3D-Tester	**100**

Digital 3D-Tester

- quick and accurate positioning
- for locating and/or setting the zero point of the workpiece
- with adjustable concentricity
- usable in all 3 axes (x, y, z)
- for all CNC and erosion machines (insulation between stylus and case)
- reading of actual dimensions is independent of direction
- reading precision 0.001 mm

Scope of supply:

3D tester including tracer insert, Allen key and pin key for the replacement of the tracer insert





	Article no. 85 291 ...
Digital 3D-Tester	**100**

Zero height setting gauge

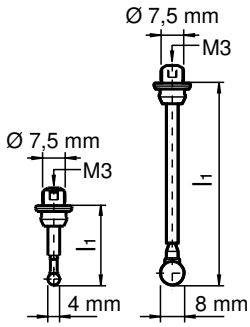
- to determine the point of reference and/or for adjusting tools “to zero”
- plate Ø 10 mm
- plate is hardened, non magnetic



	h mm	Article no. 85 900 ...
Zero height setting gauge	100	**018**

Stylus for 3D-Tester

- with movement of 2 mm beyond the zero point a break-off ceramic insert prevents damage to the unit
- if the stylus is broken remove and insert a new stylus
- check concentricity and adjust if necessary





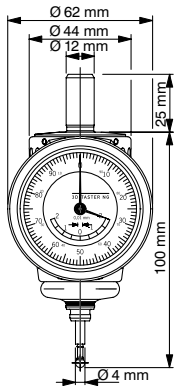
l_1 mm	Article no. 85 290 ...
25	**102**
65	**104**

Universal 3D-Tester HQ

- fast and accurate positioning at reference edges
- development of the existing universal 3D-Testers
- improved mechanics
- compact size
- characterised by over travel safety
- functionality as with 85 290 100
- accuracy 0,01 mm

Scope of supply:

3D tester including tracer insert, Allen key and pin key for the replacement of the tracer insert





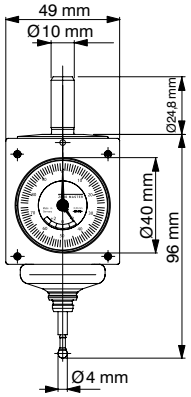
	Article no. 85 292 ...
Universal 3D-Tester HQ	**100**

Universal 3D-Tester Mini

- fast and accurate positioning at reference edges
- very small universal 3D-Tester
- particularly suitable for machines with small spindle taper e.g. SK 30 or HSK 32
- low overhang length thanks to short housing
- characterised by over travel safety
- functionality as with 85 290 100
- accuracy 0,01 mm

Scope of supply:

3D tester including tracer insert, Allen key and pin key for the replacement of the tracer insert





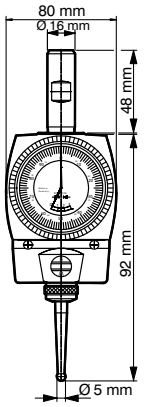
	Article no. 85 295 ...
Universal 3D-Tester Mini	**100**

Centre finder

- centralise holes and features quickly and accurately
- simple operation
- dial gauge remains in the operators vision during process
- centring accuracy 0,003 mm

Scope of supply:

3D-Tester incl. straight stylus and telescopic stop

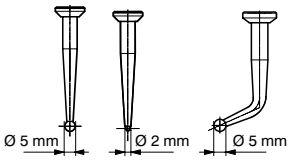




	Article no. 85 299 ...
Centre finder	**100**

Range with probe tip Ø 5 mm holes Ø 6–125 mm, shaft Ø 0–125 mm

Stylii for Centre Finder





	Article no. 85 299 ...
Straight stylus / Ball-Ø 2 mm	**102**
Straight stylus / Ball-Ø 5 mm	**104**
Curved stylus / Ball Ø 5 mm	**106**

Telescopic rod for Centre Finder

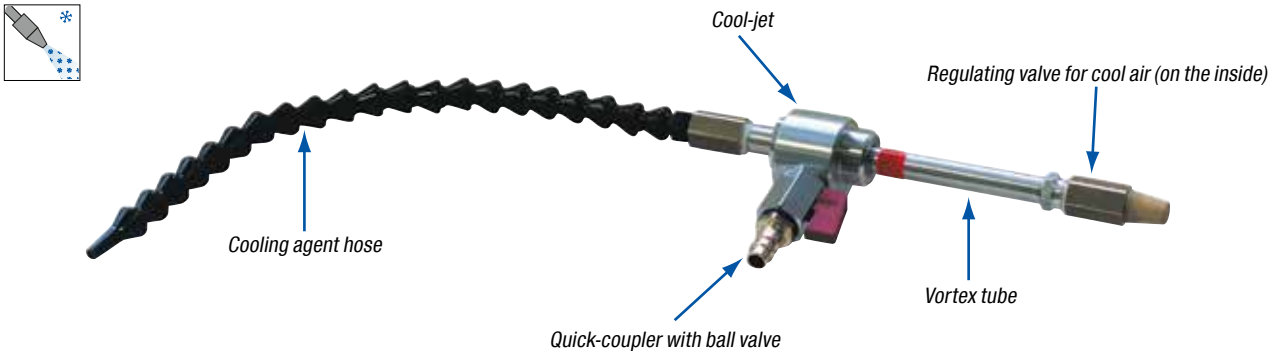
D mm	L_1 mm	Article no. 85 299 ...
6	478	111

Advantages with the use of the cool air nozzle

The main advantages are that cooling agent disposal is not required and tool life increases up to 100% when dry machining

In order to improve the service life when dry machining, we recommend the use of our cooling nozzle, which is applicable with a normal compressed air connection from a pressure of 6 bar.

Not only for **cooling the tool and workpiece** it is primarily **for chip removal** to preventchip **jamming**.



Cool-jet	Article no. 81 900 ...
3–7 bar air pressure, at -46 °C	100

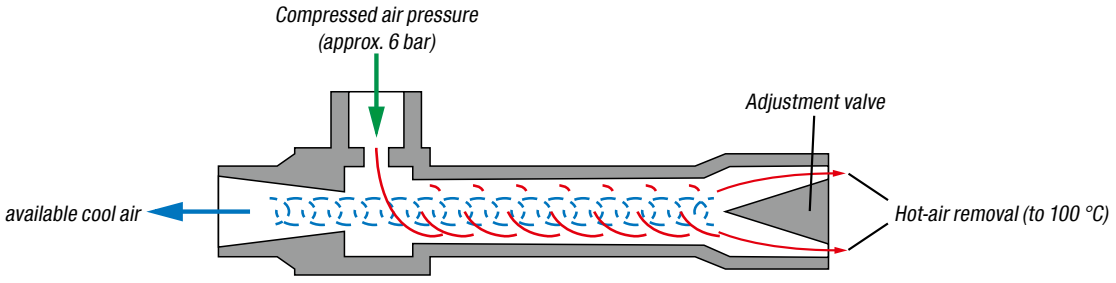
Accessories	Article no. 81 900 ...
Magnetic plate Ø 80 mm without clamping arm	101
Spare tube, length 300 mm	104
Jet silencer (air filter)	105
Clamping arm, length 75 mm	106
Complete set (with magnetic set and clamping arm), weight 0,4 kg	107

Technical description – operating instruction

The principle of the cold-air nozzle is based on the use of vortex tubes. Ordinary air is divided into cold and hot air streams.

