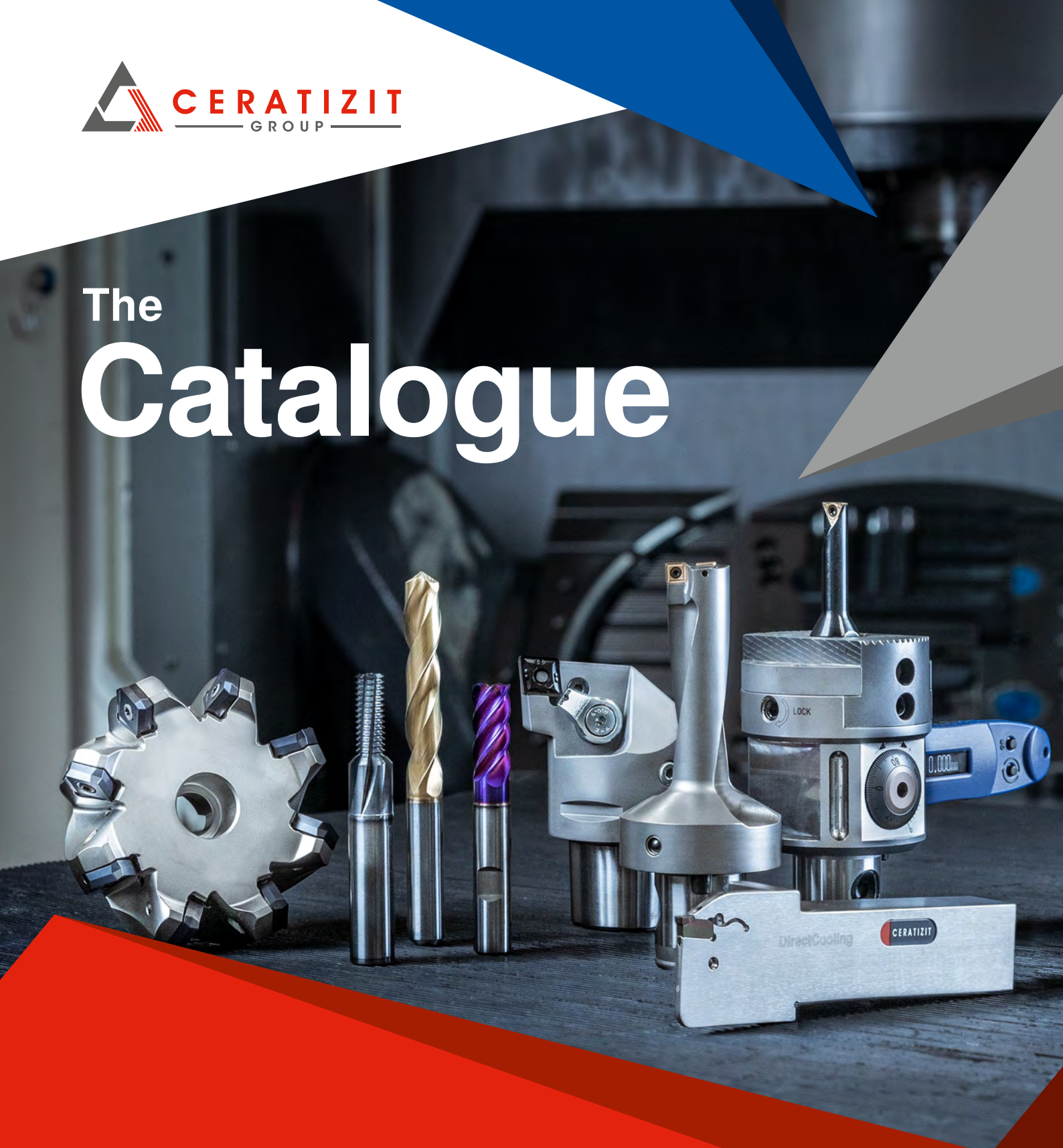
CERATIZIT GROUP

The Catalogue



Cutting Tools

TEAM CUTTING TOOLS

CUTTING SOLUTIONS BY CERATIZIT · KOMET · WNT · KLENK

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

Tooling the Future

www.ceratizit.com

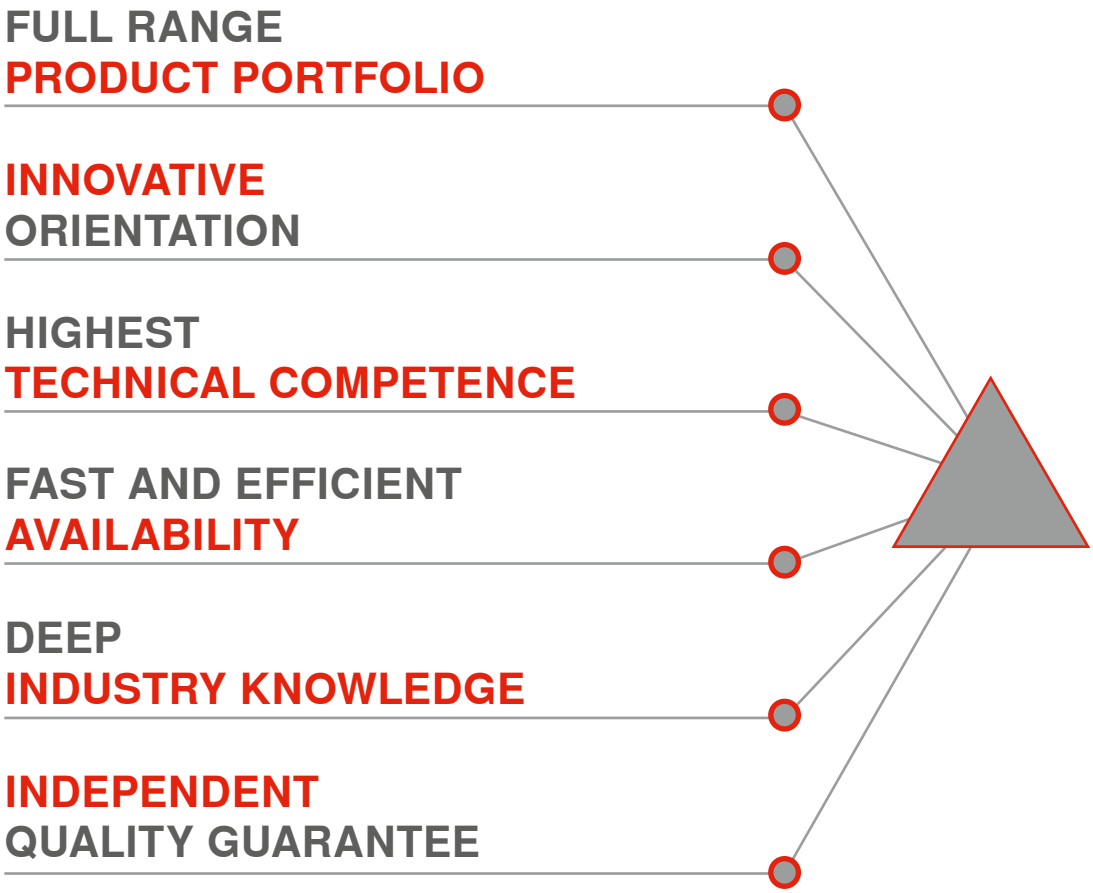
WE PROVIDE YOU WITH THE PERFECT MACHINING SOLUTION

Team Cutting Tools of the CERATIZIT Group

The machining industry today is extremely diverse and is becoming increasingly complex. Trends and innovations are moving quickly, and the possibilities and offerings seem virtually unlimited. For this reason it is all the more important to have a reliable and competent partner on board!

The Team Cutting Tools is not just a tool supplier; the experts on the team are also available to advise you with extensive industry knowledge and decades of experience in machining, in order to find you the perfect machining solution.

The Cutting Tool Solution is



Contact us

Placing your order is quick and easy

Customer Service Centre

Freephone Number
UK: 0800 073 2073
Ireland: 1800 93 22 55

Freefax Number
UK: 0800 073 2074

E-Mail
info.uk@ceratizit.com

It couldn't be easier

Ordering via the Online Shop

http://cuttingtools.ceratizit.com

Manufacturing consulting and process optimization on site

Your personal application engineer

Your customer number

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

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

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

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

Catalogue – Clamping technology
16 Adaptors and Accessories
17 Workpiece clamping

18 Material examples and article no. Index



E-COMMERCE SOLUTIONS

Benefit from more product data and machining knowledge online, accelerate and optimize your tool procurement processes or create a direct connection to your ERP system.

Instantly and accurately find the right tool from over 65,000 products from the brands CERATIZIT, WNT, KOMET and KLENK and order it conveniently. At cuttingtools.ceratizit.com, you now have access to one of the largest ranges of machining tools and can order products even quicker and easier thanks to countless new functions and options!

REGISTER NOW UNDER:

cuttingtools.ceratizit.com



SIMPLE TOOL AND ARTICLE SEARCH FUNCTION

- Simple article search function using the article number or product name
- Ideal filter options for quick tool search
- Recommendation of suitable accessories on the article page
- Access the latest article data at any time

FAST ORDERING

- Online processes save time and money during the ordering process
- Add items to your basket quickly and easily
- High availability including a check in the basket
- Order 24 hours a day
- Quick delivery with tracking

EXCLUSIVE ONLINE DISCOUNTS

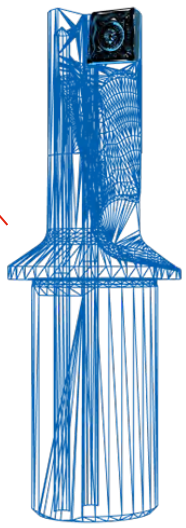
- Save money as well as time when ordering online

CONNECT TO ERP SYSTEMS

- All key data in your ERP system
- Optimise your internal procurement processes
- Avoid copy/paste errors with direct data transfer

FIRST-RATE SERVICE & ADVICE

- Free download of CAD and cutting data
- Download of forms, brochures and catalogues



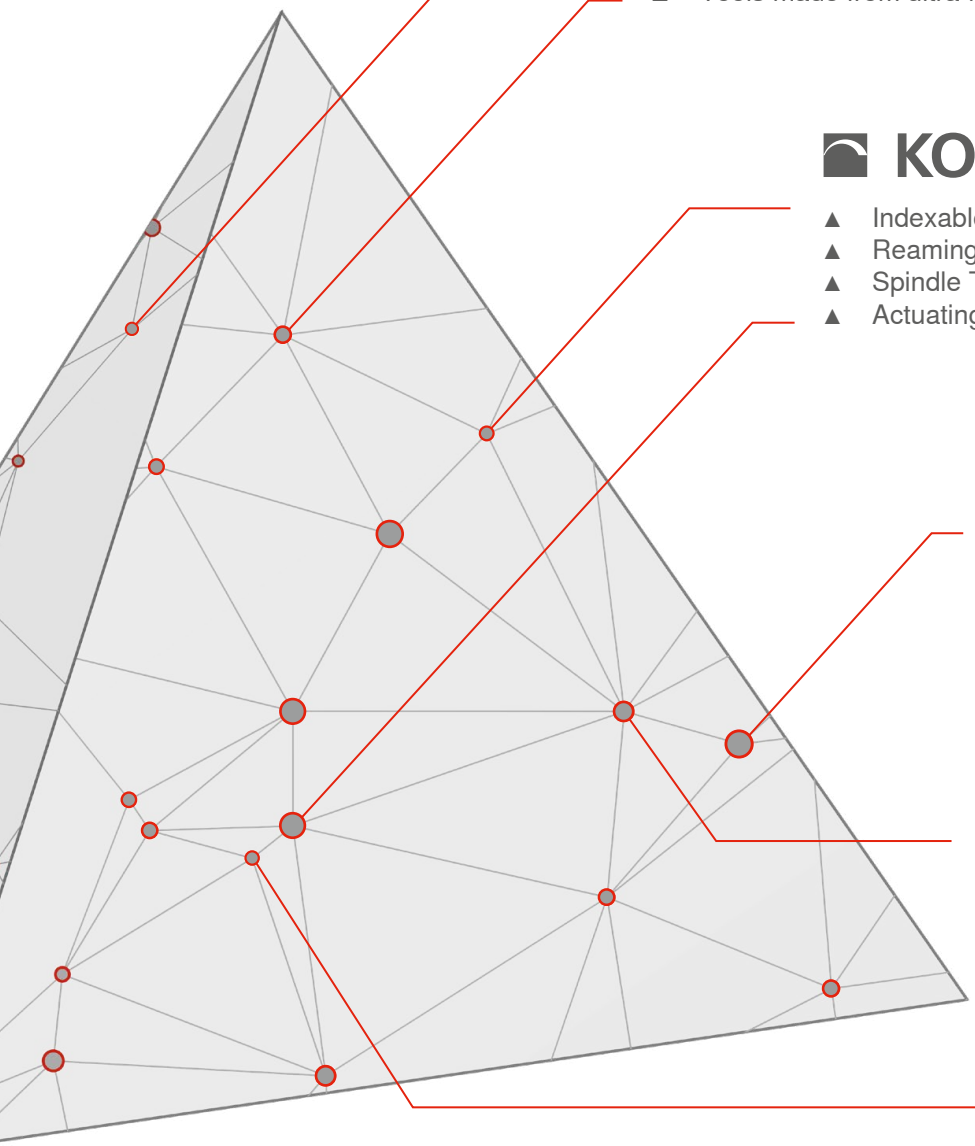
PERSONALISED CUSTOMER ACCOUNT

- Retrieve prices with your personal customer discounts
- Set up several accounts with personalised order authorisations
- Save items for later
- View and print orders and invoices

Questions about how to use the online shop and frequently asked questions can be found at: cuttingtools.ceratizit.com/gb/en/faq

FULL RANGE
PRODUCT PORTFOLIO

Everything for machining from the spindle to machine table



CUTTING SOLUTIONS BY CERATIZIT

- Turning Tools
- Multifunction Tools
- Grooving Tools
- Milling Tools with indexable Inserts
- Tools made from ultra-hard cutting materials

KOMET

- Indexable Insert Drilling
- Reaming and Countersinking
- Spindle Tooling
- Actuating Tools

WNT

- HSS Drilling
- Solid Carbide Drilling
- Taps and Thread Formers
- Circular and Thread Milling
- Thread Turning
- Miniature Turning Tools
- HSS Milling Cutters
- Solid Carbide Milling Cutters
- Tool Clamping
- Workpiece Clamping

KLENK

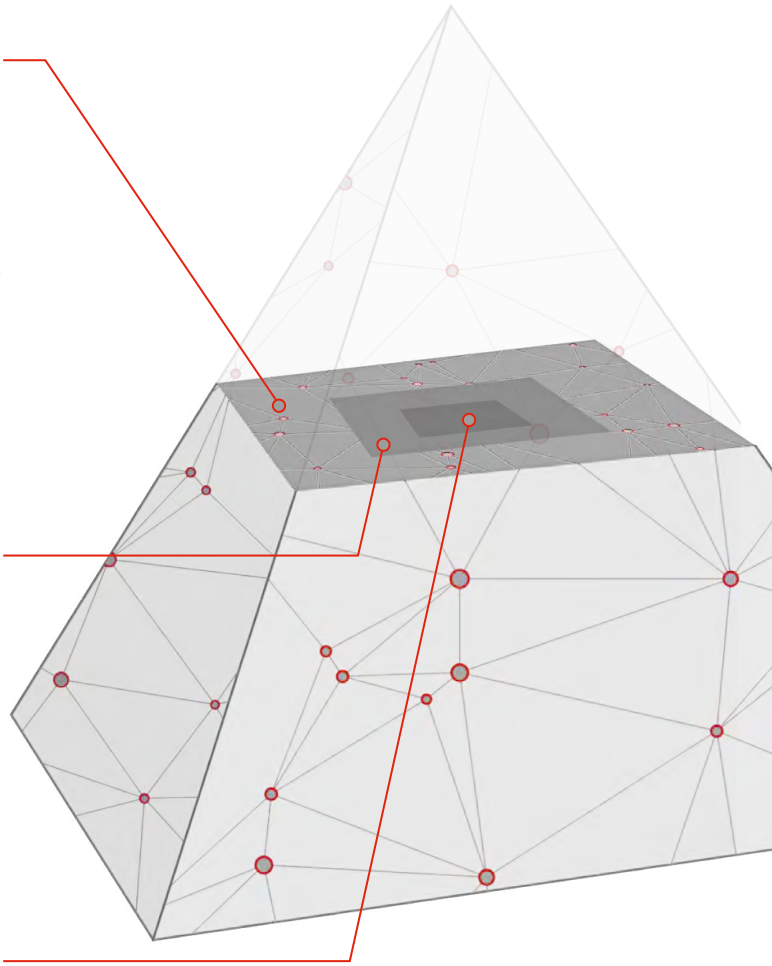
- Solid Carbide Drilling and Milling for Aerospace Frame Assembly Industry

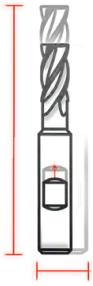




COMPREHENSIVE RANGE OF STANDARD-TOOLS

With a selection of cutting tools exclusively for machining applications, CERATIZIT has the most comprehensive product range on the market. Be it turning, drilling, milling, grooving, boring or clamping, we offer a broad selection of innovative, state-of-the-art products for every application – with 99% ex-stock availability.





CUSTOM ADAPTATIONS TO THE STANDARD TOOL RANGE

The semi standard tool programm enables you to adapt your own standard tools in a wide variety of dimensions across many product areas – quickly and individually.



SPECIAL CUSTOM TOOLS & INDUSTRY-SPECIFIC TOOLS

As one of the leading tool manufacturers and innovative pulse generator in machining, we develop optimal tool concepts for you and develop special tools that are based on the most important success factors such as efficiency, time and quality.

INNOVATIVE ORIENTATION

Machining at the highest technological level:

The Team Cutting Tools relies on future technologies such as the high-performance coating Dragonskin for best wear protection and up to 80 percent increased performance. Intelligent and customer-oriented digitization as well as sensor, monitoring and assistance systems make valuable contributions to constant, reliable process optimization.



TOOLSCOPE

Tool solutions with digital and sensory intelligence

FREETURN

The revolution in the turning process –
High Dynamic Turning with FreeTurn tools

ACTUATING TOOLS

The U-Axis system KOMtronic – efficient machining of turning contours on non-rotationally symmetrical parts

ADDITIVE MANUFACTURING

3D printing compliments machining

DRAGONSKIN

The almost indestructible surface coating

TOOL-O-MAT

Tool „at the push of a button“ with the innovative vending system





HIGHEST
TECHNICAL COMPETENCE

Always up to date with market requirements thanks to individual technological support

Application technicians and industry experts from the Team Cutting Tools are not just at your side when it comes to tool instruction. In further training courses at our Technical Centres, we are happy to pass on our practical knowledge to you so that you are always up to date with the latest technology. Thanks to our regrinding, recycling and digital services as well as the CAD models, you can also produce more efficiently, easily, flexibly and in an environmentally friendly manner.

PERSONAL APPLICATION ENGINEER

Manufacturing consulting and process optimization on site

TOOL DATA

Cutting data and CAD models to assist you with your tool management or for simulating an operation



TECHNICAL TRAINING

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

SUSTAINABILITY

Solutions for forward thinking and economical metal cutting – e.g. Regrinding and Recycling



FAST AND EFFICIENT AVAILABILITY

The new portfolio: simple ways to new tools and service

With the most modern logistics center in Europe we ensure the shortest delivery times, with our Tool Supply 24/7 service for digitally simplified orders. The Tool-O-Mat, which can hold up to 840 different products, ensures that tools are ready when they are needed as a removal system on site. Payment is only made when withdrawn.

LOGISTICS AT THE HIGHEST LEVEL

A logistic center that can meet all requirements, 99 % delivery capacity with next day delivery, no minimum order quantity, custom logistic solutions for major customers.



E-COMMERCE SOLUTIONS

Benefit from more product data and machining knowledge online, accelerate and optimize your tool procurement processes or create a direct connection to your ERP system.

3 WEEKS ON SPECIAL TOOLS

No time to lose? We deliver special tools within 3 weeks.

TOOL SUPPLY 24/7

We take over the complete procurement and storage process!

THE CATALOGUE FOR MACHINING

Extensive material from the main catalogue to industry catalogues and special promotions.

DEEP
INDUSTRY KNOWLEDGE

Equipped for every industry sector: our experts deliver comprehensive solutions!

Proven experts from numerous industrial sectors work in the Team Cutting Tools. Whether automotive and engines, aerospace, energy technology or heavy machining. We know from many years of experience all the challenges that every branch of industry brings – and we deliver the tailor-made solutions.

PROJECT ENGINEERING

Smart solution concepts for efficient machining processes

EXPERT KNOWLEDGE

More than 100 years engineering and manufacturing high performance cutting tools and developing the most optimal machining operations and processes for our customers.



INDUSTRY SPECIFIC TOOLS

Specific tools designed under the most demanding challenges of every industrial sector to increase the competitiveness of our customers.

INDIVIDUAL SPECIAL TOOLS

In partnership with the customer



INDEPENDENT
QUALITY GUARANTEE

The CERATIZIT Group: everything from a single source, from the raw material to the finished tool

As part of the CERATIZIT group, we have exclusive raw material sourcing, enormous resources and master the entire process chain: From the mine to powder production and shaping to sintering, finalization and surface finishing to recycling, we ensure our customers the highest quality.

Also with the innovative strength (e.g. in the development of new powder types), the sales network and the consulting expertise, you benefit from our large network and our character as a „one-stop shop“ for cutting tools.





The catalogue for cutting tools

This catalogue provides you with an overview of our unique range of tools on the market. We have put together numerous innovations as well as optimised and expanded tool ranges for you, with the aim of solving all your machining problems with the appropriate tool.

Would you like to see which one that may be at a glance? That's why our current catalogue also features the Toolfinder, our “offline search engine”: expanded, optimised and practical in design, at the start of every tool chapter you can see the path to increased efficiency in machining.

If you wish to get the most from your machining process, precise cutting data is a must. For this reason, we have taken our material example table and material index to the next level: material groups are now subdivided even further, meaning that we can provide even more precise cutting data recommendations.



The catalogue for clamping technology

It has already proven itself time and time again in your production workshops – our division of catalogues into cutting tools and clamping technology (tool and workpiece clamping). For this reason, we are once again offering you the option to select the tool and suitable clamping device at the same time without searching through the entire catalogue.



Solid drilling and bore machining
1 HSS drilling
2 Solid carbide drilling
3 Indexable insert drilling
4 Reaming and Countersinking
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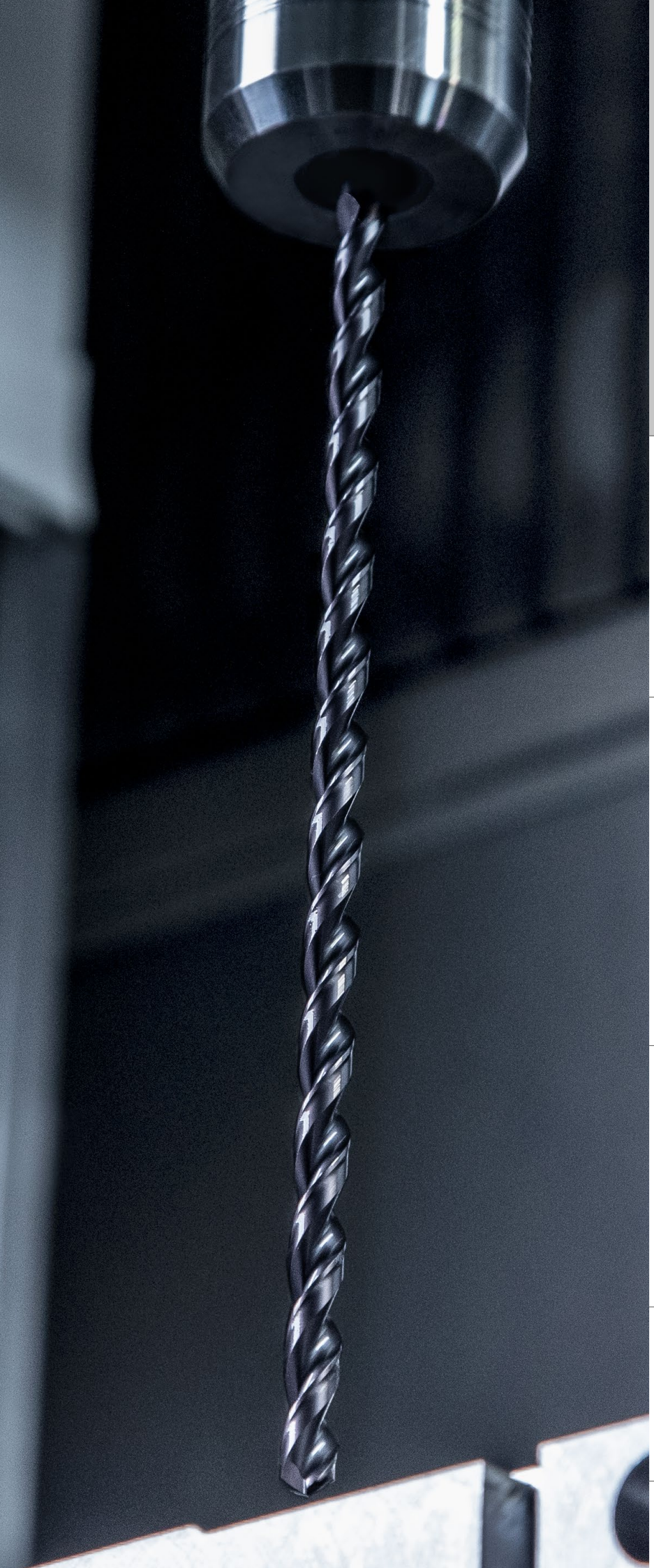
New products for machining technicians

NEW WTL twist drill, extra-long, TiAlN



The new WTL twist drill with proven TiAlN multilayer coating increases your productivity and process-security.

→ Page 29+30



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WNT \ Performance

Premium quality tools for high performance.

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

Symbol explanation

Shank











Version



Int. coolant supply



self-centering

● = **Main Application**

○ = Extended application

Toolfinder

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

HSS Drills Overview

3xD without thro‘ coolant

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

5xD without thro‘ coolant

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

HSS Drills Overview

	Tool type	Material | Coating	Point angle	Diameter in mm DC	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	coated	uncoated	WNT \ Performance
5xD with thro' coolant														
	WNXi	HSS-E	130°	5–20	●		●	○			○		□	25
	WNXi	HSS-E TiN	130°	5–20	●		●	○			○	■		25
up to 10xD without thro' coolant														
	UNI	HSS-E TiN	118°	1–14	●	●	●	○	○		○	■		26–28
	WTL	HSS-E F-nit.	130°	1–12	●	○	●	●	○	○	○	■		26–28
	WTL	HSS F-nit.	130°	1–14	○		●	●			○	■		26–28
	WTL	HSS TiN	130°	1–14	○		●	○			○	■		26–28
	WTW	HSS	130°	1–14			●						□	26–28
up to 10xD with thro' coolant														
	NC	HSS	130°	3–13	○		●	○			○		□	25
	NC	HSS TiAlN	130°	3–13	○	○	●	○			○	■		25
over 10xD without thro' coolant														
	WTL	HSS F-nit. Series 1	130°	2–13	●		●	●			○	■		29
	WTL	HSS F-nit. series 2	130°	2–13	●		●	●			○	■		30
	WTL	HSS F-nit. series 3	130°	2,5–13	●		●	●			○	■		30
	WTL	HSS-E TiAlN Series 1	130°	3–10,2	●		●	●			○	■		29
	WTL	HSS-E TiAlN series 2	130°	3–12	●		●	●			○	■		30
	WTL	HSS-E TiAlN series 3	130°	4–10	●		●	●			○	■		30
Mini-drill														
	N	HSS-E-PM	118°	0,15–1,45	●	○	●	●	○		○		□	31

HSS Drills Overview

	Tool type	Material | Coating	Point angle	Diameter in mm DC	Steel P / Stainless steel M / Cast iron K / Non ferrous metals N / Heat resistant S / hardened materials H / Non metal materials O		coated ■ / uncoated □	WNT \ Performance
Twist Drill Sets								
	N	HSS vap.	118°	1–10	○ ● ○ ○		■	24
	UNI	HSS-E TiN	118°	1–10	● ● ● ○ ○ ○		■	24
NC Spot Drill								
	NC-A	HSS	90°	3–20	● ○ ● ○		□	35–37
	NC-A	HSS TiN	90°	3–20	● ○ ● ○		■	35+36
	NC-A	HSS	120°	3–20	● ○ ● ○		□	35+36
	NC-A	HSS TiN	120°	3–20	● ○ ● ○		■	35+36
Centre drills								
	ZB	HSS	118°	0,5–6,3	● ○ ● ○	DIN 333 – Form A/B/R	□	37–39
	ZB	HSS TiN	118°	0,5–6,3	● ○ ● ○	DIN 333 – Form A	■	38
	ZB	HSS-E	118°	0,5–6,3	● ○ ● ○	DIN 333 – Form A	□	38
Core drills								
	N	HSS vap.	120°	3,8–12	● ○ ● ○ ○	3 flute	■	40
Stepped drills								
	SB	HSS vap.	118°	2,5–10,2	● ○ ● ○	Countersinking angle 90°	■	41
	SB	HSS	118°	2,5–10,2	● ○ ● ○	Countersinking angle 90°	□	41
	SB	HSS vap.	118°	3,2–10,5	● ○ ● ○	Countersinking angle 90°	■	41
	SB	HSS	118°	3,2–10,5	● ○ ● ○	Countersinking angle 90°	□	41
	SB	HSS vap.	118°	3,4–11	● ○ ● ○	Countersinking angle 180°	■	42
	SB	HSS	118°	3,4–11	● ○ ● ○	Countersinking angle 180°	□	42
	SB	HSS vap.	118°	3,3–21	● ○ ● ○	Countersinking angle 60°	■	44

HSS Drills Overview

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

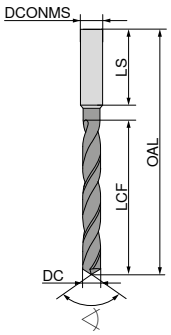
High-performance twist drills similar to DIN 1897, extra-short

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

≤ 3xD

VX

TiN





HSS-E

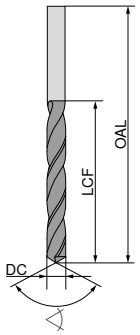
DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	10 122 ... £ T2	
2.00	44	12	3	28	9.89	020
2.10	44	12	3	28	11.20	021
2.20	45	13	3	28	12.08	022
2.30	45	13	3	28	12.08	023
2.40	46	14	3	28	12.64	024
2.50	46	14	3	28	11.05	025
2.60	46	14	3	28	12.64	026
2.70	48	16	3	28	13.08	027
2.80	48	16	3	28	13.08	028
2.90	48	16	3	28	13.08	029
3.00	48	16	3	28	12.08	030
3.10	50	18	4	28	12.08	031
3.20	50	18	4	28	12.08	032
3.30	50	18	4	28	12.08	033
3.40	52	20	4	28	12.08	034
3.50	52	20	4	28	11.48	035
3.60	52	20	4	28	12.83	036
3.70	52	20	4	28	13.08	037
3.80	54	22	4	28	12.80	038
3.90	54	22	4	28	13.08	039
4.00	54	22	4	28	10.62	040
4.10	66	22	6	36	10.62	041
4.20	66	22	6	36	11.20	042
4.30	68	24	6	36	11.77	043
4.40	68	24	6	36	13.37	044
4.50	68	24	6	36	11.05	045
4.60	68	24	6	36	13.95	046
4.70	68	24	6	36	14.24	047
4.80	70	26	6	36	14.24	048
4.90	70	26	6	36	14.24	049
5.00	70	26	6	36	12.08	050
5.10	70	26	6	36	13.95	051
5.20	70	26	6	36	14.39	052
5.30	70	26	6	36	14.54	053
5.40	72	28	6	36	16.13	054
5.50	72	28	6	36	12.80	055
5.55	72	28	6	36	16.13	555
5.60	72	28	6	36	16.13	056
5.70	72	28	6	36	16.13	057
5.80	72	28	6	36	16.13	058
5.90	72	28	6	36	16.13	059
6.00	72	28	6	36	13.51	060
6.10	75	31	8	36	20.93	061
6.20	75	31	8	36	20.93	062
6.30	75	31	8	36	24.99	063
6.40	75	31	8	36	21.70	064
6.50	75	31	8	36	15.86	065
6.60	75	31	8	36	25.44	066
6.70	75	31	8	36	25.44	067
6.80	78	34	8	36	27.84	068
6.90	78	34	8	36	27.47	069
7.00	78	34	8	36	20.93	070
7.10	78	34	8	36	30.80	071
7.20	78	34	8	36	31.27	072
7.30	78	34	8	36	31.27	073
7.40	78	34	8	36	31.27	074
7.45	78	34	8	36	31.27	745
7.50	78	34	8	36	22.09	075
7.60	81	37	8	36	31.73	076
7.70	81	37	8	36	34.15	077
7.80	81	37	8	36	34.15	078
7.90	81	37	8	36	34.15	079
8.00	81	37	8	36	22.67	080
8.10	87	37	10	40	38.76	081
8.20	87	37	10	40	38.76	082
8.30	87	37	10	40	38.76	083
8.40	87	37	10	40	38.76	084
8.50	87	37	10	40	25.71	085
8.60	91	40	10	40	40.27	086
8.70	91	40	10	40	40.27	087
8.80	91	40	10	40	40.27	088
8.90	91	40	10	40	40.27	089
9.00	91	40	10	40	28.06	090
9.10	91	40	10	40	50.49	091
9.20	91	40	10	40	50.49	092
9.30	91	40	10	40	50.49	093
9.35	91	40	10	40	50.49	935
9.40	91	40	10	40	50.49	094
9.50	91	40	10	40	35.07	095
9.60	93	43	10	40	37.83	096
9.70	93	43	10	40	37.83	097
9.80	93	43	10	40	37.83	098
9.90	93	43	10	40	37.83	099
10.00	93	43	10	40	33.72	100
10.10	100	43	12	45	52.23	101
10.20	100	43	12	45	49.90	102
10.30	100	43	12	45	50.78	103
10.40	100	43	12	45	54.04	104
10.50	100	43	12	45	48.49	105
10.60	100	43	12	45	58.05	106
10.70	104	47	12	45	52.99	107
10.80	104	47	12	45	50.94	108
10.90	104	47	12	45	74.83	109
11.00	104	47	12	45	48.49	110
11.10	104	47	12	45	47.42	111
11.50	104	47	12	45	50.49	115
11.70	104	47	12	45	56.76	117
11.80	104	47	12	45	59.27	118
11.90	108	51	12	45	74.95	119
12.00	108	51	12	45	57.98	120
12.10	111	51	16	48	42.23	121
12.20	111	51	16	48	62.87	122
12.30	111	51	16	48	77.29	123
12.40	111	51	16	48	92.23	124
12.50	111	51	16	48	59.72	125
12.60	111	51	16	48	121.08	126
12.70	111	51	16	48	132.50	127
12.80	111	51	16	48	62.91	128
12.90	111	51	16	48	92.75	129
13.00	111	51	16	48	64.20	130
13.50	114	54	16	48	96.11	135
14.00	114	54	16	48	96.11	140
14.50	116	56	16	48	123.10	145
15.00	116	56	16	48	115.93	150
15.50	118	58	16	48	125.38	155
16.00	118	58	16	48	121.12	160
16.50	126	60	20	50	187.77	165
17.00	126	60	20	50	187.77	170
17.50	128	62	20	50	187.77	175
18.00	128	62	20	50	187.77	180
18.50	130	64	20	50	187.77	185
19.00	130	64	20	50	187.77	190
19.50	132	66	20	50	187.77	195
20.00	132	66	20	50	167.02	200

P	●
M	●
K	●
N	○
S	○
H	
O	○

→ v_c Page 46

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

≤ 3xD



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

DC h8 mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
0.40		19	2.5					4.65	004 [1]						
0.50		20	3.0					3.78	005 [1]						
0.55		21	3.5												
0.60		21	3.5					4.50	006 [1]						
0.65		22	4.0												
0.70		23	4.5					4.22	007 [1]						
0.75		23	4.5												
0.80		24	5.0					3.36	008 [1]						
0.85		24	5.0												
0.90		25	5.5					3.36	009 [1]						
0.95		25	5.5												
1.00		26	6.0	7.92	010 [2]	5.08	010 [2]	1.91	010 [1]	5.38	010	2.88	010	4.07	01000 [1]	5.25	010
1.05		26	6.0											5.40	01050 [1]		
1.10		28	7.0	7.92	011 [2]	5.08	011 [2]	2.04	011 [1]	5.24	011	3.13	011	3.93	01100 [1]	5.53	011
1.15		28	7.0											4.35	01150 [1]		
1.20		30	8.0	8.11	012 [2]	4.80	012 [2]	2.04	012 [1]	4.95	012	3.13	012	3.78	01200 [1]	5.25	012
1.25		30	8.0											4.35	01250 [1]		
1.30		30	8.0	8.49	013 [2]	5.08	013 [2]	2.04	013 [1]	5.24	013	3.07	013	3.93	01300 [1]	5.53	013
1.35		32	9.0											4.35	01350 [1]		
1.40		32	9.0	7.83	014 [2]	4.95	014 [2]	2.04	014 [1]	5.24	014	3.07	014	3.93	01400 [1]	5.53	014
1.45		32	9.0											4.35	01450 [1]		
1.50		32	9.0	7.35	015 [2]	4.60	015 [2]	1.75	015 [1]	4.65	015	2.88	015	3.66	01500 [1]	5.25	015
1.55		34	10.0											5.70	01550 [1]		
1.60		34	10.0	7.71	016 [2]	4.60	016 [2]	1.91	016 [1]	4.65	016	3.07	016	3.49	01600 [1]	5.25	016
1.65		34	10.0											4.64	01650 [1]		
1.70		34	10.0	7.83	017 [2]	4.35	017 [2]	1.91	017 [1]	4.50	017	3.07	017	3.49	01700 [1]	4.95	017
1.75		36	11.0											4.22	01750 [1]		
1.80		36	11.0	7.71	018 [2]	4.60	018 [2]	2.04	018 [1]	4.65	018	3.07	018	3.66	01800 [1]	5.25	018
1.83		36	11.0											5.40	01830 [1]		
1.85		36	11.0											4.04	01850 [1]		
1.90		36	11.0	7.71	019 [2]	4.60	019 [2]	1.91	019 [1]	4.65	019	3.07	019	3.66	01900 [1]	5.25	019
1.95		38	12.0											6.13	01950 [1]		
2.00		38	12.0	6.48	020 [2]	4.04	020 [2]	1.33	020 [1]	4.07	020	2.56	020	3.07	02000 [1]	4.60	020
2.05		38	12.0											5.70	02050 [1]		
2.10		38	12.0	7.92	021 [2]	4.35	021 [2]	1.75	021 [1]	4.50	021	2.88	021	3.49	02100 [1]	4.95	021
2.15		40	13.0											5.25	02150 [1]		
2.20		40	13.0	7.92	022 [2]	4.80	022 [2]	1.75	022 [1]	4.95	022	2.88	022	3.93	02200 [1]	5.25	022
2.25		40	13.0											4.22	02250 [1]		
2.30		40	13.0	6.68	023 [2]	4.65	023 [2]	1.91	023 [1]	4.95	023	3.07	023	3.78	02300 [1]	5.25	023
2.35		40	13.0											5.84	02350 [1]		
2.38	3/32	43	14.0	7.31	238 [2]	4.65	238 [2]										
2.40		43	14.0	7.95	024 [2]	4.80	024 [2]	1.91	024	5.08	024	3.07	024	3.90	02400	5.53	024
2.45		43	14.0											4.64	02450		
2.50		43	14.0	6.95	025 [2]	4.35	025 [2]	1.45	025	4.37	025	2.88	025	3.49	02500	4.80	025
2.55		43	14.0											5.84	02550		

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

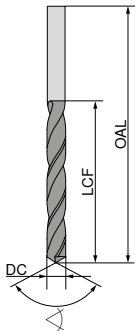
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

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

≤ 3xD



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



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

DC $_{h8}$ mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
2.60		43	14.0	8.23	**026** [2]	4.80	**026** [2]	1.91	**026**	5.08	**026**	3.07	**026**	3.90	**02600**	5.53	**026**
2.65		43	14.0											5.84	**02650**		
2.70		46	16.0	8.70	**027** [2]	5.08	**027** [2]	1.91	**027**	5.24	**027**	3.07	**027**	4.04	**02700**	5.84	**027**
2.75		46	16.0											5.84	**02750**		
2.78	7/64	46	16.0	8.46	**278** [2]	5.08	**278** [2]										
2.80		46	16.0	8.11	**028** [2]	5.08	**028** [2]	1.91	**028**	5.24	**028**	3.13	**028**	4.04	**02800**	5.84	**028**
2.85		46	16.0											5.84	**02850**		
2.90		46	16.0	8.63	**029** [2]	5.08	**029** [2]	1.91	**029**	5.24	**029**	3.45	**029**	4.04	**02900**	5.84	**029**
2.95		46	16.0											4.22	**02950**		
3.00		46	16.0	7.31	**030** [2]	4.60	**030** [2]	1.45	**030**	4.65	**030**	3.07	**030**	3.66	**03000**	4.95	**030**
3.05		49	18.0											4.37	**03050**		
3.10		49	18.0	7.83	**031** [2]	4.95	**031** [2]	1.91	**031**	5.24	**031**	3.58	**031**	4.04	**03100**	5.70	**031**
3.15		49	18.0											6.41	**03150**		
3.17	1/8	49	18.0	7.71	**317** [2]	4.80	**317** [2]										
3.20		49	18.0	7.35	**032** [2]	4.65	**032** [2]	1.75	**032**	5.08	**032**	3.07	**032**	3.90	**03200**	5.40	**032**
3.25		49	18.0											4.60	**03250**		
3.30		49	18.0	7.35	**033** [2]	5.08	**033** [2]	1.91	**033**	5.38	**033**	3.13	**033**	4.07	**03300**	5.84	**033**
3.35		49	18.0											5.84	**03350**		
3.40		52	20.0	8.49	**034** [2]	5.25	**034** [2]	2.21	**034**	5.38	**034**	3.76	**034**	4.07	**03400**	5.84	**034**
3.45		52	20.0											4.60	**03450**		
3.50		52	20.0	7.35	**035** [2]	5.08	**035** [2]	1.75	**035**	5.38	**035**	3.58	**035**	4.07	**03500**	5.25	**035**
3.55		52	20.0											4.64	**03550**		
3.57	9/64	52	20.0	8.35	**357** [2]	5.25	**357** [2]										
3.60		52	20.0	9.78	**036** [2]	5.25	**036** [2]	2.21	**036**	5.38	**036**	3.76	**036**	4.07	**03600**	5.84	**036**
3.70		52	20.0	8.46	**037** [2]	5.52	**037** [2]	2.21	**037**	5.81	**037**	3.76	**037**	4.37	**03700**	6.32	**037**
3.75		52	20.0											4.64	**03750**		
3.80		55	22.0	9.03	**038** [2]	5.40	**038** [2]	2.21	**038**	5.68	**038**	3.90	**038**	4.22	**03800**	5.84	**038**
3.85		55	22.0											7.18	**03850**		
3.90		55	22.0	10.22	**039** [2]	6.11	**039** [2]	2.21	**039**			3.90	**039**	4.37	**03900**	6.32	**039**
3.95		55	22.0											7.18	**03950**		
3.97	5/32	55	22.0	9.22	**397** [2]	5.81	**397** [2]										
4.00		55	22.0	8.35	**040** [2]	5.40	**040** [2]	1.75	**040**	5.68	**040**	3.90	**040**	4.35	**04000**	5.40	**040**
4.05		55	22.0											5.08	**04050**		
4.10		55	22.0	9.58	**041** [2]	5.70	**041** [2]	2.04	**041**	5.97	**041**	4.04	**041**	4.60	**04100**	5.84	**041**
4.15		55	22.0											7.18	**04150**		
4.20		55	22.0	8.35	**042** [2]	5.52	**042** [2]	2.04	**042**	5.81	**042**	3.58	**042**	4.37	**04200**	5.84	**042**
4.25		55	22.0											7.80	**04250**		
4.30		58	24.0	9.50	**043** [2]	5.84	**043** [2]	2.92	**043**	6.11	**043**	4.04	**043**	4.80	**04300**	6.59	**043**
4.35		58	24.0											7.80	**04350**		
4.37	11/64	58	24.0	12.77	**437** [2]	7.80	**437** [2]										
4.40		58	24.0	10.22	**044** [2]	6.59	**044** [2]	2.92	**044**			4.04	**044**	4.80	**04400**	6.74	**044**
4.45		58	24.0											7.94	**04450**		
4.50		58	24.0	9.50	**045** [2]	5.84	**045** [2]	2.04	**045**	6.11	**045**	4.04	**045**	4.64	**04500**	5.53	**045**
4.55		58	24.0											7.80	**04550**		
4.60		58	24.0	9.58	**046** [2]	6.41	**046** [2]	3.07	**046**	6.69	**046**	4.18	**046**	5.08	**04600**	7.33	**046**

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

1) uncoated
2) self-centering

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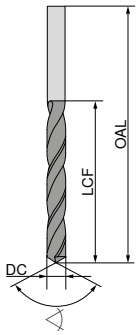
Continued on next page

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

≤ 3xD



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

DC $_{h8}$ mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
4.65		58	24.0											7.18	**04650**	7.62	**465**
4.70		58	24.0	10.65	**047** [2]	6.74	**047** [2]	3.07	**047**	6.98	**047**	4.35	**047**	5.25	**04700**	7.62	**047**
4.75		58	24.0											7.18	**04750**		
4.76	3/16	62	26.0	10.65	**476** [2]	6.74	**476** [2]										
4.80		62	26.0	10.86	**048** [2]	6.84	**048** [2]	3.07	**048**	7.28	**048**	4.60	**048**	5.53	**04800**	7.62	**048**
4.85		62	26.0											6.41	**04850**		
4.90		62	26.0	10.93	**049** [2]	7.56	**049** [2]	3.07	**049**	7.84	**049**	4.80	**049**	6.11	**04900**	7.62	**049**
4.95		62	26.0											9.16	**04950**		
5.00		62	26.0	9.22	**050** [2]	5.97	**050** [2]	2.21	**050**	6.54	**050**	4.35	**050**	4.95	**05000**	6.13	**050**
5.05		62	26.0											10.63	**05050**		
5.10		62	26.0	10.14	**051** [2]	7.99	**051** [2]	3.07	**051**	8.59	**051**	4.95	**051**	6.59	**05100**	7.62	**051**
5.15		62	26.0											11.25	**05150**		
5.16	13/64	62	26.0	12.09	**516** [2]	10.33	**516** [2]										
5.20		62	26.0	10.93	**052** [2]	9.89	**052** [2]	3.07	**052**	10.47	**052**	4.95	**052**	7.80	**05200**	7.62	**052**
5.25		62	26.0											9.11	**05250**		
5.30		62	26.0	12.37	**053** [2]	10.47	**053** [2]	3.07	**053**	11.20	**053**	5.08	**053**	8.70	**05300**	7.94	**053**
5.35		66	28.0											14.82	**05350**		
5.40		66	28.0	12.13	**054** [2]	10.33	**054** [2]	3.49	**054**			5.40	**054**	9.11	**05400**	8.82	**054**
5.45		66	28.0											14.81	**05450**		
5.50		66	28.0	10.37	**055** [2]	7.71	**055** [2]	2.63	**055**	8.28	**055**	5.25	**055**	6.32	**05500**	6.59	**055**
5.55		66	28.0											16.59	**05550**	8.39	**555**
5.56	7/32	66	28.0	11.36	**556** [2]	8.59	**556** [2]										
5.60		66	28.0	12.37	**056** [2]	12.64	**056** [2]	3.49	**056**	13.37	**056**	5.53	**056**	10.34	**05600**	8.39	**056**
5.70		66	28.0	13.27	**057** [2]	12.80	**057** [2]	3.49	**057**	13.68	**057**	5.70	**057**	10.69	**05700**	8.39	**057**
5.75		66	28.0											12.26	**05750**		
5.80		66	28.0	12.68	**058** [2]	13.51	**058** [2]	3.49	**058**	14.24	**058**	5.70	**058**	10.63	**05800**	8.39	**058**
5.85		66	28.0											17.84	**05850**		
5.90		66	28.0	13.99	**059** [2]	13.68	**059** [2]	3.49	**059**	14.39	**059**	5.84	**059**	11.07	**05900**	8.68	**059**
5.95	15/64	66	28.0	21.19	**595** [2]	14.99	**595** [2]							11.25	**05950**		
6.00		66	28.0	11.17	**060** [2]	7.71	**060** [2]	2.63	**060**	8.28	**060**	5.25	**060**	6.32	**06000**	7.18	**060**
6.05		70	31.0											17.84	**06050**		
6.10		70	31.0	13.11	**061** [2]	14.54	**061** [2]	3.78	**061**	15.55	**061**	6.11	**061**	11.68	**06100**	10.79	**061**
6.15		70	31.0											13.30	**06150**		
6.20		70	31.0	13.11	**062** [2]	14.82	**062** [2]	3.78	**062**	15.99	**062**	6.13	**062**	12.26	**06200**	11.25	**062**
6.25		70	31.0											15.11	**06250**		
6.30		70	31.0	15.03	**063** [2]	16.13	**063** [2]	3.78	**063**	17.00	**063**	6.13	**063**	13.15	**06300**	11.37	**063**
6.35	1/4	70	31.0	13.79	**635** [2]	15.99	**635** [2]							9.11	**06350**		
6.40		70	31.0	13.91	**064** [2]	16.42	**064** [2]	3.93	**064**	17.43	**064**	6.59	**064**	13.34	**06400**	11.75	**064**
6.45		70	31.0											15.11	**06450**		
6.50		70	31.0	13.11	**065** [2]	9.02	**065** [2]	3.07	**065**	9.60	**065**	6.13	**065**	7.33	**06500**	8.39	**065**
6.55		70	31.0											18.11	**06550**		
6.60		70	31.0	14.46	**066** [2]	17.00	**066** [2]	3.93	**066**	18.03	**066**	6.74	**066**	13.92	**06600**	11.75	**066**
6.65		70	31.0											19.31	**06650**		
6.70		70	31.0	15.94	**067** [2]	17.30	**067** [2]	4.22	**067**	18.60	**067**	6.90	**067**	14.34	**06700**	11.75	**067**
6.75		74	34.0	19.60	**675** [2]	13.25	**675** [2]							14.36	**06750**		

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

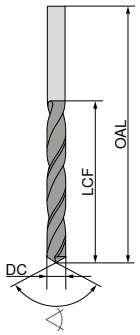
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

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

≤ 3xD



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

DC h8 mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
6.80		74	34.0	15.97	068 2)	17.73	068 2)	4.80	068	19.04	068	7.62	068	14.81	06800	12.26	068
6.85		74	34.0											20.20	06850		
6.90		74	34.0	15.78	069 2)	17.87	069 2)	5.24	069	19.19	069	7.80	069	14.66	06900	12.26	069
7.00		74	34.0	14.63	070 2)	10.33	070 2)	3.93	070	11.05	070	6.74	070	8.24	07000	10.16	070
7.05		74	34.0											23.50	07050		
7.10		74	34.0	17.72	071 2)	18.60	071 2)	5.38	071	19.76	071	9.11	071	14.82	07100	13.77	071
7.14	9/32	74	34.0	23.52	714 2)	19.04	714 2)										
7.20		74	34.0	18.24	072 2)	18.76	072 2)	5.38	072	20.19	072	9.74	072	15.88	07200	13.77	072
7.25		74	34.0											16.15	07250		
7.30		74	34.0	19.60	073 2)	18.89	073 2)	5.68	073			10.16	073	15.72	07300	13.92	073
7.35		74	34.0											20.64	07350		
7.40		74	34.0	18.36	074 2)	18.76	074 2)	5.97	074			11.07	074	16.34	07400	13.92	074
7.50		74	34.0	15.26	075 2)	11.77	075 2)	4.22	075	12.64	075	7.33	075	9.74	07500	10.63	075
7.60		79	37.0	23.81	076 2)	17.58	076 2)	6.69	076			10.69	076	17.40	07600	15.11	076
7.70		79	37.0	25.80	077 2)	21.81	077 2)	6.69	077	23.10	077	10.79	077	17.37	07700	15.11	077
7.75		79	37.0											21.85	07750		
7.80		79	37.0	19.68	078 2)	21.07	078 2)	6.69	078			10.79	078	18.31	07800	15.11	078
7.90		79	37.0	27.54	079 2)	23.10	079 2)	6.84	079	24.41	079	10.34	079	18.25	07900	15.11	079
7.94	5/16	79	37.0	18.88	794 2)	11.91	794 2)										
8.00		79	37.0	18.24	080 2)	11.37	080 2)	4.37	080	11.64	080	7.62	080	9.16	08000	10.94	080
8.05		79	37.0											29.35	08050		
8.10		79	37.0	23.29	081 2)	23.70	081 2)	7.28	081	25.27	081	11.37	081	19.31	08100	15.11	081
8.15		79	37.0											29.35	08150		
8.20		79	37.0	24.24	082 2)	24.72	082 2)	7.56	082	26.15	082	11.75	082	19.91	08200	15.11	082
8.25		79	37.0											22.75	08250		
8.30		79	37.0	25.43	083 2)	26.58	083 2)	7.84	083	28.33	083	11.68	083	21.53	08300	15.88	083
8.40		79	37.0	24.39	084 2)	27.31	084 2)	7.99	084	29.06	084	12.13	084	22.31	08400	15.88	084
8.50		79	37.0	21.19	085 2)	13.51	085 2)	5.97	085	14.24	085	9.16	085	10.79	08500	13.15	085
8.55		84	40.0											33.23	08550		
8.60		84	40.0			16.24	086 2)	7.99	086	29.93	086	12.83	086	22.75	08600	16.33	086
8.70		84	40.0			18.69	087 2)	8.15	087	30.80	087	13.30	087	24.41	08700	16.33	087
8.73	11/32	84	40.0	33.51	873 2)	21.41	873 2)										
8.75		84	40.0											36.61	08750		
8.80		84	40.0	26.59	088 2)	17.58	088 2)	8.28	088			14.66	088	24.72	08800	16.33	088
8.90		84	40.0			23.11	089 2)	8.59	089			9.74	089	25.48	08900	16.78	089
8.95		84	40.0											40.82	08950		
9.00		84	40.0	21.50	090 2)	14.24	090 2)	5.68	090	15.25	090	8.82	090	11.37	09000	13.34	090
9.05		84	40.0											26.80	09050		
9.10		84	40.0			19.48	091 2)	9.60	091			15.11	091	26.53	09100	21.37	091
9.20		84	40.0			19.61	092 2)	10.47	092	35.02	092	16.15	092	26.80	09200	21.37	092
9.25		84	40.0											30.68	09250		
9.30		84	40.0	24.39	093 2)	34.58	093 2)	10.62	093	36.92	093	11.37	093	28.54	09300	21.37	093
9.40		84	40.0			22.74	094 2)	10.90	094			11.37	094	28.28	09400	21.37	094
9.50		84	40.0	23.81	095 2)	15.25	095 2)	9.02	095	16.42	095	10.79	095	12.44	09500	17.37	095
9.60		89	43.0			23.78	096 2)	11.48	096			17.40	096	28.28	09600	21.70	096

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

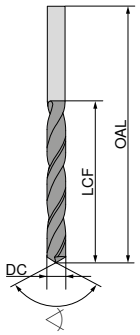
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

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

≤ 3xD



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

DC h8 mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
9.65		89	43.0											33.25	09650		
9.70		89	43.0			23.11	097 2)	11.64	097			17.40	097	28.88	09700	21.70	097
9.75		89	43.0											40.82	09750		
9.80		89	43.0	28.37	098 2)	35.61	098 2)	12.20	098	38.07	098	17.37	098	29.35	09800	23.22	098
9.90		89	43.0			24.70	099 2)	12.20	099			17.80	099	30.22	09900	23.22	099
10.00		89	43.0	23.45	100 2)	17.73	100 2)	6.84	100	19.04	100	9.74	100	14.81	10000	16.33	100
10.05		89	43.0											38.29	10050		
10.10		89	43.0			23.78	101 2)	13.51	101					40.28	10100		
10.20		89	43.0	29.68	102 2)	28.18	102 2)	11.64	102	29.93	102	17.40	102	22.75	10200	23.05	102
10.25		89	43.0											35.07	10250		
10.30		89	43.0			22.09	103 2)	14.39	103					37.22	10300		
10.40		89	43.0			25.86	104 2)	14.99	104					43.92	10400		
10.50		89	43.0	28.13	105 2)	30.52	105 2)	12.20	105	32.54	105	14.23	105	25.48	10500	21.97	105
10.60		95	47.0					18.76	106					44.40	10600		
10.70		95	47.0					18.76	107					44.40	10700		
10.75		95	47.0											37.72	10750		
10.80		95	47.0					19.19	108			18.87	108	43.19	10800	48.98	108
10.90		95	47.0					19.19	109					43.92	10900		
11.00		95	47.0	31.28	110 2)	32.54	110 2)	12.20	110	34.58	110	16.78	110	26.80	11000	21.97	110
11.10		95	47.0					19.19	111					48.78	11100		
11.11	7/16	95	47.0	36.72	111 2)	38.36	111 2)										
11.20		95	47.0					20.19	112					52.31	11200		
11.30		95	47.0					20.50	113					54.17	11300		
11.40		95	47.0					20.50	114					54.62	11400		
11.50		95	47.0	36.05	115 2)	36.92	115 2)	12.94	115	39.24	115	21.97	115	30.68	11500	22.90	115
11.60		95	47.0					20.50	116								
11.70		95	47.0					20.50	117	73.79	117			54.62	11700		
11.75		95	47.0											60.56	11750		
11.80		95	47.0					20.78	118			27.63	118	54.62	11800	27.47	118
11.90		102	51.0					20.78	119								
12.00		102	51.0	35.28	120 2)	43.44	120 2)	15.55	120	46.22	120	21.97	120	36.15	12000	26.20	120
12.10		102	51.0					21.95	121					54.17	12100		
12.20		102	51.0					21.95	122					54.62	12200		
12.25		102	51.0											61.48	12250		
12.30		102	51.0	59.77	123 2)	40.40	123 2)	22.23	123			27.63	123	42.72	12300	40.27	123
12.40		102	51.0					22.23	124					54.62	12400		
12.50		102	51.0	38.70	125 2)	43.74	125 2)	16.42	125			22.43	125	36.24	12500	27.47	125
12.60		102	51.0					22.67	126					37.26	12600		
12.70		102	51.0	49.40	127 2)	33.37	127 2)	21.66	127					37.26	12700		
12.80		102	51.0					23.53	128			33.72	128	56.00	12800	50.74	128
12.90		102	51.0					24.28	129					56.00	12900		
13.00		102	51.0	38.70	130 2)	43.74	130 2)	16.73	130			25.03	130	38.29	13000	27.69	130
13.20		102	51.0					24.99	132					56.00	13200		
13.30		107	54.0					25.71	133								
13.50		107	54.0	41.10	135 2)	43.74	135 2)	19.19	135			30.99	135	42.27	13500	30.25	135

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

1) uncoated
2) self-centering

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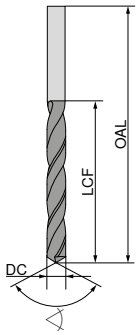
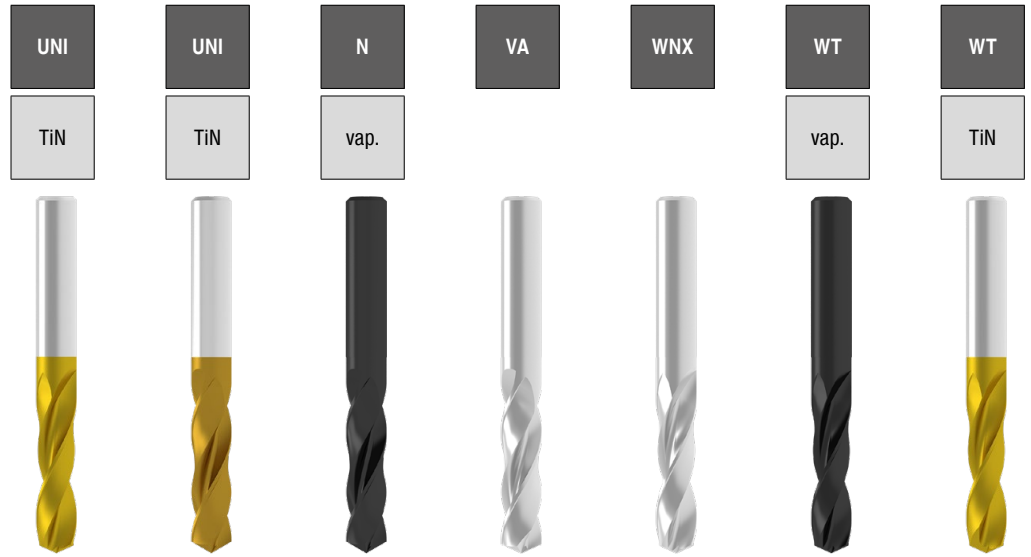
High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD





				130° HSS-E-PM		118° HSS-E		118° HSS		130° HSS-E		130° HSS-E		130° HSS-E		130° HSS-E	
				10 113 ...		**10 107 ...**		**10 105 ...**		**10 130 ...**		**10 106 ...**		**10 109 ...**		**10 110 ...**	
DC_{h8} mm	**DC inch**	**OAL mm**	**LCF mm**	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
13.80		107	54.0					26.31	**138**			40.28	**138**			32.63	**138**
14.00		107	54.0	51.31	**140** [2]	46.48	**140** [2]	19.47	**140**			28.28	**140**	42.27	**14000**	31.73	**140**
14.50		111	56.0					21.66	**145**			36.61	**145**	53.09	**14500**	32.50	**145**
14.75		111	56.0					33.15	**147**								
14.80		111	56.0									50.79	**148**				
15.00		111	56.0					21.07	**150**			34.03	**150**	50.49	**15000**	33.58	**150**
15.25		115	58.0					35.02	**152**					109.54	**15250**		
15.50		115	58.0					23.25	**155**			51.57	**155**	63.15	**15500**	43.79	**155**
15.75		115	58.0													46.24	**157**
16.00		115	58.0					23.53	**160**			40.89	**160**	51.79	**16000**	43.19	**160**
16.50		119	60.0					27.75	**165**			41.17	**165**	85.12	**16500**	63.59	**165**
17.00		119	60.0					28.49	**170**			42.41	**170**	72.59	**17000**	62.71	**170**
17.50		123	62.0					29.80	**175**			43.32	**175**	86.04	**17500**	58.66	**175**
17.75		123	62.0													71.09	**177**
18.00		123	62.0					30.09	**180**			42.81	**180**	80.55	**18000**	68.63	**180**
18.50		127	64.0					32.84	**185**					102.83	**18500**	76.89	**185**
19.00		127	64.0					34.58	**190**			44.29	**190**	86.04	**19000**	75.33	**190**
19.50		131	66.0					36.61	**195**					100.21	**19500**	84.51	**195**
19.75		131	66.0													84.55	**197**
20.00		131	66.0					36.61	**200**			46.69	**200**	86.05	**20000**	80.84	**200**
20.50		136	68.0											121.42	**20500**		
21.00		136	68.0											116.53	**21000**		
21.50		141	70.0											124.93	**21500**		
22.00		141	70.0											126.15	**22000**		
22.20		141	70.0											130.58	**22200**		
23.00		146	72.0											135.43	**23000**		
24.00		151	75.0											149.04	**24000**		
25.00		151	75.0											170.55	**25000**		
P				●		●		○		○		●		●		●	
M						●				●				●		●	
K				●		●		●				●		●		●	
N				○		○		○		●		○		○		○	
S				○		○				○		○		○		●	
H				○								○		○		○	
O				○		○		○				○					

1) uncoated
2) self-centering

→ v_c Page 46+47

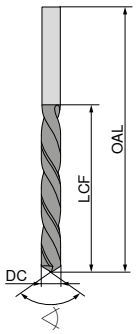
High-performance twist drills similar to DIN 1897, extra-short

▲ left-hand cutting

≤ 3xD

WTL-L

F.-nit





130°
HSS

DC h8 mm	OAL mm	LCF mm	10 112 ... £ T2	
1.0	26	6	3.90	010 1)
1.1	28	7	4.18	011 1)
1.2	30	8	4.04	012 1)
1.3	30	8	4.04	013 1)
1.4	32	9	3.76	014 1)
1.5	32	9	3.45	015 1)
1.6	34	10	3.58	016 1)
1.7	34	10	5.08	017 1)
1.8	36	11	5.08	018 1)
1.9	36	11	4.80	019 1)
2.0	38	12	3.07	020 1)
2.1	38	12	3.13	021 1)
2.2	40	13	3.58	022 1)
2.3	40	13	5.24	023 1)
2.4	43	14	3.76	024
2.5	43	14	3.13	025
2.6	43	14	3.76	026
2.7	46	16	3.90	027
2.8	46	16	4.04	028
2.9	46	16	4.18	029
3.0	46	16	3.58	030
3.1	49	18	4.35	031
3.2	49	18	3.90	032
3.3	49	18	4.35	033
3.4	52	20	4.60	034
3.5	52	20	6.41	035
3.6	52	20	4.60	036
3.7	52	20	4.60	037
3.8	55	22	4.95	038
3.9	55	22	4.95	039
4.0	55	22	4.95	040
4.1	55	22	5.53	041
4.2	55	22	4.95	042
4.3	58	24	6.74	043
4.4	58	24	6.74	044
4.5	58	24	5.40	045
4.6	58	24	7.18	046
4.7	58	24	7.18	047
4.8	62	26	7.18	048
4.9	62	26	10.33	049
5.0	62	26	6.11	050
5.1	62	26	7.18	051
5.2	62	26	7.33	052
5.3	62	26	7.62	053
5.4	66	28	7.62	054
5.5	66	28	6.90	055
5.6	66	28	7.62	056
5.7	66	28	11.34	057
5.8	66	28	7.94	058
5.9	66	28	8.09	059
6.0	66	28	7.33	060
6.1	70	31	8.70	061
6.2	70	31	8.70	062
6.3	70	31	8.70	063
6.4	70	31	9.16	064
6.5	70	31	7.62	065
6.6	70	31	9.11	066
6.7	70	31	9.74	067
6.8	74	34	10.34	068
6.9	74	34	12.26	069
7.0	74	34	8.24	070
7.2	74	34	16.15	072
7.3	74	34	23.53	073
7.4	74	34	16.78	074
7.5	74	34	9.16	075
7.7	79	37	25.27	077
8.0	79	37	9.11	080
8.1	79	37	18.11	081
8.2	79	37	18.69	082
8.3	79	37	18.69	083
8.5	79	37	10.34	085
8.6	84	40	19.83	086
8.7	84	40	28.49	087
8.8	84	40	30.09	088
9.0	84	40	11.25	090
9.5	84	40	12.83	095
9.7	89	43	23.05	097
10.0	89	43	12.87	100
10.1	89	43	29.60	101
10.2	89	43	21.37	102
10.5	89	43	20.91	105
11.0	95	47	21.37	110
11.5	95	47	23.36	115
11.8	95	47	30.99	118
12.0	102	51	23.64	120
12.5	102	51	37.19	125
12.8	102	51	32.78	128
13.0	102	51	28.68	130
14.0	107	54	35.07	140
14.5	111	56	43.25	145
15.0	111	56	38.17	150
16.0	115	58	45.65	160 2)
18.0	123	62	114.40	180 2)
19.0	127	64	150.85	190 2)

P	○
M	
K	●
N	●
S	
H	
O	○

1) uncoated
2) vaporised

→ v_c Page 47

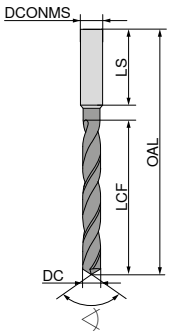
High-performance twist drill similar to DIN 338, short

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

≤ 5xD

VX

TiN





HSS-E

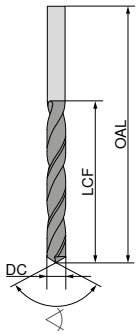
DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	10 124 ... £ T2	
2.00	56	24	3	28	12.83	020
2.10	56	24	3	28	14.68	021
2.20	59	27	3	28	14.68	022
2.30	59	27	3	28	14.68	023
2.40	62	30	3	28	14.68	024
2.50	62	30	3	28	14.68	025
2.60	62	30	3	28	14.68	026
2.70	65	33	3	28	14.68	027
2.80	65	33	3	28	14.68	028
2.90	65	33	3	28	14.68	029
3.00	65	33	3	28	13.95	030
3.10	68	36	4	28	15.99	031
3.20	68	36	4	28	15.99	032
3.30	68	36	4	28	15.99	033
3.40	71	39	4	28	15.99	034
3.50	71	39	4	28	15.99	035
3.60	71	39	4	28	17.80	036
3.70	71	39	4	28	17.80	037
3.80	75	43	4	28	17.80	038
3.90	75	43	4	28	17.80	039
4.00	75	43	4	28	17.80	040
4.10	87	43	6	36	20.63	041
4.20	87	43	6	36	21.81	042
4.30	91	47	6	36	20.63	043
4.40	91	47	6	36	20.63	044
4.50	91	47	6	36	20.63	045
4.60	91	47	6	36	23.40	046
4.65	91	47	6	36	23.40	465
4.70	91	47	6	36	23.40	047
4.80	96	52	6	36	23.40	048
4.90	96	52	6	36	23.40	049
5.00	96	52	6	36	25.44	050
5.10	96	52	6	36	25.44	051
5.20	96	52	6	36	25.44	052
5.30	96	52	6	36	28.08	053
5.40	101	57	6	36	28.08	054
5.50	101	57	6	36	25.44	055
5.55	101	57	6	36	29.20	555
5.60	101	57	6	36	29.20	056
5.70	101	57	6	36	29.20	057
5.80	101	57	6	36	29.20	058
5.90	101	57	6	36	29.20	059
6.00	101	57	6	36	27.75	060
6.10	107	63	8	36	34.29	061
6.20	107	63	8	36	34.29	062
6.30	107	63	8	36	34.29	063
6.40	107	63	8	36	34.29	064
6.50	107	63	8	36	34.29	065
6.60	107	63	8	36	36.77	066
6.70	107	63	8	36	36.77	067
6.80	113	69	8	36	36.77	068
6.90	113	69	8	36	36.77	069
7.00	113	69	8	36	36.77	070
7.10	113	69	8	36	38.28	071
7.20	113	69	8	36	38.28	072
7.30	113	69	8	36	38.28	073
7.40	113	69	8	36	38.28	074
7.50	113	69	8	36	38.28	075
7.55	119	75	8	36	38.22	755
7.60	119	75	8	36	38.22	076
7.70	119	75	8	36	38.22	077
7.80	119	75	8	36	38.22	078
7.90	119	75	8	36	38.22	079
8.00	119	75	8	36	38.22	080
8.10	125	75	10	40	42.81	081
8.20	125	75	10	40	42.81	082
8.30	125	75	10	40	42.81	083
8.40	125	75	10	40	42.81	084
8.50	125	75	10	40	43.17	085
8.60	131	81	10	40	39.83	086
8.70	131	81	10	40	39.83	087
8.80	131	81	10	40	39.83	088
8.90	131	81	10	40	39.83	089
9.00	131	81	10	40	39.83	090
9.10	131	81	10	40	42.81	091
9.20	131	81	10	40	42.81	092
9.30	131	81	10	40	42.81	093
9.40	131	81	10	40	42.81	094
9.50	131	81	10	40	42.81	095
9.55	137	87	10	40	46.69	955
9.60	137	87	10	40	46.69	096
9.70	137	87	10	40	46.69	097
9.80	137	87	10	40	46.69	098
9.90	137	87	10	40	46.69	099
10.00	137	87	10	40	46.69	100
10.10	144	87	12	45	59.19	101
10.20	144	87	12	45	59.19	102
10.30	144	87	12	45	59.19	103
10.40	144	87	12	45	59.19	104
10.50	144	87	12	45	59.19	105
10.60	144	87	12	45	65.01	106
10.70	151	94	12	45	65.01	107
10.80	151	94	12	45	65.01	108
10.90	151	94	12	45	65.01	109
11.00	151	94	12	45	54.79	110
11.10	151	94	12	45	58.66	111
11.20	151	94	12	45	58.66	112
11.30	151	94	12	45	58.66	113
11.40	151	94	12	45	58.66	114
11.50	151	94	12	45	58.66	115
11.60	151	94	12	45	64.68	116
11.70	151	94	12	45	64.68	117
11.80	151	94	12	45	64.68	118
11.90	158	101	12	45	64.68	119
12.00	158	101	12	45	64.68	120
12.10	161	101	16	48	74.31	121
12.20	161	101	16	48	74.31	122
12.30	161	101	16	48	74.31	123
12.40	161	101	16	48	74.31	124
12.50	161	101	16	48	74.31	125
12.60	161	101	16	48	78.26	126
12.70	161	101	16	48	78.26	127
12.80	161	101	16	48	78.26	128
12.90	161	101	16	48	78.26	129
13.00	161	101	16	48	86.32	130
13.50	166	106	16	48	111.95	135
14.00	166	106	16	48	111.95	140
14.50	169	109	16	48	143.23	145
15.00	169	109	16	48	134.55	150
15.50	172	112	16	48	145.82	155
16.00	172	112	16	48	140.79	160
16.50	181	115	20	50	218.27	165
17.00	181	115	20	50	218.27	170
17.50	184	118	20	50	218.27	175
18.00	184	118	20	50	218.27	180
18.50	188	122	20	50	218.27	185
19.00	188	122	20	50	218.27	190
19.50	191	125	20	50	218.27	195
20.00	191	125	20	50	194.04	200

P	●
M	●
K	●
N	○
S	○
H	
O	○

→ v_c Page 48

Twist drill to DIN 338, short

≤ 5xD



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



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

DC $_{h8}$ mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
0.20		19	2.5					4.07	00200 [1]			8.70	00200				
0.25		19	3.0					3.93	00250 [1]			18.60	00250				
0.30		19	3.0					2.75	00300 [1]			9.74	00300				
0.35		19	4.0					2.75	00350 [1]			6.13	00350				
0.40		20	5.0					2.33	00400 [1]			5.08	00400				
0.45		20	5.0					2.49	00450 [1]			5.40	00450				
0.50		22	6.0					2.04	00500 [1]			3.90	00500				
0.55		24	7.0					2.92	00550 [1]			9.46	00550				
0.60		24	7.0					1.91	00600 [1]			4.18	00600				
0.65		26	8.0					2.75	00650 [1]			6.59	00650				
0.70		28	9.0					1.75	00700 [1]			3.76	00700				
0.75		28	9.0					2.04	00750 [1]			4.04	00750				
0.80		30	10.0					1.75	00800 [1]			3.45	00800				
0.85		30	10.0					1.91	00850 [1]			3.90	00850				
0.90		32	11.0			4.37	009 [2]	1.75	00900 [1]			3.13	00900				
0.95		32	11.0					1.91	00950 [1]			3.90	00950				
1.00		34	12.0	6.28	010 [2]	4.37	010 [2]	1.62	01000 [1]	4.18	010	3.45	01000	3.58	010 [1]	7.62	010
1.05		34	12.0					1.75	01050 [1]			3.76	01050				
1.10		36	14.0	6.80	011 [2]	4.37	011 [2]	1.62	01100 [1]	4.18	011	3.07	01100	3.90	011 [1]	8.24	011
1.15		36	14.0					1.75	01150 [1]			3.45	01150				
1.20		38	16.0	6.68	012 [2]	4.95	012 [2]	1.62	01200 [1]	4.64	012	3.07	01200	3.90	012 [1]	8.24	012
1.25		38	16.0			4.65	125 [2]	1.75	01250 [1]			3.45	01250				
1.30		38	16.0	6.80	013 [2]	4.65	013 [2]	1.62	01300 [1]	4.60	013	3.07	01300	3.76	013 [1]	8.09	013
1.35		40	18.0					1.75	01350 [1]			3.45	01350				
1.40		40	18.0	6.88	014 [2]	4.37	014 [2]	1.62	01400 [1]	4.18	014	3.07	01400	3.90	014 [1]	8.24	014
1.45		40	18.0			4.37	145 [2]	1.62	01450 [1]			3.45	01450			10.76	901
1.50		40	18.0	6.48	015 [2]	4.07	015 [2]	1.45	01500 [1]	3.90	015	3.07	01500	3.58	015 [1]	7.62	015
1.55		43	20.0			4.37	155 [2]	1.62	01550 [1]			3.45	01550			12.64	902
1.60		43	20.0	6.48	016 [2]	4.37	016 [2]	1.33	01600 [1]	4.18	016	2.68	01600	3.58	016 [1]	7.62	016
1.65		43	20.0			4.50	165 [2]	1.62	01650 [1]			3.45	01650			12.83	903
1.70		43	20.0	6.95	017 [2]	4.50	017 [2]	1.33	01700 [1]	4.35	017	2.88	01700	3.58	017 [1]	7.62	017
1.75		46	22.0					1.62	01750 [1]			3.45	01750				
1.80		46	22.0	6.88	018 [2]	4.37	018 [2]	1.33	01800 [1]	4.18	018	2.88	01800	3.58	018 [1]	7.62	018
1.85		46	22.0					1.45	01850 [1]			3.45	01850			8.82	904
1.90		46	22.0	6.88	019 [2]	4.50	019 [2]	1.33	01900 [1]	4.35	019	2.88	01900	3.58	019 [1]	7.62	019
1.95		49	24.0					1.45	01950 [1]			3.13	01950				
2.00		49	24.0	6.68	020 [2]	4.04	020 [2]	1.02	02000 [1]	3.58	020	2.26	02000	3.13	020 [1]	6.74	020
2.05		49	24.0					1.45	02050 [1]			3.07	02050			9.43	905
2.10		49	24.0	6.95	021 [2]	4.95	021 [2]	1.33	02100 [1]	4.64	021	2.68	02100	3.58	021 [1]	7.18	021
2.15		53	27.0					1.45	02150 [1]			3.07	02150				
2.20		53	27.0	7.31	022 [2]	4.95	022 [2]	1.33	02200 [1]	4.64	022	2.68	02200	3.58	022 [1]	7.18	022
2.25		53	27.0					1.45	02250 [1]			3.07	02250				
2.30		53	27.0	7.08	023 [2]	4.95	023 [2]	1.33	02300 [1]	4.64	023	2.68	02300	3.58	023 [1]	7.18	023
2.35		53	27.0					1.91	02350 [1]			3.58	02350				
2.38	3/32	57	30.0	7.08	238 [2]	4.95	238 [2]										
2.40		57	30.0	6.68	024 [2]	4.95	024 [2]	1.33	02400	4.64	024	2.68	02400	3.58	024	7.18	024

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

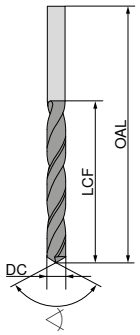
1) uncoated
2) self-centering

→ v_c Page 48+49

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



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



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

DC $_{h8}$ mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
2.45		57	30.0					1.75	**02450**			3.58	**02450**				
2.50		57	30.0	6.80	**025** [2]	4.18	**025** [2]	1.33	**02500**	3.90	**025**	2.40	**02500**	3.13	**025**	6.90	**025**
2.55		57	30.0			4.95	**255** [2]	1.91	**02550**			4.18	**02550**				
2.60		57	30.0	7.08	**026** [2]	4.95	**026** [2]	1.33	**02600**	4.80	**026**	2.88	**02600**	3.58	**026**	7.18	**026**
2.65		57	30.0					2.04	**02650**			4.18	**02650**				
2.70		61	33.0	7.52	**027** [2]	4.95	**027** [2]	1.33	**02700**	4.80	**027**	2.88	**02700**	3.76	**027**	7.94	**027**
2.75		61	33.0					1.75	**02750**			4.04	**02750**				
2.78	7/64	61	33.0	9.18	**278** [2]	5.84	**278** [2]										
2.80		61	33.0	7.35	**028** [2]	4.95	**028** [2]	1.33	**02800**	4.80	**028**	3.13	**02800**	3.76	**028**	8.09	**028**
2.85		61	33.0					1.91	**02850**			4.95	**02850**				
2.90		61	33.0	7.52	**029** [2]	5.08	**029** [2]	1.33	**02900**	4.80	**029**	3.13	**02900**	3.76	**029**	8.09	**029**
2.95		61	33.0					1.75	**02950**			4.18	**02950**				
3.00		61	33.0	7.15	**030** [2]	4.18	**030** [2]	1.18	**03000**	3.90	**030**	2.56	**03000**	3.45	**030**	7.18	**030**
3.05		65	36.0					1.62	**03050**			3.58	**03050**				
3.10		65	36.0	7.95	**031** [2]	5.08	**031** [2]	1.45	**03100**	4.95	**031**	3.13	**03100**	3.76	**031**	7.94	**031**
3.15		65	36.0					1.62	**03150**			3.58	**03150**				
3.17	1/8	65	36.0	7.92	**317** [2]	4.80	**317** [2]										
3.20		65	36.0	7.83	**032** [2]	4.60	**032** [2]	1.45	**03200**	4.18	**032**	2.88	**03200**	3.90	**032**	8.24	**032**
3.25		65	36.0			5.24	**325** [2]	1.62	**03250**			5.24	**03250**				
3.30		65	36.0	7.95	**033** [2]	4.60	**033** [2]	1.45	**03300**	4.18	**033**	2.88	**03300**	3.90	**033**	8.39	**033**
3.35		65	36.0					1.75	**03350**			3.58	**03350**				
3.40		70	39.0	8.49	**034** [2]	5.38	**034** [2]	1.45	**03400**	5.08	**034**	3.13	**03400**	4.35	**034**	9.29	**034**
3.45		70	39.0					1.75	**03450**			3.90	**03450**				
3.50		70	39.0	8.63	**035** [2]	4.60	**035** [2]	1.33	**03500**	4.18	**035**	3.07	**03500**	3.76	**035**	7.94	**035**
3.55		70	39.0					1.75	**03550**			3.90	**03550**				
3.57	9/64	70	39.0	8.63	**357** [2]	5.52	**357** [2]										
3.60		70	39.0	8.70	**036** [2]	5.52	**036** [2]	1.62	**03600**	5.40	**036**	3.13	**03600**	4.35	**036**	9.11	**036**
3.65		70	39.0					1.75	**03650**			3.76	**03650**				
3.70		70	39.0	8.70	**037** [2]	5.52	**037** [2]	1.62	**03700**	5.40	**037**	3.45	**03700**	4.35	**037**	9.29	**037**
3.75		70	39.0					1.75	**03750**			4.04	**03750**				
3.80		75	43.0	9.22	**038** [2]	5.84	**038** [2]	1.62	**03800**	5.40	**038**	3.58	**03800**	4.64	**038**	10.23	**038**
3.85		75	43.0					1.91	**03850**			4.04	**03850**				
3.90		75	43.0	9.43	**039** [2]	6.11	**039** [2]	1.75	**03900**	5.53	**039**	3.58	**03900**	4.95	**039**	10.69	**039**
3.95		75	43.0					1.91	**03950**			4.04	**03950**				
3.97	5/32	75	43.0	9.58	**397** [2]	6.41	**397** [2]										
4.00		75	43.0	9.03	**040** [2]	4.80	**040** [2]	1.33	**04000**	4.60	**040**	3.07	**04000**	4.04	**040**	8.70	**040**
4.05		75	43.0					2.04	**04050**			5.08	**04050**				
4.10		75	43.0	9.22	**041** [2]	5.81	**041** [2]	1.75	**04100**	5.53	**041**	3.58	**04100**	4.95	**041**	10.69	**041**
4.15		75	43.0					2.04	**04150**			5.08	**04150**				
4.20		75	43.0	9.22	**042** [2]	5.81	**042** [2]	1.62	**04200**	5.70	**042**	3.13	**04200**	4.60	**042**	9.89	**042**
4.25		75	43.0			6.13	**425** [2]	2.04	**04250**			5.08	**04250**				
4.30		80	47.0	9.82	**043** [2]	6.11	**043** [2]	1.75	**04300**	5.70	**043**	4.35	**04300**	5.08	**043**	11.07	**043**
4.35		80	47.0					2.63	**04350**			6.13	**04350**				
4.37	11/64	80	47.0	9.93	**437** [2]	6.54	**437** [2]										
4.40		80	47.0	9.82	**044** [2]	6.13	**044** [2]	1.75	**04400**	5.84	**044**	4.35	**04400**	5.08	**044**	11.07	**044**
4.45		80	47.0					2.63	**04450**								

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

1) uncoated
2) self-centering

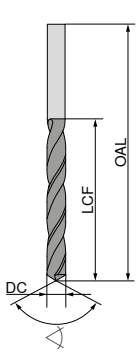
→ v_c Page 48+49

Continued on next page

Twist drill to DIN 338, short

≤ 5xD

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





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

DC h8 mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
4.50		80	47.0	9.58	**045** 2)	6.11	**045** 2)	1.75	**04500**	5.70	**045**	3.90	**04500**	4.80	**045**	9.89	**045**
4.55		80	47.0					2.63	**04550**			7.62	**04550**				
4.60		80	47.0	10.14	**046** 2)	6.54	**046** 2)	1.75	**04600**	6.11	**046**	4.35	**04600**	5.40	**046**	11.68	**046**
4.65		80	47.0			6.69	**465** 2)	2.63	**04650**			7.62	**04650**				
4.70		80	47.0	12.27	**047** 2)	6.74	**047** 2)	1.75	**04700**	6.13	**047**	4.35	**04700**	5.40	**047**	11.68	**047**
4.75		80	47.0					3.49	**04750**			6.11	**04750**				
4.76	3/16	86	52.0	10.37	**476** 2)	6.69	**476** 2)										
4.80		86	52.0	10.37	**048** 2)	6.54	**048** 2)	1.91	**04800**	6.13	**048**	4.35	**04800**	5.40	**048**	11.68	**048**
4.85		86	52.0					4.50	**04850**			7.62	**04850**				
4.90		86	52.0	10.54	**049** 2)	6.69	**049** 2)	1.91	**04900**	6.32	**049**	4.35	**04900**	5.53	**049**	11.82	**049**
4.95		86	52.0			6.69	**495** 2)	2.92	**04950**			7.62	**04950**				
5.00		86	52.0	10.62	**050** 2)	5.84	**050** 2)	1.62	**05000**	5.40	**050**	4.18	**05000**	4.95	**050**	10.63	**050**
5.05		86	52.0			6.69	**505** 2)	3.07	**05050**			8.82	**05050**				
5.10		86	52.0	10.62	**051** 2)	6.69	**051** 2)	3.49	**05100**	6.32	**051**	4.60	**05100**	5.53	**051**	11.82	**051**
5.15		86	52.0					3.07	**05150**								
5.16	13/64	86	52.0	11.57	**516** 2)	7.33	**516** 2)										
5.20		86	52.0	10.93	**052** 2)	7.18	**052** 2)	2.04	**05200**	6.59	**052**	4.64	**05200**	5.70	**052**	12.83	**052**
5.25		86	52.0					3.07	**05250**			10.33	**05250**				
5.30		86	52.0	11.57	**053** 2)	7.18	**053** 2)	2.04	**05300**	6.59	**053**	4.64	**05300**	5.70	**053**	12.83	**053**
5.35		93	57.0					3.66	**05350**								
5.40		93	57.0	14.20	**054** 2)	7.80	**054** 2)	2.33	**05400**	7.18	**054**	4.95	**05400**	6.13	**054**	13.34	**054**
5.45		93	57.0					6.69	**05450**			6.13	**05450**				
5.50		93	57.0	12.23	**055** 2)	7.99	**055** 2)	2.21	**05500**	7.62	**055**	4.64	**05500**	5.70	**055**	12.44	**055**
5.55		93	57.0			9.11	**555** 2)	3.78	**05550**			6.13	**05550**				
5.56	7/32	93	57.0	14.39	**556** 2)	9.11	**556** 2)										
5.60		93	57.0	13.03	**056** 2)	7.94	**056** 2)	2.33	**05600**	7.33	**056**	5.40	**05600**	6.32	**056**	13.77	**056**
5.65		93	57.0					3.93	**05650**			8.39	**05650**				
5.70		93	57.0	12.87	**057** 2)	7.94	**057** 2)	2.33	**05700**	7.33	**057**	5.40	**05700**	6.32	**057**	13.77	**057**
5.75		93	57.0			7.94	**575** 2)	4.50	**05750**			8.24	**05750**				
5.80		93	57.0	12.87	**058** 2)	7.94	**058** 2)	2.33	**05800**	7.33	**058**	5.40	**05800**	6.32	**058**	13.92	**058**
5.85		93	57.0					3.93	**05850**			9.89	**05850**				
5.90		93	57.0	13.67	**059** 2)	7.94	**059** 2)	2.49	**05900**	7.33	**059**	5.40	**05900**	6.90	**059**	14.82	**059**
5.95	15/64	93	57.0	16.74	**595** 2)	10.16	**595** 2)	2.49	**05950**			5.40	**05950**				
6.00		93	57.0	12.37	**060** 2)	7.80	**060** 2)	2.21	**06000**	7.18	**060**	5.40	**06000**	6.32	**060**	14.66	**060**
6.05		101	63.0					4.22	**06050**			11.82	**06050**				
6.10		101	63.0	13.99	**061** 2)	8.82	**061** 2)	2.63	**06100**	8.24	**061**	5.40	**06100**	6.90	**061**	15.25	**061**
6.15		101	63.0					4.22	**06150**			8.82	**06150**				
6.20		101	63.0	13.79	**062** 2)	8.82	**062** 2)	2.63	**06200**	8.24	**062**	5.40	**06200**	7.18	**062**	15.44	**062**
6.25		101	63.0					4.22	**06250**			9.32	**06250**				
6.30		101	63.0	15.23	**063** 2)	8.82	**063** 2)	2.63	**06300**	8.24	**063**	5.70	**06300**	7.94	**063**	16.59	**063**
6.35	1/4	101	63.0	16.11	**635** 2)	9.43	**635** 2)	2.75	**06350**			5.53	**06350**				
6.40		101	63.0	16.14	**064** 2)	9.43	**064** 2)	2.75	**06400**	8.82	**064**	5.70	**06400**	7.94	**064**	16.78	**064**
6.45		101	63.0					4.65	**06450**								
6.50		101	63.0	14.86	**065** 2)	8.70	**065** 2)	2.63	**06500**	8.09	**065**	5.53	**06500**	7.18	**065**	15.25	**065**
6.55		101	63.0					4.95	**06550**			12.26	**06550**				
6.60		101	63.0	16.34	**066** 2)	9.43	**066** 2)	2.75	**06600**	8.82	**066**	6.59	**06600**	8.09	**066**	17.84	**066**

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

1) uncoated
2) self-centering

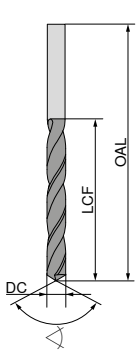
→ v_c Page 48+49

Continued on next page

Twist drill to DIN 338, short

≤ 5xD

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





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

DC h8 mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
6.65		101	63.0					8.85	06650			17.30	06650				
6.70		101	63.0	16.30	067 2)	9.43	067 2)	2.92	06700	8.82	067	6.74	06700	8.09	067	17.84	067
6.75		109	69.0	22.01	675 2)	12.93	675 2)	3.49	06750			10.33	06750				
6.80		109	69.0	16.74	068 2)	10.69	068 2)	3.49	06800	9.74	068	7.18	06800	8.39	068	18.31	068
6.85		109	69.0					5.38	06850			17.87	06850				
6.90		109	69.0	17.08	069 2)	10.69	069 2)	3.49	06900	9.74	069	7.18	06900	8.82	069	18.69	069
6.95		109	69.0					5.52	06950			17.87	06950				
7.00		109	69.0	16.74	070 2)	9.11	070 2)	3.07	07000	8.39	070	6.32	07000	7.62	070	16.33	070
7.05		109	69.0					5.97	07050			10.23	07050				
7.10		109	69.0	19.28	071 2)	12.13	071 2)	3.49	07100	11.37	071	8.68	07100	11.75	071	25.48	071
7.14	9/32	109	69.0	28.84	714 2)	18.11	714 2)										
7.15		109	69.0					10.33	07150								
7.20		109	69.0	19.24	072 2)	12.13	072 2)	3.66	07200	11.37	072	8.68	07200	11.75	072	25.89	072
7.25		109	69.0					9.89	07250			20.93	07250				
7.30		109	69.0	19.92	073 2)	12.13	073 2)	3.66	07300	11.37	073	8.68	07300	11.75	073	25.48	073
7.35		109	69.0					5.97	07350								
7.40		109	69.0	19.47	074 2)	12.13	074 2)	3.78	07400	11.37	074	8.68	07400	11.75	074	25.48	074
7.45		109	69.0			9.74	745 2)	5.81	07450								
7.50		109	69.0	17.72	075 2)	9.74	075 2)	3.49	07500	9.16	075	7.33	07500	8.70	075	18.69	075
7.55		117	75.0					6.84	07550								
7.60		117	75.0	21.50	076 2)	14.24	076 2)	4.07	07600	13.77	076	9.62	07600	12.83	076	28.08	076
7.65		117	75.0					6.84	07650								
7.70		117	75.0	24.49	077 2)	14.66	077 2)	4.07	07700	13.77	077	9.62	07700	12.83	077	28.08	077
7.75		117	75.0					6.11	07750			16.59	07750				
7.80		117	75.0	21.03	078 2)	14.24	078 2)	4.07	07800	13.77	078	9.62	07800	12.83	078	28.08	078
7.85		117	75.0					6.84	07850								
7.90		117	75.0	25.16	079 2)	14.66	079 2)	4.07	07900	13.77	079	11.07	07900	12.83	079	28.08	079
7.94	5/16	117	75.0	22.54	794 2)	14.24	794 2)										
7.95		117	75.0					7.12	07950								
8.00		117	75.0	19.99	080 2)	11.82	080 2)	3.49	08000	10.94	080	8.09	08000	9.74	080	21.41	080
8.05		117	75.0					7.28	08050			21.21	08050				
8.10		117	75.0	21.90	081 2)	14.24	081 2)	4.22	08100	13.77	081	11.37	08100	13.34	081	30.04	081
8.15		117	75.0					7.42	08150			21.21	08150				
8.20		117	75.0	21.50	082 2)	15.25	082 2)	4.22	08200	14.81	082	11.82	08200	13.92	082	30.68	082
8.25		117	75.0					5.08	08250			17.21	08250				
8.30		117	75.0	23.89	083 2)	15.25	083 2)	4.65	08300	14.81	083	12.44	08300	14.82	083	32.32	083
8.35		117	75.0					7.99	08350								
8.40		117	75.0	24.06	084 2)	15.99	084 2)	4.65	08400	15.25	084	12.44	08400	14.82	084	32.32	084
8.45		117	75.0					8.15	08450			28.92	08450				
8.50		117	75.0	20.58	085 2)	11.68	085 2)	4.50	08500	10.79	085	9.32	08500	11.07	085	24.41	085
8.55		125	81.0					9.46	08550			20.91	08550				
8.60		125	81.0			26.10	086 2)	5.08	08600	16.34	086	12.44	08600	16.79	086	36.31	086
8.65		125	81.0					16.86	08650								
8.70		125	81.0			26.10	087 2)	5.08	08700	16.34	087	13.77	08700	16.59	087	37.09	087
8.73	11/32	125	81.0	22.30	873 2)	17.15	873 2)										
8.75		125	81.0					8.42	08750			19.91	08750				

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

1) uncoated
2) self-centering

→ v_c Page 48+49

Continued on next page

Twist drill to DIN 338, short

≤ 5xD

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



	130° HSS-E-PM	118° HSS-E	118° HSS	130° HSS-E	130° HSS	130° HSS-E	130° HSS-E
	10 173 ...	**10 171 ...**	**10 152 ...**	**10 175 ...**	**10 161 ...**	**10 168 ...**	**10 170 ...**
DC h8 mm	**DC inch**	**OAL mm**	**LCF mm**	£ T2	£ T2	£ T2	£ T2	£ T2	£ T2
8.80		125	81.0	24.06 **088** [2]	18.17 **088** [2]	5.24 **08800**	17.37 **088**	13.77 **08800**	16.59 **088**	37.09 **088**
8.90		125	81.0		22.43 **089** [2]	5.38 **08900**	18.25 **089**	13.92 **08900**	16.78 **089**	37.70 **089**
8.95		125	81.0			17.58 **08950**				
9.00		125	81.0	22.65 **090** [2]	14.68 **090** [2]	4.80 **09000**	14.34 **090**	10.23 **09000**	12.87 **090**	27.84 **090**
9.05		125	81.0			9.89 **09050**				
9.10		125	81.0		24.39 **091** [2]	5.38 **09100**	19.31 **091**	15.44 **09100**	18.31 **091**	39.23 **091**
9.15		125	81.0			17.58 **09150**				
9.20		125	81.0		25.03 **092** [2]	5.38 **09200**	20.36 **092**	15.44 **09200**	19.31 **092**	42.21 **092**
9.25		125	81.0			12.80 **09250**		24.12 **09250**		
9.30		125	81.0	26.15 **093** [2]	22.23 **093** [2]	5.38 **09300**	21.53 **093**	15.44 **09300**	19.31 **093**	42.41 **093**
9.35		125	81.0		17.30 **935** [2]	19.04 **09350**				
9.40		125	81.0		27.47 **094** [2]	5.38 **09400**	23.05 **094**	15.44 **09400**	19.31 **094**	42.41 **094**
9.45		125	81.0			10.62 **09450**				
9.50		125	81.0	23.81 **095** [2]	17.30 **095** [2]	5.38 **09500**	16.59 **095**	11.68 **09500**	13.77 **095**	29.80 **095**
9.55		133	87.0			11.91 **09550**				
9.60		133	87.0		24.84 **096** [2]	5.97 **09600**	23.94 **096**	17.84 **09600**	20.20 **096**	45.32 **096**
9.65		133	87.0			11.91 **09650**				
9.70		133	87.0		29.18 **097** [2]	5.97 **09700**	23.94 **097**	18.17 **09700**	22.43 **097**	48.49 **097**
9.75		133	87.0			7.84 **09750**				
9.80		133	87.0	28.37 **098** [2]	24.84 **098** [2]	6.69 **09800**	23.94 **098**	18.17 **09800**	22.43 **098**	48.49 **098**
9.85		133	87.0			11.64 **09850**				
9.90		133	87.0		22.87 **099** [2]	6.69 **09900**	23.94 **099**	18.47 **09900**	22.43 **099**	48.49 **099**
9.95		133	87.0			12.94 **09950**				
10.00		133	87.0	26.91 **100** [2]	17.40 **100** [2]	5.68 **10000**	15.72 **100**	12.26 **10000**	15.44 **100**	34.79 **100**
10.05		133	87.0			16.42 **10050**		31.44 **10050**		
10.10		133	87.0		22.46 **101** [2]	7.12 **10100**	27.00 **101**	18.78 **10100**	35.07 **101**	76.74 **101**
10.15		133	87.0			29.49 **10150**				
10.20		133	87.0	31.07 **102** [2]	23.53 **102** [2]	7.28 **10200**	23.05 **102**	18.78 **10200**	21.41 **102**	46.99 **102**
10.25		133	87.0			9.74 **10250**		21.21 **10250**		
10.30		133	87.0		19.61 **103** [2]	8.72 **10300**	35.32 **103**	18.78 **10300**	28.28 **103**	62.71 **103**
10.35		133	87.0			16.42 **10350**				
10.40		133	87.0		24.29 **104** [2]	8.72 **10400**	35.32 **104**	18.78 **10400**	30.68 **104**	66.68 **104**
10.45		133	87.0			29.49 **10450**				
10.50		133	87.0	31.28 **105** [2]	24.41 **105** [2]	7.42 **10500**	23.36 **105**	15.11 **10500**	20.00 **105**	43.79 **105**
10.55		133	87.0		26.75 **955** [2]	20.93 **10550**				
10.60		133	87.0			9.16 **10600**	63.34 **106**	27.01 **10600**	30.68 **106**	
10.70		142	94.0			10.62 **10700**	46.25 **107**	30.95 **10700**	30.68 **107**	66.68 **107**
10.75		142	94.0			11.64 **10750**		35.61 **10750**		
10.80		142	94.0			10.33 **10800**	47.75 **108**	32.26 **10800**	28.75 **108**	64.07 **108**
10.90		142	94.0			10.90 **10900**	47.75 **109**	32.26 **10900**	37.09 **109**	
11.00		142	94.0	32.31 **110** [2]	26.75 **110** [2]	8.42 **11000**	25.94 **110**	18.17 **11000**	24.41 **110**	51.18 **110**
11.10		142	94.0			10.90 **11100**	50.04 **111**	22.43 **11100**	35.32 **111**	
11.11	7/16	142	94.0	40.50 **111** [2]	51.59 **111** [2]					
11.20		142	94.0		51.59 **112** [2]	10.62 **11200**	50.04 **112**	28.39 **11200**	39.23 **112**	88.63 **112**
11.30		142	94.0		51.86 **113** [2]		50.34 **113**		39.23 **113**	
11.40		142	94.0		51.86 **114** [2]	11.20 **11400**	50.34 **114**	45.33 **11400**	39.23 **114**	

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

1) uncoated
2) self-centering

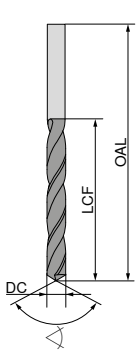
→ v_c Page 48+49

Continued on next page

Twist drill to DIN 338, short

≤ 5xD

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





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

DC h8 mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
11.50		142	94.0	35.85	**115** [2]	34.15	**115** [2]	9.16	**11500**	33.13	**115**	20.20	**11500**	27.84	**115**	62.22	**115**
11.60		142	94.0			59.42	**116** [2]	11.20	**11600**	57.52	**116**	31.44	**11600**	39.23	**116**		
11.70		142	94.0					11.64	**11700**	57.52	**117**	31.44	**11700**	39.23	**117**	88.63	**117**
11.80		142	94.0					11.77	**11800**	57.52	**118**	31.44	**11800**	42.41	**118**	93.21	**118**
11.90		151	101.0					12.94	**11900**	57.52	**119**	31.44	**11900**				
12.00		151	101.0	38.30	**120** [2]	38.07	**120** [2]	10.33	**12000**	36.24	**120**	22.12	**12000**	29.80	**120**	64.66	**120**
12.15		151	101.0			39.08	**121** [2]										
12.20		151	101.0					13.68	**12200**			37.54	**12200**				
12.25		151	101.0					14.99	**12250**								
12.30		151	101.0	68.75	**123** [2]	40.40	**123** [2]										
12.50		151	101.0	39.86	**125** [2]	39.08	**925** [2]	11.48	**12500**			22.12	**12500**	36.68	**125**	81.91	**125**
12.70		151	101.0	52.06	**127** [2]	30.65	**127** [2]	12.80	**12700**			21.53	**12700**				
12.80		151	101.0					15.25	**12800**			39.52	**12800**	64.68	**128**	140.49	**128**
13.00		151	101.0	42.36	**130** [2]	41.69	**130** [2]	12.64	**13000**			26.24	**13000**	36.68	**130**	81.31	**130**
13.10		151	101.0			52.73	**131** [2]										
13.20		151	101.0					16.42	**13200**			48.05	**13200**				
13.30		160	108.0			52.73	**133** [2]										
13.50		160	108.0	75.31	**135** [2]	52.73	**135** [2]	14.54	**13500**			32.50	**13500**	49.23	**135**	109.53	**135**
13.80		160	108.0					20.93	**13800**			60.42	**13800**	57.06	**138**	124.46	**138**
14.00		160	108.0	51.31	**140** [2]	50.56	**140** [2]	16.13	**14000**			31.13	**14000**	44.87	**140**	97.34	**140**
14.50		169	114.0					17.30	**14500**			41.19	**14500**	54.92	**145**	117.00	**145**
14.80		169	114.0											114.35	**148**	248.99	**148**
15.00		169	114.0					18.60	**15000**			36.93	**15000**	55.21	**150**	123.10	**150**
15.25		178	120.0					34.73	**15250**								
15.50		178	120.0					20.35	**15500**			52.02	**15500**	82.06	**155**	246.37	**155**
15.80		178	120.0					33.41	**15800**								
16.00		178	120.0					21.95	**16000**			49.29	**16000**	69.26	**160**	151.17	**160**
16.50		184	125.0					24.99	**16500**			82.06	**16500**				
17.00		184	125.0					26.46	**17000**			83.60	**17000**				
17.50		191	130.0					28.92	**17500**			164.72	**17500**				
18.00		191	130.0					30.80	**18000**			90.13	**18000**				
18.50		198	135.0					33.41	**18500**								
19.00		198	135.0					35.89	**19000**			102.83	**19000**				
19.50		205	140.0					38.07	**19500**								
20.00		205	140.0					41.69	**20000**			127.37	**20000**				

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

1) uncoated
2) self-centering

→ v_c Page 48+49

Twist drill to DIN 338, short

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

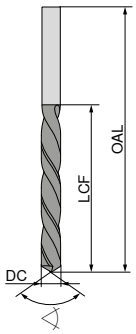
≤ 5xD

WTL

TiCN

WTL-L

F.-nit







130° HSS-E

130° HSS

DC h8 mm	OAL mm	LCF mm	10 172 ... £ T2		10 169 ... £ T2	
1.0	34	12			5.53	010 1)
1.3	38	16			5.70	013 1)
1.4	40	18			5.70	014 1)
1.5	40	18			4.60	015 1)
1.6	43	20			4.80	016 1)
1.7	43	20			4.80	017 1)
1.8	46	22			4.95	018 1)
1.9	46	22			4.95	019 1)
2.0	49	24			3.90	020 1)
2.1	49	24			4.64	021 1)
2.2	53	27			5.08	022 1)
2.3	53	27			4.80	023 1)
2.4	57	30			4.80	024
2.5	57	30			4.35	025
2.6	57	30			4.95	026
2.7	61	33			4.95	027
2.8	61	33			5.08	028
2.9	61	33			5.08	029
3.0	61	33	9.43	030	4.64	030
3.1	65	36	10.23	031	5.53	031
3.2	65	36	10.63	032	5.08	032
3.3	65	36	11.37	033	5.40	033
3.4	70	39	12.44	034	5.84	034
3.5	70	39	10.23	035	4.95	035
3.6	70	39	11.82	036	6.13	036
3.7	70	39	12.44	037	6.32	037
3.8	75	43	13.15	038	6.74	038
3.9	75	43	13.77	039	7.18	039
4.0	75	43	11.37	040	5.40	040
4.1	75	43	13.77	041	7.18	041
4.2	75	43	12.87	042	6.59	042
4.3	80	47	14.36	043	8.24	043
4.4	80	47	14.36	044	8.70	044
4.5	80	47	13.15	045	6.90	045
4.6	80	47	15.11	046	8.82	046
4.7	80	47	15.11	047	8.82	047
4.8	86	52	15.11	048	8.82	048
4.9	86	52	15.26	049	9.16	049
5.0	86	52	13.92	050	6.59	050
5.1	86	52	15.26	051	9.16	051
5.2	86	52	16.33	052	9.89	052
5.3	86	52	16.33	053	9.89	053
5.4	93	57	17.37	054	10.69	054
5.5	93	57	16.15	055	8.24	055
5.6	93	57	17.84	056	11.07	056
5.7	93	57	17.84	057	11.07	057
5.8	93	57	18.31	058	11.07	058
5.9	93	57	19.31	059	11.07	059
6.0	93	57	18.31	060	8.24	060
6.1	101	63	20.00	061	11.82	061
6.2	101	63	20.20	062	13.15	062
6.3	101	63	22.43	063	13.15	063
6.4	101	63	23.05	064	13.15	064
6.5	101	63	20.00	065	9.89	065
6.6	101	63	23.22	066	14.34	066
6.7	101	63	23.22	067	14.34	067
6.8	109	69	23.94	068	15.11	068
6.9	109	69	25.48	069	15.44	069
7.0	109	69	21.41	070	11.75	070
7.1	109	69	32.32	071	21.41	071
7.2	109	69	32.32	072	21.41	072
7.3	109	69			21.41	073
7.4	109	69	32.32	074	21.41	074
7.5	109	69	24.72	075	13.34	075
7.7	117	75	36.31	077	22.90	077
7.8	117	75	36.31	078	22.90	078
7.9	117	75			22.90	079
8.0	117	75	28.08	080	12.87	080
8.1	117	75	37.72	081	23.22	081
8.2	117	75	39.23	082	23.22	082
8.3	117	75			23.22	083
8.4	117	75	42.21	084	23.22	084
8.5	117	75	30.82	085	16.15	085
8.6	125	81	47.44	086	25.74	086
8.7	125	81	47.15	087	25.74	087
8.8	125	81	47.15	088	25.74	088
8.9	125	81	49.43	089	25.74	089
9.0	125	81	36.61	090	16.34	090
9.2	125	81			27.00	092
9.3	125	81			27.00	093
9.5	125	81	39.67	095	20.64	095
9.8	133	87			28.28	098
9.9	133	87			29.80	099
10.0	133	87	44.73	100	18.31	100
10.1	133	87			29.80	101
10.2	133	87	59.27	102	30.99	102
10.3	133	87			30.68	103
10.4	133	87			31.73	104
10.5	133	87	57.06	105	43.30	105
11.0	142	94	81.31	110	30.82	110
11.5	142	94	81.31	115	47.95	115
12.0	151	101	86.32	120	35.32	120
12.2	151	101			55.68	122
12.5	151	101			37.72	125
13.0	151	101			39.67	130
14.0	160	108			45.20	140
14.5	169	114			50.04	145
15.0	169	114			76.70	150
16.0	178	120			62.22	160

	10 172 ...	10 169 ...
P	●	○
M	○	
K	●	●
N	○	●
S	○	
H	○	
O	○	○

1) uncoated

→ v_c Page 49

Twist drill sets DIN 338, short

▲ In metal box
▲ In 0.1 mm steps

≤ 5xD



	N	UNI
	vap.	TiN
		
	Drill set type N HSS	Drill set type UNI TiN HSS-E
	10 158 ...	10 158 ...
DC h8 mm	£ T2	£ T2
1,0 - 5,9	76.41 050	289.80 054
6,0 - 10,0	158.72 100	453.77 104
P	○	●
M		●
K	●	●
N	○	○
S		○
H		
O	○	○

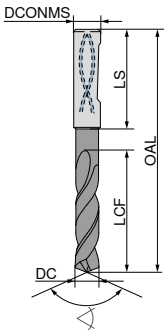
→ v_c Page 48

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

Twist drill with thro' coolant ~ DIN 338, short

- Relief ground
- Special point thinning
- Wide chip flutes
- Rounded flute edges
- For long chipping materials up to 1000N/mm²

≤ 5xD



WNXi



E
130°
HSS-E

WNXi
TiN



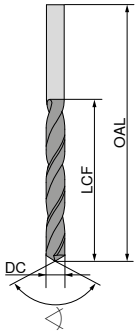
E
130°
HSS-E

DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	10 180 ... £ T2		10 181 ... £ T2	
5.0	82	44	6	38	61.62	050	91.52	050
5.5	82	44	6	38	107.51	055	92.93	055
6.0	82	44	6	38	60.56	060	87.85	060
6.5	91	53	8	38	64.20	065	96.72	065
6.8	91	53	8	38	66.51	068	98.84	068
7.0	91	53	8	38	68.36	070	98.25	070
7.5	91	53	8	38	115.20	075	99.75	075
7.8	91	53	8	38	68.36	078	101.76	078
8.0	91	53	8	38	64.54	080	95.80	080
8.5	103	61	10	42	71.09	085	105.42	085
9.0	103	61	10	42	71.70	090	105.06	090
9.5	103	61	10	42	71.69	095	108.45	095
10.0	103	61	10	42	69.55	100	103.41	100
10.2	118	71	12	47	77.07	102	116.53	102
10.5	118	71	12	47	77.07	105	117.31	105
11.0	118	71	12	47	139.16	110	119.57	110
11.5	118	71	12	47	83.29	115	123.26	115
12.0	118	71	12	47	75.13	120	113.05	120
12.5	124	77	14	47	92.04	125	142.46	125
13.0	124	77	14	47	95.20	130	144.61	130
13.5	124	77	14	47	97.34	135	146.74	135
14.0	124	77	14	47	91.68	140	139.42	140
14.5	133	83	16	50	113.36	145	171.92	145
15.0	133	83	16	50	112.52	150	174.83	150
15.5	133	83	16	50	117.44	155	178.47	155
16.0	133	83	16	50	111.21	160	170.36	160
16.5	143	93	18	50	138.97	165	206.38	165
17.0	143	93	18	50	140.94	170	213.73	170
17.5	143	93	18	50	145.20	175	221.03	175
18.0	143	93	18	50	136.83	180	202.72	180
18.5	153	101	20	52	164.72	185	246.96	185
19.0	153	101	20	52	166.55	190	250.61	190
19.5	153	101	20	52	292.57	195	254.27	195
20.0	153	101	20	52	161.23	200	243.31	200
P						●		●
M								
K						●		●
N						○		○
S								
H								
O						○		○

→ v_c Page 49

Twist drills with coolant hole, factory standard, long

≤ 10xD



NC



130°
HSS

NC
TiAlN



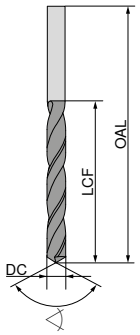
130°
HSS

DC h8 mm	OAL mm	LCF mm	10 223 ... £ T2		10 224 ... £ T2	
3.0	100	66	118.38	030	124.96	030
3.3	106	69	122.93	033	142.94	033
3.5	112	73	118.94	035	141.41	035
3.8	119	78			174.83	038
4.0	119	78	122.20	040	142.15	040
4.2	119	78	121.95	042	144.61	042
4.5	126	82	123.54	045	143.70	045
4.8	132	87			173.45	048
5.0	132	87	121.95	050	145.37	050
5.5	139	91	124.96	055	150.55	055
5.8	139	91			174.36	058
6.0	139	91	132.55	060	156.35	060
6.5	148	97	140.64	065	167.48	065
6.8	156	102	141.57	068	168.25	068
7.0	156	102	141.57	070	168.25	070
7.5	156	102	145.82	075	174.04	075
7.8	165	109			185.03	078
8.0	165	109	148.87	080	177.42	080
8.5	165	109	155.58	085	185.34	085
8.8	175	115			190.05	088
9.0	175	115	155.58	090	189.61	090
9.5	175	115	161.53	095	196.15	095
9.8	184	121			202.43	098
10.0	184	121	161.53	100	196.15	100
10.2	184	121	164.61	102	202.43	102
10.5	184	121	164.61	105	203.94	105
10.8	195	128			209.27	108
11.0	195	128	164.61	110	203.94	110
11.5	195	128	168.25	115	207.90	115
11.8	205	134			240.69	118
12.0	205	134	169.61	120	211.26	120
12.8	205	134			252.28	128
13.0	205	134	177.86	130	222.54	130
P				○		○
M						○
K				●		●
N				○		○
S						
H						
O				○		○

→ v_c Page 50

Twist drills, DIN 340, long

≤ 10xD





			◁ 118° HSS-E		◁ 130° HSS-E		◁ 130° HSS		◁ 130° HSS		◁ 130° HSS			
			10 270 ...		10 225 ...		10 215 ...		10 210 ...		10 200 ...			
DC h8 mm	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2			
1.0	56	33	7.91	010	8.70	010 1)	6.90	010 1)	15.25	010	6.32	010		
1.1	60	37	8.83	011	10.63	011 1)	7.62	011 1)	17.84	011	6.90	011		
1.2	65	41	9.86	012	10.23	012 1)	7.18	012 1)	15.25	012	6.32	012		
1.3	65	41	9.71	013	9.89	013 1)	7.18	013 1)	15.88	013	6.11	013		
1.4	70	45	9.60	014	9.43	014 1)	6.59	014 1)	14.36	014	5.70	014		
1.5	70	45	8.35	015	8.24	015 1)	5.70	015 1)	12.44	015	5.70	015		
1.6	76	50	9.86	016	9.11	016 1)	5.53	016 1)	12.20	016	5.25	016		
1.7	76	50	10.77	017	9.16	017 1)	7.42	017 1)	12.20	017	5.08	017		
1.8	80	53	10.28	018	9.16	018 1)	5.40	018 1)	11.68	018	5.08	018		
1.9	80	53	10.99	019	8.39	019 1)	7.28	019 1)	11.75	019	5.08	019		
2.0	85	56	8.16	020	6.59	020 1)	5.08	020 1)	10.94	020	4.35	020		
2.1	85	56	9.42	021	7.94	021 1)	5.70	021 1)	12.83	021	5.08	021		
2.2	90	59	9.60	022	8.09	022 1)	5.84	022 1)	12.87	022	5.08	022		
2.3	90	59	9.42	023	8.09	023 1)	5.84	023 1)	13.30	023	5.08	023		
2.4	95	62	8.72	024	8.24	024	6.11	024	13.34	024	5.08	024		
2.5	95	62	8.35	025	6.90	025	5.25	025	11.75	025	4.60	025		
2.6	95	62	9.60	026	8.24	026	6.11	026	13.34	026	5.08	026		
2.7	100	66	10.15	027	11.77	027	6.13	027	13.73	027	5.08	027		
2.8	100	66	9.71	028	8.39	028	6.13	028	13.73	028	5.08	028		
2.9	100	66	10.15	029	8.39	029	6.13	029	13.77	029	5.08	029		
3.0	100	66	9.00	030	7.18	030	5.40	030	11.68	030	4.80	030		
3.1	106	69	10.77	031	8.70	031	7.18	031	15.44	031	6.32	031		
3.2	106	69	9.98	032	8.39	032	6.11	032	13.30	032	5.08	032		
3.3	106	69	10.58	033	9.11	033	6.90	033	14.81	033	5.70	033		
3.4	112	73	10.99	034	8.82	034	7.18	034	15.88	034	6.32	034		
3.5	112	73	10.77	035	8.39	035	6.13	035	13.34	035	5.40	035		
3.6	112	73	11.15	036	12.64	036	10.62	036	16.91	036	6.59	036		
3.7	112	73	10.85	037	9.16	037	7.33	037	16.34	037	6.90	037		
3.8	119	78	10.43	038	9.11	038	7.62	038	16.34	038	6.90	038		
3.9	119	78	11.69	039	9.29	039	7.62	039	16.33	039	7.18	039		
4.0	119	78	11.41	040	9.16	040	6.74	040	14.36	040	5.84	040		
4.1	119	78	11.61	041	9.43	041	7.80	041	16.78	041	7.18	041		
4.2	119	78	11.15	042	9.89	042	7.62	042	16.34	042	6.13	042		
4.3	126	82	12.44	043	10.23	043	8.39	043	18.25	043	7.94	043		
4.4	126	82	10.99	044	10.16	044	11.64	044	19.16	044	8.09	044		
4.5	126	82	11.69	045	10.63	045	7.62	045	16.59	045	7.18	045		
4.6	126	82	11.27	046	10.69	046	8.68	046	19.16	046	8.09	046		
4.7	126	82	13.04	047	11.07	047	11.64	047	19.16	047	8.24	047		
4.8	132	87	12.69	048	11.68	048	8.68	048	19.16	048	8.39	048		
4.9	132	87	12.86	049	12.20	049	9.16	049	26.58	049	8.70	049		
5.0	132	87	13.04	050	10.63	050	8.09	050	17.37	050	6.90	050		
5.1	132	87	14.42	051	12.44	051	12.50	051	20.44	051	8.82	051		
P			●		●		○		○					
M			●		○									
K			●		●		●		●					
N			○		●		●		○		●			
S			○		○									
H					○									
O			○		○		○		○					

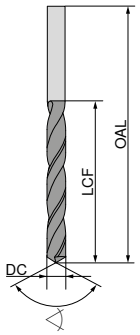
1) uncoated

→ v_c Page 50+51

Continued on next page

Twist drills, DIN 340, long

≤ 10xD



	UNI	WTL	WTL	WTL	WTW
	TiN	F.-nit	F.-nit	TiN	
					
	◁ 118° HSS-E	◁ 130° HSS-E	◁ 130° HSS	◁ 130° HSS	◁ 130° HSS
	10 270 ...	10 225 ...	10 215 ...	10 210 ...	10 200 ...

DC h8 mm	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2	
5.2	132	87	14.14	052	12.87	052	9.89	052	21.41	052	9.11	052
5.3	132	87	15.56	053	13.30	053	13.37	053	21.70	053	9.29	053
5.4	139	91	17.00	054	13.15	054	10.16	054	23.05	054	9.43	054
5.5	139	91	13.55	055	12.83	055	9.29	055	20.81	055	8.82	055
5.6	139	91	17.71	056	13.77	056	11.37	056	25.03	056	14.24	056
5.7	139	91	19.56	057	13.92	057	11.68	057	25.94	057	10.69	057
5.8	139	91	17.18	058	14.34	058	12.20	058	25.74	058	11.07	058
5.9	139	91	19.15	059	14.36	059	12.44	059	27.63	059	11.37	059
6.0	139	91	16.28	060	13.30	060	9.89	060	21.41	060	9.16	060
6.1	148	97	19.31	061	15.25	061	17.87	061	28.88	061	13.30	061
6.2	148	97	17.31	062	15.11	062	13.73	062	29.35	062	13.15	062
6.3	148	97	19.31	063	15.26	063	18.60	063	30.22	063	13.34	063
6.4	148	97	17.56	064	16.15	064	19.91	064	32.63	064	13.92	064
6.5	148	97	16.87	065	14.66	065	10.79	065	23.94	065	10.23	065
6.6	148	97	19.45	066	16.79	066	15.25	066	33.23	066	14.34	066
6.7	148	97	19.95	067	16.78	067	20.93	067	33.81	067	14.36	067
6.8	156	102	21.41	068	18.31	068	16.79	068	36.77	068	15.25	068
6.9	156	102	22.19	069	18.69	069	22.53	069	36.24	069	15.11	069
7.0	156	102	20.14	070	16.33	070	12.83	070	28.08	070	12.26	070
7.1	156	102	19.45	071	19.31	071	22.82	071			15.26	071
7.2	156	102	22.27	072	19.91	072	17.37	072	38.17	072	22.39	072
7.3	156	102	23.28	073	20.20	073	23.84	073	39.23	073	22.53	073
7.4	156	102	24.12	074	30.09	074	24.13	074	38.76	074	22.82	074
7.5	156	102	24.54	075	19.31	075	15.44	075	34.17	075	14.66	075
7.6	165	109	26.33	076			24.72	076	39.83	076	16.78	076
7.7	165	109	24.87	077	23.22	077	25.27	077			17.21	077
7.8	165	109	27.41	078	23.94	078	19.16	078	41.31	078	17.37	078
7.9	165	109	26.43	079	24.41	079	25.71	079	39.84	079	24.99	079
8.0	165	109	22.44	080	18.11	080	14.81	080	32.50	080	13.73	080
8.1	165	109	24.73	081	35.18	081	19.31	081	42.66	081	18.25	081
8.2	165	109	26.97	082	25.94	082	19.76	082	43.79	082	18.42	082
8.3	165	109	28.59	083	25.74	083	26.58	083	44.24	083	18.69	083
8.4	165	109	30.73	084	27.00	084	20.81	084	44.73	084	26.88	084
8.5	165	109	26.33	085	23.05	085	19.16	085	41.75	085	17.80	085
8.6	175	115	26.15	086	27.63	086	28.62	086	46.38	086	20.00	086
8.7	175	115	26.43	087	28.08	087	21.53	087	46.85	087		
8.8	175	115	26.85	088	28.28	088	21.70	088	47.15	088	20.20	088
8.9	175	115	27.29	089	30.04	089	30.95	089	66.82	089	30.09	089
9.0	175	115	27.67	090	22.43	090	17.84	090	39.23	090	16.59	090
9.1	175	115	27.67	091	42.29	091	24.41	091	52.48	091	31.67	091
9.2	175	115	27.67	092	32.63	092	36.61	092			33.58	092
9.3	175	115	27.67	093	32.78	093	28.08	093			25.48	093

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

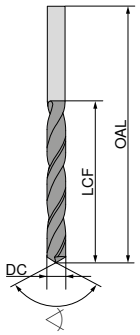
1) uncoated

→ v_c Page 50+51

Continued on next page

Twist drills, DIN 340, long

≤ 10xD





			◁ 118° HSS-E		◁ 130° HSS-E		◁ 130° HSS		◁ 130° HSS		◁ 130° HSS	
			10 270 ...		10 225 ...		10 215 ...		10 210 ...		10 200 ...	
DC h8 mm	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2	
9.4	175	115	27.67	094	46.48	094					36.61	094
9.5	175	115	27.67	095	29.60	095	26.80	095	59.03	095	25.48	095
9.6	184	121	29.30	096			43.30	096			43.30	096
9.7	184	121	30.73	097	40.27	097	34.79	097	75.13	097		
9.8	184	121	32.83	098	40.27	098	36.77	098	80.39	098	32.78	098
9.9	184	121	35.68	099	40.27	099	51.42	099	114.35	099		
10.0	184	121	38.58	100	33.72	100	21.41	100	47.44	100	19.31	100
10.1	184	121	42.14	101			47.75	101	104.79	101		
10.2	184	121	45.01	102	43.32	102	37.72	102	83.06	102	84.41	102
10.3	184	121	48.56	103			57.52	103			57.06	103
10.4	184	121	48.56	104			69.11	104			82.38	104
10.5	184	121	49.30	105	45.20	105	38.17	105	86.04	105	37.70	105
10.6	184	121							157.72	106		
10.8	195	128			51.57	108	56.89	108			71.62	108
11.0	195	128	58.52	110	49.68	110	32.50	110	69.13	110	30.68	110
11.5	195	128	59.28	115	61.92	115	54.00	115	115.52	115	50.04	115
11.6	195	128									67.12	116
11.8	195	128			68.63	118	65.13	118			60.11	118
12.0	205	134	59.97	120	62.22	120	38.76	120	87.55	120	37.72	120
12.2	205	134									70.17	122
12.3	205	134									60.11	123
12.5	205	134	65.69	125			40.27	125	89.69	125	39.67	125
13.0	205	134	71.44	130			42.88	130	94.12	130	42.21	130
13.5	214	140	72.83	135			78.11	135				
14.0	214	140	75.72	140			71.70	140	161.23	140	71.23	140
P			●		●		○		○			
M			●		○							
K			●		●		●		●			
N			○		●		●		○		●	
S			○		○							
H					○							
O			○		○		○		○			

1) uncoated

→ v_c Page 50+51

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

> 10xD

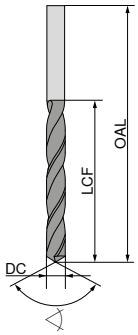
NEW

WTL

TiAlN

WTL

F.-nit







130°
HSS-E

130°
HSS

DC h8 mm	OAL mm	LCF mm	10 236 ... £ T2		10 235 ... £ T2	
2.0	125	85			9.43	020 1)
2.1	125	85			11.68	021 1)
2.2	135	90			11.68	022 1)
2.3	135	90			11.68	023 1)
2.4	140	95			12.26	024
2.5	140	95			9.43	025
2.6	140	95			12.26	026
2.7	150	100			12.87	027
2.8	150	100			12.87	028
2.9	150	100			12.87	029
3.0	150	100	18.29	03000	10.94	030
3.1	155	105			13.34	031
3.2	155	105			13.34	032
3.3	155	105	29.13	03300	13.34	033
3.4	165	115			13.73	034
3.5	165	115	20.83	03500	10.94	035
3.6	165	115			13.73	036
3.7	165	115			14.82	037
3.8	175	120			14.82	038
3.9	175	120			14.82	039
4.0	175	120	20.39	04000	11.07	040
4.1	175	120			14.82	041
4.2	175	120	30.03	04200	15.11	042
4.3	185	125			16.79	043
4.4	185	125			16.79	044
4.5	185	125	22.92	04500	11.82	045
4.6	185	125			16.79	046
4.7	185	125			17.40	047
4.8	195	135			17.37	048
4.9	195	135			18.11	049
5.0	195	135	17.10	05000	12.83	050
5.1	195	135			18.69	051
5.2	195	135			19.31	052
5.3	195	135			19.31	053
5.4	205	140			19.31	054
5.5	205	140	24.22	05500	13.77	055
5.6	205	140			19.31	056
5.7	205	140			20.00	057
5.8	205	140			19.91	058
5.9	205	140			19.91	059
6.0	205	140	25.66	06000	13.77	060
6.1	215	150			21.41	061
6.2	215	150			21.53	062
6.3	215	150			23.05	063
6.4	215	150			23.22	064
6.5	215	150	27.59	06500	18.69	065
6.6	215	150			23.22	066
6.7	215	150			24.72	067
6.8	225	155	25.99	06800	24.24	068
6.9	225	155			25.94	069
7.0	225	155	23.75	07000	20.00	070
7.1	225	155			39.67	071
7.3	225	155			39.67	073
7.4	225	155			39.67	074
7.5	225	155	26.51	07500	22.43	075
7.7	240	165			30.99	077
7.8	240	165			32.63	078
7.9	240	165			32.78	079
8.0	240	165	26.24	08000	24.24	080
8.1	240	165			37.26	081
8.2	240	165			37.26	082
8.3	240	165			37.26	083
8.4	240	165			39.23	084
8.5	240	165	33.77	08500	31.27	085
8.6	250	175			56.25	086
8.7	250	175			42.21	087
8.8	250	175			44.40	088
9.0	250	175	37.70	09000	34.03	090
9.2	250	175			50.34	092
9.4	250	175			54.00	094
9.5	250	175	37.95	09500	39.35	095
9.6	265	185			55.51	096
9.7	265	185			55.51	097
9.8	265	185			56.44	098
9.9	265	185			56.44	099
10.0	265	185	42.77	10000	35.07	100
10.2	265	185	62.70	10200		
10.5	265	185			62.22	105
11.0	280	195			45.80	110
11.5	280	195			56.28	115
12.0	295	205			53.38	120
12.5	295	205			65.29	125
13.0	295	205			65.01	130

P	●	●
M		
K	●	●
N	●	●
S		
H		
O	○	○

1) uncoated

→ v_c Page 52

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

> 10xD

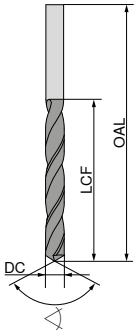
NEW

WTL

TiAlN

WTL

F.-nit







130°
HSS-E

130°
HSS

DC h8 mm	OAL mm	LCF mm	10 246 ... £ T2		10 245 ... £ T2	
2.0	160	110			18.69	020 [1]
2.5	180	120			18.69	025
3.0	190	130	24.65	03000	14.81	030
3.5	210	145	28.91	03500	14.66	035
4.0	220	150	25.91	04000	15.44	040
4.5	235	160	28.67	04500	16.79	045
5.0	245	170	27.57	05000	16.79	050
5.5	260	180	34.10	05500	20.20	055
6.0	260	180	35.41	06000	19.91	060
6.5	275	190	33.88	06500	22.90	065
7.0	290	200	35.45	07000	25.48	070
7.5	290	200	38.14	07500	30.04	075
8.0	305	210	42.13	08000	29.60	080
8.5	305	210	41.39	08500	46.38	085
9.0	320	220	45.86	09000	45.32	090
9.5	320	220	47.76	09500	51.63	095
10.0	340	235	54.46	10000	47.75	100
10.2	340	235	61.39	10200		
10.5	340	235			69.26	105
11.0	365	250			67.59	110
11.5	365	250			78.11	115
12.0	375	260	79.01	12000	76.16	120
12.5	375	260			76.16	125
13.0	375	260			79.01	130

P	●	●
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O	○	○

1) uncoated

→ v_c Page 52

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

> 10xD

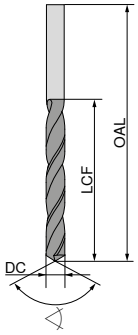
NEW

WTL

TiAlN

WTL

F.-nit







130°
HSS-E

130°
HSS

DC h8 mm	OAL mm	LCF mm	10 256 ... £ T2		10 255 ... £ T2	
2.5	225	150			24.24	025
3.0	240	160			24.24	030
3.5	265	180			20.00	035
4.0	280	190	33.67	04000	20.00	040
4.5	295	200			23.94	045
5.0	315	210	38.10	05000	23.94	050
5.5	330	225			25.94	055
6.0	330	225	43.90	06000	26.80	060
6.5	350	235			29.60	065
7.0	370	250			37.70	070
7.5	370	250			43.32	075
8.0	390	265	52.10	08000	43.25	080
8.5	390	265			56.00	085
9.0	410	280			60.11	090
9.5	410	280			97.92	095
10.0	430	295	71.51	10000	70.17	100
10.5	430	295			76.74	105
11.0	455	310			81.31	110
11.5	455	310			90.13	115
12.0	480	330			96.11	120
12.5	480	330			90.13	125
13.0	480	330			90.92	130

P	●	●
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N	●	●
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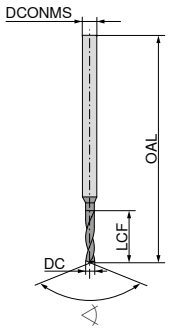
→ v_c Page 52

Twist drills, DIN 1899

- 4 facet
- with reinforced shank

Scope of supply:

- Pack quantity 5 pieces
- price per piece



N



118°
HSS-E-PM

10 103 ...

DC -0,004 mm	OAL mm	LCF mm	DCONMS h8 mm	£ T2	
0.15	25	0.8	1.0	5.60	**00150**
0.20	25	1.5	1.0	4.60	**00200**
0.25	25	1.9	1.0	3.13	**00250**
0.30	25	1.9	1.0	3.51	**00300**
0.35	25	2.4	1.0	3.23	**00350**
0.40	25	3.0	1.0	3.23	**00400**
0.45	25	3.0	1.0	3.23	**00450**
0.50	25	3.4	1.0	3.23	**00500**
0.55	25	3.9	1.0	3.23	**00550**
0.60	25	3.9	1.0	3.23	**00600**
0.65	25	4.2	1.0	3.23	**00650**
0.70	25	4.8	1.0	3.13	**00700**
0.75	25	4.8	1.0	3.13	**00750**
0.80	25	5.3	1.5	3.23	**00800**
0.85	25	5.3	1.5	3.37	**00850**
0.90	25	6.0	1.5	3.37	**00900**
0.95	25	6.0	1.5	3.37	**00950**
1.00	25	6.8	1.5	3.37	**01000**
1.05	25	6.8	1.5	3.37	**01050**
1.10	25	7.6	1.5	3.37	**01100**
1.15	25	7.6	1.5	3.37	**01150**
1.20	25	8.5	1.5	3.37	**01200**
1.25	25	8.5	1.5	3.37	**01250**
1.30	25	8.5	1.5	3.45	**01300**
1.35	25	9.5	1.5	3.37	**01350**
1.40	25	9.5	1.5	3.37	**01400**
1.45	25	9.5	1.5	3.37	**01450**

P	●
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O	○

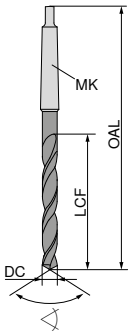
→ v_c Page 54

Twist drill, factory standard, short

≤ 3xD

WT

vap.





130°
HSS-E

10 285 ...

DC h8 mm	OAL mm	LCF mm	MK	£ T2	
10.0	138	57	1	45.44	**100**
10.5	138	57	1	65.38	**105**
11.0	142	61	1	39.67	**110**
11.5	142	61	1	51.79	**115**
12.0	147	66	1	45.92	**120**
12.5	147	66	1	49.43	**125**
13.0	147	66	1	47.75	**130**
13.5	168	70	2	59.72	**135**
14.0	168	70	2	59.27	**140**
14.5	172	74	2	63.59	**145**
15.0	172	74	2	63.15	**150**
15.5	176	78	2	94.57	**155**
16.0	176	78	2	59.72	**160**
16.5	179	81	2	96.11	**165**
17.0	179	81	2	62.71	**170**
17.5	183	85	2	100.70	**175**
18.0	183	85	2	66.58	**180**
18.5	186	88	2	101.62	**185**
19.0	186	88	2	74.13	**190**
19.5	212	91	3	120.06	**195**
20.0	212	91	3	86.04	**200**
21.0	216	95	3	95.01	**210**
22.0	219	98	3	101.62	**220**
23.0	222	101	3	108.30	**230**
24.0	225	104	3	110.74	**240**
25.0	225	104	3	115.31	**250**
26.0	256	107	4	160.16	**260**
27.0	259	110	4	171.14	**270**
28.0	259	110	4	174.94	**280**
30.0	263	114	4	191.12	**300**

P	●
M	●
K	●
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S	○
H	○
O	

→ v_c Page 47

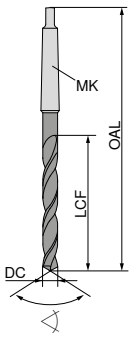
Twist drills, DIN 345

≤ 5xD

N

vap.

WTL





HSS



HSS-E

DC h8 mm	OAL mm	LCF mm	MK	10 265 ... £ T2		10 280 ... £ T2	
10.00	168	87	1	17.80	100	44.24	100 1)
10.20	168	87	1	20.20	102	44.73	102 1)
10.50	168	87	1	18.25	105	44.73	105 1)
10.80	175	94	1	24.41	108	50.04	108 1)
11.00	175	94	1	18.69	110	47.75	110 1)
11.20	175	94	1	25.94	112		
11.50	175	94	1	21.70	115	57.98	115 1)
11.80	175	94	1	27.63	118		
12.00	182	101	1	20.00	120	50.04	120 1)
12.20	182	101	1	27.84	122	53.73	122 1)
12.50	182	101	1	20.64	125	51.18	125 1)
12.80	182	101	1	28.28	128		
13.00	182	101	1	21.41	130	56.14	130 1)
13.20	182	101	1	28.75	132		
13.50	189	108	1	24.24	135	66.68	135 1)
13.80	189	108	1	30.99	138		
14.00	189	108	1	23.05	140	59.27	140 1)
14.25	212	114	2	33.68	142	89.69	142 1)
14.50	212	114	2	23.94	145	70.17	145 1)
14.75	212	114	2	36.61	147		
15.00	212	114	2	25.48	150	71.09	150 1)
15.25	218	120	2	34.03	152	90.08	152 1)
15.50	218	120	2	26.80	155	67.19	155 1)
15.75	218	120	2	30.99	157	75.13	157 1)
16.00	218	120	2	26.80	160	73.17	160 1)
16.25	223	125	2	41.17	162		
16.50	223	125	2	29.60	165	75.13	165 2)
16.75	223	125	2	34.03	167		
17.00	223	125	2	30.68	170	71.09	170 2)
17.25	228	130	2	37.72	172	83.06	172 2)
17.50	228	130	2	30.82	175	78.11	175 2)
17.75	228	130	2	38.29	177	86.04	177 2)
18.00	228	130	2	32.32	180	81.74	180 2)
18.25	233	135	2	39.67	182		
18.50	233	135	2	35.32	185	78.11	185 2)
18.75	233	135	2	41.17	187		
19.00	233	135	2	35.68	190	83.06	190 2)
19.25	238	140	2	44.40	192		
19.50	238	140	2	40.27	195		
19.75	238	140	2	46.38	197		
20.00	238	140	2	37.70	200	91.06	200 2)
20.25	243	145	2	49.68	202		
20.50	243	145	2	39.23	205		
20.75	243	145	2	50.13	207		
21.00	243	145	2	42.72	210	107.70	210 2)
21.25	248	150	2	53.09	212		
21.50	248	150	2	48.98	215		
21.75	248	150	2	54.17	217		
22.00	248	150	2	47.44	220	115.77	220 2)
22.25	248	150	2	55.68	222		
22.50	253	155	2	50.13	225	142.46	225 2)
22.75	253	155	2	57.16	227		
23.00	253	155	2	55.51	230	133.62	230 2)
23.50	276	155	3	54.17	235		
23.75	281	160	3	75.96	237		
24.00	281	160	3	57.98	240	145.98	240 2)
24.50	281	160	3	60.11	245		
24.75	281	160	3	83.29	247		
25.00	281	160	3	63.76	250	148.10	250 2)
25.50	286	165	3	65.09	255		
25.75	286	165	3	86.32	257		
26.00	286	165	3	73.40	260	171.92	260 2)
26.50	286	165	3	69.59	265		
26.75	291	170	3	109.54	267		
27.00	291	170	3	71.69	270	198.61	270 2)
27.50	291	170	3	75.33	275		
27.75	291	170	3	107.23	277		
28.00	291	170	3	79.15	280		
28.50	296	175	3	99.03	285		
28.75	296	175	3	154.27	287		
29.00	296	175	3	85.62	290		
29.50	296	175	3	89.39	295		
29.75	296	175	3	113.95	297		
30.00	296	175	3	85.62	300		
30.50	301	180	3	106.64	305		
31.00	301	180	3	103.57	310		
31.50	301	180	3	117.61	315		
32.00	334	185	4	108.75	320		
32.50	334	185	4	125.24	325		
33.00	334	185	4	116.99	330		
33.50	334	185	4	129.65	335		
34.00	339	190	4	136.97	340		
34.50	339	190	4	151.17	345		
35.00	339	190	4	139.27	350		
35.50	339	190	4	160.93	355		
36.00	344	195	4	149.65	360		
36.50	344	195	4	168.25	365		
37.00	344	195	4	163.82	370		
37.50	344	195	4	184.57	375		
38.00	349	200	4	173.45	380		
38.50	349	200	4	208.22	385		
39.00	349	200	4	189.92	390		
39.50	349	200	4	238.11	395		
40.00	349	200	4	197.21	400		
41.00	354	205	4	212.18	410		
42.00	354	205	4	230.63	420		
43.00	359	210	4	245.55	430		
44.00	359	210	4	256.74	440		
45.00	359	210	4	267.86	450		
46.00	364	215	4	278.97	460		
47.00	364	215	4	297.44	470		
48.00	369	220	4	305.07	480		
49.00	369	220	4	319.86	490		
50.00	369	220	4	327.34	500		
51.00	412	225	5	394.29	510		
52.00	412	225	5	424.04	520		
53.00	412	225	5	616.21	530		
54.00	417	230	5	636.85	540		
55.00	417	230	5	647.17	550		
56.00	417	230	5	667.63	560		
57.00	422	235	5	698.42	570		
58.00	422	235	5	739.55	580		
59.00	422	235	5	780.52	590		
60.00	422	235	5	580.09	600		

	10 265 ...	10 280 ...
P	○	●
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S		○
H		○
O	○	○

1) nitrided chamfer
2) vaporised

→ v_c Page 49

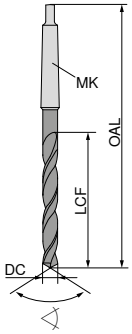
Twist drills, DIN 341, long

≤ 10xD

N

vap.

WTL





HSS



HSS-E

DC h8 mm	OAL mm	LCF mm	MK	10 295 ... £ T2		10 297 ... £ T2	
10.00	197	116	1	24.24	100	60.59	100 1)
10.20	197	116	1	27.63	102	57.68	102 1)
10.50	197	116	1	33.27	105	64.95	105 1)
10.80	206	125	1	43.01	108		
11.00	206	125	1	25.94	110	47.15	110 1)
11.20	206	125	1	33.81	112	58.28	112 1)
11.50	206	125	1	25.94	115	49.43	115 1)
11.80	206	125	1	34.79	118	43.79	118 1)
12.00	215	134	1	25.94	120	49.43	120 1)
12.20	215	134	1	45.78	122	43.19	122 1)
12.50	215	134	1	25.74	125	66.82	125 1)
12.80	215	134	1	49.55	128	42.66	128 1)
13.00	215	134	1	25.74	130	51.18	130 1)
13.20	215	134	1	49.55	132		
13.50	223	142	1	29.14	135	53.29	135 1)
13.80	223	142	1	47.75	138	48.98	138 1)
14.00	223	142	1	28.88	140	60.11	140 1)
14.25	245	147	2	45.20	142		
14.50	245	147	2	36.68	145	58.42	145 1)
14.75	245	147	2	45.20	147		
15.00	245	147	2	36.24	150	61.92	150 1)
15.25	251	153	2	45.20	152		
15.50	251	153	2	35.32	155	60.70	155 1)
15.75	251	153	2	46.38	157		
16.00	251	153	2	37.72	160	63.03	160 1)
16.25	257	159	2	51.18	162		
16.50	257	159	2	39.83	165	62.11	165 2)
16.75	257	159	2	50.04	167		
17.00	257	159	2	40.28	170	71.70	170 2)
17.25	263	165	2	75.41	172		
17.50	263	165	2	45.20	175	68.82	175 2)
17.75	263	165	2	56.44	177		
18.00	263	165	2	44.73	180	73.17	180 2)
18.25	269	171	2	67.28	182		
18.50	269	171	2	50.13	185	68.82	185 2)
18.75	269	171	2	85.42	187		
19.00	269	171	2	50.34	190	83.06	190 2)
19.25	275	177	2	69.13	192		
19.50	275	177	2	57.98	195	84.04	195 2)
19.75	275	177	2	78.87	197		
20.00	275	177	2	55.08	200	90.45	200 2)
20.50	282	184	2	69.11	205	88.94	205 2)
21.00	282	184	2	63.03	210	106.33	210 2)
21.50	289	191	2	73.17	215		
21.75	289	191	2	132.49	217		
22.00	289	191	2	68.82	220	115.52	220 2)
22.50	296	198	2	75.96	225		
23.00	296	198	2	71.41	230		
23.50	319	198	3	85.17	235		
24.00	327	206	3	87.55	240	148.10	240 2)
24.50	327	206	3	94.12	245		
25.00	327	206	3	86.64	250	153.75	250 2)
25.50	335	214	3	103.54	255		
26.00	335	214	3	101.29	260	179.83	260 2)
26.50	335	214	3	108.30	265		
27.00	343	222	3	108.30	270		
27.50	343	222	3	134.39	275		
28.00	343	222	3	120.66	280		
29.00	351	230	3	139.42	290		
29.50	351	230	3	156.04	295		
30.00	351	230	3	138.81	300		
30.50	360	239	3	177.71	305		
31.00	360	239	3	168.42	310		
31.50	360	239	3	187.77	315		
32.00	397	248	4	180.61	320		
33.00	397	248	4	180.61	330		
33.50	397	248	4	209.58	335		
34.00	406	257	4	223.78	340		
35.00	406	257	4	216.59	350		
36.00	416	267	4	249.08	360		
37.00	416	267	4	281.57	370		
37.50	416	267	4	303.22	375		
38.00	426	277	4	270.74	380		
39.00	426	277	4	288.88	390		
40.00	426	277	4	303.22	400		
42.00	436	287	4	343.05	420		
43.00	447	298	4	368.08	430		
44.00	447	298	4	368.08	440		
45.00	447	298	4	508.16	450		
50.00	470	321	4	505.32	500		

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

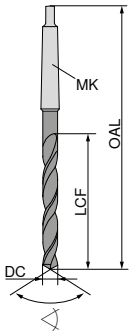
1) nitrided chamfer
2) vaporised

→ v_c Page 51

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

> 10xD

WTL





130°
HSS

10 305 ...

DC h8 mm	OAL mm	LCF mm	MK	£ T2	
10.0	285	185	1	46.85	100 1)
10.5	285	185	1	56.89	105 1)
11.0	300	195	1	53.29	110 1)
11.5	300	195	1	56.13	115 1)
12.0	310	205	1	60.70	120 1)
12.5	310	205	1	62.71	125 1)
13.0	310	205	1	62.11	130 1)
13.5	325	220	1	71.69	135 1)
14.0	325	220	1	71.09	140 1)
14.5	340	220	2	73.69	145 1)
15.0	340	220	2	77.50	150 1)
15.5	355	230	2	83.06	155 1)
16.0	355	230	2	79.61	160 1)
16.5	355	230	2	81.74	165 2)
17.0	355	230	2	81.57	170 2)
17.5	370	245	2	87.55	175 2)
18.0	370	245	2	90.45	180 2)
18.5	370	245	2	99.75	185 2)
19.0	370	245	2	101.87	190 2)
19.5	385	260	2	110.00	195 2)
20.0	385	260	2	116.40	200 2)
21.0	385	260	2	134.39	210 2)
22.0	405	270	2	140.79	220 2)
23.0	405	270	2	165.33	230 2)
24.0	440	290	3	184.25	240 2)
25.0	440	290	3	187.77	250 2)
26.0	440	290	3	202.25	260 2)
28.0	460	305	3	234.73	280 2)
30.0	460	305	3	270.74	300 2)

P	●
M	
K	●
N	●
S	
H	
O	○

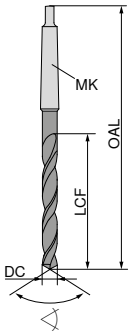
1) nitrided chamfer
2) vaporised

→ v_c Page 53

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

> 10xD

WTL





130°
HSS

10 315 ...

DC h8 mm	OAL mm	LCF mm	MK	£ T2	
10.0	360	235	1	65.70	100 1)
10.5	360	235	1	111.42	105 1)
11.0	375	250	1	75.13	110 1)
11.5	375	250	1	81.74	115 1)
12.0	395	260	1	91.59	120 1)
13.0	395	260	1	97.62	130 1)
13.5	410	275	1	104.19	135 1)
14.0	410	275	1	104.19	140 1)
14.5	425	275	2	104.79	145 1)
15.0	425	275	2	103.54	150 1)
15.5	445	295	2	110.00	155 1)
16.0	445	295	2	108.30	160 1)
16.5	445	295	2	123.54	165 2)
17.0	445	295	2	116.40	170 2)
17.5	465	310	2	125.69	175 2)
18.0	465	310	2	130.73	180 2)
18.5	465	310	2	140.79	185 2)
19.0	465	310	2	143.06	190 2)
19.5	490	325	2	215.73	195 2)
20.0	490	325	2	161.23	200 2)
21.0	490	325	2	172.66	210 2)
22.0	515	345	2	205.77	220 2)
23.0	515	345	2	278.20	230 2)
24.0	555	365	3	234.73	240 2)
25.0	555	365	3	238.26	250 2)
26.0	555	365	3	277.91	260 2)
28.0	580	385	3	324.88	280 2)
30.0	580	385	3	375.52	300 2)

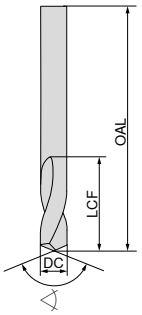
P	●
M	
K	●
N	●
S	
H	
O	○

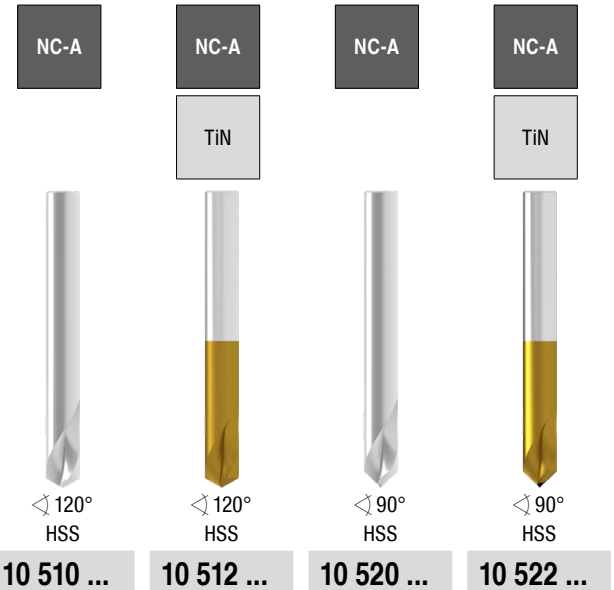
1) nitrided chamfer
2) vaporised

→ v_c Page 53

NC spot drills, factory standard

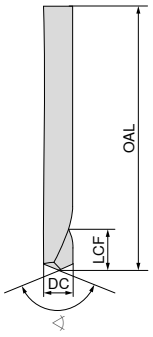
▲ helical flutes

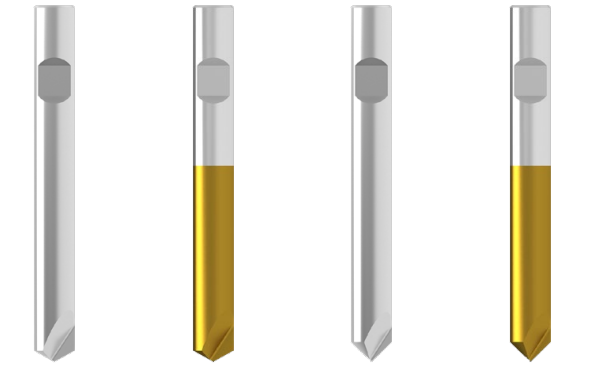




DC h6 mm	OAL mm	LCF mm	10 510 ... £ T2		10 512 ... £ T2		10 520 ... £ T2		10 522 ... £ T2	
			120° HSS		120° HSS		90° HSS		90° HSS	
3	46	12.0	8.09	030	17.73	030	7.80	030	17.73	030
4	55	12.0	8.24	040	18.03	040	7.94	040	18.03	040
5	62	14.0	8.70	050	19.19	050	8.39	050	19.19	050
6	66	16.0	8.68	060	20.19	060	8.39	060	20.19	060
8	79	21.0	14.36	080	32.54	080	14.34	080	32.54	080
10	89	25.0	16.34	100	35.89	100	14.99	100	35.89	100
12	102	30.0	23.36	120	52.46	120	23.05	120	52.46	120
16	115	37.5	30.25	160	68.57	160	30.04	160	68.57	160
20	131	45.0	48.78	200	111.57	200	48.37	200	111.57	200

▲ with clamping flat to DIN 1835 B



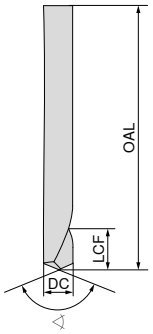


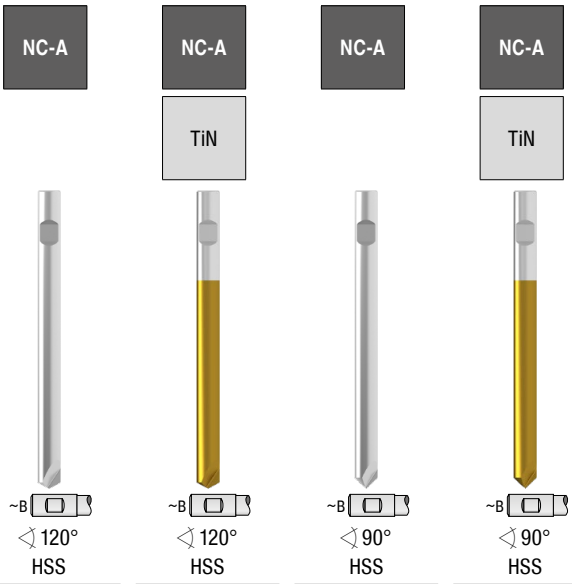
DC h6 mm	OAL mm	LCF mm	10 511 ... £ T2		10 513 ... £ T2		10 521 ... £ T2		10 523 ... £ T2	
			120° HSS		120° HSS		90° HSS		90° HSS	
6	66	7.0	8.24	060	18.38	060	8.24	060	18.38	060
8	79	9.0	11.57	080	26.16	080	11.57	080	26.16	080
10	89	11.5	12.96	100	29.18	100	12.96	100	29.18	100
12	102	14.0	18.01	120	41.01	120	18.01	120	41.01	120
16	115	18.0	23.52	160	53.97	160	23.52	160	53.97	160
20	131	23.0	33.59	200	78.36	200	33.59	200	78.36	200
P			15-35		25-55		15-35		25-55	
M			10		20		10		20	
K			20-35		30-55		20-35		30-55	
N			50-70		65-85		50-70		65-85	
S										
H										
O										

Suitable only for spot drilling!

NC spot drill factory standard long

▲ with clamping flat to DIN 1835 B





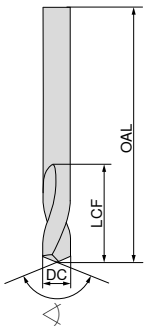
DC h6 mm	OAL mm	LCF mm	10 530 ... £ T2		10 532 ... £ T2		10 526 ... £ T2		10 528 ... £ T2	
6	93	7.0	10.09	**060**	22.90	**060**	10.09	**060**	22.90	**060**
8	117	9.0	15.72	**080**	36.10	**080**	15.72	**080**	36.10	**080**
10	133	11.5	17.37	**100**	39.88	**100**	17.37	**100**	39.88	**100**
12	151	14.0	20.63	**120**	47.30	**120**	20.63	**120**	47.30	**120**
16	178	18.0	31.46	**160**	73.20	**160**	31.46	**160**	73.20	**160**
20	205	23.0	43.66	**200**	102.64	**200**	43.66	**200**	102.64	**200**

P	**15-35**	**25-55**	**15-35**	**25-55**
M	10	20	10	20
K	**20-35**	**30-55**	**20-35**	**30-55**
N	50-70	65-85	50-70	65-85
S				
H				
O				

Suitable only for spot drilling!

NC spot drills, factory standard, long

▲ helical flutes





NC-A

90°
HSS

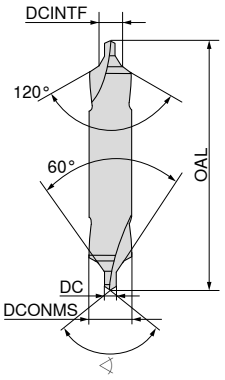
DC h6 mm	OAL mm	LCF mm	10 525 ... £ T2	
6.35	105	17	13.51	**025**
8.00	118	21	24.72	**030**
9.52	132	25	24.99	**040**
12.70	159	30	35.31	**050**
15.87	186	37	31.11	**060**
19.05	213	45	71.05	**075**

P	**15-35**
M	10
K	**20-35**
N	50-70
S	
H	
O	

Suitable only for spot drilling!

Centre drills, DIN 333, form B

▲ with protective countersink 120°



ZB



Right-hand
118°
HSS

ZB

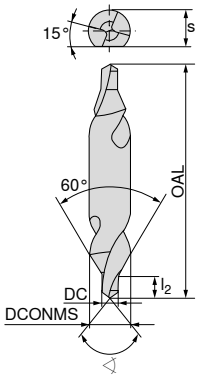


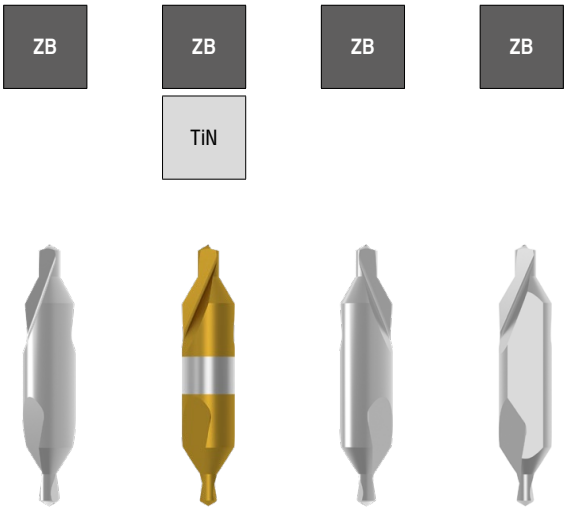
Left-hand
118°
HSS

DC mm	DCONMS h8 mm	DCINTF k12 mm	OAL mm	10 480 ... £ T2		10 485 ... £ T2	
1.00	4.0	2.12	35.5	7.99	**100**	24.72	**100**
1.25	5.0	2.65	40.0	8.85	**125**	28.92	**125**
1.60	6.3	3.35	45.0	8.28	**160**	21.95	**160**
2.00	8.0	4.25	50.0	8.85	**200**	23.25	**200**
2.50	10.0	5.30	56.0	10.90	**250**	24.24	**250**
3.15	11.2	6.70	62.0	15.86	**315**	31.84	**315**
4.00	14.0	8.50	69.0	20.81	**400**	48.68	**400**
5.00	18.0	10.60	77.0	27.00	**500**	51.86	**500**

P	**15-35**	**15-35**
M	10	10
K	**20-35**	**20-35**
N	50-70	50-70
S		
H		
O		

Centre drills, DIN 333, form A

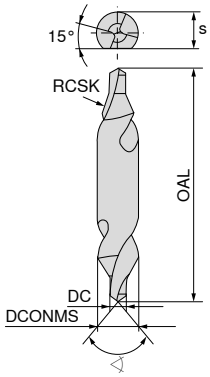


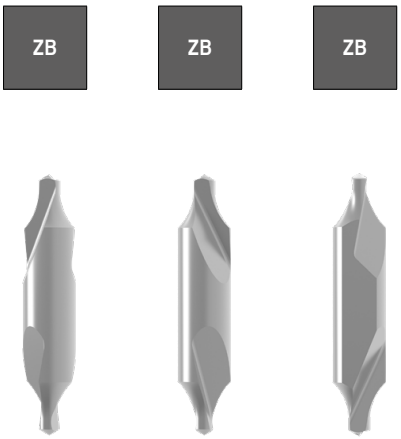


DC mm	s mm	DCONMS $_{h8}$ mm	OAL mm	l_2 mm	Right-hand ◁ 118° HSS 10 415 ... £ T2		Right-hand ◁ 118° HSS 10 425 ... £ T2		Left-hand ◁ 118° HSS 10 435 ... £ T2		Right-hand ◁ 118° HSS-E 10 445 ... £ T2	
0.50		3.15	25.0	0.8	5.68	**050** [2]	13.68	**050** [2]	7.99	**050** [2]		
0.80		3.15	25.0	1.1	5.52	**080** [2]	13.08	**080** [2]	7.84	**080** [2]		
1.00		3.15	31.5	1.3	5.08	**100**	12.08	**100**	7.12	**100**		
1.25		3.15	31.5	1.6	4.39	**125**	13.80	**125**	8.28	**125**		
1.60	3.25	4.00	35.5	2.0							8.72	**160** [1]
1.60		4.00	35.5	2.0	4.65	**160**	11.37	**160**	7.62	**160**		
2.00	4.20	5.00	40.0	2.5							6.74	**200** [1]
2.00		5.00	40.0	2.5	3.81	**200**	11.64	**200**	8.15	**200**		
2.50	5.35	6.30	45.0	3.1							7.62	**250** [1]
2.50		6.30	45.0	3.1	4.39	**250**	13.68	**250**	8.72	**250**		
3.15	6.95	8.00	50.0	3.9							10.23	**315** [1]
3.15		8.00	50.0	3.9	7.28	**315**	17.00	**315**	11.05	**315**		
4.00	8.40	10.00	56.0	5.0							19.47	**400** [1]
4.00		10.00	56.0	5.0	11.20	**400**	26.75	**400**	14.54	**400**		
5.00	10.95	12.50	63.0	6.3							20.50	**500** [1]
5.00		12.50	63.0	6.3	16.13	**500**	38.36	**500**	22.82	**500**		
6.30	14.00	16.00	71.0	8.0							47.64	**630** [1]
6.30		16.00	71.0	8.0	23.53	**630**	56.94	**630**	33.41	**630**		
P					**15-35**		**25-55**		**15-35**		**15-35**	
M					10		20		10		10	
K					**20-35**		**30-55**		**20-35**		**20-35**	
N					50-70		65-85		50-70		50-70	
S												
H												
O												

1) with flat
2) Single ended

Centre drills, DIN 333, form R





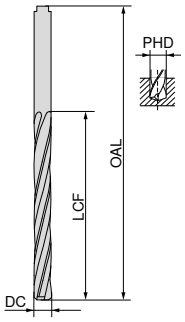
DC mm	s mm	DCONMS h8 mm	OAL mm	RCSK mm	Right-hand ◁ 118° HSS 10 455 ... £ T2		Left-hand ◁ 118° HSS 10 475 ... £ T2		Right-hand ◁ 118° HSS 10 465 ... £ T2	
0.50		3.15	25.0	2.00	5.81	**050** [2]				
0.80		3.15	25.0	2.50	5.68	**080** [2]	11.37	**080** [2]		
1.00		3.15	31.5	2.90	5.08	**100**	11.91	**100**		
1.25		3.15	31.5	3.15	5.81	**125**	10.79	**125**		
1.60	3.25	4.00	35.5	4.00					6.59	**160** [1]
1.60		4.00	35.5	4.00	4.80	**160**	8.68	**160**		
2.00	4.20	5.00	40.0	5.00					6.74	**200** [1]
2.00		5.00	40.0	5.00	5.08	**200**	8.82	**200**		
2.50	5.35	6.30	45.0	6.30					7.62	**250** [1]
2.50		6.30	45.0	6.30	5.81	**250**	9.11	**250**		
3.15	6.95	8.00	50.0	8.00					9.89	**315** [1]
3.15		8.00	50.0	8.00	7.42	**315**	12.83	**315**		
4.00	8.40	10.00	56.0	10.00					14.39	**400** [1]
4.00		10.00	56.0	10.00	10.62	**400**	18.25	**400**		
5.00	10.95	12.50	63.0	12.50					20.50	**500** [1]
5.00		12.50	63.0	12.50	16.30	**500**	36.18	**500**		
6.30	14.00	16.00	71.0	16.00					47.64	**630** [1]
6.30		16.00	71.0	16.00	24.28	**630**				

P	**15-35**	**15-35**	**15-35**
M	10	10	10
K	**20-35**	**20-35**	**20-35**
N	50-70	50-70	50-70
S			
H			
O			

1) with flat
2) Single ended

Core drills (spiral countersinks)

▲ with cylindrical shank, DIN 344





N

vap.

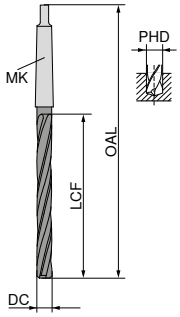
120°

HSS

DC h8 mm	OAL mm	LCF mm	PHD mm	10 226 ... £ T2	
3.80	96	64	2.8	20.44	038
4.00	96	64	2.8	19.76	040
4.80	108	74	3.5	14.66	048
5.00	108	74	3.5	14.81	050
5.80	116	80	4.2	14.66	058
6.00	116	80	4.2	14.81	060
6.80	133	93	4.9	16.79	068
7.00	133	93	4.9	16.79	070
7.80	142	100	5.6	18.87	078
8.00	142	100	5.6	18.91	080
8.80	151	107	6.3	20.44	088
9.00	151	107	6.3	31.53	090
9.80	162	116	7.0	22.31	098
10.00	162	116	7.0	21.85	100
10.75	173	125	7.7	29.80	107
11.00	173	125	7.7	27.00	110
11.75	184	134	8.4	30.25	117
12.00	184	134	8.4	27.63	120

P	**15-35**
M	10
K	**20-35**
N	50-80
S	14-28
H	
O	

Core drills (spiral countersinks)



N

vap.



MK

120°

HSS

DC h8 mm	OAL mm	LCF mm	PHD mm	MK	10 228 ... £ T2	
10.00	168	87	7.0	1	27.00	100
10.75	175	94	7.7	1	31.73	107
11.00	175	94	7.7	1	45.18	110
11.75	182	101	8.4	1	31.73	117
12.00	182	101	8.4	1	45.18	120
12.75	182	101	9.1	1	35.24	127
13.00	182	101	9.1	1	30.82	130
13.75	189	108	9.8	1	35.19	137
14.00	189	108	9.8	1	31.27	140
14.75	212	114	10.5	2	39.23	147
15.00	212	114	10.5	2	35.19	150
15.75	218	120	11.2	2	41.34	157
16.00	218	120	11.2	2	36.77	160
16.75	223	125	11.9	2	43.25	167
17.00	223	125	11.9	2	39.23	170
17.75	228	130	12.6	2	45.32	177
18.00	228	130	12.6	2	39.23	180
18.70	233	135	13.3	2	45.78	187
19.00	233	135	13.3	2	44.87	190
19.70	238	140	14.0	2	45.78	197
20.00	238	140	14.0	2	44.87	200
20.70	243	145	14.6	2	52.24	207
21.00	243	145	14.6	2	52.48	210
21.70	248	150	15.3	2	53.54	217
22.00	248	150	15.3	2	52.94	220
22.70	253	155	16.0	2	58.20	227
23.00	253	155	16.0	2	57.61	230
23.70	281	160	16.6	3	60.62	237
24.00	281	160	16.6	3	59.72	240
24.70	281	160	17.3	3	64.66	247
25.00	281	160	17.3	3	64.68	250
25.70	286	165	18.0	3	67.64	257
26.00	286	165	18.0	3	68.20	260
26.70	291	170	18.6	3	80.39	267
27.00	291	170	18.6	3	78.87	270
27.70	291	170	19.3	3	79.61	277
28.00	291	170	19.3	3	79.50	280
28.70	296	175	20.0	3	87.09	287
29.00	296	175	20.0	3	88.02	290
29.70	296	175	20.5	3	92.61	297
30.00	296	175	20.5	3	91.06	300

P	**15-35**
M	10
K	**20-35**
N	50-80
S	14-28
H	
O	

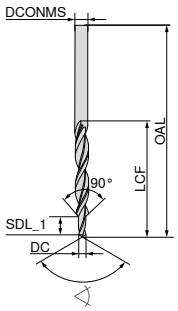
Stepped drills, DIN 8378

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

DIN 8378

SB

vap.





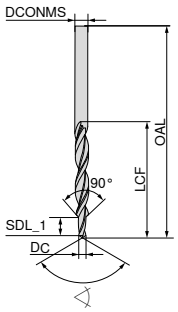
118°
HSS

10 365 ...

For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	£ T2	
M3	2.5	3.4	70	8.8	39	20.36	030
M4	3.3	4.5	80	11.4	47	22.31	040
M5	4.2	5.5	93	13.6	57	23.05	050
M6	5.0	6.6	101	16.5	63	25.74	060
M8	6.8	9.0	125	21.0	81	28.88	080
M10	8.5	11.0	142	25.5	94	37.70	100
M12	10.2	13.5	160	30.0	108	47.15	120

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

DIN 8374





118°
HSS

10 355 ...

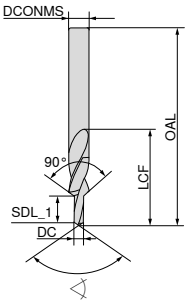
For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	£ T2	
M3	3.2	6.0	93	9	57	23.94	030
M4	4.3	8.0	117	11	75	27.69	040
M5	5.3	10.0	133	13	87	34.79	050
M6	6.4	11.5	142	15	94	52.89	060
M8	8.4	15.0	169	19	114	65.59	080
M10	10.5	19.0	198	23	135	101.29	100

P	**15-35**
M	10
K	**20-35**
N	50-80
S	
H	
O	

Stepped drills, overall length to DIN 1897

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

SB





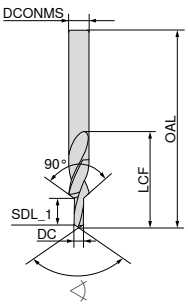
118°
HSS

10 320 ...

For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	£ T2	
M3	2.5	3.4	52	8.8	20	13.15	030
M4	3.3	4.5	58	11.4	24	13.34	040
M5	4.2	5.5	66	13.6	28	14.36	050
M6	5.0	6.6	70	16.5	31	15.25	060
M8	6.8	9.0	84	21.0	40	17.67	080
M10	8.5	11.0	95	25.5	47	22.90	100
M12	10.2	13.5	107	30.0	54	29.35	120

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

DIN 8374





118°
HSS

10 330 ...

For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	£ T2	
M3	3.2	6.0	66	9	28	15.25	030
M4	4.3	8.0	79	11	37	17.40	040
M5	5.3	10.0	89	13	43	21.41	050
M6	6.4	11.5	95	15	47	24.41	060
M8	8.4	15.0	111	19	56	27.69	080
M10	10.5	19.0	127	23	64	41.31	100

P	**15-35**
M	10
K	**20-35**
N	50-80
S	
H	
O	

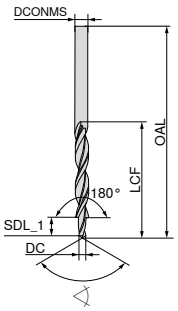
Stepped drills, DIN 8376

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

DIN 8376

SB

vap.





HSS

10 375 ...

For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	£ T2		
M3	3.4	6	93	9	57	23.94	**030**	1)
M4	4.5	8	117	11	75	27.69	**040**	
M5	5.5	10	133	13	87	33.23	**050**	
M6	6.6	11	142	15	94	38.17	**060**	
M8	9.0	15	169	19	114	48.98	**080**	
M10	11.0	18	191	23	130	101.87	**100**	

P	**15-35**
M	10
K	**20-35**
N	50-80
S	
H	
O	

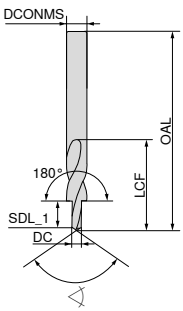
1) DCONMS not according to DIN 974-1

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

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

DIN 8376

SB





HSS

10 340 ...

For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	£ T2		
M3	3.4	6	66	9	28	14.81	**030**	1)
M4	4.5	8	79	11	37	16.78	**040**	
M5	5.5	10	89	13	43	20.36	**050**	
M6	6.6	11	95	15	47	23.94	**060**	
M8	9.0	15	111	19	56	30.52	**080**	
M10	11.0	18	123	23	62	44.73	**100**	

P	**15-35**
M	10
K	**20-35**
N	50-80
S	
H	
O	

1) DCONMS not according to DIN 974-1

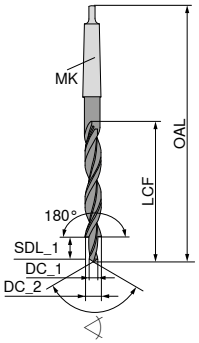
Stepped drills, DIN 8377

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

DIN 8377

SB

vap.





HSS

							10 405 ...	
For threads	DC_1 h9 mm	DC_2 mm	OAL mm	SDL_1 mm	LCF mm	MK	£ T2	
M5	5.5	10	168	13	87	1	47.74	**050**
M6	6.6	11	175	15	94	1	48.98	**060**
M8	9.0	15	212	19	114	2	64.54	**080**
M10	11.0	18	228	23	130	2	86.04	**100**
M12	13.5	20	238	27	140	2	104.19	**120**
M14	15.5	24	281	31	160	3	133.62	**140**
M16	17.5	26	286	35	165	3	156.66	**160**
M18	20.0	30	296	39	175	3	244.63	**180**
M20	22.0	33	334	43	185	4	213.10	**200**

P	**15-35**
M	10
K	**20-35**
N	50-80
S	
H	
O	

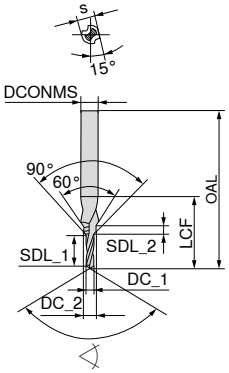
Stepped drills for centring, factory standard

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



SB

vap.





118°
HSS

10 350 ...

For threads	DC_1 h8 mm	DCONMS h7 mm	DC_2 mm	s mm	OAL mm	SDL_1 mm	LCF mm	SDL_2 mm	£ T2	
M4	3.3	8.0	4.3	6.75	63	11.0	23	1.60	55.39	**040**
M5	4.2	10.0	5.3	8.45	67	13.0	27	2.15	63.03	**050**
M6	5.0	12.5	6.4	10.45	71	16.0	33	2.90	68.82	**060**
M8	6.8	14.0	8.4	12.50	88	19.5	41	3.50	65.13	**080**
M10	8.5	16.0	10.5	14.85	94	23.0	47	4.70	73.17	**100**
M12	10.2	20.0	13.0	18.45	105	28.0	59	6.50	96.52	**120**
M16	14.0	25.0	17.0	23.40	132	33.0	67	8.30	137.29	**160**
M20	17.5	31.5	21.0	29.35	145	38.0	77	10.35	184.25	**200**
M24	21.0	40.0	25.0	36.50	160	45.0	90	12.00	285.38	**240**

P	**15-35**
M	10
K	**20-35**
N	50-80
S	
H	
O	

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values – Hole depth 3xD

	Type VX-TiN 10 122 ...		Type UNI-PM-TiN 10 113 ...		Type UNI-TiN 10 107 ...		Type N 10 105 ...		Type VA 10 130 ...		Type WNX 10 106 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
P.1.1	**46**	6	**44**	6	**46**	6	28	6	38	5	**38**	6
P.1.2	**39**	5	**37**	5	**39**	5	24	5	32	4	**32**	5
P.1.3	**35**	5	**33**	5	**35**	5	21	5	29	4	**29**	5
P.1.4	**32**	5	**31**	5	**32**	5	20	5	27	4	**27**	5
P.1.5	**28**	5	**26**	5	**28**	5	17	5			**23**	5
P.2.1	**35**	5	**32**	6	**35**	5	17	4	25	5	**28**	6
P.2.2	**24**	4	**23**	5	**24**	4	12	3	18	4	**20**	5
P.2.3	**21**	4	**19**	5	**21**	4	10	3			**17**	5
P.2.4	**19**	3	**18**	4	**19**	3	9	2			**15**	4
P.3.1	**17**	4	**21**	4	**17**	4	13	4			**18**	4
P.3.2	**13**	3	**16**	3	**13**	3					**14**	3
P.3.3	**12**	3	**15**	3	**12**	3					**13**	3
P.4.1	**18**	4	**14**	3	**18**	4			15	3	**13**	3
P.4.2	**17**	3	**14**	2	**17**	3			14	2	**12**	2
M.1.1	**15**	4			**15**	4			**13**	3		
M.2.1	**12**	3			**12**	3			**11**	2		
M.3.1	**10**	3			**10**	3			**9**	2		
K.1.1	**41**	6	**46**	6	**41**	6	**30**	6			**40**	6
K.1.2	**33**	6	**37**	6	**33**	6	**24**	6			**32**	6
K.2.1	**35**	6	**39**	6	**35**	6	**26**	6			**34**	6
K.2.2	**27**	5	**30**	5	**27**	5	**20**	5			**26**	5
K.3.1	**35**	6	**39**	6	**35**	6	**26**	6			**34**	6
K.3.2	**27**	5	**30**	5	**27**	5	**20**	5			**26**	5
N.1.1									**80**	7		
N.1.2									**80**	7		
N.2.1	75	6	69	6	75	6	50	6	**65**	6	60	6
N.2.2	60	5	55	5	60	5	40	5	**52**	5	48	5
N.2.3	52	5	48	5	52	5	35	5	**46**	5	42	5
N.3.1	69	5	64	5	69	5	60	5	**60**	5	56	5
N.3.2	41	4	39	4	41	4	36	4	**36**	4	34	4
N.3.3	55	4	52	4	55	4	48	4	**48**	4	45	4
N.4.1	70	5	60	5	70	5	45	5	**6**	5	55	5
S.1.1			7	2					8	1	6	2
S.1.2			6	1					6	1	5	1
S.2.1			6	2					7	1	5	2
S.2.2												
S.2.3												
S.3.1	9	2			9	2			10	2		
S.3.2	6	1			6	1			7	1		
S.3.3									6	2		
H.1.1			6	1							5	1
H.1.2												
H.1.3												
H.1.4												
H.2.1			10	3							9	3
H.3.1												
O.1.1	29	4	23	4	29	4	20	5			20	4
O.1.2	29	4			29	4	20	5				
O.2.1	29	4	23	4	29	4	20	5			20	4
O.2.2	29	4	23	4	29	4	20	5			20	4
O.3.1												

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

	Type WT 10 109 ...		Type WT-TiN 10 110 ...		Type WTL-L 10 112 ...		Type WT-MK 10 285 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
P.1.1	**38**	6	**44**	6	28	6	**38**	6
P.1.2	**32**	5	**37**	5	24	5	**32**	5
P.1.3	**29**	5	**33**	5	21	5	**29**	5
P.1.4	**27**	5	**31**	5	20	5	**27**	5
P.1.5	**23**	5	**26**	5	17	5	**23**	5
P.2.1	**25**	5	**29**	5	17	4	**25**	5
P.2.2	**18**	4	**20**	4	12	3	**18**	4
P.2.3	**15**	4	**17**	4	10	3	**15**	4
P.2.4	**14**	3	**16**	3	9	2	**14**	3
P.3.1	**16**	4	**18**	4	13	4	**16**	4
P.3.2	**12**	3	**14**	3			**12**	3
P.3.3	**12**	3	**14**	3			**12**	3
P.4.1	**14**	3	**17**	3			**14**	3
P.4.2	**14**	2	**16**	2			**14**	2
M.1.1	**12**	3	**14**	3			**12**	3
M.2.1	**10**	2	**12**	2			**10**	2
M.3.1	**8**	2	**10**	2			**8**	2
K.1.1	**35**	6	**40**	6	**30**	6	**35**	6
K.1.2	**28**	6	**32**	6	**24**	6	**28**	6
K.2.1	**30**	6	**34**	6	**26**	6	**30**	6
K.2.2	**23**	5	**26**	5	**20**	5	**23**	5
K.3.1	**30**	6	**34**	6	**26**	6	**30**	6
K.3.2	**23**	5	**26**	5	**20**	5	**23**	5
N.1.1					**60**	7		
N.1.2					**60**	7		
N.2.1					**50**	6		
N.2.2					**40**	5		
N.2.3					**35**	5		
N.3.1	62	5	71	5	**60**	5	62	5
N.3.2	37	4	43	4	**36**	4	37	4
N.3.3					**48**	4		
N.4.1					**45**	5		
S.1.1	8	1	**9**	1			8	1
S.1.2	6	1	**7**	1			6	1
S.2.1	7	1	**8**	1			7	1
S.2.2			**5**	1				
S.2.3			**6**	1				
S.3.1	10	2	**12**	2			10	2
S.3.2	7	1	**7**	1			7	1
S.3.3	6	2	**7**	2			6	2
H.1.1	4	1	5	1			4	1
H.1.2								
H.1.3								
H.1.4								
H.2.1	8	3	9	3			8	3
H.3.1								
O.1.1					20	4		
O.1.2								
O.2.1					20	4		
O.2.2					20	4		
O.3.1								

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

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 55**

Cutting data standard values – Hole depth 5xD

	Type VX-TiN 10 124 ...		Type UNI-PM-TiN 10 173 ...		Type UNI-TiN 10 171 ...		Type N 10 152 ...		Type VA 10 175 ...		Type W 10 161 ...		Type WTL 10 168 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
P.1.1	**46**	6	**44**	6	**46**	6	28	6	38	5			**32**	6
P.1.2	**39**	5	**37**	5	**39**	5	24	5	32	4			**27**	5
P.1.3	**35**	5	**33**	5	**35**	5	21	5	29	4			**24**	5
P.1.4	**32**	5	**31**	5	**32**	5	20	5	27	4			**23**	5
P.1.5	**28**	5	**26**	5	**28**	5	17	5					**19**	5
P.2.1	**35**	5	**32**	6	**35**	5	17	4	25	5			**20**	5
P.2.2	**24**	4	**23**	5	**24**	4	12	3	18	4			**14**	4
P.2.3	**21**	4	**19**	5	**21**	4	10	3					**12**	4
P.2.4	**19**	3	**18**	4	**19**	3	9	2					**11**	3
P.3.1	**17**	4	**21**	4	**17**	4	13	4					**15**	4
P.3.2	**13**	3	**16**	3	**13**	3							**11**	3
P.3.3	**12**	3	**15**	3	**12**	3							**10**	3
P.4.1	**18**	4	**14**	3	**18**	4			15	3			**10**	3
P.4.2	**17**	3	**14**	2	**17**	3			14	2			**10**	2
M.1.1	**15**	4			**15**	4			**13**	3			9	3
M.2.1	**14**	4			**14**	4			**12**	3			8	2
M.3.1	**10**	3			**10**	3			**9**	2				
K.1.1	**41**	6	**46**	6	**41**	6	**30**	6					**35**	6
K.1.2	**33**	6	**37**	6	**33**	6	**24**	6					**28**	6
K.2.1	**35**	6	**39**	6	**35**	6	**26**	6					**29**	6
K.2.2	**27**	5	**30**	5	**27**	5	**20**	5					**22**	5
K.3.1	**35**	6	**39**	6	**35**	6	**26**	6					**29**	6
K.3.2	**27**	5	**30**	5	**27**	5	**20**	5					**22**	5
N.1.1									**80**	7	**70**	7	**69**	7
N.1.2									**80**	7	**70**	7	**69**	7
N.2.1	75	6	69	6	75	6	50	6	**65**	6	**60**	6	**58**	6
N.2.2	60	5	55	5	60	5	40	5	**52**	5			**46**	5
N.2.3	52	5	48	5	52	5	35	5	**46**	5			**40**	5
N.3.1	69	5	64	5	69	5	60	5	**60**	5			**69**	5
N.3.2	41	4	39	4	41	4	36	4	**36**	4			**41**	4
N.3.3	55	4	52	4	55	4	48	4	**48**	4	**56**	4	**55**	4
N.4.1	75	6	65	6	70	6	45	6	**60**	6	**60**	6	**6**	6
S.1.1			7	2					8	1			7	2
S.1.2			6	1					6	1			6	1
S.2.1			6	2					7	1			6	2
S.2.2													3	1
S.2.3													4	1
S.3.1	9	2			9	2			10	2			6	2
S.3.2	6	1			6	1			7	1			4	1
S.3.3									6	1				
H.1.1			6	1									5	1
H.1.2														
H.1.3														
H.1.4														
H.2.1			10	3									9	3
H.3.1														
O.1.1	29	4	23	4	29	4	20	5					23	4
O.1.2	29	4			29	4	20	5					23	4
O.2.1	29	4	23	4	29	4	20	5					23	4
O.2.2	29	4	23	4	29	4	20	5					23	4
O.3.1														

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

	Type WTL-TiN 10 170 ...		Type WTL-TiCN 10 172 ...		Type WTL-L 10 169 ...		Type WNXi 10 180 ...		Type WNXi-TiN 10 181 ...		Type N-MK 10 265 ...		Type WTL-MK 10 280 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
P.1.1	**37**	6	**37**	6	28	6	**45**	7	**52**	7	28	6	**32**	6
P.1.2	**31**	5	**31**	5	24	5	**38**	6	**44**	6	24	5	**27**	5
P.1.3	**28**	5	**28**	5	21	5	**34**	6	**39**	6	21	5	**24**	5
P.1.4	**26**	5	**26**	5	20	5	**32**	6	**36**	6	20	5	**23**	5
P.1.5	**22**	5	**22**	5	17	5	**27**	6	**31**	6	17	5	**19**	5
P.2.1	**22**	5	**22**	5	17	5	**27**	5	**31**	5	17	4	**20**	5
P.2.2	**16**	4	**16**	4	12	4	**19**	4	**22**	4	12	3	**14**	4
P.2.3	**13**	4	**13**	4	10	4	**16**	4	**19**	4	10	3	**12**	4
P.2.4	**12**	3	**12**	3	9	3	**15**	3	**17**	3	9	2	**11**	3
P.3.1	**17**	4	**17**	4	13	4	**21**	5	**24**	5	13	4	**15**	4
P.3.2	**13**	3	**13**	3	10	3	**16**	4	**18**	4			**11**	3
P.3.3	**12**	3	**12**	3			**15**	4	**17**	4			**10**	3
P.4.1	**12**	3	**12**	3			**14**	4	**17**	4			**10**	3
P.4.2	**11**	2	**11**	2			**14**	3	**16**	3			**10**	2
M.1.1	11	3	11	3									9	3
M.2.1													8	2
M.3.1														
K.1.1	**40**	6	**40**	6	**30**	6	**48**	7	**56**	7	**30**	6	**35**	6
K.1.2	**32**	6	**32**	6	**24**	6	**39**	7	**44**	7	**24**	6	**28**	6
K.2.1	**34**	6	**34**	6	**26**	6	**41**	7	**47**	7	**26**	6	**29**	6
K.2.2	**26**	5	**26**	5	**20**	5	**31**	6	**36**	6	**20**	5	**22**	5
K.3.1	**34**	6	**34**	6	**26**	6	**41**	7	**47**	7	**26**	6	**29**	6
K.3.2	**26**	5	**26**	5	**20**	5	**31**	6	**36**	6	**20**	5	**22**	5
N.1.1					**60**	7							**69**	7
N.1.2					**60**	7							**69**	7
N.2.1	66	6	66	6	**50**	6	81	7	93	7	50	6	**58**	6
N.2.2	53	5	53	5	**40**	5	64	6	74	6	40	5	**46**	5
N.2.3	46	5	46	5	**35**	5	56	6	65	6	35	5	**40**	5
N.3.1	79	5	79	5	**60**	5	97	6	111	6	60	5	**69**	5
N.3.2	48	4	48	4	**36**	4	58	5	67	5	36	4	**41**	4
N.3.3	63	4	63	4	**48**	4	77	5	89	5	48	4	**55**	4
N.4.1	60	6	60	6	**45**	6	70	7	80	7	45	6	**50**	6
S.1.1	8	2	8	2									7	2
S.1.2	6	1	6	1									6	1
S.2.1	7	2	7	2									6	2
S.2.2	4	1	4	1									3	1
S.2.3	5	1	5	1									4	1
S.3.1	7	2	7	2									6	2
S.3.2	4	1	4	1									4	1
S.3.3														
H.1.1	5	1	5	1									5	1
H.1.2														
H.1.3														
H.1.4														
H.2.1	11	3	11	3									9	3
H.3.1														
O.1.1	26	4	26	4	20	4	32	5	37	5	20	5	23	4
O.1.2	26	4	26	4	20	4					20	5	23	4
O.2.1	26	4	26	4	20	4	32	5	37	5	20	5	23	4
O.2.2	26	4	26	4	20	4	32	5	37	5	20	5	23	4
O.3.1														

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

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 55**

Cutting data standard values – Hole depth 10xD

	Type NC 10 223 ...		Type NC-TiALN 10 224 ...		Type UNI-TiN 10 270 ...		Type WTL 10 225 ...		Type WTL 10 215 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
P.1.1	35	7	41	7	**41**	6	**29**	6	25	6
P.1.2	30	6	34	6	**35**	5	**25**	5	21	5
P.1.3	26	6	30	6	**31**	5	**22**	5	19	5
P.1.4	25	6	28	6	**29**	5	**20**	5	18	5
P.1.5	21	6	24	6	**25**	5	**17**	5	15	5
P.2.1	21	5	25	5	**31**	5	**18**	5	15	5
P.2.2	15	4	17	4	**22**	4	**12**	4	11	4
P.2.3	13	4	15	4	**19**	4	**11**	4	9	4
P.2.4	12	3	14	3	**17**	3	**10**	3	8	3
P.3.1	16	5	19	5	**16**	4	**13**	4	12	4
P.3.2					**12**	3	**10**	3	9	3
P.3.3					**10**	2	**8**	3		
P.4.1			13	4	**16**	4	**9**	3		
P.4.2			12	3	**15**	3	**9**	2		
M.1.1			12	4	**13**	4	8	3		
M.2.1			8	3	**8**	3	2	2		
M.3.1					**9**	3				
K.1.1	**38**	7	**43**	7	**37**	6	**31**	6	**27**	6
K.1.2	**30**	7	**35**	7	**30**	6	**25**	6	**22**	6
K.2.1	**32**	7	**37**	7	**32**	6	**26**	6	**23**	6
K.2.2	**25**	6	**28**	6	**24**	5	**20**	5	**18**	5
K.3.1	**32**	7	**37**	7	**32**	6	**26**	6	**23**	6
K.3.2	**25**	6	**28**	6	**24**	5	**20**	5	**18**	5
N.1.1							**62**	7	**54**	7
N.1.2							**62**	7	**54**	7
N.2.1	63	7	72	7	67	6	**52**	6	**45**	6
N.2.2	50	6	58	6	54	5	**41**	5	**36**	5
N.2.3	44	6	51	6	47	5	**36**	5	**32**	5
N.3.1	76	6	87	6	62	5	**62**	5	**54**	5
N.3.2	45	5	52	5	37	4	**37**	4	**32**	4
N.3.3	60	5	70	5	50	4	**50**	4	**43**	4
N.4.1	60	5	50	6	50	6	**50**	6	**45**	5
S.1.1							6	2		
S.1.2							5	1		
S.2.1							5	2		
S.2.2							3	1		
S.2.3							4	1		
S.3.1					8	2	5	2		
S.3.2					5	1	3	1		
S.3.3										
H.1.1							4	1		
H.1.2										
H.1.3										
H.1.4										
H.2.1							8	3		
H.3.1										
O.1.1	25	6	29	6	26	4	21	4	18	4
O.1.2	25	6	29	6	26	4	21	4	18	4
O.2.1	25	6	29	6	26	4	21	4	18	4
O.2.2	25	6	29	6	26	4	21	4	18	4
O.3.1										

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

	Type WTL-TiN 10 210 ...		Type WTW 10 200 ...		Type N-MK 10 295 ...		Type WTL-MK 10 297 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
P.1.1	29	6			25	6	**29**	6
P.1.2	25	5			21	5	**25**	5
P.1.3	22	5			19	5	**22**	5
P.1.4	20	5			18	5	**20**	5
P.1.5	17	5			15	5	**17**	5
P.2.1	18	5			15	4	**18**	5
P.2.2	12	4			11	3	**12**	4
P.2.3	11	4			9	3	**11**	4
P.2.4	10	3			8	2	**10**	3
P.3.1	13	4			12	4	**13**	4
P.3.2	10	3					**10**	3
P.3.3	8	3					**8**	3
P.4.1							**9**	3
P.4.2							**9**	2
M.1.1							8	3
M.2.1							2	2
M.3.1								
K.1.1	**31**	6			**27**	6	**31**	6
K.1.2	**25**	6			**22**	6	**25**	6
K.2.1	**26**	6			**23**	6	**26**	6
K.2.2	**20**	5			**18**	5	**20**	5
K.3.1	**26**	6			**23**	6	**26**	6
K.3.2	**20**	5			**18**	5	**20**	5
N.1.1			**72**	7			**62**	7
N.1.2			**72**	7			**62**	7
N.2.1	52	6			45	6	**52**	6
N.2.2	41	5			36	5	**41**	5
N.2.3	36	5			32	5	**36**	5
N.3.1	62	5			54	5	**62**	5
N.3.2	37	4			32	4	**37**	4
N.3.3	50	4			43	4	**50**	4
N.4.1	50	5			60	6	**50**	6
S.1.1							6	2
S.1.2							5	1
S.2.1							5	2
S.2.2							3	1
S.2.3							4	1
S.3.1							5	2
S.3.2							3	1
S.3.3								
H.1.1							4	1
H.1.2								
H.1.3								
H.1.4								
H.2.1							8	3
H.3.1								
O.1.1	21	4			18	5	21	4
O.1.2	21	4			18	5	21	4
O.2.1	21	4			18	5	21	4
O.2.2	21	4			18	5	21	4
O.3.1								

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

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 55**

Cutting data standard values – hole depth greater than 10xD

	Type WTL-R1 10 235 ...		Type WTL-R2 10 245 ...		Type WTL-R3 10 255 ...		Type WTL-TiAlN-R1 10 236 ...		Type WTL-TiAlN-R2 10 246 ...		Type WTL-TiAlN-R3 10 256 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
P.1.1	**21**	5	**21**	5	**21**	5	**24**	5	**24**	5	**24**	5
P.1.2	**18**	4	**18**	4	**18**	4	**21**	4	**21**	4	**21**	4
P.1.3	**16**	4	**16**	4	**16**	4	**18**	4	**18**	4	**18**	4
P.1.4	**15**	4	**15**	4	**15**	4	**17**	4	**17**	4	**17**	4
P.1.5	**13**	4	**13**	4	**13**	4	**14**	4	**14**	4	**14**	4
P.2.1	**13**	4	**13**	4	**13**	4	**15**	4	**15**	4	**15**	4
P.2.2	**9**	3	**9**	3	**9**	3	**10**	3	**10**	3	**10**	3
P.2.3	**8**	3	**8**	3	**8**	3	**9**	3	**9**	3	**9**	3
P.2.4	**7**	2	**7**	2	**7**	2	**8**	2	**8**	2	**8**	2
P.3.1	**10**	3	**10**	3	**10**	3	**11**	3	**11**	3	**11**	3
P.3.2	**7**	2	**7**	2	**7**	2	**8**	2	**8**	2	**8**	2
P.3.3	**6**	2	**6**	2	**6**	2	**7**	2	**7**	2	**7**	2
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	**23**	5	**23**	5	**23**	5	**26**	5	**26**	5	**26**	5
K.1.2	**18**	5	**18**	5	**18**	5	**21**	5	**21**	5	**21**	5
K.2.1	**19**	5	**19**	5	**19**	5	**22**	5	**22**	5	**22**	5
K.2.2	**15**	4	**15**	4	**15**	4	**17**	4	**17**	4	**17**	4
K.3.1	**19**	5	**19**	5	**19**	5	**22**	5	**22**	5	**22**	5
K.3.2	**15**	4	**15**	4	**15**	4	**17**	4	**17**	4	**17**	4
N.1.1	**45**	6	**45**	6	**45**	6	**52**	6	**52**	6	**52**	6
N.1.2	**45**	6	**45**	6	**45**	6	**52**	6	**52**	6	**52**	6
N.2.1	**38**	5	**38**	5	**38**	5	**43**	5	**43**	5	**43**	5
N.2.2	**30**	4	**30**	4	**30**	4	**35**	4	**35**	4	**35**	4
N.2.3	**26**	4	**26**	4	**26**	4	**30**	4	**30**	4	**30**	4
N.3.1	**45**	4	**45**	4	**45**	4	**52**	4	**52**	4	**52**	4
N.3.2	**27**	3	**27**	3	**27**	3	**31**	3	**31**	3	**31**	3
N.3.3	**36**	3	**36**	3	**36**	3	**41**	3	**41**	3	**41**	3
N.4.1	**55**	5	**55**	5	**55**	5	**60**	6	**60**	6	**60**	6
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1	15	3	15	3	15	3	17	3	17	3	17	3
O.1.2	15	3	15	3	15	3	17	3	17	3	17	3
O.2.1	15	3	15	3	15	3	17	3	17	3	17	3
O.2.2	15	3	15	3	15	3	17	3	17	3	17	3
O.3.1												

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

	Type WTL-MK-R1 10 305 ...		Type WTL-MK-R2 10 315 ...	
Index	v_c in m/min	F	v_c in m/min	F
P.1.1	**21**	5	**21**	5
P.1.2	**18**	4	**18**	4
P.1.3	**16**	4	**16**	4
P.1.4	**15**	4	**15**	4
P.1.5	**13**	4	**13**	4
P.2.1	**13**	4	**13**	4
P.2.2	**9**	3	**9**	3
P.2.3	**8**	3	**8**	3
P.2.4	**7**	2	**7**	2
P.3.1	**10**	3	**10**	3
P.3.2	**7**	2	**7**	2
P.3.3	**6**	2	**6**	2
P.4.1				
P.4.2				
M.1.1				
M.2.1				
M.3.1				
K.1.1	**23**	5	**23**	5
K.1.2	**18**	5	**18**	5
K.2.1	**19**	5	**19**	5
K.2.2	**15**	4	**15**	4
K.3.1	**19**	5	**19**	5
K.3.2	**15**	4	**15**	4
N.1.1	**45**	6	**45**	6
N.1.2	**45**	6	**45**	6
N.2.1	**38**	5	**38**	5
N.2.2	**30**	4	**30**	4
N.2.3	**26**	4	**26**	4
N.3.1	**45**	4	**45**	4
N.3.2	**27**	3	**27**	3
N.3.3	**36**	3	**36**	3
N.4.1	**55**	5	**55**	5
S.1.1				
S.1.2				
S.2.1				
S.2.2				
S.2.3				
S.3.1				
S.3.2				
S.3.3				
H.1.1				
H.1.2				
H.1.3				
H.1.4				
H.2.1				
H.3.1				
O.1.1	15	3	15	3
O.1.2	15	3	15	3
O.2.1	15	3	15	3
O.2.2	15	3	15	3
O.3.1				

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

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 55**

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

		Nominal Ø in mm						
		Ø 0,15	Ø 0,20–0,25	Ø 0,30–0,35	Ø 0,40–0,55	Ø 0,60–0,75	Ø 0,80–0,95	Ø 1,00–1,45
Index	v_c in m/min	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	33	0,0090	0,0110	0,0150	0,0190	0,0260	0,0310	0,0500
P.1.2	28	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
P.1.3	25	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
P.1.4	23	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
P.1.5	20	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
P.2.1	20	0,0050	0,0070	0,0090	0,0110	0,0150	0,0200	0,0350
P.2.2	14	0,0040	0,0050	0,0070	0,0080	0,0120	0,0160	0,0290
P.2.3	12	0,0040	0,0050	0,0070	0,0080	0,0120	0,0160	0,0290
P.2.4	11	0,0030	0,0040	0,0050	0,0070	0,0090	0,0130	0,0240
P.3.1	15	0,0050	0,0070	0,0090	0,0110	0,0150	0,0200	0,0350
P.3.2	11	0,0040	0,0050	0,0070	0,0080	0,0120	0,0160	0,0290
P.3.3	10	0,0040	0,0050	0,0070	0,0080	0,0120	0,0160	0,0290
P.4.1	11	0,0040	0,0050	0,0070	0,0080	0,0120	0,0160	0,0290
P.4.2	10	0,0030	0,0040	0,0050	0,0070	0,0090	0,0130	0,0240
M.1.1	9	0,0040	0,0050	0,0070	0,0080	0,0120	0,0160	0,0290
M.2.1	8	0,0040	0,0050	0,0070	0,0080	0,0120	0,0160	0,0290
M.3.1								
K.1.1	35	0,0090	0,0110	0,0150	0,0190	0,0260	0,0310	0,0500
K.1.2	28	0,0090	0,0110	0,0150	0,0190	0,0260	0,0310	0,0500
K.2.1	30	0,0090	0,0110	0,0150	0,0190	0,0260	0,0310	0,0500
K.2.2	23	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
K.3.1	30	0,0090	0,0110	0,0150	0,0190	0,0260	0,0310	0,0500
K.3.2	23	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
N.1.1	70	0,0120	0,0140	0,0190	0,0240	0,0340	0,0380	0,0600
N.1.2	70	0,0120	0,0140	0,0190	0,0240	0,0340	0,0380	0,0600
N.2.1	59	0,0090	0,0110	0,0150	0,0190	0,0260	0,0310	0,0500
N.2.2	47	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
N.2.3	41	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
N.3.1	70	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
N.3.2	42	0,0050	0,0070	0,0090	0,0110	0,0150	0,0200	0,0350
N.3.3	56	0,0050	0,0070	0,0090	0,0110	0,0150	0,0200	0,0350
N.4.1	42	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
S.1.1	7	0,0030	0,0040	0,0050	0,0070	0,0090	0,0130	0,0240
S.1.2	6	0,0020	0,0030	0,0040	0,0050	0,0070	0,0100	0,0200
S.2.1	6	0,0030	0,0040	0,0050	0,0070	0,0090	0,0130	0,0240
S.2.2	4	0,0020	0,0030	0,0040	0,0050	0,0070	0,0100	0,0200
S.2.3	4	0,0020	0,0030	0,0040	0,0050	0,0070	0,0100	0,0200
S.3.1	6	0,0030	0,0040	0,0050	0,0070	0,0090	0,0130	0,0240
S.3.2	4	0,0020	0,0030	0,0040	0,0050	0,0070	0,0100	0,0200
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	23	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
O.1.2	23	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
O.2.1	23	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
O.2.2	23	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
O.3.1								

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

Feed rate guide values for HSS twist drills

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

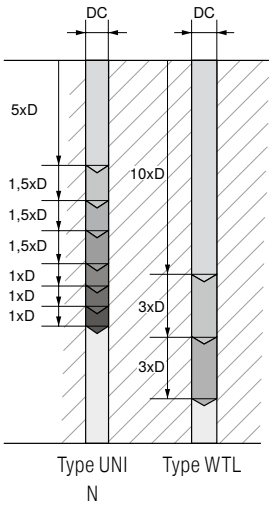
All the indicated data are guide values only and represent average values.

Speed for HSS drills

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

Peck frequency for deep drilling

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



Coatings

TiN

- TiN coating
- Maximum application temperature: 450 °C

TiCN

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

TiAlN

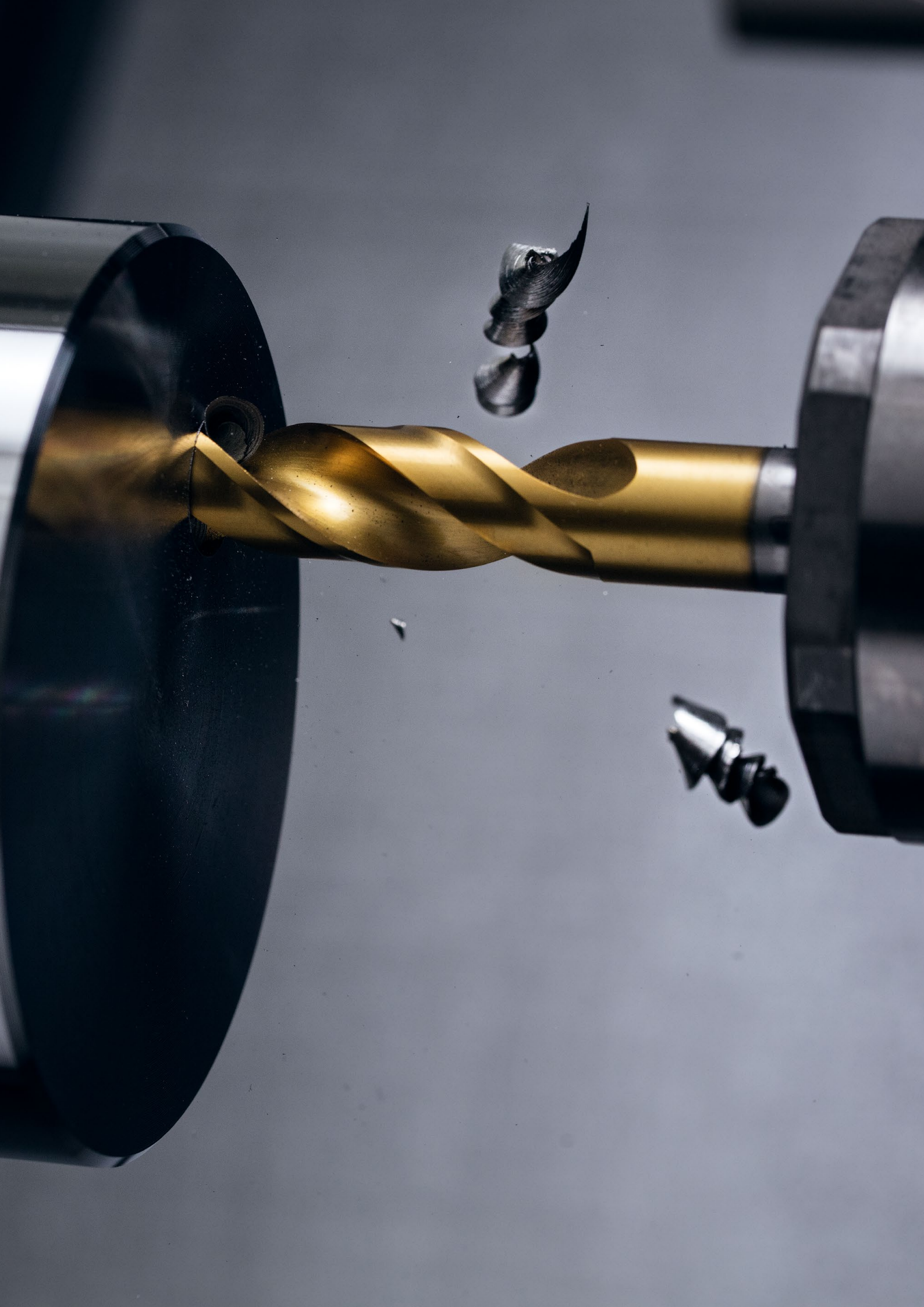
- TiAlN multilayer coating
- Maximum application temperature: 900 °C

F.-nit

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

vap.

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



New products for machining technicians

NEW WTX – HFDS

≤ 3xD | ≤ 5xD



The first four-edged drilling tool on the market. The innovative, pyramid geometry of the WTX – HFDS ensures extremely aggressive and precise drilling performance.
Each cutting edge is optimally cooled by the four spiral coolant holes.

→ Page 34+59

NEW WTX – Speed VA

≤ 12xD



The renowned WTX – High-speed carbide drill is now also available in 12xD.
Designed for high cutting speeds in Corrosion and acid-resistant steels.

→ Page 69–72

NEW WTX – Co-pilot deep hole twist drill

≤ 20xD



The WTX – Co-pilot deep hole twist drill ensures an even safer deep hole drilling process. The cutting time of the deep hole twist drill is reduced and optimal guidance up to > 30xD is guaranteed.

→ Page 75

NEW WTX – Stepped drill with thro' coolant

≤ 3xD



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

→ Page 88

NEW WTX – Feed drill reamer

≤ 3xD | ≤ 5xD



The new WTX – Feed drill reamer can be used for any application due to the new cutting edge geometry with 3 effective cutting edges and the Dragonskin DPX14S coating.

→ Page 84–86

NEW WTX – Micro

5xD - 30xD



The new WTX – Micro drills have been perfectly designed for miniature holes and feature a high level of process security. The special geometry and new DPX74M micro drill coating set new standards in the production of miniature holes up to 30xD.

→ Page 80–83



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Shank







Tool types

HFDS

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



Coolant supply version



Int. coolant supply



self-centering



▲ Pilot drilling
▲ min. 2xD

● = **Main Application**

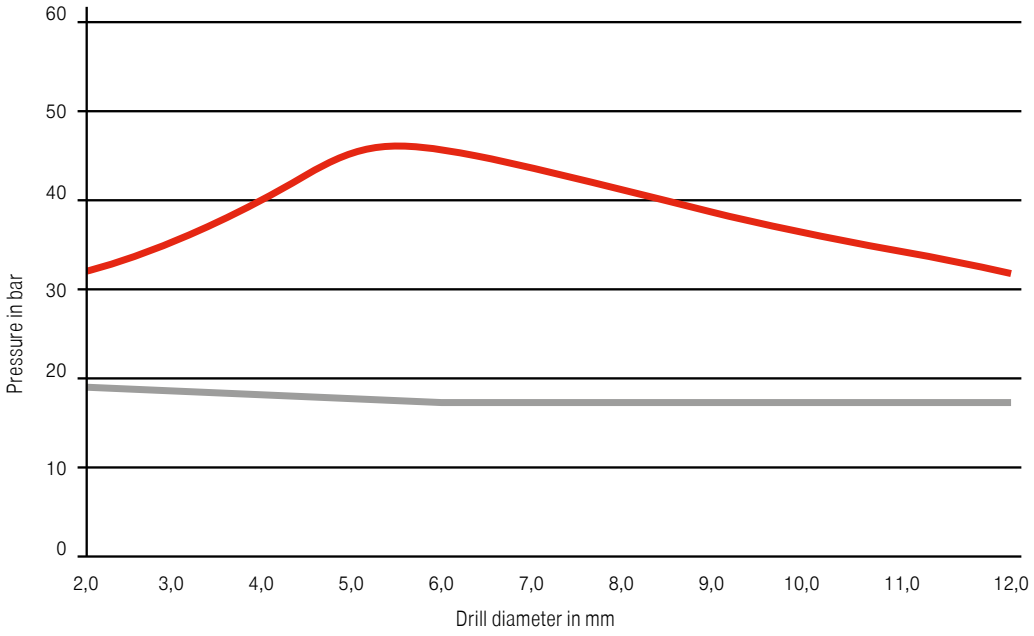
○ = Extended application

Recommended application – WTX Performance Tools

● = Main Application
○ = Extended application

	WTX – Type	Through-holes	Blind holes	Flat bottom hole	High-feed machining	High speed machining	Stack plate drilling	Drilling with a transverse hole	Angled hole entrance > 5 %	Angled drill exit > 5 %	drilling dowel holes	deep holes	miniature holes
Monobloc Tool	WTX – UNI	●	●				●	●					
	WTX – Speed	●	●			●	●						
	WTX – HFDS	●	●		●		●	●					
	WTX – Feed	●	●		●		●	●	●	●			
	WTX – Speed VA	●	●			●							
	WTX – VA	●	●										
	WTX – Ti	●	●					●					
	WTX – AL	●	●										
	WTX – 180	●	●	●				●	●	●			
	WTX – Quattro 4F	●	●							○			
	WTX – Feed BR	●	●		●		○	○	○	○	●		
	WTX – H	●	●										
	WTX – TB	●	●									●	
	WTX – Micro	●	●									●	●
Modular	WTX – Change Feed UNI	●	●		●				●	●			
	WTX – Change Drill heads	●	●										

Coolant diagram



Recommended coolant pressure
Minimum coolant Pressure

Toolfinder

Steel/Universal

Product name	Tool type	Description	Int. coolant supply	Heads	1xD	3xD	5xD	8xD	12xD
Solid carbide drilling									
WTX	Speed UNI	▲ high performance drill for high cutting speeds ▲ using new DPX14S Dragonskin coating ▲ new cutting geometry	✓			23–26	41–45	60–63	
WTX	Feed UNI	▲ high feed drills with 3 cutting edges ▲ for difficult drilling conditions ▲ high positional accuracy	✓				58	68	74
WTX	HFDS	▲ High-feed drill with four cutting edges ▲ Ultimate positioning accuracy of ~ 0.03 mm ▲ Optimal cooling with four spiral coolant holes	✓			34	59		
WTX	UNI	▲ highest performance for all materials up to 1200 N/mm² ▲ suitable for volume production	✗ ✓			11–15 23–26	35–38 41–45	 60–63	
WPC	UNI	▲ quality tools for standard applications	✗ ✓			16–19 27–30	39 53–56	 64	 73
WTX	180	▲ for inclined surfaces up to 45° and flat bottom holes	✓			33	57		
WTX	Quattro 4F	▲ with additional guide land for best alignment accuracy, concentricity and positional accuracy	✗ ✓				35–38 41–45	 60–63	 69–72
	N	▲ uncoated solid carbide drills ▲ universal application	✗			21	40		
Mini-drill									
WTX	MINI	▲ Standard shank Ø 3.0 mm for use in heat shrink adapters	✗				79		
WTX	MICRO	▲ Universal high-performance micro drill ▲ Specialised geometry and coating ▲ WTX – Micro (5xD) pilot drill for deep hole twist drill	✓				80	80	81
Drill Reamers									
WTX	Feed BR/ BR100	▲ solid carbide high performance drill reamer ▲ excellent surface quality ▲ for blind and through holes	✓			84+86	85+86		
Stepped drills									
WTX	SB	▲ core hole plus countersink for thread forming and tapping	✗ ✓			87 88			
NC Spot Drill									
	NC-A	▲ spiral fluted ▲ 90°, 120°, 142°	✗		89+90				
Centre drills									
	ZB	▲ spiral fluted ▲ 120°	✗		91				
Exchange head drill									
WTX	Change Feed UNI	▲ three-edged exchangeable head drill with solid carbide drill head type Feed UNI from Ø 14.0 mm to 32.0 mm ▲ universal application (steel, cast iron)	✓	92+93		94	94	95	
WTX	Change UNI	▲ exchangeable head drill with type UNI solid carbide drill head from Ø 12.0 mm to 41.0 mm ▲ for steels < 700 N/mm²	✓	96–101	102	102	103	103	104
WTX	Change P	▲ exchangeable head drill with type P solid carbide drill head from Ø 12.0 mm to 41.0 mm ▲ for steels > 700 N/mm²	✓	96–101	102	102	103	103	104
Exchangeable head NC spot drill									
	NC-A	▲ NC spot drill – exchange head system ▲ 90°, 120°, 142°	✗	106					

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

Toolfinder

	Product name	Tool type	Description	Int. coolant supply	Heads	1xD	3xD	5xD	8xD	12xD
Stainless steel	**Solid carbide drilling**									
	WTX	VA	▲ highest performance for corrosion and acid resistant steels and aluminium ▲ for volume production	✖ ✓			11–15 23–26	35–38 46–52	 65–67	
	WPC	VA	▲ quality tools for corrosion and acid-resistant steels and aluminum	✖ ✓			16–19 27–30	 53–56		
	WTX	Speed VA	▲ double the cutting speed in corrosion and acid-resistant steels and aluminum	✓				46–52		69–72
	Exchange head drill									
	WTX	Change VA	▲ exchangeable head drill with solid carbide drill head type VA from Ø 12.0 mm to 32.0 mm	✓	96–101	102	102	103	103	104
Cast iron	**Solid carbide drilling**									
	WTX	GG	▲ highest performance in cast materials to 250 HB	✓				46–52	65–67	
	Exchange head drill									
	WTX	Change GG	▲ exchangeable head drill with solid carbide drill head type GG from Ø 12.0 mm to 32.0 mm	✓	96–101	102	102	103	103	104
Non ferrous metals	**Solid carbide drilling**									
	WTX	AL	▲ solid carbide high performance drill, especially for the machining of aluminum, copper and brass ▲ for volume production	✓				46–52	65–67	69–72
	Exchange head drill									
	WTX	Change AL	▲ exchangeable head drill with solid carbide drill head type AL from Ø 12.0 mm to 32.0 mm	✓	96–101	102	102	103	103	104
Heat resistant	**Solid carbide drilling**									
	WTX	Ti	▲ highest performance in titanium, titanium alloys and heat resistant alloys	✓			31+32	46–52		
Hardened materials	**Solid carbide drilling**									
	WTX	H	▲ highest performance in hardened steel from 46 to 70 HRC	✖ ✓			20 22			

	Product name	Tool type	Description	Int. coolant supply	16xD	20xD	25xD	30xD	40xD	50xD
Steel/Universal	**Deep Hole Drills**									
	WTX	MICRO	▲ Universal high-performance micro deep hole twist drill ▲ Specialised geometry and coating ▲ Hole depths up to 30xD possible		81	82	82	83		
	WTX	CP 20 UNI	▲ Ensures an even safer deep hole drilling process ▲ Excellent alignment precision ▲ For optimal guidance of the deep hole twist drill for hole depths > 30xD	✓		75				
	WTX	TB UNI	▲ solid carbide deep hole drill to 50xD without peck ▲ 4 facet geometry for excellent alignment accuracy	✓	76	76	77	77	78	78
Non ferrous metals	WTX	TB ALU	▲ solid carbide deep hole drills, up to 30xD without pecking ▲ 6-facet head geometry for excellent alignment accuracy	✓	76	76	77	77		

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

Overview Solid Carbide Drills

3xD without thro‘ coolant

Product name	Tool type	Length	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
 WTX	UNI	≤ 3xD	3–25	●		●			○		HA HB HE	■		11–15	
 WTX	VA	≤ 3xD	2–20	○	●	○	○	●			HA HE	■		11–15	
 WPC	UNI	≤ 3xD	1–20	●		●					HA HB	■		16–19	
 WPC	VA	≤ 3xD	1–20	○	●	●	●				HA HB	■		16–19	
 WTX	H	≤ 3xD	2,55–14	○		●			●		HA	up to 70 HRC	■	20	
	N	≤ 3xD	0,5–20	○		●	●	○					□	21	

3xD with thro‘ coolant

Product name	Tool type	Length	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
 WTX	Speed UNI	≤ 3xD	3–20	●	●	●					HA	■		23–26	
 WTX	UNI	≤ 3xD	3–25	●		●			○		HA HB HE	■		23–26	
 WTX	VA	≤ 3xD	3–20	○	●	○	○	●			HA HE	■		23–26	
 WPC	UNI	≤ 3xD	1–20	●		●					HA HB	■		27–30	
 WPC	VA	≤ 3xD	1–20	○	●	●	●				HA HE	■		27–30	
 WTX	Ti	≤ 3xD	3–20	○	●			●			HA	■		31+32	
 WTX	180	≤ 3xD	3–20	●	●	●					HA	■		33	
 WTX	H	≤ 3xD	2,55–14	○		●		○	●		HA	up to 58 HRC	■	22	
 WTX	HFDS	≤ 3xD	6–16	●	○	●	○	○	○	○	HA	4 flute	■	34	

Overview Solid Carbide Drills

5xD without thro‘ coolant

	Product name	Tool type	Length	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
	WTX	UNI	≤ 5xD	3–20	●		●				○	HA HB HE	■		35–38	
	WTX	Quattro 4F	≤ 5xD	3–20	●		●				○	HA	■		35–38	
	WTX	VA	≤ 5xD	3–20	○	●	○	○	●			HA HE	■		35–38	
	WPC	UNI	≤ 5xD	3–20	●		●					HA HB	■			39
		N	≤ 5xD	0,5–16	○		●	●	○					□		40

5xD with thro‘ coolant

	Product name	Tool type	Length	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
	WTX	Feed UNI	≤ 5xD	4–20	●	●	●	○				HA 3 flute	■		58	
	WTX	Speed UNI	≤ 5xD	3–20	●	●	●					HA	■		41–45	
	WTX	UNI	≤ 5xD	3–25	●		●				○	HA HB HE	■		41–45	
	WTX	Quattro 4F	≤ 5xD	3–20	●		●				○	HA	■		41–45	
	WTX	Speed VA	≤ 5xD	3–20	●	●	●	○	●			HA	■		46–52	
	WTX	VA	≤ 5xD	3–20	○	●	○	○	●			HA HE	■		46–52	
	WTX	GG	≤ 5xD	3–20			●	○				HA	■		46–52	
	WTX	AL	≤ 5xD	2,5–20				●				HA	■		46–52	
	WTX	Ti	≤ 5xD	3–20	○	●			●			HA	■		46–52	
	WPC	UNI	≤ 5xD	1–20	●		●					HA HB	■			53–56
	WPC	VA	≤ 5xD	1–20	○	●	●	●				HA HB	■			53–56
	WTX	180	≤ 5xD	3–20	●	●	●					HA	■		57	
	WTX	HFDS	≤ 5xD	6–16	●	○	●	○	○	○	○	HA 4 flute	■		59	

Overview Solid Carbide Drills

Product name	Tool type	Length	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials		coated ■ uncoated □	WNT \ Performance	WNT \ Standard
8xD with thro‘ coolant														
	WTX	Feed UNI	≤ 8xD	4–20	●	●	●	○			3 flute	■	68	
				HA										
	WTX	Speed UNI	≤ 8xD	3–20	●	●	●					■	60–63	
				HA										
	WTX	UNI	≤ 8xD	3–20	●		●			○		■	60–63	
				HA			HB				HE			
	WTX	Quattro 4F	≤ 8xD	3–20	●		●			○		■	60–63	
				HA										
	WPC	UNI	≤ 8xD	3–20	●		●					■		64
				HA										
	WTX	VA	≤ 8xD	3–20	○	●	○	○	●			■	65–67	
				HA										
	WTX	GG	≤ 8xD	3–20			●	○				■	65–67	
				HA										
	WTX	AL	≤ 8xD	3–20				●				■	65–67	
				HA										
12xD with thro‘ coolant														
	WTX	Feed UNI	≤ 12xD	4–20	●	●	●	○			3 flute	■	74	
				HA										
	WTX	Speed VA	≤ 12xD	3–17,5	●	●	●	○	●			■	69–72	
				HA										
	WTX	Quattro 4F	≤ 12xD	3–20	●		●			○		■	69–72	
				HA										
	WTX	AL	≤ 12xD	3–20				●				■	69–72	
				HA										
	WPC	UNI	≤ 12xD	3–18	●		●					■		73
				HA										

Overview Solid Carbide Drills

Product name	Tool type	Length	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
Deep Hole Drills 16xD / 20xD / 25xD / 30xD / 40xD / 50xD															
	WTX	CP 20 UNI	≤ 20xD	3–9	●	●	●		○			HA	■		75
	WTX	TB UNI	≤ 16xD ≤ 20xD	2–12	●	●	●		○			HA	■		76
	WTX	TB UNI	≤ 25xD ≤ 30xD	2–12	●	●	●		○			HA	■		77
	WTX	TB UNI	≤ 40xD	3–9	●	●	●		○			HA	■		78
	WTX	TB UNI	≤ 50xD	3–6,8	●	●	●		○			HA	■		78
	WTX	TB ALU	≤ 16xD ≤ 20xD	2–12				●				HA	■		76
	WTX	TB ALU	≤ 25xD ≤ 30xD	2–12				●				HA	■		77
Micro drill 5xD / 8xD / 12xD / 16xD / 20xD / 25xD / 30xD															
	WTX	MINI	≤ 5xD	0,1–2,9	○		●	●	○			HA	■		79
	WTX	MICRO	≤ 5xD	0,8–2,9	●	●	●		○			HA	■		80
	WTX	MICRO	≤ 8xD	0,8–2,9	●	●	●		○			HA	■		80
	WTX	MICRO	≤ 12xD	0,8–2,9	●	●	●		○			HA	■		81
	WTX	MICRO	≤ 16xD	0,8–2,9	●	●	●					HA	■		81
	WTX	MICRO	≤ 20xD	0,8–2,9	●	●	●					HA	■		82
	WTX	MICRO	≤ 25xD	1,0–2,9	●	●	●					HA	■		82
	WTX	MICRO	≤ 30xD	1,0–2,9	●	●	●					HA	■		83
Drill Reamers															
	WTX	Feed BR100	≤ 3xD ≤ 5xD	3,97–12,02	●	●	●					HA	1/100 3 flute	■	84+85
	WTX	Feed BR	≤ 3xD	4–16	●	●	●					HA	Tolerance H7 3 flute	■	86
	WTX	Feed BR	≤ 5xD	4–20	●	●	●					HA	Tolerance H7 3 flute	■	86

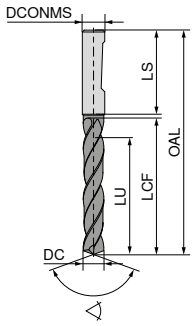
Overview Solid Carbide Drills

	Product name	Tool type	Point angle	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
Stepped drills																
	WTX	SB		2,5–14	●		●				○	Thread cutting	■		87	
					HA											
	WTX	SB		2,8–15	●		●				○	Thread forming	■		87	
					HA											
	WTX	SB		3,3–14	●		●				○	Thread cutting with thro' coolant	■		88	
					HA											
	WTX	SB		3,7–15	●		●				○	Thread forming with thro' coolant	■		88	
					HA											
NC Spot Drill																
		NC–A	◁ 90° ◁ 120° ◁ 142°	2–20	○		●	●						□	89	
					HA											
		NC–A	◁ 90° ◁ 120° ◁ 142°	2–20	○		●	●			○		■		89	
					HB											
		NC–A	◁ 90° ◁ 120° ◁ 142°	3–16	○		●	●			○	Long version	■		90	
					HA						HB					
Centre drills																
		ZB	◁ 120°	0,5–6,3	○		●	●						□	91	
Exchangeable head system – heads																
	WTX	Change Feed		14–32	●		●						■		92+93	
	WTX	Change UNI		12–41	●		●						■		96–101	
	WTX	Change P		12–41	●		●						■		96–101	
	WTX	Change VA		12–32	○	●	●		●				■		96–101	
	WTX	Change GG		12–32			●						■		96–101	
	WTX	Change ALU		12–32				●					■		96–101	
Exchangeable head system – holders 1xD / 3xD / 5xD / 8xD / 12xD																
	WTX	Change Feed		14–32											94+95	
					HB											
	WTX	Change		12–41											102–104	
					HB											
MultiChange NC spot drill																
		NC–A	◁ 90° ◁ 120° ◁ 142°	8–20	●	●	●	●					■		106	

WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2





140°
Solid carbide

						11 777 ...		11 778 ...		11 776 ...		10 731 ...		10 732 ...	
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T7		£ T7		£ T7		£ T5		£ T5	
2.00	6	58	16	11	36							46.85	020	46.85	020
2.10	6	58	16	11	36							46.85	021	46.85	021
2.20	6	58	16	11	36							46.85	022	46.85	022
2.30	6	58	16	11	36							46.85	023	46.85	023
2.33	6	58	16	11	36							46.85	823		
2.40	6	58	16	11	36							46.85	024	46.85	024
2.43	6	58	16	11	36							46.85	824		
2.50	6	58	16	11	36							46.85	025	46.85	025
2.55	6	58	16	11	36							46.85	825		
2.60	6	58	16	11	36							46.85	026	46.85	026
2.62	6	58	16	11	36							46.85	826		
2.70	6	58	16	11	36							46.85	027	46.85	027
2.80	6	58	16	11	36							46.85	028	46.85	028
2.90	6	58	16	11	36							46.85	029	46.85	029
3.00	6	62	20	14	36	30.25	03000	30.25	03000	30.25	03000	61.89	030	61.89	030
3.10	6	62	20	14	36	30.25	03100	30.25	03100	30.25	03100	61.89	031	61.89	031
3.15	6	62	20	14	36	30.25	03150	30.25	03150	30.25	03150	61.89	831		
3.20	6	62	20	14	36	30.25	03200	30.25	03200	30.25	03200	61.89	032	61.89	032
3.22	6	62	20	14	36	30.25	03220	30.25	03220	30.25	03220	61.89	832		
3.25	6	62	20	14	36	30.25	03250	30.25	03250	30.25	03250	61.89	890		
3.30	6	62	20	14	36	30.25	03300	30.25	03300	30.25	03300	61.89	033	61.89	033
3.40	6	62	20	14	36	30.25	03400	30.25	03400	30.25	03400	61.89	034	61.89	034
3.50	6	62	20	14	36	30.25	03500	30.25	03500	30.25	03500	61.89	035	61.89	035
3.60	6	62	20	14	36	30.25	03600	30.25	03600	30.25	03600	61.89	036	61.89	036
3.70	6	62	20	14	36	30.25	03700	30.25	03700	30.25	03700	61.89	037	61.89	037
3.80	6	66	24	17	36	30.25	03800	30.25	03800	30.25	03800	61.89	038	61.89	038
3.85	6	66	24	17	36	30.25	03850	30.25	03850	30.25	03850	61.89	838		
3.90	6	66	24	17	36	30.25	03900	30.25	03900	30.25	03900	61.89	039	61.89	039
4.00	6	66	24	17	36	30.25	04000	30.25	04000	30.25	04000	61.89	040	61.89	040
4.10	6	66	24	17	36	30.25	04100	30.25	04100	30.25	04100	61.89	041	61.89	041
4.20	6	66	24	17	36	30.25	04200	30.25	04200	30.25	04200	61.89	042	61.89	042
4.25	6	66	24	17	36	30.25	04250	30.25	04250	30.25	04250				
4.30	6	66	24	17	36	30.25	04300	30.25	04300	30.25	04300	61.89	043	61.89	043
4.35	6	66	24	17	36	30.25	04350	30.25	04350	30.25	04350	61.89	843		
4.40	6	66	24	17	36	30.25	04400	30.25	04400	30.25	04400	61.89	044	61.89	044
4.45	6	66	24	17	36	30.25	04450	30.25	04450	30.25	04450	61.89	844		
4.50	6	66	24	17	36	30.25	04500	30.25	04500	30.25	04500	61.89	045	61.89	045
4.60	6	66	24	17	36	30.25	04600	30.25	04600	30.25	04600	61.89	046	61.89	046
4.65	6	66	24	17	36	30.25	04650	30.25	04650	30.25	04650	61.89	900	61.89	900
4.70	6	66	24	17	36	30.25	04700	30.25	04700	30.25	04700	61.89	047	61.89	047
4.80	6	66	28	20	36	30.25	04800	30.25	04800	30.25	04800	61.89	048	61.89	048
P						●		●		●		○		○	
M												●		●	
K						●		●		●		○		○	
N												○		○	
S												●		●	
H						○		○		○					
O															

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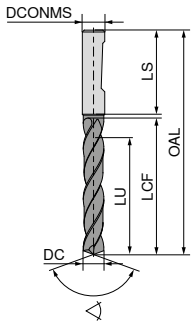
WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2





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



HA	HB	HE	HA	HE
140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
11 777 ...	**11 778 ...**	**11 776 ...**	**10 731 ...**	**10 732 ...**

DC $_{m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	£ T7		£ T7		£ T7		£ T5		£ T5	
4.90	6	66	28	20	36	30.25	04900	30.25	04900	30.25	04900	61.89	049	61.89	049
4.95	6	66	28	20	36	30.25	04950	30.25	04950	30.25	04950				
5.00	6	66	28	20	36	30.25	05000	30.25	05000	30.25	05000	61.89	050	61.89	050
5.05	6	66	28	20	36	30.25	05050	30.25	05050	30.25	05050				
5.10	6	66	28	20	36	30.25	05100	30.25	05100	30.25	05100	61.89	051	61.89	051
5.20	6	66	28	20	36	30.25	05200	30.25	05200	30.25	05200	61.89	052	61.89	052
5.30	6	66	28	20	36	30.25	05300	30.25	05300	30.25	05300	61.89	053	61.89	053
5.40	6	66	28	20	36	30.25	05400	30.25	05400	30.25	05400	61.89	054	61.89	054
5.50	6	66	28	20	36	30.25	05500	30.25	05500	30.25	05500	61.89	055	61.89	055
5.55	6	66	28	20	36	30.25	05550	30.25	05550	30.25	05550	61.89	902	61.89	902
5.60	6	66	28	20	36	30.25	05600	30.25	05600	30.25	05600	61.89	056	61.89	056
5.70	6	66	28	20	36	30.25	05700	30.25	05700	30.25	05700	61.89	057	61.89	057
5.75	6	66	28	20	36	30.25	05750	30.25	05750	30.25	05750	61.89	916		
5.80	6	66	28	20	36	30.25	05800	30.25	05800	30.25	05800	61.89	058	61.89	058
5.90	6	66	28	20	36	30.25	05900	30.25	05900	30.25	05900	61.89	059	61.89	059
5.95	6	66	28	20	36	30.25	05950	30.25	05950	30.25	05950	61.89	959		
6.00	6	66	28	20	36	30.25	06000	30.25	06000	30.25	06000	61.89	060	61.89	060
6.10	8	79	34	24	36	32.63	06100	32.63	06100	32.63	06100	78.61	061	78.61	061
6.20	8	79	34	24	36	32.63	06200	32.63	06200	32.63	06200	78.61	062	78.61	062
6.30	8	79	34	24	36	32.63	06300	32.63	06300	32.63	06300	78.61	063	78.61	063
6.40	8	79	34	24	36	32.63	06400	32.63	06400	32.63	06400	78.61	064	78.61	064
6.50	8	79	34	24	36	32.63	06500	32.63	06500	32.63	06500	78.61	065	78.61	065
6.60	8	79	34	24	36	32.63	06600	32.63	06600	32.63	06600	78.61	066	78.61	066
6.70	8	79	34	24	36	32.63	06700	32.63	06700	32.63	06700	78.61	067	78.61	067
6.80	8	79	34	24	36	32.63	06800	32.63	06800	32.63	06800	78.61	068	78.61	068
6.90	8	79	34	24	36	32.63	06900	32.63	06900	32.63	06900	78.61	069	78.61	069
7.00	8	79	34	24	36	32.63	07000	32.63	07000	32.63	07000	78.61	070	78.61	070
7.10	8	79	41	29	36	32.63	07100	32.63	07100	32.63	07100	78.61	071	78.61	071
7.20	8	79	41	29	36	32.63	07200	32.63	07200	32.63	07200	78.61	072	78.61	072
7.30	8	79	41	29	36	32.63	07300	32.63	07300	32.63	07300	78.61	073	78.61	073
7.40	8	79	41	29	36	32.63	07400	32.63	07400	32.63	07400	78.61	074	78.61	074
7.45	8	79	41	29	36	32.63	07450	32.63	07450	32.63	07450	78.61	924		
7.50	8	79	41	29	36	32.63	07500	32.63	07500	32.63	07500	78.61	075	78.61	075
7.60	8	79	41	29	36	32.63	07600	32.63	07600	32.63	07600	78.61	076	78.61	076
7.70	8	79	41	29	36	32.63	07700	32.63	07700	32.63	07700	78.61	077	78.61	077
7.80	8	79	41	29	36	32.63	07800	32.63	07800	32.63	07800	78.61	078	78.61	078
7.90	8	79	41	29	36	32.63	07900	32.63	07900	32.63	07900	78.61	079	78.61	079
8.00	8	79	41	29	36	32.63	08000	32.63	08000	32.63	08000	78.61	080	78.61	080
8.10	10	89	47	35	40	35.79	08100	35.79	08100	35.79	08100	93.70	081	93.70	081
8.20	10	89	47	35	40	35.79	08200	35.79	08200	35.79	08200	93.70	082	93.70	082
8.30	10	89	47	35	40	35.79	08300	35.79	08300	35.79	08300	93.70	083	93.70	083

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

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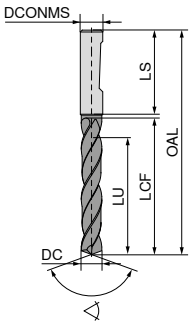
WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2





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



HA	HB	HE	HA	HE
140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
11 777 ...	**11 778 ...**	**11 776 ...**	**10 731 ...**	**10 732 ...**

DC $_{m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	£ T7		£ T7		£ T7		£ T5		£ T5	
8.40	10	89	47	35	40	35.79	08400	35.79	08400	35.79	08400	93.70	084	93.70	084
8.50	10	89	47	35	40	35.79	08500	35.79	08500	35.79	08500	93.70	085	93.70	085
8.60	10	89	47	35	40	35.79	08600	35.79	08600	35.79	08600	93.70	086	93.70	086
8.70	10	89	47	35	40	35.79	08700	35.79	08700	35.79	08700	93.70	087	93.70	087
8.80	10	89	47	35	40	35.79	08800	35.79	08800	35.79	08800	93.70	088	93.70	088
8.90	10	89	47	35	40	35.79	08900	35.79	08900	35.79	08900	93.70	089	93.70	089
9.00	10	89	47	35	40	35.79	09000	35.79	09000	35.79	09000	93.70	090	93.70	090
9.10	10	89	47	35	40	35.79	09100	35.79	09100	35.79	09100	93.70	091	93.70	091
9.20	10	89	47	35	40	35.79	09200	35.79	09200	35.79	09200	93.70	092	93.70	092
9.30	10	89	47	35	40	35.79	09300	35.79	09300	35.79	09300	93.70	093	93.70	093
9.35	10	89	47	35	40	35.79	09350	35.79	09350	35.79	09350	93.70	930		
9.40	10	89	47	35	40	35.79	09400	35.79	09400	35.79	09400	93.70	094	93.70	094
9.45	10	89	47	35	40	35.79	09450	35.79	09450	35.79	09450	93.70	994		
9.50	10	89	47	35	40	35.79	09500	35.79	09500	35.79	09500	93.70	095	93.70	095
9.60	10	89	47	35	40	35.79	09600	35.79	09600	35.79	09600	93.70	096	93.70	096
9.70	10	89	47	35	40	35.79	09700	35.79	09700	35.79	09700	93.70	097	93.70	097
9.80	10	89	47	35	40	35.79	09800	35.79	09800	35.79	09800	93.70	098	93.70	098
9.90	10	89	47	35	40	35.79	09900	35.79	09900	35.79	09900	93.70	099	93.70	099
10.00	10	89	47	35	40	35.79	10000	35.79	10000	35.79	10000	93.70	100	93.70	100
10.10	12	102	55	40	45	51.86	10100	51.86	10100	51.86	10100	132.93	101	132.93	101
10.20	12	102	55	40	45	51.86	10200	51.86	10200	51.86	10200	132.93	102	132.93	102
10.30	12	102	55	40	45	51.86	10300	51.86	10300	51.86	10300	132.93	103	132.93	103
10.40	12	102	55	40	45	51.86	10400	51.86	10400	51.86	10400	132.93	104	132.93	104
10.50	12	102	55	40	45	51.86	10500	51.86	10500	51.86	10500	132.93	105	132.93	105
10.55	12	102	55	40	45	51.86	10550	51.86	10550	51.86	10550	132.93	932		
10.60	12	102	55	40	45	51.86	10600	51.86	10600	51.86	10600	132.93	106	132.93	106
10.70	12	102	55	40	45	51.86	10700	51.86	10700	51.86	10700	132.93	107	132.93	107
10.75	12	102	55	40	45	51.86	10750	51.86	10750	51.86	10750				
10.80	12	102	55	40	45	51.86	10800	51.86	10800	51.86	10800	132.93	108	132.93	108
10.90	12	102	55	40	45	51.86	10900	51.86	10900	51.86	10900	132.93	109	132.93	109
11.00	12	102	55	40	45	51.86	11000	51.86	11000	51.86	11000	132.93	110	132.93	110
11.10	12	102	55	40	45	51.86	11100	51.86	11100	51.86	11100	132.93	111	132.93	111
11.20	12	102	55	40	45	51.86	11200	51.86	11200	51.86	11200	132.93	112	132.93	112
11.25	12	102	55	40	45	51.86	11250	51.86	11250	51.86	11250	132.93	912		
11.30	12	102	55	40	45	51.86	11300	51.86	11300	51.86	11300	132.93	113	132.93	113
11.35	12	102	55	40	45	51.86	11350	51.86	11350	51.86	11350	132.93	913		
11.40	12	102	55	40	45	51.86	11400	51.86	11400	51.86	11400	132.93	114	132.93	114
11.45	12	102	55	40	45	51.86	11450	51.86	11450	51.86	11450	132.93	914		
11.50	12	102	55	40	45	51.86	11500	51.86	11500	51.86	11500	132.93	115	132.93	115
11.60	12	102	55	40	45	51.86	11600	51.86	11600	51.86	11600	132.93	116	132.93	116
11.70	12	102	55	40	45	51.86	11700	51.86	11700	51.86	11700	132.93	117	132.93	117

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

→ v_c Page 112+114

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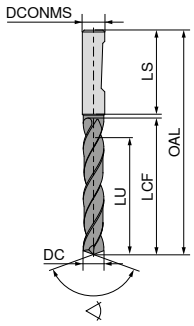
WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2





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



HA	HB	HE	HA	HE
140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
11 777 ...	**11 778 ...**	**11 776 ...**	**10 731 ...**	**10 732 ...**

DC $_{m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	£ T7		£ T7		£ T7		£ T5		£ T5	
11.80	12	102	55	40	45	51.86	11800	51.86	11800	51.86	11800	132.93	118	132.93	118
11.90	12	102	55	40	45	51.86	11900	51.86	11900	51.86	11900	132.93	119	132.93	119
12.00	12	102	55	40	45	51.86	12000	51.86	12000	51.86	12000	132.93	120	132.93	120
12.15	14	107	60	43	45	67.64	12150	67.64	12150	67.64	12150	176.06	921		
12.25	14	107	60	43	45	67.64	12250	67.64	12250	67.64	12250				
12.50	14	107	60	43	45	67.64	12500	67.64	12500	67.64	12500	176.06	125	176.06	125
12.55	14	107	60	43	45	67.64	12550	67.64	12550	67.64	12550	176.06	925		
12.70	14	107	60	43	45	67.64	12700	67.64	12700	67.64	12700				
12.80	14	107	60	43	45	67.64	12800	67.64	12800	67.64	12800	176.06	128	176.06	128
12.90	14	107	60	43	45	67.64	12900	67.64	12900	67.64	12900				
13.00	14	107	60	43	45	67.64	13000	67.64	13000	67.64	13000	176.06	130	176.06	130
13.10	14	107	60	43	45	67.64	13100	67.64	13100	67.64	13100				
13.30	14	107	60	43	45	67.64	13300	67.64	13300	67.64	13300				
13.35	14	107	60	43	45	67.64	13350	67.64	13350	67.64	13350	176.06	933		
13.50	14	107	60	43	45	67.64	13500	67.64	13500	67.64	13500	176.06	135	176.06	135
13.70	14	107	60	43	45	67.64	13700	67.64	13700	67.64	13700				
13.80	14	107	60	43	45	67.64	13800	67.64	13800	67.64	13800	176.06	138	176.06	138
14.00	14	107	60	43	45	67.64	14000	67.64	14000	67.64	14000	176.06	140	176.06	140
14.20	16	115	65	45	48	88.17	14200	88.17	14200	88.17	14200				
14.50	16	115	65	45	48	88.17	14500	88.17	14500	88.17	14500	217.19	145	217.19	145
14.80	16	115	65	45	48	88.17	14800	88.17	14800	88.17	14800	217.19	148	217.19	148
15.00	16	115	65	45	48	88.17	15000	88.17	15000	88.17	15000	217.19	150	217.19	150
15.10	16	115	65	45	48	88.17	15100	88.17	15100	88.17	15100				
15.25	16	115	65	45	48	88.17	15250	88.17	15250	88.17	15250				
15.30	16	115	65	45	48	88.17	15300	88.17	15300	88.17	15300				
15.35	16	115	65	45	48	88.17	15350	88.17	15350	88.17	15350	217.19	953		
15.50	16	115	65	45	48	88.17	15500	88.17	15500	88.17	15500	217.19	155	217.19	155
15.60	16	115	65	45	48	88.17	15600	88.17	15600	88.17	15600				
15.80	16	115	65	45	48	88.17	15800	88.17	15800	88.17	15800	217.19	158	217.19	158
16.00	16	115	65	45	48	88.17	16000	88.17	16000	88.17	16000	217.19	160	217.19	160
16.05	18	123	73	51	48	172.04	16050	172.04	16050	172.04	16050	318.29	960		
16.50	18	123	73	51	48	172.04	16500	172.04	16500	172.04	16500	318.29	165	318.29	165
16.80	18	123	73	51	48	172.04	16800	172.04	16800	172.04	16800	318.29	168	318.29	168
16.90	18	123	73	51	48	172.04	16900	172.04	16900	172.04	16900				
17.00	18	123	73	51	48	172.04	17000	172.04	17000	172.04	17000	318.29	170	318.29	170
17.50	18	123	73	51	48	172.04	17500	172.04	17500	172.04	17500	318.29	175	318.29	175
17.60	18	123	73	51	48	172.04	17600	172.04	17600	172.04	17600				
17.80	18	123	73	51	48	172.04	17800	172.04	17800	172.04	17800	318.29	178	318.29	178
18.00	18	123	73	51	48	172.04	18000	172.04	18000	172.04	18000	318.29	180	318.29	180
18.50	20	131	79	55	50	191.12	18500	191.12	18500	191.12	18500	421.27	185	421.27	185
18.80	20	131	79	55	50	191.12	18800	191.12	18800	191.12	18800	421.27	188	421.27	188

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

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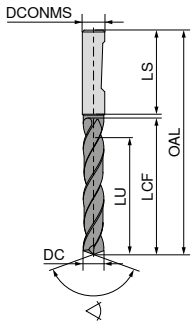
WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



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



HA	HB	HE	HA	HE
140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
11 777 ...	**11 778 ...**	**11 776 ...**	**10 731 ...**	**10 732 ...**

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T7		£ T7		£ T7		£ T5		£ T5	
18.90	20	131	79	55	50	191.12	**18900**	191.12	**18900**	191.12	**18900**				
19.00	20	131	79	55	50	191.12	**19000**	191.12	**19000**	191.12	**19000**	421.27	**190**	421.27	**190**
19.35	20	131	79	55	50	191.12	**19350**	191.12	**19350**	191.12	**19350**	421.27	**993**		
19.50	20	131	79	55	50	191.12	**19500**	191.12	**19500**	191.12	**19500**	421.27	**195**	421.27	**195**
19.60	20	131	79	55	50	191.12	**19600**	191.12	**19600**	191.12	**19600**				
19.80	20	131	79	55	50	191.12	**19800**	191.12	**19800**	191.12	**19800**	421.27	**198**	421.27	**198**
20.00	20	131	79	55	50	191.12	**20000**	191.12	**20000**	191.12	**20000**	421.27	**200**	421.27	**200**
20.50	25	151	93	66	56	345.35	**20500**	345.35	**20500**	345.35	**20500**				
21.00	25	151	93	66	56	345.35	**21000**	345.35	**21000**	345.35	**21000**				
21.50	25	151	93	66	56	345.35	**21500**	345.35	**21500**	345.35	**21500**				
22.00	25	151	93	66	56	345.35	**22000**	345.35	**22000**	345.35	**22000**				
22.50	25	153	96	72	56	345.35	**22500**	345.35	**22500**	345.35	**22500**				
23.00	25	153	96	72	56	345.35	**23000**	345.35	**23000**	345.35	**23000**				
23.50	25	153	96	72	56	345.35	**23500**	345.35	**23500**	345.35	**23500**				
24.00	25	153	96	72	56	345.35	**24000**	345.35	**24000**	345.35	**24000**				
24.50	25	153	96	75	56	345.35	**24500**	345.35	**24500**	345.35	**24500**				
25.00	25	153	96	75	56	345.35	**25000**	345.35	**25000**	345.35	**25000**				

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

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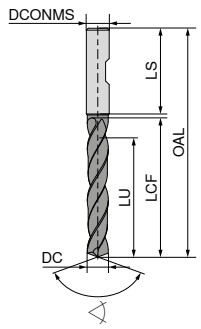
WPC – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



UNI | TiAlN



HA

140°
Solid carbide

11 600 ...

UNI | TiAlN



HB

140°
Solid carbide

11 601 ...

VA | TiAlN



HA

140°
Solid carbide

11 620 ...

VA | TiAlN



HB

140°
Solid carbide

11 621 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T1		£ T1		£ T1		£ T1	
1.00	4	45	5.0	4.5	32.0	21.37	010			20.78	010		
1.10	4	45	5.5	5.0	31.5	21.37	011			20.78	011		
1.20	4	45	6.0	5.4	31.0	21.37	012			20.78	012		
1.30	4	45	6.5	5.9	31.5	21.37	013			20.78	013		
1.40	4	45	7.0	6.3	30.0	21.37	014			20.78	014		
1.50	4	50	7.5	6.8	35.0	21.37	015			20.78	015		
1.60	4	50	8.0	7.2	34.5	21.37	016			20.78	016		
1.70	4	50	8.5	7.7	34.0	21.37	017			20.78	017		
1.80	4	50	9.0	8.1	33.5	21.37	018			20.78	018		
1.90	4	50	9.5	8.6	33.0	21.37	019			20.78	019		
2.00	6	58	14.0	11.0	36.0	21.37	020	21.37	020	25.61	020	21.37	020
2.10	6	58	14.0	11.0	36.0	21.37	021	21.37	021	25.61	021	21.37	021
2.20	6	58	14.0	11.0	36.0	21.37	022	21.37	022	25.61	022	21.37	022
2.30	6	58	14.0	11.0	36.0	21.37	023	21.37	023	25.61	023	21.37	023
2.40	6	58	14.0	11.0	36.0	21.37	024	21.37	024	25.61	024	21.37	024
2.50	6	58	14.0	11.0	36.0	21.37	025	21.37	025	25.61	025	21.37	025
2.60	6	58	14.0	11.0	36.0	21.37	026	21.37	026	25.61	026	21.37	026
2.70	6	58	14.0	11.0	36.0	21.37	027	21.37	027	25.61	027	21.37	027
2.80	6	58	14.0	11.0	36.0	21.37	028	21.37	028	25.61	028	21.37	028
2.90	6	58	14.0	11.0	36.0	21.37	029	21.37	029	25.61	029	21.37	029
3.00	6	62	20.0	14.0	36.0	20.78	030	21.37	030	20.78	030	21.37	030
3.10	6	62	20.0	14.0	36.0	20.78	031	21.37	031	20.78	031	21.37	031
3.20	6	62	20.0	14.0	36.0	20.78	032	21.37	032	20.78	032	21.37	032
3.30	6	62	20.0	14.0	36.0	20.78	033	21.37	033	20.78	033	21.37	033
3.40	6	62	20.0	14.0	36.0	20.78	034	21.37	034	20.78	034	21.37	034
3.50	6	62	20.0	14.0	36.0	20.78	035	21.37	035	20.78	035	21.37	035
3.60	6	62	20.0	14.0	36.0	20.78	036	21.37	036	20.78	036	21.37	036
3.70	6	62	20.0	14.0	36.0	20.78	037	21.37	037	20.78	037	21.37	037
3.80	6	66	24.0	17.0	36.0	20.78	038	21.37	038	20.78	038	21.37	038
3.90	6	66	24.0	17.0	36.0	20.78	039	21.37	039	20.78	039	21.37	039
4.00	6	66	24.0	17.0	36.0	20.78	040	21.37	040	20.78	040	21.37	040
4.10	6	66	24.0	17.0	36.0	20.78	041	21.37	041	20.78	041	21.37	041
4.20	6	66	24.0	17.0	36.0	20.78	042	21.37	042	20.78	042	21.37	042
4.30	6	66	24.0	17.0	36.0	20.78	043	21.37	043	20.78	043	21.37	043
4.40	6	66	24.0	17.0	36.0	20.78	044	21.37	044	20.78	044	21.37	044
4.50	6	66	24.0	17.0	36.0	20.78	045	21.37	045	20.78	045	21.37	045
4.60	6	66	24.0	17.0	36.0	20.78	046	21.37	046	20.78	046	21.37	046
4.65	6	66	24.0	17.0	36.0	20.78	900	21.37	900	20.78	900	21.37	900

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

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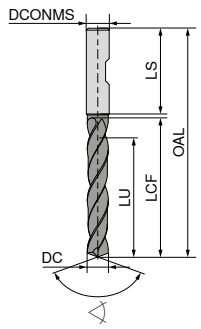
WPC – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



UNI	UNI	VA	VA
TiAlN	TiAlN	TiAlN	TiAlN



HA / HB

140°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 600 ... £ T1		11 601 ... £ T1		11 620 ... £ T1		11 621 ... £ T1	
4.70	6	66	24.0	17.0	36.0	20.78	047	21.37	047	20.78	047	21.37	047
4.80	6	66	28.0	20.0	36.0	20.78	048	21.37	048	20.78	048	21.37	048
4.90	6	66	28.0	20.0	36.0	20.78	049	21.37	049	20.78	049	21.37	049
5.00	6	66	28.0	20.0	36.0	20.78	050	21.37	050	20.78	050	21.37	050
5.10	6	66	28.0	20.0	36.0	20.78	051	21.37	051	20.78	051	21.37	051
5.20	6	66	28.0	20.0	36.0	20.78	052	21.37	052	20.78	052	21.37	052
5.30	6	66	28.0	20.0	36.0	20.78	053	21.37	053	20.78	053	21.37	053
5.40	6	66	28.0	20.0	36.0	20.78	054	21.37	054	20.78	054	21.37	054
5.50	6	66	28.0	20.0	36.0	20.78	055	21.37	055	20.78	055	21.37	055
5.55	6	66	28.0	20.0	36.0	20.78	902	21.37	902	20.78	902	21.37	902
5.60	6	66	28.0	20.0	36.0	20.78	056	21.37	056	20.78	056	21.37	056
5.70	6	66	28.0	20.0	36.0	20.78	057	21.37	057	20.78	057	21.37	057
5.80	6	66	28.0	20.0	36.0	20.78	058	21.37	058	20.78	058	21.37	058
5.90	6	66	28.0	20.0	36.0	20.78	059	21.37	059	20.78	059	21.37	059
6.00	6	66	28.0	20.0	36.0	20.78	060	21.37	060	20.78	060	21.37	060
6.10	8	79	34.0	24.0	36.0	21.37	061	21.37	061	21.37	061	21.37	061
6.20	8	79	34.0	24.0	36.0	21.37	062	21.37	062	21.37	062	21.37	062
6.30	8	79	34.0	24.0	36.0	21.37	063	21.37	063	21.37	063	21.37	063
6.40	8	79	34.0	24.0	36.0	21.37	064	21.37	064	21.37	064	21.37	064
6.50	8	79	34.0	24.0	36.0	21.37	065	21.37	065	21.37	065	21.37	065
6.60	8	79	34.0	24.0	36.0	21.37	066	21.37	066	21.37	066	21.37	066
6.70	8	79	34.0	24.0	36.0	21.37	067	21.37	067	21.37	067	21.37	067
6.80	8	79	34.0	24.0	36.0	21.37	068	21.37	068	21.37	068	21.37	068
6.90	8	79	34.0	24.0	36.0	21.37	069	21.37	069	21.37	069	21.37	069
7.00	8	79	34.0	24.0	36.0	21.37	070	21.37	070	21.37	070	21.37	070
7.10	8	79	41.0	29.0	36.0	21.37	071	21.37	071	21.37	071	21.37	071
7.20	8	79	41.0	29.0	36.0	21.37	072	21.37	072	21.37	072	21.37	072
7.30	8	79	41.0	29.0	36.0	21.37	073	21.37	073	21.37	073	21.37	073
7.40	8	79	41.0	29.0	36.0	21.37	074	21.37	074	21.37	074	21.37	074
7.50	8	79	41.0	29.0	36.0	21.37	075	21.37	075	21.37	075	21.37	075
7.55	8	79	41.0	29.0	36.0	21.37	975	21.37	975	21.37	975	21.37	975
7.60	8	79	41.0	29.0	36.0	21.37	076	21.37	076	21.37	076	21.37	076
7.70	8	79	41.0	29.0	36.0	21.37	077	21.37	077	21.37	077	21.37	077
7.80	8	79	41.0	29.0	36.0	21.37	078	21.37	078	21.37	078	21.37	078
7.90	8	79	41.0	29.0	36.0	21.37	079	21.37	079	21.37	079	21.37	079
8.00	8	79	41.0	29.0	36.0	21.37	080	21.37	080	21.37	080	21.37	080
8.10	10	89	47.0	35.0	40.0	22.87	081	24.41	081	22.87	081	24.41	081
8.20	10	89	47.0	35.0	40.0	22.87	082	24.41	082	22.87	082	24.41	082

P	●	●	○	○
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K	●	●	●	●
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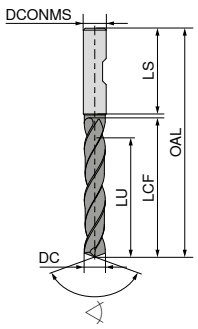
WPC – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



UNI	UNI	VA	VA
TiAlN	TiAlN	TiAlN	TiAlN



HA / HB

140°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 600 ... £ T1		11 601 ... £ T1		11 620 ... £ T1		11 621 ... £ T1	
8.30	10	89	47.0	35.0	40.0	22.87	083	24.41	083	22.87	083	24.41	083
8.40	10	89	47.0	35.0	40.0	22.87	084	24.41	084	22.87	084	24.41	084
8.50	10	89	47.0	35.0	40.0	22.87	085	24.41	085	22.87	085	24.41	085
8.60	10	89	47.0	35.0	40.0	22.87	086	24.41	086	22.87	086	24.41	086
8.70	10	89	47.0	35.0	40.0	22.87	087	24.41	087	22.87	087	24.41	087
8.80	10	89	47.0	35.0	40.0	22.87	088	24.41	088	22.87	088	24.41	088
8.90	10	89	47.0	35.0	40.0	22.87	089	24.41	089	22.87	089	24.41	089
9.00	10	89	47.0	35.0	40.0	22.87	090	24.41	090	22.87	090	24.41	090
9.10	10	89	47.0	35.0	40.0	22.87	091	24.41	091	22.87	091	24.41	091
9.20	10	89	47.0	35.0	40.0	22.87	092	24.41	092	22.87	092	24.41	092
9.25	10	89	47.0	35.0	40.0	22.87	925	24.41	925	22.87	925	24.41	925
9.30	10	89	47.0	35.0	40.0	22.87	093	24.41	093	22.87	093	24.41	093
9.40	10	89	47.0	35.0	40.0	22.87	094	24.41	094	22.87	094	24.41	094
9.50	10	89	47.0	35.0	40.0	22.87	095	24.41	095	22.87	095	24.41	095
9.60	10	89	47.0	35.0	40.0	22.87	096	24.41	096	22.87	096	24.41	096
9.70	10	89	47.0	35.0	40.0	22.87	097	24.41	097	22.87	097	24.41	097
9.80	10	89	47.0	35.0	40.0	22.87	098	24.41	098	22.87	098	24.41	098
9.90	10	89	47.0	35.0	40.0	22.87	099	24.41	099	22.87	099	24.41	099
10.00	10	89	47.0	35.0	40.0	22.87	100	24.41	100	22.87	100	24.41	100
10.10	12	102	55.0	40.0	45.0	35.07	101	36.61	101	35.07	101	36.61	101
10.20	12	102	55.0	40.0	45.0	35.07	102	36.61	102	35.07	102	36.61	102
10.30	12	102	55.0	40.0	45.0	35.07	103	36.61	103	35.07	103	36.61	103
10.40	12	102	55.0	40.0	45.0	35.07	104	36.61	104	35.07	104	36.61	104
10.50	12	102	55.0	40.0	45.0	35.07	105	36.61	105	35.07	105	36.61	105
10.60	12	102	55.0	40.0	45.0	35.07	106	36.61	106	35.07	106	36.61	106
10.70	12	102	55.0	40.0	45.0	35.07	107	36.61	107	35.07	107	36.61	107
10.80	12	102	55.0	40.0	45.0	35.07	108	36.61	108	35.07	108	36.61	108
10.90	12	102	55.0	40.0	45.0	35.07	109	36.61	109	35.07	109	36.61	109
11.00	12	102	55.0	40.0	45.0	35.07	110	36.61	110	35.07	110	36.61	110
11.10	12	102	55.0	40.0	45.0	35.07	111	36.61	111	35.07	111	36.61	111
11.20	12	102	55.0	40.0	45.0	35.07	112	36.61	112	35.07	112	36.61	112
11.30	12	102	55.0	40.0	45.0	35.07	113	36.61	113	35.07	113	36.61	113
11.40	12	102	55.0	40.0	45.0	35.07	114	36.61	114	35.07	114	36.61	114
11.50	12	102	55.0	40.0	45.0	35.07	115	36.61	115	35.07	115	36.61	115
11.60	12	102	55.0	40.0	45.0	35.07	116	36.61	116	35.07	116	36.61	116
11.70	12	102	55.0	40.0	45.0	35.07	117	36.61	117	35.07	117	36.61	117
11.80	12	102	55.0	40.0	45.0	35.07	118	36.61	118	35.07	118	36.61	118
11.90	12	102	55.0	40.0	45.0	35.07	119	36.61	119	35.07	119	36.61	119

P	●	●	○	○
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K	●	●	●	●
N			●	●
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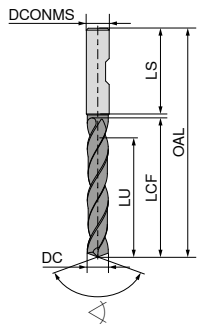
WPC – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



UNI	UNI	VA	VA
TiAlN	TiAlN	TiAlN	TiAlN



HA / HB

140°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 600 ... £ T1		11 601 ... £ T1		11 620 ... £ T1		11 621 ... £ T1	
12.00	12	102	55.0	40.0	45.0	35.07	120	36.61	120	35.07	120	36.61	120
12.25	14	107	60.0	43.0	45.0	47.30	122	47.30	122				
12.50	14	107	60.0	43.0	45.0	47.30	125	48.81	125	47.30	125	48.81	125
12.70	14	107	60.0	43.0	45.0	47.30	127	48.81	127	47.30	127	48.81	127
12.80	14	107	60.0	43.0	45.0	47.30	128	47.30	128				
12.90	14	107	60.0	43.0	45.0	47.30	129	47.30	129				
13.00	14	107	60.0	43.0	45.0	47.30	130	48.81	130	47.30	130	48.81	130
13.30	14	107	60.0	43.0	45.0	47.30	133	47.30	133				
13.50	14	107	60.0	43.0	45.0	47.30	135	48.81	135	47.30	135	48.81	135
13.70	14	107	60.0	43.0	45.0	47.30	137	48.81	137	47.30	137	48.81	137
13.80	14	107	60.0	43.0	45.0	47.30	138	47.30	138				
14.00	14	107	60.0	43.0	45.0	47.30	140	48.81	140	47.30	140	48.81	140
14.20	16	115	65.0	45.0	48.0	62.52	142	62.52	142				
14.50	16	115	65.0	45.0	48.0	62.52	145	64.07	145	62.52	145	64.07	145
14.70	16	115	65.0	45.0	48.0	62.52	147	64.07	147	62.52	147	64.07	147
14.80	16	115	65.0	45.0	48.0	62.52	148	62.52	148				
15.00	16	115	65.0	45.0	48.0	62.52	150	64.07	150	62.52	150	64.07	150
15.25	16	115	65.0	45.0	48.0	62.52	152	62.52	152				
15.30	16	115	65.0	45.0	48.0	62.52	153	62.52	153				
15.50	16	115	65.0	45.0	48.0	62.52	155	64.07	155	62.52	155	64.07	155
15.70	16	115	65.0	45.0	48.0	62.52	157	64.07	157	62.52	157	64.07	157
15.80	16	115	65.0	45.0	48.0	62.52	158	62.52	158				
16.00	16	115	65.0	45.0	48.0	62.52	160	64.07	160	62.52	160	64.07	160
16.50	18	123	73.0	51.0	48.0	105.23	165	108.30	165	105.23	165	108.30	165
16.80	18	123	73.0	51.0	48.0	105.23	168	105.23	168				
17.00	18	123	73.0	51.0	48.0	105.23	170	108.30	170	105.23	170	108.30	170
17.50	18	123	73.0	51.0	48.0	105.23	175	108.30	175	105.23	175	108.30	175
17.80	18	123	73.0	51.0	48.0	105.23	178	105.23	178				
18.00	18	123	73.0	51.0	48.0	105.23	180	108.30	180	105.23	180	108.30	180
18.50	20	131	79.0	55.0	50.0	114.40	185	120.50	185	114.40	185	120.50	185
18.80	20	131	79.0	55.0	50.0	114.40	188	114.40	188				
19.00	20	131	79.0	55.0	50.0	114.40	190	120.50	190	114.40	190	120.50	190
19.50	20	131	79.0	55.0	50.0	114.40	195	120.50	195	114.40	195	120.50	195
19.80	20	131	79.0	55.0	50.0	114.40	198	114.40	198				
20.00	20	131	79.0	55.0	50.0	114.40	200	120.50	200	114.40	200	120.50	200
P							●		●		○		○
M											●		●
K							●		●		●		●
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S													
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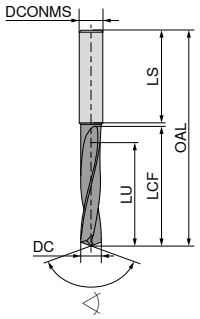
WTX – High Performance Drill, factory standard

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

≤ 3xD | NOF = 2



H

DPX64U

DRAGONSKIN



140°

Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 777 ... £ T4	
2.55	4	55	20	7.6	28	52.22	02550
2.60	4	55	20	7.8	28	52.22	02600
2.70	4	55	20	8.1	28	52.22	02700
2.80	4	55	20	8.4	28	52.22	02800
2.90	4	55	20	8.7	28	52.22	02900
3.00	6	62	20	9.0	36	75.31	03000
3.10	6	62	20	9.3	36	75.31	03100
3.20	6	62	20	9.6	36	75.31	03200
3.30	6	62	20	9.9	36	75.31	03300
3.40	6	62	20	10.2	36	75.31	03400
3.50	6	62	20	10.5	36	75.31	03500
3.60	6	62	20	10.8	36	75.31	03600
3.70	6	62	20	11.1	36	75.31	03700
3.80	6	66	24	11.4	36	75.31	03800
3.90	6	66	24	11.7	36	75.31	03900
4.00	6	66	24	12.0	36	75.31	04000
4.10	6	66	24	12.3	36	75.31	04100
4.20	6	66	24	12.6	36	75.31	04200
4.30	6	66	24	12.9	36	75.31	04300
4.40	6	66	24	13.2	36	75.31	04400
4.50	6	66	24	13.5	36	75.31	04500
4.60	6	66	24	13.8	36	75.31	04600
4.70	6	66	24	14.1	36	75.31	04700
4.80	6	66	28	14.4	36	75.31	04800
4.90	6	66	28	14.7	36	75.31	04900
5.00	6	66	28	15.0	36	75.31	05000
5.10	6	66	28	15.3	36	75.31	05100
5.20	6	66	28	15.6	36	75.31	05200
5.30	6	66	28	15.9	36	75.31	05300
5.40	6	66	28	16.2	36	75.31	05400
5.50	6	66	28	16.5	36	75.31	05500
5.60	6	66	28	16.8	36	75.31	05600
5.70	6	66	28	17.1	36	75.31	05700
5.80	6	66	28	17.4	36	75.31	05800
5.90	6	66	28	17.7	36	75.31	05900
6.00	6	66	28	18.0	36	75.31	06000
6.10	8	79	34	18.3	36	97.87	06100
6.20	8	79	34	18.6	36	97.87	06200
6.30	8	79	34	18.9	36	97.87	06300
6.40	8	79	34	19.2	36	97.87	06400
6.50	8	79	34	19.5	36	97.87	06500
6.60	8	79	34	19.8	36	97.87	06600
6.70	8	79	34	20.1	36	97.87	06700
6.80	8	79	34	20.4	36	97.87	06800
6.90	8	79	34	20.7	36	97.87	06900
7.00	8	79	34	21.0	36	97.87	07000
7.10	8	79	41	21.3	36	97.87	07100
7.20	8	79	41	21.6	36	97.87	07200
7.30	8	79	41	21.9	36	97.87	07300
7.40	8	79	41	22.2	36	97.87	07400
7.50	8	79	41	22.5	36	97.87	07500
7.60	8	79	41	22.8	36	97.87	07600
7.70	8	79	41	23.1	36	97.87	07700
7.80	8	79	41	23.4	36	97.87	07800
7.90	8	79	41	23.7	36	97.87	07900
8.00	8	79	41	24.0	36	97.87	08000
8.10	10	89	47	24.3	40	110.62	08100
8.20	10	89	47	24.6	40	110.62	08200
8.30	10	89	47	24.9	40	110.62	08300
8.40	10	89	47	25.2	40	110.62	08400
8.50	10	89	47	25.5	40	110.62	08500
8.60	10	89	47	25.8	40	110.62	08600
8.70	10	89	47	26.1	40	110.62	08700
8.80	10	89	47	26.4	40	110.62	08800
8.90	10	89	47	26.7	40	110.62	08900
9.00	10	89	47	27.0	40	110.62	09000
9.10	10	89	47	27.3	40	110.62	09100
9.20	10	89	47	27.6	40	110.62	09200
9.30	10	89	47	27.9	40	110.62	09300
9.40	10	89	47	28.2	40	110.62	09400
9.50	10	89	47	28.5	40	110.62	09500
9.60	10	89	47	28.8	40	110.62	09600
9.70	10	89	47	29.1	40	110.62	09700
9.80	10	89	47	29.4	40	110.62	09800
9.90	10	89	47	29.7	40	110.62	09900
10.00	10	89	47	30.0	40	110.62	10000
10.10	12	102	55	30.3	45	143.65	10100
10.20	12	102	55	30.6	45	143.65	10200
10.30	12	102	55	30.9	45	143.65	10300
10.40	12	102	55	31.2	45	143.65	10400
10.50	12	102	55	31.5	45	143.65	10500
10.60	12	102	55	31.8	45	143.65	10600
10.70	12	102	55	32.1	45	143.65	10700
10.80	12	102	55	32.4	45	143.65	10800
10.90	12	102	55	32.7	45	143.65	10900
11.00	12	102	55	33.0	45	143.65	11000
11.10	12	102	55	33.3	45	143.65	11100
11.20	12	102	55	33.6	45	143.65	11200
11.30	12	102	55	33.9	45	143.65	11300
11.40	12	102	55	34.2	45	143.65	11400
11.50	12	102	55	34.5	45	143.65	11500
11.60	12	102	55	34.8	45	143.65	11600
11.70	12	102	55	35.1	45	143.65	11700
11.80	12	102	55	35.4	45	143.65	11800
11.90	12	102	55	35.7	45	143.65	11900
12.00	12	102	55	36.0	45	143.65	12000
12.10	14	107	60	36.3	45	169.74	12100
12.20	14	107	60	36.6	45	169.74	12200
12.30	14	107	60	36.9	45	169.74	12300
12.40	14	107	60	37.2	45	169.74	12400
12.50	14	107	60	37.5	45	169.74	12500
12.60	14	107	60	37.8	45	169.74	12600
12.70	14	107	60	38.1	45	169.74	12700
12.80	14	107	60	38.4	45	169.74	12800
12.90	14	107	60	38.7	45	169.74	12900
13.00	14	107	60	39.0	45	169.74	13000
13.10	14	107	60	39.3	45	169.74	13100
13.20	14	107	60	39.6	45	169.74	13200
13.30	14	107	60	39.9	45	169.74	13300
13.40	14	107	60	40.2	45	169.74	13400
13.50	14	107	60	40.5	45	169.74	13500
13.60	14	107	60	40.8	45	169.74	13600
13.70	14	107	60	41.1	45	169.74	13700
13.80	14	107	60	41.4	45	169.74	13800
13.90	14	107	60	41.7	45	169.74	13900
14.00	14	107	60	42.0	45	169.74	14000

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

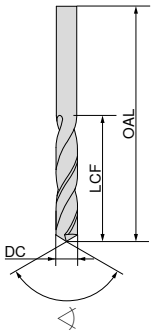
→ v_c Page 125

Twist drill similar to DIN 1897

▲ Rake angle 30°
▲ Shank Ø h7

≤ 3xD

NOF = 2



N



118°
Solid carbide

DC h7 mm	OAL mm	LCF mm	10 700 ... £ T3	
0.5	20	3.0	5.97	005
0.6	21	3.5	6.28	006
0.7	23	4.5	6.28	007
0.8	24	5.0	6.28	008
0.9	25	5.5	6.28	009
1.0	26	6.0	6.28	010
1.2	30	8.0	6.28	012
1.3	30	8.0	6.28	013
1.4	32	9.0	6.28	014
1.5	32	9.0	6.28	015
1.6	34	10.0	6.28	016
1.7	34	10.0	6.28	017
1.8	36	11.0	6.28	018
1.9	36	11.0	6.28	019
2.0	38	12.0	8.42	020
2.1	38	12.0	8.68	021
2.2	40	13.0	8.68	022
2.3	40	13.0	8.68	023
2.4	43	14.0	8.68	024
2.5	43	14.0	9.74	025
2.6	43	14.0	9.74	026
2.7	46	16.0	10.23	027
2.8	46	16.0	10.23	028
2.9	46	16.0	10.23	029
3.0	46	16.0	10.94	030
3.1	49	18.0	10.94	031
3.2	49	18.0	10.94	032
3.3	49	18.0	12.80	033
3.4	52	20.0	12.80	034
3.5	52	20.0	13.80	035
3.6	52	20.0	13.80	036
3.7	52	20.0	13.80	037
3.8	55	22.0	14.23	038
3.9	55	22.0	14.23	039
4.0	55	22.0	16.42	040
4.1	55	22.0	16.42	041
4.2	55	22.0	17.87	042
4.3	58	24.0	17.87	043
4.4	58	24.0	17.87	044
4.5	58	24.0	19.33	045
4.6	58	24.0	19.33	046
4.7	58	24.0	19.33	047
4.8	62	26.0	19.33	048
4.9	62	26.0	19.33	049
5.0	62	26.0	21.66	050
5.1	62	26.0	21.66	051
5.2	62	26.0	22.31	052
5.3	62	26.0	22.31	053
5.4	66	28.0	22.31	054
5.5	66	28.0	25.15	055
5.6	66	28.0	25.15	056
5.7	66	28.0	25.15	057
5.8	66	28.0	25.15	058
5.9	66	28.0	25.15	059
6.0	66	28.0	27.90	060
6.1	70	31.0	28.75	061
6.2	70	31.0	28.75	062
6.3	70	31.0	28.75	063
6.4	70	31.0	28.75	064
6.5	70	31.0	31.11	065
6.6	70	31.0	34.29	066
6.7	70	31.0	34.29	067
6.8	74	34.0	34.29	068
6.9	74	34.0	34.29	069
7.0	74	34.0	34.29	070
7.1	74	34.0	34.29	071
7.2	74	34.0	34.29	072
7.3	74	34.0	34.29	073
7.4	74	34.0	34.29	074
7.5	74	34.0	39.67	075
7.6	79	37.0	39.67	076
7.7	79	37.0	39.67	077
7.8	79	37.0	39.67	078
7.9	79	37.0	39.67	079
8.0	79	37.0	40.72	080
8.1	79	37.0	44.66	081
8.2	79	37.0	44.66	082
8.3	79	37.0	44.66	083
8.4	79	37.0	44.66	084
8.5	79	37.0	46.25	085
8.6	84	40.0	47.15	086
8.7	84	40.0	47.15	087
8.8	84	40.0	51.57	088
8.9	84	40.0	51.57	089
9.0	84	40.0	51.57	090
9.1	84	40.0	51.57	091
9.2	84	40.0	51.57	092
9.3	84	40.0	51.57	093
9.4	84	40.0	51.57	094
9.5	84	40.0	55.51	095
9.6	89	43.0	55.51	096
9.7	89	43.0	55.51	097
9.8	89	43.0	55.51	098
9.9	89	43.0	55.51	099
10.0	89	43.0	61.62	100
10.2	89	43.0	65.70	102
10.5	89	43.0	65.70	105
10.8	95	47.0	65.70	108
11.0	95	47.0	73.21	110
11.2	95	47.0	80.19	112
11.5	95	47.0	81.31	115
11.8	95	47.0	81.31	118
12.0	102	51.0	91.22	120
12.5	102	51.0	99.52	125
13.0	102	51.0	111.51	130
13.5	107	54.0	126.90	135
14.0	107	54.0	137.75	140
14.5	111	56.0	147.39	145
15.0	111	56.0	159.84	150
15.5	115	58.0	172.52	155
16.0	115	58.0	181.84	160
18.0	123	62.0	244.01	180
20.0	131	66.0	326.94	200

P	○
M	
K	●
N	●
S	○
H	
O	

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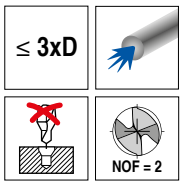
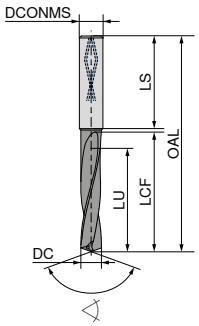
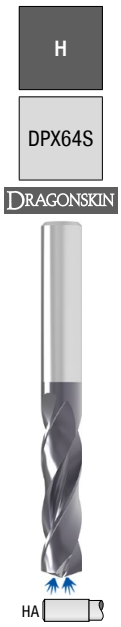
WTX – High Performance Drill, factory standard

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







Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 776 ... £ T4	
2.55	4	55	20	7.6	28	41.78	02550
2.60	4	55	20	7.8	28	41.78	02600
2.70	4	55	20	8.1	28	41.78	02700
2.80	4	55	20	8.4	28	41.78	02800
2.90	4	55	20	8.7	28	41.78	02900
3.00	6	62	20	9.0	36	60.25	03000
3.10	6	62	20	9.3	36	60.25	03100
3.20	6	62	20	9.6	36	60.25	03200
3.30	6	62	20	9.9	36	60.25	03300
3.40	6	62	20	10.2	36	60.25	03400
3.50	6	62	20	10.5	36	60.25	03500
3.60	6	62	20	10.8	36	60.25	03600
3.70	6	62	20	11.1	36	60.25	03700
3.80	6	66	24	11.4	36	60.25	03800
3.90	6	66	24	11.7	36	60.25	03900
4.00	6	66	24	12.0	36	60.25	04000
4.10	6	66	24	12.3	36	60.25	04100
4.20	6	66	24	12.6	36	60.25	04200
4.30	6	66	24	12.9	36	60.25	04300
4.40	6	66	24	13.2	36	60.25	04400
4.50	6	66	24	13.5	36	60.25	04500
4.60	6	66	24	13.8	36	60.25	04600
4.70	6	66	24	14.1	36	60.25	04700
4.80	6	66	28	14.4	36	60.25	04800
4.90	6	66	28	14.7	36	60.25	04900
5.00	6	66	28	15.0	36	60.25	05000
5.10	6	66	28	15.3	36	60.25	05100
5.20	6	66	28	15.6	36	60.25	05200
5.30	6	66	28	15.9	36	60.25	05300
5.40	6	66	28	16.2	36	60.25	05400
5.50	6	66	28	16.5	36	60.25	05500
5.60	6	66	28	16.8	36	60.25	05600
5.70	6	66	28	17.1	36	60.25	05700
5.80	6	66	28	17.4	36	60.25	05800
5.90	6	66	28	17.7	36	60.25	05900
6.00	6	66	28	18.0	36	60.25	06000
6.10	8	79	34	18.3	36	78.30	06100
6.20	8	79	34	18.6	36	78.30	06200
6.30	8	79	34	18.9	36	78.30	06300
6.40	8	79	34	19.2	36	78.30	06400
6.50	8	79	34	19.5	36	78.30	06500
6.60	8	79	34	19.8	36	78.30	06600
6.70	8	79	34	20.1	36	78.30	06700
6.80	8	79	34	20.4	36	78.30	06800
6.90	8	79	34	20.7	36	78.30	06900
7.00	8	79	34	21.0	36	78.30	07000
7.10	8	79	41	21.3	36	78.30	07100
7.20	8	79	41	21.6	36	78.30	07200
7.30	8	79	41	21.9	36	78.30	07300
7.40	8	79	41	22.2	36	78.30	07400
7.50	8	79	41	22.5	36	78.30	07500
7.60	8	79	41	22.8	36	78.30	07600
7.70	8	79	41	23.1	36	78.30	07700
7.80	8	79	41	23.4	36	78.30	07800
7.90	8	79	41	23.7	36	78.30	07900
8.00	8	79	41	24.0	36	78.30	08000
8.10	10	89	47	24.3	40	100.59	08100
8.20	10	89	47	24.6	40	100.59	08200
8.30	10	89	47	24.9	40	100.59	08300
8.40	10	89	47	25.2	40	100.59	08400
8.50	10	89	47	25.5	40	100.59	08500
8.60	10	89	47	25.8	40	100.59	08600
8.70	10	89	47	26.1	40	100.59	08700
8.80	10	89	47	26.4	40	100.59	08800
8.90	10	89	47	26.7	40	100.59	08900
9.00	10	89	47	27.0	40	100.59	09000
9.10	10	89	47	27.3	40	100.59	09100
9.20	10	89	47	27.6	40	100.59	09200
9.30	10	89	47	27.9	40	100.59	09300
9.40	10	89	47	28.2	40	100.59	09400
9.50	10	89	47	28.5	40	100.59	09500
9.60	10	89	47	28.8	40	100.59	09600
9.70	10	89	47	29.1	40	100.59	09700
9.80	10	89	47	29.4	40	100.59	09800
9.90	10	89	47	29.7	40	100.59	09900
10.00	10	89	47	30.0	40	100.59	10000
10.10	12	102	55	30.3	45	143.65	10100
10.20	12	102	55	30.6	45	143.65	10200
10.30	12	102	55	30.9	45	143.65	10300
10.40	12	102	55	31.2	45	143.65	10400
10.50	12	102	55	31.5	45	143.65	10500
10.60	12	102	55	31.8	45	143.65	10600
10.70	12	102	55	32.1	45	143.65	10700
10.80	12	102	55	32.4	45	143.65	10800
10.90	12	102	55	32.7	45	143.65	10900
11.00	12	102	55	33.0	45	143.65	11000
11.10	12	102	55	33.3	45	143.65	11100
11.20	12	102	55	33.6	45	143.65	11200
11.30	12	102	55	33.9	45	143.65	11300
11.40	12	102	55	34.2	45	143.65	11400
11.50	12	102	55	34.5	45	143.65	11500
11.60	12	102	55	34.8	45	143.65	11600
11.70	12	102	55	35.1	45	143.65	11700
11.80	12	102	55	35.4	45	143.65	11800
11.90	12	102	55	35.7	45	143.65	11900
12.00	12	102	55	36.0	45	143.65	12000
12.10	14	107	60	36.3	45	185.62	12100
12.20	14	107	60	36.6	45	185.62	12200
12.30	14	107	60	36.9	45	185.62	12300
12.40	14	107	60	37.2	45	185.62	12400
12.50	14	107	60	37.5	45	185.62	12500
12.60	14	107	60	37.8	45	185.62	12600
12.70	14	107	60	38.1	45	185.62	12700
12.80	14	107	60	38.4	45	185.62	12800
12.90	14	107	60	38.7	45	185.62	12900
13.00	14	107	60	39.0	45	185.62	13000
13.10	14	107	60	39.3	45	185.62	13100
13.20	14	107	60	39.6	45	185.62	13200
13.30	14	107	60	39.9	45	185.62	13300
13.40	14	107	60	40.2	45	185.62	13400
13.50	14	107	60	40.5	45	185.62	13500
13.60	14	107	60	40.8	45	185.62	13600
13.70	14	107	60	41.1	45	185.62	13700
13.80	14	107	60	41.4	45	185.62	13800
13.90	14	107	60	41.7	45	185.62	13900
14.00	14	107	60	42.0	45	185.62	14000

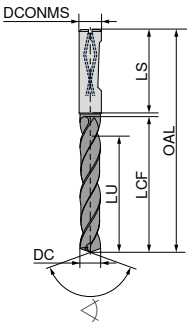
P	○
K	●
S	○
H.1.1	●
H.1.2	●
H.1.3	●
H.1.4	

→ v_c Page 124

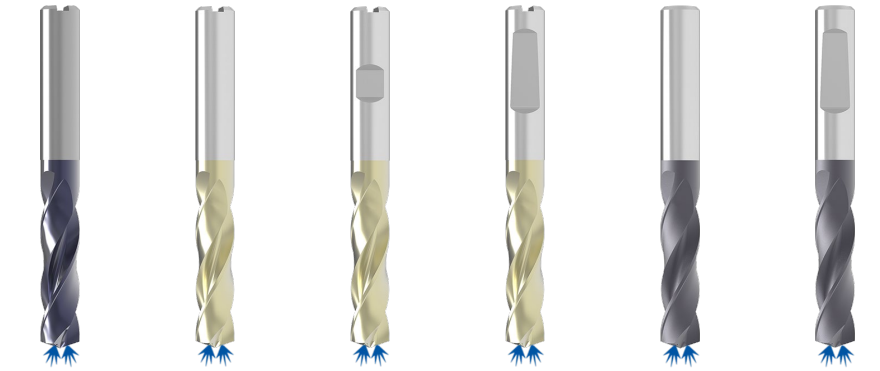
WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



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



HA	HA	HB	HE	HA	HE
◁ 145°	◁ 140°	◁ 140°	◁ 140°	◁ 140°	◁ 140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 781 ...	**11 780 ...**	**11 781 ...**	**11 779 ...**	**10 734 ...**	**10 733 ...**

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T5		£ T5	
3.00	6	62	20	14	36	96.18	03000	45.32	03000	45.32	03000	45.32	03000	88.03	030	88.03	030
3.10	6	62	20	14	36	96.18	03100	45.32	03100	45.32	03100	45.32	03100	88.03	031	88.03	031
3.15	6	62	20	14	36			45.32	03150	45.32	03150	45.32	03150	88.03	831		
3.20	6	62	20	14	36	96.18	03200	45.32	03200	45.32	03200	45.32	03200	88.03	032	88.03	032
3.22	6	62	20	14	36			45.32	03220	45.32	03220	45.32	03220	88.03	832		
3.25	6	62	20	14	36			45.32	03250	45.32	03250	45.32	03250	88.03	890		
3.30	6	62	20	14	36	96.18	03300	45.32	03300	45.32	03300	45.32	03300	88.03	033	88.03	033
3.40	6	62	20	14	36	96.18	03400	45.32	03400	45.32	03400	45.32	03400	88.03	034	88.03	034
3.50	6	62	20	14	36	96.18	03500	45.32	03500	45.32	03500	45.32	03500	88.03	035	88.03	035
3.60	6	62	20	14	36	96.18	03600	45.32	03600	45.32	03600	45.32	03600	88.03	036	88.03	036
3.70	6	62	20	14	36	96.18	03700	45.32	03700	45.32	03700	45.32	03700	88.03	037	88.03	037
3.80	6	66	24	17	36	96.18	03800	45.32	03800	45.32	03800	45.32	03800	88.03	038	88.03	038
3.85	6	66	24	17	36			45.32	03850	45.32	03850	45.32	03850	88.03	838		
3.90	6	66	24	17	36	96.18	03900	45.32	03900	45.32	03900	45.32	03900	88.03	039	88.03	039
4.00	6	66	24	17	36	96.18	04000	45.32	04000	45.32	04000	45.32	04000	88.03	040	88.03	040
4.10	6	66	24	17	36	96.18	04100	45.32	04100	45.32	04100	45.32	04100	88.03	041	88.03	041
4.20	6	66	24	17	36	96.18	04200	45.32	04200	45.32	04200	45.32	04200	88.03	042	88.03	042
4.25	6	66	24	17	36			45.32	04250	45.32	04250	45.32	04250				
4.30	6	66	24	17	36	96.18	04300	45.32	04300	45.32	04300	45.32	04300	88.03	043	88.03	043
4.35	6	66	24	17	36			45.32	04350	45.32	04350	45.32	04350	88.03	843		
4.40	6	66	24	17	36	96.18	04400	45.32	04400	45.32	04400	45.32	04400	88.03	044	88.03	044
4.45	6	66	24	17	36			45.32	04450	45.32	04450	45.32	04450	88.03	844		
4.50	6	66	24	17	36	96.18	04500	45.32	04500	45.32	04500	45.32	04500	88.03	045	88.03	045
4.60	6	66	24	17	36	96.18	04600	45.32	04600	45.32	04600	45.32	04600	88.03	046	88.03	046
4.65	6	66	24	17	36	96.18	04650	45.32	04650	45.32	04650	45.32	04650	88.03	900	88.03	900
4.70	6	66	24	17	36	96.18	04700	45.32	04700	45.32	04700	45.32	04700	88.03	047	88.03	047
4.80	6	66	28	20	36	96.18	04800	45.32	04800	45.32	04800	45.32	04800	88.03	048	88.03	048
4.90	6	66	28	20	36	96.18	04900	45.32	04900	45.32	04900	45.32	04900	88.03	049	88.03	049
4.95	6	66	28	20	36			45.32	04950	45.32	04950	45.32	04950				
5.00	6	66	28	20	36	96.18	05000	45.32	05000	45.32	05000	45.32	05000	88.03	050	88.03	050
5.05	6	66	28	20	36			45.32	05050	45.32	05050	45.32	05050				
5.10	6	66	28	20	36	96.18	05100	45.32	05100	45.32	05100	45.32	05100	88.03	051	88.03	051
5.20	6	66	28	20	36	96.18	05200	45.32	05200	45.32	05200	45.32	05200	88.03	052	88.03	052
5.30	6	66	28	20	36	96.18	05300	45.32	05300	45.32	05300	45.32	05300	88.03	053	88.03	053
5.40	6	66	28	20	36	96.18	05400	45.32	05400	45.32	05400	45.32	05400	88.03	054	88.03	054
5.50	6	66	28	20	36	96.18	05500	45.32	05500	45.32	05500	45.32	05500	88.03	055	88.03	055
5.55	6	66	28	20	36	96.18	05550	45.32	05550	45.32	05550	45.32	05550	88.03	902	88.03	902
5.60	6	66	28	20	36	96.18	05600	45.32	05600	45.32	05600	45.32	05600	88.03	056	88.03	056
5.70	6	66	28	20	36	96.18	05700	45.32	05700	45.32	05700	45.32	05700	88.03	057	88.03	057
5.75	6	66	28	20	36			45.32	05750	45.32	05750	45.32	05750	88.03	916		
5.80	6	66	28	20	36	96.18	05800	45.32	05800	45.32	05800	45.32	05800	88.03	058	88.03	058
5.90	6	66	28	20	36	96.18	05900	45.32	05900	45.32	05900	45.32	05900	88.03	059	88.03	059

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

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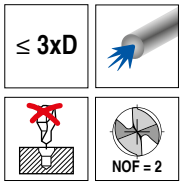
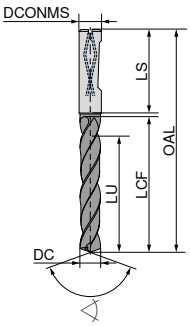
Ø DC_{m7} for Type UNI and VA / **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537





	Speed UNI	UNI	UNI	UNI	VA	VA
	DPX14S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
						
	HA	HA	HB	HE	HA	HE
	◁ 145°	◁ 140°	◁ 140°	◁ 140°	◁ 140°	◁ 140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 781 ...	**11 780 ...**	**11 781 ...**	**11 779 ...**	**10 734 ...**	**10 733 ...**

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T5		£ T5	
5.95	6	66	28	20	36			45.32	05950	45.32	05950	45.32	05950	88.03	959		
6.00	6	66	28	20	36	96.18	06000	45.32	06000	45.32	06000	45.32	06000	88.03	060	88.03	060
6.10	8	79	34	24	36	117.54	06100	59.19	06100	59.19	06100	59.19	06100	108.66	061	108.66	061
6.20	8	79	34	24	36	117.54	06200	59.19	06200	59.19	06200	59.19	06200	108.66	062	108.66	062
6.30	8	79	34	24	36	117.54	06300	59.19	06300	59.19	06300	59.19	06300	108.66	063	108.66	063
6.40	8	79	34	24	36	117.54	06400	59.19	06400	59.19	06400	59.19	06400	108.66	064	108.66	064
6.50	8	79	34	24	36	117.54	06500	59.19	06500	59.19	06500	59.19	06500	108.66	065	108.66	065
6.60	8	79	34	24	36	117.54	06600	59.19	06600	59.19	06600	59.19	06600	108.66	066	108.66	066
6.70	8	79	34	24	36	117.54	06700	59.19	06700	59.19	06700	59.19	06700	108.66	067	108.66	067
6.80	8	79	34	24	36	117.54	06800	59.19	06800	59.19	06800	59.19	06800	108.66	068	108.66	068
6.90	8	79	34	24	36	117.54	06900	59.19	06900	59.19	06900	59.19	06900	108.66	069	108.66	069
7.00	8	79	34	24	36	117.54	07000	59.19	07000	59.19	07000	59.19	07000	108.66	070	108.66	070
7.10	8	79	41	29	36	117.54	07100	59.19	07100	59.19	07100	59.19	07100	108.66	071	108.66	071
7.20	8	79	41	29	36	117.54	07200	59.19	07200	59.19	07200	59.19	07200	108.66	072	108.66	072
7.30	8	79	41	29	36	117.54	07300	59.19	07300	59.19	07300	59.19	07300	108.66	073	108.66	073
7.40	8	79	41	29	36	117.54	07400	59.19	07400	59.19	07400	59.19	07400	108.66	074	108.66	074
7.45	8	79	41	29	36			59.19	07450	59.19	07450	59.19	07450	108.66	924		
7.50	8	79	41	29	36	117.54	07500	59.19	07500	59.19	07500	59.19	07500	108.66	075	108.66	075
7.60	8	79	41	29	36	117.54	07600	59.19	07600	59.19	07600	59.19	07600	108.66	076	108.66	076
7.70	8	79	41	29	36	117.54	07700	59.19	07700	59.19	07700	59.19	07700	108.66	077	108.66	077
7.80	8	79	41	29	36	117.54	07800	59.19	07800	59.19	07800	59.19	07800	108.66	078	108.66	078
7.90	8	79	41	29	36	117.54	07900	59.19	07900	59.19	07900	59.19	07900	108.66	079	108.66	079
8.00	8	79	41	29	36	117.54	08000	59.19	08000	59.19	08000	59.19	08000	107.95	080	107.95	080
8.10	10	89	47	35	40	162.11	08100	67.64	08100	67.64	08100	67.64	08100	108.66	081	108.66	081
8.20	10	89	47	35	40	162.11	08200	67.64	08200	67.64	08200	67.64	08200	108.66	082	108.66	082
8.30	10	89	47	35	40	162.11	08300	67.64	08300	67.64	08300	67.64	08300	108.66	083	108.66	083
8.40	10	89	47	35	40	162.11	08400	67.64	08400	67.64	08400	67.64	08400	108.66	084	108.66	084
8.50	10	89	47	35	40	162.11	08500	67.64	08500	67.64	08500	67.64	08500	108.66	085	108.66	085
8.60	10	89	47	35	40	162.11	08600	67.64	08600	67.64	08600	67.64	08600	108.66	086	108.66	086
8.70	10	89	47	35	40	162.11	08700	67.64	08700	67.64	08700	67.64	08700	108.66	087	108.66	087
8.80	10	89	47	35	40	162.11	08800	67.64	08800	67.64	08800	67.64	08800	108.66	088	108.66	088
8.90	10	89	47	35	40	162.11	08900	67.64	08900	67.64	08900	67.64	08900	108.66	089	108.66	089
9.00	10	89	47	35	40	162.11	09000	67.64	09000	67.64	09000	67.64	09000	108.66	090	108.66	090
9.10	10	89	47	35	40	162.11	09100	67.64	09100	67.64	09100	67.64	09100	108.66	091	108.66	091
9.20	10	89	47	35	40	162.11	09200	67.64	09200	67.64	09200	67.64	09200	125.53	092	125.53	092
9.30	10	89	47	35	40	162.11	09300	67.64	09300	67.64	09300	67.64	09300	125.53	093	125.53	093
9.35	10	89	47	35	40			67.64	09350	67.64	09350	67.64	09350	125.53	930		
9.40	10	89	47	35	40	162.11	09400	67.64	09400	67.64	09400	67.64	09400	125.53	094	125.53	094
9.45	10	89	47	35	40			67.64	09450	67.64	09450	67.64	09450	125.53	994		
9.50	10	89	47	35	40	162.11	09500	67.64	09500	67.64	09500	67.64	09500	125.53	095	125.53	095
9.60	10	89	47	35	40	162.11	09600	67.64	09600	67.64	09600	67.64	09600	125.53	096	125.53	096
9.70	10	89	47	35	40	162.11	09700	67.64	09700	67.64	09700	67.64	09700	125.53	097	125.53	097

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

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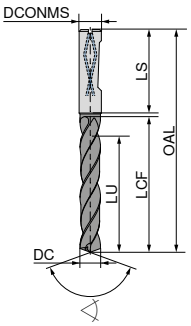
Ø DC_{m7} for Type UNI and VA / **Ø DC_{h7}** for Type Speed UNI

Continued on next page

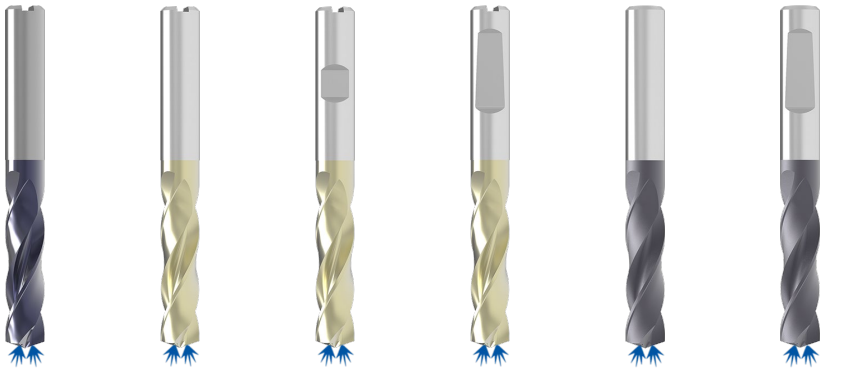
WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



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



HA	HA	HB	HE	HA	HE
145°	140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 781 ...	**11 780 ...**	**11 781 ...**	**11 779 ...**	**10 734 ...**	**10 733 ...**
£ T4	£ T7	£ T7	£ T7	£ T5	£ T5

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T5		£ T5	
9.80	10	89	47	35	40	162.11	**09800**	67.64	**09800**	67.64	**09800**	67.64	**09800**	125.53	**098**	125.53	**098**
9.90	10	89	47	35	40	162.11	**09900**	67.64	**09900**	67.64	**09900**	67.64	**09900**	125.53	**099**	125.53	**099**
10.00	10	89	47	35	40	162.11	**10000**	67.64	**10000**	67.64	**10000**	67.64	**10000**	125.53	**100**	125.53	**100**
10.10	12	102	55	40	45	204.21	**10100**	94.44	**10100**	94.44	**10100**	94.44	**10100**	174.17	**101**	174.17	**101**
10.20	12	102	55	40	45	204.21	**10200**	94.44	**10200**	94.44	**10200**	94.44	**10200**	174.17	**102**	174.17	**102**
10.30	12	102	55	40	45	204.21	**10300**	94.44	**10300**	94.44	**10300**	94.44	**10300**	174.17	**103**	174.17	**103**
10.40	12	102	55	40	45	204.21	**10400**	94.44	**10400**	94.44	**10400**	94.44	**10400**	174.17	**104**	174.17	**104**
10.50	12	102	55	40	45	204.21	**10500**	94.44	**10500**	94.44	**10500**	94.44	**10500**	174.17	**105**	174.17	**105**
10.55	12	102	55	40	45			94.44	**10550**	94.44	**10550**	94.44	**10550**	174.17	**932**		
10.60	12	102	55	40	45	204.21	**10600**	94.44	**10600**	94.44	**10600**	94.44	**10600**	174.17	**106**	174.17	**106**
10.70	12	102	55	40	45	204.21	**10700**	94.44	**10700**	94.44	**10700**	94.44	**10700**	174.17	**107**	174.17	**107**
10.75	12	102	55	40	45			94.44	**10750**	94.44	**10750**	94.44	**10750**				
10.80	12	102	55	40	45	204.21	**10800**	94.44	**10800**	94.44	**10800**	94.44	**10800**	174.17	**108**	174.17	**108**
10.90	12	102	55	40	45	204.21	**10900**	94.44	**10900**	94.44	**10900**	94.44	**10900**	174.17	**109**	174.17	**109**
11.00	12	102	55	40	45	204.21	**11000**	94.44	**11000**	94.44	**11000**	94.44	**11000**	174.17	**110**	174.17	**110**
11.10	12	102	55	40	45	204.21	**11100**	94.44	**11100**	94.44	**11100**	94.44	**11100**	174.17	**111**	174.17	**111**
11.20	12	102	55	40	45	204.21	**11200**	94.44	**11200**	94.44	**11200**	94.44	**11200**	174.17	**112**	174.17	**112**
11.25	12	102	55	40	45			94.44	**11250**	94.44	**11250**	94.44	**11250**	174.17	**912**		
11.30	12	102	55	40	45	204.21	**11300**	94.44	**11300**	94.44	**11300**	94.44	**11300**	174.17	**113**	174.17	**113**
11.35	12	102	55	40	45			94.44	**11350**	94.44	**11350**	94.44	**11350**	174.17	**913**		
11.40	12	102	55	40	45	204.21	**11400**	94.44	**11400**	94.44	**11400**	94.44	**11400**	174.17	**114**	174.17	**114**
11.45	12	102	55	40	45			94.44	**11450**	94.44	**11450**	94.44	**11450**	174.17	**914**		
11.50	12	102	55	40	45	204.21	**11500**	94.44	**11500**	94.44	**11500**	94.44	**11500**	174.17	**115**	174.17	**115**
11.60	12	102	55	40	45	204.21	**11600**	94.44	**11600**	94.44	**11600**	94.44	**11600**	174.17	**116**	174.17	**116**
11.70	12	102	55	40	45	204.21	**11700**	94.44	**11700**	94.44	**11700**	94.44	**11700**	174.17	**117**	174.17	**117**
11.80	12	102	55	40	45	204.21	**11800**	94.44	**11800**	94.44	**11800**	94.44	**11800**	174.17	**118**	174.17	**118**
11.90	12	102	55	40	45	204.21	**11900**	94.44	**11900**	94.44	**11900**	94.44	**11900**	174.17	**119**	174.17	**119**
12.00	12	102	55	40	45	204.21	**12000**	94.44	**12000**	94.44	**12000**	94.44	**12000**	174.17	**120**	174.17	**120**
12.15	14	107	60	43	45			133.76	**12150**	133.76	**12150**	133.76	**12150**	245.21	**921**		
12.25	14	107	60	43	45			133.76	**12250**	133.76	**12250**	133.76	**12250**				
12.50	14	107	60	43	45	333.59	**12500**	133.76	**12500**	133.76	**12500**	133.76	**12500**	245.21	**125**	245.21	**125**
12.55	14	107	60	43	45			133.76	**12550**	133.76	**12550**	133.76	**12550**	245.21	**925**		
12.70	14	107	60	43	45			133.76	**12700**	133.76	**12700**	133.76	**12700**				
12.80	14	107	60	43	45	333.59	**12800**	133.76	**12800**	133.76	**12800**	133.76	**12800**	245.21	**128**	245.21	**128**
12.90	14	107	60	43	45			133.76	**12900**	133.76	**12900**	133.76	**12900**				
13.00	14	107	60	43	45	333.59	**13000**	133.76	**13000**	133.76	**13000**	133.76	**13000**	245.21	**130**	245.21	**130**
13.10	14	107	60	43	45			133.76	**13100**	133.76	**13100**	133.76	**13100**				
13.30	14	107	60	43	45			133.76	**13300**	133.76	**13300**	133.76	**13300**				
13.35	14	107	60	43	45			133.76	**13350**	133.76	**13350**	133.76	**13350**	245.21	**933**		
13.50	14	107	60	43	45	333.59	**13500**	133.76	**13500**	133.76	**13500**	133.76	**13500**	245.21	**135**	245.21	**135**
13.70	14	107	60	43	45			133.76	**13700**	133.76	**13700**	133.76	**13700**				
13.80	14	107	60	43	45	333.59	**13800**	133.76	**13800**	133.76	**13800**	133.76	**13800**	245.21	**138**	245.21	**138**

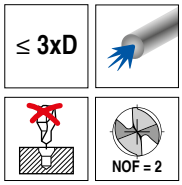
P	●	●	●	●	○	○
M	●				●	●
K	●	●	●	●	○	○
N					○	○
S					●	●
H		○	○	○		
O						

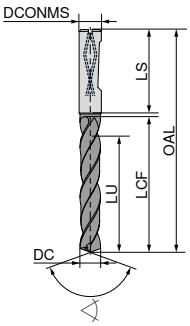
→ v_c Page 108–114

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

Continued on next page

WTX – High Performance Drill, DIN 6537





	Speed UNI	UNI	UNI	UNI	VA	VA
	DPX14S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
						
	HA	HA	HB	HE	HA	HE
	145°	140°	140°	140°	140°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 781 ...	11 780 ...	11 781 ...	11 779 ...	10 734 ...	10 733 ...

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T5		£ T5	
14.00	14	107	60	43	45	333.59	14000	133.76	14000	133.76	14000	133.76	14000	245.21	140	245.21	140
14.20	16	115	65	45	48			157.42	14200	157.42	14200	157.42	14200				
14.50	16	115	65	45	48	419.31	14500	157.42	14500	157.42	14500	157.42	14500	310.74	145	310.74	145
14.80	16	115	65	45	48	419.31	14800	157.42	14800	157.42	14800	157.42	14800	310.74	148	310.74	148
15.00	16	115	65	45	48	419.31	15000	157.42	15000	157.42	15000	157.42	15000	310.74	150	310.74	150
15.10	16	115	65	45	48			157.42	15100	157.42	15100	157.42	15100				
15.25	16	115	65	45	48			157.42	15250	157.42	15250	157.42	15250				
15.30	16	115	65	45	48			157.42	15300	157.42	15300	157.42	15300				
15.35	16	115	65	45	48			157.42	15350	157.42	15350	157.42	15350	310.74	953		
15.50	16	115	65	45	48	419.31	15500	157.42	15500	157.42	15500	157.42	15500	310.74	155	310.74	155
15.60	16	115	65	45	48			157.42	15600	157.42	15600	157.42	15600				
15.80	16	115	65	45	48	419.31	15800	157.42	15800	157.42	15800	157.42	15800	310.74	158	310.74	158
16.00	16	115	65	45	48	419.31	16000	157.42	16000	157.42	16000	157.42	16000	310.74	160	310.74	160
16.05	18	123	73	51	48			255.49	16050	255.49	16050	255.49	16050	426.65	960		
16.50	18	123	73	51	48	564.29	16500	255.49	16500	255.49	16500	255.49	16500	426.65	165	426.65	165
16.80	18	123	73	51	48	564.29	16800	255.49	16800	255.49	16800	255.49	16800	426.65	168	426.65	168
16.90	18	123	73	51	48			255.49	16900	255.49	16900	255.49	16900				
17.00	18	123	73	51	48	564.29	17000	255.49	17000	255.49	17000	255.49	17000	426.65	170	426.65	170
17.50	18	123	73	51	48	564.29	17500	255.49	17500	255.49	17500	255.49	17500	426.65	175	426.65	175
17.60	18	123	73	51	48			255.49	17600	255.49	17600	255.49	17600				
17.80	18	123	73	51	48	564.29	17800	255.49	17800	255.49	17800	255.49	17800	426.65	178	426.65	178
18.00	18	123	73	51	48	564.29	18000	255.49	18000	255.49	18000	255.49	18000	426.65	180	426.65	180
18.50	20	131	79	55	50	687.45	18500	275.16	18500	275.16	18500	275.16	18500	529.65	185	529.65	185
18.80	20	131	79	55	50	687.45	18800	275.16	18800	275.16	18800	275.16	18800	529.65	188	529.65	188
18.90	20	131	79	55	50			275.16	18900	275.16	18900	275.16	18900				
19.00	20	131	79	55	50	687.45	19000	275.16	19000	275.16	19000	275.16	19000	529.65	190	529.65	190
19.35	20	131	79	55	50			275.16	19350	275.16	19350	275.16	19350	529.65	993		
19.50	20	131	79	55	50	687.45	19500	275.16	19500	275.16	19500	275.16	19500	529.65	195	529.65	195
19.60	20	131	79	55	50			275.16	19600	275.16	19600	275.16	19600				
19.80	20	131	79	55	50	687.45	19800	275.16	19800	275.16	19800	275.16	19800	529.65	198	529.65	198
20.00	20	131	79	55	50	687.45	20000	275.16	20000	275.16	20000	275.16	20000	529.65	200	529.65	200
20.50	25	151	93	66	56			607.50	20500	607.50	20500	607.50	20500				
21.00	25	151	93	66	56			607.50	21000	607.50	21000	607.50	21000				
21.50	25	151	93	66	56			607.50	21500	607.50	21500	607.50	21500				
22.00	25	151	93	66	56			607.50	22000	607.50	22000	607.50	22000				
22.50	25	153	96	72	56			607.50	22500	607.50	22500	607.50	22500				
23.00	25	153	96	72	56			607.50	23000	607.50	23000	607.50	23000				
23.50	25	153	96	72	56			607.50	23500	607.50	23500	607.50	23500				
24.00	25	153	96	72	56			607.50	24000	607.50	24000	607.50	24000				
24.50	25	153	96	75	56			607.50	24500	607.50	24500	607.50	24500				
25.00	25	153	96	75	56			607.50	25000	607.50	25000	607.50	25000				

P	●	●	●	●	○	○
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N					○	○
S					●	●
H		○	○	○		
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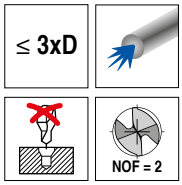
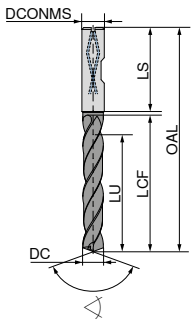
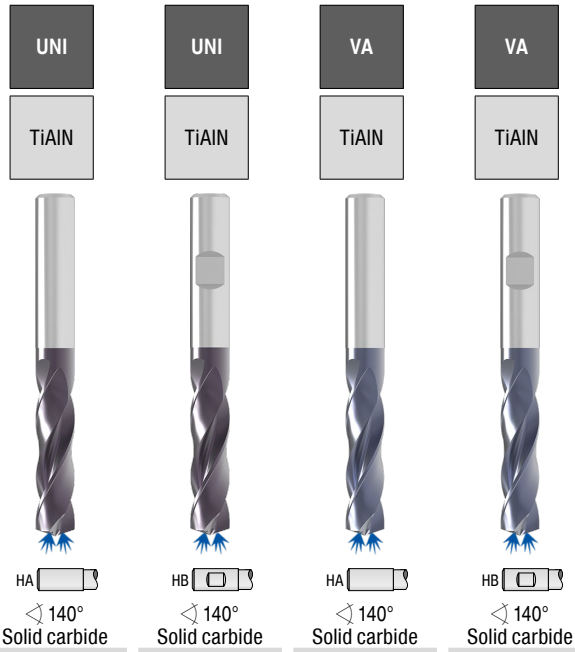
Ø DC_{m7} for Type UNI and VA / **Ø DC_{h7}** for Type Speed UNI

WPC – High Performance Drill, DIN 6537







Solid carbide | Solid carbide | Solid carbide | Solid carbide

DC m7	DCONMS h6	OAL	LCF	LU	LS	11 603 ... £ T1		11 604 ... £ T1		11 623 ... £ T1		11 624 ... £ T1	
mm	mm	mm	mm	mm	mm								
1.00	4	45	6.0	4.5	32.0	27.18	010			27.18	010		
1.10	4	45	6.6	5.0	31.5	27.18	011			27.18	011		
1.20	4	45	7.2	5.4	31.0	27.18	012			27.18	012		
1.30	4	45	7.8	5.9	31.5	27.18	013			27.18	013		
1.40	4	45	8.4	6.3	30.0	27.18	014			27.18	014		
1.50	4	50	9.0	6.8	35.0	27.18	015			27.18	015		
1.60	4	50	9.6	7.2	34.5	27.18	016			27.18	016		
1.70	4	50	10.2	7.7	34.0	27.18	017			27.18	017		
1.80	4	50	10.8	8.1	33.5	27.18	018			27.18	018		
1.90	4	50	11.4	8.6	33.0	27.18	019			27.18	019		
2.00	4	50	12.0	9.0	33.0	27.18	020			27.18	020		
2.10	4	55	12.6	9.5	37.5	27.18	021			27.18	021		
2.20	4	55	13.2	9.9	37.0	27.18	022			27.18	022		
2.30	4	55	13.8	10.4	36.5	27.18	023			27.18	023		
2.40	4	55	14.4	10.8	36.0	27.18	024			27.18	024		
2.50	4	55	15.0	11.3	35.5	27.18	025			27.18	025		
2.60	4	55	15.6	11.7	35.5	27.18	026			27.18	026		
2.70	4	55	16.2	12.2	35.0	27.18	027			27.18	027		
2.80	4	55	16.8	12.6	34.0	27.18	028			27.18	028		
2.90	4	55	17.4	13.1	34.0	27.18	029			27.18	029		
3.00	6	62	20.0	14.0	36.0	27.18	030	27.47	030	27.18	030	27.47	030
3.10	6	62	20.0	14.0	36.0	27.18	031	27.47	031	27.18	031	27.47	031
3.20	6	62	20.0	14.0	36.0	27.18	032	27.47	032	27.18	032	27.47	032
3.25	6	62	20.0	14.0	36.0	27.47	890	27.47	890	27.18	03250		
3.30	6	62	20.0	14.0	36.0	27.18	033	27.47	033	27.18	033	27.47	033
3.40	6	62	20.0	14.0	36.0	27.18	034	27.47	034	27.18	034	27.47	034
3.50	6	62	20.0	14.0	36.0	27.18	035	27.47	035	27.18	035	27.47	035
3.60	6	62	20.0	14.0	36.0	27.18	036	27.47	036	27.18	036	27.47	036
3.70	6	62	20.0	14.0	36.0	27.18	037	27.47	037	27.18	037	27.47	037
3.80	6	66	24.0	17.0	36.0	27.18	038	27.47	038	27.18	038	27.47	038
3.90	6	66	24.0	17.0	36.0	27.18	039	27.47	039	27.18	039	27.47	039
4.00	6	66	24.0	17.0	36.0	27.47	040	28.99	040	27.47	040	28.99	040
4.10	6	66	24.0	17.0	36.0	27.47	041	28.99	041	27.47	041	28.99	041
4.20	6	66	24.0	17.0	36.0	27.47	042	28.99	042	27.47	042	28.99	042
4.30	6	66	24.0	17.0	36.0	27.47	043	28.99	043	27.47	043	28.99	043
4.40	6	66	24.0	17.0	36.0	27.47	044	28.99	044	27.47	044	28.99	044
4.50	6	66	24.0	17.0	36.0	27.47	045	28.99	045	27.47	045	28.99	045
4.60	6	66	24.0	17.0	36.0	27.47	046	28.99	046	27.47	046	28.99	046
4.65	6	66	24.0	17.0	36.0	27.47	900	28.99	900	27.47	900	28.99	900
4.70	6	66	24.0	17.0	36.0	27.47	047	28.99	047	27.47	047	28.99	047
4.80	6	66	28.0	20.0	36.0	27.47	048	28.99	048	27.47	048	28.99	048
4.90	6	66	28.0	20.0	36.0	27.47	049	28.99	049	27.47	049	28.99	049
5.00	6	66	28.0	20.0	36.0	27.47	050	28.99	050	27.47	050	28.99	050
5.10	6	66	28.0	20.0	36.0	27.47	051	28.99	051	27.47	051	28.99	051

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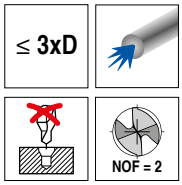
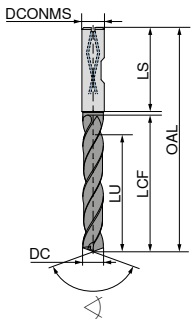
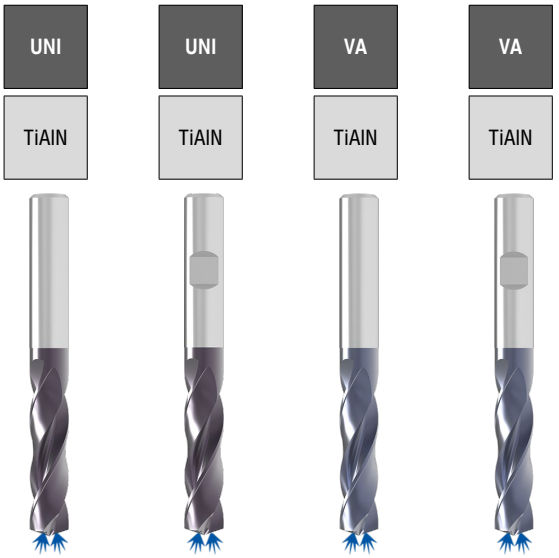
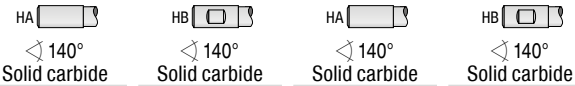
WPC – High Performance Drill, DIN 6537









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

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 603 ... £ T1		11 604 ... £ T1		11 623 ... £ T1		11 624 ... £ T1	
5.20	6	66	28.0	20.0	36.0	27.47	052	28.99	052	27.47	052	28.99	052
5.30	6	66	28.0	20.0	36.0	27.47	053	28.99	053	27.47	053	28.99	053
5.40	6	66	28.0	20.0	36.0	27.47	054	28.99	054	27.47	054	28.99	054
5.50	6	66	28.0	20.0	36.0	27.47	055	28.99	055	27.47	055	28.99	055
5.55	6	66	28.0	20.0	36.0	27.47	902	28.99	902	27.47	902	28.99	902
5.60	6	66	28.0	20.0	36.0	27.47	056	28.99	056	27.47	056	28.99	056
5.70	6	66	28.0	20.0	36.0	27.47	057	28.99	057	27.47	057	28.99	057
5.80	6	66	28.0	20.0	36.0	27.47	058	28.99	058	27.47	058	28.99	058
5.90	6	66	28.0	20.0	36.0	27.47	059	28.99	059	27.47	059	28.99	059
6.00	6	66	28.0	20.0	36.0	27.47	060	28.99	060	27.47	060	28.99	060
6.10	8	79	34.0	24.0	36.0	38.15	061	38.15	061	38.15	061	38.15	061
6.20	8	79	34.0	24.0	36.0	38.15	062	38.15	062	38.15	062	38.15	062
6.30	8	79	34.0	24.0	36.0	38.15	063	38.15	063	38.15	063	38.15	063
6.40	8	79	34.0	24.0	36.0	38.15	064	38.15	064	38.15	064	38.15	064
6.50	8	79	34.0	24.0	36.0	38.15	065	39.67	065	38.15	065	39.67	065
6.60	8	79	34.0	24.0	36.0	38.15	066	39.67	066	38.15	066	39.67	066
6.70	8	79	34.0	24.0	36.0	38.15	067	39.67	067	38.15	067	39.67	067
6.80	8	79	34.0	24.0	36.0	38.15	068	39.67	068	38.15	068	39.67	068
6.90	8	79	34.0	24.0	36.0	38.15	069	39.67	069	38.15	069	39.67	069
7.00	8	79	34.0	24.0	36.0	38.15	070	39.67	070	38.15	070	39.67	070
7.10	8	79	41.0	29.0	36.0	38.15	071	39.67	071	38.15	071	39.67	071
7.20	8	79	41.0	29.0	36.0	38.15	072	39.67	072	38.15	072	39.67	072
7.30	8	79	41.0	29.0	36.0	38.15	073	39.67	073	38.15	073	39.67	073
7.40	8	79	41.0	29.0	36.0	38.15	074	39.67	074	38.15	074	39.67	074
7.45	8	79	41.0	29.0	36.0	38.15	924	38.15	924	38.15	07450		
7.50	8	79	41.0	29.0	36.0	38.15	075	39.67	075	38.15	075	39.67	075
7.55	8	79	41.0	29.0	36.0	38.15	975	39.67	975	38.15	975	39.67	975
7.60	8	79	41.0	29.0	36.0	38.15	076	39.67	076	38.15	076	39.67	076
7.70	8	79	41.0	29.0	36.0	38.15	077	39.67	077	38.15	077	39.67	077
7.80	8	79	41.0	29.0	36.0	38.15	078	39.67	078	38.15	078	39.67	078
7.90	8	79	41.0	29.0	36.0	38.15	079	39.67	079	38.15	079	39.67	079
8.00	8	79	41.0	29.0	36.0	38.15	080	39.67	080	38.15	080	39.67	080
8.10	10	89	47.0	35.0	40.0	44.24	081	45.78	081	44.24	081	45.78	081
8.20	10	89	47.0	35.0	40.0	44.24	082	45.78	082	44.24	082	45.78	082
8.30	10	89	47.0	35.0	40.0	44.24	083	45.78	083	44.24	083	45.78	083
8.40	10	89	47.0	35.0	40.0	44.24	084	45.78	084	44.24	084	45.78	084
8.50	10	89	47.0	35.0	40.0	44.24	085	45.78	085	44.24	085	45.78	085
8.60	10	89	47.0	35.0	40.0	44.24	086	45.78	086	44.24	086	45.78	086
8.70	10	89	47.0	35.0	40.0	44.24	087	45.78	087	44.24	087	45.78	087
8.80	10	89	47.0	35.0	40.0	44.24	088	45.78	088	44.24	088	45.78	088
8.90	10	89	47.0	35.0	40.0	44.24	089	45.78	089	44.24	089	45.78	089
9.00	10	89	47.0	35.0	40.0	44.24	090	45.78	090	44.24	090	45.78	090
9.10	10	89	47.0	35.0	40.0	44.24	091	45.78	091	44.24	091	45.78	091
9.20	10	89	47.0	35.0	40.0	44.24	092	45.78	092	44.24	092	45.78	092

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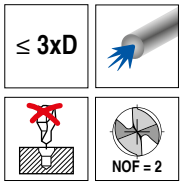
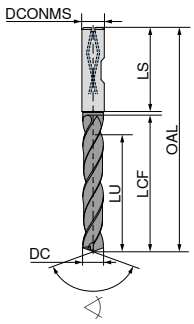
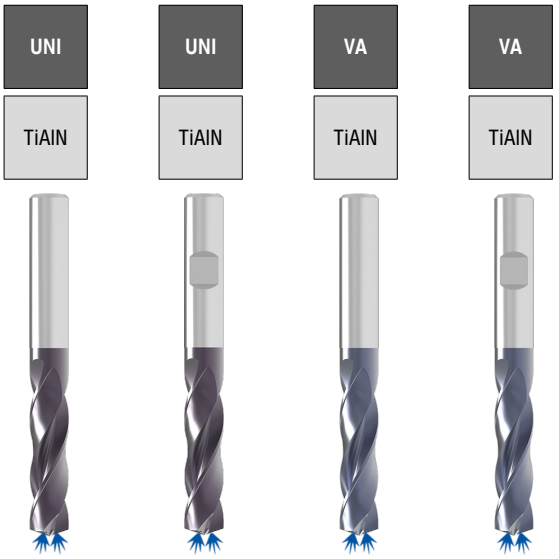
WPC – High Performance Drill, DIN 6537







Solid carbide | Solid carbide | Solid carbide | Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 603 ... £ T1		11 604 ... £ T1		11 623 ... £ T1		11 624 ... £ T1	
9.25	10	89	47.0	35.0	40.0	44.24	925	45.78	925	44.24	925	45.78	925
9.30	10	89	47.0	35.0	40.0	44.24	093	45.78	093	44.24	093	45.78	093
9.35	10	89	47.0	35.0	40.0	44.24	930	44.24	930	44.24	09350		
9.40	10	89	47.0	35.0	40.0	44.24	094	45.78	094	44.24	094	45.78	094
9.50	10	89	47.0	35.0	40.0	44.24	095	45.78	095	44.24	095	45.78	095
9.60	10	89	47.0	35.0	40.0	44.24	096	45.78	096	44.24	096	45.78	096
9.70	10	89	47.0	35.0	40.0	44.24	097	45.78	097	44.24	097	45.78	097
9.80	10	89	47.0	35.0	40.0	44.24	098	45.78	098	44.24	098	45.78	098
9.90	10	89	47.0	35.0	40.0	44.24	099	45.78	099	44.24	099	45.78	099
10.00	10	89	47.0	35.0	40.0	44.24	100	45.78	100	44.24	100	45.78	100
10.10	12	102	55.0	40.0	45.0	62.52	101	65.59	101	62.52	101	65.59	101
10.20	12	102	55.0	40.0	45.0	62.52	102	65.59	102	62.52	102	65.59	102
10.30	12	102	55.0	40.0	45.0	62.52	103	65.59	103	62.52	103	65.59	103
10.40	12	102	55.0	40.0	45.0	62.52	104	65.59	104	62.52	104	65.59	104
10.50	12	102	55.0	40.0	45.0	62.52	105	65.59	105	62.52	105	65.59	105
10.60	12	102	55.0	40.0	45.0	62.52	106	65.59	106	62.52	106	65.59	106
10.70	12	102	55.0	40.0	45.0	62.52	107	65.59	107	62.52	107	65.59	107
10.75	12	102	55.0	40.0	45.0	62.52	904	62.52	904	62.52	10750		
10.80	12	102	55.0	40.0	45.0	62.52	108	65.59	108	62.52	108	65.59	108
10.90	12	102	55.0	40.0	45.0	62.52	109	65.59	109	62.52	109	65.59	109
11.00	12	102	55.0	40.0	45.0	62.52	110	65.59	110	62.52	110	65.59	110
11.10	12	102	55.0	40.0	45.0	62.52	111	65.59	111	62.52	111	65.59	111
11.20	12	102	55.0	40.0	45.0	62.52	112	65.59	112	62.52	112	65.59	112
11.25	12	102	55.0	40.0	45.0	62.52	912	62.52	912	62.52	11250		
11.30	12	102	55.0	40.0	45.0	62.52	113	65.59	113	62.52	113	65.59	113
11.40	12	102	55.0	40.0	45.0	62.52	114	65.59	114	62.52	114	65.59	114
11.50	12	102	55.0	40.0	45.0	62.52	115	65.59	115	62.52	115	65.59	115
11.60	12	102	55.0	40.0	45.0	62.52	116	65.59	116	62.52	116	65.59	116
11.70	12	102	55.0	40.0	45.0	62.52	117	65.59	117	62.52	117	65.59	117
11.80	12	102	55.0	40.0	45.0	62.52	118	65.59	118	62.52	118	65.59	118
11.90	12	102	55.0	40.0	45.0	62.52	119	65.59	119	62.52	119	65.59	119
12.00	12	102	55.0	40.0	45.0	62.52	120	65.59	120	62.52	120	65.59	120
12.25	14	107	60.0	43.0	45.0	88.46	122	88.46	122	88.46	12250		
12.50	14	107	60.0	43.0	45.0	88.46	125	91.52	125	88.46	125	91.52	125
12.70	14	107	60.0	43.0	45.0	88.46	127	91.52	127	88.46	127	91.52	127
12.80	14	107	60.0	43.0	45.0	88.46	128	88.46	128				
12.90	14	107	60.0	43.0	45.0	88.46	129	88.46	129				
13.00	14	107	60.0	43.0	45.0	88.46	130	91.52	130	88.46	130	91.52	130
13.10	14	107	60.0	43.0	45.0	88.46	131	88.46	131				
13.30	14	107	60.0	43.0	45.0	88.46	133	88.46	133				
13.50	14	107	60.0	43.0	45.0	88.46	135	91.52	135	88.46	135	91.52	135
13.70	14	107	60.0	43.0	45.0	88.46	137	91.52	137	88.46	137	91.52	137
13.80	14	107	60.0	43.0	45.0	88.46	138	88.46	138				
14.00	14	107	60.0	43.0	45.0	88.46	140	91.52	140	88.46	140	91.52	140

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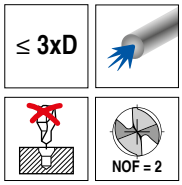
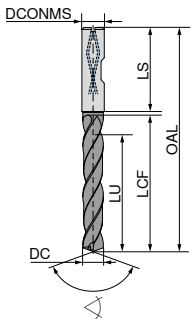
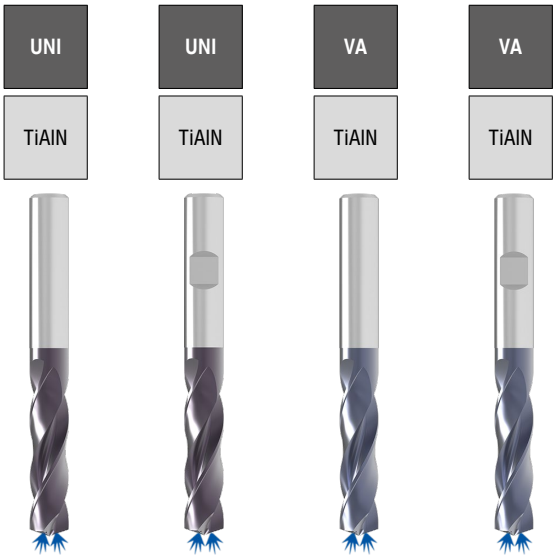
→ v_c Page 130+133

Continued on next page

WPC – High Performance Drill, DIN 6537







HA / HB
140°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 603 ... £ T1		11 604 ... £ T1		11 623 ... £ T1		11 624 ... £ T1	
14.20	16	115	65.0	45.0	48.0	108.30	142	108.30	142				
14.50	16	115	65.0	45.0	48.0	108.30	145	112.89	145	108.30	145	112.89	145
14.70	16	115	65.0	45.0	48.0	108.30	147	112.89	147	108.30	147	112.89	147
14.80	16	115	65.0	45.0	48.0	108.30	148	108.30	148				
15.00	16	115	65.0	45.0	48.0	108.30	150	112.89	150	108.30	150	112.89	150
15.10	16	115	65.0	45.0	48.0	108.30	151	108.30	151				
15.25	16	115	65.0	45.0	48.0	108.30	152	108.30	152				
15.30	16	115	65.0	45.0	48.0	108.30	153	108.30	153				
15.50	16	115	65.0	45.0	48.0	108.30	155	112.89	155	108.30	155	112.89	155
15.60	16	115	65.0	45.0	48.0	108.30	156	108.30	156				
15.70	16	115	65.0	45.0	48.0	108.30	157	112.89	157	108.30	157	112.89	157
15.80	16	115	65.0	45.0	48.0	108.30	158	108.30	158				
16.00	16	115	65.0	45.0	48.0	108.30	160	112.89	160	108.30	160	112.89	160
16.50	18	123	73.0	51.0	48.0	173.89	165	181.52	165	173.89	165	181.52	165
16.80	18	123	73.0	51.0	48.0	173.89	168	173.89	168				
16.90	18	123	73.0	51.0	48.0	173.89	169	173.89	169				
17.00	18	123	73.0	51.0	48.0	173.89	170	181.52	170	173.89	170	181.52	170
17.50	18	123	73.0	51.0	48.0	173.89	175	181.52	175	173.89	175	181.52	175
17.60	18	123	73.0	51.0	48.0	173.89	176	173.89	176				
17.80	18	123	73.0	51.0	48.0	173.89	178	173.89	178				
18.00	18	123	73.0	51.0	48.0	173.89	180	181.52	180	173.89	180	181.52	180
18.50	20	131	79.0	55.0	50.0	189.15	185	198.30	185	189.15	185	198.30	185
18.80	20	131	79.0	55.0	50.0	189.15	188	189.15	188				
18.90	20	131	79.0	55.0	50.0	189.15	189	189.15	189				
19.00	20	131	79.0	55.0	50.0	189.15	190	198.30	190	189.15	190	198.30	190
19.50	20	131	79.0	55.0	50.0	189.15	195	198.30	195	189.15	195	198.30	195
19.60	20	131	79.0	55.0	50.0	189.15	196	189.15	196				
19.80	20	131	79.0	55.0	50.0	189.15	198	189.15	198				
20.00	20	131	79.0	55.0	50.0	189.15	200	198.30	200	189.15	200	198.30	200
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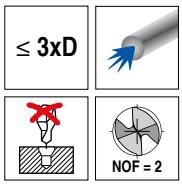
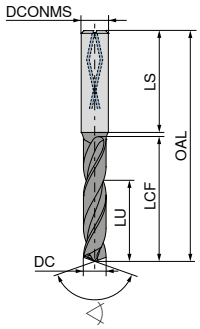
→ v_c Page 130+133

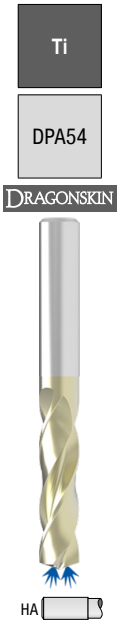
WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials

2







Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 786 ... £ T4	
3.00	6	62	20	14	36	59.78	030
3.10	6	62	20	14	36	59.78	031
3.20	6	62	20	14	36	59.78	032
3.30	6	62	20	14	36	59.78	033
3.40	6	62	20	14	36	59.78	034
3.50	6	62	20	14	36	59.78	035
3.60	6	62	20	14	36	59.78	036
3.70	6	62	20	14	36	59.78	037
3.80	6	66	24	17	36	59.78	038
3.90	6	66	24	17	36	59.78	039
3.97	6	66	24	17	36	59.78	900
4.00	6	66	24	17	36	59.78	040
4.10	6	66	24	17	36	59.78	041
4.20	6	66	24	17	36	59.78	042
4.23	6	66	24	17	36	59.78	901
4.30	6	66	24	17	36	59.78	043
4.40	6	66	24	17	36	59.78	044
4.50	6	66	24	17	36	59.78	045
4.60	6	66	24	17	36	59.78	046
4.70	6	66	24	17	36	59.78	047
4.80	6	66	28	20	36	59.78	048
4.90	6	66	28	20	36	59.78	049
5.00	6	66	28	20	36	59.78	050
5.10	6	66	28	20	36	59.78	051
5.20	6	66	28	20	36	59.78	052
5.30	6	66	28	20	36	59.78	053
5.40	6	66	28	20	36	59.78	054
5.50	6	66	28	20	36	59.78	055
5.56	6	66	28	20	36	59.78	902
5.60	6	66	28	20	36	59.78	056
5.70	6	66	28	20	36	59.78	057
5.80	6	66	28	20	36	59.78	058
5.90	6	66	28	20	36	59.78	059
6.00	6	66	28	20	36	59.78	060
6.10	8	79	34	24	36	80.21	061
6.20	8	79	34	24	36	80.21	062
6.30	8	79	34	24	36	80.21	063
6.35	8	79	34	24	36	80.21	903
6.40	8	79	34	24	36	80.21	064
6.50	8	79	34	24	36	80.21	065
6.60	8	79	34	24	36	80.21	066
6.70	8	79	34	24	36	80.21	067
6.80	8	79	34	24	36	80.21	068
6.90	8	79	34	24	36	80.21	069
7.00	8	79	34	24	36	80.21	070
7.10	8	79	41	29	36	80.21	071
7.20	8	79	41	29	36	80.21	072
7.30	8	79	41	29	36	80.21	073
7.40	8	79	41	29	36	80.21	074
7.50	8	79	41	29	36	80.21	075
7.60	8	79	41	29	36	80.21	076
7.70	8	79	41	29	36	80.21	077
7.80	8	79	41	29	36	80.21	078
7.90	8	79	41	29	36	80.21	079
7.94	8	79	41	29	36	80.21	904
8.00	8	79	41	29	36	80.21	080
8.10	10	89	47	35	40	96.99	081
8.20	10	89	47	35	40	96.99	082
8.30	10	89	47	35	40	96.99	083
8.40	10	89	47	35	40	96.99	084
8.50	10	89	47	35	40	96.99	085
8.60	10	89	47	35	40	96.99	086
8.70	10	89	47	35	40	96.99	087
8.80	10	89	47	35	40	96.99	088
8.90	10	89	47	35	40	96.99	089
9.00	10	89	47	35	40	96.99	090
9.10	10	89	47	35	40	96.99	091
9.20	10	89	47	35	40	96.99	092
9.30	10	89	47	35	40	96.99	093
9.40	10	89	47	35	40	96.99	094
9.50	10	89	47	35	40	96.99	095
9.55	10	89	47	35	40	97.22	905
9.60	10	89	47	35	40	96.99	096
9.70	10	89	47	35	40	96.99	097
9.80	10	89	47	35	40	96.99	098
9.90	10	89	47	35	40	96.99	099
10.00	10	89	47	35	40	96.99	100
10.10	12	102	55	40	45	139.99	101
10.20	12	102	55	40	45	139.99	102
10.30	12	102	55	40	45	139.99	103
10.40	12	102	55	40	45	139.99	104
10.50	12	102	55	40	45	139.99	105
10.60	12	102	55	40	45	139.99	106
10.70	12	102	55	40	45	139.99	107
10.80	12	102	55	40	45	139.99	108
10.90	12	102	55	40	45	139.99	109
11.00	12	102	55	40	45	139.99	110
11.10	12	102	55	40	45	139.99	111
11.11	12	102	55	40	45	139.99	906
11.20	12	102	55	40	45	139.99	112
11.30	12	102	55	40	45	139.99	113
11.40	12	102	55	40	45	139.99	114
11.50	12	102	55	40	45	139.99	115
11.60	12	102	55	40	45	139.99	116
11.70	12	102	55	40	45	139.99	117
11.80	12	102	55	40	45	139.99	118
11.90	12	102	55	40	45	139.99	119
12.00	12	102	55	40	45	139.99	120
12.10	14	107	60	43	45	181.62	121
12.20	14	107	60	43	45	181.62	122
12.30	14	107	60	43	45	181.62	123
12.40	14	107	60	43	45	181.62	124
12.50	14	107	60	43	45	181.62	125
12.60	14	107	60	43	45	181.62	126
12.70	14	107	60	43	45	181.62	907
12.80	14	107	60	43	45	181.62	128
12.90	14	107	60	43	45	181.62	129
13.00	14	107	60	43	45	181.62	130
13.10	14	107	60	43	45	181.62	131
13.20	14	107	60	43	45	181.62	132
13.30	14	107	60	43	45	181.62	133
13.40	14	107	60	43	45	181.62	134
13.50	14	107	60	43	45	181.62	135
13.60	14	107	60	43	45	181.62	136
13.70	14	107	60	43	45	181.62	137
13.80	14	107	60	43	45	181.62	138
13.90	14	107	60	43	45	181.62	139

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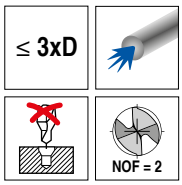
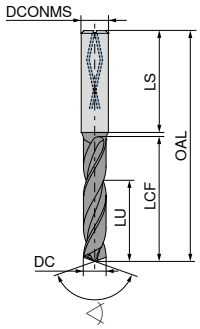
→ v_c Page 123

WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials





Ti

DPA54

DRAGONSKIN



140°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 786 ... £ T4	
14.0	14	107	60	43	45	181.62	140
14.1	16	115	65	45	48	215.66	141
14.2	16	115	65	45	48	215.66	142
14.3	16	115	65	45	48	215.66	143
14.4	16	115	65	45	48	215.66	144
14.5	16	115	65	45	48	215.66	145
14.6	16	115	65	45	48	215.66	146
14.7	16	115	65	45	48	215.66	147
14.8	16	115	65	45	48	215.66	148
14.9	16	115	65	45	48	215.66	149
15.0	16	115	65	45	48	215.66	150
15.1	16	115	65	45	48	215.66	151
15.2	16	115	65	45	48	215.66	152
15.3	16	115	65	45	48	215.66	153
15.4	16	115	65	45	48	215.66	154
15.5	16	115	65	45	48	215.66	155
15.6	16	115	65	45	48	215.66	156
15.7	16	115	65	45	48	215.66	157
15.8	16	115	65	45	48	215.66	158
15.9	16	115	65	45	48	215.66	159
16.0	16	115	65	45	48	215.66	160
16.1	18	123	73	51	48	215.66	161
16.2	18	123	73	51	48	215.66	162
16.3	18	123	73	51	48	215.66	163
16.4	18	123	73	51	48	215.66	164
16.5	18	123	73	51	48	302.69	165
16.6	18	123	73	51	48	302.69	166
16.7	18	123	73	51	48	302.69	167
16.8	18	123	73	51	48	302.69	168
16.9	18	123	73	51	48	302.69	169
17.0	18	123	73	51	48	302.69	170
17.1	18	123	73	51	48	302.69	171
17.2	18	123	73	51	48	302.69	172
17.3	18	123	73	51	48	302.69	173
17.4	18	123	73	51	48	302.69	174
17.5	18	123	73	51	48	302.69	175
17.6	18	123	73	51	48	302.69	176
17.7	18	123	73	51	48	302.69	177
17.8	18	123	73	51	48	302.69	178
17.9	18	123	73	51	48	302.69	179
18.0	18	123	73	51	48	302.69	180
18.1	20	131	79	55	50	378.36	181
18.2	20	131	79	55	50	378.36	182
18.3	20	131	79	55	50	378.36	183
18.4	20	131	79	55	50	378.36	184
18.5	20	131	79	55	50	378.36	185
18.6	20	131	79	55	50	378.36	186
18.7	20	131	79	55	50	378.36	187
18.8	20	131	79	55	50	378.36	188
18.9	20	131	79	55	50	378.36	189
19.0	20	131	79	55	50	378.36	190
19.1	20	131	79	55	50	378.36	191
19.2	20	131	79	55	50	378.36	192
19.3	20	131	79	55	50	378.36	193
19.4	20	131	79	55	50	378.36	194
19.5	20	131	79	55	50	378.36	195
19.6	20	131	79	55	50	378.36	196
19.7	20	131	79	55	50	378.36	197
19.8	20	131	79	55	50	378.36	198
19.9	20	131	79	55	50	378.36	199
20.0	20	131	79	55	50	378.36	200

	10 786 ...
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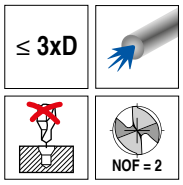
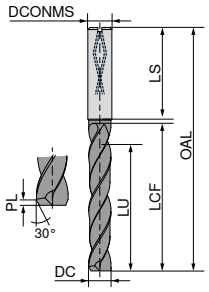
→ v_c Page 123

WTX – High Performance Drill, DIN 6537

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





180

Ti800





180°
Solid carbide

10 720 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	£ T4	
3.00	6	62	20	14	36	0.15	77.57	030
3.10	6	62	20	14	36	0.16	77.57	031
3.20	6	62	20	14	36	0.16	77.57	032
3.30	6	62	20	14	36	0.17	77.57	033
3.40	6	62	20	14	36	0.17	77.57	034
3.50	6	62	20	14	36	0.18	77.57	035
3.60	6	62	20	14	36	0.18	77.57	036
3.70	6	62	20	14	36	0.19	77.57	037
3.80	6	66	24	17	36	0.19	77.57	038
3.90	6	66	24	17	36	0.20	77.57	039
4.00	6	66	24	17	36	0.20	77.57	040
4.10	6	66	24	17	36	0.21	77.57	041
4.20	6	66	24	17	36	0.21	77.57	042
4.30	6	66	24	17	36	0.22	77.57	043
4.40	6	66	24	17	36	0.22	77.57	044
4.50	6	66	24	17	36	0.23	77.57	045
4.60	6	66	24	17	36	0.23	77.57	046
4.65	6	66	24	17	36	0.23	77.57	900
4.70	6	66	24	17	36	0.24	77.57	047
4.80	6	66	28	20	36	0.24	77.57	048
4.90	6	66	28	20	36	0.25	77.57	049
5.00	6	66	28	20	36	0.25	77.57	050
5.10	6	66	28	20	36	0.26	77.57	051
5.20	6	66	28	20	36	0.26	77.57	052
5.30	6	66	28	20	36	0.27	77.57	053
5.40	6	66	28	20	36	0.27	77.57	054
5.50	6	66	28	20	36	0.28	77.57	055
5.55	6	66	28	20	36	0.28	77.57	902
5.60	6	66	28	20	36	0.28	77.57	056
5.70	6	66	28	20	36	0.29	77.57	057
5.80	6	66	28	20	36	0.29	77.57	058
5.90	6	66	28	20	36	0.30	77.57	059
6.00	6	66	28	20	36	0.30	77.57	060
6.10	8	79	34	24	36	0.31	95.15	061
6.20	8	79	34	24	36	0.31	95.15	062
6.30	8	79	34	24	36	0.32	95.15	063
6.40	8	79	34	24	36	0.32	95.15	064
6.50	8	79	34	24	36	0.33	95.15	065
6.60	8	79	34	24	36	0.33	95.15	066
6.70	8	79	34	24	36	0.34	95.15	067
6.80	8	79	34	24	36	0.34	95.15	068
6.90	8	79	34	24	36	0.35	95.15	069
7.00	8	79	34	24	36	0.35	95.15	070
7.10	8	79	41	29	36	0.36	95.15	071
7.20	8	79	41	29	36	0.36	95.15	072
7.30	8	79	41	29	36	0.37	95.15	073
7.40	8	79	41	29	36	0.37	95.15	074
7.50	8	79	41	29	36	0.38	95.15	075
7.60	8	79	41	29	36	0.38	95.15	076
7.70	8	79	41	29	36	0.39	95.15	077
7.80	8	79	41	29	36	0.39	95.15	078
7.90	8	79	41	29	36	0.40	95.15	079
8.00	8	79	41	29	36	0.40	95.15	080
8.10	10	89	47	35	40	0.41	131.48	081

10 720 ...

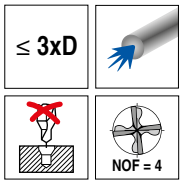
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	£ T4	
8.20	10	89	47	35	40	0.41	131.48	082
8.30	10	89	47	35	40	0.42	131.48	083
8.40	10	89	47	35	40	0.42	131.48	084
8.50	10	89	47	35	40	0.43	131.48	085
8.60	10	89	47	35	40	0.43	131.48	086
8.70	10	89	47	35	40	0.44	131.48	087
8.80	10	89	47	35	40	0.44	131.48	088
8.90	10	89	47	35	40	0.45	131.48	089
9.00	10	89	47	35	40	0.45	131.48	090
9.10	10	89	47	35	40	0.46	131.48	091
9.20	10	89	47	35	40	0.46	131.48	092
9.30	10	89	47	35	40	0.47	131.48	093
9.40	10	89	47	35	40	0.47	131.48	094
9.50	10	89	47	35	40	0.48	131.48	095
9.60	10	89	47	35	40	0.48	131.48	096
9.70	10	89	47	35	40	0.49	131.48	097
9.80	10	89	47	35	40	0.49	131.48	098
9.90	10	89	47	35	40	0.50	131.48	099
10.00	10	89	47	35	40	0.50	131.48	100
10.10	12	100	53	38	45	0.51	137.87	101
10.20	12	100	53	38	45	0.51	165.61	102
10.30	12	100	53	38	45	0.52	165.61	103
10.40	12	100	53	38	45	0.52	165.61	104
10.50	12	100	53	38	45	0.53	165.61	105
10.60	12	100	53	38	45	0.53	165.61	106
10.70	12	100	53	38	45	0.54	165.61	107
10.80	12	100	53	38	45	0.54	165.61	108
10.90	12	100	53	38	45	0.55	165.61	109
11.00	12	100	53	38	45	0.55	165.61	110
11.10	12	100	53	38	45	0.56	165.61	111
11.20	12	100	53	38	45	0.56	165.61	112
11.30	12	100	53	38	45	0.57	165.61	113
11.40	12	100	53	38	45	0.57	165.61	114
11.50	12	100	53	38	45	0.58	165.61	115
11.60	12	100	53	38	45	0.58	165.61	116
11.70	12	100	53	38	45	0.59	165.61	117
11.80	12	100	53	38	45	0.59	165.61	118
11.90	12	100	53	38	45	0.60	165.61	119
12.00	12	100	53	38	45	0.60	165.61	120
12.50	14	105	58	41	45	0.63	268.74	125
12.80	14	105	58	41	45	0.64	268.74	128
13.00	14	105	58	41	45	0.65	268.74	130
13.50	14	105	58	41	45	0.68	268.74	135
13.80	14	105	58	41	45	0.69	268.74	138
14.00	14	105	58	41	45	0.70	268.74	140
14.50	16	113	63	43	48	0.73	281.79	145
14.80	16	113	63	43	48	0.74	350.10	148
15.00	16	113	63	43	48	0.75	350.10	150
15.50	16	113	63	43	48	0.78	350.10	155
15.80	16	113	63	43	48	0.79	350.10	158
16.00	16	113	63	43	48	0.80	350.10	160
16.50	18	121	71	49	48	0.83	373.89	165
16.80	18	121	71	49	48	0.84	456.14	168
17.00	18	121	71	49	48	0.85	456.14	170
17.50	18	121	71	49	48	0.88	456.14	175
17.80	18	121	71	49	48	0.89	456.14	178
18.00	18	121	71	49	48	0.90	456.14	180
18.50	20	129	77	53	50	0.93	456.14	185
18.80	20	129	77	53	50	0.94	456.14	188
19.00	20	129	77	53	50	0.95	456.14	190
19.50	20	129	77	53	50	0.98	456.14	195
19.80	20	129	77	53	50	0.99	456.14	198
20.00	20	129	77	53	50	1.00	456.14	200

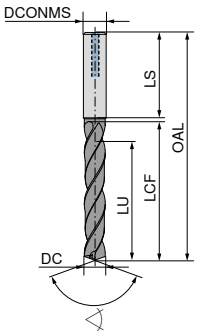
P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 126

WTX – High-feed drills, DIN 6537

- Four fluted high-feed drill
- Specialises in steel processing
- Has four spiral coolant holes
- Innovative cutting edge geometry guarantees high positioning accuracy
- Outstanding drilling quality in terms of tolerance, surface finish and position





NEW

HFDS

DPX14S

DRAGONSKIN



130°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 797 ... £ T4	
12.5	16	115	65	45	48	284.36	12500
13.0	16	115	65	45	48	284.36	13000
14.0	16	115	65	45	48	284.36	14000
14.3	18	123	73	51	48	354.24	14300
14.5	18	123	73	51	48	354.24	14500
15.0	18	123	73	51	48	354.24	15000
16.0	18	123	73	51	48	354.24	16000

P	●
M	○
K	●
N	○
S	○
H	○
O	○

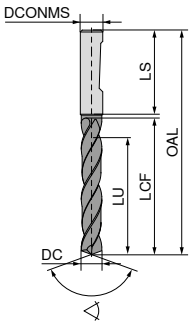
→ v_c Page 135

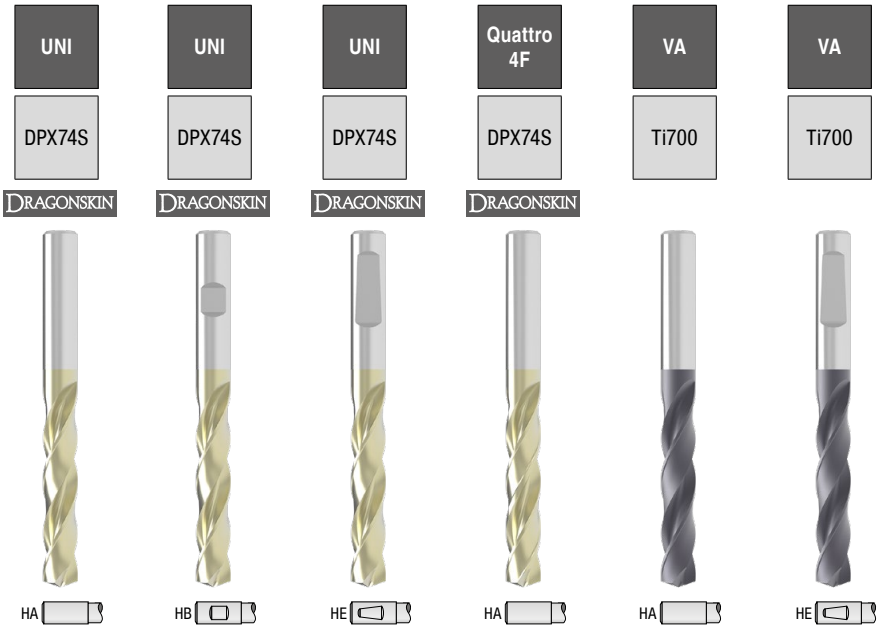
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 797 ... £ T4	
6.0	8	79	41	29	36	85.32	06000
6.1	10	89	47	35	40	116.31	06100
6.2	10	89	47	35	40	116.31	06200
6.3	10	89	47	35	40	116.31	06300
6.4	10	89	47	35	40	116.31	06400
6.5	10	89	47	35	40	116.31	06500
6.6	10	89	47	35	40	116.31	06600
6.7	10	89	47	35	40	116.31	06700
6.8	10	89	47	35	40	116.31	06800
6.9	10	89	47	35	40	116.31	06900
7.0	10	89	47	35	40	116.31	07000
7.1	10	89	47	35	40	116.31	07100
7.2	10	89	47	35	40	116.31	07200
7.3	10	89	47	35	40	116.31	07300
7.4	10	89	47	35	40	116.31	07400
7.5	10	89	47	35	40	116.31	07500
7.6	10	89	47	35	40	116.31	07600
7.7	10	89	47	35	40	116.31	07700
7.8	10	89	47	35	40	116.31	07800
7.9	10	89	47	35	40	116.31	07900
8.0	10	89	47	35	40	116.31	08000
8.1	12	102	55	40	45	157.77	08100
8.2	12	102	55	40	45	157.77	08200
8.3	12	102	55	40	45	157.77	08300
8.4	12	102	55	40	45	157.77	08400
8.5	12	102	55	40	45	157.77	08500
8.6	12	102	55	40	45	157.77	08600
8.7	12	102	55	40	45	157.77	08700
8.8	12	102	55	40	45	157.77	08800
8.9	12	102	55	40	45	157.77	08900
9.0	12	102	55	40	45	157.77	09000
9.1	12	102	55	40	45	157.77	09100
9.2	12	102	55	40	45	157.77	09200
9.3	12	102	55	40	45	157.77	09300
9.4	12	102	55	40	45	157.77	09400
9.5	12	102	55	40	45	157.77	09500
9.6	12	102	55	40	45	157.77	09600
9.7	12	102	55	40	45	157.77	09700
9.8	12	102	55	40	45	157.77	09800
9.9	12	102	55	40	45	157.77	09900
10.0	12	102	55	40	45	157.77	10000
10.2	14	107	60	43	45	209.40	10200
10.5	14	107	60	43	45	209.40	10500
11.0	14	107	60	43	45	209.40	11000
11.5	14	107	60	43	45	209.40	11500
12.0	14	107	60	43	45	209.40	12000

WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2





140° Solid carbide

140° Solid carbide

140° Solid carbide

140° Solid carbide

140° Solid carbide

140° Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 783 ... £ T7		11 784 ... £ T7		11 782 ... £ T7		10 730 ... £ T4		10 740 ... £ T4		10 741 ... £ T4	
3.00	6	66	28	23	36	37.77	03000	37.77	03000	37.77	03000	80.84	03000	72.77	030	72.77	030
3.10	6	66	28	23	36	37.77	03100	37.77	03100	37.77	03100	80.84	03100	72.77	031	72.77	031
3.15	6	66	28	23	36	37.77	03150	37.77	03150	37.77	03150						
3.20	6	66	28	23	36	37.77	03200	37.77	03200	37.77	03200	80.84	03200	72.77	032	72.77	032
3.22	6	66	28	23	36	37.77	03220	37.77	03220	37.77	03220						
3.25	6	66	28	23	36	37.77	03250	37.77	03250	37.77	03250						
3.30	6	66	28	23	36	37.77	03300	37.77	03300	37.77	03300	80.84	03300	72.77	033	72.77	033
3.40	6	66	28	23	36	37.77	03400	37.77	03400	37.77	03400	80.84	03400	72.77	034	72.77	034
3.50	6	66	28	23	36	37.77	03500	37.77	03500	37.77	03500	80.84	03500	72.77	035	72.77	035
3.60	6	66	28	23	36	37.77	03600	37.77	03600	37.77	03600	80.84	03600	72.77	036	72.77	036
3.70	6	66	28	23	36	37.77	03700	37.77	03700	37.77	03700	80.84	03700	72.77	037	72.77	037
3.80	6	74	36	29	36	37.77	03800	37.77	03800	37.77	03800	80.84	03800	72.77	038	72.77	038
3.85	6	74	36	29	36	37.77	03850	37.77	03850	37.77	03850						
3.90	6	74	36	29	36	37.77	03900	37.77	03900	37.77	03900	80.84	03900	72.77	039	72.77	039
4.00	6	74	36	29	36	37.77	04000	37.77	04000	37.77	04000	80.84	04000	72.77	040	72.77	040
4.10	6	74	36	29	36	37.77	04100	37.77	04100	37.77	04100	80.84	04100	72.77	041	72.77	041
4.20	6	74	36	29	36	37.77	04200	37.77	04200	37.77	04200	80.84	04200	72.77	042	72.77	042
4.25	6	74	36	29	36	37.77	04250	37.77	04250	37.77	04250						
4.30	6	74	36	29	36	37.77	04300	37.77	04300	37.77	04300	80.84	04300	72.77	043	72.77	043
4.35	6	74	36	29	36	37.77	04350	37.77	04350	37.77	04350						
4.40	6	74	36	29	36	37.77	04400	37.77	04400	37.77	04400	80.84	04400	72.77	044	72.77	044
4.45	6	74	36	29	36	37.77	04450	37.77	04450	37.77	04450						
4.50	6	74	36	29	36	37.77	04500	37.77	04500	37.77	04500	80.84	04500	72.77	045	72.77	045
4.60	6	74	36	29	36	37.77	04600	37.77	04600	37.77	04600	80.84	04600	72.77	046	72.77	046
4.65	6	74	36	29	36	37.77	04650	37.77	04650	37.77	04650						
4.70	6	74	36	29	36	37.77	04700	37.77	04700	37.77	04700	80.84	04700	72.77	047	72.77	047
4.80	6	82	44	35	36	37.77	04800	37.77	04800	37.77	04800	80.84	04800	72.77	048	72.77	048
4.90	6	82	44	35	36	37.77	04900	37.77	04900	37.77	04900	80.84	04900	72.77	049	72.77	049
4.95	6	82	44	35	36	37.77	04950	37.77	04950	37.77	04950						
5.00	6	82	44	35	36	37.77	05000	37.77	05000	37.77	05000	80.84	05000	72.77	050	72.77	050
5.05	6	82	44	35	36	37.77	05050	37.77	05050	37.77	05050						
5.10	6	82	44	35	36	37.77	05100	37.77	05100	37.77	05100	80.84	05100	72.77	051	72.77	051
5.20	6	82	44	35	36	37.77	05200	37.77	05200	37.77	05200	80.84	05200	72.77	052	72.77	052
5.30	6	82	44	35	36	37.77	05300	37.77	05300	37.77	05300	80.84	05300	72.77	053	72.77	053
5.40	6	82	44	35	36	37.77	05400	37.77	05400	37.77	05400	80.84	05400	72.77	054	72.77	054
5.50	6	82	44	35	36	37.77	05500	37.77	05500	37.77	05500	80.84	05500	72.77	055	72.77	055
5.55	6	82	44	35	36	37.77	05550	37.77	05550	37.77	05550						
5.60	6	82	44	35	36	37.77	05600	37.77	05600	37.77	05600	80.84	05600	72.77	056	72.77	056
5.70	6	82	44	35	36	37.77	05700	37.77	05700	37.77	05700	80.84	05700	72.77	057	72.77	057
5.75	6	82	44	35	36	37.77	05750	37.77	05750	37.77	05750						
5.80	6	82	44	35	36	37.77	05800	37.77	05800	37.77	05800	80.84	05800	72.77	058	72.77	058
5.90	6	82	44	35	36	37.77	05900	37.77	05900	37.77	05900	80.84	05900	72.77	059	72.77	059
5.95	6	82	44	35	36	37.77	05950	37.77	05950	37.77	05950						

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

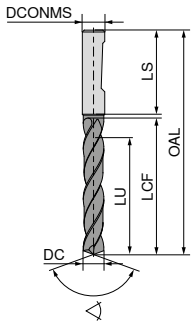
→ v_c Page 113–118

Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



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



HA | HB | HE | HA | HA | HE

140° | 140° | 140° | 140° | 140° | 140°

Solid carbide | Solid carbide | Solid carbide | Solid carbide | Solid carbide | Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 783 ... £ T7		11 784 ... £ T7		11 782 ... £ T7		10 730 ... £ T4		10 740 ... £ T4		10 741 ... £ T4	
6.00	6	82	44	35	36	37.77	06000	37.77	06000	37.77	06000	80.84	06000	88.03	060	88.03	060
6.10	8	91	53	43	36	41.03	06100	41.03	06100	41.03	06100	96.52	06100	88.03	061	88.03	061
6.20	8	91	53	43	36	41.03	06200	41.03	06200	41.03	06200	96.52	06200	88.03	062	88.03	062
6.30	8	91	53	43	36	41.03	06300	41.03	06300	41.03	06300	96.52	06300	88.03	063	88.03	063
6.40	8	91	53	43	36	41.03	06400	41.03	06400	41.03	06400	96.52	06400	88.03	064	88.03	064
6.50	8	91	53	43	36	41.03	06500	41.03	06500	41.03	06500	96.52	06500	88.03	065	88.03	065
6.60	8	91	53	43	36	41.03	06600	41.03	06600	41.03	06600	96.52	06600	88.03	066	88.03	066
6.70	8	91	53	43	36	41.03	06700	41.03	06700	41.03	06700	96.52	06700	88.03	067	88.03	067
6.80	8	91	53	43	36	41.03	06800	41.03	06800	41.03	06800	96.52	06800	88.03	068	88.03	068
6.90	8	91	53	43	36	41.03	06900	41.03	06900	41.03	06900	96.52	06900	88.03	069	88.03	069
7.00	8	91	53	43	36	41.03	07000	41.03	07000	41.03	07000	96.52	07000	88.03	070	88.03	070
7.10	8	91	53	43	36	41.03	07100	41.03	07100	41.03	07100	96.52	07100	88.03	071	88.03	071
7.20	8	91	53	43	36	41.03	07200	41.03	07200	41.03	07200	96.52	07200	88.03	072	88.03	072
7.30	8	91	53	43	36	41.03	07300	41.03	07300	41.03	07300	96.52	07300	88.03	073	88.03	073
7.40	8	91	53	43	36	41.03	07400	41.03	07400	41.03	07400	96.52	07400	88.03	074	88.03	074
7.45	8	91	53	43	36	41.03	07450	41.03	07450	41.03	07450						
7.50	8	91	53	43	36	41.03	07500	41.03	07500	41.03	07500	96.52	07500	88.03	075	88.03	075
7.60	8	91	53	43	36	41.03	07600	41.03	07600	41.03	07600	96.52	07600	88.03	076	88.03	076
7.70	8	91	53	43	36	41.03	07700	41.03	07700	41.03	07700	96.52	07700	88.03	077	88.03	077
7.80	8	91	53	43	36	41.03	07800	41.03	07800	41.03	07800	96.52	07800	88.03	078	88.03	078
7.90	8	91	53	43	36	41.03	07900	41.03	07900	41.03	07900	96.52	07900	88.03	079	88.03	079
8.00	8	91	53	43	36	41.03	08000	41.03	08000	41.03	08000	96.52	08000	88.03	080	88.03	080
8.10	10	103	61	49	40	44.11	08100	44.11	08100	44.11	08100	114.11	08100	102.99	081	102.99	081
8.20	10	103	61	49	40	44.11	08200	44.11	08200	44.11	08200	114.11	08200	102.99	082	102.99	082
8.30	10	103	61	49	40	44.11	08300	44.11	08300	44.11	08300	114.11	08300	102.99	083	102.99	083
8.40	10	103	61	49	40	44.11	08400	44.11	08400	44.11	08400	114.11	08400	102.99	084	102.99	084
8.50	10	103	61	49	40	44.11	08500	44.11	08500	44.11	08500	114.11	08500	102.99	085	102.99	085
8.60	10	103	61	49	40	44.11	08600	44.11	08600	44.11	08600	114.11	08600	102.99	086	102.99	086
8.70	10	103	61	49	40	44.11	08700	44.11	08700	44.11	08700	114.11	08700	102.99	087	102.99	087
8.80	10	103	61	49	40	44.11	08800	44.11	08800	44.11	08800	114.11	08800	102.99	088	102.99	088
8.90	10	103	61	49	40	44.11	08900	44.11	08900	44.11	08900	114.11	08900	102.99	089	102.99	089
9.00	10	103	61	49	40	44.11	09000	44.11	09000	44.11	09000	114.11	09000	102.99	090	102.99	090
9.10	10	103	61	49	40	44.11	09100	44.11	09100	44.11	09100	114.11	09100	102.99	091	102.99	091
9.20	10	103	61	49	40	44.11	09200	44.11	09200	44.11	09200	114.11	09200	102.99	092	102.99	092
9.30	10	103	61	49	40	44.11	09300	44.11	09300	44.11	09300	114.11	09300	102.99	093	102.99	093
9.35	10	103	61	49	40	44.11	09350	44.11	09350	44.11	09350						
9.40	10	103	61	49	40	44.11	09400	44.11	09400	44.11	09400	114.11	09400	102.99	094	102.99	094
9.45	10	103	61	49	40	44.11	09450	44.11	09450	44.11	09450						
9.50	10	103	61	49	40	44.11	09500	44.11	09500	44.11	09500	114.11	09500	102.99	095	102.99	095
9.60	10	103	61	49	40	44.11	09600	44.11	09600	44.11	09600	114.11	09600	102.99	096	102.99	096
9.70	10	103	61	49	40	44.11	09700	44.11	09700	44.11	09700	114.11	09700	102.99	097	102.99	097
9.80	10	103	61	49	40	44.11	09800	44.11	09800	44.11	09800	114.11	09800	102.99	098	102.99	098
9.90	10	103	61	49	40	44.11	09900	44.11	09900	44.11	09900	114.11	09900	102.99	099	102.99	099

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

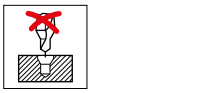
→ v_c Page 113–118

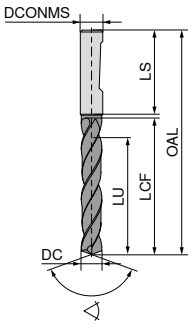
Continued on next page

WTX – High Performance Drill, DIN 6537

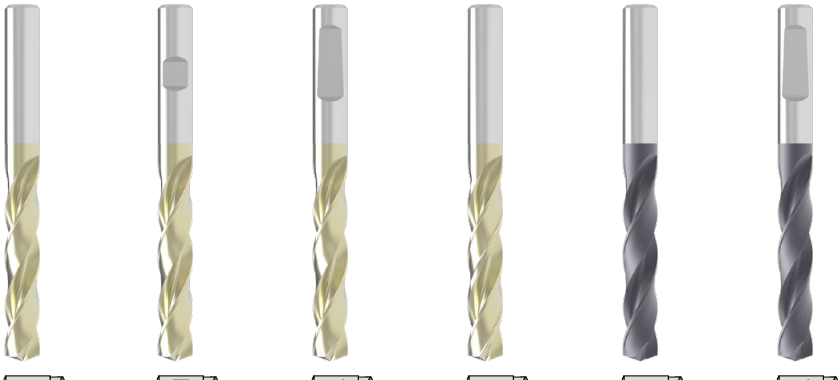
≤ 5xD

NOF = 2





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



HA | HB | HE | HA | HA | HE

140° | 140° | 140° | 140° | 140° | 140°

Solid carbide | Solid carbide | Solid carbide | Solid carbide | Solid carbide | Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 783 ... £ T7		11 784 ... £ T7		11 782 ... £ T7		10 730 ... £ T4		10 740 ... £ T4		10 741 ... £ T4	
10.00	10	103	61	49	40	44.11	10000	44.11	10000	44.11	10000	114.11	10000	102.99	100	102.99	100
10.10	12	118	71	56	45	64.02	10100	64.02	10100	64.02	10100	194.81	10100	146.00	101	146.00	101
10.20	12	118	71	56	45	64.02	10200	64.02	10200	64.02	10200	194.81	10200	146.00	102	146.00	102
10.30	12	118	71	56	45	64.02	10300	64.02	10300	64.02	10300	194.81	10300	146.00	103	146.00	103
10.40	12	118	71	56	45	64.02	10400	64.02	10400	64.02	10400	194.81	10400	146.00	104	146.00	104
10.50	12	118	71	56	45	64.02	10500	64.02	10500	64.02	10500	194.81	10500	146.00	105	146.00	105
10.55	12	118	71	56	45	64.02	10550	64.02	10550	64.02	10550						
10.60	12	118	71	56	45	64.02	10600	64.02	10600	64.02	10600	194.81	10600	146.00	106	146.00	106
10.70	12	118	71	56	45	64.02	10700	64.02	10700	64.02	10700	194.81	10700	146.00	107	146.00	107
10.75	12	118	71	56	45	64.02	10750	64.02	10750	64.02	10750						
10.80	12	118	71	56	45	64.02	10800	64.02	10800	64.02	10800	194.81	10800	146.00	108	146.00	108
10.90	12	118	71	56	45	64.02	10900	64.02	10900	64.02	10900	194.81	10900	146.00	109	146.00	109
11.00	12	118	71	56	45	64.02	11000	64.02	11000	64.02	11000	194.81	11000	146.00	110	146.00	110
11.10	12	118	71	56	45	64.02	11100	64.02	11100	64.02	11100	194.81	11100	146.00	111	146.00	111
11.20	12	118	71	56	45	64.02	11200	64.02	11200	64.02	11200	194.81	11200	146.00	112	146.00	112
11.25	12	118	71	56	45	64.02	11250	64.02	11250	64.02	11250						
11.30	12	118	71	56	45	64.02	11300	64.02	11300	64.02	11300	194.81	11300	146.00	113	146.00	113
11.35	12	118	71	56	45	64.02	11350	64.02	11350	64.02	11350						
11.40	12	118	71	56	45	64.02	11400	64.02	11400	64.02	11400	194.81	11400	146.00	114	146.00	114
11.45	12	118	71	56	45	64.02	11450	64.02	11450	64.02	11450						
11.50	12	118	71	56	45	64.02	11500	64.02	11500	64.02	11500	194.81	11500	146.00	115	146.00	115
11.60	12	118	71	56	45	64.02	11600	64.02	11600	64.02	11600	194.81	11600	146.00	116	146.00	116
11.70	12	118	71	56	45	64.02	11700	64.02	11700	64.02	11700	194.81	11700	146.00	117	146.00	117
11.80	12	118	71	56	45	64.02	11800	64.02	11800	64.02	11800	194.81	11800	146.00	118	146.00	118
11.90	12	118	71	56	45	64.02	11900	64.02	11900	64.02	11900	194.81	11900	146.00	119	146.00	119
12.00	12	118	71	56	45	64.02	12000	64.02	12000	64.02	12000	194.81	12000	146.00	120	146.00	120
12.15	14	124	77	60	45	85.88	12150	85.88	12150	85.88	12150						
12.25	14	124	77	60	45	85.88	12250	85.88	12250	85.88	12250						
12.50	14	124	77	60	45	85.88	12500	85.88	12500	85.88	12500	216.13	12500	192.94	125	192.94	125
12.55	14	124	77	60	45	85.88	12550	85.88	12550	85.88	12550						
12.70	14	124	77	60	45	85.88	12700	85.88	12700	85.88	12700						
12.80	14	124	77	60	45	85.88	12800	85.88	12800	85.88	12800	216.13	12800	192.94	128	192.94	128
12.90	14	124	77	60	45	85.88	12900	85.88	12900	85.88	12900						
13.00	14	124	77	60	45	85.88	13000	85.88	13000	85.88	13000	216.13	13000	192.94	130	192.94	130
13.10	14	124	77	60	45	85.88	13100	85.88	13100	85.88	13100						
13.30	14	124	77	60	45	85.88	13300	85.88	13300	85.88	13300						
13.35	14	124	77	60	45	85.88	13350	85.88	13350	85.88	13350						
13.50	14	124	77	60	45	85.88	13500	85.88	13500	85.88	13500	216.13	13500	192.94	135	192.94	135
13.70	14	124	77	60	45	85.88	13700	85.88	13700	85.88	13700						
13.80	14	124	77	60	45	85.88	13800	85.88	13800	85.88	13800	216.13	13800	192.94	138	192.94	138
14.00	14	124	77	60	45	85.88	14000	85.88	14000	85.88	14000	216.13	14000	239.69	140	239.69	140
14.20	16	133	83	63	48	110.26	14200	110.26	14200	110.26	14200						
14.50	16	133	83	63	48	110.26	14500	110.26	14500	110.26	14500	296.82	14500	251.67	145	251.67	145
P						●		●		●		●		○		○	
M														●		●	
K						●		●		●		●		○		○	
N														○		○	
S														●		●	
H						○		○		○		○					
O																	

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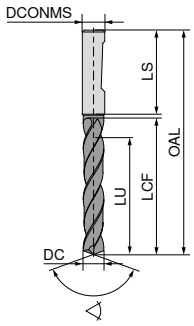
WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



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



HA | HB | HE | HA | HA | HE

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

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 783 ... £ T7		11 784 ... £ T7		11 782 ... £ T7		10 730 ... £ T4		10 740 ... £ T4		10 741 ... £ T4	
14.80	16	133	83	63	48	110.26	14800	110.26	14800	110.26	14800	296.82	14800	251.67	148	251.67	148
15.00	16	133	83	63	48	110.26	15000	110.26	15000	110.26	15000	296.82	15000	251.67	150	251.67	150
15.10	16	133	83	63	48	110.26	15100	110.26	15100	110.26	15100						
15.25	16	133	83	63	48	110.26	15250	110.26	15250	110.26	15250						
15.30	16	133	83	63	48	110.26	15300	110.26	15300	110.26	15300						
15.35	16	133	83	63	48	110.26	15350	110.26	15350	110.26	15350						
15.50	16	133	83	63	48	110.26	15500	110.26	15500	110.26	15500	296.82	15500	251.67	155	251.67	155
15.60	16	133	83	63	48	110.26	15600	110.26	15600	110.26	15600						
15.80	16	133	83	63	48	110.26	15800	110.26	15800	110.26	15800	296.82	15800	251.67	158	251.67	158
16.00	16	133	83	63	48	110.26	16000	110.26	16000	110.26	16000	296.82	16000	251.67	160	251.67	160
16.05	18	143	93	71	48	187.33	16050	187.33	16050	187.33	16050						
16.50	18	143	93	71	48	187.33	16500	187.33	16500	187.33	16500	430.44	16500	367.45	165	367.45	165
16.80	18	143	93	71	48	187.33	16800	187.33	16800	187.33	16800	430.44	16800	367.45	168	367.45	168
16.90	18	143	93	71	48	187.33	16900	187.33	16900	187.33	16900						
17.00	18	143	93	71	48	187.33	17000	187.33	17000	187.33	17000	430.44	17000	367.45	170	367.45	170
17.50	18	143	93	71	48	187.33	17500	187.33	17500	187.33	17500	430.44	17500	367.45	175	367.45	175
17.60	18	143	93	71	48	187.33	17600	187.33	17600	187.33	17600						
17.80	18	143	93	71	48	187.33	17800	187.33	17800	187.33	17800	430.44	17800	367.45	178	367.45	178
18.00	18	143	93	71	48	187.33	18000	187.33	18000	187.33	18000	430.44	18000	462.23	180	462.23	180
18.50	20	153	101	77	50	210.18	18500	210.18	18500	210.18	18500	524.55	18500	485.37	185	485.37	185
18.80	20	153	101	77	50	210.18	18800	210.18	18800	210.18	18800	524.55	18800	485.37	188	485.37	188
18.90	20	153	101	77	50	210.18	18900	210.18	18900	210.18	18900						
19.00	20	153	101	77	50	210.18	19000	210.18	19000	210.18	19000	524.55	19000	485.37	190	485.37	190
19.35	20	153	101	77	50	210.18	19350	210.18	19350	210.18	19350						
19.50	20	153	101	77	50	210.18	19500	210.18	19500	210.18	19500	524.55	19500	485.37	195	485.37	195
19.60	20	153	101	77	50	210.18	19600	210.18	19600	210.18	19600						
19.80	20	153	101	77	50	210.18	19800	210.18	19800	210.18	19800	524.55	19800	485.37	198	485.37	198
20.00	20	153	101	77	50	210.18	20000	210.18	20000	210.18	20000	524.55	20000	676.79	200	676.79	200
P						●		●		●		●		○		○	
M														●		●	
K						●		●		●		●		○		○	
N														○		○	
S														●		●	
H						○		○		○		○					
O																	

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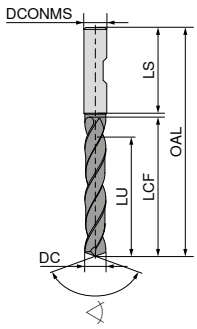
WPC – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2

UNI

TiAlN





HA

140°

Solid carbide

UNI

TiAlN



HB

140°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 606 ... £ T1		11 607 ... £ T1	
3.00	6	66	28	23	36	24.41	030	24.41	030
3.10	6	66	28	23	36	24.41	031	24.41	031
3.20	6	66	28	23	36	24.41	032	24.41	032
3.30	6	66	28	23	36	24.41	033	24.41	033
3.40	6	66	28	23	36	24.41	034	24.41	034
3.50	6	66	28	23	36	24.41	035	24.41	035
3.60	6	66	28	23	36	24.41	036	24.41	036
3.70	6	66	28	23	36	24.41	037	24.41	037
3.80	6	74	36	29	36	24.41	038	24.41	038
3.90	6	74	36	29	36	24.41	039	24.41	039
4.00	6	74	36	29	36	24.41	040	24.41	040
4.10	6	74	36	29	36	24.41	041	24.41	041
4.20	6	74	36	29	36	24.41	042	24.41	042
4.30	6	74	36	29	36	24.41	043	24.41	043
4.40	6	74	36	29	36	24.41	044	24.41	044
4.50	6	74	36	29	36	24.41	045	24.41	045
4.60	6	74	36	29	36	24.41	046	24.41	046
4.65	6	74	36	29	36	24.41	900	24.41	900
4.70	6	74	36	29	36	24.41	047	24.41	047
4.80	6	82	44	35	36	24.41	048	24.41	048
4.90	6	82	44	35	36	24.41	049	24.41	049
5.00	6	82	44	35	36	24.41	050	24.41	050
5.10	6	82	44	35	36	24.41	051	24.41	051
5.20	6	82	44	35	36	24.41	052	24.41	052
5.30	6	82	44	35	36	24.41	053	24.41	053
5.40	6	82	44	35	36	24.41	054	24.41	054
5.50	6	82	44	35	36	24.41	055	24.41	055
5.55	6	82	44	35	36	24.41	902	24.41	902
5.60	6	82	44	35	36	24.41	056	24.41	056
5.70	6	82	44	35	36	24.41	057	24.41	057
5.80	6	82	44	35	36	24.41	058	24.41	058
5.90	6	82	44	35	36	24.41	059	24.41	059
6.00	6	82	44	35	36	24.41	060	24.41	060
6.10	8	91	53	43	36	24.41	061	24.41	061
6.20	8	91	53	43	36	24.41	062	24.41	062
6.30	8	91	53	43	36	24.41	063	24.41	063
6.40	8	91	53	43	36	24.41	064	24.41	064
6.50	8	91	53	43	36	24.41	065	24.41	065
6.60	8	91	53	43	36	24.41	066	24.41	066
6.70	8	91	53	43	36	24.41	067	24.41	067
6.80	8	91	53	43	36	24.41	068	24.41	068
6.90	8	91	53	43	36	24.41	069	24.41	069
7.00	8	91	53	43	36	24.41	070	24.41	070
7.10	8	91	53	43	36	24.41	071	24.41	071
7.20	8	91	53	43	36	24.41	072	24.41	072
7.30	8	91	53	43	36	24.41	073	24.41	073
7.40	8	91	53	43	36	24.41	074	24.41	074
7.50	8	91	53	43	36	24.41	075	24.41	075
7.55	8	91	53	43	36	24.41	975	24.41	975
7.60	8	91	53	43	36	24.41	076	24.41	076
7.70	8	91	53	43	36	24.41	077	24.41	077
7.80	8	91	53	43	36	24.41	078	24.41	078
7.90	8	91	53	43	36	24.41	079	24.41	079
8.00	8	91	53	43	36	24.41	080	24.41	080
8.10	10	103	61	49	40	27.47	081	27.47	081
8.20	10	103	61	49	40	27.47	082	27.47	082
8.30	10	103	61	49	40	27.47	083	27.47	083
8.40	10	103	61	49	40	27.47	084	27.47	084
8.50	10	103	61	49	40	27.47	085	27.47	085
8.60	10	103	61	49	40	27.47	086	27.47	086
8.70	10	103	61	49	40	27.47	087	27.47	087
8.80	10	103	61	49	40	27.47	088	27.47	088
8.90	10	103	61	49	40	27.47	089	27.47	089
9.00	10	103	61	49	40	27.47	090	27.47	090
9.10	10	103	61	49	40	27.47	091	27.47	091
9.20	10	103	61	49	40	27.47	092	27.47	092
9.25	10	103	61	49	40	27.47	925	27.47	925
9.30	10	103	61	49	40	27.47	093	27.47	093
9.40	10	103	61	49	40	27.47	094	27.47	094
9.50	10	103	61	49	40	27.47	095	27.47	095
9.60	10	103	61	49	40	27.47	096	27.47	096
9.70	10	103	61	49	40	27.47	097	27.47	097
9.80	10	103	61	49	40	27.47	098	27.47	098
9.90	10	103	61	49	40	27.47	099	27.47	099
10.00	10	103	61	49	40	27.47	100	27.47	100
10.10	12	118	71	56	45	41.19	101	41.19	101
10.20	12	118	71	56	45	41.19	102	41.19	102
10.30	12	118	71	56	45	41.19	103	41.19	103
10.40	12	118	71	56	45	41.19	104	41.19	104
10.50	12	118	71	56	45	41.19	105	41.19	105
10.60	12	118	71	56	45	41.19	106	41.19	106
10.70	12	118	71	56	45	41.19	107	41.19	107
10.80	12	118	71	56	45	41.19	108	41.19	108
10.90	12	118	71	56	45	41.19	109	41.19	109
11.00	12	118	71	56	45	41.19	110	41.19	110
11.10	12	118	71	56	45	41.19	111	41.19	111
11.20	12	118	71	56	45	41.19	112	41.19	112
11.30	12	118	71	56	45	41.19	113	41.19	113
11.40	12	118	71	56	45	41.19	114	41.19	114
11.50	12	118	71	56	45	41.19	115	41.19	115
11.60	12	118	71	56	45	41.19	116	41.19	116
11.70	12	118	71	56	45	41.19	117	41.19	117
11.80	12	118	71	56	45	41.19	118	41.19	118
11.90	12	118	71	56	45	41.19	119	41.19	119
12.00	12	118	71	56	45	41.19	120	41.19	120
12.25	14	124	77	60	45	53.38	122	53.38	122
12.50	14	124	77	60	45	53.38	125	53.38	125
12.70	14	124	77	60	45	53.38	127	53.38	127
12.80	14	124	77	60	45	53.38	128	53.38	128
12.90	14	124	77	60	45	53.38	129	53.38	129
13.00	14	124	77	60	45	53.38	130	53.38	130
13.30	14	124	77	60	45	53.38	133	53.38	133
13.50	14	124	77	60	45	53.38	135	53.38	135
13.70	14	124	77	60	45	53.38	137	53.38	137
13.80	14	124	77	60	45	53.38	138	53.38	138
14.00	14	124	77	60	45	53.38	140	53.38	140
14.20	16	133	83	63	48	70.17	142	70.17	142
14.50	16	133	83	63	48	70.17	145	70.17	145
14.70	16	133	83	63	48	70.17	147	70.17	147
14.80	16	133	83	63	48	70.17	148	70.17	148
15.00	16	133	83	63	48	70.17	150	70.17	150
15.25	16	133	83	63	48	70.17	152	70.17	152
15.30	16	133	83	63	48	70.17	153	70.17	153
15.50	16	133	83	63	48	70.17	155	70.17	155
15.70	16	133	83	63	48	70.17	157	70.17	157
15.80	16	133	83	63	48	70.17	158	70.17	158
16.00	16	133	83	63	48	70.17	160	70.17	160
16.50	18	143	93	71	48	112.89	165	112.89	165
16.80	18	143	93	71	48	112.89	168	112.89	168
17.00	18	143	93	71	48	112.89	170	112.89	170
17.50	18	143	93	71	48	112.89	175	112.89	175
17.80	18	143	93	71	48	112.89	178	112.89	178
18.00	18	143	93	71	48	112.89	180	112.89	180
18.50	20	153	101	77	50	122.02	185	122.02	185
18.80	20	153	101	77	50	122.02	188	122.02	188
19.00	20	153	101	77	50	122.02	190	122.02	190
19.50	20	153	101	77	50	122.02	195	122.02	195
19.80	20	153	101	77	50	122.02	198	122.02	198
20.00	20	153	101	77	50	122.02	200	122.02	200

P	●	●
M		
K	●	●
N		
S		
H		
O		

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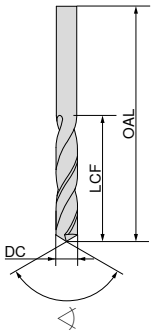
Twist drill similar to DIN 338

- Rake angle 30°
- Shank Ø h7

≤ 5xD

NOF = 2

N





118°
Solid carbide

DC h7 mm	OAL mm	LCF mm	10 710 ... £ T3	
0.5	22	6	5.97	005
0.6	24	7	5.97	006
0.7	28	9	5.97	007
0.8	30	10	5.97	008
0.9	32	11	5.97	009
1.0	34	12	5.97	010
1.1	36	14	6.89	011
1.2	38	16	6.89	012
1.3	38	16	6.89	013
1.4	40	18	6.89	014
1.5	40	18	6.89	015
1.6	43	20	6.89	016
1.7	43	20	7.62	017
1.8	46	22	8.09	018
1.9	46	22	8.09	019
2.0	49	24	9.89	020
2.1	49	24	10.16	021
2.2	53	27	10.16	022
2.3	53	27	10.16	023
2.4	57	30	10.16	024
2.5	57	30	11.82	025
2.6	57	30	11.82	026
2.7	61	33	12.99	027
2.8	61	33	13.77	028
2.9	61	33	13.77	029
3.0	61	33	13.73	030
3.1	65	36	13.73	031
3.2	65	36	13.73	032
3.3	65	36	15.25	033
3.4	70	39	15.25	034
3.5	70	39	16.79	035
3.6	70	39	16.79	036
3.7	70	39	16.79	037
3.8	75	43	16.79	038
3.9	75	43	16.79	039
4.0	75	43	20.00	040
4.1	75	43	19.04	041
4.2	75	43	20.63	042
4.3	80	47	21.67	043
4.4	80	47	21.67	044
4.5	80	47	23.22	045
4.6	80	47	23.22	046
4.7	80	47	23.22	047
4.8	86	52	23.65	048
4.9	86	52	23.65	049
5.0	86	52	27.63	050
5.1	86	52	27.63	051
5.2	86	52	27.63	052
5.3	86	52	28.93	053
5.4	93	57	34.03	054
5.5	93	57	34.03	055
5.6	93	57	34.03	056
5.7	93	57	34.03	057
5.8	93	57	34.03	058
5.9	93	57	34.03	059
6.0	93	57	37.09	060
6.1	101	63	38.84	061
6.2	101	63	38.84	062
6.3	101	63	38.84	063
6.4	101	63	38.84	064
6.5	101	63	44.40	065
6.6	109	69	44.40	066
6.8	109	69	50.74	068
7.0	109	69	50.74	070
7.5	109	69	54.92	075
7.8	117	75	60.56	078
8.0	117	75	60.56	080
8.5	117	75	68.09	085
8.8	125	81	82.53	088
9.0	125	81	82.53	090
9.5	125	81	89.69	095
9.8	133	87	99.03	098
10.0	133	87	99.03	100
10.2	133	87	104.00	102
10.5	133	87	108.06	105
11.0	142	94	125.99	110
11.5	142	94	139.92	115
12.0	151	101	163.20	120
13.0	151	101	177.38	130
14.0	160	108	190.14	140
16.0	178	120	258.23	160

P	○
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S	○
H	
O	

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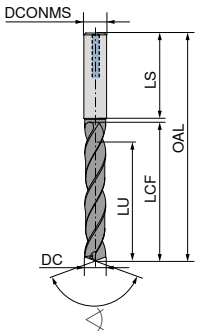
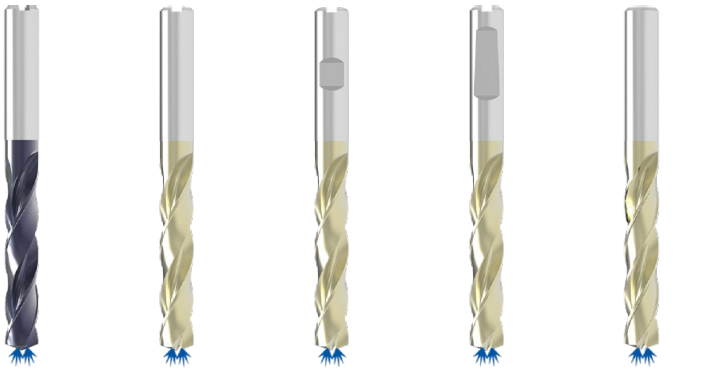
WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



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



HA	HA	HB	HE	HA
◁ 145°	◁ 140°	◁ 140°	◁ 140°	◁ 140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 771 ...	**11 786 ...**	**11 787 ...**	**11 785 ...**	**10 735 ...**

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T4	
3.00	6	66	28	23	36	115.93	03000	59.44	03000	59.44	03000	56.08	03000	116.09	03000
3.10	6	66	28	23	36	115.93	03100	59.44	03100	59.44	03100	56.08	03100	116.09	03100
3.15	6	66	28	23	36			59.44	03150	59.44	03150	56.08	03150		
3.20	6	66	28	23	36	115.93	03200	59.44	03200	59.44	03200	56.08	03200	116.09	03200
3.22	6	66	28	23	36			59.44	03220	59.44	03220	56.08	03220		
3.25	6	66	28	23	36			59.44	03250	59.44	03250	56.08	03250		
3.30	6	66	28	23	36	115.93	03300	59.44	03300	59.44	03300	56.08	03300	116.09	03300
3.40	6	66	28	23	36	115.93	03400	59.44	03400	59.44	03400	56.08	03400	116.09	03400
3.50	6	66	28	23	36	115.93	03500	59.44	03500	59.44	03500	56.08	03500	116.09	03500
3.60	6	66	28	23	36	115.93	03600	59.44	03600	59.44	03600	56.08	03600	116.09	03600
3.70	6	66	28	23	36	115.93	03700	59.44	03700	59.44	03700	56.08	03700	116.09	03700
3.80	6	74	36	29	36	115.93	03800	59.44	03800	59.44	03800	56.08	03800	116.09	03800
3.85	6	74	36	29	36			59.44	03850	59.44	03850	56.08	03850		
3.90	6	74	36	29	36	115.93	03900	59.44	03900	59.44	03900	56.08	03900	116.09	03900
4.00	6	74	36	29	36	115.93	04000	59.44	04000	59.44	04000	56.08	04000	116.09	04000
4.10	6	74	36	29	36	115.93	04100	59.44	04100	59.44	04100	56.08	04100	116.09	04100
4.20	6	74	36	29	36	115.93	04200	59.44	04200	59.44	04200	56.08	04200	116.09	04200
4.25	6	74	36	29	36			59.44	04250	59.44	04250	56.08	04250		
4.30	6	74	36	29	36	115.93	04300	59.44	04300	59.44	04300	56.08	04300	116.09	04300
4.35	6	74	36	29	36			59.44	04350	59.44	04350	56.08	04350		
4.40	6	74	36	29	36	115.93	04400	59.44	04400	59.44	04400	56.08	04400	116.09	04400
4.45	6	74	36	29	36			59.44	04450	59.44	04450	56.08	04450		
4.50	6	74	36	29	36	115.93	04500	59.44	04500	59.44	04500	56.08	04500	116.09	04500
4.60	6	74	36	29	36	115.93	04600	59.44	04600	59.44	04600	56.08	04600	116.09	04600
4.65	6	74	36	29	36	115.93	04650	59.44	04650	59.44	04650	56.08	04650		
4.70	6	74	36	29	36	115.93	04700	59.44	04700	59.44	04700	56.08	04700	116.09	04700
4.80	6	82	44	35	36	115.93	04800	59.44	04800	59.44	04800	56.08	04800	116.09	04800
4.90	6	82	44	35	36	115.93	04900	59.44	04900	59.44	04900	56.08	04900	116.09	04900
4.95	6	82	44	35	36			59.44	04950	59.44	04950	56.08	04950		
5.00	6	82	44	35	36	115.93	05000	59.44	05000	59.44	05000	56.08	05000	116.09	05000
5.05	6	82	44	35	36			59.44	05050	59.44	05050	56.08	05050		
5.10	6	82	44	35	36	115.93	05100	59.44	05100	59.44	05100	56.08	05100	116.09	05100
5.20	6	82	44	35	36	115.93	05200	59.44	05200	59.44	05200	56.08	05200	116.09	05200
5.30	6	82	44	35	36	115.93	05300	59.44	05300	59.44	05300	56.08	05300	116.09	05300
5.40	6	82	44	35	36	115.93	05400	59.44	05400	59.44	05400	56.08	05400	116.09	05400

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

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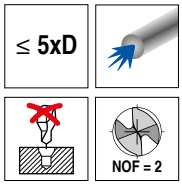
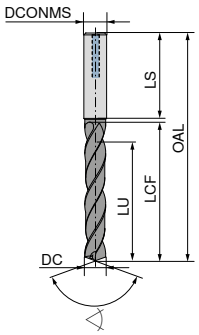
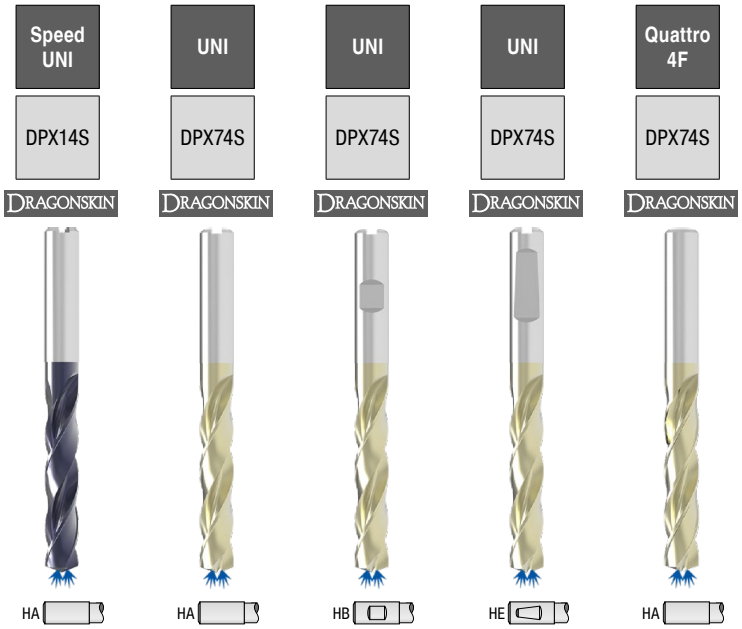
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537







						145°		140°		140°		140°		140°	
						Solid carbide		Solid carbide		Solid carbide		Solid carbide		Solid carbide	
						10 771 ...		**11 786 ...**		**11 787 ...**		**11 785 ...**		**10 735 ...**	
DC $_{m7/h7}$ **mm**	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T4	
5.50	6	82	44	35	36	115.93	**05500**	59.44	**05500**	59.44	**05500**	56.08	**05500**	116.09	**05500**
5.55	6	82	44	35	36	115.93	**05550**	69.59	**05550**	69.59	**05550**	56.08	**05550**		
5.60	6	82	44	35	36	115.93	**05600**	59.44	**05600**	59.44	**05600**	56.08	**05600**	116.09	**05600**
5.70	6	82	44	35	36	115.93	**05700**	59.44	**05700**	59.44	**05700**	56.08	**05700**	116.09	**05700**
5.75	6	82	44	35	36			59.44	**05750**	59.44	**05750**	56.08	**05750**		
5.80	6	82	44	35	36	115.93	**05800**	59.44	**05800**	59.44	**05800**	56.08	**05800**	116.09	**05800**
5.90	6	82	44	35	36	115.93	**05900**	59.44	**05900**	59.44	**05900**	56.08	**05900**	116.09	**05900**
5.95	6	82	44	35	36			59.44	**05950**	59.44	**05950**	56.08	**05950**		
6.00	6	82	44	35	36	115.93	**06000**	59.44	**06000**	59.44	**06000**	56.08	**06000**	116.09	**06000**
6.10	8	91	53	43	36	129.65	**06100**	67.01	**06100**	67.01	**06100**	64.02	**06100**	135.75	**06100**
6.20	8	91	53	43	36	129.65	**06200**	67.01	**06200**	67.01	**06200**	64.02	**06200**	135.75	**06200**
6.30	8	91	53	43	36	129.65	**06300**	67.01	**06300**	67.01	**06300**	64.02	**06300**	135.75	**06300**
6.40	8	91	53	43	36	129.65	**06400**	67.01	**06400**	67.01	**06400**	64.02	**06400**	135.75	**06400**
6.50	8	91	53	43	36	129.65	**06500**	67.01	**06500**	67.01	**06500**	64.02	**06500**	135.75	**06500**
6.60	8	91	53	43	36	129.65	**06600**	67.01	**06600**	67.01	**06600**	64.02	**06600**	135.75	**06600**
6.70	8	91	53	43	36	129.65	**06700**	67.01	**06700**	67.01	**06700**	64.02	**06700**	135.75	**06700**
6.80	8	91	53	43	36	129.65	**06800**	67.01	**06800**	67.01	**06800**	64.02	**06800**	135.75	**06800**
6.90	8	91	53	43	36	129.65	**06900**	67.01	**06900**	67.01	**06900**	64.02	**06900**	135.75	**06900**
7.00	8	91	53	43	36	129.65	**07000**	67.01	**07000**	67.01	**07000**	64.02	**07000**	135.75	**07000**
7.10	8	91	53	43	36	129.65	**07100**	67.01	**07100**	67.01	**07100**	64.02	**07100**	135.75	**07100**
7.20	8	91	53	43	36	129.65	**07200**	67.01	**07200**	67.01	**07200**	64.02	**07200**	135.75	**07200**
7.30	8	91	53	43	36	129.65	**07300**	67.01	**07300**	67.01	**07300**	64.02	**07300**	135.75	**07300**
7.40	8	91	53	43	36	129.65	**07400**	67.01	**07400**	67.01	**07400**	64.02	**07400**	135.75	**07400**
7.45	8	91	53	43	36			67.01	**07450**	67.01	**07450**	67.01	**07450**		
7.50	8	91	53	43	36	129.65	**07500**	67.01	**07500**	67.01	**07500**	64.02	**07500**	135.75	**07500**
7.60	8	91	53	43	36	129.65	**07600**	67.01	**07600**	67.01	**07600**	64.02	**07600**	135.75	**07600**
7.70	8	91	53	43	36	129.65	**07700**	67.01	**07700**	67.01	**07700**	64.02	**07700**	135.75	**07700**
7.80	8	91	53	43	36	129.65	**07800**	67.01	**07800**	67.01	**07800**	64.02	**07800**	135.75	**07800**
7.90	8	91	53	43	36	129.65	**07900**	67.01	**07900**	67.01	**07900**	64.02	**07900**	135.75	**07900**
8.00	8	91	53	43	36	129.65	**08000**	67.01	**08000**	67.01	**08000**	64.02	**08000**	135.75	**08000**
8.10	10	103	61	49	40	186.10	**08100**	77.67	**08100**	77.67	**08100**	72.24	**08100**	169.02	**08100**
8.20	10	103	61	49	40	186.10	**08200**	77.67	**08200**	77.67	**08200**	72.24	**08200**	169.02	**08200**
8.30	10	103	61	49	40	186.10	**08300**	77.67	**08300**	77.67	**08300**	72.24	**08300**	169.02	**08300**
8.40	10	103	61	49	40	186.10	**08400**	77.67	**08400**	77.67	**08400**	72.24	**08400**	169.02	**08400**
8.50	10	103	61	49	40	186.10	**08500**	77.67	**08500**	77.67	**08500**	72.24	**08500**	169.02	**08500**
P						●		●		●		●		●	
M						●									
K						●		●		●		●		●	
N															
S															
H								○		○		○		○	
O															

→ v_c Page 108–118

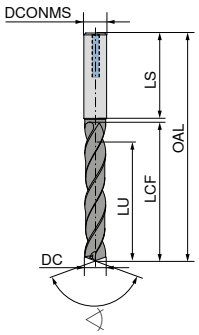
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

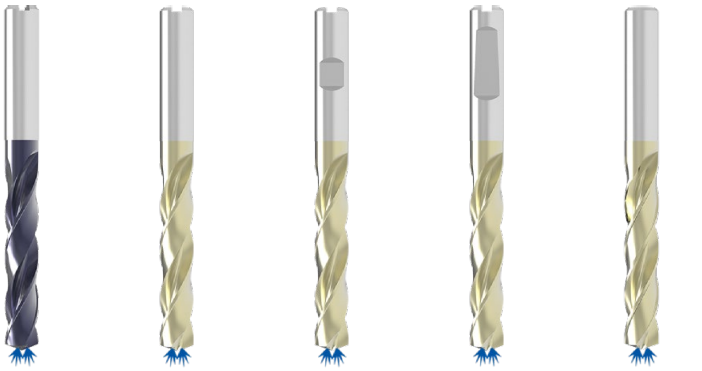
WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



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



HA	HA	HB	HE	HA
◁ 145°	◁ 140°	◁ 140°	◁ 140°	◁ 140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 771 ...	**11 786 ...**	**11 787 ...**	**11 785 ...**	**10 735 ...**

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T4	
8.60	10	103	61	49	40	186.10	08600	77.67	08600	77.67	08600	72.24	08600	169.02	08600
8.70	10	103	61	49	40	186.10	08700	77.67	08700	77.67	08700	72.24	08700	169.02	08700
8.80	10	103	61	49	40	186.10	08800	77.67	08800	77.67	08800	72.24	08800	169.02	08800
8.90	10	103	61	49	40	186.10	08900	77.67	08900	77.67	08900	72.24	08900	169.02	08900
9.00	10	103	61	49	40	186.10	09000	77.67	09000	77.67	09000	72.24	09000	169.02	09000
9.10	10	103	61	49	40	186.10	09100	77.67	09100	77.67	09100	72.24	09100	169.02	09100
9.20	10	103	61	49	40	186.10	09200	77.67	09200	77.67	09200	72.24	09200	169.02	09200
9.30	10	103	61	49	40	186.10	09300	77.67	09300	77.67	09300	72.24	09300	169.02	09300
9.35	10	103	61	49	40			77.67	09350	77.67	09350	72.24	09350		
9.40	10	103	61	49	40	186.10	09400	77.67	09400	77.67	09400	72.24	09400	169.02	09400
9.45	10	103	61	49	40			77.67	09450	77.67	09450	72.24	09450		
9.50	10	103	61	49	40	186.10	09500	77.67	09500	77.67	09500	72.24	09500	169.02	09500
9.60	10	103	61	49	40	186.10	09600	77.67	09600	77.67	09600	72.24	09600	169.02	09600
9.70	10	103	61	49	40	186.10	09700	77.67	09700	77.67	09700	72.24	09700	169.02	09700
9.80	10	103	61	49	40	186.10	09800	77.67	09800	77.67	09800	72.24	09800	169.02	09800
9.90	10	103	61	49	40	186.10	09900	77.67	09900	77.67	09900	72.24	09900	169.02	09900
10.00	10	103	61	49	40	186.10	10000	77.67	10000	77.67	10000	72.24	10000	169.02	10000
10.10	12	118	71	56	45	262.34	10100	110.00	10100	110.00	10100	104.02	10100	239.77	10100
10.20	12	118	71	56	45	262.34	10200	110.00	10200	110.00	10200	104.02	10200	239.77	10200
10.30	12	118	71	56	45	262.34	10300	110.00	10300	110.00	10300	104.02	10300	239.77	10300
10.40	12	118	71	56	45	262.34	10400	110.00	10400	110.00	10400	104.02	10400	239.77	10400
10.50	12	118	71	56	45	262.34	10500	110.00	10500	110.00	10500	104.02	10500	239.77	10500
10.55	12	118	71	56	45			110.00	10550	110.00	10550	104.02	10550		
10.60	12	118	71	56	45	262.34	10600	110.00	10600	110.00	10600	104.02	10600	239.77	10600
10.70	12	118	71	56	45	262.34	10700	110.00	10700	110.00	10700	104.02	10700	239.77	10700
10.75	12	118	71	56	45			110.00	10750	110.00	10750	104.02	10750		
10.80	12	118	71	56	45	262.34	10800	110.00	10800	110.00	10800	104.02	10800	239.77	10800
10.90	12	118	71	56	45	262.34	10900	110.00	10900	110.00	10900	104.02	10900	239.77	10900
11.00	12	118	71	56	45	262.34	11000	110.00	11000	110.00	11000	104.02	11000	239.77	11000
11.10	12	118	71	56	45	262.34	11100	110.00	11100	110.00	11100	104.02	11100	239.77	11100
11.20	12	118	71	56	45	262.34	11200	110.00	11200	110.00	11200	104.02	11200	239.77	11200
11.25	12	118	71	56	45			110.00	11250	110.00	11250	104.02	11250		
11.30	12	118	71	56	45	262.34	11300	110.00	11300	110.00	11300	104.02	11300	239.77	11300
11.35	12	118	71	56	45			110.00	11350	110.00	11350	104.02	11350		
11.40	12	118	71	56	45	262.34	11400	110.00	11400	110.00	11400	104.02	11400	239.77	11400

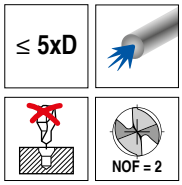
P	●	●	●	●	●
M	●				
K	●	●	●	●	●
N					
S					
H		○	○	○	○
O					

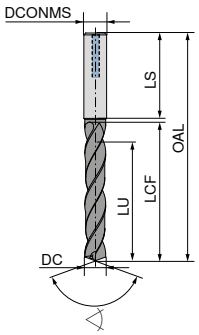
→ v_c Page 108–118

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

Continued on next page

WTX – High Performance Drill, DIN 6537





	Speed UNI	UNI	UNI	UNI	Quattro 4F
	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	HA	HA	HB	HE	HA
	◁ 145°	◁ 140°	◁ 140°	◁ 140°	◁ 140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 771 ...	**11 786 ...**	**11 787 ...**	**11 785 ...**	**10 735 ...**

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T4	
11.45	12	118	71	56	45			110.00	**11450**	110.00	**11450**	104.02	**11450**		
11.50	12	118	71	56	45	262.34	**11500**	110.00	**11500**	110.00	**11500**	104.02	**11500**	239.77	**11500**
11.60	12	118	71	56	45	262.34	**11600**	110.00	**11600**	110.00	**11600**	104.02	**11600**	239.77	**11600**
11.70	12	118	71	56	45	262.34	**11700**	110.00	**11700**	110.00	**11700**	104.02	**11700**	239.77	**11700**
11.80	12	118	71	56	45	262.34	**11800**	110.00	**11800**	110.00	**11800**	104.02	**11800**	239.77	**11800**
11.90	12	118	71	56	45	262.34	**11900**	110.00	**11900**	110.00	**11900**	104.02	**11900**	239.77	**11900**
12.00	12	118	71	56	45	262.34	**12000**	110.00	**12000**	110.00	**12000**	104.02	**12000**	239.77	**12000**
12.15	14	124	77	60	45			148.29	**12150**	148.29	**12150**	137.75	**12150**		
12.20	14	124	77	60	45	356.91	**12200**								
12.25	14	124	77	60	45			148.29	**12250**	148.29	**12250**	137.75	**12250**		
12.50	14	124	77	60	45	356.91	**12500**	148.29	**12500**	148.29	**12500**	137.75	**12500**	324.27	**12500**
12.55	14	124	77	60	45			148.29	**12550**	148.29	**12550**	137.75	**12550**		
12.70	14	124	77	60	45			148.29	**12700**	148.29	**12700**	137.75	**12700**		
12.80	14	124	77	60	45	356.91	**12800**	148.29	**12800**	148.29	**12800**	137.75	**12800**	324.27	**12800**
12.90	14	124	77	60	45			137.75	**12900**	137.75	**12900**	137.75	**12900**		
13.00	14	124	77	60	45	356.91	**13000**	148.29	**13000**	148.29	**13000**	137.75	**13000**	324.27	**13000**
13.10	14	124	77	60	45			148.29	**13100**	148.29	**13100**	137.75	**13100**		
13.30	14	124	77	60	45			137.75	**13300**	137.75	**13300**	137.75	**13300**		
13.35	14	124	77	60	45			137.75	**13350**	137.75	**13350**	137.75	**13350**		
13.50	14	124	77	60	45	356.91	**13500**	148.29	**13500**	148.29	**13500**	137.75	**13500**	324.27	**13500**
13.70	14	124	77	60	45			148.29	**13700**	148.29	**13700**	137.75	**13700**		
13.80	14	124	77	60	45	356.91	**13800**	148.29	**13800**	148.29	**13800**	137.75	**13800**	324.27	**13800**
14.00	14	124	77	60	45	356.91	**14000**	148.29	**14000**	148.29	**14000**	137.75	**14000**	324.27	**14000**
14.20	16	133	83	63	48	445.39	**14200**	172.04	**14200**	172.04	**14200**	172.04	**14200**		
14.50	16	133	83	63	48	445.39	**14500**	185.36	**14500**	185.36	**14500**	172.04	**14500**	404.82	**14500**
14.80	16	133	83	63	48	445.39	**14800**	185.36	**14800**	185.36	**14800**	172.04	**14800**	404.82	**14800**
15.00	16	133	83	63	48	445.39	**15000**	185.36	**15000**	185.36	**15000**	172.04	**15000**	404.82	**15000**
15.10	16	133	83	63	48			185.36	**15100**	185.36	**15100**	172.04	**15100**		
15.20	16	133	83	63	48	445.39	**15200**								
15.25	16	133	83	63	48			185.36	**15250**	185.36	**15250**	172.04	**15250**		
15.30	16	133	83	63	48			180.23	**15300**	180.23	**15300**	172.04	**15300**		
15.35	16	133	83	63	48			180.23	**15350**	180.23	**15350**	172.04	**15350**		
15.50	16	133	83	63	48	445.39	**15500**	185.36	**15500**	185.36	**15500**	172.04	**15500**	404.82	**15500**
15.60	16	133	83	63	48			185.36	**15600**	185.36	**15600**	172.04	**15600**		
15.80	16	133	83	63	48	445.39	**15800**	185.36	**15800**	185.36	**15800**	172.04	**15800**	404.82	**15800**

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

→ v_c Page 108–118

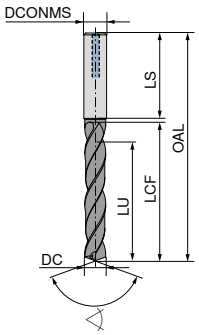
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

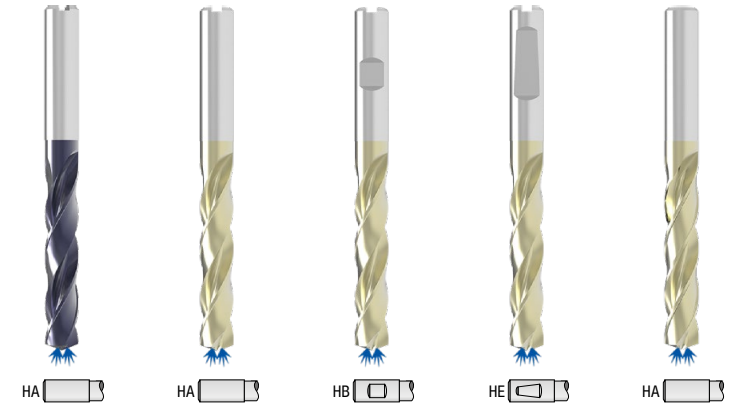
Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2





	10 771 ...	11 786 ...	11 787 ...	11 785 ...	10 735 ...
	145° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide
DC $_{m7/h7}$ mm	£ T4	£ T7	£ T7	£ T7	£ T4
16.00	445.39 16000	185.36 16000	185.36 16000	172.04 16000	404.82 16000
16.05		288.28 16050	288.28 16050	267.54 16050	
16.50	585.71 16500	288.28 16500	288.28 16500	267.54 16500	532.49 16500
16.80	585.71 16800	288.28 16800	288.28 16800	267.54 16800	532.49 16800
16.90		288.28 16900	288.28 16900	267.54 16900	
17.00	585.71 17000	288.28 17000	288.28 17000	267.54 17000	532.49 17000
17.50	585.71 17500	288.28 17500	288.28 17500	267.54 17500	532.49 17500
17.60		288.28 17600	288.28 17600	267.54 17600	
17.80	585.71 17800	288.28 17800	288.28 17800	267.54 17800	532.49 17800
18.00	585.71 18000	288.28 18000	288.28 18000	267.54 18000	532.49 18000
18.50	758.06 18500	333.78 18500	333.78 18500	296.22 18500	691.55 18500
18.80	758.06 18800	333.78 18800	333.78 18800	296.22 18800	691.55 18800
18.90		333.78 18900	333.78 18900	296.22 18900	
19.00	758.06 19000	333.78 19000	333.78 19000	296.22 19000	691.55 19000
19.35		333.78 19350	333.78 19350	296.22 19350	
19.50	758.06 19500	333.78 19500	333.78 19500	296.22 19500	691.55 19500
19.60		333.78 19600	333.78 19600	296.22 19600	
19.80	758.06 19800	333.78 19800	333.78 19800	296.22 19800	691.55 19800
20.00	758.06 20000	333.78 20000	333.78 20000	296.22 20000	691.55 20000
20.50		857.88 20500	857.88 20500	573.33 20500	
21.00		857.88 21000	857.88 21000	573.33 21000	
21.50		857.88 21500	857.88 21500	573.33 21500	
22.00		857.88 22000	857.88 22000	573.33 22000	
22.50		857.88 22500	857.88 22500	573.33 22500	
23.00		857.88 23000	857.88 23000	573.33 23000	
23.50		857.88 23500	857.88 23500	573.33 23500	
24.00		857.88 24000	857.88 24000	573.33 24000	
24.50		857.88 24500	857.88 24500	573.33 24500	
25.00		857.88 25000	857.88 25000	573.33 25000	
P	●	●	●	●	●
M	●				
K	●	●	●	●	●
N					
S					
H		○	○	○	○
O					

→ v_c Page 108–118

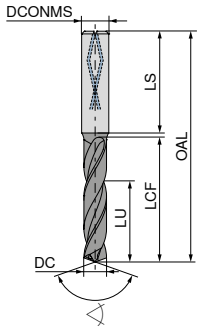
Ø DC_{m7} for Type UNI and Quattro 4F/ Ø DC_{h7} for Type Speed UNI

WTX – High-performance drill, DIN 6537

≤ 5xD

NOF = 2

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



Type GG = Straight Fluted



	HA	HA	HE	HA	HA	HA
	135°	140°	140°	130°	135°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 773 ...	10 745 ...	10 746 ...	10 749 ...	10 791 ...	10 787 ...

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T4		£ T4		£ T4		£ T4		£ T4	
2.50	4	57	21	17	28									85.61	02500		
2.60	4	57	21	17	28									85.61	02600		
2.70	4	57	21	17	28									85.61	02700		
2.80	4	57	21	17	28									85.61	02800		
2.90	4	57	21	17	28									85.61	02900		
3.00	6	66	28	23	36	117.38	030	102.99	030	102.99	030	78.38	030	85.61	03000	76.06	030
3.10	6	66	28	23	36	117.38	031	102.99	031	102.99	031	78.38	031	85.61	03100	76.06	031
3.15	6	66	28	23	36			102.99	831								
3.20	6	66	28	23	36	117.38	032	102.99	032	102.99	032	78.38	032	85.61	03200	76.06	032
3.22	6	66	28	23	36			102.99	832								
3.25	6	66	28	23	36			102.99	890								
3.30	6	66	28	23	36	117.38	033	102.99	033	102.99	033	78.38	033	85.61	03300	76.06	033
3.40	6	66	28	23	36	117.38	034	102.99	034	102.99	034	78.38	034	85.61	03400	76.06	034
3.50	6	66	28	23	36	117.38	035	102.99	035	102.99	035	78.38	035	85.61	03500	76.06	035
3.60	6	66	28	23	36	117.38	036	102.99	036	102.99	036	78.38	036	85.61	03600	76.06	036
3.70	6	66	28	23	36	117.38	037	102.99	037	102.99	037	78.38	037	85.61	03700	76.06	037
3.80	6	74	36	29	36	117.38	038	102.99	038	102.99	038	78.38	038	82.60	03800	76.06	038
3.85	6	74	36	29	36			102.99	838								
3.90	6	74	36	29	36	117.38	039	102.99	039	102.99	039	78.38	039	82.60	03900	76.06	039
3.97	6	74	36	29	36											76.06	900
4.00	6	74	36	29	36	117.38	040	102.99	040	102.99	040	78.38	040	82.60	04000	76.06	040
4.10	6	74	36	29	36	117.38	041	102.99	041	102.99	041	78.38	041	82.60	04100	76.06	041
4.20	6	74	36	29	36	117.38	042	102.99	042	102.99	042	78.38	042	82.60	04200	76.06	042
4.23	6	74	36	29	36											76.06	901
4.30	6	74	36	29	36	117.38	043	102.99	043	102.99	043	78.38	043	82.60	04300	76.06	043
4.35	6	74	36	29	36			102.99	843								
4.40	6	74	36	29	36	117.38	044	102.99	044	102.99	044	78.38	044	82.60	04400	76.06	044
4.45	6	74	36	29	36			102.99	844								
4.50	6	74	36	29	36	117.38	045	102.99	045	102.99	045	78.38	045	82.60	04500	76.06	045
4.60	6	74	36	29	36	117.38	046	102.99	046	102.99	046	78.38	046	82.60	04600	76.06	046
4.65	6	74	36	29	36	117.38	900	102.99	900								
4.70	6	74	36	29	36	117.38	047	102.99	047	102.99	047	78.38	047	82.60	04700	76.06	047
4.80	6	82	44	35	36	117.38	048	102.99	048	102.99	048	78.38	048	82.98	04800	76.06	048
4.90	6	82	44	35	36	117.38	049	102.99	049	102.99	049	78.38	049	82.98	04900	76.06	049
5.00	6	82	44	35	36	117.38	050	102.99	050	102.99	050	78.38	050	82.98	05000	76.06	050
5.10	6	82	44	35	36	117.38	051	102.99	051	102.99	051	78.38	051	82.98	05100	76.06	051
5.20	6	82	44	35	36	117.38	052	102.99	052	102.99	052	78.38	052	82.98	05200	76.06	052
5.30	6	82	44	35	36	117.38	053	102.99	053	102.99	053	78.38	053	82.98	05300	76.06	053

P	●	○	○			○
M	●	●	●			●
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H						
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→ v_c Page 114–123

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

Continued on next page

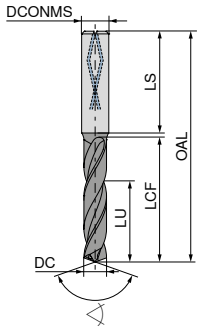
WTX – High-performance drill, DIN 6537

2

≤ 5xD

NOF = 2

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



Type GG = Straight Fluted



	HA	HA	HE	HA	HA	HA
	135°	140°	140°	130°	135°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 773 ...	10 745 ...	10 746 ...	10 749 ...	10 791 ...	10 787 ...

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T4		£ T4		£ T4		£ T4		£ T4	
5.40	6	82	44	35	36	117.38	054	102.99	054	102.99	054	78.38	054	82.98	05400	76.06	054
5.50	6	82	44	35	36	117.38	055	102.99	055	102.99	055	78.38	055	82.98	05500	76.06	055
5.55	6	82	44	35	36	117.38	902										
5.56	6	82	44	35	36											76.06	902
5.60	6	82	44	35	36	117.38	056	102.99	056	102.99	056	78.38	056	82.98	05600	76.06	056
5.70	6	82	44	35	36	117.38	057	102.99	057	102.99	057	78.38	057	82.98	05700	76.06	057
5.75	6	82	44	35	36			102.99	916								
5.80	6	82	44	35	36	117.38	058	102.99	058	102.99	058	78.38	058	82.98	05800	76.06	058
5.90	6	82	44	35	36	117.38	059	102.99	059	102.99	059	78.38	059	82.98	05900	76.06	059
5.95	6	82	44	35	36			102.99	959								
6.00	6	82	44	35	36	117.38	060	102.99	060	102.99	060	78.38	060	82.98	06000	76.06	060
6.10	8	91	53	43	36	131.41	061	121.75	061	121.75	061	86.54	061	92.61	06100	84.87	061
6.20	8	91	53	43	36	131.41	062	121.75	062	121.75	062	86.54	062	92.61	06200	84.87	062
6.30	8	91	53	43	36	131.41	063	121.75	063	121.75	063	86.54	063	92.61	06300	84.87	063
6.35	8	91	53	43	36											84.87	903
6.40	8	91	53	43	36	131.41	064	121.75	064	121.75	064	86.54	064	92.61	06400	84.87	064
6.50	8	91	53	43	36	131.41	065	121.75	065	121.75	065	86.54	065	92.61	06500	84.87	065
6.60	8	91	53	43	36	131.41	066	121.75	066	121.75	066	86.54	066	92.61	06600	84.87	066
6.70	8	91	53	43	36	131.41	067	121.75	067	121.75	067	86.54	067	92.61	06700	84.87	067
6.80	8	91	53	43	36	131.41	068	121.75	068	121.75	068	86.54	068	92.61	06800	84.87	068
6.90	8	91	53	43	36	131.41	069	121.75	069	121.75	069	86.54	069	92.61	06900	84.87	069
7.00	8	91	53	43	36	131.41	070	121.75	070	121.75	070	86.54	070	92.61	07000	84.87	070
7.10	8	91	53	43	36	131.41	071	121.75	071	121.75	071	86.54	071	92.61	07100	84.87	071
7.20	8	91	53	43	36	131.41	072	121.75	072	121.75	072	86.54	072	92.61	07200	84.87	072
7.30	8	91	53	43	36	131.41	073	121.75	073	121.75	073	86.54	073	92.61	07300	84.87	073
7.40	8	91	53	43	36	131.41	074	121.75	074	121.75	074	86.54	074	92.61	07400	84.87	074
7.45	8	91	53	43	36			121.75	924								
7.50	8	91	53	43	36	131.41	075	121.75	075	121.75	075	86.54	075	92.61	07500	84.87	075
7.60	8	91	53	43	36	131.41	076	121.75	076	121.75	076	86.54	076	92.61	07600	84.87	076
7.70	8	91	53	43	36	131.41	077	121.75	077	121.75	077	86.54	077	92.61	07700	84.87	077
7.80	8	91	53	43	36	131.41	078	121.75	078	121.75	078	86.54	078	92.61	07800	84.87	078
7.90	8	91	53	43	36	131.41	079	121.75	079	121.75	079	86.54	079	92.61	07900	84.87	079
7.94	8	91	53	43	36											84.87	904
8.00	8	91	53	43	36	131.41	080	121.75	080	121.75	080	86.54	080	92.61	08000	84.87	080
8.10	10	103	61	49	40	190.16	081	153.32	081	153.32	081	125.12	081	108.45	08100	99.38	081
8.20	10	103	61	49	40	190.16	082	153.32	082	153.32	082	125.12	082	108.45	08200	99.38	082
8.30	10	103	61	49	40	190.16	083	153.32	083	153.32	083	125.12	083	108.45	08300	99.38	083
8.40	10	103	61	49	40	190.16	084	153.32	084	153.32	084	125.12	084	108.45	08400	99.38	084

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N	○	○	○	○	●	
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→ v_c Page 114–123

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

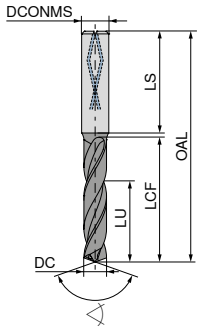
Continued on next page

WTX – High-performance drill, DIN 6537

≤ 5xD

NOF = 2

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



Type GG = Straight Fluted



HA	HA	HE	HA	HA	HA
135°	140°	140°	130°	135°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 773 ...	**10 745 ...**	**10 746 ...**	**10 749 ...**	**10 791 ...**	**10 787 ...**

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T4		£ T4		£ T4		£ T4		£ T4	
8.50	10	103	61	49	40	190.16	**085**	153.32	**085**	153.32	**085**	125.12	**085**	108.45	**08500**	99.38	**085**
8.60	10	103	61	49	40	190.16	**086**	153.32	**086**	153.32	**086**	125.12	**086**	108.45	**08600**	99.38	**086**
8.70	10	103	61	49	40	190.16	**087**	153.32	**087**	153.32	**087**	125.12	**087**	108.45	**08700**	99.38	**087**
8.80	10	103	61	49	40	190.16	**088**	153.32	**088**	153.32	**088**	125.12	**088**	108.45	**08800**	99.38	**088**
8.90	10	103	61	49	40	190.16	**089**	153.32	**089**	153.32	**089**	125.12	**089**	108.45	**08900**	99.38	**089**
9.00	10	103	61	49	40	190.16	**090**	153.32	**090**	153.32	**090**	125.12	**090**	108.45	**09000**	99.38	**090**
9.10	10	103	61	49	40	190.16	**091**	153.32	**091**	153.32	**091**	125.12	**091**	108.45	**09100**	99.38	**091**
9.20	10	103	61	49	40	190.16	**092**	153.32	**092**	153.32	**092**	125.12	**092**	108.45	**09200**	99.38	**092**
9.30	10	103	61	49	40	190.16	**093**	153.32	**093**	153.32	**093**	125.12	**093**	108.45	**09300**	99.38	**093**
9.35	10	103	61	49	40			153.32	**930**								
9.40	10	103	61	49	40	190.16	**094**	153.32	**094**	153.32	**094**	125.12	**094**	108.45	**09400**	99.38	**094**
9.45	10	103	61	49	40			153.32	**994**								
9.50	10	103	61	49	40	190.16	**095**	153.32	**095**	153.32	**095**	125.12	**095**	108.45	**09500**	99.38	**095**
9.53	10	103	61	49	40											99.38	**905**
9.60	10	103	61	49	40	190.16	**096**	153.32	**096**	153.32	**096**	125.12	**096**	108.45	**09600**	99.38	**096**
9.70	10	103	61	49	40	190.16	**097**	153.32	**097**	153.32	**097**	125.12	**097**	108.45	**09700**	99.38	**097**
9.80	10	103	61	49	40	190.16	**098**	153.32	**098**	153.32	**098**	125.12	**098**	108.45	**09800**	99.38	**098**
9.90	10	103	61	49	40	190.16	**099**	153.32	**099**	153.32	**099**	125.12	**099**	108.45	**09900**	99.38	**099**
10.00	10	103	61	49	40	190.16	**100**	153.32	**100**	153.32	**100**	125.12	**100**	108.45	**10000**	99.38	**100**
10.10	12	118	71	54	45											138.74	**101**
10.10	12	118	71	56	45	266.55	**101**	208.22	**101**	208.22	**101**	171.68	**101**	151.32	**10100**		
10.20	12	118	71	54	45											138.74	**102**
10.20	12	118	71	56	45	266.55	**102**	208.22	**102**	208.22	**102**	171.68	**102**	151.32	**10200**		
10.30	12	118	71	54	45											138.74	**103**
10.30	12	118	71	56	45	266.55	**103**	208.22	**103**	208.22	**103**	171.68	**103**	151.32	**10300**		
10.40	12	118	71	54	45											138.74	**104**
10.40	12	118	71	56	45	266.55	**104**	208.22	**104**	208.22	**104**	171.68	**104**	151.32	**10400**		
10.50	12	118	71	56	45	266.55	**105**	208.22	**105**	208.22	**105**	171.68	**105**	151.32	**10500**		
10.50	12	118	71	54	45											138.74	**105**
10.55	12	118	71	56	45			208.22	**932**								
10.60	12	118	71	56	45	266.55	**106**	208.22	**106**	208.22	**106**	171.68	**106**	151.32	**10600**		
10.60	12	118	71	54	45											138.74	**106**
10.70	12	118	71	54	45											138.74	**107**
10.70	12	118	71	56	45	266.55	**107**	208.22	**107**	208.22	**107**	171.68	**107**	151.32	**10700**		
10.80	12	118	71	54	45											138.74	**108**
10.80	12	118	71	56	45	266.55	**108**	208.22	**108**	208.22	**108**	171.68	**108**	151.32	**10800**		
10.90	12	118	71	54	45											138.74	**109**
10.90	12	118	71	56	45	266.55	**109**	208.22	**109**	208.22	**109**	171.68	**109**				

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→ v_c Page 114–123

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

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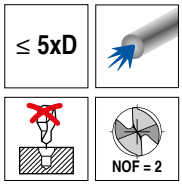
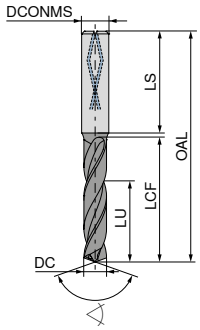
WTX – High-performance drill, DIN 6537





Type GG = Straight Fluted

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



HA	HA	HE	HA	HA	HA
135°	140°	140°	130°	135°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 773 ...	**10 745 ...**	**10 746 ...**	**10 749 ...**	**10 791 ...**	**10 787 ...**

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T4		£ T4		£ T4		£ T4		£ T4	
11.00	12	118	71	54	45											138.74	110
11.00	12	118	71	56	45	266.55	110	208.22	110	208.22	110	171.68	110	151.32	11000		
11.10	12	118	71	56	45	266.55	111	208.22	111	208.22	111	171.68	111	151.32	11100		
11.10	12	118	71	54	45											138.74	111
11.11	12	118	71	54	45											138.74	906
11.20	12	118	71	56	45	266.55	112	208.22	112	208.22	112	171.68	112	151.32	11200		
11.20	12	118	71	54	45											138.74	112
11.25	12	118	71	56	45			208.22	912								
11.30	12	118	71	56	45	266.55	113	208.22	113	208.22	113	171.68	113	151.32	11300		
11.30	12	118	71	54	45											138.74	113
11.35	12	118	71	56	45			208.22	913								
11.40	12	118	71	54	45											138.74	114
11.40	12	118	71	56	45	266.55	114	208.22	114	208.22	114	171.68	114	151.32	11400		
11.45	12	118	71	56	45			208.22	914								
11.50	12	118	71	56	45	266.55	115	208.22	115	208.22	115	171.68	115	151.32	11500		
11.50	12	118	71	54	45											138.74	115
11.60	12	118	71	54	45											138.74	116
11.60	12	118	71	56	45	266.55	116	208.22	116	208.22	116	171.68	116				
11.70	12	118	71	54	45											138.74	117
11.70	12	118	71	56	45	266.55	117	208.22	117	208.22	117	171.68	117	151.32	11700		
11.80	12	118	71	54	45											138.74	118
11.80	12	118	71	56	45	266.55	118	208.22	118	208.22	118	171.68	118	151.32	11800		
11.90	12	118	71	54	45											138.74	119
11.90	12	118	71	56	45	266.55	119	208.22	119	208.22	119	171.68	119				
12.00	12	118	71	54	45											138.74	120
12.00	12	118	71	56	45	266.55	120	208.22	120	208.22	120	171.68	120	151.32	12000		
12.10	14	124	77	58	45											192.97	121
12.15	14	124	77	60	45			286.93	921								
12.20	14	124	77	58	45											192.97	122
12.20	14	124	77	60	45	361.64	12200							210.04	12200		
12.30	14	124	77	58	45											192.97	123
12.40	14	124	77	58	45											192.97	124
12.50	14	124	77	58	45											192.97	125
12.50	14	124	77	60	45	361.64	125	286.93	125	286.93	125	232.40	125	210.04	12500		
12.55	14	124	77	60	45			286.93	925								
12.60	14	124	77	58	45											192.97	126
12.60	14	124	77	60	45									210.04	12600		
12.70	14	124	77	58	45											192.97	907

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→ v_c Page 114–123

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

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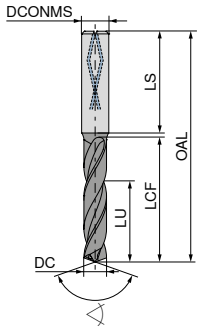
WTX – High-performance drill, DIN 6537

≤ 5xD

NOF = 2



Type GG = Straight Fluted

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



	HA	HA	HE	HA	HA	HA
	135°	140°	140°	130°	135°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 773 ...	10 745 ...	10 746 ...	10 749 ...	10 791 ...	10 787 ...

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T4		£ T4		£ T4		£ T4	
12.80	14	124	77	58	45									192.97	128
12.80	14	124	77	60	45	361.64	128	286.93	128	286.93	128	232.40	128	210.04	12800
12.90	14	124	77	58	45									192.97	129
13.00	14	124	77	58	45									192.97	130
13.00	14	124	77	60	45	361.64	130	286.93	130	286.93	130	232.40	130	210.04	13000
13.10	14	124	77	58	45									192.97	131
13.20	14	124	77	58	45									192.97	132
13.30	14	124	77	58	45									192.97	133
13.35	14	124	77	60	45			286.93	933						
13.40	14	124	77	58	45									192.97	134
13.50	14	124	77	60	45	361.64	135	286.93	135	286.93	135	232.40	135	210.04	13500
13.50	14	124	77	58	45									192.97	135
13.60	14	124	77	58	45									192.97	136
13.70	14	124	77	58	45									192.97	137
13.80	14	124	77	58	45									192.97	138
13.80	14	124	77	60	45	361.64	138	286.93	138	286.93	138	232.40	138	210.04	13800
13.90	14	124	77	58	45									192.97	139
14.00	14	124	77	60	45	361.64	140	286.93	140	286.93	140	232.40	140	210.04	14000
14.00	14	124	77	58	45									192.97	140
14.10	16	133	83	61	48									235.83	141
14.20	16	133	83	61	48									235.83	142
14.20	16	133	83	63	48									256.85	14200
14.30	16	133	83	61	48									235.83	143
14.40	16	133	83	61	48									235.83	144
14.50	16	133	83	61	48									235.83	145
14.50	16	133	83	63	48	452.05	145	361.49	145	361.49	145	287.04	145	256.85	14500
14.60	16	133	83	61	48									235.83	146
14.70	16	133	83	61	48									235.83	147
14.80	16	133	83	61	48									235.83	148
14.80	16	133	83	63	48	452.05	148	361.49	148	361.49	148	287.04	148	256.85	14800
14.90	16	133	83	61	48									235.83	149
15.00	16	133	83	61	48									235.83	150
15.00	16	133	83	63	48	452.05	150	361.49	150	361.49	150	287.04	150	256.85	15000
15.10	16	133	83	61	48									235.83	151
15.20	16	133	83	61	48									235.83	152
15.20	16	133	83	63	48									256.85	15200
15.30	16	133	83	61	48									235.83	153
15.35	16	133	83	63	48			361.49	953						

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

→ v_c Page 114–123

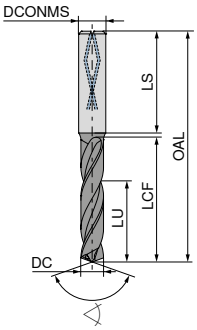
Ø DC_{m7} for Type VA, Ti and GG / Ø DC_{h7} for Type Speed VA and AL

Continued on next page

WTX – High-performance drill, DIN 6537

≤ 5xD

NOF = 2



Type GG = Straight Fluted

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



HA	HA	HE	HA	HA	HA
135°	140°	140°	130°	135°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 773 ...	**10 745 ...**	**10 746 ...**	**10 749 ...**	**10 791 ...**	**10 787 ...**

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T4		£ T4		£ T4		£ T4		£ T4	
15.40	16	133	83	61	48											235.83	**154**
15.50	16	133	83	61	48											235.83	**155**
15.50	16	133	83	63	48	452.05	**155**	361.49	**155**	361.49	**155**	287.04	**155**	256.85	**15500**		
15.60	16	133	83	61	48											235.83	**156**
15.70	16	133	83	61	48											235.83	**157**
15.80	16	133	83	61	48											235.83	**158**
15.80	16	133	83	63	48	452.05	**158**	361.49	**158**	361.49	**158**	287.04	**158**	256.85	**15800**		
15.90	16	133	83	61	48											235.83	**159**
16.00	16	133	83	61	48											235.83	**160**
16.00	16	133	83	63	48	452.05	**160**	361.49	**160**	361.49	**160**	287.04	**160**	256.85	**16000**		
16.05	18	143	93	71	48			499.08	**960**								
16.10	18	143	93	69	48											235.83	**161**
16.20	18	143	93	69	48											235.83	**162**
16.30	18	143	93	69	48											235.83	**163**
16.40	18	143	93	69	48											235.83	**164**
16.50	18	143	93	69	48											326.64	**165**
16.50	18	143	93	71	48	595.47	**165**	499.08	**165**	499.08	**165**	376.86	**165**	356.60	**16500**		
16.60	18	143	93	69	48											326.64	**166**
16.70	18	143	93	69	48											326.64	**167**
16.80	18	143	93	69	48											326.64	**168**
16.80	18	143	93	71	48	595.47	**168**	499.08	**168**	499.08	**168**	376.86	**168**				
16.90	18	143	93	69	48											326.64	**169**
17.00	18	143	93	71	48	595.47	**170**	499.08	**170**	499.08	**170**	376.86	**170**	356.60	**17000**		
17.00	18	143	93	69	48											326.64	**170**
17.10	18	143	93	69	48											326.64	**171**
17.20	18	143	93	69	48											326.64	**172**
17.30	18	143	93	69	48											326.64	**173**
17.40	18	143	93	69	48											326.64	**174**
17.50	18	143	93	69	48											326.64	**175**
17.50	18	143	93	71	48	595.47	**175**	499.08	**175**	499.08	**175**	376.86	**175**	356.60	**17500**		
17.60	18	143	93	69	48											326.64	**176**
17.70	18	143	93	69	48											326.64	**177**
17.80	18	143	93	69	48											326.64	**178**
17.80	18	143	93	71	48	595.47	**178**	499.08	**178**	499.08	**178**	376.86	**178**				
17.90	18	143	93	69	48											326.64	**179**
18.00	18	143	93	69	48											326.64	**180**
18.00	18	143	93	71	48	595.47	**180**	499.08	**180**	499.08	**180**	376.86	**180**	356.60	**18000**		
18.10	20	153	101	75	50											403.57	**181**

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

→ v_c Page 114–123

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

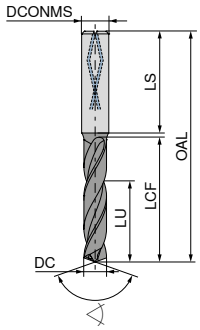
Continued on next page

WTX – High-performance drill, DIN 6537

≤ 5xD

NOF = 2

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



Type GG = Straight Fluted



	HA	HA	HE	HA	HA	HA
	135°	140°	140°	130°	135°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 773 ...	10 745 ...	10 746 ...	10 749 ...	10 791 ...	10 787 ...