Without additional power supply or moving parts the cool air nozzle can produce **cooling performance of up to 733 W** or **Temperatures of approx. -42 °C** are produced and requires only operating pressure air of approx. 6 bar.

A water trap or service unit should be mounted. A regulating valve in the hot-air outlet regulates the temperatures and currents



Utilizable air temperature measured at the effective discharge of the vortex tube (not the nozzle end)

Entrance pressure				
	3 bar	-31 °C	up to	-6 °C
	4 bar	-35 °C	up to	-8 °C
	5 bar	-39 °C	up to	-10 °C
	6 bar	-42 °C	up to	-11 °C
	7 bar	-46 °C	up to	-13 °C

Air consumption at an inlet temperature of + 21 ° C and an inlet pressure of 6.9 bar: 7,08 l / sec. (25.5 m³ / h)

In order to operate the regulating valve, the silencer must be unscrewed - there is a burn danger! The valve of the hot air side can reach up to 100 °C: Before contact, allow cooling!

17





Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 EcoCut

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Tool Clamping

16 Adapters

17 Accessories

18 Material examples and article no. index

Extended Material Examples for the Cutting Data Tables

	Index	Material	Strength N/mm² / HB / HRC
P	1.1	General construction steel	< 800 N/mm²
	1.2	Free cutting steel	< 800 N/mm²
	1.3	Hardened steel, non alloyed	< 800 N/mm²
	1.4	Alloyed hardened steel	< 1000 N/mm²
	1.5	Tempering steel, unalloyed	< 850 N/mm²
	1.6	Tempering steel, unalloyed	< 1000 N/mm²
	1.7	Tempering steel, alloyed	< 800 N/mm²
	1.8	Tempering steel, alloyed	< 1300 N/mm²
	1.9	Steel castings	< 850 N/mm²
	1.10	Nitriding steel	< 1000 N/mm²
	1.11	Nitriding steel	< 1200 N/mm²
	1.12	Roller bearing steel	< 1200 N/mm²
	1.13	Spring steel	< 1200 N/mm²
	1.14	High-speed steel	< 1300 N/mm²
	1.15	Cold working tool steel	< 1300 N/mm²
	1.16	Hot working tool steel	< 1300 N/mm²
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²
	2.2	Stainless steel, ferritic	< 750 N/mm²
	2.3	Stainless steel, martensitic	< 900 N/mm²
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²
	2.6	Stainless steel, austenitic	< 750 N/mm²
	2.7	Heat resistant steel	< 1100 N/mm²
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²
	3.5	White malleable cast iron	270–450 N/mm²
	3.6	White malleable cast iron	500–650 N/mm²
	3.7	Black malleable cast iron	300–450 N/mm²
	3.8	Black malleable cast iron	500–800 N/mm²
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²
	4.7	Copper wrought alloys	< 700 N/mm²
	4.8	Special copper alloys	< 200 HB
	4.9	Special copper alloys	< 300 HB
	4.10	Special copper alloys	> 300 HB
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²
	4.12	Long-chipping brass	< 600 N/mm²
	4.13	Thermoplastics	
	4.14	Duroplastics	
	4.15	Fibre-reinforced plastics	
	4.16	Magnesium and magnesium alloys	< 850 N/mm²
	4.17	Graphite	
	4.18	Tungsten and tungsten alloys	
	4.19	Molybdenum and molybdenum alloys	
S	5.1	Pure nickel	
	5.2	Nickel alloys	
	5.3	Nickel alloys	< 850 N/mm²
	5.4	Nickel molybdenum alloys	
	5.5	Nickel-chromium alloys	< 1300 N/mm²
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²
	5.7	Heat resistant alloys	< 1300 N/mm²
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²
	5.9	Pure titanium	< 900 N/mm²
	5.10	Titanium alloys	< 700 N/mm²
	5.11	Titanium alloys	< 1200 N/mm²
H	6.1	Tempered steel	< 45 HRC
	6.2		46–55 HRC
	6.3		56–60 HRC
	6.4		61–65 HRC
	6.5		65–70 HRC

On the following 13 pages you will find an extension of the material examples to our usual indexes with additional international standards.

Overview of standards:

DIN

Deutsche **I**ndustrie **N**orm (German Standard)

AFNOR

Association **F**rancaise de **N**ormalisation (French Standard)

UNI

Unificazione **I**taliana (Italian Standard)

ČSN

Czechoslovakian Standard

BS

British **S**tandards

SIS

Standardiseringen **i** **S**verige (Swedish Standard)

UNE

Spanish Standard

JIS

Japanese **I**ndustrial **S**tandard

GOST

Soviet Standard

UNS

Unified **N**umbering **S**ystem

USA

Under **USA** several American standards are summarized

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
P	1.1	1.0037	St 37-2	E 24-2		11 343				STKM 12 C			
		1.0044	St 44-2	E 28-2	Fe 430 B FN	11 443	4360-43 B	1412		SM 41 B			A 570 Gr. 40
		1.0050	St 50-2	A 50-2	Fe 490	11 500	4360-50 B	2172		SS 50	BSt 5 ps; sp		A 570 Gr. 50
		1.0060	St 60-2	A 60-2	Fe 590; Fe 60-2	11 600	4360-SSE; SSC			SM 58	St 6 ps; sp		
		1.0116	St 37-3	E 24-3; E 24-4	Fe 360 D FF	11 378	4360-40 C	1312; 1313			St 3 kp; ps; sp		A 573 Gr. 58
		1.0570	St 52-3	E 36-3; E 36-4	Fe 510 B; C; D	11 523	4360-50 B	2132		SM 50 YA	17 GS		
	1.2	1.0711	9 S 20		CF 9 S 22		220 M 07			SUM 21		G 12120	1212
		1.0715	9 SMn 28	S 250	CF 9 SMn 28	11 109	230 M 07	1912	F-211 / F-2111	SUM 22		G 12130	1213
		1.0718	9 SMnPb 28	S 250 Pb	CF 9 SMnPb 28			1914	F-212 / F-2112	SUM 22 L		G 12134	12 L 13
		1.0721	10 S 20	10 F 1	CF 10 S 20	10 110	210 M 15		F-2121				1108
		1.0722	10 SPb 20	10 PbF 2	CF 10 SPb 20				F-2122				11 L 08
		1.0723	15 S 20				210 A 15	1922		SUM 32			
		1.0736	9 SMn 36	S 300	CF 9 SMn 36		240 M 07		F-2113			G 12150	1215
		1.0737	9 SMnPb 36	S 300 Pb	CF 9 SMnPb 36			1926	F-2114			G 12144	12 L 14
		1.0726	35 S 20	35 MF 4		11 140	212 M 36	1957	F-210.G			G 11400	1140
		1.0727	45 S 20	45 MF 4			212 M 44	1973				G 11460	1146
		1.0728	60 S 20	60 MF 4									
		1.0757	46 SPb 2										
	1.3	1.0301	C 10	AF 34 C 10; XC 10	C 10	12 010	045 M 10			S 10 C	10	G 10100	1010
		1.0401	C 15	AF3 7 C 12; XC 18	C 15; C 16	12 020	080 M 15	1350	F-111			G 10170	1015
		1.0481	17 Mn 4			11 748							
		1.1121	Ck 10	XC 10	C 10	12 010	045 M 10	1265	F-1510	S 10 C; S 9 CK	08; 10	G 10100	1010
		1.1141	Ck 15	XC 15; XC 18	C 15; C 16	12 020	080 M 15	1370	F-1511	S 15 C; S 15 CK	15	G 10170	1015
	1.4	1.5732	14 NiCr 10	14 NC 11	16 NiCr 11				F-1540	SNC 415 (H)			3415
		1.5752	14 NiCr 14	12 NC 15		16 240	655 M 13		F-1540	SNC 815 (H)		G 33106	3310; 9314
		1.5860	14 NiCr 18			16 523							
		1.5919	15 CrNi 6	16 NC 6	16 CrNi 4	16 220	S 107						
		1.5920	18 CrNi 8	20 NC 6		13 231							
		1.6523	21 NiCrMo 2	20 NCD 2	20 NiCrMo 2		805 M 20	2506	F-1522	SNCM 220 (H)		G 86170	8620
		1.6587	17 CrNiMo 6	18 NCD 6	18 NiCrMo 7		820 A 16						
		1.7012	13 Cr 2										
		1.7015	15 Cr 3	12 C 3		14 120	523 M 15			SCr 415 (H)	15Ch	G 50150	5015
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17	2511	F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7139	16 MnCrS 5						F-150D				
		1.7147	20 MnCr 5	20 MC 5	20 MnCr 5	14 221				SMnC 420 (H)	18ChG	G 51200	5120
		1.7149	20 MnCrS 5						F-1551				
		1.7262	15 CrMo 5	12 CD 4	12 CrMo 4					SCM 415 (H)			
		1.7264	20 CrMo 5	18 CD 4						SCM 421			
		1.7271	23 CrMoB 3 3										
		1.7311	20 CrMo 2						F-1523				
		1.7321	20 MoCr 4	20 CD 4									
		1.7323	20 MoCrS 4	20 CD 4 S									
		1.7325	25 MoCr 4	25 CD 4									
		1.7326	25 MoCrS 4	25 CD 4 S									
	1.5	1.0402	C 22	AF 42 C 20	C 20; C 21	12 024	050 A 20	1450	F-112		20	G 10200	1020
		1.0406	C 25	AF 50 C 30	C 25	12 030	070 M 26						1025
		1.0501	C 35	AF 55 C 35	C 35	12 040	060 A 35	1550	F-113		35	G 10350	1035
		1.0503	C 45	AF 65 C 45	C 45	12 050	080 M 46	1650	F-114		45	G 10430	1045
		1.0511	C 40	AF 60 C 40	C 40	12 041							1040
		1.0528	C 30			12 031							
		1.0535	C 55	AF 70 C55	C 55	12 060	070 M 55	1655			55		1055
		1.1151	Ck 22	XC 25; XC 18	C 20		050 A 20			S 20 C; S 20 CK	20		1023
		1.1158	Ck 25	XC 25	C 25	12 030	070 M 26			S 25 C	25	G 10250	1025

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P	1.5	1.1178	Ck 30										
		1.1181	Ck 35	XC 38 H1:XC 32	C 35	12 040	080 M 36	1572		S 35 C	35	G 10340	1035
		1.1186	Ck 40	XC 42 H1	C 40	12 041	080 M 40			S 40 C	40		1040
		1.1191	Ck 45	XC 48	C 45	12 050	080 M 46	1672		S 45 C	45	G 10420	1045
	1.6	1.0540	C 50			12 051							
		1.0601	C 60	CC 55	C 60	12 061	080 A 62				60	G 10600	1060
		1.1203	Ck 55	XC 55	C50	12 060	070 M 55			S 55 C	55		1055
		1.1206	Ck 50	XC 48 H1		12 051	080 M 50				50		1050
		1.1221	Ck 60	XC 60	C60	12 061	080 A 62	1665; 1678		S 58 C	60; 60G	G 10640	1060
	1.7	1.1133	20 Mn 5	20 M 5	G 22 Mn 3	42 2714	120 M 19		F-1515	SMnC 420		G 10220	1022; 1518
		1.5121	46 MnSi 4										
		1.5131	50 MnSi 4										
		1.5141	53 MnSi 4										
		1.5710	36 NiCr 6	35 NC 6		16 240	640 A 35			SNC 236			3135
		1.6546	40 NiCrMo 2 2	40 NCD 2	40 NiCrMo 2 (KB)		311-Type 7		F-1204	SNCM 240	38ChGNM	G 87400	8740
		1.6565	40 NiCrMo 6	40 NCD 6			311-Type 6		F-1272	SNCM 439	40Ch2N2MA		4340
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7020	32 Cr 2										
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7218	25 CrMo 4	25 CD 4	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300	4130
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234	F-1250	SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137
		1.7223	41 CrMo 4	42 CD 4 TS	41 CrMo 4		708 M 40	2244		SCM 440	40 ChFA	G 41420	4142; 4140
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244	F-1252	SCM 440 (H)		G 41400	4142; 4140
		1.7228	50 CrMo 4	50 CR MO4			708 A 47			SCM 445 (H)	50ChFA	G 41470	4150
		1.8159	50 CrV 4	50 CV 4	51 CrV 4	15 260	735 A 50	2230		SUP 10	50ChGFA	G 61500	6150
	1.8	1.1157	40 Mn 4	35 M 5			150 M 36				40G	G 10390	1039
		1.1165	30 Mn 5	35 M 5		13 141	120 M 36			SMn 433 H; SCMn 2	30GSL		1330
		1.1167	36 Mn 5	40 M 5		42 2715	150 M 36	2120	F-1203	SMn 438 (H); SCMn 3	35G2; 35GL	G 13350	1335
		1.1170	28 Mn 6	20 M 5	C 28 Mn	13 141	150 M 28			SCMn 1	30G		1330
		1.3561	44 Cr 2										
		1.3563	43 CrMo 4										
		1.3565	48 CrMo 4	48 CD 4			817 M 40			SNC 836			
		1.5120	38 MnSi 4										
		1.5121	46 MnSi 4										
		1.5122	37 MnSi 4			13 240							
		1.5131	50 MnSi 4										
		1.5141	53 MnSi 4										
		1.5223	42 MnV 7			13 242							
		1.5710	36 NiCr 6	35 NC 6		16 240	640 A 35			SNC 236			3135
		1.5736	36 NiCr 10	30 NC 11	35 NiCr 9					SNC 631 (H)			3435
		1.5755	31 NiCr 14	18 NC 13		16 440	653 M 31		F-123	SNC 836			
		1.6511	36 CrNiMo 4	40 NCD 3	38 NiCrMo 4 (KB)	16 341	816 M 40		F-1280		40 ChN2MA	G 98400	9840
		1.6513	28 NiCrMo 4										
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)	PH 41 4141	530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7034	37 Cr 4	38 C 4	38 Cr 4	14 140	530 A 36		F-1201	SCr 435 H	40Ch		5135
		1.7035	41 Cr 4	42 C 4	41 Cr 4		530 M 40		F-1202 / F-1211	SCr 440 (H)	40Ch	G 51400	5140
		1.7218	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225	F-222	SCM 420; SCM 430	30ChM	G 41300	4130
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234	F-1250	SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137