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T4		£ T4		£ T4		£ T4		£ T4	
18.20	20	153	101	75	50											403.57	**182**
18.30	20	153	101	75	50											403.57	**183**
18.40	20	153	101	75	50											403.57	**184**
18.50	20	153	101	75	50											403.57	**185**
18.50	20	153	101	77	50	770.06	**185**	591.36	**185**	591.36	**185**	485.10	**185**	440.35	**18500**		
18.60	20	153	101	75	50											403.57	**186**
18.70	20	153	101	75	50											403.57	**187**
18.80	20	153	101	75	50											403.57	**188**
18.80	20	153	101	77	50	770.06	**188**	591.36	**188**	591.36	**188**	485.10	**188**				
18.90	20	153	101	75	50											403.57	**189**
19.00	20	153	101	75	50											403.57	**190**
19.00	20	153	101	77	50	770.06	**190**	591.36	**190**	591.36	**190**	485.10	**190**	440.35	**19000**		
19.10	20	153	101	75	50											403.57	**191**
19.20	20	153	101	75	50											403.57	**192**
19.30	20	153	101	75	50											403.57	**193**
19.35	20	153	101	77	50			591.36	**993**								
19.40	20	153	101	75	50											403.57	**194**
19.50	20	153	101	77	50	770.06	**195**	591.36	**195**	591.36	**195**	485.10	**195**	440.35	**19500**		
19.50	20	153	101	75	50											403.57	**195**
19.60	20	153	101	75	50											403.57	**196**
19.70	20	153	101	75	50											403.57	**197**
19.80	20	153	101	77	50	770.06	**198**	591.36	**198**	591.36	**198**	485.10	**198**				
19.80	20	153	101	75	50											403.57	**198**
19.90	20	153	101	75	50											403.57	**199**
20.00	20	153	101	75	50											403.57	**200**
20.00	20	153	101	77	50	770.06	**200**	591.36	**200**	591.36	**200**	485.10	**200**	440.35	**20000**		

P	●	○	○			○
M	●	●	●			●
K	●	○	○	●		
N	○	○	○	○	●	
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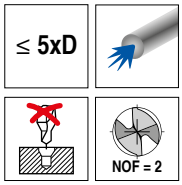
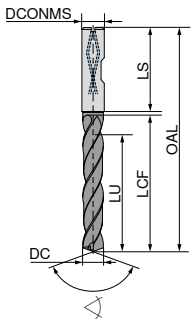
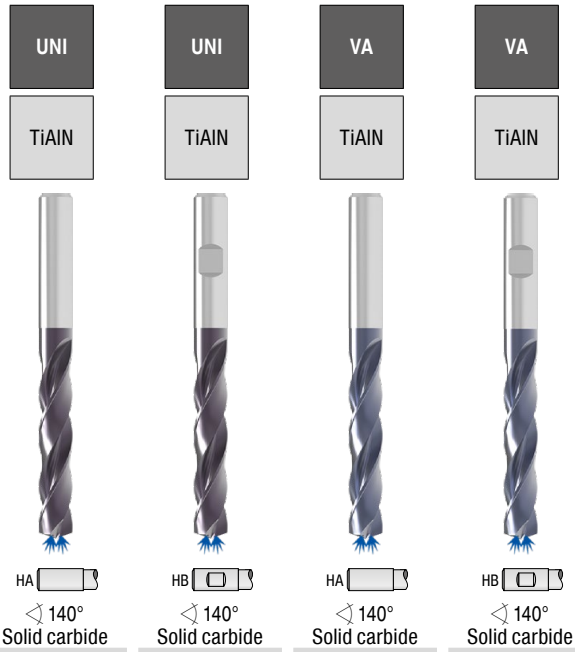
→ v_c Page 114–123

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

WPC – High Performance Drill, DIN 6537







Solid carbide | Solid carbide | Solid carbide | Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 609 ... £ T1		11 610 ... £ T1		11 629 ... £ T1		11 630 ... £ T1	
1.00	4	45	8.0	6.5	30.0	36.11	010			36.11	010		
1.10	4	45	8.8	7.2	29.0	36.11	011			36.11	011		
1.20	4	45	9.6	7.8	29.0	36.11	012			36.11	012		
1.30	4	45	10.4	8.5	28.5	36.11	013			36.11	013		
1.40	4	45	11.2	9.1	28.0	36.11	014			36.11	014		
1.50	4	50	12.0	9.8	32.0	36.11	015			36.11	015		
1.60	4	50	12.8	10.4	31.0	36.11	016			36.11	016		
1.70	4	50	13.6	11.1	30.5	36.11	017			36.11	017		
1.80	4	50	14.4	11.7	30.0	36.11	018			36.11	018		
1.90	4	50	15.2	12.4	29.5	36.11	019			36.11	019		
2.00	4	50	16.0	13.0	29.0	36.11	020			36.11	020		
2.10	4	55	16.8	13.7	33.0	36.11	021			36.11	021		
2.20	4	55	17.6	14.3	32.5	36.11	022			36.11	022		
2.30	4	55	18.4	15.0	32.0	36.11	023			36.11	023		
2.40	4	55	19.2	15.6	31.5	36.11	024			36.11	024		
2.50	4	55	20.0	16.3	30.5	36.11	025			36.11	025		
2.60	4	55	20.8	16.9	30.0	36.11	026			36.11	026		
2.70	4	55	21.6	17.6	29.0	36.11	027			36.11	027		
2.80	4	55	22.4	18.2	29.0	36.11	028			36.11	028		
2.90	4	55	23.2	18.9	28.5	36.11	029			36.11	029		
3.00	6	66	28.0	23.0	36.0	36.11	030	36.75	030	36.11	030	36.75	030
3.10	6	66	28.0	23.0	36.0	36.11	031	36.75	031	36.11	031	36.75	031
3.20	6	66	28.0	23.0	36.0	36.11	032	36.75	032	36.11	032	36.75	032
3.25	6	66	28.0	23.0	36.0	36.61	890	36.61	890	36.11	03250		
3.30	6	66	28.0	23.0	36.0	36.11	033	36.75	033	36.11	033	36.75	033
3.40	6	66	28.0	23.0	36.0	36.11	034	36.75	034	36.11	034	36.75	034
3.50	6	66	28.0	23.0	36.0	36.11	035	36.75	035	36.11	035	36.75	035
3.60	6	66	28.0	23.0	36.0	36.11	036	36.75	036	36.11	036	36.75	036
3.70	6	66	28.0	23.0	36.0	36.11	037	36.75	037	36.11	037	36.75	037
3.80	6	74	36.0	29.0	36.0	36.11	038	36.75	038	36.11	038	36.75	038
3.90	6	74	36.0	29.0	36.0	36.11	039	36.75	039	36.11	039	36.75	039
4.00	6	74	36.0	29.0	36.0	36.61	040	38.15	040	36.61	040	38.15	040
4.10	6	74	36.0	29.0	36.0	36.61	041	38.15	041	36.61	041	38.15	041
4.20	6	74	36.0	29.0	36.0	36.61	042	38.15	042	36.61	042	38.15	042
4.30	6	74	36.0	29.0	36.0	36.61	043	38.15	043	36.61	043	38.15	043
4.40	6	74	36.0	29.0	36.0	36.61	044	38.15	044	36.61	044	38.15	044
4.50	6	74	36.0	29.0	36.0	36.61	045	38.15	045	36.61	045	38.15	045
4.60	6	74	36.0	29.0	36.0	36.61	046	38.15	046	36.61	046	38.15	046
4.65	6	74	36.0	29.0	36.0	36.61	900	38.15	900	36.61	900	38.15	900
4.70	6	74	36.0	29.0	36.0	36.61	047	38.15	047	36.61	047	38.15	047
4.80	6	82	44.0	35.0	36.0	36.61	048	38.15	048	36.61	048	38.15	048

P	●	●	○	○
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K	●	●	●	●
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→ v_c Page 131+134

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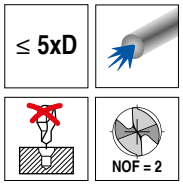
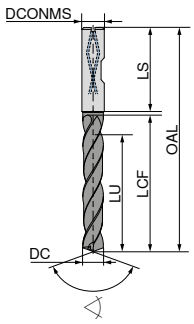
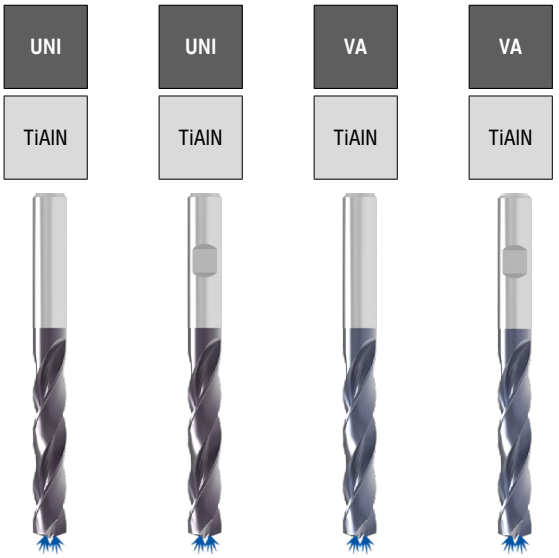
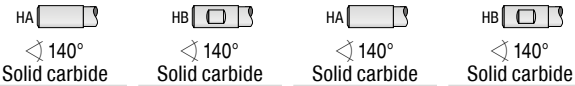
WPC – High Performance Drill, DIN 6537









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

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 609 ... £ T1		11 610 ... £ T1		11 629 ... £ T1		11 630 ... £ T1	
4.90	6	82	44.0	35.0	36.0	36.61	049	38.15	049	36.61	049	38.15	049
5.00	6	82	44.0	35.0	36.0	36.61	050	38.15	050	36.61	050	38.15	050
5.10	6	82	44.0	35.0	36.0	36.61	051	38.15	051	36.61	051	38.15	051
5.20	6	82	44.0	35.0	36.0	36.61	052	38.15	052	36.61	052	38.15	052
5.30	6	82	44.0	35.0	36.0	36.61	053	38.15	053	36.61	053	38.15	053
5.40	6	82	44.0	35.0	36.0	36.61	054	38.15	054	36.61	054	38.15	054
5.50	6	82	44.0	35.0	36.0	36.61	055	38.15	055	36.61	055	38.15	055
5.55	6	82	44.0	35.0	36.0	36.61	902	38.15	902	36.61	902	38.15	902
5.60	6	82	44.0	35.0	36.0	36.61	056	38.15	056	36.61	056	38.15	056
5.70	6	82	44.0	35.0	36.0	36.61	057	38.15	057	36.61	057	38.15	057
5.80	6	82	44.0	35.0	36.0	36.61	058	38.15	058	36.61	058	38.15	058
5.90	6	82	44.0	35.0	36.0	36.61	059	38.15	059	36.61	059	38.15	059
6.00	6	82	44.0	35.0	36.0	36.61	060	38.15	060	36.61	060	38.15	060
6.10	8	91	53.0	43.0	36.0	41.19	061	38.67	061	41.19	061	41.19	061
6.20	8	91	53.0	43.0	36.0	41.19	062	38.67	062	41.19	062	41.19	062
6.30	8	91	53.0	43.0	36.0	41.19	063	38.67	063	41.19	063	41.19	063
6.40	8	91	53.0	43.0	36.0	41.19	064	38.67	064	41.19	064	41.19	064
6.50	8	91	53.0	43.0	36.0	41.19	065	42.72	065	41.19	065	42.72	065
6.60	8	91	53.0	43.0	36.0	41.19	066	42.72	066	41.19	066	42.72	066
6.70	8	91	53.0	43.0	36.0	41.19	067	42.72	067	41.19	067	42.72	067
6.80	8	91	53.0	43.0	36.0	41.19	068	42.72	068	41.19	068	42.72	068
6.90	8	91	53.0	43.0	36.0	41.19	069	42.72	069	41.19	069	42.72	069
7.00	8	91	53.0	43.0	36.0	41.19	070	42.72	070	41.19	070	42.72	070
7.10	8	91	53.0	43.0	36.0	41.19	071	42.72	071	41.19	071	42.72	071
7.20	8	91	53.0	43.0	36.0	41.19	072	42.72	072	41.19	072	42.72	072
7.30	8	91	53.0	43.0	36.0	41.19	073	42.72	073	41.19	073	42.72	073
7.40	8	91	53.0	43.0	36.0	41.19	074	42.72	074	41.19	074	42.72	074
7.45	8	91	53.0	43.0	36.0	41.19	924	41.19	924	41.19	07450		
7.50	8	91	53.0	43.0	36.0	41.19	075	42.72	075	41.19	075	42.72	075
7.55	8	91	53.0	43.0	36.0	41.19	975	42.72	975	41.19	975	42.72	975
7.60	8	91	53.0	43.0	36.0	41.19	076	42.72	076	41.19	076	42.72	076
7.70	8	91	53.0	43.0	36.0	41.19	077	42.72	077	41.19	077	42.72	077
7.80	8	91	53.0	43.0	36.0	41.19	078	42.72	078	41.19	078	42.72	078
7.90	8	91	53.0	43.0	36.0	41.19	079	42.72	079	41.19	079	42.72	079
8.00	8	91	53.0	43.0	36.0	41.19	080	42.72	080	41.19	080	42.72	080
8.10	10	103	61.0	49.0	40.0	47.30	081	48.81	081	47.30	081	47.30	081
8.20	10	103	61.0	49.0	40.0	47.30	082	48.81	082	47.30	082	47.30	082
8.30	10	103	61.0	49.0	40.0	47.30	083	48.81	083	47.30	083	47.30	083
8.40	10	103	61.0	49.0	40.0	47.30	084	48.81	084	47.30	084	47.30	084
8.50	10	103	61.0	49.0	40.0	47.30	085	48.81	085	47.30	085	47.30	085
8.60	10	103	61.0	49.0	40.0	47.30	086	48.81	086	47.30	086	47.30	086

P	●	●	○	○
M			●	●
K	●	●	●	●
N			●	●
S				
H				
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→ v_c Page 131+134

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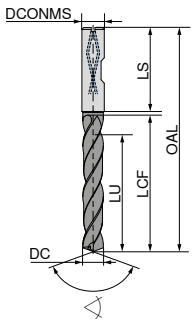
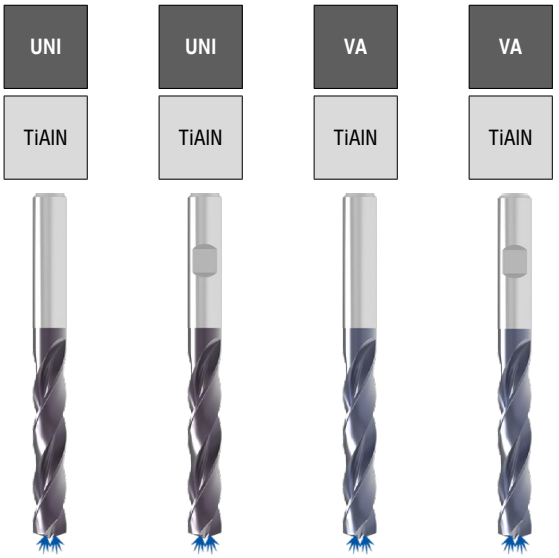
WPC – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2





HA / HB
140°
Solid carbide

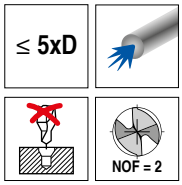
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 609 ... £ T1		11 610 ... £ T1		11 629 ... £ T1		11 630 ... £ T1	
8.70	10	103	61.0	49.0	40.0	47.30	087	48.81	087	47.30	087	47.30	087
8.80	10	103	61.0	49.0	40.0	47.30	088	48.81	088	47.30	088	47.30	088
8.90	10	103	61.0	49.0	40.0	47.30	089	48.81	089	47.30	089	47.30	089
9.00	10	103	61.0	49.0	40.0	47.30	090	48.81	090	47.30	090	47.30	090
9.10	10	103	61.0	49.0	40.0	47.30	091	48.81	091	47.30	091	47.30	091
9.20	10	103	61.0	49.0	40.0	47.30	092	48.81	092	47.30	092	47.30	092
9.25	10	103	61.0	49.0	40.0	47.30	925	48.81	925	47.30	925	47.30	925
9.30	10	103	61.0	49.0	40.0	47.30	093	48.81	093	47.30	093	47.30	093
9.35	10	103	61.0	49.0	40.0	47.30	930	47.30	930	47.30	09350		
9.40	10	103	61.0	49.0	40.0	47.30	094	48.81	094	47.30	094	47.30	094
9.50	10	103	61.0	49.0	40.0	47.30	095	48.81	095	47.30	095	47.30	095
9.60	10	103	61.0	49.0	40.0	47.30	096	48.81	096	47.30	096	47.30	096
9.70	10	103	61.0	49.0	40.0	47.30	097	48.81	097	47.30	097	47.30	097
9.80	10	103	61.0	49.0	40.0	47.30	098	48.81	098	47.30	098	47.30	098
9.90	10	103	61.0	49.0	40.0	47.30	099	48.81	099	47.30	099	47.30	099
10.00	10	103	61.0	49.0	40.0	47.30	100	48.81	100	47.30	100	47.30	100
10.10	12	118	71.0	56.0	45.0	68.63	101	71.70	101	68.63	101	71.70	101
10.20	12	118	71.0	56.0	45.0	68.63	102	71.70	102	68.63	102	71.70	102
10.30	12	118	71.0	56.0	45.0	68.63	103	71.70	103	68.63	103	71.70	103
10.40	12	118	71.0	56.0	45.0	68.63	104	71.70	104	68.63	104	71.70	104
10.50	12	118	71.0	56.0	45.0	68.63	105	71.70	105	68.63	105	71.70	105
10.60	12	118	71.0	56.0	45.0	68.63	106	71.70	106	68.63	106	71.70	106
10.70	12	118	71.0	56.0	45.0	68.63	107	71.70	107	68.63	107	71.70	107
10.75	12	118	71.0	56.0	45.0	68.63	904	68.63	904	68.63	10750		
10.80	12	118	71.0	56.0	45.0	68.63	108	71.70	108	68.63	108	71.70	108
10.90	12	118	71.0	56.0	45.0	68.63	109	71.70	109	68.63	109	71.70	109
11.00	12	118	71.0	56.0	45.0	68.63	110	71.70	110	68.63	110	71.70	110
11.10	12	118	71.0	56.0	45.0	68.63	111	71.70	111	68.63	111	71.70	111
11.20	12	118	71.0	56.0	45.0	68.63	112	71.70	112	68.63	112	71.70	112
11.25	12	118	71.0	56.0	45.0	68.63	912	68.63	912	68.63	11250		
11.30	12	118	71.0	56.0	45.0	68.63	113	71.70	113	68.63	113	71.70	113
11.40	12	118	71.0	56.0	45.0	68.63	114	71.70	114	68.63	114	71.70	114
11.50	12	118	71.0	56.0	45.0	68.63	115	71.70	115	68.63	115	71.70	115
11.60	12	118	71.0	56.0	45.0	68.63	116	71.70	116	68.63	116	71.70	116
11.70	12	118	71.0	56.0	45.0	68.63	117	71.70	117	68.63	117	71.70	117
11.80	12	118	71.0	56.0	45.0	68.63	118	71.70	118	68.63	118	71.70	118
11.90	12	118	71.0	56.0	45.0	68.63	119	71.70	119	68.63	119	71.70	119
12.00	12	118	71.0	56.0	45.0	68.63	120	71.70	120	68.63	120	71.70	120
12.25	14	124	77.0	60.0	45.0	93.04	122	93.04	122	93.04	12250		
12.50	14	124	77.0	60.0	45.0	93.04	125	97.62	125	93.04	125	97.62	125
12.70	14	124	77.0	60.0	45.0	93.04	127	97.62	127	93.04	127	97.62	127

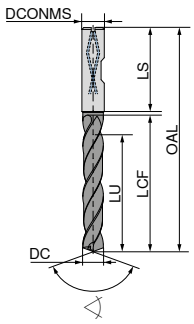
P	●	●	○	○
M			●	●
K	●	●	●	●
N			●	●
S				
H				
O				

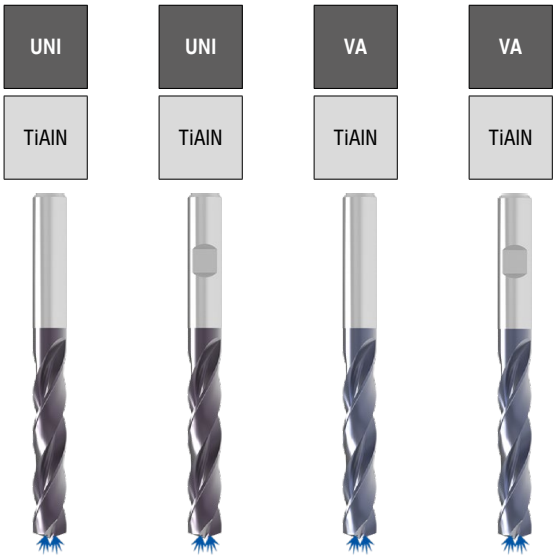
→ v_c Page 131+134

Continued on next page

WPC – High Performance Drill, DIN 6537





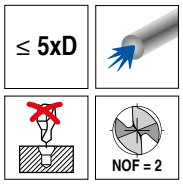


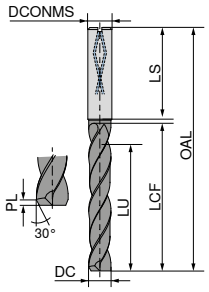
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 609 ... £ T1		11 610 ... £ T1		11 629 ... £ T1		11 630 ... £ T1	
12.80	14	124	77.0	60.0	45.0	93.04	128	93.04	128				
12.90	14	124	77.0	60.0	45.0	93.04	129	93.04	129				
13.00	14	124	77.0	60.0	45.0	93.04	130	97.62	130	93.04	130	97.62	130
13.10	14	124	77.0	60.0	45.0	93.04	131	93.04	131				
13.30	14	124	77.0	60.0	45.0	93.04	133	93.04	133				
13.50	14	124	77.0	60.0	45.0	93.04	135	97.62	135	93.04	135	97.62	135
13.70	14	124	77.0	60.0	45.0	93.04	137	97.62	137	93.04	137	97.62	137
13.80	14	124	77.0	60.0	45.0	93.04	138	93.04	138				
14.00	14	124	77.0	60.0	45.0	93.04	140	97.62	140	93.04	140	97.62	140
14.20	16	133	83.0	63.0	48.0	115.93	142	115.93	142				
14.50	16	133	83.0	63.0	48.0	115.93	145	120.50	145	115.93	145	120.50	145
14.70	16	133	83.0	63.0	48.0	115.93	147	120.50	147	115.93	147	120.50	147
14.80	16	133	83.0	63.0	48.0	115.93	148	115.93	148				
15.00	16	133	83.0	63.0	48.0	115.93	150	120.50	150	115.93	150	120.50	150
15.10	16	133	83.0	63.0	48.0	115.93	151	115.93	151				
15.25	16	133	83.0	63.0	48.0	115.93	152	115.93	152				
15.30	16	133	83.0	63.0	48.0	115.93	153	115.93	153				
15.50	16	133	83.0	63.0	48.0	115.93	155	120.50	155	115.93	155	120.50	155
15.60	16	133	83.0	63.0	48.0	115.93	156	115.93	156				
15.70	16	133	83.0	63.0	48.0	115.93	157	120.50	157	115.93	157	120.50	157
15.80	16	133	83.0	63.0	48.0	115.93	158	115.93	158				
16.00	16	133	83.0	63.0	48.0	115.93	160	120.50	160	115.93	160	120.50	160
16.50	18	143	93.0	71.0	48.0	186.10	165	192.18	165	186.10	165	192.18	165
16.80	18	143	93.0	71.0	48.0	186.10	168	186.10	168				
16.90	18	143	93.0	71.0	48.0	186.10	169	186.10	169				
17.00	18	143	93.0	71.0	48.0	186.10	170	192.18	170	186.10	170	192.18	170
17.50	18	143	93.0	71.0	48.0	186.10	175	192.18	175	186.10	175	192.18	175
17.60	18	143	93.0	71.0	48.0	186.10	176	186.10	176				
17.80	18	143	93.0	71.0	48.0	186.10	178	186.10	178				
18.00	18	143	93.0	71.0	48.0	186.10	180	192.18	180	186.10	180	192.18	180
18.50	20	153	101.0	77.0	50.0	201.35	185	208.96	185	201.35	185	208.96	185
18.80	20	153	101.0	77.0	50.0	201.35	188	201.35	188				
18.90	20	153	101.0	77.0	50.0	201.35	189	201.35	189				
19.00	20	153	101.0	77.0	50.0	201.35	190	208.96	190	201.35	190	208.96	190
19.50	20	153	101.0	77.0	50.0	201.35	195	208.96	195	201.35	195	208.96	195
19.60	20	153	101.0	77.0	50.0	201.35	196	201.35	196				
19.80	20	153	101.0	77.0	50.0	201.35	198	201.35	198				
20.00	20	153	101.0	77.0	50.0	201.35	200	208.96	200	201.35	200	208.96	200
P							●		●		○		○
M											●		●
K							●		●		●		●
N											●		●
S													
H													
O													

→ v_c Page 131+134

WTX – High Performance Drill, DIN 6537

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





180

Ti800



Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	10 721 ... £ T4	
3.00	6	66	28	23	36	0.15	95.31	030
3.10	6	66	28	23	36	0.16	95.31	031
3.20	6	66	28	23	36	0.16	95.31	032
3.30	6	66	28	23	36	0.17	95.31	033
3.40	6	66	28	23	36	0.17	95.31	034
3.50	6	66	28	23	36	0.18	95.31	035
3.60	6	66	28	23	36	0.18	95.31	036
3.70	6	66	28	23	36	0.19	95.31	037
3.80	6	74	36	29	36	0.19	95.31	038
3.90	6	74	36	29	36	0.20	95.31	039
4.00	6	74	36	29	36	0.20	95.31	040
4.10	6	74	36	29	36	0.21	95.31	041
4.20	6	74	36	29	36	0.21	95.31	042
4.30	6	74	36	29	36	0.22	95.31	043
4.40	6	74	36	29	36	0.22	95.31	044
4.50	6	74	36	29	36	0.23	95.31	045
4.60	6	74	36	29	36	0.23	95.31	046
4.65	6	74	36	29	36	0.23	95.31	900
4.70	6	74	36	29	36	0.24	95.31	047
4.80	6	82	44	35	36	0.24	95.31	048
4.90	6	82	44	35	36	0.25	95.31	049
5.00	6	82	44	35	36	0.25	95.31	050
5.10	6	82	44	35	36	0.26	95.31	051
5.20	6	82	44	35	36	0.26	95.31	052
5.30	6	82	44	35	36	0.27	95.31	053
5.40	6	82	44	35	36	0.27	95.31	054
5.50	6	82	44	35	36	0.28	95.31	055
5.55	6	82	44	35	36	0.28	95.31	902
5.60	6	82	44	35	36	0.28	95.31	056
5.70	6	82	44	35	36	0.29	95.31	057
5.80	6	82	44	35	36	0.29	95.31	058
5.90	6	82	44	35	36	0.30	95.31	059
6.00	6	82	44	35	36	0.30	95.31	060
6.10	8	91	53	43	36	0.31	106.64	061
6.20	8	91	53	43	36	0.31	106.64	062
6.30	8	91	53	43	36	0.32	106.64	063
6.40	8	91	53	43	36	0.32	106.64	064
6.50	8	91	53	43	36	0.33	106.64	065
6.60	8	91	53	43	36	0.33	106.64	066
6.70	8	91	53	43	36	0.34	106.64	067
6.80	8	91	53	43	36	0.34	106.64	068
6.90	8	91	53	43	36	0.35	106.64	069
7.00	8	91	53	43	36	0.35	106.64	070
7.10	8	91	53	43	36	0.36	106.64	071
7.20	8	91	53	43	36	0.36	106.64	072
7.30	8	91	53	43	36	0.37	106.64	073
7.40	8	91	53	43	36	0.37	106.64	074
7.50	8	91	53	43	36	0.38	106.64	075
7.60	8	91	53	43	36	0.38	106.64	076
7.70	8	91	53	43	36	0.39	106.64	077
7.80	8	91	53	43	36	0.39	106.64	078
7.90	8	91	53	43	36	0.40	106.64	079
8.00	8	91	53	43	36	0.40	106.64	080
8.10	10	103	61	49	40	0.41	154.14	081

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	10 721 ... £ T4	
8.20	10	103	61	49	40	0.41	154.14	082
8.30	10	103	61	49	40	0.42	154.14	083
8.40	10	103	61	49	40	0.42	154.14	084
8.50	10	103	61	49	40	0.43	154.14	085
8.60	10	103	61	49	40	0.43	154.14	086
8.70	10	103	61	49	40	0.44	154.14	087
8.80	10	103	61	49	40	0.44	154.14	088
8.90	10	103	61	49	40	0.45	154.14	089
9.00	10	103	61	49	40	0.45	154.14	090
9.10	10	103	61	49	40	0.46	154.14	091
9.20	10	103	61	49	40	0.46	154.14	092
9.30	10	103	61	49	40	0.47	154.14	093
9.40	10	103	61	49	40	0.47	154.14	094
9.50	10	103	61	49	40	0.48	154.14	095
9.60	10	103	61	49	40	0.48	154.14	096
9.70	10	103	61	49	40	0.49	154.14	097
9.80	10	103	61	49	40	0.49	154.14	098
9.90	10	103	61	49	40	0.50	154.14	099
10.00	10	103	61	49	40	0.50	154.14	100
10.10	12	116	69	54	45	0.51	215.58	101
10.20	12	116	69	54	45	0.51	215.58	102
10.30	12	116	69	54	45	0.52	215.58	103
10.40	12	116	69	54	45	0.52	215.58	104
10.50	12	116	69	54	45	0.53	215.58	105
10.60	12	116	69	54	45	0.53	215.58	106
10.70	12	116	69	54	45	0.54	215.58	107
10.80	12	116	69	54	45	0.54	215.58	108
10.90	12	116	69	54	45	0.55	215.58	109
11.00	12	116	69	54	45	0.55	215.58	110
11.10	12	116	69	54	45	0.56	215.58	111
11.20	12	116	69	54	45	0.56	215.58	112
11.30	12	116	69	54	45	0.57	215.58	113
11.40	12	116	69	54	45	0.57	215.58	114
11.50	12	116	69	54	45	0.58	215.58	115
11.60	12	116	69	54	45	0.58	215.58	116
11.70	12	116	69	54	45	0.59	215.58	117
11.80	12	116	69	54	45	0.59	215.58	118
11.90	12	116	69	54	45	0.60	215.58	119
12.00	12	116	69	54	45	0.60	215.58	120
12.50	14	122	75	58	45	0.63	293.15	125
12.80	14	122	75	58	45	0.64	293.15	128
13.00	14	122	75	58	45	0.65	293.15	130
13.50	14	122	75	58	45	0.68	293.15	135
13.80	14	122	75	58	45	0.69	293.15	138
14.00	14	122	75	58	45	0.70	293.15	140
14.50	16	131	81	61	48	0.73	365.93	145
14.80	16	131	81	61	48	0.74	365.93	148
15.00	16	131	81	61	48	0.75	365.93	150
15.50	16	131	81	61	48	0.78	365.93	155
15.80	16	131	81	61	48	0.79	365.93	158
16.00	16	131	81	61	48	0.80	365.93	160
16.50	18	141	91	69	48	0.83	482.44	165
16.80	18	141	91	69	48	0.84	482.44	168
17.00	18	141	91	69	48	0.85	482.44	170
17.50	18	141	91	69	48	0.88	482.44	175
17.80	18	141	91	69	48	0.89	482.44	178
18.00	18	141	91	69	48	0.90	482.44	180
18.50	20	151	99	75	50	0.93	623.92	185
18.80	20	151	99	75	50	0.94	623.92	188
19.00	20	151	99	75	50	0.95	623.92	190
19.50	20	151	99	75	50	0.98	623.92	195
19.80	20	151	99	75	50	0.99	623.92	198
20.00	20	151	99	75	50	1.00	623.92	200

P	●
M	●
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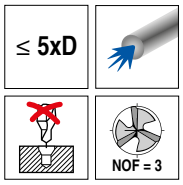
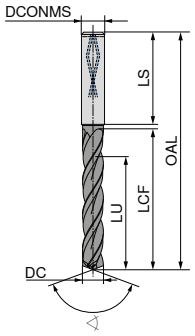
→ v_c Page 127

WTX – High Feed Drill, factory standard

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





Feed UNI

DPX74S



Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 789 ... £ T4	
4.00	6	74	36	29	36	94.53	04000
4.10	6	74	36	29	36	94.53	04100
4.20	6	74	36	29	36	94.53	04200
4.30	6	74	36	29	36	94.53	04300
4.40	6	74	36	29	36	94.53	04400
4.50	6	74	36	29	36	94.53	04500
4.60	6	74	36	29	36	94.53	04600
4.70	6	74	36	29	36	94.53	04700
4.80	6	82	44	35	36	94.53	04800
4.90	6	82	44	35	36	94.53	04900
5.00	6	82	44	35	36	94.53	05000
5.10	6	82	44	35	36	94.53	05100
5.20	6	82	44	35	36	94.53	05200
5.30	6	82	44	35	36	94.53	05300
5.40	6	82	44	35	36	94.53	05400
5.50	6	82	44	35	36	94.53	05500
5.55	6	82	44	35	36	94.53	05550
5.60	6	82	44	35	36	94.53	05600
5.70	6	82	44	35	36	94.53	05700
5.80	6	82	44	35	36	94.53	05800
5.90	6	82	44	35	36	94.53	05900
6.00	6	82	44	35	36	94.53	06000
6.10	8	91	53	43	36	105.80	06100
6.20	8	91	53	43	36	105.80	06200
6.30	8	91	53	43	36	105.80	06300
6.40	8	91	53	43	36	105.80	06400
6.50	8	91	53	43	36	105.80	06500
6.60	8	91	53	43	36	105.80	06600
6.70	8	91	53	43	36	105.80	06700
6.80	8	91	53	43	36	105.80	06800
6.90	8	91	53	43	36	105.80	06900
7.00	8	91	53	43	36	105.80	07000
7.10	8	91	53	43	36	105.80	07100
7.20	8	91	53	43	36	105.80	07200
7.30	8	91	53	43	36	105.80	07300
7.40	8	91	53	43	36	105.80	07400
7.50	8	91	53	43	36	105.80	07500
7.60	8	91	53	43	36	105.80	07600
7.70	8	91	53	43	36	105.80	07700
7.80	8	91	53	43	36	105.80	07800
7.90	8	91	53	43	36	105.80	07900
8.00	8	91	53	43	36	105.80	08000
8.10	10	103	61	49	40	153.05	08100
8.20	10	103	61	49	40	153.05	08200
8.30	10	103	61	49	40	153.05	08300
8.40	10	103	61	49	40	153.05	08400
8.50	10	103	61	49	40	153.05	08500
8.60	10	103	61	49	40	153.05	08600
8.70	10	103	61	49	40	153.05	08700
8.80	10	103	61	49	40	153.05	08800
8.90	10	103	61	49	40	153.05	08900
9.00	10	103	61	49	40	153.05	09000
9.10	10	103	61	49	40	153.05	09100
9.20	10	103	61	49	40	153.05	09200
9.30	10	103	61	49	40	153.05	09300
9.40	10	103	61	49	40	153.05	09400
9.50	10	103	61	49	40	153.05	09500
9.60	10	103	61	49	40	153.05	09600
9.70	10	103	61	49	40	153.05	09700
9.80	10	103	61	49	40	153.05	09800
9.90	10	103	61	49	40	153.05	09900
10.00	10	103	61	49	40	153.05	10000
10.10	12	118	71	56	45	214.27	10100
10.20	12	118	71	56	45	214.27	10200
10.30	12	118	71	56	45	214.27	10300
10.40	12	118	71	56	45	214.27	10400
10.50	12	118	71	56	45	214.27	10500
10.60	12	118	71	56	45	214.27	10600
10.70	12	118	71	56	45	214.27	10700
10.80	12	118	71	56	45	214.27	10800
10.90	12	118	71	56	45	214.27	10900
11.00	12	118	71	56	45	214.27	11000
11.10	12	118	71	56	45	214.27	11100
11.20	12	118	71	56	45	214.27	11200
11.30	12	118	71	56	45	214.27	11300
11.40	12	118	71	56	45	214.27	11400
11.50	12	118	71	56	45	214.27	11500
11.60	12	118	71	56	45	214.27	11600
11.70	12	118	71	56	45	214.27	11700
11.80	12	118	71	56	45	214.27	11800
11.90	12	118	71	56	45	214.27	11900
12.00	12	118	71	56	45	214.27	12000
12.20	14	124	77	60	45	291.43	12200
12.50	14	124	77	60	45	291.43	12500
12.80	14	124	77	60	45	291.43	12800
13.00	14	124	77	60	45	291.43	13000
13.50	14	124	77	60	45	291.43	13500
13.80	14	124	77	60	45	291.43	13800
14.00	14	124	77	60	45	291.43	14000
14.50	16	133	83	63	48	363.66	14500
14.80	16	133	83	63	48	363.66	14800
15.00	16	133	83	63	48	363.66	15000
15.50	16	133	83	63	48	363.66	15500
15.80	16	133	83	63	48	363.66	15800
16.00	16	133	83	63	48	363.66	16000
16.50	18	143	93	71	48	478.76	16500
16.80	18	143	93	71	48	478.76	16800
17.00	18	143	93	71	48	478.76	17000
17.50	18	143	93	71	48	478.76	17500
17.80	18	143	93	71	48	478.76	17800
18.00	18	143	93	71	48	478.76	18000
18.50	20	153	101	77	50	619.56	18500
18.80	20	153	101	77	50	619.56	18800
19.00	20	153	101	77	50	619.56	19000
19.50	20	153	101	77	50	619.56	19500
19.80	20	153	101	77	50	619.56	19800
20.00	20	153	101	77	50	619.56	20000

	10 789 ...
P	●
M	●
K	●
N	o
S	
H	
O	

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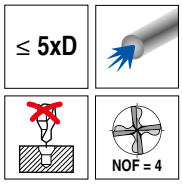
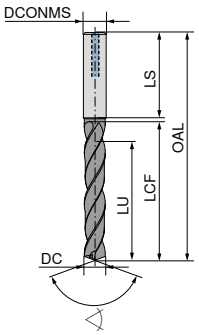
WTX – High-feed drills, DIN 6537

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





NEW

HFDS

DPX14S

DRAGONSKIN



130°

Solid carbide

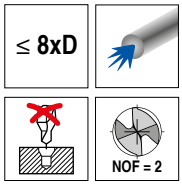
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 798 ... £ T4	
12.5	16	142	91	73	48	341.30	12500
13.0	16	142	91	73	48	341.30	13000
14.0	16	142	91	73	48	341.30	14000
14.3	16	142	91	73	48	425.04	14300
14.5	16	142	91	73	48	425.04	14500
15.0	18	142	91	73	48	425.04	15000
16.0	18	142	91	73	48	425.04	16000

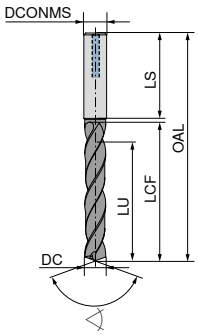
P	●
M	○
K	●
N	○
S	○
H	○
O	○

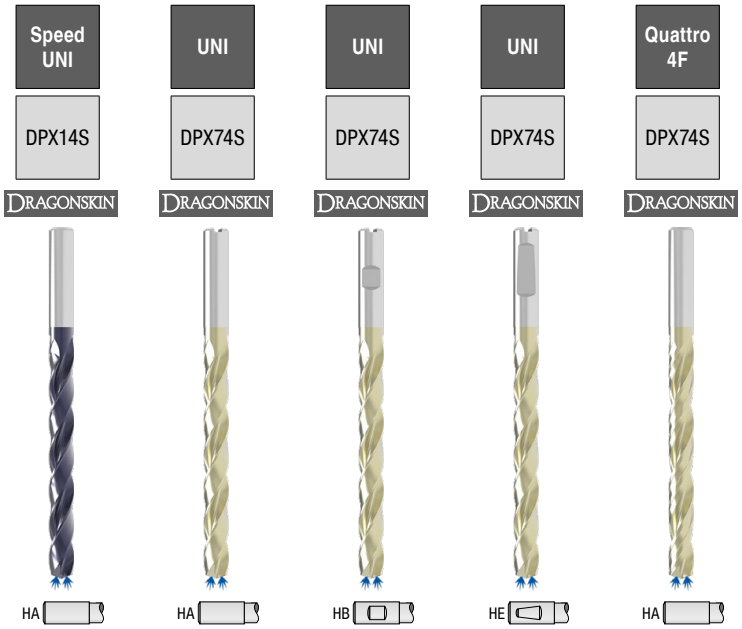
→ v_c Page 135

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 798 ... £ T4	
6.0	8	89	51	40	36	100.83	06000
6.1	10	102	59	47	40	134.44	06100
6.2	10	102	59	47	40	134.44	06200
6.3	10	102	59	47	40	134.44	06300
6.4	10	102	59	47	40	134.44	06400
6.5	10	102	59	47	40	134.44	06500
6.6	10	102	59	47	40	134.44	06600
6.7	10	102	59	47	40	134.44	06700
6.8	10	102	59	47	40	134.44	06800
6.9	10	102	59	47	40	134.44	06900
7.0	10	102	59	47	40	134.44	07000
7.1	10	102	59	47	40	134.44	07100
7.2	10	102	59	47	40	134.44	07200
7.3	10	102	59	47	40	134.44	07300
7.4	10	102	59	47	40	134.44	07400
7.5	10	102	59	47	40	134.44	07500
7.6	10	102	59	47	40	134.44	07600
7.7	10	102	59	47	40	134.44	07700
7.8	10	102	59	47	40	134.44	07800
7.9	10	102	59	47	40	134.44	07900
8.0	10	102	59	47	40	134.44	08000
8.1	12	118	70	55	45	189.30	08100
8.2	12	118	70	55	45	189.30	08200
8.3	12	118	70	55	45	189.30	08300
8.4	12	118	70	55	45	189.30	08400
8.5	12	118	70	55	45	189.30	08500
8.6	12	118	70	55	45	189.30	08600
8.7	12	118	70	55	45	189.30	08700
8.8	12	118	70	55	45	189.30	08800
8.9	12	118	70	55	45	189.30	08900
9.0	12	118	70	55	45	189.30	09000
9.1	12	118	70	55	45	189.30	09100
9.2	12	118	70	55	45	189.30	09200
9.3	12	118	70	55	45	189.30	09300
9.4	12	118	70	55	45	189.30	09400
9.5	12	118	70	55	45	189.30	09500
9.6	12	118	70	55	45	189.30	09600
9.7	12	118	70	55	45	189.30	09700
9.8	12	118	70	55	45	189.30	09800
9.9	12	118	70	55	45	189.30	09900
10.0	12	118	70	55	45	189.30	10000
10.2	14	124	76	60	45	251.33	10200
10.5	14	124	76	60	45	251.33	10500
11.0	14	124	76	60	45	251.33	11000
11.5	14	124	76	60	45	251.33	11500
12.0	14	124	76	60	45	251.33	12000

WTX – High Performance Drill, factory standard







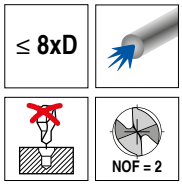
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 782 ... £ T4		11 789 ... £ T7		11 790 ... £ T7		11 788 ... £ T7		10 736 ... £ T4	
3.00	6	72	34	29	36	177.71	03000	129.81	030	129.81	030	129.81	030	194.81	03000
3.10	6	72	34	29	36	177.71	03100	129.81	031	129.81	031	129.81	031	194.81	03100
3.20	6	72	34	29	36	177.71	03200	129.81	032	129.81	032	129.81	032	194.81	03200
3.30	6	72	34	29	36	177.71	03300	129.81	033	129.81	033	129.81	033	194.81	03300
3.40	6	72	34	29	36	177.71	03400	129.81	034	129.81	034	129.81	034	194.81	03400
3.50	6	72	34	29	36	177.71	03500	129.81	035	129.81	035	129.81	035	194.81	03500
3.60	6	72	34	29	36	177.71	03600	129.81	036	129.81	036	129.81	036	194.81	03600
3.70	6	72	34	29	36	177.71	03700	129.81	037	129.81	037	129.81	037	194.81	03700
3.80	6	81	43	36	36	177.71	03800	129.81	038	129.81	038	129.81	038	194.81	03800
3.90	6	81	43	36	36	177.71	03900	129.81	039	129.81	039	129.81	039	194.81	03900
4.00	6	81	43	36	36	177.71	04000	129.81	040	129.81	040	129.81	040	194.81	04000
4.10	6	81	43	36	36	177.71	04100	129.81	041	129.81	041	129.81	041	194.81	04100
4.20	6	81	43	36	36	177.71	04200	129.81	042	129.81	042	129.81	042	194.81	04200
4.30	6	81	43	36	36	177.71	04300	129.81	043	129.81	043	129.81	043	194.81	04300
4.40	6	81	43	36	36	177.71	04400	129.81	044	129.81	044	129.81	044	194.81	04400
4.50	6	81	43	36	36	177.71	04500	129.81	045	129.81	045	129.81	045	194.81	04500
4.60	6	81	43	36	36	177.71	04600	129.81	046	129.81	046	129.81	046	194.81	04600
4.65	6	81	43	36	36	177.71	04650								
4.70	6	81	43	36	36	177.71	04700	129.81	047	129.81	047	129.81	047	194.81	04700
4.80	6	95	57	48	36	177.71	04800	129.81	048	129.81	048	129.81	048	194.81	04800
4.90	6	95	57	48	36	177.71	04900	129.81	049	129.81	049	129.81	049	194.81	04900
5.00	6	95	57	48	36	177.71	05000	129.81	050	129.81	050	129.81	050	194.81	05000
5.10	6	95	57	48	36	177.71	05100	129.81	051	129.81	051	129.81	051	194.81	05100
5.20	6	95	57	48	36	177.71	05200	129.81	052	129.81	052	129.81	052	194.81	05200
5.30	6	95	57	48	36	177.71	05300	129.81	053	129.81	053	129.81	053	194.81	05300
5.40	6	95	57	48	36	177.71	05400	129.81	054	129.81	054	129.81	054	194.81	05400
5.50	6	95	57	48	36	177.71	05500	129.81	055	129.81	055	129.81	055	194.81	05500
5.55	6	95	57	48	36	177.71	05550								
5.60	6	95	57	48	36	177.71	05600	129.81	056	129.81	056	129.81	056	194.81	05600
5.70	6	95	57	48	36	177.71	05700	129.81	057	129.81	057	129.81	057	194.81	05700
5.80	6	95	57	48	36	177.71	05800	129.81	058	129.81	058	129.81	058	194.81	05800
5.90	6	95	57	48	36	177.71	05900	129.81	059	129.81	059	129.81	059	194.81	05900
6.00	6	95	57	48	36	177.71	06000	129.81	060	129.81	060	129.81	060	194.81	06000
6.10	8	114	76	64	36	238.49	06100	157.42	061	157.42	061	157.42	061	214.31	06100
6.20	8	114	76	64	36	238.49	06200	157.42	062	157.42	062	157.42	062	214.31	06200
P						●		●		●		●		●	
M						●									
K						●		●		●		●		●	
N															
S															
H								○		○		○		○	
O															

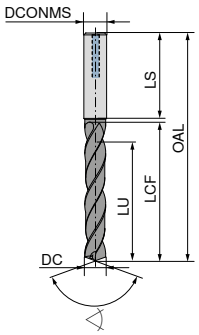
→ v_c Page 109–118

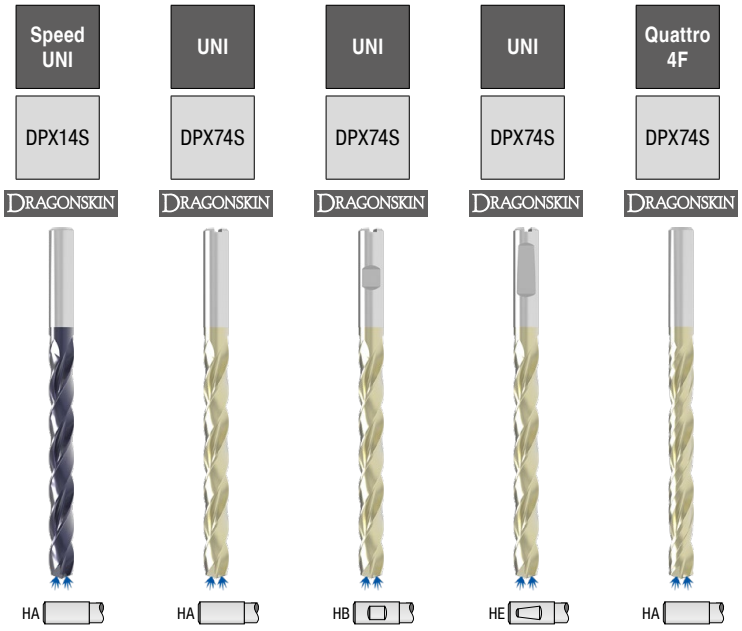
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, factory standard







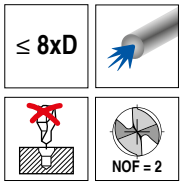
						145°		135°		135°		135°		140°		
						Solid carbide		Solid carbide		Solid carbide		Solid carbide		Solid carbide		
						10 782 ...		**11 789 ...**		**11 790 ...**		**11 788 ...**		**10 736 ...**		
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T4		
6.30	8	114	76	64	36	238.49	06300	157.42	063	157.42	063	157.42	063	214.31	06300	
6.40	8	114	76	64	36	238.49	06400	157.42	064	157.42	064	157.42	064	214.31	06400	
6.50	8	114	76	64	36	238.49	06500	157.42	065	157.42	065	157.42	065	214.31	06500	
6.60	8	114	76	64	36	238.49	06600	157.42	066	157.42	066	157.42	066	214.31	06600	
6.70	8	114	76	64	36	238.49	06700	157.42	067	157.42	067	157.42	067	214.31	06700	
6.80	8	114	76	64	36	238.49	06800	157.42	068	157.42	068	157.42	068	214.31	06800	
6.90	8	114	76	64	36	238.49	06900	157.42	069	157.42	069	157.42	069	214.31	06900	
7.00	8	114	76	64	36	238.49	07000	157.42	070	157.42	070	157.42	070	214.31	07000	
7.10	8	114	76	64	36	238.49	07100	157.42	071	157.42	071	157.42	071	214.31	07100	
7.20	8	114	76	64	36	238.49	07200	157.42	072	157.42	072	157.42	072	214.31	07200	
7.30	8	114	76	64	36	238.49	07300	157.42	073	157.42	073	157.42	073	214.31	07300	
7.40	8	114	76	64	36	238.49	07400	157.42	074	157.42	074	157.42	074	214.31	07400	
7.50	8	114	76	64	36	238.49	07500	157.42	075	157.42	075	157.42	075	214.31	07500	
7.60	8	114	76	64	36	238.49	07600	157.42	076	157.42	076	157.42	076	214.31	07600	
7.70	8	114	76	64	36	238.49	07700	157.42	077	157.42	077	157.42	077	214.31	07700	
7.80	8	114	76	64	36	238.49	07800	157.42	078	157.42	078	157.42	078	214.31	07800	
7.90	8	114	76	64	36	238.49	07900	157.42	079	157.42	079	157.42	079	214.31	07900	
8.00	8	114	76	64	36	238.49	08000	157.42	080	157.42	080	157.42	080	214.31	08000	
8.10	10	142	95	80	40	344.49	08100	190.66	081	190.66	081	190.66	081	308.73	08100	
8.20	10	142	95	80	40	344.49	08200	190.66	082	190.66	082	190.66	082	308.73	08200	
8.30	10	142	95	80	40	344.49	08300	190.66	083	190.66	083	190.66	083	308.73	08300	
8.40	10	142	95	80	40	344.49	08400	190.66	084	190.66	084	190.66	084	308.73	08400	
8.50	10	142	95	80	40	344.49	08500	190.66	085	190.66	085	190.66	085	308.73	08500	
8.60	10	142	95	80	40	344.49	08600	190.66	086	190.66	086	190.66	086	308.73	08600	
8.70	10	142	95	80	40	344.49	08700	190.66	087	190.66	087	190.66	087	308.73	08700	
8.80	10	142	95	80	40	344.49	08800	190.66	088	190.66	088	190.66	088	308.73	08800	
8.90	10	142	95	80	40	344.49	08900	190.66	089	190.66	089	190.66	089	308.73	08900	
9.00	10	142	95	80	40	344.49	09000	190.66	090	190.66	090	190.66	090	308.73	09000	
9.10	10	142	95	80	40	344.49	09100	190.66	091	190.66	091	190.66	091	308.73	09100	
9.20	10	142	95	80	40	344.49	09200	190.66	092	190.66	092	190.66	092	308.73	09200	
9.30	10	142	95	80	40	344.49	09300	190.66	093	190.66	093	190.66	093	308.73	09300	
9.40	10	142	95	80	40	344.49	09400	190.66	094	190.66	094	190.66	094	308.73	09400	
9.50	10	142	95	80	40	344.49	09500	190.66	095	190.66	095	190.66	095	308.73	09500	
9.60	10	142	95	80	40	344.49	09600	190.66	096	190.66	096	190.66	096	308.73	09600	
9.70	10	142	95	80	40	344.49	09700	190.66	097	190.66	097	190.66	097	308.73	09700	
P						●		●		●		●		●		
M						●										
K						●		●		●		●		●		
N																
S																
H								○		○		○		○		
O																

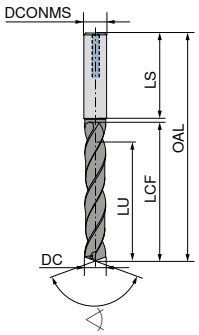
→ v_c Page 109–118

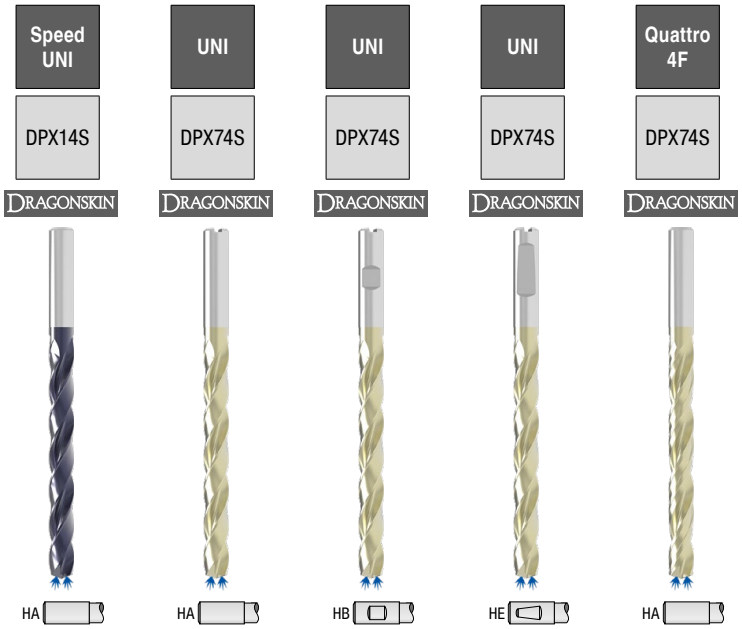
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, factory standard







						145°		135°		135°		135°		140°					
						Solid carbide		Solid carbide		Solid carbide		Solid carbide		Solid carbide					
						10 782 ...		**11 789 ...**		**11 790 ...**		**11 788 ...**		**10 736 ...**					
DC $_{m7/h7}$ **mm**	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T4					
9.80	10	142	95	80	40	344.49	**09800**	190.66	**098**	190.66	**098**	190.66	**098**	308.73	**09800**				
9.90	10	142	95	80	40	344.49	**09900**	190.66	**099**	190.66	**099**	190.66	**099**	308.73	**09900**				
10.00	10	142	95	80	40	344.49	**10000**	190.66	**100**	190.66	**100**	190.66	**100**	308.73	**10000**				
10.10	12	162	114	96	45	444.27	**10100**	251.67	**101**	251.67	**101**	251.67	**101**	396.88	**10100**				
10.20	12	162	114	96	45	444.27	**10200**	251.67	**102**	251.67	**102**	251.67	**102**	396.88	**10200**				
10.30	12	162	114	96	45	444.27	**10300**	251.67	**103**	251.67	**103**	251.67	**103**	396.88	**10300**				
10.40	12	162	114	96	45	444.27	**10400**	251.67	**104**	251.67	**104**	251.67	**104**	396.88	**10400**				
10.50	12	162	114	96	45	444.27	**10500**	251.67	**105**	251.67	**105**	251.67	**105**	396.88	**10500**				
10.60	12	162	114	96	45	444.27	**10600**	251.67	**106**	251.67	**106**	251.67	**106**	396.88	**10600**				
10.70	12	162	114	96	45	444.27	**10700**	251.67	**107**	251.67	**107**	251.67	**107**	396.88	**10700**				
10.80	12	162	114	96	45	444.27	**10800**	251.67	**108**	251.67	**108**	251.67	**108**	396.88	**10800**				
10.90	12	162	114	96	45	444.27	**10900**	251.67	**109**	251.67	**109**	251.67	**109**	396.88	**10900**				
11.00	12	162	114	96	45	444.27	**11000**	251.67	**110**	251.67	**110**	251.67	**110**	396.88	**11000**				
11.10	12	162	114	96	45	444.27	**11100**	251.67	**111**	251.67	**111**	251.67	**111**	396.88	**11100**				
11.20	12	162	114	96	45	444.27	**11200**	251.67	**112**	251.67	**112**	251.67	**112**	396.88	**11200**				
11.30	12	162	114	96	45	444.27	**11300**	251.67	**113**	251.67	**113**	251.67	**113**	396.88	**11300**				
11.40	12	162	114	96	45	444.27	**11400**	251.67	**114**	251.67	**114**	251.67	**114**	396.88	**11400**				
11.50	12	162	114	96	45	444.27	**11500**	251.67	**115**	251.67	**115**	251.67	**115**	396.88	**11500**				
11.60	12	162	114	96	45	444.27	**11600**	251.67	**116**	251.67	**116**	251.67	**116**	396.88	**11600**				
11.70	12	162	114	96	45	444.27	**11700**	251.67	**117**	251.67	**117**	251.67	**117**	396.88	**11700**				
11.80	12	162	114	96	45	444.27	**11800**	251.67	**118**	251.67	**118**	251.67	**118**	396.88	**11800**				
11.90	12	162	114	96	45	444.27	**11900**	251.67	**119**	251.67	**119**	251.67	**119**	396.88	**11900**				
12.00	12	162	114	96	45	444.27	**12000**	251.67	**120**	251.67	**120**	251.67	**120**	396.88	**12000**				
12.50	14	178	131	112	45	533.13	**12500**	308.73	**125**					544.59	**12500**				
12.50	14	178	131	112	43					308.73	**125**	308.73	**125**						
12.80	14	178	131	112	43					308.73	**128**	308.73	**128**						
12.80	14	178	131	112	45	533.13	**12800**	308.73	**128**					544.59	**12800**				
13.00	14	178	131	112	45	533.13	**13000**	308.73	**130**					544.59	**13000**				
13.00	14	178	131	112	43					308.73	**130**	308.73	**130**						
13.50	14	178	131	112	45	533.13	**13500**	308.73	**135**					544.59	**13500**				
13.50	14	178	131	112	43					308.73	**135**	308.73	**135**						
13.80	14	178	131	112	45	533.13	**13800**	308.73	**138**					544.59	**13800**				
13.80	14	178	131	112	43					308.73	**138**	308.73	**138**						
14.00	14	178	131	112	45	533.13	**14000**	308.73	**140**					544.59	**14000**				
14.00	14	178	131	112	43					308.73	**140**	308.73	**140**						
P						●		●		●		●		●					
M						●													
K						●		●		●		●		●					
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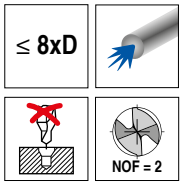
H								○		○		○		○					
O																			

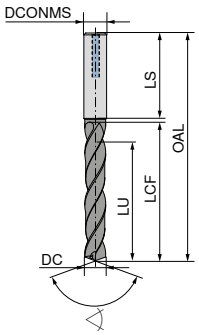
→ v_c Page 109–118

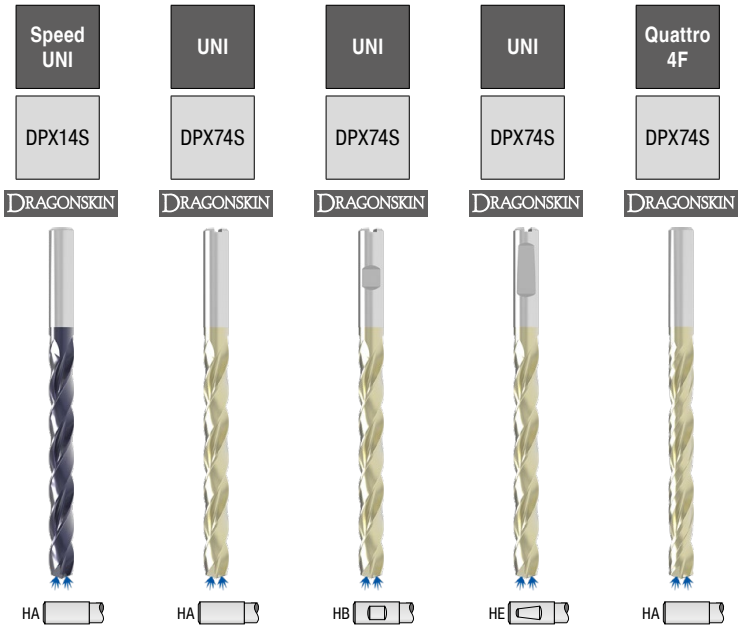
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, factory standard







							145°		135°		135°		135°		140°	
							Solid carbide		Solid carbide		Solid carbide		Solid carbide		Solid carbide	
							10 782 ...		**11 789 ...**		**11 790 ...**		**11 788 ...**		**10 736 ...**	
DC $_{m7/h7}$ **mm**	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm		£ T4		£ T7		£ T7		£ T7		£ T4	
14.50	16	203	152	128	48		718.62	**14500**	383.15	**145**	383.15	**145**	383.15	**145**	686.82	**14500**
14.80	16	203	152	128	48		718.62	**14800**	383.15	**148**	383.15	**148**	383.15	**148**	686.82	**14800**
15.00	16	203	152	128	48		718.62	**15000**	383.15	**150**	383.15	**150**	383.15	**150**	686.82	**15000**
15.50	16	203	152	128	48		718.62	**15500**	383.15	**155**	383.15	**155**	383.15	**155**	686.82	**15500**
15.80	16	203	152	128	48		718.62	**15800**	383.15	**158**	383.15	**158**	383.15	**158**	686.82	**15800**
16.00	16	203	152	128	48		718.62	**16000**	383.15	**160**	383.15	**160**	383.15	**160**	686.82	**16000**
16.50	18	222	171	144	48		1,008.56	**16500**	485.37	**165**	485.37	**165**	485.37	**165**	986.04	**16500**
16.80	18	222	171	144	48		1,008.56	**16800**	485.37	**168**	485.37	**168**	485.37	**168**	986.04	**16800**
17.00	18	222	171	144	48		1,008.56	**17000**	485.37	**170**	485.37	**170**	485.37	**170**	986.04	**17000**
17.50	18	222	171	144	48		1,008.56	**17500**	485.37	**175**	485.37	**175**	485.37	**175**	986.04	**17500**
17.80	18	222	171	144	48		1,008.56	**17800**	485.37	**178**	485.37	**178**	485.37	**178**	986.04	**17800**
18.00	18	222	171	144	48		1,008.56	**18000**	485.37	**180**	485.37	**180**	485.37	**180**	986.04	**18000**
18.50	20	243	190	160	50		1,272.01	**18500**	569.70	**185**	569.70	**185**	569.70	**185**	1,244.20	**18500**
18.80	20	243	190	160	50		1,272.01	**18800**	569.70	**188**	569.70	**188**	569.70	**188**	1,244.20	**18800**
19.00	20	243	190	160	50		1,272.01	**19000**	569.70	**190**	569.70	**190**	569.70	**190**	1,244.20	**19000**
19.50	20	243	190	160	50		1,272.01	**19500**	569.70	**195**	569.70	**195**	569.70	**195**	1,244.20	**19500**
19.80	20	243	190	160	50		1,272.01	**19800**	569.70	**198**	569.70	**198**	569.70	**198**	1,244.20	**19800**
20.00	20	243	190	160	50		1,272.01	**20000**	569.70	**200**	569.70	**200**	569.70	**200**	1,244.20	**20000**
P							●		●		●		●		●	
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→ v_c Page 109–118

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

WPC – High Performance Drill, factory standard

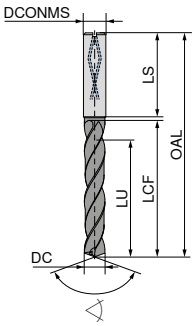
≤ 8xD





UNI

TiAlN





HA

135°

Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 612 ... £ T1	
3.0	6	72	34	29	36	92.10	030
3.1	6	72	34	29	36	92.10	031
3.2	6	72	34	29	36	92.10	032
3.3	6	72	34	29	36	92.10	033
3.4	6	72	34	29	36	92.10	034
3.5	6	72	34	29	36	92.10	035
3.6	6	72	34	29	36	92.10	036
3.7	6	72	34	29	36	92.10	037
3.8	6	81	43	36	36	92.10	038
3.9	6	81	43	36	36	92.10	039
4.0	6	81	43	36	36	92.10	040
4.1	6	81	43	36	36	92.10	041
4.2	6	81	43	36	36	92.10	042
4.3	6	81	43	36	36	92.10	043
4.4	6	81	43	36	36	92.10	044
4.5	6	81	43	36	36	92.10	045
4.6	6	81	43	36	36	92.10	046
4.7	6	81	43	36	36	92.10	047
4.8	6	95	57	48	36	92.10	048
4.9	6	95	57	48	36	92.10	049
5.0	6	95	57	48	36	92.10	050
5.1	6	95	57	48	36	92.10	051
5.2	6	95	57	48	36	92.10	052
5.3	6	95	57	48	36	92.10	053
5.5	6	95	57	48	36	92.10	055
5.8	6	95	57	48	36	92.10	058
5.9	6	95	57	48	36	92.10	059
6.0	6	95	57	48	36	92.10	060
6.1	8	114	76	64	36	118.09	061
6.2	8	114	76	64	36	118.09	062
6.3	8	114	76	64	36	118.09	063
6.5	8	114	76	64	36	118.09	065
6.6	8	114	76	64	36	118.09	066
6.8	8	114	76	64	36	118.09	068
7.0	8	114	76	64	36	118.09	070
7.4	8	114	76	64	36	118.09	074
7.5	8	114	76	64	36	118.09	075
7.7	8	114	76	64	36	118.09	077
7.8	8	114	76	64	36	118.09	078
7.9	8	114	76	64	36	118.09	079
8.0	8	114	76	64	36	118.09	080
8.1	10	142	95	80	40	148.47	081
8.2	10	142	95	80	40	148.47	082
8.3	10	142	95	80	40	148.47	083
8.5	10	142	95	80	40	148.47	085
8.6	10	142	95	80	40	148.47	086
8.7	10	142	95	80	40	148.47	087
8.8	10	142	95	80	40	148.47	088
9.0	10	142	95	80	40	148.47	090
9.1	10	142	95	80	40	148.47	091
9.2	10	142	95	80	40	148.47	092
9.3	10	142	95	80	40	148.47	093
9.4	10	142	95	80	40	148.47	094
9.5	10	142	95	80	40	148.47	095
9.7	10	142	95	80	40	148.47	097
9.8	10	142	95	80	40	148.47	098
9.9	10	142	95	80	40	148.47	099
10.0	10	142	95	80	40	148.47	100
10.2	12	162	114	96	45	197.58	102
10.5	12	162	114	96	45	197.58	105
10.8	12	162	114	96	45	197.58	108
11.0	12	162	114	96	45	197.58	110
11.2	12	162	114	96	45	197.58	112
11.5	12	162	114	96	45	197.58	115
11.8	12	162	114	96	45	197.58	118
12.0	12	162	114	96	45	197.58	120
12.5	14	178	131	112	45	289.96	125
13.0	14	178	131	112	45	289.96	130
13.5	14	178	131	112	45	289.96	135
14.0	14	178	131	112	45	289.96	140
14.5	16	203	152	128	48	378.79	145
15.0	16	203	152	128	48	378.79	150
15.5	16	203	152	128	48	378.79	155
16.0	16	203	152	128	48	378.79	160
16.5	18	222	171	144	48	471.16	165
17.0	18	222	171	144	48	471.16	170
17.5	18	222	171	144	48	471.16	175
18.0	18	222	171	144	48	471.16	180
18.5	20	243	190	160	50	524.95	185
19.0	20	243	190	160	50	524.95	190
20.0	20	243	190	160	50	524.95	200

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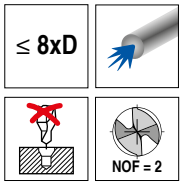
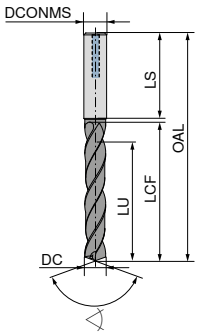
WTX – High Performance Drill, factory standard





Type GG = Straight Fluted



DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 770 ... £ T4		10 753 ... £ T4		10 792 ... £ T4	
3.0	6	72	34	29	36	146.87	030	151.68	030	144.61	03000
3.1	6	72	34	29	36	146.87	031	151.68	031	144.61	03100
3.2	6	72	34	29	36	146.87	032	151.68	032	144.61	03200
3.3	6	72	34	29	36	146.87	033	151.68	033	144.61	03300
3.4	6	72	34	29	36	146.87	034	151.68	034	144.61	03400
3.5	6	72	34	29	36	146.87	035	151.68	035	144.61	03500
3.6	6	72	34	29	36	146.87	036	151.68	036	144.61	03600
3.7	6	72	34	29	36	146.87	037	151.68	037	144.61	03700
3.8	6	81	43	36	36	146.87	038	151.68	038	144.61	03800
3.9	6	81	43	36	36	146.87	039	151.68	039	144.61	03900
4.0	6	81	43	36	36	146.87	040	151.68	040	144.61	04000
4.1	6	81	43	36	36	146.87	041	151.68	041	144.61	04100
4.2	6	81	43	36	36	146.87	042	151.68	042	144.61	04200
4.3	6	81	43	36	36	146.87	043	151.68	043	144.61	04300
4.4	6	81	43	36	36	146.87	044	151.68	044	144.61	04400
4.5	6	81	43	36	36	146.87	045	151.68	045	144.61	04500
4.6	6	81	43	36	36	146.87	046	151.68	046	144.61	04600
4.7	6	81	43	36	36	146.87	047	151.68	047	144.61	04700
4.8	6	95	57	48	36	146.87	048	151.68	048	144.61	04800
4.9	6	95	57	48	36	146.87	049	151.68	049	144.61	04900
5.0	6	95	57	48	36	146.87	050	151.68	050	144.61	05000
5.1	6	95	57	48	36	146.87	051	151.68	051	144.61	05100
5.2	6	95	57	48	36	146.87	052	151.68	052	144.61	05200
5.3	6	95	57	48	36	146.87	053	151.68	053	144.61	05300
5.4	6	95	57	48	36	146.87	054	151.68	054	144.61	05400
5.5	6	95	57	48	36	146.87	055	151.68	055	144.61	05500
5.6	6	95	57	48	36	146.87	056	151.68	056	144.61	05600
5.7	6	95	57	48	36	146.87	057	151.68	057	144.61	05700
5.8	6	95	57	48	36	146.87	058	151.68	058	144.61	05800
5.9	6	95	57	48	36	146.87	059	151.68	059	144.61	05900
6.0	6	95	57	48	36	146.87	060	151.68	060	144.61	06000
6.1	8	114	76	64	36	176.86	061	158.64	061	181.67	06100
6.2	8	114	76	64	36	176.86	062	158.64	062	181.67	06200
6.3	8	114	76	64	36	176.86	063	158.64	063	181.67	06300
6.4	8	114	76	64	36	176.86	064	158.64	064	181.67	06400
6.5	8	114	76	64	36	176.86	065	158.64	065	181.67	06500
6.6	8	114	76	64	36	176.86	066	158.64	066	181.67	06600
6.7	8	114	76	64	36	176.86	067	158.64	067	181.67	06700
6.8	8	114	76	64	36	176.86	068	158.64	068	181.67	06800
6.9	8	114	76	64	36	176.86	069	158.64	069	181.67	06900
7.0	8	114	76	64	36	176.86	070	158.64	070	181.67	07000
7.1	8	114	76	64	36	176.86	071	158.64	071	181.67	07100
7.2	8	114	76	64	36	176.86	072	158.64	072	181.67	07200
7.3	8	114	76	64	36	176.86	073	158.64	073	181.67	07300
7.4	8	114	76	64	36	176.86	074	158.64	074	181.67	07400

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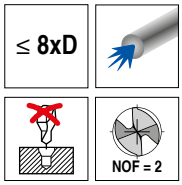
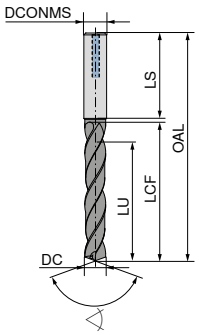
→ v_c Page 115–121

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

Continued on next page

WTX – High Performance Drill, factory standard





Type GG = Straight Fluted



Solid carbide | Solid carbide | Solid carbide

DC $_{h7/m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	10 770 ... £ T4		10 753 ... £ T4		10 792 ... £ T4	
7.5	8	114	76	64	36	176.86	075	158.64	075	181.67	07500
7.6	8	114	76	64	36	176.86	076	158.64	076	181.67	07600
7.7	8	114	76	64	36	176.86	077	158.64	077	181.67	07700
7.8	8	114	76	64	36	176.86	078	158.64	078	181.67	07800
7.9	8	114	76	64	36	176.86	079	158.64	079	181.67	07900
8.0	8	114	76	64	36	176.86	080	158.64	080	181.67	08000
8.1	10	142	95	80	40	255.83	081	220.52	081	230.63	08100
8.2	10	142	95	80	40	255.83	082	220.52	082	230.63	08200
8.3	10	142	95	80	40	255.83	083	220.52	083	230.63	08300
8.4	10	142	95	80	40	255.83	084	220.52	084	230.63	08400
8.5	10	142	95	80	40	255.83	085	220.52	085	230.63	08500
8.6	10	142	95	80	40	255.83	086	220.52	086	230.63	08600
8.7	10	142	95	80	40	255.83	087	220.52	087	230.63	08700
8.8	10	142	95	80	40	255.83	088	220.52	088	230.63	08800
8.9	10	142	95	80	40	255.83	089	220.52	089	230.63	08900
9.0	10	142	95	80	40	255.83	090	220.52	090	230.63	09000
9.1	10	142	95	80	40	255.83	091	220.52	091	230.63	09100
9.2	10	142	95	80	40	255.83	092	220.52	092	230.63	09200
9.3	10	142	95	80	40	255.83	093	220.52	093	230.63	09300
9.4	10	142	95	80	40	255.83	094	220.52	094	230.63	09400
9.5	10	142	95	80	40	255.83	095	220.52	095	230.63	09500
9.6	10	142	95	80	40	255.83	096	220.52	096	230.63	09600
9.7	10	142	95	80	40	255.83	097	220.52	097	230.63	09700
9.8	10	142	95	80	40	255.83	098	220.52	098	230.63	09800
9.9	10	142	95	80	40	255.83	099	220.52	099	230.63	09900
10.0	10	142	95	80	40	255.83	100	220.52	100	230.63	10000
10.1	12	162	114	96	45	328.58	101	281.03	101		
10.2	12	162	114	96	45	328.58	102	281.03	102	294.39	10200
10.3	12	162	114	96	45	328.58	103	281.03	103	294.39	10300
10.4	12	162	114	96	45	328.58	104	281.03	104	294.39	10400
10.5	12	162	114	96	45	328.58	105	281.03	105	294.39	10500
10.6	12	162	114	96	45	328.58	106	281.03	106		
10.7	12	162	114	96	45	328.58	107	281.03	107	294.39	10700
10.8	12	162	114	96	45	328.58	108	281.03	108	294.39	10800
10.9	12	162	114	96	45	328.58	109	281.03	109		
11.0	12	162	114	96	45	328.58	110	281.03	110	294.39	11000
11.1	12	162	114	96	45	328.58	111	281.03	111		
11.2	12	162	114	96	45	328.58	112	281.03	112	294.39	11200
11.3	12	162	114	96	45	328.58	113	281.03	113		
11.4	12	162	114	96	45	328.58	114	281.03	114		
11.5	12	162	114	96	45	328.58	115	281.03	115	294.39	11500
11.6	12	162	114	96	45	328.58	116	281.03	116	294.39	11600
11.7	12	162	114	96	45	328.58	117	281.03	117		
11.8	12	162	114	96	45	328.58	118	281.03	118	294.39	11800
11.9	12	162	114	96	45	328.58	119	281.03	119		

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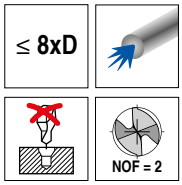
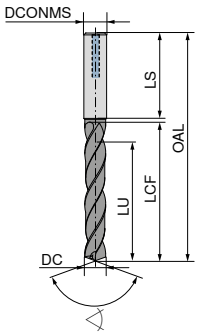
→ v_c Page 115–121

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

Continued on next page

WTX – High Performance Drill, factory standard





Type GG = Straight Fluted

VA	GG	AL
Ti700	Ti700	DLC
		DRAGONSKIN







HA | HA | HA

140° | 130° | 135°

Solid carbide | Solid carbide | Solid carbide

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 770 ... £ T4		10 753 ... £ T4		10 792 ... £ T4	
12.0	12	162	114	96	45	328.58	120	281.03	120	294.39	12000
12.2	14	178	131	112	45					373.09	12200
12.5	14	178	133	112	45	394.64	125	410.38	125		
12.5	14	178	131	112	45					373.09	12500
12.8	14	178	131	112	45					373.09	12800
12.8	14	178	133	112	45	394.64	128	410.38	128		
13.0	14	178	131	112	45					373.09	13000
13.0	14	178	133	112	45	394.64	130	410.38	130		
13.2	14	178	131	112	45					373.09	13200
13.5	14	178	131	112	45					373.09	13500
13.5	14	178	133	112	45	394.64	135	410.38	135		
13.8	14	178	131	112	45					373.09	13800
13.8	14	178	133	112	45	394.64	138	410.38	138		
14.0	14	178	133	112	45	394.64	140	410.38	140		
14.0	14	178	131	112	45					373.09	14000
14.2	16	203	152	128	48					532.49	14200
14.5	16	203	152	128	48	533.61	145	531.38	145	532.49	14500
14.8	16	203	152	128	48	533.61	148	531.38	148	532.49	14800
15.0	16	203	152	128	48	533.61	150	531.38	150	532.49	15000
15.2	16	203	152	128	48					532.49	15200
15.5	16	203	152	128	48	533.61	155	531.38	155	532.49	15500
15.8	16	203	152	128	48	533.61	158	531.38	158	532.49	15800
16.0	16	203	152	128	48	533.61	160	531.38	160	532.49	16000
16.2	18	222	171	144	48					652.06	16200
16.5	18	222	171	144	48	746.54	165	736.42	165	652.06	16500
16.8	18	222	171	144	48	746.54	168	736.42	168	652.06	16800
17.0	18	222	171	144	48	746.54	170	736.42	170	652.06	17000
17.2	18	222	171	144	48					652.06	17200
17.5	18	222	171	144	48	746.54	175	736.42	175	652.06	17500
17.8	18	222	171	144	48	746.54	178	736.42	178	652.06	17800
18.0	18	222	171	144	48	746.54	180	736.42	180	652.06	18000
18.2	20	243	190	160	50					795.28	18200
18.5	20	243	190	160	50	941.71	185	922.60	185	795.28	18500
18.8	20	243	190	160	50	941.71	188	922.60	188	795.28	18800
19.0	20	243	190	160	50	941.71	190	922.60	190	795.28	19000
19.1	20	243	190	160	50					795.28	19100
19.2	20	243	190	160	50					795.28	19200
19.5	20	243	190	160	50	941.71	195	922.60	195	795.28	19500
19.8	20	243	190	160	50	941.71	198	922.60	198	795.28	19800
20.0	20	243	190	160	50	941.71	200	922.60	200	795.28	20000

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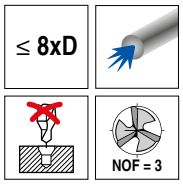
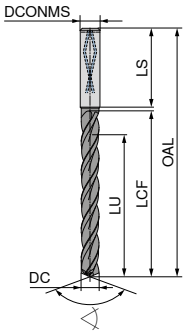
→ v_c Page 115–121

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

WTX – High Feed Drill, factory standard

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





Feed UNI

DPX74S



135°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 794 ... £ T4	
4.00	6	81	43	36	36	149.38	04000
4.10	6	81	43	36	36	149.38	04100
4.20	6	81	43	36	36	149.38	04200
4.30	6	81	43	36	36	149.38	04300
4.40	6	81	43	36	36	149.38	04400
4.50	6	81	43	36	36	149.38	04500
4.60	6	81	43	36	36	149.38	04600
4.70	6	81	43	36	36	149.38	04700
4.80	6	95	57	48	36	149.38	04800
4.90	6	95	57	48	36	149.38	04900
5.00	6	95	57	48	36	149.38	05000
5.10	6	95	57	48	36	149.38	05100
5.20	6	95	57	48	36	149.38	05200
5.30	6	95	57	48	36	149.38	05300
5.40	6	95	57	48	36	149.38	05400
5.50	6	95	57	48	36	149.38	05500
5.55	6	95	57	48	36	149.38	05550
5.60	6	95	57	48	36	149.38	05600
5.70	6	95	57	48	36	149.38	05700
5.80	6	95	57	48	36	149.38	05800
5.90	6	95	57	48	36	149.38	05900
6.00	6	95	57	48	36	149.38	06000
6.10	8	114	76	64	36	199.58	06100
6.20	8	114	76	64	36	199.58	06200
6.30	8	114	76	64	36	199.58	06300
6.40	8	114	76	64	36	199.58	06400
6.50	8	114	76	64	36	199.58	06500
6.60	8	114	76	64	36	199.58	06600
6.70	8	114	76	64	36	199.58	06700
6.80	8	114	76	64	36	199.58	06800
6.90	8	114	76	64	36	199.58	06900
7.00	8	114	76	64	36	199.58	07000
7.10	8	114	76	64	36	199.58	07100
7.20	8	114	76	64	36	199.58	07200
7.30	8	114	76	64	36	199.58	07300
7.40	8	114	76	64	36	199.58	07400
7.50	8	114	76	64	36	199.58	07500
7.60	8	114	76	64	36	199.58	07600
7.70	8	114	76	64	36	199.58	07700
7.80	8	114	76	64	36	199.58	07800
7.90	8	114	76	64	36	199.58	07900
8.00	8	114	76	64	36	199.58	08000
8.10	10	142	95	80	40	287.74	08100
8.20	10	142	95	80	40	287.74	08200
8.30	10	142	95	80	40	287.74	08300
8.40	10	142	95	80	40	287.74	08400
8.50	10	142	95	80	40	287.74	08500
8.60	10	142	95	80	40	287.74	08600
8.70	10	142	95	80	40	287.74	08700
8.80	10	142	95	80	40	287.74	08800
8.90	10	142	95	80	40	287.74	08900
9.00	10	142	95	80	40	287.74	09000
9.10	10	142	95	80	40	287.74	09100
9.20	10	142	95	80	40	287.74	09200
9.30	10	142	95	80	40	287.74	09300
9.40	10	142	95	80	40	287.74	09400
9.50	10	142	95	80	40	287.74	09500
9.60	10	142	95	80	40	287.74	09600
9.70	10	142	95	80	40	287.74	09700
9.80	10	142	95	80	40	287.74	09800
9.90	10	142	95	80	40	287.74	09900
10.00	10	142	95	80	40	287.74	10000
10.10	12	162	114	96	45	372.25	10100
10.20	12	162	114	96	45	372.25	10200
10.30	12	162	114	96	45	372.25	10300
10.40	12	162	114	96	45	372.25	10400
10.50	12	162	114	96	45	372.25	10500
10.60	12	162	114	96	45	372.25	10600
10.70	12	162	114	96	45	372.25	10700
10.80	12	162	114	96	45	372.25	10800
10.90	12	162	114	96	45	372.25	10900
11.00	12	162	114	96	45	372.25	11000
11.10	12	162	114	96	45	372.25	11100
11.20	12	162	114	96	45	372.25	11200
11.30	12	162	114	96	45	372.25	11300
11.40	12	162	114	96	45	372.25	11400
11.50	12	162	114	96	45	372.25	11500
11.60	12	162	114	96	45	372.25	11600
11.70	12	162	114	96	45	372.25	11700
11.80	12	162	114	96	45	372.25	11800
11.90	12	162	114	96	45	372.25	11900
12.00	12	162	114	96	45	372.25	12000
12.20	14	178	131	112	45	446.92	12200
12.50	14	178	131	112	45	446.92	12500
12.80	14	178	131	112	45	446.92	12800
13.00	14	178	131	112	45	446.92	13000
13.50	14	178	131	112	45	446.92	13500
13.80	14	178	131	112	45	446.92	13800
14.00	14	178	131	112	45	446.92	14000
14.50	16	203	152	128	48	602.43	14500
14.80	16	203	152	128	48	602.43	14800
15.00	16	203	152	128	48	602.43	15000
15.50	16	203	152	128	48	602.43	15500
15.80	16	203	152	128	48	602.43	15800
16.00	16	203	152	128	48	602.43	16000
16.50	18	222	171	144	48	844.86	16500
16.80	18	222	171	144	48	844.86	16800
17.00	18	222	171	144	48	844.86	17000
17.50	18	222	171	144	48	844.86	17500
17.80	18	222	171	144	48	844.86	17800
18.00	18	222	171	144	48	844.86	18000
18.50	20	243	190	160	50	1,064.05	18500
18.80	20	243	190	160	50	1,064.05	18800
19.00	20	243	190	160	50	1,064.05	19000
19.50	20	243	190	160	50	1,064.05	19500
19.80	20	243	190	160	50	1,064.05	19800
20.00	20	243	190	160	50	1,064.05	20000

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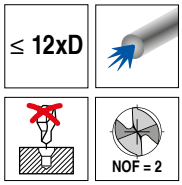
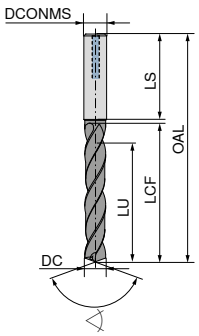
→ v_c Page 111

WTX – High Performance Drill, factory standard

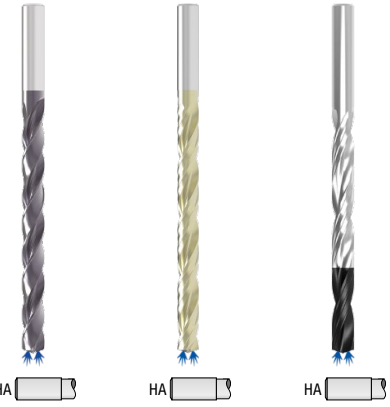
2





NEW

Speed VA	Quattro 4F	AL
Ti800	DPX74S	DLC
	DRAGONSKIN	DRAGONSKIN



	135°	140°	135°
	Solid carbide	Solid carbide	Solid carbide
	10 774 ...	10 737 ...	10 793 ...
	£ T4	£ T4	£ T4

DC $_{h7/m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm						
3.0	6	92	54	48	36	177.56	03000	237.95	03000	174.83	03000
3.1	6	92	54	48	36	177.56	03100	237.95	03100	174.83	03100
3.2	6	92	54	48	36	177.56	03200	237.95	03200	174.83	03200
3.3	6	92	54	48	36	177.56	03300	237.95	03300	174.83	03300
3.4	6	92	54	48	36	177.56	03400	237.95	03400	174.83	03400
3.5	6	92	54	48	36	177.56	03500	237.95	03500	174.83	03500
3.6	6	92	54	48	36	177.56	03600	237.95	03600	174.83	03600
3.7	6	92	54	48	36	177.56	03700	237.95	03700	174.83	03700
3.8	6	102	64	58	36	177.56	03800	237.95	03800	174.83	03800
3.9	6	102	64	58	36	177.56	03900	237.95	03900	174.83	03900
4.0	6	102	64	58	36	177.56	04000	237.95	04000	174.83	04000
4.1	6	102	64	58	36	177.56	04100	237.95	04100	174.83	04100
4.2	6	102	64	58	36	177.56	04200	237.95	04200	174.83	04200
4.3	6	102	64	58	36	177.56	04300	237.95	04300	174.83	04300
4.4	6	102	64	58	36	177.56	04400	237.95	04400	174.83	04400
4.5	6	102	64	58	36	177.56	04500	237.95	04500	174.83	04500
4.6	6	102	64	58	36	177.56	04600	237.95	04600	174.83	04600
4.7	6	102	64	58	36	177.56	04700	237.95	04700	174.83	04700
4.8	6	116	78	70	36	177.56	04800	237.95	04800	174.83	04800
4.9	6	116	78	70	36	177.56	04900	237.95	04900	174.83	04900
5.0	6	116	78	70	36	177.56	05000	237.95	05000	174.83	05000
5.1	6	116	78	70	36	177.56	05100	237.95	05100	174.83	05100
5.2	6	116	78	70	36	177.56	05200	237.95	05200	174.83	05200
5.3	6	116	78	70	36	177.56	05300	237.95	05300	174.83	05300
5.4	6	116	78	70	36	177.56	05400	237.95	05400	174.83	05400
5.5	6	116	78	70	36	177.56	05500	237.95	05500	174.83	05500
5.6	6	116	78	70	36	177.56	05600	237.95	05600	174.83	05600
5.7	6	116	78	70	36	177.56	05700	237.95	05700	174.83	05700
5.8	6	116	78	70	36	177.56	05800	237.95	05800	174.83	05800
5.9	6	116	78	70	36	177.56	05900	237.95	05900	174.83	05900
6.0	6	116	78	70	36	177.56	06000	237.95	06000	174.83	06000
6.1	8	146	108	94	36	203.99	06100	249.53	06100	241.63	06100
6.2	8	146	108	94	36	203.99	06200	249.53	06200	241.63	06200
6.3	8	146	108	94	36	203.99	06300	249.53	06300	241.63	06300
6.4	8	146	108	94	36	203.99	06400	249.53	06400	241.63	06400
6.5	8	146	108	94	36	203.99	06500	249.53	06500	241.63	06500
6.6	8	146	108	94	36	203.99	06600	249.53	06600	241.63	06600
6.7	8	146	108	94	36	203.99	06700	249.53	06700	241.63	06700
6.8	8	146	108	94	36	203.99	06800	249.53	06800	241.63	06800

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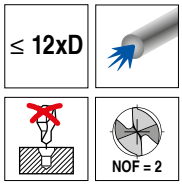
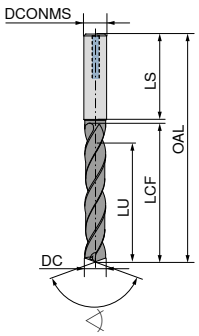
→ v_c Page 116–122

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

Continued on next page

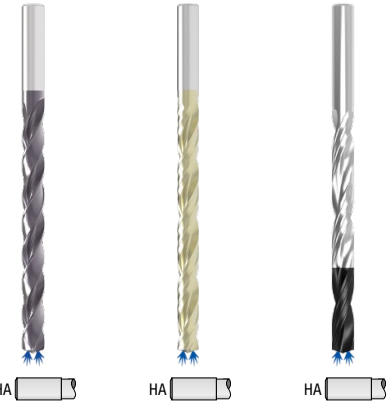
WTX – High Performance Drill, factory standard





NEW

Speed VA	Quattro 4F	AL
Ti800	DPX74S	DLC
	DRAGONSKIN	DRAGONSKIN



135°	140°	135°
Solid carbide	Solid carbide	Solid carbide
10 774 ...	**10 737 ...**	**10 793 ...**

DC $_{h7/m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T4		£ T4	
6.9	8	146	108	94	36	203.99	06900	249.53	06900	241.63	06900
7.0	8	146	108	94	36	203.99	07000	249.53	07000	241.63	07000
7.1	8	146	108	94	36	203.99	07100	249.53	07100	241.63	07100
7.2	8	146	108	94	36	203.99	07200	249.53	07200	241.63	07200
7.3	8	146	108	94	36	203.99	07300	249.53	07300	241.63	07300
7.4	8	146	108	94	36	203.99	07400	249.53	07400	241.63	07400
7.5	8	146	108	94	36	203.99	07500	249.53	07500	241.63	07500
7.6	8	146	108	94	36	203.99	07600	249.53	07600	241.63	07600
7.7	8	146	108	94	36	203.99	07700	249.53	07700	241.63	07700
7.8	8	146	108	94	36	203.99	07800	249.53	07800	241.63	07800
7.9	8	146	108	94	36	203.99	07900	249.53	07900	241.63	07900
8.0	8	146	108	94	36	203.99	08000	249.53	08000	241.63	08000
8.1	10	162	120	110	40	266.04	08100	339.99	08100	306.76	08100
8.2	10	162	120	110	40	266.04	08200	339.99	08200	306.76	08200
8.3	10	162	120	110	40	266.04	08300	339.99	08300	306.76	08300
8.4	10	162	120	110	40	266.04	08400	339.99	08400	306.76	08400
8.5	10	162	120	110	40	266.04	08500	339.99	08500	306.76	08500
8.6	10	162	120	110	40	266.04	08600	339.99	08600	306.76	08600
8.7	10	162	120	110	40	266.04	08700	339.99	08700	306.76	08700
8.8	10	162	120	110	40	266.04	08800	339.99	08800	306.76	08800
8.9	10	162	120	110	40	266.04	08900	339.99	08900	306.76	08900
9.0	10	162	120	110	40	266.04	09000	339.99	09000	306.76	09000
9.1	10	162	120	110	40	266.04	09100	339.99	09100	306.76	09100
9.2	10	162	120	110	40	266.04	09200	339.99	09200	306.76	09200
9.3	10	162	120	110	40	266.04	09300	339.99	09300	306.76	09300
9.4	10	162	120	110	40	266.04	09400	339.99	09400	306.76	09400
9.5	10	162	120	110	40	266.04	09500	339.99	09500	306.76	09500
9.6	10	162	120	110	40	266.04	09600	339.99	09600	306.76	09600
9.7	10	162	120	110	40	266.04	09700	339.99	09700	306.76	09700
9.8	10	162	120	110	40	266.04	09800	339.99	09800	306.76	09800
9.9	10	162	120	110	40	266.04	09900	339.99	09900	306.76	09900
10.0	10	162	120	110	40	266.04	10000	339.99	10000	306.76	10000
10.1	12	204	156	142	45	362.60	10100	420.50	10100		
10.2	12	204	156	142	45	362.60	10200	420.50	10200	415.65	10200
10.3	12	204	156	142	45	362.60	10300	420.50	10300		
10.4	12	204	156	142	45	362.60	10400	420.50	10400		
10.5	12	204	156	142	45	362.60	10500	420.50	10500	415.65	10500
10.6	12	204	156	142	45	362.60	10600	420.50	10600		
10.7	12	204	156	142	45	362.60	10700	420.50	10700	415.65	10700

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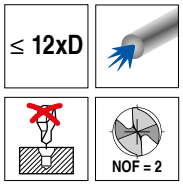
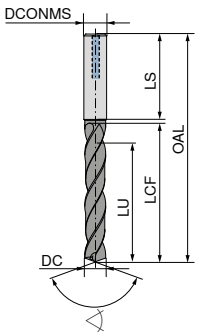
→ v_c Page 116–122

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

Continued on next page

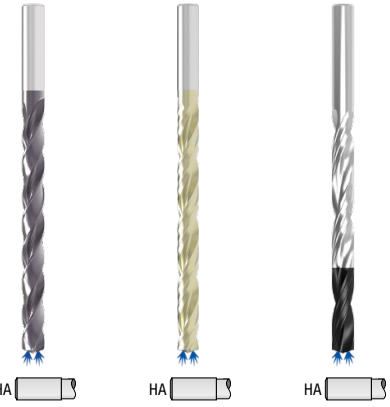
WTX – High Performance Drill, factory standard





NEW

Speed VA	Quattro 4F	AL
Ti800	DPX74S	DLC
	DRAGONSKIN	DRAGONSKIN



	135°	140°	135°
	Solid carbide	Solid carbide	Solid carbide
	10 774 ...	10 737 ...	10 793 ...

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T4		£ T4	
10.8	12	204	156	142	45	362.60	10800	420.50	10800	415.65	10800
10.9	12	204	156	142	45	362.60	10900	420.50	10900		
11.0	12	204	156	142	45	362.60	11000	420.50	11000	415.65	11000
11.1	12	204	156	142	45	362.60	11100	420.50	11100		
11.2	12	204	156	142	45	362.60	11200	420.50	11200	415.65	11200
11.3	12	204	156	142	45	362.60	11300	420.50	11300	415.65	11300
11.4	12	204	156	142	45	362.60	11400	420.50	11400		
11.5	12	204	156	142	45	362.60	11500	420.50	11500	415.65	11500
11.6	12	204	156	142	45	362.60	11600	420.50	11600		
11.7	12	204	156	142	45	362.60	11700	420.50	11700		
11.8	12	204	156	142	45	362.60	11800	420.50	11800	415.65	11800
11.9	12	204	156	142	45	362.60	11900	420.50	11900		
12.0	12	204	156	142	45	362.60	12000	420.50	12000	415.65	12000
12.1	14	230	182	166	45					585.88	12100
12.2	14	230	182	166	45	515.31	12200			585.88	12200
12.5	14	230	182	166	45	515.31	12500	614.85	12500	585.88	12500
12.8	14	230	182	166	45	515.31	12800	614.85	12800	585.88	12800
13.0	14	230	182	166	45	515.31	13000	614.85	13000	585.88	13000
13.2	14	230	182	166	45					585.88	13200
13.5	14	230	182	166	45	515.31	13500	614.85	13500	585.88	13500
13.8	14	230	182	166	45	515.31	13800	614.85	13800	585.88	13800
14.0	14	230	182	166	45	515.31	14000	614.85	14000	585.88	14000
14.2	16	260	208	192	48	661.14	14200			710.34	14200
14.5	16	260	208	192	48	661.14	14500	803.51	14500	710.34	14500
14.7	16	260	208	192	48					710.34	14700
14.8	16	260	208	192	48			803.51	14800	710.34	14800
15.0	16	260	208	192	48	661.14	15000	803.51	15000	710.34	15000
15.1	16	260	208	192	48	661.14	15100				
15.2	16	260	208	192	48	661.14	15200			710.34	15200
15.5	16	260	208	192	48	661.14	15500	803.51	15500	710.34	15500
15.7	16	260	208	192	48					710.34	15700
15.8	16	260	208	192	48	661.14	15800	803.51	15800	710.34	15800
16.0	16	260	208	192	48	661.14	16000	803.51	16000	710.34	16000
16.2	18	285	234	216	48					790.10	16200
16.5	18	285	234	216	48			1,109.93	16500	790.10	16500
16.8	18	285	234	216	48			1,109.93	16800	790.10	16800
17.0	18	285	234	216	48	909.12	17000	1,109.93	17000	790.10	17000
17.2	18	285	234	216	48					790.10	17200
17.5	18	285	234	216	48	909.12	17500	1,109.93	17500	790.10	17500

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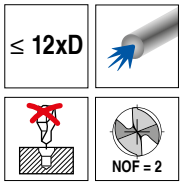
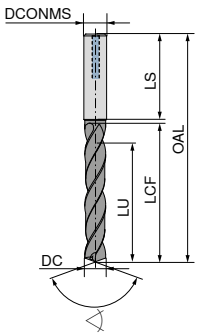
→ v_c Page 116–122

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

Continued on next page

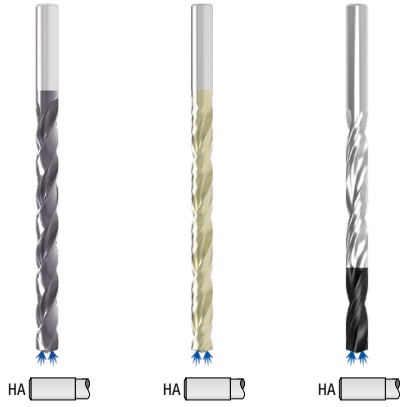
WTX – High Performance Drill, factory standard





NEW

Speed VA	Quattro 4F	AL
Ti800	DPX74S	DLC
	DRAGONSKIN	DRAGONSKIN



	135° Solid carbide	140° Solid carbide	135° Solid carbide
	10 774 ...	**10 737 ...**	**10 793 ...**
DC $_{h7/m7}$ **mm**	£ T4	£ T4	£ T4
DCONMS $_{h6}$ mm			
OAL mm			
LCF mm			
LU mm			
LS mm			
17.8 18 285 234 216 48		1,109.93 **17800**	790.10 **17800**
18.0 18 285 234 216 48		1,109.93 **18000**	790.10 **18000**
18.2 20 310 258 240 50			1,000.45 **18200**
18.5 20 310 258 240 50		1,402.63 **18500**	1,000.45 **18500**
18.7 20 310 258 240 50			1,000.45 **18700**
18.8 20 310 258 240 50		1,402.63 **18800**	1,000.45 **18800**
19.0 20 310 258 240 50		1,402.63 **19000**	1,000.45 **19000**
19.2 20 310 258 240 50			1,000.45 **19200**
19.5 20 310 258 240 50		1,402.63 **19500**	1,000.45 **19500**
19.8 20 310 258 240 50		1,402.63 **19800**	1,000.45 **19800**
20.0 20 310 258 240 50		1,402.63 **20000**	1,000.45 **20000**
P	●	●	
M	●		
K	●	●	
N	○		●
S	●		
H		○	
O			

→ v_c Page 116–122

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

WPC – High Performance Drill, factory standard

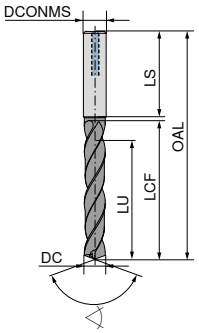
≤ 12xD

NOF = 2



UNI

TiAlN





HA

135°

Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 615 ... £ T1	
3.0	6	92	54	48	36	137.70	030
3.1	6	92	54	48	36	137.70	031
3.2	6	92	54	48	36	137.70	032
3.3	6	92	54	48	36	137.70	033
3.4	6	92	54	48	36	137.70	034
3.5	6	92	54	48	36	137.70	035
3.6	6	92	54	48	36	137.70	036
3.7	6	92	54	48	36	137.70	037
3.8	6	102	64	58	36	137.70	038
3.9	6	102	64	58	36	137.70	039
4.0	6	102	64	58	36	137.70	040
4.1	6	102	64	58	36	137.70	041
4.2	6	102	64	58	36	137.70	042
4.3	6	102	64	58	36	137.70	043
4.4	6	102	64	58	36	137.70	044
4.5	6	102	64	58	36	137.70	045
4.6	6	102	64	58	36	137.70	046
4.7	6	102	64	58	36	137.70	047
4.8	6	116	78	70	36	137.70	048
4.9	6	116	78	70	36	137.70	049
5.0	6	116	78	70	36	137.70	050
5.5	6	116	78	70	36	137.70	055
5.8	6	116	78	70	36	137.70	058
6.0	6	116	78	70	36	137.70	060
6.3	8	146	108	94	36	158.49	063
6.5	8	146	108	94	36	158.49	065
6.6	8	146	108	94	36	158.49	066
6.8	8	146	108	94	36	158.49	068
7.0	8	146	108	94	36	158.49	070
7.5	8	146	108	94	36	158.49	075
7.8	8	146	108	94	36	158.49	078
8.0	8	146	108	94	36	158.49	080
8.2	10	162	120	110	40	228.63	082
8.5	10	162	120	110	40	228.63	085
9.0	10	162	120	110	40	228.63	090
9.5	10	162	120	110	40	228.63	095
9.8	10	162	120	110	40	228.63	098
10.0	10	162	120	110	40	228.63	100
10.5	12	204	156	142	45	315.66	105
11.0	12	204	156	142	45	315.66	110
11.5	12	204	156	142	45	315.66	115
12.0	12	204	156	142	45	315.66	120
13.0	14	230	182	166	45	396.20	130
14.0	14	230	182	166	45	396.20	140
15.0	16	260	208	192	48	523.50	150
16.0	16	260	208	192	48	523.50	160
18.0	18	285	234	216	48	598.84	180

	11 615 ...
P	●
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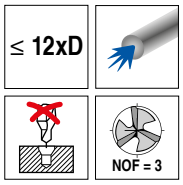
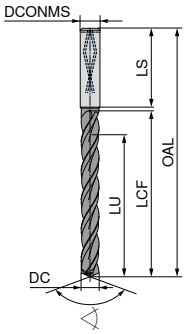
→ v_c Page 132

WTX – High Feed Drill, factory standard

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







Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 796 ... £ T4	
4.0	6	102	64	58	36	200.43	04000
4.1	6	102	64	58	36	200.43	04100
4.2	6	102	64	58	36	200.43	04200
4.3	6	102	64	58	36	200.43	04300
4.4	6	102	64	58	36	200.43	04400
4.5	6	102	64	58	36	200.43	04500
4.6	6	102	64	58	36	200.43	04600
4.7	6	102	64	58	36	200.43	04700
4.8	6	116	78	70	36	200.43	04800
4.9	6	116	78	70	36	200.43	04900
5.0	6	116	78	70	36	200.43	05000
5.1	6	116	78	70	36	200.43	05100
5.2	6	116	78	70	36	200.43	05200
5.3	6	116	78	70	36	200.43	05300
5.4	6	116	78	70	36	200.43	05400
5.5	6	116	78	70	36	200.43	05500
5.6	6	116	78	70	36	200.43	05600
5.7	6	116	78	70	36	200.43	05700
5.8	6	116	78	70	36	200.43	05800
5.9	6	116	78	70	36	200.43	05900
6.0	6	116	78	70	36	200.43	06000
6.1	8	146	108	94	36	258.13	06100
6.2	8	146	108	94	36	258.13	06200
6.3	8	146	108	94	36	258.13	06300
6.4	8	146	108	94	36	258.13	06400
6.5	8	146	108	94	36	258.13	06500
6.6	8	146	108	94	36	258.13	06600
6.7	8	146	108	94	36	258.13	06700
6.8	8	146	108	94	36	258.13	06800
6.9	8	146	108	94	36	258.13	06900
7.0	8	146	108	94	36	258.13	07000
7.1	8	146	108	94	36	258.13	07100
7.2	8	146	108	94	36	258.13	07200
7.3	8	146	108	94	36	258.13	07300
7.4	8	146	108	94	36	258.13	07400
7.5	8	146	108	94	36	258.13	07500
7.6	8	146	108	94	36	258.13	07600
7.7	8	146	108	94	36	258.13	07700
7.8	8	146	108	94	36	258.13	07800
7.9	8	146	108	94	36	258.13	07900
8.0	8	146	108	94	36	258.13	08000
8.1	10	162	120	110	40	336.36	08100
8.2	10	162	120	110	40	336.36	08200
8.3	10	162	120	110	40	336.36	08300
8.4	10	162	120	110	40	336.36	08400
8.5	10	162	120	110	40	336.36	08500
8.6	10	162	120	110	40	336.36	08600
8.7	10	162	120	110	40	336.36	08700
8.8	10	162	120	110	40	336.36	08800
8.9	10	162	120	110	40	336.36	08900
9.0	10	162	120	110	40	336.36	09000
9.1	10	162	120	110	40	336.36	09100
9.2	10	162	120	110	40	336.36	09200
9.3	10	162	120	110	40	336.36	09300
9.4	10	162	120	110	40	336.36	09400
9.5	10	162	120	110	40	336.36	09500
9.6	10	162	120	110	40	336.36	09600
9.7	10	162	120	110	40	336.36	09700
9.8	10	162	120	110	40	336.36	09800
9.9	10	162	120	110	40	336.36	09900
10.0	10	162	120	110	40	336.36	10000
10.1	12	204	156	142	45	438.76	10100
10.2	12	204	156	142	45	438.76	10200
10.3	12	204	156	142	45	438.76	10300
10.4	12	204	156	142	45	438.76	10400
10.5	12	204	156	142	45	438.76	10500
10.6	12	204	156	142	45	438.76	10600
10.7	12	204	156	142	45	438.76	10700
10.8	12	204	156	142	45	438.76	10800
10.9	12	204	156	142	45	438.76	10900
11.0	12	204	156	142	45	438.76	11000
11.1	12	204	156	142	45	438.76	11100
11.2	12	204	156	142	45	438.76	11200
11.3	12	204	156	142	45	438.76	11300
11.4	12	204	156	142	45	438.76	11400
11.5	12	204	156	142	45	438.76	11500
11.6	12	204	156	142	45	438.76	11600
11.7	12	204	156	142	45	438.76	11700
11.8	12	204	156	142	45	438.76	11800
11.9	12	204	156	142	45	438.76	11900
12.0	12	204	156	142	45	438.76	12000
12.2	14	230	182	166	45	562.44	12200
12.5	14	230	182	166	45	562.44	12500
12.8	14	230	182	166	45	562.44	12800
13.0	14	230	182	166	45	562.44	13000
13.5	14	230	182	166	45	562.44	13500
13.8	14	230	182	166	45	562.44	13800
14.0	14	230	182	166	45	562.44	14000
14.5	16	260	208	192	48	731.25	14500
14.8	16	260	208	192	48	731.25	14800
15.0	16	260	208	192	48	731.25	15000
15.5	16	260	208	192	48	731.25	15500
15.8	16	260	208	192	48	731.25	15800
16.0	16	260	208	192	48	731.25	16000
16.5	18	285	234	216	48	943.82	16500
16.8	18	285	234	216	48	943.82	16800
17.0	18	285	234	216	48	943.82	17000
17.5	18	285	234	216	48	943.82	17500
17.8	18	285	234	216	48	943.82	17800
18.0	18	285	234	216	48	943.82	18000
18.5	20	310	258	240	50	1,153.99	18500
18.8	20	310	258	240	50	1,153.99	18800
19.0	20	310	258	240	50	1,153.99	19000
19.5	20	310	258	240	50	1,153.99	19500
19.8	20	310	258	240	50	1,153.99	19800
20.0	20	310	258	240	50	1,153.99	20000

	10 796 ...
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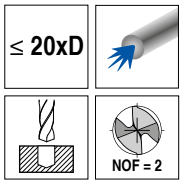
→ v_c Page 111

WTX – Co-pilot deep hole twist drills

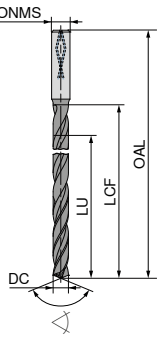
- Cutting tolerance j6 optimally coordinated as an intermediate tolerance between the pilot drill and deep hole twist drill
- Pilot hole necessary
- up to 20xD without peck drilling
- Excellent alignment precision
- Reliable chip removal



NEW

CP 20 UNI

TiAlN





HA

137°

Solid carbide

11 018 ...

DC j6 mm	DCONMS h5 mm	OAL mm	LCF mm	LU mm	£ T7	
3.0	6	120	80	60	176.59	**03000**
4.0	6	130	90	80	183.87	**04000**
4.2	6	160	110	84	199.07	**04200**
4.5	6	160	110	90	199.07	**04500**
4.8	6	160	120	96	211.86	**04800**
5.0	6	160	120	100	211.86	**05000**
5.5	6	185	140	110	220.02	**05500**
5.8	6	185	140	116	220.02	**05800**
6.0	6	185	140	120	220.02	**06000**
6.5	8	210	160	130	251.32	**06500**
6.8	8	210	160	136	251.32	**06800**
7.0	8	210	160	140	251.32	**07000**
7.5	8	230	180	150	279.32	**07500**
7.8	8	230	180	156	279.32	**07800**
8.0	8	230	180	160	279.32	**08000**
8.5	10	260	195	170	308.31	**08500**
8.8	10	290	230	176	344.36	**08800**
9.0	10	290	230	180	344.36	**09000**

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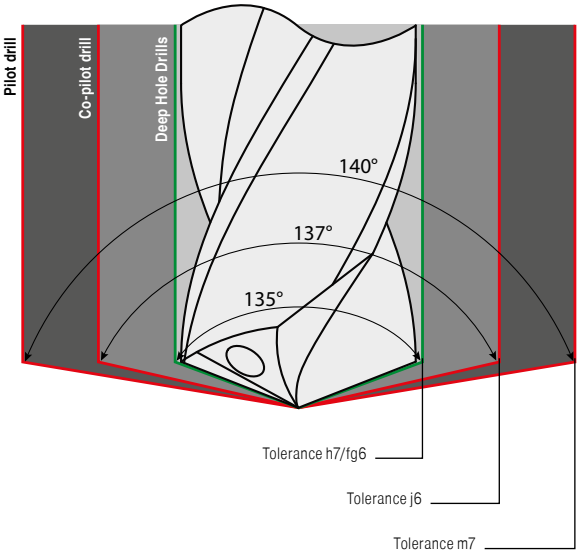
→ v_c Page 142

Tolerance and angle



Tolerance table

ISO tolerances for shafts and holes

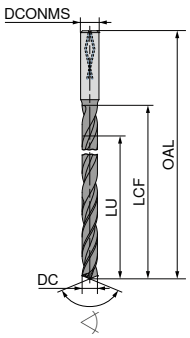
Tolerance designation	of Ø	3	6	10	18	
	up to and including	6	10	18	30	
p6		20	24	29	35	
		12	15	18	22	
h7		0	0	0	0	Deep hole twist drill 16xD to 30xD
		-12	-15	-18	-21	
j6		6	7	8	9	Co-pilot drill
		-2	-2	-3	-4	
fg6		-6	-8			Deep hole twist drill > 30xD
		-14	-17			
m6		12	15	18	21	
		4	6	7	8	
m7		16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

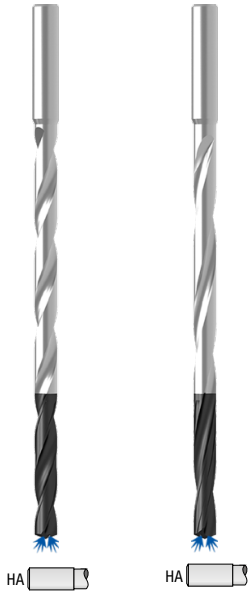
WTX – High performance deep hole drills

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

≤ 16xD

NOF = 2





Solid carbide

Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	11 016 ... £ T7		11 017 ... £ T7	
2.0	4	84	42	39	105.30	020	105.30	020
2.2	4	84	42	39	105.30	022	105.30	022
2.3	4	84	42	39	105.30	023	105.30	023
2.4	4	96	54	50	117.55	024	117.55	024
2.5	4	96	54	50	117.55	025	117.55	025
2.7	4	96	54	50	117.55	027	117.55	027
2.8	4	96	54	50	117.55	028	117.55	028
3.0	6	100	60	55	149.38	030	149.38	030
3.2	6	100	60	55	149.38	032	149.38	032
3.3	6	100	60	55	149.38	033	149.38	033
3.5	6	100	60	55	149.38	035	149.38	035
3.8	6	115	75	69	155.51	038	155.51	038
4.0	6	115	75	69	155.51	040	155.51	040
4.2	6	115	75	69	167.75	042	167.75	042
4.5	6	130	90	83	167.75	045	167.75	045
4.8	6	130	90	83	177.54	048	177.54	048
5.0	6	130	90	83	177.54	050	177.54	050
5.5	6	150	108	99	184.89	055	184.89	055
5.8	6	150	108	99	184.89	058	184.89	058
6.0	6	150	108	99	184.89	060	184.89	060
6.5	8	165	125	115	197.14	065	197.14	065
6.8	8	165	125	115	211.84	068	211.84	068
7.0	8	165	125	115	211.84	070	211.84	070
7.5	8	180	140	128	237.55	075	237.55	075
7.8	8	180	140	128	237.55	078	237.55	078
8.0	8	180	140	128	237.55	080	237.55	080
8.5	10	205	160	147	262.03	085	262.03	085
8.8	10	205	160	147	291.43	088	291.43	088
9.0	10	205	160	147	291.43	090	291.43	090
9.8	10	225	180	165	291.43	098	291.43	098
10.0	10	225	180	165	291.43	100	291.43	100
10.2	12	240	190	174	325.70	102	325.70	102
10.8	12	240	190	174	325.70	108	314.70	108
11.8	12	265	215	197	325.70	118	325.70	118
12.0	12	265	215	197	325.70	120	314.70	120

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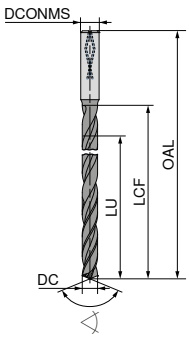
→ v_c Page 143+146
→ Machining information: Page 160

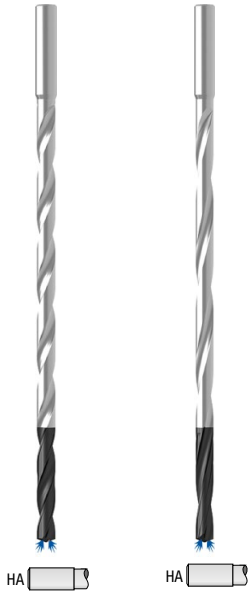
WTX – High performance deep hole drills

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

≤ 20xD

NOF = 2





Solid carbide

Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	11 020 ... £ T7		11 021 ... £ T7	
2.0	4	92	50	47	111.42	020	111.42	020
2.2	4	92	50	47	107.65	022	111.42	022
2.3	4	92	50	47	111.42	023	111.42	023
2.4	4	112	70	66	120.67	024	124.89	024
2.5	4	112	70	66	124.89	025	124.89	025
2.7	4	112	70	66	120.67	027	124.89	027
2.8	4	112	70	66	124.89	028	124.89	028
3.0	6	120	80	75	160.89	030	166.52	030
3.2	6	120	80	75	166.52	032	166.52	032
3.3	6	120	80	75	160.89	033	166.52	033
3.5	6	120	80	75	166.52	035	166.52	035
3.8	6	130	90	84	167.99	038	173.86	038
4.0	6	130	90	84	173.86	040	173.86	040
4.2	6	160	110	103	179.81	042	186.11	042
4.5	6	160	110	103	186.11	045	186.11	045
4.8	6	160	120	113	190.46	048	197.14	048
5.0	6	160	120	113	197.14	050	197.14	050
5.5	6	185	140	131	198.75	055	205.72	055
5.8	6	185	140	131	205.72	058	205.72	058
6.0	6	185	140	131	205.72	060	205.72	060
6.5	8	210	160	150	219.18	065	219.18	065
6.8	8	210	160	150	236.32	068	236.32	068
7.0	8	210	160	150	236.32	070	236.32	070
7.5	8	230	180	168	263.26	075	263.26	075
7.8	8	230	180	168	263.26	078	263.26	078
8.0	8	230	180	168	263.26	080	263.26	080
8.5	10	260	195	182	290.19	085	290.19	085
8.8	10	290	230	216	325.70	088	325.70	088
9.0	10	290	230	216	325.70	090	325.70	090
9.8	10	290	230	216	325.70	098	325.70	098
10.0	10	290	230	216	325.70	100	325.70	100
10.2	12	315	268	251	357.54	102	357.54	102
10.8	12	315	268	251	357.54	108	357.54	108
11.8	12	315	268	251	357.54	118	357.54	118
12.0	12	315	268	251	357.54	120	357.54	120

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

WTX – High performance deep hole drills

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

≤ 25xD

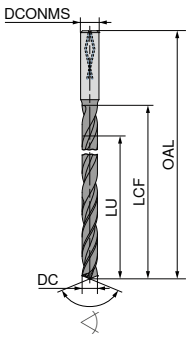
NOF = 2

TB 25 UNI

TiAlN

TB 25 ALU

DLC







135°

Solid carbide

135°

Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	11 025 ... £ T7		11 026 ... £ T7	
2.0	4	104	60	57	118.78	020	118.78	020
2.2	4	104	60	57	118.78	022	118.78	022
2.3	4	104	60	57	118.78	023	118.78	023
2.4	4	125	80	76	134.69	024	134.69	024
2.5	4	125	80	76	134.69	025	134.69	025
2.7	4	125	80	76	134.69	027	134.69	027
2.8	4	125	80	76	134.69	028	134.69	028
3.0	6	135	98	93	193.46	030	193.46	030
3.2	6	135	98	93	193.46	032	193.46	032
3.3	6	150	110	105	214.27	033	213.07	033
3.5	6	150	110	105	214.27	035	213.07	035
3.8	6	160	120	114	220.40	038	220.40	038
4.0	6	160	120	114	220.40	040	220.40	040
4.2	6	160	120	114	220.40	042	220.40	042
4.5	6	180	135	128	230.20	045	230.20	045
4.8	6	180	135	128	230.20	048	230.20	048
5.0	6	180	135	128	230.20	050	230.20	050
5.5	6	205	168	159	247.34	055	247.34	055
5.8	6	205	168	159	247.34	058	247.34	058
6.0	6	205	168	159	247.34	060	247.34	060
6.5	8	240	200	190	275.51	065	275.51	065
6.8	8	240	200	190	275.51	068	275.51	068
7.0	8	240	200	190	275.51	070	275.51	070
7.5	8	260	220	208	306.12	075	306.12	075
7.8	8	260	220	208	306.12	078	306.12	078
8.0	8	260	220	208	306.12	080	306.12	080
8.5	10	285	240	227	345.28	085	345.28	085
8.8	10	310	268	254	374.68	088	374.68	088
9.0	10	310	268	254	374.68	090	374.68	090
9.8	10	310	268	254	374.68	098	374.68	098
10.0	10	310	268	254	374.68	100	374.68	100
10.2	12	375	325	308	450.61	102	450.61	102
10.8	12	375	325	308	450.61	108	450.61	108
11.8	12	375	325	308	450.61	118	450.61	118
12.0	12	375	325	308	450.61	120	450.61	120

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

WTX – High performance deep hole drills

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

2

≤ 30xD

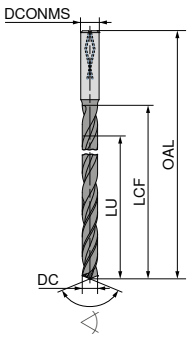
NOF = 2

TB 30 UNI

TiAlN

TB 30 ALU

DLC







135°

Solid carbide

135°

Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	11 030 ... £ T7		11 031 ... £ T7	
2.0	4	115	70	67	126.13	020	126.13	020
2.2	4	115	70	67	126.13	022	126.13	022
2.3	4	115	70	67	126.13	023	126.13	023
2.4	4	138	90	86	146.94	024	146.94	024
2.5	4	138	90	86	146.94	025	146.94	025
2.7	4	138	90	86	146.94	027	146.94	027
2.8	4	138	90	86	146.94	028	146.94	028
3.0	6	150	105	100	247.34	030	247.34	030
3.2	6	150	105	100	247.34	032	247.34	032
3.3	6	185	135	130	254.70	033	254.70	033
3.5	6	185	135	130	254.70	035	254.70	035
3.8	6	185	135	130	254.70	038	254.70	038
4.0	6	185	135	130	254.70	040	254.70	040
4.2	6	185	135	130	254.70	042	254.70	042
4.5	6	215	165	158	262.03	045	262.03	045
4.8	6	215	165	158	262.03	048	262.03	048
5.0	6	215	165	158	262.03	050	262.03	050
5.5	6	230	180	171	274.28	055	274.28	055
5.8	6	230	180	171	274.28	058	274.28	058
6.0	6	230	180	171	274.28	060	274.28	060
6.5	8	280	215	205	301.21	065	301.21	065
6.8	8	280	230	220	314.67	068	314.67	068
7.0	8	280	230	220	314.67	070	314.67	070
7.5	8	280	230	220	314.67	075	314.67	075
7.8	8	315	265	253	350.19	078	350.19	078
8.0	8	315	265	253	350.19	080	350.19	080
8.5	10	350	295	282	404.08	085	404.08	085
8.8	10	380	330	316	424.88	088	424.88	088
9.0	10	380	330	316	424.88	090	424.88	090
9.8	10	380	330	316	424.88	098	424.88	098
10.0	10	380	330	316	424.88	100	424.88	100
10.2	12	430	380	365	542.44	102	542.44	102
10.8	12	430	380	365	542.44	108	542.44	108
11.8	12	430	380	365	542.44	118	542.44	118
12.0	12	430	380	365	542.44	120	542.44	120

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

WTX – High performance deep hole drills

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

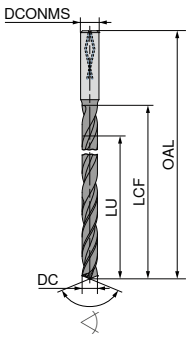
≤ 40xD





TB 40 UNI

TiAlN





135°

Solid carbide

11 040 ...

DC fg6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T7	
3.0	6	195	150	146	314.67	**030**
4.0	6	220	175	169	314.67	**040**
4.2	6	245	200	194	347.75	**042**
4.5	6	245	200	194	347.75	**045**
4.8	6	275	230	223	371.01	**048**
5.0	6	275	230	223	371.01	**050**
5.5	6	305	260	251	399.17	**055**
5.8	6	305	260	251	399.17	**058**
6.0	6	305	260	251	399.17	**060**
6.5	8	345	300	290	429.79	**065**
6.8	8	345	300	290	429.79	**068**
7.0	8	345	300	290	429.79	**070**
7.5	8	385	340	328	477.53	**075**
7.8	8	385	340	328	477.53	**078**
8.0	8	385	340	328	477.53	**080**
8.5	10	430	380	367	526.51	**085**
8.8	10	430	380	367	526.51	**088**
9.0	10	430	380	367	526.51	**090**

P	●
M	●
K	●
N	
S	o
H	
O	

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→ Machining information: Page 160

WTX – High performance deep hole drills

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

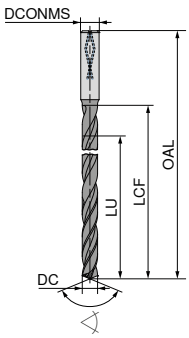
≤ 50xD





TB 50 UNI

TiAlN





135°

Solid carbide

11 050 ...

DC fg6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T7	
3.0	6	220	175	170	427.34	**030**
4.0	6	265	220	214	427.34	**040**
4.2	6	290	245	238	475.08	**042**
4.5	6	290	245	238	475.08	**045**
4.8	6	320	275	268	536.31	**048**
5.0	6	320	275	268	536.31	**050**
5.5	6	355	310	302	603.66	**055**
5.8	6	355	315	306	612.23	**058**
6.0	6	355	315	306	612.23	**060**
6.5	8	395	350	340	680.80	**065**
6.8	8	425	380	370	738.35	**068**

P	●
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→ v_c Page 145
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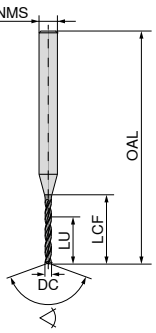
WTX – High Performance Drills

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

≤ 5xD

NOF = 2



MINI

TiAlN



140°

Solid carbide

DC +0,004 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	11 770 ... £ T7	
0.10	3	38	1.2	1.0	39.86	00100
0.15	3	38	2.0	1.7	35.20	00150
0.20	3	38	3.5	3.0	30.78	00200
0.25	3	38	3.5	3.0	26.22	00250
0.30	3	38	5.5	5.0	21.56	00300
0.35	3	38	5.5	5.0	21.56	00350
0.40	3	38	7.0	6.0	21.56	00400
0.45	3	38	7.0	6.0	21.56	00450
0.50	3	38	7.0	6.0	21.56	00500
0.55	3	38	7.0	6.0	21.56	00550
0.60	3	38	7.0	6.0	21.56	00600
0.65	3	38	7.0	6.0	21.56	00650
0.70	3	38	10.5	8.0	21.56	00700
0.75	3	38	10.5	8.0	21.56	00750
0.80	3	38	10.5	8.0	21.56	00800
0.85	3	38	10.5	8.0	21.56	00850
0.90	3	38	10.5	8.0	21.56	00900
0.95	3	38	10.5	8.0	21.56	00950
0.97	3	38	10.5	8.0	21.56	00970
0.98	3	38	10.5	8.0	21.56	00980
0.99	3	38	10.5	8.0	21.56	00990
1.00	3	38	10.5	8.0	21.56	01000
1.01	3	38	10.5	8.0	21.56	01010
1.02	3	38	10.5	8.0	21.56	01020
1.03	3	38	10.5	8.0	21.56	01030
1.05	3	38	10.5	8.0	21.56	01050
1.10	3	38	10.5	8.0	21.56	01100
1.15	3	38	10.5	8.0	21.56	01150
1.20	3	38	10.5	8.0	21.56	01200
1.25	3	38	10.5	8.0	21.56	01250
1.30	3	38	10.5	8.0	21.56	01300
1.35	3	38	10.5	8.0	21.56	01350
1.40	3	38	10.5	8.0	21.56	01400
1.45	3	38	10.5	8.0	21.56	01450
1.47	3	38	10.5	8.0	21.56	01470
1.48	3	38	10.5	8.0	21.56	01480
1.49	3	38	10.5	8.0	21.56	01490
1.50	3	38	10.5	8.0	21.56	01500
1.51	3	38	10.5	8.0	21.56	01510
1.52	3	38	10.5	8.0	21.56	01520
1.53	3	38	10.5	8.0	21.56	01530
1.55	3	38	10.5	8.0	21.56	01550
1.60	3	38	10.5	8.0	21.56	01600
1.65	3	38	10.5	8.0	21.56	01650
1.70	3	38	10.5	8.0	21.56	01700
1.75	3	38	10.5	8.0	21.56	01750
1.80	3	38	10.5	8.0	21.56	01800
1.85	3	38	12.0	8.0	21.56	01850
1.90	3	38	12.0	8.0	21.56	01900
1.95	3	38	12.0	8.0	21.56	01950
1.97	3	38	12.0	8.0	21.56	01970
1.98	3	38	12.0	8.0	21.56	01980
1.99	3	38	12.0	8.0	21.56	01990
2.00	3	42	13.0	9.0	30.91	02000
2.01	3	42	13.0	9.0	30.91	02010
2.02	3	42	13.0	9.0	30.91	02020
2.03	3	42	13.0	9.0	30.91	02030
2.05	3	42	13.0	9.0	30.91	02050
2.10	3	42	13.0	9.0	30.91	02100
2.15	3	42	13.0	9.0	30.91	02150
2.20	3	46	15.0	10.0	34.81	02200
2.25	3	46	15.0	10.0	34.81	02250
2.30	3	46	15.0	10.0	34.81	02300
2.35	3	46	15.0	10.0	34.81	02350
2.40	3	46	15.0	10.0	34.81	02400
2.45	3	46	15.0	10.0	34.81	02450
2.47	3	46	15.0	10.0	34.81	02470
2.48	3	46	15.0	10.0	34.81	02480
2.49	3	46	15.0	10.0	34.81	02490
2.50	3	46	15.0	10.0	34.81	02500
2.51	3	46	15.0	10.0	34.81	02510
2.52	3	46	15.0	10.0	34.81	02520
2.53	3	46	15.0	10.0	34.81	02530
2.60	3	46	15.0	10.0	34.81	02600
2.70	3	46	15.0	10.0	34.81	02700
2.80	3	46	15.0	10.0	34.81	02800
2.90	3	46	15.0	10.0	34.81	02900

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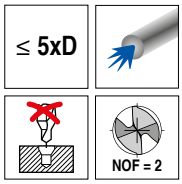
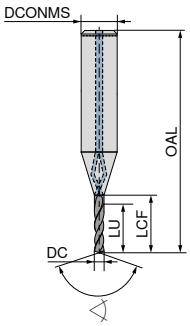
→ v_c Page 136

WTX – High Performance Drills

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



NEW
MICRO
DPX74M
DRAGONSKIN





135°
Solid carbide

10 693 ...

DC m6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T4	
0.8	3	39	5.6	4.0	96.02	00800
0.9	3	39	6.3	4.5	96.02	00900
1.0	3	40	7.0	5.0	85.23	01000
1.1	3	41	7.7	5.5	85.23	01100
1.2	3	41	8.4	6.0	85.23	01200
1.3	3	42	9.1	6.5	85.23	01300
1.4	3	42	9.8	7.0	85.23	01400
1.5	3	43	10.5	7.5	85.23	01500
1.6	3	44	11.2	8.0	89.72	01600
1.7	3	44	11.9	8.5	89.72	01700
1.8	3	45	12.6	9.0	89.72	01800
1.9	3	45	13.3	9.5	89.72	01900
2.0	3	46	14.0	10.0	89.72	02000
2.1	3	47	14.7	10.5	92.49	02100
2.2	3	47	15.4	11.0	92.49	02200
2.3	3	48	16.1	11.5	92.49	02300
2.4	3	48	16.8	12.0	92.49	02400
2.5	3	49	17.5	12.5	92.49	02500
2.6	3	50	18.2	13.0	97.37	02600
2.7	3	50	18.9	13.5	97.37	02700
2.8	3	51	19.6	14.0	97.37	02800
2.9	3	51	20.3	14.5	97.37	02900

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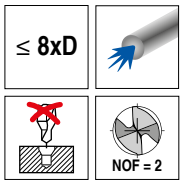
→ v_c Page 137
→ Machining information: Page 161

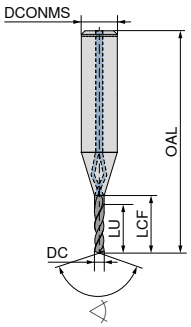
Minimum coolant pressure: 30 bar

WTX – High Performance Drills

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



NEW
MICRO
DPX74M
DRAGONSKIN





128°
Solid carbide

10 694 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T4	
0.8	3	41	8	6.4	100.71	00800
0.9	3	42	9	7.2	100.71	00900
1.0	3	43	10	8.0	89.89	01000
1.1	3	44	11	8.8	89.89	01100
1.2	3	45	12	9.6	89.89	01200
1.3	3	46	13	10.4	89.89	01300
1.4	3	47	14	11.2	89.89	01400
1.5	3	47	15	12.0	89.89	01500
1.6	3	48	16	12.8	96.69	01600
1.7	3	49	17	13.6	96.69	01700
1.8	3	50	18	14.4	96.69	01800
1.9	3	51	19	15.2	96.69	01900
2.0	3	52	20	16.0	96.69	02000
2.1	3	53	21	16.8	98.23	02100
2.2	3	54	22	17.6	98.23	02200
2.3	3	55	23	18.4	98.23	02300
2.4	3	56	24	19.2	98.23	02400
2.5	3	56	25	20.0	98.23	02500
2.6	3	57	26	20.8	101.38	02600
2.7	3	58	27	21.6	101.38	02700
2.8	3	59	28	22.4	101.38	02800
2.9	3	60	29	23.2	101.38	02900

P	●
M	●
K	●
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S	○
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→ v_c Page 138
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High Performance Drills

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

≤ 12xD

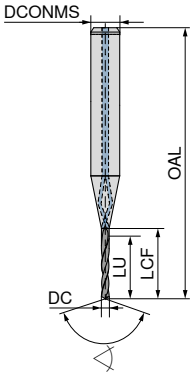
NOF = 2

NEW

MICRO

DPX74M

DRAGONSKIN





128°

Solid carbide

10 695 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T4	
0.8	3	44	11.2	9.6	112.16	00800
0.9	3	46	12.6	10.8	112.16	00900
1.0	3	47	14.0	12.0	101.38	01000
1.1	3	48	15.4	13.2	101.38	01100
1.2	3	50	16.8	14.4	101.38	01200
1.3	3	51	18.2	15.6	101.38	01300
1.4	3	52	19.6	16.8	101.38	01400
1.5	3	53	21.0	18.0	101.38	01500
1.6	3	55	22.4	19.2	106.72	01600
1.7	3	56	23.8	20.4	106.72	01700
1.8	3	57	25.2	21.6	106.72	01800
1.9	3	59	26.6	22.8	106.72	01900
2.0	3	60	28.0	24.0	106.72	02000
2.1	3	61	29.4	25.2	109.11	02100
2.2	3	63	30.8	26.4	109.11	02200
2.3	3	64	32.2	27.6	109.11	02300
2.4	3	65	33.6	28.8	109.11	02400
2.5	3	67	35.0	30.0	109.11	02500
2.6	3	68	36.4	31.2	111.39	02600
2.7	3	69	37.8	32.4	111.39	02700
2.8	3	70	39.2	33.6	111.39	02800
2.9	3	72	40.6	34.8	111.39	02900

P	●
M	●
K	●
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→ v_c Page 138
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

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

≤ 16xD

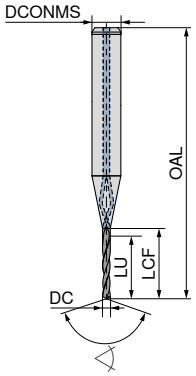
NOF = 2

NEW

MICRO

DPX74M

DRAGONSKIN





128°

Solid carbide

10 696 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T4	
0.8	3	48	14.4	12.8	142.61	00800
0.9	3	49	16.2	14.4	142.61	00900
1.0	3	51	18.0	16.0	131.83	01000
1.1	3	53	19.8	17.6	131.83	01100
1.2	3	54	21.6	19.2	131.83	01200
1.3	3	56	23.4	20.8	131.83	01300
1.4	3	58	25.2	22.4	131.83	01400
1.5	3	60	27.0	24.0	131.83	01500
1.6	3	61	28.8	25.6	138.79	01600
1.7	3	63	30.6	27.2	138.79	01700
1.8	3	65	32.4	28.8	138.79	01800
1.9	3	66	34.2	30.4	138.79	01900
2.0	3	68	36.0	32.0	138.79	02000
2.1	3	70	37.8	33.6	141.75	02100
2.2	3	71	39.6	35.2	141.75	02200
2.3	3	73	41.4	36.8	141.75	02300
2.4	3	75	43.2	38.4	141.75	02400
2.5	3	77	45.0	40.0	141.75	02500
2.6	3	78	46.8	41.6	144.81	02600
2.7	3	80	48.6	43.2	144.81	02700
2.8	3	82	50.4	44.8	144.81	02800
2.9	3	83	52.2	46.4	144.81	02900

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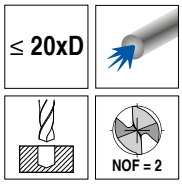
→ v_c Page 139
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

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

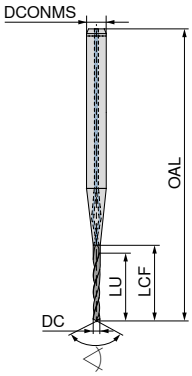


NEW

MICRO

DPX74M

DRAGONSKIN





Solid carbide

10 697 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T4	
0.8	3	51	17.6	16	156.73	00800
0.9	3	53	19.8	18	156.73	00900
1.0	3	55	22.0	20	145.95	01000
1.1	3	57	24.2	22	145.95	01100
1.2	3	59	26.4	24	145.95	01200
1.3	3	61	28.6	26	145.95	01300
1.4	3	63	30.8	28	145.95	01400
1.5	3	66	33.0	30	145.95	01500
1.6	3	68	35.2	32	153.68	01600
1.7	3	70	37.4	34	153.68	01700
1.8	3	72	39.6	36	153.68	01800
1.9	3	74	41.8	38	153.68	01900
2.0	3	76	44.0	40	153.68	02000
2.1	3	78	46.2	42	156.92	02100
2.2	3	80	48.4	44	156.92	02200
2.3	3	82	50.6	46	156.92	02300
2.4	3	85	52.8	48	156.92	02400
2.5	3	87	55.0	50	156.92	02500
2.6	3	89	57.2	52	160.37	02600
2.7	3	91	59.4	54	160.37	02700
2.8	3	93	61.6	56	160.37	02800
2.9	3	95	63.8	58	160.37	02900

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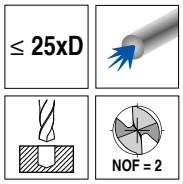
→ v_c Page 139
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

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

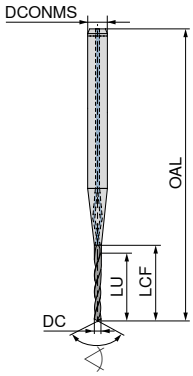


NEW

MICRO

DPX74M

DRAGONSKIN





Solid carbide

10 698 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T4	
1.0	3	60	27.0	25.0	161.51	01000
1.1	3	63	29.7	27.5	161.51	01100
1.2	3	65	32.4	30.0	161.51	01200
1.3	3	68	35.1	32.5	161.51	01300
1.4	3	71	37.8	35.0	161.51	01400
1.5	3	73	40.5	37.5	161.51	01500
1.6	3	76	43.2	40.0	170.10	01600
1.7	3	78	45.9	42.5	170.10	01700
1.8	3	81	48.6	45.0	170.10	01800
1.9	3	84	51.3	47.5	170.10	01900
2.0	3	86	54.0	50.0	170.10	02000
2.1	3	89	56.7	52.5	173.72	02100
2.2	3	91	59.4	55.0	173.72	02200
2.3	3	94	62.1	57.5	173.72	02300
2.4	3	97	64.8	60.0	173.72	02400
2.5	3	99	67.5	62.5	173.72	02500
2.6	3	102	70.2	65.0	177.45	02600
2.7	3	104	72.9	67.5	177.45	02700
2.8	3	107	75.6	70.0	177.45	02800
2.9	3	110	78.3	72.5	177.45	02900

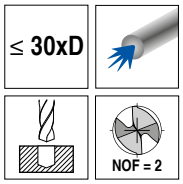
P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 139
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

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

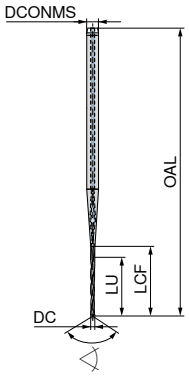


NEW

MICRO

DPX74M

DRAGONSKIN





128°

Solid carbide

10 699 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T4	
1.0	3	65	32.0	30	178.78	**01000**
1.1	3	68	35.2	33	178.78	**01100**
1.2	3	71	38.4	36	178.78	**01200**
1.3	3	74	41.6	39	178.78	**01300**
1.4	3	78	44.8	42	178.78	**01400**
1.5	3	81	48.0	45	178.78	**01500**
1.6	3	84	51.2	48	188.33	**01600**
1.7	3	87	54.4	51	188.33	**01700**
1.8	3	90	57.6	54	188.33	**01800**
1.9	3	93	60.8	57	188.33	**01900**
2.0	3	96	64.0	60	188.33	**02000**
2.1	3	99	67.2	63	192.34	**02100**
2.2	3	102	70.4	66	192.34	**02200**
2.3	3	106	73.6	69	192.34	**02300**
2.4	3	109	76.8	72	192.34	**02400**
2.5	3	112	80.0	75	192.34	**02500**
2.6	3	115	83.2	78	196.44	**02600**
2.7	3	118	86.4	81	196.44	**02700**
2.8	3	121	89.6	84	196.44	**02800**
2.9	3	124	92.8	87	196.44	**02900**

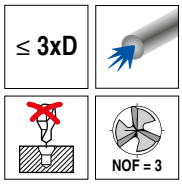
P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 139
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – Drill-Reamer -1/100

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

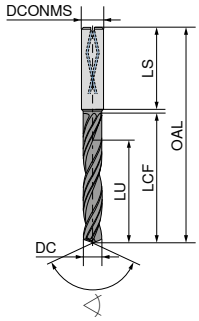


NEW

Feed BR100

DPX14S

DRAGONSKIN







140°

Solid carbide

10 707 ...

DC ±0,003 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4	
3.97	6	66	24	17	36	137.26	03970
3.98	6	66	24	17	36	137.26	03980
3.99	6	66	24	17	36	137.26	03990
4.00	6	66	24	17	36	137.26	04000
4.01	6	66	24	17	36	137.26	04010
4.02	6	66	24	17	36	137.26	04020
4.97	6	66	28	20	36	137.26	04970
4.98	6	66	28	20	36	137.26	04980
4.99	6	66	28	20	36	137.26	04990
5.00	6	66	28	20	36	137.26	05000
5.01	6	66	28	20	36	137.26	05010
5.02	6	66	28	20	36	137.26	05020
5.97	6	66	28	20	36	137.26	05970
5.98	6	66	28	20	36	137.26	05980
5.99	6	66	28	20	36	137.26	05990
6.00	6	66	28	20	36	137.26	06000
6.01	6	66	28	20	36	137.26	06010
6.02	6	66	28	20	36	137.26	06020
7.97	8	79	41	29	36	137.26	07970
7.98	8	79	41	29	36	137.26	07980
7.99	8	79	41	29	36	137.26	07990
8.00	8	79	41	29	36	137.26	08000
8.01	8	79	41	29	36	137.26	08010
8.02	8	79	41	29	36	137.26	08020
9.97	10	89	47	35	40	156.21	09970
9.98	10	89	47	35	40	156.21	09980
9.99	10	89	47	35	40	156.21	09990
10.00	10	89	47	35	40	156.21	10000
10.01	10	89	47	35	40	156.21	10010
10.02	10	89	47	35	40	156.21	10020
11.97	12	102	55	40	45	214.06	11970
11.98	12	102	55	40	45	214.06	11980
11.99	12	102	55	40	45	214.06	11990
12.00	12	102	55	40	45	214.06	12000
12.01	12	102	55	40	45	214.06	12010
12.02	12	102	55	40	45	214.06	12020

P	●
M	●
K	●
N	
S	
H	
O	

Tolerances

e.g. Ø 8 F7 = 8.02 mm

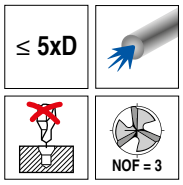
Ø 4	3,97	U 7	**X 7**			
	3,98	**N 10**	**N 11**	R 7		
	3,99	M 8	**N 7**	**N 8**	**N 9**	
	4,00	**J 7**	**J 8**	JS 7	JS 8	JS 9
	4,01	**G 7**	**H 8**			
	4,02	**F 8**	**H 9**			
Ø 5	4,97	U 7	**X 7**			
	4,98	**N 10**	**N 11**	R 7		
	4,99	M 8	**N 7**	**N 8**	**N 9**	
	5,00	**J 7**	**J 8**	**JS 7**	**JS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

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

→ v_c Page 140

WTX – Drill-Reamer -1/100

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

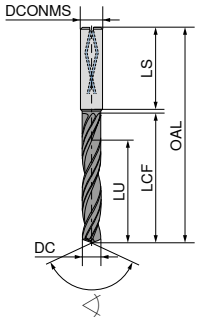


NEW

Feed BR100

DPX14S

DRAGONSKIN







140°

Solid carbide

10 713 ...

DC ±0,003 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4	
3.97	6	74	36	29	36	171.17	03970
3.98	6	74	36	29	36	171.17	03980
3.99	6	74	36	29	36	171.17	03990
4.00	6	74	36	29	36	171.17	04000
4.01	6	74	36	29	36	171.17	04010
4.02	6	74	36	29	36	171.17	04020
4.97	6	82	44	35	36	171.17	04970
4.98	6	82	44	35	36	171.17	04980
4.99	6	82	44	35	36	171.17	04990
5.00	6	82	44	35	36	171.17	05000
5.01	6	82	44	35	36	171.17	05010
5.02	6	82	44	35	36	171.17	05020
5.97	6	82	44	35	36	171.17	05970
5.98	6	82	44	35	36	171.17	05980
5.99	6	82	44	35	36	171.17	05990
6.00	6	82	44	35	36	171.17	06000
6.01	6	82	44	35	36	171.17	06010
6.02	6	82	44	35	36	171.17	06020
7.97	8	91	53	43	36	171.17	07970
7.98	8	91	53	43	36	171.17	07980
7.99	8	91	53	43	36	171.17	07990
8.00	8	91	53	43	36	171.17	08000
8.01	8	91	53	43	36	171.17	08010
8.02	8	91	53	43	36	171.17	08020
9.97	10	103	61	49	40	234.61	09970
9.98	10	103	61	49	40	234.61	09980
9.99	10	103	61	49	40	234.61	09990
10.00	10	103	61	49	40	234.61	10000
10.01	10	103	61	49	40	234.61	10010
10.02	10	103	61	49	40	234.61	10020
11.97	12	118	71	56	45	329.77	11970
11.98	12	118	71	56	45	329.77	11980
11.99	12	118	71	56	45	329.77	11990
12.00	12	118	71	56	45	329.77	12000
12.01	12	118	71	56	45	329.77	12010
12.02	12	118	71	56	45	329.77	12020

P	●
M	●
K	●
N	
S	
H	
O	

Tolerances

e.g. Ø 8 F7 = 8.02 mm

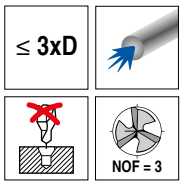
Ø 4	3,97	U 7	**X 7**			
	3,98	**N 10**	**N 11**	R 7		
	3,99	M 8	**N 7**	**N 8**	**N 9**	
	4,00	**J 7**	**J 8**	JS 7	JS 8	JS 9
	4,01	**G 7**	**H 8**			
	4,02	**F 8**	**H 9**			
Ø 5	4,97	U 7	**X 7**			
	4,98	**N 10**	**N 11**	R 7		
	4,99	M 8	**N 7**	**N 8**	**N 9**	
	5,00	**J 7**	**J 8**	**JS 7**	**JS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

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

→ v_c Page 141

WTX – Drill-Reamer

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

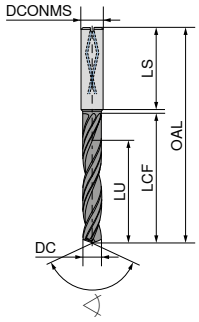


NEW

Feed BR

DPX14S

DRAGONSKIN





140°

Solid carbide

10 711 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4	
4	6	66	24	17	36	137.26	04000
5	6	66	28	20	36	137.26	05000
6	6	66	28	20	36	137.26	06000
8	8	79	41	29	36	137.26	08000
10	10	89	47	35	40	156.21	10000
12	12	102	55	40	45	214.06	12000
14	14	107	60	43	45	286.28	14000
16	16	115	65	45	48	398.00	16000

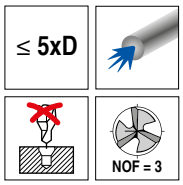
P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 140

Special dimensions available upon request

WTX – Drill-Reamer

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

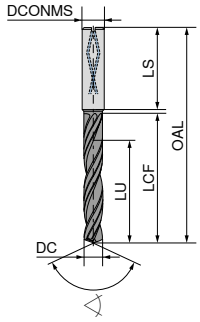


NEW

Feed BR

DPX14S

DRAGONSKIN





140°

Solid carbide

10 719 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4	
4	6	74	36	29	36	171.17	04000
5	6	82	44	35	36	171.17	05000
6	6	82	44	35	36	171.17	06000
8	8	91	53	43	36	171.17	08000
10	10	103	61	49	40	234.61	10000
12	12	118	71	56	45	329.77	12000
14	14	124	77	60	45	447.38	14000
16	16	133	83	63	48	538.25	16000
18	18	143	93	71	48	646.29	18000
20	20	153	101	77	50	777.16	20000

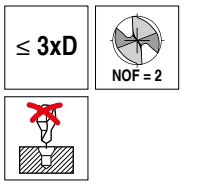
P	●
M	●
K	●
N	
S	
H	
O	

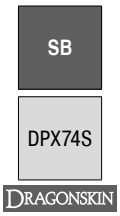
→ v_c Page 141

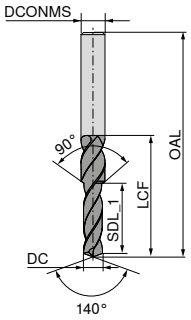
Special dimensions available upon request

WTX – Short 90° step drill

▲ for core hole plus countersink for thread cutting











Solid carbide

10 767 ...

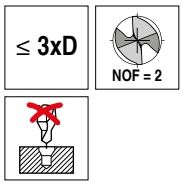
For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	£ T4	
M3	2.5	6	62	8.8	20	54.04	**02500**
M4	3.3	6	62	11.4	24	66.21	**03300**
M5	4.2	6	66	13.6	28	68.20	**04200**
M6	5.0	8	79	16.5	34	96.52	**05000**
M8	6.8	10	89	21.0	47	139.89	**06800**
M10	8.5	12	102	25.5	55	185.15	**08500**
M12	10.2	14	107	30.0	60	238.26	**10200**
M14	12.0	16	115	34.5	65	272.10	**12000**
M16	14.0	18	123	38.5	73	306.14	**14000**

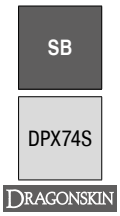
P	●
M	
K	●
N	
S	
H	○
O	

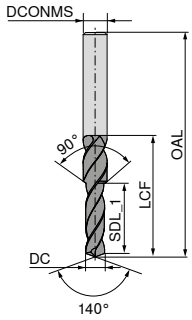
→ v_c Page 157

WTX – Short 90° step drill

▲ for core hole plus countersink for thread forming











Solid carbide

10 772 ...

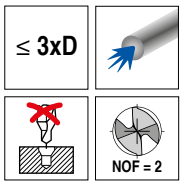
For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	£ T4	
M3	2.80	6	62	8.8	20	54.04	**02800**
M4	3.70	6	62	11.4	24	66.21	**03700**
M5	4.65	6	66	13.6	28	68.20	**04650**
M6	5.55	8	79	16.5	34	96.52	**05550**
M8	7.45	10	89	21.0	47	139.89	**07450**
M10	9.30	12	102	25.5	55	185.15	**09300**
M12	11.20	14	107	30.0	60	238.26	**11200**
M14	13.00	16	115	34.5	65	272.10	**13000**
M16	15.00	18	123	38.5	73	306.14	**15000**

P	●
M	
K	●
N	
S	
H	○
O	

→ v_c Page 157

WTX – Short 90° step drill

▲ for core hole plus countersink for thread cutting

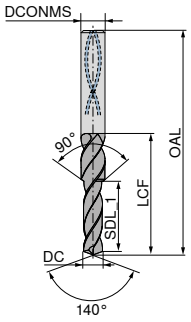


NEW

SB

DPX74S

DRAGONSKIN





HA

140°

Solid carbide

10 783 ...

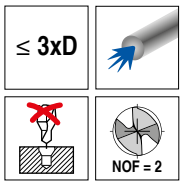
For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	£ T4	
M4	3.3	6	62	11.4	24	69.64	**03300**
M5	4.2	6	66	13.6	28	73.20	**04200**
M6	5.0	8	79	16.5	34	92.86	**05000**
M8	6.8	10	89	21.0	47	150.70	**06800**
M10	8.5	12	102	25.5	55	185.96	**08500**
M12	10.2	14	107	30.0	60	260.82	**10200**
M14	12.0	16	115	34.5	65	316.73	**12000**
M16	14.0	18	123	38.5	73	327.47	**14000**

P	●
M	
K	●
N	
S	
H	○
O	

→ v_c Page 157

WTX – Short 90° step drill

▲ for core hole plus countersink for thread forming

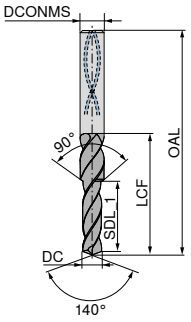


NEW

SB

DPX74S

DRAGONSKIN





HA

140°

Solid carbide

10 788 ...

For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	£ T4	
M4	3.70	6	62	11.4	24	69.64	**03700**
M5	4.65	6	66	13.6	28	73.20	**04650**
M6	5.55	8	79	16.5	34	92.86	**05550**
M8	7.45	10	89	21.0	47	150.70	**07450**
M10	9.30	12	102	25.5	55	185.96	**09300**
M12	11.20	14	107	30.0	60	260.82	**11200**
M14	13.00	16	115	34.5	65	316.73	**13000**
M16	15.00	18	123	38.5	73	327.47	**15000**

P	●
M	
K	●
N	
S	
H	○
O	

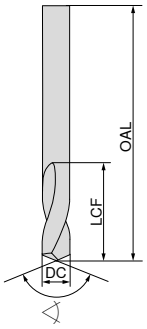
→ v_c Page 157

NC Spot Drill, factory standard

▲ spiral flute

2

NOF = 2



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

DC h5 mm	OAL mm	LCF mm	£ T3		£ T3		£ T3		£ T3		£ T3		£ T3	
2	32	6	23.10	**002**	22.71	**002** 1)	23.10	**002**	22.71	**002** 1)	23.10	**002**	22.71	**002** 1)
3	32	8	23.10	**003**	22.71	**003** 1)	23.10	**003**	22.71	**003** 1)	23.10	**003**	22.71	**003** 1)
4	40	10	18.11	**004**	23.95	**004** 1)	18.11	**004**	23.95	**004** 1)	18.11	**004**	23.95	**004** 1)
5	50	13	20.81	**005**	26.49	**005** 1)	20.81	**005**	26.49	**005** 1)	20.81	**005**	26.49	**005** 1)
6	50	13	23.22	**006**	29.00	**006**	23.22	**006**	29.00	**006**	23.22	**006**	29.00	**006**
8	60	23	35.68	**008**	40.35	**008**	35.68	**008**	40.35	**008**	35.68	**008**	40.35	**008**
10	70	24	50.04	**010**	52.97	**010**	50.04	**010**	52.97	**010**	50.04	**010**	52.97	**010**
12	70	24	72.17	**012**	69.36	**012**	72.17	**012**	69.36	**012**	72.17	**012**	69.36	**012**
14	75	26	82.98	**014**	102.14	**014**	82.98	**014**	102.14	**014**	82.98	**014**	102.14	**014**
16	75	29	121.12	**016**	118.56	**016**	121.12	**016**	118.56	**016**	121.12	**016**	118.56	**016**
18	100	35	234.91	**018**	213.14	**018**	234.91	**018**	213.14	**018**	234.91	**018**	213.14	**018**
20	100	35	197.21	**020**	224.49	**020**	197.21	**020**	224.49	**020**	197.21	**020**	224.49	**020**

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

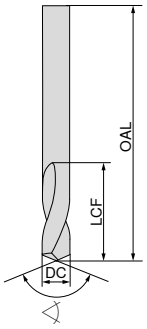
1) DIN 6535 HA Shank

→ v_c Page 149+150

NC Spot Drill, factory standard, long

▲ spiral flutes











DC h5 mm	OAL mm	LCF mm	90° Solid carbide 10 724 ... £ T3		120° Solid carbide 10 726 ... £ T3		142° Solid carbide 10 727 ... £ T3	
3	66	8	23.95	003 [1]	23.95	003 [1]	23.95	003 [1]
4	74	10	27.74	004 [1]	27.74	004 [1]	27.74	004 [1]
6	82	13	35.31	006	35.31	006	35.31	006
8	91	23	51.71	008	51.71	008	51.71	008
10	103	24	71.89	010	71.89	010	71.89	010
12	118	24	108.47	012	108.47	012	108.47	012
16	133	29	203.05	016	203.05	016	203.05	016
P			○		○		○	
M								
K			●		●		●	
N			●		●		●	
S								
H			○		○		○	
O								

1) DIN 6535 HA Shank

→ v_c Page 151

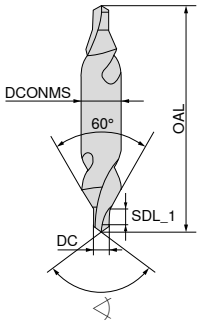
Centre drills, DIN 333, form A

2

▲ spiral flutes



ZB





120°

Solid carbide

DC k13 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	£ T3	10 708 ...
0.50	3.15	20.0	0.76	39.14	**050** 1)
0.80	3.15	20.0	1.07	39.14	**080** 1)
1.00	3.15	31.5	1.31	38.15	**100**
1.25	3.15	31.5	1.54	38.15	**125**
1.60	4.00	35.5	1.94	40.43	**160**
2.00	5.00	40.0	2.32	42.68	**200**
2.50	6.30	45.0	2.88	48.10	**250**
3.15	8.00	50.0	3.49	56.14	**315**
4.00	10.00	56.0	4.45	67.59	**400**
5.00	12.50	63.0	5.46	100.53	**500**
6.30	16.00	71.0	6.78	152.85	**630**

P	○
M	
K	●
N	●
S	
H	
O	

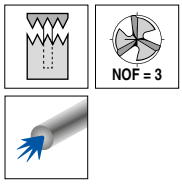
1) Single ended

→ v_c Page 148

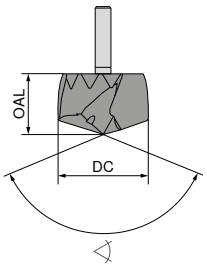
WTX – Drilling Head for Exchangeable drills

▲ extra long head type
▲ three-edged

Scope of supply:
Drill head incl. differential screw



Change Feed UNI
Ti750





140°
Solid carbide

DC m7 mm	OAL mm	10 925 ... £ W2	
14.0	13.5	107.33	140
14.1	13.5	107.33	141
14.2	13.5	107.33	142
14.3	13.5	107.33	143
14.4	13.5	107.33	144
14.5	14.0	107.33	145
14.6	14.0	107.33	146
14.7	14.0	107.33	147
14.8	14.0	107.33	148
14.9	14.0	107.33	149
15.0	14.4	107.33	150
15.1	14.4	107.33	151
15.2	14.4	107.33	152
15.3	14.4	107.33	153
15.4	14.4	107.33	154
15.5	15.4	120.21	155
15.6	15.4	120.21	156
15.7	15.4	120.21	157
15.8	15.4	120.21	158
15.9	15.4	120.21	159
16.0	15.4	120.21	160
16.1	15.4	120.21	161
16.2	15.4	120.21	162
16.3	15.4	120.21	163
16.4	15.4	120.21	164
16.5	16.3	120.21	165
16.6	16.3	120.21	166
16.7	16.3	120.21	167
16.8	16.3	120.21	168
16.9	16.3	120.21	169
17.0	16.3	120.21	170
17.1	16.3	120.21	171
17.2	16.3	120.21	172
17.3	16.3	120.21	173
17.4	16.3	120.21	174
17.5	17.2	136.45	175
17.6	17.2	136.45	176
17.7	17.2	136.45	177
17.8	17.2	136.45	178
17.9	17.2	136.45	179
18.0	17.2	136.45	180
18.1	17.2	136.45	181
18.2	17.2	136.45	182
18.3	17.2	136.45	183
18.4	17.2	136.45	184
18.5	18.2	136.45	185
18.6	18.2	136.45	186
18.7	18.2	136.45	187
18.8	18.2	136.45	188
18.9	18.2	136.45	189

DC m7 mm	OAL mm	10 925 ... £ W2	
19.0	18.2	136.45	190
19.1	18.2	136.45	191
19.2	18.2	136.45	192
19.3	18.2	136.45	193
19.4	18.2	136.45	194
19.5	19.1	156.56	195
19.6	19.1	156.56	196
19.7	19.1	156.56	197
19.8	19.1	156.56	198
19.9	19.1	156.56	199
20.0	19.1	156.56	200
20.1	19.1	156.56	201
20.2	19.1	156.56	202
20.3	19.1	156.56	203
20.4	19.1	156.56	204
20.5	20.0	156.56	205
20.6	20.0	156.56	206
20.7	20.0	156.56	207
20.8	20.0	156.56	208
20.9	20.0	156.56	209
21.0	20.0	156.56	210
21.1	20.0	156.56	211
21.2	20.0	156.56	212
21.3	20.0	156.56	213
21.4	20.0	156.56	214
21.5	21.0	156.56	215
21.6	21.0	156.56	216
21.7	21.0	156.56	217
21.8	21.0	156.56	218
21.9	21.0	156.56	219
22.0	21.0	156.56	220
22.1	21.0	156.56	221
22.2	21.0	156.56	222
22.3	21.0	156.56	223
22.4	21.0	156.56	224
22.5	21.9	174.17	225
22.6	21.9	174.17	226
22.7	21.9	174.17	227
22.8	21.9	174.17	228
22.9	21.9	174.17	229
23.0	21.9	174.17	230
23.1	21.9	174.17	231
23.2	21.9	174.17	232
23.3	21.9	174.17	233
23.4	21.9	174.17	234
23.5	22.8	174.17	235
23.6	22.8	174.17	236
23.7	22.8	174.17	237
23.8	22.8	174.17	238
23.9	22.8	174.17	239
24.0	22.8	174.17	240
24.1	22.8	174.17	241
24.2	22.8	174.17	242
24.3	22.8	174.17	243
24.4	22.8	174.17	244
24.5	23.8	197.42	245
24.6	23.8	197.42	246
24.7	23.8	197.42	247
24.8	23.8	197.42	248
24.9	23.8	197.42	249
25.0	23.8	197.42	250

P	●
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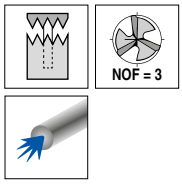
→ v_c Page 156

WTX – Drilling Head for Exchangeable drills

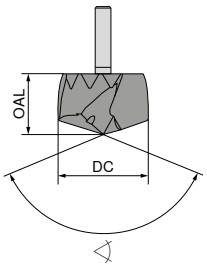
▲ extra long head type
▲ three-edged

Scope of supply:
Drill head incl. differential screw



Change Feed UNI

Ti750





140°
Solid carbide

DC m7 mm	OAL mm	10 925 ... £ W2	
25.1	23.8	197.42	251
25.2	23.8	197.42	252
25.3	23.8	197.42	253
25.4	23.8	197.42	254
25.5	24.7	197.42	255
25.6	24.7	197.42	256
25.7	24.7	197.42	257
25.8	24.7	197.42	258
25.9	24.7	197.42	259
26.0	24.7	197.42	260
26.1	24.7	197.42	261
26.2	24.7	197.42	262
26.3	24.7	197.42	263
26.4	24.7	197.42	264
26.5	25.6	212.96	265
26.6	25.6	212.96	266
26.7	25.6	212.96	267
26.8	25.6	212.96	268
26.9	25.6	212.96	269
27.0	25.6	212.96	270
27.1	25.6	212.96	271
27.2	25.6	212.96	272
27.3	25.6	212.96	273
27.4	25.6	212.96	274
27.5	26.6	212.96	275
27.6	26.6	212.96	276
27.7	26.6	212.96	277
27.8	26.6	212.96	278
27.9	26.6	212.96	279
28.0	26.6	212.96	280
28.1	26.6	212.96	281
28.2	26.6	212.96	282
28.3	26.6	212.96	283
28.4	26.6	212.96	284
28.5	27.5	234.90	285
28.6	27.5	234.90	286
28.7	27.5	234.90	287
28.8	27.5	234.90	288
28.9	27.5	234.90	289
29.0	27.5	234.90	290
29.1	27.5	234.90	291
29.2	27.5	234.90	292
29.3	27.5	234.90	293
29.4	27.5	234.90	294
29.5	28.4	234.90	295
29.6	28.4	234.90	296
29.7	28.4	234.90	297
29.8	28.4	234.90	298
29.9	28.4	234.90	299
30.0	28.4	234.90	300
30.1	28.4	234.90	301
30.2	28.4	234.90	302
30.3	28.4	234.90	303
30.4	28.4	234.90	304
30.5	29.3	256.44	305
30.6	29.3	256.44	306
30.7	29.3	256.44	307
30.8	29.3	256.44	308
30.9	29.3	256.44	309
31.0	29.3	256.44	310
31.1	29.3	256.44	311
31.2	29.3	256.44	312
31.3	29.3	256.44	313
31.4	29.3	256.44	314
31.5	30.3	256.44	315
31.6	30.3	256.44	316
31.7	30.3	256.44	317
31.8	30.3	256.44	318
31.9	30.3	256.44	319
32.0	30.3	256.44	320

	10 925 ...
P	●
M	
K	●
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H	
O	

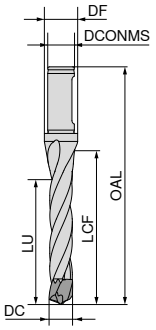
→ v_c Page 156

WTX – Holder for Exchangeable drills

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

≤ 3xD

Change Feed





HB

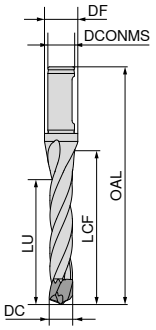
DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	10 914 ... £ W1	
14,00 - 14,49	16	120	72	48	20	0,7	280.20	140
14,50 - 14,99	16	122	74	49	20	0,7	280.20	145
15,00 - 15,49	16	124	76	51	25	0,7	280.20	150
15,50 - 16,49	20	131	81	54	25	0,7	289.52	155
16,50 - 17,49	20	135	85	58	25	0,7	289.52	165
17,50 - 18,49	20	140	90	61	25	1,3	289.52	175
18,50 - 19,49	25	150	94	64	31	1,3	341.06	185
19,50 - 20,49	25	155	99	68	31	2,0	344.13	195
20,50 - 21,49	25	159	103	71	31	2,0	376.82	205
21,50 - 22,49	25	164	108	74	31	2,0	376.82	215
22,50 - 23,49	25	168	112	78	31	2,0	412.93	225
23,50 - 24,49	25	173	117	81	31	2,0	412.93	235
24,50 - 25,49	32	182	122	84	38	3,1	464.70	245
25,50 - 26,49	32	186	126	87	38	3,1	464.70	255
26,50 - 27,49	32	191	131	91	38	3,1	464.70	265
27,50 - 28,49	32	195	135	94	38	3,1	464.70	275
28,50 - 29,49	32	200	140	97	38	5,6	535.55	285
29,50 - 30,49	32	204	144	101	38	5,6	535.55	295
30,50 - 31,49	32	209	149	104	38	5,6	585.85	305
31,50 - 32,49	32	213	153	107	38	5,6	585.85	315

WTX – Holder for Exchangeable drills

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

≤ 5xD

Change Feed





HB

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	10 916 ... £ W1	
14,00 - 14,49	16	149	101	77	20	0,7	309.50	140
14,50 - 14,99	16	152	104	79	20	0,7	309.50	145
15,00 - 15,49	16	155	107	82	25	0,7	309.50	150
15,50 - 16,49	20	164	114	87	25	0,7	335.16	155
16,50 - 17,49	20	170	120	93	25	0,7	335.16	165
17,50 - 18,49	20	177	127	98	25	1,3	335.16	175
18,50 - 19,49	25	189	133	103	31	1,3	383.41	185
19,50 - 20,49	25	196	140	109	31	2,0	386.37	195
20,50 - 21,49	25	202	146	114	31	2,0	421.67	205
21,50 - 22,49	25	209	153	119	31	2,0	421.67	215
22,50 - 23,49	25	215	159	124	31	2,0	454.15	225
23,50 - 24,49	25	222	166	130	31	2,0	454.15	235
24,50 - 25,49	32	233	173	135	38	3,1	504.89	245
25,50 - 26,49	32	239	179	140	38	3,1	504.89	255
26,50 - 27,49	32	246	186	146	38	3,1	504.89	265
27,50 - 28,49	32	252	192	151	38	3,1	504.89	275
28,50 - 29,49	32	259	199	156	38	5,6	574.49	285
29,50 - 30,49	32	265	205	162	38	5,6	574.49	295
30,50 - 31,49	32	272	212	167	38	5,6	623.89	305
31,50 - 32,49	32	278	218	172	38	5,6	623.89	315

Interchangeable blade



Blade holder

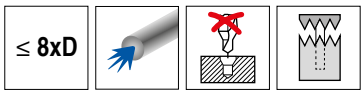

Torque handle


Differential screw

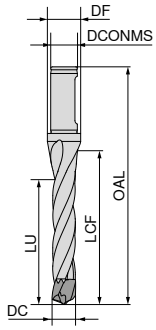
Spare parts DC	80 022 ... £ W1		80 020 ... £ Y7		80 023 ... £ W1		10 950 ... £ W2	
14,00 - 14,49	21.51	007	35.20	025	359.30	012	7.05	064
14,50 - 14,99	21.51	007	35.20	025	359.30	012	7.05	064
15,00 - 15,49	21.51	007	35.20	025	359.30	012	7.05	064
15,50 - 16,49	21.51	007	35.20	025	359.30	012	7.05	064
16,50 - 17,49	21.51	007	35.20	025	359.30	012	7.05	064
17,50 - 18,49	21.51	008	35.20	025	384.57	060	7.05	065
18,50 - 19,49	21.51	008	35.20	025	384.57	060	7.05	065
19,50 - 20,49	25.03	010	35.20	025	384.57	060	7.05	066
20,50 - 21,49	25.03	010	35.20	025	384.57	060	7.05	066
21,50 - 22,49	25.03	010	35.20	025	384.57	060	7.05	066
22,50 - 23,49	25.03	010	35.20	025	384.57	060	7.05	066
23,50 - 24,49	25.03	010	35.20	025	384.57	060	7.05	066
24,50 - 25,49	40.44	015	35.20	025	384.57	060	7.05	067
25,50 - 26,49	40.44	015	35.20	025	384.57	060	7.05	067
26,50 - 27,49	40.44	015	35.20	025	384.57	060	7.05	067
27,50 - 28,49	40.44	015	35.20	025	384.57	060	7.05	067
28,50 - 29,49	40.44	015	35.20	025	384.57	060	7.05	068
29,50 - 30,49	40.44	015	35.20	025	384.57	060	7.05	068
30,50 - 31,49	40.44	015	35.20	025	384.57	060	7.05	068
31,50 - 32,49	40.44	015	35.20	025	384.57	060	7.05	068

WTX – Holder for Exchangeable drills

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



Change Feed





HB

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	10 917 ... £ W1	
14,00 - 14,49	16	192	121	116	20	0,7	404.99	14000
14,50 - 14,99	16	197	125	120	20	0,7	404.99	14500
15,00 - 15,49	16	202	129	124	25	0,7	404.99	15000
15,50 - 16,49	20	213	137	132	25	0,7	435.08	15500
16,50 - 17,49	20	223	146	140	25	0,7	435.08	16500
17,50 - 18,49	20	232	154	148	25	1,3	435.08	17500
18,50 - 19,49	25	248	162	156	31	1,3	489.86	18500
19,50 - 20,49	25	257	171	164	31	2,0	496.58	19500
20,50 - 21,49	25	267	179	172	31	2,0	529.98	20500
21,50 - 22,49	25	276	187	180	31	2,0	529.98	21500
22,50 - 23,49	25	286	195	188	31	2,0	587.85	22500
23,50 - 24,49	25	295	204	196	31	2,0	587.85	23500
24,50 - 25,49	32	309	212	204	38	3,1	634.47	24500
25,50 - 26,49	32	319	220	212	38	3,1	634.47	25500
26,50 - 27,49	32	328	229	220	38	3,1	634.47	26500
27,50 - 28,49	32	338	237	228	38	3,1	634.47	27500
28,50 - 29,49	32	342	245	236	38	5,6	728.18	28500
29,50 - 30,49	32	352	254	244	38	5,6	728.18	29500
30,50 - 31,49	32	361	262	252	38	5,6	803.12	30500
31,50 - 32,49	32	371	270	260	38	5,6	803.12	31500

Interchangeable blade



Blade holder



Torque handle

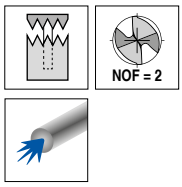


Differential screw

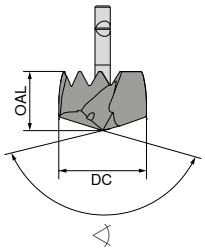
Spare parts DC	80 022 ... £ W1		80 020 ... £ Y7		80 023 ... £ W1		10 950 ... £ W2	
14,00 - 14,49	21.51	007	35.20	025	359.30	012	7.05	064
14,50 - 14,99	21.51	007	35.20	025	359.30	012	7.05	064
15,00 - 15,49	21.51	007	35.20	025	359.30	012	7.05	064
15,50 - 16,49	21.51	007	35.20	025	359.30	012	7.05	064
16,50 - 17,49	21.51	007	35.20	025	359.30	012	7.05	064
17,50 - 18,49	21.51	008	35.20	025	384.57	060	7.05	065
18,50 - 19,49	21.51	008	35.20	025	384.57	060	7.05	065
19,50 - 20,49	25.03	010	35.20	025	384.57	060	7.05	066
20,50 - 21,49	25.03	010	35.20	025	384.57	060	7.05	066
21,50 - 22,49	25.03	010	35.20	025	384.57	060	7.05	066
22,50 - 23,49	25.03	010	35.20	025	384.57	060	7.05	066
23,50 - 24,49	25.03	010	35.20	025	384.57	060	7.05	066
24,50 - 25,49	40.44	015	35.20	025	384.57	060	7.05	067
25,50 - 26,49	40.44	015	35.20	025	384.57	060	7.05	067
26,50 - 27,49	40.44	015	35.20	025	384.57	060	7.05	067
27,50 - 28,49	40.44	015	35.20	025	384.57	060	7.05	067
28,50 - 29,49	40.44	015	35.20	025	384.57	060	7.05	068
29,50 - 30,49	40.44	015	35.20	025	384.57	060	7.05	068
30,50 - 31,49	40.44	015	35.20	025	384.57	060	7.05	068
31,50 - 32,49	40.44	015	35.20	025	384.57	060	7.05	068

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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





		◁ 140° Solid carbide		◁ 138° Solid carbide		◁ 138° Solid carbide		◁ 140° Solid carbide		◁ 140° Solid carbide	
		10 919 ...		10 923 ...		10 921 ...		10 924 ...		10 922 ...	
DC h7/m7 mm	OAL mm	£ W2		£ W2		£ W2		£ W2		£ W2	
12.0	10.7	126.60	12000	126.60	120	126.60	120	126.60	120	126.60	120
12.1	10.7	126.60	12100	126.60	121	126.60	121	126.60	121	126.60	121
12.2	10.7	126.60	12200	126.60	122	126.60	122	126.60	122	126.60	122
12.3	10.7	126.60	12300	126.60	123	126.60	123	126.60	123	126.60	123
12.4	10.7	126.60	12400	126.60	124	126.60	124	126.60	124	126.60	124
12.5	10.7	126.60	12500	126.60	125	126.60	125	126.60	125	126.60	125
12.6	10.7	126.60	12600	126.60	126	126.60	126	126.60	126	126.60	126
12.7	10.7	126.60	12700	126.60	127	126.60	127	126.60	127	126.60	127
12.8	10.7	126.60	12800	126.60	128	126.60	128	126.60	128	126.60	128
12.9	10.7	126.60	12900	126.60	129	126.60	129	126.60	129	126.60	129
13.0	10.7	126.60	13000	126.60	130	126.60	130	126.60	130	126.60	130
13.1	10.7	126.60	13100	126.60	131	126.60	131	126.60	131	126.60	131
13.2	10.7	126.60	13200	126.60	132	126.60	132	126.60	132	126.60	132
13.3	10.7	126.60	13300	126.60	133	126.60	133	126.60	133	126.60	133
13.4	10.7	126.60	13400	126.60	134	126.60	134	126.60	134	126.60	134
13.5	11.3	126.60	13500	126.60	135	126.60	135	126.60	135	126.60	135
13.6	11.3	126.60	13600	126.60	136	126.60	136	126.60	136	126.60	136
13.7	11.3	126.60	13700	126.60	137	126.60	137	126.60	137	126.60	137
13.8	11.3	126.60	13800	126.60	138	126.60	138	126.60	138	126.60	138
13.9	11.3	126.60	13900	126.60	139	126.60	139	126.60	139	126.60	139
14.0	11.3	126.60	14000	126.60	140	126.60	140	126.60	140	126.60	140
14.1	11.3	126.60	14100	126.60	141	126.60	141	126.60	141	126.60	141
14.2	11.3	126.60	14200	126.60	142	126.60	142	126.60	142	126.60	142
14.3	11.3	126.60	14300	126.60	143	126.60	143	126.60	143	126.60	143
14.4	11.3	126.60	14400	126.60	144	126.60	144	126.60	144	126.60	144
14.5	11.3	126.60	14500	126.60	145	126.60	145	126.60	145	126.60	145
14.6	11.3	126.60	14600	126.60	146	126.60	146	126.60	146	126.60	146
14.7	11.3	126.60	14700	126.60	147	126.60	147	126.60	147	126.60	147
14.8	11.3	126.60	14800	126.60	148	126.60	148	126.60	148	126.60	148
14.9	11.3	126.60	14900	126.60	149	126.60	149	126.60	149	126.60	149
15.0	11.3	126.60	15000	126.60	150	126.60	150	126.60	150	126.60	150
15.1	11.3	126.60	15100	126.60	151	126.60	151	126.60	151	126.60	151
15.2	11.3	126.60	15200	126.60	152	126.60	152	126.60	152	126.60	152
15.3	11.3	126.60	15300	126.60	153	126.60	153	126.60	153	126.60	153
15.4	11.3	126.60	15400	126.60	154	126.60	154	126.60	154	126.60	154
15.5	11.9	126.60	15500	126.60	155	126.60	155	126.60	155	126.60	155
15.6	11.9	126.60	15600	126.60	156	126.60	156	126.60	156	126.60	156
15.7	11.9	126.60	15700	126.60	157	126.60	157	126.60	157	126.60	157
15.8	11.9	126.60	15800	126.60	158	126.60	158	126.60	158	126.60	158
P		●		●		○					
M						●					
K		●		●		●		●			
N										●	
S						●					
H											
O											

→ v_c Page 152–155

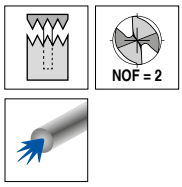
ⓘ **Ø DC_{m7}** for Type UNI, P, GG und AL / **Ø DC_{h7}** for Type VA

Continued on next page

WTX – Drilling Head for Exchangeable drills

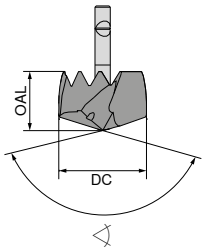
▲ extra long head type

2



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

DRAGONSKIN





		◁ 140° Solid carbide		◁ 138° Solid carbide		◁ 138° Solid carbide		◁ 140° Solid carbide		◁ 140° Solid carbide	
		10 919 ...		10 923 ...		10 921 ...		10 924 ...		10 922 ...	
DC h7/m7 mm	OAL mm	£ W2		£ W2		£ W2		£ W2		£ W2	
15.9	11.9	126.60	15900	126.60	159	126.60	159	126.60	159	126.60	159
16.0	11.9	126.60	16000	126.60	160	126.60	160	126.60	160	126.60	160
16.1	11.9	126.60	16100	126.60	161	126.60	161	126.60	161	126.60	161
16.2	11.9	126.60	16200	126.60	162	126.60	162	126.60	162	126.60	162
16.3	11.9	126.60	16300	126.60	163	126.60	163	126.60	163	126.60	163
16.4	11.9	126.60	16400	126.60	164	126.60	164	126.60	164	126.60	164
16.5	13.4	126.60	16500	126.60	165	126.60	165	126.60	165	126.60	165
16.6	13.4	126.60	16600	126.60	166	126.60	166	126.60	166	126.60	166
16.7	13.4	126.60	16700	126.60	167	126.60	167	126.60	167	126.60	167
16.8	13.4	126.60	16800	126.60	168	126.60	168	126.60	168	126.60	168
16.9	13.4	126.60	16900	126.60	169	126.60	169	126.60	169	126.60	169
17.0	13.4	126.60	17000	126.60	170	126.60	170	126.60	170	126.60	170
17.1	13.4	126.60	17100	126.60	171	126.60	171	126.60	171	126.60	171
17.2	13.4	126.60	17200	126.60	172	126.60	172	126.60	172	126.60	172
17.3	13.4	126.60	17300	126.60	173	126.60	173	126.60	173	126.60	173
17.4	13.4	126.60	17400	126.60	174	126.60	174	126.60	174	126.60	174
17.5	13.4	126.60	17500	126.60	175	126.60	175	126.60	175	126.60	175
17.6	13.4	126.60	17600	126.60	176	126.60	176	126.60	176	126.60	176
17.7	13.4	126.60	17700	126.60	177	126.60	177	126.60	177	126.60	177
17.8	13.4	126.60	17800	126.60	178	126.60	178	126.60	178	126.60	178
17.9	13.4	126.60	17900	126.60	179	126.60	179	126.60	179	126.60	179
18.0	13.4	126.60	18000	126.60	180	126.60	180	126.60	180	126.60	180
18.1	13.4	137.75	18100	137.75	181	137.75	181	137.75	181	137.75	181
18.2	13.4	137.75	18200	137.75	182	137.75	182	137.75	182	137.75	182
18.3	13.4	137.75	18300	137.75	183	137.75	183	137.75	183	137.75	183
18.4	13.4	137.75	18400	137.75	184	137.75	184	137.75	184	137.75	184
18.5	13.4	137.75	18500	137.75	185	137.75	185	137.75	185	137.75	185
18.6	13.4	137.75	18600	137.75	186	137.75	186	137.75	186	137.75	186
18.7	13.4	137.75	18700	137.75	187	137.75	187	137.75	187	137.75	187
18.8	13.4	137.75	18800	137.75	188	137.75	188	137.75	188	137.75	188
18.9	13.4	137.75	18900	137.75	189	137.75	189	137.75	189	137.75	189
19.0	13.4	137.75	19000	137.75	190	137.75	190	137.75	190	137.75	190
19.1	13.4	137.75	19100	137.75	191	137.75	191	137.75	191	137.75	191
19.2	13.4	137.75	19200	137.75	192	137.75	192	137.75	192	137.75	192
19.3	13.4	137.75	19300	137.75	193	137.75	193	137.75	193	137.75	193
19.4	13.4	137.75	19400	137.75	194	137.75	194	137.75	194	137.75	194
19.5	13.4	137.75	19500	137.75	195	137.75	195	137.75	195	137.75	195
19.6	13.4	137.75	19600	137.75	196	137.75	196	137.75	196	137.75	196
19.7	13.4	137.75	19700	137.75	197	137.75	197	137.75	197	137.75	197
P		●		●		○					
M						●					
K		●		●		●		●			
N										●	
S						●					
H											
O											

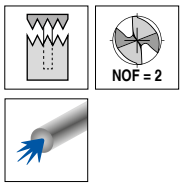
→ v_c Page 152–155

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

Continued on next page

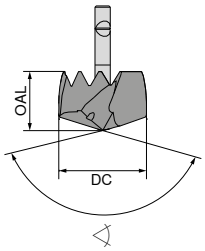
WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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

DRAGONSKIN





		◁ 140° Solid carbide		◁ 138° Solid carbide		◁ 138° Solid carbide		◁ 140° Solid carbide		◁ 140° Solid carbide	
		10 919 ...		10 923 ...		10 921 ...		10 924 ...		10 922 ...	
DC h7/m7 mm	OAL mm	£ W2		£ W2		£ W2		£ W2		£ W2	
19.8	13.4	137.75	19800	137.75	198	137.75	198	137.75	198	137.75	198
19.9	13.4	137.75	19900	137.75	199	137.75	199	137.75	199	137.75	199
20.0	13.4	137.75	20000	137.75	200	137.75	200	137.75	200	137.75	200
20.1	13.4	152.23	20100	152.23	201	152.23	201	152.23	201	114.78	201
20.2	13.4	152.23	20200	152.23	202	152.23	202	152.23	202	152.23	202
20.3	13.4	152.23	20300	152.23	203	152.23	203	152.23	203	152.23	203
20.4	13.4	152.23	20400	152.23	204	152.23	204	152.23	204	152.23	204
20.5	15.4	152.23	20500	152.23	205	152.23	205	152.23	205	152.23	205
20.6	15.4	152.23	20600	152.23	206	152.23	206	152.23	206	152.23	206
20.7	15.4	152.23	20700	152.23	207	152.23	207	152.23	207	152.23	207
20.8	15.4	152.23	20800	152.23	208	152.23	208	152.23	208	152.23	208
20.9	15.4	152.23	20900	152.23	209	152.23	209	152.23	209	152.23	209
21.0	15.4	152.23	21000	152.23	210	152.23	210	152.23	210	152.23	210
21.1	15.4	152.23	21100	152.23	211	152.23	211	152.23	211	152.23	211
21.2	15.4	152.23	21200	152.23	212	152.23	212	152.23	212	152.23	212
21.3	15.4	152.23	21300	152.23	213	152.23	213	152.23	213	152.23	213
21.4	15.4	152.23	21400	152.23	214	152.23	214	152.23	214	152.23	214
21.5	15.4	152.23	21500	152.23	215	152.23	215	152.23	215	152.23	215
21.6	15.4	152.23	21600	152.23	216	152.23	216	152.23	216	152.23	216
21.7	15.4	152.23	21700	152.23	217	152.23	217	152.23	217	152.23	217
21.8	15.4	152.23	21800	152.23	218	152.23	218	152.23	218	152.23	218
21.9	15.4	152.23	21900	152.23	219	152.23	219	152.23	219	152.23	219
22.0	15.4	152.23	22000	152.23	220	152.23	220	152.23	220	152.23	220
22.1	15.4	163.37	22100	163.37	221	163.37	221	163.37	221	163.37	221
22.2	15.4	163.37	22200	163.37	222	163.37	222	163.37	222	163.37	222
22.3	15.4	163.37	22300	163.37	223	163.37	223	163.37	223	163.37	223
22.4	15.4	163.37	22400	163.37	224	163.37	224	163.37	224	163.37	224
22.5	15.4	163.37	22500	163.37	225	163.37	225	163.37	225	163.37	225
22.6	15.4	163.37	22600	163.37	226	163.37	226	163.37	226	163.37	226
22.7	15.4	163.37	22700	163.37	227	163.37	227	163.37	227	163.37	227
22.8	15.4	163.37	22800	163.37	228	163.37	228	163.37	228	163.37	228
22.9	15.4	163.37	22900	163.37	229	163.37	229	163.37	229	163.37	229
23.0	15.4	163.37	23000	163.37	230	163.37	230	163.37	230	163.37	230
23.1	15.4	163.37	23100	163.37	231	163.37	231	163.37	231	163.37	231
23.2	15.4	163.37	23200	163.37	232	163.37	232	163.37	232	163.37	232
23.3	15.4	163.37	23300	163.37	233	163.37	233	163.37	233	163.37	233
23.4	15.4	163.37	23400	163.37	234	163.37	234	163.37	234	163.37	234
23.5	15.4	163.37	23500	163.37	235	163.37	235	163.37	235	163.37	235
23.6	15.4	163.37	23600	163.37	236	163.37	236	163.37	236	163.37	236
P			●		●		○				
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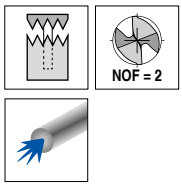
→ v_c Page 152–155

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

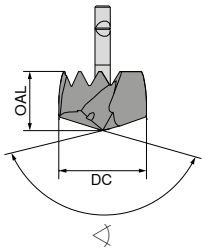
Continued on next page

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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





		◁ 140° Solid carbide		◁ 138° Solid carbide		◁ 138° Solid carbide		◁ 140° Solid carbide		◁ 140° Solid carbide	
		10 919 ...		10 923 ...		10 921 ...		10 924 ...		10 922 ...	
DC h7/m7 mm	OAL mm	£ W2		£ W2		£ W2		£ W2		£ W2	
23.7	15.4	163.37	23700	163.37	237	163.37	237	163.37	237	163.37	237
23.8	15.4	163.37	23800	163.37	238	163.37	238	163.37	238	163.37	238
23.9	15.4	163.37	23900	163.37	239	163.37	239	163.37	239	163.37	239
24.0	15.4	163.37	24000	163.37	240	163.37	240	163.37	240	163.37	240
24.1	15.4	177.86	24100	171.14	241	188.99	241	171.14	241	188.99	241
24.2	15.4	177.86	24200	171.14	242	188.99	242	171.14	242	188.99	242
24.3	15.4	177.86	24300	171.14	243	188.99	243	171.14	243	188.99	243
24.4	15.4	177.86	24400	171.14	244	188.99	244	171.14	244	188.99	244
24.5	17.4	177.86	24500	177.86	245	188.99	245	177.86	245	188.99	245
24.6	17.4	177.86	24600	177.86	246	188.99	246	177.86	246	188.99	246
24.7	17.4	177.86	24700	177.86	247	188.99	247	177.86	247	188.99	247
24.8	17.4	177.86	24800	177.86	248	188.99	248	177.86	248	188.99	248
24.9	17.4	177.86	24900	177.86	249	188.99	249	177.86	249	188.99	249
25.0	17.4	177.86	25000	177.86	250	188.99	250	177.86	250	188.99	250
25.1	17.4	177.86	25100	177.86	251	188.99	251	177.86	251	188.99	251
25.2	17.4	177.86	25200	177.86	252	188.99	252	177.86	252	188.99	252
25.3	17.4	177.86	25300	177.86	253	188.99	253	177.86	253	188.99	253
25.4	17.4	177.86	25400	177.86	254	188.99	254	177.86	254	188.99	254
25.5	17.4	177.86	25500	177.86	255	188.99	255	177.86	255	188.99	255
25.6	17.4	188.99	25600	188.99	256	188.99	256	188.99	256	188.99	256
25.7	17.4	188.99	25700	188.99	257	188.99	257	188.99	257	188.99	257
25.8	17.4	188.99	25800	188.99	258	188.99	258	188.99	258	188.99	258
25.9	17.4	188.99	25900	188.99	259	188.99	259	188.99	259	188.99	259
26.0	17.4	188.99	26000	188.99	260	188.99	260	188.99	260	188.99	260
26.1	17.4	188.99	26100	188.99	261	188.99	261	188.99	261	188.99	261
26.2	17.4	188.99	26200	188.99	262	188.99	262	188.99	262	188.99	262
26.3	17.4	188.99	26300	188.99	263	188.99	263	188.99	263	188.99	263
26.4	17.4	188.99	26400	188.99	264	188.99	264	188.99	264	188.99	264
26.5	17.4	188.99	26500	188.99	265	188.99	265	188.99	265	188.99	265
26.6	17.4	188.99	26600	188.99	266	188.99	266	188.99	266	188.99	266
26.7	17.4	188.99	26700	188.99	267	188.99	267	188.99	267	188.99	267
26.8	17.4	188.99	26800	188.99	268	188.99	268	188.99	268	188.99	268
26.9	17.4	188.99	26900	188.99	269	188.99	269	188.99	269	188.99	269
27.0	17.4	188.99	27000	188.99	270	188.99	270	188.99	270	188.99	270
27.1	17.4	188.99	27100	188.99	271	188.99	271	188.99	271	188.99	271
27.2	17.4	188.99	27200	188.99	272	188.99	272	188.99	272	188.99	272
27.3	17.4	188.99	27300	188.99	273	188.99	273	188.99	273	188.99	273
27.4	17.4	188.99	27400	188.99	274	188.99	274	188.99	274	188.99	274
27.5	17.4	188.99	27500	188.99	275	188.99	275	188.99	275	188.99	275
P			●		●		○				
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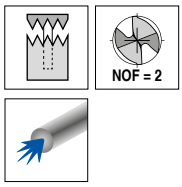
→ v_c Page 152–155

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

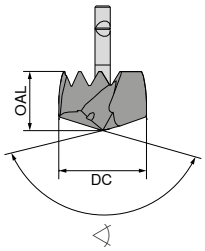
Continued on next page

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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





		◁ 140° Solid carbide		◁ 138° Solid carbide		◁ 138° Solid carbide		◁ 140° Solid carbide		◁ 140° Solid carbide	
		10 919 ...		10 923 ...		10 921 ...		10 924 ...		10 922 ...	
DC h7/m7 mm	OAL mm	£ W2		£ W2		£ W2		£ W2		£ W2	
27.6	17.4	188.99	27600	188.99	276	188.99	276	188.99	276	188.99	276
27.7	17.4	188.99	27700	188.99	277	188.99	277	188.99	277	188.99	277
27.8	17.4	188.99	27800	188.99	278	188.99	278	188.99	278	188.99	278
27.9	17.4	188.99	27900	188.99	279	188.99	279	188.99	279	188.99	279
28.0	17.4	188.99	28000	188.99	280	188.99	280	188.99	280	188.99	280
28.1	17.4	206.69	28100	206.69	281	206.69	281	206.69	281	206.69	281
28.2	17.4	206.69	28200	206.69	282	206.69	282	206.69	282	206.69	282
28.3	17.4	206.69	28300	206.69	283	206.69	283	206.69	283	206.69	283
28.4	17.4	206.69	28400	206.69	284	206.69	284	206.69	284	206.69	284
28.5	18.4	206.69	28500	206.69	285	206.69	285	206.69	285	206.69	285
28.6	18.4	206.69	28600	206.69	286	206.69	286	206.69	286	206.69	286
28.7	18.4	206.69	28700	206.69	287	206.69	287	206.69	287	206.69	287
28.8	18.4	206.69	28800	206.69	288	206.69	288	206.69	288	206.69	288
28.9	18.4	206.69	28900	206.69	289	206.69	289	206.69	289	206.69	289
29.0	18.4	206.69	29000	206.69	290	206.69	290	206.69	290	206.69	290
29.1	18.4	206.69	29100	206.69	291	206.69	291	206.69	291	206.69	291
29.2	18.4	206.69	29200	206.69	292	206.69	292	206.69	292	206.69	292
29.3	18.4	206.69	29300	206.69	293	206.69	293	206.69	293	206.69	293
29.4	18.4	206.69	29400	206.69	294	206.69	294	206.69	294	206.69	294
29.5	18.4	206.69	29500	206.69	295	206.69	295	206.69	295	206.69	295
29.6	18.4	206.69	29600	206.69	296	206.69	296	206.69	296	206.69	296
29.7	18.4	206.69	29700	206.69	297	206.69	297	206.69	297	206.69	297
29.8	18.4	206.69	29800	206.69	298	206.69	298	206.69	298	206.69	298
29.9	18.4	206.69	29900	206.69	299	206.69	299	206.69	299	206.69	299
30.0	18.4	206.69	30000	206.69	300	206.69	300	206.69	300	206.69	300
30.1	18.4	230.63	30100	230.63	301	230.63	301	230.63	301	230.63	301
30.2	18.4	230.63	30200	230.63	302	230.63	302	230.63	302	230.63	302
30.3	18.4	230.63	30300	230.63	303	230.63	303	230.63	303	230.63	303
30.4	18.4	230.63	30400	230.63	304	230.63	304	230.63	304	230.63	304
30.5	18.4	230.63	30500	230.63	305	230.63	305	230.63	305	230.63	305
30.6	18.4	230.63	30600	230.63	306	230.63	306	230.63	306	230.63	306
30.7	18.4	230.63	30700	230.63	307	230.63	307	230.63	307	230.63	307
30.8	18.4	230.63	30800	230.63	308	230.63	308	230.63	308	230.63	308
30.9	18.4	230.63	30900	230.63	309	230.63	309	230.63	309	230.63	309
31.0	18.4	230.63	31000	230.63	310	230.63	310	230.63	310	230.63	310
31.1	18.4	230.63	31100	230.63	311	230.63	311	230.63	311	230.63	311
31.2	18.4	230.63	31200	230.63	312	230.63	312	230.63	312	230.63	312
31.3	18.4	230.63	31300	230.63	313	230.63	313	230.63	313	230.63	313
31.4	18.4	230.63	31400	230.63	314	230.63	314	230.63	314	230.63	314
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→ v_c Page 152–155

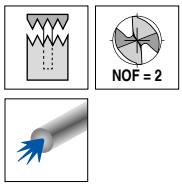
ⓘ **Ø DC_{m7}** for Type UNI, P, GG und AL / **Ø DC_{h7}** for Type VA

Continued on next page

WTX – Drilling Head for Exchangeable drills

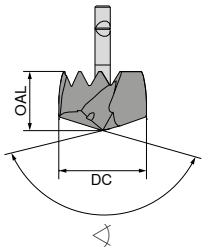
▲ extra long head type

2



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

DRAGONSKIN





		◁ 140° Solid carbide		◁ 138° Solid carbide		◁ 138° Solid carbide		◁ 140° Solid carbide		◁ 140° Solid carbide	
		10 919 ...		10 923 ...		10 921 ...		10 924 ...		10 922 ...	
DC h7/m7 mm	OAL mm	£ W2		£ W2		£ W2		£ W2		£ W2	
31.5	18.4	230.63	31500	230.63	315	230.63	315	230.63	315	230.63	315
31.6	18.4	230.63	31600	230.63	316	230.63	316	230.63	316	230.63	316
31.7	18.4	230.63	31700	230.63	317	230.63	317	230.63	317	230.63	317
31.8	18.4	230.63	31800	230.63	318	230.63	318	230.63	318	230.63	318
31.9	18.4	230.63	31900	230.63	319	230.63	319	230.63	319	230.63	319
32.0	18.4	230.63	32000	230.63	320	230.63	320	230.63	320	230.63	320
32.5	24.3	246.87	32500	246.87	325						
33.0	24.3	246.87	33000	246.87	330						
33.5	24.3	246.87	33500	246.87	335						
34.0	24.3	246.87	34000	246.87	340						
34.5	24.3	246.87	34500	246.87	345						
35.0	24.3	246.87	35000	246.87	350						
35.5	26.3	282.35	35500	282.35	355						
36.0	26.3	282.35	36000	282.35	360						
36.5	26.3	282.35	36500	282.35	365						
37.0	26.3	282.35	37000	282.35	370						
37.5	26.3	282.35	37500	282.35	375						
38.0	26.3	282.35	38000	282.35	380						
38.5	26.3	306.90	38500	306.90	385						
39.0	26.3	306.90	39000	306.90	390						
39.5	26.3	306.90	39500	306.90	395						
40.0	26.3	306.90	40000	306.90	400						
40.5	26.3	306.90	40500	306.90	405						
41.0	26.3	306.90	41000	306.90	410						
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→ v_c Page 152–155

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

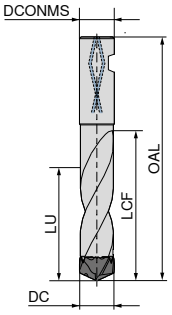
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver

≤ 1xD

Change





HB

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	10 911 ... £ W1	
12,00 - 12,49	14	81	29	12.5	1,0	246.87	120
12,50 - 12,99	14	81	29	13.0	1,0	246.87	125
13,00 - 13,49	14	81	31	13.5	1,0	246.87	130
13,50 - 13,99	16	86	32	14.0	1,3	246.87	135
14,00 - 14,49	16	86	33	14.5	1,3	246.87	140
14,50 - 14,99	16	91	34	15.0	1,3	246.87	145
15,00 - 15,49	16	91	36	15.5	1,3	246.87	150
15,50 - 16,49	20	97	38	16.5	1,3	255.07	161
15,50 - 16,49	18	92	38	16.5	1,3	255.07	160
16,50 - 17,49	18	94	40	17.5	3,5	255.07	165
16,50 - 17,49	20	99	40	17.5	3,5	255.07	166
17,50 - 18,49	20	104	43	18.5	3,5	255.07	176
17,50 - 18,49	18	99	43	18.5	3,5	255.07	175
18,50 - 19,49	20	99	45	19.5	3,5	301.44	185
19,50 - 20,49	20	104	47	20.5	3,5	301.44	195
20,50 - 21,49	25	111	49	21.5	3,5	334.17	205
21,50 - 22,49	25	116	52	22.5	3,5	334.17	215
22,50 - 23,49	25	116	54	23.5	3,5	365.56	225
23,50 - 24,49	25	121	56	24.5	4,0	365.56	235
24,50 - 25,49	25	123	59	25.5	4,0	396.91	245
25,50 - 26,49	25	123	61	26.5	4,0	396.91	255
26,50 - 27,49	25	128	63	27.5	4,0	396.91	265
27,50 - 28,49	25	128	66	28.5	4,0	396.91	275
28,50 - 29,49	32	134	68	29.5	4,0	461.02	285
29,50 - 30,49	32	139	70	30.5	4,0	461.02	295
30,50 - 31,49	32	139	75	31.5	4,0	508.75	305
31,50 - 32,49	32	139	75	32.5	4,0	508.75	315
32,50 - 33,49	32	150	78	33.5	6,0	548.31	325
33,50 - 34,49	32	150	79	34.5	6,0	548.31	335
34,50 - 35,49	32	150	82	35.5	6,0	548.31	345
35,50 - 37,49	32	152	86	37.5	6,0	631.51	355
37,50 - 39,49	32	157	91	39.5	6,0	654.71	375
39,50 - 41,00	32	167	95	41.5	6,0	671.08	395

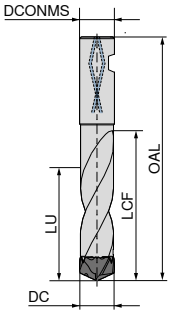
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver

≤ 3xD

Change



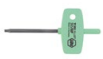


HB

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	10 913 ... £ W1	
12,00 - 12,49	14	100	53	38.0	1,0	279.13	120
12,50 - 12,99	14	105	55	39.0	1,0	279.13	125
13,00 - 13,49	14	105	57	40.0	1,0	279.13	130
13,50 - 13,99	16	110	59	42.0	1,3	279.13	135
14,00 - 14,49	16	115	61	43.0	1,3	279.13	140
14,50 - 14,99	16	115	63	45.0	1,3	279.13	145
15,00 - 15,49	16	115	65	46.0	1,3	279.13	150
15,50 - 16,49	18	120	70	50.0	1,3	272.28	160
15,50 - 16,49	20	125	70	50.0	1,3	272.28	161
16,50 - 17,49	18	125	74	53.0	3,5	272.28	165
16,50 - 17,49	20	130	74	50.0	3,5	272.28	166
17,50 - 18,49	18	130	78	55.0	3,5	272.28	175
17,50 - 18,49	20	135	78	50.0	3,5	272.28	176
18,50 - 19,49	20	135	82	58.0	3,5	321.99	185
19,50 - 20,49	20	140	87	62.0	3,5	321.99	195
20,50 - 21,49	25	150	91	65.0	3,5	355.56	205
21,50 - 22,49	25	155	95	67.0	3,5	355.56	215
22,50 - 23,49	25	160	99	70.0	3,5	389.26	225
23,50 - 24,49	25	165	103	73.0	3,5	389.26	235
24,50 - 25,49	25	165	108	77.0	4,0	422.79	245
25,50 - 26,49	25	175	112	80.0	4,0	422.79	255
26,50 - 27,49	25	175	116	82.0	4,0	422.79	265
27,50 - 28,49	25	180	120	85.0	4,0	422.79	275
28,50 - 29,49	32	190	124	88.0	4,0	490.09	285
29,50 - 30,49	32	195	129	92.0	4,0	490.09	295
30,50 - 31,49	32	195	133	94.0	4,0	541.33	305
31,50 - 32,49	32	200	137	97.0	4,0	541.33	315
32,50 - 33,49	32	210	144	100.5	6,0	638.34	325
33,50 - 34,49	32	215	148	103.5	6,0	638.34	335
34,50 - 35,49	32	220	153	106.5	6,0	638.34	345
35,50 - 37,49	32	227	161	112.5	6,0	733.82	355
37,50 - 39,49	32	237	170	118.5	6,0	761.10	375
39,50 - 41,00	32	247	178	124.5	6,0	780.20	395



Screw driver



Screw driver



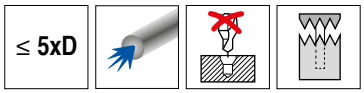
Grub screw

Spare parts for Exchangeable Head Drill-Ø		80 950 ... £ Y7			80 950 ... £ Y7			10 950 ... £ W1	
12,00 - 12,49	SW 1,3	3.77	132				M2,5 x 0,45 x 5	4.37	025
12,50 - 13,49	SW 1,3	3.77	132				M2,5 x 0,45 x 6	4.37	026
13,50 - 14,49				SW 1,5	4.90	133	M3 x 0,5 x 6	4.37	031
14,50 - 16,49				SW 1,5	4.90	133	M3 x 0,5 x 7	4.50	030
16,50 - 20,49				SW 2	4.67	134	M4 x 0,5 x 7,5	4.50	040
20,50 - 24,49				SW 2	4.67	134	M4 x 0,5 x 10	4.50	041
24,50 - 28,49				SW 2,5	4.38	135	M5 x 0,5 x 11	4.50	050
28,50 - 32,49				SW 2,5	4.38	135	M5 x 0,5 x 14	4.50	051
32,50 - 35,49				SW 3	4.38	136	M6 x 0,5 x 16	8.05	060
35,50 - 39,49				SW 3	4.38	136	M6 x 0,5 x 18	8.05	061
39,50 - 41,00				SW 3	4.38	136	M6 x 0,5 x 20	8.05	062

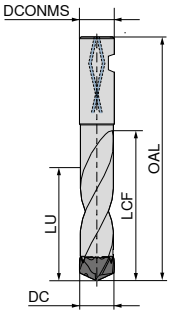
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver







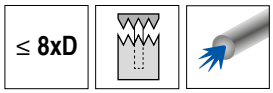


DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	£ W1	10 915 ...
12,00 - 12,49	14	125	78	62.0	1,0	314.22	120
12,50 - 12,99	14	130	81	65.0	1,0	314.22	125
13,00 - 13,49	14	130	84	67.0	1,0	314.22	130
13,50 - 13,99	16	140	88	70.0	1,3	314.22	135
14,00 - 14,49	16	140	90	72.0	1,3	314.22	140
14,50 - 14,99	16	145	94	75.0	1,3	314.22	145
15,00 - 15,49	16	145	96	77.0	1,3	314.22	150
15,50 - 16,49	18	155	103	82.0	1,3	321.99	160
15,50 - 16,49	20	160	103	82.0	1,3	321.99	161
16,50 - 17,49	18	160	109	87.0	3,5	321.99	165
16,50 - 17,49	20	165	109	87.0	3,5	321.99	166
17,50 - 18,49	18	165	115	92.0	3,5	321.99	175
17,50 - 18,49	20	170	115	92.0	3,5	321.99	176
18,50 - 19,49	20	175	121	97.0	3,5	373.24	185
19,50 - 20,49	20	180	128	102.0	3,5	373.24	195
20,50 - 21,49	25	195	134	107.0	3,5	405.28	205
21,50 - 22,49	25	200	140	112.0	3,5	405.28	215
22,50 - 23,49	25	205	146	117.0	3,5	440.50	225
23,50 - 24,49	25	210	152	122.0	3,5	440.50	235
24,50 - 25,49	25	220	159	127.0	4,0	474.08	245
25,50 - 26,49	25	225	165	132.0	4,0	474.08	255
26,50 - 27,49	25	230	171	137.0	4,0	474.08	265
27,50 - 28,49	25	240	177	142.0	4,0	474.08	275
28,50 - 29,49	32	250	183	146.0	4,0	541.33	285
29,50 - 30,49	32	255	190	152.0	4,0	541.33	295
30,50 - 31,49	32	260	196	157.0	4,0	591.03	305
31,50 - 32,49	32	265	202	162.0	4,0	591.03	315
32,50 - 33,49	32	275	210	167.5	6,0	721.54	325
33,50 - 34,49	32	285	217	172.5	6,0	721.54	335
34,50 - 35,49	32	290	224	177.5	6,0	721.54	345
35,50 - 37,49	32	302	236	187.5	6,0	811.55	355
37,50 - 39,49	32	317	249	197.5	6,0	841.59	375
39,50 - 41,00	32	327	261	207.5	6,0	860.65	395

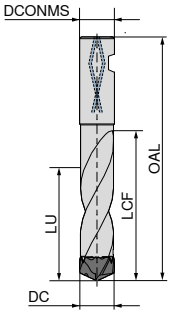
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver



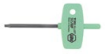






DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	£ W1	10 918 ...
12,00 - 12,49	14	165	116	100	1,0	399.63	120
12,50 - 12,99	14	170	121	104	1,0	399.63	125
13,00 - 13,49	14	175	126	108	1,0	399.63	130
13,50 - 13,99	16	180	129	111	1,3	399.63	135
14,00 - 14,49	16	185	134	115	1,3	399.63	140
14,50 - 14,99	16	190	139	120	1,3	399.63	145
15,00 - 15,49	16	195	144	124	1,3	399.63	150
15,50 - 16,49	18	205	152	131	1,3	407.26	160
15,50 - 16,49	20	210	152	131	1,3	407.26	161
16,50 - 17,49	18	215	161	138	3,5	407.26	165
16,50 - 17,49	20	220	161	138	3,5	407.26	166
17,50 - 18,49	18	220	171	147	3,5	407.26	175
17,50 - 18,49	20	225	171	147	3,5	407.26	176
18,50 - 19,49	20	235	180	155	3,5	468.27	185
19,50 - 20,49	20	240	189	163	3,5	468.27	195
20,50 - 21,49	25	260	198	170	3,5	509.45	205
21,50 - 22,49	25	270	207	178	3,5	509.45	215
22,50 - 23,49	25	275	217	187	3,5	571.99	225
23,50 - 24,49	25	285	226	194	3,5	571.99	235
24,50 - 25,49	25	295	235	202	4,0	654.33	245
25,50 - 26,49	25	305	244	210	4,0	654.33	255
26,50 - 27,49	25	315	253	218	4,0	654.33	265
27,50 - 28,49	25	325	263	226	4,0	654.33	275
28,50 - 29,49	32	340	272	234	4,0	756.54	285
29,50 - 30,49	32	345	281	242	4,0	756.54	295
30,50 - 31,49	32	355	290	249	4,0	838.92	305
31,50 - 32,00	32	360	299	257	4,0	838.92	315





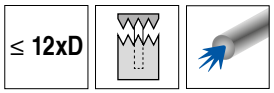


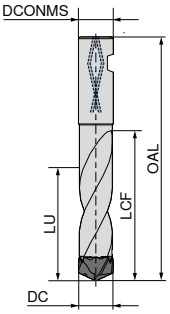
Spare parts for Exchangeable Head Drill-Ø		80 950 ... £ Y7			80 950 ... £ Y7			10 950 ... £ W1	
12,00 - 12,49	SW 1,3	3.77	132				M2,5 x 0,45 x 5	4.37	025
12,50 - 13,49	SW 1,3	3.77	132				M2,5 x 0,45 x 6	4.37	026
13,50 - 14,49				SW 1,5	4.90	133	M3 x 0,5 x 6	4.37	031
14,50 - 16,49				SW 1,5	4.90	133	M3 x 0,5 x 7	4.50	030
16,50 - 20,49				SW 2	4.67	134	M4 x 0,5 x 7,5	4.50	040
20,50 - 24,49				SW 2	4.67	134	M4 x 0,5 x 10	4.50	041
24,50 - 28,49				SW 2,5	4.38	135	M5 x 0,5 x 11	4.50	050
28,50 - 32,49				SW 2,5	4.38	135	M5 x 0,5 x 14	4.50	051
32,50 - 35,49				SW 3	4.38	136	M6 x 0,5 x 16	8.05	060
35,50 - 39,49				SW 3	4.38	136	M6 x 0,5 x 18	8.05	061
39,50 - 41,00				SW 3	4.38	136	M6 x 0,5 x 20	8.05	062

WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver







DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	10 912 ... £ W1	
12,00 - 12,49	14	210	162	150	1,0	527.93	12000
12,50 - 12,99	14	216	168	156	1,0	527.93	12500
13,00 - 13,49	14	223	175	162	1,0	527.93	13000
13,50 - 13,99	16	235	182	168	1,3	527.93	13500
14,00 - 14,49	16	242	189	174	1,3	527.93	14000
14,50 - 14,99	16	248	195	180	1,3	527.93	14500
15,00 - 15,49	16	255	202	186	1,3	527.93	15000
15,50 - 16,49	18	262	209	198	1,3	575.10	15500
16,50 - 17,49	18	275	222	210	3,5	575.10	16500
17,50 - 18,49	18	289	236	222	3,5	575.10	17500
18,50 - 19,49	20	304	249	234	3,5	696.83	18500
19,50 - 20,49	20	318	263	246	3,5	696.83	19500
20,50 - 21,49	25	337	276	258	3,5	752.73	20500
21,50 - 22,49	25	351	290	270	3,5	752.73	21500
22,50 - 23,49	25	364	303	282	3,5	836.40	22500
23,50 - 24,49	25	378	317	294	3,5	836.40	23500
24,50 - 25,49	25	391	330	306	4,0	948.07	24500
25,50 - 26,49	25	405	344	318	4,0	948.07	25500
26,50 - 27,49	25	418	357	330	4,0	948.07	26500
27,50 - 28,49	25	432	371	342	4,0	948.07	27500
28,50 - 29,49	32	449	384	354	4,0	1,087.26	28500
29,50 - 30,49	32	463	398	366	4,0	1,087.26	29500
30,50 - 31,49	32	476	411	378	4,0	1,199.06	30500
31,50 - 32,00	32	490	425	390	4,0	1,199.06	31500


Screw driver


Screw driver


Grub screw

Spare parts for Exchangeable Head Drill-Ø		80 950 ... £ Y7			80 950 ... £ Y7			10 950 ... £ W1	
12,00 - 12,49	SW 1,3	3.77	132				M2,5 x 0,45 x 5	4.37	025
12,50 - 13,49	SW 1,3	3.77	132				M2,5 x 0,45 x 6	4.37	026
13,50 - 14,49				SW 1,5	4.90	133	M3 x 0,5 x 6	4.37	031
14,50 - 16,49				SW 1,5	4.90	133	M3 x 0,5 x 7	4.50	030
16,50 - 20,49				SW 2	4.67	134	M4 x 0,5 x 7,5	4.50	040
20,50 - 24,49				SW 2	4.67	134	M4 x 0,5 x 10	4.50	041
24,50 - 28,49				SW 2,5	4.38	135	M5 x 0,5 x 11	4.50	050
28,50 - 32,49				SW 2,5	4.38	135	M5 x 0,5 x 14	4.50	051
32,50 - 35,49				SW 3	4.38	136	M6 x 0,5 x 16	8.05	060
35,50 - 39,49				SW 3	4.38	136	M6 x 0,5 x 18	8.05	061
39,50 - 41,00				SW 3	4.38	136	M6 x 0,5 x 20	8.05	062

MultiChange – Programme Overview

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

Reaming and Countersinking

- Through hole reamers
  Ø 8–30.2 mm incl. special diameters / ZEFP* 4–6
- Blind hold reamers
  Ø 12.2–30.2 mm incl. special diameters / ZEFP* 6

→ **Chapter 4, Reaming and countersinking**



*ZEFP = Number of teeth

Solid Carbide milling cutters

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

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



*ZEFP = Number of teeth

Tool holder



- Steel Holder Extra Short
  Cylindrical / Tapered 87°
  Length 60–90 mm
  for SZID: 8, 10, 12, 16, 20 mm



- Short Holder Steel / Solid Carbide
  cylindrical
  Length 85–120 mm
  for SZID: 8, 10, 12, 16, 20 mm



- Holder Steel / Solid Carbide, Short
  87° taper
  Length 85–120 mm
  for SZID: 8, 10, 12, 16, 20 mm



- Solid Carbide Holder Medium
  Cylindrical / Tapered 87°
  Length 110–150 mm
  for SZID: 8, 10, 12, 16, 20 mm



- Holder Steel / Solid Carbide, Long
  cylindrical
  Length 150–200 mm
  for SZID: 8, 10, 12, 16, 20 mm



- Holder Steel / Solid Carbide, Long
  87° taper
  Length 150–200 mm
  for SZID: 8, 10, 12, 16, 20 mm



- Steel / Solid Carbide Holder Extra Long
  cylindrical
  Length 200–250 mm
  for SZID: 16 and 20 mm

→ **Catalogue – Clamping technology, Chapter Accessories**

MultiChange – NC Spot Drill

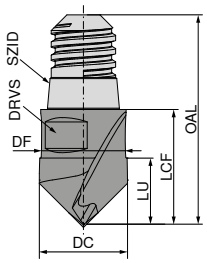
- SZID = Coupling Size
- TQX = Torque Moment
- NOF = No. of cutting edges



NC-A
Ti1050

NC-A
Ti1050

NC-A
Ti1050









DC mm	SZID	LU mm	DF mm	LCF mm	OAL mm	NOF	DRVS mm	TQX Nm	$a_{p\,max}$ mm	◁ 90° Solid carbide 10 709 ... £ T7		◁ 120° Solid carbide 10 712 ... £ T7		◁ 142° Solid carbide 10 714 ... £ T7	
8	06	6.0	7.8	11	20.4	2	6	5.0	4	33.92	**080**	33.92	**080**	33.92	**080**
10	08	7.5	9.8	13	26.9	2	8	12.5	5	37.59	**100**	37.59	**100**	37.59	**100**
12	10	9.0	11.8	16	30.1	2	10	15.0	6	48.23	**120**	48.23	**120**	48.23	**120**
16	12	12.0	15.8	20	37.3	2	13	20.0	8	68.22	**160**	68.22	**160**	68.22	**160**
20	16	15.0	19.8	25	47.2	2	16	25.0	10	99.23	**200**	99.23	**200**	99.23	**200**
P										●		●		●	
M										●		●		●	
K										●		●		●	
N										●		●		●	
S															
H															
O															

→ v_c Page 148

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

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values – WTX – Speed

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

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

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

Cutting data standard values – WTX – Feed

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

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

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

Cutting data standard values – WTX – UNI

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

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

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

Cutting data standard values – WTX – VA

Index	Drilling depth 3xD VA 10 731 ..., 10 732 ..., 10 733 ..., 10 734 ...							Drilling depth 5xD VA 10 740 ..., 10 741 ..., 10 745 ..., 10 746 ...						
	v_c m/min without through coolant	v_c m/min with through coolant	Ø 2–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min without through coolant	v_c m/min with through coolant	Ø 2–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	100	110	0,09	0,13	0,18	0,22	0,25	100	110	0,09	0,13	0,18	0,22	0,25
P.1.2	95	105	0,09	0,13	0,17	0,21	0,24	95	105	0,09	0,13	0,17	0,21	0,24
P.1.3	90	100	0,09	0,12	0,16	0,20	0,23	90	100	0,09	0,12	0,16	0,20	0,23
P.1.4	85	95	0,08	0,12	0,16	0,19	0,22	85	95	0,08	0,12	0,16	0,19	0,22
P.1.5	80	90	0,08	0,11	0,15	0,18	0,20	80	90	0,08	0,11	0,15	0,18	0,20
P.2.1	95	110	0,11	0,16	0,21	0,26	0,29	95	110	0,11	0,16	0,21	0,26	0,29
P.2.2	85	100	0,10	0,14	0,19	0,24	0,27	85	100	0,10	0,14	0,19	0,24	0,27
P.2.3	75	90	0,09	0,13	0,17	0,21	0,24	75	90	0,09	0,13	0,17	0,21	0,24
P.2.4	60	70	0,09	0,12	0,16	0,19	0,21	60	70	0,09	0,12	0,16	0,19	0,21
P.3.1	65	75	0,09	0,13	0,17	0,21	0,24	65	75	0,09	0,13	0,17	0,21	0,24
P.3.2	55	60	0,08	0,11	0,14	0,17	0,20	55	60	0,08	0,11	0,14	0,17	0,20
P.3.3	45	60	0,06	0,09	0,11	0,14	0,15	45	60	0,06	0,09	0,11	0,14	0,15
P.4.1	45	60	0,06	0,09	0,11	0,14	0,16	45	60	0,06	0,09	0,11	0,14	0,16
P.4.2	45	60	0,06	0,09	0,11	0,14	0,16	45	60	0,06	0,09	0,11	0,14	0,16
M.1.1	**35**	**55**	0,08	0,11	0,14	0,18	0,20	**35**	**55**	0,08	0,11	0,14	0,18	0,20
M.2.1	**30**	**50**	0,06	0,09	0,12	0,15	0,17	**30**	**50**	0,06	0,09	0,12	0,15	0,17
M.3.1	**30**	**50**	0,06	0,09	0,12	0,15	0,17	**30**	**50**	0,06	0,09	0,12	0,15	0,17
K.1.1	85	120	0,15	0,24	0,33	0,41	0,47	85	120	0,15	0,24	0,33	0,41	0,47
K.1.2	75	100	0,14	0,20	0,27	0,33	0,37	75	100	0,14	0,20	0,27	0,33	0,37
K.2.1	100	160	0,15	0,22	0,31	0,38	0,43	100	160	0,15	0,22	0,31	0,38	0,43
K.2.2	75	100	0,14	0,20	0,27	0,33	0,37	75	100	0,14	0,20	0,27	0,33	0,37
K.3.1	80	90	0,15	0,21	0,29	0,35	0,40	80	90	0,15	0,21	0,29	0,35	0,40
K.3.2	70	80	0,12	0,17	0,23	0,28	0,32	70	80	0,12	0,17	0,23	0,28	0,32
N.1.1	220	330	0,10	0,16	0,22	0,30	0,33	220	330	0,10	0,16	0,22	0,30	0,33
N.1.2	200	300	0,09	0,12	0,20	0,25	0,30	200	300	0,09	0,12	0,20	0,25	0,30
N.2.1	180	250	0,11	0,15	0,26	0,33	0,39	180	250	0,11	0,15	0,26	0,33	0,39
N.2.2	150	220	0,11	0,15	0,26	0,33	0,39	150	220	0,11	0,15	0,26	0,33	0,39
N.2.3	120	180	0,11	0,15	0,26	0,33	0,39	120	180	0,11	0,15	0,26	0,33	0,39
N.3.1	160	200	0,15	0,24	0,33	0,41	0,47	160	200	0,15	0,24	0,33	0,41	0,47
N.3.2	90	120	0,14	0,20	0,27	0,33	0,37	90	120	0,14	0,20	0,27	0,33	0,37
N.3.3														
N.4.1														
S.1.1	**20**	**30**	0,06	0,09	0,11	0,14	0,16	**20**	**30**	0,06	0,09	0,11	0,14	0,16
S.1.2	**15**	**20**	0,04	0,06	0,08	0,10	0,11	**15**	**20**	0,04	0,06	0,08	0,10	0,11
S.2.1	**15**	**20**	0,04	0,06	0,08	0,10	0,11	**15**	**20**	0,04	0,06	0,08	0,10	0,11
S.2.2	**10**	**15**	0,05	0,08	0,10	0,13	0,14	**10**	**15**	0,05	0,08	0,10	0,13	0,14
S.2.3	**10**	**15**	0,04	0,06	0,08	0,10	0,11	**10**	**15**	0,04	0,06	0,08	0,10	0,11
S.3.1														
S.3.2	**20**	**30**	0,06	0,09	0,12	0,15	0,17	**20**	**30**	0,06	0,09	0,12	0,15	0,17
S.3.3	**15**	**25**	0,05	0,08	0,10	0,13	0,14	**15**	**25**	0,05	0,08	0,10	0,13	0,14
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

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

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

Cutting data standard values – WTX – Speed VA

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

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

Cutting data standard values – WTX – GG

Index	Drilling depth 5xD GG 10 749 ...						Drilling depth 8xD GG 10 753 ...					
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	**145**	0,12	0,19	0,26	0,33	0,38	**145**	0,12	0,19	0,26	0,33	0,38
K.1.2												
K.2.1	**190**	0,12	0,18	0,25	0,30	0,35	**190**	0,12	0,18	0,25	0,30	0,35
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1	300	0,11	0,16	0,21	0,26	0,30	300	0,11	0,16	0,21	0,26	0,30
N.2.2	265	0,11	0,16	0,21	0,26	0,30	265	0,11	0,16	0,21	0,26	0,30
N.2.3	215	0,11	0,16	0,21	0,26	0,30	215	0,11	0,16	0,21	0,26	0,30
N.3.1	240	0,12	0,19	0,26	0,33	0,38	240	0,12	0,19	0,26	0,33	0,38
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Cutting data standard values – WTX – Quattro 4F

	Drilling depth 5xD Quattro 4F 10 730 ..., 10 735...							Drilling depth 8xD Quattro 4F 10 736 ...					
Index	v_c m/min without through coolant	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	**100**	**110**	0,12	0,17	0,23	0,28	0,31	**110**	0,12	0,17	0,23	0,28	0,31
P.1.2	**95**	**105**	0,11	0,16	0,22	0,26	0,30	**105**	0,11	0,16	0,22	0,26	0,30
P.1.3	**90**	**100**	0,11	0,15	0,20	0,25	0,28	**100**	0,11	0,15	0,20	0,25	0,28
P.1.4	**85**	**95**	0,10	0,15	0,19	0,24	0,27	**95**	0,10	0,15	0,19	0,24	0,27
P.1.5	**80**	**90**	0,10	0,14	0,18	0,23	0,26	**90**	0,10	0,14	0,18	0,23	0,26
P.2.1	**95**	**110**	0,14	0,20	0,27	0,33	0,37	**110**	0,14	0,20	0,27	0,33	0,37
P.2.2	**85**	**100**	0,13	0,18	0,24	0,30	0,34	**100**	0,13	0,18	0,24	0,30	0,34
P.2.3	**75**	**90**	0,11	0,16	0,22	0,27	0,30	**90**	0,11	0,16	0,22	0,27	0,30
P.2.4	**60**	**70**	0,11	0,15	0,19	0,24	0,27	**70**	0,11	0,15	0,19	0,24	0,27
P.3.1	**65**	**75**	0,11	0,16	0,22	0,27	0,30	**75**	0,11	0,16	0,22	0,27	0,30
P.3.2	**55**	**60**	0,10	0,13	0,18	0,22	0,25	**60**	0,10	0,13	0,18	0,22	0,25
P.3.3	**45**	**60**	0,08	0,11	0,14	0,17	0,19	**60**	0,08	0,11	0,14	0,17	0,19
P.4.1	**45**	**60**	0,08	0,11	0,14	0,18	0,20	**60**	0,08	0,11	0,14	0,18	0,20
P.4.2	**45**	**60**	0,08	0,11	0,14	0,18	0,20	**60**	0,08	0,11	0,14	0,18	0,20
M.1.1													
M.2.1													
M.3.1													
K.1.1	**85**	**120**	0,15	0,24	0,33	0,41	0,47	**120**	0,15	0,24	0,33	0,41	0,47
K.1.2	**75**	**100**	0,14	0,20	0,27	0,33	0,37	**100**	0,14	0,20	0,27	0,33	0,37
K.2.1	**100**	**160**	0,15	0,22	0,31	0,38	0,43	**160**	0,15	0,22	0,31	0,38	0,43
K.2.2	**75**	**100**	0,14	0,20	0,27	0,33	0,37	**100**	0,14	0,20	0,27	0,33	0,37
K.3.1	**80**	**90**	0,15	0,21	0,29	0,35	0,40	**90**	0,15	0,21	0,29	0,35	0,40
K.3.2	**70**	**80**	0,12	0,17	0,23	0,28	0,32	**80**	0,12	0,17	0,23	0,28	0,32
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1													
N.3.2													
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1													
S.2.2													
S.2.3													
S.3.1													
S.3.2													
S.3.3													
H.1.1	25	25	0,05	0,07	0,09	0,12	0,13	25	0,052	0,073	0,098	0,120	0,136
H.1.2													
H.1.3													
H.1.4													
H.2.1	30	30	0,06	0,09	0,12	0,15	0,17	30	0,067	0,095	0,128	0,156	0,177
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

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

Index	Drilling depth 12xD Quattro 4F 10 737 ...					
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	**110**	0,12	0,17	0,23	0,28	0,31
P.1.2	**105**	0,11	0,16	0,22	0,26	0,30
P.1.3	**100**	0,11	0,15	0,20	0,25	0,28
P.1.4	**95**	0,10	0,15	0,19	0,24	0,27
P.1.5	**90**	0,10	0,14	0,18	0,23	0,26
P.2.1	**110**	0,14	0,20	0,27	0,33	0,37
P.2.2	**100**	0,13	0,18	0,24	0,30	0,34
P.2.3	**90**	0,11	0,16	0,22	0,27	0,30
P.2.4	**70**	0,11	0,15	0,19	0,24	0,27
P.3.1	**75**	0,11	0,16	0,22	0,27	0,30
P.3.2	**60**	0,10	0,13	0,18	0,22	0,25
P.3.3	**60**	0,08	0,11	0,14	0,17	0,19
P.4.1	**60**	0,08	0,11	0,14	0,18	0,20
P.4.2	**60**	0,08	0,11	0,14	0,18	0,20
M.1.1						
M.2.1						
M.3.1						
K.1.1	**120**	0,15	0,24	0,33	0,41	0,47
K.1.2	**100**	0,14	0,20	0,27	0,33	0,37
K.2.1	**160**	0,15	0,22	0,31	0,38	0,43
K.2.2	**100**	0,14	0,20	0,27	0,33	0,37
K.3.1	**90**	0,15	0,21	0,29	0,35	0,40
K.3.2	**80**	0,12	0,17	0,23	0,28	0,32
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1	25	0,052	0,073	0,098	0,120	0,136
H.1.2						
H.1.3						
H.1.4						
H.2.1	30	0,067	0,095	0,128	0,156	0,177
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – WTX – AL

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

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

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

Cutting data standard values – WTX – AL

	Drilling depth 12xD AL 10 793 ...										
Index	v_c m/min with through coolant	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.	Ø 14–16 f mm/rev.	Ø 16–18 f mm/rev.	Ø 18–20 f mm/rev.
P.1.1											
P.1.2											
P.1.3											
P.1.4											
P.1.5											
P.2.1											
P.2.2											
P.2.3											
P.2.4											
P.3.1											
P.3.2											
P.3.3											
P.4.1											
P.4.2											
M.1.1											
M.2.1											
M.3.1											
K.1.1											
K.1.2											
K.2.1											
K.2.2											
K.3.1											
K.3.2											
N.1.1	**250**	0,20	0,22	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.1.2	**280**	0,20	0,22	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.2.1	**250**	0,20	0,22	0,28	0,32	0,35	0,38	0,45	0,50	0,55	0,60
N.2.2	**280**	0,20	0,22	0,28	0,32	0,35	0,38	0,45	0,50	0,55	0,60
N.2.3	**245**	0,20	0,22	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.3.1	**150**	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,04
N.3.2	**150**	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,04
N.3.3	**120**	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,04
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

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

Cutting data standard values – WTX – Ti

	Hole depth 3xD / 5xD Ti 10 786 ..., 10 787 ...										
Index	v_c m/min with through coolant	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.	Ø 14–16 f mm/rev.	Ø 16–18 f mm/rev.	Ø 18–20 f mm/rev.
P.1.1											
P.1.2											
P.1.3											
P.1.4											
P.1.5											
P.2.1											
P.2.2											
P.2.3											
P.2.4											
P.3.1											
P.3.2											
P.3.3											
P.4.1	75	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18
P.4.2	65	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18
M.1.1	**70**	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18
M.2.1	**70**	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18
M.3.1	**70**	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18
K.1.1											
K.1.2											
K.2.1											
K.2.2											
K.3.1											
K.3.2											
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1	**45**	0,02	0,02	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16
S.1.2	**45**	0,02	0,02	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16
S.2.1	**40**	0,02	0,02	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16
S.2.2	**40**	0,02	0,02	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16
S.2.3											
S.3.1	**55**	0,02	0,02	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16
S.3.2	**45**	0,02	0,02	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

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

Cutting data standard values – WTX – H

Index	Drilling depth 3xD H 10 776 ...								
	v_c m/min with through coolant	Ø 2–3 f mm/rev.	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.
P.1.1	120	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.1.2	110	0,05	0,06	0,08	0,09	0,13	0,16	0,19	0,22
P.1.3	100	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.1.4	100	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.1.5	120	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.2.1	110	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.2.2	100	0,05	0,06	0,08	0,09	0,13	0,16	0,19	0,22
P.2.3	100	0,05	0,06	0,08	0,09	0,13	0,16	0,19	0,22
P.2.4	100	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.3.1									
P.3.2	80	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.3.3	80	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.4.1									
P.4.2									
M.1.1									
M.2.1									
M.3.1									
K.1.1	**115**	0,08	0,10	0,13	0,15	0,19	0,23	0,27	0,34
K.1.2	**95**	0,08	0,10	0,13	0,15	0,19	0,23	0,27	0,34
K.2.1	**95**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25
K.2.2	**90**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25
K.3.1	**95**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25
K.3.2	**90**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1									
N.3.2									
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3	80	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
S.3.1									
S.3.2									
S.3.3									
H.1.1	**30**	0,01	0,01	0,02	0,02	0,03	0,04	0,06	0,08
H.1.2	**15**	0,01	0,02	0,02	0,03	0,04	0,06	0,08	0,10
H.1.3	**10**	0,01	0,02	0,02	0,03	0,03	0,04	0,05	0,06
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

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

		Drilling depth 3xD H 10 777 ...							
Index	v_c m/min without through coolant	Ø 2–3 f mm/rev.	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.
P.1.1	80	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.1.2	70	0,04	0,05	0,06	0,08	0,12	0,15	0,18	0,21
P.1.3	70	0,04	0,05	0,06	0,08	0,12	0,15	0,18	0,21
P.1.4	70	0,04	0,05	0,06	0,08	0,12	0,15	0,18	0,21
P.1.5	80	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.2.1	75	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.2.2	70	0,04	0,06	0,08	0,09	0,13	0,16	0,19	0,22
P.2.3	70	0,04	0,05	0,06	0,08	0,12	0,15	0,18	0,21
P.2.4	70	0,04	0,05	0,06	0,08	0,12	0,15	0,18	0,21
P.3.1									
P.3.2									
P.3.3									
P.4.1									
P.4.2									
M.1.1									
M.2.1									
M.3.1									
K.1.1	**85**	0,10	0,10	0,10	0,20	0,20	0,20	0,30	0,30
K.1.2	**80**	0,10	0,10	0,10	0,20	0,20	0,20	0,30	0,30
K.2.1	**85**	0,10	0,10	0,10	0,10	0,20	0,20	0,20	0,30
K.2.2	**80**	0,10	0,10	0,10	0,10	0,20	0,20	0,20	0,30
K.3.1	**85**	0,10	0,10	0,10	0,10	0,20	0,20	0,20	0,30
K.3.2	**80**	0,10	0,10	0,10	0,10	0,20	0,20	0,20	0,30
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1									
N.3.2									
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1	**30**	0,04	0,05	0,05	0,06	0,07	0,08	0,09	0,10
H.1.2	**15**	0,04	0,05	0,05	0,06	0,07	0,08	0,09	0,10
H.1.3	**10**	0,03	0,04	0,04	0,05	0,06	0,06	0,07	0,07
H.1.4	**10**	0,03	0,04	0,04	0,05	0,06	0,06	0,07	0,07
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – WTX – 180

Index	v_c m/min with through coolant	Drilling depth 3xD Type 180 10 720 ... Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	Ø 20–25 f mm/rev.
P.1.1	90	0,09	0,13	0,18	0,22	0,25	0,27
P.1.2	85	0,09	0,13	0,17	0,21	0,24	0,26
P.1.3	80	0,09	0,12	0,16	0,20	0,23	0,25
P.1.4	75	0,08	0,12	0,16	0,19	0,22	0,23
P.1.5	70	0,08	0,11	0,15	0,18	0,20	0,22
P.2.1	90	0,11	0,16	0,21	0,26	0,29	0,32
P.2.2	80	0,10	0,14	0,19	0,24	0,27	0,29
P.2.3	70	0,09	0,13	0,17	0,21	0,24	0,26
P.2.4	55	0,09	0,12	0,16	0,19	0,21	0,23
P.3.1	60	0,09	0,13	0,17	0,21	0,24	0,26
P.3.2	50	0,08	0,11	0,14	0,17	0,20	0,21
P.3.3	50	0,06	0,09	0,11	0,14	0,15	0,16
P.4.1	50	0,06	0,09	0,11	0,14	0,16	0,17
P.4.2	50	0,06	0,09	0,11	0,14	0,16	0,17
M.1.1	45	0,06	0,09	0,11	0,14	0,16	0,17
M.2.1	40	0,05	0,07	0,10	0,12	0,14	0,15
M.3.1	40	0,05	0,07	0,10	0,12	0,14	0,15
K.1.1	95	0,12	0,19	0,26	0,33	0,38	0,41
K.1.2	80	0,11	0,16	0,21	0,26	0,30	0,32
K.2.1	130	0,12	0,18	0,25	0,30	0,35	0,38
K.2.2	80	0,11	0,16	0,21	0,26	0,30	0,32
K.3.1	70	0,12	0,17	0,23	0,28	0,32	0,35
K.3.2	65	0,10	0,14	0,18	0,22	0,25	0,28
N.1.1							
N.1.2							
N.2.1							
N.2.2							
N.2.3							
N.3.1							
N.3.2							
N.3.3							
N.4.1							
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1							
S.3.2							
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1							
O.1.2							
O.2.1							
O.2.2							
O.3.1							

		Drilling depth 5xD Type 180 10 721 ...				
Index	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	90	0,09	0,13	0,18	0,22	0,25
P.1.2	85	0,09	0,13	0,17	0,21	0,24
P.1.3	80	0,09	0,12	0,16	0,20	0,23
P.1.4	75	0,08	0,12	0,16	0,19	0,22
P.1.5	70	0,08	0,11	0,15	0,18	0,20
P.2.1	90	0,11	0,16	0,21	0,26	0,29
P.2.2	80	0,10	0,14	0,19	0,24	0,27
P.2.3	70	0,09	0,13	0,17	0,21	0,24
P.2.4	55	0,09	0,12	0,16	0,19	0,21
P.3.1	60	0,09	0,13	0,17	0,21	0,24
P.3.2	50	0,08	0,11	0,14	0,17	0,20
P.3.3	50	0,06	0,09	0,11	0,14	0,15
P.4.1	50	0,06	0,09	0,11	0,14	0,16
P.4.2	50	0,06	0,09	0,11	0,14	0,16
M.1.1	45	0,06	0,09	0,11	0,14	0,16
M.2.1	40	0,05	0,07	0,10	0,12	0,14
M.3.1	40	0,05	0,07	0,10	0,12	0,14
K.1.1	95	0,12	0,19	0,26	0,33	0,38
K.1.2	80	0,11	0,16	0,21	0,26	0,30
K.2.1	130	0,12	0,18	0,25	0,30	0,35
K.2.2	80	0,11	0,16	0,21	0,26	0,30
K.3.1	70	0,12	0,17	0,23	0,28	0,32
K.3.2	65	0,10	0,14	0,18	0,22	0,25
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Application Note:

Spot drilling with reduced feedrate

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

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

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

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

Cutting data standard values – Type N – Twist drills

Index	Drilling depth 3xD Type N (similar DIN 1897) 10 700 ...													
	v_c m/min without through coolant	Ø 0,5–1,5	Ø 1,5–2	Ø 2–3	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	Ø 16–18	Ø 18–20
		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	75	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.1.2	65	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.1.3	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.1.4	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.1.5	70	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.2.1	70	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.2.2	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.2.3	65	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.2.4	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.3.1														
P.3.2														
P.3.3														
P.4.1														
P.4.2														
M.1.1														
M.2.1														
M.3.1														
K.1.1	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,12	0,14	0,17	0,2	0,2	0,3
K.1.2	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.2.1	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.2.2	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.3.1	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.3.2	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
N.1.1	**200**	0,007	0,01	0,01	0,013	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.1.2	**200**	0,007	0,01	0,01	0,013	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.1	**160**	0,007	0,01	0,01	0,013	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.2	**180**	0,007	0,01	0,01	0,013	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.3	**130**	0,007	0,01	0,01	0,013	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.3.1	**160**	0,003	0,004	0,005	0,007	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,13
N.3.2	**160**	0,003	0,004	0,005	0,007	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,13
N.3.3	**100**	0,003	0,004	0,005	0,007	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,13
N.4.1	**200**	0,007	0,008	0,01	0,013	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	30	0,002	0,002	0,003	0,003	0,004	0,005	0,01	0,02	0,03	0,04	0,05	0,06	0,07
S.3.2	20	0,002	0,002	0,003	0,003	0,004	0,005	0,01	0,02	0,03	0,04	0,05	0,06	0,07
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

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

Index	v_c m/min without through coolant	Drilling depth 5xD Type N (similar DIN 338) 10 710 ... Ø 0,5–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.	Ø 14–16 f mm/rev.	Ø 16–18 f mm/rev.	Ø 18–20 f mm/rev.
P.1.1	75	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.1.2	65	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.1.3	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.1.4	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.1.5	70	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.2.1	70	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.2.2	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.2.3	65	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.2.4	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.3.1														
P.3.2														
P.3.3														
P.4.1														
P.4.2														
M.1.1														
M.2.1														
M.3.1														
K.1.1	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,12	0,14	0,17	0,2	0,2	0,3
K.1.2	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.2.1	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.2.2	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.3.1	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.3.2	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
N.1.1	**200**	0,007	0,01	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.1.2	**200**	0,007	0,01	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.1	**160**	0,007	0,01	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.2	**180**	0,007	0,01	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.3	**130**	0,007	0,01	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.3.1	**160**	0,003	0,004	0,005	0,007	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,13
N.3.2	**160**	0,003	0,004	0,005	0,007	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,13
N.3.3	**100**	0,003	0,004	0,005	0,007	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,13
N.4.1	**200**	0,007	0,008	0,010	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	30	0,002	0,002	0,003	0,003	0,004	0,005	0,01	0,02	0,03	0,04	0,05	0,06	0,07
S.3.2	20	0,002	0,002	0,003	0,003	0,004	0,005	0,01	0,02	0,03	0,04	0,05	0,06	0,07
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

Cutting data standard values – WPC – UNI

Index	v_c m/min without through coolant	v_c m/min with through coolant	Drilling depth 3xD UNI 11 600 ..., 11 601 ..., 11 603 ..., 11 604 ... Ø 1–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	75	85	0,05	0,06	0,08	0,11	0,15	0,20	0,25	0,28
P.1.2	70	80	0,05	0,05	0,07	0,10	0,14	0,19	0,24	0,27
P.1.3	70	75	0,05	0,05	0,07	0,10	0,14	0,18	0,23	0,26
P.1.4	65	70	0,04	0,05	0,07	0,09	0,13	0,18	0,21	0,24
P.1.5	60	70	0,04	0,05	0,06	0,09	0,12	0,17	0,20	0,23
P.2.1	70	85	0,06	0,07	0,09	0,13	0,18	0,24	0,29	0,33
P.2.2	65	75	0,05	0,06	0,08	0,11	0,16	0,22	0,27	0,30
P.2.3	55	70	0,05	0,06	0,07	0,10	0,15	0,20	0,24	0,27
P.2.4	45	55	0,05	0,06	0,07	0,10	0,13	0,17	0,21	0,24
P.3.1	50	55	0,05	0,05	0,07	0,10	0,15	0,20	0,24	0,27
P.3.2	40	45	0,04	0,05	0,06	0,09	0,12	0,16	0,20	0,22
P.3.3	35	45	0,04	0,04	0,06	0,07	0,10	0,13	0,15	0,17
P.4.1	35	45	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
P.4.2	35	45	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
M.1.1										
M.2.1										
M.3.1										
K.1.1	60	80	0,04	0,06	0,09	0,14	0,21	0,30	0,37	0,42
K.1.2	50	70	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.2.1	70	110	0,05	0,07	0,09	0,14	0,20	0,28	0,34	0,39
K.2.2	50	70	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.3.1	55	60	0,06	0,07	0,09	0,13	0,19	0,26	0,32	0,36
K.3.2	50	55	0,05	0,06	0,08	0,11	0,16	0,21	0,25	0,29
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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

Index	v_c m/min without through coolant	v_c m/min with through coolant	Drilling depth 5xD UNI 11 606 ..., 11 607 ..., 11 609 ..., 11 610 ... Ø 1–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	75	85	0,05	0,06	0,08	0,11	0,15	0,20	0,25	0,28
P.1.2	70	80	0,05	0,05	0,07	0,10	0,14	0,19	0,24	0,27
P.1.3	70	75	0,05	0,05	0,07	0,10	0,14	0,18	0,23	0,26
P.1.4	65	70	0,04	0,05	0,07	0,09	0,13	0,18	0,21	0,24
P.1.5	60	70	0,04	0,05	0,06	0,09	0,12	0,17	0,20	0,23
P.2.1	70	85	0,06	0,07	0,09	0,13	0,18	0,24	0,29	0,33
P.2.2	65	75	0,05	0,06	0,08	0,11	0,16	0,22	0,27	0,30
P.2.3	55	70	0,05	0,06	0,07	0,10	0,15	0,20	0,24	0,27
P.2.4	45	55	0,05	0,06	0,07	0,10	0,13	0,17	0,21	0,24
P.3.1	50	55	0,05	0,05	0,07	0,10	0,15	0,20	0,24	0,27
P.3.2	40	45	0,04	0,05	0,06	0,09	0,12	0,16	0,20	0,22
P.3.3	35	45	0,04	0,04	0,06	0,07	0,10	0,13	0,15	0,17
P.4.1	35	45	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
P.4.2	35	45	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
M.1.1										
M.2.1										
M.3.1										
K.1.1	60	80	0,04	0,06	0,09	0,14	0,21	0,30	0,37	0,42
K.1.2	50	70	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.2.1	70	110	0,05	0,07	0,09	0,14	0,20	0,28	0,34	0,39
K.2.2	50	70	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.3.1	55	60	0,06	0,07	0,09	0,13	0,19	0,26	0,32	0,36
K.3.2	50	55	0,05	0,06	0,08	0,11	0,16	0,21	0,25	0,29
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

Cutting data standard values – WPC – UNI

Index	Drilling depth 8xD UNI 11 612 ...						Drilling depth 12xD UNI 11 615 ...					
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–18 f mm/rev.
P.1.1	85	0,11	0,15	0,20	0,25	0,28	85	0,11	0,15	0,20	0,25	0,28
P.1.2	80	0,10	0,14	0,19	0,24	0,27	80	0,10	0,14	0,19	0,24	0,27
P.1.3	75	0,10	0,14	0,18	0,23	0,26	75	0,10	0,14	0,18	0,23	0,26
P.1.4	70	0,09	0,13	0,18	0,21	0,24	70	0,09	0,13	0,18	0,21	0,24
P.1.5	70	0,09	0,12	0,17	0,20	0,23	70	0,09	0,12	0,17	0,20	0,23
P.2.1	85	0,13	0,18	0,24	0,29	0,33	85	0,13	0,18	0,24	0,29	0,33
P.2.2	75	0,11	0,16	0,22	0,27	0,30	75	0,11	0,16	0,22	0,27	0,30
P.2.3	70	0,10	0,15	0,20	0,24	0,27	70	0,10	0,15	0,20	0,24	0,27
P.2.4	55	0,10	0,13	0,17	0,21	0,24	55	0,10	0,13	0,17	0,21	0,24
P.3.1	55	0,10	0,15	0,20	0,24	0,27	55	0,10	0,15	0,20	0,24	0,27
P.3.2	45	0,09	0,12	0,16	0,20	0,22	45	0,09	0,12	0,16	0,20	0,22
P.3.3	45	0,07	0,10	0,13	0,15	0,17	45	0,07	0,10	0,13	0,15	0,17
P.4.1	45	0,07	0,10	0,13	0,16	0,18	45	0,07	0,10	0,13	0,16	0,18
P.4.2	45	0,07	0,10	0,13	0,16	0,18	45	0,07	0,10	0,13	0,16	0,18
M.1.1												
M.2.1												
M.3.1												
K.1.1	80	0,14	0,21	0,30	0,37	0,42	80	0,14	0,21	0,30	0,37	0,42
K.1.2	70	0,12	0,18	0,24	0,30	0,34	70	0,12	0,18	0,24	0,30	0,34
K.2.1	110	0,14	0,20	0,28	0,34	0,39	110	0,14	0,20	0,28	0,34	0,39
K.2.2	70	0,12	0,18	0,24	0,30	0,34	70	0,12	0,18	0,24	0,30	0,34
K.3.1	60	0,13	0,19	0,26	0,32	0,36	60	0,13	0,19	0,26	0,32	0,36
K.3.2	55	0,11	0,16	0,21	0,25	0,29	55	0,11	0,16	0,21	0,25	0,29
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Recommended application for WPC 8xD and 12xD

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

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

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

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

Cutting data standard values – WPC – VA

Index	Drilling depth 3xD VA 11 620 ..., 11 621 ..., 11 623 ..., 11 624 ...									
	v_c m/min without through coolant	v_c m/min with through coolant	Ø 1–1,5	Ø 1,5–2	Ø 2–3	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
			f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	75	85	0,04	0,05	0,06	0,09	0,12	0,16	0,20	0,22
P.1.2	70	80	0,04	0,04	0,06	0,08	0,12	0,15	0,19	0,21
P.1.3	70	75	0,04	0,04	0,06	0,08	0,11	0,15	0,18	0,20
P.1.4	65	70	0,03	0,04	0,05	0,07	0,10	0,14	0,17	0,19
P.1.5	60	70	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
P.2.1	70	85	0,05	0,05	0,07	0,10	0,14	0,19	0,23	0,27
P.2.2	65	75	0,04	0,05	0,07	0,09	0,13	0,17	0,21	0,24
P.2.3	55	70	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,22
P.2.4	45	55	0,04	0,04	0,06	0,08	0,11	0,14	0,17	0,19
P.3.1	50	55	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,22
P.3.2	40	45	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
P.3.3	35	45	0,03	0,04	0,04	0,06	0,08	0,10	0,12	0,14
P.4.1	35	45	0,03	0,03	0,04	0,05	0,08	0,10	0,13	0,14
P.4.2	35	45	0,03	0,03	0,04	0,05	0,08	0,10	0,13	0,14
M.1.1	**30**	**45**	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
M.2.1	**25**	**45**	0,03	0,03	0,04	0,06	0,08	0,11	0,14	0,15
M.3.1	**25**	**45**	0,03	0,03	0,04	0,06	0,08	0,11	0,14	0,15
K.1.1	**65**	**90**	0,04	0,06	0,09	0,14	0,21	0,30	0,37	0,42
K.1.2	**55**	**75**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.2.1	**75**	**120**	0,05	0,07	0,09	0,14	0,20	0,28	0,34	0,39
K.2.2	**55**	**75**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.3.1	**60**	**70**	0,06	0,07	0,09	0,13	0,19	0,26	0,32	0,36
K.3.2	**55**	**60**	0,05	0,06	0,08	0,11	0,16	0,21	0,25	0,29
N.1.1	**185**	**280**	0,05	0,06	0,08	0,11	0,15	0,20	0,25	0,28
N.1.2	**170**	**255**	0,05	0,05	0,07	0,10	0,14	0,18	0,23	0,26
N.2.1	**155**	**215**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.2.2	**130**	**185**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.2.3	**100**	**155**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.3.1	**135**	**170**	0,04	0,06	0,09	0,14	0,21	0,30	0,37	0,42
N.3.2	**75**	**100**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.3.3	**85**	**120**	0,05	0,05	0,07	0,10	0,14	0,18	0,23	0,26
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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

Cutting data standard values – WPC – VA

Index	v_c m/min with through coolant	Drilling depth 5xD VA 11 629 ..., 11 630 ... Ø 1–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	85	0,04	0,05	0,06	0,09	0,12	0,16	0,20	0,22
P.1.2	80	0,04	0,04	0,06	0,08	0,12	0,15	0,19	0,21
P.1.3	75	0,04	0,04	0,06	0,08	0,11	0,15	0,18	0,20
P.1.4	70	0,03	0,04	0,05	0,07	0,10	0,14	0,17	0,19
P.1.5	70	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
P.2.1	85	0,05	0,05	0,07	0,10	0,14	0,19	0,23	0,27
P.2.2	75	0,04	0,05	0,07	0,09	0,13	0,17	0,21	0,24
P.2.3	70	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,22
P.2.4	55	0,04	0,04	0,06	0,08	0,11	0,14	0,17	0,19
P.3.1	55	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,22
P.3.2	45	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
P.3.3	45	0,03	0,04	0,04	0,06	0,08	0,10	0,12	0,14
P.4.1	45	0,03	0,03	0,04	0,05	0,08	0,10	0,13	0,14
P.4.2	45	0,03	0,03	0,04	0,05	0,08	0,10	0,13	0,14
M.1.1	**45**	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
M.2.1	**45**	0,03	0,03	0,04	0,06	0,08	0,11	0,14	0,15
M.3.1	**45**	0,03	0,03	0,04	0,06	0,08	0,11	0,14	0,15
K.1.1	**90**	0,04	0,06	0,09	0,14	0,21	0,30	0,37	0,42
K.1.2	**75**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.2.1	**120**	0,05	0,07	0,09	0,14	0,20	0,28	0,34	0,39
K.2.2	**75**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.3.1	**70**	0,06	0,07	0,09	0,13	0,19	0,26	0,32	0,36
K.3.2	**60**	0,05	0,06	0,08	0,11	0,16	0,21	0,25	0,29
N.1.1	**280**	0,05	0,06	0,08	0,11	0,15	0,20	0,25	0,28
N.1.2	**255**	0,05	0,05	0,07	0,10	0,14	0,18	0,23	0,26
N.2.1	**215**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.2.2	**185**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.2.3	**155**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.3.1	**170**	0,04	0,06	0,09	0,14	0,21	0,30	0,37	0,42
N.3.2	**100**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.3.3	**120**	0,05	0,05	0,07	0,10	0,14	0,18	0,23	0,26
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

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

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

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

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

Cutting data standard values – WTX – Mini

Index	Drilling depth 5xD Mini 11 770 ...				
	v_c m/min without through coolant	< Ø 1,0	> Ø 1,0–1,5	> Ø 1,5–2,0	> Ø 2,0–2,9
		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	75	0,01	0,01	0,0125	0,015
P.1.2	65	0,02	0,02	0,025	0,03
P.1.3	65	0,01	0,01	0,0125	0,015
P.1.4	65	0,01	0,01	0,0125	0,015
P.1.5	70	0,01	0,01	0,0125	0,015
P.2.1	70	0,01	0,01	0,0125	0,015
P.2.2	65	0,01	0,01	0,0125	0,015
P.2.3	65	0,02	0,02	0,025	0,03
P.2.4	65	0,01	0,01	0,0125	0,015
P.3.1					
P.3.2					
P.3.3					
P.4.1					
P.4.2					
M.1.1					
M.2.1					
M.3.1					
K.1.1	**70**	0,01	0,01	0,0125	0,015
K.1.2	**70**	0,01	0,01	0,0125	0,015
K.2.1	**70**	0,01	0,01	0,0125	0,015
K.2.2	**70**	0,01	0,01	0,0125	0,015
K.3.1	**70**	0,01	0,01	0,0125	0,015
K.3.2	**70**	0,01	0,01	0,0125	0,015
N.1.1	**200**	0,01	0,01	0,0125	0,015
N.1.2	**200**	0,01	0,01	0,0125	0,015
N.2.1	**160**	0,01	0,01	0,0125	0,015
N.2.2	**180**	0,01	0,01	0,0125	0,015
N.2.3	**130**	0,01	0,01	0,0125	0,015
N.3.1	**160**	0,01	0,01	0,0125	0,015
N.3.2	**160**	0,01	0,01	0,0125	0,015
N.3.3	**100**	0,01	0,01	0,0125	0,015
N.4.1	**200**	0,01	0,01	0,0125	0,015
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1	30	0,01	0,01	0,0125	0,015
S.3.2	20	0,01	0,01	0,0125	0,015
S.3.3					
H.1.1					
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1					
O.1.2					
O.2.1					
O.2.2					
O.3.1					

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

Cutting data standard values – WTX – Micro

Index	Drilling depth 5xD Micro 10 693 ...							
	v_c m/min with through coolant	v_c m/min MMS	< Ø 1,0	> Ø 1,0–1,25	> Ø 1,25–1,5	> Ø 1,5–2,0	> Ø 2,0–2,5	> Ø 2,5–3,0
			f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.2	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.3	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.4	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.5	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.2	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.3	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.4								
P.3.1	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.3.2	**40**	**35**	0,024	0,028	0,034	0,05	0,07	0,095
P.3.3								
P.4.1	**40**		0,012	0,015	0,018	0,028	0,04	0,06
P.4.2	**25**		0,012	0,015	0,018	0,028	0,04	0,06
M.1.1	**30**		0,012	0,015	0,018	0,028	0,04	0,06
M.2.1	**30**		0,012	0,015	0,018	0,028	0,04	0,06
M.3.1	**30**		0,012	0,015	0,018	0,028	0,04	0,06
K.1.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.1.2	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.2.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.2.2	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.3.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.3.2	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
N.1.1								
N.1.2								
N.2.1								
N.2.2								
N.2.3								
N.3.1								
N.3.2								
N.3.3								
N.4.1								
S.1.1	15		0,012	0,015	0,018	0,028	0,04	0,06
S.1.2	15		0,012	0,015	0,018	0,028	0,04	0,06
S.2.1	10		0,012	0,015	0,018	0,028	0,04	0,06
S.2.2	10		0,012	0,015	0,018	0,028	0,04	0,06
S.2.3								
S.3.1	20		0,012	0,015	0,018	0,028	0,04	0,06
S.3.2	10		0,012	0,015	0,018	0,028	0,04	0,06
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

Cutting data standard values – WTX – Micro

Index	Hole depth 8xD / 12xD Micro 10 694 ..., 10 695 ...							
	v_c m/min with through coolant	v_c m/min MMS	< Ø 1,0	> Ø 1,0–1,25	> Ø 1,25–1,5	> Ø 1,5–2,0	> Ø 2,0–2,5	> Ø 2,5–3,0
			f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.2	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.3	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.4	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.5	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.2	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.3	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.4								
P.3.1	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.3.2	**40**	**35**	0,024	0,028	0,034	0,05	0,07	0,095
P.3.3								
P.4.1	**40**		0,012	0,015	0,018	0,028	0,04	0,06
P.4.2	**25**		0,012	0,015	0,018	0,028	0,04	0,06
M.1.1	**30**		0,012	0,015	0,018	0,028	0,04	0,06
M.2.1	**30**		0,012	0,015	0,018	0,028	0,04	0,06
M.3.1	**30**		0,012	0,015	0,018	0,028	0,04	0,06
K.1.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.1.2	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.2.1	**60**	**05**	0,024	0,028	0,034	0,05	0,07	0,095
K.2.2	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.3.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.3.2	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
N.1.1								
N.1.2								
N.2.1								
N.2.2								
N.2.3								
N.3.1								
N.3.2								
N.3.3								
N.4.1								
S.1.1	15		0,012	0,015	0,018	0,028	0,04	0,06
S.1.2	15		0,012	0,015	0,018	0,028	0,04	0,06
S.2.1	10		0,012	0,015	0,018	0,028	0,04	0,06
S.2.2	10		0,012	0,015	0,018	0,028	0,04	0,06
S.2.3								
S.3.1	20		0,012	0,015	0,018	0,028	0,04	0,06
S.3.2	10		0,012	0,015	0,018	0,028	0,04	0,06
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

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

		Hole depth 16xD / 20xD / 25xD / 30xD Micro 10 696 ..., 10 697 ..., 10 698 ..., 10 699 ...					
Index	v_c m/min with through coolant	< Ø 1,0 f mm/rev.	> Ø 1,0–1,25 f mm/rev.	> Ø 1,25–1,5 f mm/rev.	> Ø 1,5–2,0 f mm/rev.	> Ø 2,0–2,5 f mm/rev.	> Ø 2,5–3,0 f mm/rev.
P.1.1	50	0,024	0,028	0,034	0,05	0,07	0,095
P.1.2	40	0,024	0,028	0,034	0,05	0,07	0,095
P.1.3	40	0,024	0,028	0,034	0,05	0,07	0,095
P.1.4	40	0,024	0,028	0,034	0,05	0,07	0,095
P.1.5	40	0,024	0,028	0,034	0,05	0,07	0,095
P.2.1	50	0,024	0,028	0,034	0,05	0,07	0,095
P.2.2	40	0,024	0,028	0,034	0,05	0,07	0,095
P.2.3	40	0,024	0,028	0,034	0,05	0,07	0,095
P.2.4							
P.3.1	40	0,024	0,028	0,034	0,05	0,07	0,095
P.3.2	30	0,024	0,028	0,034	0,05	0,07	0,095
P.3.3							
P.4.1	30	0,012	0,015	0,018	0,028	0,04	0,06
P.4.2	20	0,012	0,015	0,018	0,028	0,04	0,06
M.1.1	25	0,012	0,015	0,018	0,028	0,04	0,06
M.2.1	25	0,012	0,015	0,018	0,028	0,04	0,06
M.3.1	25	0,012	0,015	0,018	0,028	0,04	0,06
K.1.1	50	0,024	0,028	0,034	0,05	0,07	0,095
K.1.2	50	0,024	0,028	0,034	0,05	0,07	0,095
K.2.1	50	0,024	0,028	0,034	0,05	0,07	0,095
K.2.2	50	0,024	0,028	0,034	0,05	0,07	0,095
K.3.1	50	0,024	0,028	0,034	0,05	0,07	0,095
K.3.2	50	0,024	0,028	0,034	0,05	0,07	0,095
N.1.1							
N.1.2							
N.2.1							
N.2.2							
N.2.3							
N.3.1							
N.3.2							
N.3.3							
N.4.1							
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1							
S.3.2							
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1							
O.1.2							
O.2.1							
O.2.2							
O.3.1							

Cutting data standard values – WTX – Feed BR

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

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

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

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

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

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

Cutting data standard values – WTX – TB UNI

Index	Hole depth 16xD TB UNI 11 016 ...								Hole depth 20xD TB UNI 11 020 ...							
	v_c m/min	Ø 2–3 f mm/rev.	Ø > 3–4 f mm/rev.	Ø > 4–5 f mm/rev.	Ø > 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	v_c m/min	Ø 2–3 f mm/rev.	Ø > 3–4 f mm/rev.	Ø > 4–5 f mm/rev.	Ø > 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.
P.1.1	**105**	0,05	0,07	0,08	0,10	0,12	0,14	0,16	**100**	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.1.2	**95**	0,05	0,07	0,08	0,10	0,12	0,14	0,16	**90**	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.1.3	**95**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**90**	0,038	0,05	0,06	0,075	0,10	0,11	0,13
P.1.4	**95**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**90**	0,038	0,05	0,06	0,075	0,10	0,11	0,13
P.1.5	**100**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**95**	0,038	0,05	0,06	0,075	0,10	0,11	0,13
P.2.1	**100**	0,05	0,07	0,08	0,10	0,12	0,14	0,16	**95**	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.2.2	**95**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**90**	0,038	0,05	0,06	0,075	0,10	0,11	0,13
P.2.3	**95**	0,05	0,07	0,08	0,10	0,12	0,14	0,16	**90**	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.2.4	**95**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**90**	0,038	0,05	0,06	0,075	0,10	0,11	0,13
P.3.1	**50**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**45**	0,025	0,03	0,04	0,045	0,06	0,08	0,10
P.3.2	**75**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**70**	0,038	0,05	0,06	0,075	0,10	0,11	0,13
P.3.3	**75**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**70**	0,038	0,05	0,06	0,075	0,10	0,11	0,13
P.4.1	**75**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**70**	0,025	0,03	0,04	0,045	0,06	0,08	0,10
P.4.2	**50**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**45**	0,025	0,03	0,04	0,045	0,06	0,08	0,10
M.1.1	**55**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**50**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
M.2.1	**55**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**50**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
M.3.1	**55**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**50**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.1.1	**105**	0,08	0,10	0,13	0,15	0,19	0,23	0,27	**100**	0,08	0,10	0,13	0,15	0,19	0,23	0,27
K.1.2	**100**	0,08	0,10	0,13	0,15	0,19	0,23	0,27	**95**	0,08	0,10	0,13	0,15	0,19	0,23	0,27
K.2.1	**105**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**100**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.2.2	**100**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**95**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.3.1	**105**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**100**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.3.2	**100**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**95**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3	75	0,04	0,05	0,06	0,08	0,10	0,11	0,13	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13
S.3.1	35	0,01	0,01	0,02	0,02	0,03	0,04	0,05	30	0,01	0,01	0,02	0,02	0,03	0,04	0,05
S.3.2	25	0,01	0,01	0,02	0,02	0,03	0,04	0,05	20	0,01	0,01	0,02	0,02	0,03	0,04	0,05
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

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

Cutting data standard values – WTX – TB UNI

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

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

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

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

Cutting data standard values – WTX – TB ALU

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

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

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

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

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

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

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

Index	v_c m/min without through coolant	Ø 2–3 f mm/rev.	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.	Ø 14–16 f mm/rev.	Ø 16–18 f mm/rev.	Ø 18–20 f mm/rev.
	Solid Carbide NC Spot Drills NC-A 10 702 ..., 10 703 ..., 10 704 ...,											
P.1.1	75	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.1.2	65	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.1.3	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.1.4	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.1.5	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.2.1	70	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.2.2	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.2.3	65	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.2.4	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	70	0,04	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26
K.1.2	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.2.1	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.2.2	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.3.1	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.3.2	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
N.1.1	200	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.1.2	200	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.1	160	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.2	180	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.3	130	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.3.1	160	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.3.2	160	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.3.3	100	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – Solid Carbide NC-A TiAlN

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

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

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

Cutting data standard values – WTX – Change

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

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

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

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

Cutting data standard values – WTX – Change

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

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

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

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

Cutting data standard values – WTX – Change Feed

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

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

Cutting data standard values – WTX – SB

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

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

Type overview – WTX High performance drilling tools

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

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

UNI		▲ high-performance solid carbide drill for universal application, for all materials up to 1200 N/mm²	DRAGONSKIN	▶
Feed UNI		▲ solid carbide high feed drills with 3 cutting edges ▲ very good positional accuracy	DRAGONSKIN	▶
Speed UNI		▲ for double the cutting speed ▲ asymetric point geometry permits performance improvement when drilling steel and cast iron by up to 60 %	DRAGONSKIN	▶
Quattro 4F		▲ with additional guide land for best alignment accuracy, concentricity and positional accuracy	DRAGONSKIN	
180		▲ for inclined surfaces up to 45° and flat bottom holes		
TB		▲ solid carbide deep hole drill, up to 50xD without peck drilling ▲ 4 or 6 facet head geometry for excellent alignment accuracy		
CP		▲ Ensures an even safer deep hole drilling process ▲ For optimal guidance of the deep hole twist drill for hole depths > 30xD		
VA		▲ first choice for corrosion and acid resistant seels ▲ for volume production		
AL		▲ solid carbide high performance drill specailly for the machining of aluminium, copper and brass ▲ 6 facet geometry for excellent hole quality		
GG		▲ for cast materials to 250 HB ▲ straight flutes		
Ti		▲ specialist for cost effective machining of titanium, titanium alloys and heat resistant alloys	DRAGONSKIN	
H		▲ high-performance drill for hardened steels from 45 to 70 HRC	DRAGONSKIN	▶
HFDS		▲ Four fluted high-feed drill ▲ Specially designed for steel processing ▲ Innovative cutting edge geometry guarantees high positioning accuracy	DRAGONSKIN	▶
MINI		▲ solid carbide micro drill for the precise manufacture of very small holes from Ø 0.1 to 2.9 mm		
MICRO		▲ Universal high-performance micro drill ▲ Specialised geometry and coating ▲ Pilot drill for WTX Micro deep hole twist drill	DRAGONSKIN	▶
Change		▲ replaceable head drills with the performance level of a solid carbide drill, from Ø 12.0 mm to 41.0 mm		▶
Change Feed		▲ exchangeable head drill with three cutting edges for even greater performance, from Ø 14.0 mm to 32.0 mm		▶
Feed BR		▲ Solid carbide high-performance drill reamer ▲ Drilling and reaming in one operation ▲ Three drilling edges and six reaming edges	DRAGONSKIN	
SB		▲ core hole plus countersink for tapping and thread forming	DRAGONSKIN	

2

Important application criteria for WTX drills

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

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

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

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

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

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

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

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

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

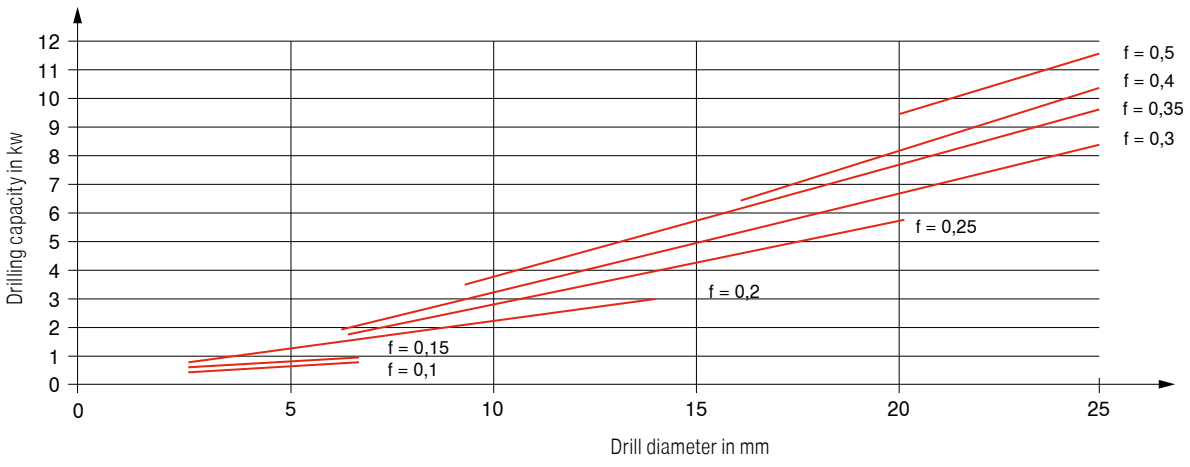
Workpiece clamping
To avoid tool breakages, care must be taken to ensure a proper workpiece clamping without vibration or workpiece deflection.

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

Machine Requirements
Please note the performance diagram (below left)

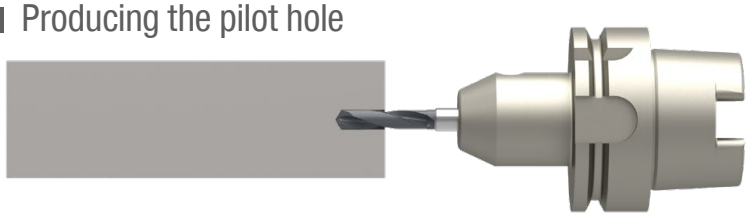
Cutting data table
To control the chip length (comma chip) the feed rates should be no lower than the lower limits quoted in the cutting data table.

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



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

1 Producing the pilot hole



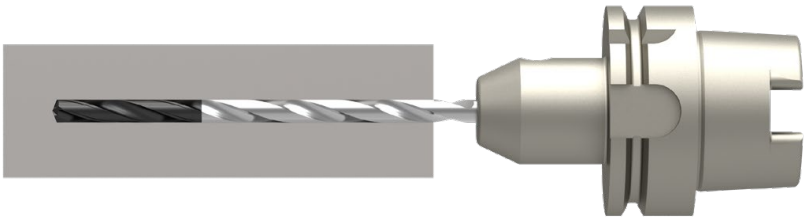
- For the pilot hole, we recommend a WTX drill 3xD/5xD with the same nominal diameter.
- The pilot hole should be 0.01–0.03 mm larger in diameter and at least 3xD deep.
- It is essential to ensure that the point angle of the pilot drill is bigger than the point angle of the deep hole drill.
- From a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

2 Movement of the deep hole drill into the pilot hole



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

3 Drilling to required depth without pecking



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

4 Retracting the drill



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

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

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

WTX – Micro – recommended application

General references

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

1 Producing the pilot hole



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

2 Entering the pilot hole with a deep hole twist drill



- Speed 300 rpm (reverse rotation sometimes possible)
- Entry speed approx. 1000 mm/min
- Switch on cooling
- Increase parameters 0.5-1.0 mm before reaching the bottom of the pilot hole

3 Deep hole drilling



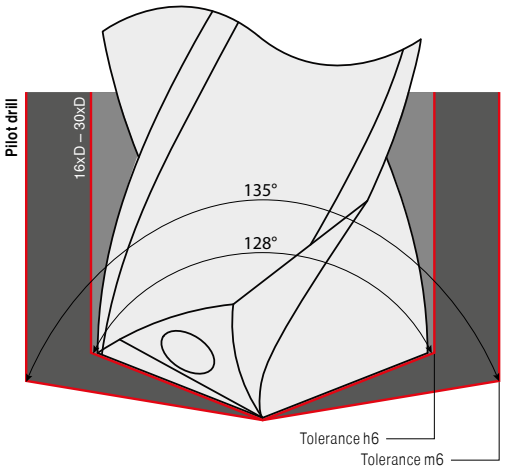
- At hole depth without pecking

4 Retracting the drill

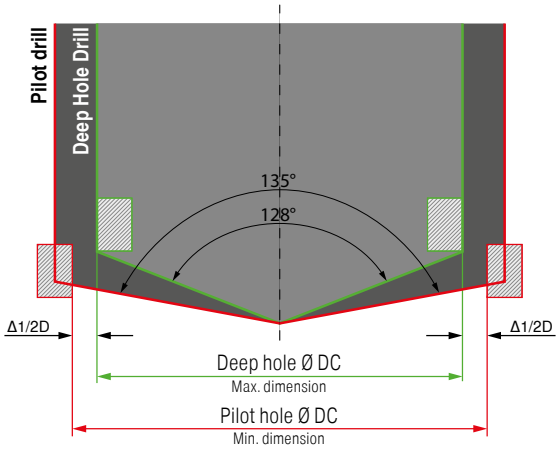


- Retract drill approx. 1xD
- Reduce speed to 300 rpm
- Exit speed approx. 1000 mm/min
- Switch off emulsion before exiting the hole

Tolerances and angles



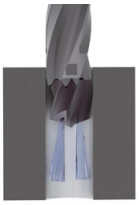
The following must apply to use the pilot and deep hole twist drill consecutively and without collisions:
ΔD = ØD (pilot hole) – ØD (deep hole) > 0



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

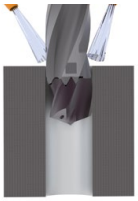
Coolant conditions

Coolant pressure dependent on drilling depth:



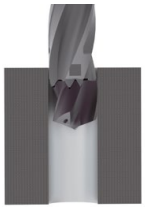
1xD: 8 bar ✓
3xD: 8 bar ✓
5xD: 12 bar ✓
8xD: 25 bar ✓
12xD: 25 bar ✓

with external cooling



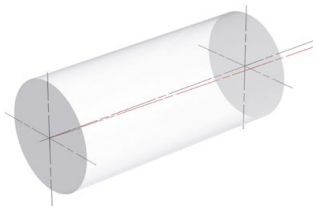
1xD: 8 bar ✓
3xD: 8 bar ✓
5xD: 12 bar ✗
8xD: 25 bar ✗
12xD: 25 bar ✗

without coolant supply

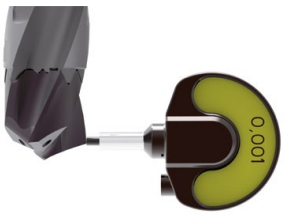


max. bore depth: 3xD

Runout accuracy

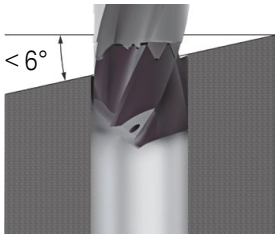


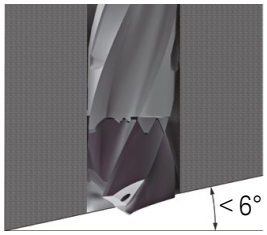
max. 0,02 mm



max. 0,04 mm

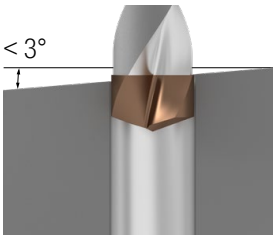
Max. entry and exit angle for the WTX – Change Feed

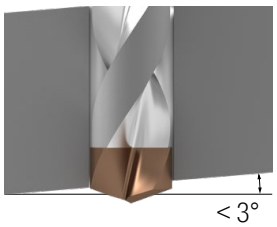




When entering and exiting angled surfaces, reduce v_f by 50 %.

Max. entry and exit angle for the WTX – Change





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

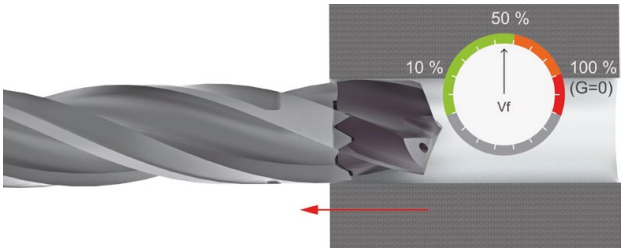
Exiting a through hole

▲ WTX – Change Feed and WTX – Change

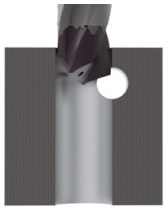


Do not retract at rapid feedrate

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

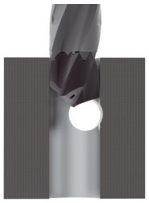


Machining situations



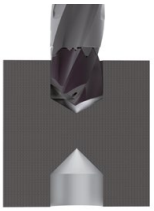
Offset cross hole point is engaged

WTX – Change Feed ✓
WTX – Change ✓



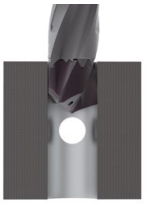
Offset cross hole point is not engaged

WTX – Change Feed ✗
WTX – Change ✗



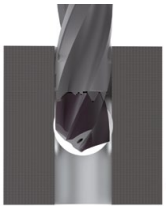
Breakthrough at counterbore

WTX – Change Feed ✓
WTX – Change ✗



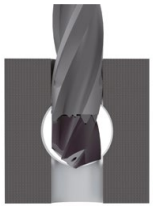
Hole on centre and smaller Ø

WTX – Change Feed ✓
WTX – Change ✓



Hole on centre and same Ø

WTX – Change Feed ✗
WTX – Change ✗



Hole on centre and larger Ø

WTX – Change Feed ✗
WTX – Change ✗

Recommendations for solid carbide drilling operations

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

Coatings

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

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

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

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

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

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

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

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

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

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

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

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

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

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



New products for machining technicians

NEW KUB Pentron CS – Indexable insert drilling

ABS

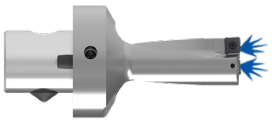


▲ Modular indexable insert drill with cartridge system – process-secure, powerful and reliable system for creating large holes with a diameter of up to 96.00 mm.

→ Page 24–26

NEW KUB Pentron – Indexable insert drilling – 2xD

ABS



▲ The all-rounder for process-secure drilling under a wide variety of conditions
▲ Ideal for extreme machining situations
▲ with ABS connection
▲ to Ø 65 mm

→ Page 6+7

NEW SOGX indexable inserts



-13
BK8425

-32
BK8425

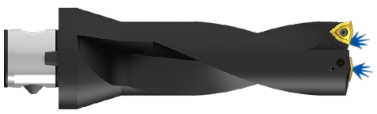
-34
BK8425

▲ **-13:** The final piece in the product portfolio.
▲ **-32:** A specialist in extremely low burr formation when entering and, above all, exiting the hole.
▲ **-34**: This high-feed insert is chamfered all round making it extremely stable.

→ Page 27

NEW KUB Trigon – Indexable insert drilling – Extension

ABS



▲ Extension of the KUB Trigon indexable insert drill up to Ø 82 mm. Burnished base holder in 2xD and 3xD with cartridge inserts.

→ Page 38+41

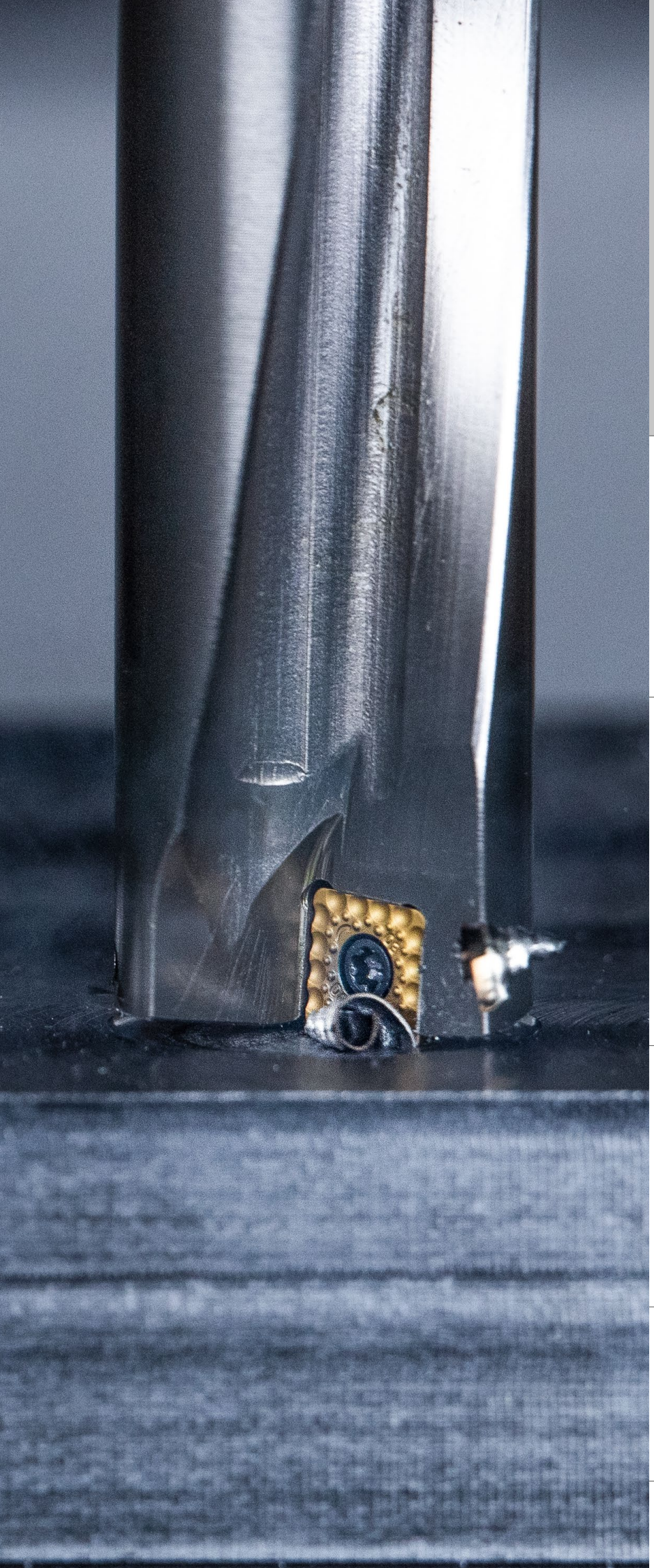
NEW KUB Centron – Indexable insert drilling

ABS



▲ The perfect tool for holes with high length to diameter ratio. Cost-effective and process-secure drilling in hole depths of up to 9xD and virtually all materials is no problem at all with the modular drill.

→ Page 47–52



Solid drilling and bore machining

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

Threading

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

Turning

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

Milling

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

Catalogue – Clamping technology

16 Adaptors and Accessories
17 Workpiece clamping

18 Material examples and article no. Index

List of contents

Symbol explanation	2
Application tips – eccentric sleeves	3
Toolfinder	4+5
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Cutting Data	58–73
Maximum Offset Range	74–76
Coding example, coolant supply	77
Indexable insert drilling – problems / possible causes / solutions	78
KUB Centron – drilling instructions + problems / possible causes / solutions	79+80
Application and Grade Comparison	81+82

KOMET \ Performance

Premium quality tools for high performance.

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

Symbol explanation

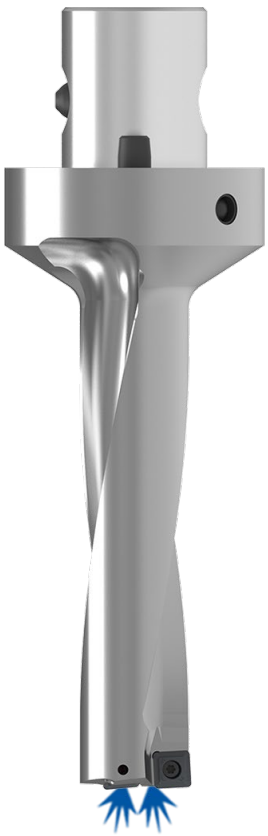
Shank

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

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

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

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



Coolant supply version



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



left-hand cutting

Designation	Page No.
Adjuster with ABS connection 	57

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

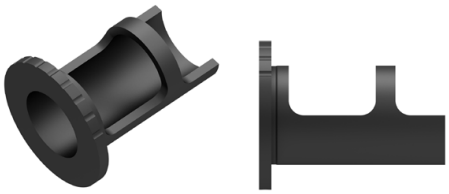
Application tips – eccentric sleeves

Using the eccentric sleeves, you can vary and adjust the diameter of the hole by +/- 0.3 mm with ease.

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



Eccentric sleeve for indexable insert drill adapter



Eccentric sleeve for Weldon adapter

Designation		Page No.
Eccentric sleeves for indexable insert drill adapters		55+56
Eccentric sleeves for Weldon adapters		55+56

Designation		
Adapters with ABS connection		→ **Chapter 16 Adapters and accessoires in the clamping technology catalogue**
Indexable insert drill adapter		

Toolfinder

KUB Pentron



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

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

KUB Pentron CS



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

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

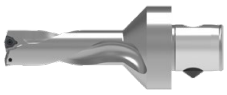
MaxiDrill 900



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

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

KUB Trigon



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

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

KUB Centron



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

Boring depth	Drilling through a transverse hole	Stack plate drilling	Drilling on uneven surfaces	Boring	Spot drilling an edge	Spot drilling a convex surface	Spot drilling angled surfaces	Spot drilling a pointed contour	Chain drilling	Spot drilling through a centre in the pre-op
4xD	○	-	●	-	-	○	-	-	○	●
6xD	○	-	●	-	-	○	-	-	○	●
9xD	○	-	●	-	-	○	-	-	○	●

KUB Centron – drill bits	Ø	Page No.
 KUB Centron drill bit	20–64 mm	48+49
 KUB Centron drill bit	65–81 mm	50+51

KUB Centron – centring tips		Ø	Page No.
	TiAlN	5–12 mm	52
	TiN	5–12 mm	
	TiAlN/ TiN	5–12 mm	

Shank	Diameter Ø	Page No.	Insert type		No. of cutting edges	Grade	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials	Page No.
ABS	14–65	6+7		SOGX	4	-01 BK8425	●	●	●	○	●	○		
ABS	14–65	8+9		SOGX	4	-03 BK8430	●	●	●	○	●	○		
ABS	14–46	10+11		SOGX	4	-13 BK8425	●	●	●	○	●	○		
ABS	14–46	12+13		SOGX	4	-32 BK8425	●	●	●	○	●	○		
PSC	14–37	14+15		SOGX	4	-34 BK8425	○		●					27+28
C	14–46	16+17		SOGX	4	-01 BK7935	●	●	●	○	●		○	
C	14–46	18+19		SOGX	4	-01 BK6115	●	●	●			○		
C	14–46	20+21		SOGX	4	-01 BK6425	●	●	●					
C	14–46	22+23		SOGX	4	-01 BK7710				●	○		○	
ABS	64–96	24–26												
C	12–63	29+30		SONT	2 4	-M30 CTCP420	●		●					36
C	12–63	31+32												
C	12–54	33+34		SONT	2 4	-M30 CTPP430	●	●	○	○	○			
C	12–41	35												
ABS	14–82	37–39		WOEX	3	-01 BK8425	●	●	●	○		○		
ABS	14–82	40–42		WOEX	3	-03 BK8425	●	●	●	○		○		
ABS	14–44	43		WOEX	3	-13 BK8425	●	●	●	○		○		
K	14–44	44		WOEX	3	-01 BK7935	●	●	●	○	●			
K	14–44	45		WOEX	3	-01 BK6115	●	●	●			○		53+54
K	14–35	46		WOEX	3	-01 BK7615			●					
ABS	20–81	47		WOEX	3	-01 BK62			●			○		
ABS	20–81			WOEX	3	-11 BK77					●	○	○	
ABS	20–81			WOEX	3	-13 BK79	●	●	●	○				

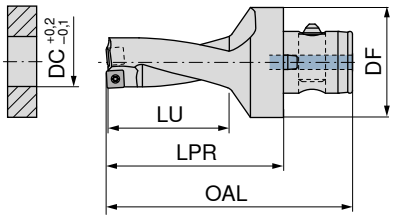
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD



ABS



NEW



Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 872 ... £ 2B/6#	
KUB-P.2D.140.R.04-ABS50	U42 51400	14.0	50	86	28	55	0,38	SOGX 040204	362.34	14095
KUB-P.2D.145.R.04-ABS50	U42 51450	14.5	50	89	30	58	0,38	SOGX 040204	362.34	14595
KUB-P.2D.150.R.04-ABS50	U42 51500	15.0	50	89	30	58	0,38	SOGX 040204	362.34	15095
KUB-P.2D.155.R.04-ABS50	U42 51550	15.5	50	93	32	62	0,38	SOGX 040204	362.34	15595
KUB-P.2D.160.R.04-ABS50	U42 51600	16.0	50	93	32	62	0,38	SOGX 040204	362.34	16095
KUB-P.2D.165.R.05-ABS50	U42 51650	16.5	50	96	34	65	0,62	SOGX 050204	362.34	16595
KUB-P.2D.170.R.05-ABS50	U42 51700	17.0	50	96	34	65	0,62	SOGX 050204	369.32	17095
KUB-P.2D.175.R.05-ABS50	U42 51750	17.5	50	98	36	67	0,62	SOGX 050204	369.32	17595
KUB-P.2D.180.R.05-ABS50	U42 51800	18.0	50	98	36	67	0,62	SOGX 050204	369.32	18095
KUB-P.2D.185.R.06-ABS50	U42 51850	18.5	50	101	38	70	1,01	SOGX 060206	369.32	18595
KUB-P.2D.190.R.06-ABS50	U42 51900	19.0	50	101	38	70	1,01	SOGX 060206	380.19	19095
KUB-P.2D.195.R.06-ABS50	U42 51950	19.5	50	103	40	72	1,01	SOGX 060206	380.19	19595
KUB-P.2D.200.R.06-ABS50	U42 52000	20.0	50	103	40	72	1,01	SOGX 060206	380.19	20095
KUB-P.2D.205.R.07-ABS50	U42 52050	20.5	50	105	42	74	1,01	SOGX 07T208	393.08	20595
KUB-P.2D.210.R.07-ABS50	U42 52100	21.0	50	105	42	74	1,01	SOGX 07T208	393.08	21095
KUB-P.2D.215.R.07-ABS50	U42 52150	21.5	50	107	44	76	1,01	SOGX 07T208	393.08	21595
KUB-P.2D.220.R.07-ABS50	U42 52200	22.0	50	107	44	76	1,01	SOGX 07T208	393.08	22095
KUB-P.2D.225.R.07-ABS50	U42 52250	22.5	50	109	46	78	1,01	SOGX 07T208	393.08	22595
KUB-P.2D.230.R.07-ABS50	U42 52300	23.0	50	109	46	78	1,01	SOGX 07T208	393.08	23095
KUB-P.2D.235.R.08-ABS50	U42 52350	23.5	50	111	48	80	1,28	SOGX 080308	405.02	23595
KUB-P.2D.240.R.08-ABS50	U42 52400	24.0	50	111	48	80	1,28	SOGX 080308	405.02	24095
KUB-P.2D.245.R.08-ABS50	U42 52450	24.5	50	114	50	83	1,28	SOGX 080308	405.02	24595
KUB-P.2D.250.R.08-ABS50	U42 52500	25.0	50	114	50	83	1,28	SOGX 080308	405.02	25095
KUB-P.2D.255.R.08-ABS50	U42 52550	25.5	50	116	52	85	1,28	SOGX 080308	405.02	25595
KUB-P.2D.260.R.08-ABS50	U42 52600	26.0	50	116	52	85	1,28	SOGX 080308	405.02	26095
KUB-P.2D.265.R.09-ABS50	U42 52650	26.5	50	119	54	88	2,25	SOGX 09T308	449.68	26595
KUB-P.2D.270.R.09-ABS50	U42 52700	27.0	50	119	54	88	2,25	SOGX 09T308	449.68	27095
KUB-P.2D.275.R.09-ABS50	U42 52750	27.5	50	121	56	90	2,25	SOGX 09T308	449.68	27595
KUB-P.2D.280.R.09-ABS50	U42 52800	28.0	50	121	56	90	2,25	SOGX 09T308	449.68	28095
KUB-P.2D.285.R.09-ABS50	U42 52850	28.5	50	124	58	93	2,25	SOGX 09T308	449.68	28595
KUB-P.2D.290.R.09-ABS50	U42 52900	29.0	50	124	58	93	2,25	SOGX 09T308	449.68	29095
KUB-P.2D.295.R.09-ABS50	U42 52950	29.5	50	126	60	95	2,25	SOGX 09T308	449.68	29595
KUB-P.2D.300.R.09-ABS50	U42 53000	30.0	50	126	60	95	2,25	SOGX 09T308	449.68	30095
KUB-P.2D.305.R.10-ABS63	U42 63050	30.5	63	139	62	101	2,8	SOGX 100408	473.55	30596
KUB-P.2D.310.R.10-ABS63	U42 63100	31.0	63	139	62	101	2,8	SOGX 100408	473.55	31096
KUB-P.2D.315.R.10-ABS63	U42 63150	31.5	63	141	64	103	2,8	SOGX 100408	473.55	31596
KUB-P.2D.320.R.10-ABS63	U42 63200	32.0	63	141	64	103	2,8	SOGX 100408	473.55	32096
KUB-P.2D.325.R.10-ABS63	U42 63250	32.5	63	144	66	106	2,8	SOGX 100408	473.55	32596
KUB-P.2D.330.R.10-ABS63	U42 63300	33.0	63	144	66	106	2,8	SOGX 100408	473.55	33096
KUB-P.2D.335.R.11-ABS63	U42 63350	33.5	63	146	68	108	2,8	SOGX 110408	505.33	33596
KUB-P.2D.340.R.11-ABS63	U42 63400	34.0	63	146	68	108	2,8	SOGX 110408	505.33	34096
KUB-P.2D.345.R.11-ABS63	U42 63450	34.5	63	149	70	111	2,8	SOGX 110408	505.33	34596
KUB-P.2D.350.R.11-ABS63	U42 63500	35.0	63	149	70	111	2,8	SOGX 110408	505.33	35096
KUB-P.2D.355.R.11-ABS63	U42 63550	35.5	63	152	72	113	2,8	SOGX 110408	505.33	35596
KUB-P.2D.360.R.11-ABS63	U42 63600	36.0	63	152	72	113	2,8	SOGX 110408	505.33	36096
KUB-P.2D.365.R.11-ABS63	U42 63650	36.5	63	154	74	116	2,8	SOGX 110408	505.33	36596
KUB-P.2D.370.R.11-ABS63	U42 63700	37.0	63	154	74	116	2,8	SOGX 110408	505.33	37096
KUB-P.2D.375.R.12-ABS63	U42 63750	37.5	63	156	76	118	6,25	SOGX 120408	529.11	37596
KUB-P.2D.380.R.12-ABS63	U42 63800	38.0	63	156	76	118	6,25	SOGX 120408	529.11	38096
KUB-P.2D.385.R.12-ABS63	U42 63850	38.5	63	159	78	121	6,25	SOGX 120408	529.11	38596
KUB-P.2D.390.R.12-ABS63	U42 63900	39.0	63	159	78	121	6,25	SOGX 120408	529.11	39096
KUB-P.2D.395.R.12-ABS63	U42 63950	39.5	63	161	80	123	6,25	SOGX 120408	529.11	39596
KUB-P.2D.400.R.12-ABS63	U42 64000	40.0	63	161	80	123	6,25	SOGX 120408	529.11	40096
KUB-P.2D.405.R.12-ABS63	U42 64050	40.5	63	164	82	126	6,25	SOGX 120408	529.11	40596

Continued on next page

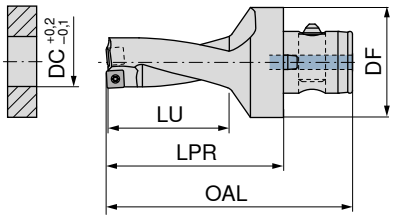
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD



ABS



NEW



3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 872 ... £ 2B/6#	
KUB-P.2D.410.R.12-ABS63	U42 64100	41.0	63	164	82	126	6,25	SOGX 120408	529.11	41096
KUB-P.2D.415.R.12-ABS63	U42 64150	41.5	63	166	84	128	6,25	SOGX 120408	529.11	41596
KUB-P.2D.420.R.12-ABS63	U42 64200	42.0	63	166	84	128	6,25	SOGX 120408	529.11	42096
KUB-P.2D.425.R.13-ABS63	U42 64250	42.5	63	169	86	131	6,25	SOGX 130508	529.11	42596
KUB-P.2D.430.R.13-ABS63	U42 64300	43.0	63	169	86	131	6,25	SOGX 130508	529.11	43096
KUB-P.2D.435.R.13-ABS63	U42 64350	43.5	63	171	88	133	6,25	SOGX 130508	529.11	43596
KUB-P.2D.440.R.13-ABS63	U42 64400	44.0	63	171	88	133	6,25	SOGX 130508	529.11	44096
KUB-P.2D.445.R.13-ABS63	U42 64450	44.5	63	174	90	136	6,25	SOGX 130508	529.11	44596
KUB-P.2D.450.R.13-ABS63	U42 64500	45.0	63	174	90	136	6,25	SOGX 130508	529.11	45096
KUB-P.2D.455.R.13-ABS63	U42 64550	45.5	63	173	92	135	6,25	SOGX 130508	529.11	45596
KUB-P.2D.460.R.13-ABS63	U42 64600	46.0	63	173	92	135	6,25	SOGX 130508	529.11	46096
KUB-P.2D.470.R.08-ABS63	U42 64700	47.0	63	187	101	149	1,28	SOGX 080308	565.57	47096
KUB-P.2D.480.R.08-ABS63	U42 64800	48.0	63	189	105	151	1,28	SOGX 080308	565.57	48096
KUB-P.2D.490.R.08-ABS63	U42 64900	49.0	63	191	109	153	1,28	SOGX 080308	565.57	49096
KUB-P.2D.500.R.08-ABS63	U42 65000	50.0	63	193	113	155	1,28	SOGX 080308	565.57	50096
KUB-P.2D.510.R.08-ABS63	U42 65100	51.0	63	195	117	157	1,28	SOGX 080308	565.57	51096
KUB-P.2D.520.R.08-ABS63	U42 65200	52.0	63	197	121	159	1,28	SOGX 080308	565.57	52096
KUB-P.2D.530.R.10-ABS63	U42 65300	53.0	63	199	125	161	2,8	SOGX 100408	565.57	53096
KUB-P.2D.540.R.10-ABS63	U42 65400	54.0	63	201	129	163	2,8	SOGX 100408	565.57	54096
KUB-P.2D.550.R.10-ABS80	U42 75500	55.0	80	208	115	165	2,8	SOGX 100408	682.78	55098
KUB-P.2D.560.R.10-ABS80	U42 75600	56.0	80	210	117	167	2,8	SOGX 100408	682.78	56098
KUB-P.2D.570.R.10-ABS80	U42 75700	57.0	80	212	120	169	2,8	SOGX 100408	682.78	57098
KUB-P.2D.580.R.10-ABS80	U42 75800	58.0	80	214	124	171	2,8	SOGX 100408	682.78	58098
KUB-P.2D.590.R.10-ABS80	U42 75900	59.0	80	216	127	173	2,8	SOGX 100408	682.78	59098
KUB-P.2D.600.R.10-ABS80	U42 76000	60.0	80	218	125	175	2,8	SOGX 100408	682.78	60098
KUB-P.2D.610.R.10-ABS80	U42 76100	61.0	80	220	128	177	2,8	SOGX 100408	682.78	61098
KUB-P.2D.620.R.10-ABS80	U42 76200	62.0	80	222	132	179	2,8	SOGX 100408	682.78	62098
KUB-P.2D.630.R.10-ABS80	U42 76300	63.0	80	224	131	181	2,8	SOGX 100408	682.78	63098
KUB-P.2D.640.R.10-ABS80	U42 76400	64.0	80	226	135	183	2,8	SOGX 100408	682.78	64098
KUB-P.2D.650.R.10-ABS80	U42 76500	65.0	80	228	139	185	2,8	SOGX 100408	682.78	65098



Screwdriver



Key D



Clamping screw

Spare parts DC		80 950 ... £ Y7			80 950 ... £ Y7			10 950 ... £ W7	
14 - 16	T05 - IP	8.05	057				M1,8x3,8 - 05IP	2.26	10100
16,5 - 18				T06 - IP	14.36	123	M2,0x4,3 - 06IP	2.26	10000
18,5 - 23				T06 - IP	14.36	123	M2,2x5,5 - 06IP	2.26	10700
23,5 - 26				T08 - IP	14.16	125	M2,5x6,3 - 08IP	2.26	10800
26,5 - 30				T08 - IP	14.16	125	M3,0x7,6 - 08IP	2.26	10200
30,5 - 37				T15 - IP	16.56	128	M3,5x7,5 - 15IP	2.26	10300
37,5 - 46				T20 - IP	17.39	129	M4,5x10 - 20IP	2.26	10400
47 - 52				T08 - IP	14.16	125	M2,5x6,3 - 08IP	2.26	10800
53 - 65				T08 - IP	14.16	125	M3,5x7,5 - 15IP	2.26	10300

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

KUB Pentron – Indexable insert drill

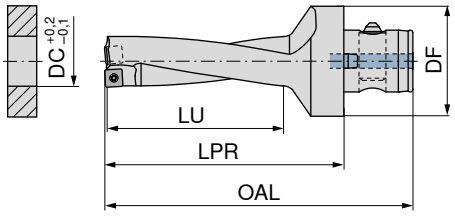
Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 3xD



ABS





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ... £ 2B/6#	
KUB-P.3D.140.R.04-ABS50	U43 51400	14.0	50	100	42	69	0,38	SOGX 040204	386.21	14095
KUB-P.3D.145.R.04-ABS50	U43 51450	14.5	50	104	45	73	0,38	SOGX 040204	386.21	14595
KUB-P.3D.150.R.04-ABS50	U43 51500	15.0	50	104	45	73	0,38	SOGX 040204	386.21	15095
KUB-P.3D.155.R.04-ABS50	U43 51550	15.5	50	109	48	78	0,38	SOGX 040204	386.21	15595
KUB-P.3D.160.R.04-ABS50	U43 51600	16.0	50	109	48	78	0,38	SOGX 040204	386.21	16095
KUB-P.3D.165.R.05-ABS50	U43 51650	16.5	50	113	51	82	0,62	SOGX 050204	386.21	16595
KUB-P.3D.170.R.05-ABS50	U43 51700	17.0	50	113	51	82	0,62	SOGX 050204	395.08	17095
KUB-P.3D.175.R.05-ABS50	U43 51750	17.5	50	116	54	85	0,62	SOGX 050204	395.08	17595
KUB-P.3D.180.R.05-ABS50	U43 51800	18.0	50	116	54	85	0,62	SOGX 050204	395.08	18095
KUB-P.3D.185.R.06-ABS50	U43 51850	18.5	50	120	57	89	1,01	SOGX 060206	395.08	18595
KUB-P.3D.190.R.06-ABS50	U43 51900	19.0	50	120	57	89	1,01	SOGX 060206	405.02	19095
KUB-P.3D.195.R.06-ABS50	U43 51950	19.5	50	123	60	92	1,01	SOGX 060206	405.02	19595
KUB-P.3D.200.R.06-ABS50	U43 52000	20.0	50	123	60	92	1,01	SOGX 060206	405.02	20095
KUB-P.3D.205.R.07-ABS50	U43 52050	20.5	50	126	63	95	1,01	SOGX 07T208	416.94	20595
KUB-P.3D.210.R.07-ABS50	U43 52100	21.0	50	126	63	95	1,01	SOGX 07T208	416.94	21095
KUB-P.3D.215.R.07-ABS50	U43 52150	21.5	50	129	66	98	1,01	SOGX 07T208	416.94	21595
KUB-P.3D.220.R.07-ABS50	U43 52200	22.0	50	129	66	98	1,01	SOGX 07T208	416.94	22095
KUB-P.3D.225.R.07-ABS50	U43 52250	22.5	50	132	69	101	1,01	SOGX 07T208	416.94	22595
KUB-P.3D.230.R.07-ABS50	U43 52300	23.0	50	132	69	101	1,01	SOGX 07T208	416.94	23095
KUB-P.3D.235.R.08-ABS50	U43 52350	23.5	50	135	72	104	1,28	SOGX 080308	429.83	23595
KUB-P.3D.240.R.08-ABS50	U43 52400	24.0	50	135	72	104	1,28	SOGX 080308	429.83	24095
KUB-P.3D.245.R.08-ABS50	U43 52450	24.5	50	139	75	108	1,28	SOGX 080308	429.83	24595
KUB-P.3D.250.R.08-ABS50	U43 52500	25.0	50	139	75	108	1,28	SOGX 080308	429.83	25095
KUB-P.3D.255.R.08-ABS50	U43 52550	25.5	50	142	78	111	1,28	SOGX 080308	429.83	25595
KUB-P.3D.260.R.08-ABS50	U43 52600	26.0	50	142	78	111	1,28	SOGX 080308	429.83	26095
KUB-P.3D.265.R.09-ABS50	U43 52650	26.5	50	146	81	115	2,25	SOGX 09T308	481.48	26595
KUB-P.3D.270.R.09-ABS50	U43 52700	27.0	50	146	81	115	2,25	SOGX 09T308	481.48	27095
KUB-P.3D.275.R.09-ABS50	U43 52750	27.5	50	149	84	118	2,25	SOGX 09T308	481.48	27595
KUB-P.3D.280.R.09-ABS50	U43 52800	28.0	50	149	84	118	2,25	SOGX 09T308	481.48	28095
KUB-P.3D.285.R.09-ABS50	U43 52850	28.5	50	153	87	122	2,25	SOGX 09T308	481.48	28595
KUB-P.3D.290.R.09-ABS50	U43 52900	29.0	50	153	87	122	2,25	SOGX 09T308	481.48	29095
KUB-P.3D.295.R.09-ABS50	U43 52950	29.5	50	156	90	125	2,25	SOGX 09T308	481.48	29595
KUB-P.3D.300.R.09-ABS50	U43 53000	30.0	50	156	90	125	2,25	SOGX 09T308	481.48	30095
KUB-P.3D.305.R.10-ABS63	U43 63050	30.5	63	170	93	132	2,8	SOGX 100408	503.33	30596
KUB-P.3D.310.R.10-ABS63	U43 63100	31.0	63	170	93	132	2,8	SOGX 100408	503.33	31096
KUB-P.3D.315.R.10-ABS63	U43 63150	31.5	63	173	96	135	2,8	SOGX 100408	503.33	31596
KUB-P.3D.320.R.10-ABS63	U43 63200	32.0	63	173	96	135	2,8	SOGX 100408	503.33	32096
KUB-P.3D.325.R.10-ABS63	U43 63250	32.5	63	177	99	139	2,8	SOGX 100408	503.33	32596
KUB-P.3D.330.R.10-ABS63	U43 63300	33.0	63	177	99	139	2,8	SOGX 100408	503.33	33096
KUB-P.3D.335.R.11-ABS63	U43 63350	33.5	63	180	102	142	2,8	SOGX 110408	536.08	33596
KUB-P.3D.340.R.11-ABS63	U43 63400	34.0	63	180	102	142	2,8	SOGX 110408	536.08	34096
KUB-P.3D.345.R.11-ABS63	U43 63450	34.5	63	184	105	146	2,8	SOGX 110408	536.08	34596
KUB-P.3D.350.R.11-ABS63	U43 63500	35.0	63	184	105	146	2,8	SOGX 110408	536.08	35096
KUB-P.3D.355.R.11-ABS63	U43 63550	35.5	63	187	108	149	2,8	SOGX 110408	536.08	35596
KUB-P.3D.360.R.11-ABS63	U43 63600	36.0	63	187	108	149	2,8	SOGX 110408	536.08	36096
KUB-P.3D.365.R.11-ABS63	U43 63650	36.5	63	191	111	153	2,8	SOGX 110408	536.08	36596
KUB-P.3D.370.R.11-ABS63	U43 63700	37.0	63	191	111	153	2,8	SOGX 110408	536.08	37096
KUB-P.3D.375.R.12-ABS63	U43 63750	37.5	63	194	114	156	6,25	SOGX 120408	561.84	37596
KUB-P.3D.380.R.12-ABS63	U43 63800	38.0	63	194	114	156	6,25	SOGX 120408	561.84	38096
KUB-P.3D.385.R.12-ABS63	U43 63850	38.5	63	198	117	160	6,25	SOGX 120408	561.84	38596
KUB-P.3D.390.R.12-ABS63	U43 63900	39.0	63	198	117	160	6,25	SOGX 120408	561.84	39096
KUB-P.3D.395.R.12-ABS63	U43 63950	39.5	63	201	120	163	6,25	SOGX 120408	561.84	39596
KUB-P.3D.400.R.12-ABS63	U43 64000	40.0	63	201	120	163	6,25	SOGX 120408	561.84	40096
KUB-P.3D.405.R.12-ABS63	U43 64050	40.5	63	205	123	167	6,25	SOGX 120408	561.84	40596
KUB-P.3D.410.R.12-ABS63	U43 64100	41.0	63	205	123	167	6,25	SOGX 120408	561.84	41096

Continued on next page

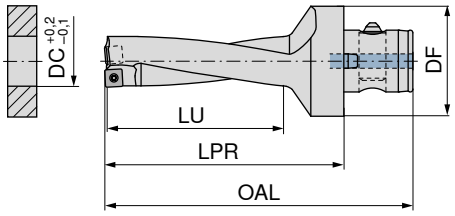
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD



ABS





3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ... £ 2B/6#	
KUB-P.3D.415.R.12-ABS63	U43 64150	41.5	63	208	126	170	6,25	SOGX 120408	561.84	41596
KUB-P.3D.420.R.12-ABS63	U43 64200	42.0	63	208	126	170	6,25	SOGX 120408	561.84	42096
KUB-P.3D.425.R.13-ABS63	U43 64250	42.5	63	212	129	174	6,25	SOGX 130508	561.84	42596
KUB-P.3D.430.R.13-ABS63	U43 64300	43.0	63	212	129	174	6,25	SOGX 130508	561.84	43096
KUB-P.3D.435.R.13-ABS63	U43 64350	43.5	63	215	132	177	6,25	SOGX 130508	561.84	43596
KUB-P.3D.440.R.13-ABS63	U43 64400	44.0	63	215	132	177	6,25	SOGX 130508	561.84	44096
KUB-P.3D.445.R.13-ABS63	U43 64450	44.5	63	219	135	181	6,25	SOGX 130508	561.84	44596
KUB-P.3D.450.R.13-ABS63	U43 64500	45.0	63	219	135	181	6,25	SOGX 130508	561.84	45096
KUB-P.3D.455.R.13-ABS63	U43 64550	45.5	63	219	138	181	6,25	SOGX 130508	561.84	45596
KUB-P.3D.460.R.13-ABS63	U43 64600	46.0	63	219	138	181	6,25	SOGX 130508	561.84	46096
KUB-P.3D.470.R.08-ABS63	U43 64700	47.0	63	234	148	196	1,28	SOGX 080308	632.68	47096
KUB-P.3D.480.R.08-ABS63	U43 64800	48.0	63	237	153	199	1,28	SOGX 080308	632.68	48096
KUB-P.3D.490.R.08-ABS63	U43 64900	49.0	63	240	158	202	1,28	SOGX 080308	632.68	49096
KUB-P.3D.500.R.08-ABS63	U43 65000	50.0	63	243	163	205	1,28	SOGX 080308	632.68	50096
KUB-P.3D.510.R.08-ABS63	U43 65100	51.0	63	246	168	205	1,28	SOGX 080308	632.68	51096
KUB-P.3D.520.R.08-ABS63	U43 65200	52.0	63	249	173	211	1,28	SOGX 080308	632.68	52096
KUB-P.3D.530.R.10-ABS63	U43 65300	53.0	63	252	178	214	2,8	SOGX 100408	632.68	53096
KUB-P.3D.540.R.10-ABS63	U43 65400	54.0	63	255	182	217	2,8	SOGX 100408	632.68	54096
KUB-P.3D.550.R.10-ABS80	U43 75500	55.0	80	263	170	220	2,8	SOGX 100408	761.44	55098
KUB-P.3D.560.R.10-ABS80	U43 75600	56.0	80	266	173	223	2,8	SOGX 100408	761.44	56098
KUB-P.3D.570.R.10-ABS80	U43 75700	57.0	80	269	177	226	2,8	SOGX 100408	761.44	57098
KUB-P.3D.580.R.10-ABS80	U43 75800	58.0	80	272	182	229	2,8	SOGX 100408	761.44	58098
KUB-P.3D.590.R.10-ABS80	U43 75900	59.0	80	275	186	232	2,8	SOGX 100408	761.44	59098
KUB-P.3D.600.R.10-ABS80	U43 76000	60.0	80	278	185	235	2,8	SOGX 100408	761.44	60098
KUB-P.3D.610.R.10-ABS80	U43 76100	61.0	80	281	189	238	2,8	SOGX 100408	761.44	61098
KUB-P.3D.620.R.10-ABS80	U43 76200	62.0	80	284	194	241	2,8	SOGX 100408	761.44	62098
KUB-P.3D.630.R.10-ABS80	U43 76300	63.0	80	287	194	244	2,8	SOGX 100408	761.44	63098
KUB-P.3D.640.R.10-ABS80	U43 76400	64.0	80	290	199	247	2,8	SOGX 100408	761.44	64098
KUB-P.3D.650.R.10-ABS80	U43 76500	65.0	80	293	204	250	2,8	SOGX 100408	761.44	65098



Screwdriver



Key D



Clamping screw

Spare parts DC	80 950 ... £ Y7		80 950 ... £ Y7		10 950 ... £ W7	
14 - 16	8.05	057			2.26	10100
16,5 - 18			14.36	123	2.26	10000
18,5 - 23			14.36	123	2.26	10700
23,5 - 26			14.16	125	2.26	10800
26,5 - 30			14.16	125	2.26	10200
30,5 - 37			16.56	128	2.26	10300
37,5 - 46			17.39	129	2.26	10400
47 - 52			14.16	125	2.26	10800
53 - 65			14.16	125	2.26	10300

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

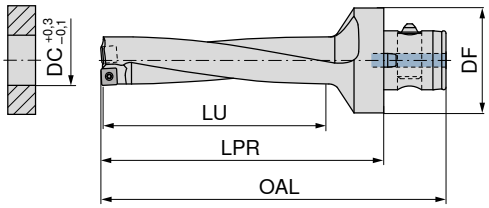
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



ABS





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 874 ... £ 2B/6#	
KUB-P.4D.140.R.04-ABS50	U44 51400	14.0	50	114	56	83	0,38	SOGX 040204	459.62	14095
KUB-P.4D.145.R.04-ABS50	U44 51450	14.5	50	119	60	88	0,38	SOGX 040204	459.62	14595
KUB-P.4D.150.R.04-ABS50	U44 51500	15.0	50	119	60	88	0,38	SOGX 040204	459.62	15095
KUB-P.4D.155.R.04-ABS50	U44 51550	15.5	50	125	64	94	0,38	SOGX 040204	459.62	15595
KUB-P.4D.160.R.04-ABS50	U44 51600	16.0	50	125	64	94	0,38	SOGX 040204	459.62	16095
KUB-P.4D.165.R.05-ABS50	U44 51650	16.5	50	130	68	99	0,62	SOGX 050204	459.62	16595
KUB-P.4D.170.R.05-ABS50	U44 51700	17.0	50	130	68	99	0,62	SOGX 050204	472.50	17095
KUB-P.4D.175.R.05-ABS50	U44 51750	17.5	50	134	72	103	0,62	SOGX 050204	472.50	17595
KUB-P.4D.180.R.05-ABS50	U44 51800	18.0	50	134	72	103	0,62	SOGX 050204	472.50	18095
KUB-P.4D.185.R.06-ABS50	U44 51850	18.5	50	139	76	108	1,01	SOGX 060206	472.50	18595
KUB-P.4D.190.R.06-ABS50	U44 51900	19.0	50	139	76	108	1,01	SOGX 060206	481.48	19095
KUB-P.4D.195.R.06-ABS50	U44 51950	19.5	50	143	80	112	1,01	SOGX 060206	481.48	19595
KUB-P.4D.200.R.06-ABS50	U44 52000	20.0	50	143	80	112	1,01	SOGX 060206	481.48	20095
KUB-P.4D.205.R.07-ABS50	U44 52050	20.5	50	147	84	116	1,01	SOGX 07T208	500.38	20595
KUB-P.4D.210.R.07-ABS50	U44 52100	21.0	50	147	84	116	1,01	SOGX 07T208	500.38	21095
KUB-P.4D.215.R.07-ABS50	U44 52150	21.5	50	151	88	120	1,01	SOGX 07T208	500.38	21595
KUB-P.4D.220.R.07-ABS50	U44 52200	22.0	50	151	88	120	1,01	SOGX 07T208	500.38	22095
KUB-P.4D.225.R.07-ABS50	U44 52250	22.5	50	155	92	124	1,01	SOGX 07T208	500.38	22595
KUB-P.4D.230.R.07-ABS50	U44 52300	23.0	50	155	92	124	1,01	SOGX 07T208	500.38	23095
KUB-P.4D.235.R.08-ABS50	U44 52350	23.5	50	159	96	128	1,28	SOGX 080308	515.27	23595
KUB-P.4D.240.R.08-ABS50	U44 52400	24.0	50	159	96	128	1,28	SOGX 080308	515.27	24095
KUB-P.4D.245.R.08-ABS50	U44 52450	24.5	50	164	100	133	1,28	SOGX 080308	515.27	24595
KUB-P.4D.250.R.08-ABS50	U44 52500	25.0	50	164	100	133	1,28	SOGX 080308	515.27	25095
KUB-P.4D.255.R.08-ABS50	U44 52550	25.5	50	168	104	137	1,28	SOGX 080308	515.27	25595
KUB-P.4D.260.R.08-ABS50	U44 52600	26.0	50	168	104	137	1,28	SOGX 080308	515.27	26095
KUB-P.4D.265.R.09-ABS50	U44 52650	26.5	50	173	108	142	2,25	SOGX 09T308	577.78	26595
KUB-P.4D.270.R.09-ABS50	U44 52700	27.0	50	173	108	142	2,25	SOGX 09T308	577.78	27095
KUB-P.4D.275.R.09-ABS50	U44 52750	27.5	50	177	112	146	2,25	SOGX 09T308	577.78	27595
KUB-P.4D.280.R.09-ABS50	U44 52800	28.0	50	177	112	146	2,25	SOGX 09T308	577.78	28095
KUB-P.4D.285.R.09-ABS50	U44 52850	28.5	50	182	116	151	2,25	SOGX 09T308	577.78	28595
KUB-P.4D.290.R.09-ABS50	U44 52900	29.0	50	182	116	151	2,25	SOGX 09T308	577.78	29095
KUB-P.4D.295.R.09-ABS50	U44 52950	29.5	50	186	120	155	2,25	SOGX 09T308	577.78	29595
KUB-P.4D.300.R.09-ABS50	U44 53000	30.0	50	186	120	155	2,25	SOGX 09T308	577.78	30095
KUB-P.4D.305.R.10-ABS63	U44 63050	30.5	63	201	124	163	2,8	SOGX 100408	606.52	30596
KUB-P.4D.310.R.10-ABS63	U44 63100	31.0	63	201	124	163	2,8	SOGX 100408	606.52	31096
KUB-P.4D.315.R.10-ABS63	U44 63150	31.5	63	205	128	167	2,8	SOGX 100408	606.52	31596
KUB-P.4D.320.R.10-ABS63	U44 63200	32.0	63	205	128	167	2,8	SOGX 100408	606.52	32096
KUB-P.4D.325.R.10-ABS63	U44 63250	32.5	63	210	132	172	2,8	SOGX 100408	606.52	32596
KUB-P.4D.330.R.10-ABS63	U44 63300	33.0	63	210	132	172	2,8	SOGX 100408	606.52	33096
KUB-P.4D.335.R.11-ABS63	U44 63350	33.5	63	214	136	176	2,8	SOGX 110408	620.46	33596
KUB-P.4D.340.R.11-ABS63	U44 63400	34.0	63	214	136	176	2,8	SOGX 110408	620.46	34096
KUB-P.4D.345.R.11-ABS63	U44 63450	34.5	63	219	140	181	2,8	SOGX 110408	620.46	34596
KUB-P.4D.350.R.11-ABS63	U44 63500	35.0	63	219	140	181	2,8	SOGX 110408	620.46	35096
KUB-P.4D.355.R.11-ABS63	U44 63550	35.5	63	223	144	185	2,8	SOGX 110408	620.46	35596
KUB-P.4D.360.R.11-ABS63	U44 63600	36.0	63	223	144	185	2,8	SOGX 110408	620.46	36096
KUB-P.4D.365.R.11-ABS63	U44 63650	36.5	63	228	148	190	2,8	SOGX 110408	620.46	36596
KUB-P.4D.370.R.11-ABS63	U44 63700	37.0	63	228	148	190	2,8	SOGX 110408	620.46	37096
KUB-P.4D.375.R.12-ABS63	U44 63750	37.5	63	232	152	194	6,25	SOGX 120408	638.31	37596

Continued on next page

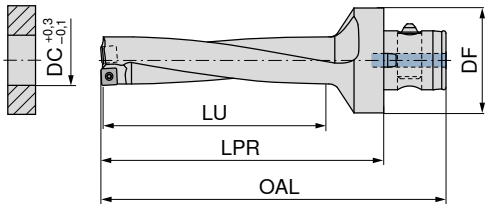
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



ABS





3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 874 ... £ 2B/6#	
KUB-P.4D.380.R.12-ABS63	U44 63800	38.0	63	232	152	194	6,25	SOGX 120408	638.31	38096
KUB-P.4D.385.R.12-ABS63	U44 63850	38.5	63	237	156	199	6,25	SOGX 120408	638.31	38596
KUB-P.4D.390.R.12-ABS63	U44 63900	39.0	63	237	156	199	6,25	SOGX 120408	638.31	39096
KUB-P.4D.395.R.12-ABS63	U44 63950	39.5	63	241	160	203	6,25	SOGX 120408	638.31	39596
KUB-P.4D.400.R.12-ABS63	U44 64000	40.0	63	241	160	203	6,25	SOGX 120408	638.31	40096
KUB-P.4D.405.R.12-ABS63	U44 64050	40.5	63	246	164	208	6,25	SOGX 120408	638.31	40596
KUB-P.4D.410.R.12-ABS63	U44 64100	41.0	63	246	164	208	6,25	SOGX 120408	638.31	41096
KUB-P.4D.415.R.12-ABS63	U44 64150	41.5	63	250	168	212	6,25	SOGX 120408	638.31	41596
KUB-P.4D.420.R.12-ABS63	U44 64200	42.0	63	250	168	212	6,25	SOGX 120408	638.31	42096
KUB-P.4D.425.R.13-ABS63	U44 64250	42.5	63	255	172	217	6,25	SOGX 130508	684.02	42596
KUB-P.4D.430.R.13-ABS63	U44 64300	43.0	63	255	172	217	6,25	SOGX 130508	684.02	43096
KUB-P.4D.435.R.13-ABS63	U44 64350	43.5	63	259	176	221	6,25	SOGX 130508	684.02	43596
KUB-P.4D.440.R.13-ABS63	U44 64400	44.0	63	259	176	221	6,25	SOGX 130508	684.02	44096
KUB-P.4D.445.R.13-ABS63	U44 64450	44.5	63	264	180	226	6,25	SOGX 130508	684.02	44596
KUB-P.4D.450.R.13-ABS63	U44 64500	45.0	63	264	180	226	6,25	SOGX 130508	684.02	45096
KUB-P.4D.455.R.13-ABS63	U44 64550	45.5	63	268	184	230	6,25	SOGX 130508	684.02	45596
KUB-P.4D.460.R.13-ABS63	U44 64600	46.0	63	268	184	230	6,25	SOGX 130508	684.02	46096


Screwdriver


Key D


Clamping screw

Spare parts DC	80 950 ... £ Y7		80 950 ... £ Y7		10 950 ... £ W7	
14 - 16	8.05	057			2.26	10100
16,5 - 18			14.36	123	2.26	10000
18,5 - 23			14.36	123	2.26	10700
23,5 - 26			14.16	125	2.26	10800
26,5 - 30			14.16	125	2.26	10200
30,5 - 37			16.56	128	2.26	10300
37,5 - 46			17.39	129	2.26	10400

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

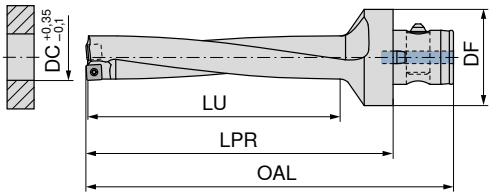
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 5xD



ABS





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 875 ... £ 2B/6#	
KUB-P.5D.140.R.04-ABS50	U45 51400	14.0	50	128	70	97	0,38	SOGX 040204	492.36	14095
KUB-P.5D.145.R.04-ABS50	U45 51450	14.5	50	134	75	103	0,38	SOGX 040204	492.36	14595
KUB-P.5D.150.R.04-ABS50	U45 51500	15.0	50	134	75	103	0,38	SOGX 040204	492.36	15095
KUB-P.5D.155.R.04-ABS50	U45 51550	15.5	50	141	80	110	0,38	SOGX 040204	492.36	15595
KUB-P.5D.160.R.04-ABS50	U45 51600	16.0	50	141	80	110	0,38	SOGX 040204	492.36	16095
KUB-P.5D.165.R.05-ABS50	U45 51650	16.5	50	147	85	116	0,62	SOGX 050204	492.36	16595
KUB-P.5D.170.R.05-ABS50	U45 51700	17.0	50	147	85	116	0,62	SOGX 050204	505.33	17095
KUB-P.5D.175.R.05-ABS50	U45 51750	17.5	50	152	90	121	0,62	SOGX 050204	505.33	17595
KUB-P.5D.180.R.05-ABS50	U45 51800	18.0	50	152	90	121	0,62	SOGX 050204	505.33	18095
KUB-P.5D.185.R.06-ABS50	U45 51850	18.5	50	158	95	127	1,01	SOGX 060206	505.33	18595
KUB-P.5D.190.R.06-ABS50	U45 51900	19.0	50	158	95	127	1,01	SOGX 060206	515.27	19095
KUB-P.5D.195.R.06-ABS50	U45 51950	19.5	50	163	100	132	1,01	SOGX 060206	515.27	19595
KUB-P.5D.200.R.06-ABS50	U45 52000	20.0	50	163	100	132	1,01	SOGX 060206	515.27	20095
KUB-P.5D.205.R.07-ABS50	U45 52050	20.5	50	168	105	137	1,01	SOGX 07T208	533.12	20595
KUB-P.5D.210.R.07-ABS50	U45 52100	21.0	50	168	105	137	1,01	SOGX 07T208	533.12	21095
KUB-P.5D.215.R.07-ABS50	U45 52150	21.5	50	173	110	142	1,01	SOGX 07T208	533.12	21595
KUB-P.5D.220.R.07-ABS50	U45 52200	22.0	50	173	110	142	1,01	SOGX 07T208	533.12	22095
KUB-P.5D.225.R.07-ABS50	U45 52250	22.5	50	178	115	147	1,01	SOGX 07T208	533.12	22595
KUB-P.5D.230.R.07-ABS50	U45 52300	23.0	50	178	115	147	1,01	SOGX 07T208	533.12	23095
KUB-P.5D.235.R.08-ABS50	U45 52350	23.5	50	183	120	152	1,28	SOGX 080308	550.01	23595
KUB-P.5D.240.R.08-ABS50	U45 52400	24.0	50	183	120	152	1,28	SOGX 080308	550.01	24095
KUB-P.5D.245.R.08-ABS50	U45 52450	24.5	50	189	125	158	1,28	SOGX 080308	550.01	24595
KUB-P.5D.250.R.08-ABS50	U45 52500	25.0	50	189	125	158	1,28	SOGX 080308	550.01	25095
KUB-P.5D.255.R.08-ABS50	U45 52550	25.5	50	194	130	163	1,28	SOGX 080308	550.01	25595
KUB-P.5D.260.R.08-ABS50	U45 52600	26.0	50	194	130	163	1,28	SOGX 080308	550.01	26095
KUB-P.5D.265.R.09-ABS50	U45 52650	26.5	50	200	135	169	2,25	SOGX 09T308	610.52	26595
KUB-P.5D.270.R.09-ABS50	U45 52700	27.0	50	200	135	169	2,25	SOGX 09T308	610.52	27095
KUB-P.5D.275.R.09-ABS50	U45 52750	27.5	50	205	140	174	2,25	SOGX 09T308	610.52	27595
KUB-P.5D.280.R.09-ABS50	U45 52800	28.0	50	205	140	174	2,25	SOGX 09T308	610.52	28095
KUB-P.5D.285.R.09-ABS50	U45 52850	28.5	50	211	145	180	2,25	SOGX 09T308	610.52	28595
KUB-P.5D.290.R.09-ABS50	U45 52900	29.0	50	211	145	180	2,25	SOGX 09T308	610.52	29095
KUB-P.5D.295.R.09-ABS50	U45 52950	29.5	50	216	150	185	2,25	SOGX 09T308	610.52	29595
KUB-P.5D.300.R.09-ABS50	U45 53000	30.0	50	216	150	185	2,25	SOGX 09T308	610.52	30095
KUB-P.5D.305.R.10-ABS63	U45 63050	30.5	63	232	155	194	2,8	SOGX 100408	650.23	30596
KUB-P.5D.310.R.10-ABS63	U45 63100	31.0	63	232	155	194	2,8	SOGX 100408	650.23	31096
KUB-P.5D.315.R.10-ABS63	U45 63150	31.5	63	237	160	199	2,8	SOGX 100408	650.23	31596
KUB-P.5D.320.R.10-ABS63	U45 63200	32.0	63	237	160	199	2,8	SOGX 100408	650.23	32096
KUB-P.5D.325.R.10-ABS63	U45 63250	32.5	63	243	165	205	2,8	SOGX 100408	650.23	32596
KUB-P.5D.330.R.10-ABS63	U45 63300	33.0	63	243	165	205	2,8	SOGX 100408	650.23	33096
KUB-P.5D.335.R.11-ABS63	U45 63350	33.5	63	248	170	210	2,8	SOGX 110408	666.08	33596
KUB-P.5D.340.R.11-ABS63	U45 63400	34.0	63	248	170	210	2,8	SOGX 110408	666.08	34096
KUB-P.5D.345.R.11-ABS63	U45 63450	34.5	63	254	175	216	2,8	SOGX 110408	666.08	34596
KUB-P.5D.350.R.11-ABS63	U45 63500	35.0	63	254	175	216	2,8	SOGX 110408	666.08	35096
KUB-P.5D.355.R.11-ABS63	U45 63550	35.5	63	259	180	221	2,8	SOGX 110408	666.08	35596
KUB-P.5D.360.R.11-ABS63	U45 63600	36.0	63	259	180	221	2,8	SOGX 110408	666.08	36096
KUB-P.5D.365.R.11-ABS63	U45 63650	36.5	63	265	185	227	2,8	SOGX 110408	666.08	36596
KUB-P.5D.370.R.11-ABS63	U45 63700	37.0	63	265	185	227	2,8	SOGX 110408	666.08	37096
KUB-P.5D.375.R.12-ABS63	U45 63750	37.5	63	270	190	232	6,25	SOGX 120408	684.02	37596

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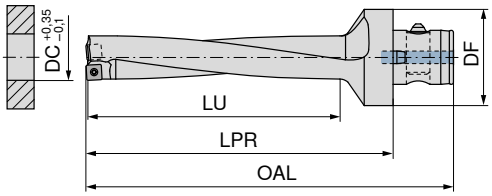
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 5xD



ABS





3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 875 ... £ 2B/6#	
KUB-P.5D.380.R.12-ABS63	U45 63800	38.0	63	270	190	232	6,25	SOGX 120408	684.02	**38096**
KUB-P.5D.385.R.12-ABS63	U45 63850	38.5	63	276	195	238	6,25	SOGX 120408	684.02	**38596**
KUB-P.5D.390.R.12-ABS63	U45 63900	39.0	63	276	195	238	6,25	SOGX 120408	684.02	**39096**
KUB-P.5D.395.R.12-ABS63	U45 63950	39.5	63	281	200	243	6,25	SOGX 120408	684.02	**39596**
KUB-P.5D.400.R.12-ABS63	U45 64000	40.0	63	281	200	243	6,25	SOGX 120408	684.02	**40096**
KUB-P.5D.405.R.12-ABS63	U45 64050	40.5	63	287	205	249	6,25	SOGX 120408	684.02	**40596**
KUB-P.5D.410.R.12-ABS63	U45 64100	41.0	63	287	205	249	6,25	SOGX 120408	684.02	**41096**
KUB-P.5D.415.R.12-ABS63	U45 64150	41.5	63	292	210	254	6,25	SOGX 120408	684.02	**41596**
KUB-P.5D.420.R.12-ABS63	U45 64200	42.0	63	292	210	254	6,25	SOGX 120408	684.02	**42096**
KUB-P.5D.425.R.13-ABS63	U45 64250	42.5	63	298	215	260	6,25	SOGX 130508	739.58	**42596**
KUB-P.5D.430.R.13-ABS63	U45 64300	43.0	63	298	215	260	6,25	SOGX 130508	739.58	**43096**
KUB-P.5D.435.R.13-ABS63	U45 64350	43.5	63	303	220	265	6,25	SOGX 130508	739.58	**43596**
KUB-P.5D.440.R.13-ABS63	U45 64400	44.0	63	303	220	265	6,25	SOGX 130508	739.58	**44096**
KUB-P.5D.445.R.13-ABS63	U45 64450	44.5	63	309	225	271	6,25	SOGX 130508	739.58	**44596**
KUB-P.5D.450.R.13-ABS63	U45 64500	45.0	63	309	225	271	6,25	SOGX 130508	739.58	**45096**
KUB-P.5D.455.R.13-ABS63	U45 64550	45.5	63	314	230	276	6,25	SOGX 130508	739.58	**45596**
KUB-P.5D.460.R.13-ABS63	U45 64600	46.0	63	314	230	276	6,25	SOGX 130508	739.58	**46096**



Screwdriver



Key D



Clamping screw

Spare parts DC	80 950 ... £ Y7		80 950 ... £ Y7		10 950 ... £ W7	
14 - 16	8.05	**057**			2.26	**10100**
16,5 - 18			14.36	**123**	2.26	**10000**
18,5 - 23			14.36	**123**	2.26	**10700**
23,5 - 26			14.16	**125**	2.26	**10800**
26,5 - 30			14.16	**125**	2.26	**10200**
30,5 - 37			16.56	**128**	2.26	**10300**
37,5 - 46			17.39	**129**	2.26	**10400**

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

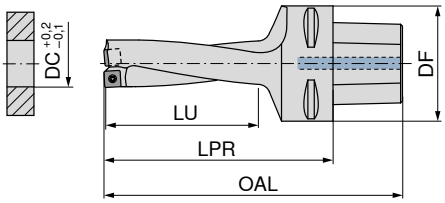
KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 3xD

PSC





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ... £ 2B/6#	
KUB-P.3D.140.R.04-PSC50	U40 61400	14.0	50	103	42	73	0,38	SOGX 040204	419.91	14055
KUB-P.3D.145.R.04-PSC50	U40 61450	14.5	50	107	45	77	0,38	SOGX 040204	419.91	14555
KUB-P.3D.150.R.04-PSC50	U40 61500	15.0	50	107	45	77	0,38	SOGX 040204	419.91	15055
KUB-P.3D.155.R.04-PSC50	U40 61550	15.5	50	112	48	82	0,38	SOGX 040204	419.91	15555
KUB-P.3D.160.R.04-PSC50	U40 61600	16.0	50	112	48	82	0,38	SOGX 040204	419.91	16055
KUB-P.3D.160.R.04-PSC63	U40 71600	16.0	63	124	48	86	0,38	SOGX 040204	419.91	16056
KUB-P.3D.165.R.05-PSC50	U40 61650	16.5	50	116	51	86	0,62	SOGX 050204	429.83	16555
KUB-P.3D.170.R.05-PSC50	U40 61700	17.0	50	116	51	86	0,62	SOGX 050204	429.83	17055
KUB-P.3D.175.R.05-PSC50	U40 61750	17.5	50	119	54	89	0,62	SOGX 050204	429.83	17555
KUB-P.3D.180.R.05-PSC50	U40 61800	18.0	50	119	54	89	0,62	SOGX 050204	429.83	18055
KUB-P.3D.165.R.05-PSC63	U40 71650	16.5	63	128	51	90	0,62	SOGX 050204	429.83	16556
KUB-P.3D.170.R.05-PSC63	U40 71700	17.0	63	128	51	90	0,62	SOGX 050204	429.83	17056
KUB-P.3D.175.R.05-PSC63	U40 71750	17.5	63	131	54	93	0,62	SOGX 050204	429.83	17556
KUB-P.3D.180.R.05-PSC63	U40 71800	18.0	63	131	54	93	0,62	SOGX 050204	429.83	18056
KUB-P.3D.185.R.06-PSC50	U40 61850	18.5	50	123	57	93	1,01	SOGX 060206	429.83	18555
KUB-P.3D.190.R.06-PSC50	U40 61900	19.0	50	123	57	93	1,01	SOGX 060206	440.81	19055
KUB-P.3D.195.R.06-PSC50	U40 61950	19.5	50	126	60	96	1,01	SOGX 060206	440.81	19555
KUB-P.3D.200.R.06-PSC50	U40 62000	20.0	50	126	60	96	1,01	SOGX 060206	440.81	20055
KUB-P.3D.185.R.06-PSC63	U40 71850	18.5	63	135	57	97	1,01	SOGX 060206	429.83	18556
KUB-P.3D.190.R.06-PSC63	U40 71900	19.0	63	135	57	97	1,01	SOGX 060206	440.81	19056
KUB-P.3D.195.R.06-PSC63	U40 71950	19.5	63	138	60	100	1,01	SOGX 060206	440.81	19556
KUB-P.3D.200.R.06-PSC63	U40 72000	20.0	63	138	60	100	1,01	SOGX 060206	440.81	20056
KUB-P.3D.205.R.07-PSC50	U40 62050	20.5	50	130	63	100	1,01	SOGX 07T208	453.69	20555
KUB-P.3D.210.R.07-PSC50	U40 62100	21.0	50	130	63	100	1,01	SOGX 07T208	453.69	21055
KUB-P.3D.215.R.07-PSC50	U40 62150	21.5	50	133	66	103	1,01	SOGX 07T208	453.69	21555
KUB-P.3D.220.R.07-PSC50	U40 62200	22.0	50	133	66	103	1,01	SOGX 07T208	453.69	22055
KUB-P.3D.225.R.07-PSC50	U40 62250	22.5	50	137	69	107	1,01	SOGX 07T208	453.69	22555
KUB-P.3D.230.R.07-PSC50	U40 62300	23.0	50	137	69	107	1,01	SOGX 07T208	453.69	23055
KUB-P.3D.205.R.07-PSC63	U40 72050	20.5	63	142	63	104	1,01	SOGX 07T208	453.69	20556
KUB-P.3D.210.R.07-PSC63	U40 72100	21.0	63	142	63	104	1,01	SOGX 07T208	453.69	21056
KUB-P.3D.215.R.07-PSC63	U40 72150	21.5	63	145	66	107	1,01	SOGX 07T208	453.69	21556
KUB-P.3D.220.R.07-PSC63	U40 72200	22.0	63	145	66	107	1,01	SOGX 07T208	453.69	22056
KUB-P.3D.225.R.07-PSC63	U40 72250	22.5	63	149	69	111	1,01	SOGX 07T208	453.69	22556
KUB-P.3D.230.R.07-PSC63	U40 72300	23.0	63	149	69	111	1,01	SOGX 07T208	453.69	23056
KUB-P.3D.235.R.08-PSC50	U40 62350	23.5	50	140	72	110	1,28	SOGX 080308	467.53	23555
KUB-P.3D.240.R.08-PSC50	U40 62400	24.0	50	140	72	110	1,28	SOGX 080308	467.53	24055
KUB-P.3D.245.R.08-PSC50	U40 62450	24.5	50	144	75	114	1,28	SOGX 080308	467.53	24555
KUB-P.3D.250.R.08-PSC50	U40 62500	25.0	50	144	75	114	1,28	SOGX 080308	467.53	25055
KUB-P.3D.255.R.08-PSC50	U40 62550	25.5	50	147	78	117	1,28	SOGX 080308	467.53	25555
KUB-P.3D.260.R.08-PSC50	U40 62600	26.0	50	147	78	117	1,28	SOGX 080308	467.53	26055
KUB-P.3D.235.R.08-PSC63	U40 72350	23.5	63	152	72	114	1,28	SOGX 080308	467.53	23556
KUB-P.3D.240.R.08-PSC63	U40 72400	24.0	63	152	72	114	1,28	SOGX 080308	467.53	24056
KUB-P.3D.245.R.08-PSC63	U40 72450	24.5	63	156	75	118	1,28	SOGX 080308	467.53	24556
KUB-P.3D.250.R.08-PSC63	U40 72500	25.0	63	156	75	118	1,28	SOGX 080308	467.53	25056
KUB-P.3D.255.R.08-PSC63	U40 72550	25.5	63	159	78	121	1,28	SOGX 080308	467.53	25556
KUB-P.3D.260.R.08-PSC63	U40 72600	26.0	63	159	78	121	1,28	SOGX 080308	467.53	26056
KUB-P.3D.265.R.09-PSC50	U40 62650	26.5	50	151	81	121	2,25	SOGX 09T308	523.18	26555
KUB-P.3D.270.R.09-PSC50	U40 62700	27.0	50	151	81	121	2,25	SOGX 09T308	523.18	27055
KUB-P.3D.275.R.09-PSC50	U40 62750	27.5	50	154	84	124	2,25	SOGX 09T308	523.18	27555
KUB-P.3D.280.R.09-PSC50	U40 62800	28.0	50	154	84	124	2,25	SOGX 09T308	523.18	28055
KUB-P.3D.285.R.09-PSC50	U40 62850	28.5	50	158	87	128	2,25	SOGX 09T308	523.18	28555
KUB-P.3D.290.R.09-PSC50	U40 62900	29.0	50	158	87	128	2,25	SOGX 09T308	523.18	29055
KUB-P.3D.295.R.09-PSC50	U40 62950	29.5	50	161	90	131	2,25	SOGX 09T308	523.18	29555
KUB-P.3D.300.R.09-PSC50	U40 63000	30.0	50	161	90	131	2,25	SOGX 09T308	523.18	30055
KUB-P.3D.265.R.09-PSC63	U40 72650	26.5	63	163	81	125	2,25	SOGX 09T308	523.18	26556
KUB-P.3D.270.R.09-PSC63	U40 72700	27.0	63	163	81	125	2,25	SOGX 09T308	523.18	27056
KUB-P.3D.275.R.09-PSC63	U40 72750	27.5	63	166	84	128	2,25	SOGX 09T308	523.18	27556
KUB-P.3D.280.R.09-PSC63	U40 72800	28.0	63	166	84	128	2,25	SOGX 09T308	523.18	28056

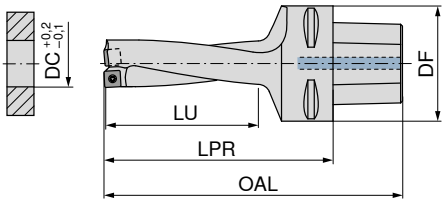
Continued on next page

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD

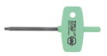
PSC





3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ... £ 2B/6#	
KUB-P.3D.285.R.09-PSC63	U40 72850	28.5	63	170	87	132	2,25	SOGX 09T308	523.18	28556
KUB-P.3D.290.R.09-PSC63	U40 72900	29.0	63	170	87	132	2,25	SOGX 09T308	523.18	29056
KUB-P.3D.295.R.09-PSC63	U40 72950	29.5	63	173	90	135	2,25	SOGX 09T308	523.18	29556
KUB-P.3D.300.R.09-PSC63	U40 73000	30.0	63	173	90	135	2,25	SOGX 09T308	523.18	30056
KUB-P.3D.305.R.10-PSC50	U40 63050	30.5	50	165	98	135	2,8	SOGX 100408	559.60	30555
KUB-P.3D.310.R.10-PSC50	U40 63100	31.0	50	165	98	135	2,8	SOGX 100408	559.60	31055
KUB-P.3D.315.R.10-PSC50	U40 63150	31.5	50	168	101	138	2,8	SOGX 100408	560.20	31555
KUB-P.3D.320.R.10-PSC50	U40 63200	32.0	50	168	101	138	2,8	SOGX 100408	560.20	32055
KUB-P.3D.325.R.10-PSC50	U40 63250	32.5	50	172	104	142	2,8	SOGX 100408	564.20	32555
KUB-P.3D.330.R.10-PSC50	U40 63300	33.0	50	172	104	142	2,8	SOGX 100408	564.20	33055
KUB-P.3D.305.R.10-PSC63	U40 73050	30.5	63	177	98	139	2,8	SOGX 100408	559.60	30556
KUB-P.3D.310.R.10-PSC63	U40 73100	31.0	63	177	98	139	2,8	SOGX 100408	559.60	31056
KUB-P.3D.315.R.10-PSC63	U40 73150	31.5	63	180	101	142	2,8	SOGX 100408	560.20	31556
KUB-P.3D.320.R.10-PSC63	U40 73200	32.0	63	180	101	142	2,8	SOGX 100408	560.20	32056
KUB-P.3D.325.R.10-PSC63	U40 73250	32.5	63	184	104	146	2,8	SOGX 100408	564.20	32556
KUB-P.3D.330.R.10-PSC63	U40 73300	33.0	63	184	104	146	2,8	SOGX 100408	564.20	33056
KUB-P.3D.335.R.11-PSC50	U40 63350	33.5	50	175	107	145	2,8	SOGX 110408	565.10	33555
KUB-P.3D.340.R.11-PSC50	U40 63400	34.0	50	175	107	145	2,8	SOGX 110408	565.10	34055
KUB-P.3D.345.R.11-PSC50	U40 63450	34.5	50	179	110	149	2,8	SOGX 110408	565.90	34555
KUB-P.3D.350.R.11-PSC50	U40 63500	35.0	50	179	110	149	2,8	SOGX 110408	565.90	35055
KUB-P.3D.355.R.11-PSC50	U40 63550	35.5	50	182	113	152	2,8	SOGX 110408	567.11	35555
KUB-P.3D.360.R.11-PSC50	U40 63600	36.0	50	182	113	152	2,8	SOGX 110408	567.11	36055
KUB-P.3D.365.R.11-PSC50	U40 63650	36.5	50	186	116	156	2,8	SOGX 110408	571.50	36555
KUB-P.3D.370.R.11-PSC50	U40 63700	37.0	50	186	116	156	2,8	SOGX 110408	571.50	37055
KUB-P.3D.335.R.11-PSC63	U40 73350	33.5	63	187	107	149	2,8	SOGX 110408	565.10	33556
KUB-P.3D.340.R.11-PSC63	U40 73400	34.0	63	187	107	149	2,8	SOGX 110408	565.10	34056
KUB-P.3D.345.R.11-PSC63	U40 73450	34.5	63	191	110	153	2,8	SOGX 110408	565.90	34556
KUB-P.3D.350.R.11-PSC63	U40 73500	35.0	63	191	110	153	2,8	SOGX 110408	565.90	35056
KUB-P.3D.355.R.11-PSC63	U40 73550	35.5	63	194	113	156	2,8	SOGX 110408	567.11	35556
KUB-P.3D.360.R.11-PSC63	U40 73600	36.0	63	194	113	156	2,8	SOGX 110408	567.11	36056
KUB-P.3D.365.R.11-PSC63	U40 73650	36.5	63	198	116	160	2,8	SOGX 110408	571.50	36556
KUB-P.3D.370.R.11-PSC63	U40 73700	37.0	63	198	116	160	2,8	SOGX 110408	571.50	37056


Screwdriver


Key D


Clamping screw

Spare parts DC	80 950 ... £ Y7		80 950 ... £ Y7		10 950 ... £ W7	
14 - 16	8.05	057			2.26	10100
16,5 - 18			14.36	123	2.26	10000
18,5 - 23			14.36	123	2.26	10700
23,5 - 26			14.16	125	2.26	10800
26,5 - 30			14.16	125	2.26	10200
30,5 - 37			16.56	128	2.26	10300

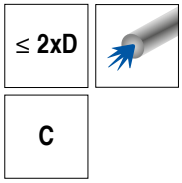
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

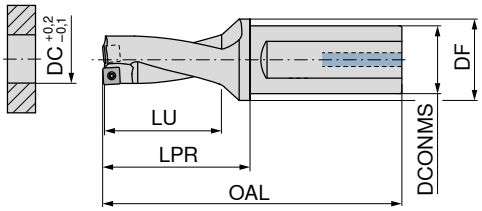
KUB Pentron – Size PSC 40 available on request.

KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws







10 872 ...

Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	£ 2B/6#	
KUB-P.2D.140.R.04-C20	U42 01400	14.0	20	30	91	28	41	0,38	SOGX 040204	304.78	14001
KUB-P.2D.145.R.04-C20	U42 01450	14.5	20	30	94	30	44	0,38	SOGX 040204	304.78	14501
KUB-P.2D.150.R.04-C20	U42 01500	15.0	20	30	94	30	44	0,38	SOGX 040204	304.78	15001
KUB-P.2D.155.R.04-C20	U42 01550	15.5	20	30	98	32	48	0,38	SOGX 040204	304.78	15501
KUB-P.2D.160.R.04-C20	U42 01600	16.0	20	30	98	32	48	0,38	SOGX 040204	304.78	16001
KUB-P.2D.165.R.05-C20	U42 01650	16.5	20	30	101	34	51	0,62	SOGX 050204	304.78	16501
KUB-P.2D.170.R.05-C20	U42 01700	17.0	20	30	101	34	51	0,62	SOGX 050204	310.71	17001
KUB-P.2D.175.R.05-C25	U42 11750	17.5	25	30	109	36	53	0,62	SOGX 050204	310.71	17502
KUB-P.2D.180.R.05-C25	U42 11800	18.0	25	30	109	36	53	0,62	SOGX 050204	310.71	18002
KUB-P.2D.185.R.06-C25	U42 11850	18.5	25	30	112	38	56	1,01	SOGX 060206	310.71	18502
KUB-P.2D.190.R.06-C25	U42 11900	19.0	25	30	112	38	56	1,01	SOGX 060206	317.68	19002
KUB-P.2D.195.R.06-C25	U42 11950	19.5	25	30	114	40	58	1,01	SOGX 060206	317.68	19502
KUB-P.2D.200.R.06-C25	U42 12000	20.0	25	30	114	40	58	1,01	SOGX 060206	317.68	20002
KUB-P.2D.205.R.07-C25	U42 12050	20.5	25	30	117	42	61	1,01	SOGX 07T208	338.48	20502
KUB-P.2D.210.R.07-C25	U42 12100	21.0	25	30	117	42	61	1,01	SOGX 07T208	338.48	21002
KUB-P.2D.215.R.07-C25	U42 12150	21.5	25	30	119	44	63	1,01	SOGX 07T208	338.48	21502
KUB-P.2D.220.R.07-C25	U42 12200	22.0	25	30	119	44	63	1,01	SOGX 07T208	338.48	22002
KUB-P.2D.225.R.07-C25	U42 12250	22.5	25	30	122	46	66	1,01	SOGX 07T208	338.48	22502
KUB-P.2D.230.R.07-C25	U42 12300	23.0	25	30	122	46	66	1,01	SOGX 07T208	338.48	23002
KUB-P.2D.235.R.08-C32	U42 22350	23.5	32	39	128	48	68	1,28	SOGX 080308	367.31	23503
KUB-P.2D.240.R.08-C32	U42 22400	24.0	32	39	128	48	68	1,28	SOGX 080308	367.31	24003
KUB-P.2D.245.R.08-C32	U42 22450	24.5	32	39	131	50	71	1,28	SOGX 080308	367.31	24503
KUB-P.2D.250.R.08-C32	U42 22500	25.0	32	39	131	50	71	1,28	SOGX 080308	367.31	25003
KUB-P.2D.255.R.08-C32	U42 22550	25.5	32	39	133	52	73	1,28	SOGX 080308	367.31	25503
KUB-P.2D.260.R.08-C32	U42 22600	26.0	32	39	133	52	73	1,28	SOGX 080308	367.31	26003
KUB-P.2D.265.R.09-C32	U42 22650	26.5	32	39	136	54	76	2,25	SOGX 09T308	388.12	26503
KUB-P.2D.270.R.09-C32	U42 22700	27.0	32	39	136	54	76	2,25	SOGX 09T308	388.12	27003
KUB-P.2D.275.R.09-C32	U42 22750	27.5	32	39	138	56	78	2,25	SOGX 09T308	388.12	27503
KUB-P.2D.280.R.09-C32	U42 22800	28.0	32	39	138	56	78	2,25	SOGX 09T308	388.12	28003
KUB-P.2D.285.R.09-C32	U42 22850	28.5	32	39	141	58	81	2,25	SOGX 09T308	388.12	28503
KUB-P.2D.290.R.09-C32	U42 22900	29.0	32	39	141	58	81	2,25	SOGX 09T308	388.12	29003
KUB-P.2D.295.R.09-C32	U42 22950	29.5	32	39	143	60	83	2,25	SOGX 09T308	388.12	29503
KUB-P.2D.300.R.09-C32	U42 23000	30.0	32	39	143	60	83	2,25	SOGX 09T308	388.12	30003
KUB-P.2D.305.R.10-C40	U42 33050	30.5	40	50	154	62	86	2,8	SOGX 100408	421.91	30504
KUB-P.2D.310.R.10-C40	U42 33100	31.0	40	50	154	62	86	2,8	SOGX 100408	421.91	31004
KUB-P.2D.315.R.10-C40	U42 33150	31.5	40	50	156	64	88	2,8	SOGX 100408	421.91	31504
KUB-P.2D.320.R.10-C40	U42 33200	32.0	40	50	156	64	88	2,8	SOGX 100408	421.91	32004
KUB-P.2D.325.R.10-C40	U42 33250	32.5	40	50	159	66	91	2,8	SOGX 100408	421.91	32504
KUB-P.2D.330.R.10-C40	U42 33300	33.0	40	50	159	66	91	2,8	SOGX 100408	421.91	33004
KUB-P.2D.335.R.11-C40	U42 33350	33.5	40	50	161	68	93	2,8	SOGX 110408	441.77	33504
KUB-P.2D.340.R.11-C40	U42 33400	34.0	40	50	161	68	93	2,8	SOGX 110408	441.77	34004
KUB-P.2D.345.R.11-C40	U42 33450	34.5	40	50	164	70	96	2,8	SOGX 110408	441.77	34504
KUB-P.2D.350.R.11-C40	U42 33500	35.0	40	50	164	70	96	2,8	SOGX 110408	441.77	35004
KUB-P.2D.355.R.11-C40	U42 33550	35.5	40	50	166	72	98	2,8	SOGX 110408	441.77	35504
KUB-P.2D.360.R.11-C40	U42 33600	36.0	40	50	166	72	98	2,8	SOGX 110408	441.77	36004
KUB-P.2D.365.R.11-C40	U42 33650	36.5	40	50	169	74	101	2,8	SOGX 110408	441.77	36504
KUB-P.2D.370.R.11-C40	U42 33700	37.0	40	50	169	74	101	2,8	SOGX 110408	441.77	37004
KUB-P.2D.375.R.12-C40	U42 33750	37.5	40	50	171	76	103	6,25	SOGX 120408	454.65	37504
KUB-P.2D.380.R.12-C40	U42 33800	38.0	40	50	171	76	103	6,25	SOGX 120408	454.65	38004
KUB-P.2D.385.R.12-C40	U42 33850	38.5	40	50	174	78	106	6,25	SOGX 120408	454.65	38504

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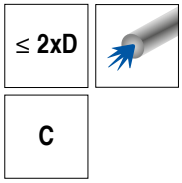
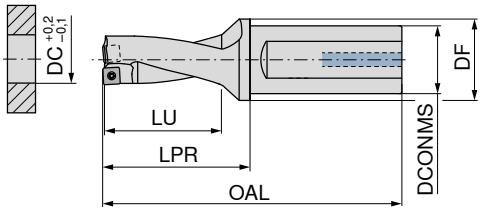
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







										10 872 ...	
Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	£ 2B/6#	
KUB-P.2D.390.R.12-C40	U42 33900	39.0	40	50	174	78	106	6,25	SOGX 120408	454.65	**39004**
KUB-P.2D.395.R.12-C40	U42 33950	39.5	40	50	176	80	108	6,25	SOGX 120408	454.65	**39504**
KUB-P.2D.400.R.12-C40	U42 34000	40.0	40	50	176	80	108	6,25	SOGX 120408	454.65	**40004**
KUB-P.2D.405.R.12-C40	U42 34050	40.5	40	50	179	82	111	6,25	SOGX 120408	454.65	**40504**
KUB-P.2D.410.R.12-C40	U42 34100	41.0	40	50	179	82	111	6,25	SOGX 120408	454.65	**41004**
KUB-P.2D.415.R.12-C40	U42 34150	41.5	40	50	181	84	113	6,25	SOGX 120408	454.65	**41504**
KUB-P.2D.420.R.12-C40	U42 34200	42.0	40	50	181	84	113	6,25	SOGX 120408	454.65	**42004**
KUB-P.2D.425.R.13-C40	U42 34250	42.5	40	50	184	86	116	6,25	SOGX 130508	454.65	**42504**
KUB-P.2D.430.R.13-C40	U42 34300	43.0	40	50	184	86	116	6,25	SOGX 130508	454.65	**43004**
KUB-P.2D.435.R.13-C40	U42 34350	43.5	40	50	186	88	118	6,25	SOGX 130508	454.65	**43504**
KUB-P.2D.440.R.13-C40	U42 34400	44.0	40	50	186	88	118	6,25	SOGX 130508	454.65	**44004**
KUB-P.2D.445.R.13-C40	U42 34450	44.5	40	50	189	90	121	6,25	SOGX 130508	454.65	**44504**
KUB-P.2D.450.R.13-C40	U42 34500	45.0	40	50	189	90	121	6,25	SOGX 130508	454.65	**45004**
KUB-P.2D.455.R.13-C40	U42 34550	45.5	40	50	191	92	123	6,25	SOGX 130508	454.65	**45504**
KUB-P.2D.460.R.13-C40	U42 34600	46.0	40	50	191	92	123	6,25	SOGX 130508	454.65	**46004**


Screwdriver


Key D

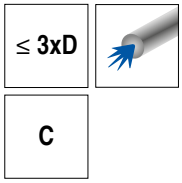

Clamping screw

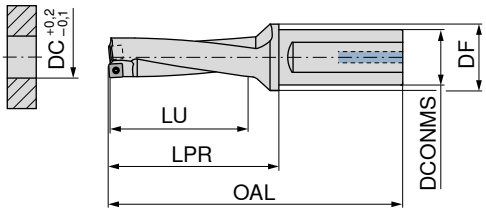
			80 950 ...			80 950 ...		10 950 ...	
Spare parts DC		£ Y7				£ Y7		£ W7	
14 - 16	T05 - IP	8.05	**057**					M1,8x3,8 - 05IP	2.26 **10100**
16,5 - 18				T06 - IP	14.36	**123**		M2,0x4,3 - 06IP	2.26 **10000**
18,5 - 23				T06 - IP	14.36	**123**		M2,2x5,5 - 06IP	2.26 **10700**
23,5 - 26				T08 - IP	14.16	**125**		M2,5x6,3 - 08IP	2.26 **10800**
26,5 - 30				T08 - IP	14.16	**125**		M3,0x7,6 - 08IP	2.26 **10200**
31 - 37				T15 - IP	16.56	**128**		M3,5x7,5 - 15IP	2.26 **10300**
38 - 46				T20 - IP	17.39	**129**		M4,5x10 - 20IP	2.26 **10400**

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

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ... £ 2B/6#	
KUB-P.3D.140.R.04-C20	U43 01400	14.0	20	30	105	42	55	0,38	SOGX 040204	316.72	14001
KUB-P.3D.145.R.04-C20	U43 01450	14.5	20	30	109	45	59	0,38	SOGX 040204	316.72	14501
KUB-P.3D.150.R.04-C20	U43 01500	15.0	20	30	109	45	59	0,38	SOGX 040204	316.72	15001
KUB-P.3D.155.R.04-C20	U43 01550	15.5	20	30	114	48	64	0,38	SOGX 040204	316.72	15501
KUB-P.3D.160.R.04-C20	U43 01600	16.0	20	30	114	48	64	0,38	SOGX 040204	316.72	16001
KUB-P.3D.165.R.05-C20	U43 01650	16.5	20	30	118	51	68	0,62	SOGX 050204	316.72	16501
KUB-P.3D.170.R.05-C20	U43 01700	17.0	20	30	118	51	68	0,62	SOGX 050204	324.64	17001
KUB-P.3D.175.R.05-C25	U43 11750	17.5	25	30	127	54	71	0,62	SOGX 050204	324.64	17501
KUB-P.3D.180.R.05-C25	U43 11800	18.0	25	30	127	54	71	0,62	SOGX 050204	324.64	18001
KUB-P.3D.185.R.06-C25	U43 11850	18.5	25	30	131	57	75	1,01	SOGX 060206	324.64	18501
KUB-P.3D.190.R.06-C25	U43 11900	19.0	25	30	131	57	75	1,01	SOGX 060206	334.57	19001
KUB-P.3D.195.R.06-C25	U43 11950	19.5	25	30	134	60	78	1,01	SOGX 060206	334.57	19501
KUB-P.3D.200.R.06-C25	U43 12000	20.0	25	30	134	60	78	1,01	SOGX 060206	334.57	20001
KUB-P.3D.205.R.07-C25	U43 12050	20.5	25	30	138	63	82	1,01	SOGX 07T208	356.42	20501
KUB-P.3D.210.R.07-C25	U43 12100	21.0	25	30	138	63	82	1,01	SOGX 07T208	356.42	21001
KUB-P.3D.215.R.07-C25	U43 12150	21.5	25	30	141	66	85	1,01	SOGX 07T208	356.42	21501
KUB-P.3D.220.R.07-C25	U43 12200	22.0	25	30	141	66	85	1,01	SOGX 07T208	356.42	22002
KUB-P.3D.225.R.07-C25	U43 12250	22.5	25	30	145	69	89	1,01	SOGX 07T208	356.42	22502
KUB-P.3D.230.R.07-C25	U43 12300	23.0	25	30	145	69	89	1,01	SOGX 07T208	356.42	23002
KUB-P.3D.235.R.08-C32	U43 22350	23.5	32	39	152	72	92	1,28	SOGX 080308	386.21	23503
KUB-P.3D.240.R.08-C32	U43 22400	24.0	32	39	152	72	92	1,28	SOGX 080308	386.21	24003
KUB-P.3D.245.R.08-C32	U43 22450	24.5	32	39	156	75	96	1,28	SOGX 080308	386.21	24503
KUB-P.3D.250.R.08-C32	U43 22500	25.0	32	39	156	75	96	1,28	SOGX 080308	386.21	25003
KUB-P.3D.255.R.08-C32	U43 22550	25.5	32	39	159	78	99	1,28	SOGX 080308	386.21	25503
KUB-P.3D.260.R.08-C32	U43 22600	26.0	32	39	159	78	99	1,28	SOGX 080308	386.21	26003
KUB-P.3D.265.R.09-C32	U43 22650	26.5	32	39	163	81	103	2,25	SOGX 09T308	406.07	26503
KUB-P.3D.270.R.09-C32	U43 22700	27.0	32	39	163	81	103	2,25	SOGX 09T308	406.07	27003
KUB-P.3D.275.R.09-C32	U43 22750	27.5	32	39	166	84	106	2,25	SOGX 09T308	406.07	27503
KUB-P.3D.280.R.09-C32	U43 22800	28.0	32	39	166	84	106	2,25	SOGX 09T308	406.07	28003
KUB-P.3D.285.R.09-C32	U43 22850	28.5	32	39	170	87	110	2,25	SOGX 09T308	406.07	28503
KUB-P.3D.290.R.09-C32	U43 22900	29.0	32	39	170	87	110	2,25	SOGX 09T308	406.07	29003
KUB-P.3D.295.R.09-C32	U43 22950	29.5	32	39	173	90	113	2,25	SOGX 09T308	406.07	29503
KUB-P.3D.300.R.09-C32	U43 23000	30.0	32	39	173	90	113	2,25	SOGX 09T308	406.07	30003
KUB-P.3D.305.R.10-C40	U43 33050	30.5	40	50	185	93	117	2,8	SOGX 100408	442.72	30504
KUB-P.3D.310.R.10-C40	U43 33100	31.0	40	50	185	93	117	2,8	SOGX 100408	442.72	31004
KUB-P.3D.315.R.10-C40	U43 33150	31.5	40	50	188	96	120	2,8	SOGX 100408	442.72	31504
KUB-P.3D.320.R.10-C40	U43 33200	32.0	40	50	188	96	120	2,8	SOGX 100408	442.72	32004
KUB-P.3D.325.R.10-C40	U43 33250	32.5	40	50	192	99	124	2,8	SOGX 100408	442.72	32504
KUB-P.3D.330.R.10-C40	U43 33300	33.0	40	50	192	99	124	2,8	SOGX 100408	442.72	33004
KUB-P.3D.335.R.11-C40	U43 33350	33.5	40	50	195	102	127	2,8	SOGX 110408	463.63	33504
KUB-P.3D.340.R.11-C40	U43 33400	34.0	40	50	195	102	127	2,8	SOGX 110408	463.63	34004
KUB-P.3D.345.R.11-C40	U43 33450	34.5	40	50	199	105	131	2,8	SOGX 110408	463.63	34504
KUB-P.3D.350.R.11-C40	U43 33500	35.0	40	50	199	105	131	2,8	SOGX 110408	463.63	35004
KUB-P.3D.355.R.11-C40	U43 33550	35.5	40	50	202	108	134	2,8	SOGX 110408	463.63	35504
KUB-P.3D.360.R.11-C40	U43 33600	36.0	40	50	202	108	134	2,8	SOGX 110408	463.63	36004
KUB-P.3D.365.R.11-C40	U43 33650	36.5	40	50	206	111	138	2,8	SOGX 110408	463.63	36504

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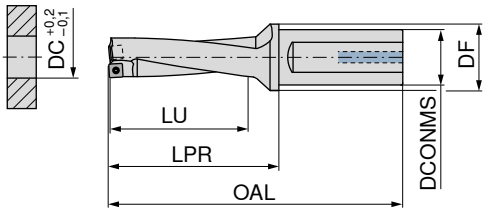
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD

C





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ... £ 2B/6#	
KUB-P.3D.370.R.11-C40	U43 33700	37.0	40	50	206	111	138	2,8	SOGX 110408	463.63	**37004**
KUB-P.3D.375.R.12-C40	U43 33750	37.5	40	50	209	114	141	6,25	SOGX 120408	477.47	**37504**
KUB-P.3D.380.R.12-C40	U43 33800	38.0	40	50	209	114	141	6,25	SOGX 120408	477.47	**38004**
KUB-P.3D.385.R.12-C40	U43 33850	38.5	40	50	213	117	145	6,25	SOGX 120408	477.47	**38504**
KUB-P.3D.390.R.12-C40	U43 33900	39.0	40	50	213	117	145	6,25	SOGX 120408	477.47	**39004**
KUB-P.3D.395.R.12-C40	U43 33950	39.5	40	50	216	120	148	6,25	SOGX 120408	477.47	**39504**
KUB-P.3D.400.R.12-C40	U43 34000	40.0	40	50	216	120	148	6,25	SOGX 120408	477.47	**40004**
KUB-P.3D.405.R.12-C40	U43 34050	40.5	40	50	220	123	152	6,25	SOGX 120408	477.47	**40504**
KUB-P.3D.410.R.12-C40	U43 34100	41.0	40	50	220	123	152	6,25	SOGX 120408	477.47	**41004**
KUB-P.3D.415.R.12-C40	U43 34150	41.5	40	50	223	126	155	6,25	SOGX 120408	477.47	**41504**
KUB-P.3D.420.R.12-C40	U43 34200	42.0	40	50	223	126	155	6,25	SOGX 120408	477.47	**42004**
KUB-P.3D.425.R.13-C40	U43 34250	42.5	40	50	227	129	159	6,25	SOGX 130508	477.47	**42504**
KUB-P.3D.430.R.13-C40	U43 34300	43.0	40	50	227	129	159	6,25	SOGX 130508	477.47	**43004**
KUB-P.3D.435.R.13-C40	U43 34350	43.5	40	50	230	132	162	6,25	SOGX 130508	477.47	**43504**
KUB-P.3D.440.R.13-C40	U43 34400	44.0	40	50	230	132	162	6,25	SOGX 130508	477.47	**44004**
KUB-P.3D.445.R.13-C40	U43 34450	44.5	40	50	234	135	166	6,25	SOGX 130508	477.47	**44504**
KUB-P.3D.450.R.13-C40	U43 34500	45.0	40	50	234	135	166	6,25	SOGX 130508	477.47	**45004**
KUB-P.3D.455.R.13-C40	U43 34550	45.5	40	50	237	138	169	6,25	SOGX 130508	477.47	**45504**
KUB-P.3D.460.R.13-C40	U43 34600	46.0	40	50	237	138	169	6,25	SOGX 130508	477.47	**46004**


Screwdriver


Key D


Clamping screw

Spare parts DC		80 950 ... £ Y7			80 950 ... £ Y7			10 950 ... £ W7	
14 - 16	T05 - IP	8.05	**057**				M1,8x3,8 - 05IP	2.26	**10100**
16,5 - 18				T06 - IP	14.36	**123**	M2,0x4,3 - 06IP	2.26	**10000**
18,5 - 23				T06 - IP	14.36	**123**	M2,2x5,5 - 06IP	2.26	**10700**
23,5 - 26				T08 - IP	14.16	**125**	M2,5x6,3 - 08IP	2.26	**10800**
26,5 - 30				T08 - IP	14.16	**125**	M3,0x7,6 - 08IP	2.26	**10200**
31 - 37				T15 - IP	16.56	**128**	M3,5x7,5 - 15IP	2.26	**10300**
38 - 46				T20 - IP	17.39	**129**	M4,5x10 - 20IP	2.26	**10400**

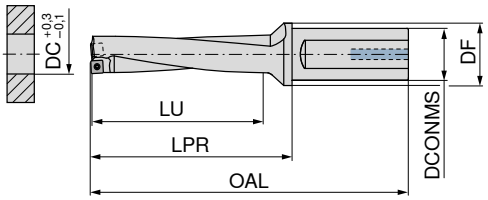
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD

C



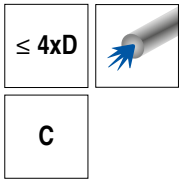


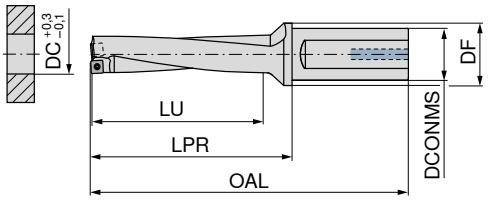
Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 874 ... £ 2B/6#	
KUB-P.4D.140.R.04-C20	U44 01400	14.0	20	30	119	56	69	0,38	SOGX 040204	404.06	14001
KUB-P.4D.145.R.04-C20	U44 01450	14.5	20	30	124	60	74	0,38	SOGX 040204	404.06	14501
KUB-P.4D.150.R.04-C20	U44 01500	15.0	20	30	124	60	74	0,38	SOGX 040204	404.06	15001
KUB-P.4D.155.R.04-C20	U44 01550	15.5	20	30	130	64	80	0,38	SOGX 040204	404.06	15501
KUB-P.4D.160.R.04-C20	U44 01600	16.0	20	30	130	64	80	0,38	SOGX 040204	404.06	16001
KUB-P.4D.165.R.05-C20	U44 01650	16.5	20	30	135	68	85	0,62	SOGX 050204	404.06	16501
KUB-P.4D.170.R.05-C20	U44 01700	17.0	20	30	135	68	85	0,62	SOGX 050204	414.94	17001
KUB-P.4D.175.R.05-C25	U44 11750	17.5	25	30	145	72	89	0,62	SOGX 050204	414.94	17502
KUB-P.4D.180.R.05-C25	U44 11800	18.0	25	30	145	72	89	0,62	SOGX 050204	414.94	18002
KUB-P.4D.185.R.06-C25	U44 11850	18.5	25	30	150	76	94	1,01	SOGX 060206	414.94	18502
KUB-P.4D.190.R.06-C25	U44 11900	19.0	25	30	150	76	94	1,01	SOGX 060206	426.88	19002
KUB-P.4D.195.R.06-C25	U44 11950	19.5	25	30	154	80	98	1,01	SOGX 060206	426.88	19502
KUB-P.4D.200.R.06-C25	U44 12000	20.0	25	30	154	80	98	1,01	SOGX 060206	426.88	20002
KUB-P.4D.205.R.07-C25	U44 12050	20.5	25	30	159	84	103	1,01	SOGX 07T208	442.72	20502
KUB-P.4D.210.R.07-C25	U44 12100	21.0	25	30	159	84	103	1,01	SOGX 07T208	442.72	21002
KUB-P.4D.215.R.07-C25	U44 12150	21.5	25	30	163	88	107	1,01	SOGX 07T208	442.72	21502
KUB-P.4D.220.R.07-C25	U44 12200	22.0	25	30	163	88	107	1,01	SOGX 07T208	442.72	22002
KUB-P.4D.225.R.07-C25	U44 12250	22.5	25	30	168	92	112	1,01	SOGX 07T208	442.72	22502
KUB-P.4D.230.R.07-C25	U44 12300	23.0	25	30	168	92	112	1,01	SOGX 07T208	442.72	23002
KUB-P.4D.235.R.08-C32	U44 22350	23.5	32	39	176	96	116	1,28	SOGX 080308	459.62	23503
KUB-P.4D.240.R.08-C32	U44 22400	24.0	32	39	176	96	116	1,28	SOGX 080308	459.62	24003
KUB-P.4D.245.R.08-C32	U44 22450	24.5	32	39	181	100	121	1,28	SOGX 080308	459.62	24503
KUB-P.4D.250.R.08-C32	U44 22500	25.0	32	39	181	100	121	1,28	SOGX 080308	459.62	25003
KUB-P.4D.255.R.08-C32	U44 22550	25.5	32	39	185	104	125	1,28	SOGX 080308	459.62	25503
KUB-P.4D.260.R.08-C32	U44 22600	26.0	32	39	185	104	125	1,28	SOGX 080308	459.62	26003
KUB-P.4D.265.R.09-C32	U44 22650	26.5	32	39	190	108	130	2,25	SOGX 09T308	519.17	26503
KUB-P.4D.270.R.09-C32	U44 22700	27.0	32	39	190	108	130	2,25	SOGX 09T308	519.17	27003
KUB-P.4D.275.R.09-C32	U44 22750	27.5	32	39	194	112	134	2,25	SOGX 09T308	519.17	27503
KUB-P.4D.280.R.09-C32	U44 22800	28.0	32	39	194	112	134	2,25	SOGX 09T308	519.17	28003
KUB-P.4D.285.R.09-C32	U44 22850	28.5	32	39	199	116	139	2,25	SOGX 09T308	519.17	28503
KUB-P.4D.290.R.09-C32	U44 22900	29.0	32	39	199	116	139	2,25	SOGX 09T308	519.17	29003
KUB-P.4D.295.R.09-C32	U44 22950	29.5	32	39	203	120	143	2,25	SOGX 09T308	519.17	29503
KUB-P.4D.300.R.09-C32	U44 23000	30.0	32	39	203	120	143	2,25	SOGX 09T308	519.17	30003
KUB-P.4D.305.R.10-C40	U44 33050	30.5	40	50	216	124	148	2,8	SOGX 100408	550.01	30504
KUB-P.4D.310.R.10-C40	U44 33100	31.0	40	50	216	124	148	2,8	SOGX 100408	550.01	31004
KUB-P.4D.315.R.10-C40	U44 33150	31.5	40	50	220	128	152	2,8	SOGX 100408	550.01	31504
KUB-P.4D.320.R.10-C40	U44 33200	32.0	40	50	220	128	152	2,8	SOGX 100408	550.01	32004
KUB-P.4D.325.R.10-C40	U44 33250	32.5	40	50	225	132	157	2,8	SOGX 100408	550.01	32504
KUB-P.4D.330.R.10-C40	U44 33300	33.0	40	50	225	132	157	2,8	SOGX 100408	550.01	33004
KUB-P.4D.335.R.11-C40	U44 33350	33.5	40	50	229	136	161	2,8	SOGX 110408	565.86	33504
KUB-P.4D.340.R.11-C40	U44 33400	34.0	40	50	229	136	161	2,8	SOGX 110408	565.86	34004
KUB-P.4D.345.R.11-C40	U44 33450	34.5	40	50	234	140	166	2,8	SOGX 110408	565.86	34504
KUB-P.4D.350.R.11-C40	U44 33500	35.0	40	50	234	140	166	2,8	SOGX 110408	565.86	35004
KUB-P.4D.355.R.11-C40	U44 33550	35.5	40	50	238	144	170	2,8	SOGX 110408	565.86	35504
KUB-P.4D.360.R.11-C40	U44 33600	36.0	40	50	238	144	170	2,8	SOGX 110408	565.86	36004
KUB-P.4D.365.R.11-C40	U44 33650	36.5	40	50	243	148	175	2,8	SOGX 110408	565.86	36504

Continued on next page

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 874 ... £ 2B/6#	
KUB-P.4D.370.R.11-C40	U44 33700	37.0	40	50	243	148	175	2,8	SOGX 110408	565.86	**37004**
KUB-P.4D.375.R.12-C40	U44 33750	37.5	40	50	247	152	179	6,25	SOGX 120408	583.71	**37504**
KUB-P.4D.380.R.12-C40	U44 33800	38.0	40	50	247	152	179	6,25	SOGX 120408	583.71	**38004**
KUB-P.4D.385.R.12-C40	U44 33850	38.5	40	50	252	156	184	6,25	SOGX 120408	583.71	**38504**
KUB-P.4D.390.R.12-C40	U44 33900	39.0	40	50	252	156	184	6,25	SOGX 120408	583.71	**39004**
KUB-P.4D.395.R.12-C40	U44 33950	39.5	40	50	256	160	188	6,25	SOGX 120408	583.71	**39504**
KUB-P.4D.400.R.12-C40	U44 34000	40.0	40	50	256	160	188	6,25	SOGX 120408	583.71	**40004**
KUB-P.4D.405.R.12-C40	U44 34050	40.5	40	50	261	164	193	6,25	SOGX 120408	583.71	**40504**
KUB-P.4D.410.R.12-C40	U44 34100	41.0	40	50	261	164	193	6,25	SOGX 120408	583.71	**41004**
KUB-P.4D.415.R.12-C40	U44 34150	41.5	40	50	265	166	197	6,25	SOGX 120408	583.71	**41504**
KUB-P.4D.420.R.12-C40	U44 34200	42.0	40	50	265	168	197	6,25	SOGX 120408	583.71	**42004**
KUB-P.4D.425.R.13-C40	U44 34250	42.5	40	50	270	172	202	6,25	SOGX 130508	627.43	**42504**
KUB-P.4D.430.R.13-C40	U44 34300	43.0	40	50	270	172	202	6,25	SOGX 130508	627.43	**43004**
KUB-P.4D.435.R.13-C40	U44 34350	43.5	40	50	274	176	206	6,25	SOGX 130508	627.43	**43504**
KUB-P.4D.440.R.13-C40	U44 34400	44.0	40	50	274	176	206	6,25	SOGX 130508	627.43	**44004**
KUB-P.4D.445.R.13-C40	U44 34450	44.5	40	50	279	180	211	6,25	SOGX 130508	627.43	**44504**
KUB-P.4D.450.R.13-C40	U44 34500	45.0	40	50	279	180	211	6,25	SOGX 130508	627.43	**45004**
KUB-P.4D.455.R.13-C40	U44 34550	45.5	40	50	283	184	215	6,25	SOGX 130508	627.43	**45504**
KUB-P.4D.460.R.13-C40	U44 34600	46.0	40	50	283	184	215	6,25	SOGX 130508	627.43	**46004**


Screwdriver


Key D


Clamping screw

Spare parts DC		80 950 ... £ Y7			80 950 ... £ Y7			10 950 ... £ W7	
14 - 16	T05 - IP	8.05	**057**				M1,8x3,8 - 05IP	2.26	**10100**
16,5 - 18				T06 - IP	14.36	**123**	M2,0x4,3 - 06IP	2.26	**10000**
18,5 - 23				T06 - IP	14.36	**123**	M2,2x5,5 - 06IP	2.26	**10700**
23,5 - 26				T08 - IP	14.16	**125**	M2,5x6,3 - 08IP	2.26	**10800**
26,5 - 30				T08 - IP	14.16	**125**	M3,0x7,6 - 08IP	2.26	**10200**
31 - 37				T15 - IP	16.56	**128**	M3,5x7,5 - 15IP	2.26	**10300**
38 - 46				T20 - IP	17.39	**129**	M4,5x10 - 20IP	2.26	**10400**

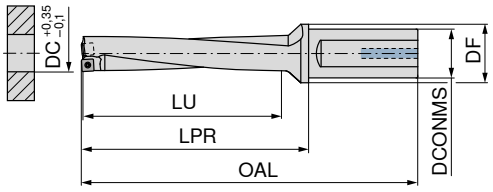
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 5xD

C





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 875 ... £ 2B/6#	
KUB-P.5D.140.R.04-C20	U45 01400	14.0	20	30	133	70	83	0,38	SOGX 040204	436.80	14001
KUB-P.5D.145.R.04-C20	U45 01450	14.5	20	30	139	75	89	0,38	SOGX 040204	436.80	14501
KUB-P.5D.150.R.04-C20	U45 01500	15.0	20	30	139	75	89	0,38	SOGX 040204	436.80	15001
KUB-P.5D.155.R.04-C20	U45 01550	15.5	20	30	146	80	96	0,38	SOGX 040204	436.80	15501
KUB-P.5D.160.R.04-C20	U45 01600	16.0	20	30	146	80	96	0,38	SOGX 040204	436.80	16001
KUB-P.5D.165.R.05-C20	U45 01650	16.5	20	30	152	85	102	0,62	SOGX 050204	436.80	16501
KUB-P.5D.170.R.05-C20	U45 01700	17.0	20	30	152	85	102	0,62	SOGX 050204	449.68	17001
KUB-P.5D.175.R.05-C25	U45 11750	17.5	25	30	163	90	107	0,62	SOGX 050204	449.68	17502
KUB-P.5D.180.R.05-C25	U45 11800	18.0	25	30	163	90	107	0,62	SOGX 050204	449.68	18002
KUB-P.5D.185.R.06-C25	U45 11850	18.5	25	30	169	95	113	1,01	SOGX 060206	449.68	18502
KUB-P.5D.190.R.06-C25	U45 11900	19.0	25	30	169	95	113	1,01	SOGX 060206	459.62	19002
KUB-P.5D.195.R.06-C25	U45 11950	19.5	25	30	174	100	118	1,01	SOGX 060206	459.62	19502
KUB-P.5D.200.R.06-C25	U45 12000	20.0	25	30	174	100	118	1,01	SOGX 060206	459.62	20002
KUB-P.5D.205.R.07-C25	U45 12050	20.5	25	30	180	105	124	1,01	SOGX 07T208	476.51	20502
KUB-P.5D.210.R.07-C25	U45 12100	21.0	25	30	180	105	124	1,01	SOGX 07T208	476.51	21002
KUB-P.5D.215.R.07-C25	U45 12150	21.5	25	30	185	110	129	1,01	SOGX 07T208	476.51	21502
KUB-P.5D.220.R.07-C25	U45 12200	22.0	25	30	185	110	129	1,01	SOGX 07T208	476.51	22002
KUB-P.5D.225.R.07-C25	U45 12250	22.5	25	30	191	115	135	1,01	SOGX 07T208	476.51	22502
KUB-P.5D.230.R.07-C25	U45 12300	23.0	25	30	191	115	135	1,01	SOGX 07T208	476.51	23002
KUB-P.5D.235.R.08-C32	U45 22350	23.5	32	39	200	120	140	1,28	SOGX 080308	492.36	23503
KUB-P.5D.240.R.08-C32	U45 22400	24.0	32	39	200	120	140	1,28	SOGX 080308	492.36	24003
KUB-P.5D.245.R.08-C32	U45 22450	24.5	32	39	206	125	146	1,28	SOGX 080308	492.36	24503
KUB-P.5D.250.R.08-C32	U45 22500	25.0	32	39	206	125	146	1,28	SOGX 080308	492.36	25003
KUB-P.5D.255.R.08-C32	U45 22550	25.5	32	39	211	130	151	1,28	SOGX 080308	492.36	25503
KUB-P.5D.260.R.08-C32	U45 22600	26.0	32	39	211	130	151	1,28	SOGX 080308	492.36	26003
KUB-P.5D.265.R.09-C32	U45 22650	26.5	32	39	217	135	157	2,25	SOGX 09T308	554.98	26503
KUB-P.5D.270.R.09-C32	U45 22700	27.0	32	39	217	135	157	2,25	SOGX 09T308	554.98	27003
KUB-P.5D.275.R.09-C32	U45 22750	27.5	32	39	222	140	162	2,25	SOGX 09T308	554.98	27503
KUB-P.5D.280.R.09-C32	U45 22800	28.0	32	39	222	140	162	2,25	SOGX 09T308	554.98	28003
KUB-P.5D.285.R.09-C32	U45 22850	28.5	32	39	228	145	168	2,25	SOGX 09T308	554.98	28503
KUB-P.5D.290.R.09-C32	U45 22900	29.0	32	39	228	145	168	2,25	SOGX 09T308	554.98	29003
KUB-P.5D.295.R.09-C32	U45 22950	29.5	32	39	233	150	173	2,25	SOGX 09T308	554.98	29503
KUB-P.5D.300.R.09-C32	U45 23000	30.0	32	39	233	150	173	2,25	SOGX 09T308	554.98	30003
KUB-P.5D.305.R.10-C40	U45 33050	30.5	40	50	247	155	179	2,8	SOGX 100408	593.63	30504
KUB-P.5D.310.R.10-C40	U45 33100	31.0	40	50	247	155	179	2,8	SOGX 100408	593.63	31004
KUB-P.5D.315.R.10-C40	U45 33150	31.5	40	50	252	160	184	2,8	SOGX 100408	593.63	31504
KUB-P.5D.320.R.10-C40	U45 33200	32.0	40	50	252	160	184	2,8	SOGX 100408	593.63	32004
KUB-P.5D.325.R.10-C40	U45 33250	32.5	40	50	258	165	190	2,8	SOGX 100408	593.63	32504
KUB-P.5D.330.R.10-C40	U45 33300	33.0	40	50	258	165	190	2,8	SOGX 100408	593.63	33004
KUB-P.5D.335.R.11-C40	U45 33350	33.5	40	50	263	170	195	2,8	SOGX 110408	610.52	33504
KUB-P.5D.340.R.11-C40	U45 33400	34.0	40	50	263	170	195	2,8	SOGX 110408	610.52	34004
KUB-P.5D.345.R.11-C40	U45 33450	34.5	40	50	269	175	201	2,8	SOGX 110408	610.52	34504
KUB-P.5D.350.R.11-C40	U45 33500	35.0	40	50	269	175	201	2,8	SOGX 110408	610.52	35004
KUB-P.5D.355.R.11-C40	U45 33550	35.5	40	50	274	180	206	2,8	SOGX 110408	610.52	35504
KUB-P.5D.360.R.11-C40	U45 33600	36.0	40	50	274	180	206	2,8	SOGX 110408	610.52	36004
KUB-P.5D.365.R.11-C40	U45 33650	36.5	40	50	280	185	212	2,8	SOGX 110408	610.52	36504

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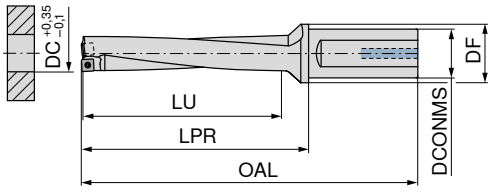
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 5xD

C





3

Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 875 ... £ 2B/6#	
KUB-P.5D.370.R.11-C40	U45 33700	37.0	40	50	280	185	212	2,8	SOGX 110408	610.52	**37004**
KUB-P.5D.375.R.12-C40	U45 33750	37.5	40	50	285	190	217	6,25	SOGX 120408	627.43	**37504**
KUB-P.5D.380.R.12-C40	U45 33800	38.0	40	50	285	190	217	6,25	SOGX 120408	627.43	**38004**
KUB-P.5D.385.R.12-C40	U45 33850	38.5	40	50	291	195	223	6,25	SOGX 120408	627.43	**38504**
KUB-P.5D.390.R.12-C40	U45 33900	39.0	40	50	291	195	223	6,25	SOGX 120408	627.43	**39004**
KUB-P.5D.395.R.12-C40	U45 33950	39.5	40	50	296	200	228	6,25	SOGX 120408	627.43	**39504**
KUB-P.5D.400.R.12-C40	U45 34000	40.0	40	50	296	200	228	6,25	SOGX 120408	627.43	**40004**
KUB-P.5D.405.R.12-C40	U45 34050	40.5	40	50	302	205	234	6,25	SOGX 120408	627.43	**40504**
KUB-P.5D.410.R.12-C40	U45 34100	41.0	40	50	302	205	234	6,25	SOGX 120408	627.43	**41004**
KUB-P.5D.415.R.12-C40	U45 34150	41.5	40	50	307	210	239	6,25	SOGX 120408	627.43	**41504**
KUB-P.5D.420.R.12-C40	U45 34200	42.0	40	50	307	210	239	6,25	SOGX 120408	627.43	**42004**
KUB-P.5D.425.R.13-C40	U45 34250	42.5	40	50	313	215	245	6,25	SOGX 130508	684.02	**42504**
KUB-P.5D.430.R.13-C40	U45 34300	43.0	40	50	313	215	245	6,25	SOGX 130508	684.02	**43004**
KUB-P.5D.435.R.13-C40	U45 34350	43.5	40	50	318	220	250	6,25	SOGX 130508	684.02	**43504**
KUB-P.5D.440.R.13-C40	U45 34400	44.0	40	50	318	220	250	6,25	SOGX 130508	684.02	**44004**
KUB-P.5D.445.R.13-C40	U45 34450	44.5	40	50	324	225	256	6,25	SOGX 130508	684.02	**44504**
KUB-P.5D.450.R.13-C40	U45 34500	45.0	40	50	324	225	256	6,25	SOGX 130508	684.02	**45004**
KUB-P.5D.455.R.13-C40	U45 34550	45.5	40	50	329	230	261	6,25	SOGX 130508	684.02	**45504**
KUB-P.5D.460.R.13-C40	U45 34600	46.0	40	50	329	230	261	6,25	SOGX 130508	684.02	**46004**


Screwdriver


Key D


Clamping screw

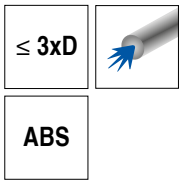
Spare parts DC		80 950 ... £ Y7			80 950 ... £ Y7			10 950 ... £ W7	
14 - 16	T05 - IP	8.05	**057**				M1,8x3,8 - 05IP	2.26	**10100**
16,5 - 18				T06 - IP	14.36	**123**	M2,0x4,3 - 06IP	2.26	**10000**
18,5 - 23				T06 - IP	14.36	**123**	M2,2x5,5 - 06IP	2.26	**10700**
23,5 - 26				T08 - IP	14.16	**125**	M2,5x6,3 - 08IP	2.26	**10800**
26,5 - 30				T08 - IP	14.16	**125**	M3,0x7,6 - 08IP	2.26	**10200**
31 - 37				T15 - IP	16.56	**128**	M3,5x7,5 - 15IP	2.26	**10300**
38 - 46				T20 - IP	17.39	**129**	M4,5x10 - 20IP	2.26	**10400**

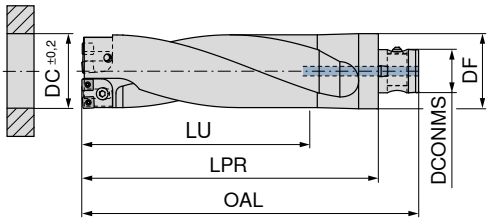
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron CS – basic element

▲ SZID = nominal size
▲ Tightening torque refers to the fixing screw

Scope of supply:
Cartridge drill incl. fixing screws





NEW



Designation	KOMET no.	DC mm	DF mm	OAL mm	DCONMS mm	LU mm	LPR mm	SZID	torque moment Nm	10 876 ... £ 2B/6#	
KUB-P.GH-CS.1.3D.64-66.ABS80	U60 46400	64 - 66	80	314	46	198	271	1	17,3	937.37	64092
KUB-P.GH-CS.1.3D.67-69.ABS80	U60 46700	67 - 69	80	323	46	207	280	1	17,3	946.91	67092
KUB-P.GH-CS.2.3D.70-72.ABS80	U60 47000	70 - 72	80	332	46	216	289	2	17,3	956.46	70092
KUB-P.GH-CS.2.3D.73-75.ABS80	U60 47300	73 - 75	80	341	46	225	298	2	17,3	966.00	73092
KUB-P.GH-CS.3.3D.76-78.ABS80	U60 47600	76 - 78	80	350	46	234	307	3	42	975.54	76092
KUB-P.GH-CS.3.3D.79-81.ABS80	U60 47900	79 - 81	80	359	46	243	316	3	42	985.09	79092
KUB-P.GH-CS.3.3D.82-84.ABS80	U60 48200	82 - 84	80	368	46	252	325	3	42	994.63	82092
KUB-P.GH-CS.4.3D.85-87.ABS100	U60 58500	85 - 87	100	397	56	261	342	4	42	1,014.68	85091
KUB-P.GH-CS.4.3D.88-90.ABS100	U60 58800	88 - 90	100	406	56	270	351	4	42	1,034.72	88091
KUB-P.GH-CS.4.3D.91-93.ABS100	U60 59100	91 - 93	100	415	56	279	360	4	42	1,053.82	91091
KUB-P.GH-CS.4.3D.94-96.ABS100	U60 59400	94 - 96	100	424	56	288	369	4	42	1,072.91	94091



Clamping key - T



Fixing screw

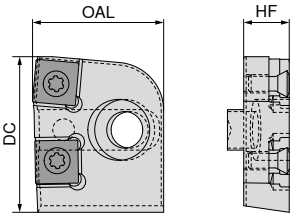
Spare parts DC	80 397 ... £ Y7		10 950 ... £ W7	
64 - 66	6.39	050	0.80	16700
67 - 69	6.39	050	0.80	16700
70 - 72	6.39	050	0.80	16700
73 - 75	6.39	050	0.80	16700
76 - 78	6.28	060	0.85	16800
79 - 81	6.28	060	0.85	16800
82 - 84	6.28	060	0.85	16800
85 - 87	6.28	060	0.85	16900
88 - 90	6.28	060	0.85	16900
91 - 93	6.28	060	0.85	16900
94 - 96	6.28	060	0.85	16900

KUB Pentron CS – internal cartridge

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

Scope of supply:
Internal cartridge incl. clamping screws

NEW





DC mm	KOMET no.	OAL mm	SZID	HF mm	torque moment Nm	Insert	10 877 ... £ 2B/6#	
64 - 69	D60 06400	28	1	9	2,8	SOGX 100408	175.63	**16400**
70 - 75	D60 07000	30	2	10	2,8	SOGX 110408	175.63	**27000**
76 - 84	D60 07600	33	3	11	6,25	SOGX 120408	175.63	**37600**
85 - 96	D60 08500	36	4	12	6,25	SOGX 130508	175.63	**48500**


Key D


Clamping screw

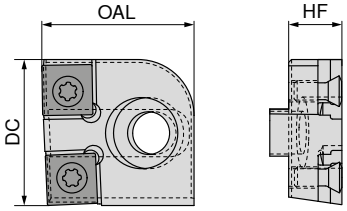
Spare parts DC	80 950 ... £ Y7		10 950 ... £ W7	
64 - 69	16.56	**128**	2.26	**10300**
70 - 75	16.56	**128**	2.26	**10300**
76 - 84	17.39	**129**	2.26	**10400**
85 - 96	17.39	**129**	2.26	**10400**

The internal cartridge and the place where the internal cartridge sits in the base body are marked with a dot to prevent the internal and external cartridges from being incorrectly installed.

KUB Pentron CS – external cartridge

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

Scope of supply:
External cartridge incl. clamping screws



NEW



DC mm	KOMET no.	OAL mm	SZID	HF mm	torque moment Nm	Insert	10 878 ... £ 2B/6#	
64	D60 16400	27.8	1	9	2,8	SOGX 100408	237.11	16400
65	D60 16500	27.8	1	9	2,8	SOGX 100408	237.11	16500
66	D60 16600	27.8	1	9	2,8	SOGX 100408	237.11	16600
67	D60 16700	27.8	1	9	2,8	SOGX 100408	237.11	16700
68	D60 16800	27.8	1	9	2,8	SOGX 100408	237.11	16800
69	D60 16900	27.8	1	9	2,8	SOGX 100408	237.11	16900
70	D60 17000	29.8	2	10	2,8	SOGX 110408	237.11	27000
71	D60 17100	29.8	2	10	2,8	SOGX 110408	237.11	27100
72	D60 17200	29.8	2	10	2,8	SOGX 110408	237.11	27200
73	D60 17300	29.8	2	10	2,8	SOGX 110408	237.11	27300
74	D60 17400	29.8	2	10	2,8	SOGX 110408	237.11	27400
75	D60 17500	29.8	2	10	2,8	SOGX 110408	237.11	27500
76	D60 17600	32.8	3	11	6,25	SOGX 120408	237.11	37600
77	D60 17700	32.8	3	11	6,25	SOGX 120408	237.11	37700
78	D60 17800	32.8	3	11	6,25	SOGX 120408	237.11	37800
79	D60 17900	32.8	3	11	6,25	SOGX 120408	237.11	37900
80	D60 18000	32.8	3	11	6,25	SOGX 120408	237.11	38000
81	D60 18100	32.8	3	11	6,25	SOGX 120408	237.11	38100
82	D60 18200	32.8	3	11	6,25	SOGX 120408	237.11	38200
83	D60 18300	32.8	3	11	6,25	SOGX 120408	237.11	38300
84	D60 18400	32.8	3	11	6,25	SOGX 120408	237.11	38400
85	D60 18500	35.8	4	12	6,25	SOGX 130508	237.11	48500
86	D60 18600	35.8	4	12	6,25	SOGX 130508	237.11	48600
87	D60 18700	35.8	4	12	6,25	SOGX 130508	237.11	48700
88	D60 18800	35.8	4	12	6,25	SOGX 130508	237.11	48800
89	D60 18900	35.8	4	12	6,25	SOGX 130508	237.11	48900
90	D60 19000	35.8	4	12	6,25	SOGX 130508	237.11	49000
91	D60 19100	35.8	4	12	6,25	SOGX 130508	237.11	49100
92	D60 19200	35.8	4	12	6,25	SOGX 130508	237.11	49200
93	D60 19300	35.8	4	12	6,25	SOGX 130508	237.11	49300
94	D60 19400	35.8	4	12	6,25	SOGX 130508	237.11	49400
95	D60 19500	35.8	4	12	6,25	SOGX 130508	237.11	49500
96	D60 19600	35.8	4	12	6,25	SOGX 130508	237.11	49600


Key D

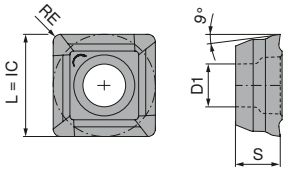

Clamping screw

Spare parts DC	80 950 ... £ Y7		10 950 ... £ W7	
64 - 75	16.56	128	2.26	10300
76 - 96	17.39	129	2.26	10400

Intermediate dimensions available on request.

SOGX

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



3

SOGX

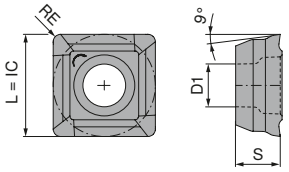
ISO	KOMET no.	RE mm	-01 BK8425	-03 BK8430	NEW -13 BK8425	NEW -32 BK8425	NEW -34 BK8425
			SOGX	SOGX	SOGX	SOGX	SOGX
			10 820 ...	10 820 ...	10 820 ...	10 820 ...	10 820 ...
			£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#
040204	W80 10010.048425	0.4	15.38 30401				
040204	W80 10030.048430	0.4		15.38 00403			
040204	W80 10130.048425	0.4			15.38 30413		
040204	W80 10320.048425	0.4				17.09 30432	
040204	W80 10340.048425	0.4					17.09 30434
050204	W80 12010.048425	0.4	15.49 30501				
050204	W80 12030.048430	0.4		15.49 00503			
050204	W80 12130.048425	0.4			15.49 30513		
050204	W80 12320.048425	0.4				17.20 30532	
050204	W80 12340.048425	0.4					17.20 30534
060206	W80 18010.068425	0.6	15.59 30601				
060206	W80 18030.068430	0.6		15.59 00603			
060206	W80 18130.068425	0.6			15.59 30613		
060206	W80 18320.068425	0.6				17.31 30632	
060206	W80 18340.068425	0.6					17.31 30634
07T208	W80 20010.088425	0.8	15.69 30701				
07T208	W80 20030.088430	0.8		15.69 00703			
07T208	W80 20130.088425	0.8			15.69 30713		
07T208	W80 20320.088425	0.8				17.43 30732	
07T208	W80 20340.088425	0.8					17.43 30734
080308	W80 24010.088425	0.8	15.79 30801				
080308	W80 24030.088430	0.8		15.79 00803			
080308	W80 24130.088425	0.8			15.79 30813		
080308	W80 24320.088425	0.8				17.55 30832	
080308	W80 24340.088425	0.8					17.55 30834
09T308	W80 28010.088425	0.8	16.38 30901				
09T308	W80 28030.088430	0.8		16.38 00903			
09T308	W80 28130.088425	0.8			16.38 30913		
09T308	W80 28320.088425	0.8				18.21 30932	
09T308	W80 28340.088425	0.8					18.21 30934
100408	W80 32010.088425	0.8	16.87 31001				
100408	W80 32030.088430	0.8		16.87 01003			
100408	W80 32130.088425	0.8			16.87 31013		
100408	W80 32320.088425	0.8				18.74 31032	
100408	W80 32340.088425	0.8					18.74 31034
110408	W80 38010.088425	0.8	17.38 31101				
110408	W80 38030.088430	0.8		17.38 01103			
110408	W80 38130.088425	0.8			17.38 31113		
110408	W80 38320.088425	0.8				19.30 31132	
110408	W80 38340.088425	0.8					19.30 31134
120408	W80 42010.088425	0.8	18.27 31201				
120408	W80 42030.088430	0.8		18.27 01203			
120408	W80 42130.088425	0.8			18.27 31213		
120408	W80 42320.088425	0.8				20.31 31232	
120408	W80 42340.088425	0.8					20.31 31234
130508	W80 46010.088425	0.8	21.25 31301				
130508	W80 46030.088430	0.8		21.25 01303			
130508	W80 46130.088425	0.8			21.25 31313		
130508	W80 46320.088425	0.8				23.60 31332	
130508	W80 46340.088425	0.8					23.60 31334
P			●	●	●	●	○
M			●	●	●	●	
K			●	●	●	●	●
N			○	○	○	○	
S			●	●	●	●	
H			○	○	○	○	
O							

→ v_c/f_z Page 59–63

The feed values of the insert BK8425 -34 can be found in the online shop or printed in UP2DATE July 2021.

SOGX

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



SOGX

ISO	KOMET no.	RE mm	-01 BK7935	-01 BK6115	-01 BK6425	-01 BK7710
						
			SOGX	SOGX	SOGX	SOGX
			10 820 ...	10 820 ...	10 820 ...	10 820 ...
			£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#
040204	W80 10010.046115	0.4		15.38 40401		
040204	W80 10010.046425	0.4			15.39 60401	
040204	W80 10010.047710	0.4				15.39 90401
040204	W80 10010.047935	0.4	15.39 50401			
050204	W80 12010.046115	0.4		15.49 40501		
050204	W80 12010.046425	0.4			15.50 60501	
050204	W80 12010.047710	0.4				15.50 90501
050204	W80 12010.047935	0.4	15.50 50501			
060206	W80 18010.066115	0.6		15.59 40601		
060206	W80 18010.066425	0.6			15.61 60601	
060206	W80 18010.067710	0.6				15.61 90601
060206	W80 18010.067935	0.6	15.61 50601			
07T208	W80 20010.086115	0.8		15.69 40701		
07T208	W80 20010.086425	0.8			15.72 60701	
07T208	W80 20010.087710	0.8				15.72 90701
07T208	W80 20010.087935	0.8	15.72 50701			
080308	W80 24010.086115	0.8		15.79 40801		
080308	W80 24010.086425	0.8			15.78 60801	
080308	W80 24010.087710	0.8				15.78 90801
080308	W80 24010.087935	0.8	15.78 50801			
09T308	W80 28010.086115	0.8		16.38 40901		
09T308	W80 28010.086425	0.8			16.37 60901	
09T308	W80 28010.087710	0.8				16.37 90901
09T308	W80 28010.087935	0.8	16.37 50901			
100408	W80 32010.086115	0.8		16.87 41001		
100408	W80 32010.086425	0.8			16.91 61001	
100408	W80 32010.087710	0.8				16.91 91001
100408	W80 32010.087935	0.8	16.91 51001			
110408	W80 38010.086115	0.8		17.38 41101		
110408	W80 38010.086425	0.8			17.38 61101	
110408	W80 38010.087710	0.8				17.38 91101
110408	W80 38010.087935	0.8	17.38 51101			
120408	W80 42010.086115	0.8		18.27 41201		
120408	W80 42010.086425	0.8			18.25 61201	
120408	W80 42010.087710	0.8				18.25 91201
120408	W80 42010.087935	0.8	18.25 51201			
130508	W80 46010.086115	0.8		21.25 41301		
130508	W80 46010.086425	0.8			21.30 61301	
130508	W80 46010.087710	0.8				21.30 91301
130508	W80 46010.087935	0.8	21.30 51301			
P			●	●	●	
M			●	●	●	
K			●	●	●	
N			○			●
S			●			○
H				○		
O			○			○

→ v_c/f_z Page 59–63

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

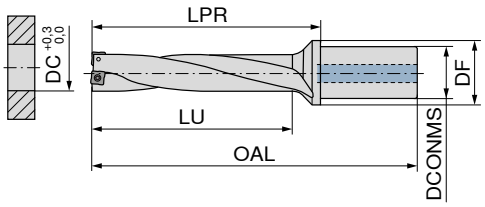
MaxiDrill 900 – Indexable insert drill

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

≤ 2xD



C





Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 852 ... £ 2B/41	
MD900.2D.120.R.03-C20	12.0	20	28	90	24	40	0,4	SONT 031804	232.72	120
MD900.2D.125.R.03-C20	12.5	20	28	91	25	41	0,4	SONT 031804	232.72	125
MD900.2D.130.R.03-C20	13.0	20	28	92	26	42	0,4	SONT 031804	232.72	130
MD900.2D.135.R.03-C20	13.5	20	28	93	27	43	0,4	SONT 031804	232.72	135
MD900.2D.140.R.04-C20	14.0	20	30	96	28	46	0,7	SONT 042105	247.71	140
MD900.2D.145.R.04-C20	14.5	20	30	97	29	47	0,7	SONT 042105	247.71	145
MD900.2D.150.R.04-C20	15.0	20	30	98	30	48	0,7	SONT 042105	247.71	150
MD900.2D.155.R.04-C20	15.5	20	30	99	31	49	0,7	SONT 042105	247.71	155
MD900.2D.160.R.05-C20	16.0	20	30	100	32	50	0,7	SONT 052306	247.71	160
MD900.2D.165.R.05-C20	16.5	20	30	101	33	51	0,7	SONT 052306	247.71	165
MD900.2D.170.R.05-C20	17.0	20	30	102	34	52	0,7	SONT 052306	263.64	170
MD900.2D.175.R.05-C20	17.5	20	30	103	35	53	0,7	SONT 052306	263.64	175
MD900.2D.180.R.06-C25	18.0	25	32	111	36	55	1	SONT 062506	263.64	180
MD900.2D.185.R.06-C25	18.5	25	32	112	37	56	1	SONT 062506	263.64	185
MD900.2D.190.R.06-C25	19.0	25	32	113	38	57	1	SONT 062506	283.31	190
MD900.2D.195.R.06-C25	19.5	25	32	114	39	58	1	SONT 062506	283.31	195
MD900.2D.200.R.06-C25	20.0	25	32	115	40	59	1	SONT 062506	283.31	200
MD900.2D.205.R.06-C25	20.5	25	32	116	41	60	1	SONT 062506	283.31	205
MD900.2D.210.R.07-C25	21.0	25	32	118	42	62	1	SONT 072907	283.31	210
MD900.2D.220.R.07-C25	22.0	25	32	120	44	64	1	SONT 072907	283.31	220
MD900.2D.230.R.07-C25	23.0	25	32	122	46	66	1	SONT 072907	292.18	230
MD900.2D.240.R.08-C32	24.0	32	40	132	48	72	1,2	SONT 083308	292.18	240
MD900.2D.250.R.08-C32	25.0	32	40	134	50	74	1,2	SONT 083308	292.18	250
MD900.2D.260.R.08-C32	26.0	32	40	136	52	76	1,2	SONT 083308	323.49	260
MD900.2D.270.R.08-C32	27.0	32	40	138	54	78	1,2	SONT 083308	323.49	270
MD900.2D.280.R.09-C32	28.0	32	40	140	56	80	2,2	SONT 093808	323.49	280
MD900.2D.290.R.09-C32	29.0	32	40	142	58	82	2,2	SONT 093808	323.49	290
MD900.2D.300.R.09-C32	30.0	32	40	144	60	84	2,2	SONT 093808	323.49	300
MD900.2D.310.R.09-C32	31.0	32	40	146	62	86	2,2	SONT 093808	350.89	310
MD900.2D.320.R.09-C32	32.0	32	40	148	64	88	2,2	SONT 093808	350.89	320
MD900.2D.330.R.10-C40	33.0	40	50	163	66	93	3,2	SONT 104408	350.89	330
MD900.2D.340.R.10-C40	34.0	40	50	165	68	95	3,2	SONT 104408	350.89	340
MD900.2D.350.R.10-C40	35.0	40	50	167	70	97	3,2	SONT 104408	358.82	350
MD900.2D.360.R.10-C40	36.0	40	50	169	72	99	3,2	SONT 104408	358.82	360
MD900.2D.370.R.12-C40	37.0	40	56	174	74	104	3,2	SONT 124810	370.46	370
MD900.2D.380.R.12-C40	38.0	40	56	176	76	106	3,2	SONT 124810	370.46	380
MD900.2D.390.R.12-C40	39.0	40	56	178	78	108	3,2	SONT 124810	370.46	390
MD900.2D.400.R.12-C40	40.0	40	56	180	80	110	3,2	SONT 124810	370.46	400
MD900.2D.410.R.12-C40	41.0	40	56	182	82	112	3,2	SONT 124810	370.46	410
MD900.2D.420.R.13-C40	42.0	40	60	187	84	117	5	SONT 135012	389.17	420
MD900.2D.430.R.13-C40	43.0	40	60	189	86	119	5	SONT 135012	389.17	430

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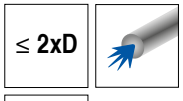
MaxiDrill 900 – Indexable insert drill

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

≤ 2xD



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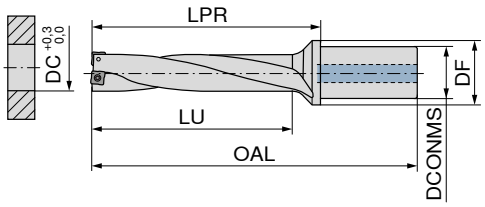




Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 852 ... £ 2B/41	
MD900.2D.440.R.13-C40	44.0	40	60	191	88	121	5	SONT 135012	389.17	440
MD900.2D.450.R.13-C40	45.0	40	60	193	90	123	5	SONT 135012	389.17	450
MD900.2D.460.R.13-C40	46.0	40	60	195	92	125	5	SONT 135012	389.17	460
MD900.2D.470.R.15-C40	47.0	40	60	198	94	128	5	SONT 155312	408.83	470
MD900.2D.480.R.15-C40	48.0	40	60	200	96	130	5	SONT 155312	408.83	480
MD900.2D.490.R.15-C40	49.0	40	60	202	98	132	5	SONT 155312	441.09	490
MD900.2D.500.R.15-C40	50.0	40	60	204	100	134	5	SONT 155312	441.09	500
MD900.2D.520.R.15-C40	51.0	40	60	206	102	136	5	SONT 155312	452.93	510
MD900.2D.510.R.15-C40	52.0	40	60	208	104	138	5	SONT 155312	452.93	520
MD900.2D.530.R.15-C40	53.0	40	60	210	106	140	5	SONT 155312	452.93	530
MD900.2D.540.R.15-C40	54.0	40	60	212	108	142	5	SONT 155312	452.93	540
MD900.2D.550.R.17-C40	55.0	40	60	215	110	145	5	SONT 175612	452.93	550
MD900.2D.560.R.17-C40	56.0	40	60	217	112	147	5	SONT 175612	469.54	560
MD900.2D.570.R.17-C40	57.0	40	60	219	114	149	5	SONT 175612	469.54	570
MD900.2D.580.R.17-C40	58.0	40	60	221	116	151	5	SONT 175612	469.54	580
MD900.2D.590.R.17-C40	59.0	40	60	223	118	153	5	SONT 175612	469.54	590
MD900.2D.600.R.17-C40	60.0	40	62	225	120	155	5	SONT 175612	469.54	600
MD900.2D.610.R.17-C40	61.0	40	62	227	122	157	5	SONT 175612	469.54	610
MD900.2D.620.R.17-C40	62.0	40	64	229	124	159	5	SONT 175612	469.54	620
MD900.2D.630.R.17-C40	63.0	40	64	231	126	161	5	SONT 175612	469.54	630


Key D


Clamping screw

Spare parts DC		80 950 ... £ Y7			70 950 ... £ 2A/28	
12 - 13,5	T06 - IP	14.36	123	M1,8x3,6 - IP	3.52	862
14 - 17,5	T06 - IP	14.36	123	M2x4,3 - IP	3.13	863
18 - 23	T07 - IP	14.16	124	M2,2x5 - IP	3.03	856
24 - 27	T08 - IP	14.16	125	M2,5x6 - IP	3.91	857
28 - 32	T09 - IP	15.51	126	M3x7 - IP	2.99	819
33 - 41	T15 - IP	16.56	128	M3,5x8,6 - IP	2.99	859
42 - 63	T20 - IP	17.39	129	M4,5x10,5 - IP	2.99	864

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

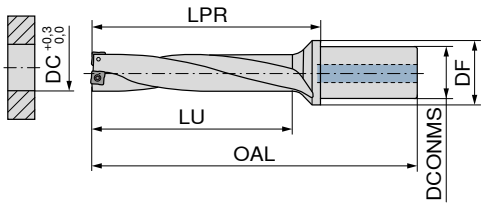
MaxiDrill 900 – Indexable insert drill

Scope of supply:

Indexable Insert Drill including clamping screws and key

≤ 3xD

C





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Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 853 ... £ 2B/41	
MD900.3D.120.R.03-C20	12.0	20	28	102	36.0	52	0,4	SONT 031804	247.89	120
MD900.3D.125.R.03-C20	12.5	20	28	104	37.5	54	0,4	SONT 031804	247.89	125
MD900.3D.130.R.03-C20	13.0	20	28	105	39.0	55	0,4	SONT 031804	247.89	130
MD900.3D.135.R.03-C20	13.5	20	28	107	40.5	57	0,4	SONT 031804	247.89	135
MD900.3D.140.R.04-C20	14.0	20	30	109	42.0	59	0,7	SONT 042105	261.07	140
MD900.3D.145.R.04-C20	14.5	20	30	111	44.0	61	0,7	SONT 042105	261.07	145
MD900.3D.150.R.04-C20	15.0	20	30	112	45.0	62	0,7	SONT 042105	261.07	150
MD900.3D.155.R.04-C20	15.5	20	30	114	47.0	64	0,7	SONT 042105	267.28	155
MD900.3D.160.R.05-C20	16.0	20	30	115	48.0	65	0,7	SONT 052306	267.28	160
MD900.3D.165.R.05-C20	16.5	20	30	117	50.0	67	0,7	SONT 052306	267.28	165
MD900.3D.170.R.05-C20	17.0	20	30	118	51.0	68	0,7	SONT 052306	277.58	170
MD900.3D.175.R.05-C20	17.5	20	30	120	53.0	70	0,7	SONT 052306	277.58	175
MD900.3D.180.R.06-C25	18.0	25	32	128	54.0	72	1	SONT 062506	277.58	180
MD900.3D.185.R.06-C25	18.5	25	32	130	56.0	74	1	SONT 062506	277.58	185
MD900.3D.190.R.06-C25	19.0	25	32	131	57.0	75	1	SONT 062506	298.20	190
MD900.3D.195.R.06-C25	19.5	25	32	133	59.0	77	1	SONT 062506	298.20	195
MD900.3D.200.R.06-C25	20.0	25	32	134	60.0	78	1	SONT 062506	298.20	200
MD900.3D.205.R.06-C25	20.5	25	32	136	62.0	80	1	SONT 062506	298.20	205
MD900.3D.210.R.07-C25	21.0	25	32	138	63.0	82	1	SONT 072907	298.20	210
MD900.3D.215.R.07-C25	21.5	25	32	140	65.0	84	1	SONT 072907	298.20	215
MD900.3D.220.R.07-C25	22.0	25	32	141	66.0	85	1	SONT 072907	298.20	220
MD900.3D.225.R.07-C25	22.5	25	32	143	68.0	87	1	SONT 072907	307.46	225
MD900.3D.230.R.07-C25	23.0	25	32	144	69.0	88	1	SONT 072907	307.46	230
MD900.3D.235.R.07-C25	23.5	25	32	146	71.0	90	1	SONT 072907	307.46	235
MD900.3D.240.R.08-C32	24.0	32	40	155	72.0	95	1,2	SONT 083308	307.46	240
MD900.3D.245.R.08-C32	24.5	32	40	157	74.0	97	1,2	SONT 083308	307.46	245
MD900.3D.250.R.08-C32	25.0	32	40	158	75.0	98	1,2	SONT 083308	307.46	250
MD900.3D.255.R.08-C32	25.5	32	40	160	77.0	100	1,2	SONT 083308	307.46	255
MD900.3D.260.R.08-C32	26.0	32	40	161	78.0	101	1,2	SONT 083308	340.48	260
MD900.3D.265.R.08-C32	26.5	32	40	163	80.0	103	1,2	SONT 083308	340.48	265
MD900.3D.270.R.08-C32	27.0	32	40	164	81.0	104	1,2	SONT 083308	340.48	270
MD900.3D.275.R.08-C32	27.5	32	40	166	83.0	106	1,2	SONT 083308	340.48	275
MD900.3D.280.R.09-C32	28.0	32	40	167	84.0	107	2,2	SONT 093808	340.48	280
MD900.3D.285.R.09-C32	28.5	32	40	169	86.0	109	2,2	SONT 093808	340.48	285
MD900.3D.290.R.09-C32	29.0	32	40	170	87.0	110	2,2	SONT 093808	340.48	290
MD900.3D.295.R.09-C32	29.5	32	40	172	89.0	112	2,2	SONT 093808	340.48	295
MD900.3D.300.R.09-C32	30.0	32	40	173	90.0	113	2,2	SONT 093808	340.48	300
MD900.3D.305.R.09-C32	30.5	32	40	175	92.0	115	2,2	SONT 093808	340.48	305
MD900.3D.310.R.09-C32	31.0	32	40	176	93.0	116	2,2	SONT 093808	369.41	310
MD900.3D.315.R.09-C32	31.5	32	40	178	95.0	118	2,2	SONT 093808	369.41	315
MD900.3D.320.R.09-C32	32.0	32	40	179	96.0	119	2,2	SONT 093808	369.41	320
MD900.3D.325.R.10-C40	32.5	40	50	192	98.0	124	3,2	SONT 104408	369.41	325
MD900.3D.330.R.10-C40	33.0	40	50	193	99.0	125	3,2	SONT 104408	369.41	330
MD900.3D.335.R.10-C40	33.5	40	50	195	101.0	127	3,2	SONT 104408	369.41	335
MD900.3D.340.R.10-C40	34.0	40	50	196	102.0	128	3,2	SONT 104408	369.41	340
MD900.3D.345.R.10-C40	34.5	40	50	198	104.0	130	3,2	SONT 104408	369.41	345
MD900.3D.350.R.10-C40	35.0	40	50	199	105.0	131	3,2	SONT 104408	377.62	350
MD900.3D.355.R.10-C40	35.5	40	50	201	107.0	133	3,2	SONT 104408	377.62	355
MD900.3D.360.R.10-C40	36.0	40	50	202	108.0	134	3,2	SONT 104408	377.62	360
MD900.3D.365.R.10-C40	36.5	40	50	204	110.0	136	3,2	SONT 104408	377.62	365

Continued on next page

MaxiDrill 900 – Indexable insert drill

Scope of supply:

Indexable Insert Drill including clamping screws and key

≤ 3xD



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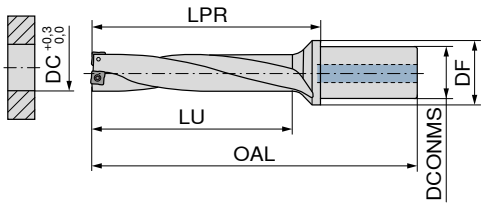




10 853 ...

Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	£ 2B/41	
MD900.3D.370.R.12-C40	37.0	40	56	211	111.0	141	3,2	SONT 124810	390.02	**370**
MD900.3D.380.R.12-C40	38.0	40	56	214	114.0	144	3,2	SONT 124810	390.02	**380**
MD900.3D.390.R.12-C40	39.0	40	56	217	117.0	147	3,2	SONT 124810	390.02	**390**
MD900.3D.400.R.12-C40	40.0	40	56	220	120.0	150	3,2	SONT 124810	390.02	**400**
MD900.3D.410.R.12-C40	41.0	40	56	223	123.0	153	3,2	SONT 124810	390.02	**410**
MD900.3D.420.R.13-C40	42.0	40	60	229	126.0	159	5	SONT 135012	409.59	**420**
MD900.3D.430.R.13-C40	43.0	40	60	232	129.0	162	5	SONT 135012	409.59	**430**
MD900.3D.440.R.13-C40	44.0	40	60	235	132.0	165	5	SONT 135012	409.59	**440**
MD900.3D.450.R.13-C40	45.0	40	60	238	135.0	168	5	SONT 135012	409.59	**450**
MD900.3D.460.R.13-C40	46.0	40	60	241	138.0	171	5	SONT 135012	409.59	**460**
MD900.3D.470.R.15-C40	47.0	40	60	245	141.0	175	5	SONT 155312	430.22	**470**
MD900.3D.480.R.15-C40	48.0	40	60	248	144.0	178	5	SONT 155312	430.22	**480**
MD900.3D.490.R.15-C40	49.0	40	60	251	147.0	181	5	SONT 155312	464.29	**490**
MD900.3D.500.R.15-C40	50.0	40	60	254	150.0	184	5	SONT 155312	464.29	**500**
MD900.3D.510.R.15-C40	51.0	40	60	257	153.0	187	5	SONT 155312	476.70	**510**
MD900.3D.520.R.15-C40	52.0	40	60	260	156.0	190	5	SONT 155312	476.70	**520**
MD900.3D.530.R.15-C40	53.0	40	60	263	159.0	193	5	SONT 155312	476.70	**530**
MD900.3D.540.R.15-C40	54.0	40	60	266	162.0	196	5	SONT 155312	476.70	**540**
MD900.3D.550.R.17-C40	55.0	40	60	270	165.0	200	5	SONT 175612	476.70	**550**
MD900.3D.560.R.17-C40	56.0	40	60	273	168.0	203	5	SONT 175612	494.27	**560**
MD900.3D.570.R.17-C40	57.0	40	60	276	171.0	206	5	SONT 175612	494.27	**570**
MD900.3D.580.R.17-C40	58.0	40	60	279	174.0	209	5	SONT 175612	494.27	**580**
MD900.3D.590.R.17-C40	59.0	40	60	282	177.0	212	5	SONT 175612	494.27	**590**
MD900.3D.600.R.17-C40	60.0	40	62	285	180.0	215	5	SONT 175612	494.27	**600**
MD900.3D.610.R.17-C40	61.0	40	62	288	183.0	218	5	SONT 175612	494.27	**610**
MD900.3D.620.R.17-C40	62.0	40	64	291	186.0	221	5	SONT 175612	494.27	**620**
MD900.3D.630.R.17-C40	63.0	40	64	294	189.0	224	5	SONT 175612	494.27	**630**



Key D



Clamping screw

Spare parts DC		**80 950 ...** £ Y7			**70 950 ...** £ 2A/28	
12 - 13,5	T06 - IP	14.36	**123**	M1,8x3,6 - IP	3.52	**862**
14 - 17,5	T06 - IP	14.36	**123**	M2x4,3 - IP	3.13	**863**
18 - 23,5	T07 - IP	14.16	**124**	M2,2x5 - IP	3.03	**856**
24 - 27,5	T08 - IP	14.16	**125**	M2,5x6 - IP	3.91	**857**
28 - 32	T09 - IP	15.51	**126**	M3x7 - IP	2.99	**819**
32,5 - 41	T15 - IP	16.56	**128**	M3,5x8,6 - IP	2.99	**859**
42 - 63	T20 - IP	17.39	**129**	M4,5x10,5 - IP	2.99	**864**

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

MaxiDrill 900 – Indexable insert drill

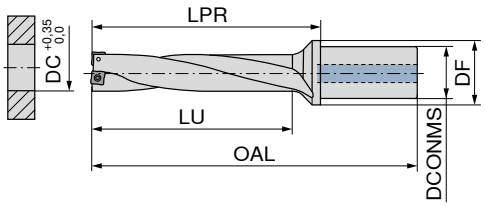
Scope of supply:

Indexable Insert Drill including clamping screws and key

≤ 4xD



C





Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 854 ... £ 2B/41	
MD900.4D.120.R.03-C20	12.0	20	28	114	48	64	0,4	SONT 031804	341.92	120
MD900.4D.125.R.03-C20	12.5	20	28	116	50	66	0,4	SONT 031804	341.92	125
MD900.4D.130.R.03-C20	13.0	20	28	118	52	68	0,4	SONT 031804	341.92	130
MD900.4D.135.R.03-C20	13.5	20	28	120	54	70	0,4	SONT 031804	341.92	135
MD900.4D.140.R.04-C20	14.0	20	30	123	56	73	0,7	SONT 042105	351.84	140
MD900.4D.145.R.04-C20	14.5	20	30	125	58	75	0,7	SONT 042105	351.84	145
MD900.4D.150.R.04-C20	15.0	20	30	127	60	77	0,7	SONT 042105	351.84	150
MD900.4D.155.R.04-C20	15.5	20	30	129	62	79	0,7	SONT 042105	351.84	155
MD900.4D.160.R.05-C20	16.0	20	30	131	64	81	0,7	SONT 052306	360.06	160
MD900.4D.165.R.05-C20	16.5	20	30	133	66	83	0,7	SONT 052306	360.06	165
MD900.4D.170.R.05-C20	17.0	20	30	135	68	85	0,7	SONT 052306	373.61	170
MD900.4D.175.R.05-C20	17.5	20	30	137	70	87	0,7	SONT 052306	373.61	175
MD900.4D.180.R.06-C25	18.0	25	32	146	72	90	1	SONT 062506	373.61	180
MD900.4D.185.R.06-C25	18.5	25	32	148	74	92	1	SONT 062506	373.61	185
MD900.4D.190.R.06-C25	19.0	25	32	150	76	94	1	SONT 062506	401.38	190
MD900.4D.195.R.06-C25	19.5	25	32	152	78	96	1	SONT 062506	401.38	195
MD900.4D.200.R.06-C25	20.0	25	32	154	80	98	1	SONT 062506	401.38	200
MD900.4D.205.R.06-C25	20.5	25	32	156	82	100	1	SONT 062506	401.38	205
MD900.4D.210.R.07-C25	21.0	25	32	159	84	103	1	SONT 072907	401.38	210
MD900.4D.220.R.07-C25	22.0	25	32	163	88	107	1	SONT 072907	401.38	220
MD900.4D.230.R.07-C25	23.0	25	32	167	92	111	1	SONT 072907	414.75	230
MD900.4D.240.R.08-C32	24.0	32	40	179	96	119	1,2	SONT 083308	414.75	240
MD900.4D.250.R.08-C32	25.0	32	40	183	100	123	1,2	SONT 083308	414.75	250
MD900.4D.260.R.08-C32	26.0	32	40	187	104	127	1,2	SONT 083308	458.18	260
MD900.4D.270.R.08-C32	27.0	32	40	191	108	131	1,2	SONT 083308	458.18	270
MD900.4D.280.R.09-C32	28.0	32	40	195	112	135	2,2	SONT 093808	458.18	280
MD900.4D.290.R.09-C32	29.0	32	40	199	116	139	2,2	SONT 093808	458.18	290
MD900.4D.300.R.09-C32	30.0	32	40	203	120	143	2,2	SONT 093808	458.18	300
MD900.4D.310.R.09-C32	31.0	32	40	207	124	147	2,2	SONT 093808	497.32	310
MD900.4D.320.R.09-C32	32.0	32	40	211	128	151	2,2	SONT 093808	497.32	320
MD900.4D.330.R.10-C40	33.0	40	50	228	132	158	3,2	SONT 104408	497.32	330
MD900.4D.340.R.10-C40	34.0	40	50	232	136	162	3,2	SONT 104408	497.32	340
MD900.4D.350.R.10-C40	35.0	40	50	236	140	166	3,2	SONT 104408	507.73	350
MD900.4D.360.R.10-C40	36.0	40	50	240	144	170	3,2	SONT 104408	507.73	360
MD900.4D.370.R.12-C40	37.0	40	56	248	148	178	3,2	SONT 124810	525.19	370
MD900.4D.380.R.12-C40	38.0	40	56	252	152	182	3,2	SONT 124810	525.19	380
MD900.4D.390.R.12-C40	39.0	40	56	256	156	186	3,2	SONT 124810	525.19	390
MD900.4D.400.R.12-C40	40.0	40	56	260	160	190	3,2	SONT 124810	525.19	400
MD900.4D.410.R.12-C40	41.0	40	56	264	164	194	3,2	SONT 124810	525.19	410
MD900.4D.420.R.13-C40	42.0	40	60	271	168	201	5	SONT 135012	550.97	420
MD900.4D.430.R.13-C40	43.0	40	60	275	172	205	5	SONT 135012	550.97	430

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MaxiDrill 900 – Indexable insert drill

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

≤ 4xD

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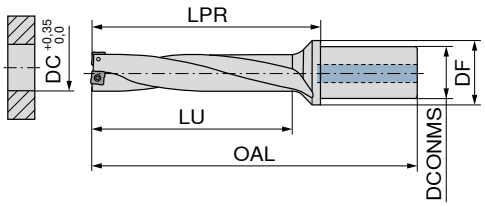




Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 854 ... £ 2B/41	
MD900.4D.440.R.13-C40	44.0	40	60	279	176	209	5	SONT 135012	550.97	**440**
MD900.4D.450.R.13-C40	45.0	40	60	283	180	213	5	SONT 135012	550.97	**450**
MD900.4D.460.R.13-C40	46.0	40	60	287	184	217	5	SONT 135012	550.97	**460**
MD900.4D.470.R.15-C40	47.0	40	60	292	188	222	5	SONT 155312	580.93	**470**
MD900.4D.480.R.15-C40	48.0	40	60	296	192	226	5	SONT 155312	580.93	**480**
MD900.4D.490.R.15-C40	49.0	40	60	300	196	230	5	SONT 155312	580.93	**490**
MD900.4D.500.R.15-C40	50.0	40	60	304	200	234	5	SONT 155312	580.93	**500**
MD900.4D.510.R.15-C40	51.0	40	60	308	204	238	5	SONT 155312	580.93	**510**
MD900.4D.520.R.15-C40	52.0	40	60	312	208	242	5	SONT 155312	580.93	**520**
MD900.4D.530.R.15-C40	53.0	40	60	316	212	246	5	SONT 155312	580.93	**530**
MD900.4D.540.R.15-C40	54.0	40	60	320	216	250	5	SONT 155312	580.93	**540**


Key D


Clamping screw

Spare parts DC		80 950 ... £ Y7			70 950 ... £ 2A/28	
12 - 13	T06 - IP	14.36	**123**	M1,8x3,6 - IP	3.52	**862**
14 - 17	T06 - IP	14.36	**123**	M2x4,3 - IP	3.13	**863**
18 - 23	T07 - IP	14.16	**124**	M2,2x5 - IP	3.03	**856**
24 - 27	T08 - IP	14.16	**125**	M2,5x6 - IP	3.91	**857**
28 - 32	T09 - IP	15.51	**126**	M3x7 - IP	2.99	**819**
33 - 41	T15 - IP	16.56	**128**	M3,5x8,6 - IP	2.99	**859**
42 - 54	T20 - IP	17.39	**129**	M4,5x10,5 - IP	2.99	**864**

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

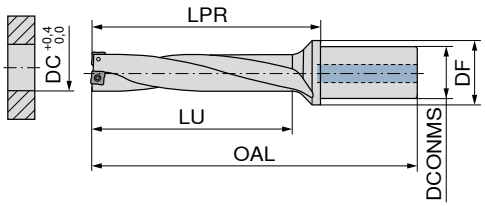
MaxiDrill 900 – Indexable insert drill

Scope of supply:

Indexable Insert Drill including clamping screws and key

≤ 5xD

C





3

Designation	DC	DCONMS	DF	OAL	LU	LPR	torque moment	Insert	10 855 ... £ 2B/41	
	mm	mm	mm	mm	mm	mm	Nm			
MD900.5D.120.R.03-C20	12.0	20	28	126	60.0	76.0	0,4	SONT 031804	408.73	120
MD900.5D.125.R.03-C20	12.5	20	28	128	62.5	78.0	0,4	SONT 031804	408.73	125
MD900.5D.130.R.03-C20	13.0	20	28	131	65.0	81.0	0,4	SONT 031804	408.73	130
MD900.5D.135.R.03-C20	13.5	20	28	132	67.5	82.0	0,4	SONT 031804	408.73	135
MD900.5D.140.R.04-C20	14.0	20	30	137	70.0	87.0	0,7	SONT 042105	417.90	140
MD900.5D.145.R.04-C20	14.5	20	30	139	72.5	89.0	0,7	SONT 042105	417.90	145
MD900.5D.150.R.04-C20	15.0	20	30	142	75.0	92.0	0,7	SONT 042105	417.90	150
MD900.5D.155.R.04-C20	15.5	20	30	144	77.5	94.5	0,7	SONT 042105	417.90	155
MD900.5D.160.R.05-C20	16.0	20	30	147	80.0	97.0	0,7	SONT 052306	428.21	160
MD900.5D.165.R.05-C20	16.5	20	30	149	82.5	99.0	0,7	SONT 052306	428.21	165
MD900.5D.170.R.05-C20	17.0	20	30	152	85.0	102.0	0,7	SONT 052306	443.68	170
MD900.5D.175.R.05-C20	17.5	20	30	154	87.5	104.0	0,7	SONT 052306	443.68	175
MD900.5D.180.R.06-C25	18.0	25	32	164	90.0	108.0	1	SONT 062506	443.68	180
MD900.5D.185.R.06-C25	18.5	25	32	166	92.5	110.0	1	SONT 062506	443.68	185
MD900.5D.190.R.06-C25	19.0	25	32	169	95.0	113.0	1	SONT 062506	476.70	190
MD900.5D.195.R.06-C25	19.5	25	32	171	97.5	115.0	1	SONT 062506	476.70	195
MD900.5D.200.R.06-C25	20.0	25	32	174	100.0	118.0	1	SONT 062506	476.70	200
MD900.5D.205.R.06-C25	20.5	25	32	175	102.5	119.0	1	SONT 062506	476.70	205
MD900.5D.210.R.07-C25	21.0	25	32	180	105.0	124.0	1	SONT 072907	476.70	210
MD900.5D.220.R.07-C25	22.0	25	32	184	110.0	128.0	1	SONT 072907	476.70	220
MD900.5D.230.R.07-C25	23.0	25	32	189	115.0	133.0	1	SONT 072907	493.69	230
MD900.5D.240.R.08-C32	24.0	32	40	203	120.0	143.0	1,2	SONT 083308	493.69	240
MD900.5D.250.R.08-C32	25.0	32	40	208	125.0	148.0	1,2	SONT 083308	493.69	250
MD900.5D.260.R.08-C32	26.0	32	40	212	130.0	152.0	1,2	SONT 083308	544.86	260
MD900.5D.270.R.08-C32	27.0	32	40	217	135.0	157.0	1,2	SONT 083308	544.86	270
MD900.5D.280.R.09-C32	28.0	32	40	221	140.0	161.0	2,2	SONT 093808	544.86	280
MD900.5D.290.R.09-C32	29.0	32	40	226	145.0	166.0	2,2	SONT 093808	544.86	290
MD900.5D.300.R.09-C32	30.0	32	40	230	150.0	170.0	2,2	SONT 093808	544.86	300
MD900.5D.310.R.09-C32	31.0	32	40	235	155.0	175.0	2,2	SONT 093808	590.19	310
MD900.5D.320.R.09-C32	32.0	32	40	239	160.0	179.0	2,2	SONT 093808	590.19	320
MD900.5D.330.R.10-C40	33.0	40	50	259	165.0	191.0	3,2	SONT 104408	590.19	330
MD900.5D.340.R.10-C40	34.0	40	50	264	170.0	196.0	3,2	SONT 104408	590.19	340
MD900.5D.350.R.10-C40	35.0	40	50	269	175.0	201.0	3,2	SONT 104408	603.56	350
MD900.5D.360.R.10-C40	36.0	40	50	274	180.0	206.0	3,2	SONT 104408	603.56	360
MD900.5D.370.R.12-C40	37.0	40	56	285	185.0	215.0	3,2	SONT 124810	624.28	370
MD900.5D.380.R.12-C40	38.0	40	56	290	190.0	220.0	3,2	SONT 124810	624.28	380
MD900.5D.390.R.12-C40	39.0	40	56	295	195.0	225.0	3,2	SONT 124810	624.28	390
MD900.5D.400.R.12-C40	40.0	40	56	300	200.0	230.0	3,2	SONT 124810	624.28	400
MD900.5D.410.R.12-C40	41.0	40	56	305	205.0	235.0	3,2	SONT 124810	624.28	410



Key D



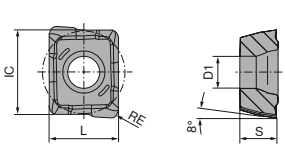
Clamping screw

Spare parts DC		80 950 ... £ Y7			70 950 ... £ 2A/28	
12 - 13	T06 - IP	14.36	123	M1,8x3,6 - IP	3.52	862
14 - 17	T06 - IP	14.36	123	M2x4,3 - IP	3.13	863
18 - 23	T07 - IP	14.16	124	M2,2x5 - IP	3.03	856
24 - 27	T08 - IP	14.16	125	M2,5x6 - IP	3.91	857
28 - 32	T09 - IP	15.51	126	M3x7 - IP	2.99	819
33 - 41	T15 - IP	16.56	128	M3,5x8,6 - IP	2.99	859

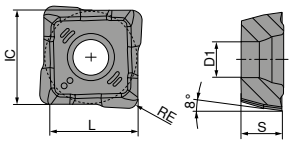
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

SONT

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



SONT 03..



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

SONT

ISO	RE mm	-M30 CTPP430 DRAGONSKIN	SONT 10 830 ... £ 1A/08		-M30 CTPP430 DRAGONSKIN	SONT 10 830 ... £ 1A/08		-M30 CTCP420 DRAGONSKIN	SONT 10 830 ... £ 1A/08		-M30 CTCP420 DRAGONSKIN	SONT 10 830 ... £ 1A/08	
031804	0.4		11.56	**103** [1]					11.56	**703** [1]			
042105	0.5					13.25	**104**					13.25	**704**
052306	0.6					13.43	**105**					13.43	**705**
062506	0.6					13.65	**106**					13.65	**706**
072907	0.7					13.95	**107**					13.95	**707**
083308	0.8					14.26	**108**					14.26	**708**
093808	0.8					14.61	**109**					14.61	**709**
104408	0.8					15.30	**110**					15.30	**710**
124810	1.0					16.21	**112**					16.21	**712**
135012	1.2					17.17	**113**					17.17	**713**
155312	1.2					19.47	**115**					19.47	**715**
175612	1.2					20.63	**117**					20.63	**717**
P			●			●			●			●	
M			●			●							
K			○			○			●			●	
N			○			○							
S			○			○							
H													
O													

1) two usable cutting edges

→ v_c/f_z Page 64–67

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

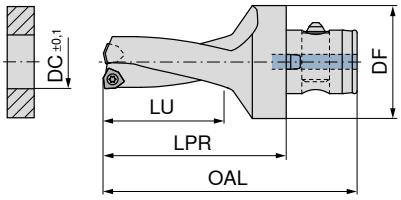
KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD



ABS





3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 892 ... £ 2B/6#	
KUB-T.2D.140.R.03-ABS50	V30 31403	14	50	94	28	63	0,62	WOEX 030204	340.48	14095
KUB-T.2D.150.R.03-ABS50	V30 31503	15	50	96	30	65	0,62	WOEX 030204	340.48	15095
KUB-T.2D.160.R.03-ABS50	V30 31601	16	50	98	32	67	0,62	WOEX 030204	340.48	16095
KUB-T.2D.170.R.03-ABS50	V30 31701	17	50	100	34	69	0,62	WOEX 030204	340.48	17095
KUB-T.2D.180.R.03-ABS50	V30 31801	18	50	102	36	71	0,62	WOEX 030204	340.48	18095
KUB-T.2D.190.R.03-ABS50	V30 31901	19	50	104	38	73	0,62	WOEX 030204	340.48	19095
KUB-T.2D.200.R.04-ABS50	V30 32001	20	50	106	40	75	1,01	WOEX 040304	342.49	20095
KUB-T.2D.210.R.04-ABS50	V30 32101	21	50	108	42	77	1,01	WOEX 040304	342.49	21095
KUB-T.2D.220.R.04-ABS50	V30 32201	22	50	110	44	79	1,01	WOEX 040304	342.49	22095
KUB-T.2D.230.R.04-ABS50	V30 32301	23	50	112	46	81	1,01	WOEX 040304	342.49	23095
KUB-T.2D.240.R.04-ABS50	V30 32401	24	50	114	48	83	1,01	WOEX 040304	342.49	24095
KUB-T.2D.250.R.05-ABS50	V30 32501	25	50	116	50	85	1,28	WOEX 05T304	347.46	25095
KUB-T.2D.260.R.05-ABS50	V30 32601	26	50	118	52	87	1,28	WOEX 05T304	347.46	26095
KUB-T.2D.270.R.05-ABS50	V30 32701	27	50	120	54	89	1,28	WOEX 05T304	347.46	27095
KUB-T.2D.280.R.05-ABS50	V30 32801	28	50	122	56	91	1,28	WOEX 05T304	347.46	28095
KUB-T.2D.290.R.05-ABS50	V30 32901	29	50	124	58	93	1,28	WOEX 05T304	347.46	29095
KUB-T.2D.300.R.05-ABS50	V30 33001	30	50	131	60	100	1,28	WOEX 05T304	347.46	30095
KUB-T.2D.310.R.05-ABS50	V30 33101	31	50	133	62	102	1,28	WOEX 05T304	347.46	31095
KUB-T.2D.320.R.05-ABS50	V30 33201	32	50	135	64	104	1,28	WOEX 05T304	347.46	32095
KUB-T.2D.330.R.05-ABS50	V30 33301	33	50	137	66	106	1,28	WOEX 05T304	347.46	33095
KUB-T.2D.340.R.05-ABS50	V30 33401	34	50	139	68	108	1,28	WOEX 05T304	347.46	34095
KUB-T.2D.350.R.05-ABS50	V30 33501	35	50	141	70	110	1,28	WOEX 05T304	347.46	35095
KUB-T.2D.360.R.05-ABS50	V30 33601	36	50	143	72	112	1,28	WOEX 05T304	347.46	36095
KUB-T.2D.370.R.06-ABS50	V30 33701	37	50	155	74	124	2,8	WOEX 06T304	365.31	37095
KUB-T.2D.380.R.06-ABS50	V30 33801	38	50	157	76	126	2,8	WOEX 06T304	365.31	38095
KUB-T.2D.390.R.06-ABS50	V30 33901	39	50	159	78	128	2,8	WOEX 06T304	365.31	39095
KUB-T.2D.400.R.06-ABS50	V30 34001	40	50	161	80	130	2,8	WOEX 06T304	365.31	40095
KUB-T.2D.410.R.06-ABS50	V30 34101	41	50	163	82	132	2,8	WOEX 06T304	365.31	41095
KUB-T.2D.420.R.06-ABS50	V30 34201	42	50	165	84	134	2,8	WOEX 06T304	365.31	42095
KUB-T.2D.430.R.06-ABS50	V30 34301	43	50	167	86	136	2,8	WOEX 06T304	365.31	43095
KUB-T.2D.440.R.06-ABS50	V30 34401	44	50	169	88	138	2,8	WOEX 06T304	365.31	44095



Key D



Clamping screw

Spare parts DC		80 950 ... £ Y7			10 950 ... £ W7	
14 - 19	T06 - IP	14.36	123	M2,0x4,3 - 06IP	2.26	10000
20 - 24	T06 - IP	14.36	123	M2,2x5,5 - 06IP	2.26	10700
25 - 36	T08 - IP	14.16	125	M2,5x7,2 - 08IP	2.26	10500
37 - 44	T10 - IP	16.08	127	M3,5x7,3 - 10IP	2.26	10600

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

KUB Trigon – Indexable insert drill

▲ Tightening torque refers to clamping screw

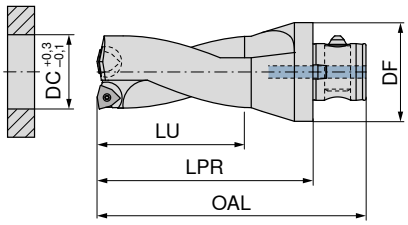
Scope of supply:

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

≤ 2xD



ABS



NEW



Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 892 ... £ 2B/6#	
KUB-T.2D.450.R.08-ABS63	V13 34500	45	63	183	90	145	4,3	WOEX 080404	637.35	45096
KUB-T.2D.460.R.08-ABS63	V13 34600	46	63	185	92	147	4,3	WOEX 080404	637.35	46096
KUB-T.2D.470.R.08-ABS63	V13 34700	47	63	187	94	149	4,3	WOEX 080404	637.35	47096
KUB-T.2D.480.R.08-ABS63	V13 34800	48	63	189	96	151	4,3	WOEX 080404	637.35	48096
KUB-T.2D.490.R.08-ABS63	V13 34900	49	63	191	98	153	4,3	WOEX 080404	637.35	49096
KUB-T.2D.500.R.08-ABS63	V13 35000	50	63	193	100	155	4,3	WOEX 080404	637.35	50096
KUB-T.2D.510.R.08-ABS63	V13 35100	51	63	195	102	157	4,3	WOEX 080404	637.35	51096
KUB-T.2D.520.R.08-ABS63	V13 35200	52	63	197	104	159	4,3	WOEX 080404	637.35	52096
KUB-T.2D.530.R.08-ABS63	V13 35300	53	63	199	106	161	4,3	WOEX 080404	637.35	53096
KUB-T.2D.540.R.08-ABS63	V13 35400	54	63	201	108	163	4,3	WOEX 080404	637.35	54096
KUB-T.2D.550.R.10-ABS80	V14 35500	55	80	208	110	165	4,3	WOEX 100504	770.32	55098
KUB-T.2D.560.R.10-ABS80	V14 35600	56	80	210	112	167	4,3	WOEX 100504	770.32	56098
KUB-T.2D.570.R.10-ABS80	V14 35700	57	80	212	114	169	4,3	WOEX 100504	770.32	57098
KUB-T.2D.580.R.10-ABS80	V14 35800	58	80	214	116	171	4,3	WOEX 100504	770.32	58098
KUB-T.2D.590.R.10-ABS80	V14 35900	59	80	216	118	173	4,3	WOEX 100504	770.32	59098
KUB-T.2D.600.R.10-ABS80	V14 36000	60	80	218	120	175	4,3	WOEX 100504	770.32	60098
KUB-T.2D.610.R.10-ABS80	V14 36100	61	80	220	122	177	4,3	WOEX 100504	770.32	61098
KUB-T.2D.620.R.10-ABS80	V14 36200	62	80	222	124	179	4,3	WOEX 100504	770.32	62098
KUB-T.2D.630.R.10-ABS80	V14 36300	63	80	224	126	181	4,3	WOEX 100504	770.32	63098
KUB-T.2D.640.R.10-ABS80	V14 36400	64	80	226	128	183	4,3	WOEX 100504	770.32	64098
KUB-T.2D.650.R.10-ABS80	V14 36500	65	80	228	130	185	4,3	WOEX 100504	770.32	65098
KUB-T.2D.660.R.10-ABS80	V14 36600	66	80	230	132	187	4,3	WOEX 100504	770.32	66098
KUB-T.2D.670.R.10-ABS80	V14 36700	67	80	232	134	189	4,3	WOEX 100504	770.32	67098
KUB-T.2D.680.R.10-ABS80	V14 36800	68	80	234	136	191	4,3	WOEX 100504	770.32	68098
KUB-T.2D.690.R.12-ABS80	V14 36900	69	80	246	138	203	6,25	WOEX 120608	814.99	69098
KUB-T.2D.700.R.12-ABS80	V14 37000	70	80	248	140	205	6,25	WOEX 120608	814.99	70098
KUB-T.2D.710.R.12-ABS80	V14 37100	71	80	250	142	207	6,25	WOEX 120608	814.99	71098
KUB-T.2D.720.R.12-ABS80	V14 37200	72	80	252	144	209	6,25	WOEX 120608	814.99	72098
KUB-T.2D.730.R.12-ABS80	V14 37300	73	80	254	146	211	6,25	WOEX 120608	814.99	73098
KUB-T.2D.740.R.12-ABS80	V14 37400	74	80	256	148	213	6,25	WOEX 120608	814.99	74098
KUB-T.2D.750.R.12-ABS80	V14 37500	75	80	258	150	215	6,25	WOEX 120608	814.99	75098
KUB-T.2D.760.R.12-ABS80	V14 37600	76	80	260	152	217	6,25	WOEX 120608	814.99	76098
KUB-T.2D.770.R.12-ABS80	V14 37700	77	80	262	154	219	6,25	WOEX 120608	814.99	77098
KUB-T.2D.780.R.12-ABS80	V14 37800	78	80	264	156	221	6,25	WOEX 120608	814.99	78098
KUB-T.2D.790.R.12-ABS80	V14 37900	79	80	266	158	223	6,25	WOEX 120608	814.99	79098
KUB-T.2D.800.R.12-ABS80	V14 38000	80	80	268	160	225	6,25	WOEX 120608	814.99	80098
KUB-T.2D.810.R.12-ABS80	V14 38100	81	80	270	162	227	6,25	WOEX 120608	814.99	81098
KUB-T.2D.820.R.12-ABS80	V14 38200	82	80	272	164	229	6,25	WOEX 120608	814.99	82098

	 Cylindrical pin		 Indexable insert, internal		 Indexable insert, external		Key D		 Clamping screw		 Fixing screw	
	10 950 ...		10 897 ...		10 898 ...		80 950 ...		10 950 ...		10 950 ...	
Spare parts DC	£ W7		£ 2B/6#		£ 2B/6#		£ Y7		£ W7		£ W7	
45 - 54	1.01	17200	73.96	14800	73.96	14800	12.65	120	2.43	12700	2.73	17000
55 - 68	1.01	17200	80.21	25300	80.21	25300	12.65	120	2.43	12700	2.73	17000
69 - 82	1.11	17300	85.38	36000	85.38	36000	13.55	121	2.43	17400	2.73	17100

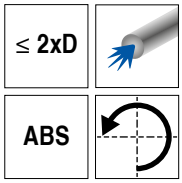
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

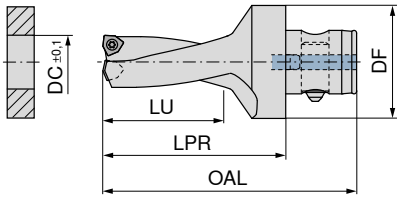
KUB Trigon – Indexable insert drill

▲ left-hand cutting

Scope of supply:

Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	11 892 ... £ 2B/6#	
KUB-T.2D.140.L.03-ABS50	V30 21402	14	50	94	28	63	0,62	WOEX 030204	340.48	14095
KUB-T.2D.150.L.03-ABS50	V30 21502	15	50	96	30	65	0,62	WOEX 030204	340.48	15095
KUB-T.2D.160.L.03-ABS50	V30 21600	16	50	98	32	67	0,62	WOEX 030204	340.48	16095
KUB-T.2D.170.L.03-ABS50	V30 21700	17	50	100	34	69	0,62	WOEX 030204	340.48	17095
KUB-T.2D.180.L.03-ABS50	V30 21800	18	50	102	36	71	0,62	WOEX 030204	340.48	18095
KUB-T.2D.190.L.03-ABS50	V30 21900	19	50	104	38	73	0,62	WOEX 030204	340.48	19095
KUB-T.2D.200.L.04-ABS50	V30 22000	20	50	106	40	75	1,01	WOEX 040304	342.49	20095
KUB-T.2D.210.L.04-ABS50	V30 22100	21	50	108	42	77	1,01	WOEX 040304	342.49	21095
KUB-T.2D.220.L.04-ABS50	V30 22200	22	50	110	44	79	1,01	WOEX 040304	342.49	22095
KUB-T.2D.230.L.04-ABS50	V30 22300	23	50	112	46	81	1,01	WOEX 040304	342.49	23095
KUB-T.2D.240.L.04-ABS50	V30 22400	24	50	114	48	83	1,01	WOEX 040304	342.49	24095
KUB-T.2D.250.L.05-ABS50	V30 22500	25	50	116	50	85	1,28	WOEX 05T304	347.46	25095
KUB-T.2D.260.L.05-ABS50	V30 22600	26	50	118	52	87	1,28	WOEX 05T304	347.46	26095
KUB-T.2D.270.L.05-ABS50	V30 22700	27	50	120	54	89	1,28	WOEX 05T304	347.46	27095
KUB-T.2D.280.L.05-ABS50	V30 22800	28	50	122	56	91	1,28	WOEX 05T304	347.46	28095
KUB-T.2D.290.L.05-ABS50	V30 22900	29	50	124	58	93	1,28	WOEX 05T304	347.46	29095
KUB-T.2D.300.L.05-ABS50	V30 23000	30	50	131	60	100	1,28	WOEX 05T304	347.46	30095
KUB-T.2D.310.L.05-ABS50	V30 23100	31	50	133	62	102	1,28	WOEX 05T304	347.46	31095
KUB-T.2D.320.L.05-ABS50	V30 23200	32	50	135	64	104	1,28	WOEX 05T304	347.46	32095
KUB-T.2D.330.L.05-ABS50	V30 23300	33	50	137	66	106	1,28	WOEX 05T304	347.46	33095
KUB-T.2D.340.L.05-ABS50	V30 23400	34	50	139	68	108	1,28	WOEX 05T304	347.46	34095
KUB-T.2D.350.L.05-ABS50	V30 23500	35	50	141	70	110	1,28	WOEX 05T304	347.46	35095
KUB-T.2D.360.L.05-ABS50	V30 23600	36	50	143	72	112	1,28	WOEX 05T304	347.46	36095
KUB-T.2D.370.L.06-ABS50	V30 23700	37	50	155	74	124	2,8	WOEX 06T304	365.31	37095
KUB-T.2D.380.L.06-ABS50	V30 23800	38	50	157	76	126	2,8	WOEX 06T304	365.31	38095
KUB-T.2D.390.L.06-ABS50	V30 23900	39	50	159	78	128	2,8	WOEX 06T304	365.31	39095
KUB-T.2D.400.L.06-ABS50	V30 24000	40	50	161	80	130	2,8	WOEX 06T304	365.31	40095
KUB-T.2D.410.L.06-ABS50	V30 24100	41	50	163	82	132	2,8	WOEX 06T304	365.31	41095
KUB-T.2D.420.L.06-ABS50	V30 24200	42	50	165	84	134	2,8	WOEX 06T304	365.31	42095
KUB-T.2D.430.L.06-ABS50	V30 24300	43	50	167	86	136	2,8	WOEX 06T304	365.31	43095
KUB-T.2D.440.L.06-ABS50	V30 24400	44	50	169	88	138	2,8	WOEX 06T304	365.31	44095



Key D

80 950 ...