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P		1.7223	41 CrMo 4	42 CD 4 TS	41 CrMo 4		708 M 40	2244		SCM 440	40 ChFA	G 41420	4142; 4140
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400	4142; 4140
		1.7228	50 CrMo 4	50 CR MO4			708 A 47			SCM 445 (H)	50ChFA	G 41470	4150
		1.7561	42 CrV 6			15 241							
		1.7735	14 CrMoV 6 9	15 CDV 6									
		1.8159	50 CrV 4	50 CV 4	51 CrV 4	15 260	735 A 50	2230		SUP 10	50ChGFA	G 61500	6150
		1.3563	43 CrMo 4										
		1.3565	48 CrMo 4				817 M 40			SNC 836			
		1.5120	38 MnSi 4										
		1.5121	46 MnSi 4										
		1.5122	37 MnSi 4			13 240							
		1.5223	42 MnV 7			13 242							
		1.5710	36 NiCr 6	35 NC 6		16 240	640 A 35			SNC 236			3135
		1.5736	36 NiCr 10	30 NC 11	35 NiCr 9					SNC 631 (H)			3435
		1.5864	35 NiCr 18			16 640			F-122				
		1.6511	36 CrNiMo 4	40 NCD 3	38 NiCrMo 4 (KB)	16 341	816 M 40				40 ChN2MA	G 98400	9840
		1.6580	30 CrNiMo 8	30 CND 8	30 NiCrMo 8		823 M 30		F-1272	SNCM 431			
		1.6582	34 CrNiMo 6	35 NCD 6	35 NiCrMo 6 (KW)	16 342	817 M 40	2541	F-128 / F-1270	SNCM 447	38Ch2N2MA		4340
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7034	37 Cr 4	38 C 4	38 Cr 4	14 140	530 A 36			SCr 435 H	40Ch		5135
		1.7035	41 Cr 4	42 C 4	41 Cr 4		530 M 40			SCr 440 (H)	40Ch	G 51400	5140
		1.7045	42 Cr 4	42 C 4 TS	41 Cr 4		530 A 40	2245		SCr 440	40Ch		5140
		1.7218	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300	4130
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234		SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137
		1.7223	41 CrMo 4	42 CD 4 TS	41 CrMo 4		708 M 40	2244		SCM 440	40 ChFA	G 41420	4142; 4140
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400	4142; 4140
		1.7228	50 CrMo 4	50 CR MO4			708 A 47			SCM 445 (H)	50ChFA	G 41470	4150
		1.7361	32 CrMo 12	30 CD 12	32 CrMo 12	15 230	722 M 24	2240	F-124A				
		1.7561	42 CrV 6			15 241							
		1.7707	30 CrMoV 9			15 330							
		1.7735	14 CrMoV 6 9										
		1.8159	50 CrV 4	50 CV 4	51 CrV 4	15 260	735 A 50	2230		SUP 10	50ChGFA	G 61500	6150
		1.8161	58 CrV 4			15 261							
	1.9	0.9650	G-X 260 Cr 27										
		1.1118	GS-24 Mn 6			42 2714							
		1.1167	GS-36 Mn 5			42 2715							
		1.6511	GS-36 CrNiMo 4			16 341							
		1.6582	GS-34 CrNiMo 6			16 342							
		1.6750	GS-20 NiCrMo 3 7										
	1.10	1.8504	34 CrAl 6			14 340							
		1.8506	34 CrAlS 5									K 23745	
		1.8507	34 CrAlMo 5	30 CAD 6.12	34 CrAlMo 7		905 M 31		F-1741			K 23545	A 355 Cl. D
		1.8509	41 CrAlMo 7	40 CAD 6.12	41 CrAlMo 7	15 340	905 M 39	2940	F-1740	SACM 645	38ChMJuA	K 24065	A 355 Cl. A
	1.11	1.8515	31 CrMo 12	30 CD 12	31 CrMo 12		722 M 24	2240	F-1712				
		1.8519	31 CrMoV 9						F-1721				
		1.8521	15 CrMoV 5 9										
		1.8523	39 CrMoV 13 9		36 CrMoV 13 9		897 M 39						
		1.8550	34 CrAlNi 7									K 52440	
	1.12	1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.3520	100 CrMn 6			14 209							
		1.3543	X 102 CrMo 17	Z 100 CD 17									

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P	1.13	1.0904	55 Si 7	55 S 7	55 Si 8		250 A 53	2085; 2090			55S2		9255
		1.0961	60 SiCr 7	60 SC 7	60 SiCr 8					SUP 7			9262
		1.1231	Ck 67	XC 68	C 70	12 071	060 A 67	1770			70	G 10700	1070
		1.1248	Ck 75	XC 75	C 75	12 081	060 A 78	1774; 1778			75	G 10780	1078; 1080
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
		1.2101	62 SiMnCr 4										
		1.2103	58 SiCr 8			19 452							
		1.5026	55 Si 7										
		1.7103	67 SiCr 5										
		1.7176	55 Cr 3	55 C 3	55 Cr 3		527 A 60	2253	F-1431	SUP 9 (A)	50ChGA	G 51550	5155
		1.8159	50 CrV 4	50 CV 4	51 CrV 4	15 260	735 A 50	2230	F-143 / F-1430	SUP 10	50ChGFA	G 61500	6150
	1.14	1.3202	S 12-1-4-5			19 858						T 12015	T15
		1.3207	S 10-4-3-10	Z 130 WKCDV 10-10-04	HS 10-4-3-10	19 861	BT 42		F-5553	SKH 57			
		1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05	HS 6-5-2-5	19 852		2723	F-5613	SKH 55	R6M5K5		
		1.3246	S 7-4-2-5	Z 110 WKCDV 07-05-04	HS 7-4-2-5	19 851						T 11341	M 41
		1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	HS 2-9-1-8		BM 42			SKH 51		T 11342	M 42
		1.3249	S 2-9-2-8				BM 34					T 11333	M 33; M 34
		1.3255	S 18-1-2-5	Z 80 WKCV 18-05-04-0	HS 18-1-1-5	19 855	BT 4			SKH 3		T 12004	T 4
		1.3257	S 18-1-2-15										
		1.3265	S 18-1-2-10		HS 18-0-1-10	19 860	BT 5			SKH 4 A		T 12005	T 5
		1.3302	S 12-1-4			19 810							
		1.3318	S 12-1-2			19 802							
		1.3333	S 3-3-2		HS 3-3-2	19 820							
		1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	HS 6-5-2	19 830	BM 2	2722	F-5603	SKH 9; SKH 51	R6AM5	T 11302	M 2
		1.3344	S 6-5-3	Z 120 WDCV 06-05-04	HS 6-5-3		BM 4			SKH 52; SKH 53		T 11323	M 3 Cl. 2
		1.3346	S 2-9-1	Z 85 DCWV 08-04-02-0	HS 1-8-1		BM 1				H41	T 11301	H 41; M 1
		1.3348	S 2-9-2	Z 100 DCWV 09-04-02	HS 2-9-2			2782				T 11307	M 7
		1.3355	S 18-0-1	Z 80 WCV 18-04-01	HS 18-0-1	19 824	BT 1			SKH 2	R18	T 12001	T 1
	1.15	1.2067	100 Cr 6	Y 100 C 6			BL 3					T 61203	L 3
		1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2083	X 42 Cr 13	Z 40 C 14	X 41 Cr 13 KU	19 435			F-5263	SUS 420 J 2			
		1.2101	62 SiMnCr 4										
		1.2103	58 SiCr 8			19 452							
		1.2108	90 CrSi 5										
		1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2312	40 CrMnMoS 8 6	40 CMD 8 + S									
		1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.2330	35 CrMo 4	34 CD 4	35 CrMo 4		708 A 37	2234			35 HM	T 51620	4135
		1.2332	47 CrMo 4	42 CD 4	40 CrMo 4		708 M 40	2244					4142
		1.2341	X 6 CrMo 4										
		1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2369	81 CrMov 42 16										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrV-Mo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2419	105 WCr 6	105 WC 13	107 WCr 5 KU					SKS 31	ChWG		
		1.2436	X 210 CrW 12	Z 200 CW 12	X 215 CrW 12 1 KU	19 437		2312	F-5213	SKD 2			
		1.2510	100 MnCrW 4	90 MWCV 5	95 MnWCr 5 KU	19 314	BO 1	2140	F-5220	SKS 3		T 31501	O 1
		1.2516	120 WV 4	110 WC 20	110 W 4 KU	19 711	BF 1						
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2601	X 165 CrMoV 12		X 165 CrMoW 12 KU	19 572		2310					
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2713	55 NiCrMoV 6	55 NCDV 7		19 662			F-520.S	SKT 4	5ChNM	T 61206	L 6

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P		1.2721	50 NiCr 13										
		1.2735	15 NiCr 14	10 NC 12		16 240				SNC 22		T 51606	
		1.2762	75 CrMoNiW 6 7										
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.2826	60 MnSiCr 4										
		1.2833	100 V 1	Y1 105 V	102 V 2 KU	19 356	BW 2			SKS 43		T 72302	W 210
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									
		1.6356	X 2 NiCoMoTi 18 12 4										
		1.6358	X 2 NiCoMoTi 18 9 5										
		1.6359	X 2 NiCrMo 18 8 5	Maraging 250								K 92890	
	1.16	1.2311	40 CrMnMo 7			19 520							
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	X 40 CrMo 5 1 1 KU	19 554	BH 13	2242	F-5318	SKD 61	4Ch5MF1S	T 20813	H 13
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2367	X 38 CrMoV 5 3										
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2706	X 3 NiCrMo 18 8 5	E-Z 2 NKD 18		19 662						K 93120	
		1.2713	55 NiCrMoV 6	55 NCDV 7		19 662				SKT 4	5ChNM	T 61206	L 6
		1.2714	56 NiCrMoV7										
		1.2738	40 CrMnNiMo 8						F-5303				
		1.2744	57 NiCrMoV 7 7										
M	2.1	1.3941	G-X 4 CrNi 18 13										
		1.3944	G-X 5 CrNi 18 11										
		1.3951	G-X 4 CrNiMoN 22 15										
		1.3952	G-X 4 CrNiMoN 18 14										
		1.3953	G-X 2 CrNiMo 18 15										
		1.3955	G-X 12 CrNi 18 11										
		1.3959	G-X 10 CrNiNb 16 13										
		1.3964	G-X 4 CrNiMnMoN 19 1										
		1.4001	G-X 7 Cr 13	Z 8 C 13 FF		17 020			F-8401				
		1.4006	G-X 10 Cr 13	Z 10 C 13 M		17 021			F-3401				
		1.4008	G-X 8 CrNi 13	Z 12 CN 13 M		42 2904							
		1.4027	G-X 20 Cr 14	Z 20 C 13 M		42 2906	420 C 29			SCS 2	20Ch13L		
		1.4034	G-X 46 Cr 13	Z 40 C 14 M		17 024			F-3405				
		1.4059	G-X 22 CrNi 17										
		1.4085	G-X 70 Cr 29										
		1.4086	G-X 120 Cr 29										
		1.4107	G-X 8 CrNi 12			42 2904							
		1.4120	G-X 20 CrMo 13										
		1.4122	G-X 35 CrMo 17			17 137							
		1.4136	G-X 70 CrMo 29 2										
		1.4138	G-X 120 CrMo 29 2										
		1.4306	G-X 2 CrNi 18 9			17 249			F-3503				
		1.4308	G-X 6 CrNi 18 9	Z 6 CN 18.10 M		42 2930	304 C 15	2333	F-8411	SCS 13	07Ch18N9L		CF-8
		1.4312	G-X 10 CrNi 18 8			42 2931							
		1.4313	G-X 5 CrNi 13 4										
		1.4339	G-X 32 CrNi 28 10										
		1.4340	G-X 40 CrNi 27 4										
		1.4347	G-X 8 CrNi 26 7										
		1.4404	G-X 2 CrNiMo 18 10			17 349			F-3533				

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		1.4405	G-X 5 CrNiMo 16 5										
		1.4407	G-X 5 CrNiMo 13 4										
		1.4408	G-X 6 CrNiMo 18 10			42 2940			F-8414				
		1.4414	G-X 4 CrNiMo 13 4										
		1.4437	G-X 6 CrNiMo 18 12			42 2940							
		1.4439	G-X 3 CrNiMo 17 13 5						F-3544				
		1.4446	G-X 2 CrNiMo 17 13 4										
		1.4448	G-X 6 CrNiMo 17 13										
		1.4463	G-X 6 CrNiMo 24 8 2										
		1.4464	G-X 40 CrNiMo 27 5										
		1.4465	G-X 2 CrNiMoN 25 25										
		1.4500	G-X 7 NiCrMoCuNb 25										
		1.4531	G-X 2 NiCrMoCuN 20 1										
		1.4536	G-X 2 NiCrMoCuN 25 2										
		1.4540	G-X 4 CrNiCuNb 16 4										
		1.4552	G-X 5 CrNiNb 18 9			42 2933			F-8413				
		1.4580	G-X 10 CrNiMoNb 18 1						F-3536				
		1.4581	G-X 5 CrNiMoNb 18 10	Z 4 CNDNb 18.12 M	GX 6 CrMoNb 20 11	42 2941	318 C 17			SCS 22			
		1.4585	G-X 7 CrNiMoCuNb 18										
		1.4729	G-X 40 CrSi 13										
		1.4740	G-X 40 CrSi 17										
		1.4743	G-X 160 CrSi 18										
		1.4745	G-X 40 CrSi 23										
		1.4761	G-X 120 CrSi 23										
		1.4776	G-X 40 CrSi 29										
		1.4777	G-X 130 CrSi 29										
M	2.1	1.4809	G-X 40 CrNi 23 14										
		1.4815	G-X 8 CrNi 19 10										
		1.4820	G-X 12 CrNi 26 5										
		1.4822	G-X 40 CrNi 24 5										
		1.4823	G-X 40 CrNiSi 27 4										
		1.4825	G-X 25 CrNiSi 18 9			42 2932							
		1.4826	G-X 40 CrNiSi 22 9			42 2934							
		1.4832	G-X 25 CrNiSi 20 14										
		1.4837	G-X 40 CrNiSi 25 12			42 2936							
		1.4840	G-X 15 CrNi 25 20										
		1.4848	G-X 40 CrNiSi 25 20		GX 40 CrNi 26 20	42 2952							
		1.4849	G-X 40 NiCrSiNb 38 1										
		1.4852	G-X 40 NiCrNb 35 25										
		1.4855	G-X 30 CrNiSiNb 24 2										
		1.4857	G-X 40 NiCrSi 35 25										
		1.4859	G-X 10 NiCrNb 32 20										
		1.4865	G-X 40 NiCrSi 38 18		GX 50 NiCr 39 19		330 C 40			SCH 15; SCH 16			
		1.4868	G-X 50 CrNi 30 30										
		1.4873	G-X 45 CrNiW 18 9										
		1.4927	G-X 5 CrNi 22 10										
		1.4928	G-X 12 CrNiMo-CoVN 12										
		1.4930	G-X 14 CrCoMo 13 10										
		1.4931	G-X 22 CrMoV 12 1										
		1.4957	G-X 15 CrNiCo 21 20										
		1.4968	G-X 7 CrNiNb 16 13										
		1.4988	G-X 8 CrNiMoVNb 16 1										
		1.6901	G-X 8 CrNi 18 10										