Clamping screw

10 950 ...

Spare parts DC	£ Y7		£ W7	
14 - 19	14.36	123	2.26	10000
20 - 24	14.36	123	2.26	10700
25 - 36	14.16	125	2.26	10500
37 - 44	16.08	127	2.26	10600

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

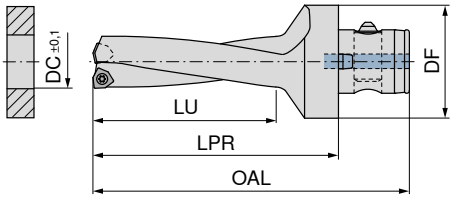
KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD



ABS





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 893 ... £ 2B/6#	
KUB-T.3D.140.R.03-ABS50	V30 71403	14	50	108	42	77	0,62	WOEX 030204	374.27	14095
KUB-T.3D.150.R.03-ABS50	V30 71503	15	50	111	45	80	0,62	WOEX 030204	374.27	15095
KUB-T.3D.160.R.03-ABS50	V30 71601	16	50	114	48	83	0,62	WOEX 030204	374.27	16095
KUB-T.3D.170.R.03-ABS50	V30 71701	17	50	117	51	86	0,62	WOEX 030204	374.27	17095
KUB-T.3D.180.R.03-ABS50	V30 71801	18	50	120	54	89	0,62	WOEX 030204	374.27	18095
KUB-T.3D.190.R.03-ABS50	V30 71901	19	50	123	57	92	0,62	WOEX 030204	374.27	19095
KUB-T.3D.200.R.04-ABS50	V30 72001	20	50	126	60	95	1,01	WOEX 040304	381.24	20095
KUB-T.3D.210.R.04-ABS50	V30 72101	21	50	129	63	98	1,01	WOEX 040304	381.24	21095
KUB-T.3D.220.R.04-ABS50	V30 72201	22	50	132	66	101	1,01	WOEX 040304	381.24	22095
KUB-T.3D.230.R.04-ABS50	V30 72301	23	50	135	69	104	1,01	WOEX 040304	381.24	23095
KUB-T.3D.240.R.04-ABS50	V30 72401	24	50	138	72	107	1,01	WOEX 040304	381.24	24095
KUB-T.3D.250.R.05-ABS50	V30 72501	25	50	141	75	110	1,28	WOEX 05T304	390.13	25095
KUB-T.3D.260.R.05-ABS50	V30 72601	26	50	144	78	113	1,28	WOEX 05T304	390.13	26095
KUB-T.3D.270.R.05-ABS50	V30 72701	27	50	147	81	116	1,28	WOEX 05T304	390.13	27095
KUB-T.3D.280.R.05-ABS50	V30 72801	28	50	150	84	119	1,28	WOEX 05T304	390.13	28095
KUB-T.3D.290.R.05-ABS50	V30 72901	29	50	153	87	122	1,28	WOEX 05T304	390.13	29095
KUB-T.3D.300.R.05-ABS50	V30 73001	30	50	161	90	130	1,28	WOEX 05T304	390.13	30095
KUB-T.3D.310.R.05-ABS50	V30 73101	31	50	164	93	133	1,28	WOEX 05T304	390.13	31095
KUB-T.3D.320.R.05-ABS50	V30 73201	32	50	167	96	136	1,28	WOEX 05T304	390.13	32095
KUB-T.3D.330.R.05-ABS50	V30 73301	33	50	170	99	139	1,28	WOEX 05T304	390.13	33095
KUB-T.3D.340.R.05-ABS50	V30 73401	34	50	173	102	142	1,28	WOEX 05T304	390.13	34095
KUB-T.3D.350.R.05-ABS50	V30 73501	35	50	176	105	145	1,28	WOEX 05T304	390.13	35095
KUB-T.3D.360.R.05-ABS50	V30 73601	36	50	179	108	148	1,28	WOEX 05T304	390.13	36095
KUB-T.3D.370.R.06-ABS50	V30 73701	37	50	192	111	161	2,8	WOEX 06T304	423.92	37095
KUB-T.3D.380.R.06-ABS50	V30 73801	38	50	195	114	164	2,8	WOEX 06T304	423.92	38095
KUB-T.3D.390.R.06-ABS50	V30 73901	39	50	198	117	167	2,8	WOEX 06T304	423.92	39095
KUB-T.3D.400.R.06-ABS50	V30 74001	40	50	201	120	170	2,8	WOEX 06T304	423.92	40095
KUB-T.3D.410.R.06-ABS50	V30 74101	41	50	204	123	173	2,8	WOEX 06T304	423.92	41095
KUB-T.3D.420.R.06-ABS50	V30 74201	42	50	207	126	176	2,8	WOEX 06T304	423.92	42095
KUB-T.3D.430.R.06-ABS50	V30 74301	43	50	210	129	179	2,8	WOEX 06T304	423.92	43095
KUB-T.3D.440.R.06-ABS50	V30 74401	44	50	213	132	182	2,8	WOEX 06T304	423.92	44095


Key D


Clamping screw

Spare parts DC		80 950 ... £ Y7			10 950 ... £ W7	
14 - 19	T06 - IP	14.36	123	M2,0x4,3 - 06IP	2.26	10000
20 - 24	T06 - IP	14.36	123	M2,2x5,5 - 06IP	2.26	10700
25 - 36	T08 - IP	14.16	125	M2,5x7,2 - 08IP	2.26	10500
37 - 44	T10 - IP	16.08	127	M3,5x7,3 - 10IP	2.26	10600

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

KUB Trigon – Indexable insert drill

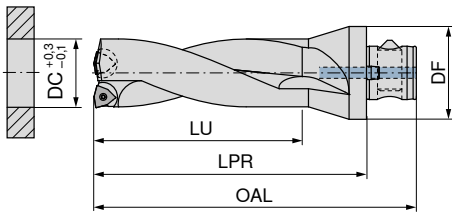
▲ Tightening torque refers to clamping screw

Scope of supply:

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

≤ 3xD

ABS



NEW



3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 893 ... £ 2B/6#	
KUB-T.3D.450.R.08-ABS63	V13 74500	45	63	228	135	190	4,3	WOEX 080404	713.81	45096
KUB-T.3D.460.R.08-ABS63	V13 74600	46	63	231	138	193	4,3	WOEX 080404	713.81	46096
KUB-T.3D.470.R.08-ABS63	V13 74700	47	63	234	141	196	4,3	WOEX 080404	713.81	47096
KUB-T.3D.480.R.08-ABS63	V13 74800	48	63	237	144	199	4,3	WOEX 080404	713.81	48096
KUB-T.3D.490.R.08-ABS63	V13 74900	49	63	240	147	202	4,3	WOEX 080404	713.81	49096
KUB-T.3D.500.R.08-ABS63	V13 75000	50	63	243	150	205	4,3	WOEX 080404	713.81	50096
KUB-T.3D.510.R.08-ABS63	V13 75100	51	63	246	153	208	4,3	WOEX 080404	713.81	51096
KUB-T.3D.520.R.08-ABS63	V13 75200	52	63	249	156	211	4,3	WOEX 080404	713.81	52096
KUB-T.3D.530.R.08-ABS63	V13 75300	53	63	252	159	214	4,3	WOEX 080404	713.81	53096
KUB-T.3D.540.R.08-ABS63	V13 75400	54	63	255	162	217	4,3	WOEX 080404	713.81	54096
KUB-T.3D.550.R.10-ABS80	V14 75500	55	80	263	165	220	4,3	WOEX 100504	858.71	55098
KUB-T.3D.560.R.10-ABS80	V14 75600	56	80	266	168	223	4,3	WOEX 100504	858.71	56098
KUB-T.3D.570.R.10-ABS80	V14 75700	57	80	269	171	226	4,3	WOEX 100504	858.71	57098
KUB-T.3D.580.R.10-ABS80	V14 75800	58	80	272	174	229	4,3	WOEX 100504	858.71	58098
KUB-T.3D.590.R.10-ABS80	V14 75900	59	80	275	177	232	4,3	WOEX 100504	858.71	59098
KUB-T.3D.600.R.10-ABS80	V14 76000	60	80	278	180	235	4,3	WOEX 100504	858.71	60098
KUB-T.3D.610.R.10-ABS80	V14 76100	61	80	281	183	238	4,3	WOEX 100504	858.71	61098
KUB-T.3D.620.R.10-ABS80	V14 76200	62	80	284	186	241	4,3	WOEX 100504	858.71	62098
KUB-T.3D.630.R.10-ABS80	V14 76300	63	80	287	189	244	4,3	WOEX 100504	858.71	63098
KUB-T.3D.640.R.10-ABS80	V14 76400	64	80	290	192	247	4,3	WOEX 100504	858.71	64098
KUB-T.3D.650.R.10-ABS80	V14 76500	65	80	293	195	250	4,3	WOEX 100504	858.71	65098
KUB-T.3D.660.R.10-ABS80	V14 76600	66	80	296	198	253	4,3	WOEX 100504	858.71	66098
KUB-T.3D.670.R.10-ABS80	V14 76700	67	80	299	201	256	4,3	WOEX 100504	858.71	67098
KUB-T.3D.680.R.10-ABS80	V14 76800	68	80	302	204	259	4,3	WOEX 100504	858.71	68098
KUB-T.3D.690.R.12-ABS80	V14 76900	69	80	315	207	272	6,25	WOEX 120608	908.34	69098
KUB-T.3D.700.R.12-ABS80	V14 77000	70	80	318	210	275	6,25	WOEX 120608	908.34	70098
KUB-T.3D.710.R.12-ABS80	V14 77100	71	80	321	213	278	6,25	WOEX 120608	908.34	71098
KUB-T.3D.720.R.12-ABS80	V14 77200	72	80	324	216	281	6,25	WOEX 120608	908.34	72098
KUB-T.3D.730.R.12-ABS80	V14 77300	73	80	327	219	284	6,25	WOEX 120608	908.34	73098
KUB-T.3D.740.R.12-ABS80	V14 77400	74	80	330	222	287	6,25	WOEX 120608	908.34	74098
KUB-T.3D.750.R.12-ABS80	V14 77500	75	80	333	225	290	6,25	WOEX 120608	908.34	75098
KUB-T.3D.760.R.12-ABS80	V14 77600	76	80	336	228	293	6,25	WOEX 120608	908.34	76098
KUB-T.3D.770.R.12-ABS80	V14 77700	77	80	339	231	296	6,25	WOEX 120608	908.34	77098
KUB-T.3D.780.R.12-ABS80	V14 77800	78	80	342	234	299	6,25	WOEX 120608	908.34	78098
KUB-T.3D.790.R.12-ABS80	V14 77900	79	80	345	237	302	6,25	WOEX 120608	908.34	79098
KUB-T.3D.800.R.12-ABS80	V14 78000	80	80	348	240	305	6,25	WOEX 120608	908.34	80098
KUB-T.3D.810.R.12-ABS80	V14 78100	81	80	351	243	308	6,25	WOEX 120608	908.34	81098
KUB-T.3D.820.R.12-ABS80	V14 78200	82	80	354	246	311	6,25	WOEX 120608	908.34	82098

Spare parts DC	Cylindrical pin 10 950 ... £ W7		Indexable insert, internal 10 897 ... £ 2B/6#		Indexable insert, external 10 898 ... £ 2B/6#		Key D 80 950 ... £ Y7		Clamping screw 10 950 ... £ W7		Fixing screw 10 950 ... £ W7	
45 - 54	1.01	17200	73.96	14800	73.96	14800	12.65	120	2.43	12700	2.73	17000
55 - 68	1.01	17200	80.21	25300	80.21	25300	12.65	120	2.43	12700	2.73	17000
69 - 82	1.11	17300	85.38	36000	85.38	36000	13.55	121	2.43	17400	2.73	17100

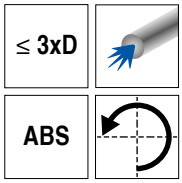
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

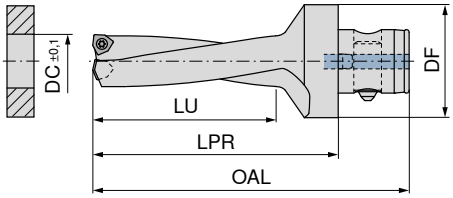
KUB Trigon – Indexable insert drill

▲ left-hand cutting

Scope of supply:

Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	11 893 ... £ 2B/6#	
KUB-T.3D.140.L.03-ABS50	V30 61402	14	50	108	42	77	0,62	WOEX 030204	374.27	14095
KUB-T.3D.150.L.03-ABS50	V30 61502	15	50	111	45	80	0,62	WOEX 030204	374.27	15095
KUB-T.3D.160.L.03-ABS50	V30 61600	16	50	114	48	83	0,62	WOEX 030204	374.27	16095
KUB-T.3D.170.L.03-ABS50	V30 61700	17	50	117	51	86	0,62	WOEX 030204	374.27	17095
KUB-T.3D.180.L.03-ABS50	V30 61800	18	50	120	54	89	0,62	WOEX 030204	374.27	18095
KUB-T.3D.190.L.03-ABS50	V30 61900	19	50	123	57	92	0,62	WOEX 030204	374.27	19095
KUB-T.3D.200.L.04-ABS50	V30 62000	20	50	126	60	95	1,01	WOEX 040304	381.24	20095
KUB-T.3D.210.L.04-ABS50	V30 62100	21	50	129	63	98	1,01	WOEX 040304	381.24	21095
KUB-T.3D.220.L.04-ABS50	V30 62200	22	50	132	66	101	1,01	WOEX 040304	381.24	22095
KUB-T.3D.230.L.04-ABS50	V30 62300	23	50	135	69	104	1,01	WOEX 040304	381.24	23095
KUB-T.3D.240.L.04-ABS50	V30 62400	24	50	138	72	107	1,01	WOEX 040304	381.24	24095
KUB-T.3D.250.L.05-ABS50	V30 62500	25	50	141	75	110	1,28	WOEX 05T304	390.13	25095
KUB-T.3D.260.L.05-ABS50	V30 62600	26	50	144	78	113	1,28	WOEX 05T304	390.13	26095
KUB-T.3D.270.L.05-ABS50	V30 62700	27	50	147	81	116	1,28	WOEX 05T304	390.13	27095
KUB-T.3D.280.L.05-ABS50	V30 62800	28	50	150	84	119	1,28	WOEX 05T304	390.13	28095
KUB-T.3D.290.L.05-ABS50	V30 62900	29	50	153	87	122	1,28	WOEX 05T304	390.13	29095
KUB-T.3D.300.L.05-ABS50	V30 63000	30	50	161	90	130	1,28	WOEX 05T304	390.13	30095
KUB-T.3D.310.L.05-ABS50	V30 63100	31	50	164	93	133	1,28	WOEX 05T304	390.13	31095
KUB-T.3D.320.L.05-ABS50	V30 63200	32	50	167	96	136	1,28	WOEX 05T304	390.13	32095
KUB-T.3D.330.L.05-ABS50	V30 63300	33	50	170	99	139	1,28	WOEX 05T304	390.13	33095
KUB-T.3D.340.L.05-ABS50	V30 63400	34	50	173	102	142	1,28	WOEX 05T304	390.13	34095
KUB-T.3D.350.L.05-ABS50	V30 63500	35	50	176	105	145	1,28	WOEX 05T304	390.13	35095
KUB-T.3D.360.L.05-ABS50	V30 63600	36	50	179	108	148	1,28	WOEX 05T304	390.13	36095
KUB-T.3D.370.L.06-ABS50	V30 63700	37	50	192	111	161	2,8	WOEX 06T304	423.92	37095
KUB-T.3D.380.L.06-ABS50	V30 63800	38	50	195	114	164	2,8	WOEX 06T304	423.92	38095
KUB-T.3D.390.L.06-ABS50	V30 63900	39	50	198	117	167	2,8	WOEX 06T304	423.92	39095
KUB-T.3D.400.L.06-ABS50	V30 64000	40	50	201	120	170	2,8	WOEX 06T304	423.92	40095
KUB-T.3D.410.L.06-ABS50	V30 64100	41	50	204	123	173	2,8	WOEX 06T304	423.92	41095
KUB-T.3D.420.L.06-ABS50	V30 64200	42	50	207	126	176	2,8	WOEX 06T304	423.92	42095
KUB-T.3D.430.L.06-ABS50	V30 64300	43	50	210	129	179	2,8	WOEX 06T304	423.92	43095
KUB-T.3D.440.L.06-ABS50	V30 64400	44	50	213	132	182	2,8	WOEX 06T304	423.92	44095


Key D


Clamping screw

Spare parts DC	80 950 ... £ Y7		10 950 ... £ W7	
14 - 19	14.36	123	2.26	10000
20 - 24	14.36	123	2.26	10700
25 - 36	14.16	125	2.26	10500
37 - 44	16.08	127	2.26	10600

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

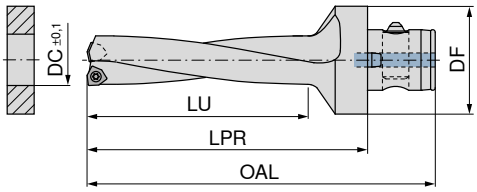
KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



ABS





3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 894 ... £ 2B/6#	
KUB-T.4D.140.R.03-ABS50	V30 91403	14	50	122	56	91	0,62	WOEX 030204	411.98	14095
KUB-T.4D.150.R.03-ABS50	V30 91503	15	50	126	60	95	0,62	WOEX 030204	411.98	15095
KUB-T.4D.160.R.03-ABS50	V30 91601	16	50	130	64	99	0,62	WOEX 030204	411.98	16095
KUB-T.4D.170.R.03-ABS50	V30 91701	17	50	134	68	103	0,62	WOEX 030204	411.98	17095
KUB-T.4D.180.R.03-ABS50	V30 91801	18	50	138	72	107	0,62	WOEX 030204	411.98	18095
KUB-T.4D.190.R.03-ABS50	V30 91901	19	50	142	76	111	0,62	WOEX 030204	411.98	19095
KUB-T.4D.200.R.04-ABS50	V30 92001	20	50	146	80	115	1,01	WOEX 040304	419.91	20095
KUB-T.4D.210.R.04-ABS50	V30 92101	21	50	150	84	119	1,01	WOEX 040304	419.91	21095
KUB-T.4D.220.R.04-ABS50	V30 92201	22	50	154	88	123	1,01	WOEX 040304	419.91	22095
KUB-T.4D.230.R.04-ABS50	V30 92301	23	50	158	92	127	1,01	WOEX 040304	419.91	23095
KUB-T.4D.240.R.04-ABS50	V30 92401	24	50	162	96	131	1,01	WOEX 040304	419.91	24095
KUB-T.4D.250.R.05-ABS50	V30 92501	25	50	166	100	135	1,28	WOEX 05T304	428.87	25095
KUB-T.4D.260.R.05-ABS50	V30 92601	26	50	170	104	139	1,28	WOEX 05T304	428.87	26095
KUB-T.4D.270.R.05-ABS50	V30 92701	27	50	174	108	143	1,28	WOEX 05T304	428.87	27095
KUB-T.4D.280.R.05-ABS50	V30 92801	28	50	178	112	147	1,28	WOEX 05T304	428.87	28095
KUB-T.4D.290.R.05-ABS50	V30 92901	29	50	182	116	151	1,28	WOEX 05T304	428.87	29095
KUB-T.4D.300.R.05-ABS50	V30 93001	30	50	191	120	160	1,28	WOEX 05T304	428.87	30095
KUB-T.4D.310.R.05-ABS50	V30 93101	31	50	195	124	164	1,28	WOEX 05T304	428.87	31095
KUB-T.4D.320.R.05-ABS50	V30 93201	32	50	199	128	168	1,28	WOEX 05T304	428.87	32095
KUB-T.4D.330.R.05-ABS50	V30 93301	33	50	203	132	172	1,28	WOEX 05T304	428.87	33095
KUB-T.4D.340.R.05-ABS50	V30 93401	34	50	207	136	176	1,28	WOEX 05T304	428.87	34095
KUB-T.4D.350.R.05-ABS50	V30 93501	35	50	211	140	180	1,28	WOEX 05T304	428.87	35095
KUB-T.4D.360.R.05-ABS50	V30 93601	36	50	215	144	184	1,28	WOEX 05T304	428.87	36095
KUB-T.4D.370.R.06-ABS50	V30 93701	37	50	229	148	198	2,8	WOEX 06T304	465.62	37095
KUB-T.4D.380.R.06-ABS50	V30 93801	38	50	233	152	202	2,8	WOEX 06T304	465.62	38095
KUB-T.4D.390.R.06-ABS50	V30 93901	39	50	237	156	206	2,8	WOEX 06T304	465.62	39095
KUB-T.4D.400.R.06-ABS50	V30 94001	40	50	241	160	210	2,8	WOEX 06T304	465.62	40095
KUB-T.4D.410.R.06-ABS50	V30 94101	41	50	245	164	214	2,8	WOEX 06T304	465.62	41095
KUB-T.4D.420.R.06-ABS50	V30 94201	42	50	249	168	218	2,8	WOEX 06T304	465.62	42095
KUB-T.4D.430.R.06-ABS50	V30 94301	43	50	253	172	222	2,8	WOEX 06T304	465.62	43095
KUB-T.4D.440.R.06-ABS50	V30 94401	44	50	257	176	226	2,8	WOEX 06T304	465.62	44095



Key D



Clamping screw

Spare parts DC	80 950 ...	£ Y7		10 950 ...	£ W7	
14 - 19	T06 - IP	14.36	123	M2,0x4,3 - 06IP	2.26	10000
20 - 24	T06 - IP	14.36	123	M2,2x5,5 - 06IP	2.26	10700
25 - 36	T08 - IP	14.16	125	M2,5x7,2 - 08IP	2.26	10500
37 - 44	T10 - IP	16.08	127	M3,5x7,3 - 10IP	2.26	10600

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

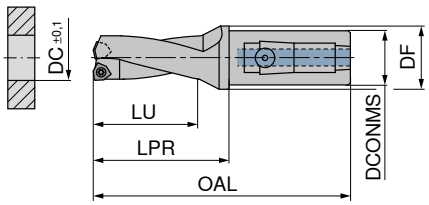
KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD



K





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 892 ... £ 2B/6#	
KUB-T.2D.140.R.03-K20	V43 31404	14	20	30	102	28	52	0,62	WOEX 030204	288.84	14011
KUB-T.2D.150.R.03-K20	V43 31504	15	20	30	104	30	54	0,62	WOEX 030204	288.84	15011
KUB-T.2D.160.R.03-K20	V43 31602	16	20	30	106	32	56	0,62	WOEX 030204	288.84	16011
KUB-T.2D.170.R.03-K20	V43 31702	17	20	30	108	34	58	0,62	WOEX 030204	288.84	17011
KUB-T.2D.180.R.03-K20	V43 31802	18	20	30	110	36	60	0,62	WOEX 030204	288.84	18011
KUB-T.2D.190.R.03-K20	V43 31902	19	20	30	112	38	62	0,62	WOEX 030204	288.84	19011
KUB-T.2D.200.R.04-K25	V44 32002	20	25	30	120	40	64	1,01	WOEX 040304	291.90	20012
KUB-T.2D.210.R.04-K25	V44 32102	21	25	30	122	42	66	1,01	WOEX 040304	291.90	21012
KUB-T.2D.220.R.04-K25	V44 32202	22	25	30	124	44	68	1,01	WOEX 040304	291.90	22012
KUB-T.2D.230.R.04-K25	V44 32302	23	25	30	126	46	70	1,01	WOEX 040304	291.90	23012
KUB-T.2D.240.R.04-K25	V44 32402	24	25	30	128	48	72	1,01	WOEX 040304	291.90	24012
KUB-T.2D.250.R.05-K32	V45 32502	25	32	39	134	50	74	1,28	WOEX 05T304	316.72	25013
KUB-T.2D.260.R.05-K32	V45 32602	26	32	39	136	52	76	1,28	WOEX 05T304	316.72	26013
KUB-T.2D.270.R.05-K32	V45 32702	27	32	39	138	54	78	1,28	WOEX 05T304	316.72	27013
KUB-T.2D.280.R.05-K32	V45 32802	28	32	39	140	56	80	1,28	WOEX 05T304	316.72	28013
KUB-T.2D.290.R.05-K32	V45 32902	29	32	39	142	58	82	1,28	WOEX 05T304	316.72	29013
KUB-T.2D.300.R.05-K32	V45 33002	30	32	39	149	60	89	1,28	WOEX 05T304	316.72	30013
KUB-T.2D.310.R.05-K32	V45 33102	31	32	39	151	62	91	1,28	WOEX 05T304	316.72	31013
KUB-T.2D.320.R.05-K32	V45 33202	32	32	39	153	64	93	1,28	WOEX 05T304	316.72	32013
KUB-T.2D.330.R.05-K32	V45 33302	33	32	39	155	66	95	1,28	WOEX 05T304	316.72	33013
KUB-T.2D.340.R.05-K32	V45 33402	34	32	39	157	68	97	1,28	WOEX 05T304	316.72	34013
KUB-T.2D.350.R.05-K32	V45 33502	35	32	39	159	70	99	1,28	WOEX 05T304	316.72	35013
KUB-T.2D.360.R.05-K32	V45 33602	36	32	39	161	72	101	1,28	WOEX 05T304	316.72	36013
KUB-T.2D.370.R.06-K32	V45 33702	37	32	39	173	74	113	2,8	WOEX 06T304	330.56	37013
KUB-T.2D.380.R.06-K32	V45 33802	38	32	39	175	76	115	2,8	WOEX 06T304	330.56	38013
KUB-T.2D.390.R.06-K32	V45 33902	39	32	39	177	78	117	2,8	WOEX 06T304	330.56	39013
KUB-T.2D.400.R.06-K32	V45 34002	40	32	39	179	80	119	2,8	WOEX 06T304	330.56	40013
KUB-T.2D.410.R.06-K32	V45 34102	41	32	39	181	82	121	2,8	WOEX 06T304	330.56	41013
KUB-T.2D.420.R.06-K32	V45 34202	42	32	39	183	84	123	2,8	WOEX 06T304	330.56	42013
KUB-T.2D.430.R.06-K32	V45 34302	43	32	39	185	86	125	2,8	WOEX 06T304	330.56	43013
KUB-T.2D.440.R.06-K32	V45 34402	44	32	39	187	88	127	2,8	WOEX 06T304	330.56	44013



Key D



Clamping screw

Spare parts DC		80 950 ... £ Y7			10 950 ... £ W7	
14 - 19	T06 - IP	14.36	123	M2,0x4,3 - 06IP	2.26	10000
20 - 24	T06 - IP	14.36	123	M2,2x5,5 - 06IP	2.26	10700
25 - 36	T08 - IP	14.16	125	M2,5x7,2 - 08IP	2.26	10500
37 - 44	T10 - IP	16.08	127	M3,5x7,3 - 10IP	2.26	10600

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

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD

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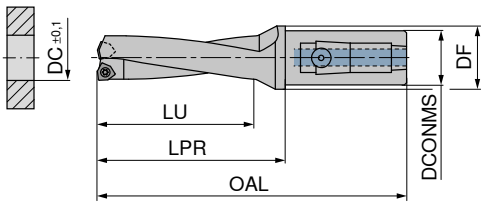



3

Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 893 ... £ 2B/6#	
KUB-T.3D.140.R.03-K20	V43 71404	14	20	30	116	42	66	0,62	WOEX 030204	302.78	14011
KUB-T.3D.150.R.03-K20	V43 71504	15	20	30	119	45	69	0,62	WOEX 030204	302.78	15011
KUB-T.3D.160.R.03-K20	V43 71602	16	20	30	122	48	72	0,62	WOEX 030204	302.78	16011
KUB-T.3D.170.R.03-K20	V43 71702	17	20	30	125	51	75	0,62	WOEX 030204	302.78	17011
KUB-T.3D.180.R.03-K20	V43 71802	18	20	30	128	54	78	0,62	WOEX 030204	302.78	18011
KUB-T.3D.190.R.03-K20	V43 71902	19	20	30	131	57	81	0,62	WOEX 030204	302.78	19011
KUB-T.3D.200.R.04-K25	V44 72002	20	25	30	140	60	84	1,01	WOEX 040304	324.64	20012
KUB-T.3D.210.R.04-K25	V44 72102	21	25	30	143	63	87	1,01	WOEX 040304	324.64	21012
KUB-T.3D.220.R.04-K25	V44 72202	22	25	30	146	66	90	1,01	WOEX 040304	324.64	22012
KUB-T.3D.230.R.04-K25	V44 72302	23	25	30	149	69	93	1,01	WOEX 040304	324.64	23012
KUB-T.3D.240.R.04-K25	V44 72402	24	25	30	152	72	96	1,01	WOEX 040304	324.64	24012
KUB-T.3D.250.R.05-K32	V45 72502	25	32	39	159	75	99	1,28	WOEX 05T304	353.38	25013
KUB-T.3D.260.R.05-K32	V45 72602	26	32	39	162	78	102	1,28	WOEX 05T304	353.38	26013
KUB-T.3D.270.R.05-K32	V45 72702	27	32	39	165	81	105	1,28	WOEX 05T304	353.38	27013
KUB-T.3D.280.R.05-K32	V45 72802	28	32	39	168	84	108	1,28	WOEX 05T304	353.38	28013
KUB-T.3D.290.R.05-K32	V45 72902	29	32	39	171	87	111	1,28	WOEX 05T304	353.38	29013
KUB-T.3D.300.R.05-K32	V45 73002	30	32	39	179	90	119	1,28	WOEX 05T304	353.38	30013
KUB-T.3D.310.R.05-K32	V45 73102	31	32	39	182	93	122	1,28	WOEX 05T304	353.38	31013
KUB-T.3D.320.R.05-K32	V45 73202	32	32	39	185	96	125	1,28	WOEX 05T304	353.38	32013
KUB-T.3D.330.R.05-K32	V45 73302	33	32	39	188	99	128	1,28	WOEX 05T304	353.38	33013
KUB-T.3D.340.R.05-K32	V45 73402	34	32	39	191	102	131	1,28	WOEX 05T304	353.38	34013
KUB-T.3D.350.R.05-K32	V45 73502	35	32	39	194	105	134	1,28	WOEX 05T304	353.38	35013
KUB-T.3D.360.R.05-K32	V45 73602	36	32	39	197	108	137	1,28	WOEX 05T304	353.38	36013
KUB-T.3D.370.R.06-K32	V45 73702	37	32	39	210	111	150	2,8	WOEX 06T304	383.16	37013
KUB-T.3D.380.R.06-K32	V45 73802	38	32	39	213	114	153	2,8	WOEX 06T304	383.16	38013
KUB-T.3D.390.R.06-K32	V45 73902	39	32	39	216	117	156	2,8	WOEX 06T304	383.16	39013
KUB-T.3D.400.R.06-K32	V45 74002	40	32	39	219	120	159	2,8	WOEX 06T304	383.16	40013
KUB-T.3D.410.R.06-K32	V45 74102	41	32	39	222	123	162	2,8	WOEX 06T304	383.16	41013
KUB-T.3D.420.R.06-K32	V45 74202	42	32	39	225	126	165	2,8	WOEX 06T304	383.16	42013
KUB-T.3D.430.R.06-K32	V45 74302	43	32	39	228	129	168	2,8	WOEX 06T304	383.16	43013
KUB-T.3D.440.R.06-K32	V45 74402	44	32	39	231	132	171	2,8	WOEX 06T304	383.16	44013


Key D


Clamping screw

Spare parts DC		80 950 ... £ Y7			10 950 ... £ W7	
14 - 19	T06 - IP	14.36	123	M2,0x4,3 - 06IP	2.26	10000
20 - 24	T06 - IP	14.36	123	M2,2x5,5 - 06IP	2.26	10700
25 - 36	T08 - IP	14.16	125	M2,5x7,2 - 08IP	2.26	10500
37 - 44	T10 - IP	16.08	127	M3,5x7,3 - 10IP	2.26	10600

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

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



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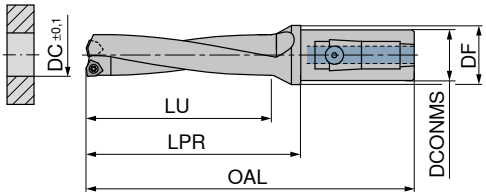




Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 894 ... £ 2B/6#	
KUB-T.4D.140.R.03-K20	V43 91404	14	20	30	130	56	80	0,62	WOEX 030204	332.57	14011
KUB-T.4D.150.R.03-K20	V43 91504	15	20	30	134	60	84	0,62	WOEX 030204	332.57	15011
KUB-T.4D.160.R.03-K20	V43 91602	16	20	30	138	64	88	0,62	WOEX 030204	332.57	16011
KUB-T.4D.170.R.03-K20	V43 91702	17	20	30	142	68	92	0,62	WOEX 030204	332.57	17011
KUB-T.4D.180.R.03-K20	V43 91802	18	20	30	146	72	96	0,62	WOEX 030204	332.57	18011
KUB-T.4D.190.R.03-K20	V43 91902	19	20	30	150	76	100	0,62	WOEX 030204	332.57	19011
KUB-T.4D.200.R.04-K25	V44 92002	20	25	30	160	80	104	1,01	WOEX 040304	357.38	20012
KUB-T.4D.210.R.04-K25	V44 92102	21	25	30	164	84	108	1,01	WOEX 040304	357.38	21012
KUB-T.4D.220.R.04-K25	V44 92202	22	25	30	168	88	112	1,01	WOEX 040304	357.38	22012
KUB-T.4D.230.R.04-K25	V44 92302	23	25	30	172	92	116	1,01	WOEX 040304	357.38	23012
KUB-T.4D.240.R.04-K25	V44 92402	24	25	30	176	96	120	1,01	WOEX 040304	357.38	24012
KUB-T.4D.250.R.05-K32	V45 92502	25	32	39	184	100	124	1,28	WOEX 05T304	366.36	25013
KUB-T.4D.260.R.05-K32	V45 92602	26	32	39	188	104	128	1,28	WOEX 05T304	366.36	26013
KUB-T.4D.270.R.05-K32	V45 92702	27	32	39	192	108	132	1,28	WOEX 05T304	366.36	27013
KUB-T.4D.280.R.05-K32	V45 92802	28	32	39	196	112	136	1,28	WOEX 05T304	366.36	28013
KUB-T.4D.290.R.05-K32	V45 92902	29	32	39	200	116	140	1,28	WOEX 05T304	386.21	29013
KUB-T.4D.300.R.05-K32	V45 93002	30	32	39	209	120	149	1,28	WOEX 05T304	386.21	30013
KUB-T.4D.310.R.05-K32	V45 93102	31	32	39	213	124	153	1,28	WOEX 05T304	386.21	31013
KUB-T.4D.320.R.05-K32	V45 93202	32	32	39	217	128	157	1,28	WOEX 05T304	386.21	32013
KUB-T.4D.330.R.05-K32	V45 93302	33	32	39	221	132	161	1,28	WOEX 05T304	386.21	33013
KUB-T.4D.340.R.05-K32	V45 93402	34	32	39	225	136	165	1,28	WOEX 05T304	386.21	34013
KUB-T.4D.350.R.05-K32	V45 93502	35	32	39	229	140	169	1,28	WOEX 05T304	386.21	35013


Key D


Clamping screw

Spare parts DC		80 950 ... £ Y7			10 950 ... £ W7	
14 - 19	T06 - IP	14.36	123	M2,0x4,3 - 06IP	2.26	10000
20 - 24	T06 - IP	14.36	123	M2,2x5,5 - 06IP	2.26	10700
25 - 35	T08 - IP	14.16	125	M2,5x7,2 - 08IP	2.26	10500

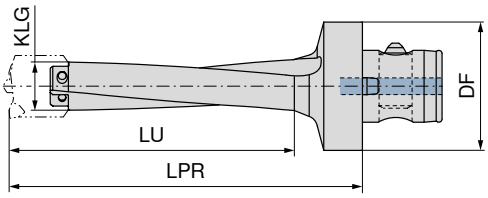
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Centron – basic element

▲ KLG = Coupling Size

≤ 4xD

ABS



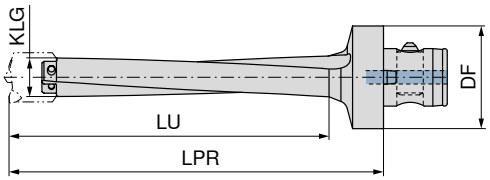
NEW



Designation	KOMET no.	DF mm	LU mm	LPR mm	KLG	10 864 ... £ 2B/6#	
KUB-C.GH.4D.190-ABS50	V47 20201	50	113	145	19	384.21	19095
KUB-C.GH.4D.250-ABS50	V47 20261	50	130	160	25	384.21	25095
KUB-C.GH.4D.320-ABS50	V47 20331	50	160	195	32	384.21	32095
KUB-C.GH.4D.385-ABS63	V47 20401	63	185	235	38,5	574.82	38596
KUB-C.GH.4D.445-ABS80	V47 20461	80	215	280	44,5	574.82	44598
KUB-C.GH.4D.535-ABS80	V47 20551	80	260	325	53,5	713.81	53598
KUB-C.GH.4D.635-ABS80	V47 20651	80	295	375	63,5	799.14	63598
KUB-C.GH.4D.705-ABS100	V47 20721	100	325	405	70,5	851.74	70591

≤ 6xD

ABS

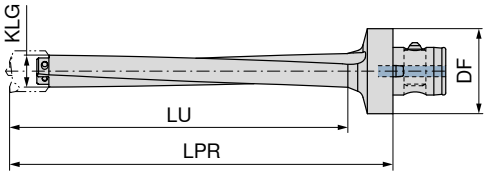




Designation	KOMET no.	DF mm	LU mm	LPR mm	KLG	10 866 ... £ 2B/6#	
KUB-C.GH.6D.190-ABS50	V47 40201	50	150	185	19	457.61	19095
KUB-C.GH.6D.250-ABS50	V47 40261	50	175	210	25	457.61	25095
KUB-C.GH.6D.320-ABS50	V47 40331	50	215	255	32	457.61	32095
KUB-C.GH.6D.385-ABS63	V47 40401	63	260	310	38,5	628.37	38596
KUB-C.GH.6D.445-ABS80	V47 40461	80	310	375	44,5	628.37	44598
KUB-C.GH.6D.535-ABS80	V47 40551	80	370	435	53,5	851.74	53598
KUB-C.GH.6D.635-ABS80	V47 40651	80	420	500	63,5	897.47	63598
KUB-C.GH.6D.705-ABS100	V47 40721	100	460	540	70,5	954.54	70591

≤ 9xD

ABS





Designation	KOMET no.	DF mm	LU mm	LPR mm	KLG	10 869 ... £ 2B/6#	
KUB-C.GH.9D.190-ABS50	V47 60201	50	200	235	19	505.33	19095
KUB-C.GH.9D.250-ABS50	V47 60261	50	230	260	25	505.33	25095
KUB-C.GH.9D.320-ABS50	V47 60331	50	290	330	32	505.33	32095
KUB-C.GH.9D.385-ABS63	V47 60401	63	340	390	38,5	684.02	38596
KUB-C.GH.9D.445-ABS80	V47 60461	80	415	480	44,5	684.02	44598
KUB-C.GH.9D.535-ABS80	V47 60551	80	495	560	53,5	948.06	53598
KUB-C.GH.9D.635-ABS80	V47 60651	80	560	640	63,5	1,024.22	63598
KUB-C.GH.9D.705-ABS100	V47 60721	100	610	690	70,5	1,074.82	70591

For correct assembly, please observe the operating instructions provided.

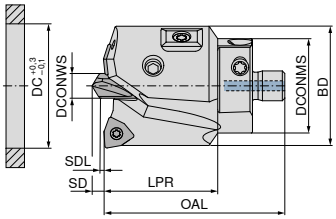
KUB Centron – drill bit Ø 20–64 mm

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

Scope of supply:

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





NEW



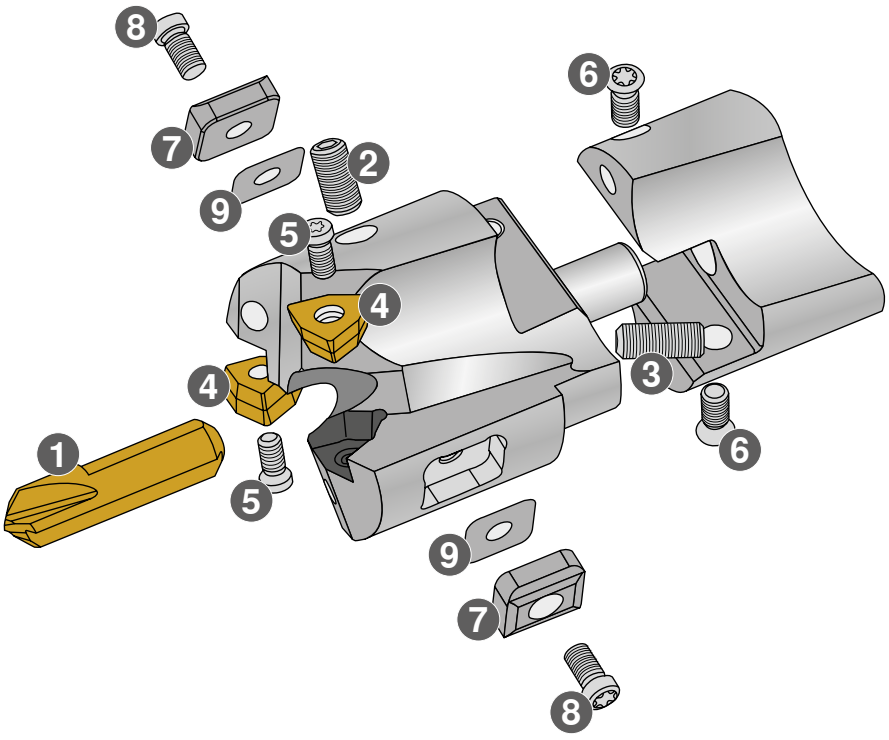
10 860 ...

Designation	KOMET no.	DC mm	OAL mm	LPR mm	SD mm	BD mm	SDL mm	DCONMS mm	DCONWS mm	KLG	torque moment Nm	Insert	£ 2B/6#	
KUB-C.BK.200.R.03-19	V46 50201	20	36.5	23	2.25	19.0	1.00	19.0	5	19	0,62	WOEX 030204	337.72	20000
KUB-C.BK.210.R.03-19	V46 50211	21	36.5	23	2.25	20.0	1.00	19.0	5	19	0,62	WOEX 030204	337.72	21000
KUB-C.BK.220.R.03-19	V46 50221	22	36.5	23	2.25	21.0	1.00	19.0	5	19	0,62	WOEX 030204	337.72	22000
KUB-C.BK.230.R.03-19	V46 50231	23	36.5	23	2.25	22.0	1.00	19.0	5	19	0,62	WOEX 030204	337.72	23000
KUB-C.BK.240.R.03-19	V46 50241	24	36.5	23	2.25	23.0	1.00	19.0	5	19	0,62	WOEX 030204	337.72	24000
KUB-C.BK.250.R.03-19	V46 50251	25	36.5	23	2.25	24.0	1.00	19.0	5	19	0,62	WOEX 030204	337.72	25000
KUB-C.BK.260.R.04-25	V46 50260	26	38.0	23	2.65	25.0	1.10	25.0	6	25	1,01	WOEX 040304	386.21	26000
KUB-C.BK.270.R.04-25	V46 50270	27	38.0	23	2.65	26.0	1.10	25.0	6	25	1,01	WOEX 040304	386.21	27000
KUB-C.BK.280.R.04-25	V46 50280	28	38.0	23	2.65	27.0	1.10	25.0	6	25	1,01	WOEX 040304	386.21	28000
KUB-C.BK.290.R.04-25	V46 50290	29	38.0	23	2.65	28.0	1.10	25.0	6	25	1,01	WOEX 040304	386.21	29000
KUB-C.BK.300.R.04-25	V46 50300	30	38.0	23	2.65	29.0	1.10	25.0	6	25	1,01	WOEX 040304	386.21	30000
KUB-C.BK.310.R.04-25	V46 50310	31	38.0	23	2.65	30.0	1.10	25.0	6	25	1,01	WOEX 040304	386.21	31000
KUB-C.BK.320.R.04-25	V46 50320	32	38.0	23	2.65	31.0	1.10	25.0	6	25	1,01	WOEX 040304	386.21	32000
KUB-C.BK.330.R.05-32	V46 50330	33	39.2	23	2.65	32.0	1.10	32.0	6	32	1,28	WOEX 05T304	500.38	33000
KUB-C.BK.340.R.05-32	V46 50340	34	39.2	23	2.65	33.0	1.10	32.0	6	32	1,28	WOEX 05T304	500.38	34000
KUB-C.BK.350.R.05-32	V46 50350	35	39.2	23	2.65	34.0	1.10	32.0	6	32	1,28	WOEX 05T304	500.38	35000
KUB-C.BK.360.R.05-32	V46 50360	36	39.2	23	2.65	35.0	1.10	32.0	6	32	1,28	WOEX 05T304	500.38	36000
KUB-C.BK.370.R.05-32	V46 50370	37	39.2	23	2.65	36.0	1.10	32.0	6	32	1,28	WOEX 05T304	500.38	37000
KUB-C.BK.380.R.05-32	V46 50380	38	39.2	23	2.65	37.0	1.10	32.0	6	32	1,28	WOEX 05T304	500.38	38000
KUB-C.BK.390.R.05-32	V46 50390	39	39.2	23	2.65	38.0	1.10	32.0	6	32	1,28	WOEX 05T304	500.38	39000
KUB-C.BK.400.R.05-38,5	V46 50400	40	43.1	25	3.38	38.5	1.25	38.5	8	38,5	1,28	WOEX 05T304	514.22	40000
KUB-C.BK.410.R.05-38,5	V46 50410	41	43.1	25	3.38	39.5	1.25	38.5	8	38,5	1,28	WOEX 05T304	514.22	41000
KUB-C.BK.420.R.05-38,5	V46 50420	42	43.1	25	3.38	40.5	1.25	38.5	8	38,5	1,28	WOEX 05T304	514.22	42000
KUB-C.BK.430.R.05-38,5	V46 50430	43	43.1	25	3.38	41.5	1.25	38.5	8	38,5	1,28	WOEX 05T304	514.22	43000
KUB-C.BK.440.R.05-38,5	V46 50440	44	43.1	25	3.38	42.5	1.25	38.5	8	38,5	1,28	WOEX 05T304	514.22	44000
KUB-C.BK.450.R.05-38,5	V46 50450	45	43.1	25	3.38	43.5	1.25	38.5	8	38,5	1,28	WOEX 05T304	514.22	45000
KUB-C.BK.460.R.06-44,5	V46 50460	46	47.0	25	3.86	44.5	1.25	44.5	10	44,5	2,8	WOEX 06T304	550.97	46000
KUB-C.BK.470.R.06-44,5	V46 50470	47	47.0	25	3.86	45.5	1.25	44.5	10	44,5	2,8	WOEX 06T304	550.97	47000
KUB-C.BK.480.R.06-44,5	V46 50480	48	47.0	25	3.86	46.5	1.25	44.5	10	44,5	2,8	WOEX 06T304	550.97	48000
KUB-C.BK.490.R.06-44,5	V46 50490	49	47.0	25	3.86	47.5	1.25	44.5	10	44,5	2,8	WOEX 06T304	550.97	49000
KUB-C.BK.500.R.06-44,5	V46 50500	50	47.0	25	3.86	48.5	1.25	44.5	10	44,5	2,8	WOEX 06T304	550.97	50000
KUB-C.BK.510.R.06-44,5	V46 50510	51	47.0	25	3.86	49.5	1.25	44.5	10	44,5	2,8	WOEX 06T304	550.97	51000
KUB-C.BK.520.R.06-44,5	V46 50520	52	47.0	25	3.86	50.5	1.25	44.5	10	44,5	2,8	WOEX 06T304	550.97	52000
KUB-C.BK.530.R.06-44,5	V46 50530	53	47.0	25	3.86	51.5	1.25	44.5	10	44,5	2,8	WOEX 06T304	570.82	53000
KUB-C.BK.540.R.06-44,5	V46 50540	54	47.0	25	3.86	52.5	1.25	44.5	10	44,5	2,8	WOEX 06T304	570.82	54000
KUB-C.BK.550.R.08-53,5	V46 50550	55	52.0	30	3.86	53.5	1.25	53.5	10	53,5	6,25	WOEX 080404	590.68	55000
KUB-C.BK.560.R.08-53,5	V46 50560	56	52.0	30	3.86	54.5	1.25	53.5	10	53,5	6,25	WOEX 080404	590.68	56000
KUB-C.BK.570.R.08-53,5	V46 50570	57	52.0	30	3.86	55.5	1.25	53.5	10	53,5	6,25	WOEX 080404	590.68	57000
KUB-C.BK.580.R.08-53,5	V46 50580	58	52.0	30	3.86	56.5	1.25	53.5	10	53,5	6,25	WOEX 080404	590.68	58000
KUB-C.BK.590.R.08-53,5	V46 50590	59	52.0	30	3.86	57.5	1.25	53.5	10	53,5	6,25	WOEX 080404	590.68	59000
KUB-C.BK.600.R.08-53,5	V46 50600	60	52.0	30	3.86	58.5	1.25	53.5	10	53,5	6,25	WOEX 080404	590.68	60000
KUB-C.BK.610.R.08-53,5	V46 50610	61	52.0	30	3.86	59.5	1.25	53.5	10	53,5	6,25	WOEX 080404	590.68	61000
KUB-C.BK.620.R.08-53,5	V46 50620	62	52.0	30	3.86	60.5	1.25	53.5	10	53,5	6,25	WOEX 080404	590.68	62000
KUB-C.BK.630.R.08-53,5	V46 50630	63	52.0	30	3.86	61.5	1.25	53.5	10	53,5	6,25	WOEX 080404	590.68	63000
KUB-C.BK.640.R.08-53,5	V46 50640	64	52.0	30	3.86	62.5	1.25	53.5	10	53,5	6,25	WOEX 080404	590.68	64000

Spare parts DC		Guide pad clamping screw 10 950 ... £ W7		Indexable insert clamping screw 10 950 ... £ W7		Guide pad 10 950 ... £ W7		Shim set 10 950 ... £ W7	
20	M2,5x4,2 - 8IP - 1,28Nm	2.73	11900	M2,0x4,3 - 06IP	2.26	68.71	14600	21.26	15200
21 - 22	M2,5x4,2 - 8IP - 1,28Nm	2.73	11900	M2,0x4,3 - 06IP	2.26	68.71	14600	21.26	15200
23 - 25	M2,5x4,5 - 8IP - 1,28Nm	3.13	11700	M2,0x4,3 - 06IP	2.26	58.62	14700	21.26	15200
26 - 29	M2,5x4,5 - 8IP - 1,28Nm	3.13	11700	M2,2x5,5 - 06IP	2.26	58.62	14700	21.26	15200
30 - 32	M2,5x4,5 - 8IP - 1,28Nm	3.13	11700	M2,2x5,5 - 06IP	2.26	58.62	14800	21.26	15200
33 - 36	M2,5x4,5 - 8IP - 1,28Nm	3.13	11700	M2,5x7,2 - 08IP	2.26	58.62	14800	21.26	15200
37 - 39	M2,5x4,5 - 8IP - 1,28Nm	3.13	11700	M2,5x7,2 - 08IP	2.26	58.62	14900	21.26	15200
40 - 45	M2,5x4,5 - 8IP - 1,28Nm	3.13	11700	M2,5x7,2 - 08IP	2.26	58.62	14900	21.26	15200
46 - 54	M3,5x5,0 - 8IP - 2,25Nm	2.73	11800	M3,5x7,3 - 10IP	2.26	71.72	15000	21.26	15300
55 - 64	M3,5x5,0 - 8IP - 2,25Nm	2.73	11800	M4,5x9 - 15IP	2.43	71.72	15100	21.26	15300

Spare parts DC		Basic element clamping screw 10 950 ... £ W7		Centring tip clamping screw 10 950 ... £ W7	
20	M2,5x6,4 - 08IP - 1,28Nm	2.73	12400	M4x6 - SW2 - 1,5Nm	3.13	12800
21 - 22	M2,5x6,4 - 08IP - 1,28Nm	2.73	12400	M4x8 - SW2 - 1,5Nm	3.13	12900
23 - 25	M2,5x6,4 - 08IP - 1,28Nm	2.73	12400	M4x8 - SW2 - 1,5Nm	3.13	12900
26 - 29	M3x7,4 - 08IP - 2,25Nm	2.73	12500	M5x10 - SW2,5 - 2,5Nm	3.13	13000
30 - 32	M3x7,4 - 08IP - 2,25Nm	2.73	12500	M5x10 - SW2,5 - 2,5Nm	3.13	13000
33 - 36	M4x8,9 - 15IP - 4,3Nm	2.73	12000	M5x12 - SW2,5 - 2,5Nm	3.13	13100
37 - 39	M4x8,9 - 15IP - 4,3Nm	2.73	12000	M5x12 - SW2,5 - 2,5Nm	3.13	13100
40 - 45	M4,5x10,5 - 20IP - 6,25Nm	2.73	12600	M6x12 - SW3 - 5Nm	3.13	13200
46 - 54	M5x11,5 - 20IP - 6,25Nm	2.73	12100	M8x16 - SW4 - 8Nm	3.13	13300
55 - 64	M5,5x14 - 20IP - 6,25Nm	2.73	12200	M8x16 - SW4 - 8Nm	3.13	13300

Exploded drawing of the drill head Ø 20–64 mm



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

For correct assembly, please observe the operating instructions provided.

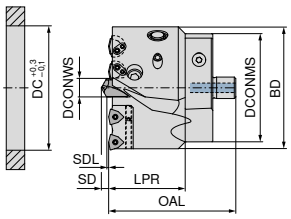
KUB Centron – drill bit Ø 65–81 mm

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

Scope of supply:

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





NEW



Designation	KOMET no.	DC mm	OAL mm	LPR mm	SD mm	BD mm	SDL mm	DCONMS mm	DCONWS mm	KLG	torque moment Nm	Insert	10 860 ... £ 2B/6#	
KUB-C.BK.650.R.08-63,5	V46 50650	65	63.0	35	4.67	63.5	1.45	63.5	12	63,5	6,25	WOEX 05T304	698.92	**65000**
KUB-C.BK.660.R.08-63,5	V46 50660	66	63.0	35	4.67	64.5	1.45	63.5	12	63,5	6,25	WOEX 05T304	698.92	**66000**
KUB-C.BK.670.R.08-63,5	V46 50670	67	63.0	35	4.67	65.5	1.45	63.5	12	63,5	6,25	WOEX 05T304	698.92	**67000**
KUB-C.BK.680.R.08-63,5	V46 50680	68	63.0	35	4.67	66.5	1.45	63.5	12	63,5	6,25	WOEX 05T304	698.92	**68000**
KUB-C.BK.690.R.08-63,5	V46 50690	69	63.0	35	4.67	67.5	1.45	63.5	12	63,5	6,25	WOEX 05T304	698.92	**69000**
KUB-C.BK.700.R.08-63,5	V46 50700	70	63.0	35	4.67	68.5	1.45	63.5	12	63,5	6,25	WOEX 05T304	698.92	**70000**
KUB-C.BK.710.R.08-70,5	V46 50710	71	63.0	35	4.67	69.5	1.45	70.5	12	70,5	6,25	WOEX 05T304	698.92	**71000**
KUB-C.BK.720.R.08-70,5	V46 50720	72	80.5	50	4.67	70.5	1.45	70.5	12	70,5	6,25	WOEX 05T304	819.96	**72000**
KUB-C.BK.730.R.08-70,5	V46 50730	73	80.5	50	4.67	71.5	1.45	70.5	12	70,5	6,25	WOEX 05T304	819.96	**73000**
KUB-C.BK.740.R.08-70,5	V46 50740	74	80.5	50	4.67	72.5	1.45	70.5	12	70,5	6,25	WOEX 05T304	819.96	**74000**
KUB-C.BK.750.R.08-70,5	V46 50750	75	80.5	50	4.67	73.5	1.45	70.5	12	70,5	6,25	WOEX 05T304	819.96	**75000**
KUB-C.BK.760.R.08-70,5	V46 50760	76	80.5	50	4.67	74.5	1.45	70.5	12	70,5	6,25	WOEX 05T304	819.96	**76000**
KUB-C.BK.770.R.08-70,5	V46 50770	77	80.5	50	4.67	75.5	1.45	70.5	12	70,5	6,25	WOEX 05T304	819.96	**77000**
KUB-C.BK.780.R.08-70,5	V46 50780	78	80.5	50	4.67	76.5	1.45	70.5	12	70,5	6,25	WOEX 05T304	819.96	**78000**
KUB-C.BK.790.R.08-70,5	V46 50790	79	80.5	50	4.67	77.5	1.45	70.5	12	70,5	6,25	WOEX 05T304	819.96	**79000**
KUB-C.BK.800.R.08-70,5	V46 50800	80	80.5	50	4.67	78.5	1.45	70.5	12	70,5	6,25	WOEX 05T304	819.96	**80000**
KUB-C.BK.810.R.08-70,5	V46 50810	81	80.5	50	4.67	79.5	1.45	70.5	12	70,5	6,25	WOEX 05T304	819.96	**81000**


Grub screw


Copper disc


Indexable insert fixing screw


Indexable insert fixing screw

Spare parts DC		10 950 ... £ W7			10 950 ... £ W7			10 950 ... £ W7			10 950 ... £ W7	
65 - 71	M6x8 - SW3	1.01	**11300**	Ø4,5x1,5	2.03	**11400**	M4,5x11,5 - T15	2.73	**13500**			
72 - 75	M6x8 - SW3	1.01	**11300**	Ø4,5x1,5	2.03	**11400**	M5x12 - SW2,5	1.01	**11000**	M2,5x6 - 08IP - 1,28Nm	2.73	**11600**
76 - 78	M6x8 - SW3	1.01	**11300**	Ø4,5x1,5	2.03	**11400**	M5x12 - SW2,5	1.01	**11000**	M2,5x6 - 08IP - 1,28Nm	2.73	**11600**
79 - 81	M6x8 - SW3	1.01	**11300**	Ø4,5x1,5	2.03	**11400**	M5x12 - SW2,5	1.01	**11000**	M2,5x6 - 08IP - 1,28Nm	2.73	**11600**


Indexable insert seat


Indexable insert seat


Indexable insert seat


Cylindrical pin


Indexable insert adjusting screw

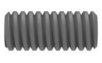

Basic element clamping screw

Spare parts DC		10 950 ... £ 2B/6#			10 950 ... £ 2B/6#			10 950 ... £ 2B/6#			10 950 ... £ W7			10 950 ... £ W7	
65 - 71	156.83	**13800**								M4x8 - SW2	1.01	**11100**	M6x16 - 20IP - 6,25Nm	2.81	**12300**
72 - 75	250.18	**13900**	69.78	**13700**	69.78	**13600**	1.11	**11500**	M4x10 - SW2	1.01	**11200**	M6x16 - 20IP - 6,25Nm	2.81	**12300**
76 - 78	250.18	**14000**	69.78	**13700**	69.78	**13600**	1.11	**11500**	M4x10 - SW2	1.01	**11200**	M6x16 - 20IP - 6,25Nm	2.81	**12300**
79 - 81	250.18	**14100**	69.78	**13700**	69.78	**13600**	1.11	**11500**	M4x10 - SW2	1.01	**11200**	M6x16 - 20IP - 6,25Nm	2.81	**12300**


Carbide bolt key

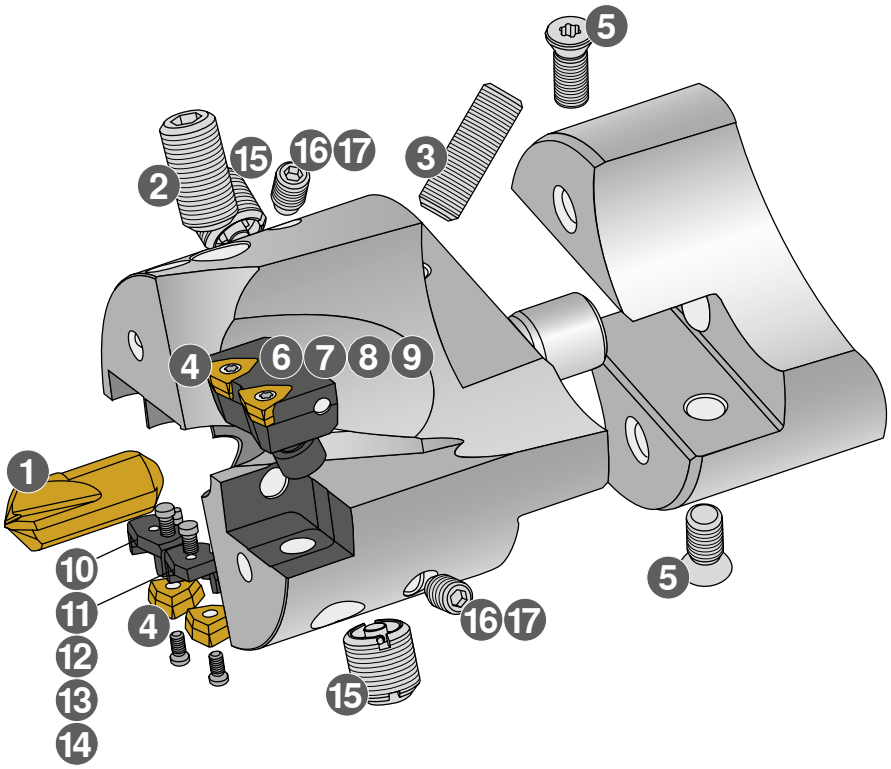

Carbide bolt


Indexable insert clamping screw


Centring tip clamping screw

Spare parts DC		10 950 ... £ W7			10 950 ... £ W7			10 950 ... £ W7			10 950 ... £ W7	
65 - 71	29.31	**15500**	M12x1	134.56	**15400**	M2,5x7,2 - 08IP	2.26	**10500**	M10x20 - SW5 - 16Nm	3.13	**13400**	
72 - 75	29.31	**15500**	M12x1	134.56	**15400**	M2,5x7,2 - 08IP	2.26	**10500**	M10x20 - SW5 - 16Nm	3.13	**13400**	
76 - 78	29.31	**15500**	M12x1	134.56	**15400**	M2,5x7,2 - 08IP	2.26	**10500**	M10x20 - SW5 - 16Nm	3.13	**13400**	
79 - 81	29.31	**15500**	M12x1	134.56	**15400**	M2,5x7,2 - 08IP	2.26	**10500**	M10x20 - SW5 - 16Nm	3.13	**13400**	

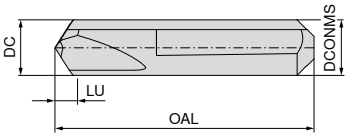
Exploded drawing of the drill head Ø 65–81 mm

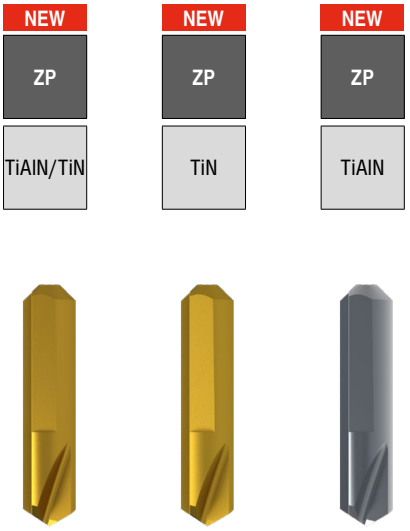


1. Centring tip
2. Clamping screw for centring tip
3. Adjusting screw for centring tip
4. Indexable Insert
5. Clamping screw for basic element
6. Indexable insert seat
7. Fixing screw for indexable insert
8. Adjusting screw for indexable insert
9. Clamping screw for indexable insert
10. Indexable insert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

For correct assembly, please observe the operating instructions provided.

KUB Centron – centring tip





DC mm	KOMET no.	OAL mm	LU mm	DCONMS mm	120° Solid carbide 10 863 ... £ T2		120° HSS 10 862 ... £ T2		120° HSS 10 862 ... £ T2	
5	V95 10012.0089	21.5	2.25	5			37.17	00500		
5	V95 10012.0090	21.5	2.25	5					37.17	10500
5	V95 10310.8450	21.5	2.25	5	85.81	20500				
6	V95 10022.0089	23.0	2.65	6			37.17	00600		
6	V95 10022.0090	23.0	2.65	6					37.17	10600
6	V95 10320.8450	23.0	2.65	6	85.81	20600				
8	V95 10032.0089	27.0	3.38	8			40.56	00800		
8	V95 10032.0090	27.0	3.38	8					40.56	10800
8	V95 10330.8450	27.0	3.38	8	105.84	20800				
10	V95 10042.0089	28.0	3.86	10			45.72	01000		
10	V95 10042.0090	28.0	3.86	10					45.72	11000
10	V95 10340.8450	28.0	3.86	10	114.99	21000				
12	V95 10050.0089	30.8	4.67	12			57.89	01200		
12	V95 10050.0090	30.8	4.67	12					57.89	11200
P					●		●			
M					●					●
K					●					●
N					●		●			
S					○					●
H										
O					○		○			

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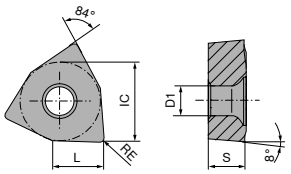
The cutting data of the KUB Centron depends on the centring tip and not on the indexable inserts.
Please select the cutting data of the centring tip.

For correct assembly, please observe the operating instructions provided.

Article No. 10 863 ... is only suitable up to drilling depth 6xD.

WOEX

Designation	L mm	IC mm	S mm	D1 mm
WOEX 0302..	3.2	5.00	2.30	2.30
WOEX 0403..	4.1	6.35	3.18	2.55
WOEX 05T3..	5.3	8.00	3.80	2.85
WOEX 06T3..	6.6	10.00	3.80	4.05
WOEX 0804..	7.9	12.00	4.80	4.90
WOEX 0804..	7.9	12.00	4.80	4.95
WOEX 1005..	9.9	15.00	5.30	4.90
WOEX 1206..	11.6	17.60	6.00	6.00



3

WOEX

			-01 BK8425	-03 BK8425	-13 BK8425	-01 BK7935	-01 BK6115
							
			WOEX	WOEX	WOEX	WOEX	WOEX
			10 821 ...	10 821 ...	10 821 ...	10 821 ...	10 821 ...
ISO	KOMET no.	RE mm	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#
030204	W29 10130.048425	0.4			13.10 30313		
030204	W29 10030.048425	0.4		11.12 30303			
030204	W29 10010.047935	0.4				11.43 50301	
030204	W29 10010.048425	0.4	10.83 30301				
030204	W29 10010.046115	0.4					15.69 40301
040304	W29 18130.048425	0.4			13.20 30413		
040304	W29 18030.048425	0.4		11.81 30403			
040304	W29 18010.047935	0.4				12.13 50401	
040304	W29 18010.048425	0.4	11.51 30401				
040304	W29 18010.046115	0.4					15.79 40401
05T304	W29 24130.048425	0.4			13.49 30513		
05T304	W29 24030.048425	0.4		16.67 30503			
05T304	W29 24010.047935	0.4				12.31 50501	
05T304	W29 24010.048425	0.4	11.81 30501				
05T304	W29 24010.046115	0.4					15.18 40501
06T304	W29 34130.048425	0.4			14.89 30613		
06T304	W29 34030.048425	0.4		17.47 30603			
06T304	W29 34010.047935	0.4				13.98 50601	
06T304	W29 34010.048425	0.4	13.20 30601				
06T304	W29 34010.046115	0.4					16.87 40601
080404	W29 42130.048425	0.4			18.86 30813		
080404	W29 42010.048425	0.4	16.67 30801				
080404	W29 42010.046115	0.4					20.84 40801
100504	W29 50010.046115	0.4					24.62 41001
100504	W29 50010.048425	0.4	22.73 31001				
120608	W29 58010.086115	0.8					30.87 41201
120608	W29 58010.088425	0.8	26.41 31201				
P			●	●	●	●	●
M			●	●	●	●	●
K			●	●	●	●	●
N			○	○	○	○	
S						●	
H			○	○	○		○
O							

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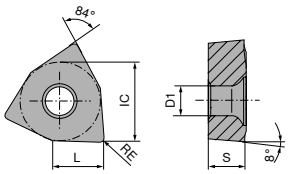
BK8425-03 and BK6115-01 are exclusively recommended for use on the peripheral cutting edge!

WOEX

Designation	L mm	IC mm	S mm	D1 mm
WOEX 0302..	3.2	5.00	2.30	2.30
WOEX 0403..	4.1	6.35	3.18	2.55
WOEX 05T3..	5.3	8.00	3.80	2.85
WOEX 06T3..	6.6	10.00	3.80	4.05
WOEX 0804..	7.9	12.00	4.80	4.95



WOEX

ISO	KOMET no.	RE mm	-01 BK7615 WOEX 10 821 ... £ 1A/3#		-01 BK62 WOEX 10 821 ... £ 1A/3#		-11 BK77 WOEX 10 821 ... £ 1A/3#		-13 BK79 WOEX 10 821 ... £ 1A/3#	
030204	W29 10010.0462	0.4			11.27	20301				
030204	W29 10110.0477	0.4					11.27	80311		
030204	W29 10010.047615	0.4	18.07	05301						
030204	W29 10130.0479	0.4							13.10	15313
040304	W29 18110.0477	0.4					11.84	80411		
040304	W29 18010.0462	0.4			11.84	20401				
040304	W29 18010.047615	0.4	18.17	05401						
040304	W29 18130.0479	0.4							13.20	15413
05T304	W29 24110.0477	0.4					11.96	80511		
05T304	W29 24010.0462	0.4			11.96	20501				
05T304	W29 24010.047615	0.4	18.95	05501						
05T304	W29 24130.0479	0.4							13.49	15513
06T304	W29 34110.0477	0.4					13.40	80611		
06T304	W29 34010.0462	0.4			13.51	20601				
06T304	W29 34010.047615	0.4	20.35	05601						
06T304	W29 34130.0479	0.4							14.89	15613
080404	W29 42110.0477	0.4					17.17	80811		
080404	W29 42010.047615	0.4	24.82	05801						
080404	W29 42130.0479	0.4							19.06	15813

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

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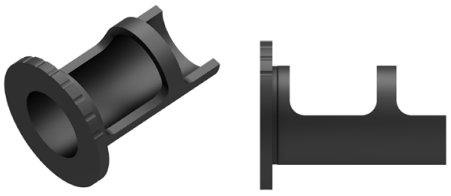
Application tips – eccentric sleeves

Using the eccentric sleeves, you can vary and adjust the diameter of the hole by +/- 0.3 mm with ease.

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

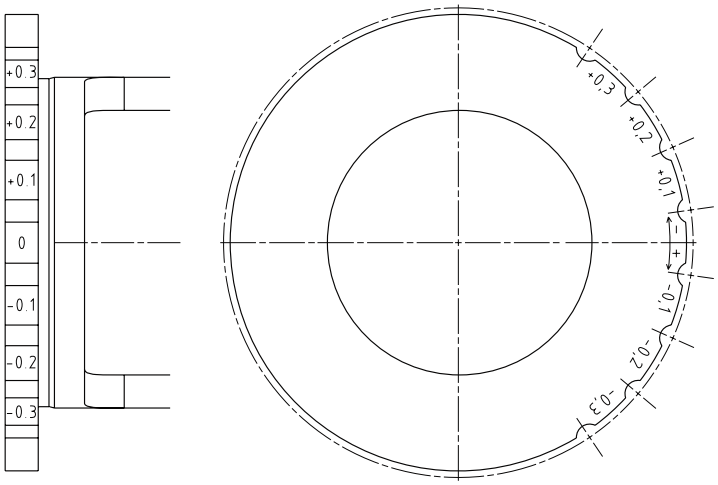


Eccentric sleeve for indexable insert drill adapter



Eccentric sleeve for Weldon adapter

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



Side view *End view*

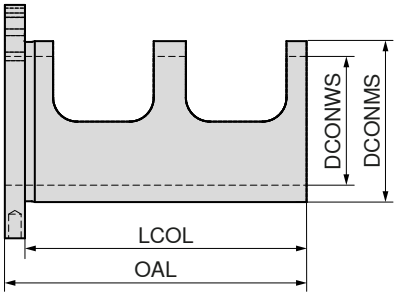
Instructions for use

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

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

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

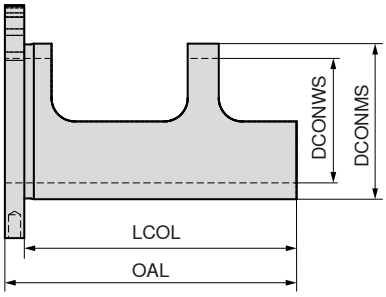
Eccentric sleeve – indexable insert drill adapter





Designation	DCONWS mm	DCONMS mm	OAL mm	LCOL mm	10 870 ... £ 2A/28	
EHB.D20.D25	20	25	61	56	149.10	**120**
EHB.D25.D32	25	32	65	60	162.17	**125**
EHB.D32.D40	32	40	75	70	177.17	**132**
EHB.D40.D50	40	50	85	80	194.16	**140**

Eccentric sleeve – standard Weldon adapter



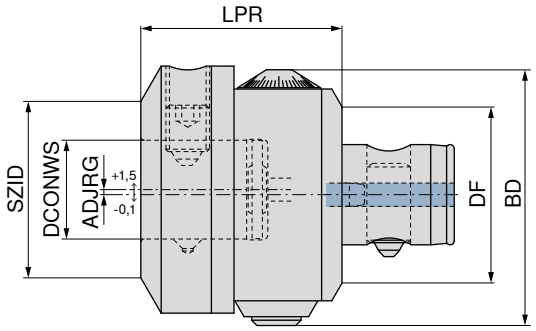


Designation	DCONWS mm	DCONMS mm	OAL mm	LCOL mm	10 871 ... £ 2A/28	
EHW.D20.D25	20	25	61	56	149.10	**120**
EHW.D25.D32	25	32	65	60	162.17	**125**
EHW.D32.D40	32	40	75	70	177.17	**132**
EHW.D40.D50	40	50	85	80	194.16	**140**

Application tips for eccentric sleeves can be found on → **Page 55.**

Adjuster with ABS connection

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







AD

Adapter	KOMET no.	BD mm	LPR mm	DF mm	DCONWS mm	ADJRG mm	SZID	84 210 ... £ W4	
ABS 50	M01 00001	70	57	50	28	1.5	ABS 50	1,140.37	**05097**
ABS 63	M01 00011	88	70	63	28	1.5	ABS 50	1,483.02	**06397**
ABS 63	M01 00021	88	70	63	34	1.5	ABS 63	1,483.02	**06396**

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values for SOGX indexable inserts

	SOGX 10 820 ...						
Index	-01 / -13 / -32 BK8425	-03 BK8430	-34 BK8425	-01 BK7935	-01 BK6115	-01 BK6425	-01 BK7710
	v_c in m/min						
P.1.1	**260**	**260**		**250**	**300**	**320**	
P.1.2	**260**	**260**	260	**220**	**300**	**320**	
P.1.3	**270**	**270**		**270**	**270**	**280**	
P.1.4	**250**	**250**		**250**	**250**	**250**	
P.1.5	**270**	**270**	270	**200**	**300**	**290**	
P.2.1	**270**	**270**		**270**	**270**	**280**	
P.2.2	**260**	**260**		**260**	**260**	**270**	
P.2.3	**180**	**180**	180	**160**	**240**	**260**	
P.2.4	**150**	**150**	150	**130**	**200**	**210**	
P.3.1	**160**	**160**	160	**140**	**200**	**220**	
P.3.2	**130**	**130**	130	**120**	**160**	**180**	
P.3.3	**120**	**120**	120	**110**	**140**	**160**	
P.4.1	**180**	**180**		**150**	**220**	**240**	
P.4.2	**130**	**130**		**120**	**160**	**180**	
M.1.1	**150**	**150**		**160**	**220**	**200**	
M.2.1	**150**	**150**		**160**	**220**	**200**	
M.3.1	**140**	**140**		**150**	**200**	**180**	
K.1.1	**160**	**160**	**160**	**150**	**240**	**200**	
K.1.2	**120**	**120**	**120**	**120**	**180**	**150**	
K.2.1	**160**	**160**	**160**	**150**	**160**	**160**	
K.2.2	**100**	**100**	**100**	**90**	**100**	**100**	
K.3.1	**120**	**120**	**120**	**110**	**120**	**120**	
K.3.2	**100**	**100**	**100**	**90**	**100**	**100**	
N.1.1	400	400		400			**500**
N.1.2	400	400		400			**500**
N.2.1	250	250		250			**280**
N.2.2	250	250		250			**280**
N.2.3	230	230		230			**250**
N.3.1	200	200		200			**250**
N.3.2	220	220		220			**280**
N.3.3	330	330		330			**390**
N.4.1	200	200		200			**250**
S.1.1	**60**	**60**		**60**			
S.1.2	**50**	**50**		**50**			
S.2.1	**60**	**60**		**60**			
S.2.2	**50**	**50**		**50**			
S.2.3	**30**	**30**		**30**			
S.3.1	**100**	**100**		**100**			100
S.3.2	**80**	**80**		**80**			80
S.3.3	**50**	**50**		**50**			50
H.1.1	100	100			100		
H.1.2	80	80			80		
H.1.3	50	50			50		
H.1.4							
H.2.1	100	100			100		
H.3.1	80	80			80		
O.1.1				100			100
O.1.2				100			100
O.2.1							
O.2.2				100			100
O.3.1				100			100

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

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

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

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

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

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

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

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

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

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

Cutting data standard values for KUB Pentron – 4xD

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

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

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

Cutting data standard values for KUB Pentron – 5xD

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

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

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

Cutting data standard values for MaxiDrill 900 – 2xD

Index	SONT 10 830 ...		C 10 852 ...								
	CTCP420	CTPP430	Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20,5 mm	Ø 21–23,5 mm	Ø 24–27,5 mm	Ø 28–32 mm	Ø 32,5–36,5 mm	Ø 37–41 mm	Ø 41,5–46 mm	Ø 46,5–63 mm
	v_c in m/min		f in mm/rev.									
P.1.1	**300**	**215**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	**260**	**190**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	**230**	**165**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	**220**	**160**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	**200**	**150**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	**270**	**200**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	**215**	**160**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	**200**	**140**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	**160**	**110**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	**200**	**140**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	**160**	**100**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	**120**	**70**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	**200**	**140**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	**180**	**120**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1		**140**	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1		**100**	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1		**130**	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	**250**	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	**230**	130	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	**230**	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	**210**	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	**190**	100	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	**170**	100	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1		300	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2		315	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1		270	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2		140	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3		180	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1		65	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2		50	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1		45	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1		65	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2		50	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

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

Cutting data standard values for MaxiDrill 900 – 3xD

Index	C 10 853 ... Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20,5 mm	Ø 21–23,5 mm	Ø 24–27,5 mm	Ø 28–32 mm	Ø 32,5–36,5 mm	Ø 37–41 mm	Ø 41,5–46 mm	Ø 46,5–63 mm
	f in mm/rev.									
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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

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

Cutting data standard values for MaxiDrill 900 – 4xD

Index	C 10 854 ... Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20,5 mm	Ø 21–23,5 mm	Ø 24–27,5 mm	Ø 28–32 mm	Ø 32,5–36,5 mm	Ø 37–41 mm	Ø 41,5–46 mm	Ø 46,5–54 mm
	f in mm/rev.									
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

When using a fixed tool and rotating workpiece on through holes a sharp disk will be produced. Safety precautions must be observed.
A safety guard has to be provided as protection against flying chips.

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

Cutting data standard values for MaxiDrill 900 – 5xD

Index	C 10 855 ... Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20 mm	Ø 21–23 mm	Ø 24–27 mm	Ø 28–32 mm	Ø 33–36 mm	Ø 37–41 mm
	f in mm/rev.							
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

When using a fixed tool and rotating workpiece on through holes a sharp disk will be produced. Safety precautions must be observed.
A safety guard has to be provided as protection against flying chips.

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

Cutting data standard values for WOEX indexable inserts

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

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

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

Cutting data standard values for KUB Trigon – 2xD

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

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

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

3

Cutting data standard values for KUB Trigon – 3xD

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

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

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

Cutting data standard values for KUB Trigon – 4xD

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

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

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

Cutting data standard values for KUB Centron

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

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

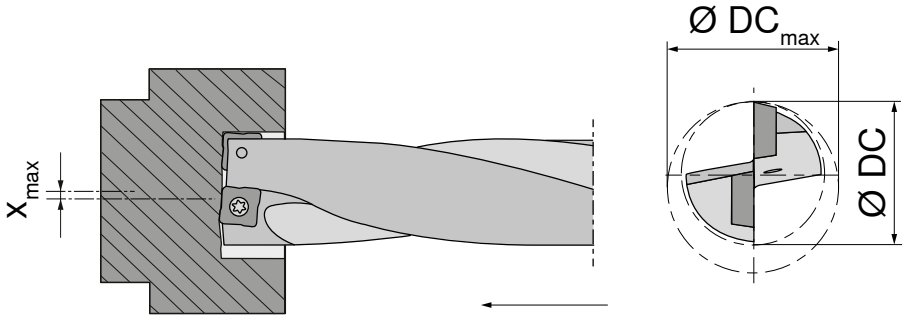
In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

3

Index	Drill bit diameter														
	Ø 46–54 mm				Ø 55–64 mm				Ø 65–71 mm			Ø 72–81 mm			
	f	Centring tip v_c			f	Centring tip v_c			f	Centring tip v_c		f	Centring tip v_c		
	mm/rev.	10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)	mm/rev.	10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)	mm/rev.	10 862 ... (TiN)	10 862 ... (TiAlN)	mm/rev.	10 862 ... (TiN)	10 862 ... (TiAlN)	
P.1.1	0,10	**250**	**160**		0,10	**250**	**160**		0,10	**160**		0,10	**160**		
P.1.2	0,14	**250**	**160**		0,16	**250**	**160**		0,16	**160**		0,16	**160**		
P.1.3	0,12	**200**	**160**		0,14	**200**	**160**		0,14	**160**		0,14	**160**		
P.1.4	0,11	**180**	**160**		0,12	**180**	**160**		0,12	**160**		0,12	**160**		
P.1.5	0,12	**230**	**160**		0,14	**230**	**160**		0,14	**160**		0,14	**160**		
P.2.1	0,12	**200**	**160**		0,14	**200**	**160**		0,14	**160**		0,14	**160**		
P.2.2	0,11	**190**	**150**		0,12	**190**	**150**		0,12	**150**		0,12	**150**		
P.2.3	0,14	**180**	**140**		0,16	**180**	**140**		0,16	**140**		0,16	**140**		
P.2.4	0,12	**150**	**120**		0,13	**150**	**120**		0,13	**120**		0,13	**120**		
P.3.1	0,10	**160**	**120**		0,12	**160**	**120**		0,12	**120**		0,12	**120**		
P.3.2	0,08	**140**	**100**		0,10	**140**	**100**		0,10	**100**		0,10	**100**		
P.3.3	0,07	**130**	**90**		0,09	**130**	**90**		0,09	**90**		0,09	**90**		
P.4.1	0,11	**180**	**130**		0,14	**180**	**130**		0,14	**130**		0,14	**130**		
P.4.2	0,08	**140**	**100**		0,10	**140**	**100**		0,10	**100**		0,10	**100**		
M.1.1	0,12	**160**		**70**	0,12	**160**		**70**	0,12		**70**	0,12		**70**	
M.2.1	0,10	**120**		**70**	0,10	**120**		**70**	0,10		**70**	0,10		**70**	
M.3.1	0,08	**110**		**60**	0,08	**110**		**60**	0,08		**60**	0,08		**60**	
K.1.1	0,16	**200**		**100**	0,16	**200**		**100**	0,16		**100**	0,16		**100**	
K.1.2	0,14	**160**		**100**	0,14	**160**		**100**	0,14		**100**	0,14		**100**	
K.2.1	0,14	**160**		**100**	0,14	**160**		**100**	0,14		**100**	0,14		**100**	
K.2.2	0,12	**100**		**80**	0,12	**100**		**80**	0,12		**80**	0,12		**80**	
K.3.1	0,14	**120**		**100**	0,14	**120**		**100**	0,14		**100**	0,14		**100**	
K.3.2	0,12	**100**		**80**	0,12	**100**		**80**	0,12		**80**	0,12		**80**	
N.1.1	0,10	**350**	**350**		0,10	**350**	**350**		0,10	**350**		0,10	**350**		
N.1.2	0,10	**350**	**350**		0,10	**350**	**350**		0,10	**350**		0,10	**350**		
N.2.1	0,16	**250**	**250**		0,16	**250**	**250**		0,16	**250**		0,16	**250**		
N.2.2	0,16	**250**	**250**		0,16	**250**	**250**		0,16	**250**		0,16	**250**		
N.2.3	0,15	**230**	**230**		0,15	**230**	**230**		0,15	**230**		0,15	**230**		
N.3.1	0,18	**200**	**200**		0,18	**200**	**200**		0,18	**200**		0,18	**200**		
N.3.2	0,20	**220**	**220**		0,20	**220**	**220**		0,20	**220**		0,20	**220**		
N.3.3	0,14	**250**	**250**		0,14	**250**	**250**		0,14	**250**		0,14	**250**		
N.4.1	0,18	**200**	**200**		0,18	**200**	**200**		0,18	**200**		0,18	**200**		
S.1.1	0,05	**50**		**25**	0,05	**50**		**25**	0,05		**25**	0,05		**25**	
S.1.2	0,04	**40**		**20**	0,04	**40**		**20**	0,04		**20**	0,04		**20**	
S.2.1	0,05	**50**		**25**	0,05	**50**		**25**	0,05		**25**	0,05		**25**	
S.2.2	0,04	**40**		**20**	0,04	**40**		**20**	0,04		**20**	0,04		**20**	
S.2.3	0,04	**30**		**20**	0,04	**30**		**20**	0,04		**20**	0,04		**20**	
S.3.1	0,07	**80**		**50**	0,07	**80**		**50**	0,07		**50**	0,07		**50**	
S.3.2	0,06	**80**		**40**	0,06	**80**		**40**	0,06		**40**	0,06		**40**	
S.3.3	0,04	**50**		**30**	0,04	**50**		**30**	0,04		**30**	0,04		**30**	
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1	0,10	100	100		0,10	100	100		0,10	100		0,10	100		
O.1.2	0,10	100	100		0,10	100	100		0,10	100		0,10	100		
O.2.1															
O.2.2	0,10	50	30		0,10	50	30		0,10	30		0,10	30		
O.3.1	0,10	100	100		0,10	100	100		0,10	100		0,10	100		

The cutting data of the KUB Centron depends on the centring tip and not on the indexable inserts. Please select the cutting data of the centring tip.

Maximum adjustment range (X) during solid drilling / from the centre for stationary applications – KUB Pentron



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.20 mm:
$D_{max} = D + 0.4 = 20.4$ mm

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
14,0	SOGX 04....	0,25	14,5
14,5		0,25	15,0
15,0		0,25	15,5
15,5		0,25	16,0
16,0		0,25	16,5
16,5	SOGX 05....	0,25	17,0
17,0		0,25	17,5
17,5		0,25	18,0
18,0		0,25	18,5
18,5	SOGX 06....	0,25	19,0
19,0		0,25	19,5
19,5		0,25	20,0
20,0		0,25	20,5
20,5	SOGX 07....	0,25	21,0
21,0		0,25	21,5
21,5		0,25	22,0
22,0		0,25	22,5
22,5		0,25	23,0
23,0		0,25	23,5
23,5	SOGX 08....	0,25	24,0
24,0		0,25	24,5
24,5		0,25	25,0
25,0		0,25	25,5
25,5		0,25	26,0
26,0		0,25	26,5
26,5	SOGX 09....	0,25	27,0
27,0		0,25	27,5
27,5		0,25	28,0
28,0		0,25	28,5
28,5		0,25	29,0
29,0		0,25	29,5
29,5		0,25	30,0
30,0		0,25	30,5
31,0	SOGX 10....	0,25	31,5
32,0		0,25	32,5
33,0		0,25	33,5
34,0	SOGX 11....	0,25	34,5
35,0		0,25	35,5
36,0		0,25	36,5
37,0		0,25	37,5
38,0	SOGX 12....	0,25	38,5
39,0		0,25	39,5
40,0		0,25	40,5
41,0		0,25	41,5
42,0		0,25	42,5
43,0	SOGX 13....	0,25	43,5
44,0		0,25	44,5
45,0		0,25	45,5
46,0		0,25	46,5
47,0	SOGX 08....	0,25	47,5
48,0		0,25	48,5
49,0		0,25	49,5
50,0		0,25	50,5
51,0		0,25	51,5
52,0		0,25	52,5

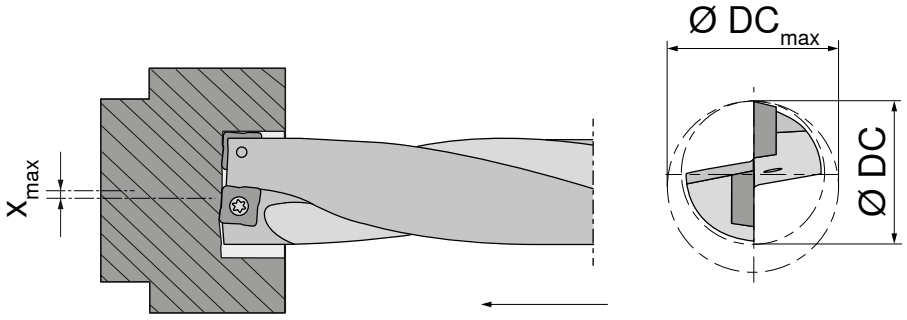
Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
53,0	SOGX 10....	0,25	53,5
54,0		0,25	54,5
55,0		0,25	55,5
56,0		0,25	56,5
57,0		0,25	57,5
58,0		0,25	58,5
59,0		0,25	59,5
60,0		0,25	60,5
61,0		0,25	61,5
62,0		0,25	62,5
63,0		0,25	63,5
64,0		0,25	64,5
65,0		0,25	65,5

KUB Pentron CS

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
64,0	SOGX 10....	0,25	47,5
65,0		0,25	48,5
66,0		0,25	49,5
67,0		0,25	50,5
68,0		0,25	51,5
69,0		0,25	52,5
70,0	SOGX 11....	0,25	53,5
71,0		0,25	54,5
72,0		0,25	55,5
73,0		0,25	56,5
74,0		0,25	57,5
75,0		0,25	58,5
76,0	SOGX 12....	0,25	59,5
77,0		0,25	60,5
78,0		0,25	61,5
79,0		0,25	62,5
80,0		0,25	63,5
81,0		0,25	64,5
82,0		0,25	65,5
83,0		0,25	83,5
84,0		0,25	84,5
85,0	SOGX 13....	0,25	85,5
86,0		0,25	86,5
87,0		0,25	87,5
88,0		0,25	88,5
89,0		0,25	89,5
90,0		0,25	90,5
91,0		0,25	91,5
92,0		0,25	92,5
93,0		0,25	93,5
94,0		0,25	94,5
95,0		0,25	95,5
96,0		0,25	96,5

The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Maximum off set (X) for drilling into full material / with stationary applications – MaxiDrill 900



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.20 mm:
$D_{max} = D + 0.4 = 20.4$ mm

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
12,0	SONT 03....	0,50	13,0
12,5		0,40	13,3
13,0		0,35	13,7
13,5		0,30	14,1
14,0	SONT 04....	0,35	14,7
14,5		0,25	15,0
15,0		0,20	15,4
15,5		0,15	15,8
16,0	SONT 05....	0,40	16,8
16,5		0,35	17,2
17,0		0,30	17,6
17,5		0,25	18,0
18,0	SONT 06....	0,50	19,0
18,5		0,40	19,3
19,0		0,35	19,7
19,5		0,25	20,0
20,0		0,20	20,4
20,5		0,15	20,8
21,0	SONT 07....	0,35	21,7
21,5		0,30	22,1
22,0		0,25	22,5
22,5		0,15	22,8
23,0		0,15	23,3
23,5		0,10	23,7
24,0	SONT 08....	0,65	25,3
24,5		0,55	25,6
25,0		0,55	26,1
25,5		0,40	26,3
26,0		0,35	26,7
26,5		0,30	27,1
27,0		0,25	27,5
27,5		0,15	27,8
28,0	SONT 09....	0,90	29,8
28,5		0,80	30,1
29,0		0,75	30,5
29,5		0,70	30,9
30,0		0,60	31,2
30,5		0,55	31,6
31,0		0,45	31,9
31,5		0,40	32,3
32,0		0,30	32,6

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
32,5	SONT 10....	0,80	34,1
33,0		0,80	34,6
33,5		0,65	34,8
34,0		0,60	35,2
34,5		0,50	35,5
35,0		0,45	35,9
35,5		0,35	36,2
36,0		0,35	36,7
36,5		0,20	36,9
37,0	SONT 12....	1,00	39,0
38,0		0,85	39,7
39,0		0,70	40,4
40,0		0,50	41,0
41,0		0,35	41,7
42,0	SONT 13....	0,95	43,9
43,0		0,80	44,6
44,0		0,60	45,2
45,0		0,45	45,9
46,0		0,30	46,6
47,0	SONT 15....	1,80	50,6
48,0		1,65	51,3
49,0		1,50	52,0
50,0		1,35	52,7
51,0		1,15	53,3
52,0		0,95	53,9
53,0		0,80	54,6
54,0		0,60	55,2
55,0	SONT 17....	2,10	59,2
56,0		1,90	59,8
57,0		1,75	60,5
58,0		1,55	61,1
59,0		1,35	61,7
60,0		1,15	62,3
61,0		1,00	63,0
62,0		0,85	63,7
63,0		0,65	64,3

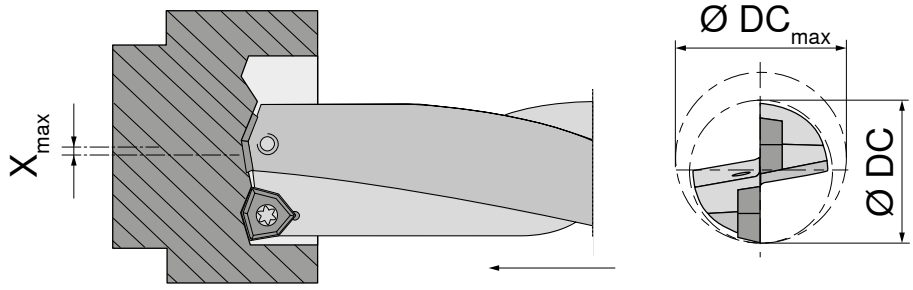
The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Technical data for turning – MaxiDrill 900

Insert size	$a_{p\,max.}$ in mm	f in mm/rev.
SONT 03	0,40–1,50	0,08–0,22
SONT 04	0,40–1,80	0,09–0,27
SONT 05	0,60–2,40	0,10–0,30
SONT 06	0,60–2,80	0,11–0,34
SONT 07	0,60–3,40	0,13–0,38
SONT 08	0,70–4,20	0,15–0,41

Insert size	$a_{p\,max.}$ in mm	f in mm/rev.
SONT 09	0,70–4,50	0,16–0,42
SONT 10	0,70–4,80	0,17–0,44
SONT 12	0,90–5,50	0,18–0,45
SONT 13	1,00–6,00	0,20–0,45
SONT 15	1,20–6,40	0,21–0,46
SONT 17	1,20–6,70	0,21–0,47

Maximum adjustment range (X) during solid drilling / from the centre for stationary applications – KUB Trigon



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.20 mm:
$D_{max} = D + 0.4 = 20.4$ mm

KUB Trigon

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
14,0	WOEX 03....	0,5	15,0
15,0		0,5	16,0
16,0		0,5	17,0
17,0		0,5	18,0
18,0		0,5	19,0
19,0		0,5	20,0
20,0	WOEX 04....	0,5	21,0
21,0		0,5	22,0
22,0		0,5	23,0
23,0		0,5	24,0
24,0		0,5	25,0
25,0	WOEX 05....	0,5	26,0
26,0		1,0	28,0
27,0		1,5	30,0
28,0		1,5	31,0
29,0		1,5	32,0
30,0		1,25	32,5
31,0		1,25	33,5
32,0		1,0	34,0
33,0		0,5	34,0
34,0		0,5	35,0
35,0		0,5	36,0
36,0		0,5	37,0
37,0	WOEX 06....	1,5	40,0
38,0		1,5	41,0
39,0		1,5	42,0
40,0		1,5	43,0
41,0		1,5	44,0
42,0		1,5	45,0
43,0		1,0	45,0
44,0		0,5	45,0

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
45,0	WOEX 08....	1,5	48,0
46,0		1,5	49,0
47,0		1,5	50,0
48,0		1,5	51,0
49,0		1,5	52,0
50,0		1,5	53,0
51,0		1,5	54,0
52,0		1,5	55,0
53,0		1,0	55,0
54,0		0,5	55,0
55,0	WOEX 10....	1,5	58,0
56,0		1,5	59,0
57,0		1,5	60,0
58,0		1,5	61,0
59,0		1,5	62,0
60,0		1,5	63,0
61,0		1,5	64,0
62,0		1,5	65,0
63,0		1,5	66,0
64,0		1,5	67,0
65,0		1,5	68,0
66,0		1,5	69,0
67,0		1,25	69,5
68,0		1,0	70,0
69,0	WOEX 12....	1,5	72,0
70,0		1,5	73,0
71,0		1,5	74,0
72,0		1,5	75,0
73,0		1,5	76,0
74,0		1,5	77,0
75,0		1,5	78,0
76,0		1,5	79,0
77,0		1,5	80,0
78,0		1,5	81,0
79,0		1,5	82,0
80,0		1,0	82,0
81,0		0,75	82,5
82,0		0,5	83,0

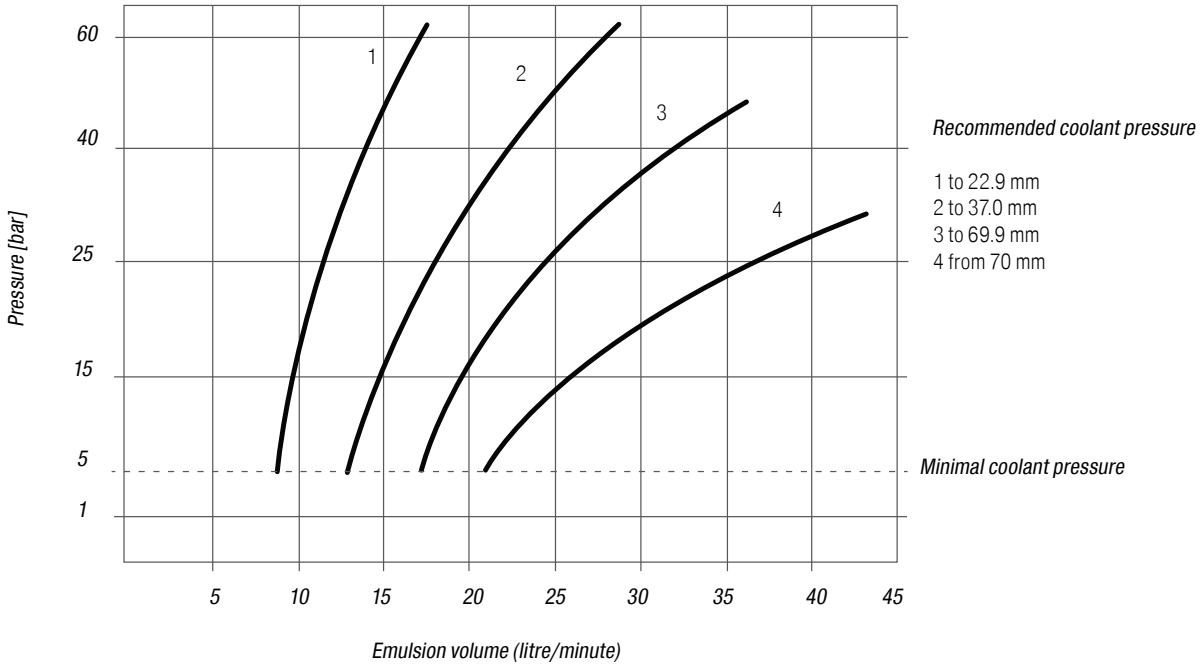
The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Coding example indexable insert drilling

System		Length		Bore diameter		Direction of rotation		Insert size		Machine connection and size
KUB-P	.	3D	.	215	.	R	.	07	–	ABS 50
KUB-P	.	3D	.	290	.	R	.	04	–	PSC 63
KUB-P.GH-CS	.	3D	.	76-78	.	R			–	ABS 80
MD-900	.	4D	.	240	.	R	.	08	–	C 32
KUB-T	.	2D	.	350	.	R	.	05	–	K 32
KUB-T	.	2D	.	350	.	L	.	05	–	ABS 50
KUB-C.GH	.	4D	.	320		R			–	ABS 50

KUB-P = KUB Pentron	215 = 21,5 mm	R = right	ABS50 = ABS adapter size 50
	290 = 29,0 mm	R = right	PSC63 = Polygon shank taper size 63
KUB-P.GH-CS = KUB Pentron CS	76-78 = 76-78 mm	R = right	ABS80 = ABS adapter size 80
MD-900 = MaxiDrill 900	240 = 24,0 mm	R = right	C32 = Cylindrical shank Ø 32.0 mm
KUB-T = KUB Trigon	350 = 35,0 mm	R = right	K32 = Cylindrical shank with combi clamping flat Ø 32.0 mm
		L = Left-hand	ABS50 = ABS adapter size 50
KUB-C.GH = KUB Centron	320 = KLG 32	R = right	ABS50 = ABS adapter size 50

Recommended coolant pressure and coolant flow



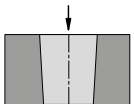
Indexable insert drilling – problems / possible causes / solutions

Rotating and stationary application



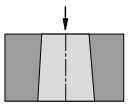
Short service life / types of wear of indexable inserts

- Cutting speed too high → select the correct cutting speed
- Insert grade selection has too little wear resistance → select a wear resistant grade
- Tool overhang too large → if possible, use a shorter tool
- Damaged insert seat → check tool, replace if necessary
- Clamping device stability too low → increase stability



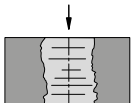
Hole tapers in

- Chip jam on the outer cutting edge → use a different chip breakage geometry, increase the feed if necessary
- Material very soft → increase the cutting speed, reduce the feed.
  Use a positive cutting edge geometry



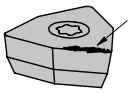
Hole tapers out

- Chip jam on the inner cutting edge → use a different chip breakage geometry, increase the feed if necessary



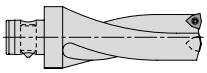
Poor surface quality

- Poor chip evacuation → optimise the cutting parameters: Increase the cutting speed, reduce the feed



Built-up edge

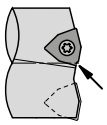
- Cutting speed too low → increase cutting speed
- Indexable insert too negative → use positive geometry
- Unsuitable coating → select the correct coating



Friction marks on the tool shank

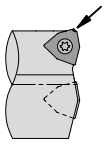
- Bore diameter too small → check the setting
- Chip evacuation problems → optimise the cutting parameters, check the geometry of the indexable insert
- Cutting radius too high → use the correct cutting radius

Stationary application



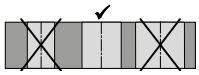
Edge breakage on the inner cutting edge

- Centre height of the tool too high/too low → adjust tool turret/adapter if necessary → Recalibrate the machine
- Indexable insert grades interchanged → use correct indexable insert
- Feed too high → reduce feed
- Indexable insert grade too brittle → use a tougher indexable insert grade
- Incorrect indexable insert geometry → if necessary use a geometry with a chamfered cutting edge



Edge breakage on the outer cutting edge

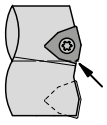
- Feed too high → reduce feed
- Interrupted cut → switch to a tougher grade of indexable insert
- Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large

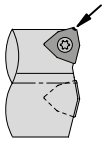
- Machine is not in the X-0 position → move axis to correct position
- Machine axis has been moved → recalibrate the machine

Rotating application



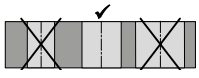
Edge breakage on the inner cutting edge

- Indexable insert grades interchanged → use correct indexable insert
- Feed too high → reduce feed
- Indexable insert grade too brittle → use a tougher indexable insert grade
- Incorrect indexable insert geometry → if necessary use a geometry with a chamfered cutting edge



Edge breakage on the outer cutting edge

- Feed too high → reduce feed
- Interrupted cut → switch to a tougher grade of indexable insert
- Cutting radius too small → use an indexable insert with a larger cutting radius

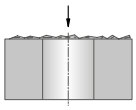


Hole too small / too large when using adjustable tools

- Incorrect cutting radius used → use the correct cutting radius
- Incorrect setting → use the correct tool setting
- Increase cutting fluid supply

KUB Centron – notes on drilling technology

1.



Spot drilling on uneven surfaces (casting surfaces)

- Generally possible
- Reduce feed when spot drilling

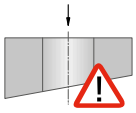
2.



Spot drilling on angled surfaces

- The spot drilling location must be spot faced in advance
- Avoid chips jamming on the drill shank

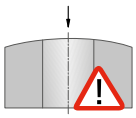
3.



Angled drill exit

- Possible under certain conditions
- If necessary, reduce feed
- Drilling angle max. 3°

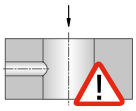
4.



Spot drilling on convex surfaces

- Central spot drilling possible with reduced feed
- If the spot drilling location is outside the centre of the radius, spot facing is required

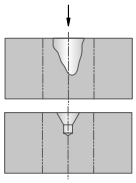
5.



Drilling through a transverse hole

- Halve the feed for interrupted cut
- Transverse hole max. 1/3 of the bore diameter
- Eccentric transverse hole not possible

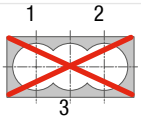
6.



Spot drilling in a pre-op or large centring hole

- Possible under certain conditions
- If necessary, reduce feed
- In the case of a large centre, face turning is required in advance
- If necessary, optimise the basic setting of the centring tip

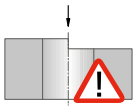
7.



Drilling a cavity

- Not possible

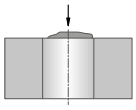
8.



Spot drilling on an edge

- Not possible with 4xD tools
- Preparation required due to undefined spot drilling location (spot facing, face milling)
- Then continue as described under Point 1

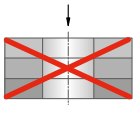
9.



Spot drilling on a forging/welding/casting seam

- Reduce feed when spot drilling
- If necessary, carry out facing in advance

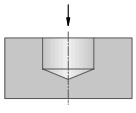
10.



Drilling through stacks

- Not possible

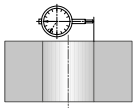
11.



Blind hole

- Possible
- Set guide rails 0.5 mm below actual x

12.



Adjustable

- Adjustable from a diameter of 65 mm

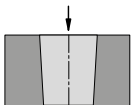
KUB Centron – problems / possible causes / solutions

Rotating and stationary application



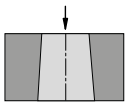
Short service life / types of wear of indexable inserts

- Cutting speed too high → select the correct cutting speed
- Grade has too little wear resistance → select a wear-resistant grade
- Tool overhang too large → if possible, use a shorter tool
- Damaged insert seat → check tool, replace if necessary
- Clamping device stability too low → increase stability



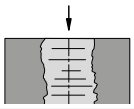
Hole tapers in

- Chip jam on the outer cutting edge → use a different chip breakage geometry, increase the feed if necessary
- Material very soft → increase the cutting speed, reduce the feed
- Use positive cutting edge geometry
- Axial adjustment of the centring tip not optimal → adjust according to the setting sheet in the operating instructions



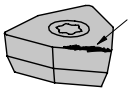
Hole tapers out

- Chip jam on the inner cutting edge → use a different chip breakage geometry, increase the feed if necessary



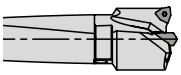
Poor surface quality

- Poor chip evacuation → optimise the cutting parameters: Increase the cutting speed, reduce the feed



Built-up edge

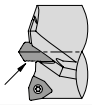
- Cutting speed too low → increase cutting speed
- Indexable insert too negative → use positive geometry
- Unsuitable coating → select the correct coating



Friction marks on the tool shank

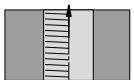
- Bore diameter too small → check the setting
- Chip evacuation problems → optimise the cutting parameters, check the geometry of the indexable insert
- Cutting radius too large → use the correct cutting radius
- Chips stuck on the supporting element, broken supporting elements, the supporting element does not have to be used for base elements of < 6xD

Stationary application



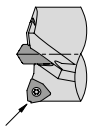
Significant wear on one side of the centring tip

- Tool not centred → tool turret/adapter may have moved → recalibrate the machine



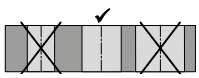
Single-sided retraction scoring

- Tool not centred → tool turret/adapter may have moved → recalibrate the machine



Edge breakage on the outer cutting edge

- Feed too high → reduce feed
- Interrupted cut → switch to a tougher grade of indexable insert
- Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large

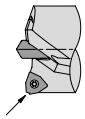
- Machine is not in the X-0 position → move axis to correct position
- Machine axis has been moved → recalibrate the machine

Rotating application



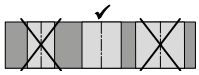
Significant wear on one side of the centring tip

- Guidance insufficient → check length adjustment of the centring tip



Edge breakage on the outer cutting edge

- Feed too high → reduce feed
- Interrupted cut → switch to a tougher grade of indexable insert
- Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large

- Incorrect cutting radius used → use the correct cutting radius
- Incorrect setting → use the correct tool setting

Grades Overview

CTPP430

- Carbide, TiAlN-coated
- ISO | **P30** | **M25** | S25 | K30 | N25
- The universal high-performance grade for steel, austenitic steel and heat-resistant alloys.

CTPP420

- Carbide, TiCN-Al_2O_3-coated
- ISO | **P20** | **K20**
- The wear-resistant solution for steel and cast iron materials at high cutting speeds.

BK7710

- Carbide, TiB_2-coated
- ISO | **N10** | S10 | O10
- The wear-resistant grade with optimum cutting characteristics to prevent built-up edge formation for machining aluminium and titanium alloys.

BK6425

- Carbide, TiCN-Al_2O_3-TiN-coated
- ISO | **P25 I M15** | **K20**
- The extremely wear-resistant grade for machining all steel and stainless materials.

BK62

- Carbide, TiN-TiCN-Al_2O_3-coated
- ISO | **K15** | H15
- Special carbide grade for machining cast iron materials at high cutting speeds. Not suitable for machining aluminium materials.

BK79

- Carbide, TiAlN-coated
- ISO | **P40** | **M35** | **K25** | N30
- Universally applicable grade with high wear-resistance
- low to medium cutting speed for roughing and finishing as well as interrupted cut

BK8425

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25** | N25 | **S25** | H25
- Universally applicable grade with increased wear resistance thanks to the innovative PVD coating in a multilayer design.

BK8430

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25 I K25** | N25 | **S25** | H25
- Fine-grain grade with high wear resistance
- Extreme edge stability and maximum wear resistance in the middle and top speed range

BK6115

- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | **P20** | **M20** | **K20** | H20
- High-quality, surface-treated coating for machining cast iron materials under normal to stable conditions and high cutting speeds.

BK7935

- Carbide, AlTiN-coated
- ISO | **P35** | **M30** | **K30** | N30 | **S30** | O30
- The tough carbide grade for machining stainless steel and acid-resistant steels as well as special alloys.

BK77

- Carbide, TiN-coated
- ISO | **S10** | H10 | O10
- The wear-resistant carbide grade for machining aluminum alloys, superalloys and plastics at medium cutting speeds.

BK7615

- Carbide, TiCN-Al_2O_3-coated
- ISO | **K15**
- Highly productive grade with extreme edge stability for wet and dry machining of all cast iron materials

Chip breakers

-01

- Universal geometry suitable for a wide range of materials
- Can be used for the center and peripheral insert



-03

- Geometry for chip breaking problems with excellent chip control at low feed rates
- WOEX BK8425 -03: Can only be used for the peripheral insert
- SOGX BK8425 -03: Suitable for the center and peripheral insert
- Main application in low alloyed and stainless steels



-11

- Highly positive, minimally rounded chip breaker
- For soft cutting use
- Main application in aluminum



-13

- The shape of the chip breaker causes a more controlled breaking of the chips
- Can be used for the center and peripheral insert
- Due to the low cutting forces well suited to unstable conditions



-32

- For the machining of steel and cast iron materials
- Minimised burr formation when entering and exiting the hole
- Reliable separation of disc-shaped residual material when the drill exits the hole



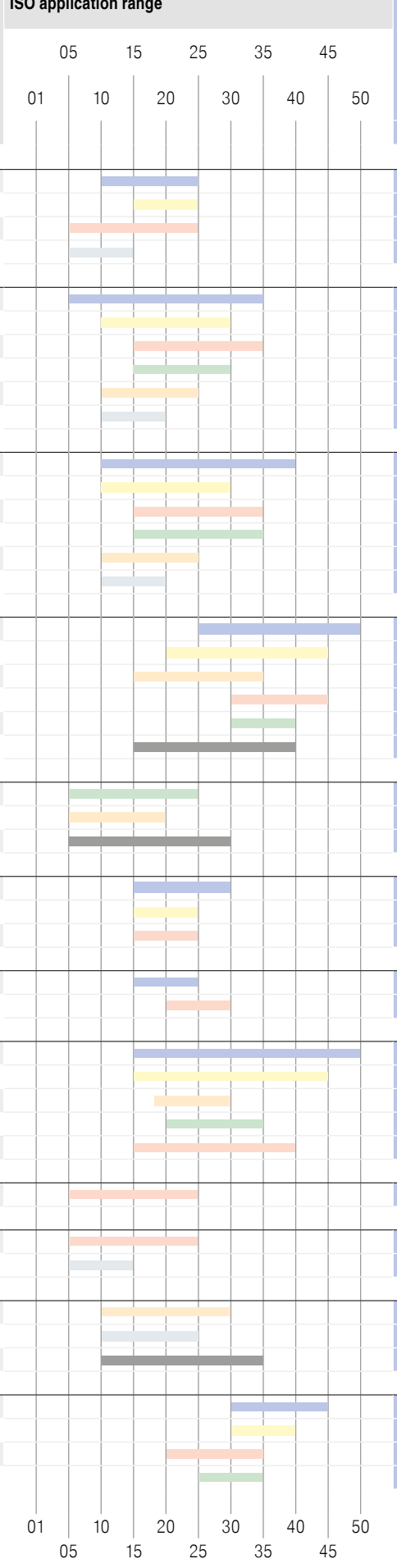
-34

- High-feed geometry
- Extremely sturdy indexable insert
- Designed specially for steel and cast iron materials



Application

Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O
BK6115	HC-P20		●						
	HC-M20			●					
	HC-K20				●				
	HC-H20							○	
BK8425	HC-P25		●						
	HC-M25			●					
	HC-K25				●				
	HC-N25					○			
	HC-S25						●		
	HC-H25							○	
BK8430	HC-P30		●						
	HC-M25			●					
	HC-K25				●				
	HC-N25					○			
	HC-S25						●		
	HC-H25							○	
BK7935	HC-P35		●						
	HC-M30			●					
	HC-S30						●		
	HC-K30				●				
	HC-N30					○			
	HC-O30								○
BK7710	HC-N10					●			
	HC-S10						○		
	HC-O10								○
BK6425	HC-P25		●						
	HC-M15			●					
	HC-K20				●				
CTCP420 DRAGONSKIN	HC-P20		●						
	HC-K20				●				
CTPP430 DRAGONSKIN	HC-P30		●						
	HC-M25			●					
	HC-S25						○		
	HC-N25					○			
	HC-K30				○				
BK7615	HC-K15				●				
BK62	HC-K15				●				
	HC-H15							○	
BK77	HC-S10						●		
	HC-H10							○	
	HC-O10								○
BK79	HC-P40		●						
	HC-M35			●					
	HC-K25				●				
	HC-N30					○			



● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c− tough



New products for machining technicians

NEW Fullmax high-performance reamers – short



- Solid carbide high-performance reamers in short version
- Type UNI
- Maximum efficiency in all materials
- Available as standard H7, as 1/100 and as a configurable variant

→ Page 23–28

NEW NC machine reamer – Type H



- Solid carbide NC machine reamers for hardened materials
- Standard shank DIN 6535 HA

→ Page 43+44

NEW Insert countersink 60°/90°



- Indexable insert countersink for producing 60° and 90° countersinks
- Ideally suited for use with TOHX indexable inserts

→ Page 55+56

NEW TOHX indexable inserts



BK8425

- Grade for universal use



K10

- Grade for use in non-ferrous metals and highly heat-resistant materials

→ Page 57



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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KOMET \ Performance

Premium quality tools for high performance.

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

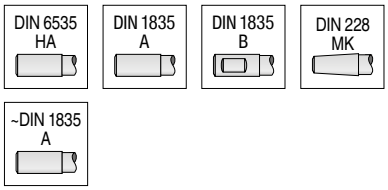
KOMET \ Standard

Quality tools for standard applications.

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

Symbol explanation

Shank





Coolant supply version



central internal coolant



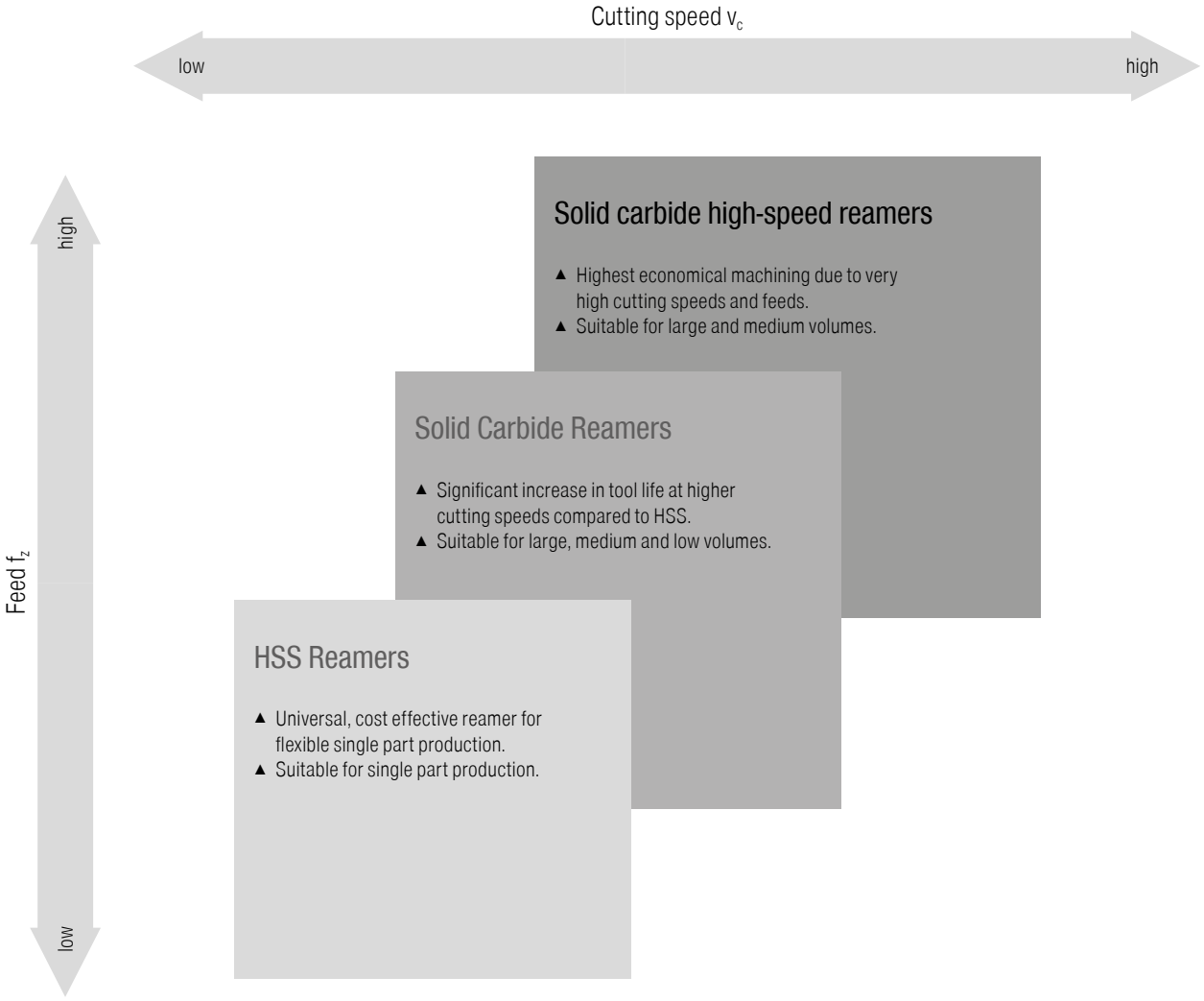
lateral internal coolant

ZEFP = Number of flutes

● = **Main Application**

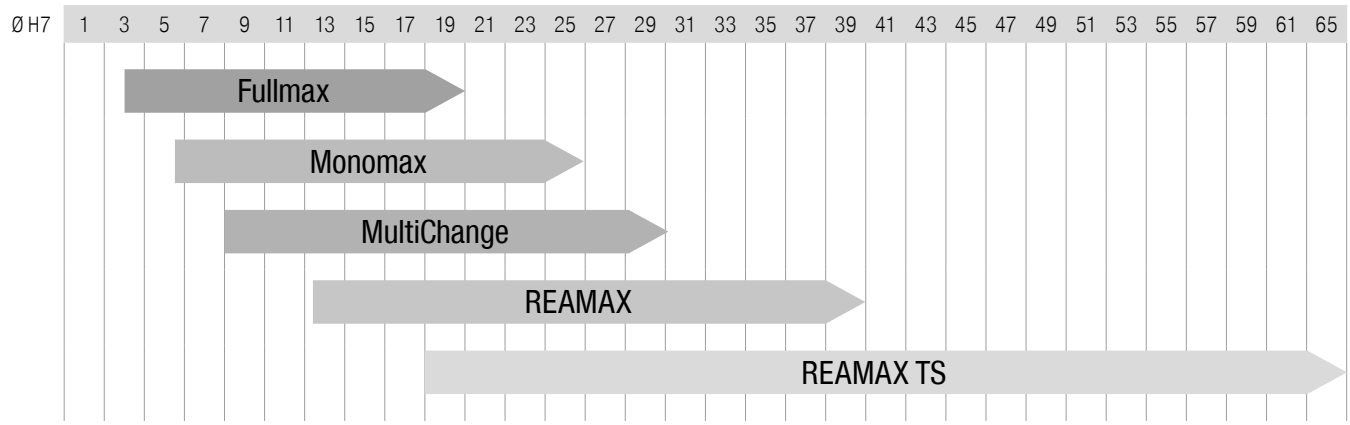
○ = Extended application

Toolfinder – Reamers



4

Overview of solid carbide high-speed reamers

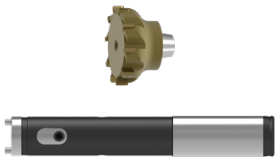


	mono	modular
fixed	Fullmax	MultiChange REAMAX
adjustable	Monomax	REAMAX TS

Toolfinder – Reamers

Solid carbide – high speed reamers

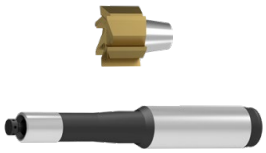
REAMAX TS



- highly flexible and economical replaceable head system
- all common materials
- can be adjusted in µm range

- holder available in 3xD and 5xD
- holder type DAH Zero available in 3xD and 5xD

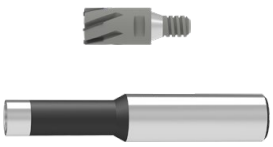
REAMAX



- exchange head system, optimised for use with air mist coolant (MMS)
- face and taper contact giving run out accuracy ≤ 2 µm

- holder available in 3xD and 5xD

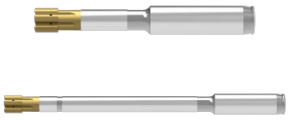
MultiChange



- flexible quick change system for reaming, countersinking and chamfering
- face and taper contact giving run out accuracy ≤ 5 µm

- stable holder in solid carbide and steel, from short to long

Monomax



- adjustable monoblock reamer in 3xD and 5xD
- regrinding and re-tipping on the base body
- all common materials

Fullmax



- High-speed reamer in shorter and longer version
- Reamers for machining steel, stainless and acid-resistant steels, cast materials, aluminium and hardened materials up to 63 HRC
- Extremely irregular pitch
- Standard shank ~ DIN 6535 HA

Solid carbide – Reamers

NC	NC 100	
NC	NC 100H	
N		

- universal solid carbide reamer without thro' coolant
- extremely irregular pitch
- DIN 6535 HA shank

- Solid carbide reamer without thro' coolant suitable for use in hardened materials
- Standard shank ~ DIN 6535 HA

- universal solid carbide reamer without thro' coolant
- extremely irregular pitch

HSS – Reamers

NC	NC 100	
N	N 100	
S		
AR	AR 100	
N		
H		

- HSS-E NC machine reamer
- DIN 1835 A shank

- HSS-E machine reamer

- HSS-E spiral machine reamer DIN 212

- HSS-E automatic machine reamer DIN 8089

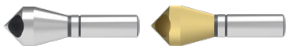
- HSS-e machine reamer DIN 208
- with Morse taper

- HSS hand reamer with cylindrical shank DIN 206

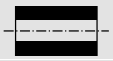
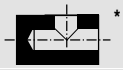
4

		Hole diameter in mm Ø DC	Standard Tolerance	Through hole	Blind hole	Int. coolant supply	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	KOMET \ Performance	KOMET \ Standard
		18,00–65,00	H7 1/100	✓	✓	✓	●	●	●	●			○	7–9	
						✓								10+11	
		12,50–40,00	H7 1/100	✓	✓	✓	●	●	●	●		●	○	12+13	
						✓								14	
		8,00–30,20	H7 1/100	✓	✓	✓	●	●	●	●				15–17	
						✓								→ Catalogue – Clamping technology, Chapter 16	
	short	5,60–25,89	H7 1/100	✓	✓	✓	●	●	●	●			○	18–20	
	long	5,60–25,89	H7 1/100	✓	✓	✓	●	●	●	●			○	21+22	
	short	4,00–16,00 2,96–20,05	H7 1/100	✓	✓	✓	●	●	●	○	○	○		23–28	
	long	4,00–16,00 2,96–20,05	H7 1/100	✓	✓	✓	●	●	●	●	○	●	○	29–38	
		2,00–30,00 0,59–12,05	H7 1/100	✓			●	○	●	●	○	○	●	39–41	
		0,98–12,05	H7	✓	✓		○	○	○			●		43+44	
		2,00–12,00	H7	✓			●	○	○	●	○				42
		1,50–20,00 0,95–12,00	H7 1/100	✓			●		●	●			●	45+46	
		1,00–20,00 0,95–12,00	H7 1/100	✓			●	○	●	●	○		●		47–49
		1,00–20,00	H7	✓			●			●			○		50
		4,00–20,00 3,76–12,00	H7 1/100	✓			●	○	●	●	○		●		50+51
		16,00–50,00	H7	✓			●	○	●	●	○		●		52
		1,00–40,00	H7	✓			●	○	●	●	○		●		52

Countersinks Overview

	Tool type	Coating	Hole diameter in mm Ø DC	Point angle	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	KOMET \ Performance	KOMET \ Standard
Indexable Insert Counterbore Tool													
	WPS		15,0–33,0		●	●	●	●	●				53+54
	WPS		16,5–25,5 19,0–37,0	60° 90°	●	●	●	●	●				55–57
HSS – Counterbores													
			6,0–20,0		●	●	●	●	○		●		58
Solid Carbide Countersinks													
	N	TPX76S	6,3–31,0	90°	●	○	●	●	○	○	○	59	
	N		12,5–25,0	60°	●	○	●	●	○	○			60
	N		10,4–31,0	90°	●	○	●	●	○	○			60
HSS Countersinks													
			6,3–25,0	60°	●	○	●	●	○		●		63
			16,0–80,0	60°	●	○	●	●	○		●		63
	N	Ti50	4,3–31,0	90°	●	○	●	●	○	○	○	61	
	N		4,3–31,0	90°	●	○	●	●	○		●		62
	N	TiN	5,0–31,0	90°	●	○	●	●	○	○	●		62
	N	TiAlN	5,0–31,0	90°	●	○	●	●	○	○	●		62
	VA	TiAlN	6,3–31,0	90°	○	●	○	○	○	○	●		62
	AL		6,3–31,0	90°	○	○	○	●	○		●		62
	N		16,5–80,0	90°	●	○	●	●	○		●		64
			6,3–25,0	120°	●	○	●	●	○		●		64
HSS – Hand deburrer													
			12,4–25,0	90°	●	○	●	●	○	○	●		65
Deburring Countersink													
		blank/ TiN	6,3–35,0	90°	●	○	●	●	○	○	●		65

REAMAX TS – Selection guide

ø			18 – 65 mm								
KOMET no.			75J.93	75J.93	75J.65	75J.17	75H.17	75H.93	75H.65	75H.65	75H.71
Lead angle			ASG4000	ASG3000	ASG0106	ASG0706	ASG0706	ASG3000	ASG3000	ASG0106	ASG3000
Lead angle			25°	45°	45°	45°/8°	45°/8°	45°	45°	45°	45°
Grade / coating			DST	DST	DBG-P	DBC	DBC	DST	DBG-P	DBG-P	TiN
Article no.			40 597	40 544	40 521	40 526	40 580	40 539	40 585	40 571	40 535
Preferred type available			✓	✓	✓			✓		✓	
Application			Through hole				Blind hole				
					 *					 *	
Material sub-group		Index									
P	Non alloyed steel	P.1.1									
		P.1.2									
		P.1.3									
		P.1.4									
		P.1.5	●	●				●	●		○
	Low alloyed steel	P.2.1									
		P.2.2									
		P.2.3									
		P.2.4									
	High-alloy steel and high-alloy tool steel	P.3.1									
		P.3.2									
		P.3.3			●					●	
	Stainless steel	P.4.1									
		P.4.2									
M	Stainless steel	M.1.1									
		M.2.1			●					●	
		M.3.1									
K	Grey cast iron	K.1.1							●		●
		K.1.2									
	Spherulitic graphite cast iron	K.2.1	●	●				●	●		
		K.2.2									
	Malleable iron	K.3.1		●				●	●		
		K.3.2	●								
N	Aluminum alloys	N.1.1									
		N.1.2									
	Cast Aluminium Alloys	N.2.1				●	●				
		N.2.2									
		N.2.3									
	Copper and copper alloys (Bronze, Brass)	N.3.1		○				○			
		N.3.2									●
		N.3.3									
	Magnesium alloys	N.4.1				●	●				
O	Non metal materials	O.1.1									
		O.1.2									
		O.2.1									
		O.2.2									
		O.3.1				○	○				

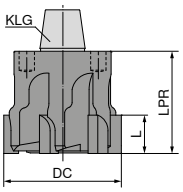
* for drilling with interrupted cut use coated HM-reamers

Applications:	Main application	●
	Additional range of application	○

REAMAX TS – Replaceable reaming heads

- up to tolerance class IT 6 with absolute process security, from the first hole
- precise repeatability < 3 µm
- high precision grind for maximum quality
- can be adjusted for the smallest hole tolerances
- interface enables head change in the machine
- retraction from the hole at 3–4 times the cutting feed rate
- KLG = coupling size





	DST	DBG-P	DBC	DST
				
	75J.93 ◁ 25° ASG4000 CERMET Through hole	75J.65 ◁ 45° ASG0106 HM Through hole	75J.17 ◁ 45/8° ASG0706 HM Through hole	75J.93 ◁ 45° ASG3000 CERMET Through hole
	40 597 ...	**40 521 ...**	**40 526 ...**	**40 544 ...**

DC H7 mm	L mm	LPR mm	ZEFP	KLG	£ U3		£ U3		£ U3		£ U3	
18,00	6	20	6	1	323.47	**18000**	323.47	**18000**	323.47	**18000**	323.47	**18000**
18,01 - 19,99	6	20	6	1	693.34	**xxxx** 1)	693.34	**xxxx** 1)	693.34	**xxxx** 2)	693.34	**xxxx** 1)
20,00	6	20	6	2	331.72	**20000**	331.72	**20000**	331.72	**20000**	331.72	**20000**
20,01 - 21,99	6	20	6	2	812.90	**xxxx** 1)	812.90	**xxxx** 1)	812.90	**xxxx** 2)	812.90	**xxxx** 1)
22,00	6	20	6	3	337.90	**22000**	337.90	**22000**	337.90	**22000**	337.90	**22000**
22,01 - 23,99	6	20	6	3	845.69	**xxxx** 1)	845.69	**xxxx** 1)	845.69	**xxxx** 2)	845.69	**xxxx** 1)
24,00	6	20	6	3	348.20	**24000**	348.20	**24000**	348.20	**24000**	845.69	**24000** 1)
24,01 - 24,99	6	20	6	3	845.69	**xxxx** 1)	845.69	**xxxx** 1)	845.69	**xxxx** 2)	845.69	**xxxx** 1)
25,00	6	20	6	3	348.20	**25000**	348.20	**25000**	348.20	**25000**	348.20	**25000**
25,01 - 25,99	6	20	6	3	845.69	**xxxx** 1)	845.69	**xxxx** 1)	845.69	**xxxx** 2)	845.69	**xxxx** 1)
26,00	6	20	6	3	361.60	**26000**	361.60	**26000**	845.69	**26000** 2)	361.60	**26000**
26,01 - 26,99	6	20	6	3	845.69	**xxxx** 1)	845.69	**xxxx** 1)	845.69	**xxxx** 2)	845.69	**xxxx** 1)
27,00 - 27,99	6	25	6	4	880.73	**xxxx** 1)	880.73	**xxxx** 1)	880.73	**xxxx** 2)	880.73	**xxxx** 1)
28,00	6	25	6	4	361.60	**28000**	361.60	**28000**	361.60	**28000**	361.60	**28000**
28,01 - 29,99	6	25	6	4	880.73	**xxxx** 1)	880.73	**xxxx** 1)	880.73	**xxxx** 2)	880.73	**xxxx** 1)
30,00	6	25	6	4	378.07	**30000**	378.07	**30000**	378.07	**30000**	378.07	**30000**
30,01 - 31,79	6	25	6	4	880.73	**xxxx** 1)	880.73	**xxxx** 1)	880.73	**xxxx** 2)	880.73	**xxxx** 1)
31,80 - 31,99	6	25	8	4	920.64	**xxxx** 1)	920.64	**xxxx** 1)	920.64	**xxxx** 2)	920.64	**xxxx** 1)
32,00	6	25	8	4	391.47	**32000**	391.47	**32000**	391.47	**32000**	391.47	**32000**
32,01 - 34,99	6	25	8	4	920.64	**xxxx** 1)	920.64	**xxxx** 1)	920.64	**xxxx** 2)	920.64	**xxxx** 1)
35,00	6	25	8	5	410.00	**35000**	410.00	**35000**	410.00	**35000**	410.00	**35000**
35,01 - 39,99	6	25	8	5	1,007.21	**xxxx** 1)	1,007.21	**xxxx** 1)	1,007.21	**xxxx** 2)	1,007.21	**xxxx** 1)
40,00	6	25	8	5	433.70	**40000**	433.70	**40000**	433.70	**40000**	433.70	**40000**
40,01 - 41,99	6	25	8	5	1,007.21	**xxxx** 1)	1,007.21	**xxxx** 1)	1,007.21	**xxxx** 2)	1,007.21	**xxxx** 1)
42,00	6	30	8	6	433.70	**42000**	433.70	**42000**	1,093.97	**42000** 2)	433.70	**42000**
42,01 - 49,99	6	30	8	6	1,093.97	**xxxx** 1)	1,093.97	**xxxx** 1)	1,093.97	**xxxx** 2)	1,093.97	**xxxx** 1)
50,00	6	30	8	6	444.00	**50000**	444.00	**50000**	444.00	**50000**	444.00	**50000**
50,01 - 51,99	6	30	8	6	1,093.97	**xxxx** 1)	1,093.97	**xxxx** 1)	1,093.97	**xxxx** 2)	1,093.97	**xxxx** 1)
52,00 - 53,99	8	35	10	7	1,213.35	**xxxx** 1)	1,213.35	**xxxx** 1)	1,213.35	**xxxx** 2)	1,213.35	**xxxx** 1)
54,00	8	35	10	7	499.63	**54000**	499.63	**54000**	1,213.35	**54000** 2)	499.63	**54000**
54,01 - 65,00	8	35	10	7	1,213.35	**xxxx** 1)	1,213.35	**xxxx** 1)	1,213.35	**xxxx** 2)	1,213.35	**xxxx** 1)

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 67–70

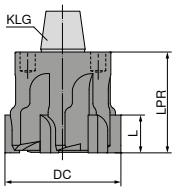
For xxxx please indicate requested Ø in H7 in the order (e.g Ø 24.12 H7 → article no. 40 597 2412)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!
All heads are also available as fixed-head variants (non-adjustable). (Available on request)

Assembly instructions can be found on → **Page 98+99**

REAMAX TS – Replaceable reaming heads

- up to tolerance class IT 6 with absolute process security, from the first hole
- precise repeatability < 3 µm
- high precision grind for maximum quality
- can be adjusted for the smallest hole tolerances
- interface enables head change in the machine
- retraction from the hole at 3–4 times the cutting feed rate
- KLG = coupling size





DST	DBG-P	DBC	DBG-P	TiN
				
75H.93 ◁ 45° ASG3000 CERMET Blind hole	75H.65 ◁ 45° ASG0106 HM Blind hole	75H.17 ◁ 45/8° ASG0706 HM Blind hole	75H.65 ◁ 45° ASG3000 HM Blind hole	75H.71 ◁ 45° ASG3000 HM Blind hole
40 539 ...	**40 571 ...**	**40 580 ...**	**40 585 ...**	**40 535 ...**

DC H7 mm	L mm	LPR mm	ZEFP	KLG	£ U3		£ U3		£ U3		£ U3		£ U3	
18,00	6	20	6	1	323.47	**18000**	323.47	**18000**	693.34	**18000** [2]	693.34	**18000** [1]	693.34	**18000** [1]
18,01 - 19,99	6	20	6	1	693.34	**xxxx** [1]	693.34	**xxxx** [1]	693.34	**xxxx** [2]	693.34	**xxxx** [1]	693.34	**xxxx** [1]
20,00	6	20	6	2	331.72	**20000**	331.72	**20000**	812.90	**20000** [2]	812.90	**20000** [1]	812.90	**20000** [1]
20,01 - 21,99	6	20	6	2	812.90	**xxxx** [1]	812.90	**xxxx** [1]	812.90	**xxxx** [2]	812.90	**xxxx** [1]	812.90	**xxxx** [1]
22,00	6	20	6	3	337.90	**22000**	337.90	**22000**	845.69	**22000** [2]	845.69	**22000** [1]	845.69	**22000** [1]
22,01 - 23,99	6	20	6	3	845.69	**xxxx** [1]	845.69	**xxxx** [1]	845.69	**xxxx** [2]	845.69	**xxxx** [1]	845.69	**xxxx** [1]
24,00	6	20	6	3	348.20	**24000**	348.20	**24000**	845.69	**24000** [2]	845.69	**24000** [1]	845.69	**24000** [1]
24,01 - 24,99	6	20	6	3	845.69	**xxxx** [1]	845.69	**xxxx** [1]	845.69	**xxxx** [2]	845.69	**xxxx** [1]	845.69	**xxxx** [1]
25,00	6	20	6	3	348.20	**25000**	348.20	**25000**	845.69	**25000** [2]	845.69	**25000** [1]	845.69	**25000** [1]
25,01 - 25,99	6	20	6	3	845.69	**xxxx** [1]	845.69	**xxxx** [1]	845.69	**xxxx** [2]	845.69	**xxxx** [1]	845.69	**xxxx** [1]
26,00	6	20	6	3	361.60	**26000**	361.60	**26000**	845.69	**26000** [2]	845.69	**26000** [1]	845.69	**26000** [1]
26,01 - 26,99	6	20	6	3	845.69	**xxxx** [1]	845.69	**xxxx** [1]	845.69	**xxxx** [2]	845.69	**xxxx** [1]	845.69	**xxxx** [1]
27,00 - 27,99	6	25	6	4	880.73	**xxxx** [1]	880.73	**xxxx** [1]	880.73	**xxxx** [2]	880.73	**xxxx** [1]	880.73	**xxxx** [1]
28,00	6	25	6	4	361.60	**28000**	361.60	**28000**	880.73	**28000** [2]	880.73	**28000** [1]	880.73	**28000** [1]
28,01 - 29,99	6	25	6	4	880.73	**xxxx** [1]	880.73	**xxxx** [1]	880.73	**xxxx** [2]	880.73	**xxxx** [1]	880.73	**xxxx** [1]
30,00	6	25	6	4	378.07	**30000**	378.07	**30000**	880.73	**30000** [2]	880.73	**30000** [1]	880.73	**30000** [1]
30,01 - 31,79	6	25	6	4	880.73	**xxxx** [1]	880.73	**xxxx** [1]	880.73	**xxxx** [2]	880.73	**xxxx** [1]	880.73	**xxxx** [1]
31,80 - 31,99	6	25	8	4	920.64	**xxxx** [1]	920.64	**xxxx** [1]	920.64	**xxxx** [2]	920.64	**xxxx** [1]	920.64	**xxxx** [1]
32,00	6	25	8	4	391.47	**32000**	391.47	**32000**	920.64	**32000** [2]	920.64	**32000** [1]	920.64	**32000** [1]
32,01 - 34,99	6	25	8	4	920.64	**xxxx** [1]	920.64	**xxxx** [1]	920.64	**xxxx** [2]	920.64	**xxxx** [1]	920.64	**xxxx** [1]
35,00	6	25	8	5	410.00	**35000**	410.00	**35000**	1,007.21	**35000** [2]	1,007.21	**35000** [1]	1,007.21	**35000** [1]
35,01 - 39,99	6	25	8	5	1,007.21	**xxxx** [1]	1,007.21	**xxxx** [1]	1,007.21	**xxxx** [2]	1,007.21	**xxxx** [1]	1,007.21	**xxxx** [1]
40,00	6	25	8	5	433.70	**40000**	433.70	**40000**	1,007.21	**40000** [2]	1,007.21	**40000** [1]	1,007.21	**40000** [1]
40,01 - 41,99	6	25	8	5	1,007.21	**xxxx** [1]	1,007.21	**xxxx** [1]	1,007.21	**xxxx** [2]	1,007.21	**xxxx** [1]	1,007.21	**xxxx** [1]
42,00	6	30	8	6	433.70	**42000**	433.70	**42000**	1,093.97	**42000** [2]	1,093.97	**42000** [1]	1,093.97	**42000** [1]
42,01 - 49,99	6	30	8	6	1,093.97	**xxxx** [1]	1,093.97	**xxxx** [1]	1,093.97	**xxxx** [2]	1,093.97	**xxxx** [1]	1,093.97	**xxxx** [1]
50,00	6	30	8	6	444.00	**50000**	444.00	**50000**	1,093.97	**50000** [2]	1,093.97	**50000** [1]	1,093.97	**50000** [1]
50,01 - 51,99	6	30	8	6	1,093.97	**xxxx** [1]	1,093.97	**xxxx** [1]	1,093.97	**xxxx** [2]	1,093.97	**xxxx** [1]	1,093.97	**xxxx** [1]
52,00 - 53,99	8	35	10	7	1,213.35	**xxxx** [1]	1,213.35	**xxxx** [1]	1,213.35	**xxxx** [2]	1,213.35	**xxxx** [1]	1,213.35	**xxxx** [1]
54,00	8	35	10	7	499.63	**54000**	499.63	**54000**	1,213.35	**54000** [2]	1,213.35	**54000** [1]	1,213.35	**54000** [1]
54,01 - 65,00	8	35	10	7	1,213.35	**xxxx** [1]	1,213.35	**xxxx** [1]	1,213.35	**xxxx** [2]	1,213.35	**xxxx** [1]	1,213.35	**xxxx** [1]

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 67–70

For xxxx please indicate requested Ø in H7 in the order (e.g Ø 24.12 H7 → article no. 40 539 2412)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!
All heads are also available as fixed-head variants (non-adjustable). (Available on request)

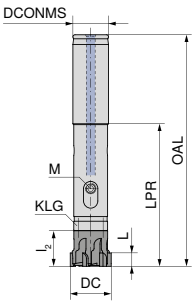
Assembly instructions can be found on → **Page 98+99**

REAMAX TS – Holder

▲ KLG = Coupling Size

Supply details:

Complete holder incl. pull stud but without exchangeable head





~A
≤ 3xD



~A
≤ 5xD

DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	L mm	DCONMS $_{h6}$ mm	M Nm	40 501 ... £ U3		40 503 ... £ U3	
18,00 - 19,99	75A.40.13010	1	130	20	80	6	20	1,5	346.45	**02099**		
18,00 - 19,99	75A.40.15010	1	190	20	140	6	20	1,5			359.32	**02099**
20,00 - 21,99	75A.40.13020	2	130	20	80	6	20	2,5	359.32	**02299**		
20,00 - 21,99	75A.40.15020	2	190	20	140	6	20	2,5			374.78	**02299**
22,00 - 26,99	75A.40.13030	3	130	20	80	6	20	4	368.29	**02799**		
22,00 - 26,99	75A.40.15030	3	210	20	160	6	20	4			395.38	**02799**
27,00 - 34,99	75A.40.13040	4	176	25	120	6	25	5	382.50	**03599**		
27,00 - 34,99	75A.40.15040	4	236	25	180	6	25	5			406.92	**03599**
35,00 - 41,99	75A.40.13050	5	176	25	120	6	25	6	436.58	**04299**		
35,00 - 41,99	75A.40.15050	5	256	25	200	6	25	6			460.62	**04299**
42,00 - 51,99	75A.40.13060	6	180	30	120	6	32	10	450.70	**05299**		
42,00 - 51,99	75A.40.15060	6	280	30	220	6	32	10			475.51	**05299**
52,00 - 65,00	75A.40.13070	7	180	30	120	8	32	13	464.92	**06599**		
52,00 - 65,00	75A.40.15070	7	280	30	220	8	32	13			490.50	**06599**

Do not heat shrink tools !



Clamping key - T



Key D



Reamax TS pull stud

Spare parts DC		80 397 ... £ Y7			80 950 ... £ Y7		40 900 ... £ U3	
18,00 - 19,99				T08 - IP	9.16	**039**	14.42	**00100**
20,00 - 21,99	SW2,5	5.21	**025**				14.42	**00200**
22,00 - 26,99	SW3	5.02	**030**				14.42	**00300**
27,00 - 34,99	SW3	5.02	**030**				14.42	**00400**
35,00 - 41,99	SW3	5.02	**030**				19.99	**00500**
42,00 - 51,99	SW4	5.02	**040**				19.99	**00500**
52,00 - 65,00	SW5	6.39	**050**				19.99	**00700**

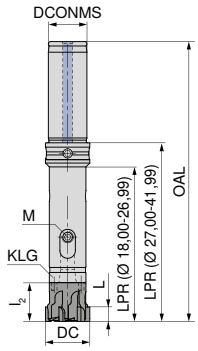
Assembly instructions can be found on → **Page 98+99**

REAMAX TS – Holder

- KLG = Coupling size
- Adjustment inside the machine
- Alignable DAH Zero holder for correction of concentricity error
- DAH Zero holder is pre-loaded and set to a runout of < 0.005 mm

Supply details:

Complete holder incl. pull stud but without exchangeable head







DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	L mm	DCONMS $_{h6}$ mm	M Nm	40 504 ... £ U3		40 506 ... £ U3	
18,00 - 19,99	75A.41.13010	1	145	20	80	6	20	1,5	464.92	**02099**		
18,00 - 19,99	75A.41.15010	1	205	20	140	6	20	1,5			494.49	**02099**
20,00 - 21,99	75A.41.13020	2	145	20	80	6	20	2,5	470.07	**02299**		
20,00 - 21,99	75A.41.15020	2	205	20	140	6	20	2,5			509.94	**02299**
22,00 - 26,99	75A.41.13030	3	145	20	80	6	20	4	481.61	**02799**		
22,00 - 26,99	75A.41.15030	3	225	20	160	6	20	4			524.15	**02799**
27,00 - 34,99	75A.41.13040	4	145	25	120	6	25	5	506.13	**03599**		
27,00 - 34,99	75A.41.15040	4	236	25	180	6	25	5			524.15	**03599**
35,00 - 41,99	75A.41.13050	5	176	25	120	6	25	6	615.53	**04299**		
35,00 - 41,99	75A.41.15050	5	236	25	200	6	25	6			627.17	**04299**

Do not heat shrink tools !







Spare parts DC		80 397 ... £ Y7			80 950 ... £ Y7		40 900 ... £ U3	
18,00 - 19,99				T08 - IP	9.16	**039**	14.42	**00100**
20,00 - 21,99	SW2,5	5.21	**025**				14.42	**00200**
22,00 - 26,99	SW3	5.02	**030**				14.42	**00300**
27,00 - 34,99	SW3	5.02	**030**				14.42	**00400**
35,00 - 41,99	SW3	5.02	**030**				19.99	**00500**

Assembly instructions can be found on → **Page 98+99**

REAMAX – Selection guide

Ø			12,5 – 40 mm					
KOMET no.			640.93	640.93	640.65	640.65	640.27	640.71
Lead angle			ASG4000	ASG3000	ASG3000	ASG0106	ASG0706	ASG3000
Lead angle			25°	45°	45°	45°	45°/8°	45°
Grade / coating			DST	DST	DBG-P	DBG-P	DBC	TiN
Article no.			40 536	40 525	40 560	40 551	40 570	40 505
Preferred type available			✓	✓	✓	✓	✓	✓
Application			Through hole	Through hole + blind hole				
					 *		 *	
Material sub-group		**Index**						
P	**Non alloyed steel**	**P.1.1**	●	●	●			○
		P.1.2						
		P.1.3						
		P.1.4						
		P.1.5						
	Low alloyed steel	**P.2.1**						
		P.2.2						
		P.2.3						
		P.2.4				●		
	High-alloy steel and high-alloy tool steel	**P.3.1**						
		P.3.2						
		P.3.3						
	Stainless steel	**P.4.1**						
		P.4.2						
M	**Stainless steel**	**M.1.1**						
		M.2.1				●		
		M.3.1						
K	**Grey cast iron**	**K.1.1**			●			○
		K.1.2						
	Spherulitic graphite cast iron	**K.2.1**	○	●	●			
		K.2.2						
	Malleable iron	**K.3.1**		●	●			
		K.3.2	○					
N	**Aluminum alloys,**	**N.1.1**						
		N.1.2					●	
	Cast Aluminium Alloys	**N.2.1**						
		N.2.2						
		N.2.3						
	Copper and copper alloys (Bronze, Brass)	**N.3.1**		○				
		N.3.2						●
		N.3.3						
	Magnesium alloys	**N.4.1**						
H	**Hardened steel**	**H.1.1**						
		H.1.2				●		
		H.1.3						
		H.1.4						
	Chilled iron	**H.2.1**						
	Hardened cast iron	**H.3.1**				●		
O	**Non metal materials**	**O.1.1**						
		O.1.2						
		O.2.1						
		O.2.2						
		O.3.1					○	

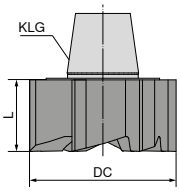
* for drilling with interrupted cut use coated HM-reamers

Applications:	
Main application	●
Additional range of application	○

REAMAX – Replaceable reaming heads

- up to tolerance zone IT 7 with absolute process safety, from the first hole
- precise repeatability < 2 µm
- maximum radial run-out accuracy thanks to precision ground taper location
- no Ø adjustment necessary
- optimised for application with minimum quantity lubrication (MMS)
- retraction from the hole at 3–4 times the cutting feed rate
- KLG = coupling size





DST	DBG-P	DBC	DST	DBG-P	TiN
					
640.93 ◁ 25° ASG4000 CERMET Through hole	640.65 ◁ 45° ASG0106 HM Through hole + blind hole	640.27 ◁ 45° ASG0706 HM Through hole + blind hole	640.93 ◁ 45° ASG3000 CERMET Through hole + blind hole	640.65 ◁ 45° ASG3000 HM Through hole + blind hole	640.71 ◁ 45° ASG3000 HM Through hole + blind hole
40 536 ...	**40 551 ...**	**40 570 ...**	**40 525 ...**	**40 560 ...**	**40 505 ...**

DC H7 mm	L mm	ZEFP	KLG	£ U3		£ U3		£ U3		£ U3		£ U3		£ U3	
12,50 - 14,99	9	6	1	482.53	xxxx 2)	482.53	xxxx 1)	482.53	xxxx 1)	482.53	xxxx 2)	482.53	xxxx 1)	482.53	xxxx 1)
15,00	9	6	1	482.53	15000 2)	219.43	15000 1)	219.43	15000 1)	482.53	15000 2)	219.43	15000	401.49	150
15,01 - 15,99	9	6	1	482.53	xxxx 2)	482.53	xxxx 1)	482.53	xxxx 1)	482.53	xxxx 2)	482.53	xxxx 1)	482.53	xxxx 1)
16,00	9	6	2	461.80	160	252.39	16000 1)	252.39	16000 1)	461.80	160	252.39	16000	461.80	160
16,01 - 17,99	9	6	2	550.55	xxxx 2)	550.55	xxxx 1)	550.55	xxxx 1)	550.55	xxxx 2)	550.55	xxxx 1)	550.55	xxxx 1)
18,00	9	6	2	467.46	180	255.49	18000 1)	255.49	18000 1)	467.46	180	255.49	18000	467.46	180
18,01 - 19,99	9	6	2	550.55	xxxx 2)	550.55	xxxx 1)	550.55	xxxx 1)	550.55	xxxx 2)	550.55	xxxx 1)	550.55	xxxx 1)
20,00	9	6	2	476.88	200	260.64	20000 1)	260.64	20000 1)	476.88	200	260.64	20000	476.88	200
20,01 - 21,99	9	6	2	550.55	xxxx 2)	550.55	xxxx 1)	550.55	xxxx 1)	550.55	xxxx 2)	550.55	xxxx 1)	550.55	xxxx 1)
22,00	9	8	3	488.20	220	266.82	22000 1)	266.82	22000 1)	488.20	220	266.82	22000	488.20	220
22,01 - 23,99	9	8	3	594.96	xxxx 2)	594.96	xxxx 1)	594.96	xxxx 1)	594.96	xxxx 2)	594.96	xxxx 1)	594.96	xxxx 1)
24,00	9	8	3	594.96	24000 2)	276.09	24000 1)	276.09	24000 1)	594.96	24000 2)	276.09	24000	505.16	240
24,01 - 24,99	9	8	3	594.96	xxxx 2)	594.96	xxxx 1)	594.96	xxxx 1)	594.96	xxxx 2)	594.96	xxxx 1)	594.96	xxxx 1)
25,00	9	8	3	525.89	250	287.43	25000 1)	287.43	25000 1)	525.89	250	287.43	25000	525.89	250
25,01 - 25,99	9	8	3	594.96	xxxx 2)	594.96	xxxx 1)	594.96	xxxx 1)	594.96	xxxx 2)	594.96	xxxx 1)	594.96	xxxx 1)
26,00 - 27,99	9	8	4	681.72	xxxx 2)	681.72	xxxx 1)	681.72	xxxx 1)	681.72	xxxx 2)	681.72	xxxx 1)	681.72	xxxx 1)
28,00	9	8	4	544.74	280	297.72	28000 1)	297.72	28000 1)	544.74	280	297.72	28000	544.74	280
28,01 - 29,99	9	8	4	681.72	xxxx 2)	681.72	xxxx 1)	681.72	xxxx 1)	681.72	xxxx 2)	681.72	xxxx 1)	681.72	xxxx 1)
30,00	9	8	4	571.13	300	312.14	30000 1)	312.14	30000 1)	571.13	300	312.14	30000	571.13	300
30,01 - 32,00	9	8	4	681.72	xxxx 2)	681.72	xxxx 1)	681.72	xxxx 1)	681.72	xxxx 2)	681.72	xxxx 1)	681.72	xxxx 1)
32,01 - 39,99	9	8	5	772.98	xxxx 2)	772.98	xxxx 1)	772.98	xxxx 1)	772.98	xxxx 2)	772.98	xxxx 1)	772.98	xxxx 1)
40,00	9	8	5	605.06	400	330.69	40000 1)	330.69	40000 1)	605.06	400	330.69	40000	605.06	400

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

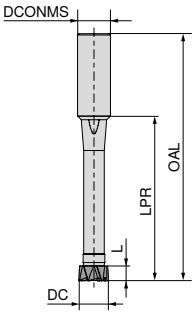
→ v_c Page 71–73

For xxxx please indicate requested Ø in H7 in the order (e.g. Ø 15.12 H7 → article no. 40 525 1512)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!

REAMAX – Holder, short

▲ KLG = Coupling Size

Supply details:
Complete holder, but without exchangeable head





~A
≤ 3xD



~A
≤ 5xD

DC mm	KOMET no.	KLG	OAL mm	LPR mm	L mm	DCONMS $_{h6}$ mm	M Nm	40 590 ... £ U3		40 591 ... £ U3	
12,50 - 15,99	640.01.001	1	107	59	9	16	4 - 5	626.75	**016**		
12,50 - 15,99	640.81.001	1	137	89	9	16	4 - 5			626.75	**016**
16,00 - 21,99	640.01.002	2	119	69	9	20	6 - 7	655.01	**022**		
16,00 - 21,99	640.81.002	2	169	119	9	20	6 - 7			655.01	**022**
22,00 - 25,99	640.01.003	3	140	84	9	25	10 - 12	697.42	**026**		
22,00 - 25,99	640.81.003	3	196	140	9	25	10 - 12			697.42	**026**
26,00 - 32,00	640.01.005	4	160	104	9	25	18 - 20	720.98	**032**		
26,00 - 32,00	640.81.005	4	226	170	9	25	18 - 20			720.98	**032**
32,01 - 40,00	640.01.006	5	199	139	9	32	26 - 28	824.66	**040**		
32,01 - 40,00	640.81.006	5	270	210	9	32	26 - 28			824.66	**040**

Do not heat shrink tools !

Draw bolt 5xD

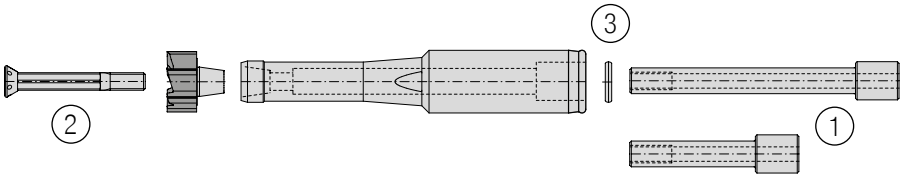

Draw bolt 3xD


Draw bar


Circlip

Spare parts DC	DCONMS	40 950 ... £ U3		40 950 ... £ U3		40 950 ... £ U3		40 950 ... £ U3	
12,50 - 15,99	16			85.39	**101**	216.76	**001**	1.03	**301**
12,50 - 15,99	16	87.37	**107**			216.76	**001**	1.03	**301**
16,00 - 21,99	20	87.37	**108**			216.76	**002**	1.03	**302**
16,00 - 21,99	20			85.39	**102**	216.76	**002**	1.03	**302**
22,00 - 25,99	25			99.90	**103**	226.19	**003**	1.03	**303**
22,00 - 25,99	25	102.89	**109**			226.19	**003**	1.03	**303**
26,00 - 32,00	25			114.98	**104**	238.07	**004**	1.03	**303**
26,00 - 32,00	25	118.43	**110**			238.07	**004**	1.03	**303**
32,01 - 40,00	32	133.97	**112**			256.91	**005**	1.03	**304**
32,01 - 40,00	32			130.06	**106**	256.91	**005**	1.03	**304**

1. Draw bolt
2. Draw bar
3. Circlip



MultiChange – Programme Overview

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

Solid carbide drilling



- Solid Carbide NC Spot Drill
  ◁ 90°, 120°, 142° / Ø 8, 10, 12, 16, 20 mm / ZEFP* 2

→ **Chapter 2, Solid carbide drilling**

*ZEFP = Number of teeth

Solid Carbide milling cutters



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

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

*ZEFP = Number of teeth

Tool holder



- Steel Holder Extra Short
  Cylindrical / Tapered 87°
  Length 60–90 mm
  for SZID 8, 10, 12, 16, 20 mm



- Short Holder Steel / Solid Carbide
  cylindrical
  Length 85–120 mm
  for SZID 8, 10, 12, 16, 20 mm



- Short Holder Steel / Solid Carbide
  87° taper
  Length 85–120 mm
  for SZID 8, 10, 12, 16, 20 mm



- Solid Carbide Holder, Medium
  Cylindrical / Tapered 87°
  Length 110–150 mm
  for SZID 8, 10, 12, 16, 20 mm



- Holder Steel / Solid Carbide, Long
  cylindrical
  Length 150–200 mm
  for SZID 8, 10, 12, 16, 20 mm



- Holder Steel / Solid Carbide, Long
  87° taper
  Length 150–200 mm
  for SZID 8, 10, 12, 16, 20 mm



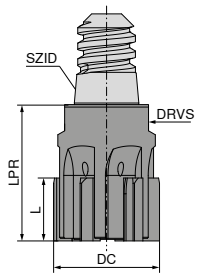
- Holder Steel / Solid Carbide, Extra Long
  cylindrical
  Length 200–250 mm
  For SZID 16 and 20 mm

→ **Catalogue – Clamping technology, Chapter Accessories**

MultiChange – Reaming Head, for Thro' Holes

- ▲ To tolerance zone IT 7 with absolute process security – from the first hole
- ▲ High-speed reaming heads
- ▲ Irregular pitch for highest concentricity
- ▲ Repeatability ≤ 5 µm
- ▲ SZID = Coupling Size





	CWC10	TiAlN	TiAlN	K10	PDC
					
	Left Hand Helix ◁ 30° CERMET Through hole	Left Hand Helix ◁ 30° HM Through hole	straight flute ◁ 45° HM Through hole	straight flute ◁ 45° Solid carbide Through hole	straight flute ◁ 45° PDC Through hole
	40 210 ...	**40 220 ...**	**40 230 ...**	**40 240 ...**	**40 245 ...**

DC H7 mm	SZID	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm	£ U3		£ U3		£ U3		£ U3		£ U3	
8,00	06	8	18	4	6	5.0	280.20	**080**	280.20	**080**	280.20	**080**	252.55	**080** 1)	698.64	**080** 1)
8,01 - 9,70	06	8	18	4	6	5.0	304.17	**xxxx** 1)	304.17	**xxxx** 1)	304.17	**xxxx** 1)	274.67	**xxxx** 1)	785.31	**xxxx** 1)
9,71 - 9,99	06	8	18	6	8	5.0	344.72	**xxxx** 1)	344.72	**xxxx** 1)	344.72	**xxxx** 1)	309.69	**xxxx** 1)	855.34	**xxxx** 1)
10,00	06	8	18	6	8	5.0	317.06	**100**	317.06	**100**	317.06	**100**	285.74	**100** 1)	770.55	**100** 1)
10,01 - 10,70	06	8	18	6	8	5.0	344.72	**xxxx** 1)	344.72	**xxxx** 1)	344.72	**xxxx** 1)	309.69	**xxxx** 1)	855.34	**xxxx** 1)
10,71 - 11,99	08	8	20	6	8	12.5	344.72	**xxxx** 1)	344.72	**xxxx** 1)	344.72	**xxxx** 1)	309.69	**xxxx** 1)	882.99	**xxxx** 1)
12,00	08	8	20	6	8	12.5	317.06	**120**	317.06	**120**	317.06	**120**	285.74	**120** 1)	785.31	**120** 1)
12,01 - 12,70	08	8	20	6	8	12.5	344.72	**xxxx** 1)	344.72	**xxxx** 1)	344.72	**xxxx** 1)	309.69	**xxxx** 1)	882.99	**xxxx** 1)
12,71 - 13,99	10	8	22	6	10	15.0	366.84	**xxxx** 1)	366.84	**xxxx** 1)	366.84	**xxxx** 1)	329.98	**xxxx** 1)	882.99	**xxxx** 1)
14,00	10	8	22	6	10	15.0	337.33	**140**	337.33	**140**	337.33	**140**	304.17	**140** 1)	785.31	**140** 1)
14,01 - 15,99	10	8	22	6	10	15.0	366.84	**xxxx** 1)	366.84	**xxxx** 1)	366.84	**xxxx** 1)	329.98	**xxxx** 1)	882.99	**xxxx** 1)
16,00	10	8	22	6	10	15.0	337.33	**160**	337.33	**160**	337.33	**160**	304.17	**160** 1)	825.85	**160** 1)
16,01 - 16,20	10	8	22	6	10	15.0	366.84	**xxxx** 1)	366.84	**xxxx** 1)	366.84	**xxxx** 1)	329.98	**xxxx** 1)	927.24	**xxxx** 1)
16,21 - 17,20	10	8	22	6	13	15.0	366.84	**xxxx** 1)	366.84	**xxxx** 1)	366.84	**xxxx** 1)	329.98	**xxxx** 1)	927.24	**xxxx** 1)
17,21 - 17,99	12	12	26	6	13	20.0	383.43	**xxxx** 1)	383.43	**xxxx** 1)	383.43	**xxxx** 1)	344.72	**xxxx** 1)	938.29	**xxxx** 1)
18,00	12	12	26	6	13	20.0	352.11	**180**	352.11	**180**	352.11	**180**	317.06	**180** 1)	835.07	**180** 1)
18,01 - 19,20	12	12	26	6	13	20.0	383.43	**xxxx** 1)	383.43	**xxxx** 1)	383.43	**xxxx** 1)	344.72	**xxxx** 1)	938.29	**xxxx** 1)
19,21 - 19,99	12	12	26	6	16	20.0	383.43	**xxxx** 1)	383.43	**xxxx** 1)	383.43	**xxxx** 1)	344.72	**xxxx** 1)	938.29	**xxxx** 1)
20,00	12	12	26	6	16	20.0	352.11	**200**	352.11	**200**	352.11	**200**	317.06	**200** 1)	835.07	**200** 1)
20,01 - 20,20	12	12	26	6	16	20.0	383.43	**xxxx** 1)	383.43	**xxxx** 1)	383.43	**xxxx** 1)	344.72	**xxxx** 1)	938.29	**xxxx** 1)
20,21 - 21,20	12	12	26	6	16	20.0	400.02	**xxxx** 1)	400.02	**xxxx** 1)	400.02	**xxxx** 1)	359.47	**xxxx** 1)	938.29	**xxxx** 1)
21,21 - 21,99	16	12	26	6	16	25.0	400.02	**xxxx** 1)	400.02	**xxxx** 1)	400.02	**xxxx** 1)	359.47	**xxxx** 1)	954.87	**xxxx** 1)
22,00	16	12	26	6	16	25.0	368.69	**220**	368.69	**220**	368.69	**220**	329.98	**220** 1)	849.80	**220** 1)
22,01 - 23,99	16	12	26	6	16	25.0	400.02	**xxxx** 1)	400.02	**xxxx** 1)	400.02	**xxxx** 1)	359.47	**xxxx** 1)	954.87	**xxxx** 1)
24,00	16	12	26	6	16	25.0	368.69	**240**	368.69	**240**	368.69	**240**	329.98	**240** 1)	849.80	**240** 1)
24,01 - 24,20	16	12	26	6	16	25.0	400.02	**xxxx** 1)	400.02	**xxxx** 1)	400.02	**xxxx** 1)	359.47	**xxxx** 1)	954.87	**xxxx** 1)
24,21 - 24,99	16	12	26	6	19	25.0	427.68	**xxxx** 1)	427.68	**xxxx** 1)	427.68	**xxxx** 1)	385.29	**xxxx** 1)	984.38	**xxxx** 1)
25,00	16	12	26	6	19	25.0	392.64	**250**	392.64	**250**	392.64	**250**	353.92	**250** 1)	875.62	**250** 1)
25,01 - 25,99	16	12	26	6	19	25.0	427.68	**xxxx** 1)	427.68	**xxxx** 1)	427.68	**xxxx** 1)	385.29	**xxxx** 1)	984.38	**xxxx** 1)
26,00	16	12	26	6	19	25.0	392.64	**260**	392.64	**260**	392.64	**260**	353.92	**260** 1)	875.62	**260** 1)
26,01 - 26,20	16	12	26	6	19	25.0	427.68	**xxxx** 1)	427.68	**xxxx** 1)	427.68	**xxxx** 1)	385.29	**xxxx** 1)	984.38	**xxxx** 1)
26,21 - 27,99	16	12	26	6	21	25.0	427.68	**xxxx** 1)	427.68	**xxxx** 1)	427.68	**xxxx** 1)	385.29	**xxxx** 1)	984.38	**xxxx** 1)
28,00	16	12	26	6	21	25.0	392.64	**280**	392.64	**280**	392.64	**280**	353.92	**280** 1)	875.62	**280** 1)
28,01 - 28,20	16	12	26	6	21	25.0	427.68	**xxxx** 1)	427.68	**xxxx** 1)	427.68	**xxxx** 1)	385.29	**xxxx** 1)	984.38	**xxxx** 1)
28,21 - 29,20	16	12	26	6	24	25.0	473.75	**xxxx** 1)	473.75	**xxxx** 1)	473.75	**xxxx** 1)	425.83	**xxxx** 1)	984.38	**xxxx** 1)
29,21 - 29,99	16	12	26	8	24	25.0	473.75	**xxxx** 1)	473.75	**xxxx** 1)	473.75	**xxxx** 1)	425.83	**xxxx** 1)	1,041.52	**xxxx** 1)
30,00	16	12	26	8	24	25.0	435.06	**300**	435.06	**300**	435.06	**300**	392.64	**300** 1)	927.24	**300** 1)
30,01 - 30,20	16	12	26	8	24	25.0	473.75	**xxxx** 1)	473.75	**xxxx** 1)	473.75	**xxxx** 1)	425.83	**xxxx** 1)	1,041.52	**xxxx** 1)

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 21 working days / Minimum order 2 pieces

→ v_c Page 74+75

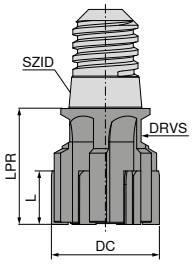
For xxxx please indicate requested diameter in H7 in the order (e.g. 10.89 H7 → article no. 40 230 1089)!
All other diameters and tolerance classes are also possible on request (e.g. 8.5 $^{+0.025}$ or 11 N7).

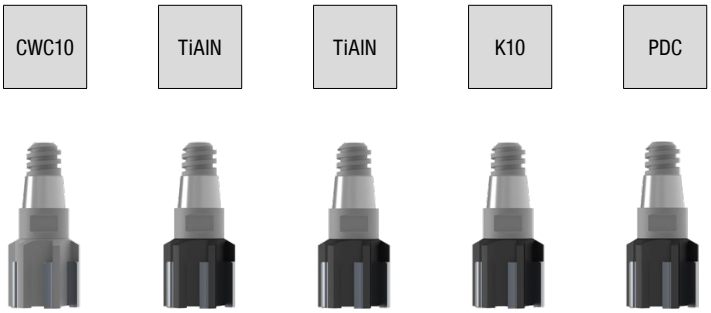
Holders and accessories can be found in → **Catalogue – Clamping technology, Chapter 16**.

MultiChange – Reaming Head, for blind holes

- ▲ To tolerance zone IT 7 with absolute process security – from the first hole
- ▲ High-speed reaming heads
- ▲ Irregular pitch for highest concentricity
- ▲ Repeatability ≤ 5 µm
- ▲ SZID = Coupling Size







4

							straight flute ◁ 60° CERMET Blind hole		straight flute ◁ 60° HM Blind hole		straight flute ◁ 60° HM Blind hole		straight flute ◁ 60° Solid carbide Blind hole		straight flute ◁ 75° PDC Blind hole	
							40 211 ...		40 221 ...		40 231 ...		40 241 ...		40 246 ...	
DC H7 mm	SZID	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm	£ U3		£ U3		£ U3		£ U3		£ U3	
12,20 - 12,70	06	8	20	6	6	5.0	344.72	xxxx 1)	344.72	xxxx 1)	344.72	xxxx 1)	309.69	xxxx 1)	882.99	xxxx 1)
12,71 - 13,99	06	8	22	6	6	5.0	366.84	xxxx 1)	366.84	xxxx 1)	366.84	xxxx 1)	329.98	xxxx 1)	882.99	xxxx 1)
14,00	06	8	22	6	6	5.0	337.33	140	337.33	140	337.33	140	304.17	140 1)	785.31	140 1)
14,01 - 14,20	06	8	22	6	6	5.0	366.84	xxxx 1)	366.84	xxxx 1)	366.84	xxxx 1)	329.98	xxxx 1)	882.99	xxxx 1)
14,21 - 15,99	08	8	22	6	8	12.5	366.84	xxxx 1)	366.84	xxxx 1)	366.84	xxxx 1)	329.98	xxxx 1)	927.24	xxxx 1)
16,00	08	8	22	6	8	12.5	337.33	160	337.33	160	337.33	160	304.17	160 1)	825.85	160 1)
16,01 - 16,20	08	8	22	6	8	12.5	366.84	xxxx 1)	366.84	xxxx 1)	366.84	xxxx 1)	329.98	xxxx 1)	927.24	xxxx 1)
16,21 - 17,20	10	8	22	6	10	15.0	366.84	xxxx 1)	366.84	xxxx 1)	366.84	xxxx 1)	329.98	xxxx 1)	927.24	xxxx 1)
17,21 - 17,99	10	12	26	6	10	15.0	383.43	xxxx 1)	383.43	xxxx 1)	383.43	xxxx 1)	344.72	xxxx 1)	938.29	xxxx 1)
18,00	10	12	26	6	10	15.0	352.11	180	352.11	180	352.11	180	317.06	180 1)	835.07	180 1)
18,01 - 19,99	10	12	26	6	10	15.0	383.43	xxxx 1)	383.43	xxxx 1)	383.43	xxxx 1)	344.72	xxxx 1)	938.29	xxxx 1)
20,00	10	12	26	6	10	15.0	352.11	200	352.11	200	352.11	200	317.06	200 1)	835.07	200 1)
20,01 - 20,20	10	12	26	6	10	15.0	383.43	xxxx 1)	383.43	xxxx 1)	383.43	xxxx 1)	344.72	xxxx 1)	938.29	xxxx 1)
20,21 - 21,99	12	12	26	6	13	20.0	400.02	xxxx 1)	400.02	xxxx 1)	400.02	xxxx 1)	359.47	xxxx 1)	938.29	xxxx 1)
22,00	12	12	26	6	13	20.0	368.69	220	368.69	220	368.69	220	329.98	220 1)	849.80	220 1)
22,01 - 23,99	12	12	26	6	13	20.0	400.02	xxxx 1)	400.02	xxxx 1)	400.02	xxxx 1)	359.47	xxxx 1)	954.87	xxxx 1)
24,00	12	12	26	6	13	20.0	368.69	240	368.69	240	368.69	240	329.98	240 1)	849.80	240 1)
24,01 - 24,20	12	12	26	6	13	20.0	400.02	xxxx 1)	400.02	xxxx 1)	400.02	xxxx 1)	359.47	xxxx 1)	954.87	xxxx 1)
24,21 - 24,99	16	12	26	6	16	25.0	427.68	xxxx 1)	427.68	xxxx 1)	427.68	xxxx 1)	385.29	xxxx 1)	954.87	xxxx 1)
25,00	16	12	26	6	16	25.0	392.64	250	392.64	250	392.64	250	353.92	250 1)	875.62	250 1)
25,01 - 25,99	16	12	26	6	16	25.0	427.68	xxxx 1)	427.68	xxxx 1)	427.68	xxxx 1)	385.29	xxxx 1)	954.87	xxxx 1)
26,00	16	12	26	6	16	25.0	392.64	260	392.64	260	392.64	260	353.92	260 1)	875.62	260 1)
26,01 - 27,99	16	12	26	6	16	25.0	427.68	xxxx 1)	427.68	xxxx 1)	427.68	xxxx 1)	385.29	xxxx 1)	984.38	xxxx 1)
28,00	16	12	26	6	16	25.0	392.64	280	392.64	280	392.64	280	353.92	280 1)	875.62	280 1)
28,01 - 28,20	16	12	26	6	16	25.0	427.68	xxxx 1)	427.68	xxxx 1)	427.68	xxxx 1)	385.29	xxxx 1)	984.38	xxxx 1)
28,21 - 29,20	16	12	26	6	16	25.0	473.75	xxxx 1)	473.75	xxxx 1)	473.75	xxxx 1)	425.83	xxxx 1)	984.38	xxxx 1)
29,21 - 29,99	16	12	26	8	16	25.0	473.75	xxxx 1)	473.75	xxxx 1)	473.75	xxxx 1)	425.83	xxxx 1)	1,041.52	xxxx 1)
30,00	16	12	26	8	16	25.0	435.06	300	435.06	300	435.06	300	392.64	300 1)	927.24	300 1)
30,01 - 30,20	16	12	26	8	16	25.0	473.75	xxxx 1)	473.75	xxxx 1)	473.75	xxxx 1)	425.83	xxxx 1)	1,041.52	xxxx 1)
P							●		●		●					
M									●							
K							●				●					
N													●		●	
S																
H																
O																

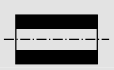
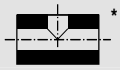
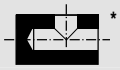
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 21 working days / Minimum order 2 pieces

→ v_c Page 74+75

For xxxx please indicate requested diameter in H7 in the order (e.g. 12.89 H7 → article no. 40 231 1289)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 15 N7).

Holders and accessories can be found in → **Catalogue – Clamping technology, Chapter 16**.

Monomax – Selection guide

Ø			5,60 – 25,89 mm						
KOMET no. (3xD)			56J.93	56J.93	56J.65	56J.17	56J.71	56H.65	56H.65	56H.17
KOMET no. (5xD)			56R.93	56R.93	56R.65	56R.17	56R.71	56Q.65	56Q.65	56Q.17
Lead angle			ASG4000	ASG3000	ASG0106	ASG0706	ASG3000	ASG3000	ASG0106	ASG0706
Lead angle			25°	45°	45°	45°/8°	45°	45°	45°	45°/8°
New grade / coating			DST	DST	DBG-P	DBC	TIN	DBG-P	DBG-P	DBC
Article no. (3xD)			40 635	40 625	40 652	40 648	40 605	40 657	40 644	40 640
Article no. (5xD)			40 636	40 626	40 653	40 649	40 606	40 665	40 645	40 641
Preferred type available			✓	✓	✓		✓			
Application			Through hole					Blind hole		
						 *			 *	
Material sub-group		**Index**								
P	**Non alloyed steel**	**P.1.1**	●	●			○	●		
		P.1.2								
		P.1.3								
		P.1.4								
		P.1.5								
	Low alloyed steel	**P.2.1**								
		P.2.2								
		P.2.3								
		P.2.4			●					
	High-alloy steel and high-alloy tool steel	**P.3.1**								
		P.3.2								
		P.3.3							●	
	Stainless steel	**P.4.1**								
		P.4.2								
M	**Stainless steel**	**M.1.1**								
		M.2.1			●				●	
		M.3.1								
K	**Grey cast iron**	**K.1.1**					○	●		
		K.1.2								
	Spherulitic graphite cast iron	**K.2.1**	○	●				●		
		K.2.2								
	Malleable iron	**K.3.1**	○	●				●		
		K.3.2								
N	**Aluminum alloys**	**N.1.1**								
		N.1.2								
	Cast Aluminium Alloys	**N.2.1**				●				●
		N.2.2								
		N.2.3								
	Copper and copper alloys (Bronze, Brass)	**N.3.1**		○						
		N.3.2					●			
		N.3.3								
	Magnesium alloys	**N.4.1**								
O	**Non metal materials**	**O.1.1**								
		O.1.2								
		O.2.1								
		O.2.2								
		O.3.1				○				○

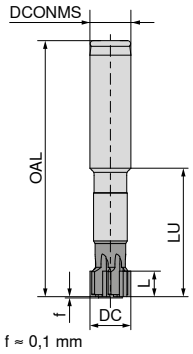
* for drilling with interrupted cut use coated HM-reamers

Applications:	Main application	●
	Additional range of application	○

Monomax – High-speed reamers, short

- adjustable for smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole





f ≈ 0,1 mm

	DST	DBC	DBG-P	DST	TiN
					
	56J.93 ≤ 3xD ∢ 45° ASG3000 CERMET Through hole	56J.17 ≤ 3xD ∢ 45/8° ASG0706 HM Through hole	56J.65 ≤ 3xD ∢ 45° ASG0106 HM Through hole	56J.93 ≤ 3xD ∢ 25° ASG4000 CERMET Through hole	56J.71 ≤ 3xD ∢ 45° ASG3000 HM Through hole
	40 625 ...	40 648 ...	40 652 ...	40 635 ...	40 605 ...

DC H7 mm	OAL mm	LU mm	L mm	DCONMS h6 mm	ZEFP	£ U3		£ U3		£ U3		£ U3		£ U3	
5,60 - 5,99	85	40	10	12	4	665.23	xxxx 2)	665.23	xxxx 1)	665.23	xxxx 1)	665.23	xxxx 2)	665.23	xxxx 1)
6,00	85	40	10	12	4	550.40	060	665.23	06000 1)	300.81	06000	550.40	060	550.40	060
6,01 - 7,99	85	40	10	12	4	665.23	xxxx 2)	665.23	xxxx 1)	665.23	xxxx 1)	665.23	xxxx 2)	665.23	xxxx 1)
8,00	85	40	10	12	4	571.13	080	665.23	08000 1)	312.14	08000	571.13	080	571.13	080
8,01 - 8,89	85	40	10	12	4	665.23	xxxx 2)	665.23	xxxx 1)	665.23	xxxx 1)	665.23	xxxx 2)	665.23	xxxx 1)
8,90 - 9,89	95	50	10	12	6	766.05	xxxx 2)	766.05	xxxx 1)	766.05	xxxx 1)	766.05	xxxx 2)	766.05	xxxx 1)
9,90 - 9,99	95	50	10	12	6	766.05	xxxx 2)	766.05	xxxx 1)	766.05	xxxx 1)	766.05	xxxx 2)	766.05	xxxx 1)
10,00	95	50	10	12	6	618.25	100	766.05	10000 1)	337.90	10000	618.25	100	618.25	100
10,01 - 11,99	95	50	10	12	6	766.05	xxxx 2)	766.05	xxxx 1)	766.05	xxxx 1)	766.05	xxxx 2)	766.05	xxxx 1)
12,00	95	50	10	12	6	637.10	120	766.05	12000 1)	348.20	12000	637.10	120	637.10	120
12,01 - 13,99	95	50	10	12	6	766.05	xxxx 2)	766.05	xxxx 1)	766.05	xxxx 1)	766.05	xxxx 2)	766.05	xxxx 1)
14,00	95	50	10	12	6	682.34	140	766.05	14000 1)	372.93	14000	682.34	140	682.34	140
14,01 - 14,99	95	50	10	12	6	766.05	xxxx 2)	766.05	xxxx 1)	766.05	xxxx 1)	766.05	xxxx 2)	766.05	xxxx 1)
15,00	95	50	10	12	6	699.30	150	766.05	15000 1)	382.20	15000	699.30	150	699.30	150
15,01 - 15,89	95	50	10	12	6	766.05	xxxx 2)	766.05	xxxx 1)	766.05	xxxx 1)	766.05	xxxx 2)	766.05	xxxx 1)
15,90 - 15,99	100	50	10	16	6	941.63	xxxx 2)	941.63	xxxx 1)	941.63	xxxx 1)	941.63	xxxx 2)	941.63	xxxx 1)
16,00	100	50	10	16	6	716.27	160	941.63	16000 1)	391.47	16000	716.27	160	716.27	160
16,01 - 17,99	100	50	10	16	6	941.63	xxxx 2)	941.63	xxxx 1)	941.63	xxxx 1)	941.63	xxxx 2)	941.63	xxxx 1)
18,00	100	50	10	16	6	765.27	180	941.63	18000 1)	418.26	18000	765.27	180	765.27	180
18,01 - 18,89	100	50	10	16	6	941.63	xxxx 2)	941.63	xxxx 1)	941.63	xxxx 1)	941.63	xxxx 2)	941.63	xxxx 1)
18,90 - 19,99	120	60	10	20	6	1,143.07	xxxx 2)	1,143.07	xxxx 1)	1,143.07	xxxx 1)	1,143.07	xxxx 2)	1,143.07	xxxx 1)
20,00	120	60	10	20	6	825.59	200	1,143.07	20000 1)	451.23	20000	825.59	200	825.59	200
20,01 - 25,89	120	60	10	20	6	1,143.07	xxxx 2)	1,143.07	xxxx 1)	1,143.07	xxxx 1)	1,143.07	xxxx 2)	1,143.07	xxxx 1)

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

→ v_c Page 76–79

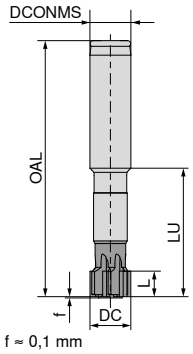
Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 635 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

Monomax – High-speed reamers, short

- ▲ adjustable for smallest bore tolerances
- ▲ wear compensation within the tolerance zone
- ▲ retraction from the hole at 3–4 times the cutting feed rate
- ▲ up to tolerance class IT 5 with absolute process security, from the first hole





	DBG-P	DBC	DBG-P
			
	56H.65 ≤ 3xD ◁ 45° ASG0106 HM Blind hole	56H.17 ≤ 3xD ◁ 45/8° ASG0706 HM Blind hole	56H.65 ≤ 3xD ◁ 45° ASG3000 HM Blind hole
	40 644 ...	**40 640 ...**	**40 657 ...**

DC $_{H7}$ mm	OAL mm	LU mm	L mm	DCONMS $_{h6}$ mm	ZEFP	£ U3		£ U3		£ U3	
5,60 - 5,99	85	40	10	12	4	665.23	**xxxx** [1]	665.23	**xxxx** [1]	665.23	**xxxx** [1]
6,00	85	40	10	12	4	665.23	**06000** [1]	665.23	**06000** [1]	665.23	**06000** [1]
6,01 - 7,99	85	40	10	12	4	665.23	**xxxx** [1]	665.23	**xxxx** [1]	665.23	**xxxx** [1]
8,00	85	40	10	12	4	665.23	**08000** [1]	665.23	**08000** [1]	665.23	**08000** [1]
8,01 - 8,89	85	40	10	12	4	665.23	**xxxx** [1]	665.23	**xxxx** [1]	665.23	**xxxx** [1]
8,90 - 9,89	95	50	10	12	6	766.05	**xxxx** [1]	766.05	**xxxx** [1]	766.05	**xxxx** [1]
9,90 - 9,99	95	50	10	12	6	766.05	**xxxx** [1]	766.05	**xxxx** [1]	766.05	**xxxx** [1]
10,00	95	50	10	12	6	766.05	**10000** [1]	766.05	**10000** [1]	766.05	**10000** [1]
10,01 - 11,99	95	50	10	12	6	766.05	**xxxx** [1]	766.05	**xxxx** [1]	766.05	**xxxx** [1]
12,00	95	50	10	12	6	766.05	**12000** [1]	766.05	**12000** [1]	766.05	**12000** [1]
12,01 - 13,99	95	50	10	12	6	766.05	**xxxx** [1]	766.05	**xxxx** [1]	766.05	**xxxx** [1]
14,00	95	50	10	12	6	766.05	**14000** [1]	766.05	**14000** [1]	766.05	**14000** [1]
14,01 - 14,99	95	50	10	12	6	766.05	**xxxx** [1]	766.05	**xxxx** [1]	766.05	**xxxx** [1]
15,00	95	50	10	12	6	766.05	**15000** [1]	766.05	**15000** [1]	766.05	**15000** [1]
15,01 - 15,89	95	50	10	12	6	766.05	**xxxx** [1]	766.05	**xxxx** [1]	766.05	**xxxx** [1]
15,90 - 15,99	100	50	10	16	6	941.63	**xxxx** [1]	941.63	**xxxx** [1]	941.63	**xxxx** [1]
16,00	100	50	10	16	6	941.63	**16000** [1]	941.63	**16000** [1]	941.63	**16000** [1]
16,01 - 17,99	100	50	10	16	6	941.63	**xxxx** [1]	941.63	**xxxx** [1]	941.63	**xxxx** [1]
18,00	100	50	10	16	6	941.63	**18000** [1]	941.63	**18000** [1]	941.63	**18000** [1]
18,01 - 18,89	100	50	10	16	6	941.63	**xxxx** [1]	941.63	**xxxx** [1]	941.63	**xxxx** [1]
18,90 - 19,99	120	60	10	20	6	1,143.07	**xxxx** [1]	1,143.07	**xxxx** [1]	1,143.07	**xxxx** [1]
20,00	120	60	10	20	6	1,143.07	**20000** [1]	1,143.07	**20000** [1]	1,143.07	**20000** [1]
20,01 - 25,89	120	60	10	20	6	1,143.07	**xxxx** [1]	1,143.07	**xxxx** [1]	1,143.07	**xxxx** [1]
P							●				●
M							●				
K											●
N									●		
S											
H											
O									○		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 76–79

Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 644 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

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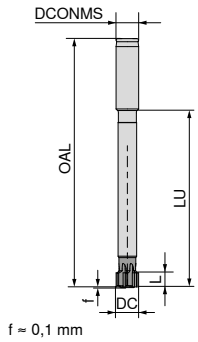
- adjustable for the smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole





f ≈ 0,1 mm

	DST	DBC	DBG-P	DST	TiN
					
	56R.93 ≤ 5xD ◁ 45° ASG3000 CERMET Through hole	56R.17 ≤ 5xD ◁ 45/8° ASG0706 HM Through hole	56R.65 ≤ 5xD ◁ 45° ASG0106 HM Through hole	56R.93 ≤ 5xD ◁ 25° ASG4000 CERMET Through hole	56R.71 ≤ 5xD ◁ 45° ASG3000 HM Through hole
	40 626 ...	**40 649 ...**	**40 653 ...**	**40 636 ...**	**40 606 ...**

DC $_{H7}$ mm	OAL mm	LU mm	L mm	DCONMS $_{h6}$ mm	ZEFP	£ U3		£ U3		£ U3		£ U3		£ U3	
5,60 - 5,99	130	85	10	12	4	665.23	xxxx [2]	665.23	xxxx [1]	665.23	xxxx [1]	665.23	xxxx [2]	665.23	xxxx [1]
6,00	130	85	10	12	4	550.40	060	665.23	06000 [1]	300.81	06000	550.40	060	550.40	060
6,01 - 7,99	130	85	10	12	4	665.23	xxxx [2]	665.23	xxxx [1]	665.23	xxxx [1]	665.23	xxxx [2]	665.23	xxxx [1]
8,00	130	85	10	12	4	571.13	080	665.23	08000 [1]	312.14	08000	571.13	080	571.13	080
8,01 - 8,89	130	85	10	12	4	665.23	xxxx [2]	665.23	xxxx [1]	665.23	xxxx [1]	665.23	xxxx [2]	665.23	xxxx [1]
8,90 - 9,89	130	85	10	12	6	766.05	xxxx [2]	766.05	xxxx [1]	766.05	xxxx [1]	766.05	xxxx [2]	766.05	xxxx [1]
9,90 - 9,99	160	115	10	12	6	850.37	xxxx [2]	850.37	xxxx [1]	850.37	xxxx [1]	850.37	xxxx [2]	850.37	xxxx [1]
10,00	160	115	10	12	6	618.25	100	850.37	10000 [1]	337.90	10000	618.25	100	618.25	100
10,01 - 11,99	160	115	10	12	6	850.37	xxxx [2]	850.37	xxxx [1]	850.37	xxxx [1]	850.37	xxxx [2]	850.37	xxxx [1]
12,00	160	115	10	12	6	637.10	120	850.37	12000 [1]	348.20	12000	637.10	120	637.10	120
12,01 - 13,99	160	115	10	12	6	850.37	xxxx [2]	850.37	xxxx [1]	850.37	xxxx [1]	850.37	xxxx [2]	850.37	xxxx [1]
14,00	160	115	10	12	6	682.34	140	850.37	14000 [1]	372.93	14000	682.34	140	682.34	140
14,01 - 14,99	160	115	10	12	6	850.37	xxxx [2]	850.37	xxxx [1]	850.37	xxxx [1]	850.37	xxxx [2]	850.37	xxxx [1]
15,00	160	115	10	12	6	699.30	150	850.37	15000 [1]	382.20	15000	699.30	150	699.30	150
15,01 - 15,89	160	115	10	12	6	850.37	xxxx [2]	850.37	xxxx [1]	850.37	xxxx [1]	850.37	xxxx [2]	850.37	xxxx [1]
15,90 - 15,99	180	130	10	16	6	941.63	xxxx [2]	941.63	xxxx [1]	941.63	xxxx [1]	941.63	xxxx [2]	941.63	xxxx [1]
16,00	180	130	10	16	6	716.27	160	941.63	16000 [1]	391.47	16000	716.27	160	716.27	160
16,01 - 17,99	180	130	10	16	6	941.63	xxxx [2]	941.63	xxxx [1]	941.63	xxxx [1]	941.63	xxxx [2]	941.63	xxxx [1]
18,00	180	130	10	16	6	765.27	180	941.63	18000 [1]	418.26	18000	765.27	180	765.27	180
18,01 - 18,89	180	130	10	16	6	941.63	xxxx [2]	941.63	xxxx [1]	941.63	xxxx [1]	941.63	xxxx [2]	941.63	xxxx [1]
18,90 - 19,99	200	140	10	20	6	1,143.07	xxxx [2]	1,143.07	xxxx [1]	1,143.07	xxxx [1]	1,143.07	xxxx [2]	1,143.07	xxxx [1]
20,00	200	140	10	20	6	825.59	200	1,143.07	20000 [1]	451.23	20000	825.59	200	825.59	200
20,01 - 25,89	200	140	10	20	6	1,143.07	xxxx [2]	1,143.07	xxxx [1]	1,143.07	xxxx [1]	1,143.07	xxxx [2]	1,143.07	xxxx [1]

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

→ v_c Page 76–79

Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 636 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

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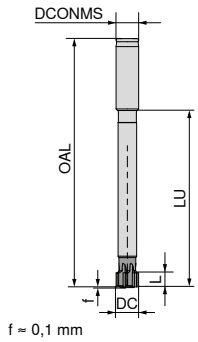


f ≈ 0,1 mm

DBG-P	DBC	DBG-P
		
56Q.65 ≤ 5xD ∢ 45° ASG0106 HM Blind hole	56Q.17 ≤ 5xD ∢ 45/8° ASG0706 HM Blind hole	56Q.65 ≤ 5xD ∢ 45° ASG3000 HM Blind hole
40 645 ...	**40 641 ...**	**40 665 ...**

DC $_{H7}$ mm	OAL mm	LU mm	L mm	DCONMS $_{h6}$ mm	ZEFP	£ U3		£ U3		£ U3	
5,60 - 5,99	130	85	10	12	4	665.23	**xxxx** [1]	665.23	**xxxx** [1]	665.23	**xxxx** [1]
6,00	130	85	10	12	4	665.23	**06000** [1]	665.23	**06000** [1]	665.23	**06000** [1]
6,01 - 7,99	130	85	10	12	4	665.23	**xxxx** [1]	665.23	**xxxx** [1]	665.23	**xxxx** [1]
8,00	130	85	10	12	4	665.23	**08000** [1]	665.23	**08000** [1]	665.23	**08000** [1]
8,01 - 8,89	130	85	10	12	4	665.23	**xxxx** [1]	665.23	**xxxx** [1]	665.23	**xxxx** [1]
8,90 - 9,89	130	85	10	12	6	766.05	**xxxx** [1]	766.05	**xxxx** [1]	766.05	**xxxx** [1]
9,90 - 9,99	160	115	10	12	6	850.37	**xxxx** [1]	850.37	**xxxx** [1]	850.37	**xxxx** [1]
10,00	160	115	10	12	6	850.37	**10000** [1]	850.37	**10000** [1]	850.37	**10000** [1]
10,01 - 11,99	160	115	10	12	6	850.37	**xxxx** [1]	850.37	**xxxx** [1]	850.37	**xxxx** [1]
12,00	160	115	10	12	6	850.37	**12000** [1]	850.37	**12000** [1]	850.37	**12000** [1]
12,01 - 13,99	160	115	10	12	6	850.37	**xxxx** [1]	850.37	**xxxx** [1]	850.37	**xxxx** [1]
14,00	160	115	10	12	6	850.37	**14000** [1]	850.37	**14000** [1]	850.37	**14000** [1]
14,01 - 14,99	160	115	10	12	6	850.37	**xxxx** [1]	850.37	**xxxx** [1]	850.37	**xxxx** [1]
15,00	160	115	10	12	6	850.37	**15000** [1]	850.37	**15000** [1]	850.37	**15000** [1]
15,01 - 15,89	160	115	10	12	6	850.37	**xxxx** [1]	850.37	**xxxx** [1]	850.37	**xxxx** [1]
15,90 - 15,99	180	130	10	16	6	941.63	**xxxx** [1]	941.63	**xxxx** [1]	941.63	**xxxx** [1]
16,00	180	130	10	16	6	941.63	**16000** [1]	941.63	**16000** [1]	941.63	**16000** [1]
16,01 - 17,99	180	130	10	16	6	941.63	**xxxx** [1]	941.63	**xxxx** [1]	941.63	**xxxx** [1]
18,00	180	130	10	16	6	941.63	**18000** [1]	941.63	**18000** [1]	941.63	**18000** [1]
18,01 - 18,89	180	130	10	16	6	941.63	**xxxx** [1]	941.63	**xxxx** [1]	941.63	**xxxx** [1]
18,90 - 19,99	200	140	10	20	6	1,143.07	**xxxx** [1]	1,143.07	**xxxx** [1]	1,143.07	**xxxx** [1]
20,00	200	140	10	20	6	1,143.07	**20000** [1]	1,143.07	**20000** [1]	1,143.07	**20000** [1]
20,01 - 25,89	200	140	10	20	6	1,143.07	**xxxx** [1]	1,143.07	**xxxx** [1]	1,143.07	**xxxx** [1]

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 76–79

Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 645 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

Fullmax – High-performance machine reamers, short

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings

UNI

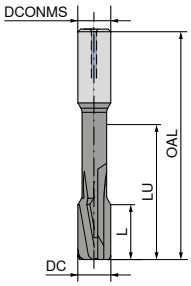


NEW

DBG-U



4



51P.57
HA
Left Hand Helix
30°
ASG2210
Solid carbide
Through hole

40 483 ...

DC $_{H7}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP	£ U4	
4	50	12	22	4	4	101.57	**04000**
5	64	12	28	6	4	103.09	**05000**
6	64	12	28	6	4	105.38	**06000**
7	70	16	34	8	6	109.97	**07000**
8	70	16	34	8	6	109.97	**08000**
9	80	16	40	10	6	155.40	**09000**
10	80	16	40	10	6	155.40	**10000**
11	90	20	45	12	6	206.18	**11000**
12	90	20	45	12	6	206.18	**12000**
16	93	20	45	16	8	305.74	**16000**

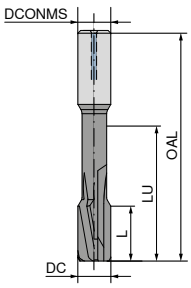
P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c Page 82

Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI



NEW

DBG-U



51P.57
HA
Left Hand Helix
30°
ASG2210
Solid carbide
Through hole

40 489 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	£ U4	
2,96 - 3,96	50	12	22	4	4	126.96	**xxxxx** [1]
3,97	50	12	22	4	4	107.68	**03970**
3,98	50	12	22	4	4	107.68	**03980**
3,99	50	12	22	4	4	107.68	**03990**
4,00	50	12	22	4	4	107.68	**04000**
4,01	50	12	22	4	4	107.68	**04010**
4,02	50	12	22	4	4	107.68	**04020**
4,03	50	12	22	4	4	107.68	**04030**
4,04 - 4,05	50	12	22	4	4	126.96	**xxxxx** [1]
4,06 - 4,96	64	12	28	6	4	128.87	**xxxxx** [1]
4,97	64	12	28	6	4	109.97	**04970**
4,98	64	12	28	6	4	109.97	**04980**
4,99	64	12	28	6	4	109.97	**04990**
5,00	64	12	28	6	4	109.97	**05000**
5,01	64	12	28	6	4	109.97	**05010**
5,02	64	12	28	6	4	109.97	**05020**
5,03	64	12	28	6	4	109.97	**05030**
5,04 - 5,96	64	12	28	6	4	128.87	**xxxxx** [1]
5,97	64	12	28	6	4	110.83	**05970**
5,98	64	12	28	6	4	110.83	**05980**
5,99	64	12	28	6	4	110.83	**05990**
6,00	64	12	28	6	4	110.83	**06000**
6,01	64	12	28	6	4	110.83	**06010**
6,02	64	12	28	6	4	110.83	**06020**
6,03	64	12	28	6	4	110.83	**06030**
6,04 - 6,05	64	12	28	6	4	130.78	**xxxxx** [1]
6,06 - 7,96	70	16	34	8	6	135.64	**xxxxx** [1]
7,97	70	16	34	8	6	116.17	**07970**
7,98	70	16	34	8	6	116.17	**07980**
7,99	70	16	34	8	6	116.17	**07990**

P	●
M	●
K	●
N	○
S	○
H	○
O	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

→ v_c Page 82

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 489 08820)!

Continued on next page

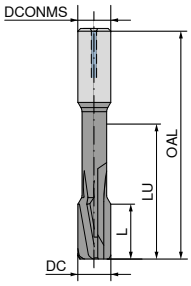
Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



NEW

DBG-U





51P.57
HA
Left Hand Helix
30°
ASG2210
Solid carbide
Through hole

40 489 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	£ U4	
8,00	70	16	34	8	6	116.17	**08000**
8,01	70	16	34	8	6	116.17	**08010**
8,02	70	16	34	8	6	116.17	**08020**
8,03	70	16	34	8	6	116.17	**08030**
8,04 - 8,05	70	16	34	8	6	135.64	**xxxxx**[1)]
8,06 - 9,96	80	16	40	10	6	168.38	**xxxxx**[1)]
9,97	80	16	40	10	6	165.43	**09970**
9,98	80	16	40	10	6	165.43	**09980**
9,99	80	16	40	10	6	165.43	**09990**
10,00	80	16	40	10	6	165.43	**10000**
10,01	80	16	40	10	6	165.43	**10010**
10,02	80	16	40	10	6	165.43	**10020**
10,03	80	16	40	10	6	165.43	**10030**
10,04 - 10,05	80	16	40	10	6	168.38	**xxxxx**[1)]
10,06 - 11,96	90	20	45	12	6	253.91	**xxxxx**[1)]
11,97	90	20	45	12	6	220.03	**11970**
11,98	90	20	45	12	6	220.03	**11980**
11,99	90	20	45	12	6	220.03	**11990**
12,00	90	20	45	12	6	220.03	**12000**
12,01	90	20	45	12	6	220.03	**12010**
12,02	90	20	45	12	6	220.03	**12020**
12,03	90	20	45	12	6	220.03	**12030**
12,04 - 12,05	90	20	45	12	6	253.91	**xxxxx**[1)]
12,06 - 14,05	90	20	45	14	6	296.19	**xxxxx**[1)]
14,06 - 15,96	93	20	48	16	6	337.63	**xxxxx**[1)]
15,97 - 16,05	93	20	48	16	8	381.24	**xxxxx**[1)]
16,06 - 18,05	100	20	52	18	8	406.07	**xxxxx**[1)]
18,06 - 20,05	102	20	52	20	8	431.17	**xxxxx**[1)]

P	●
M	●
K	●
N	○
S	○
H	○
O	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

→ v_c Page 82

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 489 08820)!

Fullmax – High-performance machine reamers, short

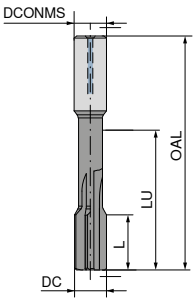
- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings

UNI



NEW

DBG-U





51M.57
HA
straight flute
60°
ASG2110
Solid carbide
Blind hole

40 481 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	£ U4	
4	50	12	22	4	4	84.62	**04000**
5	64	12	28	6	4	86.18	**05000**
6	64	12	28	6	4	90.04	**06000**
7	70	16	34	8	6	94.62	**07000**
8	70	16	34	8	6	94.62	**08000**
9	80	16	40	10	6	135.36	**09000**
10	80	16	40	10	6	135.36	**10000**
11	90	20	45	12	6	180.02	**11000**
12	90	20	45	12	6	180.02	**12000**
16	93	20	45	16	8	273.67	**16000**

P	●
M	●
K	●
N	○
S	○
H	○
O	

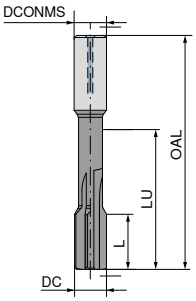
→ v_c Page 82

Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI





NEW

DBG-U



51M.57
HA
straight flute
60°
ASG2110
Solid carbide
Blind hole

40 488 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	£ U4	
2,96 - 3,96	50	12	22	4	4	105.77	**xxxxx** [1]
3,97	50	12	22	4	4	90.77	**03970**
3,98	50	12	22	4	4	90.77	**03980**
3,99	50	12	22	4	4	90.77	**03990**
4,00	50	12	22	4	4	90.77	**04000**
4,01	50	12	22	4	4	90.77	**04010**
4,02	50	12	22	4	4	90.77	**04020**
4,03	50	12	22	4	4	90.77	**04030**
4,04 - 4,05	50	12	22	4	4	105.77	**xxxxx** [1]
4,06 - 4,96	64	12	28	6	4	108.73	**xxxxx** [1]
4,97	64	12	28	6	4	93.06	**04970**
4,98	64	12	28	6	4	93.06	**04980**
4,99	64	12	28	6	4	93.06	**04990**
5,00	64	12	28	6	4	93.06	**05000**
5,01	64	12	28	6	4	93.06	**05010**
5,02	64	12	28	6	4	93.06	**05020**
5,03	64	12	28	6	4	93.06	**05030**
5,04 - 5,96	64	12	28	6	4	108.73	**xxxxx** [1]
5,97	64	12	28	6	4	94.62	**05970**
5,98	64	12	28	6	4	94.62	**05980**
5,99	64	12	28	6	4	94.62	**05990**
6,00	64	12	28	6	4	94.62	**06000**
6,01	64	12	28	6	4	94.62	**06010**
6,02	64	12	28	6	4	94.62	**06020**
6,03	64	12	28	6	4	94.62	**06030**
6,04 - 6,05	64	12	28	6	4	109.67	**xxxxx** [1]
6,06 - 7,96	70	16	34	8	6	117.32	**xxxxx** [1]
7,97	70	16	34	8	6	99.28	**07970**
7,98	70	16	34	8	6	99.28	**07980**
7,99	70	16	34	8	6	99.28	**07990**

P	●
M	●
K	●
N	○
S	○
H	○
O	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

→ v_c Page 82

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 488 08820)!

Continued on next page

Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI

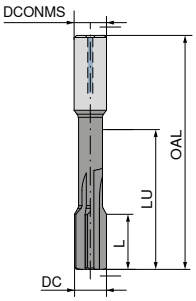


NEW

DBG-U



51M.57
HA
straight flute
60°
ASG2110
Solid carbide
Blind hole



DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 488 ... £ U4	
8,00	70	16	34	8	6	99.28	**08000**
8,01	70	16	34	8	6	99.28	**08010**
8,02	70	16	34	8	6	99.28	**08020**
8,03	70	16	34	8	6	99.28	**08030**
8,04 - 8,05	70	16	34	8	6	117.32	**xxxxx**[1)]
8,06 - 9,96	80	16	40	10	6	149.10	**xxxxx**[1)]
9,97	80	16	40	10	6	144.62	**09970**
9,98	80	16	40	10	6	144.62	**09980**
9,99	80	16	40	10	6	144.62	**09990**
10,00	80	16	40	10	6	144.62	**10000**
10,01	80	16	40	10	6	144.62	**10010**
10,02	80	16	40	10	6	144.62	**10020**
10,03	80	16	40	10	6	144.62	**10030**
10,04 - 10,05	80	16	40	10	6	149.10	**xxxxx**[1)]
10,06 - 11,96	90	20	45	12	6	226.03	**xxxxx**[1)]
11,97	90	20	45	12	6	193.11	**11970**
11,98	90	20	45	12	6	193.11	**11980**
11,99	90	20	45	12	6	193.11	**11990**
12,00	90	20	45	12	6	193.11	**12000**
12,01	90	20	45	12	6	193.11	**12010**
12,02	90	20	45	12	6	193.11	**12020**
12,03	90	20	45	12	6	193.11	**12030**
12,04 - 12,05	90	20	45	12	6	226.03	**xxxxx**[1)]
12,06 - 14,05	90	20	45	14	6	262.59	**xxxxx**[1)]
14,06 - 15,96	93	20	48	16	6	303.92	**xxxxx**[1)]
15,97 - 16,05	93	20	48	16	8	343.07	**xxxxx**[1)]
16,06 - 18,05	100	20	52	18	8	363.88	**xxxxx**[1)]
18,06 - 20,05	102	20	52	20	8	394.22	**xxxxx**[1)]

P	●
M	●
K	●
N	○
S	○
H	○
O	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

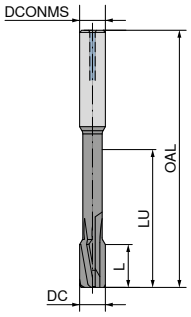
→ v_c Page 82

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 488 08820)!