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
M	2.1	1.6902	G-X 6 CrNi 18 10										
		1.6905	G-X 5 CrNiNb 18 10										
		1.6982	G-X 3 CrNi 13 4										
	2.2	1.4000	X 6 Cr 13	Z 6 C 13	X 6 Cr 13	17 020	403 S 17	2301		SUS 403	08Ch13	S 40300	403
		1.4002	X 6 CrAl 13	Z 6 CA 13	X 6 CrAl 13		405 S 17	2302	F-3111	SUS 405		S 40500	405
		1.4016	X 6 Cr 17	Z 8 C 17	X 8 Cr 17	17 040	430 S 15	2320	F-3113	SUS 430	12Ch17	S 43000	430
		1.4105	X 4 CrMoS 18						F-3114				
		1.4510	X 6 CrTi 17	Z 8 CT 17	X 6 CrTi 17					SUS 430 LX	08Ch17T	S 43036	XM 8; 430 Ti
		1.4511	X 8 CrNb 17	Z 8 CNb 17	X 6 CrNb 17				F-3122	SUS 430 LX			
		1.4512	X 5 CrTi 12	Z 6 CT 12	X 6 CrTi 12		409 S 19		F-3121	SUH 409		S 40900	409
		1.4528	X 105 CrCoMo 18 2										
	2.3	1.4006	X 10 Cr 13	Z 12 C 13	X 12 Cr 13	17 021	410 S 21	2302	F-3401	SUS 410	12Ch13	S 41000	410; CA-15
		1.4021	X 20 Cr 13	Z 20 C 13	X 20 Cr 13	17 022	420 S 37	2303	F-3402	SUS 420 J 1	20Ch13	S 42000	420
		1.4024	X 15 Cr 13	Z 13 C 13		17 021	420 S 29			SUS 410 J 1			
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4057	X 20 CrNi 17 2	Z 15 CN 16.02	X 16 CrNi 16	17 145	431 S 29	2321	F-3427	SUS 431	20Ch17N2	S 43100	431
		1.4106	X 2 CrMoSiS 18 2 1										
		1.4108	X 100 CrMo 13										
		1.4109	X 65 CrMo 14										
		1.4112	X 90 CrMoV 18									S 44003	
		1.4113	X 6 CrMo 17	Z 8 CD 17.01	X 8 CrMo 17		434 S 17	2325	F-3116	SUS 434		S 43400	434
		1.4116	X 45 CrMoV 15						F-3422				
		1.4125	X 105 CrMo 17	Z 100 CD 17	X 105 CrMo 17					SUS 440 C		S 44004	440 C
	2.4	1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4104	X 12 CrMoS 17	Z 10 CF 17	X 10 CrS 17	17 140		2383	F-3403	SUS 430 F		S 43020	430 F
		1.4313	X 5 CrNi 13 4	Z 5 CN 13.4	X 6 CrNi 13 04		425 C 11	2385		SCS 5			CA 6-NM
	2.5	1.4410	X 2 CrNiMoN 25 7 4	Z2 CND 25 07 04 Az					F-3552				F53
		1.4460	X 8 CrNiMo 27 5	Z5 CND 25 05 AZ									329 LN
		1.4462	X 2 CrNiMoN 22 5 3	Z2 CND 22 05 03 AZ (Uranus 45 N)		17 381			F-3308			S 31803	329 A (F51)
		1.4501	X 2 CrNiMoCuWN 25 7 4	Z2 CNDUW 25 07 04 Az (Zeron 100)								S 32760	F55
		1.4507	X 2 CrNiMOCuN 25 6 3	Z3 CNDU 25 07 Az (Uranus 52 N)								S 32750	F61
		1.4539	X 1 NiCrMoCu 25 20 5	Z2 NCDU 25 20 (Uranus B6)									904L
		1.4542	X 7 CrNiCu 16 4 4	Z7 CNU 17 04 04 (17-4PH)									630
		1.4547	X 1 CrNiMoCuN 20 18 17	Z1 CNDU 20 18 06 Az (254 SMO)									F44
		1.4821	X 20 CrNiSi 25 4	Z20 CNS 25 04									
			X 5 CrNiCu 15 5	E-Z5 CNU 15 05 (15-5PH)					F-3308				
	2.6	1.4301	X 5 CrNi 18 10	Z6 CN 18-09		17 240			F-3504				304
		1.4305	X 8 CrNiS 18 9	Z8 CNF 18-03		17 243							303
		1.4306	X 2 CrNi 19-11	Z3 CN 18-10		17 249			F-3503				304 L
		1.4311	X 2 CrNiN 18 10			17 249							304 LN
		1.4401	X 5 CrNiMo 17 12 2	Z6 CND 17 12 02		17 346			F-3543				316
		1.4404	X 2 CrNiMo 17 12 2	Z3 CND 17 12 02		17 349							316 L
		1.4429	X 2 CrNiMoN 17 11 2	Z3 CND 17 11 03 Az									316 LN
		1.4449	X 3 CrNiMo 18 12 3										
		1.4541	X 6 CrNiTi 18 10			17 248							321
		1.4550	X 10 CrNiNb 18-9	Z10 CNNb 18-10		17 245			F-3552 / F-3524				347
		1.4568	X 7 CrNiAl 17 7										17-7 PH
		1.4571	X 6 CrNiMoTi 17 12 2	Z 6 CNT 17.12	X 6 CrNiMoTi 17 12	17 348	320 S 31	2350	F-3535		10Ch17N-13M2T	S 31635	316 Ti
	2.7	1.4747	X 80 CrNiSi 20										
		1.4841	X 15 CrNiSi 25-20	Z15 CNS 25-20									314
		1.4876	X 10 NiCrAlTi 32 21	Z10 NCAT 32-21 (Incoloy 800)					F-3314				