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings





	UNI	VA	ALU
	DBG-U	DBQ	DBC-N
			
	52P.57	52S.44	52N.17
	HA	HA	HA
	Left Hand Helix	Left Hand Helix	straight flute
	◁ 30°	◁ 30°	◁ 30°
	ASG2210	ASG2231	ASG2270
	Solid carbide	Solid carbide	Solid carbide
	Through hole	Through hole	Through hole
	40 484 ...	**40 401 ...**	**40 471 ...**

DC $_{H7}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP	£ U4		£ U4		£ U4	
4	60	12	32	4	4	135.98	**04000**	149.37	**04000**	149.37	**04000**
5	76	12	40	6	4	138.04	**05000**	151.43	**05000**	151.43	**05000**
6	76	12	40	6	4	141.14	**06000**	154.53	**06000**	154.53	**06000**
7	101	16	65	8	6	147.32	**07000**	161.74	**07000**	161.74	**07000**
8	101	16	65	8	6	147.32	**08000**	161.74	**08000**	161.74	**08000**
9	108	16	68	10	6	208.10	**09000**	229.73	**09000**	229.73	**09000**
10	108	16	68	10	6	208.10	**10000**	229.73	**10000**	229.73	**10000**
11	130	20	85	12	6	276.09	**11000**	302.87	**11000**	302.87	**11000**
12	130	20	85	12	6	276.09	**12000**	302.87	**12000**	302.87	**12000**
16	150	20	102	16	6	362.62	**16000**	398.67	**16000**	398.67	**16000**

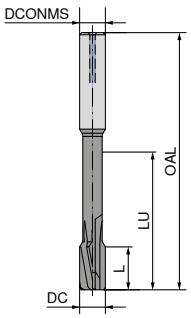
P	●	●	
M	●	●	
K	●		
N	○		●
S	○		
H	○		
O			○

→ v_c Page 80+81

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52P.57
HA
Left Hand Helix
◁ 30°
ASG2210
Solid carbide
Through hole

52S.44
HA
Left Hand Helix
◁ 30°
ASG2231
Solid carbide
Through hole

52J.65
HA
straight flute
◁ 30°
ASG2350
Solid carbide
Through hole

52N.17
HA
straight flute
◁ 30°
ASG2270
Solid carbide
Through hole

52G.55
HA
straight flute
◁ 30°
ASG2360
Solid carbide
Through hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 486 ... £ U4		40 403 ... £ U4		40 477 ... £ U4		40 473 ... £ U4		40 475 ... £ U4	
2,96 - 3,96	60	12	32	4	6					316.31	xxxxx[1]				
2,96 - 3,96	60	12	32	4	4	309.19	xxxxx[1]	316.31	xxxxx[2]			316.31	xxxxx[1]	316.31	xxxxx[1]
3,97	60	12	32	4	4	144.23	03970	158.66	03970			316.31	03970[1]	316.31	03970[1]
3,97	60	12	32	4	6					316.31	03970[1]				
3,98	60	12	32	4	4	144.23	03980	158.66	03980			316.31	03980[1]	316.31	03980[1]
3,98	60	12	32	4	6					316.31	03980[1]				
3,99	60	12	32	4	4	144.23	03990	158.66	03990			316.31	03990[1]	316.31	03990[1]
3,99	60	12	32	4	6					316.31	03990[1]				
4,00	60	12	32	4	4	144.23	04000	158.66	04000			316.31	04000[1]	360.73	04000[1]
4,00	60	12	32	4	6					360.73	04000[1]				
4,01	60	12	32	4	4	144.23	04010	158.66	04010			316.31	04010[1]	316.31	04010[1]
4,01	60	12	32	4	6					316.31	04010[1]				
4,02	60	12	32	4	4	144.23	04020	158.66	04020			316.31	04020[1]	316.31	04020[1]
4,02	60	12	32	4	6					316.31	04020[1]				
4,03	60	12	32	4	4	144.23	04030	158.66	04030			316.31	04030[1]	316.31	04030[1]
4,03	60	12	32	4	6					316.31	04030[1]				
4,04 - 4,05	60	12	32	4	4	309.19	xxxxx[1]	316.31	xxxxx[2]			316.31	xxxxx[1]	316.31	xxxxx[1]
4,04 - 4,05	60	12	32	4	6					316.31	xxxxx[1]				
4,06 - 4,96	76	12	40	6	6					327.94	xxxxx[1]				
4,06 - 4,96	76	12	40	6	4	313.88	xxxxx[1]	327.94	xxxxx[2]			327.94	xxxxx[1]	327.94	xxxxx[1]
4,97	76	12	40	6	4	147.32	04970	161.74	04970			327.94	04970[1]	327.94	04970[1]
4,97	76	12	40	6	6					327.94	04970[1]				
4,98	76	12	40	6	4	147.32	04980	161.74	04980			327.94	04980[1]	327.94	04980[1]
4,98	76	12	40	6	6					327.94	04980[1]				
4,99	76	12	40	6	4	147.32	04990	161.74	04990			327.94	04990[1]	327.94	04990[1]
4,99	76	12	40	6	6					327.94	04990[1]				
5,00	76	12	40	6	4	147.32	05000	161.74	05000			327.94	05000[1]	372.53	05000[1]
5,00	76	12	40	6	6					372.53	05000[1]				
5,01	76	12	40	6	4	147.32	05010	161.74	05010			327.94	05010[1]	327.94	05010[1]

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

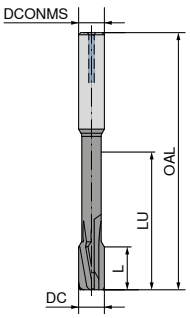
→ v_c Page 80+81

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

Continued on next page

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52P.57 — HA — Left Hand Helix — ◁ 30° — ASG2210 — Solid carbide — Through hole

52S.44 — HA — Left Hand Helix — ◁ 30° — ASG2231 — Solid carbide — Through hole

52J.65 — HA — straight flute — ◁ 30° — ASG2350 — Solid carbide — Through hole

52N.17 — HA — straight flute — ◁ 30° — ASG2270 — Solid carbide — Through hole

52G.55 — HA — straight flute — ◁ 30° — ASG2360 — Solid carbide — Through hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 486 ... £ U4		40 403 ... £ U4		40 477 ... £ U4		40 473 ... £ U4		40 475 ... £ U4	
5,01	76	12	40	6	6					327.94	**05010**[1]				
5,02	76	12	40	6	4	147.32	**05020**	161.74	**05020**			327.94	**05020**[1]	327.94	**05020**[1]
5,02	76	12	40	6	6					327.94	**05020**[1]				
5,03	76	12	40	6	4	147.32	**05030**	161.74	**05030**			327.94	**05030**[1]	327.94	**05030**[1]
5,03	76	12	40	6	6					327.94	**05030**[1]				
5,04 - 5,96	76	12	40	6	4	313.88	**xxxxx**[1]	327.94	**xxxxx**[2]			327.94	**xxxxx**[1]	327.94	**xxxxx**[1]
5,04 - 5,96	76	12	40	6	6					327.94	**xxxxx**[1]				
5,97	76	12	40	6	4	148.34	**05970**	163.80	**05970**			327.94	**05970**[1]	327.94	**05970**[1]
5,97	76	12	40	6	6					327.94	**05970**[1]				
5,98	76	12	40	6	4	148.34	**05980**	163.80	**05980**			327.94	**05980**[1]	327.94	**05980**[1]
5,98	76	12	40	6	6					327.94	**05980**[1]				
5,99	76	12	40	6	4	148.34	**05990**	163.80	**05990**			327.94	**05990**[1]	327.94	**05990**[1]
5,99	76	12	40	6	6					327.94	**05990**[1]				
6,00	76	12	40	6	4	148.34	**06000**	163.80	**06000**			327.94	**06000**[1]	372.53	**06000**[1]
6,00	76	12	40	6	6					372.53	**06000**[1]				
6,01	76	12	40	6	4	148.34	**06010**	163.80	**06010**			327.94	**06010**[1]	327.94	**06010**[1]
6,01	76	12	40	6	6					327.94	**06010**[1]				
6,02	76	12	40	6	4	148.34	**06020**	163.80	**06020**			327.94	**06020**[1]	327.94	**06020**[1]
6,02	76	12	40	6	6					327.94	**06020**[1]				
6,03	76	12	40	6	4	148.34	**06030**	163.80	**06030**			327.94	**06030**[1]	327.94	**06030**[1]
6,03	76	12	40	6	6					327.94	**06030**[1]				
6,04 - 6,05	76	12	40	6	4	318.56	**xxxxx**[1]	327.94	**xxxxx**[2]			327.94	**xxxxx**[1]	327.94	**xxxxx**[1]
6,04 - 6,05	76	12	40	6	6					327.94	**xxxxx**[1]				
6,06 - 7,96	101	16	65	8	8					337.30	**xxxxx**[1]				
6,06 - 7,96	101	16	65	8	6	330.37	**xxxxx**[1]	337.30	**xxxxx**[2]			337.30	**xxxxx**[1]	337.30	**xxxxx**[1]
7,97	101	16	65	8	6	155.56	**07970**	171.01	**07970**			337.30	**07970**[1]	337.30	**07970**[1]
7,97	101	16	65	8	8					337.30	**07970**[1]				
7,98	101	16	65	8	6	155.56	**07980**	171.01	**07980**			337.30	**07980**[1]	337.30	**07980**[1]
7,98	101	16	65	8	8					337.30	**07980**[1]				

	40 486 ...	40 403 ...	40 477 ...	40 473 ...	40 475 ...
P	●	●			
M	●	●			
K	●		●		
N	○			●	
S	○				
H	○				●
O				○	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 80+81

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

Continued on next page

Fullmax – High-performance machine reamers, long

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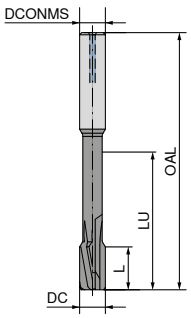
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52P.57 | 52S.44 | 52J.65 | 52N.17 | 52G.55

HA

Left Hand Helix ◁ 30° | Left Hand Helix ◁ 30° | straight flute ◁ 30° | straight flute ◁ 30° | straight flute ◁ 30°

ASG2210 Solid carbide Through hole | ASG2231 Solid carbide Through hole | ASG2350 Solid carbide Through hole | ASG2270 Solid carbide Through hole | ASG2360 Solid carbide Through hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 486 ... £ U4		40 403 ... £ U4		40 477 ... £ U4		40 473 ... £ U4		40 475 ... £ U4	
7,99	101	16	65	8	6	155.56	07990	171.01	07990			337.30	07990[1]	337.30	07990[1]
7,99	101	16	65	8	8					337.30	07990[1]				
8,00	101	16	65	8	6	155.56	08000	171.01	08000			337.30	08000[1]	384.15	08000[1]
8,00	101	16	65	8	8					384.15	08000[1]				
8,01	101	16	65	8	6	155.56	08010	171.01	08010			337.30	08010[1]	337.30	08010[1]
8,01	101	16	65	8	8					337.30	08010[1]				
8,02	101	16	65	8	6	155.56	08020	171.01	08020			337.30	08020[1]	337.30	08020[1]
8,02	101	16	65	8	8					337.30	08020[1]				
8,03	101	16	65	8	6	155.56	08030	171.01	08030			337.30	08030[1]	337.30	08030[1]
8,03	101	16	65	8	8					337.30	08030[1]				
8,04 - 8,05	101	16	65	8	6	330.37	xxxxx[1]	337.30	xxxxx[2]			337.30	xxxxx[1]	337.30	xxxxx[1]
8,04 - 8,05	101	16	65	8	8					337.30	xxxxx[1]				
8,06 - 9,96	108	16	68	10	8					475.60	xxxxx[1]				
8,06 - 9,96	108	16	68	10	6	410.00	xxxxx[1]	475.60	xxxxx[2]			475.60	xxxxx[1]	475.60	xxxxx[1]
9,97	108	16	68	10	6	221.49	09970	244.16	09970			475.60	09970[1]	475.60	09970[1]
9,97	108	16	68	10	8					475.60	09970[1]				
9,98	108	16	68	10	6	221.49	09980	244.16	09980			475.60	09980[1]	475.60	09980[1]
9,98	108	16	68	10	8					475.60	09980[1]				
9,99	108	16	68	10	6	221.49	09990	244.16	09990			475.60	09990[1]	475.60	09990[1]
9,99	108	16	68	10	8					475.60	09990[1]				
10,00	108	16	68	10	6	221.49	10000	244.16	10000			475.60	10000[1]	541.18	10000[1]
10,00	108	16	68	10	8					541.18	10000[1]				
10,01	108	16	68	10	6	221.49	10010	244.16	10010			475.60	10010[1]	475.60	10010[1]
10,01	108	16	68	10	8					475.60	10010[1]				
10,02	108	16	68	10	6	221.49	10020	244.16	10020			475.60	10020[1]	475.60	10020[1]
10,02	108	16	68	10	8					475.60	10020[1]				
10,03	108	16	68	10	6	221.49	10030	244.16	10030			475.60	10030[1]	475.60	10030[1]
10,03	108	16	68	10	8					475.60	10030[1]				
10,04 - 10,05	108	16	68	10	6	410.00	xxxxx[1]	475.60	xxxxx[2]			475.60	xxxxx[1]	475.60	xxxxx[1]

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

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→ v_c Page 80+81

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For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

Continued on next page

Fullmax – High-performance machine reamers, long

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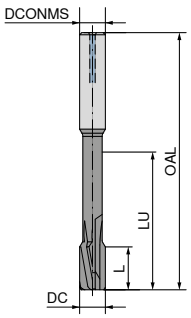
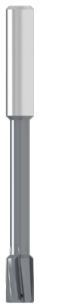


UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52P.57
HA
Left Hand Helix
◁ 30°
ASG2210
Solid carbide
Through hole



52S.44
HA
Left Hand Helix
◁ 30°
ASG2231
Solid carbide
Through hole



52J.65
HA
straight flute
◁ 30°
ASG2350
Solid carbide
Through hole



52N.17
HA
straight flute
◁ 30°
ASG2270
Solid carbide
Through hole



52G.55
HA
straight flute
◁ 30°
ASG2360
Solid carbide
Through hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 486 ... £ U4		40 403 ... £ U4		40 477 ... £ U4		40 473 ... £ U4		40 475 ... £ U4	
10,04 - 10,05	108	16	68	10	8					475.60	xxxxx[1]				
10,06 - 11,96	130	20	85	12	8					637.12	xxxxx[1]				
10,06 - 11,96	130	20	85	12	6	618.39	xxxxx[1]	637.12	xxxxx[2]			637.12	xxxxx[1]	637.12	xxxxx[1]
11,97	130	20	85	12	6	294.63	11970	324.50	11970			637.12	11970[1]	637.12	11970[1]
11,97	130	20	85	12	8					637.12	11970[1]				
11,98	130	20	85	12	6	294.63	11980	324.50	11980			637.12	11980[1]	637.12	11980[1]
11,98	130	20	85	12	8					637.12	11980[1]				
11,99	130	20	85	12	6	294.63	11990	324.50	11990			637.12	11990[1]	637.12	11990[1]
11,99	130	20	85	12	8					637.12	11990[1]				
12,00	130	20	85	12	6	294.63	12000	324.50	12000			637.12	12000[1]	723.88	12000[1]
12,00	130	20	85	12	8					723.88	12000[1]				
12,01	130	20	85	12	6	294.63	12010	324.50	12010			637.12	12010[1]	637.12	12010[1]
12,01	130	20	85	12	8					637.12	12010[1]				
12,02	130	20	85	12	6	294.63	12020	324.50	12020			637.12	12020[1]	637.12	12020[1]
12,02	130	20	85	12	8					637.12	12020[1]				
12,03	130	20	85	12	6	294.63	12030	324.50	12030			637.12	12030[1]	637.12	12030[1]
12,03	130	20	85	12	8					637.12	12030[1]				
12,04 - 12,05	130	20	85	12	6	618.39	xxxxx[1]	637.12	xxxxx[2]			637.12	xxxxx[1]	637.12	xxxxx[1]
12,04 - 12,05	130	20	85	12	8					637.12	xxxxx[1]				
12,06 - 14,05	130	20	85	14	8					742.62	xxxxx[1]				
12,06 - 14,05	130	20	85	14	6	721.44	xxxxx[1]	742.62	xxxxx[2]			742.62	xxxxx[1]	742.62	xxxxx[1]
14,06 - 16,05	150	20	102	16	6	822.27	xxxxx[1]	843.26	xxxxx[2]			843.26	xxxxx[1]	843.26	xxxxx[1]
14,06 - 16,05	150	20	102	16	8					843.26	xxxxx[1]				
16,06 - 18,05	150	20	102	18	6	876.05	xxxxx[1]	915.96	xxxxx[2]			915.96	xxxxx[1]	915.96	xxxxx[1]
16,06 - 18,05	150	20	102	18	8					915.96	xxxxx[1]				
18,06 - 20,05	160	20	110	20	6	930.02	xxxxx[1]	965.06	xxxxx[2]			965.06	xxxxx[1]	965.06	xxxxx[1]
18,06 - 20,05	160	20	110	20	8					965.06	xxxxx[1]				

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

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→ v_c Page 80+81

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For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

Fullmax – High-performance machine reamers, long

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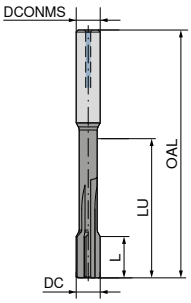

	UNI	VA	ALU
	DBG-U	DBQ	DBC-N
			
	52M.57	52T.45	52Q.17
	HA	HA	HA
	straight flute	straight flute	straight flute
	◁ 60°	◁ 45°	◁ 60°
	ASG2110	ASG2131	ASG2170
	Solid carbide	Solid carbide	Solid carbide
	Blind hole	Blind hole	Blind hole
	40 485 ...	**40 402 ...**	**40 472 ...**

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	£ U4		£ U4		£ U4	
4	60	12	32	4	4	113.32	**04000**	124.65	**04000**	124.65	**04000**
5	76	12	40	6	4	115.37	**05000**	127.74	**05000**	127.74	**05000**
6	76	12	40	6	4	120.54	**06000**	132.89	**06000**	132.89	**06000**
7	101	16	65	8	6	126.70	**07000**	139.07	**07000**	139.07	**07000**
8	101	16	65	8	6	126.70	**08000**	139.07	**08000**	139.07	**08000**
9	108	16	68	10	6	181.31	**09000**	199.86	**09000**	199.86	**09000**
10	108	16	68	10	6	181.31	**10000**	199.86	**10000**	199.86	**10000**
11	130	20	85	12	6	241.06	**11000**	264.76	**11000**	264.76	**11000**
12	130	20	85	12	6	241.06	**12000**	264.76	**12000**	264.76	**12000**
16	150	20	102	16	6	324.50	**16000**	357.47	**16000**	357.47	**16000**

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

→ v_c Page 80+81

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- ▲ extremely irregular pitch
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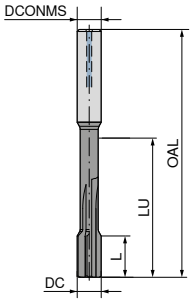
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52M.57
HA
straight flute
∢ 60°
ASG2110
Solid carbide
Blind hole



52T.45
HA
straight flute
∢ 45°
ASG2131
Solid carbide
Blind hole



52K.65
HA
straight flute
∢ 30°
ASG2350
Solid carbide
Blind hole



52Q.17
HA
straight flute
∢ 60°
ASG2170
Solid carbide
Blind hole



52H.55
HA
straight flute
∢ 30°
ASG2360
Solid carbide
Blind hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 487 ... £ U4		40 404 ... £ U4		40 478 ... £ U4		40 474 ... £ U4		40 476 ... £ U4	
2,96 - 3,96	60	12	32	4	6					267.03	**xxxxx**[2]				
2,96 - 3,96	60	12	32	4	4	257.66	**xxxxx**[1]	267.03	**xxxxx**[2]			267.03	**xxxxx**[1]	267.03	**xxxxx**[1]
3,97	60	12	32	4	4	121.56	**03970**	133.93	**03970**			267.03	**03970**[1]	267.03	**03970**[1]
3,97	60	12	32	4	6					267.03	**03970**[2]				
3,98	60	12	32	4	4	121.56	**03980**	133.93	**03980**			267.03	**03980**[1]	267.03	**03980**[1]
3,98	60	12	32	4	6					267.03	**03980**[2]				
3,99	60	12	32	4	4	121.56	**03990**	133.93	**03990**			267.03	**03990**[1]	267.03	**03990**[1]
3,99	60	12	32	4	6					267.03	**03990**[2]				
4,00	60	12	32	4	4	121.56	**04000**	133.93	**04000**			267.03	**04000**[1]	267.03	**04000**[1]
4,00	60	12	32	4	6					267.03	**04000**[2]				
4,01	60	12	32	4	4	121.56	**04010**	133.93	**04010**			267.03	**04010**[1]	267.03	**04010**[1]
4,01	60	12	32	4	6					267.03	**04010**[2]				
4,02	60	12	32	4	4	121.56	**04020**	133.93	**04020**			267.03	**04020**[1]	267.03	**04020**[1]
4,02	60	12	32	4	6					267.03	**04020**[2]				
4,03	60	12	32	4	4	121.56	**04030**	133.93	**04030**			267.03	**04030**[1]	267.03	**04030**[1]
4,03	60	12	32	4	6					267.03	**04030**[2]				
4,04 - 4,05	60	12	32	4	4	257.66	**xxxxx**[1]	267.03	**xxxxx**[2]			267.03	**xxxxx**[1]	267.03	**xxxxx**[1]
4,04 - 4,05	60	12	32	4	6					267.03	**xxxxx**[2]				
4,06 - 4,96	76	12	40	6	6					274.16	**xxxxx**[1]				
4,06 - 4,96	76	12	40	6	4	264.78	**xxxxx**[1]	274.16	**xxxxx**[2]			274.16	**xxxxx**[1]	274.16	**xxxxx**[1]
4,97	76	12	40	6	4	124.65	**04970**	135.98	**04970**			274.16	**04970**[1]	274.16	**04970**[1]
4,97	76	12	40	6	6					274.16	**04970**[2]				
4,98	76	12	40	6	4	124.65	**04980**	135.98	**04980**			274.16	**04980**[1]	274.16	**04980**[1]
4,98	76	12	40	6	6					274.16	**04980**[2]				
4,99	76	12	40	6	4	124.65	**04990**	135.98	**04990**			274.16	**04990**[1]	274.16	**04990**[1]
4,99	76	12	40	6	6					274.16	**04990**[2]				
5,00	76	12	40	6	4	124.65	**05000**	135.98	**05000**			274.16	**05000**[1]	274.16	**05000**[1]
5,00	76	12	40	6	6					274.16	**05000**[2]				
5,01	76	12	40	6	4	124.65	**05010**	135.98	**05010**			274.16	**05010**[1]	274.16	**05010**[1]
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1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

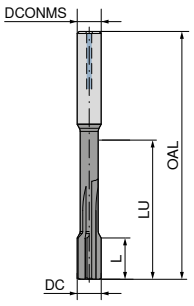
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 80+81

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52M.57 — HA — straight flute — ◁ 60° — ASG2110 — Solid carbide — Blind hole

52T.45 — HA — straight flute — ◁ 45° — ASG2131 — Solid carbide — Blind hole

52K.65 — HA — straight flute — ◁ 30° — ASG2350 — Solid carbide — Blind hole

52Q.17 — HA — straight flute — ◁ 60° — ASG2170 — Solid carbide — Blind hole

52H.55 — HA — straight flute — ◁ 30° — ASG2360 — Solid carbide — Blind hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 487 ... £ U4		40 404 ... £ U4		40 478 ... £ U4		40 474 ... £ U4		40 476 ... £ U4	
5,01	76	12	40	6	6					274.16	**05010**[2]				
5,02	76	12	40	6	4	124.65	**05020**	135.98	**05020**			274.16	**05020**[1]	274.16	**05020**[1]
5,02	76	12	40	6	6					274.16	**05020**[2]				
5,03	76	12	40	6	4	124.65	**05030**	135.98	**05030**			274.16	**05030**[1]	274.16	**05030**[1]
5,03	76	12	40	6	6					274.16	**05030**[2]				
5,04 - 5,96	76	12	40	6	4	264.78	**xxxxx**[1]	274.16	**xxxxx**[2]			274.16	**xxxxx**[1]	274.16	**xxxxx**[1]
5,04 - 5,96	76	12	40	6	6					274.16	**xxxxx**[2]				
5,97	76	12	40	6	4	126.70	**05970**	139.07	**05970**			274.16	**05970**[1]	274.16	**05970**[1]
5,97	76	12	40	6	6					274.16	**05970**[2]				
5,98	76	12	40	6	4	126.70	**05980**	139.07	**05980**			274.16	**05980**[1]	274.16	**05980**[1]
5,98	76	12	40	6	6					274.16	**05980**[2]				
5,99	76	12	40	6	4	126.70	**05990**	139.07	**05990**			274.16	**05990**[1]	274.16	**05990**[1]
5,99	76	12	40	6	6					274.16	**05990**[2]				
6,00	76	12	40	6	4	126.70	**06000**	139.07	**06000**			274.16	**06000**[1]	274.16	**06000**[1]
6,00	76	12	40	6	6					274.16	**06000**[2]				
6,01	76	12	40	6	4	126.70	**06010**	139.07	**06010**			274.16	**06010**[1]	274.16	**06010**[1]
6,01	76	12	40	6	6					274.16	**06010**[2]				
6,02	76	12	40	6	4	126.70	**06020**	139.07	**06020**			274.16	**06020**[1]	274.16	**06020**[1]
6,02	76	12	40	6	6					274.16	**06020**[2]				
6,03	76	12	40	6	4	126.70	**06030**	139.07	**06030**			274.16	**06030**[1]	274.16	**06030**[1]
6,03	76	12	40	6	6					274.16	**06030**[2]				
6,04 - 6,05	76	12	40	6	4	267.03	**xxxxx**[1]	274.16	**xxxxx**[2]			274.16	**xxxxx**[1]	274.16	**xxxxx**[1]
6,04 - 6,05	76	12	40	6	6					274.16	**xxxxx**[2]				
6,06 - 7,96	101	16	65	8	8					295.13	**xxxxx**[1]				
6,06 - 7,96	101	16	65	8	6	285.77	**xxxxx**[1]	295.13	**xxxxx**[2]			295.13	**xxxxx**[1]	295.13	**xxxxx**[1]
7,97	101	16	65	8	6	132.89	**07970**	146.29	**07970**			295.13	**07970**[1]	295.13	**07970**[1]
7,97	101	16	65	8	8					295.13	**07970**[2]				
7,98	101	16	65	8	6	132.89	**07980**	146.29	**07980**			295.13	**07980**[1]	295.13	**07980**[1]
7,98	101	16	65	8	8					295.13	**07980**[2]				

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1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 80+81

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

Continued on next page

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
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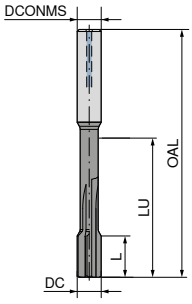
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52M.57
HA
straight flute
◁ 60°
ASG2110
Solid carbide
Blind hole

52T.45
HA
straight flute
◁ 45°
ASG2131
Solid carbide
Blind hole

52K.65
HA
straight flute
◁ 30°
ASG2350
Solid carbide
Blind hole

52Q.17
HA
straight flute
◁ 60°
ASG2170
Solid carbide
Blind hole

52H.55
HA
straight flute
◁ 30°
ASG2360
Solid carbide
Blind hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 487 ... £ U4		40 404 ... £ U4		40 478 ... £ U4		40 474 ... £ U4		40 476 ... £ U4	
7,99	101	16	65	8	6	132.89	07990	146.29	07990			295.13	07990[1]	295.13	07990[1]
7,99	101	16	65	8	8					295.13	07990[2]				
8,00	101	16	65	8	6	132.89	08000	146.29	08000			295.13	08000[1]	295.13	08000[1]
8,00	101	16	65	8	8					295.13	08000[2]				
8,01	101	16	65	8	6	132.89	08010	146.29	08010			295.13	08010[1]	295.13	08010[1]
8,01	101	16	65	8	8					295.13	08010[2]				
8,02	101	16	65	8	6	132.89	08020	146.29	08020			295.13	08020[1]	295.13	08020[1]
8,02	101	16	65	8	8					295.13	08020[2]				
8,03	101	16	65	8	6	132.89	08030	146.29	08030			295.13	08030[1]	295.13	08030[1]
8,03	101	16	65	8	8					295.13	08030[2]				
8,04 - 8,05	101	16	65	8	6	285.77	xxxxx[1]	295.13	xxxxx[2]			295.13	xxxxx[1]	295.13	xxxxx[1]
8,04 - 8,05	101	16	65	8	8					295.13	xxxxx[2]				
8,06 - 9,96	108	16	68	10	8					426.31	xxxxx[1]				
8,06 - 9,96	108	16	68	10	6	363.16	xxxxx[1]	426.31	xxxxx[2]			426.31	xxxxx[1]	426.31	xxxxx[1]
9,97	108	16	68	10	6	193.67	09970	213.24	09970			426.31	09970[1]	426.31	09970[1]
9,97	108	16	68	10	8					426.31	09970[2]				
9,98	108	16	68	10	6	193.67	09980	213.24	09980			426.31	09980[1]	426.31	09980[1]
9,98	108	16	68	10	8					426.31	09980[2]				
9,99	108	16	68	10	6	193.67	09990	213.24	09990			426.31	09990[1]	426.31	09990[1]
9,99	108	16	68	10	8					426.31	09990[2]				
10,00	108	16	68	10	6	193.67	10000	213.24	10000			426.31	10000[1]	426.31	10000[1]
10,00	108	16	68	10	8					426.31	10000[2]				
10,01	108	16	68	10	6	193.67	10010	213.24	10010			426.31	10010[1]	426.31	10010[1]
10,01	108	16	68	10	8					426.31	10010[2]				
10,02	108	16	68	10	6	193.67	10020	213.24	10020			426.31	10020[1]	426.31	10020[1]
10,02	108	16	68	10	8					426.31	10020[2]				
10,03	108	16	68	10	6	193.67	10030	213.24	10030			426.31	10030[1]	426.31	10030[1]
10,03	108	16	68	10	8					426.31	10030[2]				
10,04 - 10,05	108	16	68	10	6	363.16	xxxxx[1]	426.31	xxxxx[2]			426.31	xxxxx[1]	426.31	xxxxx[1]

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→ v_c Page 80+81

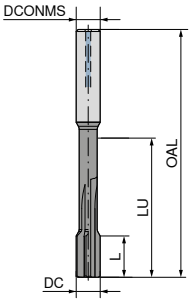
This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

Continued on next page

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52M.57
HA
straight flute
∢ 60°
ASG2110
Solid carbide
Blind hole

52T.45
HA
straight flute
∢ 45°
ASG2131
Solid carbide
Blind hole

52K.65
HA
straight flute
∢ 30°
ASG2350
Solid carbide
Blind hole

52Q.17
HA
straight flute
∢ 60°
ASG2170
Solid carbide
Blind hole

52H.55
HA
straight flute
∢ 30°
ASG2360
Solid carbide
Blind hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 487 ... £ U4		40 404 ... £ U4		40 478 ... £ U4		40 474 ... £ U4		40 476 ... £ U4	
10,04 - 10,05	108	16	68	10	8					426.31	xxxxx[2)]				
10,06 - 11,96	130	20	85	12	8					580.90	xxxxx[1)]				
10,06 - 11,96	130	20	85	12	6	550.55	xxxxx[1)]	580.90	xxxxx[2)]			580.90	xxxxx[1)]	580.90	xxxxx[1)]
11,97	130	20	85	12	6	258.57	11970	284.33	11970			580.90	11970[1)]	580.90	11970[1)]
11,97	130	20	85	12	8					580.90	11970[2)]				
11,98	130	20	85	12	6	258.57	11980	284.33	11980			580.90	11980[1)]	580.90	11980[1)]
11,98	130	20	85	12	8					580.90	11980[2)]				
11,99	130	20	85	12	6	258.57	11990	284.33	11990			580.90	11990[1)]	580.90	11990[1)]
11,99	130	20	85	12	8					580.90	11990[2)]				
12,00	130	20	85	12	6	258.57	12000	284.33	12000			580.90	12000[1)]	580.90	12000[1)]
12,00	130	20	85	12	8					580.90	12000[2)]				
12,01	130	20	85	12	6	258.57	12010	284.33	12010			580.90	12010[1)]	580.90	12010[1)]
12,01	130	20	85	12	8					580.90	12010[2)]				
12,02	130	20	85	12	6	258.57	12020	284.33	12020			580.90	12020[1)]	580.90	12020[1)]
12,02	130	20	85	12	8					580.90	12020[2)]				
12,03	130	20	85	12	6	258.57	12030	284.33	12030			580.90	12030[1)]	580.90	12030[1)]
12,03	130	20	85	12	8					580.90	12030[2)]				
12,04 - 12,05	130	20	85	12	6	550.55	xxxxx[1)]	580.90	xxxxx[2)]			580.90	xxxxx[1)]	580.90	xxxxx[1)]
12,04 - 12,05	130	20	85	12	8					580.90	xxxxx[2)]				
12,06 - 14,05	130	20	85	14	8					667.66	xxxxx[1)]				
12,06 - 14,05	130	20	85	14	6	639.56	xxxxx[1)]	667.66	xxxxx[2)]			667.66	xxxxx[1)]	667.66	xxxxx[1)]
14,06 - 16,05	150	20	102	16	6	740.19	xxxxx[1)]	770.73	xxxxx[2)]			770.73	xxxxx[1)]	770.73	xxxxx[1)]
14,06 - 16,05	150	20	102	16	8					770.73	xxxxx[1)]				
16,06 - 18,05	150	20	102	18	6	784.79	xxxxx[1)]	815.15	xxxxx[2)]			815.15	xxxxx[1)]	815.15	xxxxx[1)]
16,06 - 18,05	150	20	102	18	8					815.15	xxxxx[1)]				
18,06 - 20,05	160	20	110	20	6	850.37	xxxxx[1)]	876.05	xxxxx[2)]			876.05	xxxxx[1)]	876.05	xxxxx[1)]
18,06 - 20,05	160	20	110	20	8					876.05	xxxxx[1)]				
P						●		●							
M						●		●							
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→ v_c Page 80+81

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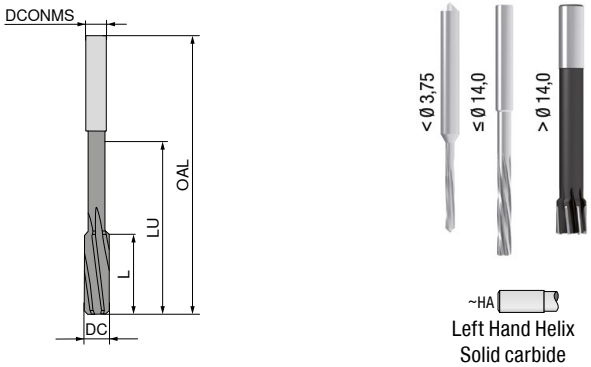
NC machine reamers, DIN 8093-2B

- extremely irregular pitch
- Ø 2–3.5 mm with centres both ends
- Ø 4–13 mm with protected centres
- from Ø 22 mm, similar to DIN 8093-2B

NC



Left Hand Helix
Solid carbide

40 420 ...

DC $_{H7}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP	£ U4	
2.0	50	12	18.5	3	4	65.38	**020**
2.5	60	16	29.0	3	4	65.38	**025**
3.0	65	17	33.0	4	6	68.07	**030**
3.2	65	18	33.0	4	6	68.07	**032**
3.5	75	18	43.0	4	6	68.07	**035**
4.0	75	19	43.0	4	6	81.50	**040**
4.5	80	21	39.0	6	6	81.50	**045**
5.0	93	23	52.0	6	6	91.34	**050**
5.5	93	26	53.0	6	6	91.34	**055**
6.0	93	26	53.0	6	6	98.48	**060**
6.5	101	28	61.0	6	6	98.48	**065**
7.0	109	31	68.0	8	6	109.22	**070**
7.5	109	31	68.0	8	6	109.22	**075**
8.0	117	33	77.0	8	6	127.19	**080**
8.5	117	33	77.0	8	6	127.19	**085**
9.0	125	36	80.0	10	6	138.81	**090**
9.5	125	36	80.0	10	6	138.81	**095**
10.0	133	38	88.0	10	6	148.67	**100**
10.5	133	38	88.0	10	6	148.67	**105**
11.0	142	41	97.0	10	6	191.64	**110**
12.0	151	44	100.0	12	6	191.64	**120**
13.0	151	44	100.0	12	6	188.08	**130**
14.0	160	47	106.0	16	6	188.08	**140** 1)
15.0	162	50	108.0	16	6	200.63	**150** 1)
16.0	170	52	116.0	16	6	205.92	**160** 1)
17.0	175	52	121.0	18	6	211.31	**170** 1)
18.0	182	52	128.0	18	6	213.12	**180** 1)
19.0	189	52	133.0	20	6	222.04	**190** 1)
20.0	195	52	139.0	20	6	223.88	**200** 1)
22.0	160	25	105.0	20	6	223.88	**220** 1)
24.0	180	25	125.0	20	8	272.25	**240** 1)
25.0	180	25	125.0	20	8	272.25	**250** 1)
26.0	180	25	125.0	20	8	306.27	**260** 1)
28.0	180	25	119.0	25	8	320.58	**280** 1)
30.0	200	25	139.0	25	8	331.32	**300** 1)

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→ v_c Page 84+85

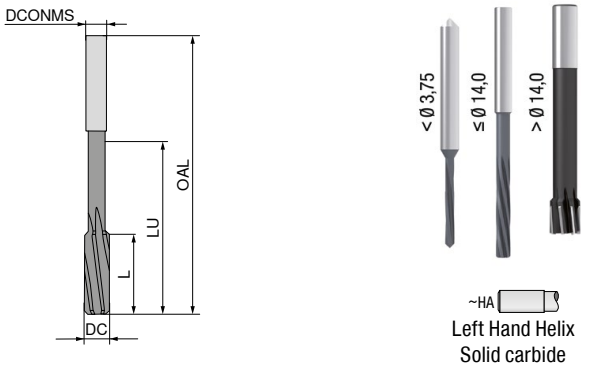
1) with carbide cutting edges

NC machine reamers, DIN 8093-2B

- extremely irregular pitch
- Ø 2–3.5 mm with centres both ends
- Ø 4–13 mm with protected centres
- from Ø 22 mm, similar to DIN 8093-2B

NC

TiAlN



Left Hand Helix
Solid carbide

40 421 ...

DC $_{H7}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP	£ U4	
2.0	50	12	18.5	3	4	86.53	**020**
2.5	60	16	29.0	3	4	86.53	**025**
3.0	65	17	33.0	4	6	90.22	**030**
3.2	65	18	33.0	4	6	90.22	**032**
3.5	75	18	43.0	4	6	90.22	**035**
4.0	75	19	43.0	4	6	107.95	**040**
4.5	80	21	39.0	6	6	107.95	**045**
5.0	93	23	52.0	6	6	121.00	**050**
5.5	93	26	53.0	6	6	121.00	**055**
6.0	93	26	53.0	6	6	130.57	**060**
6.5	101	28	61.0	6	6	130.57	**065**
7.0	109	31	68.0	8	6	144.77	**070**
7.5	109	31	68.0	8	6	144.77	**075**
8.0	117	33	77.0	8	6	168.35	**080**
8.5	117	33	77.0	8	6	168.35	**085**
9.0	125	36	80.0	10	6	183.95	**090**
9.5	125	36	80.0	10	6	183.95	**095**
10.0	133	38	88.0	10	6	196.80	**100**
10.5	133	38	88.0	10	6	196.80	**105**
11.0	142	41	97.0	10	6	253.30	**110**
12.0	151	44	100.0	12	6	253.30	**120**
13.0	151	44	100.0	12	6	249.41	**130**
14.0	160	47	106.0	16	6	249.41	**140** 1)
15.0	162	50	108.0	16	6	264.99	**150** 1)
16.0	170	52	116.0	16	6	272.81	**160** 1)
17.0	175	52	121.0	18	6	280.58	**170** 1)
18.0	182	52	128.0	18	6	282.56	**180** 1)
19.0	189	52	133.0	20	6	294.22	**190** 1)
20.0	195	52	139.0	20	6	296.18	**200** 1)

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→ v_c Page 84+85

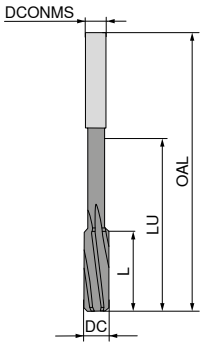
1) with carbide cutting edges

4

NC machine reamers, DIN 8093-2B

- ▲ 0.01 mm steps
- ▲ extremely irregular pitch
- ▲ Ø 0.6–0.94 mm similar to DIN 8093-B
- ▲ Ø 0.95–3.75 mm with centres both ends
- ▲ Ø 3.76–12.05 mm with protected centres

NC 100







Left Hand Helix
Solid carbide

40 430 ...

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	£ U4	
0,59 - 0,64	45	5	7.5	3	4	115.90	xxxxx[1]
0,65 - 0,74	45	5	7.5	3	4	115.90	xxxxx[1]
0,75 - 0,84	45	6	8.0	3	4	115.90	xxxxx[1]
0,85 - 0,95	45	6	8.0	3	4	115.90	xxxxx[1]
0,96	50	6	17.5	3	3	90.56	00960[1]
0,97	50	6	17.5	3	3	90.56	00970[1]
0,98	50	6	17.5	3	3	90.56	00980[2]
0,99	50	6	17.5	3	3	90.56	00990[2]
1,00	50	6	17.5	3	3	90.56	01000[2]
1,01	50	6	17.5	3	3	90.56	01010[2]
1,02	50	6	17.5	3	3	90.56	01020[2]
1,03	50	6	17.5	3	3	90.56	01030[2]
1,04 - 1,06	50	6	17.5	3	3	104.17	xxxxx[2]
1,07 - 1,18	50	9	17.5	3	3	104.17	xxxxx[2]
1,19 - 1,32	50	9	17.5	3	3	104.17	xxxxx[2]
1,33 - 1,50	50	9	18.0	3	3	104.17	xxxxx[2]
1,51 - 1,70	50	10	18.0	3	3	104.17	xxxxx[2]
1,71 - 1,90	50	11	18.5	3	4	117.73	xxxxx[2]
1,91 - 1,97	50	12	18.5	3	4	117.73	xxxxx[2]
1,98	50	12	18.5	3	4	117.73	01980
1,99	50	12	18.5	3	4	117.73	01990
2,00	50	12	18.5	3	4	117.73	02000
2,01	50	12	18.5	3	4	117.73	02010
2,02	50	12	18.5	3	4	117.73	02020
2,03	50	12	18.5	3	4	117.73	02030
2,04 - 2,12	50	12	18.5	3	4	103.76	xxxxx[2]
2,13 - 2,36	50	12	18.5	3	4	103.76	xxxxx[2]
2,37 - 2,47	60	16	29.0	3	4	90.56	xxxxx[2]
2,48	60	16	29.0	3	4	90.56	02480
2,49	60	16	29.0	3	4	90.56	02490
2,50	60	16	29.0	3	4	90.56	02500
2,51	60	16	29.0	3	4	90.56	02510
2,52	60	16	29.0	3	4	90.56	02520
2,53	60	16	29.0	3	4	90.56	02530
2,54 - 2,65	60	16	29.0	3	4	90.56	xxxxx[2]
2,66 - 2,80	65	17	33.0	4	6	90.56	xxxxx[2]
2,81 - 2,96	65	17	33.0	4	6	90.56	xxxxx[2]
2,97	65	17	33.0	4	6	77.92	02970
2,98	65	17	33.0	4	6	77.92	02980
2,99	65	17	33.0	4	6	77.92	02990
3,00	65	17	33.0	4	6	68.07	03000
3,01	65	17	33.0	4	6	77.92	03010
3,02	65	17	33.0	4	6	77.92	03020
3,03	65	17	33.0	4	6	77.92	03030
3,04 - 3,35	65	18	33.0	4	6	104.17	xxxxx[2]
3,36 - 3,75	75	18	43.0	4	6	104.17	xxxxx[2]
3,76 - 3,96	75	19	43.0	4	6	104.17	xxxxx[2]
3,97	75	19	43.0	4	6	91.34	03970
3,98	75	19	43.0	4	6	91.34	03980
3,99	75	19	43.0	4	6	91.34	03990
4,00	75	19	43.0	4	6	81.50	04000
4,01	75	19	43.0	4	6	91.34	04010
4,02	75	19	43.0	4	6	91.34	04020
4,03	75	19	43.0	4	6	91.34	04030
4,04 - 4,25	75	19	43.0	4	6	113.20	xxxxx[2]
4,26 - 4,75	80	21	39.0	6	6	113.20	xxxxx[2]
4,76 - 4,96	93	23	52.0	6	6	113.20	xxxxx[2]
4,97	93	23	52.0	6	6	100.30	04970
4,98	93	23	52.0	6	6	100.30	04980
4,99	93	23	52.0	6	6	100.30	04990

40 430 ...

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	£ U4	
5,00	93	23	52.0	6	6	91.34	05000
5,01	93	23	52.0	6	6	100.30	05010
5,02	93	23	52.0	6	6	100.30	05020
5,03	93	23	52.0	6	6	100.30	05030
5,04 - 5,30	93	23	52.0	6	6	122.24	xxxxx[2]
5,31 - 5,96	93	26	53.0	6	6	122.24	xxxxx[2]
5,97	93	26	53.0	6	6	109.22	05970
5,98	93	26	53.0	6	6	109.22	05980
5,99	93	26	53.0	6	6	109.22	05990
6,00	93	26	53.0	6	6	98.48	06000
6,01	93	26	53.0	6	6	109.22	06010
6,02	93	26	53.0	6	6	109.22	06020
6,03	93	26	53.0	6	6	109.22	06030
6,04 - 6,70	101	28	61.0	6	6	149.44	xxxxx[2]
6,71 - 7,50	109	31	68.0	8	6	149.44	xxxxx[2]
7,51 - 7,96	117	33	77.0	8	6	149.44	xxxxx[2]
7,97	117	33	77.0	8	6	136.10	07970
7,98	117	33	77.0	8	6	136.10	07980
7,99	117	33	77.0	8	6	136.10	07990
8,00	117	33	77.0	8	6	127.19	08000
8,01	117	33	77.0	8	6	136.10	08010
8,02	117	33	77.0	8	6	136.10	08020
8,03	117	33	77.0	8	6	136.10	08030
8,04	117	33	77.0	8	6	136.10	08040
8,05 - 8,50	117	33	77.0	8	6	167.55	xxxxx[2]
8,51 - 9,04	125	36	80.0	10	6	167.55	xxxxx[2]
9,05 - 9,50	125	36	80.0	10	6	167.55	xxxxx[2]
9,51 - 9,96	133	38	88.0	10	6	167.55	xxxxx[2]
9,97	133	38	88.0	10	6	159.41	09970
9,98	133	38	88.0	10	6	159.41	09980
9,99	133	38	88.0	10	6	159.41	09990
10,00	133	38	88.0	10	6	148.67	10000
10,01	133	38	88.0	10	6	159.41	10010
10,02	133	38	88.0	10	6	159.41	10020
10,03	133	38	88.0	10	6	159.41	10030
10,04	133	38	88.0	10	6	159.41	10040
10,05	133	38	88.0	10	6	159.41	10050
10,06 - 10,60	133	38	88.0	10	6	199.24	xxxxx[2]
10,61 - 11,80	142	41	97.0	10	6	199.24	xxxxx[2]
11,81 - 11,96	151	44	100.0	12	6	199.24	xxxxx[2]
11,97	151	44	100.0	12	6	191.64	11970
11,98	151	44	100.0	12	6	191.64	11980
11,99	151	44	100.0	12	6	191.64	11990
12,00	151	44	100.0	12	6	180.96	12000
12,01	151	44	100.0	12	6	191.64	12010
12,02	151	44	100.0	12	6	191.64	12020
12,03	151	44	100.0	12	6	191.64	12030
12,04	151	44	100.0	12	6	191.64	12040
12,05	151	44	100.0	12	6	191.64	12050

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→ v_c Page 84+85

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days / Minimum order 3 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days

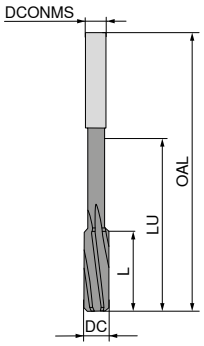
This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.05 mm → Article no. 40 430 08050)!

NC machine reamers, DIN 8093-2B

- ▲ 0.01 mm steps
- ▲ extremely irregular pitch
- ▲ Ø 0.6–0.94 mm similar to DIN 8093-B
- ▲ Ø 0.95–3.75 mm with centres both ends
- ▲ Ø 3.76–12.05 mm with protected centres

NC 100

TiAlN







Left Hand Helix
Solid carbide

40 431 ...

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	£ U4	
1,00	50	6	17.5	3	3	137.96	01000 [1]
1,01	50	6	17.5	3	3	137.96	01010 [1]
1,02	50	6	17.5	3	3	137.96	01020 [1]
1,03	50	6	17.5	3	3	137.96	01030 [1]
1,04 - 1,06	50	6	17.5	3	3	137.96	xxxxx [1]
1,07 - 1,18	50	9	17.5	3	3	137.96	xxxxx [1]
1,19 - 1,32	50	9	17.5	3	3	137.96	xxxxx [1]
1,33 - 1,50	50	9	18.0	3	3	137.96	xxxxx [1]
1,51 - 1,70	50	10	18.0	3	3	137.96	xxxxx [1]
1,71 - 1,90	50	11	18.5	3	4	137.96	xxxxx [1]
1,91 - 1,97	50	12	18.5	3	4	137.96	xxxxx [1]
1,98	50	12	18.5	3	4	156.06	01980
1,99	50	12	18.5	3	4	156.06	01990
2,00	50	12	18.5	3	4	156.06	02000
2,01	50	12	18.5	3	4	156.06	02010
2,02	50	12	18.5	3	4	156.06	02020
2,03	50	12	18.5	3	4	156.06	02030
2,04 - 2,12	50	12	18.5	3	4	137.96	xxxxx [1]
2,13 - 2,36	50	12	18.5	3	4	137.96	xxxxx [1]
2,37 - 2,47	60	16	29.0	3	4	137.96	xxxxx [1]
2,48	60	16	29.0	3	4	120.04	02480
2,49	60	16	29.0	3	4	120.04	02490
2,50	60	16	29.0	3	4	120.04	02500
2,51	60	16	29.0	3	4	120.04	02510
2,52	60	16	29.0	3	4	120.04	02520
2,53	60	16	29.0	3	4	120.04	02530
2,54 - 2,65	60	16	29.0	3	4	120.04	xxxxx [1]
2,66 - 2,80	65	17	33.0	4	6	120.04	xxxxx [1]
2,81 - 2,96	65	17	33.0	4	6	120.04	xxxxx [1]
2,97	65	17	33.0	4	6	103.29	02970
2,98	65	17	33.0	4	6	103.29	02980
2,99	65	17	33.0	4	6	103.29	02990
3,00	65	17	33.0	4	6	90.22	03000
3,01	65	17	33.0	4	6	103.29	03010
3,02	65	17	33.0	4	6	103.29	03020
3,03	65	17	33.0	4	6	103.29	03030
3,04 - 3,35	65	18	33.0	4	6	137.96	xxxxx [1]
3,36 - 3,75	75	18	43.0	4	6	137.96	xxxxx [1]
3,76 - 3,96	75	19	43.0	4	6	137.96	xxxxx [1]
3,97	75	19	43.0	4	6	121.00	03970
3,98	75	19	43.0	4	6	121.00	03980
3,99	75	19	43.0	4	6	121.00	03990
4,00	75	19	43.0	4	6	107.95	04000
4,01	75	19	43.0	4	6	121.00	04010
4,02	75	19	43.0	4	6	121.00	04020
4,03	75	19	43.0	4	6	121.00	04030
4,04 - 4,25	75	19	43.0	4	6	150.05	xxxxx [1]
4,26 - 4,75	80	21	39.0	6	6	150.05	xxxxx [1]
4,76 - 4,96	93	23	52.0	6	6	150.05	xxxxx [1]
4,97	93	23	52.0	6	6	132.89	04970
4,98	93	23	52.0	6	6	132.89	04980
4,99	93	23	52.0	6	6	132.89	04990
5,00	93	23	52.0	6	6	121.00	05000
5,01	93	23	52.0	6	6	132.89	05010
5,02	93	23	52.0	6	6	132.89	05020
5,03	93	23	52.0	6	6	132.89	05030
5,04 - 5,30	93	23	52.0	6	6	161.92	xxxxx [1]
5,31 - 5,96	93	26	53.0	6	6	161.92	xxxxx [1]
5,97	93	26	53.0	6	6	144.77	05970
5,98	93	26	53.0	6	6	144.77	05980

40 431 ...

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	£ U4	
5,99	93	26	53.0	6	6	144.77	05990
6,00	93	26	53.0	6	6	130.57	06000
6,01	93	26	53.0	6	6	144.77	06010
6,02	93	26	53.0	6	6	144.77	06020
6,03	93	26	53.0	6	6	144.77	06030
6,04 - 6,70	101	28	61.0	6	6	197.97	xxxxx [1]
6,71 - 7,50	109	31	68.0	8	6	197.97	xxxxx [1]
7,51 - 7,96	117	33	77.0	8	6	197.97	xxxxx [1]
7,97	117	33	77.0	8	6	180.43	07970
7,98	117	33	77.0	8	6	180.43	07980
7,99	117	33	77.0	8	6	180.43	07990
8,00	117	33	77.0	8	6	168.35	08000
8,01	117	33	77.0	8	6	180.43	08010
8,02	117	33	77.0	8	6	180.43	08020
8,03	117	33	77.0	8	6	180.43	08030
8,04	117	33	77.0	8	6	180.43	08040
8,05 - 8,50	117	33	77.0	8	6	221.94	xxxxx [1]
8,51 - 9,04	125	36	80.0	10	6	221.94	xxxxx [1]
9,05 - 9,50	125	36	80.0	10	6	221.94	xxxxx [1]
9,51 - 9,96	133	38	88.0	10	6	221.94	xxxxx [1]
9,97	133	38	88.0	10	6	210.45	09970
9,98	133	38	88.0	10	6	210.45	09980
9,99	133	38	88.0	10	6	210.45	09990
10,00	133	38	88.0	10	6	196.80	10000
10,01	133	38	88.0	10	6	210.45	10010
10,02	133	38	88.0	10	6	210.45	10020
10,03	133	38	88.0	10	6	210.45	10030
10,04	133	38	88.0	10	6	210.45	10040
10,05	133	38	88.0	10	6	210.45	10050
10,06 - 10,60	133	38	88.0	10	6	264.03	xxxxx [1]
10,61 - 11,80	142	41	97.0	10	6	264.03	xxxxx [1]
11,81 - 11,96	151	44	100.0	12	6	264.03	xxxxx [1]
11,97	151	44	100.0	12	6	253.30	11970
11,98	151	44	100.0	12	6	253.30	11980
11,99	151	44	100.0	12	6	253.30	11990
12,00	151	44	100.0	12	6	239.67	12000
12,01	151	44	100.0	12	6	253.30	12010
12,02	151	44	100.0	12	6	253.30	12020
12,03	151	44	100.0	12	6	253.30	12030
12,04	151	44	100.0	12	6	253.30	12040
12,05	151	44	100.0	12	6	253.30	12050

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→ v_c Page 84+85

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days

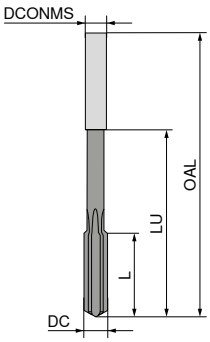
This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.05 mm → Article no. 40 431 08050)!

4

Machine reamers, similar to DIN 8093-A / -B

▲ extremely irregular pitch

N





Left Hand Helix
Solid carbide



straight flute
Solid carbide

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h7 mm	ZEFP	40 410 ... £ U4		40 400 ... £ U4	
2.0	49	11	31	2.0	4	29.03	020	29.03	020
2.1	49	11	31	2.0	4	34.88	021	34.88	021
2.2	53	12	35	2.2	4	34.88	022	34.88	022
2.3	53	12	35	2.2	4	34.88	023	34.88	023
2.4	57	14	34	2.5	4	34.88	024	34.88	024
2.5	57	14	34	2.5	4	31.13	025	31.13	025
2.6	57	14	34	2.5	4	37.36	026	37.36	026
2.7	61	15	36	3.0	4	37.36	027	37.36	027
2.8	61	15	36	3.0	4	37.36	028	37.36	028
2.9	61	15	36	3.0	4	37.36	029	37.36	029
3.0	61	15	36	3.0	4	33.44	030	33.44	030
3.1	61	15	36	3.0	4	40.19	031	40.19	031
3.2	70	18	40	3.5	4	40.19	032	40.19	032
3.3	70	18	40	3.5	4	40.19	033	40.19	033
3.4	70	18	40	3.5	4	40.19	034	40.19	034
3.5	70	18	40	3.5	4	38.26	035	38.26	035
3.6	70	18	40	3.5	4	45.89	036	45.89	036
3.7	70	18	40	3.5	4	45.89	037	45.89	037
3.8	75	19	43	4.0	4	45.89	038	45.89	038
3.9	75	19	43	4.0	4	45.89	039	45.89	039
4.0	75	19	43	4.0	4	41.16	040	41.16	040
4.1	75	19	43	4.0	4	49.36	041	49.36	041
4.2	75	19	43	4.0	4	49.36	042	49.36	042
4.3	75	21	42	4.5	4	49.36	043	49.36	043
4.4	75	21	42	4.5	4	49.36	044	49.36	044
4.5	75	21	42	4.5	4	44.75	045	44.75	045
4.6	75	21	42	4.5	4	53.71	046	53.71	046
4.7	75	21	42	4.5	4	53.71	047	53.71	047
4.8	86	23	52	5.0	4	53.71	048	53.71	048
4.9	86	23	52	5.0	4	53.71	049	53.71	049
5.0	86	23	52	5.0	4	50.56	050	50.56	050
5.1	86	23	52	5.0	4	58.18	051	58.18	051
5.2	86	23	52	5.0	4	58.18	052	58.18	052
5.3	86	23	52	5.0	6	58.18	053	58.18	053
5.4	93	26	57	5.6	6	58.18	054	58.18	054
5.5	93	26	57	5.6	6	53.52	055	53.52	055
5.6	93	26	57	5.6	6	61.49	056	61.49	056
5.7	93	26	57	5.6	6	61.49	057	61.49	057
5.8	93	26	57	5.6	6	61.49	058	61.49	058
5.9	93	26	57	5.6	6	61.49	059	61.49	059
6.0	93	26	57	5.6	6	64.02	060	64.02	060
6.1	93	26	57	5.6	6	73.58	061	73.58	061
6.2	93	26	57	5.6	6	73.58	062	73.58	062
6.3	101	28	63	6.3	6	73.58	063	73.58	063
6.4	101	28	63	6.3	6	73.58	064	73.58	064
6.5	101	28	63	6.3	6	71.86	065	71.86	065
6.6	101	28	63	6.3	6	82.62	066	82.62	066
6.7	101	28	63	6.3	6	82.62	067	82.62	067
6.8	109	31	69	7.1	6	82.62	068	82.62	068
6.9	109	31	69	7.1	6	82.62	069	82.62	069
7.0	109	31	69	7.1	6	80.22	070	80.22	070
7.1	109	31	69	7.1	6	92.26	071	92.26	071
7.2	109	31	69	7.1	6	92.26	072	92.26	072
7.3	109	31	69	7.1	6	92.26	073	92.26	073
7.4	109	31	69	7.1	6	92.26	074	92.26	074
7.5	109	31	69	7.1	6	86.72	075	86.72	075
7.6	117	33	75	8.0	6	99.70	076	99.70	076
7.7	117	33	75	8.0	6	99.70	077	99.70	077
7.8	117	33	75	8.0	6	99.70	078	99.70	078
7.9	117	33	75	8.0	6	99.70	079	99.70	079
8.0	117	33	75	8.0	6	92.32	080	92.32	080
8.1	117	33	75	8.0	6	101.57	081	101.57	081
8.2	117	33	75	8.0	6	101.57	082	101.57	082
8.3	117	33	75	8.0	6	101.57	083	101.57	083
8.4	117	33	75	8.0	6	101.57	084	101.57	084
8.5	117	33	75	8.0	6	100.11	085	100.11	085
8.6	125	36	81	9.0	6	110.09	086	110.09	086
8.7	125	36	81	9.0	6	110.09	087	110.09	087
8.8	125	36	81	9.0	6	110.09	088	110.09	088
8.9	125	36	81	9.0	6	110.09	089	110.09	089
9.0	125	36	81	9.0	6	107.34	090	107.34	090
9.1	125	36	81	9.0	6	118.03	091	118.03	091
9.2	125	36	81	9.0	6	118.03	092	118.03	092
9.3	125	36	81	9.0	6	118.03	093	118.03	093
9.4	125	36	81	9.0	6	118.03	094	118.03	094
9.5	125	36	81	9.0	6	115.10	095	115.10	095
9.6	133	38	87	10.0	6	126.60	096	126.60	096
9.7	133	38	87	10.0	6	126.60	097	126.60	097
9.8	133	38	87	10.0	6	126.60	098	126.60	098
9.9	133	38	87	10.0	6	126.60	099	126.60	099
10.0	133	38	87	10.0	6	123.86	100	123.86	100
10.1	133	38	87	10.0	6	136.25	101	136.25	101
10.2	133	38	87	10.0	6	136.25	102	136.25	102
10.3	133	38	87	10.0	6	136.25	103	136.25	103
10.4	133	38	87	10.0	6	136.25	104	136.25	104
10.5	133	38	87	10.0	6	129.45	105	129.45	105
10.6	133	38	87	10.0	6	142.42	106	142.42	106
10.7	142	41	96	10.0	6	142.42	107	142.42	107
10.8	142	41	96	10.0	6	142.42	108	142.42	108
10.9	142	41	96	10.0	6	142.42	109	142.42	109
11.0	142	41		10.0	6	140.30	110	140.30	110
11.1	142	41		10.0	6	154.32	111	154.32	111
11.2	142	41		10.0	6	154.32	112	154.32	112
11.3	142	41		10.0	6	154.32	113	154.32	113
11.4	142	41		10.0	6	154.32	114	154.32	114
11.5	142	41		10.0	6	148.83	115	148.83	115
11.6	142	41		10.0	6	163.79	116	163.79	116
11.7	142	41		10.0	6	163.79	117	163.79	117
11.8	142	41		10.0	6	163.79	118	163.79	118
11.9	151	44		10.0	6	163.79	119	163.79	119
12.0	151	44		10.0	6	161.33	120	161.33	120

	40 410 ...	40 400 ...
P	●	●
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K	○	○
N	●	●
S	○	○
H		
O		

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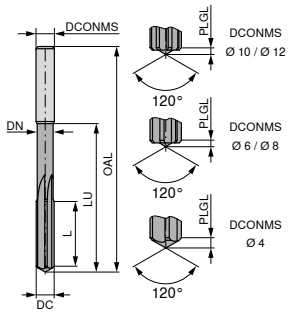
NC machine reamers, sim. DIN 8093-A

NC100 H

NEW

TiAlSiN





straight flute
45°
Solid carbide
Through hole + blind hole

DC h7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	40 435 ... £ U4	
0.98	50	6	16	4	0.12	91.12	00980
0.99	50	6	16	4	0.12	91.12	00990
1.00	50	6	16	4	0.12	91.12	01000
1.01	50	6	16	4	0.12	91.12	01010
1.02	50	6	16	4	0.12	91.12	01020
1.03	50	6	16	4	0.12	91.12	01030
1.48	50	9	16	4	0.12	99.45	01480
1.49	50	9	16	4	0.12	99.45	01490
1.50	50	9	16	4	0.12	99.45	01500
1.51	50	9	16	4	0.12	99.45	01510
1.52	50	9	16	4	0.12	99.45	01520
1.60	50	10	16	4	0.12	99.45	01600
1.70	50	10	16	4	0.12	99.45	01700
1.80	50	11	16	4	0.12	99.45	01800
1.90	50	11	16	4	0.12	99.45	01900
1.97	50	12	16	4	0.30	99.45	01970
1.98	50	12	16	4	0.30	99.45	01980
1.99	50	12	16	4	0.30	99.45	01990
2.00	50	12	16	4	0.30	99.45	02000
2.01	50	12	16	4	0.30	99.45	02010
2.02	50	12	16	4	0.30	99.45	02020
2.03	50	12	16	4	0.30	99.45	02030
2.05	50	12	16	4	0.30	99.45	02050
2.10	50	12	16	4	0.30	99.45	02100
2.20	50	13	16	4	0.30	99.45	02200
2.30	50	13	16	4	0.30	99.45	02300
2.40	60	16	26	4	0.30	99.45	02400
2.50	60	16	26	4	0.30	99.45	02500
2.60	60	16	26	4	0.30	99.45	02600
2.70	64	17	30	4	0.30	99.45	02700
2.80	64	17	30	4	0.30	99.45	02800
2.90	64	17	30	4	0.30	99.45	02900
2.97	64	17	30	4	0.30	99.45	02970
2.98	64	17	30	4	0.30	99.45	02980
2.99	64	17	30	4	0.30	99.45	02990
3.00	64	17	30	4	0.30	99.45	03000
3.01	64	17	30	4	0.30	99.45	03010
3.02	64	17	30	4	0.30	99.45	03020
3.03	64	17	30	4	0.30	99.45	03030
3.05	68	18	34	4	0.30	99.45	03050
3.10	68	18	34	4	0.30	99.45	03100
3.20	68	18	34	4	0.30	99.45	03200
3.30	68	18	34	4	0.30	99.45	03300
3.40	74	20	40	4	0.30	99.45	03400
3.50	74	20	40	4	0.30	99.45	03500
3.60	74	20	40	4	0.30	99.45	03600
3.70	74	20	40	4	0.30	99.45	03700
3.80	77	21	43	4	0.40	99.45	03800
3.90	77	21	43	4	0.40	99.45	03900
3.97	77	21	43	4	0.40	99.45	03970
3.98	77	21	43	4	0.40	99.45	03980
3.99	77	21	43	4	0.40	99.45	03990
4.00	77	21	43	4	0.40	99.45	04000
4.01	77	21	43	4	0.40	99.45	04010
4.02	77	21	43	4	0.40	99.45	04020
4.03	77	21	43	4	0.40	99.45	04030
4.05	82	21	40	6	0.40	122.71	04050
4.10	82	21	40	6	0.40	122.71	04100
4.20	82	21	40	6	0.40	122.71	04200
4.30	82	23	40	6	0.40	122.71	04300

DC h7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	40 435 ... £ U4	
4.40	82	23	40	6	0.40	122.71	04400
4.50	82	23	40	6	0.40	122.71	04500
4.60	82	23	40	6	0.40	122.71	04600
4.70	82	23	40	6	0.40	122.71	04700
4.80	93	26	51	6	0.50	122.71	04800
4.90	93	26	51	6	0.50	122.71	04900
4.97	93	26	51	6	0.50	122.71	04970
4.98	93	26	51	6	0.50	122.71	04980
4.99	93	26	51	6	0.50	122.71	04990
5.00	93	26	51	6	0.50	122.71	05000
5.01	93	26	51	6	0.50	122.71	05010
5.02	93	26	51	6	0.50	122.71	05020
5.03	93	26	51	6	0.50	122.71	05030
5.05	93	26	51	6	0.50	122.71	05050
5.10	93	26	51	6	0.50	122.71	05100
5.20	93	26	51	6	0.50	122.71	05200
5.30	93	26	51	6	0.50	122.71	05300
5.40	93	26	51	6	0.50	122.71	05400
5.50	93	26	51	6	0.50	122.71	05500
5.60	93	26	51	6	0.50	122.71	05600
5.70	93	26	51	6	0.50	122.71	05700
5.80	93	26	51	6	0.50	122.71	05800
5.90	93	26	51	6	0.50	122.71	05900
5.97	93	26	51	6	0.50	122.71	05970
5.98	93	26	51	6	0.50	122.71	05980
5.99	93	26	51	6	0.50	122.71	05990
6.00	93	26	51	6	0.50	122.71	06000

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→ v_c Page 90

This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
Intermediate dimensions available on request.

4

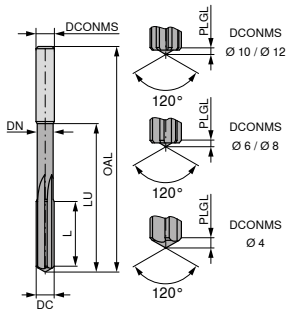
Continued on next page

NC machine reamers, sim. DIN 8093-A

NC100 H

NEW

TiAlSiN





straight flute
45°
Solid carbide
Through hole + blind hole

40 435 ...

DC h7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	£ U4	
6.01	93	26	51	6	0.5	122.71	**06010**
6.02	93	26	51	6	0.5	122.71	**06020**
6.03	93	26	51	6	0.5	122.71	**06030**
6.05	101	26	59	8	0.5	153.11	**06050**
6.10	101	26	59	8	0.5	153.11	**06100**
6.20	101	26	59	8	0.5	153.11	**06200**
6.30	101	26	59	8	0.5	153.11	**06300**
6.40	101	26	59	8	0.5	153.11	**06400**
6.50	101	26	59	8	0.5	153.11	**06500**
6.60	101	26	59	8	0.5	153.11	**06600**
6.70	101	26	59	8	0.5	153.11	**06700**
6.80	109	31	67	8	0.6	153.11	**06800**
6.85	109	31	67	8	0.6	153.11	**06850**
6.90	109	31	67	8	0.6	153.11	**06900**
7.00	109	31	67	8	0.6	153.11	**07000**
7.10	109	31	67	8	0.6	153.11	**07100**
7.20	109	31	67	8	0.6	153.11	**07200**
7.30	109	31	67	8	0.6	153.11	**07300**
7.40	109	31	67	8	0.6	153.11	**07400**
7.50	109	31	67	8	0.6	153.11	**07500**
7.60	109	31	67	8	0.6	153.11	**07600**
7.70	117	33	75	8	0.6	153.11	**07700**
7.80	117	33	75	8	0.6	153.11	**07800**
7.90	117	33	75	8	0.6	153.11	**07900**
7.97	117	33	75	8	0.6	153.11	**07970**
7.98	117	33	75	8	0.6	153.11	**07980**
7.99	117	33	75	8	0.6	153.11	**07990**
8.00	117	33	75	8	0.6	153.11	**08000**
8.01	117	33	75	8	0.7	153.11	**08010**
8.02	117	33	75	8	0.7	153.11	**08020**
8.03	117	33	75	8	0.7	153.11	**08030**
8.05	117	33	71	10	0.7	187.43	**08050**
8.10	117	33	71	10	0.7	187.43	**08100**
8.20	117	33	71	10	0.7	187.43	**08200**
8.30	117	33	71	10	0.7	187.43	**08300**
8.40	117	33	71	10	0.7	187.43	**08400**
8.50	117	33	71	10	0.7	187.43	**08500**
8.60	117	33	71	10	0.7	187.43	**08600**
8.70	125	36	79	10	0.7	187.43	**08700**
8.80	125	36	79	10	0.7	187.43	**08800**
8.90	125	36	79	10	0.7	187.43	**08900**
9.00	125	36	79	10	0.7	187.43	**09000**
9.10	125	36	79	10	0.7	187.43	**09100**
9.20	125	36	79	10	0.7	187.43	**09200**
9.30	125	36	79	10	0.7	187.43	**09300**
9.40	125	36	79	10	0.7	187.43	**09400**
9.50	125	36	79	10	0.7	187.43	**09500**
9.60	125	36	79	10	0.7	187.43	**09600**
9.70	133	38	87	10	0.7	187.43	**09700**
9.80	133	38	87	10	0.7	187.43	**09800**
9.90	133	38	87	10	0.7	187.43	**09900**
9.97	133	41	87	10	0.7	187.43	**09970**
9.98	133	41	87	10	0.7	187.43	**09980**
9.99	133	41	87	10	0.7	187.43	**09990**
10.00	133	41	87	10	0.7	187.43	**10000**
10.01	133	41	87	10	0.7	187.43	**10010**
10.02	133	41	87	10	0.8	187.43	**10020**
10.03	133	41	87	10	0.8	187.43	**10030**
10.04	133	41	87	10	0.8	187.43	**10040**
10.05	133	41	87	10	0.8	187.43	**10050**

40 435 ...

DC h7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	£ U4	
11.17	150	44	99	12	0.8	245.54	**11170**
11.97	150	44	99	12	0.8	245.54	**11970**
11.98	150	44	99	12	0.8	245.54	**11980**
11.99	150	44	99	12	0.8	245.54	**11990**
12.00	150	44	99	12	0.8	245.54	**12000**
12.01	150	44	99	12	0.8	245.54	**12010**
12.02	150	44	99	12	0.8	245.54	**12020**
12.03	150	44	99	12	0.8	245.54	**12030**
12.04	150	44	99	12	0.8	245.54	**12040**
12.05	150	44	99	12	0.8	245.54	**12050**

P	o
M	o
K	o
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H	●
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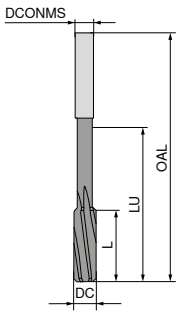
→ v_c Page 90

This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
Intermediate dimensions available on request.

NC machine reamers, DIN 212-3-B

▲ maximum radial run-out accuracy

NC





Left Hand Helix
HSS-E

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 110 ... £ U2	
1.5	40	8	15.5	2	3	17.91	015
1.6	43	9	16.0	2	3	20.07	016
1.7	43	9	16.0	2	3	20.07	017
1.8	46	10	19.0	2	4	20.07	018
1.9	46	10	19.0	2	4	20.07	019
2.0	49	11	21.0	2	4	17.43	020
2.1	49	11	21.0	2	4	21.16	021
2.2	53	12	22.0	3	4	21.16	022
2.3	53	12	22.0	3	4	21.16	023
2.4	57	14	26.0	3	4	21.16	024
2.5	57	14	26.0	3	4	17.43	025
2.6	57	14	26.0	3	4	22.38	026
2.7	61	15	30.0	3	6	22.38	027
2.8	61	15	30.0	3	6	22.38	028
2.9	61	15	30.0	3	6	22.38	029
3.0	61	15	30.0	3	6	16.00	030
3.1	65	16	34.0	4	6	21.16	031
3.2	65	16	34.0	4	6	21.16	032
3.3	65	16	34.0	4	6	21.16	033
3.4	70	18	39.0	4	6	21.16	034
3.5	70	18	39.0	4	6	18.80	035
3.6	70	18	39.0	4	6	23.46	036
3.7	70	18	39.0	4	6	23.46	037
3.8	75	19	44.0	4	6	23.46	038
3.9	75	19	44.0	4	6	17.00	039
4.0	75	19	44.0	4	6	17.43	040
4.1	75	19	44.0	4	6	22.03	041
4.2	75	19	44.0	4	6	22.03	042
4.3	80	21	48.0	5	6	22.03	043
4.4	80	21	48.0	5	6	22.03	044
4.5	80	21	48.0	5	6	18.80	045
4.6	80	21	48.0	5	6	23.85	046
4.7	80	21	48.0	5	6	23.85	047
4.8	86	23	54.0	5	6	23.85	048
4.9	86	23	54.0	5	6	23.85	049
5.0	86	23	54.0	5	6	17.91	050
5.1	86	23	54.0	5	6	23.85	051
5.2	86	23	54.0	5	6	23.85	052
5.3	86	23	54.0	5	6	23.85	053
5.4	93	26	53.0	6	6	23.85	054
5.5	93	26	53.0	6	6	22.03	055
5.6	93	26	53.0	6	6	23.85	056
5.7	93	26	53.0	6	6	23.85	057
5.8	93	26	53.0	6	6	23.85	058
5.9	93	26	53.0	6	6	23.85	059
6.0	93	26	53.0	6	6	19.15	060
6.1	101	28	61.0	6	6	23.85	061
6.2	101	28	61.0	6	6	23.85	062
6.3	101	28	61.0	6	6	23.85	063
6.4	101	28	61.0	6	6	23.85	064
6.5	101	28	61.0	6	6	22.94	065
6.6	101	28	61.0	6	6	23.85	066
6.7	101	28	61.0	6	6	23.85	067
6.8	109	31	69.0	8	6	23.85	068
6.9	109	31	69.0	8	6	23.85	069
7.0	109	31	69.0	8	6	22.94	070
7.1	109	31	69.0	8	6	26.69	071
7.2	109	31	69.0	8	6	26.69	072
7.3	109	31	69.0	8	6	26.69	073
7.4	109	31	69.0	8	6	26.69	074
7.5	109	31	69.0	8	6	26.11	075
7.6	117	33	77.0	8	6	28.16	076
7.7	117	33	77.0	8	6	28.16	077
7.8	117	33	77.0	8	6	28.16	078
7.9	117	33	77.0	8	6	28.16	079
8.0	117	33	77.0	8	6	23.85	080
8.1	117	33	77.0	8	6	32.83	081
8.2	117	33	77.0	8	6	32.83	082
8.3	117	33	77.0	8	6	32.83	083
8.4	117	33	77.0	8	6	32.83	084
8.5	117	33	77.0	8	6	29.90	085
8.6	125	36	81.0	10	6	30.41	086
8.7	125	36	81.0	10	6	30.41	087
8.8	125	36	81.0	10	6	30.41	088
8.9	125	36	81.0	10	6	30.41	089
9.0	125	36	81.0	10	6	27.57	090
9.1	125	36	81.0	10	6	31.38	091
9.2	125	36	81.0	10	6	31.38	092
9.3	125	36	81.0	10	6	31.38	093
9.4	125	36	81.0	10	6	31.38	094
9.5	125	36	81.0	10	6	30.78	095
9.6	133	38	89.0	10	6	32.22	096
9.7	133	38	89.0	10	6	32.22	097
9.8	133	38	89.0	10	6	32.22	098
9.9	133	38	89.0	10	6	32.22	099
10.0	133	38	89.0	10	6	28.16	100
11.0	142	41	98.0	10	6	39.41	110
12.0	151	44	106.0	10	6	41.19	120
13.0	151	44	106.0	10	6	45.73	130
14.0	160	47	110.0	14	8	47.42	140
15.0	162	50	112.0	14	8	48.39	150
16.0	170	52	120.0	14	8	50.12	160
17.0	175	54	125.0	14	8	60.03	170
18.0	182	56	132.0	14	8	61.77	180
19.0	189	58	136.0	16	8	71.59	190
20.0	195	60	142.0	16	8	68.99	200

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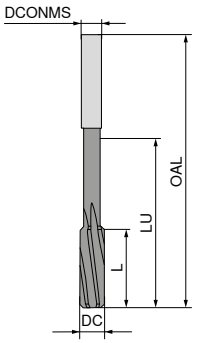
→ v_c Page 86+87

4

NC machine reamers, DIN 212-3-B

- 0.01 mm steps
- tolerance: Ø 1.00 – Ø 5.50 mm = +0.004 mm
- tolerance: Ø 5.51 – Ø 12.00 mm = +0.005 mm

NC 100





Left Hand Helix
HSS-E

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 115 ... £ U2	
0,95 - 0,99	34	5.5	12.5	1	3	25.86	xxxxx[1]
1,00	34	5.5	12.5	1	3	26.11	01000
1,01	34	5.5	12.5	1	3	26.11	01010
1,02	34	5.5	12.5	1	3	26.11	01020
1,03 - 1,06	34	5.5	12.5	1	3	27.21	xxxxx[1]
1,07 - 1,18	36	6.5	13.0	1	3	27.21	xxxxx[1]
1,19 - 1,32	38	7.5	14.0	2	3	27.21	xxxxx[1]
1,33 - 1,41	40	8.0	15.5	2	3	25.86	xxxxx[1]
1,42 - 1,49	40	8.0	15.5	2	3	27.21	xxxxx[1]
1,50	40	8.0	15.5	2	3	22.94	01500
1,51	43	9.0	16.0	2	3	22.94	01510
1,52	43	9.0	16.0	2	3	22.94	01520
1,53 - 1,70	43	9.0	16.0	2	3	27.21	xxxxx[1]
1,71 - 1,90	46	10.0	19.0	2	4	27.21	xxxxx[1]
1,91 - 1,96	49	11.0	21.0	2	4	27.21	xxxxx[1]
1,97	49	11.0	21.0	2	4	22.94	01970
1,98	49	11.0	21.0	2	4	22.94	01980
1,99	49	11.0	21.0	2	4	22.94	01990
2,00	49	11.0	21.0	2	4	21.54	02000
2,01	49	11.0	21.0	2	4	21.54	02010
2,02	49	11.0	21.0	2	4	21.54	02020
2,03 - 2,12	49	11.0	21.0	2	4	27.21	xxxxx[1]
2,13 - 2,36	53	12.0	22.0	3	4	27.21	xxxxx[1]
2,37 - 2,47	57	14.0	26.0	3	4	27.21	xxxxx[1]
2,48	57	14.0	26.0	3	4	24.69	02480
2,49	57	14.0	26.0	3	4	24.69	02490
2,50	57	14.0	26.0	3	4	21.16	02500
2,51	57	14.0	26.0	3	4	21.16	02510
2,52	57	14.0	26.0	3	4	21.16	02520
2,53 - 2,65	57	14.0	26.0	3	4	27.21	xxxxx[1]
2,66 - 2,96	61	15.0	30.0	3	6	25.86	xxxxx[1]
2,97	61	15.0	30.0	3	6	25.27	02970
2,98	61	15.0	30.0	3	6	25.27	02980
2,99	61	15.0	30.0	3	6	25.27	02990
3,00	61	15.0	30.0	3	6	18.80	03000
3,01	61	15.0	30.0	3	6	18.80	03010
3,02	61	15.0	30.0	3	6	18.80	03020
3,03	61	15.0	30.0	3	6	27.21	03030[1]
3,04 - 3,35	65	16.0	34.0	4	6	27.21	xxxxx[1]
3,36 - 3,75	70	18.0	39.0	4	6	27.21	xxxxx[1]
3,76 - 3,96	75	19.0	44.0	4	6	27.21	xxxxx[1]
3,97	75	19.0	44.0	4	6	20.61	03970
3,98	75	19.0	44.0	4	6	20.61	03980
3,99	75	19.0	44.0	4	6	20.61	03990
4,00	75	19.0	44.0	4	6	20.61	04000
4,01	75	19.0	44.0	4	6	20.61	04010
4,02	75	19.0	44.0	4	6	20.61	04020
4,03 - 4,25	75	19.0	44.0	4	6	27.21	xxxxx[1]
4,26 - 4,75	80	21.0	48.0	5	6	25.86	xxxxx[1]
4,76 - 4,96	86	23.0	54.0	5	6	27.21	xxxxx[1]
4,97	86	23.0	54.0	5	6	22.38	04970
4,98	86	23.0	54.0	5	6	22.38	04980
4,99	86	23.0	54.0	5	6	22.38	04990
5,00	86	23.0	54.0	5	6	22.38	05000
5,01	86	23.0	54.0	5	6	22.38	05010
5,02	86	23.0	54.0	5	6	22.38	05020

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 115 ... £ U2	
5,03 - 5,30	86	23.0	54.0	5	6	27.21	xxxxx[1]
5,31 - 5,60	93	26.0	53.0	6	6	27.21	xxxxx[1]
5,61 - 5,96	93	26.0	53.0	6	6	25.86	xxxxx[1]
5,97	93	26.0	53.0	6	6	24.69	05970
5,98	93	26.0	53.0	6	6	24.69	05980
5,99	93	26.0	53.0	6	6	24.69	05990
6,00	93	26.0	53.0	6	6	24.69	06000
6,01	93	26.0	53.0	6	6	24.69	06010
6,02	93	26.0	53.0	6	6	24.69	06020
6,03	93	26.0	53.0	6	6	27.21	06030[1]
6,04 - 6,70	101	28.0	61.0	6	6	27.21	xxxxx[1]
6,71 - 7,20	109	31.0	69.0	8	6	27.21	xxxxx[1]
7,21 - 7,50	109	31.0	69.0	8	6	25.86	xxxxx[1]
7,51 - 7,96	117	33.0	77.0	8	6	30.37	xxxxx[1]
7,97	117	33.0	77.0	8	6	26.69	07970
7,98	117	33.0	77.0	8	6	26.69	07980
7,99	117	33.0	77.0	8	6	26.69	07990
8,00	117	33.0	77.0	8	6	26.69	08000
8,01	117	33.0	77.0	8	6	26.69	08010
8,02	117	33.0	77.0	8	6	26.69	08020
8,03 - 8,20	117	33.0	77.0	8	6	36.24	xxxxx[1]
8,21 - 8,50	117	33.0	77.0	8	6	36.24	xxxxx[1]
8,51 - 8,99	125	36.0	81.0	10	6	36.24	xxxxx[1]
9,00	125	36.0	81.0	10	6	33.69	09000
9,01	125	36.0	81.0	10	6	33.69	09010
9,02	125	36.0	81.0	10	6	33.69	09020
9,03 - 9,20	125	36.0	81.0	10	6	36.24	xxxxx[1]
9,21 - 9,50	125	36.0	81.0	10	6	34.78	xxxxx[1]
9,51 - 9,96	133	38.0	89.0	10	6	52.76	xxxxx[1]
9,97	133	38.0	89.0	10	6	33.69	09970
9,98	133	38.0	89.0	10	6	33.69	09980
9,99	133	38.0	89.0	10	6	33.69	09990
10,00	133	38.0	89.0	10	6	33.69	10000
10,01	133	38.0	89.0	10	6	33.69	10010
10,02	133	38.0	89.0	10	6	33.69	10020
10,03 - 10,20	133	38.0	89.0	10	6	54.30	xxxxx[1]
10,21 - 10,60	133	38.0	89.0	10	6	54.30	xxxxx[1]
10,61 - 11,20	142	41.0	98.0	10	6	51.36	xxxxx[1]
11,21 - 11,80	142	41.0	98.0	10	6	54.30	xxxxx[1]
11,81 - 11,96	151	44.0	106.0	10	6	51.36	xxxxx[1]
11,97	151	44.0	106.0	10	6	48.39	11970
11,98	151	44.0	106.0	10	6	48.39	11980
11,99	151	44.0	106.0	10	6	48.39	11990
12,00	151	44.0	106.0	10	6	48.39	12000

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→ v_c Page 86+87

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 8 working days / Minimum order 5 pieces

This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.03 mm → Article no. 40 115 08030)!

Machine reamers, DIN 212-B

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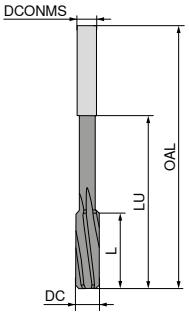



Left Hand Helix
HSS-E

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	40 150 ... £ U2	
1.0	34	5.5	15.0	1.0	3	22.97	010
1.1	36	6.5	15.5	1.1	3	24.22	011
1.2	38	7.5	16.5	1.2	3	22.44	012
1.3	38	7.5	16.5	1.2	3	25.06	013
1.4	40	8.0	18.0	1.4	3	20.75	014
1.5	40	8.0	18.0	1.5	3	19.05	015
1.6	43	9.0	20.0	1.6	3	21.19	016
1.7	43	9.0	20.0	1.6	3	21.19	017
1.8	46	10.0	22.0	1.8	4	21.19	018
1.9	46	10.0	22.0	1.8	4	21.19	019
2.0	49	11.0	24.0	2.0	4	18.68	020
2.1	49	11.0	24.0	2.0	4	22.44	021
2.2	53	12.0	25.0	2.2	4	22.44	022
2.3	53	12.0	25.0	2.2	4	22.44	023
2.4	57	14.0	29.0	2.5	4	22.44	024
2.5	57	14.0	29.0	2.5	4	18.68	025
2.6	57	14.0	29.0	2.5	4	23.31	026
2.7	61	15.0	33.0	2.8	6	23.31	027
2.8	61	15.0	33.0	2.8	6	23.31	028
2.9	61	15.0	36.0	3.0	6	23.31	029
3.0	61	15.0	36.0	3.0	6	16.83	030
3.1	65	16.0	36.0	3.2	6	22.06	031
3.2	65	16.0	36.0	3.2	6	22.06	032
3.3	65	16.0	36.0	3.2	6	22.06	033
3.4	70	18.0	41.0	3.5	6	22.06	034
3.5	70	18.0	41.0	3.5	6	19.45	035
3.6	70	18.0	41.0	3.5	6	24.69	036
3.7	70	18.0	41.0	3.5	6	24.69	037
3.8	75	19.0	44.0	4.0	6	24.69	038
3.9	75	19.0	44.0	4.0	6	18.18	039
4.0	75	19.0	44.0	4.0	6	18.68	040
4.1	75	19.0	44.0	4.0	6	22.97	041
4.2	75	19.0	44.0	4.0	6	22.97	042
4.3	80	21.0	48.0	4.5	6	22.97	043
4.4	80	21.0	48.0	4.5	6	22.97	044
4.5	80	21.0	48.0	4.5	6	19.45	045
4.6	80	21.0	48.0	4.5	6	25.06	046
4.7	80	21.0	48.0	4.5	6	25.06	047
4.8	86	23.0	53.0	5.0	6	25.06	048
4.9	86	23.0	53.0	5.0	6	25.06	049
5.0	86	23.0	53.0	5.0	6	19.05	050
5.1	86	23.0	53.0	5.0	6	25.06	051
5.2	86	23.0	53.0	5.0	6	25.06	052
5.3	86	23.0	53.0	5.0	6	25.06	053
5.4	93	26.0	58.0	5.6	6	25.06	054
5.5	93	26.0	58.0	5.6	6	22.97	055
5.6	93	26.0	58.0	5.6	6	25.06	056
5.7	93	26.0	58.0	5.6	6	25.06	057
5.8	93	26.0	58.0	5.6	6	25.06	058
5.9	93	26.0	58.0	5.6	6	25.06	059
6.0	93	26.0	58.0	5.6	6	19.95	060
6.1	101	28.0	64.0	6.3	6	25.06	061
6.2	101	28.0	64.0	6.3	6	25.06	062
6.3	101	28.0	64.0	6.3	6	25.06	063
6.4	101	28.0	64.0	6.3	6	25.06	064
6.5	101	28.0	64.0	6.3	6	24.22	065
6.6	101	28.0	64.0	6.3	6	25.06	066
6.7	101	28.0	64.0	6.3	6	25.06	067
6.8	109	31.0	70.0	7.1	6	25.55	068
6.9	109	31.0	70.0	7.1	6	25.55	069
7.0	109	31.0	70.0	7.1	6	24.22	070
7.1	109	31.0	70.0	7.1	6	28.12	071
7.2	109	31.0	70.0	7.1	6	28.12	072
7.3	109	31.0	70.0	7.1	6	28.12	073
7.4	109	31.0	70.0	7.1	6	28.12	074
7.5	109	31.0	70.0	7.1	6	27.24	075
7.6	117	33.0	76.0	8.0	6	29.39	076
7.7	117	33.0	76.0	8.0	6	29.39	077
7.8	117	33.0	76.0	8.0	6	29.39	078
7.9	117	33.0	76.0	8.0	6	29.39	079
8.0	117	33.0	76.0	8.0	6	25.06	080
8.1	117	33.0	76.0	8.0	6	34.99	081
8.2	117	33.0	76.0	8.0	6	34.99	082
8.3	117	33.0	76.0	8.0	6	34.99	083
8.4	117	33.0	76.0	8.0	6	34.99	084
8.5	117	33.0	76.0	8.0	6	31.65	085
8.6	125	36.0	82.0	9.0	6	32.00	086
8.7	125	36.0	82.0	9.0	6	32.00	087
8.8	125	36.0	82.0	9.0	6	32.00	088
8.9	125	36.0	82.0	9.0	6	32.00	089
9.0	125	36.0	82.0	9.0	6	28.94	090
9.1	125	36.0	82.0	9.0	6	33.30	091
9.2	125	36.0	82.0	9.0	6	33.30	092
9.3	125	36.0	82.0	9.0	6	33.30	093
9.4	125	36.0	82.0	9.0	6	33.30	094
9.5	125	36.0	82.0	9.0	6	32.38	095
9.6	133	38.0	88.0	10.0	6	34.60	096
9.7	133	38.0	88.0	10.0	6	34.60	097
9.8	133	38.0	88.0	10.0	6	34.60	098
9.9	133	38.0	88.0	10.0	6	34.60	099
10.0	133	38.0	88.0	10.0	6	29.39	100
11.0	142	41.0	97.0	10.0	6	41.50	110
12.0	151	44.0	106.0	10.0	6	43.17	120
13.0	151	44.0	106.0	10.0	6	48.39	130
14.0	160	47.0	111.0	12.5	8	50.21	140
15.0	162	50.0	113.0	12.5	8	51.86	150
16.0	170	52.0	121.0	12.5	8	53.71	160
17.0	175	54.0	124.0	14.0	8	63.20	170
18.0	182	56.0	131.0	14.0	8	64.84	180
19.0	189	58.0	132.0	16.0	8	76.14	190
20.0	195	60.0	136.0	16.0	8	72.69	200

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→ v_c Page 88+89

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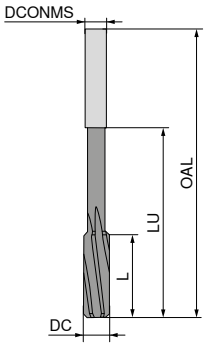
Machine reamers, DIN 212-B

- ▲ 0.01 mm steps
- ▲ tolerance: Ø 0.95 – 5.50 mm = +0.004 mm
- ▲ tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

N 100





Left Hand Helix
HSS-E

40 140 ...

DC mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	£ U2	
0,95 - 1,06	34	5.5	15.0	1.0	3	25.06	xxxxx[1]
1,07 - 1,18	36	6.5	15.5	1.1	3	25.06	xxxxx[1]
1,19 - 1,32	38	7.5	16.5	1.2	3	25.06	xxxxx[1]
1,33 - 1,39	40	8.0	18.0	1.4	3	25.06	xxxxx[1]
1,40 - 1,47	40	8.0	18.0	1.4	3	22.97	xxxxx[1]
1,48	40	8.0	18.0	1.4	3	22.97	01480
1,49	40	8.0	18.0	1.4	3	22.97	01490
1,50	40	8.0	18.0	1.4	3	21.70	01500
1,51 - 1,70	43	9.0	20.0	1.6	3	21.70	xxxxx[1]
1,71 - 1,90	46	10.0	22.0	1.8	4	21.70	xxxxx[1]
1,91 - 1,97	49	11.0	24.0	2.0	4	21.70	xxxxx[1]
1,98	49	11.0	24.0	2.0	4	21.70	01980
1,99	49	11.0	24.0	2.0	4	21.70	01990
2,00	49	11.0	24.0	2.0	4	20.36	02000
2,01	49	11.0	24.0	2.0	4	20.36	02010
2,02	49	11.0	24.0	2.0	4	20.36	02020
2,03	49	11.0	24.0	2.0	4	20.36	02030
2,04	49	11.0	24.0	2.0	4	20.36	02040
2,05	49	11.0	24.0	2.0	4	20.36	02050
2,06 - 2,09	49	11.0	24.0	2.0	4	20.36	xxxxx[1]
2,10 - 2,12	49	11.0	24.0	2.0	4	23.31	xxxxx[1]
2,13 - 2,36	53	12.0	25.0	2.2	4	23.31	xxxxx[1]
2,37 - 2,49	57	14.0	29.0	2.5	4	23.31	xxxxx[1]
2,50 - 2,59	57	14.0	29.0	2.5	4	19.95	xxxxx[1]
2,60 - 2,65	57	14.0	29.0	2.5	4	24.22	xxxxx[1]
2,66 - 2,80	61	15.0	33.0	2.8	6	24.22	xxxxx[1]
2,81 - 2,94	61	15.0	36.0	3.0	6	24.22	xxxxx[1]
2,95	61	15.0	36.0	3.0	6	24.22	02950
2,96	61	15.0	36.0	3.0	6	24.22	02960
2,97	61	15.0	36.0	3.0	6	24.22	02970
2,98	61	15.0	36.0	3.0	6	24.22	02980
2,99	61	15.0	36.0	3.0	6	24.22	02990
3,00	61	15.0	36.0	3.0	6	19.41	03000
3,01	65	16.0	36.0	3.2	6	18.18	03010
3,02	65	16.0	36.0	3.2	6	18.18	03020
3,03	65	16.0	36.0	3.2	6	18.18	03030
3,04	65	16.0	36.0	3.2	6	18.18	03040
3,05	65	16.0	36.0	3.2	6	18.18	03050
3,06	65	16.0	36.0	3.2	6	18.18	03060
3,07	65	16.0	36.0	3.2	6	18.18	03070
3,08 - 3,09	65	16.0	36.0	3.2	6	18.18	xxxxx[1]
3,10 - 3,35	65	16.0	36.0	3.2	6	22.97	xxxxx[1]
3,36 - 3,49	70	18.0	41.0	3.5	6	22.97	xxxxx[1]
3,50 - 3,59	70	18.0	41.0	3.5	6	19.95	xxxxx[1]
3,60 - 3,75	70	18.0	41.0	3.5	6	25.55	xxxxx[1]
3,76 - 3,81	75	19.0	44.0	4.0	6	25.55	xxxxx[1]
3,82 - 3,94	75	19.0	44.0	4.0	6	19.45	xxxxx[1]
3,95	75	19.0	44.0	4.0	6	19.45	03950
3,96	75	19.0	44.0	4.0	6	19.45	03960
3,97	75	19.0	44.0	4.0	6	19.45	03970
3,98	75	19.0	44.0	4.0	6	19.45	03980
3,99	75	19.0	44.0	4.0	6	19.45	03990

40 140 ...

DC mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	£ U2	
4,00	75	19.0	44.0	4.0	6	19.45	04000
4,01	75	19.0	44.0	4.0	6	19.45	04010
4,02	75	19.0	44.0	4.0	6	19.45	04020
4,03	75	19.0	44.0	4.0	6	19.45	04030
4,04	75	19.0	44.0	4.0	6	19.45	04040
4,05	75	19.0	44.0	4.0	6	19.45	04050
4,06	75	19.0	44.0	4.0	6	19.45	04060
4,07	75	19.0	44.0	4.0	6	19.45	04070
4,08	75	19.0	44.0	4.0	6	19.45	04080
4,09 - 4,20	75	19.0	44.0	4.0	6	19.45	xxxxx[1]
4,21 - 4,25	75	19.0	44.0	4.0	6	23.85	xxxxx[1]
4,26 - 4,75	80	21.0	48.0	4.5	5	23.85	xxxxx[1]
4,76 - 4,95	86	23.0	53.0	5.0	6	21.19	xxxxx[1]
4,96	86	23.0	53.0	5.0	6	21.19	04960
4,97	86	23.0	53.0	5.0	6	21.19	04970
4,98	86	23.0	53.0	5.0	6	21.19	04980
4,99	86	23.0	53.0	5.0	6	21.19	04990
5,00	86	23.0	53.0	5.0	6	21.19	05000
5,01	86	23.0	53.0	5.0	6	21.19	05010
5,02	86	23.0	53.0	5.0	6	21.19	05020
5,03	86	23.0	53.0	5.0	6	21.19	05030
5,04	86	23.0	53.0	5.0	6	21.19	05040
5,05	86	23.0	53.0	5.0	6	21.19	05050
5,06	86	23.0	53.0	5.0	6	21.19	05060
5,07	86	23.0	53.0	5.0	6	21.19	05070
5,08 - 5,20	86	23.0	53.0	5.0	6	21.19	xxxxx[1]
5,21 - 5,30	86	23.0	53.0	5.0	6	23.31	xxxxx[1]
5,31 - 5,94	93	26.0	58.0	5.6	6	23.31	xxxxx[1]
5,95	93	26.0	58.0	5.6	6	23.31	05950
5,96	93	26.0	58.0	5.6	6	23.31	05960
5,97	93	26.0	58.0	5.6	6	23.31	05970
5,98	93	26.0	58.0	5.6	6	23.31	05980
5,99	93	26.0	58.0	5.6	6	23.31	05990

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→ v_c Page 88+89

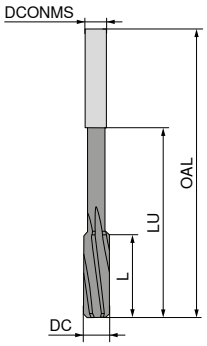
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **page 103**.
For xxxxx please indicate required Ø in the order
(e.g. Ø 10.06 mm → Article no. 40 140 10060)!

Machine reamers, DIN 212-B

- ▲ 0.01 mm steps
- ▲ tolerance: Ø 0.95 – 5.50 mm = +0.004 mm
- ▲ tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

N 100





Left Hand Helix
HSS-E

DC mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	40 140 ... £ U2	
6,00	93	26	58	5.6	6	23.31	06000
6,01	101	28	64	6.3	6	23.31	06010
6,02	101	28	64	6.3	6	23.31	06020
6,03	101	28	64	6.3	6	23.31	06030
6,04	101	28	64	6.3	6	23.31	06040
6,05	101	28	64	6.3	6	23.31	06050
6,06 - 6,11	101	28	64	6.3	6	23.31	xxxxx 1)
6,12 - 6,34	101	28	64	6.3	6	25.55	xxxxx 1)
6,35	101	28	64	6.3	6	25.55	06350
6,36	101	28	64	6.3	6	25.55	06360 1)
6,71 - 6,94	109	31	70	7.1	6	25.55	xxxxx 1)
6,95	109	31	70	7.1	6	25.55	06950
6,96	109	31	70	7.1	6	25.55	06960
6,97	109	31	70	7.1	6	25.55	06970
6,98	109	31	70	7.1	6	25.55	06980
6,99	109	31	70	7.1	6	25.55	06990
7,00	109	31	70	7.1	6	25.55	07000
7,01	109	31	70	7.1	6	25.55	07010
7,02	109	31	70	7.1	6	25.55	07020
7,03	109	31	70	7.1	6	25.55	07030
7,04 - 7,50	109	31	70	7.1	6	25.55	xxxxx 1)
7,51 - 7,63	109	31	76	7.1	6	25.55	xxxxx 1)
7,64 - 7,94	117	33	76	8.0	6	25.55	xxxxx 1)
7,95	117	33	76	8.0	6	25.55	07950
7,96	117	33	76	8.0	6	25.55	07960
7,97	117	33	76	8.0	6	25.55	07970
7,98	117	33	76	8.0	6	25.55	07980
7,99	117	33	76	8.0	6	25.55	07990
8,00	117	33	76	8.0	6	25.55	08000
8,01	117	33	76	8.0	6	25.55	08010
8,02	117	33	76	8.0	6	25.55	08020
8,03	117	33	76	8.0	6	25.55	08030
8,04	117	33	76	8.0	6	25.55	08040
8,05	117	33	76	8.0	6	25.55	08050
8,06 - 8,20	117	33	76	8.0	6	25.55	xxxxx 1)
8,21 - 8,50	117	33	76	8.0	6	32.00	xxxxx 1)
8,51 - 8,63	117	33	82	8.0	6	32.00	xxxxx 1)
8,64 - 8,95	125	36	82	9.0	6	32.00	xxxxx 1)
8,96	125	36	82	9.0	6	32.00	08960
8,97	125	36	82	9.0	6	32.00	08970
8,98	125	36	82	9.0	6	32.00	08980
8,99	125	36	82	9.0	6	32.00	08990
9,00	125	36	82	9.0	6	32.00	09000
9,01	125	36	82	9.0	6	32.00	09010
9,02	125	36	82	9.0	6	32.00	09020
9,03 - 9,50	125	36	82	9.0	6	32.00	xxxxx 1)
9,51 - 9,63	125	36	88	9.0	6	32.00	xxxxx 1)
9,64 - 9,95	133	38	88	10.0	6	32.00	xxxxx 1)
9,96	133	38	88	10.0	6	32.00	09960
9,97	133	38	88	10.0	6	32.00	09970
9,98	133	38	88	10.0	6	32.00	09980
9,99	133	38	88	10.0	6	32.00	09990
10,00	133	38	88	10.0	6	32.00	10000
10,01	133	38	88	10.0	6	32.00	10010
10,02	133	38	88	10.0	6	32.00	10020
10,03	133	38	88	10.0	6	32.00	10030
10,04	133	38	88	10.0	6	32.00	10040
10,05	133	38	88	10.0	6	32.00	10050
10,06 - 10,09	133	38	88	10.0	6	32.00	xxxxx 1)
10,10	133	38	88	10.0	6	32.00	10100
10,11 - 10,19	133	38	88	10.0	6	32.00	xxxxx 1)
10,20	133	38	88	10.0	6	32.00	10200
10,21 - 10,69	133	38	88	10.0	6	40.14	xxxxx 1)
10,70 - 11,20	142	41	97	10.0	6	40.14	xxxxx 1)
11,21 - 11,80	142	41	97	10.0	6	45.81	xxxxx 1)
11,81 - 11,95	151	44	106	10.0	6	45.81	xxxxx 1)
11,96	151	44	106	10.0	6	45.81	11960
11,97	151	44	106	10.0	6	45.81	11970
11,98	151	44	106	10.0	6	45.81	11980
11,99	151	44	106	10.0	6	45.81	11990
12,00	151	44	106	10.0	6	45.81	12000

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→ v_c Page 88+89

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

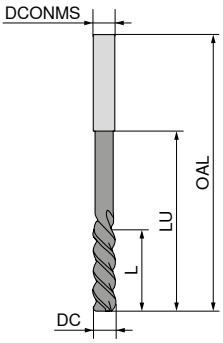
This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **page 103**.
For xxxxx please indicate required Ø in the order
(e.g. Ø 10.06 mm → Article no. 40 140 10060)!

4

Quick spiral machine reamers, DIN 212-C

- with 45° left-hand helix and conical chamfer
- for reaming through holes in long chipping materials
- not suitable for blind holes
- the reaming allowance should be for at least 50 % greater and the feed up to 100 % higher than the normal values for reamers. This gives a clean, chatter-free surface, high roundness of the bore and a longer service life

S





Left Hand Helix
HSS-E
Through hole

40 155 ...

DC $_{H7}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h9}$ mm	ZEFP	£ U2		
1.0	34	5.5	15	1.0	2	27.60	**010**	1)
1.5	40	8.0	18	1.5	2	21.19	**015**	1)
1.8	46	10.0	22	1.8	2	25.31	**018**	1)
2.0	49	11.0	24	2.0	3	21.67	**020**	1)
2.2	53	12.0	25	2.2	3	32.17	**022**	1)
2.5	57	14.0	29	2.5	3	23.06	**025**	1)
2.8	61	15.0	33	2.8	3	35.91	**028**	1)
3.0	61	15.0	36	3.0	3	25.82	**030**	1)
3.2	65	16.0	36	3.2	3	38.19	**032**	1)
3.5	70	18.0	41	3.5	3	29.90	**035**	1)
4.0	75	19.0	44	4.0	3	25.82	**040**	
4.5	80	21.0	48	4.5	3	29.90	**045**	
5.0	86	23.0	53	5.0	3	28.55	**050**	
6.0	93	26.0	58	5.6	3	28.08	**060**	
6.5	101	28.0	64	6.3	3	33.61	**065**	
7.0	109	31.0	70	7.1	3	31.25	**070**	
8.0	117	33.0	76	8.0	3	31.25	**080**	
9.0	125	36.0	82	9.0	3	41.86	**090**	
10.0	133	38.0	88	10.0	3	39.53	**100**	
11.0	142	41.0	97	10.0	3	50.61	**110**	
12.0	151	44.0	106	10.0	3	47.76	**120**	
13.0	151	44.0	106	10.0	3	67.20	**130**	
14.0	160	47.0	111	12.5	3	62.58	**140**	
15.0	162	50.0	113	12.5	3	63.55	**150**	
16.0	170	52.0	121	12.5	3	67.20	**160**	
17.0	175	54.0	124	14.0	3	100.23	**170**	
18.0	182	56.0	131	14.0	3	91.96	**180**	
19.0	189	58.0	132	16.0	3	103.96	**190**	
20.0	195	60.0	136	16.0	3	100.23	**200**	

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1) not standardised

Stub reamers, DIN 8089-B

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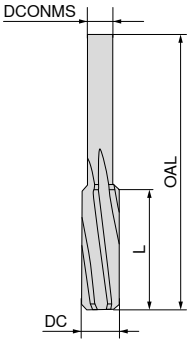



Left Hand Helix
HSS-E
Through hole

40 145 ...

DC $_{H7}$ mm	OAL mm	L mm	DCONMS $_{h8}$ mm	ZEFP	£ U2	
4.0	56	20	3.55	6	19.35	**040**
4.5	63	22	4.00	6	22.06	**045**
5.0	63	22	4.00	6	21.19	**050**
5.5	63	22	5.00	6	24.41	**055**
6.0	63	22	5.00	6	21.19	**060**
6.5	63	22	5.00	6	25.82	**065**
7.0	71	25	6.30	6	25.82	**070**
8.0	71	25	6.30	6	25.31	**080**
9.0	71	25	8.00	6	29.90	**090**
10.0	71	25	8.00	6	30.81	**100**
11.0	80	28	10.00	6	42.33	**110**
12.0	80	28	10.00	6	45.07	**120**
13.0	80	28	10.00	6	50.69	**130**
14.0	90	32	12.50	8	51.47	**140**
15.0	90	32	12.50	8	53.42	**150**
16.0	90	32	12.50	8	56.14	**160**
17.0	90	32	12.50	8	64.26	**170**
18.0	100	36	16.00	8	68.03	**180**
19.0	100	36	16.00	8	79.10	**190**
20.0	100	36	16.00	8	74.43	**200**

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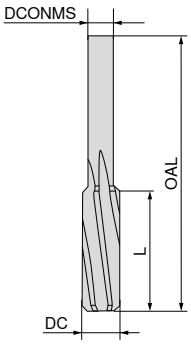
→ v_c Page 88+89

Stub reamers, DIN 8089-B

- 0.01 mm steps
- tolerance: Ø 3.76 – 5.50 mm = +0.004 mm
- tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

AR 100





HSS-E
Left Hand Helix

DC mm	OAL mm	L mm	DCONMS h8 mm	ZEFP	40 139 ... £ U2	
3,76 - 3,81	56	20	3.55	6	28.08	xxxxx 1)
3,82 - 3,94	56	20	3.55	6	20.72	xxxxx 1)
3,95	56	20	3.55	6	20.72	03950
3,96	56	20	3.55	6	20.72	03960
3,97	56	20	3.55	6	20.72	03970
3,98	56	20	3.55	6	20.72	03980
3,99	56	20	3.55	6	20.72	03990
4,00	56	20	3.55	6	20.72	04000
4,01	56	20	3.55	6	20.72	04010
4,02	56	20	3.55	6	20.72	04020
4,03 - 4,20	56	20	3.55	6	20.72	xxxxx 1)
4,21 - 4,25	56	20	3.55	6	24.84	xxxxx 1)
4,26 - 4,75	63	22	4.00	6	24.84	xxxxx 1)
4,76 - 4,94	63	22	4.00	6	22.06	xxxxx 1)
4,95	63	22	4.00	6	22.06	04950
4,96	63	22	4.00	6	22.06	04960
4,97	63	22	4.00	6	22.06	04970
4,98	63	22	4.00	6	22.06	04980
4,99	63	22	4.00	6	22.06	04990
5,00	63	22	4.00	6	22.06	05000
5,01	63	22	4.00	6	22.06	05010
5,02	63	22	4.00	6	22.06	05020
5,03	63	22	4.00	6	22.06	05030
5,04	63	22	4.00	6	22.06	05040
5,05	63	22	4.00	6	22.06	05050
5,06 - 5,20	63	22	4.00	6	22.06	xxxxx 1)
5,21 - 5,30	63	22	4.00	6	24.84	xxxxx 1)
5,31 - 5,70	63	22	5.00	6	24.84	xxxxx 1)
5,71 - 5,94	63	22	5.00	6	24.84	xxxxx 1)
5,95	63	22	5.00	6	24.84	05950
5,96	63	22	5.00	6	24.84	05960
5,97	63	22	5.00	6	24.84	05970
5,98	63	22	5.00	6	24.84	05980
5,99	63	22	5.00	6	24.84	05990
6,00	63	22	5.00	6	24.84	06000
6,01	63	22	5.00	6	24.84	06010
6,02	63	22	5.00	6	24.84	06020
6,03 - 6,11	63	22	5.00	6	24.84	xxxxx 1)
6,12 - 6,70	63	22	5.00	6	26.69	xxxxx 1)
6,71 - 6,94	71	25	6.30	6	26.69	xxxxx 1)
6,95	71	25	6.30	6	26.69	06950
6,96	71	25	6.30	6	26.69	06960
6,97	71	25	6.30	6	26.69	06970
6,98	71	25	6.30	6	26.69	06980
6,99	71	25	6.30	6	26.69	06990
7,00	71	25	6.30	6	26.69	07000
7,01	71	25	6.30	6	26.69	07010
7,02	71	25	6.30	6	26.69	07020
7,03 - 7,25	71	25	6.30	6	26.69	xxxxx 1)
7,26 - 7,94	71	25	6.30	6	26.69	xxxxx 1)
7,95	71	25	6.30	6	26.69	07950
7,96	71	25	6.30	6	26.69	07960
7,97	71	25	6.30	6	26.69	07970
7,98	71	25	6.30	6	26.69	07980
7,99	71	25	6.30	6	26.69	07990
8,00	71	25	6.30	6	26.69	08000
8,01	71	25	6.30	6	26.69	08010
8,02	71	25	6.30	6	26.69	08020
8,03	71	25	6.30	6	26.69	08030
8,04	71	25	6.30	6	26.69	08040
8,05 - 8,20	71	25	6.30	6	26.69	xxxxx 1)
8,21 - 8,50	71	25	6.30	6	33.61	xxxxx 1)
8,51 - 8,94	71	25	8.00	6	33.61	xxxxx 1)
8,95	71	25	8.00	6	33.61	08950
8,96	71	25	8.00	6	33.61	08960
8,97	71	25	8.00	6	33.61	08970
8,98	71	25	8.00	6	33.61	08980
8,99	71	25	8.00	6	33.61	08990
9,00	71	25	8.00	6	33.61	09000
9,01	71	25	8.00	6	33.61	09010 1)
9,02	71	25	8.00	6	33.61	09020
9,03 - 9,25	71	25	8.00	6	33.61	xxxxx
9,26 - 9,94	71	25	8.00	6	33.61	xxxxx 1)
9,95	71	25	8.00	6	33.61	09950
9,96	71	25	8.00	6	33.61	09960
9,97	71	25	8.00	6	33.61	09970
9,98	71	25	8.00	6	33.61	09980
9,99	71	25	8.00	6	33.61	09990
10,00	71	25	8.00	6	33.61	10000
10,01	71	25	8.00	6	33.61	10010
10,02	71	25	8.00	6	33.61	10020
10,03 - 10,20	71	25	8.00	6	33.61	xxxxx 1)
10,21 - 10,60	71	25	8.00	6	42.76	xxxxx 1)
10,61 - 11,20	80	28	10.00	6	42.76	xxxxx 1)
11,21 - 11,25	80	28	10.00	6	49.64	xxxxx 1)
11,26 - 11,94	80	28	10.00	6	49.64	xxxxx 1)
11,95	80	28	10.00	6	49.64	11950
11,96	80	28	10.00	6	49.64	11960
11,97	80	28	10.00	6	49.64	11970
11,98	80	28	10.00	6	49.64	11980
11,99	80	28	10.00	6	49.64	11990
12,00	80	28	10.00	6	49.64	12000

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 88+89

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

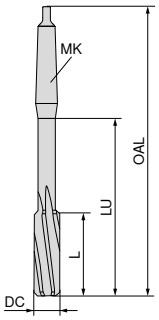
This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **page 103**.
For xxxxx please indicate required Ø in the order
(e.g. Ø 10.06 mm → Article no. 40 139 10060)!

4

Machine reamers HSS-E DIN 208

▲ the circular land on the cutting edge burnishes the hole and guides the reamer

N





Left Hand Helix
HSS-E
Through hole

40 160 ...

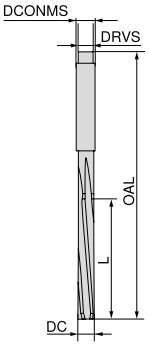
DC H7 mm	OAL mm	L mm	LU mm	MK	ZEFP	£ U2	
16	210	52	130	2	8	64.26	160
17	214	54	134	2	8	68.99	170
18	219	56	139	2	8	71.70	180
19	223	58	143	2	8	75.41	190
20	228	60	148	2	8	75.41	200
21	232	62	152	2	8	85.49	210
22	237	64	157	2	8	85.49	220
23	241	66	161	2	8	98.31	230
24	268	68	169	3	8	101.19	240
25	268	68	169	3	8	103.96	250
26	273	70	174	3	8	111.35	260
27	277	71	178	3	10	123.22	270
28	277	71	178	3	10	123.22	280
29	281	73	182	3	10	137.98	290
30	281	73	182	3	10	127.87	300
32	317	77	193	4	10	167.31	320
34	321	78	197	4	10	186.61	340
35	321	78	197	4	10	186.61	350
36	325	79	201	4	10	203.13	360
38	329	81	205	4	10	223.35	380
40	329	81	205	4	10	225.24	400
42	333	82	209	4	12	246.39	420
44	336	83	212	4	12	290.49	440
45	336	83	212	4	12	293.24	450
46	340	84	216	4	12	346.50	460
47	340	84	216	4	12	366.75	470
48	344	86	220	4	12	368.59	480
50	344	86	220	4	12	368.59	500

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 88+89

Hand reamers, DIN 206-B

H





Left Hand Helix
HSS

40 100 ...

DC H7 mm	OAL mm	L mm	DRVS mm	DCONMS mm	ZEFP	£ U2	
1.0	34	13		1.0	3	35.45	010
1.2	38	17		1.2	3	33.61	012
1.3	38	17		1.3	3	34.48	013
1.4	41	20	1.12	1.4	3	29.90	014
1.5	41	20	1.12	1.5	3	28.55	015
1.6	44	21	1.25	1.6	3	30.37	016
1.8	47	23	1.40	1.8	4	30.81	018
2.0	50	25	1.60	2.0	4	26.24	020
2.2	54	27	1.80	2.2	4	30.81	022
2.5	58	29	2.00	2.5	4	25.82	025
2.8	62	31	2.24	2.8	6	31.73	028
3.0	62	31	2.24	3.0	6	27.16	030
3.2	66	33	25.00	3.2	6	33.61	032
3.5	71	35	2.80	3.5	6	31.73	035
4.0	76	38	3.15	4.0	6	23.06	040
4.5	81	41	3.55	4.5	6	28.08	045
5.0	87	44	4.00	5.0	6	27.16	050
5.5	93	47	4.50	5.5	6	28.94	055
6.0	93	47	4.50	6.0	6	26.24	060
7.0	107	54	5.60	7.0	6	28.55	070
8.0	115	58	6.30	8.0	6	29.90	080
9.0	124	62	7.10	9.0	6	33.61	090
10.0	133	66	8.00	10.0	6	33.61	100
11.0	142	71	9.00	11.0	6	37.26	110
12.0	152	76	10.00	12.0	6	40.01	120
13.0	152	76	10.00	13.0	6	58.88	130
14.0	163	81	11.20	14.0	8	64.26	140
15.0	163	81	11.20	15.0	8	68.03	150
16.0	175	87	12.50	16.0	8	70.95	160
17.0	175	87	14.00	17.0	8	74.43	170
18.0	188	93	14.00	18.0	8	82.77	180
19.0	188	93	14.00	19.0	8	89.22	190
20.0	201	100	16.00	20.0	8	87.42	200
22.0	215	107	18.00	22.0	8	101.19	220
24.0	231	115	20.00	24.0	8	116.78	240
25.0	231	115	20.00	25.0	8	119.50	250
26.0	231	115	20.00	26.0	8	127.87	260
28.0	247	124	22.40	28.0	10	163.62	280
30.0	247	124	22.40	30.0	10	172.01	300
32.0	265	133	25.00	32.0	10	189.49	320
34.0	284	142	28.00	34.0	10	229.90	340
35.0	284	142	28.00	35.0	10	231.67	350
36.0	284	142	28.00	36.0	10	250.89	360
38.0	305	152	31.50	38.0	10	292.33	380
40.0	305	152	31.50	40.0	10	306.06	400

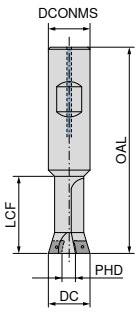
P	●
M	○
K	●
N	●
S	○
H	
O	●

Insert Countersink

- ▲ 2 cutting edges, right-hand cutting for countersinking according to DIN 974-1
- ▲ for countersinking of hexagon socket screws ISO 1207, ISO 4762 (DIN 912), DIN 6912, DIN 7984
- ▲ for sinking cap screws the recommended inserts are specified (page 54)

Supply details:
Indexable insert countersink including clamping screws

WPS





4

B

for screws	DC mm	PHD mm	DCONMS h6 mm	OAL mm	LCF mm	Insert	30 195 ... £ U3	
M8	15	4.0	16	90	25	CC.T 060204	263.22	**015**
M10	18	7.0	16	90	31	CC.T 060204	279.78	**018**
M12	20	9.0	20	100	40	CC.T 060204	288.23	**020**
M16	26	8.5	25	110	52	CC.T 09T304	312.76	**026**
M20	33	15.5	32	130	66	CC.T 09T304	329.16	**033**

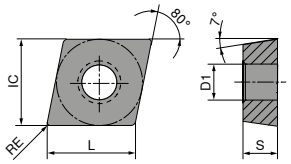

Key D


Clamping screw

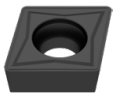
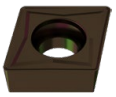
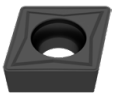
Spare parts Insert		80 950 ... £ Y7			70 950 ... £ 2A	
CC.T 060204	T08	10.82	**110**	M2,5x6	2.26	**112**
CC.T 09T304	T15	12.87	**113**	M3,5x7,2	2.99	**110**

CCMT / CCGT

Designation	L mm	S mm	D1 mm	IC mm
CC.T 0602..	6.4	2.38	2.8	6.35
CC.T 09T3..	9.7	3.97	4.4	9.52



CCMT

	-SM CTCP125	-SM CTCP135	-SM CTCK110
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
			
	M CCMT	M CCMT	M CCMT
	76 252 ...	76 252 ...	70 252 ...
ISO / RE mm	£ 1A/08	£ 1A/08	£ 1A/08
060204EN 0.4	7.42 504	7.42 704	7.42 004
060208EN 0.8		7.42 706	7.42 006
09T304EN 0.4	9.26 516	9.26 716	9.26 016
09T308EN 0.8	9.26 518	9.26 718	9.26 018
09T312EN 1.2			9.26 020
P	●	●	○
M		○	
K	○		●
N			
S			
H			
O			

CCGT

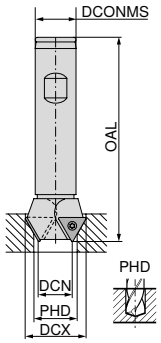
	-27 H10T	-27 CWN15
		
	M CCGT	M CCGT
	70 254 ...	70 254 ...
ISO / RE mm	£ 1A/90	£ 1A
060202FN 0.2	9.75 600	12.38 300
060204FN 0.4	9.75 602	12.38 302
09T302FN 0.2	10.42 604	12.80 304
09T304FN 0.4	10.42 606	12.80 306
09T308FN 0.8	10.42 608	12.80 308
P		
M		○
K	○	
N	●	●
S		
H		
O	○	

Additional inserts can be found in → **Chapter 9, Turning Tools**

Insert countersink 90°

Supply details:
Indexable insert countersink including clamping screws

WPS



NEW



B

DCX mm	DCN mm	PHD mm	ZEFP	ZNF	DCONMS mm	OAL mm	Insert	30 196 ... £ U1	
19	7	9.5	2	2	16	100	TOHX 090204	385.65	**19000**
23	11	12.0	2	2	16	100	TOHX 090204	391.03	**23000**
26	11	12.0	1	2	16	100	TOHX 090204	394.66	**26000**
30	12	13.0	2	2	20	100	TOHX 140305	412.68	**30000**
34	16	17.0	2	2	20	100	TOHX 140305	419.79	**34000**
37	19	20.0	2	2	20	100	TOHX 140305	419.79	**37000**


TORX® Screws


Key D

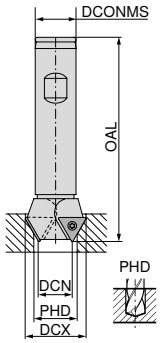
Spare parts DCX	62 950 ... £ W7		80 950 ... £ Y7	
19 - 26	M2,6x6,2 - 08IP 2.34	**09900**	T08 - IP 14.16	**125**
30 - 37	M3,5x7,3 - 10IP 2.34	**12600**	T10 - IP 16.08	**127**

Insert countersink 60°

Supply details:
Indexable insert countersink including clamping screws

WPS

NEW





B

DCX mm	DCN mm	PHD mm	ZEFP	ZNF	DCONMS mm	OAL mm	Insert	30 197 ... £ U1	
16.5	8.1	8.5	1	1	16	100	TOHX 090204	391.03	**16500**
20.0	11.6	12.0	2	2	16	100	TOHX 090204	394.66	**20000**
22.0	13.6	14.0	2	2	16	100	TOHX 090204	412.68	**22000**
23.5	15.1	15.5	2	2	16	100	TOHX 090204	419.79	**23500**
25.5	17.1	17.5	2	2	16	100	TOHX 090204	419.79	**25500**

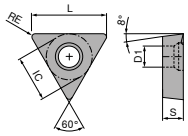

TORX® Screws


Key D

Spare parts DCX		62 950 ... £ W7			80 950 ... £ Y7	
16,5 - 22	M2,6x5,2 - 08IP	2.34	**12000**	T08 - IP	14.16	**125**
23,5 - 25,5	M2,6x6,2 - 08IP	2.34	**09900**	T08 - IP	14.16	**125**

TOHX

Designation	L mm	S mm	D1 mm	IC mm
090204EN	9.12	2.50	2.8	5.6
090204FN	9.12	2.50	2.8	5.6
140305EN	13.62	3.00	3.8	8.2
140305FN	13.62	3.00	3.8	8.2



TOHX

	NEW -G06 BK8425	NEW -U877 BK8425	NEW -G12 BK8425
	F TOHX 62 602 ...	F TOHX 62 604 ...	F TOHX 62 603 ...
ISO / RE mm	£ 1A/3#	£ 1A/3#	£ 1A/3#
090204EN 0.4		20.44 31400	21.05 31400
140305EN 0.5	23.63 33000		
P	●	●	●
M	●	●	●
K	●	●	●
N			
S	●	●	●
H	○	○	○
O			

→ v_c Page 91

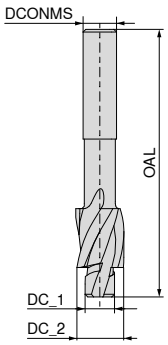
TOHX

	NEW -U877 K10	NEW -G12 K10
	F TOHX 62 604 ...	F TOHX 62 603 ...
ISO / RE mm	£ 1A/3#	£ 1A/3#
090204EN 0.4	18.07 51400	
090204FN 0.4		17.27 51600
140305FN 0.5		20.15 52800
P		
M		
K		
N	●	●
S	●	●
H		
O	●	●

→ v_c Page 91

Counterbore, DIN 373

- ▲ with fixed pilot
- ▲ with 3 cutting edges, right-hand flutes for counterbores according to DIN 74
- ▲ for countersinking to suit hexagon socket screws according to DIN 912, DIN 6912, DIN 7984 and cap screws according to DIN 84





HSS
Core hole



fine
HSS
Through hole



medium
HSS
Through hole

Thread	DC_2 z9 mm	DCONMS h9 mm	OAL mm	DC_1 e8 mm	30 192 ... £ U1		30 190 ... £ U1		30 191 ... £ U1	
M3	6	5.0	71	2.5	23.64	**030**				
M3	6	5.0	71	3.2			21.83	**030** [1]		
M3	6	5.0	71	3.4					21.83	**030** [1]
M4	8	5.0	71	3.3	22.75	**040**				
M4	8	5.0	71	4.3			19.16	**040** [1]		
M4	8	5.0	71	4.5					19.16	**040** [1]
M5	10	8.0	80	4.2	21.70	**050**				
M5	10	8.0	80	5.3			20.91	**050** [1]		
M5	10	8.0	80	5.5					20.91	**050** [1]
M6	11	8.0	80	5.0	23.94	**060**				
M6	11	8.0	80	6.4			22.31	**060** [1]		
M6	11	8.0	80	6.6					22.31	**060** [1]
M8	15	12.5	100	6.8	37.26	**080**				
M8	15	12.5	100	8.4			36.15	**080** [1]		
M8	15	12.5	100	9.0					36.15	**080** [1]
M10	18	12.5	100	8.5	46.24	**100**				
M10	18	12.5	100	10.5			43.19	**100** [1]		
M10	18	12.5	100	11.0					43.19	**100** [1]
M12	20	12.5	100	10.2	50.28	**120**				
M12	20	12.5	100	13.0			46.99	**120**		
M12	20	12.5	100	13.5					46.99	**120**
P					●		●		●	
M					●		●		●	
K					●		●		●	
N					●		●		●	
S					○		○		○	
H										
O					●		●		●	

1) Included in the set

→ v_c Page 96

Counterbore, DIN 373 – Set

Scope of supply:
Counterbores M3; M4; M5; M6; M8; M10 in case



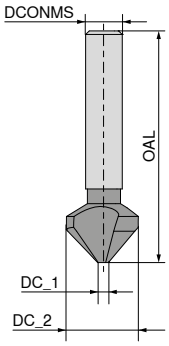
30 190 ... £ U1		30 191 ... £ U1	
191.87	**999**	191.87	**999**

Countersink 90° with irregular pitch, DIN 335-C

- all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
- special TPX76S coating
- for very high tool life in almost all materials
- greatly reduced axial and radial forces
- for countersinking to DIN 7991

N

TPX76S





90°
Solid carbide

30 116 ...

DC_2 z9 mm	DC_1 mm	DCONMS h6 mm	OAL mm	DIN 7991	£ U1	
6.3	1.5	5	45	M3	152.13	**063**
8.3	2.0	6	50	M4	164.12	**083**
10.4	2.5	6	50	M5	171.31	**104**
12.4	2.8	8	56	M6	179.69	**124**
16.5	3.2	10	60	M8	219.22	**165**
20.5	3.5	10	63	M10	252.77	**205**
25.0	3.8	10	67	M12	291.10	**250**
31.0	4.2	12	71	M16	345.00	**310**

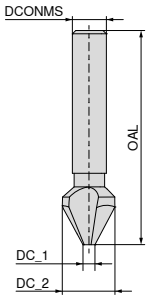
P	●
M	○
K	●
N	●
S	○
H	○
O	○

→ v_c Page 93

Countersink 60° factory standard-C

▲ with 3 cutting edges for countersinking and deburring in high-tensile steels, grey cast iron, aluminium alloys containing silicon and corrosion resistant steels.

N





◁ 60°
Solid carbide

30 160 ...

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	£ U1	
12.5	3.2	8	56	250.78	**125**
16.0	4.0	10	63	341.32	**160**
20.0	5.0	10	67	395.88	**200**
25.0	6.3	10	71	441.56	**250**

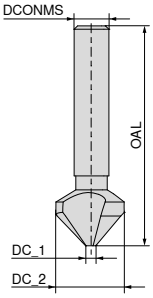
P	●
M	○
K	●
N	●
S	○
H	○
O	

→ v_c Page 92

Countersink 90°, factory standard-C

▲ with 3 cutting edges for countersinking and deburring in high-tensile steels, grey cast iron, alumínium alloys containing silicon and corrosion resistant steels.

N





◁ 90°
Solid carbide

30 115 ...

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	DIN ISO 7721	DIN 7991	£ U1	
10.4	2.5	8	46	M5		174.04	**100**
12.4	2.8	8	56		M6	174.04	**124**
15.0	3.2	10	60	M8		214.46	**150**
16.5	3.2	10	60		M8	227.28	**165**
20.5	3.5	10	63		M10	271.19	**205**
25.0	3.8	10	67		M12	311.46	**250**
31.0	4.2	12	71		M16	415.78	**310**

P	●
M	○
K	●
N	●
S	○
H	○
O	

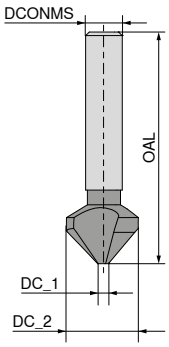
→ v_c Page 92

Countersink 90° with irregular pitch, DIN 335-C

- ▲ all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
- ▲ special Ti50 coating
- ▲ for very high tool life in almost all materials
- ▲ greatly reduced axial and radial forces
- ▲ for countersinking to DIN ISO 7721 and DIN 7991

N

Ti50





90°
HSS

DC_2 z9 mm	DC_1 mm	DCONMS mm	OAL mm	DIN ISO 7721	DIN 7991	30 140 ... £ U1	
4.3	1.3	4	40	M2		26.76	**043**
6.0	1.5	5	45	M3		33.17	**060**
6.3	1.5	5	45		M3	33.17	**063**
8.0	2.0	6	50	M4		31.12	**080**
8.3	2.0	6	50		M4	31.96	**083**
10.0	2.5	6	50	M5		32.35	**100**
10.4	2.5	6	50		M5	33.81	**104** 1)
11.5	2.8	8	56	M6		37.10	**115**
12.4	2.8	8	56		M6	39.09	**124**
15.0	3.2	10	60	M8		43.70	**150**
16.5	3.2	10	60		M8	46.24	**165** 1)
19.0	3.5	10	63	M10		53.63	**190**
20.5	3.5	10	63		M10	64.68	**205**
23.0	3.8	10	67	M12		80.65	**230**
25.0	3.8	10	67		M12	88.63	**250** 1)
31.0	4.2	12	71		M16	114.85	**310**

P	●
M	○
K	●
N	●
S	○
H	○
O	○

1) Included in the set

→ v_c Page 93

Countersink 90° with irregular pitch, DIN 335-C – Set

Scope of supply:
Countersinks Ø 10.4 / 16.5 / 25.0 mm in storage case

N

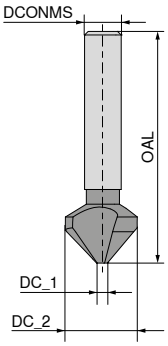


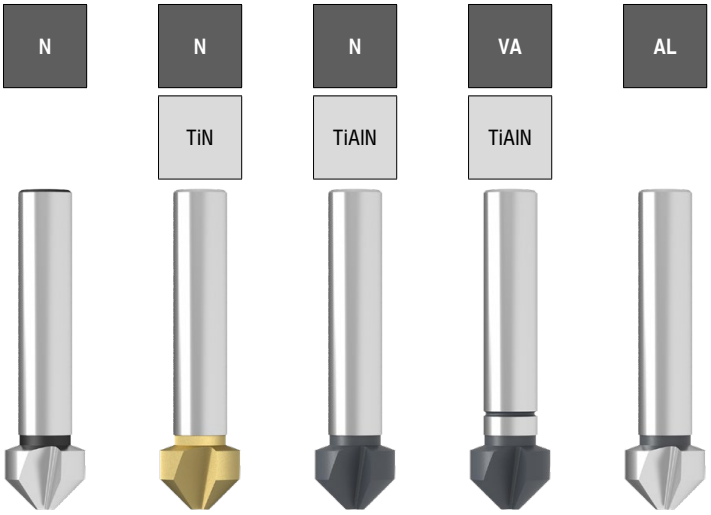
Ti50

30 140 ... £ U1	
246.96	**999**

Countersink 90°, DIN 335-C

- 3 cutting edges to avoid burrs and chatter marks when countersinking and deburring in virtually all materials. Particularly suitable for DIN screws according to DIN ISO 7721 and 7991, as the countersink diameters are matched to the heads of these screws.
- the TiN version makes high cutting rates possible; very long tool life and very good friction resistance properties in order to avoid material sticking.
- TiAlN version shows considerably improved performance compared to TiN version. Particularly suitable for all abrasive materials (cast iron, AlSi) and/or at high temperature.





DC_2 z9 mm	DC_1 mm	DCONMS mm	OAL mm	DIN ISO 7721	DIN 7991	30 100 ... £ U1		30 110 ... £ U1		30 130 ... £ U1		30 132 ... £ U1		30 102 ... £ U1	
4.3	1.3	4	40	M2		12.83	**043**								
5.0	1.5	4	40	M2,5		12.83	**050**	24.39	**050**	33.23	**050**				
6.0	1.5	5	45	M3		12.83	**060**								
6.3	1.5	5	45		M3	12.83	**063** 1)	24.39	**063** 1)	34.03	**063**	21.34	**063**	14.63	**063**
7.0	1.8	6	50	M3,5		13.80	**070**								
8.0	2.0	6	50	M4		14.23	**080**	29.14	**080**	35.55	**080**				
8.3	2.0	6	50		M4	15.25	**083** 1)	29.14	**083** 1)	35.19	**083**	25.27	**083**	15.45	**083**
9.4	2.2	6	50			15.72	**094**								
10.0	2.5	6	50	M5		16.86	**100**	31.73	**100**	37.26	**100**				
10.4	2.5	6	50		M5	17.37	**104** 1)	33.81	**104** 1)	38.72	**104**	35.68	**104**	17.90	**104**
11.5	2.8	8	56	M6		17.80	**115**								
12.4	2.8	8	56		M6	18.42	**124** 1)	37.26	**124** 1)	49.29	**124**	31.08	**124**	19.05	**124**
13.4	2.9	8	56			19.83	**134**								
15.0	3.2	10	60	M8		21.97	**150**	39.84	**150**	63.03	**150**	38.41	**150**	21.51	**150**
16.5	3.2	10	60		M8	23.94	**165** 1)	46.24	**165** 1)	65.01	**165**	41.61	**165**	23.14	**165**
19.0	3.5	10	63	M10		30.25	**190**								
20.5	3.5	10	63		M10	31.73	**205** 1)	64.68	**205** 1)	84.82	**205**	49.46	**205**	31.86	**205**
23.0	3.8	10	67	M12		40.13	**230**								
25.0	3.8	10	67		M12	42.41	**250**	88.63	**250**	121.12	**250**	64.47	**250**	42.35	**250**
31.0	4.2	12	71		M16	64.68	**310**	114.85	**310**	165.22	**310**	95.74	**310**		
31.0	4.2	12	67		M16									68.01	**310**
P						●		●		●		○		○	
M						○		○		○		●		○	
K						●		●		●		○		○	
N						●		●		●		○		●	
S						○		○		○		○		○	
H								○		○		○			
O						●		●		●		●		●	

1) Included in the set

→ v_c Page 94+95

Countersink 90°, DIN 335-C – set

Scope of supply:
Countersinks Ø 6,3; 8,3; 10,4; 12,4; 16,5; 20,5 in case

N

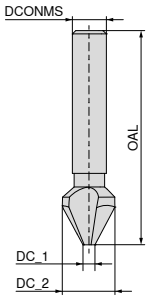


TiN

30 100 ... £ U1		30 110 ... £ U1	
123.54	**999**	246.96	**999**

Countersink 60°, DIN 334-C

▲ 3 cutting edges for countersinking and deburring in virtually all materials





60°
HSS

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	30 150 ... £ U1	
6.3	1.6	5	45	14.81	**063** 1)
8.0	2.0	6	50	14.81	**080** 1)
10.0	2.5	6	52	18.25	**100** 1)
12.5	3.2	8	56	18.69	**125** 1)
16.0	4.0	10	63	23.36	**160** 1)
20.0	5.0	10	67	33.72	**200** 1)
25.0	6.3	10	71	44.29	**250**

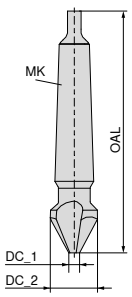
P	●
M	○
K	●
N	●
S	○
H	
O	●

1) Included in the set

→ v_c Page 92

Countersink 60°, DIN 334-D

▲ 3 cutting edges for countersinking and deburring in virtually all materials





MK
60°
HSS

DC_2 z9 mm	DC_1 mm	OAL mm	MK	30 155 ... £ U1	
16.0	4.0	90	1	52.84	**160**
20.0	5.0	106	2	62.99	**200**
25.0	6.3	112	2	65.99	**250**
31.5	10.0	118	2	73.40	**315**
40.0	12.5	150	3	115.86	**400**
50.0	16.0	160	3	147.82	**500**
63.0	20.0	190	4	273.19	**630**
80.0	25.0	200	4	374.41	**800**

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 96

Countersink 60°, DIN 334-C – set

Scope of supply:
Countersinks Ø 6,3; 8,0; 10,0; 12,5; 16,0; 20,0 in case

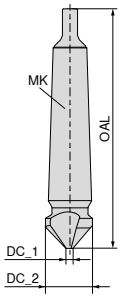


30 150 ... £ U1	
137.13	**999**

Countersink 90°, DIN 335-C

▲ 3 cutting edges to avoid burrs and chatter marks when countersinking and deburring in virtually all materials. Particularly suitable for DIN screws according to DIN ISO 7721 and 7991, as the countersink diameters are matched to the heads of these screws.

N





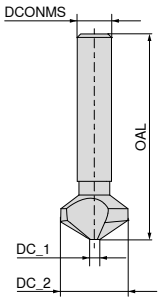
DC_2 z9 mm	DC_1 mm	OAL mm	MK	30 105 ... £ U1	
16.5	3.2	85	1	47.30	**165**
19.0	3.2	100	2	60.15	**190**
20.5	3.5	100	2	63.60	**205**
23.0	3.8	106	2	63.60	**230**
25.0	3.8	106	2	65.59	**250**
26.0	3.8	106	2	60.62	**260**
28.0	4.0	112	2	68.69	**280**
30.0	4.2	112	2	68.69	**300**
31.0	4.2	112	2	73.40	**310**
34.0	4.5	118	2	73.40	**340**
37.0	4.8	118	2	95.34	**370**
40.0	10.0	140	3	109.00	**400**
50.0	14.0	150	3	135.26	**500**
63.0	16.0	180	4	214.13	**630**
80.0	22.0	190	4	363.04	**800**

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 96

Countersink 120°, factory standard-C

▲ 3 cutting edges for countersinking and deburring in virtually all materials





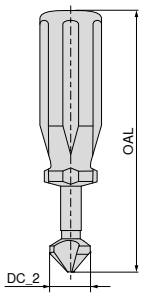
DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	30 170 ... £ U1	
6.3	1.5	5	45	17.84	**063**
8.3	2.0	6	50	17.84	**083**
10.4	2.5	6	50	19.83	**104**
12.4	2.8	8	56	20.81	**124**
16.5	3.2	10	60	30.25	**165**
20.5	3.5	10	60	41.64	**205**
25.0	3.8	10	63	51.86	**250**

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 96

Hand deburring tool 90°

- 3 cutting edges and non-slip plastic handle
- for countersinking and deburring on all materials





90°
HSS

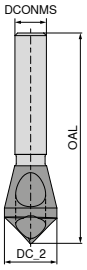
DC_2 mm	OAL mm	30 125 ... £ U1	
12.4	135	26.20	124
15.0	135	30.69	150
16.5	135	32.50	165
20.5	135	37.83	205
25.0	135	45.78	250

P	●
M	○
K	●
N	●
S	○
H	○
O	●

Deburring countersink 90°, factory standard-A

- with angled hole to avoid burrs and chattermarks when countersinking and deburring in soft long-chipping materials, e.g. aluminium, plastics etc.

TiN







90°
HSS-E

90°
HSS-E

DC_2 mm	PHD mm	DCONMS h9 mm	OAL mm	30 120 ... £ U1		30 121 ... £ U1	
6.3	1 - 4	6.3	45	28.41	040 [1]	41.22	040 [1]
10.0	2 - 5	6.0	45	17.79	050	26.80	050
14.0	5 - 10	8.0	48	21.61	101	38.72	101
21.0	10 - 15	10.0	65	37.14	150	63.03	150
28.0	15 - 20	12.0	85	77.99	200	127.98	200
35.0	20 - 25	15.0	102	106.75	250	162.45	250

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

1) can be used in both directions

→ v_c Page 97

4

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values for REAMAX TS

	Grade / coating	HM-DBG-P				HM-DBG-P			
	Article no. / type	40 585 ... / 75H.65 – ASG3000				40 521 ..., 40 571 ... / 75J.65, 75H.65 – ASG0106			
	Nominal Ø in mm	18–21,999	22–31,799	31,8–51,999	52–65	18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes	6	6	8	10	6	6	8	10
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.3.1							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.3.2							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.3.3							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.4.1							**45** (35–60)	**40** (35–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.4.2							**45** (35–60)	**40** (35–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.1.1							**45** (35–60)	**40** (30–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.2.1							**45** (35–60)	**40** (30–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.3.1							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
K.1.1	**150** (130–220)	**120** (100–150)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.1.2	**150** (130–220)	**120** (100–150)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

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Cutting data standard values for REAMAX TS

	Grade / coating	HM-TiN				HM-DBC			
	Article no. / type	40 535 ... / 75H.71 – ASG3000				40 526 ..., 40 580 ... / 75J.17, 75H.17 – ASG0706			
	Nominal Ø in mm	18–21,999	22–31,799	31,8–51,999	52–65	18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes	6	6	8	10	6	6	8	10
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.2	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.3	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.4	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.5	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.1	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.2	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.3	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.4	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	**80** (60–130)	**80** (60–120)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.1.2	**80** (60–130)	**80** (60–120)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1							**150** (130–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.1.2							**150** (130–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.2.1							**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.2.2							**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.2.3							**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.3.1	**120** (100–200)	**120** (100–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
N.3.2	**80** (60–150)	**80** (60–120)	0,70–1,10	0,90–1,40	1,20–1,90	1,70–2,60						
N.3.3	**120** (100–200)	**120** (100–150)	0,70–1,10	0,90–1,40	1,20–1,90	1,70–2,60						
N.4.1							**150** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1							250 (220–270)	250 (220–270)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40

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

Cutting data standard values for REAMAX TS

	Grade / coating	DST			
	Article no. / type	40 539 ... / 75H.93 – ASG3000			
	Nominal Ø in mm	18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes	6	6	8	10
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.3.1						
P.3.2						
P.3.3						
P.4.1						
P.4.2						
M.1.1						
M.2.1						
M.3.1						
K.1.1						
K.1.2						
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
K.2.2	**120** (100–150)	**100** (80–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.2	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

	DST			
	40 597 ... / 75J.93 – ASG4000			
	18–21,999	22–31,799	31,8–51,999	52–65
	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	6	6	8	10
v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
150 (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40

Cutting data standard values for REAMAX TS

	Grade / coating		DST			
	Article no. / type		40 544 ... / 75J.93 – ASG3000			
	Nominal Ø in mm		18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø		0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes		6	6	8	10
Index	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
	3xD	5xD				
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.3.1						
P.3.2						
P.3.3						
P.4.1						
P.4.2						
M.1.1						
M.2.1						
M.3.1						
K.1.1						
K.1.2						
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
K.2.2	**120** (100–150)	**100** (80–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.2	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

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

Cutting data standard values for REAMAX

	Grade / coating	HM-TiN			HM-DBC		
	Article no. / type	40 505 ... / 640.71 – ASG3000			40 570 ... / 640.27 – ASG0706		
	Nominal Ø in mm	12–21,999	22–32,000	23,001–40	12–21,999	22–32,000	23,001–40
	Reaming allowance Ø	0,10–0,30	0,20–0,40	0,20–0,40	0,10–0,30	0,20–0,40	0,20–0,40
	Number of flutes	6	8	8	6	8	8
Index	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.		
	3xD	5xD					
P.1.1	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.1.2	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.1.3	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.1.4	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.1.5	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.2.1	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.2.2	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.2.3	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.2.4	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.3.1							
P.3.2							
P.3.3							
P.4.1							
P.4.2							
M.1.1							
M.2.1							
M.3.1							
K.1.1	80 (60–130)	80 (60–120)	1,00–1,40	1,80–2,40	1,80–2,40		
K.1.2	80 (60–130)	80 (60–120)	1,00–1,40	1,80–2,40	1,80–2,40		
K.2.1							
K.2.2							
K.3.1							
K.3.2							
N.1.1						**150** (130–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.1.2						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.1						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.2						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.3										
N.3.1	**120** (100–200)	**120** (100–150)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.2	**120** (100–200)	**120** (100–150)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.3	**80** (60–150)	**80** (60–120)	0,80–1,20	1,40–2,00	1,40–2,00					
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1						250 (220–270)	250 (220–270)	1,00–1,40	1,70–2,40	1,70–2,40

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

Cutting data standard values for REAMAX

	Grade / coating	DST				DST			
	Article no. / type	40 525 ... / 640.93 – ASG3000				40 536 ... / 640.93 – ASG4000			
	Nominal Ø in mm	12–21,999	22–32,000	23,001–40		12–21,999	22–32,000	23,001–40	
	Reaming allowance Ø	0,10–0,30	0,20–0,40	0,20–0,40		0,10–0,30	0,20–0,40	0,20–0,40	
	Number of flutes	6	8	8		6	8	8	
Index	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.
	3xD	5xD				3xD	5xD			
P.1.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.5	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1										
K.1.2										
K.2.1	**175** (150–300)	**150** (130–180)	1,00–1,40	1,80–2,40	1,80–2,40	175 (150–300)	150 (130–180)	1,20–1,60	1,50–2,00	2,00–2,70
K.2.2	**150** (130–250)	**120** (100–160)	1,00–1,40	1,80–2,40	1,80–2,40	120 (100–180)	120 (100–150)	1,20–1,60	1,50–2,00	2,00–2,70
K.3.1	**150** (130–250)	**120** (100–160)	1,00–1,40	1,80–2,40	1,80–2,40					
K.3.2	**120** (100–180)	**120** (100–150)	0,90–1,20	1,50–2,00	1,50–2,00	120 (100–180)	120 (100–150)	1,00–1,30	1,20–1,70	1,70–2,30
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1	150 (130–300)	150 (130–200)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.2	150 (130–300)	150 (130–200)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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

Cutting data standard values for REAMAX

	Grade / coating	HM-DBG-P			HM-DBG-P				
	Article no. / type	40 560 ... / 640.65 – ASG3000			40 551 ... / 640.65 – ASG0106				
	Nominal Ø in mm	12–21,999	22–32,000	23,001–40	12–21,999	22–32,000	23,001–40		
	Reaming allowance Ø	0,10–0,30	0,20–0,40	0,20–0,40	0,10–0,30	0,20–0,40	0,20–0,40		
	Number of flutes	6	8	8	6	8	8		
Index	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.
	3xD	5xD				3xD	5xD			
P.1.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.5	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00
P.3.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.3.2						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.3.3						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.4.1						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
P.4.2						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
M.1.1						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
M.2.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
M.3.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
K.1.1	**200** (180–250)	**160** (140–200)	1,00–1,40	1,30–1,90	1,30–1,90					
K.1.2	**200** (180–250)	**160** (140–200)	1,00–1,40	1,30–1,90	1,30–1,90					
K.2.1	**225** (200–300)	**180** (160–240)	1,00–1,40	1,30–1,90	1,30–1,90					
K.2.2	**120** (100–150)	**100** (80–120)	0,90–1,20	1,20–1,60	1,20–1,60					
K.3.1	**150** (130–250)	**120** (100–200)	0,90–1,20	1,20–1,60	1,20–1,60					
K.3.2	**120** (100–150)	**100** (80–120)	0,90–1,20	1,20–1,60	1,20–1,60					
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.2						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.3						**30** (25–50)	**30** (25–50)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.4										
H.2.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.3.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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

Cutting data for MultiChange exchange head reamers

	Coating	CWC 10			TiAlN				TiAlN			
	Article no.	40 210 ... / 40 211 ...			40 220 ... / 40 221 ...				40 230 ... / 40 231 ...			
	Nominal Ø in mm	8,0–12,59	12,6–29,99	30,0–32,00	8,0–12,59	12,6–29,99	30,0–32,00		8,0–12,59	12,6–18,59	18,6–32,00	
	Reaming allowance Ø	0,15–0,3	0,2–0,4	0,2–0,4	0,15–0,3	0,15–0,3	0,15–0,3		0,15–0,4	0,2–0,5	0,2–0,5	
	Number of flutes	4/6	6	8	4/6	6	8		4/6	6	8	
Index	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	140	0,6	0,8	1,0					160	0,7	1,0	1,5
P.1.2	140	0,6	0,8	1,0					160	0,7	1,0	1,5
P.1.3	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.1.4	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.1.5	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.2.1	140	0,6	0,8	1,0					160	0,7	1,0	1,5
P.2.2	140	0,6	0,8	1,0					160	0,7	1,0	1,5
P.2.3	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.2.4	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.3.1	120	0,6	0,8	1,0					160	0,7	1,0	1,5
P.3.2	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.3.3	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.4.1					40	0,3	0,4	0,5				
P.4.2					40	0,3	0,4	0,5				
M.1.1					40	0,3	0,4	0,5				
M.2.1					40	0,3	0,4	0,5				
M.3.1					30	0,3	0,4	0,5				
K.1.1									120	0,6	0,6	1,2
K.1.2									120	0,6	0,6	1,2
K.2.1	120	0,7	1,2	1,6					120	0,4	0,6	1,2
K.2.2	90	0,7	1,2	1,6					100	0,4	0,6	1,2
K.3.1	90	0,7	1,2	1,6					100	0,4	0,6	1,2
K.3.2	90	0,7	1,2	1,6					100	0,4	0,6	1,2
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data for MultiChange exchange head reamers

	Coating	K10				PDC		
	Article no.	40 240 ... / 40 241 ...				40 245 ... / 40 246 ...		
	Nominal Ø in mm	8,0–12,59	12,6–29,99	30,0–32,00		8,0–12,59	12,6–29,99	30,0–32,00
	Reaming allowance Ø	0,15–0,5	0,15–0,5	0,15–0,5		0,15–0,5	0,15–0,5	0,15–0,5
	Number of flutes	4/6	6	8		4/6	6	8
Index	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1								
P.1.2								
P.1.3								
P.1.4								
P.1.5								
P.2.1								
P.2.2								
P.2.3								
P.2.4								
P.3.1								
P.3.2								
P.3.3								
P.4.1								
P.4.2								
M.1.1								
M.2.1								
M.3.1								
K.1.1								
K.1.2								
K.2.1								
K.2.2								
K.3.1								
K.3.2								
N.1.1	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.1.2	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.2.1	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.2.2	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.2.3	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.3.1	30	0,4	0,5	0,6				
N.3.2	30	0,4	0,5	0,6				
N.3.3	30	0,4	0,5	0,6				
N.4.1								
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for Monomax

	Grade / coating	DBC						DBC			
	Article no. / type	40 648 ..., 40 649 ... / 56J.17, 56R.17 – ASG0706				40 640..., 40 641... / 56H.17, 56Q.17 – ASG0706			
	Nominal Ø in mm	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	Reaming Allowance Ø	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
	Number of flutes	4	6	6	6	4	6	6	6
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.1.2	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.1	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.2	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.3	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1	250 (220–270)	250 (220–270)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	250 (220–270)	250 (220–270)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50

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

Cutting data standard values for Monomax

	Grade / coating	HM-DBG-P						HM-DBG-P			
	Article no. / type	40 657 ... , 40 665 ... / 56H.65, 56Q.65 – ASG3000				40 652 ..., 40 653 ... / 56J.65, 56R.65 – ASG0106			
	Nominal Ø in mm	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	Reaming allowance Ø	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
	Number of flutes	4	6	6	6	4	6	6	6
Index	v_c m/min		f	f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.4	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.5	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.4	**60** (50–100)	**60** (50–100)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	**60** (50–100)	**60** (50–100)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.1							**40** (35–60)	**40** (35–60)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.2							**40** (35–60)	**40** (35–60)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.3							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
P.4.1							**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
P.4.2							**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.1.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.2.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.3.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
K.1.1	**150** (130–220)	**120** (100–150)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.1.2	**150** (130–220)	**120** (100–150)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.2.1	**175** (150–300)	**150** (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.2.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
K.3.1	**150** (130–250)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.3.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

4

Cutting data standard values for Monomax

	Grade / coating	DST				DST			
	Article no. / type	40 625 ..., 40 626 ... / 56J.93, 56R.93 – ASG3000				40 635 ... , 40 636 ... / 56J.93, 56R.93 – ASG4000			
	Nominal Ø in mm	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	Reaming allowance Ø	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
	Number of flutes	4	6	6	6	4	6	6	6
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.4	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.5	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1	**175** (150–300)	**150** (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	175 (150–300)	150 (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.2.2	**120** (100–150)	**100** (80–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
K.3.1	**150** (130–250)	**120** (100–200)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
K.3.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	150 (130–300)	150 (130–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50						
N.3.2	150 (130–300)	150 (130–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50						
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type.
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Cutting data standard values for Monomax

	Grade / coating	HM-DBG-P				HM-TiN				
	Article no. / type	40 644 ..., 40 645 ... / 56H.65, 56Q.65 – ASG0106				40 605 ..., 40 606 ... / 56J.71, 56R.71 – ASG3000				
	Nominal Ø in mm	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899	
	Reaming allowance Ø	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	
	Number of flutes	4	6	6	6	4	6	6	6	
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
P.1.1							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.2							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.3							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.4							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.5							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.1							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.2							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.3							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.4							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.3.1	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.3.2	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.3.3	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.4.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.4.2	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.1.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.2.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.3.1	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
K.1.1							80 (60–130)	80 (60–120)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.1.2							80 (60–130)	80 (60–120)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1							**120** (–200)	**120** (–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.3.2							**120** (–200)	**120** (–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.3.3							**80** (–150)	**80** (–120)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Cutting data standard values for Fullmax, long

Type UNI		40 484 ... / 40 485 ... / 40 486 ... / 40 487 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
P.1.1	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.2	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.3	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.4	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.5	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.1	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.2	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.3	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.4	**80** (70–120)	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
P.3.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.2	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.3	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.2	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.1.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.2.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.3.1	**15** (10–30)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
K.1.1	**120** (100–180)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.1.2	**120** (100–180)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.2.1	**200** (180–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.2.2	**120** (100–150)	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
K.3.1	**200** (180–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.3.2	**120** (100–150)	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	150 (130–250)	0,50–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,40	0,20	1,40–1,70	0,20	1,60–1,90	0,20–0,30	1,90–2,20	0,30
N.3.2	100 (80–150)	0,40–0,60	0,10–0,20	0,60–0,80	0,10–0,20	1,00–1,30	0,20	1,20–1,40	0,20	1,30–1,60	0,20–0,30	1,60–1,80	0,30
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.2	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.3													
S.3.1	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.2	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.3													
H.1.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.1.2	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.1.3	30 (25–50)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
H.1.4													
H.2.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.3.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

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

Cutting data standard values for Fullmax, long

Type K

		40 477 ... / 40 478 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	6		6		8		8		8		8	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
K.1.1	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
K.1.2	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
K.2.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
K.2.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
K.3.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
K.3.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30

Type VA

		40 401 ... / 40 402 ... / 40 403 ... / 40 404 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
P.1.1													
P.1.2													
P.1.3													
P.1.4													
P.1.5													
P.2.1													
P.2.2													
P.2.3													
P.2.4													
P.3.1	20 (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.2	20 (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.3	20 (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.2	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.1.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.2.1	**15** (10–30)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.3.1	**15** (10–30)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30

Type ALU

		40 471 ... / 40 472 ... / 40 473 ... / 40 474 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
N.1.1	**200** (180–300)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
N.1.2	**200** (180–300)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
N.2.1	**200** (180–250)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
N.2.2	**200** (180–300)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
N.2.3	**200** (180–250)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
N.3.1													
N.3.2													
N.3.3													
N.4.1													
O.3.1	250 (220–270)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30

Type H

		40 475 ... / 40 476 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
H.1.1	**40** (35–60)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.1.2	**30** (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.1.3	**30** (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.1.4	**30** (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.2.1	**40** (35–60)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.3.1	**40** (35–60)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20

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

Cutting data standard values for Fullmax, short

Type UNI		40 481 ... / 40 483 ... / 40 488 ... / 40 489 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 15,97		Ø 15,98 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
P.1.1	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.2	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.3	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.4	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.5	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.1	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.2	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.3	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.4	**65** (55–110)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
P.3.1	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.3.2	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.3.3	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.4.1	**45** (40–65)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
P.4.2	**45** (40–65)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
M.1.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
M.2.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
M.3.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
K.1.1	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.1.2	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.2.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.2.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	2,00–2,40	0,30
K.3.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,00–2,40	0,30
K.3.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	2,00–2,40	0,30
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	150 (120–250)	0,50–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,40	0,20	1,40–1,70	0,20	1,60–1,90	0,20–0,30	2,50–2,90	0,30
N.3.2	100 (80–150)	0,40–0,60	0,10–0,20	0,60–0,80	0,10–0,20	1,00–1,30	0,20	1,20–1,40	0,20	1,30–1,60	0,20–0,30	2,10–2,40	0,30
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.2	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.3													
S.3.1	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.2	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.3													
H.1.1	40 (35–60)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.2	30 (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.3	30 (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.4													
H.2.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.3.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

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

Cutting data standard values for solid carbide reamers

	40 410 ... / 40 400 ...								
	uncoated	to Ø 5 mm		to Ø 8 mm		to Ø 10 mm		to Ø 12 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	**30**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.3	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.4	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.5	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.1	**25**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.3	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.4	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.3.1	**25**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.3.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.3.3	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.4.1	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.4.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
M.1.1	15	0,08	0,08	0,10	0,10	0,125	0,10	0,15	0,10
M.2.1	15	0,08	0,08	0,10	0,10	0,125	0,10	0,15	0,10
M.3.1	10	0,08	0,08	0,10	0,10	0,125	0,10	0,15	0,10
K.1.1	30	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.1.2	20	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.2.1	25	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.2.2	20	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.3.1	25	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.3.2	20	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
N.1.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.1.2	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.2.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.2.2	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.2.3	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.3.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.3.2	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.3.3	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.4.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
S.1.1	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.1.2	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.2.1	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.2.2	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.2.3	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.3.1	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.3.2	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.3.3	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

4

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for solid carbide reamers

	40 430 ...			40 420 ... / 40 421 ... / 40 430 ... / 40 431 ...							
	uncoated	to Ø 0.94 mm		uncoated	TiAlN	to Ø 5 mm		to Ø 8 mm		to Ø 10 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	v_c m/min	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	20	0,10	0,10	20	30	0,10	0,10	0,15	0,15	0,20	0,20
P.1.2	20	0,10	0,10	20	30	0,10	0,10	0,15	0,15	0,20	0,20
P.1.3	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.1.4	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.1.5	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.2.1	15	0,10	0,10	15	25	0,10	0,10	0,15	0,15	0,20	0,20
P.2.2	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.2.3	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.2.4	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.3.1	15	0,10	0,10	15	25	0,10	0,10	0,15	0,15	0,20	0,20
P.3.2	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.3.3	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.4.1											
P.4.2											
M.1.1					15	0,08	0,08	0,10	0,10	0,15	0,10
M.2.1					15	0,08	0,08	0,10	0,10	0,15	0,10
M.3.1					10	0,08	0,08	0,10	0,10	0,15	0,10
K.1.1	18	0,10	0,10	18	30	0,10	0,10	0,20	0,15	0,30	0,20
K.1.2	18	0,10	0,10	18	30	0,10	0,10	0,20	0,15	0,30	0,20
K.2.1	15	0,10	0,10	15	25	0,10	0,10	0,20	0,15	0,30	0,20
K.2.2	10	0,10	0,10	10	20	0,10	0,10	0,20	0,15	0,30	0,20
K.3.1	15	0,10	0,10	15	25	0,10	0,10	0,20	0,15	0,30	0,20
K.3.2	10	0,10	0,10	10	20	0,10	0,10	0,20	0,15	0,30	0,20
N.1.1	40	0,15	0,10	40		0,15	0,10	0,20	0,15	0,25	0,20
N.1.2	40	0,15	0,10	40		0,15	0,10	0,20	0,15	0,25	0,20
N.2.1	25	0,15	0,10	20		0,15	0,10	0,20	0,15	0,25	0,20
N.2.2	25	0,15	0,10	20		0,15	0,10	0,20	0,15	0,25	0,20
N.2.3											
N.3.1	30	0,15	0,10	30		0,15	0,10	0,20	0,15	0,25	0,20
N.3.2	30	0,15	0,10	30		0,15	0,10	0,20	0,15	0,25	0,20
N.3.3	30	0,15	0,10	30		0,15	0,10	0,20	0,15	0,25	0,20
N.4.1											
S.1.1					10	0,06	0,05	0,10	0,10	0,12	0,10
S.1.2					10	0,06	0,05	0,10	0,10	0,12	0,10
S.2.1					10	0,06	0,05	0,10	0,10	0,12	0,10
S.2.2					10	0,06	0,05	0,10	0,10	0,12	0,10
S.2.3					10	0,06	0,05	0,10	0,10	0,12	0,10
S.3.1					10	0,06	0,05	0,10	0,10	0,12	0,10
S.3.2					10	0,06	0,05	0,10	0,10	0,12	0,10
S.3.3					10	0,06	0,05	0,10	0,10	0,12	0,10
H.1.1					8	0,05	0,05	0,08	0,05	0,10	0,10
H.1.2					8	0,05	0,05	0,08	0,05	0,10	0,10
H.1.3											
H.1.4											
H.2.1					8	0,05	0,05	0,08	0,05	0,10	0,10
H.3.1											
O.1.1	40	0,15	0,10	40		0,15	0,10	0,20	0,15	0,25	0,20
O.1.2	40	0,15	0,10	40		0,15	0,10	0,20	0,15	0,25	0,20
O.2.1											
O.2.2											
O.3.1											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for solid carbide reamers

	40 420 ... / 40 421 ... / 40 430 ... / 40 431 ...											
	uncoated	TiAlN	to Ø 12 mm		to Ø 15 mm		to Ø 20 mm		to Ø 25 mm		to Ø 30 mm	
Index	v_c m/min	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	**20**	**30**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.2	**20**	**30**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.3	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.4	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.5	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.1	**15**	**25**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.2	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.3	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.4	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.1	**15**	**25**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.2	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.3	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.4.1												
P.4.2												
M.1.1		15	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
M.2.1		15	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
M.3.1		10	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
K.1.1	18	**30**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.1.2	18	**30**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.2.1	15	**25**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.2.2	10	**20**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.3.1	15	**25**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.3.2	10	**20**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.1.1	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.1.2	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.1	**25**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.2	**25**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.3												
N.3.1	**30**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.3.2	**30**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.3.3	**30**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.4.1												
S.1.1		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.1.2		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.1		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.2		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.3		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.1		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.2		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.3		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
H.1.1		8	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.1.2		8	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.1.3												
H.1.4												
H.2.1		8	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.3.1												
O.1.1	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
O.1.2	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
O.2.1												
O.2.2												
O.3.1												

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 110 ... / 40 115 ...									
		to Ø 5 mm		to Ø 8 mm		to Ø 12 mm		to Ø 15 mm		to Ø 20 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.2	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.3	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.4	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.5	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.1	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.2	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.3	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.4	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.3.1	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.3.2	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.3.3	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.4.1											
P.4.2											
M.1.1											
M.2.1											
M.3.1											
K.1.1	12	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.1.2	12	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.2.1	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.2.2	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.3.1	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.3.2	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
N.1.1	15	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.1.2	15	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.2.1											
N.2.2											
N.2.3											
N.3.1	20	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.3.2	20	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.3.3	20	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1	25	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
O.1.2	25	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
O.2.1											
O.2.2											
O.3.1											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 110 ... / 40 115 ...							
		to Ø 25 mm		to Ø 30 mm		to Ø 40 mm		to Ø 50 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.2	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.3	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.4	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.5	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.1	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.2	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.3	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.4	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.3.1	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.3.2	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.3.3	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.4.1									
P.4.2									
M.1.1									
M.2.1									
M.3.1									
K.1.1	12	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.1.2	12	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.2.1	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.2.2	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.3.1	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.3.2	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
N.1.1	15	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.1.2	15	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.2.1									
N.2.2									
N.2.3									
N.3.1	20	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.3.2	20	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.3.3	20	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1	25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
O.1.2	25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
O.2.1									
O.2.2									
O.3.1									

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 140 ... / 40 150 ... / 40 155 ... / 40 145 ... / 40 139 ... / 40 160 ...									
		to Ø 5 mm		to Ø 8 mm		to Ø 12 mm		to Ø 15 mm		to Ø 20 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	15	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30
P.1.2	12	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30
P.1.3	10	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30
P.1.4	10	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.1.5	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.2.1	10	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,25	0,25	0,35	0,30
P.2.2	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.2.3	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.2.4	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.3.1	8	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,30
P.3.2	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
P.3.3	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
P.4.1	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
P.4.2	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
M.1.1	6	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25
M.2.1	4	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25
M.3.1	4	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25
K.1.1	14	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30
K.1.2	12	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30
K.2.1	12	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,35	0,30
K.2.2	10	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
K.3.1	12	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30
K.3.2	10	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
N.1.1	20	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.1.2	20	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.2.1	18	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.2.2	18	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.2.3											
N.3.1	18	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
N.3.2	15	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
N.3.3	15	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
N.4.1	18	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
S.1.1											
S.1.2											
S.2.1	4	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20
S.2.2	4	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20
S.2.3											
S.3.1	6	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20
S.3.2	4	0,08	0,10	0,10	0,15	0,125	0,20	0,20	0,20	0,25	0,20
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1	15	0,15	0,15	0,20	0,20	0,25	0,20	0,25	0,25	0,30	0,30
O.1.2	12	0,12	0,15	0,16	0,20	0,20	0,20	0,20	0,25	0,25	0,30
O.2.1											
O.2.2											
O.3.1											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 140 ... / 40 150 ... / 40 155 ... / 40 145 ... / 40 139 ... / 40 160 ...							
		to Ø 25 mm		to Ø 30 mm		to Ø 40 mm		to Ø 50 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	**15**	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.2	**12**	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.3	**10**	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.4	**10**	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.5	**8**	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.1	**10**	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.2	**8**	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.3	**8**	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.4	**8**	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.3.1	**8**	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.3.2	**6**	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.3.3	**6**	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.4.1	**6**	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.4.2	**6**	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
M.1.1	6	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
M.2.1	4	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
M.3.1	4	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
K.1.1	**14**	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.1.2	**12**	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.2.1	**12**	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.2.2	**10**	0,30	0,35	0,35	0,35	0,40	0,40	0,40	0,40
K.3.1	**12**	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.3.2	**10**	0,30	0,35	0,35	0,35	0,40	0,40	0,40	0,40
N.1.1	**20**	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.1.2	**20**	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.2.1	**18**	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.2.2	**18**	0,40	0,35	0,50	0,40	0,50	0,45	0,80	0,50
N.2.3									
N.3.1	**18**	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.3.2	**15**	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.3.3	**15**	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.4.1	**18**	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
S.1.1									
S.1.2									
S.2.1	4	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.2.2	4	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.2.3									
S.3.1	6	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.3.2	4	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1	**15**	0,30	0,30	0,35	0,35	0,40	0,40	0,40	0,50
O.1.2	**12**	0,25	0,30	0,30	0,35	0,30	0,40	0,35	0,50
O.2.1									
O.2.2									
O.3.1									

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for solid carbide reamers – Type H

Index	v_c in m/min	40 435 ... – Type H							
		Ø 0,98–3,99 mm		Ø 4,00–8,00 mm		Ø 8,01–16,00 mm		Ø 16,01–20,00 mm	
		f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
P.1.1	16	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
P.1.2	13	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.1.3	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.1.4	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.1.5	19	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.1	15	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.2	14	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.3	13	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.4	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.3.1									
P.3.2	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.3.3	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.4.1	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.4.2	8	0,05	0,20	0,10	0,20	0,113	0,30	0,125	0,30
M.1.1									
M.2.1	9	0,063	0,10	0,125	0,10	0,15	0,20	0,175	0,20
M.3.1	9	0,063	0,10	0,125	0,10	0,15	0,20	0,175	0,20
K.1.1	17	0,125	0,20	0,25	0,20	0,325	0,30	0,40	0,30
K.1.2	14	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.2.1	17	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.2.2	14	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
K.3.1	17	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.3.2	14	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1									
N.3.2									
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1	**8**	0,075	0,10	0,15	0,20	0,175	0,30	0,20	0,30
H.1.2	**7**	0,063	0,10	0,125	0,20	0,15	0,30	0,175	0,30
H.1.3	**5**	0,05	0,10	0,10	0,20	0,113	0,30	0,125	0,30
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
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Cutting data standard values indexable insert countersink

Index	30 196 ... / 30 197 ...		
	Insert		Tool diameter
	BK8425	K10	Ø 16,5–37 mm
	v_c in m/min		f in mm/rev.
P.1.1	**200**		0,12–0,16
P.1.2	**200**		0,20–0,30
P.1.3	**200**		0,20–0,30
P.1.4	**180**		0,20–0,30
P.1.5	**180**		0,17–0,27
P.2.1	**160**		0,20–0,30
P.2.2	**160**		0,20–0,30
P.2.3	**160**		0,15–0,20
P.2.4	**160**		0,10–0,16
P.3.1	**140**		0,10–0,15
P.3.2	**140**		0,08–0,13
P.3.3	**140**		0,06–0,12
P.4.1	**120**		0,10–0,16
P.4.2	**120**		0,06–0,12
M.1.1	**160**		0,10–0,15
M.2.1	**140**		0,10–0,15
M.3.1	**100**		0,07–0,13
K.1.1	**180**		0,40
K.1.2	**160**		0,32
K.2.1	**140**		0,30
K.2.2	**140**		0,18
K.3.1	**120**		0,20
K.3.2	**120**		0,18
N.1.1		**250**	0,20
N.1.2		**250**	0,20
N.2.1		**250**	0,30
N.2.2		**250**	0,30
N.2.3		**250**	0,25
N.3.1		**230**	0,30
N.3.2		**230**	0,32
N.3.3		**230**	0,22
N.4.1		**230**	0,30
S.1.1	**60**	**20**	0,12
S.1.2	**50**	**20**	0,10
S.2.1	**60**	**20**	0,12
S.2.2	**50**	**20**	0,10
S.2.3	**30**	**20**	0,06
S.3.1	**100**	**60**	0,22
S.3.2	**80**	**30**	0,20
S.3.3	**50**	**30**	0,12
H.1.1	100		0,10
H.1.2	80		0,08
H.1.3	50		0,05
H.1.4			
H.2.1	100		0,10
H.3.1	80		0,08
O.1.1		**100**	0,10
O.1.2		**100**	0,10
O.2.1			
O.2.2		**100**	0,03
O.3.1		100	0,08

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for solid carbide countersinks

Index	v_c m/min	30 115 ... Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm	v_c m/min	30 160 ... Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm
		f in mm/rev.						f in mm/rev.		
P.1.1	**40**	0,10	0,12	0,14	0,18	0,22	**40**	0,12	0,14	0,18
P.1.2	**40**	0,10	0,12	0,14	0,18	0,22	**40**	0,12	0,14	0,18
P.1.3	**30**	0,08	0,10	0,10	0,14	0,18	**30**	0,10	0,10	0,14
P.1.4	**30**	0,08	0,10	0,12	0,14	0,18	**30**	0,10	0,12	0,14
P.1.5	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.2.1	**30**	0,08	0,10	0,12	0,14	0,18	**30**	0,10	0,12	0,14
P.2.2	**20**	0,05	0,06	0,08	0,10	0,12	**20**	0,06	0,08	0,10
P.2.3	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.2.4	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.1	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.2	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.3	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.4.1										
P.4.2										
M.1.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
M.2.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
M.3.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
K.1.1	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.1.2	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.2.1	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
K.2.2	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
K.3.1	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.3.2	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
N.1.1	**58**	0,12	0,14	0,18	0,22	0,26	**58**	0,14	0,18	0,22
N.1.2	**58**	0,12	0,14	0,18	0,22	0,26	**58**	0,14	0,18	0,22
N.2.1	**45**	0,12	0,14	0,18	0,22	0,26	**45**	0,14	0,18	0,22
N.2.2	**45**	0,12	0,14	0,18	0,22	0,26	**45**	0,14	0,18	0,22
N.2.3	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.1	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.2	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.3	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.4.1	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
S.1.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.1.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.3	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.3	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
H.1.1	8	0,06	0,08	0,08	0,10	0,12	8	0,08	0,08	0,10
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for solid carbide countersinks

		30 116 ... TPX76S						30 140 ... Ti50					
		Ø 4,3-8,0 mm	Ø 8,00-12,4 mm	Ø 12,40-16,5 mm	Ø 16,5-20,5 mm	Ø 20,5-25,0 mm	Ø 25,0-31,0 mm	Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.				
P.1.1	60	0,08	0,10	0,12	0,14	0,18	0,22	40	0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	60	0,08	0,10	0,12	0,14	0,18	0,22	40	0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.1.4	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.1.5	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.2.1	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	50	0,06	0,08	0,10	0,12	0,14	0,18	12	0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.3.2	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.4.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
P.4.2	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.1.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	25	0,05	0,06	0,07	0,08	0,09	0,12							
K.1.1	50	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	50	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	45	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	45	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	35	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	35	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	80	0,10	0,12	0,14	0,18	0,22	0,26	50	0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	80	0,10	0,12	0,14	0,18	0,22	0,26	50	0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	60	0,10	0,12	0,14	0,18	0,22	0,26	40	0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	60	0,10	0,12	0,14	0,18	0,22	0,26	40	0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	60	0,10	0,12	0,14	0,18	0,22	0,26	40	0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	70	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	70	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	70	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.4.1														
S.1.1	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
H.1.1	12	0,05	0,06	0,08	0,08	0,10		6	0,05	0,06	0,08	0,08	0,10	
H.1.2	8	0,05	0,06	0,08	0,08	0,10								
H.1.3														
H.1.4														
H.2.1	12	0,05	0,06	0,08	0,08	0,10								
H.3.1														
O.1.1	70	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	70	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	25	0,10	0,12	0,14	0,18	0,20	0,25							
O.2.2	25	0,10	0,12	0,14	0,18	0,20	0,25							
O.3.1	25	0,10	0,12	0,14	0,18	0,20	0,25							

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS countersink

		30 100 ... Type N							30 102 ... Type AL					
		Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm		Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.					
P.1.1	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1														
P.4.2														
M.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	39	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	39	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	28	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	28	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	28	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	39	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	39	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	39	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	60	0,10–0,13	0,16	0,2	0,23	0,26	0,30	66	0,10–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1														

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS countersink

		30 110 ... / 30 130 ... Type N – TiN / TiAlN						30 132 ... Type VA – TiAlN					
		Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm	Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.				
P.1.1	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	14	0,03–0,04	0,05	0,06	0,08	0,10	0,12	14	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	29	0,04–0,06	0,08	0,10	0,12	0,14	0,18	29	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1														
P.4.2														
M.1.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	69	0,10–0,13	0,16	0,20	0,23	0,26	0,30	69	0,10–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12
O.1.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1														

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS countersink and counterbore

		30 150 ... / 30 155 ... / 30 105 ... / 30 170 .... HSS – 60° / 90° / 120°							30 190 ... / 30 191 ... / 30 192 ... HSS		
		Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm		DC_2 Ø 6,3 mm	DC_2 Ø 10,0 mm	DC_2 Ø 14,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.		
P.1.1	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,07	0,10	0,12
P.1.2	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,07	0,10	0,12
P.1.3	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,05	0,07	0,09
P.1.4	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,05	0,07	0,09
P.1.5	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,07
P.2.1	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18	25	0,05	0,07	0,09
P.2.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.2.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.2.4	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.3.1	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.3.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.3.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.4.1											
P.4.2											
M.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
M.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
M.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
K.1.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,08	0,13	0,16
K.1.2	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,08	0,13	0,16
K.2.1	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,08	0,13	0,16
K.2.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,08	0,13	0,16
K.3.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,08	0,13	0,16
K.3.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,08	0,13	0,16
N.1.1	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	35	0,09	0,13	0,16
N.1.2	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	35	0,09	0,13	0,16
N.2.1	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	25	0,09	0,13	0,16
N.2.2	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	25	0,09	0,13	0,16
N.2.3	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	25	0,09	0,13	0,16
N.3.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
N.3.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
N.3.3	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
N.4.1	60	0,10–0,13	0,16	0,20	0,23	0,26	0,30	60	0,12	0,18	0,21
S.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.1.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.2.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.2.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.3.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.3.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
O.1.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
O.2.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
O.2.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
O.3.1											

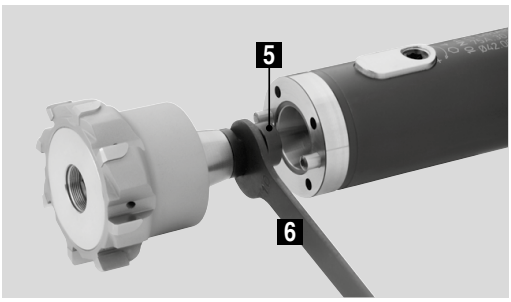
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS-E deburring countersink

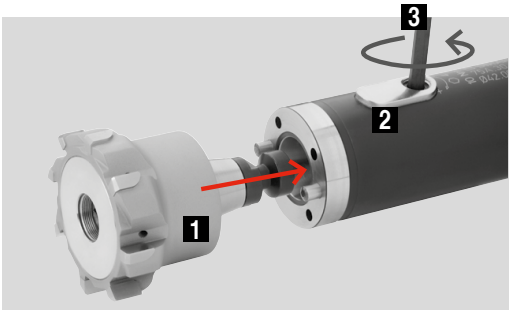
			30 120 ... / 30 121 ...					
			HSS-E – 90°					
	TiN	uncoated	Ø 6,3 mm	Ø 10,0 mm	Ø 14,0 mm	Ø 21,0 mm	Ø 28,0 mm	Ø 35,0 mm
Index	v_c m/min	v_c m/min	f in mm/rev.					
P.1.1	**35**	**30**	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	**35**	**30**	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	**29**	**25**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	**29**	**25**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	**14**	**12**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	**29**	**25**	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1								
P.4.2								
M.1.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	**9**	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	**9**	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	**9**	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	**14**	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	**14**	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	**12**	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	**40**	**35**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.1.2	**40**	**35**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.2.1	**29**	**25**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.2.2	**29**	**25**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.2.3	**29**	**25**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.3.1	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	**69**	**60**	0,1–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1	4		0,04–0,05	0,06	0,07	0,08	0,10	0,12
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1	4		0,04–0,05	0,06	0,07	0,08	0,10	0,12
O.1.1	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

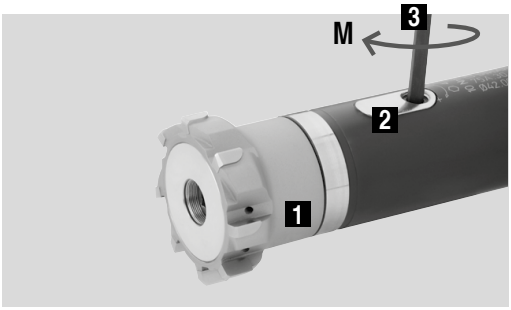
REAMAX TS – Assembly instructions



Clean the Morse taper adapter/face contact → grease-free.
Screw the pull stud (5) into the reaming head and tighten using the open-ended spanner (6).

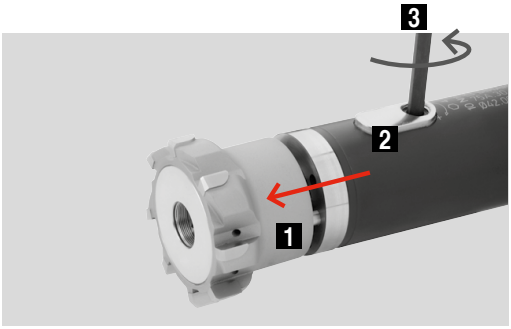


Use key (3) to open jaws (2), but do not fully release, and insert reaming head (1).

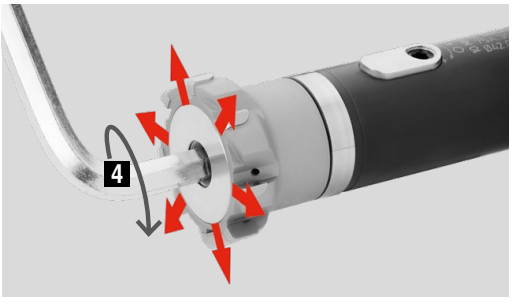


Use the key (3) to close the jaws (2), observe the recommended tightening torque. When inserting the reaming head (1), this is pulled into its final position when the jaws (2) are closed.

x Range	Tightening torque (M)
18,000 – 19,999	1,5 Nm
20,000 – 21,999	2,5 Nm
22,000 – 26,999	4 Nm
27,000 – 34,999	5 Nm
35,000 – 41,999	6 Nm
42,000 – 51,999	10 Nm
52,000 – 70,000	13 Nm



When removing the reamer head (1), this is pressed out of its position by the jaws (2) and can thus be easily removed from the holder:
Use key (3) to open the jaws (2) but do not fully release, and remove reamer head (1).



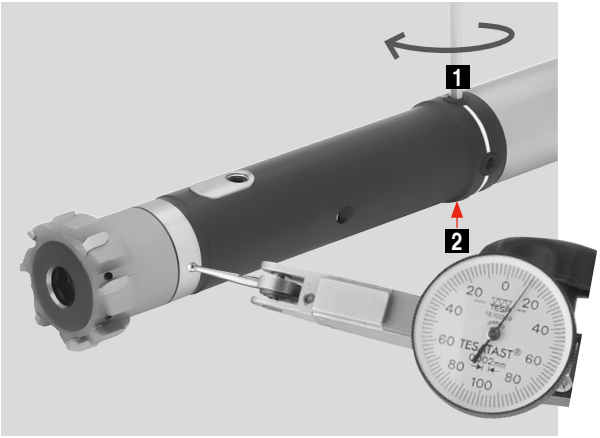
Adjustment for wear compensation:
The smallest drilling tolerances up to IT4 can be achieved through adjustment with the hex key (4).

REAMAX TS – Operating instructions

Aligning the DAH Zero holder

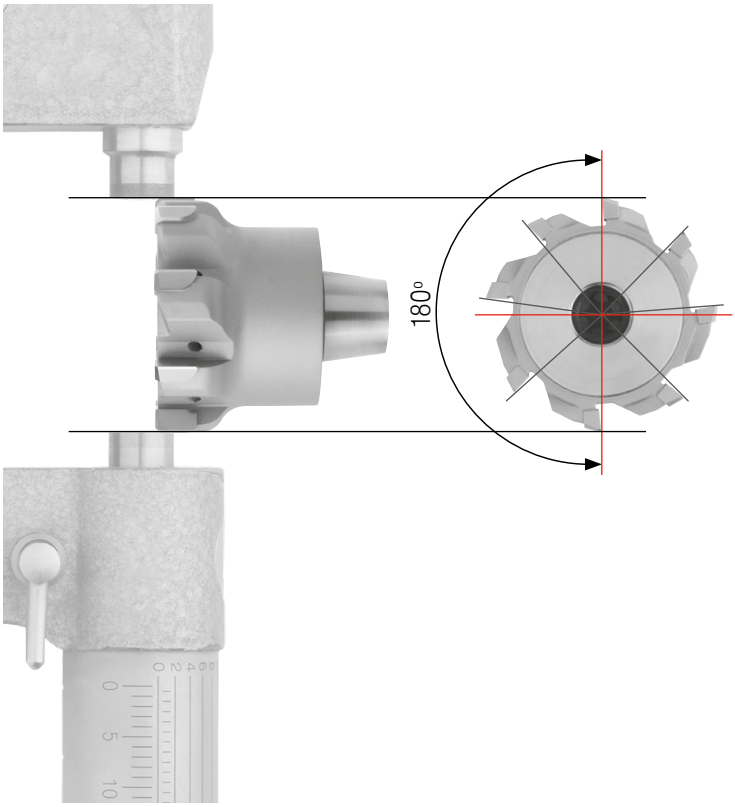
The tool is recommended for radial alignment of max. 20 µm.

1. Loosen all adjustment screws and pre-load with 1 Nm (new tools are already supplied like this).
2. Place dial gauge with µm display on the ground bezel diameter.
3. Turn the tool to determine the point with the largest runout error using the dial gauge.
4. Adjust the corresponding adjustment screw with the hex key clockwise (1) until half the runout error has been corrected. In doing so, over-tighten by approx. 5 µm.
5. Release the opposite adjustment screw (2) by the over-tightened amount.
6. Adjust all 4 adjustment screws until the runout is < 2 µm.

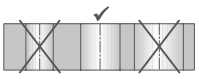


Please note:
- The runout must be checked and if necessary re-aligned after an adapter changeover, change of application, after any adjustment for wear compensation and before every re-commissioning, using adjustment steps 1 to 6
- Adjustment screws must always be tightened during usage with at least 1 Nm
- The max. re-adjustment torque is 4.5 Nm

Caution!
- Uneven angle distribution!
- There are 2 cutting edges 180° opposite each other = measuring teeth
- Measure the diameter at the front on the cutting edge (due to back taper, see diagram)
- Avoid damage to the cutting edge

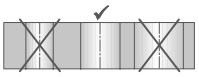


Problems / possible causes / solutions



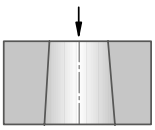
Hole too large

- Runout error for reamer in the spindle → use DAH compensation system and correct runout
- Inaccurate alignment, reamer back-cuts → correct alignment and use DPS floating holder
- Built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant
- Reamer too large → have reamer adapted



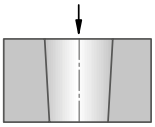
Hole too small

- Worn reamer → have reamer adjusted, replaced or repaired
- Reaming allowance too small → increase reaming allowance
- Cutting force too high → reduce feed or select other lead geometry (ASG)
- Reamer too small → have reamer adjusted, replaced or repaired



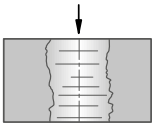
Conical hole, tapered backwards

- Inaccurate alignment → correct alignment and use DPS floating holder
- Misalignment between headstock and turret → correct turret and use DPS floating holder



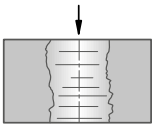
Conical hole, tapered forwards

- Poor alignment, cutting edges push initially → correct alignment and use DPS floating holder



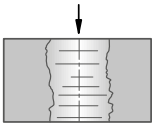
Hole is not round

- Reamer runout error too large → correct the runout with DAH compensation system
- Alignment error → correct alignment error and use DPS floating holder
- Asymmetric initial cutting through angled entry surface → countersink hole
- Workpiece tensioning → correct clamping of the workpieces
- Poor pre-machining → optimise pre-machining
- Feed too high → reduce feed



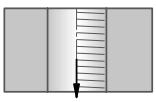
Hole exhibits chatter marks

- Cutting speed v_c too high → reduce cutting speed
- L to D ratio too high→ reduce the speed of entry, pilot the bore or select other lead geometry (ASG)



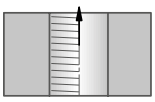
Non clean-up

- Built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant
- Cutting edge worn→ have cutting edge repaired or replace the tool
- Reamer runout error → correct the runout with DAH compensation system
- No or insufficient cooling, chips are getting trapped → use thro' coolant supply and increase coolant pressure
- Unsuitable coolant → increase the oil content of the coolant
- Incorrect cutting data→ use data according to catalogue recommendation



Grooves in the hole "Feed marking"

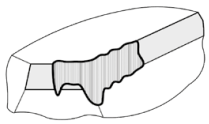
- Faulty cutting edge (edge breakage) → have reamer replaced or repaired
- Built-up edges → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant



Grooves in the hole "Retraction marking"

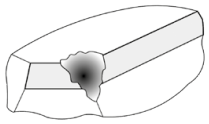
- Cutting edges moved too far out of the hole → move no more than lead length + 2 mm out of the hole
- Material springs back → do not retract at high speed but with increased (2–3 times) feed rate

Types of wear



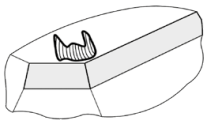
Wear on clearance face

Reduce the cutting speed and select a more wear resistant cutting material or coating.



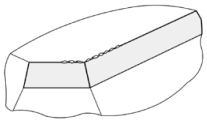
Cutting edge breakage

Reduce feed and reaming allowance. In the case of interrupted holes, use coated carbide instead of DST.



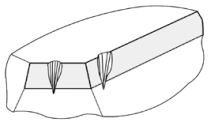
Cratering

Reduce the cutting speed and use a positive cutting edge geometry.



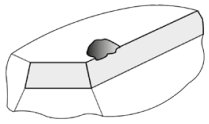
Edge breakages

Increase the cutting speed and use larger rake angle.



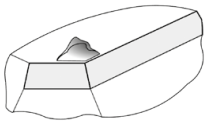
Notch wear

Reduce the cutting speed and select a more wear resistant cutting material or coating.



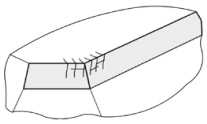
Fatigue fracture

Reduce feed, increase reamer stability.



Built-up edge

Use positive cutting edge geometry, increase the oil content of the coolant, reduce the cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material.

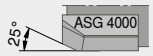
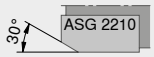
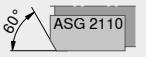
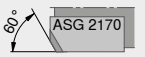


Cracks at right angles to the cutting edge

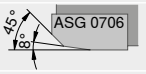
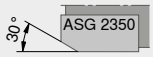
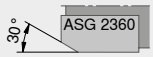
Use sufficient coolant and thro' coolant, reduce the cutting speed.

Common cutting edge geometries in the performance area

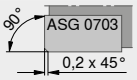
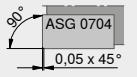
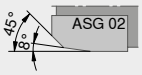
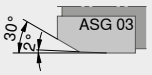
Standard geometries

Geometry	Flute type	Chip flow	Lead angle	
ASG4000	straight	←		Through hole
ASG2210	left-hand helix	←		
ASG2231	left-hand helix	←		
ASG2270	straight	←		
ASG2110	straight	→		Blind hole
ASG2131	straight	→		
ASG2170	straight	→		

Standard geometries

Geometry	Flute type	Chip flow	Lead angle	
ASG3000	straight	↔		Through hole-Blind hole
ASG0706	straight	↔		
ASG0106	straight	↔		
ASG2350	straight	↔		
ASG2360	straight	↔		

Special geometries

Geometry	Flute type	Chip flow Comments	Lead angle
ASG0703	straight	Leading edge	
ASG0704	straight	Leading edge with increased positional accuracy	
ASG09B	straight	Swarf control < x 32 mm	
ASG1402	straight	Swarf control > 32 mm	
ASG02	straight	↔	
ASG03	straight	↔	
ASG05	left-handed	←	

Achievable surface quality

	Material group	Roughness	N11	N10	N9	N8		N7	N6		N5	N4	N3	N2	N1
		Average roughness R_a	25	12,5	6,3	3,2		1,6	0,8		0,4	0,2	0,1	0,05	0,025
		Surface roughness R_z	100	63	40	25	16	10	6,3	4	2,5	1,6	1	0,63	0,25
P	1.0 – 4.2														
M	1.1 – 3.1														
K	1.1 + 2.1 + 3.1														
	1.2 + 2.2 + 3.2														
N	1.1 – 2.3														
	3.1 – 3.3														
S	1.1 – 3.3														
H	1.1 – 1.3														

reachable ▬ conditionally reachable

This information is based on experience and may vary from case to case, depending on the prevailing conditions.
(all other surface values on request)

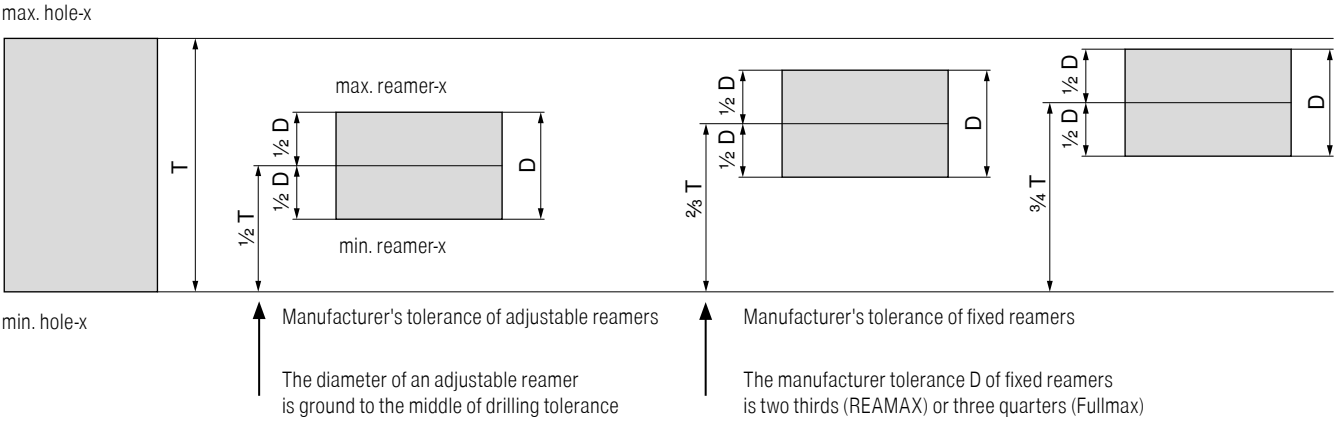
Tolerance classes covered with 1/100 reamer

The most common tolerance is H7, so most reamers configured for an H7 fit tolerance.
With the 1/100 reamers, increments of 0.01 mm can be covered, but are also suitable for various other dimensions.
For example, a 1/100 reamer diameter 8.02 mm can be used for a 8.0 fit F7.
Other fit sizes shown in the table.

Tolerance	Nominal Ø in mm											
zone	1,0	2,0	3,0	4,0	5,0	6,0	7,0	8,0	9,0	10,0	11,0	12,0
A9				4,29	5,29	6,29	7,30	8,30	9,30	10,30	11,32	12,32
A11	1,31	2,31	3,31	4,32	5,32	6,32	7,35	8,35	9,35	10,35	11,37	12,37
B8				4,15	5,15	6,15	7,16	8,16	9,16	10,16		
B9				4,16	5,16	6,16	7,17	8,17	9,17	10,17	11,18	12,18
B10	1,17	2,17	3,17	4,17	5,17	6,17	7,19	8,19	9,19	10,19	11,20	12,20
B11	1,18	2,18	3,18	4,19	5,19	6,19	7,22	8,22	9,22	10,22	11,23	12,23
C8				4,08	5,08	6,08	7,09	8,09	9,09	10,09	11,11	12,11
C9	1,07	2,07	3,07	4,09	5,09	6,09	7,10	8,10	9,10	10,10	11,12	12,12
C10	1,09	2,09	3,09	4,10	5,10	6,10	7,12	8,12	9,12	10,12	11,14	12,14
C11	1,10	2,10	3,10	4,12	5,12	6,12	7,15	8,15	9,15	10,15	11,18	12,18
D7											11,06	12,06
D8				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
D9				4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
D10	1,05	2,05	3,05	4,06	5,06	6,06	7,08	8,08	9,08	10,08	11,10	12,10
D11	1,06	2,06	3,06	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
E7							7,03	8,03	9,03	10,03	11,04	12,04
E8	1,02	2,02	3,02	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
E9	1,03	2,03	3,03	4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
F7	1,01	2,01	3,01				7,02	8,02	9,02	10,02	11,02	12,02
F8	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
F9	1,02	2,02	3,02	4,03	5,03	6,03	7,03	8,03	9,03	10,03	11,04	12,04
F10				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,07	12,07
G7				4,01	5,01	6,01	7,01	8,01	9,01	10,01		
H7										10,01	11,01	12,01
H8				4,01	5,01	6,01	7,01	8,01	9,01	10,01	11,02	12,02
H9	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
H10	1,03	2,03	3,03	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
H11	1,04	2,04	3,04	4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
H12	1,07	2,07	3,07	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
H13	1,11	2,11	3,11	4,14	5,14	6,14	7,18	8,18	9,18	10,18	11,22	12,22
J6				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS9	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,01	12,01
K8	0,99	1,99	2,99				6,99	7,99	8,99	9,99	10,99	11,99
M6							6,99	7,99	8,99	9,99	10,99	11,99
M7							6,99	7,99	8,99	9,99	10,99	11,99
M8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N6				3,99	4,99	5,99						
N7	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N9	0,98	1,98	2,98	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N10	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,98	11,98
N11	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,97	11,97
P6	0,99	1,99	2,99								10,98	11,98
P7	0,99	1,99	2,99				6,98	7,98	8,98	9,98	10,98	11,98
P8	0,99	1,99	2,99	3,98	4,98	5,98					10,97	11,97
R6							6,98	7,98	8,98	9,98		
R7				3,98	4,98	5,98	6,98	7,98	8,98	9,98	10,97	11,97
S6				3,98	4,98	5,98					10,97	11,97
S7	0,98	1,98	2,98	3,98	4,98	5,98	6,97	7,97	8,97	9,97	10,97	11,97
U6							6,97	7,97	8,97	9,97		
U7				3,97	4,97	5,97	6,97	7,97	8,97	9,97		
X7				3,97	4,97	5,97						
X8	0,97	1,97	2,97				6,96	7,96	8,96	9,96	10,95	11,95
X9	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95		
Z7	0,97	1,97	2,97	3,96	4,96	5,96	6,96	7,96	8,96	9,96	10,95	11,95
Z8	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95	10,94	11,94
Z9				3,95	4,95	5,95						
Z10	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94	10,93	11,93
ZA7	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94		
ZA8							6,94	7,94	8,94	9,94	10,93	11,93
ZB8	0,95	1,95	2,95	3,94	4,94	5,94					10,90	11,90
ZB9	0,95	1,95	2,95	3,94	4,94	5,94	6,92	7,92	8,92	9,92	10,90	11,90

Manufacturer's tolerance of the reamers

T = Hole tolerance field
D = Manufacturer's tolerance of the reamer



Manufacturer's tolerance of adjustable reamers

The diameter of an adjustable reamer is ground to the middle of drilling tolerance T (REAMAX TS / Monomax). The adjustment capability of the reamer facilitates wear compensation.

Manufacturer's tolerance of fixed reamers

The manufacturer tolerance D of fixed reamers is two thirds (REAMAX) or three quarters (Fullmax) of the drilling tolerance T.

Coatings – Reaming and Countersinking

TPX76S
- TiN-TiAlN-ZrN Monolayer coating
- Maximum application temperature: 800 °C

TiAlSiN
- TiAlSiN- Multilayer coating
- Maximum application temperature: 800 °C
- Specially designed for machining hardened steels: high hardness and heat resistance with low thermal conductivity.

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

DBF-A
- AlCrN Multilayer coating
- specially developed for the machining of tempered materials < 62 HRC
- maximum application temperature: > 1100 °C

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

DBG-U
- AlTiN Multilayer coating
- Especially for universal use in a variety of materials as well as for the machining of tempered materials < 62 HRC
- For high cutting speeds and suitable for MMS application
- Maximum application temperature: 1000 °C

Ti50
- TiN multilayer coating
- Maximum application temperature: 400 °C

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

DBG-P
- AlTiN Multilayer coating
- Especially for universal use in a variety of materials at high cutting speeds
- Suitable for MMS application
- Maximum application temperature: 1000 °C

DBC-N
- Diamond-like ta-C-Multilayer-carbon coating
- Particularly hard and smooth coating and therefore especially for machining non-ferrous metals
- Maximum application temperature: 500 °C

DBQ
- AlCrN-Multilayer-Beschichtung
- Particularly suitable for machining stainless steels and titanium
- Low formation of built-up edges
- Maximum application temperature: > 1000 °C

Grade description – Reamers

DST
- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

CWK10
- Carbide, uncoated
- ISO | **K10**
- The uncoated carbide grade for universal application

K10
- Carbide, uncoated
- ISO | **K10**
- Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

PDC
- Polycrystalline diamond cutting material, uncoated
- Particularly wear-resistant PCD grade for process reliable machining of aluminium

Grade description – Indexable insert countersink

BK8425
- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25**
- Universal grade with greater wear resistance thanks to innovative PVD multi-layer coating

HCR1135
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P35** | M25 | S25
- The tough alternative for heavily interrupted cut and unstable conditions

CWN2135
- Carbide, TiCN-TiNB-coated
- ISO | P35 | **M30** | S35
- The turning grade for general stainless machining

CWK15
- Carbide, uncoated
- ISO | **K15** | **N15**
- The uncoated carbide grade for machining aluminium and other non-ferrous metals

AMZ
- Carbide, TiAlN-coated
- ISO | P10 | K10 | **N10** | S10
- The coated carbide grade for aluminium machining

K10
- Carbide, uncoated
- ISO | **K10**
- Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

HCX1125
- Carbide, TiCN-Al_2O_3-coated
- ISO | P25 | M20 | **K30**
- The first choice for universal machining of steels

DCX3110
- Carbide, TiCN-Al_2O_3-coated
- ISO | P05 | **K10**
- The wear-resistant grade for machining cast iron materials at high cutting speeds in a continuous cut

CWN15
- Carbide, TiN-coated
- ISO | **K15**
- Special carbide grade for abrasive aluminium alloys

Chip breakers

-SM
- Rake angle 15°
- For universal use with medium machining
- Stable cutting edge

-U877
- Rake angle 6°
- circumferentially ground
- Three-ground chip breaker with second clearance angle for clearance with small tool diameters

-G06
- Rake angle 6°
- Preferred application in P / M / K
- Characterized by a particularly stable wedge angle

-G12
- Rake angle 12°
- Preferred application in P / N / S
- is characterized by a particularly high cutting performance

-27
- Rake angle 19-25°
- Universal aluminium geometry
- High cutting performance and therefore high feed rates possible
- Low adhesion

New products for machining technicians

NEW M03Speed – Precision adjustment head



- Application range Ø 24.8 – 206 mm
- Unique: Automatic, dynamic balancing compensation in the slide for maximum speeds
- Extremely user-friendly: Adjustment scale: high resolution gives easy read-off

→ Page 15+16

NEW FF precision adjustment head



- Application range Ø 29.5 – 199 mm
- Precision rotary cartridge can also be implemented just as flexibly into tools developed in-house

→ Page 17+18

NEW Fine boring bar



- Application range Ø 15.9 – 26 mm
- Precision adjustment range: 0.02 mm in Ø per line
- Ideal for high speeds

→ Page 21

NEW TwinKom



- Application range Ø 24 – 215 mm
- Twin cutter with axially and radially adjustable insert holders
- Compact, very stable design

→ Page 42–44

NEW hi.flex – Digital



- hi.flex goes digital: The newly developed variant of the hi.flex precision adjustment head now supports the analogue and digital adjustment of the diameter to be machined

→ Page 11

NEW Digital stick

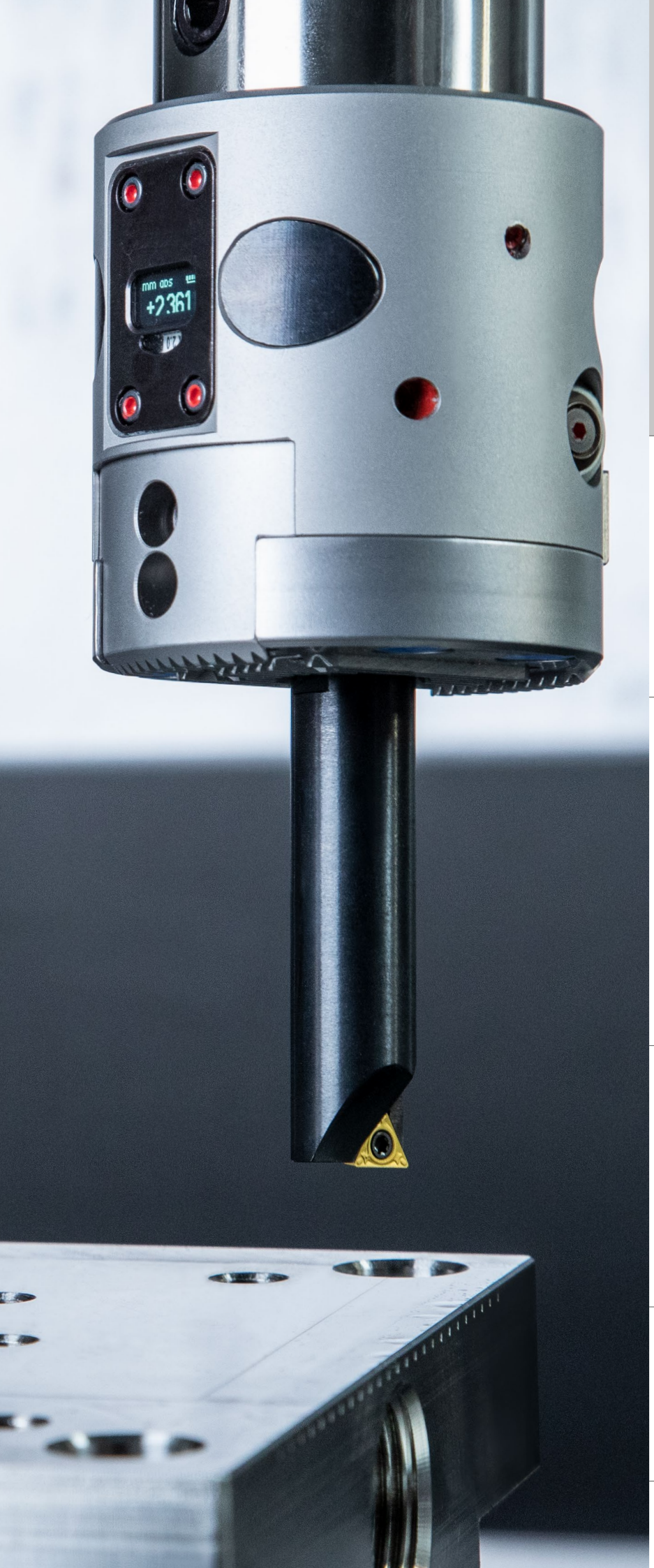


- Digital 2.0: Update of the existing digital stick from the SpinTools line for even more precise adjusting

NEW Accessories



- Expansion of the existing equipment for hi.flex and BluFlex 2 with various attachments
- Expansion of the spindle range: Ø 5.6 – 365 mm



Solid drilling and bore machining

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

Threading

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

Turning

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

Milling

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

Catalogue – Clamping technology

16 Adaptors and Accessories
17 Workpiece clamping

18 Material examples and article no. Index

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KOMET \ Performance

Premium quality tools for high performance.

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

Symbol explanation

F Fine Machining
M Medium Machining
R Rough Machining

Smooth cut
Irregular cutting depth
Interrupted cut


Coolant supply central
Steep taper Form AD


Coolant supply either
via the flange or centrally

ABS **KOMET ABS** – modular coupling system for rotating and stationary tools

STM Modular SpinTools interface

ER 32 System-independent ER 32 interface

Micron-precise display resolution:
0.001 mm in diameter

Universal ABS interface

Modern, high contrast OLED display
on the precision adjustment head itself



Absolute position measuring system

Additional Bluetooth Low Energy interface
for easy display on any conventional smartphone

Toolfinder

		System	Diameter range per head in mm	Digital	Analogue	ABS Modular	STM Modular	ER 32 Modular	Monoblock	Through spindle	Comments	Page No.
Machining	Finishing	BluFlex 2 – precision adjustment head Ø 5,6–365 mm	5,6–365	✓		✓				✓	Through spindle larger head diameters	10
		hi.flex – precision adjustment head Ø 5,6–365 mm	5,6–365	✓	✓	✓				✓	Through spindle larger head diameters	11
		M03 Speed – precision adjustment head Ø 24,8–206 mm	24,8–33,0 / 29–39 / 38–50 / 49–63 / 62–80 / 79–103 / 100–206		✓	✓				✓		15
		FF precision adjustment head Ø 29,5–199 mm	29,5–36 / 35,5–42 / 39–45 / 44–50 / 47–57 / 56–66 / 58–71 / 70–83 / 79–94 / 93–108 / 100–121 / 120–141 / 138–159 / 158–179 / 178–199		✓	✓				✓		17
		Micro Boring Head Ø 0,3–19,1 mm	0,3–7,1 / 0,3–19,1	✓	✓							19
		Fine boring bar Ø 15,9–26 mm	15,9–20 / 19–23 / 22–26		✓					✓		21
		Fine boring head Ø 14,7–24,1 mm	14,7–17,1 / 16,7–20,1 / 19,7–24,1		✓					✓		22
		Multi-Head – Fine boring head Ø 3,0–320 mm	3,0–320		✓		✓		✓	✓	Through spindle larger head diameters	24
		Single point boring head Ø 3,0–88,1 mm	3,0–88,1	✓	✓		✓	✓	✓	✓	Through spindle larger head diameters	26–28
		Single point finish boring heads Ø 23,9–116,1 mm	23,9–31,1 / 30,9–40,1 / 39,9–51,1 / 50,9–67,1 / 66,9–87,1 / 86,9–116,1	✓	✓		✓			✓		35
		Vario-Head – boring and fine boring head Ø 3,0–152 mm	3,0–152	✓		✓						38
		Single point finish boring heads Ø 86–402 mm	86–402		✓		✓			✓		40
		Console tool with baseplate Ø 150–655 mm	150–205 / 200–255 / 250–305 / 300–355 / 350–405 / 400–455 / 450–505 / 500–555 / 550–605 / 600–655		✓					✓	also available with roughing head	
		Console tool with slide Ø 650–2205 mm	650–1105 / 1100–1655 / 1650–2205		✓					✓	also available with roughing head	
	Roughing – Finishing	TwinKom Ø 24–215 mm	24–32 / 30–41 / 39–53 / 51–71 / 64–91 / 83–124 / 109–167 / 139–215		✓	✓				✓	in short and long version	42
		Twin edged rough / fine boring head Ø 29,5–115,5 mm	29,5–40,1 / 39,5–50,5 / 49,5–66,5 / 65,5–87,5 / 86,5–115,5		✓		✓			✓		45
	Roughing	Twin rough boring head Ø 23,5–153,0 mm	23,5–30,5 / 29,5–40,1 / 39,5–50,5 / 49,5–66,5 / 65,5–87,5 / 86,5–115,5 / 114,5–153,0		✓		✓			✓		47

This article can be found in our online shop at cuttingtools.ceratizit.com

System overview – MicroKom

System

Diameter range Ø 5,6 – 365,0 mm

BluFlex 2



10

hi.flex



11

ABS

Fine boring bar

Diameter range Ø 15,9 – 26,0 mm



21

Accessories

Diameter range Ø 5,6 – 27,9 mm

Diameter range Ø 23 – 365,0 mm

ABS32 boring bar



12

Steel boring bar



12

Boring bar, vibration-optimised



13

Adapter



12

Boring Bar



13

Filling piece



14

Insert holder



14

Bridge



14

Insert holder



14

Serrated body



14

Insert holder



14

Support bridge



12

Insert holder



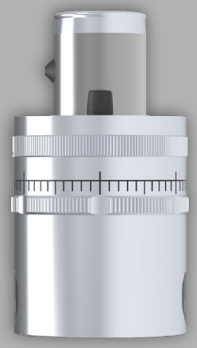
21

= necessary
= optional

5

Diameter range Ø 24,8 – 206,0 mm

M03 Speed precision adjustment head



15

ABS

Diameter range Ø 25,9 – 199,0 mm

FF precision adjustment head

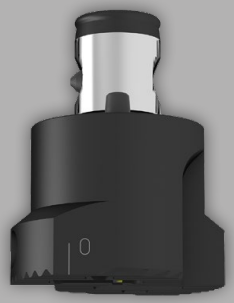


17

ABS

Diameter range Ø 24 – 215,0 mm

TwinKom



42

ABS

Diameter range Ø 24,8 – 39,0 mm

Insert holder



16

Diameter range Ø 38,0 – 103,0 mm

Insert holder



16

Diameter range Ø 100,0 – 206,0 mm

Interchangeable bridge



16

Insert holder



16

Precision turning insert



18

Tool holder 90° radially adjustable



43

Tool holder 80° radially adjustable



43

Basic tool holder, radially + axially adjustable



44

Indexable insert 90°



44

Indexable insert 80°



44

System overview – SpinTools

System

Micro Boring Head

Diameter range Ø 0,3 – 19,1 mm



19

Multi-Head boring and fine boring head

Diameter range Ø 3,0 – 320,0 mm



24

HSK-A | SK | MAS BT | STM

Fine boring head

Diameter range Ø 14,7 – 24,1 mm



22

Accessories

Micro Boring Head

- Adapter — 20
- Solid carbide cutting insert — 20
- Solid carbide cutting insert — 20
- Tool holder for solid carbide insert — 20
- Solid carbide insert — 20

Multi-Head boring and fine boring head

Diameter range Ø 3,0 – 53,1 mm

- Balancing ring — 32
- Boring tool with carbide shank — 29
- Reduction sleeve — 30
- Boring bar with carbide shank — 30
- High-speed boring shank / head — 23+31
- Steel boring bar — 29
- Boring tool extension — 30

Diameter range Ø 29,75 – 320 mm

- Over turning holder for boring head — 31
- High-speed boring head — 31
- Adjustable boring bar — 29
- Axial grooving holder for UltraMini — 25
- Bridge for Multi-Head — 25
- Counterweight — 25
- Insert holder — 29

Fine boring head

- High-speed boring shank, carbide / steel — 23+31
- Shank extension — 23
- Insert holder, 90° — 22

= necessary
= optional

5

Single point finish boring heads

Diameter range Ø 23,9 – 134,1 mm



35

STM

Single point boring head

Diameter range Ø 3,0 – 88,0 mm



26–28

ER 32 | HSK-A | SK | MAS BT | STM

Vario-Head - boring and fine boring head

Diameter range Ø 3,0 – 152 mm



38

STM

Diameter range Ø 3,0 – 53,1 mm

- Balancing ring — 32
- High-speed boring shank, carbide — 36
- Reverse adapters for back boring — 37

Diameter range Ø 29,75 – 88,0 mm

- Insert holder, 90°, extended — 36
- Insert holder, 90° — 36
- Insert holder, 95° — 36

Diameter range Ø 3,0 – 53,1 mm

- Balancing ring — 32
- Reduction sleeve — 30
- Boring tool with carbide shank — 29
- Boring bar with carbide shank — 30
- High-speed boring shank / head — 23+31
- Steel boring bar — 29
- Boring tool extension — 30

Diameter range Ø 29,75 – 152,0 mm

- Over turning holder for boring head — 31
- High-speed boring head — 31
- Adjustable boring bar — 29
- Axial grooving holder for UltraMini — 25
- Insert holder — 29

Diameter range Ø 3,0 – 53,1 mm

- Balancing ring — 32
- Reduction sleeve — 30
- Boring tool with carbide shank — 29
- Boring bar with carbide shank — 30
- High-speed boring shank / head — 23+31
- Steel boring bar — 29
- Boring tool extension — 30

Diameter range Ø 29,75 – 152,0 mm

- Over turning holder for boring head — 31
- High-speed boring head — 31
- Adjustable boring bar — 29
- Axial grooving holder for UltraMini — 25
- Insert holder — 29
- Spacer — 39
- Insert holder, 90° — 39

System overview – SpinTools

System

Single point finish boring heads

Diameter range Ø 86,0 – 402,0 mm



40

STM

Twin edged rough / fine boring head

Diameter range Ø 29,5 – 115,5 mm



45

STM

Twin rough boring head

Diameter range Ø 23,5 – 153,0 mm



47

STM

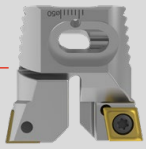
Accessories

Insert holder



40

Pair of roughing/finishing insert holders, 90°



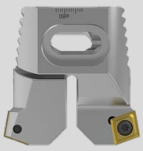
46

Pair of insert holders, Standard 90°



48

Pair of insert holders, Standard 70°



48

Pair of insert holders, Synchro 90°



49

Insert holder 90°, axial offset 0.4 mm



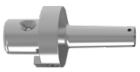
49

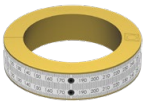
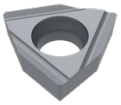
Overview of base adapters and accessories

System			SK	MAS-BT	HSK-A	Cylindrical shank
Base adapter		ABS	Catalogue – Clamping technology → Page: 41	87	146	
Base adapter		STM	51	52	53	54

5

Accessories

Extension		STM	57
Reduction		STM	55+56
Collet Chuck		STM	50
Shell mill adapter		STM	50

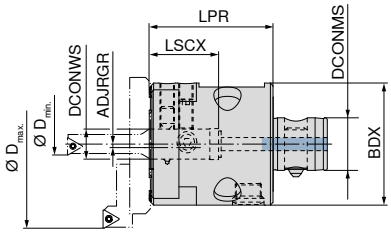
General		
Balancing rings		32
Indexable inserts MicroKom		58–61
Indexable inserts SpinTools		62+63

MicroKom – BluFlex 2 – precision adjustment head

- ▲ Via the free app (Android/IOS), an extended display can be transferred to a standard smartphone (62 840 16097)
- ▲ For MicroKom boring bars with Ø 16 or with ABS 32, MicroKom bridges, and serrated body
- ▲ With thro' coolant supply
- ▲ LSCX = Recess depth of boring bar

Scope of supply:
incl. Battery

ABS





D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	BDX mm	LPR mm	LSCX mm	ADJRGR mm	without Bluetooth 62 820 ... £ W4		with Bluetooth 62 840 ... £ W4	
5,6 - 365	M04 30100	ABS 50	16	28	65	71	38	4.65	2,187.07	**16097**		
5,6 - 365	M04 30000	ABS 50	16	28	65	71	38	4.65			2,187.07	**16097**


Clamping screw


Clamping screw


Clamping screw


Clamping sleeve


Battery cover

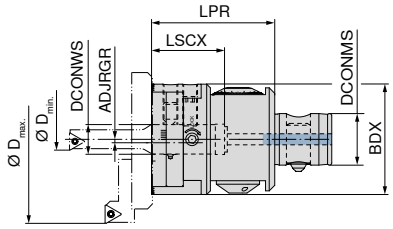
Spare parts for Article no.		62 950 ... £ XX		62 950 ... £ W7		62 950 ... £ W7		62 950 ... £ W7		62 950 ... £ W7	
62 820 16097	M8x1x12/SW4	9.47	**13989**	M8x1x20/SW4	1.55	**13700**	M5x14/SW4	2.26	**18600**	6.50	**18500**	8.66	**18400**
62 840 16097	M8x1x12/SW4	9.47	**13989**	M8x1x20/SW4	1.55	**13700**	M5x14/SW4	2.26	**18600**	6.50	**18500**	8.66	**18400**

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

MicroKom – hi.flex – precision adjustment head

- for MicroKom boring bars with Ø 16 mm or ABS 32, MicroKom bridges, and serrated body
- with thro' coolant supply
- LSCX = Recess depth of boring bar

ABS





5

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	BDX mm	LPR mm	LSCX mm	ADJRGR mm	Analogue 62 800 ... £ W4		Digital NEW 62 800 ... £ W4	
5,6 - 365	M05 01000	ABS 50	16	28	60	67	39.7	10.5	1,101.26	16097		
5,6 - 365	M04 10040	ABS 50	16	28	60	67	39.7	10.5			1,273.37	16197


Clamping screw


Clamping screw


Clamping screw

Spare parts for Article no.	62 950 ...	£ W7		62 950 ...	£ XX		62 950 ...	£ W7	
62 800 16097	M8x8/SW4	1.55	14700	M8x1x12/SW4	9.47	13989	M8x1x20/SW4	1.55	13700
62 800 16197	M8x8/SW4	1.55	14700	M8x1x12/SW4	9.47	13989	M8x1x20/SW4	1.55	13700

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

SpinTools – Digital Stick

- suitable for all SpinTools digital heads as well as for hi.flex Digital
- revised software for even more precise adjustment

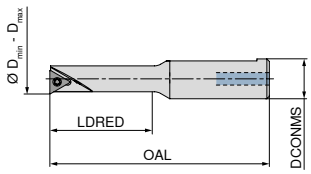
Scope of supply:
incl. AAA Battery



NEW
62 309 ...
£ W4
271.82 00100

MicroKom – Steel boring bar for hi.flex, BluFlex 2

▲ With internal coolant supply





62 850 ...

D_{min} - D_{max} mm	KOMET no.	OAL mm	LDRED mm	DCONMS h6 mm	Insert	£ W4	
6 - 8	B05 20100	71.7	21.0	16	W0.. 02T0	118.47	00600
8 - 12	B05 20120	77.4	28.0	16	T0.. 06T1	122.39	00800
10 - 14	B05 20140	81.8	34.0	16	T0.. 0902	117.24	01000
12 - 18	B05 20160	88.2	42.0	16	T0.. 0902	127.53	01200
14 - 18	B05 20180	94.4	50.0	16	T0.. 0902	126.20	01400
18 - 25	B05 20220	100.0	60.0	16	T0.. 0902	133.93	01800
22 - 26	B05 20260	108.0	68.5	16	T0.. 1403	153.30	02200



TORX® Screws

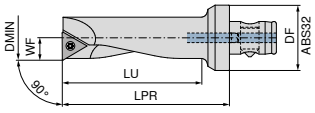
62 950 ...

Spare parts Insert	£ W7	
T0.. 06T1	2.69	12800
T0.. 0902	2.34	12000
T0.. 1403	2.34	12600
W0.. 02T0	2.34	11800

MicroKom – Boring bar

▲ With internal coolant supply

ABS





NEW

62 857 ...

DMIN mm	KOMET no.	WF mm	DF mm	LU mm	LPR mm	Insert	£ W4	
7.9	B00 25610	3.95	32	28	42	T0.X 06T1..	284.71	07989
8.9	B00 25700	4.45	32	34	48	T0.X 06T1..	287.13	21989
9.9	B00 25620	4.95	32	34	48	T0.X 06T1..	287.13	08989
10.9	B00 25710	5.45	32	43	57	T0.X 0902..	295.45	23989
11.9	B00 25630	5.95	32	43	57	T0.X 0902..	294.29	09989
13.9	B00 25640	6.95	32	50	64	T0.X 0902..	296.72	10989
15.9	B00 25650	7.95	32	58	72	T0.X 0902..	305.15	11989
17.9	B00 25661	8.95	32	59	72	T0.X 0902..	313.47	13989
19.9	B00 25671	9.90	32	70	82	T0.X 0902..	318.32	15989
21.9	B00 25681	10.90	32	70	82	T0.X 0902..	325.48	17989
23.9	B00 25691	11.90	32	70	82	T0.X 0902..	331.49	19989

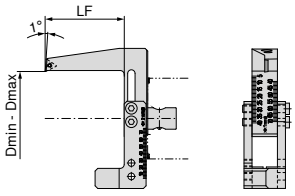


TORX® Screws

62 950 ...

Spare parts Insert	£ W7	
T0.X 06T1..	2.69	12800
T0.X 0902..	2.34	12000

MicroKom – Spindle tool





NEW

62 866 ...

D_{min} - D_{max} mm	KOMET no.	LF mm	Insert	£ W4	
5 - 70	M05 90300	58	T0.X 0902..	456.46	07000



Cylindrical screw

62 950 ...



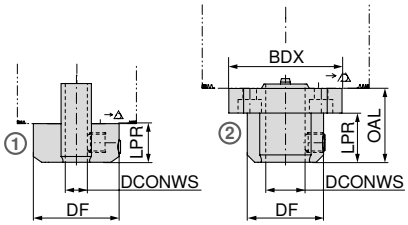
TORX® Screws

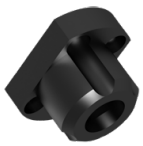
62 950 ...

Spare parts Insert	£ W7		£ W7	
T0.X 0902..	1.01	26800	2.34	12000

MicroKom – Adapter

▲ for 62 852 ..., 62 853 ..., 62 856 ... (essential for using the boring bar)





NEW

62 851 ...

DCONWS mm	KOMET no.	OAL mm	BDX mm	DF mm	LPR mm	Fig.	£ W4	
6	M05 90200			31	16	1	123.70	00600
8	M05 90210			31	16	1	123.70	00800
10	M05 90220	25	46	31	15	2	155.00	01000
12	M05 90230	25	46	31	15	2	155.00	01200
16	M05 90240	30	46	31	20	2	155.00	01600



Cylindrical screw

62 950 ...



Clamping screw

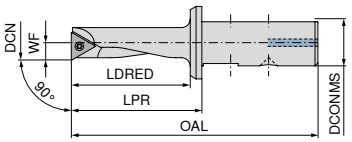
62 950 ...

Spare parts DCONWS	£ W7		£ W7	
6 - 8			1.82	44800
10 - 12	0.87	00000	1.82	44800
16	0.87	00000	1.55	14700

Suitable inserts can be found on → **Page 58–61.**

MicroKom – Boring bar

- ▲ can only be used with adapter 62 851 ...
- ▲ with internal coolant supply





NEW

62 856 ...

DCN mm	KOMET no.	OAL mm	LPR mm	DCONMS mm	WF mm	LDRED mm	Insert	£ W4	
5.6	B00 37010	48	26	8	2.75	22	WOHX 02T0..	174.17	05600
6.5	B00 37020	52	30	8	3.20	26	WOHX 02T0..	168.17	06500
8.0	B00 15510	57	35	8	3.95	28	T0.X 06T1..	164.59	08000
8.0	B00 15610	75	35	16	3.95	30	T0.X 06T1..	167.01	00800
10.0	B00 15620	80	40	16	4.95	35	T0.X 0902..	168.17	01000
11.0	B00 15710	85	45	16	5.45	40	T0.X 0902..	171.75	01100
12.0	B00 15530	67	45	16	5.95	38	T0.X 0902..	174.17	11200
12.0	B00 15630	85	45	16	5.95	40	T0.X 0902..	174.17	01200
14.0	B00 15640	90	50	16	6.95	45	T0.X 0902..	176.60	01400
16.0	B00 15650	95	55	16	7.95	50	T0.X 0902..	186.19	01600
18.0	B00 15661	100	60	16	8.95	55	T0.X 0902..	193.35	01800
19.0	B00 15751	105	65	16	9.45	60	T0.X 0902..	193.35	01900
20.0	B00 15671	105	65	16	9.90	60	T0.X 0902..	194.62	02000
22.0	B00 15681	105	65	16	10.90	60	T0.X 0902..	210.21	02200
24.0	B00 15691	105	65	16	11.90	60	T0.X 0902..	211.37	02400



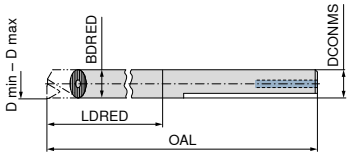
TORX® Screws

62 950 ...

Spare parts DCN	£ W7	
5,6 - 6,5	2.34	11800
8 - 10	2.69	12800
11 - 24	2.34	12000

MicroKom – Carbide boring shank

- ▲ for boring head 62 854 ...
- ▲ can only be used with adapter 62 851 ...
- ▲ with internal coolant supply





NEW

62 853 ...

D_{min} - D_{max} mm	KOMET no.	OAL mm	BDRED mm	LDRED mm	DCONMS mm	£ W4	
13 - 17	G10 12060	120	12	75	12	367.52	01300
17 - 22	G10 12070	140	16	100	16	443.29	01700
22 - 26	G10 12080	140	16	100	16	443.29	02200



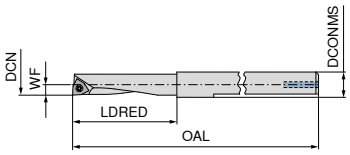
Fillister-head screw

62 950 ...

Spare parts DCONMS	£ W7	
12	5.16	19700
16	5.16	19800

MicroKom – Boring bar, vibration-optimised

- ▲ can only be used with adapter 62 851 ...
- ▲ with internal coolant supply





NEW

62 852 ...

DCN mm	KOMET no.	OAL mm	LDRED mm	DCONMS mm	Insert	£ W4	
5.6	B00 30280	65	22	6	WOHX 02T0..	181.34	10600
6.9	B00 30290	80	36	6	WOHX 02T0..	181.34	00600 1)
9.0	B00 00680	90	24	8	T0.X 06T1..	311.16	00800 1)
11.0	B00 00690	95	50	10	T0.X 06T1..	329.18	01000 1)

1) Carbide version



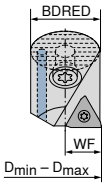
TORX® Screws

62 950 ...

Spare parts Insert	£ W7	
T0.X 06T1..	2.69	09700
WOHX 02T0..	2.34	11800

MicroKom – Boring head

- ▲ for boring shank 62 853 ...





NEW

62 854 ...

D_{min} - D_{max} mm	KOMET no.	WF mm	BDRED mm	Insert	£ W4	
13 - 15	G10 12621	6.45	12	T0.X 0902..	171.75	01300
15 - 17	G10 12841	8.45	16	T0.X 0902..	175.33	01500
17 - 19	G10 12711	8.45	12	T0.X 0902..	186.19	01700
19 - 22	G10 12861	9.45	16	T0.X 0902..	192.19	01900
22 - 26	G10 12731	10.95	16	T0.X 0902..	192.19	02200



TORX® Screws

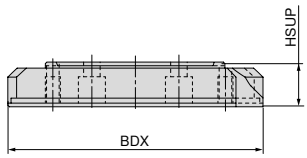
62 950 ...

Spare parts Insert	£ W7	
T0.X 0902..	2.34	12000

Suitable inserts can be found on → **Page 58–61.**

5

MicroKom – Bridge for hi.flex, BluFlex 2





NEW

D_{min} - D_{max} mm	KOMET no.	BDX mm	HSUP mm	WT kg	62 860 ... £ W4	
90 - 125	M05 80101	85	12.00	0.147	191.92	12500
120 - 155	M05 80200	115	18.25	0.107	269.12	15500
150 - 185	M05 80300	145	20.25	0.152	305.15	18500
180 - 215	M05 80400	175	23.25	0.229	338.76	21500
210 - 245	M05 80500	205	25.00	0.309	470.89	24500
240 - 275	M05 80510	235	25.00	0.349	510.51	27500
270 - 305	M05 80520	265	25.00	0.394	528.53	30500
300 - 335	M05 80530	295	25.00	0.435	568.14	33500
330 - 365	M05 80540	325	25.00	0.478	612.61	36500


Cylindrical screw

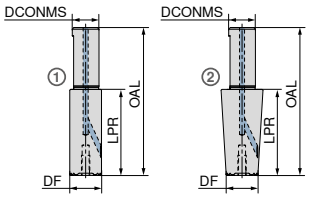

Disk spring

Spare parts BDX	62 950 ... £ W7		62 950 ... £ W7	
85 - 325	0.87	00000	1.55	19100

MicroKom – Serrated body for hi.flex, BluFlex 2

▲ With internal coolant supply

Scope of supply:
without insert holder





NEW

D_{min} - D_{max} mm	KOMET no.	DCONMS mm	OAL mm	LPR mm	DF mm	Fig.	62 861 ... £ W4	
25 - 63	M05 90100	16	88.50	51.50	19	1	139.07	06300
25 - 63	M05 90110	16	129.12	92.12	24	2	139.07	16300


Cylindrical screw

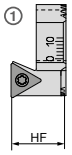

Disk spring

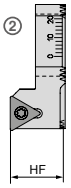
Spare parts DCONMS	62 950 ... £ W7		62 950 ... £ W7	
16	0.87	00000	1.55	19100

MicroKom – Insert holder for hi.flex, BluFlex 2

▲ With internal coolant supply

Scope of supply:
without inserts
incl. mounting screws





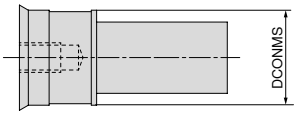


DCN mm	DCX mm	KOMET no.	HF mm	Insert	Fig.	62 863 ... £ W4	
25	44	M05 20101	13.5	TO.. 06T1	1	136.50	04400
44	63	M05 20151	13.5	TO.. 0902	2	139.07	12500


TORX® Screws

Spare parts Insert	62 950 ... £ W7	
TO.. 06T1	2.69	09700
TO.. 0902	2.34	09900

MicroKom – Filling piece for hi.flex, BluFlex 2





DCONMS mm	KOMET no.	62 862 ... £ W4	
16	M05 90501	18.54	09300

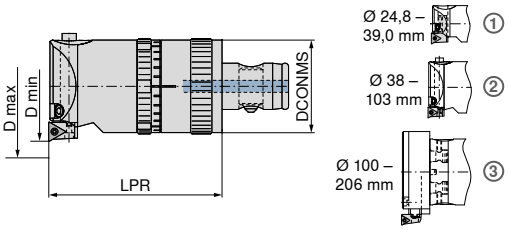
Suitable inserts can be found on → **Page 58–61.**

MicroKom – M03Speed – precision adjustment head

Scope of supply:

Precision adjustment head with clamping screw
Please order insert holder and indexable insert separately

ABS





NEW

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONMS mm	LPR mm	Fig.	62 815 ... £ W4	
24,8 - 33,0	M03 00115	ABS 25	25	50	1	1,830.68	**03390**
29 - 39	M03 00515	ABS 25	25	50	1	1,871.10	**03990**
38 - 50	M03 01025	ABS 32	32	60	2	1,963.50	**05089**
49 - 63	M03 01535	ABS 40	40	70	2	2,211.83	**06388**
62 - 80	M03 02045	ABS 50	50	75	2	2,356.20	**08097**
79 - 103	M03 02555	ABS 63	63	80	2	2,589.51	**10396**
100 - 206	M03 20090	ABS 63	63	106	3	1,951.95	**20696** [1]

1) can only be used with interchangeable bridge (Art. No. 62 865 ...)


TORX® Screws


Clamping screw


Grub screw

Spare parts for Article no.	62 950 ... £ W7		62 950 ... £ W7		10 950 ... £ W7	
62 815 03390					1.82	**15600**
62 815 03990					1.82	**15600**
62 815 05089	2.34	**12600**			1.82	**15600**
62 815 06388	2.34	**12600**			1.82	**15700**
62 815 08097	2.34	**12600**			1.82	**15700**
62 815 10396	2.73	**45400**			1.01	**11300**
62 815 20696	2.73	**45400**	6.67	**37400**		

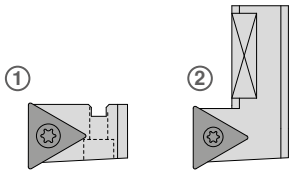
The TORX® screws 62 950 12600 / 62 950 45400 are designed for mounting the insert holder on the precision adjustment head.

A detailed operating manual is available for download in the online shop next to the product.

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

MicroKom – M03Speed – Insert holder

Scope of supply:
without inserts
incl. mounting screws





NEW

for	KOMET no.	Insert	Fig.	62 864 ... £ W4	
62 815 03390	M03 10011	T0.. 06T1	2	163.32	**03300**
62 815 03990	M03 10021	T0.. 06T1	2	163.32	**03900**
62 815 05089	M03 10033	T0.. 06T1	1	134.56	**05000**
62 815 06388 / 62 815 08097	M03 10043	T0.. 0902	1	134.56	**08000**
62 815 10396	M03 10063	T0.. 0902	1	142.99	**10300**
62 815 20696	M03 10070	T0.. 0902	1	142.99	**20600** 1)

1) only for M03Speed – interchangeable bridge (62 865 ...)



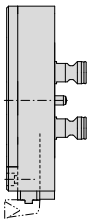
TORX® Screws

Spare parts Insert	62 950 ... £ W7	
T0.. 06T1	2.69	**09700**
T0.. 0902	2.34	**12000**

MicroKom – M03Speed – Interchangeable bridge

▲ for head 62 815 20696

Scope of supply:
without insert holder





NEW

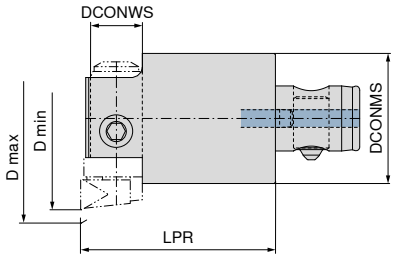
D_{min} - D_{max} mm	KOMET no.	62 865 ... £ W4	
100 - 130	M03 20100	786.79	**13000**
128 - 168	M03 20110	902.06	**16800**
166 - 206	M03 20120	1,040.19	**20600**

Suitable inserts can be found on → **Page 58–61.**

FF precision adjustment head

Scope of supply:
Head with clamping screw
without precision turning insert

ABS





NEW

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	LPR mm	62 810 ... £ W4	
29,5 - 36	B30 11010	ABS 25	10	25	50	284.71	**03690**
35,5 - 42	B30 11020	ABS 25	10	25	50	284.71	**04290**
39 - 45	B30 12010	ABS 32	12	32	60	296.72	**04589**
44 - 50	B30 12020	ABS 32	12	32	60	296.72	**05089**
47 - 57	B30 13010	ABS 40	16	40	60	314.74	**05788**
56 - 66	B30 13020	ABS 40	16	40	60	314.74	**06688**
58 - 71	B30 14010	ABS 50	20	50	70	348.35	**07197**
70 - 83	B30 14020	ABS 50	20	50	70	348.35	**08397**
79 - 94	B30 15010	ABS 63	25	63	70	403.56	**09496**
93 - 108	B30 15020	ABS 63	25	63	70	403.56	**10896**
100 - 121	B30 16010	ABS 80	32	80	90	482.91	**12192**
120 - 141	B30 16020	ABS 80	32	80	90	482.91	**14192**
138 - 159	B30 17010	ABS 100	32	100	90	558.56	**15991**
158 - 179	B30 17020	ABS 100	32	100	90	558.56	**17991**
178 - 199	B30 17030	ABS 100	32	100	90	558.56	**19991**



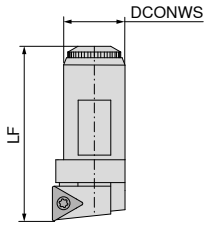
Clamping screw

Spare parts DCONWS		62 950 ... £ W7	
10	M6x6/SW3	1.01	**44700**
12	M8x10/SW4	1.82	**44800**
12	M8x8/SW4	1.55	**14700**
16	M10x10/SW5	1.82	**44900**
20	M12x12/SW6	1.01	**45000**
25	M16x16/SW8	1.01	**45100**
32	M20x20/SW10	2.03	**45200**
32	M20x30/SW10	2.32	**45300**

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

FF precision turning insert

Scope of supply:
Precision turning insert with insert screw
Please order insert separately





NEW

for	DCONWS mm	KOMET no.	LF mm	Insert	62 855 ... £ W4	
62 810 0369 / 62 810 04290	10	M30 20011	28.5	T0.. 06T1	357.93	**03000**
62 810 04589 / 62 810 05089	12	M30 20021	37.5	T0.. 06T1	398.82	**03900**
62 810 05788 / 62 810 06688	16	M30 20031	45.0	T0.. 0902	437.28	**04700**
62 810 07197 / 62 810 08397	20	M30 20041	56.0	T0.. 0902	505.66	**05800**
62 810 09496 / 62 810 10896	25	M30 20051	77.5	T0.. 1403	550.13	**07900**
62 810 12192 / 62 810 14192	32	M30 20061	97.0	T0.. 1403	647.49	**10000**
62 810 15991 / 62 810 17991 / 62 810 19991	32	M30 20071	131.0	T0.. 1403	695.54	**13800**



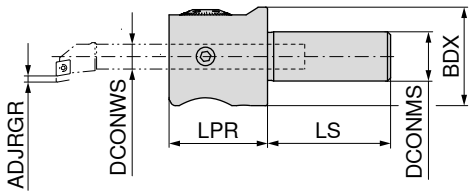
TORX® Screws

Spare parts DCONWS		62 950 ... £ W7	
10	M2x3,8/IP6	2.69	**12800**
12	M2x3,8/IP6	2.69	**12800**
16	M2,6x5,2 - 08IP	2.34	**12000**
20	M2,6x6,2 - 08IP	2.34	**09900**
25	M3,5x7,3 - 10IP	2.34	**12600**
32	M3,5x7,3 - 10IP	2.34	**12600**

Suitable inserts can be found on → **Page 58–61.**

SpinTools – Micro-Boring Head

▲ max. speed 30,000 U/min





5

D_{min} - D_{max} mm	BDX mm	DCONWS mm	DCONMS mm	LPR mm	LS mm	ADJRGR mm	Digital 62 386 ... £ W4		Analogue 62 382 ... £ W4	
0,3 - 7,1	25	4	10	25	25	0 - 1,7	1,057.59	**025**	837.30	**025**
0,3 - 19,1	32	7	16	32	40	0 - 2,75	1,138.01	**032**	867.91	**032**


Clamping screw ST


Locking screw

Spare parts for Article no.		62 950 ... £ W7			62 950 ... £ W7	
62 382 025 / 62 386 025	M5x4	1.75	**214**	M4x8	1.76	**228**
62 382 032 / 62 386 032	M6x5	1.75	**215**	M6x10	1.76	**229**

SpinTools – Digital Stick

▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
▲ revised software for even more precise adjustment

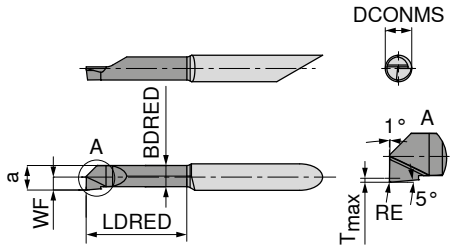
Scope of supply:
incl. AAA Battery



NEW

62 309 ... £ W4
271.82 **00100**

SpinTools – Solid carbide boring bar



TiN

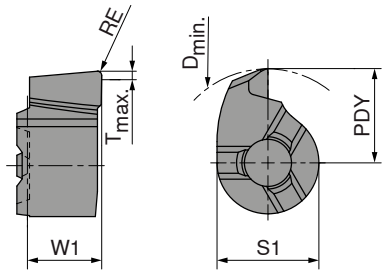


D_{min} - D_{max} mm	DCONMS mm	LDRED mm	RE mm	a mm	BDRED mm	WF mm	$T_{max.}$ mm	62 383 ... £ W4	
0,3 - 0,7	4	1.2		0.25	0.15	0.15	0.03	36.91	**003**
0,6 - 1,1	4	2.5		0.55	0.46	0.30	0.05	36.91	**006**
1,0 - 2,3	4	4.0	0.05	0.95	0.65	0.50	0.10	37.55	**010**
2,2 - 3,3	4	6.0	0.05	2.00	1.55	1.10	0.20	31.45	**022**
3,2 - 4,3	4	10.2	0.05	3.00	2.55	1.60	0.20	32.28	**032**
3,9 - 7,1	4	15.2	0.05	3.70	3.45	1.95	0.30	34.77	**039**
5,2 - 6,3	7	20.3	0.05	5.00	4.25	2.60	0.50	48.69	**052**
6,2 - 7,3	7	20.3	0.05	6.00	5.25	3.10	0.50	48.69	**062**
6,9 - 8,1	7	25.4	0.20	6.70	6.25	3.45	0.50	43.48	**069**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 66

SpinTools – Carbide inserts



TiN

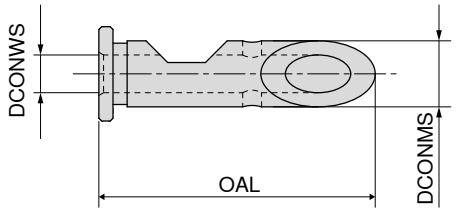


D_{min} - D_{max} mm	RE mm	PDY mm	S1 mm	W1 mm	$T_{max.}$ mm	62 384 ... £ W4	
6,9 - 8,1	0.2	3.45	4.8	3.5	1	17.77	**069**
7,9 - 9,1	0.2	3.95	4.8	3.5	1	17.77	**079**
8,9 - 10,1	0.2	4.45	4.8	3.5	1	17.77	**089**
9,9 - 12,1	0.2	4.95	7.0	3.9	1	21.64	**099**
11,9 - 14,1	0.2	5.95	7.0	3.9	1	21.64	**119**
13,9 - 19,1	0.2	6.95	7.0	3.9	1	21.64	**139**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 66

SpinTools – Adapter



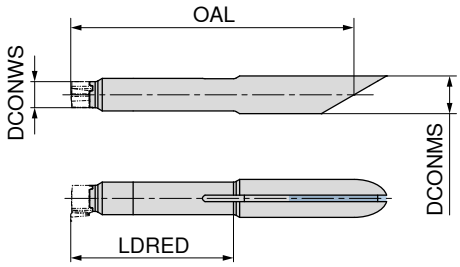


DCONMS mm	DCONWS mm	OAL mm	62 335 ... £ W4	
7	4	30	61.72	**407**

SpinTools – Toolholder for carbide inserts

▲ with thro' coolant

▲ appropriate inserts for article no. 62 384 ... can be found in the table above





DCONMS mm	LDRED mm	DCONWS mm	OAL mm	62 385 ... £ W4	
7	30	4.8	56	164.12	**330**
7	35	7.0	61	175.26	**350**



TORX® Screws

62 950 ...



Key D

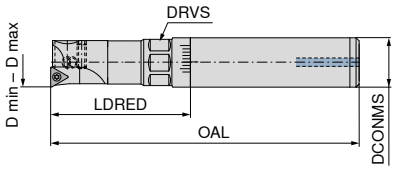
80 950 ...

Spare parts for Article no.	£ W7		£ Y7	
62 385 330	9.59	**007**	14.16	**124**
62 385 350	9.59	**094**	15.51	**126**

MicroKom – Fine boring bar

▲ Precision adjustment range: 0.02 mm in Ø per line

Scope of supply:
Fine boring bar incl. insert holder, insert holder screw and indexable insert screw





NEW

D_{min} - D_{max} mm	DCONMS mm	OAL mm	DRVS mm	LDRED mm	Insert	62 858 ... £ W4	
15,9 - 20	16	100	14	29	T0.. 06T1	982.56	**15900**
19 - 23	16	105	14		T0.. 06T1	1,096.67	**19000**
22 - 26	16	110	18		T0.. 06T1	1,230.08	**22000**


Insert holders


Adjustment screw


TORX® Screws


Clamping screw

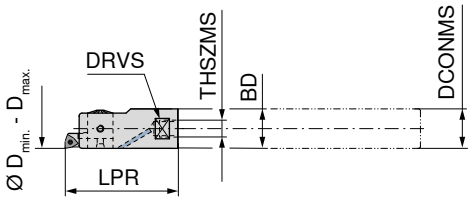
Spare parts for Article no.	62 859 ... £ W4		62 950 ... £ W7		62 950 ... £ W7		62 950 ... £ W7	
62 858 15900	168.17	**15900**	0.80	**37600**	2.69	**12800**	2.80	**37500**
62 858 19000	168.17	**19000**	2.40	**37700**	2.69	**12800**	2.80	**37500**
62 858 22000	168.17	**22000**	2.80	**37800**	2.69	**12800**	2.80	**37500**

Suitable inserts can be found on → **Page 58–61.**

SpinTools – Precision boring head

▲ With internal coolant supply

Scope of supply:
Fine boring head without shank, without insert holder





BD mm	D_{min} - D_{max} mm	THSZMS	DCONMS mm	LPR mm	DRVS mm	62 304 ... £ W4	
14	14,7 - 17,1	M6	14	40	12	729.42	**017**
16	16,7 - 20,1	M10	16	40	14	729.42	**020**
19	19,7 - 24,1	M10	18	40	16	729.42	**024**


TORX® Screws


Key D

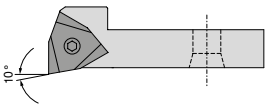

Clamping screw ST

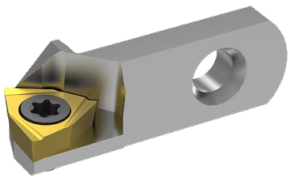
Spare parts for Article no.	62 950 ... £ W7			80 950 ... £ Y7			62 950 ... £ W7		
62 304 017	M2,5x6	4.64	**022**	T07	10.82	**109**	M3x2	3.07	**017**
62 304 020	M2,5x6	4.64	**022**	T07	10.82	**109**	M3x2,5	3.07	**018**
62 304 024	M2,5x6	4.64	**022**	T07	10.82	**109**	M3x4	3.07	**019**

Information on the working length can be found on → **Page 73**

SpinTools – Insert holder, 90°

Scope of supply:
without insert





for boring head	Insert	62 317 ... £ W4	
62 304 ...	WC.. 0201..	127.66	**024**

Suitable inserts can be found on → **Page 62.**


TORX® Screws

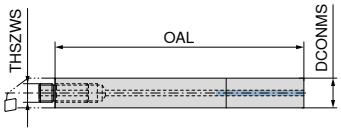

Key D

Spare parts Insert		62 950 ... £ W7			80 950 ... £ Y7	
WC.. 0201..	M2x3,7	4.64	**021**	T06	11.71	**108**

SpinTools – High-speed carbide boring bars

- with threaded mounting stud made of high quality steel
- with thro' coolant
- Shank clamping length 35 mm
- Boring shanks with DCONMS Ø 18 mm are for use in collet chuck or hydraulic chuck

Scope of supply:
boring shank, without boring head

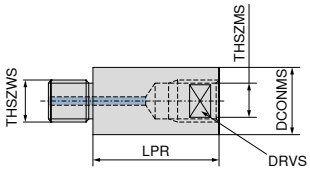




DCONMS h6 mm	OAL mm	THSZWS	62 353 ... £ W4	
14	110	M6	311.57	014
16	120	M10	346.33	016
18	100	M10	365.81	018
18	140	M10	504.89	118
18	180	M10	653.71	218

SpinTools – Shank extensions (tempered steel)

- with thro' coolant



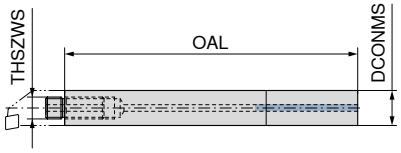


DCONMS h9 mm	LPR mm	THSZWS	THSZMS	DRVS mm	62 349 ... £ W4	
16	32	M10	M10	14	57.52	732
16	64	M10	M10	14	65.92	764

SpinTools – High Speed Steel Extension

- with thro' coolant
- Boring shanks with DCONMS Ø 18 mm are for use in collet chuck or hydraulic chuck

Scope of supply:
boring shank, without boring head





DCONMS h6 mm	OAL mm	THSZWS	62 329 ... £ W4	
14	60	M6	72.94	660
16	70	M10	75.75	770
18	80	M10	82.76	880

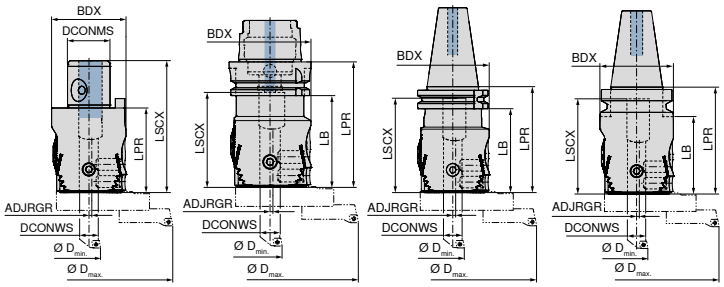
Information on the working length can be found on → **Page 73**

5

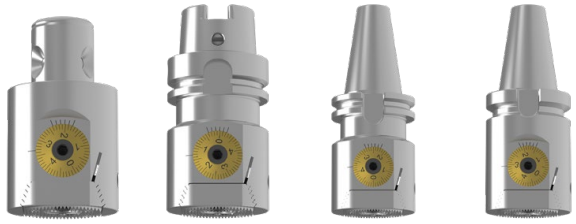
SpinTools – Multi-Head – boring and fine boring head

- **For boring bars Ø 16 mm and bridges**
- With internal coolant supply
- LSCX = Boring depth

Scope of supply:
without boring bar, bridge and insert holder



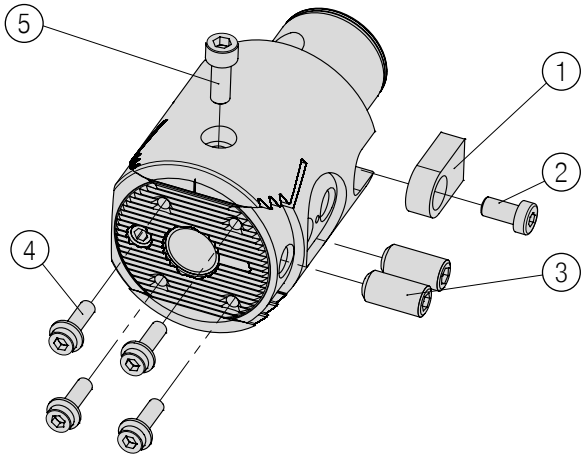
STM Modular | HSK-A 63 | SK 40 | MAS-BT 40



STM Modular | HSK-A | SK | MAS-BT

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	LPR mm	LB mm	LSCX mm	ADJRGR mm	62 372 ... £ W4		62 373 ... £ W4		62 373 ... £ W4		62 373 ... £ W4	
3 - 320	STM 36	36	63	71.6		111.6	0 - 2,7	1,051.50	**653**						
3 - 320	HSK-A 63		63	96.6	70.6	73.0	0 - 2,7			1,286.57	**653**				
3 - 320	SK 40		63	91.6	72.5	81.6	0 - 2,7					1,286.57	**153**		
3 - 320	BT 40		63	91.6	69.0	81.6	0 - 2,7							1,286.57	**453**

Suitable base adapters can be found on → **page 51.**



1. *Drive dogs*
2. *Carrier screw*
3. *Clamping screw*
4. *Flange screw*
5. *Clamping screw MH*



Driver



Clamping screw MH



Flange screw

Spare parts D_{min} - D_{max}		62 950 ... £ W7			62 950 ... £ W7			62 950 ... £ W7	
3 - 320	16x26,5x8	54.46	**040**	M6x16	2.88	**226**	M5x16	4.60	**225**



Clamping screw



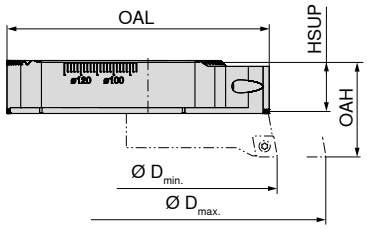
Screw for drivers

Spare parts D_{min} - D_{max}					62 950 ... £ W7			62 950 ... £ W7	
3 - 320				M10x20	1.62	**227**	M6x12	1.75	**167**

SpinTools – Bridge for Multi-Head

- Ø adjustable
- With internal coolant supply

Scope of supply:
without tool holder
including fixation screws



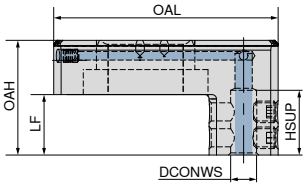


D_{min} - D_{max} mm	OAL mm	HSUP mm	OAH mm	62 376 ... £ W4	
86 - 164	80	15	29	243.40	164
162 - 320	158	15	29	364.41	320

Insert holders (62 377 ...) can be found on → **Page 29.**

SpinTools – Axial groving holder for UltraMini

- With internal coolant supply



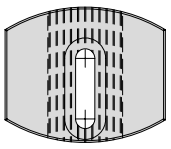


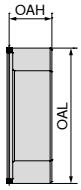
DCONWS mm	OAL mm	OAH mm	HSUP mm	LF mm	WT kg	62 358 ... £ W4	
6	52	26.58	15	14	0.092	212.80	006
7	52	26.58	15	14	0.091	212.80	007
8	52	26.58	20	14	0.088	212.80	008

Suitable inserts for axial grooving can be found in
→ **Chapter 12, Miniature Turning Tools**

SpinTools – Counterweight

Scope of supply:
Including fixation screw







for	OAL mm	OAH mm	62 378 ... £ W4	
62 376 ...	38	12	69.54	320


Clamping screw ST

Spare parts DCONWS	62 950 ... £ W7	
6	1.75	214
7	1.75	214
8	1.75	214

SpinTools – Multi-Head – Boring and Fine Boring Head Set

- suitable for Ø 3 – Ø 320 mm

Scope of supply:

- **1 Tool Kit**
- **1 Multi-Head-Boring- and Fine Boring Head (depending on selection)**
- **4 Boring bars**
  - 62 345 015 Ø 9.75 – Ø 15.1 mm
  - 62 345 020 Ø 14.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 25.1 mm
  - 62 345 029 Ø 24.75 – Ø 30.1 mm
- **2 Boring tools, adjustable**
  - 62 375 048 Ø 29.75 – Ø 48.1 mm
  - 62 375 088 Ø 47.75 – Ø 88.1 mm
- **incl. insert holder**
  - 62 377 048 CC.. 0602
  - 62 377 088 CC.. 0602
- **1 Bridge**
  - 62 376 164 Ø 86 – Ø 164 mm
- **1 Torx-Key – T7**
- **1 6-adjustment key – SW5**

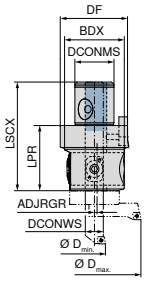


		STM Modular 62 374 ... £ W4		HSK-A 62 379 ... £ W4		SK 62 379 ... £ W4		MAS-BT 62 379 ... £ W4	
D_{min} - D_{max} mm	Adapter								
9,75 - 164	STM 36	2,000.08	999						
9,75 - 164	HSK-A 63			2,226.80	996				
9,75 - 164	SK 40					2,226.80	990		
9,75 - 164	BT 40							2,226.80	993

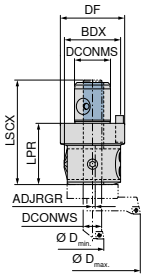
SpinTools – Single point boring heads – Modular system

▲ LSCX = Boring depth
▲ With internal coolant supply

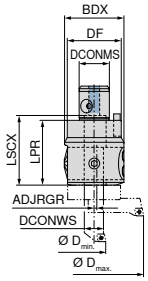
STM



Digital with collar



with flange



without flange


Digital with collar STM Modular


with flange STM Modular


without flange STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	DCONWS mm	LPR mm	LSCX mm	ADJRGR mm	WT kg	62 326 ... £ W4		62 332 ... £ W4		62 332 ... £ W4	
3,0 - 88,1	STM 28	28	55	50	16	60	62	0 - 2,7	0.98					826.23	**553**
3,0 - 88,1	STM 36	36	55	63	16	60	101	0 - 2,7	1.26			826.23	**653**		
3,0 - 88,1	STM 36	36	55	63	16	60	106	0 - 2,7	0.43	1,128.94	**036**				


Clamping screw


Screw for drivers


Driver


Clamping screw ST

Spare parts for Article no.		62 950 ... £ W7			62 950 ... £ W7			62 950 ... £ W7			62 950 ... £ W7	
62 332 553	M10x16	1.75	**047**	M5x10	1.75	**166**	12x20x6	42.88	**039**	M10x8	1.75	**046**
62 332 653	M10x16	1.75	**047**	M6x12	1.75	**167**	16x26,5x8	54.46	**040**	M10x8	1.75	**046**
62 326 036	M10x16	1.75	**047**	M6x12	1.75	**167**	16x26,5x8	54.46	**040**	M10x8	1.75	**046**

Suitable base adapters can be found on → **page 51.**

SpinTools – Digital Stick

▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
▲ revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery



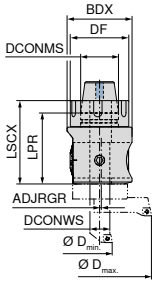
NEW

62 309 ... £ W4	
271.82	**00100**

SpinTools – Single point boring heads

- Interface for use on ER32 collet chucks
- LSCX = Recess depth of boring bar
- with thro' coolant supply
- Suitable for Ø 3.0 – Ø 88.1 mm

ER 32





ER 32

62 332 ...

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	DCONWS mm	LPR mm	LSCX mm	ADJRGR mm	£ W4	
3,0 - 88,1	ER 32	32	55	49.5	16	60	86.5	0 - 2,7	1,032.83	**732**



Clamping screw

62 950 ...



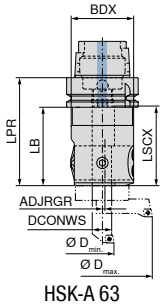
Clamping screw ST

62 950 ...

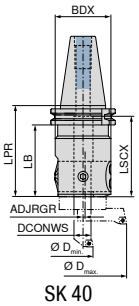
Spare parts for Article no.		£ W7			£ W7	
62 332 732	M10x16	1.75	**047**	M10x8	1.75	**046**

SpinTools – Single Point Boring Head – Monoblock

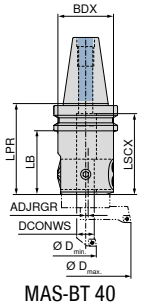
- LSCX = Boring depth
- With internal coolant supply



HSK-A 63



SK 40



MAS-BT 40



HSK-A



SK



MAS-BT

62 333 ...

62 333 ...

62 333 ...

D_{min} - D_{max} mm	Adapter	BDX mm	DCONWS mm	LPR mm	LB mm	LSCX mm	ADJRGR mm	WT kg	£ W4		£ W4		£ W4	
3,0 - 88,1	HSK-A 63	55	16	95	69	70	0 - 2,7	1.66	1,049.29	**653**				
3,0 - 88,1	SK 40	55	16	90	70	80	0 - 2,7	1.83			1,049.29	**153**		
3,0 - 88,1	BT 40	55	16	90	63	80	0 - 2,7	1.90					1,049.29	**453**



Clamping screw

62 950 ...



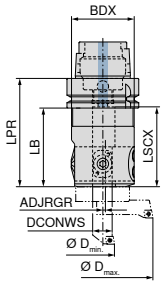
Clamping screw ST

62 950 ...

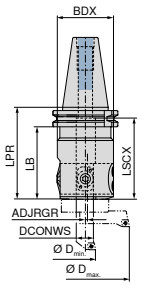
Spare parts D_{min} - D_{max}		£ W7			£ W7	
3,0 - 88,1	M10x16	1.75	**047**	M10x8	1.75	**046**

SpinTools – Single Point Boring Head – Monoblock

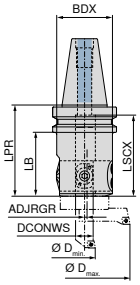
- LSCX = Boring depth
- With internal coolant supply



HSK-A 63



SK 40



MAS-BT 40



Digital HSK-A



Digital SK



Digital MAS-BT

D_{min} - D_{max} mm	Adapter	BDX mm	DCONWS mm	LPR mm	LB mm	LSCX mm	ADJRGR mm	62 363 ... £ W4		62 363 ... £ W4		62 363 ... £ W4	
3,0 - 88,1	HSK-A 63	55	16	95	70	70	0 - 2,7	1,594.05	**688**				
3,0 - 88,1	SK 40	55	16	90	71	80	0 - 2,7			1,594.05	**188**		
3,0 - 88,1	BT 40	55	16	90	59	80	0 - 2,7					1,594.05	**488**



Clamping screw



Clamping screw ST

Spare parts for Article no.		62 950 ... £ W7			62 950 ... £ W7	
62 363 488 / 62 363 188	M10x16	1.75	**047**	M10x8	1.75	**046**

SpinTools – Digital Stick

- suitable for all SpinTools digital heads as well as for hi.flex Digital
- revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery

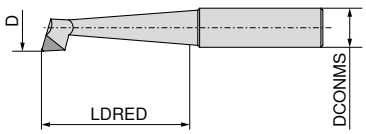


NEW

62 309 ... £ W4

271.82 **00100**

SpinTools – Boring tools with carbide cutting edge





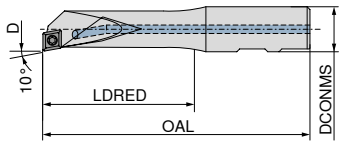
D_{min} - D_{max} mm	LDRED mm	DCONMS $_{h6}$ mm	62 346 ... £ W4	
3,0 - 8,0	20	10	108.01	008
4,0 - 9,0	23	10	108.01	009
5,0 - 10,0	25	10	108.01	010
6,0 - 11,0	25	10	108.01	011
7,0 - 12,0	31	10	108.01	012

P	●
M	○
K	○
N	●
S	
H	
O	

→ v_c Page 66

SpinTools – Steel boring bars

▲ With internal coolant supply





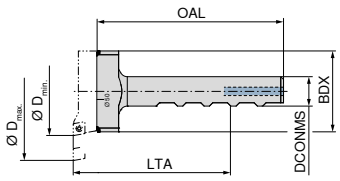
D_{min} - D_{max} mm	OAL mm	LDRED mm	DCONMS $_{h6}$ mm	Insert	62 345 ... £ W4	
9,75 - 15,1	75	30	16	CC.. 0602	147.28	015
11,75 - 17,1	80	37	16	CC.. 0602	147.28	017
13,75 - 19,1	85	43	16	CC.. 0602	147.28	019
14,75 - 20,1	90	51	16	CC.. 0602	147.28	020
15,75 - 21,1	95	57	16	CC.. 0602	147.28	021
17,75 - 23,1	100	67	16	CC.. 0602	147.28	023
19,75 - 25,1	105	72	16	CC.. 0602	169.73	024
19,75 - 25,1	105	72	16	CC.. 09T3	169.73	025
21,75 - 27,1	110	77	16	CC.. 09T3	169.73	027
24,75 - 30,1	115	82	16	CC.. 0602	169.73	029
24,75 - 30,1	115	82	16	CC.. 09T3	169.73	030
27,75 - 33,1	115	82	16	CC.. 09T3	178.14	033
31,75 - 37,1	115	82	16	CC.. 09T3	178.14	037
34,75 - 40,1	115	82	16	CC.. 09T3	178.14	040
38,75 - 44,1	115	82	16	CC.. 09T3	189.38	044
42,75 - 48,1	115	82	16	CC.. 09T3	199.20	048
47,75 - 53,1	115	82	16	CC.. 09T3	223.05	053

Suitable inserts can be found on → **Page 63.**

SpinTools – Adjustable boring bar bridge

▲ With internal coolant supply

Scope of supply:
without insert holder



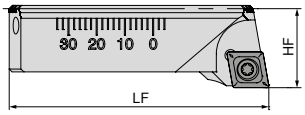


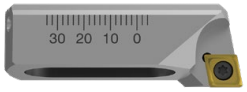
D_{min} - D_{max} mm	OAL mm	BDX mm	LTA mm	DCONMS mm	62 375 ... £ W4	
29,75 - 48,1	103	25	85	16	100.14	048
47,75 - 88,1	101	44	85	16	117.83	088

SpinTools – Tool holder for boring bar and bridge Multi-Head

▲ With internal coolant supply

Scope of supply:
without inserts
incl. mounting screws





for	LF mm	HF mm	Insert	62 377 ... £ W4	
62 375 048	28.2	12	CC.. 0602	178.04	048
62 375 088 / 62 376 ...	46.0	14	CC.. 0602	196.11	088
62 375 088 / 62 376 ...	46.0	14	CC.. 09T3	204.46	089

Suitable inserts can be found on → **Page 63.**


TORX® Screws


Key D

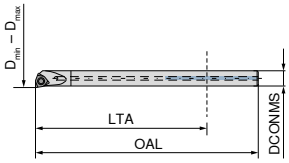

Flange screw

Spare parts for Article no.	62 950 ... £ W7		80 950 ... £ Y7		62 950 ... £ W7	
62 377 048	4.64	022	10.82	109	4.60	225
62 377 088	4.64	022	10.82	109	4.60	225
62 377 089	5.40	023	12.87	113	4.60	225

5

SpinTools – Boring bars with carbide shank

▲ With internal coolant supply
▲ LTA = max. overhang





D_{min} - D_{max} mm	DCONMS h6 mm	OAL mm	LTA mm	Insert	62 341 ... £ W4	
5,8 - 11,2	5	80	45	WC.. 0201..	216.04	011
7,8 - 13,2	6	100	60	WC.. 0201..	216.04	013

Suitable inserts can be found on → **Page 62.**

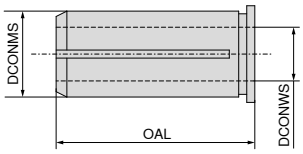

TORX® Screws


Key D

Spare parts Insert	62 950 ... £ W7		80 950 ... £ Y7	
WC.. 0201..	4.64	021	11.71	108

SpinTools – Reduction sleeves

▲ for boring bars and boring tools

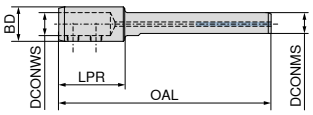




DCONMS mm	DCONWS mm	OAL mm	62 335 ... £ W4	
16	4	37	67.34	104
16	5	37	67.34	105
16	6	37	67.34	106
16	8	37	67.34	108
16	9	37	67.34	109
16	10	37	67.34	110
16	11	37	67.34	111
16	12	37	67.34	112
16	13	37	67.34	113
16	14	37	67.34	114

SpinTools – Boring tool extensions

▲ with thro' coolant





DCONWS mm	DCONMS mm	BD mm	OAL mm	LPR mm	62 337 ... £ W4	
10	16	16	128		144.50	128
16	16	24	148	44	164.12	148


Clamping screw

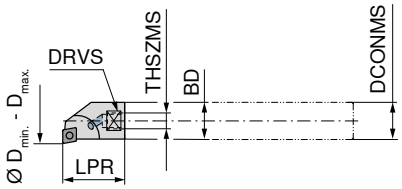
Spare parts for Article no.	62 950 ... £ W7	
62 337 128	8.59	048
62 337 148	6.74	049

SpinTools – High-speed boring head

- for overturning holder and high speed carbide shank
- With internal coolant supply
- $D_{max.}$ = using a head with fine adjustment 0 – 2,7 mm

Scope of supply:

Boring head without boring shank, without inserts





D_{min} - D_{max} mm	LPR mm	THSZMS	DCONMS h6 mm	Insert	62 361 ... £ W4	
8,75 - 14,1	18	M5	8	CC.. 0602	101.54	014
9,75 - 15,1	18	M5	9	CC.. 0602	101.54	015
10,75 - 16,1	23	M6	10	CC.. 0602	101.54	016
11,75 - 17,1	23	M6	11	CC.. 0602	101.54	017
12,75 - 18,1	23	M6	12	CC.. 0602	101.54	018
13,75 - 19,1	23	M6	13	CC.. 0602	101.54	019
14,75 - 20,1	23	M6	14	CC.. 0602	101.54	020
15,75 - 21,1	23	M6	14	CC.. 0602	101.54	021
16,75 - 22,1	27	M10	16	CC.. 0602	101.54	022
17,75 - 23,1	27	M10	16	CC.. 0602	101.54	023
19,75 - 25,1	27	M10	16	CC.. 0602	101.54	025
21,75 - 27,1	27	M10	16	CC.. 0602	102.93	027
24,75 - 30,1	27	M10	16	CC.. 0602	102.93	030
27,75 - 33,1	27	M10	16	CC.. 0602	102.93	033
31,75 - 37,1	27	M10	16	CC.. 0602	111.28	037
34,75 - 40,1	27	M10	16	CC.. 0602	119.24	040

Suitable inserts can be found on → **Page 63.**


TORX® Screws


Key D

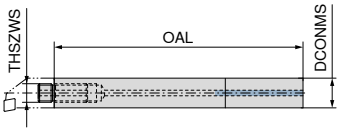
Spare parts Insert	62 950 ... £ W7		80 950 ... £ Y7	
CC.. 0602	4.64	022	10.82	109

SpinTools – High-speed carbide boring bars

- with threaded mounting stud made of high quality steel
- with thro' coolant
- Shank clamping length 35 mm
- Boring shanks with DCONMS Ø 18 mm are for use in collet chuck or hydraulic chuck

Scope of supply:

boring shank, without boring head





DCONMS h6 mm	OAL mm	THSZWS	62 353 ... £ W4	
8	73	M5	204.46	008
9	80	M5	214.21	009
10	82	M6	228.11	010
11	89	M6	239.22	011
12	96	M6	251.74	012
13	103	M6	255.92	013
14	110	M6	311.57	014
16	120	M10	346.33	016

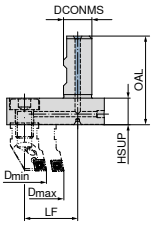
Information on the working length can be found on → **Page 73.**

SpinTools – Over turning holder for boring head

- With internal coolant supply

Scope of supply:

Over turning holder incl. fixing screw, but without boring head and indexable inserts



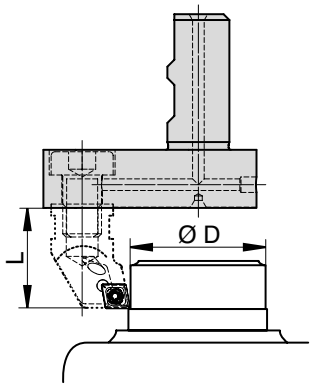


D_{min} - D_{max} mm	DCONMS h6 mm	LF mm	HSUP mm	OAL mm	62 404 ... £ W4	
5,3 - 28,6	16	20	15	50	251.74	028
25,3 - 48,6	16	30	15	50	294.86	048

5

Help me choose the correct over-turning adapter

- ▲ for the combination of overturning with high speed boring heads
- ▲ the length L can be extended with shank extensions



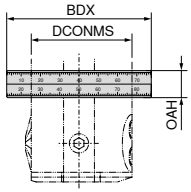
Boring range Ø $D_{min.}$ – Ø $D_{max.}$ mm	Tool holder 62 404 ...	L mm	Boring Head 62 361 ...	Page No.
5,3 – 10,6	028	27	040	31
8,3 – 13,6	028	27	037	
12,3 – 17,6	028	27	033	
15,3 – 20,6	028	27	030	
18,3 – 23,6	028	27	027	
20,3 – 25,6	028	27	025	
22,3 – 27,6	028	27	023	
23,3 – 28,6	028	27	022	
25,3 – 30,6	048	27	040	
28,3 – 33,6	048	27	037	
32,3 – 37,6	048	27	033	
35,3 – 40,6	048	27	030	
38,3 – 43,6	048	27	027	
40,3 – 45,6	048	27	025	
42,3 – 47,6	048	27	023	
43,3 – 48,6	048	27	022	

SpinTools – Balancing rings

- ▲ For balancing the tools without dynamic balancing machine

Scope of supply:

CD-ROM with application data and setting values





DCONMS mm	BDX mm	OAH mm	WT kg	62 300 ... £ W4	
32	50	16	0.08	234.26	**032**
40	58	16	0.09	251.10	**040**
50	70	16	0.13	269.33	**050**
55	75	16	0.14	279.15	**055**
63	84	16	0.16	287.57	**063**



Clamping screw

Spare parts DCONMS	62 950 ... £ W7	
32 - 63	9.16	**009**

SpinTools – Single point boring heads Set 1

- suitable for Ø 3 – Ø 88.1 mm
- supplied with Ø 9.75 – Ø 30.1 or Ø 9.75 – Ø 40.1 mm
- with thro' coolant

Scope of supply:

- **1 Tool Kit**
- **1 single point boring head (depending on selection)**
- **4 Boring bars (SK40- and MAS-BT-Set)**
  - 62 345 015 Ø 9,75 – Ø 15,1 mm
  - 62 345 020 Ø 14,75 – Ø 20,1 mm
  - 62 345 024 Ø 19,75 – Ø 25,1 mm
  - 62 345 029 Ø 24,75 – Ø 30,1 mm
- **8 Boring bars (Modular-Set)**
  - 62 345 015 Ø 9,75 – Ø 15,1 mm
  - 62 345 019 Ø 13,75 – Ø 19,1 mm
  - 62 345 023 Ø 17,75 – Ø 23,1 mm
  - 62 345 027 Ø 21,75 – Ø 27,1 mm
  - 62 345 030 Ø 24,75 – Ø 30,1 mm
  - 62 345 033 Ø 27,75 – Ø 33,1 mm
  - 62 345 037 Ø 31,75 – Ø 37,1 mm
  - 62 345 040 Ø 34,75 – Ø 40,1 mm
- **1 6-adjustment key – SW5**
- **1 Torx-Key – T7**



D_{min} - D_{max} mm	Adapter	STM Modular 62 334 ... £ W4		SK 62 345 ... £ W4		MAS-BT 62 345 ... £ W4	
9,75 - 40,1	STM 36	1,928.81	**999**				
9,75 - 30,1	SK 40			1,515.00	**990**		
9,75 - 30,1	BT 40					1,515.00	**993**

SpinTools – Single point boring heads Set 2

- suitable for Ø 3 – Ø 88.1 mm
- Supplied with Ø 9.75 – Ø 88.1 mm
- with thro' coolant

Scope of supply:

- **1 Tool Kit**
- **1 Fine boring head (depending on selection)**
- **4 Boring bars**
  - 62 345 015 Ø 9.75 – Ø 15.1 mm
  - 62 345 020 Ø 14.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 25.1 mm
  - 62 345 029 Ø 24.75 – Ø 30.1 mm
- **2 Boring tools, adjustable**
  - 62 375 048 Ø 29.75 – Ø 48.1 mm
  - 62 375 088 Ø 47.75 – Ø 88.1 mm
- **incl. insert holder**
  - 62 377 048 CC.. 0602
  - 62 377 088 CC.. 0602
- **1 Torx key – T7**
- **1 6-adjustment key – SW5**



D_{min} - D_{max} mm	Adapter	STM Modular 62 334 ... £ W4		HSK-A 62 345 ... £ W4		SK 62 345 ... £ W4		MAS-BT 62 345 ... £ W4	
9,75 - 88,1	STM 36	1,837.63	**997**						
9,75 - 88,1	HSK-A 63			2,060.67	**997**				
9,75 - 88,1	SK 40					2,060.67	**998**		
9,75 - 88,1	BT 40							2,060.67	**999**

SpinTools – Single point boring heads ER32 Set

- Suitable for Ø 3.0 – Ø 88.1 mm
- Scope of supply Ø 9.75 – Ø 30.1 mm
- with thro' coolant supply

Scope of supply:

- **1 tool kit**
- **1 single point boring head (62 332 732)**
- **4 boring bars**
  - 62 345 015 Ø 9.75 – Ø 15.1 mm
  - 62 345 020 Ø 14.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 25.1 mm
  - 62 345 029 Ø 24.75 – Ø 30.1 mm
- **1 Torx Key – T7**
- **1 Allen Key – SW5**



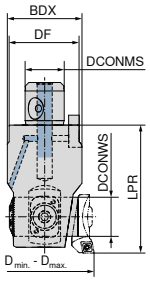
D_{min} - D_{max} mm	Adapter	62 332 ... £ W4	
9,75 - 30,1	ER 32	1,374.92	**999**

SpinTools – Single point finish boring heads

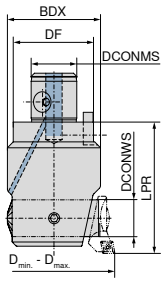
▲ With internal coolant supply

Scope of supply:
without insert holder and inserts

STM



Digital



Analogue


Digital STM Modular


Analogue STM Modular

D_{min} - D_{max} mm	D_{min} - D_{max} extended mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	DCONWS mm	WT kg	62 308 ... £ W4		62 303 ... £ W4	
23,9 - 31,1	29,9 - 37,1	STM 11	11	22.5	20	40	11	0.08	809.37	**031**	538.66	**031**
30,9 - 40,1	37,9 - 47,1	STM 14	14	29.0	25	45	13	0.15	809.37	**040**	538.66	**040**
39,9 - 51,1	47,9 - 59,1	STM 18	18	37.0	32	65	17	0.38	828.94	**051**	556.90	**051**
50,9 - 67,1	64,9 - 81,1	STM 22	22	47.0	40	72	22	0.70	858.34	**067**	583.55	**067**
66,9 - 87,1	84,9 - 105,1	STM 28	28	59.0	50	82	30	1.32	908.54	**087**	629.85	**087**
86,9 - 116,1	104,9 - 134,1 (124,9 - 154,1)	STM 36	36	72.0	63	105	30	3.15	1,028.54	**116**	736.46	**116**

For optimal stability when fine boring the main insert holder ranges are preferred over the extended range.


Screw for drivers


Driver


Fillister-head screw


Clamping screw ST

Spare parts for Article no.		62 950 ... £ W7			62 950 ... £ W7			62 950 ... £ W7			62 950 ... £ W7	
62 303 031 / 62 308 031	M2x2,5	1.18	**162**	5x8,5x3	28.28	**035**	M4x6	9.16	**287**	M4x3	1.75	**213**
62 303 040 / 62 308 040	M2,5x6	1.18	**163**	6x10,3x4	30.22	**036**	M5x8	9.16	**288**	M5x4	1.75	**214**
62 303 051 / 62 308 051	M3x8	1.45	**164**	8x15x5	31.73	**037**	M6x10	9.16	**289**	M6x5	1.75	**215**
62 303 067 / 62 308 067	M4x10	1.45	**165**	10x18,1x6	35.79	**038**	M8x12	9.16	**290**	M8x6	1.75	**216**
62 303 087 / 62 308 087	M5x10	1.75	**166**	12x20x6	42.88	**039**	M10x16	9.16	**291**	M10x10	1.75	**217**
62 303 116 / 62 308 116	M6x12	1.75	**167**	16x26,5x8	54.46	**040**	M10x16	9.16	**291**	M10x18	1.75	**218**

Suitable base adapters can be found on → **page 51.**

SpinTools – Digital Stick

▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
▲ revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery



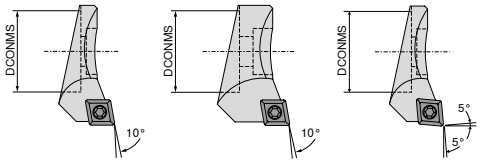
NEW

62 309 ... £ W4	
271.82	**00100**

SpinTools – Insert holder, 90° and 95°

▲ for single point finish boring heads Art. No. 62 303 ..., 62 308 ...

Scope of supply:
incl. Torx clamping screw for inserts, without fixing bolt for holder



90° Extended 90° 95°



90° 90° extended 95°

DCONMS mm	Insert	62 318 ... £ W4		62 318 ... £ W4		62 320 ... £ W4	
11	CC.. 0602	112.22	031	133.26	037	123.45	031
13	CC.. 0602	123.45	040	147.28	047	136.07	040
17	CC.. 0602	136.07	051	161.31	059	150.09	051
22	CC.. 0602	147.28	067	175.35	081	154.30	067
30	CC.. 0602	159.92	087	189.38	105		
30	CC.. 09T3	159.92	116	189.38	134	175.35	087
30	CC.. 09T3			221.63	154		

Suitable inserts can be found on → **Page 63.**



TORX® Screws

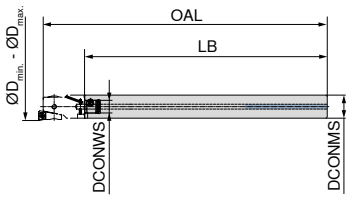


Key D

Spare parts Insert		62 950 ... £ W7		80 950 ... £ Y7	
CC.. 0602	M2,5x6	4.64	022	T07	10.82	109
CC.. 09T3	M4x9	5.40	023	T15	12.87	113

SpinTools – High-speed carbide boring tools

▲ Shaft extension for single point finish boring heads Art. No. 62 303 ..., 62 308 ...
▲ with thro' coolant supply



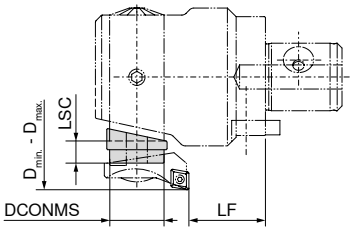


D_{min} - D_{max} mm	DCONWS mm	DCONMS h5 mm	OAL mm	LB mm	WT kg	62 354 ... £ W4	
23,9 - 31,1	11	20	250	210	0.81	1,114.08	020
30,9 - 40,1	14	25	306	261	1.54	1,523.01	025
39,9 - 51,1	18	32	380	315	3.03	2,383.97	032

SpinTools – Reverse adapter for back boring

▲ For insert holder Art. No. 62 318 ... / 62 320 ...

Scope of supply:
Adapter including fixing bolt





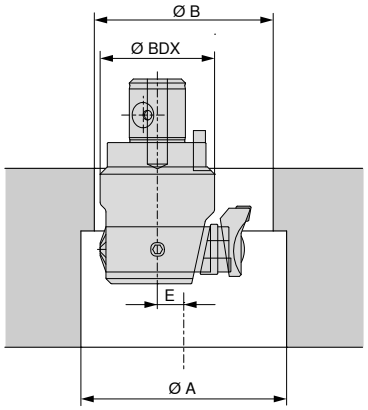
LSC mm	DCONMS mm	LF mm	D_{min} - D_{max} mm	62 321 ... £ W4	
6.5	11	13.0	37 - 44	173.94	**044**
8.0	11	13.0	40 - 47	173.94	**051**
6.5	13	12.6	44 - 53	173.94	**053**
10.0	13	12.6	51 - 60	173.94	**060**
6.5	17	31.3	53 - 64	173.94	**064**
10.0	17	31.3	60 - 71	173.94	**071**
6.5	22	31.2	68 - 80	179.56	**080**
12.0	22	31.2	75 - 91	179.56	**091**
10.0	30	29.0	87 - 107	185.15	**107**

Note left hand direction of spindle rotation when in use


Fillister-head screw

Spare parts for Article no.	62 950 ... £ W7	
62 321 044	9.11	**278**
62 321 051	9.43	**279**
62 321 053	9.11	**280**
62 321 060	9.43	**281**
62 321 064	9.11	**282**
62 321 071	9.43	**283**
62 321 080	9.11	**284**
62 321 091	9.43	**285**
62 321 107	10.79	**286**

Minimum diameter (Ø B) during retraction for back boring



Minimum diameter (Ø B) of the entry bore

$$Ø\,B = \frac{Ø\,BDX + Ø\,A}{2} + 1^*$$

Minimum offset (E) for starting

$$E = \frac{Ø\,A - Ø\,B}{2} + 0{,}5^*$$

*Safety margin

Example:
Boring head = 62 303 031
Insert Holder = 62 318 031
Reverse adapter = 62 321 044
Ø BDX = 20 mm
Ø A ≙ Amin. = 37 mm
*Safety margin = 1 mm

$$Ø\,B = \frac{20 + 37}{2} = 28{,}5 + 1 = 29{,}5\ \text{mm}$$

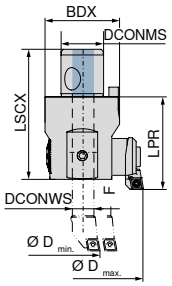
5

SpinTools – Vario-Head – boring and fine boring head

- For boring bars with a diameter of 16 mm and insert holders
- with thro' coolant supply
- LSCX = Recess depth of boring bar

Scope of supply:
Without boring bar and insert holder
Incl. coolant insert

STM





Digital
STM Modular

62 364 ...

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DCONWS mm	LPR mm	LSCX mm	ADJRGR mm	£ W4	
3 - 152,1	STM 36	36	63	16	76.5	110	0 - 6,5	1,251.17	**101**



Coolant insert

62 366 ...

Spare parts for Article no.

	£ W4	
62 364 101	89.36	**002**



Clamping screw VH

62 950 ...

	£ W7			£ W7	
M10X12	5.68	**341**	M3X14	5.68	**340**



Grubscrew

62 950 ...



Cylindrical screw

62 950 ...

	£ W7			£ W7	
M10x25	6.81	**343**	M10X18	5.68	**342**



Clamping screw

62 950 ...

Suitable base adapters can be found on → **page 51.**

SpinTools – Digital Stick

- suitable for all SpinTools digital heads as well as for hi.flex Digital
- revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery



NEW

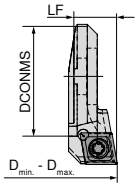
62 309 ...

£ W4	
271.82	**00100**

SpinTools – Insert holder, 90°

▲ for Vario-Head boring and fine boring head 62 364 101

Scope of supply:
incl. Torx clamping screw for inserts, without fixing bolt for holder





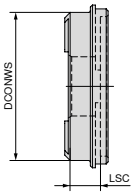
90°

LF mm	DCONMS mm	Insert	D_{min} - D_{max} mm	D_{min} - D_{max} extended mm	62 365 ... £ W4	
13.05	30	CC.. 09T3	87,75 - 101,1	100,75 - 114,1	198.24	**101**
22.05	30	CC.. 09T3	105,75 - 119,1	118,75 - 132,1	236.73	**119**
32.05	30	CC.. 09T3	125,75 - 139,1	138,75 - 152,1	277.26	**139**

Suitable inserts can be found on → **Page 63.**

SpinTools – Spacer

▲ For insert holder article no. 62 365 ...





LSC mm	DCONWS mm	62 366 ... £ W4	
6.5	30	225.94	**001**

5

SpinTools – Vario Digital single point boring head (set)

▲ Suitable for Ø 3 – Ø 152 mm
▲ supplied with Ø 9.75 – Ø 101.1 mm
▲ with thro' coolant supply

Scope of supply:

- ▲ **1 tool kit**
- ▲ **1 single point finish boring head**
  - 62 364 101
- ▲ **2 boring bars**
  - 62 345 015 Ø 9.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 30.1 mm
- ▲ **Boring bars, adjustable**
  - 62 375 048 Ø 29.75 – Ø 48.1 mm
  - 62 375 088 Ø 47.75 – Ø 88.1 mm
- ▲ **3 insert holders**
  - 62 377 048 Ø 29.75 – Ø 48.1 mm
  - 62 377 088 Ø 47.75 – Ø 88.1 mm
  - 62 365 101 Ø 87.75 – Ø 101.1 mm
- ▲ **1 coolant insert 62 366 002**
- ▲ **1 digital display unit 62 309 00100**
- ▲ **4 Allen keys – SW2.5/4/5/8**
- ▲ **2 Torx keys – T7/15**



STM Modular

D_{min} - D_{max} mm	Adapter	62 364 ... £ W4	
9,75 - 101,1	STM 36	2,337.70	**999**

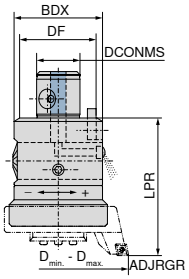
SpinTools – Single point finish boring heads

- With internal coolant supply
- extremely stable connection between insert holder and boring head

Scope of supply:

Boring head, without insert holder, pressure plate and support

STM





STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	ADJRGR mm	WT kg	62 305 ... £ W4	
86 - 402	STM 36	36	72	63	120	± 1,25	2.94	1,635.63	**302**



Cylindrical screw



Screw for drivers



Driver



Clamping screw ST

Spare parts for Article no.		62 950 ... £ W7			62 950 ... £ W7			62 950 ... £ W7			62 950 ... £ W7	
62 305 302	M8x45	5.25	**292**	M6x12	1.75	**167**	16x26,5x8	54.46	**040**	M8x60	9.43	**011**

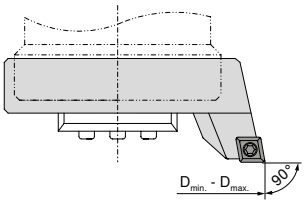
Suitable base adapters can be found on → **page 51.**

SpinTools – Tool holder

- for single point finish boring heads
- Approach angle 90°

Scope of supply:

incl. cover plate and support





D_{min} - D_{max} mm	Insert	62 438 ... £ W4	
86 - 138	CC.. 09T3	351.91	**138**
86 - 138	CC.. 1204	351.91	**238**
136 - 220	CC.. 09T3	420.04	**220**
136 - 220	CC.. 1204	418.66	**320**
188 - 302	CC.. 09T3	524.36	**302**
242 - 402	CC.. 09T3	628.67	**402**

Suitable inserts can be found on → **Page 63.**

Spare parts – insert holder


TORX® Screws


Key D


Pressure plate


Support

Spare parts for Article no.		62 950 ... £ W7			80 950 ... £ Y7		62 950 ... £ W7		62 950 ... £ W7	
62 438 138	M4x9	5.40	023	T15	12.87	113	96.09	152	72.62	149
62 438 238	M5x10	6.13	232	T20	13.77	114	96.09	152	72.62	149
62 438 220	M4x9	5.40	023	T15	12.87	113	110.44	153	82.06	150
62 438 320	M5x10	6.13	232	T20	13.77	114	110.44	153	82.06	150
62 438 302	M4x9	5.40	023	T15	12.87	113	110.44	153	82.06	150
62 438 402	M4x9	5.40	023	T15	12.87	113	110.44	153	82.06	150

5

SpinTools – Boring set

- suitable for Ø 86 – Ø 402 mm
- supplied with Ø 86 – Ø 302 mm
- with thro' coolant

Scope of supply:

- **1 Case**
- **1 single point finish boring head**
  - 62 305 302
- **3 insert holders**
  - 62 438 138 Ø 86 – Ø 138 mm
  - 62 438 220 Ø 136 – Ø 220 mm
  - 62 438 302 Ø 188 – Ø 302 mm
- **2 pressure plates and 2 supports**
  - 62 950 149
  - 62 950 150
  - 62 950 152
  - 62 950 153
- **1 Allen Key – SW5**
- **1 Torx Key – T15**



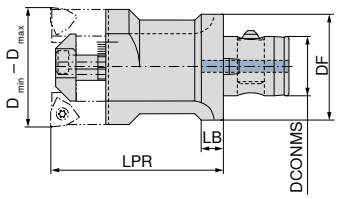
D_{min} - D_{max} mm	Adapter	STM Modular 62 439 ... £ W4	
86 - 302	STM 36	2,518.89	999

TwinKom – Base body

Scope of supply:

Clamping plate incl. adjustment and fixing screws
Order tool holder (+ indexable insert) and indexable inserts separately

ABS





D_{min} - D_{max} mm	KOMET no.	DCONMS mm	DF mm	Adapter	LPR mm	LB mm	NEW long 62 870 ... £ W4		NEW short 62 870 ... £ W4	
24 - 32	G01 70552	13	25	ABS 25	45	6.0			423.65	**03290**
24 - 32	G01 71072	16	32	ABS 32	70	7.0	438.55	**13289**		
30 - 41	G01 70562	13	25	ABS 25	50				423.65	**04190**
30 - 41	G01 71132	16	32	ABS 32	85	7.5	438.55	**14189**		
39 - 53	G01 71022	16	32	ABS 32	60				554.17	**05389**
39 - 53	G01 71622	20	40	ABS 40	120	8.0	566.99	**15388**		
51 - 71	G01 71522	20	40	ABS 40	60				566.99	**07188**
51 - 71	G01 72122	28	50	ABS 50	135	10.0	590.67	**17197**		
64 - 91	G01 72022	28	50	ABS 50	70				613.31	**09197**
64 - 91	G01 72622	34	63	ABS 63	155	13.0	681.45	**19196**		
83 - 124	G01 72522	34	63	ABS 63	70				614.34	**12496**
83 - 124	G01 73122	46	80	ABS 80	155	16.5	698.31	**12592**		
109 - 167	G01 73032	46	80	ABS 80	90				888.89	**16792**[1]
109 - 167	G01 73042	46	80	ABS 80	175		991.57	**16892**[1]		
139 - 215	G01 73562	56	100	ABS 100	125				772.89	**21591**[1]
139 - 215	G01 73572	56	100	ABS 100	240		907.67	**21691**[1]		

1) Diameter range can only be achieved with TwinKom basic tool holder (radially + axially adjustable) and corresponding indexable insert!


Adjustment pin


Adjustment screw


TwinKom clamping plate


Fixing screw

Spare parts D_{min} - D_{max}		62 950 ... £ W7			10 950 ... £ W7		62 950 ... £ W7			10 950 ... £ W7	
24 - 32	24-32	7.62	**46200**	M2,5X5.SW1,3	0.64	**16500**	57.00	**46900**	M2x4,5 TX6	2.93	**15800**
30 - 41	30-41	7.62	**46300**	M2,5X5.SW1,3	0.64	**16500**	64.23	**47000**	M2,5x5,3 TX8	2.73	**15900**
39 - 53	39-53	7.62	**46400**	M4x8 - SW2	1.01	**11100**	63.43	**47100**	M2,5x7 TX8	2.73	**16000**
51 - 71	51-71	7.62	**46500**	M4x10 - SW2	1.01	**11200**	66.63	**47200**	M3,5x9,4 TX10	2.73	**16300**
64 - 91	64-91	7.62	**46600**	M6X12 SW3	1.01	**16100**	76.28	**47300**	M4,5x11,5 - T15	2.73	**13500**
83 - 124	83-124	7.62	**46700**	M6X20 SW3	1.01	**16200**	77.88	**47400**	M5x12 - SW2,5	1.01	**11000**
109 - 167	109-167	7.62	**46800**	M8X20.SW4	1.52	**16600**	97.93	**47500**			
139 - 215	139-215	8.59	**47800**	M10X20 DIN 913	2.57	**17500**	110.83	**47700**	M6x20 Sw5	0.80	**17600**


Cylindrical screw TwinKom


Cylindrical screw

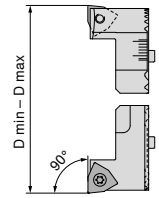
Spare parts D_{min} - D_{max}		62 950 ... £ W7			62 950 ... £ W7	
24 - 32	M3X16	0.60	**46000**			
30 - 41	M4X20	1.01	**45500**			
39 - 53	M5X25	1.01	**45600**			
51 - 71	M6X30	1.01	**45700**			
64 - 91	M8X35	1.01	**45800**			
83 - 124	M8X45	1.11	**45900**			
109 - 167	M10X50	1.52	**46100**	M5x16	0.87	**00000**
139 - 215	M12x60	1.52	**47600**			

A detailed operating manual is available for download in the online shop next to the product.

TwinKom – Tool holder 90°

- ▲ radially adjustable
- ▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately





NEW

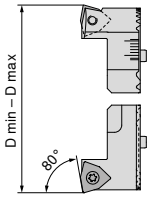
62 871 ...

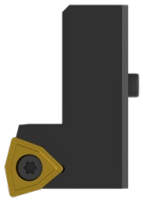
D_{min} - D_{max} mm	KOMET no.	Insert	£ W4	
24 - 32	G03 70330	WO.X 0403	171.75	03200
30 - 41	G03 70141	WO.X 05T3	171.75	04100
39 - 53	G03 70230	WO.X 05T3	167.01	05300
51 - 71	G03 70240	WO.X 06T3	175.33	07100
64 - 91	G03 70250	WO.X 0804	186.19	09100
83 - 124	G03 70260	WO.X 1005	201.78	12400

TwinKom – Tool holder 80°

- ▲ radially adjustable
- ▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately





NEW

62 875 ...

D_{min} - D_{max} mm	KOMET no.	Insert	£ W4	
24 - 32	G03 80310	WO.X 0403	171.75	03200
30 - 41	G03 80021	WO.X 05T3	171.75	04100
39 - 53	G03 80090	WO.X 05T3	167.01	05300
51 - 71	G03 80100	WO.X 06T3	175.33	07100
64 - 91	G03 80110	WO.X 0804	186.19	09100
83 - 124	G03 80120	WO.X 1005	201.78	12400



Clamping screw

10 950 ...

D_{min} - D_{max}	£ W7	
24 - 32	2.26	10700
30 - 41	2.26	10500
39 - 53	2.26	10500
51 - 71	2.26	10600
64 - 91	2.43	12700
83 - 124	2.43	12700

Suitable inserts can be found on → **Page 59.**

TwinKom – depths of cut

ap_{max}	P	M	K	N	S
WO.X 0302	1,5	1,0	1,5	2,0	1,0
WO.X 0403	2,5	1,5	3,0	3,0	1,5
WO.X 05T3	4,5	3,5	5,0	5,0	3,5
WO.X 05T6	6,0	4,0	6,0	6,0	4,0
WO.X 0804	7,5	6,0	7,5	7,5	6,0
WO.X 1005	9,0	9,0	9,0	9,0	9,0

Further cutting data can be found on → **Page 65.**

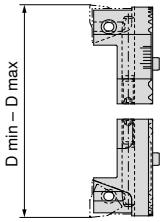
Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

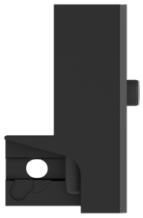
TwinKom – Basic tool holder, radially and axially adjustable

▲ Price per piece

Scope of supply:

Order indexable insert seats and indexable inserts separately





NEW

62 872 ...

D_{min} - D_{max} mm	KOMET no.	£ W4	
24 - 32	G03 70011	186.19	03200
30 - 41	G03 70021	186.19	04100
39 - 53	G03 70031	197.04	05300
51 - 71	G03 70041	203.05	07100
64 - 91	G03 70061	242.67	09100
83 - 124	G03 70071	297.87	12400
109 - 167	G03 70081	314.74	16700
139 - 215	G03 70091	367.31	21500

TwinKom – Indexable insert, 90°

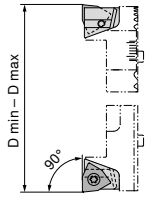
▲ axially adjustable

▲ Price per piece

Scope of supply:

including clamping screw

Order indexable inserts separately





NEW

62 873 ...

D_{min} - D_{max} mm	KOMET no.	Insert	£ 2B/6#	
24 - 32	D54 60510	W0.X 0302	97.84	03200
30 - 41	D54 60520	W0.X 0403	111.21	04100
39 - 53	D54 60030	W0.X 05T3	119.12	05300
51 - 71	D54 60040	W0.X 06T3	129.06	07100
64 - 91	D54 60050	W0.X 0804	133.07	09100
83 - 167	D54 60060	W0.X 1005	146.91	12400
139 - 215	D54 60070	W0.X 1206	165.81	21500

TwinKom – Indexable insert, 80°

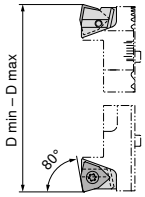
▲ axially adjustable

▲ Price per piece

Scope of supply:

including clamping screw

Order indexable inserts separately





NEW

62 874 ...

D_{min} - D_{max} mm	KOMET no.	Insert	£ 2B/6#	
24 - 32	D54 60610	W0.X 0302	97.84	03200
30 - 41	D54 60620	W0.X 0403	111.21	04100
39 - 53	D54 60130	W0.X 05T3	119.12	05300
51 - 71	D54 60140	W0.X 06T3	129.06	07100
64 - 91	D54 60150	W0.X 0804	133.07	09100
83 - 167	D54 60160	W0.X 1005	146.91	16700
139 - 215	D54 60170	W0.X 1206	165.81	21500



Clamping screw

10 950 ...

Spare parts

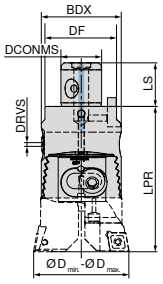
D_{min} - D_{max}	£ W7	
24 - 32	2.26	10000
30 - 41	2.26	10700
39 - 53	2.26	10800
51 - 71	2.73	16400
64 - 91	2.43	12700
83 - 167	2.43	12700
139 - 215	2.43	17400

SpinTools – Twin edged Rough / Finish Boring Head

▲ Adjustable tools with through coolant
▲ each line on the adjustment scale equivalent to 0.01 mm on diameter

Scope of supply:
Boring head with spindle adjustment, carrier, stop pin, 2 screws, 2 lock washers

STM





5

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	LS mm	DRVS mm	WT kg	STM Modular 62 380 ... £ W4	
29,5 - 40,1	STM 14	14	25	25	55	16	2.5	0.12	418.66	**040**
39,5 - 50,5	STM 18	18	32	32	65	20	2.5	0.24	436.74	**050**
49,5 - 66,5	STM 22	22	42	40	82	24	3.0	0.48	472.91	**066**
65,5 - 87,5	STM 28	28	55	50	100	30	3.0	0.94	525.76	**087**
86,5 - 115,5	STM 36	36	72	63	125	40	3.0	1.89	631.47	**115**


Fillister-head screw


Spring ring


Location Pin

Spare parts for Article no.		62 950 ... £ W7			62 950 ... £ W7		62 950 ... £ W7	
62 380 040	M5x12	3.45	**293**	Ø 5,3/9,3	1.18	**312**	9.11	**231**
62 380 050	M6x16	3.45	**294**	Ø 6.4/10,2	1.18	**313**	9.11	**231**
62 380 066	M8x20	3.45	**295**	Ø 8,4/14,0	1.18	**314**	10.23	**234**
62 380 087	M10x25	3.58	**296**	Ø 10,5/17,0	1.18	**315**	10.23	**234**
62 380 115	M12x25	3.90	**297**	Ø 13,0/21,0	1.18	**316**	10.23	**234**


Screw for drivers


Driver

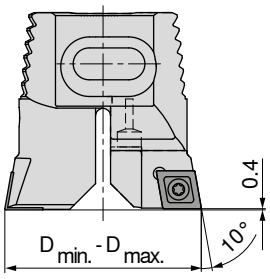
Spare parts for Article no.		62 950 ... £ W7			62 950 ... £ W7	
62 380 040	M2,5x6	1.18	**163**	6x10,3x4	30.22	**036**
62 380 050	M3x8	1.45	**164**	8x15x5	31.73	**037**
62 380 066	M4x10	1.45	**165**	10x18,1x6	35.79	**038**
62 380 087	M5x10	1.75	**166**	12x20x6	42.88	**039**
62 380 115	M6x12	1.75	**167**	16x26,5x8	54.46	**040**

Suitable base adapters can be found on → **Page 51.**

SpinTools – Pair of Roughing / Finishing Insert Holders, 90°

- ▲ the insert holder for the finishing process is set back axially by 0.4 mm
- ▲ the insert holder for the finishing process is moved by the adjustable spindle
- ▲ the finishing insert must be mounted in the holder without radial adjustment screw
- ▲ machining allowance for the finishing insert holder approximately 0.3 mm in diameter

Scope of supply:
pair of insert holders, 1 adjusting screw, 2 insert clamping screws, 1 Grub screw





D_{min} - D_{max} mm	Insert		62 381 ... £ W4	
29,5 - 40,1	CC.. 0602		321.29	**040**
39,5 - 50,5	CC.. 09T3		342.15	**050**
49,5 - 66,5	CC.. 09T3		390.84	**066**
65,5 - 87,5	CC.. 1204		509.06	**087**
86,5 - 115,5	CC.. 1204		792.80	**115**

Suitable inserts can be found on → **Page 63.**


TORX® Screws


Key D


Adjustment screw


Backstop screw

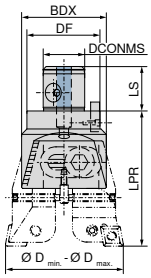
Spare parts for Article no.		62 950 ... £ W7			80 950 ... £ Y7			62 950 ... £ W7			62 950 ... £ W7	
62 381 040	M2,5x6	4.64	**022**	T07	10.82	**109**	M4x0,5x9,5	7.33	**239**	M3x8 - SW1,5	5.61	**015**
62 381 050	M4x9	5.40	**023**	T15	12.87	**113**	M4x0,5x13	7.62	**240**	M3x8 - SW1,5	5.61	**015**
62 381 066	M4x9	5.40	**023**	T15	12.87	**113**	M6x14	1.75	**241**	M3x8 - SW1,5	5.61	**015**
62 381 087	M5x10	6.13	**232**	T20	13.77	**114**	M6x20	1.75	**242**	M3x8 - SW1,5	5.61	**015**
62 381 115	M5x10	6.13	**232**	T20	13.77	**114**	M6x30	2.09	**333**	M3x8 - SW1,5	5.61	**015**

SpinTools – Boring heads for roughing with 2 cutting edges

▲ With internal coolant supply

Scope of supply:
Boring head incl. drive dog, fixing screws, spring rings, drive dog screw and stop pin

STM





STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	LS mm	WT kg	62 295 ... £ W4	
23,5 - 30,5	STM 11	11	20	20	40	13	0.05	234.26	**030**
29,5 - 40,1	STM 14	14	25	25	45	16	0.09	251.10	**040**
39,5 - 50,5	STM 18	18	32	32	65	20	0.25	269.33	**050**
49,5 - 66,5	STM 22	22	42	40	72	24	0.38	305.81	**066**
65,5 - 87,5	STM 28	28	55	50	82	30	0.59	359.11	**087**
86,5 - 115,5	STM 36	36	72	63	105	40	1.23	467.11	**115**
114,5 - 153,0	STM 36	36	94	94	140	40	2.80	809.39	**153**



Fillister-head screw



Spring ring



Location Pin

Spare parts for Article no.		62 950 ... £ W7			62 950 ... £ W7		62 950 ... £ W7	
62 295 030	M4x8	3.45	**298**	Ø 4,3/7,3	1.18	**311**	9.11	**231**
62 295 040	M5x12	3.45	**293**	Ø 5,3/9,3	1.18	**312**	9.11	**231**
62 295 050	M6x16	3.45	**294**	Ø 6.4/10,2	1.18	**313**	9.11	**231**
62 295 066	M8x20	3.45	**295**	Ø 8,4/14,0	1.18	**314**	10.23	**234**
62 295 087	M10x25	3.58	**296**	Ø 10,5/17,0	1.18	**315**	10.23	**234**
62 295 115	M12x25	3.90	**297**	Ø 13,0/21,0	1.18	**316**	10.23	**234**
62 295 153	M16x35	10.69	**299**	Ø 17,0/34,0	1.80	**317**	10.23	**234**



Screw for drivers



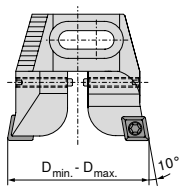
Driver

Spare parts for Article no.		62 950 ... £ W7			62 950 ... £ W7	
62 295 030	M2x2,5	1.18	**162**	5x8,5x3	28.28	**035**
62 295 040	M2,5x6	1.18	**163**	6x10,3x4	30.22	**036**
62 295 050	M3x8	1.45	**164**	8x15x5	31.73	**037**
62 295 066	M4x10	1.45	**165**	10x18,1x6	35.79	**038**
62 295 087	M5x10	1.75	**166**	12x20x6	42.88	**039**
62 295 115	M6x12	1.75	**167**	16x26,5x8	54.46	**040**
62 295 153	M6x12	1.75	**167**	16x26,5x8	54.46	**040**

Suitable base adapters can be found on → **page 51.**

SpinTools – Pair of tool holders, standard, 90°

Scope of supply:
Adjustment screws, positioning pin, insert clamping screws

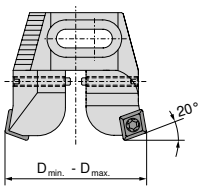




D_{min} - D_{max} mm	Insert	62 296 ... £ W4	
23,5 - 30,5	CC.. 0602	269.33	030
29,5 - 40,1	CC.. 0602	281.96	040
39,5 - 50,5	CC.. 09T3	301.60	050
49,5 - 66,5	CC.. 09T3	343.69	066
65,5 - 87,5	CC.. 1204	429.24	087
65,5 - 87,5	CN.. 1204	447.49	088
86,5 - 115,5	CC.. 1204	678.94	115
86,5 - 115,5	CN.. 1606	698.58	116
114,5 - 153	CN.. 1606	889.36	154
114,5 - 153	CC.. 1204	819.22	153

SpinTools – Pair of tool holders, standard, 70°

Scope of supply:
Adjustment screws, positioning pin, insert clamping screws





D_{min} - D_{max} mm	Insert	62 299 ... £ W4	
23,5 - 30,5	CC.. 0602	269.33	030
29,5 - 40,1	CC.. 0602	281.96	040
39,5 - 50,5	CC.. 09T3	301.60	050
49,5 - 66,5	CC.. 09T3	343.69	066
65,5 - 87,5	CC.. 1204	429.24	087
65,5 - 87,5	CN.. 1204	447.49	088
86,5 - 115,5	CC.. 1204	678.94	115
86,5 - 115,5	CN.. 1606	698.58	116
114,5 - 153	CN.. 1606	889.36	154

Suitable indexable inserts can be found in this chapter on → **page 63.**
Other indexable inserts can be found in Chapter 9 Indexable insert tools.


TORX® Screws

Key D

Adjustment screw

Spare parts D_{min} - D_{max}	Insert	62 950 ...	£ W7		80 950 ...	£ Y7		62 950 ...	£ W7	
114,5 - 153	CC.. 1204	M5x10	6.13	232	T20	13.77	114	M6x40	3.49	335
23,5 - 30,5	CC.. 0602	M2,5x6	4.64	022	T07	10.82	109	M4x0,5x7	7.18	238
29,5 - 40,1	CC.. 0602	M2,5x6	4.64	022	T07	10.82	109	M4x0,5x9,5	7.33	239
39,5 - 50,5	CC.. 09T3	M4x9	5.40	023	T15	12.87	113	M4x0,5x13	7.62	240
49,5 - 66,5	CC.. 09T3	M4x9	5.40	023	T15	12.87	113	M6x14	1.75	241
65,5 - 87,5	CC.. 1204	M5x10	6.13	232	T20	13.77	114	M6x20	1.75	242
86,5 - 115,5	CC.. 1204	M5x10	6.13	232	T20	13.77	114	M6x30	2.09	333


Shim


Elbow lever screw


Lever

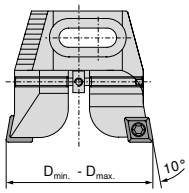

Carbide type C

Adjustment screw

Spare parts D_{min} - D_{max}	Insert	62 950 ...	£ W7		62 950 ...	£ W7		62 950 ...	£ W7		62 950 ...	£ W7		62 950 ...	£ W7	
114,5 - 153	CN.. 1606	2.40	177		7.94	180		24.84	179		26.20	178		M8x40	2.40	334
65,5 - 87,5	CN.. 1204	2.40	096		7.94	136		22.43	125		19.16	117		M6x20	1.75	242
86,5 - 115,5	CN.. 1606	2.40	177		7.94	180		24.84	179		26.20	178		M6x30	2.09	333

SpinTools – Pair of tool holders, ‘Synchro’, 90°

Scope of supply:
Insert clamping screws, synchronization screw

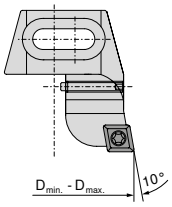




D_{min} - D_{max} mm	Insert	62 297 ... £ W4	
23,5 - 30,5	CC.. 0602	310.01	030
29,5 - 40,1	CC.. 0602	324.03	040
39,5 - 50,5	CC.. 09T3	345.07	050
49,5 - 66,5	CC.. 09T3	394.18	066
65,5 - 87,5	CC.. 1204	513.42	087
86,5 - 115,5	CC.. 1204	799.58	115
114,5 - 153	CC.. 1204	956.68	153

SpinTools – Tool holder 90°, axial offset 0.4 mm

Scope of supply:
2 adjustment screws, 1 positioning pin, insert clamping screw





D_{min} - D_{max} mm	Insert	62 298 ... £ W4	
23,5 - 30,5	CC.. 0602	179.56	030
29,5 - 40,1	CC.. 0602	187.97	040
39,5 - 50,5	CC.. 09T3	202.00	050
49,5 - 66,5	CC.. 09T3	230.06	066
65,5 - 87,5	CC.. 1204	300.18	087
86,5 - 115,5	CC.. 1204	465.72	115
114,5 - 153	CC.. 1204	559.71	153

5

Suitable indexable inserts can be found in this chapter on → **page 63.**
Other indexable inserts can be found in Chapter 9 Indexable insert tools.


TORX® Screws


Synchronization screw

Key D

Adjustment screw

Spare parts for Article no.		62 950 ... £ W7			62 950 ... £ W7			80 950 ... £ Y7			62 950 ... £ W7	
62 297 030	M2,5x6	4.64	022	M4x0,5x18	53.54	207	T07	10.82	109	M4x0,5x7	7.18	238
62 297 040	M2,5x6	4.64	022	M4x0,5x23	53.73	208	T07	10.82	109	M4x0,5x9,5	7.33	239
62 297 050	M4x9	5.40	023	M4x0,5x30	55.51	209	T15	12.87	113	M4x0,5x13	7.62	240
62 297 066	M4x9	5.40	023	M6x40	56.89	210	T15	12.87	113	M6x14	1.75	241
62 297 087	M5x10	6.13	232	M6x52	58.42	211	T20	13.77	114	M6x20	1.75	242
62 297 115	M5x10	6.13	232	M6x68	60.11	212	T20	13.77	114	M6x30	2.09	333
62 297 153	M5x10	6.13	232	M6x90	92.98	220	T20	13.77	114	M6x40	3.49	335

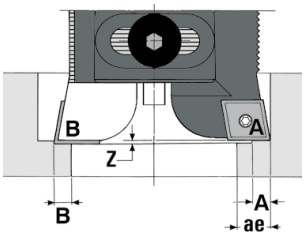

TORX® Screws

Key D

Adjustment screw

Spare parts for Article no.		62 950 ... £ W7			80 950 ... £ Y7			62 950 ... £ W7	
62 298 030	M2,5x6	4.64	022	T07	10.82	109	M4x0,5x7	7.18	238
62 298 040	M2,5x6	4.64	022	T07	10.82	109	M4x0,5x9,5	7.33	239
62 298 050	M4x9	5.40	023	T15	12.87	113	M4x0,5x13	7.62	240
62 298 066	M4x9	5.40	023	T15	12.87	113	M6x14	1.75	241
62 298 087	M5x10	6.13	232	T20	13.77	114	M6x20	1.75	242
62 298 115	M5x10	6.13	232	T20	13.77	114	M6x30	2.09	333
62 298 153	M5x10	6.13	232	T20	13.77	114	M6x40	3.49	335

Asynchronous machining (divided cut)



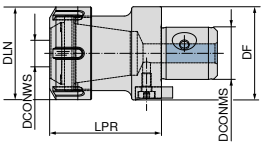
Asynchronous boring is possible using a tool holder (A) with offset 0.4mm. This tool holder is black finished and characterized by 3 dots, and must be in the outer position (with regard to the 2 tool holders)

SpinTools – ER collet chuck

▲ for ER clamping to DIN 6499
▲ With internal coolant supply

Scope of supply:
axial tool length adjustment and lock nut

STM





DCONWS mm	SZID	DCONMS mm	DF mm	DLN mm	LPR mm	for collet	WT kg	STM Modular 62 306 ... £ W4	
1 - 20	STM 28	28	50	50	60	470E (ER32)	0.644	287.57	032

	Y clamping key	Screw for drivers	Driver	Driver	Stop screw IK
	83 357 ...	62 950 ...	62 950 ...	83 950 ...	62 950 ...
Spare parts for Article no.	£ Y8	£ W7	£ W7	£ Y8	£ W7
62 306 032	33.95 132	1.75 166	42.88 039	14.81 121	11.64 406

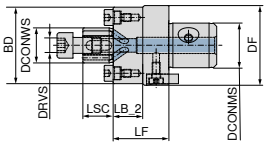
Suitable collets can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

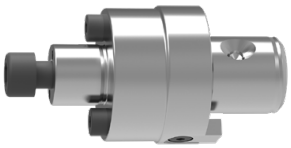
SpinTools – Shell mill adapter

▲ for use on mills with parallel or transverse slot to ISO 3937
▲ With internal coolant supply

Scope of supply:
drive dogs, drive key and clamping bolt

STM



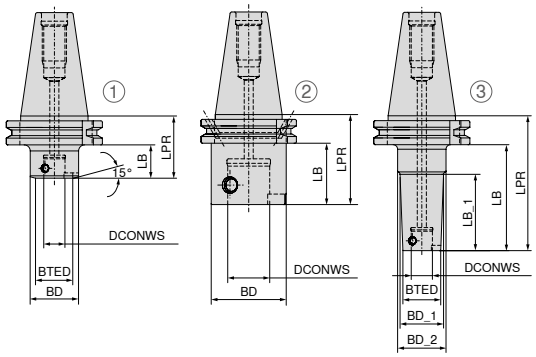


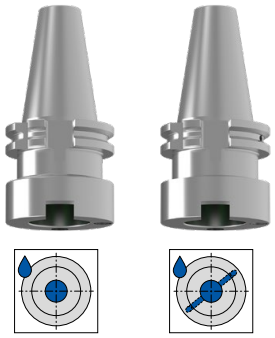
DCONWS mm	SZID	DCONMS mm	BD mm	DF mm	LSC mm	LB_2 mm	LF mm	DRVS mm	WT kg	STM Modular 62 307 ... £ W4	
16	STM 22	22	38	40	17	17.1	30	6	0.363	225.83	016
22	STM 28	28	48	50	19	19.1	35	8	0.685	231.46	022

	Parallel key	Screw for drivers	Drive dogs	Driver	clamping screw
	83 950 ...	62 950 ...	62 950 ...	62 950 ...	83 950 ...
Spare parts for Article no.	£ Y8	£ W7	£ W7	£ W7	£ Y8
62 307 016	3.45 284	1.45 165	23.40 442	35.79 038	5.93 113
62 307 022	3.45 285	1.75 166	23.40 443	42.88 039	6.70 124

SpinTools – Base adapters ISO 7388-1 (DIN 69871)

STM





AD SK | AD/B SK

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	62 107 ... £ W4		62 108 ... £ W4	
short	SK 30	2	STM 28	28		50			55	35.9		0.62	242.68	**328**		
	SK 40	1	STM 11	11	20	32			40	20.9		0.91	242.68	**111** [1]		
	SK 40	1	STM 14	14	25	32			40	20.9		0.93	242.68	**114** [1]		
	SK 40	2	STM 18	18		32			40	20.9		0.89	242.68	**118**		
	SK 40	2	STM 22	22		40			50	30.9		1.02	242.68	**122**		
	SK 40	2	STM 28	28		50			50	30.9		1.11	242.68	**128**	251.10	**128**
	SK 40	2	STM 36	36		63			60	40.9		1.27	224.45	**136**	251.10	**136**
	SK 50	2	STM 28	28		50			50	30.9		2.92	287.57	**428**	314.22	**428**
	SK 50	2	STM 36	36		63			63	43.9		3.27	287.57	**436**	314.22	**436**
long	SK 40	3	STM 11	11	20		23	32	80	60.9	40.9	1.04	269.33	**211** [1]		
	SK 40	3	STM 14	14	25		28	32	80	60.9	40.9	1.07	269.33	**214** [1]		
	SK 40	2	STM 18	18		32			80	60.9		1.13	269.33	**218**		
	SK 40	2	STM 22	22		40			100	80.9		1.47	269.33	**222**		
	SK 40	2	STM 28	28		50			100	80.9		1.84	269.33	**228**		
	SK 40	2	STM 36	36		63			120	100.9		2.68	269.33	**236**	295.98	**236**
	SK 50	2	STM 36	36		63			120	100.9		4.60	324.03	**536**	350.69	**536**

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!



O-Ring



Clamping screw ST

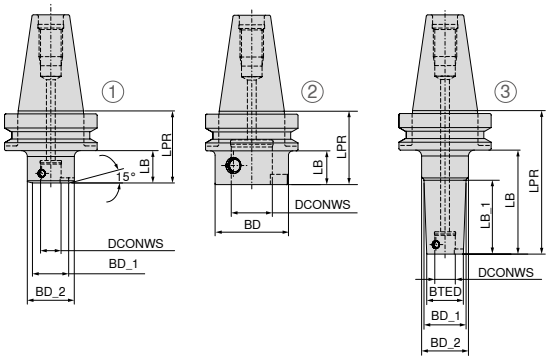
Spare parts DCONWS	O-Ring 62 950 ... £ W7		Clamping screw ST 62 950 ... £ W7	
11	9x1,5	2.40 **254**	M4x0,5x6	10.16 **026**
14	12x1,5	2.40 **255**	M5x0,5x7,5	10.69 **027**
18	16x1,5	2.40 **256**	M6x0,75x9,5	10.94 **028**
22	19x2	2.40 **257**	M8x0,75x12	12.13 **029**
28	25x2	2.40 **258**	M10x1x14,2	14.23 **030**
36	33x2	2.40 **259**	M12x1x18	18.25 **031**

Suitable pull studs can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

SpinTools – Base adapters ISO 7388-2 (JIS B 6339 / MAS-BT)

▲ form B available upon request

STM





MAS-BT

62 112 ...

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	£ W4	
short	BT 30	2	STM 28	28		50			55			0.64	242.68	**328**
	BT 40	1	STM 11	11	20	32			50	23		1.09	242.68	**111** 1)
	BT 40	1	STM 14	14	25	32			50	23		1.08	242.68	**114** 1)
	BT 40	2	STM 18	18		32			50	23		1.06	242.68	**118**
	BT 40	2	STM 22	22		40			50	23		1.10	242.68	**122**
	BT 40	2	STM 28	28		50			50	23		1.14	242.68	**128**
	BT 40	2	STM 36	36		63			60	33		1.38	224.45	**136**
	BT 50	2	STM 28	28		50			63	25		3.75	287.57	**428**
	BT 50	2	STM 36	36		63			63	25		3.78	287.57	**436**
long	BT 40	3	STM 11	11	20		23	32	90	63	43	1.20	269.33	**211** 1)
	BT 40	3	STM 14	14	25		28	32	90	63	43	1.24	269.33	**214** 1)
	BT 40	2	STM 18	18		32			90	63		1.30	269.33	**218**
	BT 40	2	STM 22	22		40			100	73		1.57	269.33	**222**
	BT 40	2	STM 28	28		50			100	73		1.87	269.33	**228**
	BT 40	2	STM 36	36		63			120	93		2.78	269.33	**236**
	BT 50	2	STM 36	36		63			120	82		5.18	324.03	**536**

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!



O-Ring



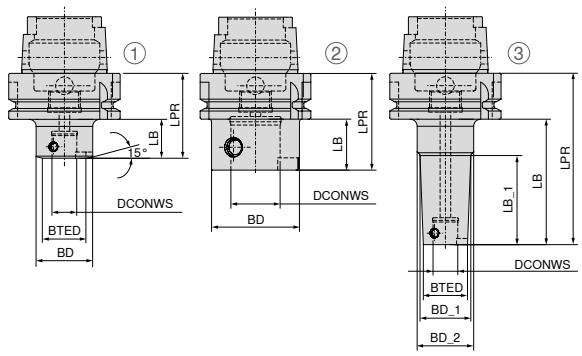
Clamping screw ST

Spare parts DCONWS		**62 950 ...** £ W7			**62 950 ...** £ W7	
11	9x1,5	2.40	**254**	M4x0,5x6	10.16	**026**
14	12x1,5	2.40	**255**	M5x0,5x7,5	10.69	**027**
18	16x1,5	2.40	**256**	M6x0,75x9,5	10.94	**028**
22	19x2	2.40	**257**	M8x0,75x12	12.13	**029**
28	25x2	2.40	**258**	M10x1x14,2	14.23	**030**
36	33x2	2.40	**259**	M12x1x18	18.25	**031**

Suitable pull studs can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

SpinTools – Base adapters HSK-A ISO 12164-1 (DIN 69893-1)

STM







HSK-A

5

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	62 122 ... £ W4	
short	HSK-A 63	1	STM 11	11	20	32			50	24		0.77	287.57	111 1)
	HSK-A 63	1	STM 14	14	25	32			50	24		0.76	287.57	114 1)
	HSK-A 63	2	STM 18	18		32			50	24		0.74	287.57	118
	HSK-A 63	2	STM 22	22		40			50	24		0.79	287.57	122
	HSK-A 63	2	STM 28	28		50			55	24		0.91	287.57	128
	HSK-A 63	2	STM 36	36		63			65	34		1.10	260.91	136
	HSK-A 100	2	STM 28	28		50			63	34		2.32	332.45	428
	HSK-A 100	2	STM 36	36		63			70	34		2.61	332.45	436
long	HSK-A 63	3	STM 11	11	20		23	32	90	64	44	0.87	314.22	211 1)
	HSK-A 63	3	STM 14	14	25		28	32	90	64	44	0.93	314.22	214 1)
	HSK-A 63	2	STM 18	18		32			90	64		0.98	314.22	218
	HSK-A 63	2	STM 22	22		40			100	74		1.26	314.22	222
	HSK-A 63	2	STM 28	28		50			100	74		1.58	314.22	228
	HSK-A 63	2	STM 36	36		63			120	94		2.41	332.45	236
	HSK-A 100	2	STM 36	36		63			120	91		3.77	359.11	536

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!



O-Ring



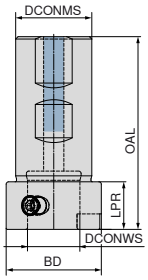
Clamping screw ST

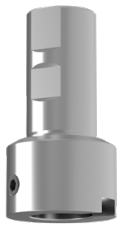
Spare parts DCONWS		62 950 ... £ W7			62 950 ... £ W7	
11	9x1,5	2.40	254	M4x0,5x6	10.16	026
14	12x1,5	2.40	255	M5x0,5x7,5	10.69	027
18	16x1,5	2.40	256	M6x0,75x9,5	10.94	028
22	19x2	2.40	257	M8x0,75x12	12.13	029
28	25x2	2.40	258	M10x1x14,2	14.23	030
36	33x2	2.40	259	M12x1x18	18.25	031

SpinTools – Adapters to DIN 1835-B

▲ with thro' coolant

STM





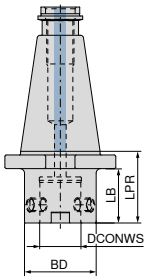
DIN 1835-B

62 104 ...

DCONMS mm	BD mm	SZID	DCONWS mm	LPR mm	OAL mm	WT kg	£ W4	
25	25	STM 14	14	15	72	0.24	178.14	**014**
32	32	STM 18	18	15	76	0.42	183.76	**018**
32	50	STM 28	28	35	96	0.72	223.05	**028**
32	63	STM 36	36	45	106	1.05	245.48	**036**

SpinTools – Base adapter DIN 2080

STM





short
SK

62 109 ...

Adapter	SZID	DCONWS mm	BD mm	LPR mm	LB mm	WT kg	£ W4	
SK 40	STM 36	36	63	60	48.4	1.52	288.97	**136**
SK 50	STM 36	36	63	63	47.8	3.33	331.05	**436**



O-Ring



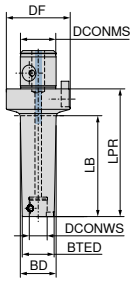
Clamping screw ST

Spare parts DCONWS		**62 950 ...** £ W7			**62 950 ...** £ W7	
14	12x1,5	2.40	**255**	M5x0,5x7,5	10.69	**027**
18	16x1,5	2.40	**256**	M6x0,75x9,5	10.94	**028**
28	25x2	2.40	**258**	M10x1x14,2	14.23	**030**
36	33x2	2.40	**259**	M12x1x18	18.25	**031**

SpinTools – Reductions

▲ With internal coolant supply

STM





STM Modular

62 357 ...

Adapter	LPR mm	SZID	DCONMS mm	DCONWS mm	DF mm	BTED mm	BD mm	LB mm	WT kg	£ W4	
STM 11	30	STM 14	14	11	25	20	23	15	0.04	132.13	**111**
STM 11	30	STM 18	18	11	32	20	23	17	0.14	132.13	**211**
STM 14	30	STM 18	18	14	32	25	28	17	0.16	132.13	**214**
STM 11	30	STM 22	22	11	40	20	23	15	0.21	137.70	**311**
STM 14	30	STM 22	22	14	40	25	28	15	0.22	137.70	**314**
STM 18	30	STM 22	22	18	40	32	37	15	0.25	137.70	**318**
STM 11	40	STM 28	28	11	50	20	23	20	0.44	143.27	**411**
STM 14	40	STM 28	28	14	50	25	28	20	0.49	143.27	**414**
STM 18	40	STM 28	28	18	50	32	37	20	0.45	143.27	**418**
STM 22	40	STM 28	28	22	50	40	46	20	0.55	143.27	**422**
STM 11	40	STM 36	36	11	63	20	22	16	0.82	151.62	**511**
STM 11	70	STM 36	36	11	63	20	23	42	0.90	164.12	**811**
STM 11	95	STM 36	36	11	63	20	23	71	0.98	178.04	**611**
STM 11	115	STM 36	36	11	63	20	23	87	1.02	196.11	**911**
STM 11	135	STM 36	36	11	63	20	23	111	1.08	214.21	**711**
STM 14	40	STM 36	36	14	63	25	27	16	0.84	151.62	**514**
STM 14	80	STM 36	36	14	63	25	28	52	1.00	173.86	**814**
STM 14	120	STM 36	36	14	63	25	28	96	1.16	196.11	**614**
STM 14	145	STM 36	36	14	63	25	28	117	1.27	214.21	**914**
STM 14	170	STM 36	36	14	63	25	28	146	1.38	232.27	**714**
STM 18	40	STM 36	36	18	63	32	37	16	0.85	151.62	**518**
STM 18	100	STM 36	36	18	63	32	38	74	1.24	184.99	**818**
STM 18	150	STM 36	36	18	63	32	38	126	1.66	216.97	**918**
STM 18	207	STM 36	36	18	63	32	38	183	2.07	267.04	**618**
STM 22	40	STM 36	36	22	63	40	46	16	0.89	151.62	**522**
STM 22	120	STM 36	36	22	63	40	48	95	1.76	200.29	**822**
STM 22	183	STM 36	36	22	63	40	48	159	2.52	248.98	**622**
STM 22	263	STM 36	36	22	63	40	48	239	3.44	356.08	**722**
STM 28	40	STM 36	36	28	63	50	58	21	1.03	151.62	**528**
STM 28	140	STM 36	36	28	63	50	60	117	2.70	210.02	**828**
STM 28	233	STM 36	36	28	63	50	60	209	4.41	337.98	**628**
STM 28	333	STM 36	36	28	63	50	60	309	6.25	463.16	**728**

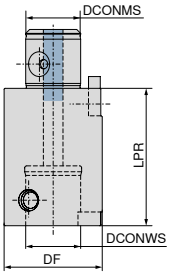
Reductions – Spare Parts

		 O-Ring			 Screw for drivers			 Driver			 Clamping screw ST		
		62 950 ...			62 950 ...			62 950 ...			62 950 ...		
Spare parts for Article no.		£ W7			£ W7			£ W7			£ W7		
62 357 111	9x1,5	2.40	254	M2,5x6	1.18	163	6x10,3x4	30.22	036	M4x0,5x6	10.16	026
62 357 211	9x1,5	2.40	254	M3x8	1.45	164	8x15x5	31.73	037	M4x0,5x6	10.16	026
62 357 214	12x1,5	2.40	255	M3x8	1.45	164	8x15x5	31.73	037	M5x0,5x7,5	10.69	027
62 357 311	9x1,5	2.40	254	M4x10	1.45	165	10x18,1x6	35.79	038	M4x0,5x6	10.16	026
62 357 314	12x1,5	2.40	255	M4x10	1.45	165	10x18,1x6	35.79	038	M5x0,5x7,5	10.69	027
62 357 318	16x1,5	2.40	256	M4x10	1.45	165	10x18,1x6	35.79	038	M6x0,75x9,5	10.94	028
62 357 411	9x1,5	2.40	254	M5x10	1.75	166	12x20x6	42.88	039	M4x0,5x6	10.16	026
62 357 414	12x1,5	2.40	255	M5x10	1.75	166	12x20x6	42.88	039	M5x0,5x7,5	10.69	027
62 357 418	16x1,5	2.40	256	M5x10	1.75	166	12x20x6	42.88	039	M6x0,75x9,5	10.94	028
62 357 422	19x2	2.40	257	M5x10	1.75	166	12x20x6	42.88	039	M8x0,75x12	12.13	029
62 357 511	9x1,5	2.40	254	M6x12	1.75	167	16x26,5x8	54.46	040	M4x0,5x6	10.16	026
62 357 811	9x1,5	2.40	254	M6x12	1.75	167	16x26,5x8	54.46	040	M4x0,5x6	10.16	026
62 357 611	9x1,5	2.40	254	M6x12	1.75	167	16x26,5x8	54.46	040	M4x0,5x6	10.16	026
62 357 911	9x1,5	2.40	254	M6x12	1.75	167	16x26,5x8	54.46	040	M4x0,5x6	10.16	026
62 357 711	9x1,5	2.40	254	M6x12	1.75	167	16x26,5x8	54.46	040	M4x0,5x6	10.16	026
62 357 514	12x1,5	2.40	255	M6x12	1.75	167	16x26,5x8	54.46	040	M5x0,5x7,5	10.69	027
62 357 814	12x1,5	2.40	255	M6x12	1.75	167	16x26,5x8	54.46	040	M5x0,5x7,5	10.69	027
62 357 614	12x1,5	2.40	255	M6x12	1.75	167	16x26,5x8	54.46	040	M5x0,5x7,5	10.69	027
62 357 914	12x1,5	2.40	255	M6x12	1.75	167	16x26,5x8	54.46	040	M5x0,5x7,5	10.69	027
62 357 714	12x1,5	2.40	255	M6x12	1.75	167	16x26,5x8	54.46	040	M5x0,5x7,5	10.69	027
62 357 518	16x1,5	2.40	256	M6x12	1.75	167	16x26,5x8	54.46	040	M6x0,75x9,5	10.94	028
62 357 818	16x1,5	2.40	256	M6x12	1.75	167	16x26,5x8	54.46	040	M6x0,75x9,5	10.94	028
62 357 918	16x1,5	2.40	256	M6x12	1.75	167	16x26,5x8	54.46	040	M6x0,75x9,5	10.94	028
62 357 618	16x1,5	2.40	256	M6x12	1.75	167	16x26,5x8	54.46	040	M6x0,75x9,5	10.94	028
62 357 522	19x2	2.40	257	M6x12	1.75	167	16x26,5x8	54.46	040	M8x0,75x12	12.13	029
62 357 822	19x2	2.40	257	M6x12	1.75	167	16x26,5x8	54.46	040	M8x0,75x12	12.13	029
62 357 622	19x2	2.40	257	M6x12	1.75	167	16x26,5x8	54.46	040	M8x0,75x12	12.13	029
62 357 722	19x2	2.40	257	M6x12	1.75	167	16x26,5x8	54.46	040	M8x0,75x12	12.13	029
62 357 528	25x2	2.40	258	M6x12	1.75	167	16x26,5x8	54.46	040	M10x1x14,2	14.23	030
62 357 828	25x2	2.40	258	M6x12	1.75	167	16x26,5x8	54.46	040	M10x1x14,2	14.23	030
62 357 628	25x2	2.40	258	M6x12	1.75	167	16x26,5x8	54.46	040	M10x1x14,2	14.23	030
62 357 728	25x2	2.40	258	M6x12	1.75	167	16x26,5x8	54.46	040	M10x1x14,2	14.23	030

SpinTools – Extensions

▲ With internal coolant supply

STM





5

Adapter	LPR mm	SZID	DCONWS mm	DF mm	DCONMS mm	WT kg	STM Modular 62 351 ... £ W4	
STM 11	25	STM 11	11	20	11	0.06	126.24	**111**
STM 11	35	STM 11	11	20	11	0.09	126.24	**211**
STM 14	30	STM 14	14	25	14	0.11	126.24	**114**
STM 14	45	STM 14	14	25	14	0.17	126.24	**214**
STM 18	40	STM 18	18	32	18	0.23	134.66	**118**
STM 18	60	STM 18	18	32	18	0.35	133.52	**218**
STM 22	50	STM 22	22	40	22	0.45	144.50	**122**
STM 22	80	STM 22	22	40	22	0.73	143.27	**222**
STM 28	50	STM 28	28	50	28	0.71	144.50	**128**
STM 28	75	STM 28	28	50	28	1.07	151.62	**228**
STM 28	100	STM 28	28	50	28	1.44	159.95	**328**
STM 36	60	STM 36	36	63	36	1.33	152.91	**136**
STM 36	90	STM 36	36	63	36	2.02	169.69	**236**
STM 36	120	STM 36	36	63	36	2.72	187.76	**336**



O-Ring



Screw for drivers



Driver

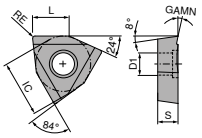


Clamping screw ST

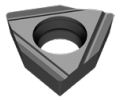
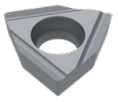
Spare parts DCONWS		62 950 ... £ W7			62 950 ... £ W7			62 950 ... £ W7			62 950 ... £ W7	
11	9x1,5	2.40	**254**	M2x2,5	1.18	**162**	5x8,5x3	28.28	**035**	M4x0,5x6	10.16	**026**
14	12x1,5	2.40	**255**	M2,5x6	1.18	**163**	6x10,3x4	30.22	**036**	M5x0,5x7,5	10.69	**027**
18	16x1,5	2.40	**256**	M3x8	1.45	**164**	8x15x5	31.73	**037**	M6x0,75x9,5	10.94	**028**
22	19x2	2.40	**257**	M4x10	1.45	**165**	10x18,1x6	35.79	**038**	M8x0,75x12	12.13	**029**
28	25x2	2.40	**258**	M5x10	1.75	**166**	12x20x6	42.88	**039**	M10x1x14,2	14.23	**030**
36	33x2	2.40	**259**	M6x12	1.75	**167**	16x26,5x8	54.46	**040**	M12x1x18	18.25	**031**

WOHX

Designation	L mm	S mm	D1 mm	IC mm
WOHX 02T0..	2.6	1.20	2	4



WOHX

			-G12 BK2710	-G12 BK8440	-G12 K10
					
			F	F	F
			WOHX	WOHX	WOHX
			62 600 ...	62 600 ...	62 600 ...
ISO	KOMET no.	RE mm	£ 3#	£ 3#	£ 3#
02T001EL	W00 04120.018440	0.1		17.92 **00102**	
02T001EL	W00 04120.012710	0.1	17.92 **10102**		
02T001FL	W00 04120.0121	0.1			14.73 **20102**
P			●	●	
M			●	●	
K			●	●	
N					●
S					●
H				●	
O					●

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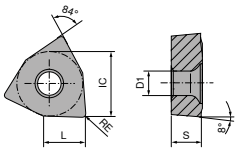
WOEX / WOGX

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



WOGX / WOEX

5

			NEW -15 BK8430		NEW -02 BK6440		-01 BK8425		-01 BK6115	
										
			WOGX		WOEX		WOEX		WOEX	
			10 821 ...		10 821 ...		10 821 ...		10 821 ...	
ISO	KOMET no.	RE mm	£ 1A/3#		£ 1A/3#		£ 1A/3#		£ 1A/3#	
030204	W29 10010.048425	0.4					10.83	30301		
030204	W29 10150.048430	0.4	19.66	00315						
030204	W29 10010.046115	0.4							15.69	40301
040304	W29 18010.048425	0.4					11.51	30401		
040304	W29 18150.048430	0.4	20.44	00415						
040304	W29 18010.046115	0.4							15.79	40401
05T304	W29 24010.048425	0.4					11.81	30501		
05T304	W29 24020.046440	0.4			15.79	25502				
05T304	W29 24150.048430	0.4	20.75	00515						
05T304	W29 24010.046115	0.4							17.07	40501
06T304	W29 34010.048425	0.4					13.20	30601		
06T304	W29 34020.046440	0.4			17.47	25602				
06T304	W29 34150.048430	0.4	23.73	00615						
06T304	W29 34010.046115	0.4							16.87	40601
080404	W29 42010.048425	0.4					16.67	30801		
080404	W29 42020.046440	0.4			21.75	25802				
080404	W29 42150.048430	0.4	26.90	00815						
080404	W29 42010.046115	0.4							20.84	40801
100504	W29 50010.048425	0.4					22.73	31001		
100504	W29 50020.046440	0.4			24.52	26002				
100504	W29 50010.046115	0.4							24.62	41001
120608	W29 58010.088425	0.8					26.41	31201		
120608	W29 58020.086440	0.8			30.19	21202				
120608	W29 58010.086115	0.8							30.87	41201
P			○		●		●		●	
M			○		●		●		●	
K			○				●		●	
N							○			
S			●							
H			●				○		○	
O										

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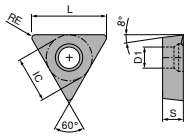
TOGX

Designation	L mm	S mm	D1 mm	IC mm
TOGX 06T1..	6.64	1.80	2.2	4.0
TOGX 0902..	9.12	2.50	2.8	5.6
TOGX 1403..	13.62	3.00	3.8	8.2



TOGX

			NEW		NEW			NEW
			-18 CK32		-14 CK3230	-14 BK60	-12 K10	CBN40
								
			F		F	F	F	F
			TOGX		TOGX	TOGX	TOGX	TOGX
			62 607 ...		62 606 ...	62 601 ...	62 601 ...	62 601 ...
ISO	KOMET no.	RE mm	£ 1A/3#		£ 1A/3#	£ 3#	£ 3#	£ Y0
06T102EN	W57 04140.0260	0.2				13.91 90206		
06T102EN	W57 04140.023230	0.2			18.36 10201			
06T102EN	W57 04180.0432	0.4	18.36 20401					
06T102FN	W57 04120.0223	0.2					13.91 50206	
06T102TN	W30 04990.0240	0.2						59.89 60206
090204EN	W57 14140.0460	0.4				15.25 70409		
090204EN	W57 14140.043230	0.4			20.15 11401			
090204EN	W57 14180.0432	0.4	20.15 21401					
090204FN	W57 14120.0423	0.4					15.25 50409	
090204TN	W30 14990.0440	0.4						66.44 60409
140304EN	W57 26140.0460	0.4				21.53 70414		
140304EN	W57 26140.043230	0.4			28.50 12601			
140304EN	W57 26180.0432	0.4	28.50 22601					
140304FN	W57 26120.0423	0.4					24.62 50414	
140304TN	W30 26990.0440	0.4						125.76 62600
P			●		●	●		
M			●		●	●		
K						●		
N							●	
S							●	
H								●
O							●	

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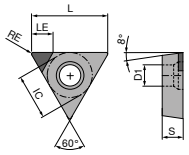
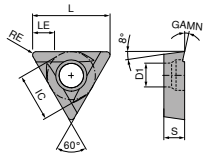
TOEX / TOHX

Designation	L mm	S mm	D1 mm	IC mm	LE mm
TOEX 06T1..	6.64	1.80	2.2	4.0	1.8
TOEX 0902..	9.12	2.50	2.8	5.6	2.7
TOEX 1403..	13.62	3.00	3.8	8.2	2.7
TOHX 06T1..	6.50	1.80	2.2	4.0	-
TOHX 0902..	9.12	2.50	2.8	5.6	-
TOHX 1403..	13.62	3.00	3.8	8.2	-



TOEX



TOHX

TOEX / TOHX

5

	NEW	NEW	NEW		NEW
	PKD5510 CTDPU20	-G12 BK8425	-G06 BK2710	-G06 BK6110	-G06 BK7615
	F	F	F	F	F
	DIAMOND TOEX	TOHX	TOHX	TOHX	TOHX
	62 605 ...	62 603 ...	62 602 ...	62 602 ...	62 602 ...

ISO	KOMET no.	RE mm	£ Y0		£ 1A/3#		£ 3#		£ 3#		£ 3#	
06T102FN	W30 04990.025510	0.2	58.55	**00201**								
06T103EL	W30 04060.032710	0.3					14.32	**10606**				
06T103EL	W30 04060.036110	0.3							15.25	**40606**		
06T103EL	W30 04120.038425	0.3			18.07	**30200**						
06T103EL	W30 04060.037615	0.3									16.89	**80606**
090204EL	W30 14060.042710	0.4					16.29	**10409**				
090204EL	W30 14120.048425	0.4			20.44	**31800**						
090204EL	W30 14060.046110	0.4							16.89	**40409**		
090204EL	W30 14060.047615	0.4									18.44	**80409**
090204FN	W30 14990.045510	0.4	118.19	**01401**								
140304EL	W30 26060.042710	0.4					24.22	**12600**				
140304EL	W30 26120.048425	0.4			23.04	**32600**						
140304EL	W30 26060.046110	0.4							18.85	**40414**		
140304EL	W30 26060.047615	0.4									27.30	**82600**
140304FN	W30 26990.045510	0.4	125.76	**02601**								

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

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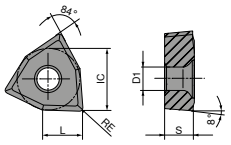
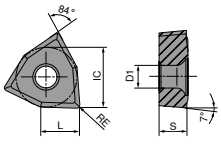
WCMT / WCGT

Designation	L mm	S mm	D1 mm	IC mm
WCGT 0201..	2.71	1.59	2.1	3.97
WCMT 0201..	4.34	1.59	2.1	3.97



WCMT



WCGT

WCMT / WCGT

		-SF30 CWC06	-SF20 CWN10	-SF16 CWP25
				
		F	F	F
		CERMET WCMT	WCGT	WCGT
		70 294 ...	70 295 ...	70 295 ...
		£ X2	£ X2	£ X2
ISO	RE mm			
020102	0.2	14.86 **850**	94.13 **850**	42.49 **500**
020104	0.4		94.13 **852**	
P		●	●	●
M		○	●	●
K		●	●	○
N		●	●	●
S			●	
H			●	
O				

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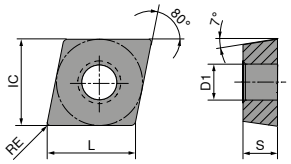
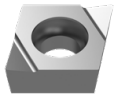
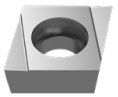
Additional inserts can be found in → **Chapter 9, Turning Tools**

CCGT

Designation	L mm	S mm	D1 mm	IC mm
CCGT 06..	6.4	2.38	2.8	6.35
CCGT 09..	9.7	3.97	4.4	9.52



CCGT

	-SF20 CWN10	-SF15 CWC06	-SF14 CWC10
			
	F	F	F
	CCGT	CERMET CCGT	CERMET CCGT
	70 296 ...	70 296 ...	70 300 ...

ISO	RE mm	£ X2		£ X2		£ X2	
060202L	0.2	66.50	300	42.92	850	15.84	903
060204L	0.4	66.50	302	42.92	852	15.84	905
09T302L	0.2	71.79	304	46.42	854	19.75	911
09T304L	0.4	71.79	306	46.42	856	19.75	913
P		●		●		●	
M		●		○		●	
K		●		●		●	
N		●		●			
S		●					
H		●					
O							

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Additional inserts can be found in → **Chapter 9, Turning Tools**

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values for indexable inserts – MicroKom tools

	Indexable inserts for ...													
	62 820 ... / 62 840 ... / 62 800 ... / 62 815 ... / 62 810 ... / 62 858 ...											62 870 ...		
Index	BK8440	BK8425	BK2710	K10	BK60	BK6110	BK7615	CBN40	PKD5510 CTDPU20	CK3230	CK32	BK6440	BK6115	BK8430
	v_c m/min													
P.1.1	**170**	**200**	**230**		**270**	**300**				**350**	**350**	**240**	**300**	200
P.1.2	**170**	**200**	**230**		**270**	**300**				**350**	**350**	**240**	**300**	200
P.1.3	**170**	**200**	**230**		**270**	**300**				**350**	**350**	**220**	**270**	200
P.1.4	**150**	**180**	**210**		**250**	**300**				**320**	**320**	**220**	**250**	180
P.1.5	**150**	**180**	**210**		**250**	**300**				**320**	**320**	**220**	**270**	180
P.2.1	**140**	**160**	**180**		**210**	**270**				**280**	**280**	**200**	**270**	160
P.2.2	**140**	**160**	**180**		**210**	**270**				**280**	**280**	**200**	**260**	160
P.2.3	**140**	**160**	**180**		**210**	**270**				**280**	**280**	**200**	**240**	160
P.2.4	**140**	**160**	**180**		**210**	**270**				**280**	**280**	**200**	**190**	160
P.3.1	**120**	**140**	**160**		**190**	**250**				**250**	**250**	**180**	**200**	140
P.3.2	**120**	**140**	**160**		**190**	**250**				**250**	**250**	**160**	**160**	140
P.3.3	**120**	**140**	**160**		**190**	**250**				**250**	**250**	**160**	**140**	140
P.4.1	**100**	**120**	**140**		**160**	**220**				**210**	**210**	**140**	**220**	120
P.4.2	**100**	**120**	**140**		**160**	**220**				**210**	**210**	**140**	**160**	120
M.1.1	**140**	**160**	**180**		**280**	**220**				**280**	**280**	**200**	**220**	160
M.2.1	**120**	**140**	**160**		**250**	**220**				**250**	**250**	**180**	**220**	140
M.3.1	**90**	**100**	**120**		**180**	**200**				**180**	**180**	**160**	**200**	100
K.1.1	**150**	**180**	**210**		**210**	**290**	**290**						**240**	180
K.1.2	**140**	**160**	**180**		**180**	**290**	**290**						**140**	160
K.2.1	**120**	**140**	**160**		**160**	**270**	**270**						**160**	140
K.2.2	**120**	**140**	**160**		**160**	**250**	**250**						**100**	140
K.3.1	**100**	**120**	**140**		**140**	**220**	**220**						**120**	120
K.3.2	**100**	**120**	**140**		**140**	**220**	**220**						**100**	120
N.1.1				**250**					**500**					
N.1.2				**250**					**500**					
N.2.1				**250**					**500**					
N.2.2				**250**					**500**					
N.2.3				**250**					**500**					
N.3.1				**230**					**450**					
N.3.2				**230**					**450**					
N.3.3				**230**					**450**					
N.4.1				**230**					**450**					
S.1.1		**60**		**20**										**60**
S.1.2		**50**		**20**										**50**
S.2.1		**60**		**20**										**60**
S.2.2		**50**		**20**										**50**
S.2.3		**30**		**20**										**30**
S.3.1		**100**		**60**										**100**
S.3.2		**80**		**30**										**80**
S.3.3		**50**		**30**										**50**
H.1.1	**90**	100				**100**		**160**					100	**100**
H.1.2	**70**	80				**80**		**185**					80	**80**
H.1.3	**40**	50				**50**		**215**					50	**50**
H.1.4								**240**						
H.2.1	**90**	100				**100**							100	**100**
H.3.1	**70**	80				**80**							80	**80**
O.1.1				**100**					**500**					
O.1.2				**100**					**500**					
O.2.1									**500**					
O.2.2				**100**					**300**					
O.3.1				**100**					**300**					

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data standard values for indexable inserts – SpinTools

	Indexable inserts for ...									Cutting insert / carbide boring bar	
	62 295 ...					62 304 ... / 62 372 ... / 62 373 ... / 62 326 ... / 62 332 ... / 62 333 ... / 62 363 ... / 62 308 ... / 62 303 ... / 62 346... / 62 380 ...					62 386 ... / 62 382 ...
Index	CTCP125 (HCX1125)	CTCP115 (HCX1115)	CTCP135 (HCR1135)	CTC2135 (CWN2135)	H10T (CWK15)	CWN10	CWP25	CWC06	CWC10	K10 uncoated	TiN
						v_c m/min					
P.1.1	**295**	**370**	**210**	360		**185**	**185**	**250**	**175**	**175**	**190**
P.1.2	**250**	**315**	**175**	360		**185**	**185**	**250**	**140**	**175**	**200**
P.1.3	**210**	**270**	**145**	360		**185**	**185**	**250**	**140**	**175**	**170**
P.1.4	**200**	**250**	**135**	375		**185**	**185**	**250**	**140**	**175**	**170**
P.1.5	**180**	**230**	**120**	375		**185**	**185**	**250**	**140**	**175**	**160**
P.2.1	**260**	**325**	**180**	385		**185**	**185**	**250**	**140**	**175**	**180**
P.2.2	**195**	**250**	**130**	385		**185**	**185**	**250**	**175**	**175**	**150**
P.2.3	**180**	**230**	**120**	385		**185**	**185**	**250**	**140**	**175**	**160**
P.2.4	**130**	**170**	**85**	385		**185**	**185**	**250**	**140**	**175**	**160**
P.3.1	**170**	**200**	**150**	310		**185**	**185**	**250**	**175**	**175**	**120**
P.3.2	**105**	**140**	**95**	310		**135**	**135**	**165**	**140**	**65**	**100**
P.3.3	**40**	**85**	**35**	310		**135**	**135**	**165**	**140**	**65**	**100**
P.4.1	**170**	**200**	**155**	320		**125**	**125**	120	**120**	100	**80**
P.4.2	**135**	**170**	**125**	320		**125**	**125**	120	**120**	100	**80**
M.1.1			155	**300**		**120**	**120**	120	**120**	100	**80**
M.2.1			95	**310**		**100**	**100**	100	**110**	70	**80**
M.3.1			135	**325**		**120**	**120**	120	**120**	100	**80**
K.1.1	170	255			140	**160**	160	**160**	**225**	135	**200**
K.1.2	160	235			115	**160**	160	**160**	**225**	135	**150**
K.2.1	180	270			150	**160**	160	**160**	**125**	135	**120**
K.2.2	160	205			110	**140**	140	**140**	**125**	115	**110**
K.3.1	200	250			170	**140**	140	**140**	**125**	115	**180**
K.3.2	160	210			140	**140**	140	**140**	**125**	115	**150**
N.1.1					**1400**	**400**	**400**	**400**		**250**	**300**
N.1.2					**1100**	**400**	**400**	**400**		**250**	**240**
N.2.1					**950**	**400**	**400**	**400**		**250**	**240**
N.2.2					**950**	**400**	**400**	**400**		**250**	**240**
N.2.3					**500**	**400**	**400**	**400**		**250**	**240**
N.3.1					**425**	**400**	**400**	**400**		**250**	**290**
N.3.2					**400**	**400**	**400**	**400**		**250**	**290**
N.3.3					**275**	**400**	**400**	**400**		**250**	**290**
N.4.1					**225**						**220**
S.1.1				**30**		**55**					**60**
S.1.2				**25**		**55**					**40**
S.2.1				**15**		**55**					**30**
S.2.2				**10**		**55**					**30**
S.2.3				**10**		**55**					**30**
S.3.1				**105**		**55**					**30**
S.3.2				**25**		**55**					**25**
S.3.3						**55**					**25**
H.1.1						**125**					110
H.1.2						**100**					80
H.1.3						**80**					70
H.1.4											
H.2.1						**170**					70
H.3.1						**125**					70
O.1.1					130						**240**
O.1.2											**240**
O.2.1					105						**180**
O.2.2											**180**
O.3.1											**180**

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data standard values for precision adjustment heads

Fine machining with depth of cut a_p = 0.1 – 0.2 mm

● 1st choice
○ suitable

Index	BlueFlex 2, hi.flex 62 820 ... / 62 840 ... / 62 800 ... f in mm/rev.					Emulsion	Compressed air	MMS	M03 Speed 62 815 ... f in mm/rev.		FF 62 810 ... f in mm/rev.			Emulsion	Compressed air	MMS
	Ø 6–7,9	Ø 8–11,9	Ø 12–25	Ø 25–44	Ø 44–365				Ø 24,8–63	Ø 63–206	Ø 29,5–50	Ø 47–83	Ø 79–199			
P.1.1	0,04	0,07	0,10	0,08	0,10	●	○		0,08	0,10	0,08	0,10	0,15	●	○	○
P.1.2	0,04	0,07	0,12	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
P.1.3	0,04	0,06	0,12	0,08	0,12	●	○		0,08	0,12	0,08	0,12	0,20	●	○	○
P.1.4	0,04	0,06	0,10	0,08	0,10	●	○		0,07	0,10	0,08	0,12	0,18	●	○	○
P.1.5	0,04	0,07	0,12	0,10	0,15	●	○		0,09	0,13	0,09	0,13	0,18	●	○	○
P.2.1	0,04	0,06	0,12	0,08	0,12	●	○		0,08	0,12	0,08	0,12	0,20	●	○	○
P.2.2	0,04	0,06	0,10	0,08	0,10	●	○		0,07	0,10	0,08	0,12	0,18	●	○	○
P.2.3	0,03	0,06	0,10	0,08	0,10	●	○		0,08	0,10	0,08	0,10	0,20	●	○	○
P.2.4	0,03	0,04	0,06	0,06	0,06	●	○		0,06	0,08	0,06	0,08	0,10	●	○	○
P.3.1	0,03	0,05	0,10	0,06	0,10	●	○		0,06	0,10	0,06	0,10	0,15	●	○	○
P.3.2	0,03	0,04	0,07	0,04	0,07	●	○		0,04	0,08	0,04	0,08	0,12	●	○	○
P.3.3	0,03	0,04	0,07	0,04	0,07	●	○		0,04	0,07	0,04	0,08	0,10	●	○	○
P.4.1	0,03	0,05	0,10	0,06	0,10	●	○		0,06	0,10	0,06	0,10	0,15	●	○	○
P.4.2	0,03	0,04	0,07	0,04	0,07	●	○		0,04	0,08	0,04	0,08	0,12	●	○	○
M.1.1	0,01	0,05	0,10	0,06	0,10	●	○		0,06	0,10	0,06	0,10	0,15	●	○	○
M.2.1	0,01	0,04	0,08	0,06	0,10	●	○		0,06	0,10	0,06	0,10	0,15	●	○	○
M.3.1	0,01	0,04	0,07	0,05	0,08	●	○		0,05	0,09	0,05	0,08	0,12	●	○	○
K.1.1	0,05	0,10	0,15	0,15	0,20	○	●		0,15	0,20	0,15	0,20	0,30	○	●	○
K.1.2	0,05	0,10	0,15	0,15	0,20	○	●		0,15	0,20	0,15	0,20	0,30	○	●	○
K.2.1	0,04	0,08	0,15	0,10	0,15	○	●		0,10	0,15	0,10	0,15	0,25	○	●	○
K.2.2	0,03	0,07	0,12	0,08	0,12	○	●		0,08	0,12	0,08	0,12	0,20	○	●	○
K.3.1	0,04	0,08	0,15	0,10	0,15	○	●		0,10	0,15	0,10	0,15	0,25	○	●	○
K.3.2	0,03	0,07	0,12	0,08	0,12	○	●		0,08	0,12	0,08	0,12	0,20	○	●	○
N.1.1	0,02	0,06	0,10	0,08	0,12	●	○		0,08	0,12	0,08	0,12	0,15	●	○	○
N.1.2	0,02	0,06	0,10	0,08	0,12	●	○		0,08	0,12	0,08	0,12	0,15	●	○	○
N.2.1	0,05	0,08	0,12	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
N.2.2	0,05	0,08	0,12	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
N.2.3	0,05	0,08	0,12	0,10	0,15	●	○		0,09	0,12	0,09	0,12	0,18	●	○	○
N.3.1	0,02	0,04	0,08	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
N.3.2	0,02	0,04	0,08	0,10	0,15	●	○		0,10	0,15	0,11	0,16	0,22	●	○	○
N.3.3	0,05	0,08	0,15	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
N.4.1	0,02	0,04	0,08	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
S.1.1	0,01	0,04	0,08	0,06	0,08	●	○		0,06	0,08	0,06	0,08	0,10	●	○	○
S.1.2	0,01	0,03	0,06	0,04	0,06	●	○		0,04	0,06	0,04	0,06	0,08	●	○	○
S.2.1	0,01	0,04	0,08	0,06	0,08	●	○		0,06	0,08	0,06	0,08	0,10	●	○	○
S.2.2	0,01	0,03	0,06	0,04	0,06	●	○		0,04	0,06	0,04	0,06	0,08	●	○	○
S.2.3	0,05	0,08	0,06	0,08	0,08	●	○		0,04	0,06	0,04	0,06	0,06	●	○	○
S.3.1	0,01	0,04	0,08	0,06	0,08	●	○		0,06	0,08	0,07	0,09	0,11	●	○	○
S.3.2	0,01	0,04	0,08	0,06	0,08	●	○		0,06	0,08	0,06	0,08	0,10	●	○	○
S.3.3	0,01	0,02	0,04	0,03	0,04	●	○		0,04	0,06	0,06	0,08	0,10	●	○	○
H.1.1		0,05	0,08	0,08	0,08		●		0,08	0,08	0,08	0,08	0,10		●	○
H.1.2		0,05	0,08	0,06	0,08		●		0,06	0,06	0,06	0,06	0,08		●	○
H.1.3		0,02	0,04	0,03	0,04		●		0,04	0,04	0,03	0,04	0,04		●	○
H.1.4																
H.2.1		0,05	0,08	0,08	0,08		●		0,05	0,06	0,08	0,08	0,10		●	○
H.3.1		0,05	0,08	0,06	0,08		●		0,05	0,06	0,06	0,06	0,08		●	○
O.1.1		0,04	0,04	0,06	0,06	○	●		0,08	0,08	0,08	0,08	0,08	○	●	○
O.1.2		0,04	0,04	0,06	0,06	○	●		0,08	0,08	0,08	0,08	0,08	○	●	○
O.2.1																
O.2.2		0,03	0,03	0,04	0,04		●		0,04	0,05	0,04	0,04	0,04		●	
O.3.1		0,03	0,03	0,04	0,04		●		0,04	0,05	0,04	0,04	0,04		●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data values for fine and rough boring heads

Fine machining with depth of cut a_p = 0.1 – 0.4 mm

Index	M10 boring bar 62 858 ... Ø 15,9–26 f in mm/rev.	● 1st choice ○ suitable Emulsion	Compressed air	MMS	Single point finish boring heads 62 305 ... Ø 86–402 f in mm/rev.	Twin edged rough / fine boring head 62 380 ... Ø 29,5–115,5 f in mm/rev.	Single point finish boring heads 62 303 ... Ø 23,9–116,1 f in mm/rev.	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	0,07	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.1.2	0,07	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.1.3	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.1.4	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.1.5	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.2.1	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.2.2	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.2.3	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.2.4	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.3.1	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.3.2	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.3.3	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.4.1	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.4.2	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
M.1.1	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
M.2.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
M.3.1	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
K.1.1	0,10	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.1.2	0,10	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.2.1	0,08	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.2.2	0,07	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.3.1	0,08	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.3.2	0,07	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
N.1.1	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.1.2	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.2.1	0,08	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.2.2	0,08	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.2.3	0,07	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.3.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.3.2	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.3.3	0,10	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.4.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.1.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.1.2	0,03	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.2.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.2.2	0,03	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.2.3	0,03	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.3.1	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.3.2	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.3.3	0,02	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
H.1.1	0,05		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
H.1.2	0,04		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
H.1.3	0,02		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
H.1.4				○						
H.2.1	0,05		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
H.3.1	0,03		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
O.1.1	0,08	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
O.1.2	0,08	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
O.2.1				○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
O.2.2	0,04		●	○	0,03–0,12	0,08–0,20	0,03–0,12		●	
O.3.1	0,04		●	○	0,03–0,12	0,08–0,20	0,03–0,12		●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data values for fine and rough boring heads

Single point finish boring heads: Fine machining with depth of cut a_p = 0,1 – 0,4 mm | Micro-Boring Head: Fine machining with depth of cut a_p = 0,1 – 0,2 mm

Index	Fine boring head	Multi-Head boring and fine boring head	Single point boring head	Vario-Head - boring and fine boring head	Micro Boring Head	● 1st choice ○ suitable		
	62 304 ...	62 372 ... / 62 373 ...	62 326 ... / 62 332 ... / 62 333 ... / 62 363 ...	62 364 ...	62 386 ... / 62 382 ...	Emulsion	Compressed air	MMS
	Ø 14,7–24,1	Ø 2–320	Ø 3–88	Ø 3–152,1	Ø 0,3–19,1			
	f in mm/rev.							
P.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.1.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.1.4	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.1.5	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.2.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.2.4	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.3.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.3.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.4.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.4.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
M.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
M.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
M.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
K.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.3.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
N.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.2.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.3.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.3.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.4.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.2.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.3.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.3.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
H.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
H.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
H.1.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
H.1.4								
H.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
H.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
O.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
O.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
O.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	
O.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02		●	
O.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02		●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data values for rough boring heads

Cutting depth a_p = 1,0 – 9,0 mm

Index	TwinKom 62 870 ... Ø 24–32	Ø 30–41	Ø 39–53	Ø 51–71	Ø 64–91	Ø 83–124	Ø 109–167	● 1st choice ○ suitable Emulsion	Compressed air	MMS
	f in mm/rev.									
P.1.1	0,15	0,16	0,18	0,20	0,22	0,25	0,28	●	○	○
P.1.2	0,15	0,16	0,18	0,20	0,21	0,24	0,27	●	○	○
P.1.3	0,15	0,16	0,18	0,20	0,21	0,24	0,27	●	○	○
P.1.4	0,15	0,16	0,18	0,20	0,21	0,24	0,27	●	○	○
P.1.5	0,15	0,16	0,18	0,20	0,21	0,24	0,27	●	○	○
P.2.1	0,14	0,16	0,17	0,18	0,20	0,23	0,26	●	○	○
P.2.2	0,14	0,16	0,17	0,18	0,20	0,23	0,26	●	○	○
P.2.3	0,14	0,16	0,17	0,18	0,20	0,23	0,26	●	○	○
P.2.4	0,14	0,16	0,17	0,18	0,20	0,23	0,26	●	○	○
P.3.1	0,13	0,15	0,16	0,17	0,19	0,22	0,25	●	○	○
P.3.2	0,13	0,15	0,16	0,17	0,19	0,22	0,25	●	○	○
P.3.3	0,13	0,15	0,16	0,17	0,19	0,22	0,25	●	○	○
P.4.1	0,12	0,13	0,14	0,15	0,16	0,18	0,20	●	○	○
P.4.2	0,12	0,13	0,14	0,15	0,16	0,18	0,20	●	○	○
M.1.1	0,14	0,15	0,16	0,17	0,18	0,2	0,24	●	○	○
M.2.1	0,12	0,13	0,14	0,15	0,16	0,18	0,20	●	○	○
M.3.1	0,12	0,13	0,14	0,15	0,16	0,18	0,20	●	○	○
K.1.1	0,22	0,23	0,24	0,25	0,26	0,30	0,30	○	●	○
K.1.2	0,22	0,23	0,24	0,25	0,26	0,30	0,30	○	●	○
K.2.1	0,22	0,23	0,24	0,25	0,26	0,30	0,30	○	●	○
K.2.2	0,22	0,23	0,24	0,25	0,26	0,30	0,30	○	●	○
K.3.1	0,20	0,20	0,22	0,23	0,24	0,26	0,26	○	●	○
K.3.2	0,20	0,20	0,22	0,23	0,24	0,26	0,26	○	●	○
N.1.1	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.1.2	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.2.1	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.2.2	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.2.3	0,11	0,14	0,23	0,23	0,27	0,32	0,32	●	○	○
N.3.1	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.3.2	0,13	0,16	0,27	0,27	0,32	0,35	0,35	●	○	○
N.3.3	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.4.1	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
S.1.1	0,06	0,06	0,07	0,08	0,08	0,10	0,10	●	○	○
S.1.2	0,04	0,04	0,05	0,06	0,06	0,08	0,08	●	○	○
S.2.1	0,06	0,06	0,07	0,08	0,08	0,10	0,10	●	○	○
S.2.2	0,04	0,04	0,05	0,06	0,06	0,08	0,08	●	○	○
S.2.3	0,04	0,04	0,05	0,06	0,06	0,08	0,08	●	○	○
S.3.1	0,06	0,06	0,07	0,08	0,08	0,10	0,10	●	○	○
S.3.2	0,06	0,06	0,07	0,08	0,08	0,10	0,10	●	○	○
S.3.3	0,04	0,04	0,05	0,06	0,06	0,08	0,08	●	○	○
H.1.1	0,08	0,08	0,08	0,08	0,08	0,08	0,08		●	○
H.1.2	0,06	0,06	0,06	0,06	0,06	0,06	0,06		●	○
H.1.3	0,04	0,04	0,04	0,04	0,04	0,04	0,04		●	○
H.1.4										○
H.2.1	0,05	0,05	0,06	0,06	0,06	0,06	0,06		●	○
H.3.1	0,05	0,05	0,06	0,06	0,06	0,06	0,06		●	○
O.1.1	0,08	0,08	0,08	0,10	0,10	0,10	0,10	○	●	○
O.1.2	0,08	0,08	0,08	0,10	0,10	0,10	0,10	○	●	○
O.2.1										
O.2.2	0,04	0,04	0,05	0,05	0,06	0,06	0,07		●	
O.3.1	0,04	0,04	0,05	0,05	0,06	0,06	0,07		●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data values for rough boring heads

Cutting depth a_p = 2.5 – 7 mm

Index	Twin rough boring head 62 295 ... Ø 23,5–40,5 f in mm/rev.	Ø 40,5–66,5 f in mm/rev.	Ø 66,5–87,5 f in mm/rev.	Ø 87,5–153 f in mm/rev.	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.1.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.1.4	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.1.5	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.2.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.2.4	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.3.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.3.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.4.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.4.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
M.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
M.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
M.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
K.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.3.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
N.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.2.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.3.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.3.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.4.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.2.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.3.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.3.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
H.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
H.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
H.1.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
H.1.4							
H.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
H.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
O.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
O.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
O.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○		
O.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8		●	
O.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8		●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Maximum Speeds and Scale Accuracy

Maximum speeds for precision adjustment heads and Micro-Boring Heads

System	Boring range	Maximum speed n_{max} in $1/_{min}$
BlueFlex 2 (62 820 ... / 62 840 ...)	Ø 5,6–365 mm	20.000
hi.flex (62 800 ...)	Ø 5,6–365 mm	17.500
M10 boring bar (62 858 ...)	Ø 15,9–26 mm	18.000
Micro Boring Head (62 386 ... / 62 382 ...)	Ø 0,3–19,1 mm	30.000
M03 Speed (62 815 ...)	Ø 24–39 mm	40.000
	Ø 38–50 mm	31.000
	Ø 49–63 mm	24.000
	Ø 62–80 mm	18.500
	Ø 79– 103 mm	15.000
	Ø 100– 130 mm	11.500
	Ø 128–168 mm	10.000
	Ø 166–206 mm	8.000
FF (62 810 ...)	Ø 29,5–42 mm	25.000
	Ø 39–50 mm	18.000
	Ø 47–66 mm	12.000
	Ø 58–83 mm	9.000
	Ø 79– 108 mm	6.000
	Ø 100–141 mm	4.000
	Ø 138–179 mm	3.500
	Ø 178–199 mm	3.000





Maximum speeds for finish boring heads

Article no.	Boring range	Offset X = ≤ 0,5 mm n_{max} in $1/_{min}$	Offset X = > 0,5 mm n_{max} in $1/_{min}$
62 372 ... / 62 373 ... / 62 326 ... / 62 332 ... / 62 333 ... / 62 363 ... / 62 364 ... with boring bars	Ø 3–20 mm	16.000	6.000
	Ø 20–48 mm	12.000	4.000
	Ø 48–88 mm	8.000	2.000



Article no.	Boring range	Maximum speed with unbalanced system n_{max} in $1/_{min}$	Maximum speed with balanced System n_{max} in $1/_{min}$
62 308 ... / 62 303 ... / 62 364 ... with insert holders	Ø 24–31 mm	9.000	12.000
	Ø 31–40 mm	7.500	10.000
	Ø 40–51 mm	5.250	8.000
	Ø 51–67 mm	4.000	6.500
	Ø 67– 87 mm	3.000	5.000
	Ø 87–116 mm	2.500	4.000
	Ø 116–153 mm	1.750	3.000



Article no.	Boring range	Maximum speed n_{max} in $1/_{min}$
62 372 ... / 62 373 ... with bridges	Ø 88–164 mm	900
	Ø 164–320 mm	250
62 305 ... with insert holders	Ø 86–138 mm	1.150
	Ø 136–220 mm	720
	Ø 188–302 mm	520
	Ø 242–402 mm	400





Maximum speeds for two-edged systems

System	Boring range	Maximum speed n_{max} in $1/_{min}$
TwinKom (62 380 ...)	Ø 24–31 mm	12.000
	Ø 31–40 mm	10.000
	Ø 40–51 mm	8.000
Twin edged rough / fine boring head (62 295 ...)	Ø 51–68 mm	6.500
	Ø 67–87 mm	5.000
	Ø 87–116 mm	4.000
Twin rough boring head (62 870 ...)	Ø 116–153 mm	3.000
	Ø 153–215 mm	2.200



The specified maximum speeds refer to an overhang length of up to 4xD.

For longer overhangs the maximum speeds should be reduced as follows:

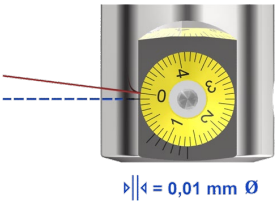
5xD = 80 % n_{max}
6xD = 60 % n_{max}

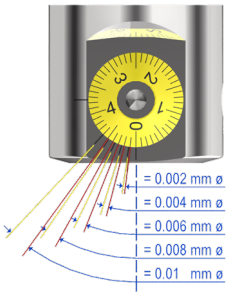
> 6xD n_{max} identify with caution

Scale accuracy

Large scale with 0.002 mm adjustment

How it works:

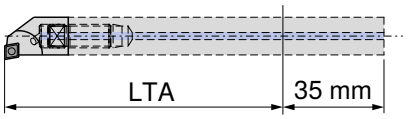




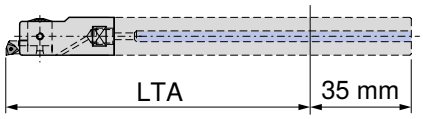
Maximum overhang length LTA

for 35 mm shank clamping depth

Boring bar		High Speed Boring Head 62 361 ...																Fine boring head 62 304 ...		
62 353 ...		014	015	016	017	018	019	020	021	022	023	025	027	030	033	037	040	017	020	024
008	LTA mm	**56**																		
009			**63**																	
010				**70**																
011					**77**															
012						**84**														
013							**91**													
014								**98**	**98**									**115**		
016										**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**		**125**	
018																				**105**
118																				**145**
218																				**185**

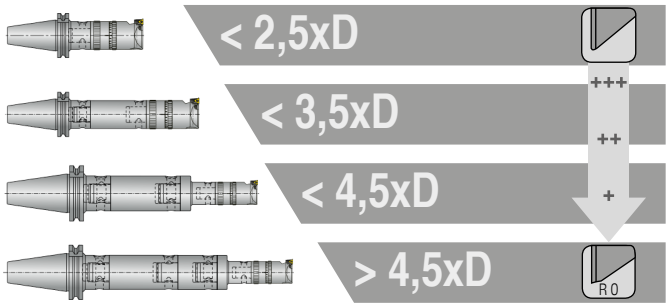


High Speed Boring Head 62 361 ...

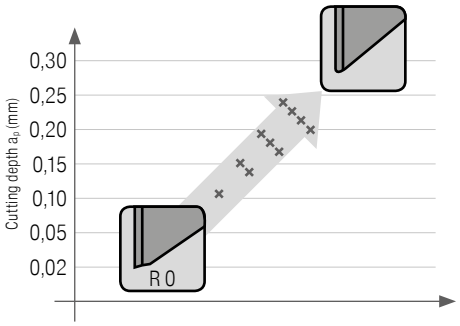


Fine boring head 62 304 ...

Selection of the cutting radius depending on the overhang lengh



Selection of the cutting edge radius in dependency of the cutting depth a_p



Influence of the cutting forces of the cutting edge radius on internal machining

Resulting force

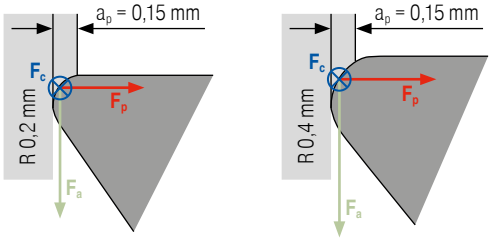
$$F_{res} = \sqrt{F^2_a + F^2_p} = \sqrt{F^2_c + F^2_f + F^2_p}$$

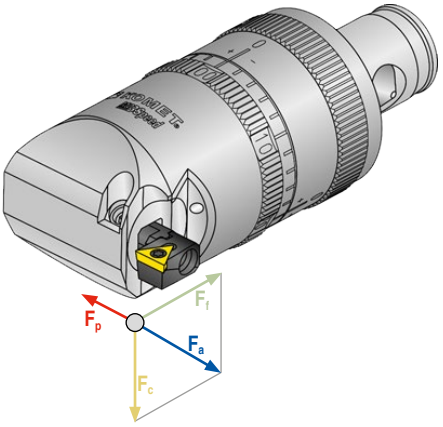
Tangential cutting force (F_c)
- ▲ pushes the tool down from the vertical central axis
- ▲ is influenced by the cutting depth and the chip thickness
- ▲ reduces the clearance angle

Passive cutting force (F_p)
- ▲ pushes the tool away from the horizontal central axis
- ▲ increases the risk of vibrations and causes dimensional inaccuracies

Feed force (F_f)
- ▲ acts in the machining direction of the tool

Active cutting force (F_a)
- ▲ determined by F_c and F_f





Selection of the rake angle

Recommendations for the use of inserts with ground Chip breakers

	rounded E	Sharp F	chamfered T
0°	P	P	P
	M	M	M
	K	K	**K**
	N	**N**	N
	S	S	S
	H	H	**H**
≤ 6°	**P**	P	P
	M	M	M
	K	K	K
	N	N	N
	S	S	S
	H	H	H
≤ 12°	**P**	P	P
	M	M	M
	K	K	K
	N	**N**	N
	S	**S**	S
	H	H	H
≤ 20°	P	P	P
	M	M	M
	K	K	K
	N	**N**	N
	S	**S**	S
	H	H	H

Chip groove description → **page 77**

Types of wear

Wear on clearance face

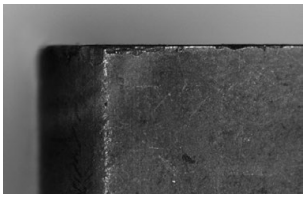


Abrasion on the flank: normal wear after a certain period of operation

Cause
- Cutting speed too high
- Carbide grade does not have enough wear resistance
- Feed not adapted to application

Remedy
- Reduce cutting speed
- Select a carbide grade with high wear resistance
- Bring feed into the right relationship with cutting speed and cutting depth

Edge chipping

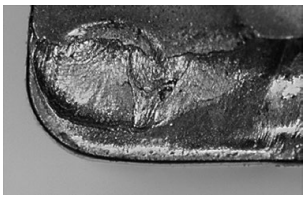


Increased mechanical stress on the cutting edge may result in carbide particles breaking off.

Cause
- Grade with too high a wear resistance
- Vibrations on tool or workpiece
- Feed rate or cutting depth is too high
- Built-up edge
- Interrupted cut
- Chip stroke

Remedy
- Use tougher grade
- Improve stability (tool, workpiece)
- Avoid built-up edges

Cratering

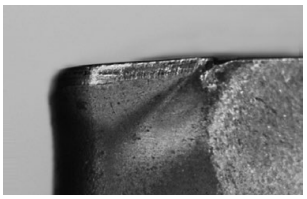


The outgoing hot chip is causing cratering of the cutting insert on the clamping surface.

Cause
- Cutting speed, feed rate or both are too high
- Rake angle too small
- Grade does not have enough wear resistance
- Incorrectly supplied coolant

Remedy
- Reduce cutting speed and/or feed rate
- Choose carbide grades with greater wear-resistance
- Increase quantity and/or pressure of coolant, check supply
- Use a more crater-resistant grade

Plastic deformation

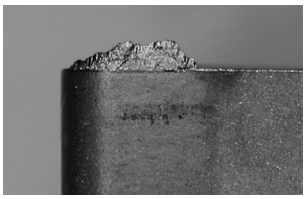


High machining temperature with simultaneous mechanical stress can lead to plastic deformation.

Cause
- Working temperature too high, softening of the base material
- Damage to the coating
- Grade does not have enough wear resistance
- Incorrectly supplied coolant

Remedy
- Reduce cutting speed
- Choose carbide grades with greater wear-resistance and thermal stability
- Make provisions for cooling

Built-up edge

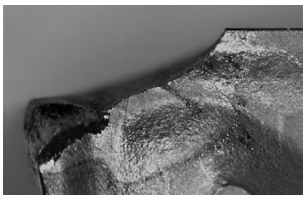


Material builds up on the cutting edge if the chip does not flow correctly due to the cutting temperature being too low.

Cause
- Cutting speed to low
- Rake angle too small
- Incorrect cutting material
- Missing coolant/lubrication

Remedy
- Increase cutting speed
- Increase rake angle
- Use coating
- Increase oil content of emulsion

Insert breakage



If a cutting insert is overloaded, insert breakage may occur.

Cause
- Cutting material overloaded (extreme values)
- Lack of stability
- Wedge angle too small
- Interference contours were not taken into account
- Interrupted cut

Remedy
- Use a tougher cutting material
- Use chamfer for edge protection
- Increase rounding of cutting edge
- Use more stable geometry
- Check cutting data
- Check interference contours

Type

K10
- Carbide, uncoated
- ISO | **K10**
- Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

BK2710
- Carbide, TiAlN-coated
- ISO | P10 | M10 | **K10**
- Extremely wear-resistant carbide grade for machining stainless steels, structural steels and tool steels as well as cast iron materials

BK8440
- Carbide, TiCN-TiN-coated
- ISO | **P35** | M10
- Very tough carbide grade for medium cutting speeds and interrupted cut

BK7615
- Carbide, TiCN-Al_2O_3-coated
- ISO | **K15**
- Highly productive grade with extreme edge stability for wet and dry machining of all cast iron materials

CWN10
- Carbide, TiN-coated
- ISO | **K10**
- The carbide grade for machining steels, stainless steels and non-ferrous metals

CWC10
- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

BK6440
- Carbide, CVD-TiCn-Al2O3-TiN coated
- ISO | **M25** | **K35**
- Extremely tough standard grain grade; good wear resistance in steel and stainless steel materials, even in unfavourable cutting conditions / interrupted cut

BK6115
- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | **P20** | **K20** | H20
- High-quality, surface-treated coating for machining cast iron materials in normal to stable conditions and at high cutting speeds

BK8430
- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25**
- Fine-grain grade with high wear resistance
- Extreme edge stability and maximum wear resistance in the middle and top speed range

BK60
- Carbide, TiC-TiCN-TiN-coated
- ISO | P25 | **M10**
- Multi-layer coating for long service life even in the upper cutting speed range

CBN40
- Cubic boron nitride, uncoated
- ISO | **H05**
- Uncoated cutting material made of cubic boron nitride for machining hardened steels over 45 HRC, heat-resistant nickel-based or cobalt-based alloys

BK8425
- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25**
- Universal grade with greater wear resistance thanks to innovative PVD multi-layer coating

BK6110
- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | P10 | **K10**
- Wear-resistant carbide for machining cast iron and steel materials

CWC06
- Cermet, TiC/TiN-coated
- ISO | **P10** | M10 | **K10** | N10
- Coated cermet grade for fine boring at high cutting speed and with a uniform cut

CWP25
- Carbide, uncoated
- ISO | **P25** | **M25** | K25 | **N25** | S25
- Uncoated carbide grade for fine boring with large hole depths and small machining allowances

CK32
- Cermet, uncoated
- ISO | **P10** | **M15** | K05 | N15
- For fine and finish turning
- Less wear and greater cutting speed result in longer tool life and high surface quality
- Cutting material for high productivity in the top cutting speed range

CK3230
- Cermet, uncoated
- ISO | **P20** | **M20** | K10 | N20
- Extremely tough behaviour with good wear resistance suitable for use also in interrupted cut

PKD5510 CTDPU20
- Polycrystalline diamond cutting material with mixed grain, uncoated
- ISO | **N15**
- Outstanding wear resistance, even where Si content > 12% and high proportion of abrasive reinforcements
- Used in plastics and fibre composites (GFK, CFK)

Coatings

TiN

- TiN coating
- Maximum application temperature: 450 °C

Chip breakers

-SF14

- Rake angle 14°
- Specially developed chip breakers with remarkable chip control for a range of applications, from fine finishing to medium machining

-SF15

- Rake angle 15°
- Balanced geometry: High stability for high cutting edge sharpness
- Very good chip control with very little built-up edge formation
- Extremely good chip breakage for small and medium feeds
- Initial recommendation for machining C-steel, alloyed and stainless steels

-SF16

- Rake angle 15°
- Balanced geometry: High stability for high cutting edge sharpness
- Large chip chamber, therefore good chip control at low feeds
- Initial recommendation for machining C-steel, alloyed and stainless steels

-SF20

- Rake angle 20°
- Extremely smooth-cutting thanks to the very positive rake angle
- Very good chip control and very little built-up edge formation
- Perfect cutting performance, due to the very positive rake angle, especially for low clamping depths and feeds
- Initial recommendation for machining stainless steel, alloy steels, carbon steel and non-ferrous metals

-SF30

- Rake angle 15°
- Balanced geometry: High stability for high cutting edge sharpness
- Chip breaker geometry: Very good chip breakage for small and medium feeds
- Initial recommendation for machining C-steel, alloyed and stainless steels

-01

- Rake angle 12°
- All-round topography chamfered, rounded
- Very smooth-cutting thanks to positive cutting edge geometry
- Also suitable for less-powerful machines and unstable workpieces
- Easily controllable chip formation also in less solid materials

-02

- Rake angle 0°
- Roughing topography, extremely stable (significant wedge angle)
- Excellent chip formation for chips that are difficult to control
- For small cutting depths < 1.5 mm only suitable under certain circumstances

-12

- Rake angle 30°
- Peripheral ground indexable insert with pressed chip breaker
- Highly positive, sharp and all-round cutting edge, therefore extremely smooth-cutting
- Peripheral ground flanks guarantee controlled chip formation and best surface quality at low cutting forces

-14

- Rake angle 14°
- Peripheral ground, sintered topography
- Controlled chip formation in fine and extremely fine machining

-15

- Rake angle 15°
- Semi-finishing chip breaker; peripheral ground, sintered
- Controlled chip formation in fine and extremely fine machining

-18

- Rake angle 14°
- Peripheral ground and sintered topography
- Controlled chip formation in fine and extremely fine machining
- Positive wiper geometry for maximum demands on surface quality

-G06

- Rake angle 6°
- For P / M / K materials
- High stability due to significant wedge angle

-G12

- Rake angle 12°
- For P / N / S materials
- Extremely smooth-cutting thanks to positive cutting edge geometry
- Extremely suitable for less-powerful machines and unstable workpieces
- Easily controllable chip formation also in less solid materials

New products for machining technicians

NEW Through hole – machine taps right-hand, type Stabil NW



M → Page 26 | MF → Page 64 | G → Page 82

- Highly efficient machining of non-ferrous metals
- 1 – 2 µm thick DLC monolayer coating ensures minimal friction values and therefore ideal chip clearance
- 4xD

NEW Blind hole – machine taps right-hand, type Salo-Rex NW



M → Page 42 | MF → Page 73 | G → Page 85

- Highly efficient machining of non-ferrous metals
- 1 – 2 µm thick DLC monolayer coating ensures minimal friction values and therefore ideal chip clearance
- 3xD

NEW Through hole – machine taps right-hand, type Stabil HR



M → Page 25

- Specialist for thread production in high-strength steels
- New optimised hard material/carbon coating delivers the very best results
- 4xD

NEW Blind hole – machine taps right-hand, type SL HR



M → Page 38

- Specialist for thread production in high-strength steels
- New optimised hard material/carbon coating delivers the very best results
- 2xD



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Chamfer form



Form B
(with spiral point, 4 – 5 cutting leads)



Form C
(without spiral point, 2 – 3 cutting leads)



Form D
(without spiral point, 4 – 5 cutting leads)



Form E
(without spiral point, 1.5 – 2 cutting leads)

Helix angle



Example: helix angle 42°

Tolerances

ISO 2 6H

Explanation of the tolerances can be found on → **Page 113.**

Tensile strength

≤ 1100 N/mm²

Example up to 1100 N/mm²



Tool Material

HSS	High-speed steel
HSS-E	High-performance high speed steel
HSS-PM	High-performance sintered high-speed steel
VHM	Solid carbide

Coloured rings

WNT \ Performance

An explanation of the coloured rings can be found on → **Page 116.**

Thread types

M

Explanation of the thread types can be found on → **Page 3.**

Coolant supply version


Int. coolant supply

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

Tap types

Tool type

WNT \ Performance

Stabil	for through holes to 4xD	**Salo-Rex**	for blind holes up to 3xD, high helix angle for secure chip evacuation	**TWIN**	straight flutes for through and blind holes up 2xD
DL	left hand helix for through holes up to 4xD	**SL**	for blind holes up to 2xD, 15°, 25° or 30° helix angle	**Spanlos**	Thread former for through and blind holes up to 3xD

A detailed explanation of the types of tools can be found on → **Page 112.**

Application range

WNT \ Performance

UNI	for universal application	**ST**	for good quality free machining steel	**VG**	for tempered and heat-resistant steels < 1100 N/mm²
HR	for high-tensile steels < 1400 N/mm²	**GG**	for cast iron	**VA**	for stainless and acid-resistant steels up to 1100 N/mm²
NW	for aluminium	**Soft**	for soft materials	**Ms**	for short chipping brass
Ti	for titanium and titanium alloys	**Ni**	special for Inconel 718	**AMPCO**	for Ampco alloys
HT	for hardened steel and chilled iron up to 55 HRc	**EC**	Spanlos – Thread former for universal application	**NEO**	Spanlos – Thread former for heat resistant alloys
ERGO	Hand Taps for stainless, heat-resistant and heat-treated steels up to 1100 N/mm²	**ERGO F.T.**	Hand tap for steel up to 1400 N/mm², wolfram, chilled iron	**FE**	Dies for steel

WNT \ Standard

UNI	for universal application up to 1000 N/mm²	**FE**	for steel to 850 N/mm²	**FE-HF**	for high-tensile steel to 1100 N/mm ²
VA	for corrosion and acid-resistant steels	**GG**	for cast iron	**AL**	for aluminium and aluminium alloys

Special Features

CNC	for synchronised CNC machining with minimum length compensation chuck	**NC**	for synchronised CNC machining with minimum length compensation chuck	**NCW**	with Weldon flat for synchronised CNC machining without length compensation chuck
AZ	with intermittent teeth, reduces friction	**S**	with back taper, for deep threads	**DRY**	for dry machining or minimum quantity lubrication (MMS)
TS	for high-speed machining, up to 100 m/min.	**LH**	for left hand threads	**EL**	extra long, with double overall length
AUT	short version for automatic use	**SN**	Thread formers with lubrication grooves	**ES**	extra short
MMB	Machine taps	**R_z=1**	Lapped Dies		

Thread types

M	ISO metric coarse thread DIN 13	**UNF**	Unified fine thread ASME – B1.1	**NPTF**	American taper pipe thread with sealing (1:16) ANSI/ASME B1.20.3
EG M	ISO Metric coarse thread for wire inserts DIN 8140-2	**EG UNF**	EG Unified fine thread for wire inserts ASME B18.29.1	**Rp**	Cyl. Whitworth coarse thread DIN EN 10226-1 (ISO7-1)
MF	ISO Metric fine thread DIN 13	**UNJC**	Unified coarse thread ASME – B1.15 and ISO 3161	**Rc**	Whitworth taper pipe thread (1:16) DIN EN 10226-2 (ISO7-1)
G	Whitworth pipe thread DIN EN ISO 228	**UNJF**	Unified fine thread ASME – B1.15 and ISO 3161	**Tr**	ISO metric trapezoidal thread DIN 103
UNC	Unified coarse thread ASME – B1.1	**BSW**	Whitworth thread BS84		
EG UNC	EG Unified coarse thread for wire inserts ASME B18.29.1	**NPT**	American taper pipe thread with sealing (1:16) ANSI/ASME B1.20.1		

The thread types BSW, NPTF, Rp and Rc as well as hand taps and dies are now available in the online shop.

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Toolfinder – WNT Performance

Thread formers

for cold-formable materials

HSS taps

- Through hole-Blind hole

for universal application up to 1100 N/mm²

- Through hole
- Blind hole

for steel up to 750 N/mm²

- Through hole
- Blind hole
- Through hole-Blind hole

for steel up to 1400 N/mm²

- Through hole
- Blind hole
- Through hole-Blind hole

for corrosion and acid-resistant steels

- Through hole
- Blind hole

For cast iron materials

- Through hole-Blind hole

for heat-resistant materials

- Through hole
- Blind hole

for aluminium and non-ferrous metal

- Through hole
- Blind hole
- Through hole-Blind hole

Hard materials

- Through hole-Blind hole

For tools for other applications, refer to the taps overview on → **Pages 8–20.**

Shank extensions for taps and thread-cutting oils can be found in our online shop at cuttingtools.ceratizit.com

WNT \ Performance

Tool type	Application range	M	EG M	MF	G	UNC	EG UNC	UNJC	UNF	EG UNF	UNJF	BSW	NPT	NPTF	Rp	Tr
Spanlos	EC	57+58		80	88	93			102							
Stabil	UNI	21–23	61	63+64	82	89	94		97	103		🛒				
Salo-Rex	UNI	34–37	62	67+68	84+85	91	95		99	104		🛒	🛒			
Stabil	ST	24+25		64	82											108
Salo-Rex	ST	39+40		69+70	85											
TWIN	ST	51+52		78–79	87								107	🛒	🛒	
Stabil	HR	25														
Salo-Rex	HR	40														
TWIN	HR	51+52		77+78	87											
Stabil	VA	26			82	89										
Salo-Rex	VA	41		72	85	91			99				105			
TWIN	GG	53		78												
Stabil	Ti	27				89			97		🛒					
SL	Ti	43				🛒		96	100		🛒					
Stabil	NW	26		64	82											
Salo-Rex	NW	42		73	85											
TWIN	AMPCO	51+52														
TWIN	HT	54		77												

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Toolfinder – WNT Standard

Thread formers

for cold-formable materials

-  Through hole-Blind hole

HSS taps

for universal application up to 1000 N/mm²

-  Through hole
-  Blind hole

for steel to 850 N/mm²

-  Through hole
-  Blind hole

for high-tensile steels up to 1100 N/mm²

-  Through hole
-  Blind hole

for corrosion and acid-resistant steels

-  Through hole
-  Blind hole

For cast iron materials

-  Through hole-Blind hole

for aluminium and non-ferrous metal

-  Through hole
-  Blind hole

For tools for other applications, refer to the taps overview on → **Pages 8–20.**

Shank extensions for taps and thread-cutting oils can be found in our online shop at cuttingtools.ceratizit.com

Application range	WNT \ Standard M	MF	G	UNC	UNF
UNI	60	81			
UNI	31+32	65+66	83	90	98
UNI	48+49	74	86	92	101
FE	32	66			
FE	49	75			
FE-HF	32			90	
FE-HF	49			92	
VA	33	66		90	98
VA	49+50	76		92	101
GG	56				
AL	33				
AL	50				

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Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Universal				Stabil	UNI	ISO 2 6H ISO 3 6G 7G	HSS-E	■			21+22	
					UNI	ISO 2 6H	HSS-E HSS-PM	■				31
				Stabil	UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck	23	
					UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck		32
				Stabil	UNI CNC	ISO 2X 6HX ISO 3X 6GX 7GX	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	23	
					UNI NC	ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		32
				Stabil	UNI EL	ISO 2 6H	HSS-E	■		extra long, with double overall length	29	
Steel				Stabil	ST	ISO 2 6H	HSS-E		□		24	
				Stabil	ST	ISO 1 4H ISO 3 6G	HSS-E		□			
					FE	ISO 2 6H	HSS-E		□			32
					FE ES	ISO 2 6H	HSS-E		□	extra short		
				Stabil	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	24	
				Stabil	ST TS	ISO 2X 6HX	HSS-E	■		for high-speed machining, up to 100 m/min.	25	
				Stabil	HR	ISO 2X 6HX	HSS-PM	■			25	
				Stabil	VG	ISO 2X 6HX	HSS-E	■			25	
					FE-HF	ISO 2 6H	HSS-E	■				32

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Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Steel	✓			Stabil	ST EL	ISO 2 6H	HSS-E		□	extra long, with double overall length	29	
	✓				ST MMB	ISO 2 6H	HSS-E		□	Machine taps	30	
Stainless steel	✓			Stabil	VA	ISO 2 6H	HSS-E	■			26	
	✓				VA	ISO 2 6H	HSS-PM HSS-E	■				33
Non ferrous metals	✓			Stabil	NW	ISO 2 6H	HSS-E	■			26	
	✓				AL	ISO 2 6H	HSS-E	■	□			33
	✓			Stabil	Soft	ISO 2 6H	HSS-E	■			🛒	
Heat resistant	✓			Stabil	Ti	ISO 1X 4HX ISO 2X 6HX	HSS-PM	■			27	
	✓			DL	Ti	ISO 2X 6HX	HSS-E	■			28	
	✓			DL	Ni	ISO 2X 6HX	HSS-E	■			28	
Universal		✓		Salo-Rex	UNI	ISO 2 6H 7G	HSS-E	■			34+35	
		✓		Salo-Rex	UNI	ISO 1 4H ISO 3 6G	HSS-E	■			🛒	
		✓			UNI	ISO 2 6H	HSS-E HSS-PM	■				48
		✓		Salo-Rex	UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck	35	
		✓			UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck		49
		✓		Salo-Rex	UNI CNC	ISO 2X 6HX ISO 2 6H, 7G	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	36	
		✓		Salo-Rex	UNI CNC	ISO 3 6G	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	🛒	
		✓			UNI NC	ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		48

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Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Universal				Salo-Rex	UNI DRY	ISO 2 6H	HSS-E	■		for dry machining or minimum quantity lubrication (MMS), with thro' coolant	37	
Universal				Salo-Rex	UNI S	ISO 2 6H	HSS-E	■		with back taper, for deep threads	🛒	
Universal				Salo-Rex	UNI ES	ISO 2 6H	HSS-E	■		extra short	44	
Universal				Salo-Rex	UNI EL	ISO 2 6H	HSS-E	■		extra long, with double overall length	46	
Universal				SL	UNI	ISO 2 6H	HSS-E		□		🛒	
Steel				SL	ST	ISO 2 6H	HSS-E		□		🛒	
Steel				SL	ST CNC	ISO 2X 6HX	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck, with thro' coolant	38	
Steel				SL	ST TS	ISO 2 6H	HSS-PM	■		for high-speed machining, up to 100 m/min.	🛒	
Steel				SL	ST TS	ISO 2X 6HX	HSS-E	■		for high-speed machining, up to 100 m/min.	38	
Steel				SL	ST ES	ISO 2 6H	HSS-E		□	extra short	45	
Steel				SL	ST EL	ISO 2 6H	HSS-E		□	extra long, with double overall length	47	
Steel				SL	HR	ISO 2 6H	HSS-PM		□		38	
Steel				Salo-Rex	ST	ISO 2 6H	HSS-E	■	□		39	
Steel				Salo-Rex	ST	ISO 1 4H ISO 3 6G	HSS-E	■	□		🛒	
Steel					FE	ISO 2 6H	HSS-E		□			49
Steel					FE-HF	ISO 2 6H	HSS-E	■				49
Steel				Salo-Rex	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	39	
Steel				Salo-Rex	ST ES	ISO 2 6H	HSS-E		□	extra short	🛒	
Steel				Salo-Rex	ST EL	ISO 2 6H	HSS-E		□	extra long, with double overall length	46	

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Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Steel				Salo-Rex	HR	ISO 2 6H	HSS-PM	■	□		40	
				Salo-Rex	ST TS	ISO 2 6H	HSS-E	■			40	
Stainless steel				Salo-Rex	VA	ISO 2 6H	HSS-E	■			41	
					VA	ISO 2 6H	HSS-E HSS-PM	■	□			49+50
				Salo-Rex	VA S	ISO 2 6H	HSS-E	■		with back taper, for deep threads		
Non ferrous metals				Salo-Rex	Soft	ISO 2 6H	HSS-E	■	□		42	
				Salo-Rex	NW	ISO 2 6H	HSS-E	■			42	
					AL	ISO 2 6H	HSS-E	■	□			50
Heat resistant				SL	Ti	ISO 2X 6HX	HSS-PM	■			43	
				SL	Ni	ISO 2X 6HX ISO 2 6H	HSS-PM	■			43	
Steel				TWIN	ST	ISO 2X 6HX	HSS-E		□		51+52	
				TWIN	ST AZ	ISO 2X 6HX	HSS-E		□	with intermittent teeth, reduces friction		
				TWIN	ST ES	ISO 2X 6HX	HSS-E		□	extra short		
				TWIN	ST LH/ES	ISO 2X 6HX	HSS-E		□	for left hand threads; extra short		
				TWIN	HR	ISO 2X 6HX	HSS-E	■			51+52	
				TWIN	HR EL	ISO 2X 6HX	HSS-E	■		extra long, with double overall length	55	
Cast iron				TWIN	GG	ISO 2X 6HX	HSS-E	■			53	
					GG	ISO 2X 6HX	HSS-E	■				56
Non ferrous metals				TWIN	Ms	ISO 2X 6HX	HSS-E		□			

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Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Non ferrous metals				TWIN	AMPCO	ISO 2X 6HX	HSS-PM		□		51+52	
hardened materials				TWIN	HT	ISO 2X 6HX	VHM HSS-PM	■			54	
Machine thread formers				Spanlos	EC	ISO 2X 6HX	HSS-E	■			57	
				Spanlos	EC SN	ISO 2X 6HX ISO 3X 6GX	HSS-E	■		Thread formers with lubrication grooves	58	
				Spanlos	NEO SN	ISO 2X 6HX	HSS-PM	■		Thread formers with lubrication grooves	59	
					UNI	ISO 2X 6HX	HSS-E	■				60
					UNI SN	ISO 2X 6HX	HSS-E	■		Thread formers with lubrication grooves		60
Hand taps					ST	ISO 2X 6HX	HSS-E VHM		□			
					ERGO	ISO 2X 6HX	HSS-E		□			
					ERGO F.T.	ISO 2X 6HX	HSS-E	■				
Dies					FE	ISO 6g ISO 6e	HSS		□			
					FE	ISO 6g	HSS		□			
					FE R_z=1	ISO 6g	HSS		□	Lapped Dies		
					FE LH	ISO 6g	HSS		□	for left hand threads		
					VA	ISO 6g	HSS-E		□			
					VA R_z=1	ISO 6g	HSS-E		□	Lapped Dies		
					Ms R_z=1	ISO 6g	HSS		□	Lapped Dies		

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Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Metric ISO standard thread for wire thread inserts												
Universal	✓			Stabil	UNI	6H mod	HSS-E	■			61	
Universal		✓		Stabil	UNI	6H mod	HSS-E	■			62	
Non ferrous metals		✓		Stabil	Soft	6H mod	HSS-E	■			62	
MF – Metric ISO Fine Thread												
Universal	✓			Stabil	UNI	ISO 2 6H	HSS-E	■			63+64	
Universal	✓			Stabil	UNI	ISO 3 6G	HSS-E	■			🛒	
Universal	✓				UNI	ISO 2 6H	HSS-PM HSS-E	■				65+66
Steel	✓			Stabil	ST	ISO 2 6H	HSS-E		□		🛒	
Steel	✓				FE	ISO 2 6H	HSS-E		□			66
Steel	✓				FE-HF	ISO 2 6H	HSS-E	■				🛒
Steel	✓			Stabil	ST TS	ISO 2X 6HX	HSS-E	■		for high-speed machining, up to 100 m/min.	64	
Steel	✓			Stabil	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	64	
Stainless steel	✓			Stabil	VA	ISO 2 6H	HSS-E	■			🛒	
Stainless steel	✓				VA	ISO 2 6H	HSS-E	■				66
Non ferrous metals	✓			Stabil	NW	ISO 2 6H	HSS-E	■			64	
Universal		✓		Salo-Rex	UNI	ISO 2 6H ISO 3 6G	HSS-E	■			67+68	
Universal		✓			UNI	ISO 2 6H	HSS-E HSS-PM	■				74
Universal		✓		Salo-Rex	UNI CNC	ISO 3 6G	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	🛒	

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Taps Overview

MF – Metric ISO Fine Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Universal				Salo-Rex	UNI CNC	7G ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	68	
					UNI NC	ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		75
Steel				Salo-Rex	ST	ISO 2 6H	HSS-E		□		69	
				Salo-Rex	ST	ISO 1 4H	HSS-E		□			
					FE	ISO 2 6H	HSS-E		□			75
					FE-HF	ISO 2 6H	HSS-E	■				
				Salo-Rex	ST TS	ISO 2 6H	HSS-E	■		for high-speed machining, up to 100 m/min.		
				Salo-Rex	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	69	
				SL	ST	ISO 2 6H	HSS-E		□		70+71	
				SL	ST CNC	ISO 2X 6HX	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		
Stainless steel				Salo-Rex	VA	ISO 2 6H	HSS-E	■			72+73	
					VA	ISO 2 6H	HSS-E HSS-PM	■				76
Non ferrous metals				Salo-Rex	NW	ISO 2 6H	HSS-E	■			73	
Steel				TWIN	ST	ISO 2X 6HX	HSS-E		□		77+78	
				TWIN	ST ES	ISO 2X 6HX	HSS-E		□	extra short	79	
				TWIN	ST LH/ES	ISO 2X 6HX	HSS-E		□	for left hand threads	79	
				TWIN	HR	ISO 2X 6HX	HSS-E	■			77+78	
Cast iron				TWIN	GG	ISO 2X 6HX	HSS-E	■			78	
hardened materials				TWIN	HT	ISO 2X 6HX	VHM	■			77	

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Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
MF – Metric ISO Fine Thread												
Machine thread formers				Spanlos	EC	ISO 2X 6HX	HSS-E	■			80	
Machine thread formers				Spanlos	EC SN	ISO 2X 6HX	HSS-E	■		Thread formers with lubrication grooves	80	
Machine thread formers					UNI	ISO 2X 6HX	HSS-E	■				81
Machine thread formers					UNI SN	ISO 2X 6HX	HSS-E	■		Thread formers with lubrication grooves		81
Hand taps					ST	ISO 2X 6HX	HSS-E		□			
Dies					FE	ISO 6g	HSS		□			
Dies					FE	ISO 6g	HSS		□			
Dies					FE LH	ISO 6g	HSS		□	for left hand threads		
Dies					VA	ISO 6g	HSS-E		□			
G – Whitworth Pipe Thread												
Universal				Stabil	UNI	ISO 228	HSS-E	■			82	
Universal					UNI	ISO 228	HSS-E	■				83
Steel				Stabil	ST	ISO 228	HSS-E		□		82	
Steel					FE	ISO 228	HSS-E		□			
Stainless steel				Stabil	VA	ISO 228	HSS-E	■			82	
Non ferrous metals				Stabil	NW	ISO 228	HSS-E	■			82	
Universal				Salo-Rex	UNI	ISO 228 ISO 228 +0,05	HSS-E	■			84	
Universal					UNI	ISO 228	HSS-E	■				86
Universal				Salo-Rex	UNI CNC	ISO 228	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	85	

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Taps Overview

G – Whitworth Pipe Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Steel		✓		Salo-Rex	ST	ISO 228	HSS-E		□		85	
Steel		✓		SL	ST	ISO 228	HSS-E		□		🛒	
Stainless steel		✓		Salo-Rex	VA	ISO 228	HSS-E	■			85	
Non ferrous metals		✓		Salo-Rex	NW	ISO 228	HSS-E	■			85	
Steel			✓	TWIN	ST	ISO 228X	HSS-E		□		87	
Steel			✓	TWIN	HR	ISO 228X	HSS-E	■			87	
Cast iron			✓	TWIN	GG	ISO 228X	HSS-E	■			🛒	
Machine thread formers			✓	Spanlos	EC	ISO 228	HSS-E	■			88	
Machine thread formers			✓	Spanlos	EC SN	ISO 228	HSS-E	■		Thread formers with lubrication grooves	88	
Hand taps					ERGO	ISO 228	HSS-E		□		🛒	
Dies					FE	ISO 228A	HSS		□		🛒	

UNC – Unified Coarse Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Universal	✓			Stabil	UNI	3B	HSS-E	■			🛒	
Universal	✓			Stabil	UNI	2B	HSS-E	■			89	
Universal	✓				UNI	2B	HSS-E	■				90
Steel	✓			Stabil	ST	2B	HSS-E		□		🛒	
Steel	✓				FE-HF	2B	HSS-E	■				90
Stainless steel	✓			Stabil	VA	2B	HSS-E	■			89	
Stainless steel	✓				VA	2B	HSS-E	■				90

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Taps Overview

UNC – Unified Coarse Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Heat resistant	✓			Stabil	Ti	2BX	HSS-PM	■			89	
Universal		✓		Salo-Rex	UNI	2B	HSS-E	■			91	
Universal		✓		Salo-Rex	UNI	2B +0,05	HSS-E	■			🛒	
Universal		✓			UNI	2B	HSS-E	■				92
Steel		✓		Salo-Rex	ST	2B	HSS-E		□		🛒	
Steel		✓			FE-HF	2B	HSS-E	■				92
Stainless steel		✓		Salo-Rex	VA	2B	HSS-E	■			91	
Stainless steel		✓			VA	2B	HSS-E		□			92
Heat resistant		✓		SL	Ti	2BX	HSS-PM	■			🛒	
Cast iron			✓	TWIN	GG	2BX	HSS-E	■			🛒	
Machine thread formers			✓	Spanlos	EC	2BX	HSS-E	■			93	
Machine thread formers			✓	Spanlos	EC SN	2BX	HSS-E	■		Thread formers with lubrication grooves	93	
Hand taps			✓		ERGO	2BX	HSS-E		□		🛒	
Dies			✓		FE	2A	HSS-E		□		🛒	

EG UNC – Unified coarse thread for wire inserts

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Universal	✓			Stabil	UNI	2B	HSS-E	■			94	
Universal		✓		Salo-Rex	UNI	2B	HSS-E	■			95	

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Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
UNJC – Unified Coarse Thread												
Heat resistant				SL	Ti	3BX	HSS-E	■			96	
UNF – Unified Fine Thread												
Universal				Stabil	UNI	2B	HSS-E	■			97	
					UNI	2B	HSS-E	■				98
Steel				Stabil	ST	2B	HSS-E		□			
					FE	2B	HSS-E		□			98
Stainless steel					VA	2B	HSS-E	■				98
Heat resistant				Stabil	Ti	2BX	HSS-PM	■			97	
Universal				Salo-Rex	UNI	2B 2B +0,05	HSS-E	■			99	
					UNI	2B	HSS-E	■				101
Steel					FE	2B	HSS-E		□			
Stainless steel				Salo-Rex	VA	2B	HSS-E	■			99	
					VA	2B	HSS-E		□			101
Heat resistant				SL	Ti	2BX 3BX	HSS-PM	■			100	
Cast iron				TWIN	GG	2BX	HSS-E	■				
Thread formers				Spanlos	EC SN	2BX	HSS-E	■		Thread formers with lubrication grooves	102	
Dies					FE	2A	HSS		□			

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Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
EG UNF – Unified fine thread for wire inserts												
Universal	✓			Stabil	UNI	2B	HSS-E	■			103	
		✓		Salo-Rex	UNI	2B	HSS-E	■			104	
UNJF – Unified Extra Fine Thread												
Heat resistant	✓			DL	Ti	3BX	HSS-E	■			🛒	
		✓		SL	Ti	3BX	HSS-E	■			🛒	
BSW – Whitworth Thread												
Universal	✓			Stabil	UNI	med.	HSS-E	■			🛒	
		✓		Salo-Rex	UNI	med.	HSS-E	■			🛒	
NPT – American Tapered Pipe Thread												
Stainless steel		✓		Salo-Rex	VA		HSS-E	■			105	
Steel			✓	TWIN	VG		HSS-E		□		106	
			✓	TWIN	VG AZ		HSS-E		□	with intermittent teeth, reduces friction	🛒	
			✓	TWIN	ST ES		HSS-E		□	extra short	107	
Dies					FE		HSS-E		□		🛒	

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Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
NPTF – American Tapered Pipe Thread												
Steel				TWIN	ST		HSS-E		□			
Steel				TWIN	VG		HSS-E		□			
Steel				TWIN	ST ES		HSS-E		□	extra short		
Rp – Cylindrical Whitworth Pipe Thread												
Steel				TWIN	ST	X	HSS-E		□			
Rc – Tapered Whitworth Pipe Thread												
Steel				TWIN	VG		HSS-E		□			
Tr – Metric ISO Trapezoidal Thread												
Steel					ST	7H	HSS-E		□		108	

Accessories

Shank extensions for taps	
Tapping Oil, Chlorine Free	

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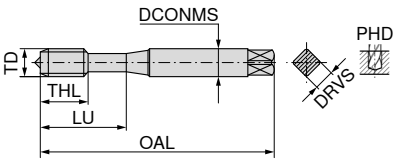
Through hole – Machine taps, right hand

M | Stabil



DIN 371 with reinforced shank

	UNI	UNI	UNI	UNI	UNI
	B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 3 6G	7G
	nitr. + vap.	TiN	TiCN	nitr. + vap.	nitr. + vap.
					
	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD
	22 501 ...	**22 503 ...**	**22 505 ...**	**22 508 ...**	**22 510 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0		£ U0		£ U0	
M1	0.25	40	2.5	2.1	0.75	5	13	2	111.00	**010** [1]								
M1,2	0.25	40	2.5	2.1	0.95	5	13	2	106.89	**012** [1]								
M1,4	0.30	40	2.5	2.1	1.10	7	13	3	95.11	**014** [1]								
M1,6	0.35	40	2.5	2.1	1.25	8	11	3	67.45	**016**								
M1,7	0.35	40	2.5	2.1	1.35	6	11	2	103.31	**017**								
M1,8	0.35	40	2.5	2.1	1.45	6	11	2	143.23	**018**								
M2	0.40	45	2.8	2.1	1.60	7	12	2			48.49	**020**			47.95	**020**	59.67	**020**
M2	0.40	45	2.8	2.1	1.60	7	12	3	49.63	**020**								
M2,2	0.45	45	2.8	2.1	1.75	7	12	2	51.40	**022**								
M2,5	0.45	50	2.8	2.1	2.05	9	14	2	48.42	**025**					47.61	**025**	57.52	**025**
M3	0.50	56	3.5	2.7	2.50	11	18	3	32.18	**030**	39.97	**030**	39.97	**030**	38.51	**030**	44.31	**030**
M3,5	0.60	56	4.0	3.0	2.90	12	20	3	39.67	**035**					39.24	**035**		
M4	0.70	63	4.5	3.4	3.30	13	21	3	28.39	**040**	38.28	**040**	38.28	**040**	40.78	**040**	44.31	**040**
M5	0.80	70	6.0	4.9	4.20	15	25	3	29.76	**050**	38.76	**050**	38.76	**050**	39.24	**050**	45.58	**050**
M6	1.00	80	6.0	4.9	5.00	17	30	3	29.76	**060**	47.30	**060**	47.30	**060**	42.37	**060**	46.68	**060**
M7	1.00	80	7.0	5.5	6.00	17	30	3	47.95	**070**								
M8	1.25	90	8.0	6.2	6.80	20	35	3	35.24	**080**	51.63	**080**	51.63	**080**	45.02	**080**	51.95	**080**
M10	1.50	100	10.0	8.0	8.50	22	39	3	42.27	**100**	77.20	**100**	73.17	**100**	54.84	**100**	63.04	**100**
M12	1.75	110	12.0	9.0	10.20	24	44	3	58.61	**120**								

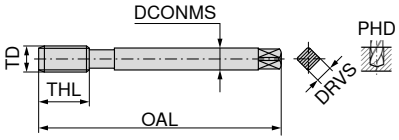
P	**12**	**15**	**15**	**12**	**12**
M	**7**	**9**	**9**	**7**	**7**
K	**12**	**18**	**18**	**12**	**12**
N		**12**	**12**		
S					
H					
O					

1) Tol. ISO 1 4H ≤ M1.4

DIN 376 can be found on the next page

Through hole – Machine taps, right hand

M | Stabil



DIN 376 with reduced shank

	UNI	UNI	UNI	UNI
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 3 6G	7G
	nitr. + vap.	TiN	nitr. + vap.	nitr. + vap.
				
	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 0° ≤ 1100 N/mm² ≤ 4xD	◁ 0° ≤ 1100 N/mm² ≤ 4xD	◁ 0° ≤ 1100 N/mm² ≤ 4xD	◁ 0° ≤ 1100 N/mm² ≤ 4xD
	22 502 ...	**22 504 ...**	**22 509 ...**	**22 511 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M3	0.50	56	2.2		2.5	11	3	65.21	**030**						
M4	0.70	63	2.8	2.1	3.3	13	3	43.40	**040**						
M5	0.80	70	3.5	2.7	4.2	15	3	40.76	**050**						
M6	1.00	80	4.5	3.4	5.0	17	3	40.94	**060**						
M8	1.25	90	6.0	4.9	6.8	20	3	45.40	**080**						
M10	1.50	100	7.0	5.5	8.5	22	3	53.28	**100**						
M12	1.75	110	9.0	7.0	10.2	24	3	52.48	**120**	84.36	**120**	63.66	**120**	70.92	**120**
M14	2.00	110	11.0	9.0	12.0	26	3	66.36	**140**	147.34	**140**				
M16	2.00	110	12.0	9.0	14.0	27	3	73.63	**160**	109.82	**160**	92.90	**160**	124.78	**160**
M18	2.50	125	14.0	11.0	15.5	30	3	138.06	**180**	233.54	**180**				
M20	2.50	140	16.0	12.0	17.5	32	3	109.54	**200**	237.65	**200**	137.99	**200**		
M22	2.50	140	18.0	14.5	19.5	32	3	185.66	**220**	361.04	**220**				
M24	3.00	160	18.0	14.5	21.0	34	3	146.41	**240**	304.13	**240**				
M27	3.00	160	20.0	16.0	24.0	36	3	209.88	**270**						
M30	3.50	180	22.0	18.0	26.5	40	4	238.26	**300**						
M33	3.50	180	25.0	20.0	29.5	40	4	593.93	**330**						
M36	4.00	200	28.0	22.0	32.0	50	4	683.79	**360**						
M42	4.50	200	32.0	24.0	37.5	56	4	1,298.67	**420**						
M48	5.00	250	36.0	29.0	43.0	65	4	1,371.68	**480**						

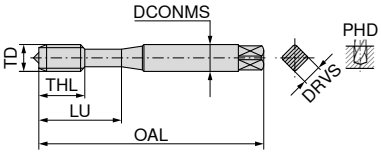
P	**12**	**15**	**12**	**12**
M	**7**	**9**	**7**	**7**
K	**12**	**18**	**12**	**12**
N		**12**		
S				
H				
O				

Through hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

M | Stabil



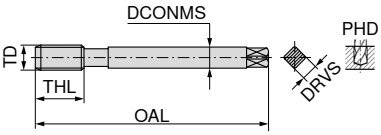
DIN 371 with reinforced shank

UNI NCW	UNI CNC	UNI CNC	UNI CNC
B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2X 6HX	ISO 3X 6GX	7GX
TiN	TiN GS	TiN GS	TiN GS



HSS-PM	HSS-E	HSS-E	HSS-E
◁ 0° ≤ 1100 N/mm² ≤ 4xD	◁ 0° ≤ 1100 N/mm² ≤ 4xD	◁ 0° ≤ 1100 N/mm² ≤ 4xD	◁ 0° ≤ 1100 N/mm² ≤ 4xD
22 148 ...	**22 542 ...**	**22 596 ...**	**22 592 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M3	0.50	70	6.0	4.9	2.5	6	18	3	66.81	**030**						
M3	0.50	56	3.5	2.7	2.5	6	18	3			46.25	**030**				
M4	0.70	70	6.0	4.9	3.3	7	21	3	70.32	**040**						
M4	0.70	63	4.5	3.4	3.3	7	21	3			48.78	**040**	54.79	**040**	59.27	**040**
M5	0.80	70	6.0	4.9	4.2	8	25	3	71.41	**050**	50.96	**050**	55.69	**050**	61.62	**050**
M6	1.00	80	6.0	4.9	5.0	10	30	3	89.08	**060**	64.68	**060**	69.87	**060**	78.71	**060**
M8	1.25	90	8.0	6.2	6.8	14	35	3	98.25	**080**						
M8	1.25	90	8.0	6.2	6.8	14	35	4			69.13	**080**	76.28	**080**	86.32	**080**
M10	1.50	100	10.0	8.0	8.5	16	39	3	118.51	**100**						
M10	1.50	100	10.0	8.0	8.5	16	39	4			87.55	**100**	93.95	**100**	102.83	**100**
M12	1.75	110	10.0	8.0	10.2	18		3	145.50	**120**						
M16	2.00	110	12.0	9.0	14.0	22		3	204.26	**160**						



DIN 376 with reduced shank

								22 543 ...		22 597 ...		22 593 ...	
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**	£ U0		£ U0		£ U0	
M12	1.75	110	9	7	10.2	18	4	100.55	**120**	111.51	**120**	123.86	**120**
M14	2.00	110	11	9	12.0	20	4	284.14	**140**				
M16	2.00	110	12	9	14.0	22	4	142.92	**160**				
M20	2.50	140	16	12	17.5	25	4	249.71	**200**				

P	**15**	**15**	**15**	**15**
M	**8**	**9**	**9**	**9**
K	**15**	**18**	**18**	**18**
N	**22**	**12**	**12**	**12**
S				
H				
O				

Through hole – Machine taps

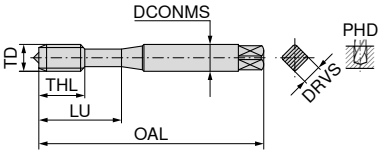
▲ LH = for left hand threads

M | Stabil

ST | ST LH

B 4–5

ISO 2 6H | ISO 2 6H



DIN 371 with reinforced shank

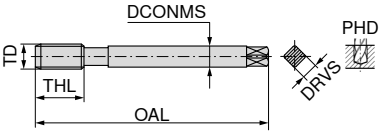




HSS-E
0°
≤ 750 N/mm²
≤ 4xD

HSS-E
0°
≤ 750 N/mm²
≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 020 ... £ U0		22 127 ... £ U0	
M2	0.40	45	2.8	2.1	1.60	7	12	2	33.13	**020**		
M2,3	0.40	45	2.8	2.1	1.90	7	12	2	37.22	**023**		
M2,5	0.45	50	2.8	2.1	2.05	9	14	2	33.58	**025**		
M2,6	0.45	50	2.8	2.1	2.15	9	14	2	37.22	**026**		
M3	0.50	56	3.5	2.7	2.50	11	18	3	27.47	**030**	49.29	**030**
M3,5	0.60	56	4.0	3.0	2.90	12	20	3	29.60	**035**		
M4	0.70	63	4.5	3.4	3.30	13	21	3	28.08	**040**	50.74	**040**
M5	0.80	70	6.0	4.9	4.20	15	25	3	29.60	**050**	52.68	**050**
M6	1.00	80	6.0	4.9	5.00	17	30	3	29.60	**060**	52.68	**060**
M8	1.25	90	8.0	6.2	6.80	20	35	3	35.07	**080**	59.67	**080**
M10	1.50	100	10.0	8.0	8.50	22	39	3	41.17	**100**	76.28	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 021 ... £ U0		22 147 ... £ U0	
M5	0.80	70	3.5	2.7	4.2	15	3	35.07	**050**		
M6	1.00	80	4.5	3.4	5.0	17	3	35.55	**060**		
M8	1.25	90	6.0	4.9	6.8	20	3	37.83	**080**		
M10	1.50	100	7.0	5.5	8.5	22	3	42.88	**100**		
M12	1.75	110	9.0	7.0	10.2	24	3	52.31	**120**	90.54	**120**
M14	2.00	110	11.0	9.0	12.0	26	3	66.08	**140**		
M16	2.00	110	12.0	9.0	14.0	27	3	73.17	**160**	136.93	**160**
M18	2.50	125	14.0	11.0	15.5	30	3	106.77	**180**		
M20	2.50	140	16.0	12.0	17.5	32	3	110.90	**200**	202.43	**200**
M22	2.50	140	18.0	14.5	19.5	32	3	167.96	**220**		
M24	3.00	160	18.0	14.5	21.0	34	3	142.92	**240**		
M27	3.00	160	20.0	16.0	24.0	36	3	195.86	**270**		
M30	3.50	180	22.0	18.0	26.5	40	4	236.86	**300**		

P	**12**	**12**
M		
K	**12**	**12**
N	**12**	**22**
S		
H		
O		

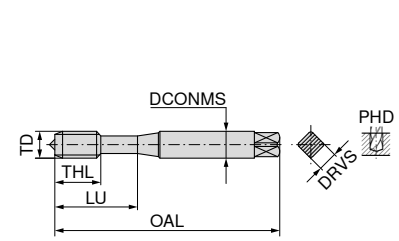
Through hole – Machine taps, right hand

▲ TS = for high-speed machining, up to 100 m/min.

M | Stabil

NEW

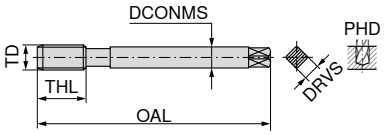
ST TS	HR	VG
B 4–5	B 4–5	B 4–5
ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
TiN	AlTiN-HD	TiN



DIN 371 with reinforced shank

	HSS-E	HSS-PM	HSS-E
	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1400 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD
	22 092 ...	22 468 ...	22 120 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0	
M2	0.40	45	2.8	2.1	1.60	7	12	2			72.92	02000		
M2	0.40	45	2.8	2.1	1.60	4	12	2	64.66	020			57.52	020
M2,5	0.45	50	2.8	2.1	2.05	9	14	2			72.92	02500		
M2,5	0.45	50	2.8	2.1	2.05	5	15	2	64.66	025			57.52	025
M3	0.50	56	3.5	2.7	2.50	11	18	2			47.42	03000		
M3	0.50	56	3.5	2.7	2.50	6	18	3	50.74	030			42.88	030
M4	0.70	63	4.5	3.4	3.30	13	21	2			49.48	04000		
M4	0.70	63	4.5	3.4	3.30	7	21	3	59.12	040			46.38	040
M5	0.80	70	6.0	4.9	4.20	15	25	2			51.06	05000		
M5	0.80	70	6.0	4.9	4.20	8	25	3	62.10	050			48.37	050
M6	1.00	80	6.0	4.9	5.00	17	30	3			57.86	06000		
M6	1.00	80	6.0	4.9	5.00	10	30	3	80.39	060			59.19	060
M8	1.25	90	8.0	6.2	6.80	20	35	3			63.57	08000		
M8	1.25	90	8.0	6.2	6.80	14	35	4	85.12	080			62.52	080
M10	1.50	100	10.0	8.0	8.50	22	39	3			89.53	10000		
M10	1.50	100	10.0	8.0	8.50	16	39	4	115.31	100			89.39	100



DIN 376 with reduced shank

		22 093 ...		22 121 ...	

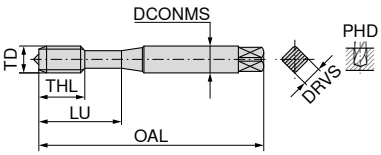
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0	
M12	1.75	110	9	7	10.2	18	4	125.38	120	106.33	120
M16	2.00	110	12	9	14.0	22	4	185.66	160	145.50	160
M20	2.50	140	16	12	17.5	25	4	267.08	200	247.42	200

P	65	8	10
M		8	8
K	65		
N	75	10	22
S		4	
H			
O			

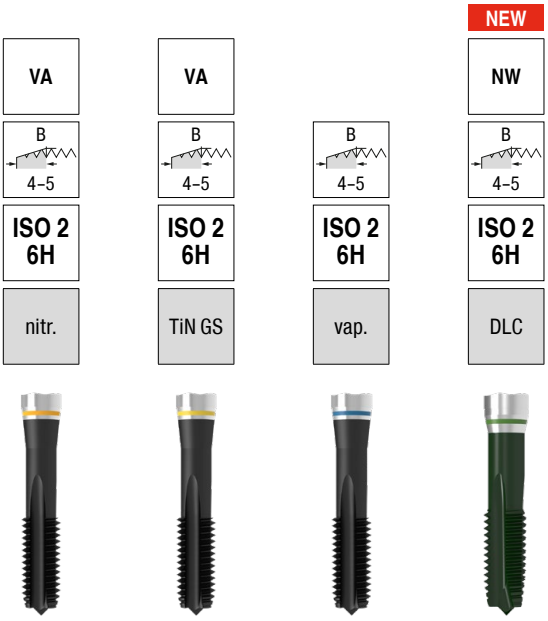
6

Through hole – Machine taps, right hand

M | Stabil



DIN 371 with reinforced shank



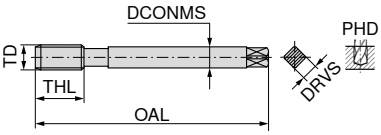
HSS-E
0°
≤ 900 N/mm²
≤ 4xD

HSS-E
0°
≤ 900 N/mm²
≤ 4xD

HSS-E
0°
≤ 500 N/mm²
≤ 4xD

HSS-E
0°
≤ 880 N/mm²
≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 056 ... £ U0		22 038 ... £ U0		22 058 ... £ U0		22 464 ... £ U0	
M1,6	0.35	40	2.5	2.1	1.25	6	11	2			72.90	016				
M2	0.40	45	2.8	2.1	1.60	7	12	2	38.28	020	59.96	020	36.77	020	42.29	02000
M2,3	0.40	45	2.8	2.1	1.90	7	12	2					41.75	023		
M2,5	0.45	50	2.8	2.1	2.05	9	14	2	36.81	025	57.16	025	36.77	025	42.29	02500
M2,6	0.45	50	2.8	2.1	2.15	9	14	2					42.27	026		
M3	0.50	56	3.5	2.7	2.50	11	18	3	30.25	030	47.15	030	28.39	030	32.42	03000
M3,5	0.60	56	4.0	3.0	2.90	12	20	3	42.43	035			29.80	035		
M4	0.70	63	4.5	3.4	3.30	13	21	3	31.73	040	50.96	040	28.75	040	32.91	04000
M5	0.80	70	6.0	4.9	4.20	15	25	3	33.58	050	52.02	050	29.80	050	33.39	05000
M6	1.00	80	6.0	4.9	5.00	17	30	3	35.07	060	65.59	060	29.80	060	33.39	06000
M8	1.25	100	8.0	6.2	6.80	20	35	3							39.03	08000
M8	1.25	90	8.0	6.2	6.80	20	35	3	38.17	080	71.41	080	36.31	080		
M10	1.50	110	10.0	8.0	8.50	22	39	3							49.17	10000
M10	1.50	100	10.0	8.0	8.50	22	39	3	46.69	100	88.46	100	43.19	100		



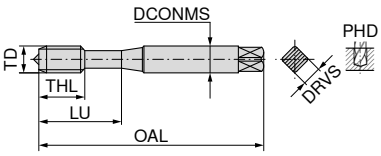
DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 057 ... £ U0		22 039 ... £ U0		22 059 ... £ U0		22 465 ... £ U0	
M12	1.75	110	9	7.0	10.2	24	3	59.12	120	104.65	120	54.92	120	64.20	12000
M14	2.00	110	11	9.0	12.0	26	3	81.74	140	151.46	140				
M16	2.00	110	12	9.0	14.0	27	3	83.64	160	148.43	160	77.50	160	76.43	16000
M18	2.50	125	14	11.0	15.5	30	3	204.82	180						
M20	2.50	140	16	12.0	17.5	32	3	121.95	200	253.83	200			121.96	20000
M22	2.50	140	18	14.5	19.5	32	3	321.32	220						
M24	3.00	160	18	14.5	21.0	34	3	167.63	240						
M27	3.00	160	20	16.0	24.0	36	3	351.54	270						
M30	3.50	180	22	18.0	26.5	40	4	270.74	300						

P									8		10		15		
M									6		8		6		
K															
N															15
S															
H															
O															

Through hole – Machine taps, right hand

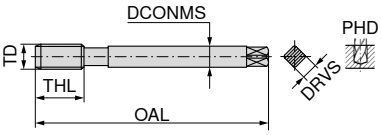
M | Stabil



DIN 371 with reinforced shank

	Ti	Ti	Ti
	B 4–5	B 4–5	B 4–5
	ISO 1X 4HX	ISO 2X 6HX	ISO 2X 6HX
	TiN	vap.	TiN
			
	HSS-PM	HSS-PM	HSS-PM
	0° ≤ 44 HRC ≤ 4xD	0° ≤ 1400 N/mm² ≤ 4xD	0° ≤ 44 HRC ≤ 4xD
	22 081 ...	**22 075 ...**	**22 077 ...**
	£ U0	£ U0	£ U0

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes						
M1,6	0.35	40	2.5	2.1	1.25	8	9.5	3			99.24	**016**		
M2	0.40	45	2.8	2.1	1.60	8	9.5	3	147.74	**020**	126.78	**020**		
M2,5	0.45	50	2.8	2.1	2.05	9	14.0	3			120.73	**025**		
M3	0.50	56	3.5	2.7	2.50	11	18.0	3	89.49	**030**	84.26	**030**	89.49	**030**
M3,5	0.60	56	4.0	3.0	2.90	12	20.0	3			62.48	**035**		
M4	0.70	63	4.5	3.4	3.30	13	21.0	3	91.23	**040**	90.92	**040**	91.23	**040**
M5	0.80	70	6.0	4.9	4.20	15	25.0	3	93.57	**050**	89.49	**050**	93.57	**050**
M6	1.00	80	6.0	4.9	5.00	17	30.0	3	93.57	**060**	89.49	**060**	93.57	**060**
M8	1.25	90	8.0	6.2	6.80	20	35.0	3	107.79	**080**	104.01	**080**	107.79	**080**
M10	1.50	100	10.0	8.0	8.50	22	39.0	3			125.37	**100**	126.39	**100**



DIN 376 with reduced shank

									22 140 ...		**22 142 ...**	
									£ U0		£ U0	
M12	1.75	110	9	7	10.2	24	3		152.39	**120**	150.65	**120**
P									**7**		**5**	**7**
M									**7**		**5**	**7**
K												
N												
S									**5**		**3**	**5**
H												
O												

Through hole – Machine taps, right hand

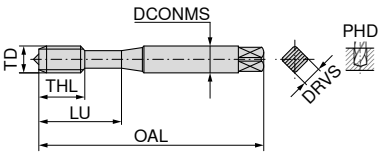
M | DL

Ti | Ni

D 4–5

ISO 2X 6HX

TiCN



DIN 371 with reinforced shank

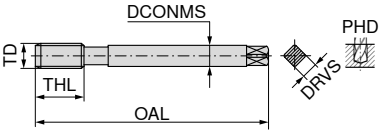




HSS-E
◁ 15°
≤ 1200 N/mm²
≤ 4xD

HSS-E
◁ 15°
≤ 1600 N/mm²
≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 159 ... £ U0		22 297 ... £ U0	
M3	0.50	56	3.5	2.7	2.5	11	18	2	52.94	**030**	68.15	**030**
M4	0.70	63	4.5	3.4	3.3	13	21	3	57.52	**040**	70.97	**040**
M5	0.80	70	6.0	4.9	4.2	15	25	3	58.13	**050**	72.79	**050**
M6	1.00	80	6.0	4.9	5.0	17	30	3	76.16	**060**	92.10	**060**
M8	1.25	90	8.0	6.2	6.8	20	35	3	83.64	**080**	102.21	**080**
M10	1.50	100	10.0	8.0	8.5	22	39	3	104.79	**100**	127.98	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 160 ... £ U0		22 298 ... £ U0	
M12	1.75	110	9	7.0	10.2	24	3	120.97	**120**	147.38	**120**
M16	2.00	110	12	9.0	14.0	27	3	170.36	**160**	206.64	**160**
M20	2.50	140	16	12.0	17.5	32	3	294.39	**200**	352.35	**200**
M24	3.00	160	18	14.5	21.0	34	3	347.16	**240**		

P	**7**	
M	**7**	
K		
N	**22**	**22**
S	**5**	**2**
H		
O		

Through hole – Machine taps, right hand

▲ EL = extra long, with double overall length

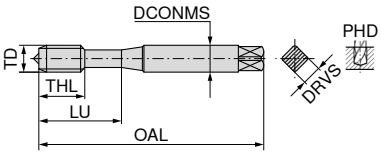
M | Stabil

UNI EL | ST EL

B 4–5

ISO 2 6H

nitr. + vap.



DIN 371 with reinforced shank

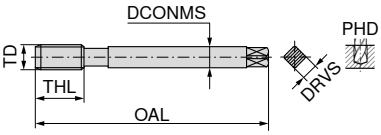




HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

HSS-E
0°
≤ 950 N/mm²
≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 514 ... £ U0		22 233 ... £ U0	
M3	0.50	100	3.5	2.7	2.5	11	18	3	71.09	030	74.15	030
M4	0.70	125	4.5	3.4	3.3	13	21	3	71.09	040	70.97	040
M5	0.80	140	6.0	4.9	4.2	15	25	3	79.61	050	77.45	050
M6	1.00	160	6.0	4.9	5.0	17	30	3	86.64	060	81.05	060
M8	1.25	180	8.0	6.2	6.8	20	35	3	93.06	080	96.75	080



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 515 ... £ U0		22 234 ... £ U0	
M6	1.00	160	4.5	3.4	5.0	17	3	84.04	060	81.05	060
M8	1.25	180	6.0	4.9	6.8	20	3	103.29	080	96.75	080
M10	1.50	200	7.0	5.5	8.5	22	3	111.03	100	107.65	100
M12	1.75	224	9.0	7.0	10.2	24	3	121.95	120	129.80	120
M14	2.00	224	11.0	9.0	12.0	26	3	214.00	140	209.83	140
M16	2.00	224	12.0	9.0	14.0	27	3	240.56	160	201.84	160
M18	2.50	250	14.0	11.0	15.5	30	3	323.98	180	302.74	180
M20	2.50	280	16.0	12.0	17.5	32	3	286.62	200	272.31	200

P	12	12
M	7	
K	12	12
N		22
S		
H		
O		

Through hole – Machine taps, right hand

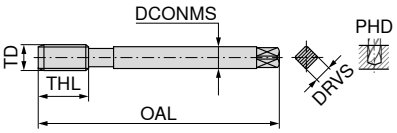
▲ MMB = Nut taps

M

ST
MMB

≈ 20

ISO 2
6H



DIN 357 with reduced shank



HSS-E
0°
≤ 850 N/mm²
≤ 1xD

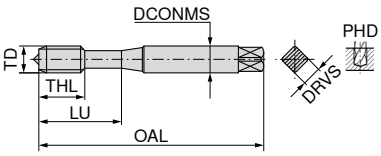
22 098 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
M3	0.50	70	2.2		2.5	16	3	52.94	**030**
M4	0.70	90	2.8	2.1	3.3	22	3	52.94	**040**
M5	0.80	100	3.5	2.7	4.2	24	3	55.39	**050**
M6	1.00	110	4.5	3.4	5.0	30	3	55.39	**060**
M8	1.25	125	6.0	4.9	6.8	38	3	68.36	**080**
M10	1.50	140	7.0	5.5	8.5	45	3	77.65	**100**
M12	1.75	180	9.0	7.0	10.2	50	3	104.34	**120**
M16	2.00	200	12.0	9.0	14.0	63	3	149.65	**160**

P	**15**
M	
K	
N	
S	
H	
O	

Through hole – Machine taps, right hand

M



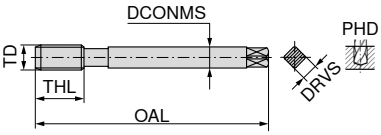
DIN 371 with reinforced shank

UNI	UNI	UNI
B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2 6H	ISO 2 6H
nitr. + vap.	TiN	TiN



HSS-E	HSS-E	HSS-PM
0° ≤ 1000 N/mm² ≤ 3xD	0° ≤ 1000 N/mm² ≤ 3xD	0° ≤ 1000 N/mm² ≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 110 ... £ T9		23 112 ... £ T9		23 010 ... £ T9	
M2	0.40	45	2.8	2.1	1.60	7	12.0	2	28.68	020	33.58	020		
M2	0.40	45	2.8	2.1	1.60	4	13.5	2					9.64	020
M2,5	0.45	50	2.8	2.1	2.05	9	14.0	2	27.69	025	32.50	025		
M3	0.50	56	3.5	2.7	2.50	11	18.0	3	21.85	030	27.24	030	12.11	030
M4	0.70	63	4.5	3.4	3.30	13	21.0	3	22.31	040	30.99	040	11.05	040
M5	0.80	70	6.0	4.9	4.20	15	25.0	3	22.75	050	31.27	050	12.35	050
M6	1.00	80	6.0	4.9	5.00	17	30.0	3	22.90	060	39.52	060	14.81	060
M8	1.25	90	8.0	6.2	6.80	20	35.0	3	26.20	080	42.43	080	16.44	080
M10	1.50	100	10.0	8.0	8.50	22	39.0	3	31.73	100	57.98	100	21.74	100



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 111 ... £ T9		23 113 ... £ T9		23 021 ... £ T9	
M3	0.50	56	2.2		2.5	11	3	8.59	030				
M4	0.70	63	2.8	2.1	3.3	13	3	8.45	040				
M5	0.80	70	3.5	2.7	4.2	15	3	8.45	050				
M6	1.00	80	4.5	3.4	5.0	17	3	8.81	060				
M8	1.25	90	6.0	4.9	6.8	20	3	10.34	080				
M10	1.50	100	7.0	5.5	8.5	22	3	11.99	100				
M12	1.75	110	9.0	7.0	10.2	24	3	14.34	120	64.07	120	25.97	120
M14	2.00	110	11.0	9.0	12.0	26	3	20.80	140	41.59	14000		
M14	2.00	110	11.0	9.0	12.0	20	4					39.36	140
M16	2.00	110	12.0	9.0	14.0	27	3	21.26	160	83.92	160	36.55	160
M18	2.50	125	14.0	11.0	15.5	30	3			65.99	18000		
M18	2.50	125	14.0	11.0	15.5	25	4					64.04	180
M20	2.50	140	16.0	12.0	17.5	32	3	33.84	200	149.04	200	66.16	200
M22	2.50	140	18.0	14.5	19.5	32	3			97.73	22000		
M24	3.00	160	18.0	14.5	21.0	34	3			158.33	240		
M27	3.00	160	20.0	16.0	24.0	36	3			122.21	27000		
M30	3.50	180	22.0	18.0	26.5	40	4			137.08	30000		
M33	3.50	180	25.0	20.0	29.5	40	4			179.80	33000		
M36	4.00	200	28.0	22.0	32.0	50	4			220.23	36000		

P	12	15	15
M	7	9	9
K	12	18	18
N		12	12
S			
H			
O			

6

Through hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

▲ NC = for synchronised CNC machining with minimum length compensation chuck

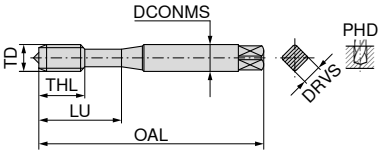
M

UNI NC | UNI NCW | FE | FE-HF

B 4–5

ISO 2 6H

TiN GS | TiCN | | TiCN



DIN 371 with reinforced shank

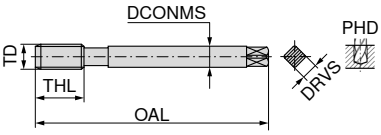


HSS-E | HSS-PM | HSS-E | HSS-E

0° | 0° | 0° | 0°

≤ 1000 N/mm² ≤ 3xD | ≤ 1000 N/mm² ≤ 3xD | ≤ 850 N/mm² ≤ 3xD | ≤ 1100 N/mm² ≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 114 ... £ T9		23 116 ... £ T9		23 212 ... £ T9		23 310 ... £ T9	
M1,6	0.35	40	2.5	2.1	1.25	6	11	2					29.14	016		
M2	0.40	45	2.8	2.1	1.60	7	12	2					19.31	020		
M2,5	0.45	50	2.8	2.1	2.05	9	14	2					16.79	025		
M3	0.50	70	6.0	4.9	2.50	6	18	3			34.79	030				
M3	0.50	56	3.5	2.7	2.50	11	18	3	29.14	030			13.30	030	27.47	030
M3,5	0.60	56	4.0	3.0	2.90	12	20	3					14.81	035		
M4	0.70	70	6.0	4.9	3.30	7	21	3			39.84	040				
M4	0.70	63	4.5	3.4	3.30	13	21	3	30.82	040			13.30	040	28.75	040
M5	0.80	70	6.0	4.9	4.20	15	25	3	31.73	050			13.34	050	29.60	050
M5	0.80	70	6.0	4.9	4.20	8	25	3			39.67	050				
M6	1.00	80	6.0	4.9	5.00	17	30	3	45.65	060			13.34	060	39.67	060
M6	1.00	80	6.0	4.9	5.00	10	30	3			39.67	060				
M8	1.25	90	8.0	6.2	6.80	20	35	3	49.29	080			17.37	080	42.81	080
M8	1.25	90	8.0	6.2	6.80	14	35	3			50.13	080				
M10	1.50	100	10.0	8.0	8.50	22	39	3	61.92	100			20.81	100	53.73	100
M10	1.50	100	10.0	8.0	8.50	16	39	3			60.62	100				



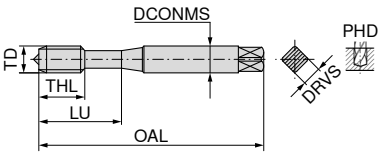
DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 115 ... £ T9		23 117 ... £ T9		23 213 ... £ T9		23 311 ... £ T9	
M12	1.75	110	10	8	10.2	18	3			76.89	120				
M12	1.75	110	9	7	10.2	24	3	71.41	120			28.08	120	63.47	120
M14	2.00	110	11	9	12.0	26	3					34.03	140		
M16	2.00	110	12	9	14.0	22	3			151.66	160				
M16	2.00	110	12	9	14.0	27	3	95.01	160			42.72	160	88.02	160
M20	2.50	140	16	12	17.5	32	3	176.18	200			66.68	200	155.44	200

P	15	15	12	15
M	9	8		
K	18	15	12	15
N	12	22	12	15
S				
H				
O				

Through hole – Machine taps, right hand

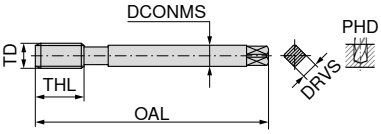
M



DIN 371 with reinforced shank

	VA	VA	VA	AL	AL
	B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	nitr.	nitr.	TiN		CrN
					
	HSS-PM	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 0° ≤ 1200 N/mm² ≤ 3xD	◁ 0° ≤ 1200 N/mm² ≤ 3xD	◁ 0° ≤ 1200 N/mm² ≤ 3xD	◁ 0° ≤ 500 N/mm² ≤ 3xD	◁ 0° ≤ 500 N/mm² ≤ 3xD
	23 450 ...	**23 410 ...**	**23 412 ...**	**23 610 ...**	**23 612 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9		£ T9		£ T9		£ T9		£ T9	
M2	0.40	45	2.8	2.1	1.60	7	12	2			21.67	020	34.37	020				
M2,5	0.45	50	2.8	2.1	2.05	9	14	2			27.69	025	29.09	025				
M3	0.50	56	3.5	2.7	2.50	11	18	3	11.29	030	14.52	030	27.24	030	13.30	030	25.03	030
M4	0.70	63	4.5	3.4	3.30	13	21	3	11.39	040	14.52	040	30.99	040	13.30	040	25.94	040
M5	0.80	70	6.0	4.9	4.20	15	25	3	12.35	050	15.11	050	31.27	050	13.34	050	26.53	050
M6	1.00	80	6.0	4.9	5.00	17	30	3	12.45	060	15.11	060	40.72	060	13.34	060	26.53	060
M8	1.25	90	8.0	6.2	6.80	20	35	3	13.99	080	19.23	080	43.69	080	17.37	080	29.80	080
M10	1.50	100	10.0	8.0	8.50	22	39	3	15.87	100	23.19	100	59.72	100	20.81	100	37.22	100



DIN 376 with reduced shank

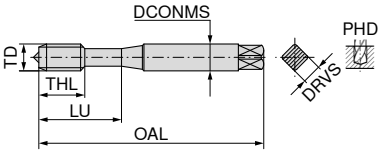
								23 451 ...		**23 411 ...**		**23 413 ...**		**23 611 ...**		**23 613 ...**	
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**	**£ T9**		**£ T9**		**£ T9**		**£ T9**		**£ T9**	
M12	1.75	110	9	7.0	10.2	24	3	28.32	120	30.99	120	67.28	120	28.08	120	45.80	120
M14	2.00	110	11	9.0	12.0	26	3	37.49	140								
M16	2.00	110	12	9.0	14.0	27	3	39.61	160	47.30	160	83.92	160				
M20	2.50	140	16	12.0	17.5	32	3	59.22	200	71.99	200	146.12	200				
M24	3.00	160	18	14.5	21.0	34	3			95.20	240						

P	**8**	**8**	**10**			
M	**6**	**6**	**8**			
K						
N	**22**	**22**	**24**	**15**	**15**	
S						
H						
O						

6

Blind hole – Machine taps, right hand

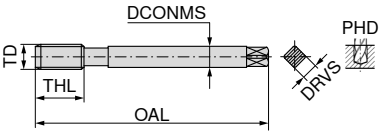
M | Salo-Rex



DIN 371 with reinforced shank

	UNI	UNI	UNI	UNI
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	7G	ISO 2 6H	ISO 2 6H
	vap.	vap.	TiN	TiCN
				
	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD
	22 518 ...	**22 532 ...**	**22 520 ...**	**22 522 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M2	0.40	45	2.8	2.1	1.60	4.0	12	2	38.72	**020**			56.62	**020**		
M2,2	0.45	45	2.8	2.1	1.75	4.5	12	2	43.63	**022**						
M2,3	0.40	45	2.8	2.1	1.90	4.5	12	2	47.30	**023**						
M2,5	0.45	50	2.8	2.1	2.05	5.0	15	2	36.31	**025**						
M2,6	0.45	50	2.8	2.1	2.15	5.0	15	2	44.87	**026**						
M3	0.50	56	3.5	2.7	2.50	6.0	18	3	33.13	**030**	37.70	**030**	40.43	**030**	40.13	**030**
M3,5	0.60	56	4.0	3.0	2.90	7.0	20	3	35.55	**035**						
M4	0.70	63	4.5	3.4	3.30	7.0	21	3	33.72	**040**	39.67	**040**	43.19	**040**	43.19	**040**
M5	0.80	70	6.0	4.9	4.20	8.0	25	3	33.68	**050**	41.31	**050**	44.24	**050**	43.92	**050**
M6	1.00	80	6.0	4.9	5.00	10.0	30	3	35.07	**060**	56.62	**060**	52.02	**060**	52.02	**060**
M7	1.00	80	7.0	5.5	6.00	10.0	30	3	53.54	**070**						
M8	1.25	90	8.0	6.2	6.80	14.0	35	3	39.83	**080**	64.66	**080**	57.52	**080**	57.16	**080**
M10	1.50	100	10.0	8.0	8.50	16.0	39	3	48.81	**100**	97.62	**100**	68.82	**100**	68.82	**100**
M12	1.75	110	12.0	9.0	10.20	18.0	44	3	55.84	**120**			85.62	**120**	85.62	**120**



DIN 376 with reduced shank

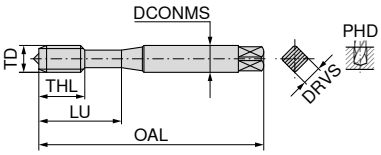
									22 519 ...		**22 533 ...**		**22 521 ...**		**22 523 ...**	
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**		**£ U0**		**£ U0**		**£ U0**		**£ U0**	
M3	0.50	56	2.2		2.5	6	3		54.98	**030**						
M4	0.70	63	2.8	2.1	3.3	7	3		52.48	**040**						
M5	0.80	70	3.5	2.7	4.2	8	3		39.67	**050**						
M6	1.00	80	4.5	3.4	5.0	10	3		41.19	**060**						
M8	1.25	90	6.0	4.9	6.8	14	3		45.65	**080**						
M10	1.50	100	7.0	5.5	8.5	16	3		58.13	**100**						
M12	1.75	110	9.0	7.0	10.2	18	3		61.18	**120**	72.59	**120**	80.07	**120**	80.07	**120**
M14	2.00	110	11.0	9.0	12.0	20	3		78.41	**140**			156.21	**140**	176.80	**140**
M16	2.00	110	12.0	9.0	14.0	22	3		86.32	**160**	131.65	**160**	118.51	**160**	118.51	**160**
M18	2.50	125	14.0	11.0	15.5	25	3		124.78	**180**			245.45	**180**	268.93	**180**
M20	2.50	140	16.0	12.0	17.5	25	3		129.35	**200**	202.43	**200**	201.35	**200**	257.18	**200**
M22	2.50	140	18.0	14.5	19.5	27	4		185.66	**220**			361.04	**220**		
M24	3.00	160	18.0	14.5	21.0	30	4		163.64	**240**			314.22	**240**		
M27	3.00	160	20.0	16.0	24.0	30	4		214.91	**270**						
M30	3.50	180	22.0	18.0	26.5	35	4		275.93	**300**						
M33	3.50	180	25.0	20.0	29.5	35	4		542.24	**330**						
M36	4.00	200	28.0	22.0	32.0	40	4		448.74	**360**						

P	**12**	**12**	**15**	**15**
M	**7**	**7**	**9**	**9**
K	**12**	**12**	**18**	**18**
N			**12**	**12**
S				
H				
O				

Blind hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

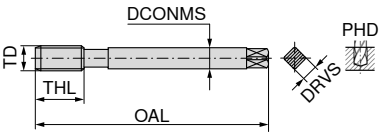
M | Salo-Rex



DIN 371 with reinforced shank

	UNI NCW	UNI	UNI	UNI
	C 2–3	E 1,5–2	E 1,5–2	E 1,5–2
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN	vap.	vap.	TiN
				
	HSS-PM ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD
	22 149 ...	22 524 ...	22 534 ...	22 526 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M3	0.50	70	6.0	4.9	2.5	6	18	3	68.82	030						
M3	0.50	56	3.5	2.7	2.5	6	18	3			33.88	030			39.67	030
M4	0.70	63	4.5	3.4	3.3	7	21	3			34.63	040			43.19	040
M4	0.70	70	6.0	4.9	3.3	7	21	3	74.76	040						
M5	0.80	70	6.0	4.9	4.2	8	25	3	76.16	050	35.55	050	54.92	050	44.24	050
M6	1.00	80	6.0	4.9	5.0	10	30	3	94.44	060	36.02	060	52.65	060	52.02	060
M8	1.25	90	8.0	6.2	6.8	14	35	3	107.23	080	41.17	080	61.92	080	57.52	080
M10	1.50	100	10.0	8.0	8.5	16	39	3	130.73	100	50.19	100	72.59	100	68.82	100



DIN 376 with reduced shank

								22 149 ...		22 525 ...		22 535 ...		22 527 ...	
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M12	1.75	110	10	8.0	10.2	18	3	155.13	120						
M12	1.75	110	9	7.0	10.2	18	4			62.71	120	81.01	120	81.62	120
M14	2.00	110	11	9.0	12.0	20	4			118.51	140	120.46	140		
M16	2.00	110	12	9.0	14.0	22	3	212.03	160						
M16	2.00	110	12	9.0	14.0	22	4			89.08	160	121.12	160	118.51	160
M18	2.50	125	14	11.0	15.5	25	4			188.53	180				
M20	2.50	140	16	12.0	17.5	25	4			132.99	200	179.07	200	201.35	200
M22	2.50	140	18	14.5	19.5	27	5			258.97	220				
M24	3.00	160	18	14.5	21.0	30	5			225.92	240				

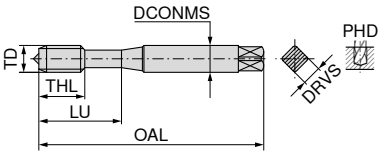
P	15	12	12	15
M	8	7	7	9
K	15	12	12	18
N	22			12
S				
H				
O				

6

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

M | Salo-Rex



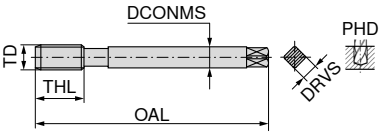
DIN 371 with reinforced shank

	UNI CNC	UNI CNC	UNI CNC	UNI CNC
	C 2–3	C 2–3	E 1,5–2	C 2–3
	ISO 2X 6HX	ISO 2 6H	ISO 2 6H	7G
	TiN	TiN GS	TiN GS	TiN GS



	HSS-E ◁ 50° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 1100 N/mm² ≤ 3xD
	22 416 ...	**22 544 ...**	**22 546 ...**	**22 594 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M3	0.50	56	3.5	2.7	2.5	6	18	3	61.24	030	53.83	030			64.54	030
M4	0.70	63	4.5	3.4	3.3	7	21	3	64.07	040	54.92	040			65.59	040
M5	0.80	70	6.0	4.9	4.2	8	25	3	65.89	050	56.28	050	80.07	050	68.03	050
M6	1.00	80	6.0	4.9	5.0	10	30	3	79.61	060	59.03	060	81.10	060	73.21	060
M8	1.25	90	8.0	6.2	6.8	14	35	3	88.46	080	74.43	080	104.65	080	89.39	080
M10	1.50	100	10.0	8.0	8.5	16	39	3	109.60	100	84.96	100	120.97	100	100.36	100



DIN 376 with reduced shank

									22 417 ...		**22 545 ...**			**22 595 ...**		
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**		**£ U0**		**£ U0**			**£ U0**		
M12	1.75	110	9	7	10.2	18	3		129.01	120						
M12	1.75	110	9	7	10.2	18	4				114.11	120		135.62	120	
M14	2.00	110	11	9	12.0	20	3		184.20	140						
M14	2.00	110	11	9	12.0	20	4				137.42	140		160.03	140	
M16	2.00	110	12	9	14.0	22	3		358.82	160						
M16	2.00	110	12	9	14.0	22	4				152.23	160		176.80	160	
M20	2.50	140	16	12	17.5	25	3		307.53	200						
M20	2.50	140	16	12	17.5	25	4				218.72	200		253.37	200	

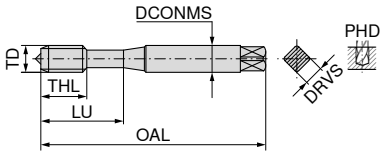
P	**15**	**15**	**15**	**15**
M	**9**	**9**	**9**	**9**
K	**18**	**18**	**18**	**18**
N	**22**	**12**	**12**	**12**
S				
H				
O				

Blind hole – Machine taps, right hand

▲ DRY = for dry machining or minimum quantity lubrication (MMS)

M | Salo-Rex

UNI DRY | C 2–3 | ISO 2 6H | TiN



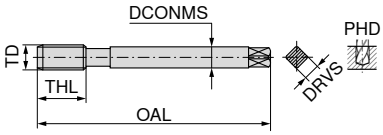
DIN 371 with reinforced shank



HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

22 449 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
M5	0.80	70	6	4.9	4.2	8	25	3	83.84	**050**
M6	1.00	80	6	4.9	5.0	10	30	3	97.57	**060**
M8	1.25	90	8	6.2	6.8	14	35	3	107.65	**080**
M10	1.50	100	10	8.0	8.5	16	39	3	130.74	**100**



DIN 376 with reduced shank

22 450 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
M12	1.75	110	9	7	10.2	18	4	141.78	**120**
M16	2.00	110	12	9	14.0	22	4	201.84	**160**
M20	2.50	140	16	12	17.5	25	4	329.98	**200**

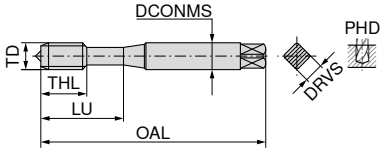
P	**12**
M	
K	**12**
N	**22**
S	
H	
O	

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

▲ TS = for high-speed machining, up to 100 m/min.