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
K	3.1	0.6010	GG-10	Ft 10 D	G 10	42 2410		01 10-00		FC 10	Sc 10		A48-20 B
		0.6015	GG-15	Ft 15 D	G 15	42 2415	Grade 150	01 15-00	FG-15	FC 15	Sc 15		A48-25 B
		0.6020	GG-20	Ft 20 D	G 20	42 2420	Grade 220	01 20-00	FG-20	FC 20	Sc 20		A48-30 B
		0.6025	GG-25	Ft 25 D	G 25	42 2425	Grade 260	01 25-00	FG-25	FC 25	Sc 25		A48-40 B
	3.2	0.6030	GG-30	Ft 30 D	G 30	42 2430	Grade 300	01 30-00	FG-30	FC 30	Sc 30		A48-45 B
		0.6035	GG-35	Ft 35 D	G 35	42 2435	Grade 350	01 35-00	FG-35	FC 35	Sc 35		A48-50 B
		0.6040	GG-40	Ft 40 D		42 2440	Grade 400	01 40-00			Sc 40		A48-60 B
	3.3	0.7033	GGG-35.3			42 2303							
		0.7040	GGG-40	FGS 400-12	GS 400-12	42 2304	SNG 420/12	0717-02	FGE 38-17	FCD 40	VC 42-12		60 40 18
		0.7043	GGG-40.3	FGS 370-17	GSO 42/17	42 2314	SNG 370/17	0717-15			VC 42-12		
		0.7050	GGG-50	FGS 500-7	GS 500/7	42 2305	SNG 500/7	0727-02	FGE 50-7	FCD 50	VC 50-2		65-45-12
	3.4	0.7060	GGG-60	FGS 600-3	GS 600/3	42 2306	SNG 600/3	0732-03		FCD 60	VC 60-2		80-55-06
		0.7070	GGG-70	FGS 700-2	GS 700-2	42 2307	SNG 700/2	0737-01	FGS 70-2	FCD 70	VC 70-2		100-70-03
		0.7080	GGG-80	FGS 800-2	GS 800-2	42 2308	SNG 800/2				VC 80-2		120-90-02
	3.5	0.8035	GTW-35-04			42 2536			GTW 35				
		0.8040	GTW-40-05			42 2540							
		0.8045	GTW-45-07										
	3.6	0.8055	GTW-55										
		0.8065	GTW-65										
	3.7	0.8135	GTS-35-10	MN 35-10		42 2533	B 340/12		GTS 35				
		0.8145	GTS-45-06			42 2545	P 440/7		GTS 45				
	3.8	0.8155	GTS-55-04	MP 50-5		42 2555	P 510/4		GTS 55				
		0.8165	GTS-65-02	MP 60-3			P 570/3		GTS 65				
		0.8170	GTS-70-02	IP 70-2			P 690/2		GTS 70				
N	4.1	3.0205	Al99	1200 (A4)	9001/1	42 4009			L-3001				
		3.0255	Al99.5	1050 A	9001/2	42 4004			L-3051				
		3.0256	E-Al H			42 4105							
		3.0275	Al99.7	1070 A		42 4003			L-3071				
		3.0285	Al99.8	1080 A (A8)		42 4002			L-3081				
		3.0305	Al99.9										
		3.3308	Al99,9Mg0,5										
	4.2	3.0515	AlMn1			42 4432			L-3810				
		3.1255	AlCuSiMn		9002/3								2014
		3.1325	AlCuMg1	2017 A (AU4G)					L-3120				2017 A
		3.1355	AlCuMg2	2024 (AU4G1)	9002/4	42 4203			L-3140				2024
		3.1655	AlCuBiPb	2011 (AU5PbBi)	9002/5				L-3192				2011
		3.3315	AlMg1	5005 (AlMg1)					L-3350				
		3.3545	AlMg4Mn	5086 (AG4MC)	9005/5				L-3322				5083
		3.3547	AlMg4,5Mn0,7	5083 (AlMg5Mn0,7)			N8		L-3321	A 5083			A95083
		3.4335	AlZn4,5Mg1	7020 (AZ5G)	9007/1	42 4441			L-3741				7020
		3.4365	AlZnMgCu1.5	7075 (AZ5GU)		42 4222			L-3710				7075
	4.3	3.1371	G-AlCu4TiMg										
		3.1645	AlCuMgPb	2030 (AU4PB)		42 4254			L-3121				
		3.1841	G-AlCu4Ti										
		3.2134	G-AlSi5Cu1Mg										
		3.2151	G-AlSi6Cu4			42 4357							
		3.2161	G-AlSi8Cu3										
		3.2315	AlMgSi1		9006/4	42 4400							6082
		3.2341	G-AlSi5Mg										
		3.2371	G-AlSi7Mg			42 4334							
		3.2373	G-AlSi9Mg			42 4331							
		3.2381	G-AlSi10Mg			42 4331							
		3.2383	G-AlSi10Mg(Cu)			42 4331							

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
N	4.3	3.3206	AlMgSi0,5	6060 (AGS)		42 4401			L-3441				6063
		3.3207	E-AlMgSi0,5		9006/3								6101
		3.3214	AlMgSi0,5		9006/2								6061
		3.3241	G-AlMg3Si										
		3.3261	G-AlMg5Si			42 4515							
		3.3292	GD-AlMg9			42 4519							
		3.3541	G-AlMg3										
		3.3543	G-AlMg3(Cu)										
		3.3561	G-AlMg5										
		3.3591	G-AlMg10										
	4.4	3.2581	G-AlSi12			42 4330							
		3.2583	G-AlSi12(Cu)			42 4330							
	4.5		G-AlSi18										
			G-AlSi17Cu4										
			G-AlSi25CuNiMg										
			G-AlSi21CuNiMg										
	4.6	2.0040	OF-Cu			42 3000							
		2.0060	E-Cu57			42 3001							
		2.0065	E-Cu58			42 3001							
		2.0070	SE-Cu										
		2.0076	SW-Cu										
		2.0090	SF-Cu			42 3003							
		2.1522	CuSi2Mn										
	4.7	2.0205	CuZn0.5										
		2.0850	CuNi2Be										
		2.0853	CuNi1.5Si										
		2.0855	CuNi2Si			42 3054							
		2.0857	CuNi3Si										
		2.1160	CuPb1P										
		2.1191	CuAg0.1P										
		2.1203	CuAg0.1										
		2.1245	CuBe1.7										
		2.1247	CuBe2										
		2.1248	CuBe2Pb										
		2.1265	CuCd0.5										
		2.1266	CuCd1										
		2.1285	CuCo2Be										
		2.1310	CuFe2P										
		2.1322	CuMg0.4										
		2.1323	CuMg0.7										
		2.1356	CuMn3										
		2.1363	CuMn2										
		2.1366	CuMn5										
		2.1491	CuAsP										
		2.1498	CuSP										
		2.1546	CuTeP										
		2.1580	CuZr										
	4.8	2.0916	CuAl5										
		2.1525	CuSi3Mn										
			Ampco 8-16										
	4.9	2.0987	CuAl11Ni6Fe5										
			Ampco 18-26										

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
N	4.10	2.1247	CuBe2F125										
			Ampco M-4										
	4.11	2.0331	CuZn36Pb1.5			42 3214							
		2.0371	CuZn38Pb1.5			42 3222							
		2.0375	CuZn36Pb3										
		2.0380	CuZn39Pb2			42 3223							
		2.0401	CuZn39Pb3										
		2.0402	CuZn40Pb2			42 3223							
		2.0410	CuZn44Pb2										
		2.0460	CuZn20Al2										
		2.0470	CuZn28Sn1										
		2.0490	CuZn31Si1										
		2.0500	CuZn23Al6Mn-4Fe3										
		2.0510	CuZn37Al1			42 3231							
		2.0525	CuZn38SnAl										
		2.0530	CuZn38Sn1			42 3237							
		2.0540	CuZn35Ni2										
		2.0550	CuZn40Al2										
		2.0561	CuZn40Al1			42 3231							
		2.0572	CuZn40Mn1			42 3234							
		2.0580	CuZn40Mn1Pb										
	4.12	2.0220	CuZn5			42 3200							
		2.0230	CuZn10			42 3201							
		2.0240	CuZn15			42 3202							
		2.0250	CuZn20			42 3203							
		2.0261	CuZn28										
		2.0265	CuZn30			42 3210							
		2.0280	CuZn33			42 3212							
		2.0321	CuZn37		C2700	42 3213							
		2.0332	CuZn37Pb0.5										
		2.0335	CuZn36										
		2.0360	CuZn40			42 3220							
		2.0372	CuZn39Pb0.5			42 3221							
		2.1080	CuSn6Zn6										
		2.1293	CuCrZr			42 3039							
	4.13	PE	Baylon	Lacqtène	Alkathene		Eraclene			Mirason			Alathon
		PE	Dekalen	Natène	Carlona		Fertene			Novatec			Bakelite
		PE	Ertalen		Escorene		Rumiten			Rexlon			Chemplex
		PE	Hostalen							Sholex			Dylan
		PE	Lupolen							Sumikathene			Fortiflex
		PE	Supralen							Suntec			Marlex
		PE	Symalen							Staflene			Microthene
		PE	Vestolen							Yukalon			Paxon
		PE											Petrothene
		PE											Poly-Eth
		PE											Rigidex
		PE											Rotothene
		PP	Daplen	Eltex P	Carlona P		Kastilen			Noblene			Pro-fax
		PP	Hostalen PP	Lacqtène P	Propathene		Moplen			Poly-Pro			Rexene
		PP	Luparen	Napryl	Procom					Sho-Allomer			Tenite
		PP	Novolen		Propyply								
		PP	Symalen PP		Propafoil								
		PP	Vestolen PP										

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
N	4.13	PVC	Coroplast	Ekavyl	Breon		Raivinil	Pevikon		Nipeon			Dalvin
		PVC	Hostalit		Carina		Sicron			Nipolit			Geon
		PVC	Mipolam		Corvic		Vipla			Vinika			Kohinor
		PVC	Opalon		Scon		Viplast			Vinichlon			Marvinol
		PVC	Rhodopas		Shell PVC								Pliovic
		PVC	Soflex		Welvic								Vygen
		PVC	Solvec										
		PVC	Supradur										
		PVC	Trosiplast										
		PVC	Trovidur										
		PVC	Vestolit										
		PVC	Vinidur										
		PVC	Vinnol										
		PVC	Vinoflex										
		PVC	Vinylite										
			Delrin, Hostalen										
			Makrolon, Novodur										
			Acrylglas										
	4.14		Ferrozell, Bakelit										
			Pertinax										
			Resopal										
	4.15		GFK										
			CFK										
			AFK										
	4.16	3.5101	G-MgZn4SE1Zr1										
		3.5102	G-MgZn5Th2Zr1										
		3.5103	G-MgSE3Zn2Zr1										
		3.5105	G-MgTh3Zn2Zr1										
		3.5106	G-MgAg3Se2Zr1										
		3.5200	MgMn2										
		3.5312	MgAl3Zn										
		3.5470	GD-MgAl4Si1										
		3.5612	MgAl6Zn										
		3.5612	GD-MgAl6Zn1										
		3.5662	G-MgAl6										
		3.5812	MgAl8Zn			42 4911							
		3.5812	G-MgAl8Zn1			42 4911							
		3.5912	G-MgAl9Zn1			42 4911							
	4.17	Graphit	R8340										
		Graphit	R8500X										
		Graphit	Technograph 15										
		Graphit	Technograph 30										
		Graphit	R8510										
		Graphit	R8650										
		Graphit	Union Poco EDM C-3										
		Graphit	Union Poco EDM1										
		Graphit	Union Poco EDM3										
	4.18		W-NiFe (Densimet W)										
			W-Cu80/20										
			W93NiFe (Denal)										
	4.19		Mo, Mo-50Re										
			TZC, TZM										
			MHC, ODS										

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
S	5.1	1.3911	RNi24			42 3481							
		1.3926	RNi12			42 3484							
		1.3927	RNi8			42 3484							
	5.2	1.3912	Ni36	Invar									
		1.3921	Ni49										
		1.3924	Ni54										
	5.5	2.4375	NiCu30Al	Monel K 500									
		2.4603	NiCr30FeMo	Hastelloy X									
		2.4617		Hastelloy B-2									
		2.4640	NiCr15Fe	Inconel 600									
		2.4668	NiCr19Fe18Nb5Mg	Inconel 718									
		2.4812		Hastelloy C									
		2.4816	NiCr15Fe	Inconel 600			NA 14			NCF 600		N 06600	
		2.4856	NiCr22Mo9Nb	Inconel 625									
		2.4858	NiCr21Mo				NA 16			NCF 825		N 08825	
		2.4983		Udimet 500									
	5.4	2.4610	NiMo16Cr16Ti	Hastelloy C-4									
		2.4886	SG-NiMo16Cr16W										
		2.4819		Hastelloy C-276									
	5.5	2.4360	NiCu30Fe	Monel 400		42 3431							
		2.4375	NiCu30Al	Monel K 500									
		2.4603	NiCr30FeMo	Hastelloy X									
		2.4630	NiCr20Ti	Nimonic 75			HR 5						
		2.4631	NiCr20TiAl	Nimonic 80 A			HR 401; 601			NCF 80 A		N 07080	
		2.4632	NiCr20Co18Ti	Nimonic 90									
		2.4634	NiCo20Cr15MoAlTi	Nimonic 105									
		2.4640	NiCr15Fe	Inconel 600									
		2.4662	NiCr13Mo6Ti3	Nimonic 901									
		2.4668	NiCr19Fe18Nb5Mg	Inconel 718									
		2.4670		Nimocast 713									
		2.4674		Nimocast PK 24									
		2.4812		Hastelloy C									
		2.4816	NiCr15Fe	Inconel 600			NA 14			NCF 600		N 06600	
		2.4856	NiCr22Mo9Nb	Inconel 625									
		2.4858	NiCr21Mo				NA 16			NCF 825		N 08825	
		2.4951	NiCr20Ti	Nimonic 75			HR 5						
		2.4952	NiCr20TiAl	Nimonic 80 A									
		2.4969	NiCr20Co18Ti	Nimonic 90									
		2.4973	NiCr19Co11MoTi										
		2.4983		Udimet 500									
		2.6554		Waspaloy									
				Nimonic 80									
	5.6	2.4711	CoCr20Ni15Mo										
		2.4964	CoCr20W15Ni										
		2.4979	CoCr28MoNi										
		2.4989	CoCr20NiW										
	5.7	1.4718	X 45 CrSi 9 3	Z 45 CS 9	X 45 CrSi 8	17 115	401 S 45		F-3220	SUH 1	40Ch9S2	S 65007	HNV 3
		1.4724	X 10 CrAl 13	Z 10 C 13	X 10 CrAl 12	17 125	403 S 17		F-3152		10Ch13SJu		
		1.4742	X 10 CrAl 18	Z 10 CAS 18	X 8 Cr 17		430 S 15		F-3153	SUS 430; SUH21			430
		1.4747	X 80 CrNiSi 20	Z 80 CSN 20.02	X 80 CrSiNi 20		443 S 65			SUH 4		S 65006	HNV 6
		1.4762	X 10 CrAl 24	Z 10 CAS 24	X 16 Cr 26	17 153			F-3154			S 44600	446
		1.4828	X 15 CrNiSi 20 12	Z 15 CNS 20.12		17 251	309 S 24		F-3312	SUH 309	20Ch20N14S2	S 30900	309
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		2.4667	SG-NiCr19NbMoTi										
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