M | SL



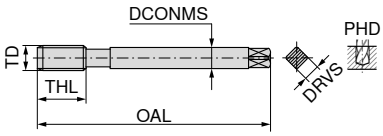
DIN 371 with reinforced shank

	ST TS	ST CNC	NEW HR	ST CNC
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2 6H	ISO 2X 6HX
	TiN	TiN	AlTiN-HD	TiN



	HSS-E	HSS-E	HSS-PM	HSS-E
	◁ 15° ≤ 1050 N/mm² ≤ 2xD	◁ 15° ≤ 1100 N/mm² ≤ 2xD	◁ 25° ≤ 1400 N/mm² ≤ 2xD	◁ 15° ≤ 1100 N/mm² ≤ 2xD
	22 406 ...	**22 328 ...**	**22 469 ...**	**22 443 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M3	0.50	56	3.5	2.7	2.5	6	18	2	57.53	030	52.59	030				
M3	0.50	56	3.5	2.7	2.5	11	18	3					37.66	03000		
M4	0.70	63	4.5	3.4	3.3	13	21	3					44.59	04000		
M4	0.70	63	4.5	3.4	3.3	7	21	3	61.24	040	54.84	040				
M5	0.80	70	6.0	4.9	4.2	15	25	3					45.59	05000		
M5	0.80	70	6.0	4.9	4.2	8	25	3	63.13	050	57.04	050			83.84	050
M6	1.00	80	6.0	4.9	5.0	17	30	3					47.20	06000		
M6	1.00	80	6.0	4.9	5.0	10	30	3	76.93	060	70.54	060			97.57	060
M8	1.25	90	8.0	6.2	6.8	20	35	3					51.51	08000		
M8	1.25	90	8.0	6.2	6.8	14	35	3	85.70	080	79.61	080			106.84	080
M10	1.50	100	10.0	8.0	8.5	22	39	3					63.13	10000		
M10	1.50	100	10.0	8.0	8.5	16	39	3	104.96	100	97.57	100			129.80	100
M12	1.75	110	12.0	9.0	10.2	24	44	3					75.36	12000		



DIN 376 with reduced shank

								22 407 ...		22 329 ...				22 444 ...	
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0				£ U0	
M12	1.75	110	9	7	10.2	18	3	125.29	120	114.25	120			144.48	120
M16	2.00	110	12	9	14.0	22	3	176.21	160	165.04	160			205.05	160
M20	2.50	140	16	12	17.5	25	3	288.29	200	272.31	200				
P									65		12		8		12
M											8		8		8
K									65		20				20
N									22		22		10		22
S													4		
H															
O															

Blind hole – Machine taps

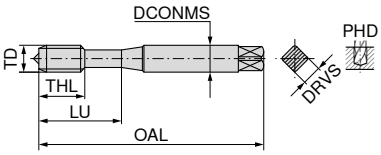
▲ LH = for left hand threads

M | Salo-Rex

ST | C 2–3 | ISO 2 6H

ST | C 2–3 | ISO 2 6H | TiN

ST LH | C 2–3 | ISO 2 6H



DIN 371 with reinforced shank

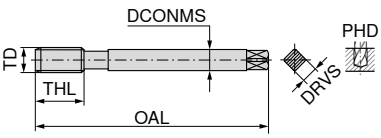


HSS-E
∢ 42°
≤ 750 N/mm²
≤ 3xD

HSS-E
∢ 42°
≤ 750 N/mm²
≤ 3xD

HSS-E
∢ 42°
≤ 750 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 082 ... £ U0		22 084 ... £ U0		22 138 ... £ U0	
M2	0.40	45	2.8	2.1	1.60	4.0	12	2	37.09	020	53.73	020		
M2,3	0.40	45	2.8	2.1	1.90	4.5	12	2	40.74	023				
M2,5	0.45	50	2.8	2.1	2.05	5.0	15	2	35.19	025				
M3	0.50	56	3.5	2.7	2.50	6.0	18	3	31.13	030	37.83	030	61.62	030
M3,5	0.60	56	4.0	3.0	2.90	7.0	20	3	34.29	035				
M4	0.70	63	4.5	3.4	3.30	7.0	21	3	31.13	040	40.28	040	54.62	040
M5	0.80	70	6.0	4.9	4.20	8.0	25	3	31.73	050	40.74	050	59.67	050
M6	1.00	80	6.0	4.9	5.00	10.0	30	3	33.13	060	50.04	060	57.52	060
M8	1.25	90	8.0	6.2	6.80	14.0	35	3	39.35	080	54.62	080	69.87	080
M10	1.50	100	10.0	8.0	8.50	16.0	39	3	45.20	100	75.13	100	80.39	100



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 083 ... £ U0		22 085 ... £ U0		22 139 ... £ U0	
M3	0.50	56	2.2		2.5	6	3	40.72	030				
M4	0.70	63	2.8	2.1	3.3	7	3	41.17	040				
M5	0.80	70	3.5	2.7	4.2	8	3	42.41	050				
M6	1.00	80	4.5	3.4	5.0	10	3	50.34	060				
M8	1.25	90	6.0	4.9	6.8	14	3	46.85	080				
M10	1.50	100	7.0	5.5	8.5	16	3			94.57	100		
M12	1.75	110	9.0	7.0	10.2	18	3	59.67	120	89.69	120	111.03	120
M14	2.00	110	11.0	9.0	12.0	20	3	73.63	140				
M16	2.00	110	12.0	9.0	14.0	22	3	81.91	160	115.31	160	162.00	160
M18	2.50	125	14.0	11.0	15.5	25	3	120.35	180				
M20	2.50	140	16.0	12.0	17.5	25	3	123.54	200	194.63	200	237.65	200
M22	2.50	140	18.0	14.5	19.5	27	4	164.72	220				
M24	3.00	160	18.0	14.5	21.0	30	4	156.21	240				
M30	3.50	180	22.0	18.0	26.5	35	4	266.78	300				
M33	3.50	180	25.0	20.0	29.5	35	4	387.26	330				
M36	4.00	200	28.0	22.0	32.0	40	4	387.26	360				

P	12	15	12
M			
K	12	15	12
N	12	15	22
S			
H			
O			

6

Blind hole – Machine taps, right hand

▲ TS = for high-speed machining, up to 100 m/min.

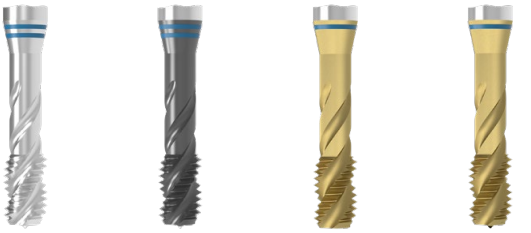
M | Salo-Rex

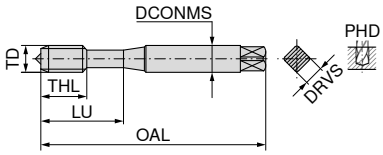
HR | HR | ST TS | ST TS

C 2–3 | C 2–3 | C 2–3 | C 2–3

ISO 2 6H | ISO 2 6H | ISO 2 6H | ISO 2 6H

OSM | TiN | TiN

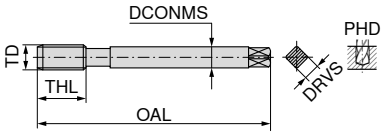




DIN 371 with reinforced shank

HSS-PM ◁ 42° ≤ 1400 N/mm² ≤ 3xD | HSS-PM ◁ 42° ≤ 1400 N/mm² ≤ 3xD | HSS-E ◁ 40° ≤ 1100 N/mm² ≤ 2xD | HSS-E ◁ 40° ≤ 1100 N/mm² ≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 498 ... £ U0		22 499 ... £ U0		22 046 ... £ U0		22 044 ... £ U0	
M3	0.50	56	3.5	2.7	2.5	6	18	3	36.31	**030**	45.65	**030**				
M4	0.70	63	4.5	3.4	3.3	7	21	3	34.03	**040**	45.65	**040**			59.19	**040**
M5	0.80	70	6.0	4.9	4.2	8	25	3	35.07	**050**	48.65	**050**	101.62	**050**	64.68	**050**
M6	1.00	80	6.0	4.9	5.0	10	30	3	35.19	**060**	50.96	**060**	132.71	**060**	67.73	**060**
M8	1.25	90	8.0	6.2	6.8	14	35	3	42.21	**080**	63.15	**080**	134.84	**080**	77.33	**080**
M10	1.50	100	10.0	8.0	8.5	16	39	3	50.49	**100**	72.14	**100**	183.52	**100**	94.73	**100**



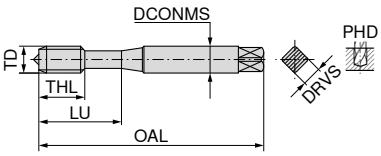
DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 045 ... £ U0	
M5	0.80	70	6	4.9	4.2	8	3		
M6	1.00	80	6	4.9	5.0	10	3		
M8	1.25	90	8	6.2	6.8	14	3		
M10	1.50	100	10	8.0	8.5	16	3		
M12	1.75	110	9	7.0	10.2	18	4	114.11	**120**
M16	2.00	110	12	9.0	14.0	22	4	165.05	**160**

P	**6**	**8**	**65**	**65**
M	**6**	**8**		
K			**65**	**65**
N	**8**	**12**	**75**	**75**
S				
H				
O				

Blind hole – Machine taps, right hand

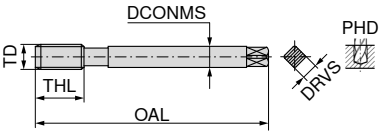
M | Salo-Rex



DIN 371 with reinforced shank

	VA	VA	VA
	C 2–3	E 1,5–2	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H
	vap.	TiN GS	TiN GS
			
	HSS-E ◁ 42° ≤ 900 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 900 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 900 N/mm² ≤ 3xD
	22 090 ...	**22 042 ...**	**22 040 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0	
M1,6	0.35	40	2.5	2.1	1.25	4	11	2					94.44	**016**
M2	0.40	45	2.8	2.1	1.60	4	12	2	58.20	**020**			52.48	**020**
M2,5	0.45	50	2.8	2.1	2.05	5	15	2	46.85	**025**				
M2,5	0.45	50	2.8	2.1	2.05	5	15	3					50.28	**025**
M3	0.50	56	3.5	2.7	2.50	6	18	3	35.07	**030**			54.92	**030**
M4	0.70	63	4.5	3.4	3.30	7	21	3	36.31	**040**			54.62	**040**
M5	0.80	70	6.0	4.9	4.20	8	25	3	36.77	**050**	81.10	**050**	57.16	**050**
M6	1.00	80	6.0	4.9	5.00	10	30	3	36.68	**060**	83.60	**060**	59.67	**060**
M8	1.25	90	8.0	6.2	6.80	14	35	3	42.81	**080**	105.42	**080**	75.33	**080**
M10	1.50	100	10.0	8.0	8.50	16	39	3	52.31	**100**	122.34	**100**	86.04	**100**



DIN 376 with reduced shank

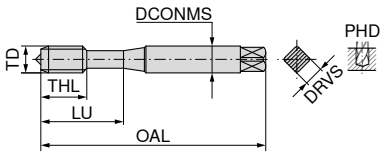
								22 091 ...			22 041 ...	
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**	£ U0			£ U0	
M12	1.75	110	9	7.0	10.2	18	4	64.68	**120**		116.40	**120**
M14	2.00	110	11	9.0	12.0	20	4	95.20	**140**		139.71	**140**
M16	2.00	110	12	9.0	14.0	22	4	91.68	**160**		155.13	**160**
M20	2.50	140	16	12.0	17.5	25	4	136.97	**200**		222.39	**200**
M22	2.50	140	18	14.5	19.5	27	5	293.74	**220**			
M24	3.00	160	18	14.5	21.0	30	5	173.89	**240**			
M30	3.50	180	22	18.0	26.5	35	5	367.90	**300**			

P	**8**	**10**	**10**
M	**6**	**8**	**8**
K			
N			
S			
H			
O			

6

Blind hole – Machine taps, right hand

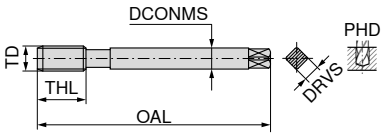
M | Salo-Rex



DIN 371 with reinforced shank

	Soft	Soft		NEW
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
		CH	vap.	DLC
				
	HSS-E ◁ 42° ≤ 500 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 500 N/mm² ≤ 3xD	HSS-E ◁ 38° ≤ 500 N/mm² ≤ 3xD	HSS-E ◁ 38° ≤ 880 N/mm² ≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 326 ... £ U0		22 324 ... £ U0		22 086 ... £ U0		22 460 ... £ U0	
M2	0.40	45	2.8	2.1	1.60	4	12	2	51.14	020	69.09	020	41.19	020	45.94	02000
M2,5	0.45	50	2.8	2.1	2.05	5	15	2	47.95	025	66.82	025	38.17	025		
M2,5	0.45	50	2.8	2.1	2.05	5	14	2							45.94	02500
M3	0.50	56	3.5	2.7	2.50	6	18	2	39.14	030	58.03	030				
M3	0.50	56	3.5	2.7	2.50	6	18	3					31.13	030	37.31	03000
M4	0.70	63	4.5	3.4	3.30	7	21	2	39.14	040	62.70	040				
M4	0.70	63	4.5	3.4	3.30	7	21	3					31.13	040	38.39	04000
M5	0.80	70	6.0	4.9	4.20	8	25	2	40.54	050	64.95	050				
M5	0.80	70	6.0	4.9	4.20	8	25	3					34.03	050	38.39	05000
M6	1.00	80	6.0	4.9	5.00	10	30	2	40.54	060	89.70	060				
M6	1.00	80	6.0	4.9	5.00	10	30	3					33.13	060	39.48	06000
M8	1.25	90	8.0	6.2	6.80	14	35	2	48.39	080	97.57	080				
M8	1.25	90	8.0	6.2	6.80	14	35	3					39.35	080	44.57	08000
M10	1.50	100	10.0	8.0	8.50	16	39	2	57.04	100	122.39	100				
M10	1.50	100	10.0	8.0	8.50	16	39	3					46.07	100	50.82	10000



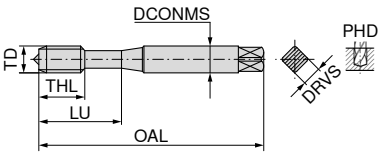
DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 087 ... £ U0		22 461 ... £ U0	
M12	1.75	110	9	7	10.2	18	3	59.67	120	64.24	12000
M14	2.00	110	11	9	12.0	20	3			92.26	14000
M16	2.00	110	12	9	14.0	22	3	81.91	160	89.61	16000
M20	2.50	140	16	12	17.5	25	3			128.48	20000

P	15			15		
M				6		
K						
N	22	22			15	
S						
H						
O						

Blind hole – Machine taps, right hand

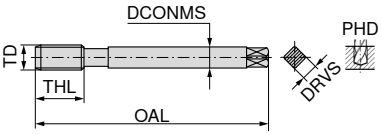
M | SL



DIN 371 with reinforced shank

	Ti	Ti	Ni	Ni
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2 6H	ISO 2X 6HX
	TiN	TiCN	TiCN	TiCN
				
	HSS-PM ◁ 30° ≤ 1400 N/mm² ≤ 1,5xD	HSS-PM ◁ 15° ≤ 1200 N/mm² ≤ 2xD	HSS-PM ◁ 15° ≤ 1600 N/mm² ≤ 1,5xD	HSS-PM ◁ 15° ≤ 1600 N/mm² ≤ 2xD
	22 076 ...	**22 163 ...**	**22 073 ...**	**22 424 ...**
	£ U0	£ U0	£ U0	£ U0

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes							
M3	0.50	56	3.5	2.7	2.5	11	18	2			50.74	030			70.97	030
M3	0.50	56	3.5	2.7	2.5	11	18	3					113.05	030		
M3	0.50	56	3.5	2.7	2.5	6	18	3	50.74	030						
M3,5	0.60	56	4.0	3.0	2.9	12	20	3			55.51	035				
M4	0.70	63	4.5	3.4	3.3	7	21	3	52.94	040						
M4	0.70	63	4.5	3.4	3.3	13	21	3			56.62	040	113.05	040	74.15	040
M5	0.80	70	6.0	4.9	4.2	8	25	3	53.38	050						
M5	0.80	70	6.0	4.9	4.2	15	25	3			57.06	050	101.15	050	76.93	050
M6	1.00	80	6.0	4.9	5.0	10	30	3	57.65	060						
M6	1.00	80	6.0	4.9	5.0	17	30	3			76.28	060	118.51	060	96.75	060
M8	1.25	90	8.0	6.2	6.8	14	35	3	63.03	080						
M8	1.25	90	8.0	6.2	6.8	20	35	3			82.98	080	174.36	080	105.90	080
M10	1.50	100	10.0	8.0	8.5	16	39	3	87.85	100						
M10	1.50	100	10.0	8.0	8.5	22	39	3			102.21	100	152.52	100	132.64	100
M12	1.75	110	12.0	9.0	10.2	18	44	3	99.14	120						



DIN 376 with reduced shank

	22 164 ...	**22 124 ...**	**22 425 ...**
	£ U0	£ U0	£ U0

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes						
M12	1.75	110	9	7.0	10.2	24	3	115.93	120			153.76	120
M12	1.75	110	9	7.0	10.2	24	4			198.30	120		
M14	2.00	110	11	9.0	12.0	26	3					225.91	140
M14	2.00	110	11	9.0	12.0	26	4			291.42	140		
M16	2.00	110	12	9.0	14.0	27	3	162.61	160			211.44	160
M16	2.00	110	12	9.0	14.0	27	5			239.47	160		
M20	2.50	140	16	12.0	17.5	32	3	279.13	200			368.38	200
M24	3.00	160	18	14.5	21.0	34	3	321.68	240				

P	7	7	
M	7	7	
K			
N		22	22 22
S	5	5	2 2
H			
O			

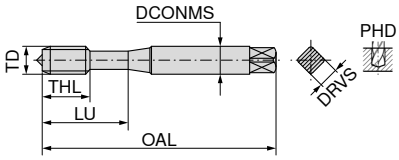
6

Blind hole – Machine taps, right hand

▲ ES = extra short

M | Salo-Rex

UNI ES | E 1,5–2 | ISO 2 6H | vap.





DIN 352 with reinforced shank

HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

22 500 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
M3	0.50	40	3.5	2.7	2.5	6	18	3	29.60	**030**
M4	0.70	45	4.5	3.4	3.3	7	22	3	30.04	**040**
M5	0.80	50	6.0	4.9	4.2	9	25	3	29.60	**050**
M6	1.00	56	6.0	4.9	5.0	10	28	3	32.50	**060**
M8	1.25	63	6.0	4.9	6.8	14		3	37.22	**080**
M10	1.50	70	7.0	5.5	8.5	16		3	42.72	**100**
M12	1.75	75	9.0	7.0	10.2	18		4	55.21	**120**
M16	2.00	80	12.0	9.0	14.0	22		4	87.55	**160**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – Machine taps, right hand

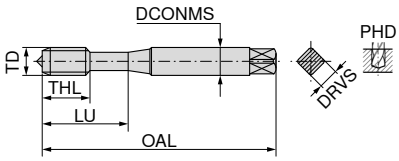
▲ ES = extra short

M | SL

ST
ES

C
2–3

ISO 2
6H





DIN 352 with reinforced shank

HSS-E
◁ 15°
≤ 750 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 016 ... £ U0	
M3	0.50	40	3.5	2.7	2.5	10	18	2	26.53	**030**
M4	0.70	45	4.5	3.4	3.3	12	22	3	26.34	**040**
M5	0.80	50	6.0	4.9	4.2	14	25	3	27.24	**050**
M6	1.00	56	6.0	4.9	5.0	16	28	3	27.84	**060**
M8	1.25	63	6.0	4.9	6.8	20		3	31.73	**080**
M10	1.50	70	7.0	5.5	8.5	22		3	40.74	**100**
M12	1.75	75	9.0	7.0	10.2	24		3	51.79	**120**

P	**12**
M	
K	**12**
N	**12**
S	
H	
O	

6

Blind hole – Machine taps, right hand

▲ EL = extra long, with double overall length

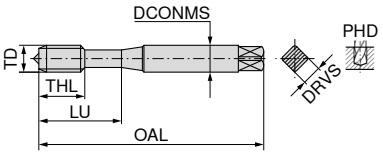
M | Salo-Rex

UNI EL | ST EL

C 2–3

ISO 2 6H

vap.



DIN 371 with reinforced shank

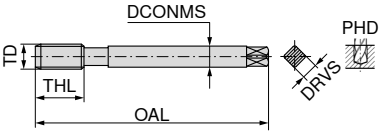




HSS-E
∢ 42°
≤ 1100 N/mm²
≤ 3xD

HSS-E
∢ 42°
≤ 750 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 538 ... £ U0		22 422 ... £ U0	
M3	0.50	100	3.5	2.7	2.5	6	18	3	60.25	030	75.47	030
M4	0.70	125	4.5	3.4	3.3	7	21	3	60.15	040	73.73	040
M5	0.80	140	6.0	4.9	4.2	8	25	3	67.64	050	82.38	050
M6	1.00	160	6.0	4.9	5.0	10	30	3	71.09	060	85.70	060
M8	1.25	180	8.0	6.2	6.8	14	35	3	81.01	080	103.19	080



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 539 ... £ U0		22 423 ... £ U0	
M6	1.00	160	4.5	3.4	5.0	10	3	90.45	060	85.70	060
M8	1.25	180	6.0	4.9	6.8	14	3	109.22	080	103.19	080
M10	1.50	200	7.0	5.5	8.5	16	3	94.44	100	113.24	100
M12	1.75	224	9.0	7.0	10.2	18	3	117.31	120	147.38	120
M14	2.00	224	11.0	9.0	12.0	20	3	204.26	140	214.64	140
M16	2.00	224	12.0	9.0	14.0	22	3	172.23	160	208.24	160
M18	2.50	250	14.0	11.0	15.5	25	3	319.86	180	315.54	180
M20	2.50	280	16.0	12.0	17.5	25	3	273.02	200	281.90	200

P	12	12
M	7	
K	12	12
N		22
S		
H		
O		

Blind hole – Machine taps, right hand

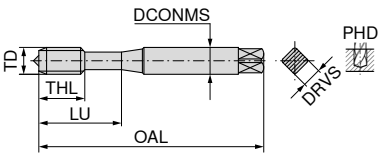
▲ EL = extra long, with double overall length

M | SL

ST
EL

E
1,5–2

ISO 2
6H



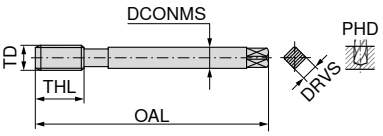
DIN 371 with reinforced shank



HSS-E
∢ 15°
≤ 750 N/mm²
≤ 2xD

22 078 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
M3	0.50	100	3.5	2.7	2.5	11	18	2	57.61	**030**
M4	0.70	125	4.5	3.4	3.3	13	21	3	57.61	**040**
M5	0.80	140	6.0	4.9	4.2	15	25	3	66.21	**050**
M6	1.00	160	6.0	4.9	5.0	17	30	3	69.55	**060**
M8	1.25	180	8.0	6.2	6.8	20	35	3	81.57	**080**



DIN 376 with reduced shank

22 080 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
M6	1.00	160	4.5	3.4	5.0	17	3	71.09	**060**
M8	1.25	180	6.0	4.9	6.8	20	3	85.12	**080**
M10	1.50	200	7.0	5.5	8.5	22	3	91.22	**100**
M12	1.75	224	9.0	7.0	10.2	24	3	115.93	**120**
M14	2.00	224	11.0	9.0	12.0	26	3	167.96	**140**
M16	2.00	224	12.0	9.0	14.0	27	3	167.63	**160**
M20	2.50	280	16.0	12.0	17.5	32	3	232.13	**200**

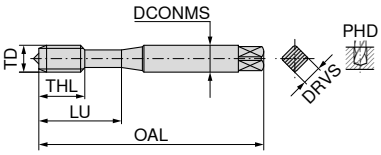
P	**12**
M	
K	**12**
N	**12**
S	
H	
O	

6

Blind hole – Machine taps, right hand

▲ NC = for synchronised CNC machining with minimum length compensation chuck

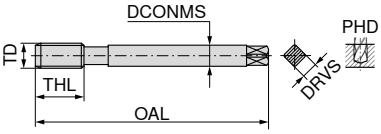
M



DIN 371 with reinforced shank

	UNI	UNI	UNI	UNI	UNI NC
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	vap.	TiN	TiN	TiCN	TiN GS
					
	HSS-E ◁ 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E ◁ 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-PM ◁ 50° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E ◁ 45° ≤ 1000 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 1000 N/mm² ≤ 3xD
	23 118 ...	**23 120 ...**	**23 026 ...**	**23 122 ...**	**23 124 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9		£ T9		£ T9		£ T9		£ T9	
M2	0.40	45	2.8	2.1	1.60	4	12	2	30.04	**020**	34.29	**020**						
M2,5	0.45	50	2.8	2.1	2.05	5	14	2	28.88	**025**	33.72	**025**						
M3	0.50	56	3.5	2.7	2.50	6	18	3	22.90	**030**	28.75	**030**	13.74	**030**	30.25	**030**	32.50	**030**
M4	0.70	63	4.5	3.4	3.30	7	21	3	23.81	**040**	32.18	**040**	13.74	**040**	32.50	**040**	33.68	**040**
M5	0.80	70	6.0	4.9	4.20	8	25	3	24.57	**050**	33.25	**050**	14.81	**050**	33.72	**050**	36.15	**050**
M6	1.00	80	6.0	4.9	5.00	10	30	3	25.94	**060**	41.41	**060**	17.15	**060**	42.81	**060**	48.81	**060**
M8	1.25	90	8.0	6.2	6.80	14	35	3	29.35	**080**	45.20	**080**	20.34	**080**	46.85	**080**	52.48	**080**
M10	1.50	100	10.0	8.0	8.50	16	39	3	33.58	**100**	60.59	**100**	25.62	**100**	59.19	**100**	66.68	**100**



DIN 376 with reduced shank

									23 119 ...		**23 121 ...**		**23 027 ...**		**23 123 ...**		**23 125 ...**	
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**		**£ T9**		**£ T9**		**£ T9**		**£ T9**		**£ T9**	
M3	0.50	56	2.2		2.5	6	3		9.99	**030**								
M4	0.70	63	2.8	2.1	3.3	7	3		9.05	**040**								
M5	0.80	70	3.5	2.7	4.2	8	3		8.81	**050**								
M6	1.00	80	4.5	3.4	5.0	10	3		8.69	**060**								
M8	1.25	90	6.0	4.9	6.8	14	3		9.16	**080**								
M10	1.50	100	7.0	5.5	8.5	16	3		12.35	**100**								
M12	1.75	110	9.0	7.0	10.2	18	3		13.99	**120**	65.82	**120**						
M12	1.75	110	9.0	7.0	10.2	18	4						30.31	**120**	70.17	**120**	77.50	**120**
M14	2.00	110	11.0	9.0	12.0	20	3				45.11	**14000**						
M14	2.00	110	11.0	9.0	12.0	20	4						43.60	**140**				
M16	2.00	110	12.0	9.0	14.0	22	3		20.56	**160**	84.08	**160**						
M16	2.00	110	12.0	9.0	14.0	22	4						43.60	**160**	93.64	**160**	103.11	**160**
M18	2.50	125	14.0	11.0	15.5	25	3				71.34	**18000**						
M20	2.50	140	16.0	12.0	17.5	25	3		31.02	**200**	163.43	**200**	49.95	**200**				
M20	2.50	140	16.0	12.0	17.5	25	4								169.77	**200**	188.99	**200**
M22	2.50	140	18.0	14.5	19.5	27	4				104.57	**22000**						
M24	3.00	160	18.0	14.5	21.0	34	4				158.33	**240**						
M27	3.00	160	20.0	16.0	24.0	30	4				130.80	**27000**						
M30	3.50	180	22.0	18.0	26.5	35	4				145.25	**30000**						
M33	3.50	180	25.0	20.0	29.5	35	4				209.43	**33000**						
M36	4.00	200	28.0	22.0	32.0	40	4				227.56	**36000**						

P	**12**	**15**	**15**	**15**	**15**
M	**7**	**9**	**9**	**9**	**9**
K	**12**	**18**	**18**	**18**	**18**
N		**12**	**12**	**12**	**12**
S					
H					
O					

Blind hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

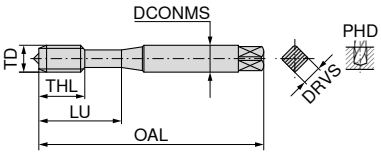
M

UNI NCW | FE | FE-HF | VA

C 2–3

ISO 2 6H

TiCN (UNI NCW, FE-HF)



DIN 371 with reinforced shank



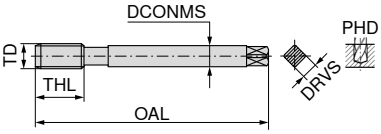
HSS-PM | HSS-E | HSS-E | HSS-E

35° | 35° | 35° | 35°

≤ 1000 N/mm² | ≤ 850 N/mm² | ≤ 1100 N/mm² | ≤ 1200 N/mm²

≤ 2,5xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 126 ... £ T9		23 216 ... £ T9		23 312 ... £ T9		23 414 ... £ T9	
M2	0.40	45	2.8	2.1	1.60	4	12	2			13.15	020			21.83	020
M2,5	0.45	50	2.8	2.1	2.05	5	14	2			26.53	025			28.88	025
M3	0.50	56	3.5	2.7	2.50	6	18	3			13.30	030	27.69	030	14.52	030
M3	0.50	70	6.0	4.9	2.50	6	18	3	34.79	030						
M4	0.70	63	4.5	3.4	3.30	7	21	3			13.30	040	30.25	040	14.52	040
M4	0.70	70	6.0	4.9	3.30	7	21	3	39.84	040						
M5	0.80	70	6.0	4.9	4.20	8	25	3	39.67	050	13.34	050	31.13	050	15.11	050
M6	1.00	80	6.0	4.9	5.00	10	30	3	39.67	060	13.34	060	42.88	060	15.11	060
M8	1.25	90	8.0	6.2	6.80	14	35	3	50.13	080	17.37	080	46.85	080	19.23	080
M10	1.50	100	10.0	8.0	8.50	16	39	3	60.62	100	20.81	100	58.42	100	23.19	100



DIN 376 with reduced shank

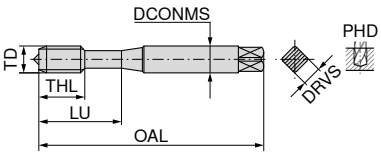
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 127 ... £ T9		23 217 ... £ T9		23 313 ... £ T9		23 415 ... £ T9	
M12	1.75	110	10	8.0	10.2	18	3	76.89	120						
M12	1.75	110	9	7.0	10.2	18	3			28.08	120	67.59	120	30.99	120
M14	2.00	110	11	9.0	12.0	20	3			34.03	140				
M16	2.00	110	12	9.0	14.0	22	3	151.66	160	42.72	160	91.22	160	47.30	160
M20	2.50	140	16	12.0	17.5	25	3			67.12	200	163.37	200	71.99	200
M24	3.00	160	18	14.5	21.0	30	4							98.25	240

P	15	12	15	8
M	8			6
K	15	12	15	
N	22	22	24	22
S				
H				
O				

6

Blind hole – Machine taps, right hand

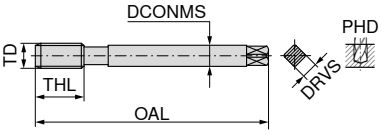
M



DIN 371 with reinforced shank

	VA	VA	VA	AL	AL
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN		TiN		CrN
					
	HSS-E	HSS-PM	HSS-PM	HSS-E	HSS-E
	◁ 45° ≤ 1200 N/mm² ≤ 3xD	◁ 40° ≤ 1200 N/mm² ≤ 2,5xD	◁ 40° ≤ 1200 N/mm² ≤ 2,5xD	◁ 35° ≤ 500 N/mm² ≤ 2,5xD	◁ 35° ≤ 500 N/mm² ≤ 2,5xD
	23 416 ...	**23 426 ...**	**23 456 ...**	**23 616 ...**	**23 614 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9		£ T9		£ T9		£ T9		£ T9	
M2	0.40	45	2.8	2.1	1.60	4	12	2	35.24	**020**								
M2,5	0.45	50	2.8	2.1	2.05	5	14	2	33.72	**025**								
M3	0.50	56	3.5	2.7	2.50	6	18	3	28.75	**030**	12.35	**030**	13.74	**030**	13.30	**030**	28.28	**030**
M4	0.70	63	4.5	3.4	3.30	7	21	3	32.18	**040**	12.45	**040**	15.05	**040**	13.30	**040**	28.28	**040**
M5	0.80	70	6.0	4.9	4.20	8	25	3	33.25	**050**	12.81	**050**	15.28	**050**	13.34	**050**	29.35	**050**
M6	1.00	80	6.0	4.9	5.00	10	30	3	42.66	**060**	13.04	**060**	19.62	**060**	13.34	**060**	29.35	**060**
M8	1.25	90	8.0	6.2	6.80	14	35	3	45.20	**080**	15.28	**080**	21.04	**080**	17.37	**080**	34.63	**080**
M10	1.50	100	10.0	8.0	8.50	16	39	3	63.60	**100**	18.33	**100**	29.02	**100**	20.81	**100**	42.41	**100**



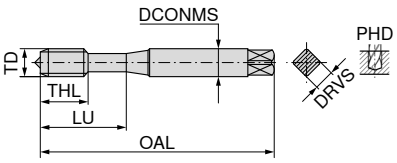
DIN 376 with reduced shank

								23 417 ...		**23 427 ...**		**23 457 ...**		**23 617 ...**		**23 615 ...**	
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**	**£ T9**		**£ T9**		**£ T9**		**£ T9**		**£ T9**	
M12	1.75	110	9	7.0	10.2	18	3			30.31	**120**	41.60	**120**	28.08	**120**	52.48	**120**
M12	1.75	110	9	7.0	10.2	18	4	69.11	**120**								
M14	2.00	110	11	9.0	12.0	20	4			39.96	**140**						
M16	2.00	110	12	9.0	14.0	22	3			43.48	**160**	52.29	**160**				
M16	2.00	110	12	9.0	14.0	22	4	84.08	**160**								
M20	2.50	140	16	12.0	17.5	25	3			64.75	**200**	103.87	**200**				
M20	2.50	140	16	12.0	17.5	25	4	132.41	**200**								
M24	3.00	160	18	14.5	21.0	30	4			81.90	**240**						

P	**10**	**8**	**10**			
M	**8**	**6**	**8**			
K						
N	**24**	**22**	**24**	**15**	**20**	
S						
H						
O						

Through hole / Blind hole – Machine taps, right hand

M | TWIN



DIN 371 with reinforced shank

	ST	HR	AMPCO
	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
		nitr.	



	HSS-E	HSS-E	HSS-PM
	0° ≤ 750 N/mm² ≤ 2xD	0° ≤ 1400 N/mm² ≤ 2xD	0° ≤ 800 N/mm² ≤ 2xD
	22 028 ...	**22 006 ...**	**22 030 ...**
	£ U0	£ U0	£ U0

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes					
M1,2	0.25	40	2.5	2.1	0.95	5	13	2	50.74	**012** [1]			
M1,4	0.30	40	2.5	2.1	1.10	6	13	2	41.17	**014** [1]			
M1,6	0.35	40	2.5	2.1	1.25	6	11	2	36.81	**016**			
M1,7	0.35	40	2.5	2.1	1.35	6	11	2	40.74	**017**			
M1,8	0.35	40	2.5	2.1	1.45	6	11	2	37.83	**018**			
M2	0.40	45	2.8	2.1	1.60	7	12	3	31.73	**020**			
M2,2	0.45	45	2.8	2.1	1.75	7	12	3	32.33	**022**			
M2,3	0.40	45	2.8	2.1	1.90	7	12	3	36.77	**023**			
M2,5	0.45	50	2.8	2.1	2.05	9	14	3	31.13	**025**			
M2,6	0.45	50	2.8	2.1	2.15	9	14	3	33.58	**026**			
M3	0.50	56	3.5	2.7	2.50	11	18	3	25.94	**030**	36.81	**030**	37.22	**030**
M3,5	0.60	56	4.0	3.0	2.90	12	20	3	26.53	**035**				
M4	0.70	63	4.5	3.4	3.30	13	21	3	25.89	**040**	37.72	**040**	37.99	**040**
M5	0.80	70	6.0	4.9	4.20	15	25	3	26.53	**050**	40.28	**050**	38.02	**050**
M6	1.00	80	6.0	4.9	5.00	17	30	3	26.34	**060**	39.83	**060**	37.22	**060**
M7	1.00	80	7.0	5.5	6.00	17	30	3	38.15	**070**				
M8	1.25	90	8.0	6.2	6.80	20	35	3	29.80	**080**	43.69	**080**	42.84	**080**
M10	1.50	100	10.0	8.0	8.50	22	39	3	38.17	**100**	55.39	**100**	54.46	**100**

P	**12**	**6**	
M			
K	**12**	**16**	
N		**12**	**8**
S			
H			
O			

1) Tol. 4H/5H ≤ M1.4

DIN 376 can be found on the next page

6

Through hole / Blind hole – Machine taps, right hand

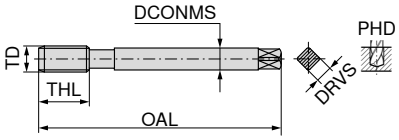
M | TWIN

ST | HR | AMPCO

C 2–3

ISO 2X 6HX

nitr.



DIN 376 with reduced shank





HSS-E | HSS-E | HSS-PM

0° | 0° | 0°

≤ 750 N/mm² | ≤ 1400 N/mm² | ≤ 800 N/mm²

≤ 2xD | ≤ 2xD | ≤ 2xD

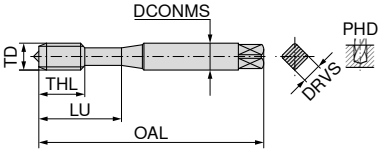
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 029 ... £ U0		22 007 ... £ U0		22 031 ... £ U0	
M4	0.70	63	2.8	2.1	3.3	13	3	33.72	**040**				
M5	0.80	70	3.5	2.7	4.2	15	3	34.03	**050**				
M6	1.00	80	4.5	3.4	5.0	17	3	34.03	**060**				
M8	1.25	90	6.0	4.9	6.8	20	3	42.88	**080**				
M10	1.50	100	7.0	5.5	8.5	22	3	48.49	**100**				
M12	1.75	110	9.0	7.0	10.2	24	3	49.29	**120**	69.13	**120**		
M12	1.75	110	9.0	7.0	10.2	24	4					94.34	**120**
M14	2.00	110	11.0	9.0	12.0	26	3	68.20	**140**				
M16	2.00	110	12.0	9.0	14.0	27	3	72.77	**160**	100.70	**160**		
M16	2.00	110	12.0	9.0	14.0	27	4					136.95	**160**
M18	2.50	125	14.0	11.0	15.5	30	4	107.38	**180**				
M20	2.50	140	16.0	12.0	17.5	32	4	109.37	**200**			182.43	**200**
M22	2.50	140	18.0	14.5	19.5	32	4	149.65	**220**				
M24	3.00	160	18.0	14.5	21.0	34	4	148.10	**240**			222.69	**240**
M33	3.50	180	25.0	20.0	29.5	40	4	292.86	**330**				
P									**12**		**6**		
M													
K									**12**		**16**		
N											**12**		**8**
S													
H													
O													

Through hole / Blind hole – Machine taps, right hand

M | TWIN

GG | C 2–3 | ISO 2X 6HX | nitr.

GG | C 2–3 | ISO 2X 6HX | nitr.



DIN 371 with reinforced shank

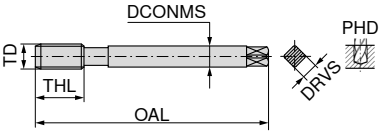




HSS-E
0°
≤ 1050 N/mm²
≤ 2xD

HSS-E
0°
≤ 1050 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 032 ... £ U0		22 036 ... £ U0	
M2	0.40	45	2.8	2.1	1.60	7	12	3	33.13	020		
M2,5	0.45	50	2.8	2.1	2.05	9	14	3	34.03	025		
M3	0.50	56	3.5	2.7	2.50	11	18	3	28.54	030		
M3,5	0.60	56	4.0	3.0	2.90	12	20	3	31.13	035		
M4	0.70	63	4.5	3.4	3.30	13	21	3	29.18	040		
M5	0.80	70	6.0	4.9	4.20	15	25	3	31.13	050	45.92	050
M6	1.00	80	6.0	4.9	5.00	17	30	3	31.13	060	45.80	060
M8	1.25	90	8.0	6.2	6.80	20	35	3	35.79	080	51.57	080
M10	1.50	100	10.0	8.0	8.50	22	39	3	42.81	100	61.48	100



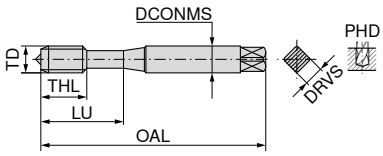
DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 033 ... £ U0		22 037 ... £ U0	
M6	1.00	80	4.5	3.4	5.0	17	3	36.68	060		
M8	1.25	90	6.0	4.9	6.8	20	3	40.13	080		
M10	1.50	100	7.0	5.5	8.5	22	3	45.44	100		
M12	1.75	110	9.0	7.0	10.2	24	3	54.92	120	70.62	120
M14	2.00	110	11.0	9.0	12.0	26	3	67.64	140	97.62	140
M16	2.00	110	12.0	9.0	14.0	27	3	78.26	160	96.52	160
M18	2.50	125	14.0	11.0	15.5	30	4	115.93	180		
M20	2.50	140	16.0	12.0	17.5	32	4	115.93	200	148.55	200
M22	2.50	140	18.0	14.5	19.5	32	4	172.66	220		
M24	3.00	160	18.0	14.5	21.0	34	4	154.21	240		

P		
M		
K	16	16
N	12	12
S		
H		
O		

Through hole / Blind hole – Machine taps, right hand

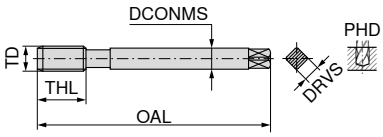
M | TWIN



DIN 371 with reinforced shank

	HT	HT
	D 4–5	C 2–3
	ISO 2X 6HX	ISO 2X 6HX
	OSM	TiCN
		
	Solid carbide	HSS-PM
	0° ≤ 63 HRC ≤ 1,5xD	0° 44 - 52 HRC ≤ 1,5xD
	22 806 ...	**22 227 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0	
M3	0.50	63	4.5	3.4	2.55	6	18	4	183.65	**030**		
M4	0.70	63	4.5	3.4	3.40	8	20	4	183.65	**040**		
M5	0.80	70	6.0	4.9	4.30	10	26	4	210.80	**050**		
M6	1.00	80	6.0	4.9	5.00	10	30	4			159.22	**060**
M6	1.00	80	6.0	4.9	5.10	12	28	4	221.94	**060**		
M8	1.25	90	8.0	6.2	6.80	14	35	5			171.42	**080**
M8	1.25	90	8.0	6.2	6.90	15	35	5	254.27	**080**		
M10	1.50	100	10.0	8.0	8.50	18	38	5	322.44	**100**		
M10	1.50	100	10.0	8.0	8.50	16	39	5			214.64	**100**
M12	1.75	110	12.0	9.0	10.40	21	41	5	596.54	**120**		
M16	2.00	110	16.0	12.0	14.20	24	44	6	847.44	**160**		



DIN 376 with reduced shank

									22 228 ...	
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**		£ U0	
M12	1.75	110	9	7	10.4	18	5		267.52	**120**
M16	2.00	110	12	9	14.2	22	6		368.38	**160**

P		
M		
K		
N		**22**
S		
H	**2**	**2**
O		

Through hole / Blind hole – Machine taps, right hand

▲ EL = extra long, with double overall length

M | TWIN

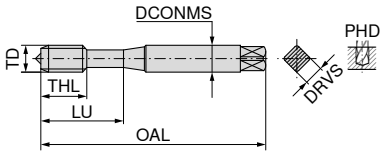
HR EL

C 2–3

ISO 2X 6HX

nitr.

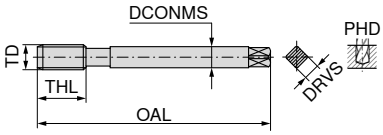




DIN 371 with reinforced shank

HSS-E
0°
≤ 1400 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 122 ... £ U0	
M3	0.50	100	3.5	2.7	2.5	11	18	3	72.59	**030**
M4	0.70	125	4.5	3.4	3.3	13	21	3	72.59	**040**
M5	0.80	140	6.0	4.9	4.2	15	25	3	78.26	**050**
M6	1.00	160	6.0	4.9	5.0	17	30	3	82.06	**060**
M8	1.25	180	8.0	6.2	6.8	20	35	3	94.57	**080**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 123 ... £ U0	
M10	1.50	200	7	5.5	8.5	22	3	109.22	**100**
M12	1.75	224	9	7.0	10.2	24	3	129.65	**120**
M16	2.00	224	12	9.0	14.0	27	3	202.43	**160**
M20	2.50	280	16	12.0	17.5	32	4	278.68	**200**

P	**6**
M	
K	**16**
N	**22**
S	
H	
O	

Through hole / Blind hole – Machine taps, right hand

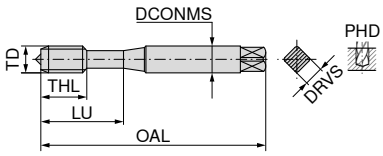
M

GG

C
2–3

ISO 2X
6HX

TiCN



DIN 371 with reinforced shank

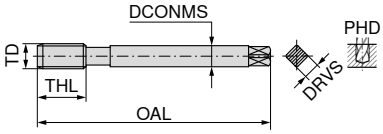


HSS-E

0°
≤ 900 N/mm²
≤ 2xD

23 512 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9	
M3	0.50	56	3.5	2.7	2.5	11	18	3	27.24	**030**
M4	0.70	63	4.5	3.4	3.3	13	21	3	30.99	**040**
M5	0.80	70	6.0	4.9	4.2	15	25	3	31.27	**050**
M6	1.00	80	6.0	4.9	5.0	17	30	3	40.72	**060**
M8	1.25	90	8.0	6.2	6.8	20	35	3	43.69	**080**
M10	1.50	100	10.0	8.0	8.5	22	39	3	59.72	**100**



DIN 376 with reduced shank

23 513 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ T9	
M12	1.75	110	9	7	10.2	24	3	67.28	**120**

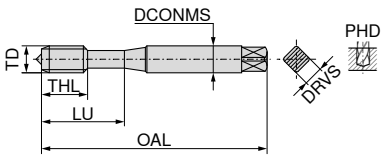
P	
M	
K	**20**
N	**24**
S	
H	
O	

Through hole / Blind hole – Machine thread formers, right hand

M | Spanlos

EC | C 2–3 | ISO 2X 6HX | HCr

EC | C 2–3 | ISO 2X 6HX | TiN



DIN 2174 with reinforced shank



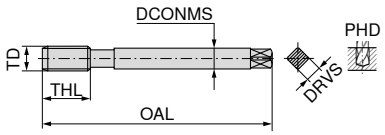


HSS-E
≤ 1100 N/mm²
≤ 1,5xD

HSS-E
≤ 1100 N/mm²
≤ 1,5xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	22 128 ... £ U0		22 100 ... £ U0	
M1	0.25	40	2.5	2.1	0.90	5	6.5			84.04	**010** [1]
M1,2	0.25	40	2.5	2.1	1.10	5	6.5			77.07	**012** [1]
M1,4	0.30	40	2.5	2.1	1.28	6	9.0			72.59	**014** [1]
M1,6	0.35	40	2.5	2.1	1.47	6	9.0			70.62	**016**
M1,7	0.35	40	2.5	2.1	1.57	6	9.0			72.59	**017**
M2	0.40	45	2.8	2.1	1.85	7	10.0	86.32	**020**	47.15	**020**
M2,5	0.45	50	2.8	2.1	2.33	9	14.0	72.59	**025**	47.74	**025**
M2,6	0.45	50	2.8	2.1	2.43	9	14.0			50.19	**026**
M3	0.50	56	3.5	2.7	2.80	11	18.0	52.68	**030**	43.48	**030**
M3,5	0.60	56	4.0	3.0	3.25	12	20.0			41.75	**035**
M4	0.70	63	4.5	3.4	3.70	13	21.0	54.62	**040**	44.55	**040**
M5	0.80	70	6.0	4.9	4.65	15	25.0	57.52	**050**	46.68	**050**
M6	1.00	80	6.0	4.9	5.60	17	30.0	57.52	**060**	53.54	**060**
M8	1.25	90	8.0	6.2	7.40	20	35.0			58.88	**080**
M8	1.25	90	8.0	6.2	7.45	20	35.0	64.66	**080**		
M10	1.50	100	10.0	8.0	9.35	22	39.0	86.32	**100**	74.31	**100**

1) Tol. ISO 1X 4HX ≤ M1.4



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	22 101 ... £ U0	
M12	1.75	110	9	7	11.25	24	91.22	**120**
M16	2.00	110	12	9	15.10	27	136.93	**160**

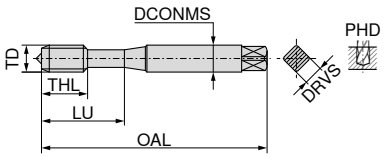
P	**18**	**18**
M	**10**	**10**
K	**10**	**10**
N	**18**	**22**
S		
H		
O		

6

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

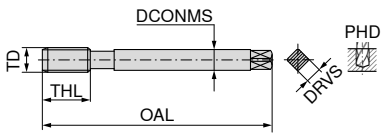
M | Spanlos



DIN 2174 with reinforced shank

	EC SN	EC SN	EC SN	EC SN	EC SN
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 3X 6GX	ISO 2X 6HX	ISO 2X 6HX
	nitr.	HCr	TiN	TiN GS	TiN
					
	HSS-E ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD
	22 104 ...	**22 107 ...**	**22 108 ...**	**22 154 ...**	**22 105 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0		£ U0		£ U0	
M2	0.40	45	2.8	2.1	1.85	7	10	3									55.39	020
M2,5	0.45	50	2.8	2.1	2.33	9	14	3									51.63	025
M3	0.50	56	3.5	2.7	2.80	11	18	3	33.88	030	46.68	030	45.32	030	68.09	030	47.75	030
M3,5	0.60	56	4.0	3.0	3.25	12	20	3									51.63	035
M4	0.70	63	4.5	3.4	3.70	13	21	4	40.13	040	47.44	040	48.65	040	71.41	040	49.59	040
M5	0.80	70	6.0	4.9	4.65	15	25	4	41.31	050	50.19	050	51.63	050	74.13	050		
M5	0.80	70	6.0	4.9	4.65	15	25	5									51.25	050
M6	1.00	80	6.0	4.9	5.60	17	30	4	42.21	060	50.74	060	57.98	060	81.74	060	58.58	060
M8	1.25	90	8.0	6.2	7.45	20	35	5	50.74	080	59.27	080	66.21	080	88.63	080	64.68	080
M10	1.50	100	10.0	8.0	9.35	22	39	6	65.74	100	75.22	100	80.39	100	107.85	100	80.70	100



DIN 2174 with reduced shank

								22 106 ...	
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**	£ U0	
M12	1.75	110	9	7	11.25	24	6	111.21	120
M14	2.00	110	11	9	13.10	26	5	194.04	140
M16	2.00	110	12	9	15.10	27	7	162.91	160

P	**12**	**18**	**18**	**18**	**18**
M		**10**	**10**	**10**	**10**
K	**8**	**10**	**10**	**10**	**10**
N	**12**	**18**	**22**	**22**	**22**
S					
H					
O					

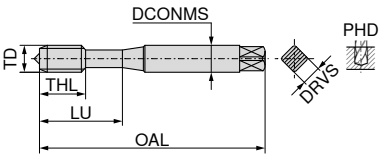
Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

M | Spanlos

NEO SN | C 2–3 | ISO 2X 6HX | TiN

NEO SN | C 2–3 | ISO 2X 6HX | TiN



DIN 2174 with reinforced shank

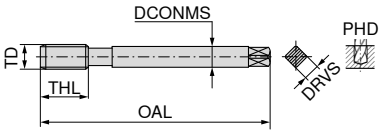




HSS-PM
≤ 1100 N/mm² ≤ 3xD

HSS-PM
≤ 1100 N/mm² ≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 452 ... £ U0		22 453 ... £ U0	
M3	0.50	56	3.5	2.7	2.80	11	18	4	74.96	**030**		
M4	0.70	63	4.5	3.4	3.70	13	21	4	77.07	**040**		
M5	0.80	70	6.0	4.9	4.65	15	25	4	81.99	**050**	102.55	**050**
M6	1.00	80	6.0	4.9	5.60	17	30	5	103.37	**060**	124.93	**060**
M8	1.25	90	8.0	6.2	7.45	20	35	5	115.86	**080**	140.03	**080**
M10	1.50	100	10.0	8.0	9.35	22	39	5	149.92	**100**	179.39	**100**



DIN 2174 with reduced shank

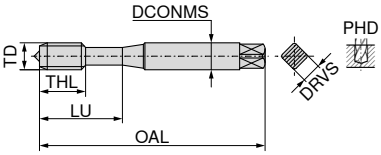
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 452 ... £ U0		22 454 ... £ U0	
M12	1.75	110	9	7	11.25	24	6	174.60	**120**	209.83	**120**
M16	2.00	110	12	9	15.10	27	6	283.48	**160**	320.31	**160**

P	**18**	**18**
M	**10**	**10**
K	**10**	**10**
N	**22**	**22**
S		
H		
O		

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

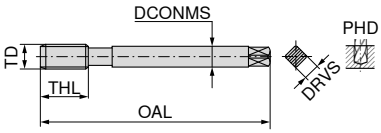
M



DIN 2174 with reinforced shank

	UNI	UNI	UNI SN	UNI SN
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
	TiN	CrN	TiN	CrN
				
	HSS-E ◁ 0° ≤ 850 N/mm² ≤ 3xD	HSS-E ◁ 0° ≤ 850 N/mm² ≤ 3xD	HSS-E ◁ 0° ≤ 850 N/mm² ≤ 3xD	HSS-E ◁ 0° ≤ 850 N/mm² ≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 810 ... £ T9		23 812 ... £ T9		23 814 ... £ T9		23 816 ... £ T9	
M2	0.40	45	2.8	2.1	1.85	7	12		41.64	**020**	46.69	**020**				
M2	0.40	45	2.8	2.1	1.85	7	12	3					47.30	**020**	53.29	**020**
M2,5	0.45	50	2.8	2.1	2.33	9	14	3					42.88	**025**	46.69	**025**
M2,5	0.45	50	2.8	2.1	2.33	9	14		37.09	**025**	41.19	**025**				
M3	0.50	56	3.5	2.7	2.80	11	18	3					28.75	**030**	33.81	**030**
M3	0.50	56	3.5	2.7	2.80	11	18		27.00	**030**	30.04	**030**				
M4	0.70	63	4.5	3.4	3.70	13	21	4					61.59	**040**	33.81	**040**
M4	0.70	63	4.5	3.4	3.70	13	21		27.38	**040**	30.68	**040**				
M5	0.80	70	6.0	4.9	4.65	15	25	4					64.95	**050**	36.61	**050**
M5	0.80	70	6.0	4.9	4.65	15	25		29.35	**050**	31.73	**050**				
M6	1.00	80	6.0	4.9	5.60	17	30	4					74.54	**060**	36.61	**060**
M6	1.00	80	6.0	4.9	5.60	17	30		35.24	**060**	31.73	**060**				
M8	1.25	90	8.0	6.2	7.45	20	35	5					77.87	**080**	43.32	**080**
M8	1.25	90	8.0	6.2	7.45	20	35		39.35	**080**	36.24	**080**				
M10	1.50	100	10.0	8.0	9.35	22	39	5					50.25	**100**	54.17	**100**
M10	1.50	100	10.0	8.0	9.35	22	39		52.48	**100**	46.69	**100**				



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 811 ... £ T9		23 813 ... £ T9		23 815 ... £ T9		23 817 ... £ T9	
M12	1.75	110	9	7.0	11.25	24		59.96	**120**	58.42	**120**				
M12	1.75	110	9	7.0	11.25	24	5					65.70	**120**	65.70	**120**
M16	2.00	110	12	9.0	15.10	27	6					125.38	**160**	133.93	**160**
M16	2.00	110	12	9.0	15.10	27		112.73	**160**	114.46	**160**				
M18	2.50	125	14	11.0	16.80	30	6					145.46	**18000**		
M20	2.50	140	16	12.0	18.80	32	6					135.29	**20000**		
M24	3.00	160	18	14.5	22.60	34	6					180.75	**24000**		
P									**18**		**18**		**18**		**18**
M									**10**		**10**		**10**		**10**
K									**10**				**10**		
N									**22**		**18**		**22**		**18**
S															
H															
O															

Through hole – machine taps for wire thread inserts, right hand

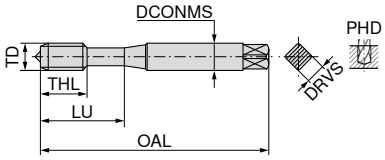
EG M | Stabil

UNI

B
4–5

6H mod

nitr. + vap.



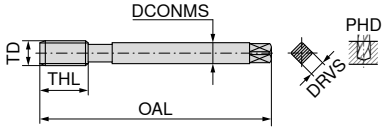
DIN 40435 with reinforced shank



HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

22 662 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
EG-M2,5	0.45	56	3.5	2.7	2.65	11	18	3	53.12	**025**
EG-M3	0.50	63	4.5	3.4	3.15	10	21	3	44.77	**030**
EG-M4	0.70	70	6.0	4.9	4.20	12	25	3	46.90	**040**
EG-M5	0.80	80	6.0	4.9	5.25	13	30	3	45.14	**050**
EG-M6	1.00	90	8.0	6.2	6.30	17	35	3	46.02	**060**
EG-M8	1.25	100	10.0	8.0	8.40	18	39	3	53.98	**080**



DIN 40435 with reduced shank

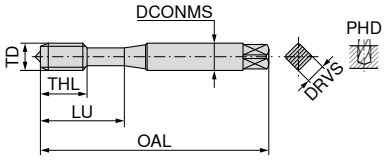
22 663 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
EG-M10	1.50	100	9	7.0	10.50	22	3	73.05	**100**
EG-M12	1.75	110	11	9.0	12.50	26	3	85.62	**120**
EG-M16	2.00	125	14	11.0	16.50	27	3	120.80	**160**
EG-M20	2.50	160	18	14.5	20.75	34	3	170.65	**200**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – machine taps for wire thread inserts, right hand

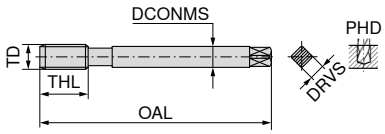
EG M | Salo-Rex



DIN 40435 with reinforced shank

	Soft	UNI
	C 2–3	C 2–3
	6H mod	6H mod
	CH	vap.
		
	HSS-E ◁ 42° ≤ 500 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 280 ... £ U0		22 664 ... £ U0	
EG-M2,5	0.45	56	3.5	2.7	2.65	5	18	2	72.79	025		
EG-M2,5	0.45	56	3.5	2.7	2.65	5	18	3			50.96	025
EG-M3	0.50	63	4.5	3.4	3.15	5	21	2	70.54	030		
EG-M3	0.50	63	4.5	3.4	3.15	5	21	3			45.62	030
EG-M4	0.70	70	6.0	4.9	4.20	8	25	2	70.54	040		
EG-M4	0.70	70	6.0	4.9	4.20	8	25	3			46.54	040
EG-M5	0.80	80	6.0	4.9	5.25	8	30	2	95.81	050		
EG-M5	0.80	80	6.0	4.9	5.25	8	30	3			43.92	050
EG-M6	1.00	90	8.0	6.2	6.30	10	35	2	97.57	060		
EG-M6	1.00	90	8.0	6.2	6.30	10	35	3			48.49	060
EG-M8	1.25	100	10.0	8.0	8.40	16	39	2	122.39	080		
EG-M8	1.25	100	10.0	8.0	8.40	16	39	3			53.37	080



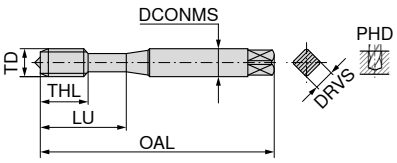
DIN 40435 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 665 ... £ U0	
EG-M10	1.50	100	9	7.0	10.50	15	5	71.23	100
EG-M12	1.75	110	11	9.0	12.50	20	4	87.41	120
EG-M16	2.00	125	14	11.0	16.50	20	5	122.80	160
EG-M20	2.50	160	18	14.5	20.75	30	4	178.01	200

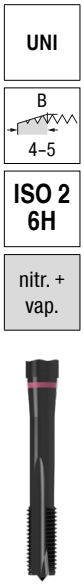
P		12
M		7
K		12
N	22	
S		
H		
O		

Through hole – Machine taps, right hand

MF | Stabil



DIN 371 with reinforced shank





HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 590 ... £ U0		22 550 ... £ U0	
M4x0,5	0.50	63	4.5	3.4	3.5	10	21	3	64.66	**040**	76.28	**040**
M5x0,5	0.50	70	6.0	4.9	4.5	11	25	3	64.66	**050**	76.28	**050**
M6x0,5	0.50	80	6.0	4.9	5.5	13	30	3	69.87	**060**	94.44	**060**
M6x0,75	0.75	80	6.0	4.9	5.2	13	30	3	69.87	**062**	94.44	**062**
M8x1	1.00	90	8.0	6.2	7.0	17	35	3	68.03	**084**	90.54	**080**
M10x1	1.00	90	10.0	8.0	9.0	18	35	4	69.87	**102**	103.29	**100**
P										**12**		**15**
M										**7**		**9**
K										**12**		**18**
N												**12**
S												
H												
O												

DIN 374 can be found on the next page

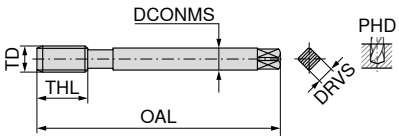
6

Through hole – Machine taps, right hand

▲ TS = for high-speed machining, up to 100 m/min.

▲ LH = for left hand threads

MF | Stabil



DIN 374 with reduced shank

	ST LH	ST TS	UNI	UNI	NEW NW
	B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2X 6HX	ISO 2 6H	ISO 2 6H	ISO 2X 6HX
		TiN	nitr. + vap.	TiN	DLC
					
	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
	0° ≤ 750 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 880 N/mm² ≤ 4xD
	22 210 ...	**22 193 ...**	**22 551 ...**	**22 552 ...**	**22 466 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0		£ U0		£ U0		£ U0	
M6x0,5	0.50	80	4.5	3.4	5.5	13	3					105.71	060				
M6x0,75	0.75	80	4.5	3.4	5.2	13	3					48.49	062				
M8x0,75	0.75	80	6.0	4.9	7.2	14	3					52.77	082				
M8x1	1.00	90	6.0	4.9	7.0	10	4			103.29	080						
M8x1	1.00	90	6.0	4.9	7.0	17	3	86.32	084			49.73	084	80.39	080	54.15	08000
M10x0,75	0.75	90	7.0	5.5	9.2	18	4					73.09	100				
M10x1,25	1.25	100	7.0	5.5	8.8	22	3					110.00	104			70.88	10200
M10x1	1.00	90	7.0	5.5	9.0	10	4			111.04	100						
M10x1	1.00	90	7.0	5.5	9.0	18	4	90.45	102			50.34	102	86.32	100	56.25	10000
M12x1,5	1.50	100	9.0	7.0	10.5	22	3	120.46	124			56.00	124	87.24	120	62.75	12400
M12x1,25	1.25	100	9.0	7.0	10.8	22	3					79.91	122			72.88	12200
M12x1,5	1.50	100	9.0	7.0	10.5	15	4			128.13	120						
M12x1	1.00	100	9.0	7.0	11.0	18	4	115.04	120			59.67	120	116.84	121	64.87	12000
M14x1,5	1.50	100	11.0	9.0	12.5	22	3	156.21	144			78.26	144	118.38	140	83.04	14400
M14x1,25	1.25	100	11.0	9.0	12.8	22	3									83.04	14200
M14x1,5	1.50	100	11.0	9.0	12.5	15	4			178.68	140						
M14x1	1.00	100	11.0	9.0	13.0	18	4					152.97	140			87.53	14000
M16x1,5	1.50	100	12.0	9.0	14.5	22	3	156.21	162			88.79	162	121.95	160	92.68	16200
M16x1,5	1.50	100	12.0	9.0	14.5	15	4			180.76	160						
M16x1	1.00	100	12.0	9.0	15.0	18	4									95.19	16000
M18x1	1.00	110	14.0	11.0	17.0	20	5					242.07	180				
M18x2	2.00	125	14.0	11.0	16.0	26	3					201.66	184				
M18x1,5	1.50	110	14.0	11.0	16.5	17	4			221.94	180						
M18x1,5	1.50	110	14.0	11.0	16.5	25	4	180.76	182			108.16	182				
M20x1	1.00	125	16.0	12.0	19.0	20	5					269.66	200				
M20x1,5	1.50	125	16.0	12.0	18.5	17	4			278.68	200						
M20x1,5	1.50	125	16.0	12.0	18.5	25	4	206.22	202			118.38	202	182.43	200		
M25x1,5	1.50	140	18.0	14.5	23.5	28	4					435.33	250				
M26x1,5	1.50	140	18.0	14.5	24.5	28	4					185.15	260				
M24x1,5	1.50	140	18.0	14.5	22.5	27	4					142.46	242				
M24x2	2.00	140	18.0	14.5	22.0	27	4					258.10	244				
M22x1,5	1.50	125	18.0	14.5	20.5	25	4					123.54	222	267.08	220		
M27x2	2.00	140	20.0	16.0	25.0	28	4					456.53	272				
M28x1,5	1.50	140	20.0	16.0	26.5	28	5					208.22	280				
M30x1,5	1.50	150	22.0	18.0	28.5	28	5					225.00	302				

P	12	65	12	15	
M			7	9	
K	12	65	12	18	
N	22	22		12	15
S					
H					
O					

Through hole – Machine taps, right hand

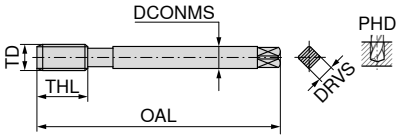
MF

UNI

B
4–5

ISO 2
6H

TiN



DIN 374 with reduced shank



HSS-PM

0°
≤ 1000 N/mm²
≤ 3xD

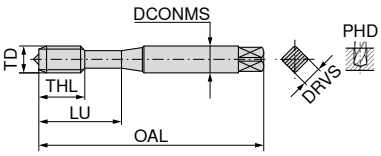
23 041 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ T9	
M8x1	1.00	90	6	4.9	7.0	17	3	21.50	**081**
M10x1	1.00	90	7	5.5	9.0	18	4	24.56	**102**
M10x1,25	1.25	100	7	5.5	8.8	22	3	26.32	**104**
M12x1	1.00	100	9	7.0	11.0	18	4	30.31	**120**
M12x1,25	1.25	100	9	7.0	10.8	22	3	31.62	**122**
M12x1,5	1.50	100	9	7.0	10.5	22	3	28.20	**121**
M14x1,5	1.50	100	11	9.0	12.5	22	3	34.79	**144**
M14x1,25	1.25	100	11	9.0	12.8	22	3	36.55	**142**
M16x1,5	1.50	100	12	9.0	14.5	22	3	39.36	**162**
M18x1,5	1.50	110	14	11.0	16.5	17	4	52.06	**182**
M20x1,5	1.50	125	16	12.0	18.5	17	4	70.27	**202**
M24x1,5	1.50	140	18	14.5	22.5	27	4	75.92	**242**
M24x2	2.00	140	18	14.5	22.0	27	4	86.50	**244**
M22x1,5	1.50	125	18	14.5	20.5	25	4	66.16	**222**

P	**15**
M	**9**
K	**18**
N	**12**
S	
H	
O	

Through hole – Machine taps, right hand

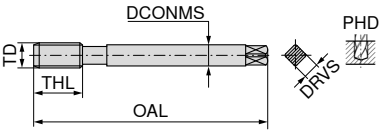
MF



DIN 371 with reinforced shank

	UNI	UNI	FE	VA
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	nitr. + vap.	TiN		TiN
				
	HSS-E ◁ 0° ≤ 1000 N/mm² ≤ 3xD	HSS-E ◁ 0° ≤ 1000 N/mm² ≤ 3xD	HSS-E ◁ 0° ≤ 850 N/mm² ≤ 3xD	HSS-E ◁ 0° ≤ 1200 N/mm² ≤ 4xD
	23 140 ...	**23 142 ...**	**23 240 ...**	**23 440 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9		£ T9		£ T9		£ T9	
M4x0,5	0.50	63	4.5	3.4	3.5	10	21	3	36.77	040	41.75	040	21.25	040		
M5x0,5	0.50	70	6.0	4.9	4.5	11	25	3	37.09	050	42.88	050	21.97	050	42.88	050
M6x0,5	0.50	80	6.0	4.9	5.5	13	30	3	39.23	060	51.79	060	21.97	060		
M6x0,75	0.75	80	6.0	4.9	5.2	13	30	3	39.23	062	51.79	062	21.25	062	52.31	062



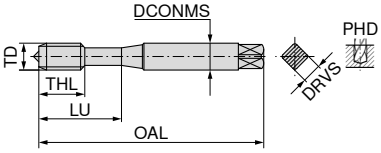
DIN 374 with reduced shank

								23 141 ...		23 143 ...		23 241 ...		23 441 ...	
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ T9		£ T9		£ T9		£ T9	
M8x0,5	0.50	80	6	8.0	7.5	14	3					29.14	080		
M8x1	1.00	90	6	4.9	7.0	17	3	37.72	084			23.36	084	55.39	084
M8x1	1.00	90	6	4.9	7.0	17	4			52.02	084				
M8x0,75	0.75	80	6	4.9	7.2	14	3	41.31	082	54.17	082	24.72	082	57.76	082
M10x0,75	0.75	90	7	5.5	9.2	18	4	59.19	100	73.69	100	34.63	100		
M10x1,25	1.25	100	7	5.5	8.8	22	3	50.13	104	68.09	104	28.54	104		
M10x1	1.00	90	7	5.5	9.0	18	4	39.23	102	55.68	102	27.63	102	59.12	102
M12x1,5	1.50	100	9	7.0	10.5	22	3	42.88	124	59.12	124	30.52	124	63.15	124
M12x1,25	1.25	100	9	7.0	10.8	22	3	50.74	122	69.13	122	33.25	122		
M12x1	1.00	100	9	7.0	11.0	18	4	45.20	120	65.13	120	31.27	120	68.09	120
M14x1	1.00	100	11	9.0	13.0	18	4	61.48	140	78.26	140	39.23	140		
M14x1,5	1.50	100	11	9.0	12.5	22	3	57.06	144	78.56	144	37.70	144	85.12	144
M16x1	1.00	100	12	9.0	15.0	18	4	69.11	160	91.22	160	52.02	160		
M16x1,5	1.50	100	12	9.0	14.5	22	3	69.11	162	91.22	162	47.75	162	97.34	162
M18x1	1.00	110	14	11.0	17.0	20	5					68.20	180		
M18x1,5	1.50	110	14	11.0	16.5	25	4	78.26	182	112.73	182	62.10	182		
M20x1,5	1.50	125	16	12.0	18.5	25	4	91.22	202	142.77	202	68.82	202		
M20x1	1.00	125	16	12.0	19.0	20	5					73.52	200		
M22x1,5	1.50	125	18	14.5	20.5	25	4	96.52	222	148.27	222	79.01	222		
M24x1,5	1.50	140	18	14.5	22.5	27	4	113.49	242	155.44	242	92.12	242		
M26x1,5	1.50	140	18	14.5	24.5	28	4					118.22	260		
M28x1,5	1.50	140	20	16.0	26.5	28	5					134.22	280		
M30x1,5	1.50	150	22	18.0	28.5	28	5					151.17	300		

P	12	15	12	10
M	7	9		8
K	12	18	12	
N		12	12	24
S				
H				
O				

Blind hole – Machine taps, right hand

MF | Salo-Rex



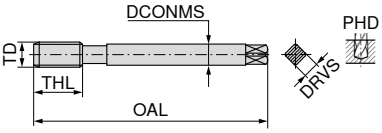
DIN 371 with reinforced shank

UNI	UNI	UNI	UNI
E 1,5–2	E 1,5–2	E 1,5–2	E 1,5–2
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 3 6G
vap.	TiN	vap.	vap.



HSS-E	HSS-E	HSS-E	HSS-E
◁ 42° ≤ 1100 N/mm² ≤ 3xD	◁ 42° ≤ 1100 N/mm² ≤ 3xD	◁ 42° ≤ 1100 N/mm² ≤ 3xD	◁ 42° ≤ 1100 N/mm² ≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 441 ... £ U0	
M4x0,5	0.50	63	4.5	3.4	3.50	5	21	3	71.85	**040**
M5x0,5	0.50	70	6.0	4.9	4.50	5	25	3	65.01	**050**
M6x0,75	0.75	80	6.0	4.9	5.25	8	30	3	71.85	**062**



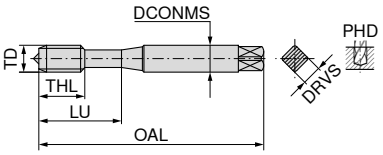
DIN 374 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 555 ... £ U0		22 556 ... £ U0		22 491 ... £ U0		22 490 ... £ U0	
M8x1	1.0	90	6	4.9	7.0	10	3	53.71	**080**	73.21	**080**			71.85	**080**
M10x1	1.0	90	7	5.5	9.0	10	4	61.48	**100**	94.26	**100**			78.26	**100**
M12x1,5	1.5	100	9	7.0	10.5	15	5	69.13	**120**	106.77	**120**	115.04	**120**	86.32	**120**
M14x1,5	1.5	100	11	9.0	12.5	15	5	85.89	**140**	134.55	**140**	152.23	**140**	111.03	**140**
M16x1,5	1.5	100	12	9.0	14.5	15	5	104.95	**160**	143.54	**160**	156.21	**160**	135.62	**160**
M18x1,5	1.5	110	14	11.0	16.5	17	5							154.35	**180**
M20x1,5	1.5	125	16	12.0	18.5	17	5					237.65	**200**	180.76	**200**
P								**12**		**15**		**12**		**12**	
M								**7**		**9**		**7**		**7**	
K								**12**		**18**		**12**		**12**	
N										**12**					
S															
H															
O															

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

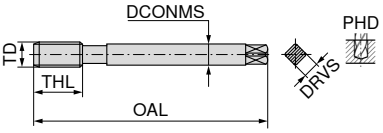
MF | Salo-Rex



DIN 371 with reinforced shank

	UNI	UNI	UNI CNC	UNI CNC
	C 2–3	C 2–3	E 1,5–2	E 1,5–2
	ISO 2 6H	ISO 2 6H	7G	ISO 2 6H
	vap.	TiN	TiN GS	TiN GS
				
	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 1100 N/mm² ≤ 3xD
	22 202 ...			**22 548 ...**
	£ U0			£ U0

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes								
M4x0,5	0.50	63	4.5	3.4	3.5	5	21	3	71.85	**040**						
M5x0,5	0.50	70	6.0	4.9	4.5	5	25	3	65.01	**050**					76.44	**050**
M6x0,75	0.75	80	6.0	4.9	5.2	8	30	3	71.85	**062**					76.44	**062**
M6x0,5	0.50	80	6.0	4.9	5.5	5	30	3	71.85	**060**					76.44	**060**



DIN 374 with reduced shank

								22 553 ...		22 554 ...		22 563 ...		22 549 ...	
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M6x0,75	0.75	80	4.5	3.4	5.2	8	3	62.22	**062**						
M8x0,75	0.75	80	6.0	4.9	7.2	8	3	58.13	**080**					80.39	**082**
M8x1	1.00	90	6.0	4.9	7.0	10	3	52.68	**082**	73.21	**080**	111.03	**084**	94.57	**084**
M10x0,75	0.75	90	7.0	5.5	9.2	10	4	120.46	**101**						
M10x1	1.00	90	7.0	5.5	9.0	10	3	56.28	**100**	94.26	**100**				
M10x1	1.00	90	7.0	5.5	9.0	10	4					123.45	**102**	109.37	**102**
M10x1,25	1.25	100	7.0	5.5	8.8	16	3	137.33	**102**						
M12x1	1.00	100	9.0	7.0	11.0	11	4	73.21	**120**	124.78	**121**			127.98	**120**
M12x1,25	1.25	100	9.0	7.0	10.8	15	4	111.00	**122**						
M12x1,5	1.50	100	9.0	7.0	10.5	15	4	69.13	**124**	106.77	**120**				
M12x1,5	1.50	100	9.0	7.0	10.5	15	5					144.47	**124**	122.34	**124**
M14x1,5	1.50	100	11.0	9.0	12.5	15	5					179.83	**144**	156.21	**144**
M14x1,5	1.50	100	11.0	9.0	12.5	15	4	85.89	**140**	124.93	**140**				
M16x1,5	1.50	100	12.0	9.0	14.5	15	4	104.95	**160**	143.54	**160**				
M16x1,5	1.50	100	12.0	9.0	14.5	15	5					206.22	**162**	180.76	**162**
M18x1,5	1.50	110	14.0	11.0	16.5	17	5							218.72	**182**
M18x1,5	1.50	110	14.0	11.0	16.5	17	4	128.45	**180**	210.18	**182**				
M20x1,5	1.50	125	16.0	12.0	18.5	17	5					308.27	**202**	269.37	**202**
M20x1,5	1.50	125	16.0	12.0	18.5	17	4	174.36	**200**	267.08	**202**				
M22x1,5	1.50	125	18.0	14.5	20.5	17	4	170.08	**220**						
M26x1,5	1.50	140	18.0	14.5	24.5	20	5	241.92	**260**						
M24x1,5	1.50	140	18.0	14.5	22.5	20	5	187.62	**240**						
M28x1,5	1.50	140	20.0	16.0	26.5	20	5	281.73	**280**						
M30x1,5	1.50	150	22.0	18.0	28.5	22	6	283.71	**300**						

P	**12**	**15**	**15**	**15**
M	**7**	**9**	**9**	**9**
K	**12**	**18**	**18**	**18**
N		**12**	**12**	**12**
S				
H				
O				

Blind hole – Machine taps

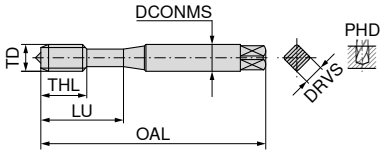
▲ LH = for left hand threads

MF | Salo-Rex

ST LH | ST

C 2–3

ISO 2 6H | ISO 2 6H



DIN 371 with reinforced shank

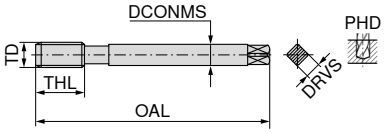




HSS-E
42°
≤ 750 N/mm²
≤ 3xD

HSS-E
42°
≤ 750 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 238 ... £ U0	
M2,5x0,35	0.35	50	2.8	2.1	2.15	5.0	15	2	111.03	025
M3x0,35	0.35	56	3.5	2.7	2.65	4.5	18	3	69.87	030
M3,5x0,35	0.35	56	4.0	3.0	3.15	5.0	20	3	94.44	035
M4x0,5	0.50	63	4.5	3.4	3.50	5.0	21	3	62.71	040
M5x0,5	0.50	70	6.0	4.9	4.50	5.0	25	3	62.71	050
M6x0,75	0.75	80	6.0	4.9	5.20	8.0	30	3	62.71	060
M8x0,75	0.75	80	8.0	6.2	7.20	8.0	30	3	71.85	080
M8x1	1.00	90	8.0	6.2	7.00	10.0	35	3	62.71	082



DIN 374 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 601 ... £ U0		22 186 ... £ U0	
M6x0,75	0.75	80	4.5	3.4	5.2	8	3			55.39	060
M8x0,75	0.75	80	6.0	4.9	7.2	8	3			56.62	080
M8x1	1.00	90	6.0	4.9	7.0	10	3	103.29	082	50.74	082
M10x1	1.00	90	7.0	5.5	9.0	10	3	107.23	100	53.83	100
M12x1,5	1.50	100	9.0	7.0	10.5	15	4			63.60	122
M12x1	1.00	100	9.0	7.0	11.0	11	4	129.65	120	66.21	120
M14x1,5	1.50	100	11.0	9.0	12.5	15	4	141.57	140	83.64	140
M16x1,5	1.50	100	12.0	9.0	14.5	15	4	167.96	160	100.53	160
M18x1,5	1.50	110	14.0	11.0	16.5	17	4	192.51	180	129.81	180
M20x1,5	1.50	125	16.0	12.0	18.5	17	4	225.92	200	129.05	200
M22x1,5	1.50	125	18.0	14.5	20.5	17	4			147.64	220
M26x1,5	1.50	140	18.0	14.5	24.5	20	5			227.42	260
M24x1,5	1.50	140	18.0	14.5	22.5	20	5			159.55	240
P									**12**		**12**
M											
K									**12**		**12**
N									**12**		**22**
S											
H											
O											

6

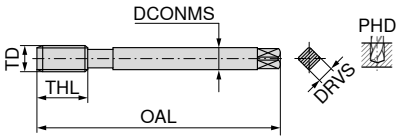
Blind hole – Machine taps, right hand

MF | SL

ST

C
2–3

ISO 2
6H



DIN 374 with reduced shank



HSS-E
15°
≤ 750 N/mm²
≤ 2xD

22 182 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
M6x0,75	0.75	80	4.5	3.4	5.2	13	3	57.06	**062**
M8x0,75	0.75	80	6.0	4.9	7.2	14	3	57.52	**082**
M8x1	1.00	90	6.0	4.9	7.0	17	3	51.79	**084**
M10x1	1.00	90	7.0	5.5	9.0	18	3	55.39	**102**
M10x0,75	0.75	90	7.0	5.5	9.2	18	3	91.68	**100**
M10x1,25	1.25	100	7.0	5.5	8.8	22	3	79.80	**104**
M9x1	1.00	90	7.0	5.5	8.0	17	3	78.71	**090**
M11x1	1.00	90	8.0	6.2	10.0	18	3	86.05	**110**
M12x1,25	1.25	100	9.0	7.0	10.8	22	3	87.85	**122**
M12x1,5	1.50	100	9.0	7.0	10.5	22	3	64.68	**124**
M12x1	1.00	100	9.0	7.0	11.0	18	3	68.03	**120**
M14x1	1.00	100	11.0	9.0	13.0	18	4	89.55	**140**
M14x1,5	1.50	100	11.0	9.0	12.5	22	3	86.95	**144**
M16x1	1.00	100	12.0	9.0	15.0	18	4	104.95	**160**
M16x1,5	1.50	100	12.0	9.0	14.5	22	3	102.83	**162**
M15x1	1.00	100	12.0	9.0	14.0	18	4	115.93	**150**
M18x1,5	1.50	110	14.0	11.0	16.5	25	4	129.45	**182**
M18x2	2.00	125	14.0	11.0	16.0	26	3	209.27	**184**
M18x1	1.00	110	14.0	11.0	17.0	20	4	144.47	**180**
M20x1	1.00	125	16.0	12.0	19.0	20	4	142.92	**200**
M20x2	2.00	140	16.0	12.0	18.0	27	3	179.83	**204**
M20x1,5	1.50	125	16.0	12.0	18.5	25	4	130.86	**202**
M22x2	2.00	140	18.0	14.5	20.0	27	4	185.15	**224**
M24x1,5	1.50	140	18.0	14.5	22.5	27	4	163.64	**242**
M24x1	1.00	140	18.0	14.5	23.0	20	5	197.39	**240**
M24x2	2.00	140	18.0	14.5	22.0	27	4	193.26	**244**
M22x1,5	1.50	125	18.0	14.5	20.5	25	4	150.55	**222**
M25x1,5	1.50	140	18.0	14.5	23.5	28	4	274.54	**252**
M22x1	1.00	125	18.0	14.5	21.0	20	4	185.15	**220**
M27x1,5	1.50	140	20.0	16.0	25.5	28	4	238.55	**270**
M28x2	2.00	140	20.0	16.0	26.0	28	4	311.92	**282**
M27x2	2.00	140	20.0	16.0	25.0	28	4	266.78	**272**
M30x1,5	1.50	150	22.0	18.0	28.5	28	5	272.56	**302**
M32x1,5	1.50	150	22.0	18.0	30.5	28	6	311.92	**320**
M30x2	2.00	150	22.0	18.0	28.0	28	4	287.52	**304**
M33x2	2.00	160	25.0	20.0	31.0	30	4	381.16	**332**
M36x2	2.00	170	28.0	22.0	34.0	30	5	485.37	**362**
M36x3	3.00	200	28.0	22.0	33.0	42	4	448.44	**364**
M34x1,5	1.50	170	28.0	22.0	32.5	30	6	423.41	**340**
M40x1,5	1.50	170	32.0	24.0	38.5	30	6	474.08	**400**
M42x3	3.00	200	32.0	24.0	39.0	45	4	606.30	**424**
M42x2	2.00	170	32.0	24.0	40.0	30	6	573.22	**422**
M45x1,5	1.50	180	36.0	29.0	43.5	32	6	563.14	**450**
M48x2	2.00	190	36.0	29.0	46.0	32	6	791.47	**482**
M48x3	3.00	225	36.0	29.0	45.0	50	5	811.62	**484**

P	**12**
M	
K	**12**
N	**22**
S	
H	
O	

Continued on next page

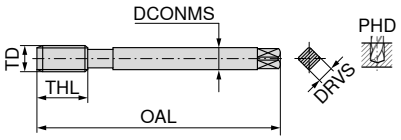
Blind hole – Machine taps, right hand

MF | SL

ST

C
2–3

ISO 2
6H





DIN 374 with reduced shank

HSS-E
15°
≤ 750 N/mm²
≤ 2xD

22 182 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
M45x3	3.00	200	36.0	29.0	42.0	45	5	774.07	**454**
M48x1,5	1.50	190	36.0	29.0	46.5	32	6	659.69	**480**
M52x2	2.00	190	40.0	32.0	50.0	32	6	952.22	**522**

P	**12**
M	
K	**12**
N	**22**
S	
H	
O	

6

Blind hole – Machine taps, right hand

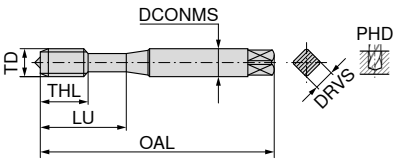
MF | Salo-Rex

VA

E
1,5–2

ISO 2
6H

TiN GS





DIN 371 with reinforced shank

HSS-E
45°
≤ 900 N/mm²
≤ 3xD

22 176 ...

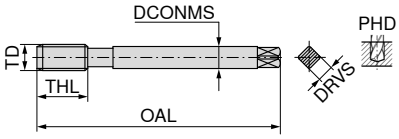
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
M4x0,5	0.50	63	4.5	3.4	3.5	5	21	3	93.64	**040**
M5x0,5	0.50	70	6.0	4.9	4.5	5	25	3	77.33	**050**
M6x0,5	0.50	80	6.0	4.9	5.5	5	30	3	77.33	**060**
M6x0,75	0.75	80	6.0	4.9	5.2	8	30	3	77.33	**062**

P	**10**
M	**8**
K	
N	**22**
S	
H	
O	

DIN 374 can be found on the next page

Blind hole – Machine taps, right hand

MF | Salo-Rex



DIN 374 with reduced shank

		NEW		
NW	NW	VA	VA	
C 2–3	C 2–3	E 1,5–2	E 1,5–2	
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	
vap.	DLC	vap.	TiN GS	
				
HSS-E ◁ 42° ≤ 500 N/mm² ≤ 3xD	HSS-E ◁ 38° ≤ 880 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 750 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 900 N/mm² ≤ 3xD	
22 188 ...	**22 462 ...**	**22 189 ...**	**22 177 ...**	

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M8x1	1.00	90	6	4.9	7.0	10	3	56.89	**081**	57.58	**08000**	56.00	**082**	97.34	**084**
M8x0,75	0.75	80	6	4.9	7.2	8	3							81.31	**082**
M10x1	1.00	90	7	5.5	9.0	10	3	59.49	**100**	62.18	**10000**				
M10x1,25	1.25	100	7	5.5	8.8	16	3			82.87	**10200**				
M10x1	1.00	90	7	5.5	9.0	10	4					65.74	**100**	108.49	**102**
M12x1,25	1.25	100	9	7.0	10.8	15	4			92.26	**12200**				
M12x1,5	1.50	100	9	7.0	10.5	15	4	63.60	**122**	73.64	**12400**				
M12x1,5	1.50	100	9	7.0	10.5	15	5					73.21	**120**	124.01	**124**
M12x1	1.00	100	9	7.0	11.0	11	4	72.77	**120**	74.62	**12000**	86.04	**121**	129.81	**120**
M14x1	1.00	100	11	9.0	13.0	11	4			95.39	**14000**				
M14x1,25	1.25	100	11	9.0	12.8	15	4			96.37	**14200**				
M14x1,5	1.50	100	11	9.0	12.5	15	4	93.64	**140**	94.31	**14400**				
M14x1,5	1.50	100	11	9.0	12.5	15	5					90.01	**140**	158.18	**144**
M16x1	1.00	100	12	9.0	15.0	12	4			109.87	**16000**				
M16x1,5	1.50	100	12	9.0	14.5	15	4	100.53	**160**	108.81	**16200**				
M16x1,5	1.50	100	12	9.0	14.5	15	5					109.37	**160**	183.52	**162**
M18x1,5	1.50	110	14	11.0	16.5	17	5							222.39	**182**
M18x1,5	1.50	110	14	11.0	16.5	17	4	142.46	**180**						
M20x1,5	1.50	125	16	12.0	18.5	17	5					152.52	**200**	275.03	**202**
M20x1,5	1.50	125	16	12.0	18.5	17	4	129.05	**200**						
M26x1,5	1.50	140	18	14.5	24.5	20	6					363.02	**260**		
M28x1,5	1.50	140	20	16.0	26.5	20	6					427.80	**280**		
M30x1,5	1.50	150	22	18.0	28.5	22	6					420.70	**300**		
P									**15**				**8**		**10**
M													**6**		**8**
K															
N									**22**		**15**		**22**		**22**
S															
H															
O															

6

Blind hole – Machine taps, right hand

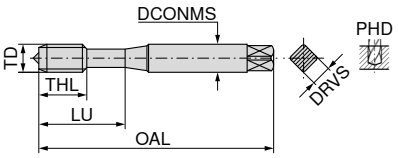
MF

UNI

C
2–3

ISO 2
6H

TiN



DIN 374 with reinforced shank



HSS-PM
40°
≤ 1000 N/mm²
≤ 2,5xD

23 047 ...

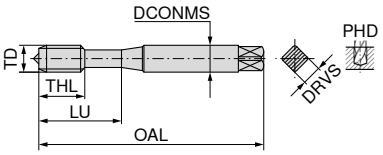
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9	
M8x1	1.00	90	6	4.9	7.0	10	35	3	21.04	**081**
M10x1	1.00	90	7	5.5	9.0	10	35	4	27.50	**102**
M10x1,25	1.25	100	7	5.5	8.8	16	39	4	26.80	**104**
M12x1	1.00	100	9	7.0	11.0	11	40	4	31.26	**120**
M12x1,25	1.25	100	9	7.0	10.8	15	40	5	34.08	**122**
M12x1,5	1.50	100	9	7.0	10.5	15	40	5	30.31	**121**
M14x1	1.00	100	11	9.0	12.8	11	40	4	36.55	**140**
M14x1,5	1.50	100	11	9.0	12.5	15	40	5	35.85	**144**
M16x1,5	1.50	100	12	9.0	14.5	15	44	5	46.42	**162**
M18x1,5	1.50	110	14	11.0	16.5	17	44	5	60.41	**182**
M20x1,5	1.50	125	16	12.0	18.5	17	44	5	68.97	**202**
M22x1,5	1.50	125	18	14.5	20.5	17	44	5	75.92	**222**
M24x1,5	1.50	140	18	14.5	22.5	20	48	5	77.31	**242**
M24x2	2.00	140	18	14.5	22.0	20	48	5	90.02	**244**

P	**15**
M	**9**
K	**18**
N	**12**
S	
H	
O	

Blind hole – Machine taps, right hand

▲ NC = for synchronised CNC machining with minimum length compensation chuck

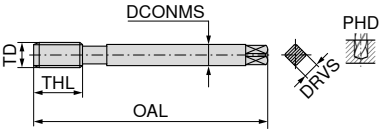
MF



DIN 371 with reinforced shank

	UNI	UNI	UNI NC	FE
	C 2–3	C 2–3	E 1,5–2	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	vap.	TiN	TiN GS	
				
	HSS-E ◁ 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E ◁ 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E ◁ 45° ≤ 1000 N/mm² ≤ 3xD	HSS-E ◁ 35° ≤ 850 N/mm² ≤ 2,5xD
	23 144 ...	**23 146 ...**	**23 148 ...**	**23 242 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9		£ T9		£ T9		£ T9	
M4x0,5	0.50	63	4.5	3.4	3.5	5	21	3	40.13	040	45.78	040			22.75	040
M5x0,5	0.50	70	6.0	4.9	4.5	5	25	3	40.13	050	45.78	050	48.78	050	23.22	050
M6x0,5	0.50	80	6.0	4.9	5.5	5	30	3	40.13	060	52.24	060	63.76	060	23.22	060
M6x0,75	0.75	80	6.0	4.9	5.2	8	30	3	40.13	062	52.24	062	63.76	062	22.75	062



DIN 374 with reduced shank

								23 145 ...		**23 147 ...**		**23 149 ...**		**23 243 ...**	
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ T9		£ T9		£ T9		£ T9	
M4x0,5	0.50	63	2.8	2.1	3.5	5	3	14.81	040						
M5x0,5	0.50	70	3.5	2.7	4.5	5	3	14.81	050						
M6x0,75	0.75	80	4.5	3.4	5.2	8	3	15.75	062						
M8x1	1.00	90	6.0	4.9	7.0	10	3	13.04	084	52.24	084	63.76	084	24.84	084
M8x0,75	0.75	80	6.0	4.9	7.2	8	3	17.86	082	55.68	082	68.03	082	26.34	082
M8x0,5	0.50	80	6.0	8.0	7.5	6	3							56.00	080
M10x1,25	1.25	100	7.0	5.5	8.8	16	3	15.15	104	75.33	104			53.09	104
M10x1	1.00	90	7.0	5.5	9.0	10	3	13.64	102	59.49	102			28.88	102
M10x1	1.00	90	7.0	5.5	9.0	10	4					73.63	102		
M10x0,75	0.75	90	7.0	5.5	9.2	10	4	28.79	100	86.32	100			61.62	100
M12x1,25	1.25	100	9.0	7.0	10.8	15	4	21.62	122	84.96	122			59.49	122
M12x1,5	1.50	100	9.0	7.0	10.5	15	4	16.21	124	67.59	124			32.18	124
M12x1,5	1.50	100	9.0	7.0	10.5	15	5					81.01	124		
M12x1	1.00	100	9.0	7.0	11.0	11	4	18.33	120	69.87	120	83.64	120	34.03	120
M14x1,5	1.50	100	11.0	9.0	12.5	15	4	21.97	144	84.96	144			40.13	144
M14x1,5	1.50	100	11.0	9.0	12.5	15	5					103.89	144		
M14x1	1.00	100	11.0	9.0	13.0	11	4	24.20	140	91.22	140			59.49	140
M16x1,5	1.50	100	12.0	9.0	14.5	15	4	25.15	162	100.05	162			50.79	162
M16x1,5	1.50	100	12.0	9.0	14.5	15	5					115.93	162		
M16x1	1.00	100	12.0	9.0	15.0	12	4	25.97	160	100.05	160			68.69	160
M18x1,5	1.50	110	14.0	11.0	16.5	17	4	34.90	182	114.46	182			65.90	182
M18x1,5	1.50	110	14.0	11.0	16.5	17	5					146.74	182		
M20x1,5	1.50	125	16.0	12.0	18.5	17	5					192.18	202		
M20x1,5	1.50	125	16.0	12.0	18.5	17	4	32.09	202	148.27	202			73.52	202
M22x1,5	1.50	125	18.0	14.5	20.5	17	4	47.60	222	165.05	222			85.12	222
M24x1,5	1.50	140	18.0	14.5	22.5	20	5	51.94	242	176.18	242			99.14	242

P	12	15	15	12
M	7	9	9	
K	12	18	18	12
N		12	12	22
S				
H				
O				

6

Blind hole – Machine taps, right hand

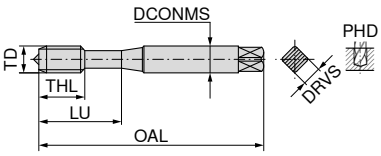
MF

VA

E
1,5–2

ISO 2
6H

TiN



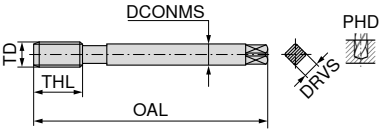
DIN 371 with reinforced shank



HSS-E
∢ 45°
≤ 1200 N/mm²
≤ 3xD

23 442 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9	
M5x0,5	0.50	70	6	4.9	4.5	5	25	3	45.32	**050**
M6x0,75	0.75	80	6	4.9	5.2	8	30	3	52.24	**062**



DIN 374 with reduced shank

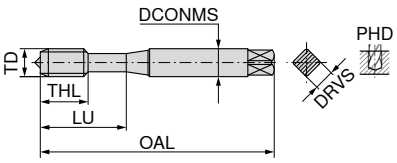
23 443 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ T9	
M8x1	1.00	90	6	4.9	7.0	10	3	52.24	**084**
M8x0,75	0.75	80	6	4.9	7.2	8	3	55.68	**082**
M10x1	1.00	90	7	5.5	9.0	10	4	59.96	**102**
M12x1	1.00	100	9	7.0	11.0	11	4	70.17	**120**
M12x1,5	1.50	100	9	7.0	10.5	15	5	67.59	**124**
M14x1,5	1.50	100	11	9.0	12.5	15	5	85.61	**144**
M16x1,5	1.50	100	12	9.0	14.5	15	5	96.52	**162**

P	**10**
M	**8**
K	
N	**24**
S	
H	
O	

Through hole / Blind hole – Machine taps, right hand

MF TWIN



DIN 371 with reinforced shank

	ST	HR	HT
	C 2–3	C 2–3	D 4–5
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
		nitr.	OSM



	HSS-E	HSS-E	Solid carbide
	0° ≤ 750 N/mm² ≤ 2xD	0° ≤ 1400 N/mm² ≤ 2xD	0° ≤ 63 HRC ≤ 1,5xD
	22 144 ...	**22 146 ...**	**22 817 ...**
	£ U0	£ U0	£ U0

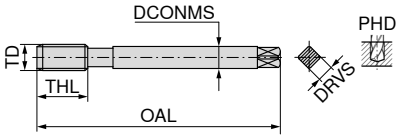
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes					
M4x0,5	0.50	63	4.5	3.4	3.5	10	21	3	54.62	**040**	61.62	**040**	
M5x0,5	0.50	70	6.0	4.9	4.5	11	25	3	54.62	**050**	61.62	**050**	
M6x0,5	0.50	80	6.0	4.9	5.5	13	30	3	54.62	**060**	61.62	**060**	
M6x0,75	0.75	80	6.0	4.9	5.2	13	30	3	54.62	**062**	61.62	**062**	
M8x1	1.00	90	8.0	6.2	7.0	17	35	3	54.62	**084**			
M8x1	1.00	90	8.0	6.2	7.1	15	35	5					423.89 **080**
M10x1	1.00	100	10.0	8.0	9.1	18	38	5					537.67 **100**
M10x1	1.00	90	10.0	8.0	9.0	18	35	4	54.62	**104**			
M12x1,5	1.50	110	12.0	9.0	10.6	21	41	5					627.80 **120**
M14x1,5	1.50	110	14.0	11.0	12.6	24	44	6					733.96 **140**
M16x1,5	1.50	110	16.0	12.0	14.6	24	44	6					835.72 **160**

P	**12**	**6**	
M			
K	**12**	**16**	
N	**22**	**22**	
S			
H			**2**
O			

DIN 374 can be found on the next page

Through hole / Blind hole – Machine taps, right hand

MF | TWIN



DIN 374 with reduced shank

	ST	HR	GG
	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
		nitr.	nitr.



	HSS-E	HSS-E	HSS-E
	0° ≤ 750 N/mm² ≤ 2xD	0° ≤ 1400 N/mm² ≤ 2xD	0° ≤ 1050 N/mm² ≤ 2xD
	22 171 ...	22 209 ...	22 173 ...

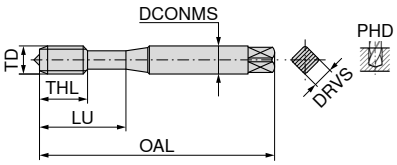
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0		£ U0	
M4x0,5	0.50	63	2.8	2.1	3.5	10	3	42.81	042				
M5x0,5	0.50	70	3.5	2.7	4.5	11	3	52.94	050			49.29	050
M6x0,75	0.75	80	4.5	3.4	5.2	13	3	48.49	062			53.83	062
M6x0,5	0.50	80	4.5	3.4	5.5	13	3	48.65	060			61.92	060
M8x0,75	0.75	80	6.0	4.9	7.2	14	3	54.46	082			94.44	080
M8x1	1.00	90	6.0	4.9	7.0	17	3	43.25	084	61.62	082	94.44	082
M10x1	1.00	90	7.0	5.5	9.0	18	4	45.32	104	61.62	100	53.09	100
M10x1,25	1.25	100	7.0	5.5	8.8	22	3	53.83	106				
M10x0,75	0.75	90	7.0	5.5	9.2	18	4	70.32	102				
M11x1	1.00	90	8.0	6.2	10.0	18	4	79.15	110				
M12x1	1.00	100	9.0	7.0	11.0	18	4	51.63	122			62.10	120
M12x1,25	1.25	100	9.0	7.0	10.8	22	4	64.54	124				
M12x1,5	1.50	100	9.0	7.0	10.5	22	4	51.63	126	72.59	120	57.61	124
M14x1	1.00	100	11.0	9.0	13.0	18	4	79.15	140			90.13	140
M14x1,25	1.25	100	11.0	9.0	12.8	22	4	73.21	142				
M14x1,5	1.50	100	11.0	9.0	12.5	22	4	75.96	144	94.44	140	81.91	142
M16x1	1.00	100	12.0	9.0	15.0	18	5	81.91	160				
M16x1,5	1.50	100	12.0	9.0	14.5	22	4	73.63	162	103.29	160	83.64	160
M18x1	1.00	110	14.0	11.0	17.0	20	5	106.77	180				
M18x2	2.00	125	14.0	11.0	16.0	26	4	119.46	184				
M18x1,5	1.50	110	14.0	11.0	16.5	25	4	98.71	182	120.46	180	113.80	180
M20x1	1.00	125	16.0	12.0	19.0	20	5	115.93	200				
M20x2	2.00	140	16.0	12.0	18.0	27	4	149.65	204				
M20x1,5	1.50	125	16.0	12.0	18.5	25	4	108.16	202	154.35	200	120.35	200
M24x2	2.00	140	18.0	14.5	22.0	27	4	147.64	244				
M22x2	2.00	140	18.0	14.5	20.0	27	4	164.72	224				
M22x1	1.00	125	18.0	14.5	21.0	20	5	159.55	220				
M24x1	1.00	140	18.0	14.5	23.0	20	6	183.33	240				
M26x1,5	1.50	140	18.0	14.5	24.5	28	4	184.57	260			179.83	260
M24x1,5	1.50	140	18.0	14.5	22.5	27	4	129.05	242			146.41	240
M25x1,5	1.50	140	18.0	14.5	23.5	28	4	238.55	250				
M22x1,5	1.50	125	18.0	14.5	20.5	25	4	115.93	222			127.98	220
M28x1,5	1.50	140	20.0	16.0	26.5	28	5					213.21	280
M27x2	2.00	140	20.0	16.0	25.0	28	4	200.28	274				
M27x1,5	1.50	140	20.0	16.0	25.5	28	5	213.85	272				
M30x2	2.00	150	22.0	18.0	28.0	28	4	250.15	302				
M32x2	2.00	150	22.0	18.0	30.0	28	5	345.35	322				
M32x1,5	1.50	150	22.0	18.0	30.5	28	6	249.53	320				
M30x1,5	1.50	150	22.0	18.0	28.5	28	5	206.83	300			234.15	300
M33x2	2.00	160	25.0	20.0	31.0	30	5	281.73	332				
M36x2	2.00	170	28.0	22.0	34.0	30	5	346.70	362				
M36x1,5	1.50	170	28.0	22.0	34.5	30	6	309.94	360				
M35x1,5	1.50	170	28.0	22.0	33.5	30	6	385.90	350				
M42x1,5	1.50	170	32.0	24.0	40.5	30	6	455.15	420				
M42x3	3.00	200	32.0	24.0	39.0	45	5	552.30	424				
M40x2	2.00	170	32.0	24.0	38.0	30	6	400.40	402				
M50x1,5	1.50	190	36.0	29.0	48.5	32	8	585.24	500				
M52x1,5	1.50	190	40.0	32.0	50.5	32	8	671.74	520				
P									12		6		
M													
K									12		16		15
N									22		22		22
S													
H													
O													

Through Hole / Blind Hole – Machine taps

▲ ES = extra short

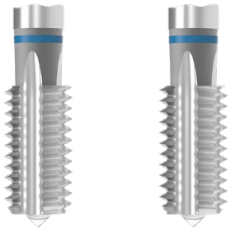
▲ LH = for left hand threads; ES = extra short

MF | TWIN



DIN 2181 with reinforced shank

	ST ES	ST LH/ES
	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX



	HSS-E	HSS-E
	0° ≤ 750 N/mm² ≤ 2xD	0° ≤ 750 N/mm² ≤ 2xD
	22 179 ...	22 200 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0	
M2,5x0,35	0.35	40	2.8	2.1	2.15	9		3	82.06	025		
M3x0,35	0.35	40	3.5	2.7	2.65	8	18	3	52.68	030		
M4x0,35	0.35	45	4.5	3.4	3.65	9	22	3	76.28	040		
M4x0,5	0.50	45	4.5	3.4	3.50	9	22	3	52.68	042		
M4,5x0,5	0.50	50	6.0	4.9	4.00	10	24	3	88.46	045		
M5x0,5	0.50	50	6.0	4.9	4.50	11	25	3	52.68	050		
M6x0,5	0.50	56	6.0	4.9	5.50	12	27	3	54.62	060		
M6x0,75	0.75	56	6.0	4.9	5.20	12	27	3	52.68	062	72.59	062
M7x0,75	0.75	56	6.0	4.9	6.20	14		3	59.67	070		
M8x0,5	0.50	56	6.0	4.9	7.50	14		4	72.59	080		
M8x0,75	0.75	56	6.0	4.9	7.20	14		3	59.67	082		
M8x1	1.00	63	6.0	4.9	7.00	17		3	52.68	084	72.59	084
M9x1	1.00	63	7.0	5.5	8.00	17		4	72.59	090		
M10x0,75	0.75	63	7.0	5.5	9.20	18		4	78.26	100		
M10x1	1.00	63	7.0	5.5	9.00	18		4	54.62	102	76.28	102
M10x1,25	1.25	70	7.0	5.5	8.80	22		3	71.85	104		
M11x1	1.00	63	8.0	6.2	10.00	18		4	86.32	110		
M12x1	1.00	70	9.0	7.0	11.00	18		4	64.66	120	90.54	120
M12x1,25	1.25	70	9.0	7.0	10.80	20		4	72.59	122		
M12x1,5	1.50	70	9.0	7.0	10.50	20		4	62.71	124	88.46	124
M13x1	1.00	70	11.0	9.0	12.00	18		4	94.57	130		
M14x1	1.00	70	11.0	9.0	13.00	18		4	86.32	140		
M14x1,25	1.25	70	11.0	9.0	12.80	20		4	86.32	142		
M14x1,5	1.50	70	11.0	9.0	12.50	20		4	82.06	144	116.84	144
M15x1	1.00	70	12.0	9.0	14.00	18		5	105.12	150		
M16x1	1.00	70	12.0	9.0	15.00	18		5	98.25	160		
M16x1,5	1.50	70	12.0	9.0	14.50	20		4	90.54	162	127.82	162
M18x1	1.00	80	14.0	11.0	17.00	18		5	127.82	180		
M18x1,5	1.50	80	14.0	11.0	16.50	22		4	107.23	182	147.39	182
M18x2	2.00	80	14.0	11.0	16.00	22		4	127.82	184		
M20x1,5	1.50	80	16.0	12.0	18.50	22		4	124.78	202	172.66	202
M20x2	2.00	80	16.0	12.0	18.00	22		4	135.62	204		

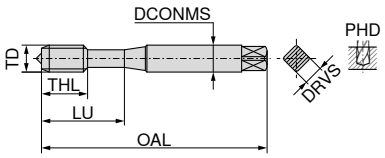
P	12	12
M		
K	12	12
N	22	22
S		
H		
O		

6

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

MF | Spanlos



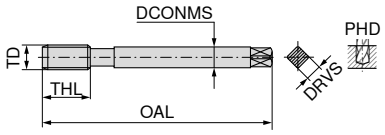
DIN 2174 with reinforced shank



HSS-E
≤ 1100 N/mm²
≤ 1,5xD

HSS-E
≤ 1100 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 204 ... £ U0		22 205 ... £ U0	
M4x0,5	0.50	63	4.5	3.4	3.8	10	21		116.84	040		
M4x0,5	0.50	63	4.5	3.4	3.8	10	21	4			131.65	040
M5x0,5	0.50	70	6.0	4.9	4.8	11	25		100.36	050		
M5x0,5	0.50	70	6.0	4.9	4.8	11	25	4			116.84	050
M6x0,5	0.50	80	6.0	4.9	5.8	13	30		116.84	060		
M6x0,5	0.50	80	6.0	4.9	5.8	13	30	5			131.65	060
M6x0,75	0.75	80	6.0	4.9	5.7	13	30		92.74	062		
M6x0,75	0.75	80	6.0	4.9	5.7	13	30	4			105.12	062
M8x0,75	0.75	80	8.0	6.2	7.7	14	30		120.46	080		
M8x0,75	0.75	80	8.0	6.2	7.7	14	30	5			116.84	080
M8x1	1.00	90	8.0	6.2	7.6	17	35		111.03	082		
M8x1	1.00	90	8.0	6.2	7.6	17	35	5			124.78	082
M10x1	1.00	90	10.0	8.0	9.6	18	35		105.12	100		
M10x1	1.00	90	10.0	8.0	9.6	18	35	5			115.04	100



DIN 2174 with reduced shank

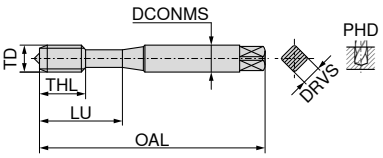
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 196 ... £ U0		22 197 ... £ U0	
M12x1	1.0	100	9	7	11.60	18		99.31	120		
M12x1	1.0	100	9	7	11.60	18	6			103.22	120
M12x1,5	1.5	100	9	7	11.35	22		93.48	124		
M12x1,5	1.5	100	9	7	11.35	22	6			108.92	124
M14x1,5	1.5	100	11	9	13.35	22		146.41	140		
M14x1,5	1.5	100	11	9	13.35	22	6			152.23	140
M16x1,5	1.5	100	12	9	15.35	22		149.94	160		
M16x1,5	1.5	100	12	9	15.35	22	6			163.08	160
M20x1,5	1.5	125	16	12	19.35	25		211.26	200		
M20x1,5	1.5	125	16	12	19.35	25	6			223.78	200

P	18	18
M	10	10
K	10	10
N	22	22
S		
H		
O		

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

MF



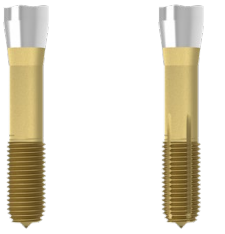
DIN 2174 with reinforced shank

UNI | UNI SN

C 2–3

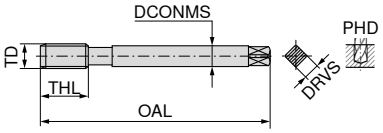
ISO 2X 6HX

TiN



HSS-E
≤ 850 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 840 ... £ T9		23 842 ... £ T9	
M4x0,5	0.50	63	4.5	3.4	3.80	10	21		65.13	040		
M4x0,5	0.50	63	4.5	3.4	3.80	10	21	4			72.90	040
M5x0,5	0.50	70	6.0	4.9	4.80	11	25		55.21	050		
M5x0,5	0.50	70	6.0	4.9	4.80	11	25	4			64.66	050
M6x0,5	0.50	80	6.0	4.9	5.80	13	30		65.13	060		
M6x0,5	0.50	80	6.0	4.9	5.80	13	30	5			73.40	060
M8x1	1.00	90	8.0	6.2	7.60	17	35		62.71	084		
M8x1	1.00	90	8.0	6.2	7.60	17	35	5			69.87	084
M10x1	1.00	90	10.0	8.0	9.60	18	35		71.41	102		
M10x1	1.00	90	10.0	8.0	9.60	18	35	5			77.50	102
M10x1,25	1.25	100	10.0	8.0	9.45	18	39		84.96	104		
M10x1,25	1.25	100	10.0	8.0	9.45	18	39	5			94.44	104



DIN 2174 with reduced shank

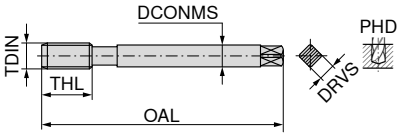
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 841 ... £ T9		23 843 ... £ T9	
M12x1,25	1.25	100	9	7	11.45	22		91.22	122		
M12x1,25	1.25	100	9	7	11.45	22	6			103.11	122
M12x1,5	1.50	100	9	7	11.35	22		82.53	124		
M12x1,5	1.50	100	9	7	11.35	22	6			92.00	124
M14x1,5	1.50	100	11	9	13.35	22		102.21	144		
M14x1,5	1.50	100	11	9	13.35	22	6			114.25	144
M16x1,5	1.50	100	12	9	15.35	22		114.46	162		
M16x1,5	1.50	100	12	9	15.35	22	6			133.18	162

P	18	18
M	10	10
K	10	10
N	22	22
S		
H		
O		

6

Through hole – Machine taps, right hand

G | Stabil



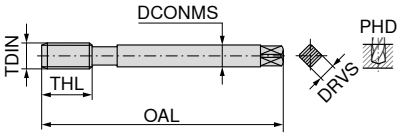
DIN 5156 with reduced shank

	UNI	UNI	ST	NW	VA
				NEW	
	B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 228	ISO 228	ISO 228	ISO 228	ISO 228
	nitr. + vap.	TiN		DLC	nitr.
					
	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 750 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 880 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 900 N/mm² ≤ 4xD
	22 632 ...	**22 630 ...**	**22 346 ...**	**22 467 ...**	**22 352 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0		£ U0		£ U0		£ U0	
1/8-28	0.907	90	7	5.5	8.80	18	3	65.49	**012**	107.23	**012**	52.31	**012**	58.71	**01200**	65.09	**012**
1/4-19	1.337	100	11	9.0	11.80	22	3	86.87	**025**	141.57	**025**	69.59	**025**	78.49	**02500**	85.62	**025**
3/8-19	1.337	100	12	9.0	15.25	22	3	107.85	**037**	163.97	**037**	83.60	**037**	100.73	**03700**	108.16	**037**
1/2-14	1.814	125	16	12.0	19.00	25	4	138.22	**050**	253.37	**050**	116.40	**050**	134.01	**05000**	142.46	**050**
3/4-14	1.814	140	20	16.0	24.50	28	4	230.06	**075**			186.86	**075**	212.40	**07500**	211.26	**075**
1-11	2.309	160	25	20.0	30.75	30	4	342.80	**100**			265.57	**100**	312.57	**10000**	326.42	**100**
P									**12**		**15**		**12**				**8**
M									**7**		**9**						**6**
K									**12**		**18**		**12**				
N											**12**		**22**		**15**		**22**
S																	
H																	
O																	

Through hole – Machine taps, right hand

G



DIN 5156 with reduced shank

UNI	UNI
B 4–5	B 4–5
ISO 228	ISO 228
nitr. + vap.	TiN





HSS-E
0°
≤ 1100 N/mm²
≤ 3xD

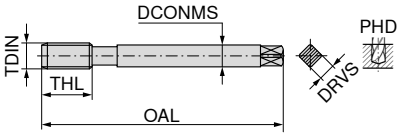
HSS-E
0°
≤ 1100 N/mm²
≤ 3xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 161 ... £ T9		23 160 ... £ T9	
1/8-28	0.907	90	7	5.5	8.80	18	3	40.27	**012**	59.19	**012**
1/4-19	1.337	100	11	9.0	11.80	22	3	54.17	**025**	78.26	**025**
3/8-19	1.337	100	12	9.0	15.25	22	3	69.11	**037**	92.00	**037**
1/2-14	1.814	125	16	12.0	19.00	25	4	90.54	**050**	141.24	**050**
3/4-14	1.814	140	20	16.0	24.50	28	4	147.98	**075**	184.25	**075**
1-11	2.309	160	25	20.0	30.75	30	4	201.81	**100**	341.22	**100**

P	**12**	**15**
M	**7**	**9**
K	**12**	**18**
N		**12**
S		
H		
O		

Blind hole – Machine taps, right hand

G | Salo-Rex



DIN 5156 with reduced shank

	UNI	UNI	UNI	UNI	UNI
	C 2–3	C 2–3	E 1,5–2	E 1,5–2	E 1,5–2
	ISO 228	ISO 228	ISO 228	ISO 228	ISO 228 +0,05
	vap.	TiN	vap.	TiN	vap.
					
	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD
	22 633 ...	**22 634 ...**	**22 635 ...**	**22 636 ...**	**22 639 ...**

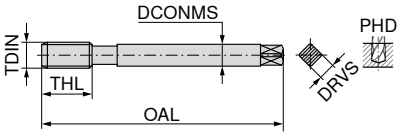
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0		£ U0		£ U0		£ U0	
1/8-28	0.907	90	7	5.5	8.80	10	3	64.87	**012**	96.09	**012**						
1/8-28	0.907	90	7	5.5	8.80	10	4					66.66	**012**	96.09	**012**	105.12	**012**
1/4-19	1.337	100	11	9.0	11.80	15	4	93.00	**025**	122.02	**025**						
1/4-19	1.337	100	11	9.0	11.80	15	5					89.48	**025**	122.02	**025**	136.93	**025**
3/8-19	1.337	100	12	9.0	15.25	15	4	112.93	**037**	170.68	**037**						
3/8-19	1.337	100	12	9.0	15.25	15	5					109.94	**037**	170.68	**037**	169.77	**037**
1/2-14	1.814	125	16	12.0	19.00	17	4	149.26	**050**	241.92	**050**						
1/2-14	1.814	125	16	12.0	19.00	17	5					142.46	**050**	241.92	**050**	221.94	**050**
5/8-14	1.814	125	18	14.5	21.00	17	4	185.04	**062**								
3/4-14	1.814	140	20	16.0	24.50	20	4	231.55	**075**								
3/4-14	1.814	140	20	16.0	24.50	20	5									331.76	**075**
7/8-14	1.814	150	22	18.0	28.25	22	5	316.23	**087**								
1-11	2.309	160	25	20.0	30.75	24	5	356.82	**100**								
1-11	2.309	160	25	20.0	30.75	24	6									506.39	**100**
1 1/4-11	2.309	170	32	24.0	39.50	25	6	561.52	**125**								
1 1/2-11	2.309	190	36	29.0	45.25	27	6	803.02	**150**								

P	**12**	**15**	**12**	**15**	**12**
M	**7**	**9**	**7**	**9**	**7**
K	**12**	**18**	**12**	**18**	**12**
N		**12**		**12**	
S					
H					
O					

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

G | Salo-Rex



DIN 5156 with reduced shank

	UNI CNC	ST	NW (NEW)	VA	VA
	E	C	C	E	E
	1,5–2	2–3	2–3	1,5–2	1,5–2
	ISO 228	ISO 228	ISO 228	ISO 228	ISO 228
	TiN GS		DLC	vap.	TiN GS
					
	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 45°	◁ 42°	◁ 36°	◁ 42°	◁ 45°
	≤ 1100 N/mm²	≤ 750 N/mm²	≤ 880 N/mm²	≤ 900 N/mm²	≤ 900 N/mm²
	≤ 3xD	≤ 3xD	≤ 2,5xD	≤ 3xD	≤ 3xD
	22 624 ...	**22 354 ...**	**22 463 ...**	**22 355 ...**	**22 358 ...**

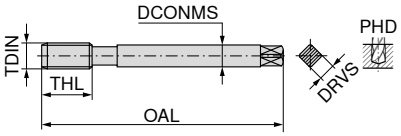
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0		£ U0		£ U0		£ U0	
1/8-28	0.907	90	7	5.5	8.80	10	3			59.67	012	65.32	01200			118.06	012
1/8-28	0.907	90	7	5.5	8.80	10	4	116.40	012					67.12	012		
1/4-19	1.337	100	11	9.0	11.80	15	4			81.91	025	94.31	02500				
1/4-19	1.337	100	11	9.0	11.80	15	5	153.14	025					91.08	025	155.13	025
3/8-19	1.337	100	12	9.0	15.25	15	4			100.53	037	112.42	03700				
3/8-19	1.337	100	12	9.0	15.25	15	5	180.76	037					109.37	037	183.52	037
1/2-14	1.814	125	16	12.0	19.00	17	4			129.05	050	143.57	05000				
1/2-14	1.814	125	16	12.0	19.00	17	5	271.19	050					148.55	050	275.03	050
5/8-14	1.814	125	18	14.5	21.00	17	5							204.26	062		
3/4-14	1.814	140	20	16.0	24.50	20	4			205.92	075	228.95	07500				
3/4-14	1.814	140	20	16.0	24.50	20	5							229.26	075		
1-11	2.309	160	25	20.0	30.75	24	5			318.50	100	366.78	10000				
1-11	2.309	160	25	20.0	30.75	24	6							353.72	100		

P	15	12		8	10
M	9			6	8
K	18	12			
N	12	22	15	22	22
S					
H					
O					

6

Blind hole – Machine taps, right hand

G



DIN 5156 with reduced shank

UNI
C
2–3
ISO 228
vap.



HSS-E
◁ 35°
≤ 1100 N/mm²
≤ 2,5xD

UNI
C
2–3
ISO 228
TiN



HSS-E
◁ 35°
≤ 1100 N/mm²
≤ 2,5xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 163 ... £ T9		23 162 ... £ T9	
1/8-28	0.907	90	7	5.5	8.80	10	3	45.44	**012**	61.62	**012**
1/4-19	1.337	100	11	9.0	11.80	15	4	59.72	**025**	84.96	**025**
3/8-19	1.337	100	12	9.0	15.25	15	4	76.28	**037**	100.05	**037**
1/2-14	1.814	125	16	12.0	19.00	17	4	95.01	**050**	150.55	**050**
3/4-14	1.814	140	20	16.0	24.50	20	4	157.88	**075**	193.86	**075**
1-11	2.309	160	25	20.0	30.75	24	5	238.73	**100**	374.76	**100**

P	**12**	**15**
M	**7**	**9**
K	**12**	**18**
N		**12**
S		
H		
O		

Through hole / Blind hole – Machine taps, right hand

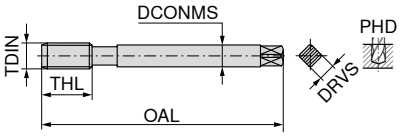
G | TWIN

ST | HR

C 2–3 | C 2–3

ISO 228 X | ISO 228 X

nitr.







DIN 5156 with reduced shank

HSS-E
∢ 0°
≤ 750 N/mm²
≤ 2xD

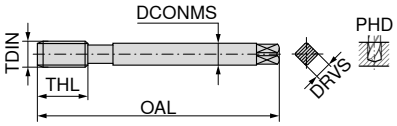
HSS-E
∢ 0°
≤ 1400 N/mm²
≤ 2xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 347 ... £ U0		22 339 ... £ U0	
1/16-28	0.907	90	6	4.9	6.80	17	3	59.72	**006**		
1/8-28	0.907	90	7	5.5	8.80	18	4	55.68	**012**	64.66	**012**
1/4-19	1.337	100	11	9.0	11.80	22	4	68.36	**025**	88.46	**025**
3/8-19	1.337	100	12	9.0	15.25	22	4	82.98	**037**	111.04	**037**
1/2-14	1.814	125	16	12.0	19.00	25	4	113.80	**050**	152.23	**050**
3/4-14	1.814	140	20	16.0	24.50	28	4	173.89	**075**	237.65	**075**
1-11	2.309	160	25	20.0	30.75	30	5	266.78	**100**	327.79	**100**
1 1/8-11	2.309	170	28	22.0	35.50	30	5	379.65	**112**	463.24	**112**
1 1/4-11	2.309	170	32	24.0	39.50	30	6	439.59	**125**	549.57	**125**
1 3/8-11	2.309	180	36	29.0	41.75	32	6	539.02	**137**	682.86	**137**
1 1/2-11	2.309	190	36	29.0	45.25	32	6	595.33	**150**	761.11	**150**
1 3/4-11	2.309	190	40	32.0	51.00	32	6			1,020.10	**175**
P									**12**		**6**
M											
K									**12**		**16**
N									**22**		**22**
S											
H											
O											

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

G | Spanlos



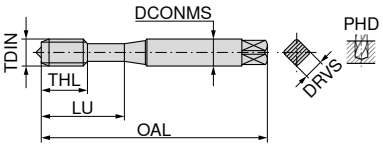
DIN 2189 with reduced shank

	EC	EC SN
	C 2–3	C 2–3
	ISO 228	ISO 228
	TiN	TiN
		
	HSS-E ≤ 1100 N/mm² ≤ 1,5xD	HSS-E ≤ 1100 N/mm² ≤ 3xD
	22 360 ...	**22 359 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0	
1/8-28	0.907	90	7	5.5	9.25	18		95.49	**012**		
1/8-28	0.907	90	7	5.5	9.25	18	5			108.45	**012**
1/4-19	1.337	100	11	9.0	12.55	22		122.80	**025**		
1/4-19	1.337	100	11	9.0	12.55	22	6			138.51	**025**
3/8-19	1.337	100	12	9.0	16.05	22		165.51	**037**		
3/8-19	1.337	100	12	9.0	16.05	22	6			185.46	**037**
1/2-14	1.814	125	16	12.0	20.10	25		222.54	**050**		
1/2-14	1.814	125	16	12.0	20.10	25	6			249.53	**050**
P									**18**		**18**
M									**10**		**10**
K									**10**		**10**
N									**22**		**22**
S											
H											
O											

Through hole – Machine taps, right hand

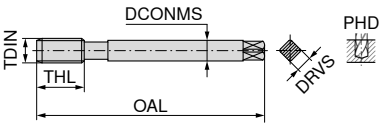
UNC | Stabil



DIN 371 with reinforced shank

	VA	Ti	UNI
	B 4–5	B 4–5	B 4–5
	2B	2BX	2B
	nitr.	TiN	nitr. + vap.
			
	HSS-E	HSS-PM	HSS-E
	0° ≤ 900 N/mm² ≤ 4xD	0° ≤ 44 HRC ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD
	22 250 ...	**22 269 ...**	**22 572 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0	
Nr. 2-56	0.454	45	2.8	2.1	1.85	7	12	2					87.24	**002**
Nr. 4-40	0.635	56	3.5	2.7	2.35	11	18	2					48.05	**004**
Nr. 4-40	0.635	56	3.5	2.7	2.35	11	18	3			108.52	**004**		
Nr. 6-32	0.794	56	4.0	3.0	2.85	12	20	3	41.75	**006**	97.35	**006**	40.76	**006**
Nr. 8-32	0.794	63	4.5	3.4	3.50	13	21	3	41.34	**008**	97.35	**008**	41.17	**008**
Nr. 10-24	1.058	70	6.0	4.9	3.90	15	25	3	41.17	**010**	104.01	**010**	44.52	**010**
Nr. 12-24	1.058	80	6.0	4.9	4.50	16	30	3					53.82	**012**
1/4-20	1.270	80	7.0	5.5	5.10	17	30	3	52.24	**025**	108.52	**025**	46.96	**025**
5/16-18	1.411	90	8.0	6.2	6.60	20	35	3	53.54	**031**	116.94	**031**	55.97	**031**
3/8-16	1.588	100	10.0	8.0	8.00	22	39	3	54.46	**037**	137.59	**037**	61.76	**037**



DIN 376 with reduced shank

22 573 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
1/2-13	1.954	110	9	7.0	10.80	25	3	75.75	**050**
5/8-11	2.309	110	12	9.0	13.50	27	3	103.22	**062**
3/4-10	2.540	125	14	11.0	16.50	30	3	126.88	**075**
7/8-9	2.822	140	18	14.5	19.50	32	3	163.16	**087**
1-8	3.175	160	18	14.5	22.25	36	3	209.65	**100**

P	**8**	**7**	**12**
M	**6**	**7**	**7**
K			**12**
N	**22**		
S		**5**	
H			
O			

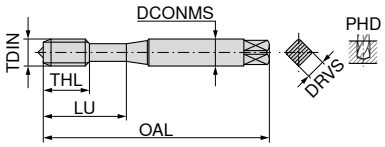
6

Through hole – Machine taps, right hand

UNC

UNI	FE-HF	VA
B 4–5	B 4–5	B 4–5
2B	2B	2B
TiN	TiCN	nitr.

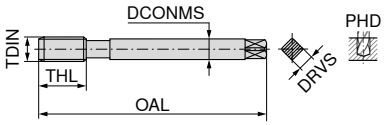




DIN 371 with reinforced shank

HSS-E
0°
≤ 1000 N/mm²
≤ 3xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 170 ... £ T9		23 370 ... £ T9		23 470 ... £ T9	
Nr. 4-40	0.635	56	3.5	2.7	2.30	11	18	2	31.73	**004**	34.03	**004**	30.68	**004**
Nr. 6-32	0.794	56	4.0	3.0	2.85	12	20	3	30.68	**006**	32.32	**006**	27.84	**006**
Nr. 8-32	0.794	63	4.5	3.4	3.50	13	21	3	30.68	**008**	32.32	**008**	27.24	**008**
Nr. 10-24	1.058	70	6.0	4.9	3.90	15	25	3	31.73	**010**	34.17	**010**	30.68	**010**
1/4-20	1.270	80	7.0	5.5	5.20	17	30	3	41.64	**025**	47.30	**025**	32.18	**025**
5/16-18	1.411	90	8.0	6.2	6.60	20	35	3	45.78	**031**	50.74	**031**	36.68	**031**
3/8-16	1.588	100	10.0	8.0	8.00	22	39	3	53.29	**037**	61.18	**037**	42.41	**037**



DIN 376 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 171 ... £ T9		23 371 ... £ T9		23 471 ... £ T9	
7/16-14	1.814	100	8	6.2	9.40	22	3	63.15	**043**	69.13	**043**	53.09	**043**
1/2-13	1.954	110	9	7.0	10.75	25	3	69.13	**050**	78.56	**050**	58.13	**050**
5/8-11	2.309	110	12	9.0	13.50	27	3	88.02	**062**	95.01	**062**	74.90	**062**
3/4-10	2.540	125	14	11.0	16.50	30	3	133.18	**075**	151.46	**075**	96.11	**075**

P	**15**	**15**	**8**
M	**9**		**6**
K	**18**	**15**	
N	**12**	**15**	**22**
S			
H			
O			

Blind hole – Machine taps, right hand

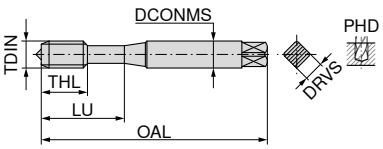
UNC | Salo-Rex

UNI | VA

C 2–3 | C 2–3

2B | 2B

vap. | vap.



DIN 371 with reinforced shank

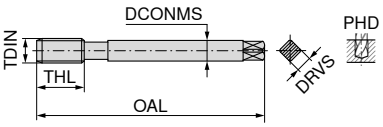




HSS-E
∢ 42°
≤ 1100 N/mm²
≤ 3xD

HSS-E
∢ 42°
≤ 900 N/mm²
≤ 3xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 582 ... £ U0		22 266 ... £ U0	
Nr. 2-56	0.454	45	2.8	2.1	1.85	4.5	12	2	72.30	**002**		
Nr. 4-40	0.635	56	3.5	2.7	2.35	6.0	18	2	42.72	**004**		
Nr. 6-32	0.794	56	4.0	3.0	2.85	7.0	20	3	39.23	**006**	41.34	**006**
Nr. 8-32	0.794	63	4.5	3.4	3.50	8.0	21	3	40.43	**008**	44.10	**008**
Nr. 10-24	1.058	70	6.0	4.9	3.90	10.0	25	3	43.02	**010**	48.65	**010**
1/4-20	1.270	80	7.0	5.5	5.10	13.0	30	3	46.69	**025**	48.98	**025**
5/16-18	1.411	90	8.0	6.2	6.60	14.0	35	3	49.23	**031**	56.28	**031**
3/8-16	1.588	100	10.0	8.0	8.00	16.0	39	3	54.46	**037**	58.20	**037**



DIN 376 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 583 ... £ U0		22 267 ... £ U0	
7/16-14	1.814	100	8	6.2	9.40	18	3	104.01	**043**		
7/16-14	1.814	100	8	6.2	9.40	18	4			122.77	**043**
1/2-13	1.954	110	9	7.0	10.80	20	3	76.44	**050**		
1/2-13	1.954	110	9	7.0	10.80	20	4			85.62	**050**
9/16-12	2.117	110	11	9.0	12.25	20	3	110.29	**056**		
5/8-11	2.309	110	12	9.0	13.50	22	3	100.05	**062**		
5/8-11	2.309	110	12	9.0	13.50	22	4			108.66	**062**
3/4-10	2.540	125	14	11.0	16.50	25	3	129.35	**075**		
3/4-10	2.540	125	14	11.0	16.50	25	4			135.45	**075**
7/8-9	2.822	140	18	14.5	19.50	27	4	154.68	**087**		
1-8	3.175	160	18	14.5	22.25	30	4	209.27	**100**		
1-8	3.175	160	18	14.5	22.25	30	5			229.26	**100**

P	**12**	**8**
M	**7**	**6**
K	**12**	
N		**22**
S		
H		
O		

Blind hole – Machine taps, right hand

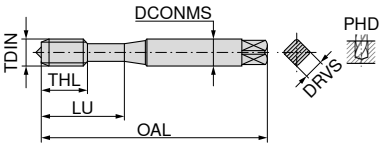
UNC

UNI | FE-HF | VA

C 2–3

2B

TiN | TiCN

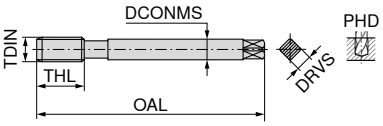


DIN 371 with reinforced shank



HSS-E
◁ 35°
≤ 1000 N/mm²
≤ 2,5xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 172 ... £ T9		23 372 ... £ T9		23 472 ... £ T9	
Nr. 4-40	0.635	56	3.5	2.7	2.30	11	18	2			35.32	004		
Nr. 4-40	0.635	56	3.5	2.7	2.30	6	18	2	33.68	004			32.18	004
Nr. 6-32	0.794	56	4.0	3.0	2.85	7	20	3	31.58	006			30.25	006
Nr. 6-32	0.794	56	4.0	3.0	2.85	12	20	3			34.17	006		
Nr. 8-32	0.794	63	4.5	3.4	3.50	8	21	3	34.03	008			31.27	008
Nr. 8-32	0.794	63	4.5	3.4	3.50	13	21	3			36.15	008		
Nr. 10-24	1.058	70	6.0	4.9	3.90	10	25	3	35.07	010			33.25	010
Nr. 10-24	1.058	70	6.0	4.9	3.90	15	25	3			36.68	010		
1/4-20	1.270	80	7.0	5.5	5.20	13	30	3	45.32	025			37.22	025
1/4-20	1.270	80	7.0	5.5	5.20	17	30	3			50.34	025		
5/16-18	1.411	90	8.0	6.2	6.60	14	35	3	45.32	031			39.35	031
5/16-18	1.411	90	8.0	6.2	6.60	20	35	3			52.48	031		
3/8-16	1.588	100	10.0	8.0	8.00	16	39	3	55.51	037			43.92	037
3/8-16	1.588	100	10.0	8.0	8.00	22	39	3			61.22	037		



DIN 376 with reduced shank

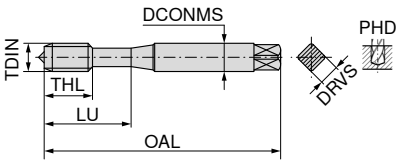
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 173 ... £ T9		23 373 ... £ T9		23 473 ... £ T9	
7/16-14	1.814	100	8	6.2	9.40	22	3			77.82	043		
7/16-14	1.814	100	8	6.2	9.40	18	3	70.17	043			60.70	043
1/2-13	1.954	110	9	7.0	10.75	20	3	74.31	050			59.96	050
1/2-13	1.954	110	9	7.0	10.75	25	3			82.60	050		
5/8-11	2.309	110	12	9.0	13.50	22	3	91.22	062			84.04	062
5/8-11	2.309	110	12	9.0	13.50	27	3			100.83	062		
3/4-10	2.540	125	14	11.0	16.50	25	3	135.43	075			103.11	075
3/4-10	2.540	125	14	11.0	16.50	30	3			157.88	075		

P	15	15	8
M	9		6
K	18	15	
N	12	24	22
S			
H			
O			

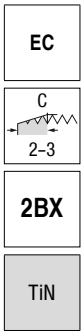
Through hole / Blind hole – Machine thread formers, right hand

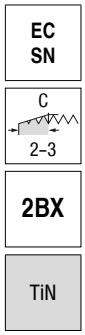
▲ SN = Thread formers with lubrication grooves

UNC | Spanlos



DIN 2174 with reduced shank









HSS-E
≤ 1100 N/mm²
≤ 1,5xD

HSS-E
≤ 1100 N/mm²
≤ 3xD

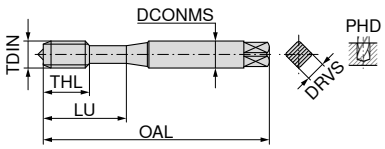
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 270 ... £ U0		22 271 ... £ U0	
Nr. 4-40	0.635	56	3.5	2.7	2.55	11	18		56.00	**004**		
Nr. 4-40	0.635	56	3.5	2.7	2.55	11	18	3			65.01	**004**
Nr. 6-32	0.794	56	4.0	3.0	3.15	12	20		52.48	**006**		
Nr. 6-32	0.794	56	4.0	3.0	3.15	12	20	3			60.25	**006**
Nr. 8-32	0.794	63	4.5	3.4	3.80	13	21		52.77	**008**		
Nr. 8-32	0.794	63	4.5	3.4	3.80	13	21	4			60.25	**008**
Nr. 10-24	1.058	70	6.0	4.9	4.35	15	25		58.88	**010**		
Nr. 10-24	1.058	70	6.0	4.9	4.35	15	25	4			66.68	**010**
1/4-20	1.270	80	7.0	5.5	5.75	17	30		68.20	**025**		
1/4-20	1.270	80	7.0	5.5	5.75	17	30	4			77.20	**025**
5/16-18	1.411	90	8.0	6.2	7.30	20	35		71.41	**031**		
5/16-18	1.411	90	8.0	6.2	7.30	20	35	5			82.93	**031**
3/8-16	1.588	100	10.0	8.0	8.80	22	39		87.85	**037**		
3/8-16	1.588	100	10.0	8.0	8.80	22	39	5			97.01	**037**
P										**18**		**18**
M										**10**		**10**
K										**10**		**10**
N										**22**		**22**
S												
H												
O												

6

Through hole – machine taps for wire thread inserts, right hand

EG UNC | Stabil

UNI | B 4–5 | 2B | nitr. + vap.



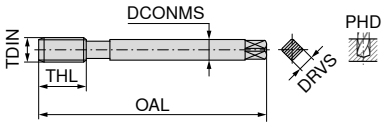
DIN 371 with reinforced shank



HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

22 668 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
EG Nr. 4-40	0.635	63	4.5	3.4	3.1	13	21	3	62.22	**004**
EG Nr. 6-32	0.794	70	6.0	4.9	3.8	14	25	3	65.21	**006**
EG Nr. 8-32	0.794	80	6.0	4.9	4.4	16	30	3	64.20	**008**
EG Nr. 10-24	1.058	80	7.0	5.5	5.2	17	30	3	69.11	**010**
EG 1/4-20	1.270	90	8.0	6.2	6.7	20	35	3	71.69	**025**
EG 5/16-18	1.411	100	10.0	8.0	8.4	22	39	3	78.71	**031**



DIN 376 with reduced shank

22 670 ...

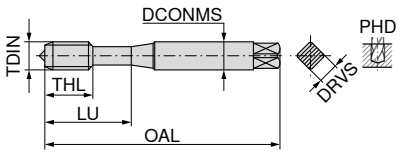
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
EG 3/8-16	1.588	100	9	7.0	10.00	22	3	91.22	**037**
EG 7/16-14	1.814	110	11	9.0	11.60	26	3	111.51	**043**
EG 1/2-13	1.954	110	12	9.0	13.30	27	3	116.22	**050**
EG 5/8-11	2.309	125	14	11.0	16.50	30	3	146.91	**062**
EG 3/4-10	2.540	140	18	14.5	19.75	32	3	190.52	**075**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – machine taps for wire thread inserts, right hand

EG UNC | Salo-Rex

UNI | E 1,5–2 | 2B | vap.



DIN 371 with reinforced shank



HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

22 672 ...

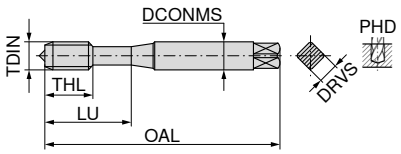
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
EG Nr. 4-40	0.635	63	4.5	3.4	3.1	7	21	3	62.71	**004**
EG Nr. 6-32	0.794	70	6.0	4.9	3.8	8	25	3	62.22	**006**
EG Nr. 8-32	0.794	80	6.0	4.9	4.4	8	30	3	64.20	**008**
EG Nr. 10-24	1.058	80	7.0	5.5	5.2	10	30	3	69.11	**010**
EG 1/4-20	1.270	90	8.0	6.2	6.7	14	35	3	76.28	**025**
EG 5/16-18	1.411	100	10.0	8.0	8.4	16	39	3	80.07	**031**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – Machine taps, right hand

UNJC | SL

Ti | C 2–3 | 3BX | TiCN





DIN 371 with reinforced shank

HSS-E
◁ 15°
≤ 1200 N/mm²
≤ 2xD

22 166 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
Nr. 4-40	0.635	56	3.5	2.7	2.30	11	18	2	84.96	**004**
Nr. 6-32	0.794	56	4.0	3.0	2.85	12	20	3	86.52	**006**
Nr. 8-32	0.794	63	4.5	3.4	3.50	13	21	3	84.08	**008**
Nr. 10-24	1.058	70	6.0	4.9	3.90	15	25	3	90.13	**010**
1/4-20	1.270	80	7.0	5.5	5.25	17	30	3	115.31	**025**
3/8-16	1.588	100	10.0	8.0	8.10	22	39	3	139.27	**037**

P	**7**
M	**7**
K	
N	**22**
S	**5**
H	
O	

Through hole – Machine taps, right hand

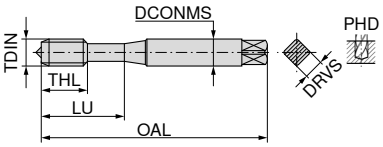
UNF | Stabil

UNI | Ti

B 4–5 | B 4–5

2B | 2BX

nitr. + vap. | TiN



DIN 371 with reinforced shank

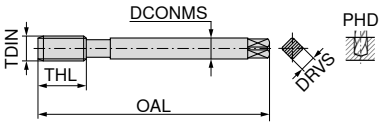




HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

HSS-PM
0°
≤ 44 HRC
≤ 4xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 602 ... £ U0		22 317 ... £ U0	
Nr. 4-48	0.529	56	3.5	2.7	2.40	11	18	2	56.81	004		
Nr. 4-48	0.529	56	3.5	2.7	2.40	11	18	3			112.29	004
Nr. 5-44	0.577	56	3.5	2.7	2.70	11	18	3			115.77	005
Nr. 6-40	0.635	56	4.0	3.0	2.95	12	20	3	50.93	006	100.09	006
Nr. 8-36	0.706	63	4.5	3.4	3.50	13	21	3	49.63	008	107.08	008
Nr. 10-32	0.794	70	6.0	4.9	4.10	15	25	3	50.97	010	107.79	010
1/4-28	0.907	80	7.0	5.5	5.50	17	30	3	58.04	025	112.29	025
5/16-24	1.058	90	8.0	6.2	6.90	17	35	3	69.87	031	127.82	031
3/8-24	1.058	90	10.0	8.0	8.50	18	35	3			142.07	037



DIN 374 with reduced shank

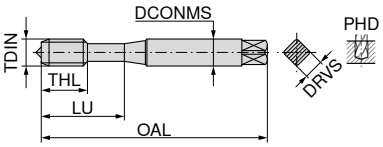
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 603 ... £ U0		22 421 ... £ U0	
7/16-20	1.270	100	8	6.2	9.90	22	3	78.31	043		
1/2-20	1.270	100	9	7.0	11.50	22	3	75.75	050	183.32	050
9/16-18	1.411	100	11	9.0	12.90	22	3	113.80	056		
5/8-18	1.411	100	12	9.0	14.50	22	3	104.98	062		
3/4-16	1.588	110	14	11.0	17.50	25	4	130.82	075		
7/8-14	1.814	125	18	14.5	20.50	25	4	170.65	087		
1-12	2.117	140	18	14.5	23.25	28	4	222.99	100		
1 1/8-12	2.117	150	22	18.0	26.50	28	4	576.56	112		
1 1/4-12	2.117	150	22	18.0	29.75	28	4	643.32	125		
1 3/8-12	2.117	170	28	22.0	33.00	30	5	710.02	137		

P	12	7
M	7	7
K	12	
N		22
S		5
H		
O		

6

Through hole – Machine taps, right hand

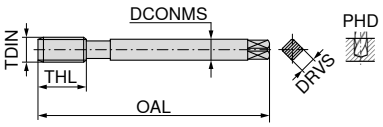
UNF



DIN 371 with reinforced shank

	UNI	FE	VA
	B 4–5	B 4–5	B 4–5
	2B	2B	2B
	TiN		nitr.
			
	HSS-E	HSS-E	HSS-E
	0° ≤ 1100 N/mm² ≤ 3xD	0° ≤ 850 N/mm² ≤ 3xD	0° ≤ 1100 N/mm² ≤ 3xD
	23 180 ...	**23 280 ...**	**23 480 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9		£ T9		£ T9	
Nr. 10-32	0.794	70	6	4.9	4.1	15	25	3	36.77	**010**	30.99	**010**	35.24	**010**
1/4-28	0.907	80	7	5.5	5.5	17	30	3	46.85	**025**	33.13	**025**	39.84	**025**
5/16-24	1.058	90	8	6.2	6.9	17	35	3	52.02	**031**	36.77	**031**	43.92	**031**
3/8-24	1.058	90	10	8.0	8.5	18	35	4	55.68	**037**	38.28	**037**	45.92	**037**



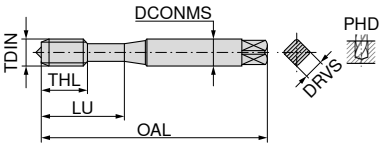
DIN 374 with reduced shank

									23 181 ...		**23 281 ...**		**23 481 ...**	
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes		£ T9		£ T9		£ T9	
7/16-20	1.270	100	8	6.2	9.9	22	3		68.36	**043**	48.98	**043**	57.76	**043**
1/2-20	1.270	100	9	7.0	11.5	22	3		69.13	**050**	48.98	**050**	57.76	**050**
9/16-18	1.411	100	11	9.0	12.9	22	3		95.96	**056**	66.21	**056**	72.90	**056**
5/8-18	1.411	100	12	9.0	14.5	22	3		87.09	**062**	59.96	**062**	64.66	**062**
3/4-16	1.588	110	14	11.0	17.5	25	4		134.84	**075**	78.26	**075**	102.06	**075**

P	**15**	**12**	**8**
M	**9**		**6**
K	**18**	**12**	
N	**12**	**22**	**22**
S			
H			
O			

Blind hole – Machine taps, right hand

UNF | Salo-Rex



DIN 371 with reinforced shank

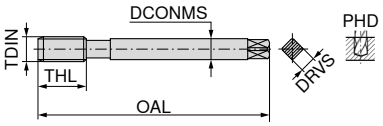


HSS-E
∢ 42°
≤ 900 N/mm²
≤ 3xD

HSS-E
∢ 42°
≤ 1100 N/mm²
≤ 3xD

HSS-E
∢ 42°
≤ 1100 N/mm²
≤ 3xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 308 ... £ U0		22 606 ... £ U0		22 307 ... £ U0	
Nr. 2-64	0.397	45	2.8	2.1	1.85	4.5	12	2	92.10	**002**				
Nr. 4-48	0.529	56	3.5	2.7	2.40	6.0	18	2	62.71	**004**	61.62	**004**		
Nr. 6-40	0.635	56	4.0	3.0	2.95	7.0	20	3	61.62	**006**	46.69	**006**		
Nr. 6-40	0.635	56	4.0	3.0	3.00	7.0	20	3					86.32	**006**
Nr. 8-36	0.706	63	4.5	3.4	3.50	8.0	21	3	76.57	**008**	46.68	**008**		
Nr. 10-32	0.794	70	6.0	4.9	4.10	10.0	25	3	64.66	**010**	49.23	**010**		
Nr. 10-32	0.794	70	6.0	4.9	4.15	10.0	25	3					90.54	**010**
1/4-28	0.907	80	7.0	5.5	5.50	10.0	30	3	68.03	**025**	52.31	**025**		
1/4-28	0.907	80	7.0	5.5	5.55	10.0	30	3					94.44	**025**
5/16-24	1.058	90	8.0	6.2	6.90	10.0	35	3	75.22	**031**	71.85	**031**		
5/16-24	1.058	90	8.0	6.2	6.95	10.0	35	3					109.22	**031**
3/8-24	1.058	90	10.0	8.0	8.50	10.0	35	3	77.65	**037**				
3/8-24	1.058	90	10.0	8.0	8.55	10.0	35	3					109.22	**037**



DIN 374 with reduced shank

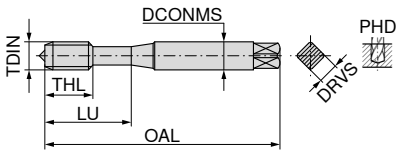
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 607 ... £ U0		22 409 ... £ U0	
7/16-20	1.270	100	8	6.2	9.90	13	3	76.44	**043**		
7/16-20	1.270	100	8	6.2	9.95	13	4			137.42	**043**
1/2-20	1.270	100	9	7.0	11.50	13	4	77.50	**050**		
1/2-20	1.270	100	9	7.0	11.55	13	5			131.65	**050**
9/16-18	1.411	100	11	9.0	12.90	15	4	114.85	**056**		
9/16-18	1.411	100	11	9.0	12.95	15	5			186.69	**056**
5/8-18	1.411	100	12	9.0	14.50	15	4	102.21	**062**		
5/8-18	1.411	100	12	9.0	14.55	15	5			169.77	**062**
3/4-16	1.588	110	14	11.0	17.50	17	4	140.94	**075**		
3/4-16	1.588	110	14	11.0	17.55	17	5			227.88	**075**
7/8-14	1.814	125	18	14.5	20.50	17	4	165.22	**087**		
1-12	2.117	140	18	14.5	23.25	20	4	231.38	**100**		
1-12	2.117	140	18	14.5	23.30	20	5			364.99	**100**
1 1/8-12	2.117	150	22	18.0	26.50	22	4	325.96	**112**		
1 1/4-12	2.117	150	22	18.0	29.75	22	5	377.21	**125**		
1 3/8-12	2.117	170	28	22.0	33.00	24	5	437.15	**137**		

P	**8**	**12**	**12**
M	**6**	**7**	**7**
K		**12**	**12**
N	**22**		**22**
S			
H			
O			

6

Blind hole – Machine taps, right hand

UNF | SL



DIN 371 with reinforced shank

Ti | C 2–3 | 2BX | vap.



HSS-PM
◁ 30°
≤ 1400 N/mm²
≤ 1,5xD

22 302 ...

Ti | C 2–3 | 3BX | vap.



HSS-PM
◁ 30°
≤ 1400 N/mm²
≤ 1,5xD

22 303 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0	
Nr. 10-32	0.794	70	6	4.9	4.1	10	25	3	103.41	**010**	103.41	**010**
1/4-28	0.907	80	7	5.5	5.5	10	30	3	113.05	**025**	113.05	**025**
5/16-24	1.058	90	8	6.2	6.9	10	35	3	128.64	**031**	120.46	**031**
3/8-24	1.058	90	10	8.0	8.5	10	35	3	132.41	**037**	132.41	**037**

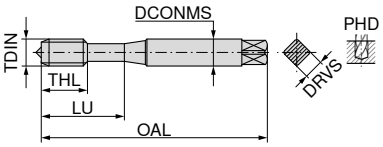
P	**5**	**5**
M	**5**	**5**
K		
N	**22**	**22**
S	**3**	**3**
H		
O		

Blind hole – Machine taps, right hand

UNF

UNI
C
2–3
2B
TiN

VA
C
2–3
2B



DIN 371 with reinforced shank

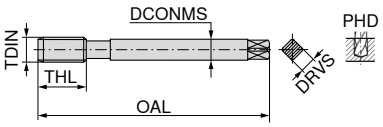




HSS-E
◁ 35°
≤ 1100 N/mm²
≤ 2,5xD

HSS-E
◁ 35°
≤ 1100 N/mm²
≤ 2,5xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 182 ... £ T9		23 482 ... £ T9	
Nr. 10-32	0.794	70	6	4.9	4.1	10	25	3	38.72	**010**	38.29	**010**
1/4-28	0.907	80	7	5.5	5.5	10	30	3	48.65	**025**	42.41	**025**
5/16-24	1.058	90	8	6.2	6.9	10	35	3	52.48	**031**	44.29	**031**
3/8-24	1.058	90	10	8.0	8.5	10	35	3	58.42	**037**	48.98	**037**



DIN 374 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 183 ... £ T9		23 483 ... £ T9	
7/16-20	1.270	100	8	6.2	9.9	13	3	70.17	**043**	60.70	**043**
1/2-20	1.270	100	9	7.0	11.5	13	4	74.31	**050**	61.48	**050**
9/16-18	1.411	100	11	9.0	12.9	15	4	100.05	**056**	85.89	**056**
5/8-18	1.411	100	12	9.0	14.5	15	4	90.45	**062**	74.09	**062**
3/4-16	1.588	110	14	11.0	17.5	17	4	143.54	**075**	102.06	**075**

P	**15**	**8**
M	**9**	**6**
K	**18**	
N	**12**	**22**
S		
H		
O		

6

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

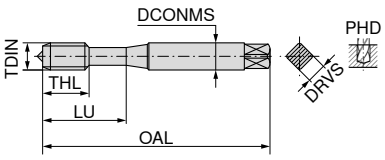
UNF | Spanlos

EC
SN

C
2–3

2BX

TiN



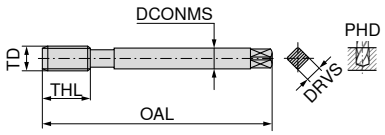
DIN 2174 with reduced shank



HSS-E
≤ 1100 N/mm²
≤ 3xD

22 312 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
Nr. 4-48	0.529	56	3.5	2.7	2.62	11	18	3	72.17	**004**
Nr. 6-40	0.635	56	4.0	3.0	3.22	12	20	3	67.28	**006**
Nr. 8-36	0.706	63	4.5	3.4	3.85	13	21	4	69.55	**008**
Nr. 10-32	0.794	70	6.0	4.9	4.45	15	25	4	74.31	**010**
1/4-28	0.907	80	7.0	5.5	5.95	17	30	4	87.11	**025**



DIN 2174 with reduced shank

22 313 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
7/16-20	1.27	100	8	6.2	10.55	22	6	129.81	**043**
1/2-20	1.27	100	9	7.0	12.15	22	6	133.48	**050**

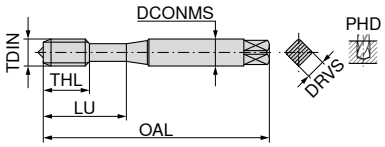
P	**18**
M	**10**
K	**10**
N	**22**
S	
H	
O	

Through hole – machine taps for wire thread inserts, right hand

EG UNF | Stabil

UNI | B 4–5 | 2B | nitr. + vap.



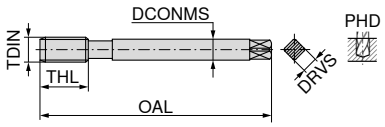


DIN 371 with reinforced shank

HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

22 676 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
EG Nr. 4-48	0.529	56	4	3.0	3.0	9	20	3	79.42	**004**
EG Nr. 6-40	0.635	70	6	4.9	3.7	11	25	3	78.31	**006**
EG Nr. 8-36	0.706	80	6	4.9	4.4	13	30	3	76.55	**008**
EG Nr. 10-32	0.794	80	6	4.9	5.1	13	30	3	81.62	**010**
EG 1/4-28	0.907	90	8	6.2	6.6	17	35	3	87.09	**025**



DIN 374 with reduced shank

22 677 ...

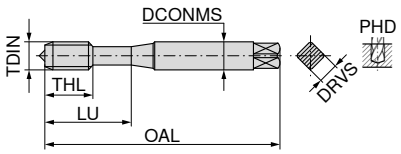
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
EG 3/8-24	1.058	90	8	6.2	9.80	18	4	106.60	**037**
EG 7/16-20	1.270	100	9	7.0	11.50	22	3	134.84	**043**
EG 1/2-20	1.270	100	11	9.0	13.10	22	3	126.88	**050**
EG 5/8-18	1.411	110	14	11.0	16.25	25	4	203.34	**062**
EG 3/4-16	1.588	125	16	12.0	19.50	25	4	251.98	**075**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – machine taps for wire thread inserts, right hand

EG UNF | Salo-Rex

UNI | E 1,5–2 | 2B | vap.



DIN 371 with reinforced shank



HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

22 680 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
EG Nr. 4-48	0.529	56	4	3.0	3.0	7	20	3	80.39	**004**
EG Nr. 6-40	0.635	70	6	4.9	3.7	8	25	3	78.11	**006**
EG Nr. 8-36	0.706	80	6	4.9	4.4	8	30	3	80.07	**008**
EG Nr. 10-32	0.794	80	6	4.9	5.1	8	30	3	86.32	**010**
EG 1/4-28	0.907	90	8	6.2	6.6	10	35	3	95.20	**025**

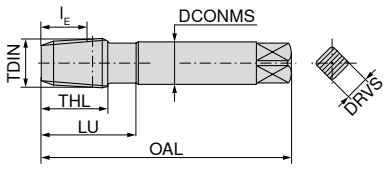
P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – Machine taps, right hand

NPT | Salo-Rex

VA | C 2–3 | vap.

VA | C 2–3 | TiN



DIN 371 with reinforced shank

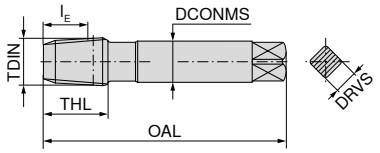




HSS-E
35°
≤ 900 N/mm²

HSS-E
42°
≤ 1100 N/mm²

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	LU mm	Flutes	22 364 ... £ U0		22 365 ... £ U0	
1/16-27	0.941	90	8	6.2	9.24	13.0	26.0	3	103.39	**006**		
1/8-27	0.941	90	10	8.0	9.28	13.0	26.0	3	119.57	**012**		
1/8-27	0.941	90	10	8.0	9.28	12.0	26.0	4			161.53	**012**
1/4-18	1.411	100	14	11.0	13.55	19.5	34.5	3	139.67	**025**		
1/4-18	1.411	100	14	11.0	13.55	18.0	34.5	4			166.25	**025**



DIN 374 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes	22 371 ... £ U0		22 372 ... £ U0	
3/8-18	1.411	110	14	11	13.86	19.5	3	190.37	**037**		
3/8-18	1.411	110	14	11	13.86	18.0	5			318.17	**037**
1/2-14	1.814	140	16	12	18.11	25.0	5	276.68	**050**		
1/2-14	1.814	140	16	12	18.11	23.0	5			368.11	**050**
3/4-14	1.814	150	20	16	18.59	26.0	5	400.40	**075**		
1-11,5	2.209	170	25	20	22.31	32.0	5	584.80	**100**		

P	**4**	**5**
M	**3**	**4**
K		
N	**22**	**22**
S		
H		
O		

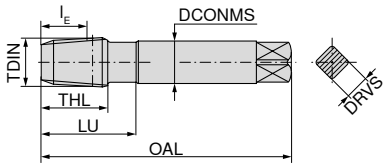
6

Through hole / Blind hole – Machine taps, right hand

NPT | TWIN

VG

C
2–3



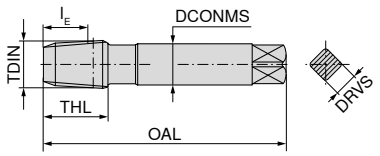
DIN 371 with reinforced shank



HSS-E
0°
≤ 1100 N/mm²

22 374 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	LU mm	Flutes	£ U0	
1/16-27	0.941	90	8	6.2	9.24	13.0	26.0	3	90.45	**006**
1/8-27	0.941	90	10	8.0	9.28	13.0	26.0	3	116.09	**012**
1/4-18	1.411	100	14	11.0	13.55	19.5	34.5	3	120.46	**025**



DIN 374 with reduced shank

22 375 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes	£ U0	
3/8-18	1.411	110	14	11	13.86	19.5	3	151.32	**037**
1/2-14	1.814	140	16	12	18.11	25.0	5	204.26	**050**
3/4-14	1.814	150	20	16	18.59	26.0	5	264.95	**075**
1-11,5	2.209	170	25	20	22.31	30.0	5	368.98	**100**

P	**4**
M	
K	**6**
N	**22**
S	
H	
O	

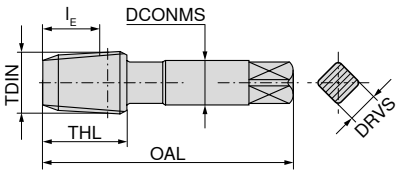
Through hole / Blind hole – Machine taps, right hand

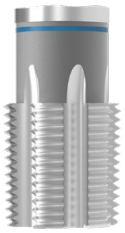
▲ ES = extra short

NPT | TWIN

ST
ES

C
2–3





DIN 2181 with reduced shank

HSS-E
0°
≤ 750 N/mm²

6

22 361 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes	£ U0	
1/16-27	0.941	63	6	4.9	9.24	13.0	4	65.09	**006**
1/8-27	0.941	63	7	5.5	9.28	13.0	5	69.13	**012**
1/4-18	1.411	63	11	9.0	13.55	19.5	5	82.98	**025**
3/8-18	1.411	70	12	9.0	13.86	19.5	5	103.74	**037**
1/2-14	1.814	80	16	12.0	18.11	23.0	5	138.97	**050**
3/4-14	1.814	100	20	16.0	18.59	26.0	6	175.56	**075**
1-11,5	2.209	110	25	20.0	22.31	32.0	6	259.47	**100**

P	**6**
M	
K	**6**
N	**22**
S	
H	
O	

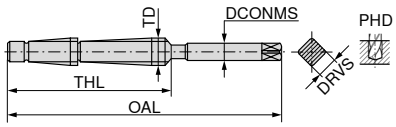
Through hole – Machine taps, right hand

▲ Single finishing trapezoidal taps (2 steps)
▲ do not reverse

Tr

ST

7H





Factory standard

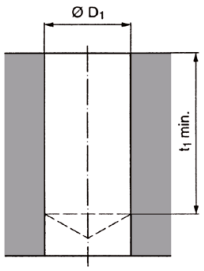
HSS-E
5°
≤ 900 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	22 402 ...
Tr 8	1.5	105	6	4.9	6.60	55	3	580.99	**080**
Tr 9	2.0	130	7	5.5	7.20	70	3	559.03	**090**
Tr 10	2.0	130	7	5.5	8.20	70	3	580.99	**102**
Tr 10	3.0	155	7	5.5	7.25	95	3	532.61	**103**
Tr 12	3.0	160	9	7.0	9.25	95	3	639.09	**123**
Tr 14	3.0	170	10	8.0	11.25	100	3	742.35	**143**
Tr 14	4.0	195	10	8.0	10.25	125	3	626.13	**144**
Tr 16	4.0	225	12	9.0	12.25	130	3	626.13	**164**
Tr 18	4.0	225	14	11.0	14.25	116	3	648.70	**184**
Tr 20	4.0	225	16	12.0	16.25	130	3	751.96	**204**
Tr 22	5.0	260	16	12.0	17.25	160	3	871.53	**225**
Tr 24	5.0	285	18	14.5	19.25	165	3	1,016.60	**245**

P	●
M	
K	●
N	●
S	
H	
O	

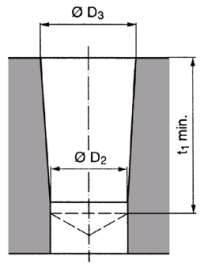
Core hole diameters for taper threads (taper 1:16)

Pre-drilling of cylindrical holes without reamer



		NPT		NPTF				Rc	
Ø d_1 inch	Pitch Gg/1"	Ø D_1 mm	t_1 min. mm	Ø D_1 mm	t_1 min. mm	Ø d_1 inch	Pitch Gg/1"	Ø D_1 mm	t_1 min. mm
1/16	27	6,15	12	6,1	12	1/16	28	6,2	11,9
1/8	27	8,5	12	8,45	12	1/8	28	8,2	11,9
1/4	18	11	17,5	10,9	17,5	1/4	19	10,85	16,3
3/8	18	14,5	17,6	14,3	17,6	3/8	19	14,5	18,1
1/2	14	17,85	22,9	17,6	22,9	1/2	14	18	24
3/4	14	23,2	23	23	23	3/4	14	23,5	25,3
1	11½	29,5	27,4	28,75	27,4	1	11	29,5	30,6
1¼	11½	37,8	28,1	37,5	28,1				
1½	11½	44	28,4	43,75	28,4				
2	11½	56	28,4	55,75	28,4				

Pre-drilling of cylindrical holes and conical boring with reamer

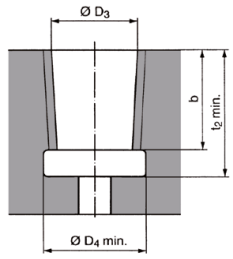


Taper 1:16

		NPT			NPTF		
Ø d_1 inch	Pitch Gg/1"	Ø d_2 mm	Ø d_3 mm	t_1 min. mm	Ø D_2 mm	Ø D_3 mm	t_1 min. mm
1/16	27	5,95	6,39	12	5,95	6,41	12
1/8	27	8,25	8,74	12	8,25	8,76	12
1/4	18	10,75	11,36	17,5	10,75	11,4	17,5
3/8	18	14,1	14,8	17,6	14,1	14,84	17,6
1/2	14	17,5	18,32	22,9	17,5	18,33	22,9
3/4	14	22,7	23,67	23	22,7	23,68	23
1	11½	28,6	29,69	27,4	28,6	29,72	27,4
1¼	11½	37,3	38,45	28,1	37,3	38,48	28,1
1½	11½	43,4	44,52	28,4	43,4	44,5	28,4
2	11½	55,5	56,56	28,4	55,5	56,59	28,4

		Rc		
Ø d_1 inch	Pitch Gg/1"	Ø D_2 mm	Ø D_3 mm	t_1 min. mm
1/16	28	6,1	6,56	11,9
1/8	28	8,1	8,57	11,9
1/4	19	10,75	11,45	17,7
3/8	19	14,25	14,95	18,1
1/2	14	17,75	18,63	24
3/4	14	23	24,12	25,3
1	11	29	30,29	30,6

Recommendation for the pre-drilling of blind hole threads



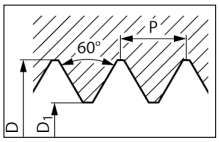
Taper 1:16

		NPT				NPTF			
Ø d_1 inch	Pitch Gg/1"	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 mm	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 min. mm
1/16	27	6,39	7	10	7,6	6,41	8	11	7,4
1/8	27	8,74	7	10	10	8,76	8	11	9,8
1/4	18	11,36	10,2	14,5	13,1	11,4	11,6	15,5	12,9
3/8	18	14,8	10,6	15	16,5	14,84	12	16	16,3
1/2	14	18,32	13,8	19	20,5	18,33	15,6	20,5	20,3
3/4	14	23,67	14,2	20	25,8	23,68	16	21,5	25,6
1	11½	29,69	17	24	32,2	29,72	19,2	26	32
1¼	11½	38,45	17,5	24,5	41	38,48	19,7	26,5	40,8
1½	11½	44,52	17,5	24,5	47,2	44,5	19,7	26,5	47
2	11½	56,56	18	25	59,2	56,59	20,2	27	59

		Rc			
Ø d_1 inch	Pitch Gg/1"	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 min. mm
1/16	28	6,56	5,6	9,5	7,6
1/8	28	8,57	5,6	9,5	9,6
1/4	19	11,45	8,4	14	13
3/8	19	14,95	8,8	14,4	16,5
1/2	14	18,63	11,4	19	20,6
3/4	14	24,12	12,7	20,3	26
1	11	30,29	14,5	24,3	32,8

Tapped hole pilot diameter

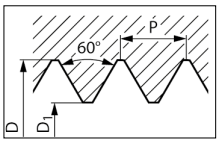
M ISO metric coarse threads 6H to DIN 13 and DIN ISO 965-1 (M1-M1,4 = 5H)



Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M1	0,25	0,729	0,785	0,75
M1,1	0,25	0,829	0,885	0,85
M1,2	0,25	0,929	0,985	0,95
M1,4	0,3	1,075	1,142	1,1
M1,6	0,35	1,221	1,321	1,25
M1,8	0,35	1,421	1,521	1,45
M2	0,4	1,567	1,679	1,6
M2,2	0,45	1,713	1,838	1,75
M2,5	0,45	2,013	2,138	2,05
M3	0,5	2,459	2,599	2,5
M3,5	0,6	2,850	3,010	2,9
M4	0,7	3,242	3,422	3,3
M4,5	0,75	3,688	3,878	3,7
M5	0,8	4,134	4,334	4,2
M6	1,0	4,917	5,153	5
M7	1,0	5,917	6,153	6
M8	1,25	6,647	6,912	6,8
M9	1,25	7,647	7,912	7,8
M10	1,5	8,376	8,676	8,5
M11	1,5	9,376	9,676	9,5

Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M12	1,75	10,106	10,441	10,2
M14	2,0	11,835	12,210	12
M16	2,0	13,835	14,210	14
M18	2,5	15,294	15,744	15,5
M20	2,5	17,294	17,744	17,5
M22	2,5	19,294	19,744	19,5
M24	3,0	20,752	21,252	21
M27	3,0	23,752	24,252	24
M30	3,5	26,211	26,771	26,5
M33	3,5	29,211	29,771	29,5
M36	4,0	31,670	32,270	32
M39	4,0	34,670	35,270	35
M42	4,5	37,129	37,799	37,5
M45	4,5	40,129	40,799	40,5
M48	5,0	42,587	43,297	43
M52	5,0	46,587	47,297	47
M56	5,5	50,046	50,796	50,5
M60	5,5	54,046	54,796	54,5
M64	6,0	57,505	58,305	58
M68	6,0	61,505	62,305	62

MF ISO metric fine threads 6H to DIN 13 and DIN ISO 965-1



Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M2	x	0,25	1,729	1,774	1,75
M2,2	x	0,25	1,929	1,974	1,95
M2,5	x	0,35	2,121	2,221	2,15
M3	x	0,35	2,621	2,721	2,65
M3,5	x	0,35	3,121	3,221	3,15
M4	x	0,35	3,621	3,721	3,65
M4	x	0,5	3,459	3,599	3,5
M4,5	x	0,5	3,959	4,099	4
M5	x	0,5	4,459	4,599	4,5
M6	x	0,5	5,459	5,599	5,5
M6	x	0,75	5,188	5,378	5,2
M8	x	0,75	7,188	7,378	7,2
M8	x	1,0	6,917	7,153	7
M10	x	0,75	9,188	9,378	9,2
M10	x	1,0	8,917	9,153	9
M10	x	1,25	8,647	8,912	8,8
M12	x	1,0	10,917	11,153	11
M12	x	1,5	10,376	10,676	10,5
M14	x	1,25	12,647	12,912	12,8
M16	x	1,0	14,917	15,153	15
M16	x	1,5	14,376	14,676	14,5

Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M20	x	1,0	18,917	19,153	19
M20	x	1,5	18,376	18,676	18,5
M20	x	2,0	17,835	18,210	18
M24	x	1,5	22,376	22,676	22,5
M30	x	2,0	27,835	28,210	28
M36	x	1,5	34,376	34,676	34,5
M36	x	3,0	32,752	33,252	33
M42	x	2,0	39,835	40,210	40
M48	x	1,5	46,376	46,676	46,5
M48	x	3,0	44,752	45,252	45
M48	x	4,0	43,670	44,270	44
M56	x	1,5	54,376	54,676	54,5
M56	x	2,0	53,835	54,210	54
M56	x	3,0	52,752	53,252	53
M56	x	4,0	51,670	52,270	52
M64	x	3,0	60,752	61,252	61
M64	x	4,0	59,670	60,270	60
M72	x	4,0	67,670	68,270	68
M80	x	6,0	73,505	74,305	74
M95	x	6,0	88,505	89,305	89
M110	x	6,0	103,505	104,305	104

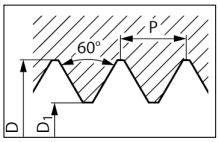
Dimensions in mm; P = Pitch

Thread former pilot hole diameter

M ISO metric coarse threads 6H to DIN 13 and DIN ISO 965-1 (M1-M1,4 = 5H)

Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M1	0,25	0,89		0,9
M1,2	0,25	1,09		1,1
M1,4	0,3	1,26		1,26
M1,6	0,35	1,45		1,45
M1,8	0,35	1,65		1,65
M2	0,4	1,83	1,86	1,85
M2,2	0,45	2,00	2,04	2,0
M2,5	0,45	2,30	2,34	2,3
M3	0,5	2,77	2,82	2,8
M3,5	0,6	3,23	3,28	3,25
M4	0,7	3,68	3,73	3,7
M4,5	0,75	4,15	4,21	4,15
M5	0,8	4,63	4,68	4,65

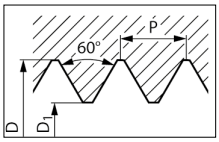
Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M6	1	5,51	5,59	5,55
M7	1	6,51	6,59	6,55
M8	1,25	7,39	7,48	7,4
M9	1,25	8,39	8,48	8,4
M10	1,5	9,25	9,35	9,3
M11	1,5	10,25	10,35	10,3
M12	1,75	11,12	11,25	11,2
M14	2	13,00	13,15	13,0
M16	2	15,00	15,15	15,0
M18	2,5	16,72	16,90	16,8
M20	2,5	18,72	18,90	18,8
M22	2,5	20,72	20,9	20,8
M24	3	22,46	22,7	22,5



MF ISO metric fine threads 6H to DIN 13 and DIN ISO 965-1

Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M2	x	0,25	1,89		1,9
M2,2	x	0,25	2,09		2,1
M2,5	x	0,25	2,39		2,4
M2,5	x	0,35	2,35		2,35
M3	x	0,25	2,89		2,9
M3	x	0,35	2,85		2,85
M3,5	x	0,35	3,35		3,35
M3,5	x	0,5	3,27	3,32	3,3
M4	x	0,35	3,85		3,85
M4	x	0,5	3,77	3,82	3,8
M4,5	x	0,5	4,27	4,32	4,3
M5	x	0,5	4,77	4,82	4,8
M5	x	0,75	4,65	4,71	4,65
M5,5	x	0,5	5,27	5,32	5,3
M6	x	0,5	5,78	5,83	5,8
M6	x	0,75	5,65	5,71	5,65
M7	x	0,5	6,78	6,83	6,8
M7	x	0,75	6,65	6,71	6,65
M8	x	0,5	7,78	7,83	7,8
M8	x	0,75	7,65	7,71	7,65
M8	x	1,0	7,51	7,59	7,55
M9	x	0,5	8,78	8,83	8,8
M9	x	0,75	8,65	8,71	8,65
M9	x	1,0	8,51	8,59	8,55
M10	x	0,5	9,78	9,83	9,8
M10	x	0,75	9,65	9,71	9,65
M10	x	1,0	9,51	9,59	9,55
M10	x	1,25	9,39	9,48	9,4
M11	x	0,75	10,65	10,71	10,7
M11	x	1,0	10,51	10,59	10,5
M12	x	0,75	11,66	11,72	11,7

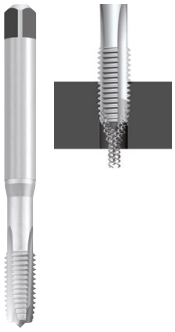
Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M12	x	1,0	11,52	11,6	11,5
M12	x	1,25	11,4	11,49	11,4
M12	x	1,5	11,26	11,36	11,3
M13	x	0,75	12,66	12,72	12,7
M13	x	1,0	12,52	12,6	12,5
M13	x	1,5	12,26	12,36	12,3
M14	x	0,75	13,66	13,72	13,7
M14	x	1,0	13,52	13,6	13,5
M14	x	1,25	13,4	13,49	13,4
M14	x	1,5	13,26	13,36	13,3
M15	x	0,75	14,66	14,72	14,7
M15	x	1,0	14,52	14,6	14,5
M15	x	1,5	14,26	14,36	14,3
M16	x	0,75	15,66	15,72	15,7
M16	x	1,0	15,52	15,6	15,5
M16	x	1,5	15,26	15,36	15,3
M18	x	1,0	17,52	17,6	17,5
M18	x	1,5	17,26	17,36	17,3
M18	x	2,0	17	17,15	17
M20	x	1,0	19,52	19,6	19,5
M20	x	1,5	19,26	19,36	19,3
M20	x	2,0	19	19,15	19
M22	x	1,5	21,26	21,36	21,3
M22	x	2,0	21	21,15	21
M24	x	1,5	23,26	23,38	23,3
M24	x	2,0	23,01	23,16	23
M25	x	1,5	24,26	24,38	24,3
M26	x	1,5	25,26	25,38	25,3
M27	x	2,0	26,01	26,16	26
M28	x	1,5	27,26	27,38	27,25
M30	x	1,5	29,26	29,38	29,25
M30	x	2,0	29,01	29,16	29



Dimensions in mm; P = Pitch

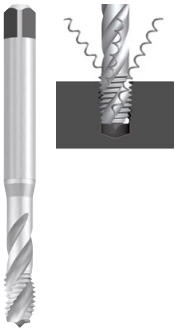
Tap Type Explanation

Stabil Through hole tap type Stabil



- For through holes up to 4xD
- Lead Form B: 3.5–5 cutting leads, with spiral point
- Straight Flutes
- Also suitable for synchronised machining, with Wedlon flat and with extra long version
- Due to the special geometry of the flutes, the chips are removed in the direction of cut

Salo-Rex Blind hole tap type Salo-Rex



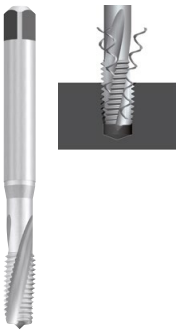
- For blind holes up to 3xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- (35°, 42°, 45°, 50°) right hand helix
- Also suitable for syncronised machining, with Weldon flat, with extra long version and through coolant
- The high helix angle ensures chips are discharged effectively against the direction of cut

TWIN Through and blind hole tap Type TWIN



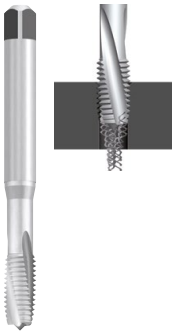
- For blind and through holes up to 2xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form D: 3.5–5 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- Straight Flutes
- For steel, short chipping and hardened materials to 55 (62) HRc
- Also with extra long version and through coolant

SL Blind hole tap type SL



- For blind holes up to 2xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- (15°, 25°, 30°) slow right hand helix
- For steel, titanium alloys and Inconel 718
- Also suitable for synchronised machining, with extra long version and through coolant
- Also suitable for difficult operating conditions such as cross holes

DL Through hole tap type DL



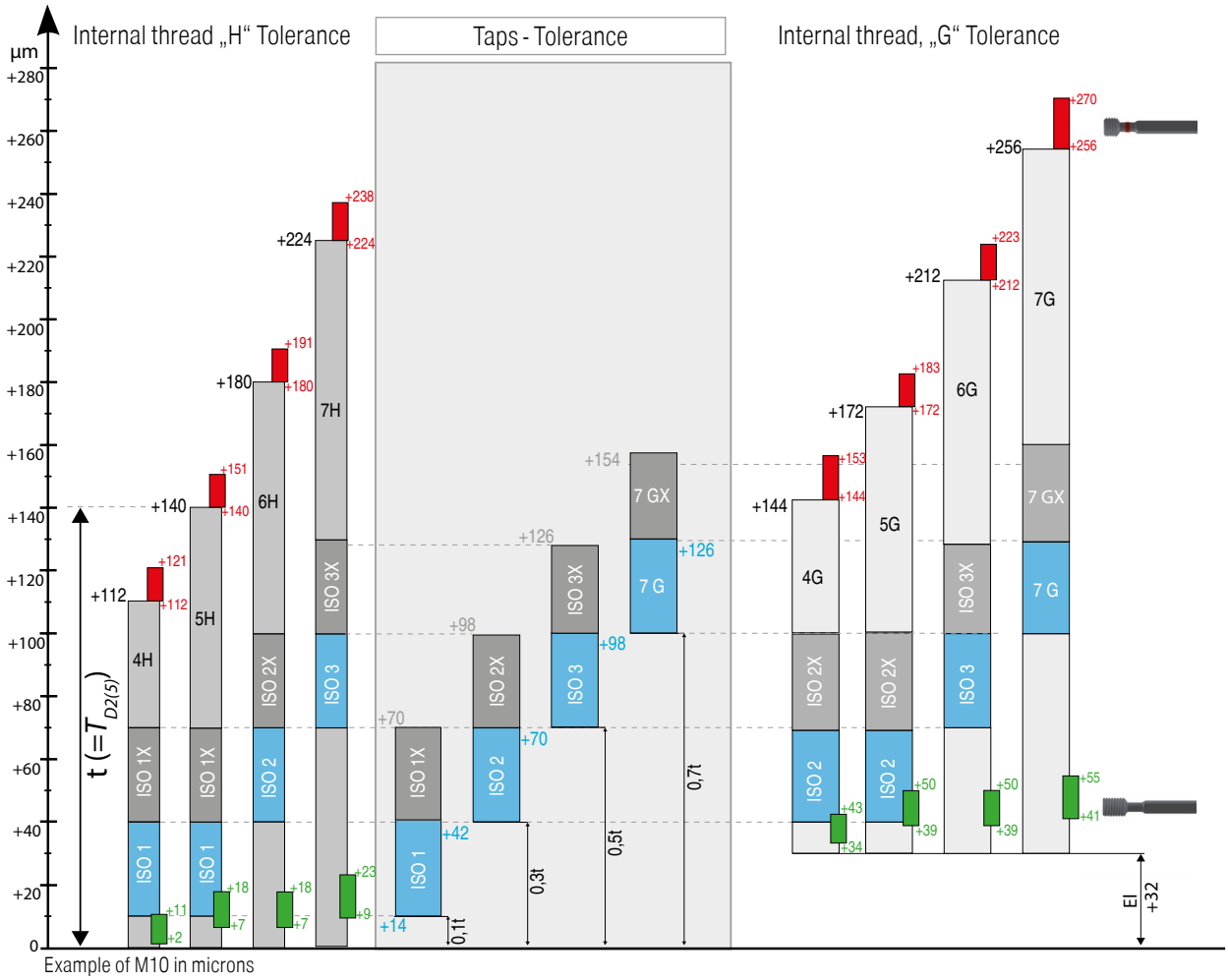
- For through holes up to 4xD
- Lead Form C: 3.5–5 cutting leads, without spiral point
- 15° left hand helix
- Suitable for steel, titanium alloys and Inconel 718
- The chips are discharged in the direction of cut

Spanlos Thread former type Spanlos



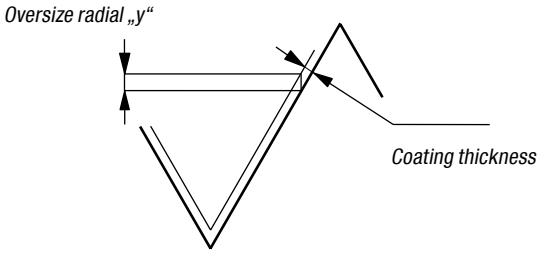
- For blind and through holes up to 3xD
- Lead Form C: 2–3 cutting leads, without spiral point
- For cold formable materials up to 1400 N/mm^2
- Suitable for synchronised machining, with lubrication grooves and internal cooling

Thread tolerances and recommended manufacturing tolerances



Workpieces to be plated require oversize taps.
The interference depends on the coating thickness and the flank angle.

at	60° Flank angle	Oversize ≙ 4 x coating thickness
	55° Flank angle	Oversize ≙ 4.331 x coating thickness
	30° Flank angle	Oversize ≙ 7.727 x coating thickness

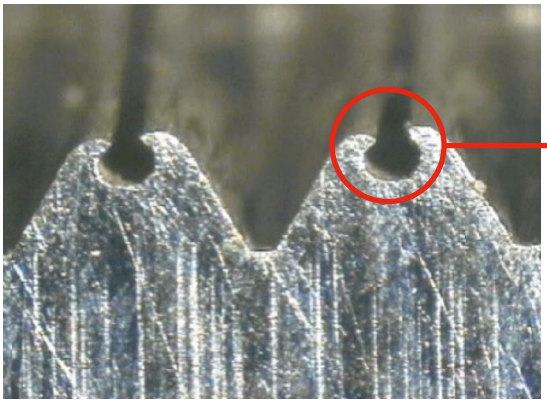


Application class of the tap Designation according to		Tolerance class of the internal thread to be cut				
DIN	ISO					
4H	ISO1	4H	5H	–	–	–
6H	ISO2	4G	5G	6H	–	–
6G	ISO3	–	(4E)	6G	7H	8H
7G	–	–	–	(6E)	7G	8G

For special applications, e.g. abrasive cast iron materials or plastics other dimensions have to be chosen which are determined on previous experience. In such cases an „X“ is added to the short designation of the tolerance, e.g. ISO 2X, however the tolerance zone assignment may be limited (6HX for tolerance zone 6H and 5G). In addition it should be taken into account that the dimensions of the internal thread do not only depend on the dimensions of the tap but on the material to be machined and all production conditions. For first taps and intermediate taps no thread dimensions are determined.

Thread formers

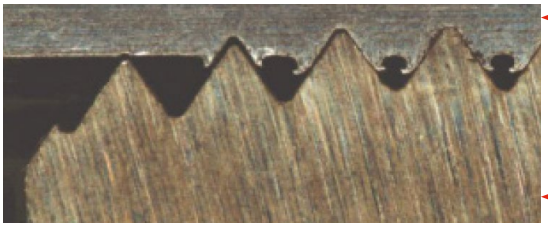
Spanlos thread forming taps for cold-formable materials up to 1400 N/mm² or at least 5 % elongation.
The thread is produced by plastic deformation. The molded thread has very high strength.



Prior to forming a thread, you should ensure that a molded thread is acceptable. In certain sectors, the forming of a thread is **not** permitted. Dirt or bacteria can settle in the formed crown.

Important

Incremental pressure forming

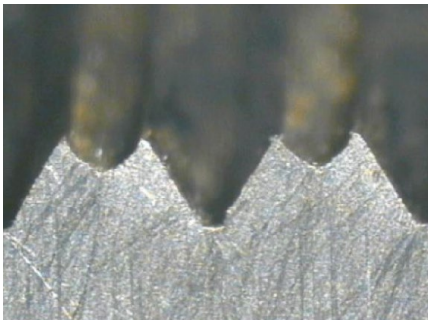




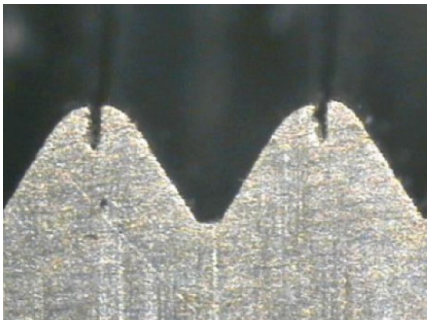
The thread profile is pressed gradually into the material via the start (leading edge) of the tap.

Properties

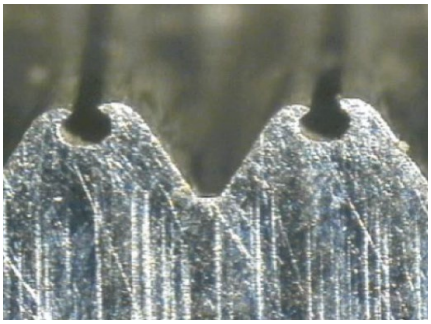
- One type can be used in different materials
- For through and blind holes
- Very good thread surface quality
- High static and dynamic strength thread
- Secure machining of deep and counterbored threads
- Short machining times
- No chip problems
- No swarf
- High process security
- HSS-E and HSS-PM taps for materials up to 33 HRC with a minimum elongation of 5 %



Underformed – core hole too large



Overformed – core hole too small



Perfect form – Core hole correct

Troubleshooting

Poor tool life

Cause

- Overload fractures of the cutting edge on the lead
- Hardness or tool material not suitable for the application
- Core hole too small, or work hardened
- Insufficient lubrication or incorrect application parameters

Remedy

- A longer lead or more flutes for the same lead length, giving a greater number of cutting teeth
- In reground tools the hardness can be reduced, apply correct parameters for regrinding
- Increase frequency of changes or regrinding of the drill
- Use the correct operating parameters for drilling
- Select the correct lubricant and ensure adequate supply

Axial thread error

Cause

- Selected geometry is not suitable
- Spindle speed is wrong compared with feed (synchronisation error)
- Blind hole taps are used with high feed pressure
- Through hole taps are used with low feed pressure

Remedy

- Check programming and pitch control or machine synchronisation
- Use tapping chuck with length compensation
- Increase retraction feed pessure
- Increase feed pessure

Oversize thread

Cause

- Thread tolerances of tool and thread gauge do not match
- Burred tool edges after regrinding
- Cold pressure welding

Remedy

- Check the correct tolerances for tool and thread gauge
- Carefully deburr
- Use appropriate (positive) geometry
- Reduce cutting speed
- Use different surface treatment or coating
- Use tapping chuck with length compensation
- Use appropriate lubricant

Broken tool

Cause

- Tool is worn
- Tool has hit the bottom of the hole
- Weld deposits
- Core hole too small
- Chip trapping
- Incorrect cutting speed
- Chip trapping in the flute
- Insufficient cooling / lubrication

Remedy

- Employ set taps
- Use a tool with lower helix
- Use tools with a shorter / longer lead
- Check the pre-drilling depth and the thread depth
- Drill core hole deeper
- Correct cutting speed
- Use a different coating or surface treatment
- Use tool holder with length compensation
- Use suitable lubricant
- Use correct core hole
- Change geometry and / or flute type
- Note chip shape and chip formation

Coatings

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

nitr.
- Nitrided
- Nitriding increases wear resistance and offers low friction properties

vap. + nitr.
- Vaporized + Nitrated
- Combination of increased surface hardness and lubricant carrier

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

TiN GS
- Titanium nitride low friction layer
- High wear resistance with low friction properties
- Maximum application temperature: 450 °C

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

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

Ti200
- TiN coating
- Well suited for high cutting speeds during thread forming
- Maximum application temperature: 450 °C

OSM
- Hard material layer and anti-friction layer
- For use in high-strength steels

CH
- Amorphous carbon layer
- For use in non-ferrous metals or aluminum
- Reduces the material adhesion

HCr
- Hard chromed
- For use in non-ferrous metals or aluminum
- Very low surface roughness

CrN
- Chromium-nitrogen coating
- Very wear-resistant coating
- Especially suitable for use in aluminum, but also for P, M and S materials

ALTiNHD
- AlTiN-based nanolayer hard material coating
- Maximum application temperature 500 °C

Coloured rings - overview

WNT \ Performance



for steel up to 750 N/mm²

Type ST uncoated tap for steel up to 750 N/mm² tensile strength



for steel to 1100 N/mm²

Type ST and VG coated tap for steel up to 1100 N/mm² tensile strength



for steel up to 1400 N/mm²

Type HR for steel up to 1400 N/mm² tensile strength



for corrosion and acid-resistant steels

Type VA for stainless steel



For cast iron materials

Type GG for cast iron



for aluminium and non-ferrous metal

Type NW, Soft and Ms for aluminium, short-chipping brass and soft materials



for heat resistant alloys

Type Ti, Ni and AMPCO for heat-resistant steel, titanium and Inconel



for hardened steels

Type HT for hard machining



for universal application up to 1100 N/mm²

Type UNI for the all-purpose use



New products for machining technicians

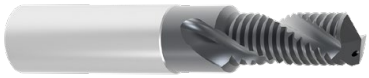
NEW HPC solid carbide thread milling cutters



▲ Just one tool for countersink and thread

→ Page 58

NEW Drill thread milling cutter with chamfer facet



▲ Just one tool for core hole, countersink, thread and thread undercut

→ Page 54+55

NEW Micro thread milling cutter



▲ Specialist for the smallest threads in hard materials

→ Page 57

NEW Circular shank thread milling cutter



▲ Specialist for the machining of deep threads

→ Page 63



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling 7

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Overview Circular and Thread Milling Cutters	3
Toolfinder	4+5
Product programme	6–69
Technical Information	
Cutting Data	70–76
Milling Procedures	77
Calculation of cutting data for thread milling	78
Internal thread production	78
Thread types/coatings	79

WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Version


no drilling required


central internal coolant


lateral internal coolant


coolant supply either via the flange or centrally


left-hand cutting

Shank







● = **Main Application**

○ = Extended application

Thread / Flank angle



Explanation of the types of thread can be found on → **Page 79.**



Flank angle 60°

Applications



Circlip Grooves


Full radius slot milling


Slot milling


Multipurpose milling


Chamfering and Deburring


Gear milling



IR = internal right, IL = internal left



ER = external right, EL = external left


IR/IL + ER/EL

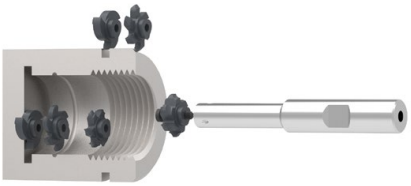
Tool types

EAW	Single-tooth thread milling cutter with carbide indexable inserts and Weldon flat
EWM	Single-tooth thread milling cutter with carbide indexable insert and SK adapter
GZD	Multi-tooth thread milling cutter with carbide indexable inserts (angled insert seat) and Weldon flat
GZG	Multi-tooth thread milling cutter with carbide indexable inserts (straight insert seat) and Weldon flat
SFSE	Thread milling cutter with chamfer facet
Mini Mill	Circular milling cutter with solid carbide milling insert (with three-rib insert connection)
MWN	Multi-tooth thread milling cutter with carbide indexable inserts (straight insert seat) and Weldon flat
Polygon	Circular shank milling cutter with carbide indexable insert (polygon insert seat)
SGF	Thread milling cutter
Micro Mill	Solid Carbide Circular End Milling Cutter
System 300	Circular milling cutter with solid carbide insert
BGF	Solid carbide drill thread milling cutter
ZBGF	Solid carbide circular drill thread milling cutter
SFSE Micro	Thread milling cutter for smallest threads

Overview Circular and Thread Milling Cutters

Modular Circular Milling Cutters with Carbide Indexable Inserts

- the perfect tool for every application
- various holders, depending on overhang
- the same threading insert for different pitches and diameters
- highest flexibility and stability
- in addition to circular thread milling, circular and linear milling operations can also be carried out



1st choice for small batch sizes and large threads

Thread Milling Cutters with Indexable Carbide Inserts

- exchange of the insert for different threads
- same threading insert for different diameters



Solid Carbide Thread Milling Cutters

- short machining times, ideal for volume production
- one tool for all thread types
- one thread milling cutter for different diameters with the same pitch



MicroMill



SGF



ZBGF



BGF

Toolfinder

				from bore diameter in mm
Modular Circular Milling Cutters with Carbide Indexable Inserts	Polygon		▲ high power transmission through polygon connection ▲ 3 and 6 edged inserts ▲ stable holders in solid carbide and steel	9,6
	Mini Mill		▲ three interlocking rib location ▲ compatible with popular manufacturer systems ▲ 3 and 6 edged inserts ▲ stable holders in solid carbide and steel	9,6
	System 300		▲ proven circular milling tool ▲ 3 edged inserts	7,9
Thread Milling Cutters with Indexable Carbide Inserts	MWN		▲ multi tooth thread milling cutter ▲ double sided inserts ▲ exclusively for thread production ▲ holder for tapered threads	9,0
	GZD		▲ multi tooth drilling and thread milling cutter ▲ for thread milling in solid material ▲ core hole and thread with one tool	14,0
	GZG		▲ multi tooth thread milling cutter ▲ exclusively for thread production	18,5
	EAW		▲ single point thread milling cutter ▲ inserts with 2 or 4 cutting edges ▲ exclusively for thread production ▲ insert holder with cylindrical shank DIN 1835	17,5
	EWM		▲ single point thread milling cutter ▲ inserts with 2 or 4 cutting edges ▲ exclusively for thread production ▲ integral insert holder to DIN 69871	43,0
Solid Carbide Thread Milling Cutters	Micro Mill		▲ solid carbide circular milling cutter for small diameters	1,25
	BGF		▲ Drill thread milling cutter ▲ Core hole, countersink, thread and thread undercut with one tool	2,45
	ZBGF		▲ Circular drill thread milling cutter ▲ Core hole, countersink and thread with one tool	2,3
	SFSE Micro		▲ Solid carbide shank thread milling cutter with chamfer facet ▲ Just one tool for countersink and thread ▲ Specially developed for the smallest threads in hard materials	0,75
	SFSE		▲ solid carbide thread milling cutter with chamfering facet ▲ only one tool for threading and chamfering	2,4
	SGF		▲ solid carbide thread milling cutter without chamfering facet ▲ exclusively for thread production	3,15

Thread / Flank angle								Applications						Tool holder
60°	55°	55°	60°	60°	80°	60°	30°	DIN 471/472						
M	G	BSW	UN	UNC	Pg	NPT	Tr							
MF		BSF		UNF										
11+12	13	13		15			14	6+7	8+9	10	10	16+17		18
26+27	28							19+20	21+22 23	22	24		25	29+30
34	35	35						31+32	33		33			36
37	38		38		39	39								40+41
42	42													43
44	45		46		45									47
48	48		48											49
50	50		50											51
53									52		52			
54+55														
56														
57														
58+59 61	59+61			62		60+62								
63+64 66+69	65+66			67+68										

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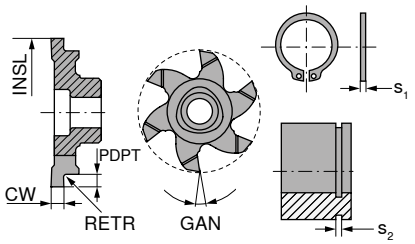
7

Milling inserts for circlip grooves without chamfer

Polygon

DIN 471/472



Ti500



Solid carbide

50 880 ...

Size	$s_{2\ H13}$ mm	INSL mm	CW $_{-0,03}$ mm	PDPT mm	RETR mm	GAN °	s_1 mm	NOF	£ W2	
6	0.90	9.6	0.98	1.20	0.3	6	0.80	3	80.63	292
	1.10	11.7	1.18	1.00	0.3	6	1.00	3	77.29	294
	1.30	11.7	1.38	1.00	0.3	6	1.20	3	77.29	296
	1.60	11.7	1.68	1.00	0.3	6	1.50	3	77.29	298
7	1.10	16.0	1.18	0.90	0.3	6	1.00	6	107.36	301
	1.30	16.0	1.38	1.10	0.3	6	1.20	6	86.47	302
	1.60	16.0	1.68	1.25	0.3	6	1.50	6	86.47	304
	1.85	16.0	1.93	1.25	0.3	6	1.75	6	86.47	306
	1.10	17.7	1.18	0.90	0.3	6	1.00	6	108.96	308
	1.30	17.7	1.38	1.10	0.3	6	1.20	6	108.96	309
	1.60	17.7	1.68	1.25	0.3	6	1.50	6	108.96	310
	1.85	17.7	1.93	1.25	0.3	6	1.75	6	108.96	311
9	1.10	20.0	1.18	0.90	0.3	6	1.00	6	112.01	313
	1.30	20.0	1.38	1.10	0.3	6	1.20	6	112.01	314
	1.60	20.0	1.68	1.25	0.3	6	1.50	6	112.01	315
	1.85	20.0	1.93	1.25	0.3	6	1.75	6	112.01	316
	1.60	21.7	1.68	1.25	0.3	6	1.50	6	113.33	318
	1.85	21.7	1.93	1.25	0.3	6	1.75	6	113.33	319
	2.15	21.7	2.23	1.75	0.3	6	2.00	6	113.33	320
	2.65	21.7	2.73	1.75	0.3	6	2.50	6	113.33	321
10	1.30	26.0	1.38	1.10	0.3	6	1.20	6	94.28	322
	1.60	26.0	1.68	1.25	0.3	6	1.50	6	94.28	324
	1.85	26.0	1.93	1.25	0.3	6	1.75	6	94.28	326
	2.15	26.0	2.23	1.75	0.3	6	2.00	6	94.28	328
	2.65	26.0	2.73	1.75	0.3	6	2.20	6	94.28	330
	3.15	26.0	3.23	2.20	0.3	6	3.00	6	94.28	332

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

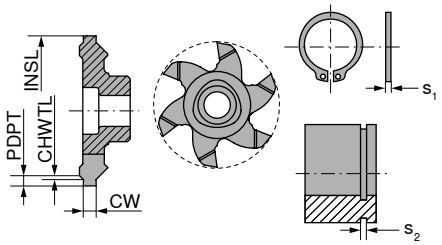
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Milling inserts for circlip grooves with chamfer

▲ Both edges chamfered 0.1 x 45°

Polygon

DIN 471/472



Ti500



Solid carbide

50 879 ...

Size	$s_{2\ H13}$ mm	INSL mm	CW $_{-0,03}$ mm	PDPT mm	CHWTL mm	s_1 mm	NOF	£ W2	
7	1.10	16.0	1.18	0.50	0.10	1.00	6	115.07	292
	1.30	16.0	1.38	0.85	0.15	1.20	6	95.15	302
	1.60	16.0	1.68	1.00	0.15	1.50	6	95.15	304
	1.85	16.0	1.93	1.25	0.20	1.75	6	95.15	306
9	1.10	20.0	1.18	0.50	0.10	1.00	6	122.47	307
	1.30	20.0	1.38	0.85	0.15	1.20	6	122.47	308
	1.60	20.0	1.68	1.00	0.15	1.50	6	122.47	309
	1.60	21.7	1.68	1.00	0.15	1.50	6	122.47	312
	1.85	20.0	1.93	1.25	0.20	1.75	6	122.47	310
	1.85	21.7	1.93	1.25	0.20	1.75	6	122.47	314
	2.15	21.7	2.23	1.50	0.20	2.00	6	122.47	316
	2.65	21.7	2.73	1.75	0.20	2.50	6	122.47	318
10	1.30	26.0	1.38	0.85	0.15	1.20	6	102.44	322
	1.60	26.0	1.68	1.00	0.15	1.50	6	102.44	324
	1.85	26.0	1.93	1.25	0.20	1.75	6	102.44	326
	2.15	26.0	2.23	1.50	0.20	2.00	6	102.44	328
	2.65	26.0	2.73	1.75	0.20	2.50	6	102.44	330
	3.15	26.0	3.23	1.75	0.20	3.00	6	102.44	332

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

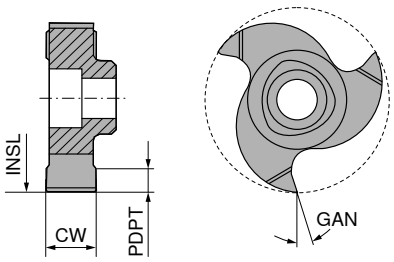
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Milling insert without profile

- ▲ with double sided edge break of 0.1 x 45°
- ▲ Size 7: from 5.0 mm groove width with ground chip breaker
- ▲ Size 10: from 6.5 mm groove width with ground chip breaker

Polygon



Ti500



Solid carbide

50 875 ...

Size	CW +/-0,02 mm	INSL mm	PDPT mm	GAN °	NOF	£ W2	
6	1.5	11.7	2.25	6	3	80.63	302
	2.0	11.7	2.25	6	3	80.63	304
	2.5	11.7	2.25	6	3	83.11	306
	3.0	11.7	2.25	6	3	83.11	308
7	3.5	16.0	3.50	0	3	52.24	310
	3.5	16.0	3.50	8	3	52.24	312
	3.5	16.0	3.50	12	3	52.24	314
	5.0	16.0	3.50	0	3	59.27	316
	5.0	16.0	3.50	8	3	59.27	318
	5.0	16.0	3.50	12	3	59.27	320
10	4.0	25.0	5.70	0	3	54.62	330
	4.0	25.0	5.70	8	3	54.62	332
	4.0	25.0	5.70	12	3	54.62	334
	5.0	25.0	5.70	8	3	109.25	337
	6.5	25.0	5.70	0	3	66.58	340
	6.5	25.0	5.70	8	3	66.58	342
	6.5	25.0	5.70	12	3	66.58	344
	8.0	25.0	5.70	0	3	73.63	350
	8.0	25.0	5.70	8	3	73.63	352
	8.0	25.0	5.70	12	3	73.63	354

P	●
M	●
K	●
N	●
S	●
H	●
O	●

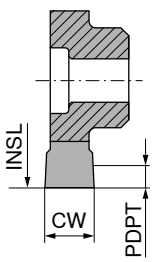
→ v_c/f_z Page 73

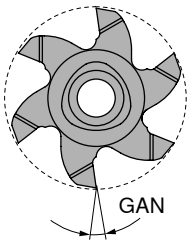
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Milling insert without profile

▲ Both edges chamfered 0.1 x 45°

Polygon





Ti500



Solid carbide

50 876 ...

Size	CW +/-0,02 mm	INSL mm	PDPT mm	GAN °	NOF	£ W2	
7	1.5	17.7	4.0	6	6	98.35	307
	2.0	17.7	4.0	6	6	98.92	308
	2.5	17.7	4.0	6	6	99.96	309
	3.0	16.0	3.5	6	6	90.36	302
	4.0	16.0	3.5	6	6	95.88	304
	5.0	16.0	3.5	6	6	98.35	306
9	1.5	21.7	5.0	6	6	113.33	314
	2.0	21.7	5.0	6	6	114.20	315
	2.5	21.7	5.0	6	6	114.20	316
	3.0	21.7	5.0	6	6	115.34	317
	3.0	20.0	4.2	6	6	115.34	311
	4.0	20.0	4.2	6	6	118.84	312
	5.0	20.0	4.2	6	6	124.93	313
10	1.5	27.7	6.8	6	6	140.19	330
	2.0	27.7	6.8	6	6	142.07	332
	2.5	27.7	6.8	6	6	142.07	334
	3.0	26.0	6.2	6	6	95.88	322
	3.0	27.7	6.8	6	6	143.69	336
	4.0	26.0	6.2	6	6	101.13	324
	5.0	26.0	6.2	6	6	126.54	326
	6.5	26.0	6.2	6	6	103.74	328

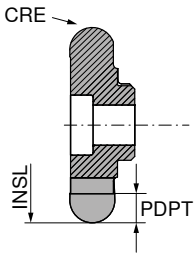
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Milling inserts for radius milling

Polygon



Ti500



Solid carbide

50 886 ...

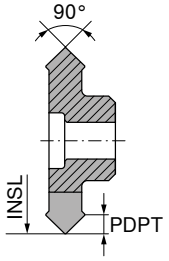
Size	CRE mm	INSL mm	PDPT mm	NOF	£ W2	
6	1.100	9.6	1.20	3	77.29	702
	0.788	11.7	2.25	3	77.29	704
	1.100	11.7	2.25	3	77.29	708
	1.190	11.7	2.25	3	77.29	706
7	0.788	17.7	4.20	6	97.78	712
	1.100	17.7	4.20	6	97.78	714
9	0.785	21.7	5.00	6	117.81	720
	1.000	21.7	5.00	6	117.81	722
	1.200	21.7	5.00	6	117.81	724
	1.400	21.7	5.00	6	117.81	726
	1.500	21.7	5.00	6	117.81	728

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

Milling inserts for chamfering and deburring

Polygon



Ti500



Solid carbide

50 884 ...

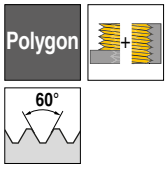
Size	PDPT mm	INSL mm	NOF	£ W2	
6	1.20	9.6	3	77.29	292
	1.50	11.7	3	77.29	294
7	1.90	16.0	6	93.41	302
	1.30	17.7	6	116.94	304
9	1.90	20.0	6	120.73	312
	1.95	21.7	6	117.81	314
10	2.10	26.0	6	102.44	322

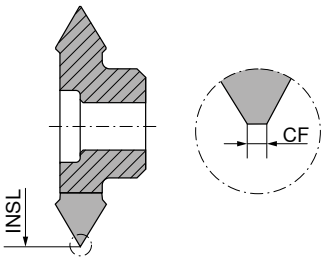
P	●
M	●
K	●
N	●
S	●
H	●
O	●

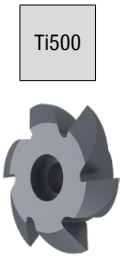
→ v_c/f_z Page 73

Thread milling insert – Partial profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!







Solid carbide

50 882 ...

Size	TP mm	INSL mm	CF mm	NOF	£ W2	
6	1 - 3	11.7	0.10	3	111.72	292
7	1 - 3	17.7	0.10	6	125.37	306
	1 - 4	16.0	0.10	6	101.13	302
	2,5 - 4	16.0	0.25	6	125.37	304
9	1 - 2	21.7	0.10	6	127.12	314
	1 - 3	20.0	0.10	6	127.12	312
	2 - 4	21.7	0.15	6	127.12	316
10	1 - 3	26.0	0.10	6	108.82	322
	2,5 - 5	26.0	0.25	6	134.98	324

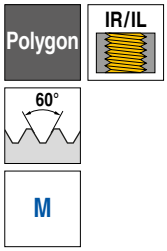
P	●
M	●
K	●
N	●
S	●
H	●
O	●

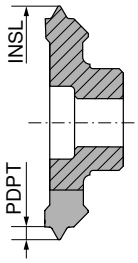
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Thread milling insert – Full profile







Solid carbide

50 881 ...

Size	TP mm	INSL mm	PDPT mm	NOF	£ W2	
6	1	9.6	0.572	3	136.40	**292**
	1,5	9.6	0.875	3	136.40	**293**
	2	10.5	1.157	3	136.40	**296**
7	1,5	16.0	0.875	6	124.93	**302**
	2	16.0	1.157	6	124.93	**304**
	2,5	16.0	1.430	6	124.93	**306**
	3	16.0	1.702	6	124.93	**310**
	M20x2,5	16.0	1.430	6	131.20	**308** 1)
9	1,5	20.0	0.875	6	159.67	**312**
	2	20.0	1.157	6	159.67	**314**
	M24x3	20.0	1.702	6	159.67	**316** 1)
10	1,5	26.0	0.875	6	132.64	**322**
	2	26.0	1.157	6	132.64	**324**
	3	26.0	1.702	6	132.64	**330**
	3,5	26.0	1.982	6	132.64	**332**
	4	26.0	2.263	6	132.64	**334**
	4,5	26.0	2.553	6	132.64	**336**
	5	26.0	2.836	6	164.45	**337**
	M30x3,5	24.0	1.982	6	164.45	**331** 1)
	M36x4	26.0	2.263	6	164.45	**335** 1)

P	●
M	●
K	●
N	●
S	●
H	●
O	●

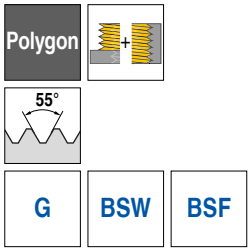
1) profile corrected

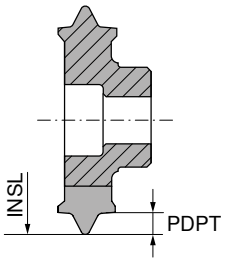
→ v_c/f_z Page 73

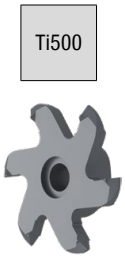
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – Full profile

▲ 50 883 322 for threads > 1"







Solid carbide

50 883 ...

Size	TPI 1/"	TP mm	INSL mm	PDPT mm	NOF	£ W2	
6	19	1.337	9.6	0.871	3	136.40	292
7	14	1.814	17.7	1.177	6	151.94	308
	14	1.814	16.0	1.177	6	155.02	304
	11	2.309	16.0	1.494	6	124.93	302
	10	2.540	16.0	1.646	6	155.02	306
9	14	1.814	20.0	1.177	6	159.67	316
	11	2.309	20.0	1.494	6	159.67	314
10	11	2.309	26.0	1.494	6	132.64	322

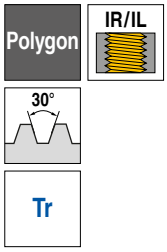
P	●
M	●
K	●
N	●
S	●
H	●
O	●

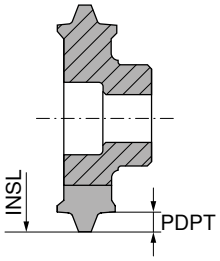
→ v_c/f_z Page 73

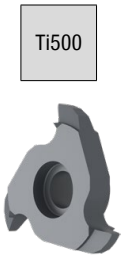
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – Full profile

▲ DIN 103







Solid carbide

50 872 ...

Size	TP mm	INSL mm	PDPT mm	NOF	Thread	£ W2	
6	2	11.7	1.25	3	Tr 16x2 - Tr 20x2	79.28	**292**
	3	11.0	1.75	3	Tr 18x3 - Tr 20x3	79.28	**294**
	4	12.0	2.25	3	Tr 20x4	79.28	**296** 1)
7	3	14.0	1.75	3	Tr 24x3 - Tr 32x3	108.14	**302** 2)
	5	15.3	2.75	3	Tr 28x5 - Tr 36x5	108.14	**306** 3)
	5	15.3	2.75	3	Tr 26x5	108.14	**304** 3)
	6	16.2	3.50	3	Tr 34x6 - Tr 42x6	108.14	**310** 2)
	6	16.2	3.50	3	Tr 30x6 - Tr 32x6	108.14	**308** 2)
10	5	25.0	2.75	3	Tr 44x5 - Tr 48x5	136.93	**322** 4)
	7	22.0	3.75	3	Tr 38x7 - Tr 42x7	136.93	**324** 4)
	7	22.0	3.75	3	Tr 44x7	136.93	**326** 1)
	8	25.0	4.50	3	Tr 46x8 - Tr 48x8	158.58	**328** 4)
	8	25.0	4.50	3	Tr 50x8 - Tr 52x8	158.58	**330** 4)
	9	25.0	5.00	3	Tr 55x9 - Tr 60x9	158.58	**332** 4)
	10	25.0	5.50	3	Tr 60x10 - Tr 80x10	158.58	**334** 4)

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) profile corrected
2) Not suitable for the 50 805 011 and 50 805 010 holders
3) Not suitable for the 50 805 011 and 50 805 010 holders / profile corrected
4) Not suitable for the 50 805 026, 50 805 025 and 50 805 024 holders

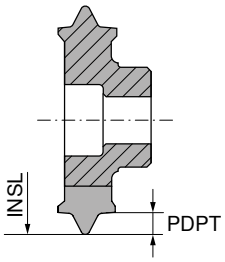
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – Full profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!

Polygon | IR/IL | 60° | UNC



Ti500



Solid carbide

50 886 ...

Size	TPI 1/"	INSL mm	PDPT mm	NOF	£ W2	
6	12.0	9.6	1.228	3	136.40	202
	11.0	10.5	1.355	3	136.40	204
	10.0	11.7	1.485	3	136.40	206
7	9.0	16.0	1.577	6	155.02	212
9	8.0	18.0	1.809	6	159.67	222
	7.0	20.0	2.043	6	159.67	224
10	6.0	24.0	2.454	6	164.45	232
	5.0	26.0	2.979	6	164.45	234
	4.5	26.0	3.289	6	164.45	236

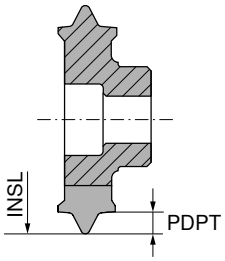
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

Thread milling insert – Full profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!

Polygon | IR/IL | 60° | UNF



Ti500



Solid carbide

50 886 ...

Size	Thread	INSL mm	PDPT mm	NOF	£ W2	
6	1/2 - 20	9.6	0.733	3	136.40	302
	9/16 - 18	10.5	0.827	3	136.40	304
	3/4 - 16	11.7	0.945	3	136.40	306
7	7/8 - 14	17.7	1.071	6	151.94	312
9	1 - 12	20.0	1.228	6	151.94	322

P	●
M	●
K	●
N	●
S	●
H	●
O	●

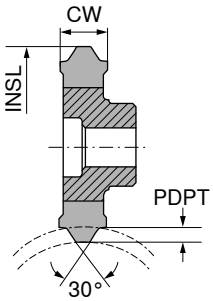
→ v_c/f_z Page 73

Gear cutters, DIN 5480

▲ Z_w = Tooth Number Wave

Polygon





Ti500



Solid carbide

50 874 ...

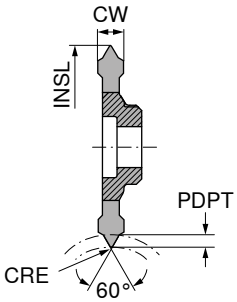
Size	Wave	module	Z_w	CW mm	INSL mm	PDPT mm	NOF	£ W2	
7	W11	0,80	12	3	15.85	0.80	6	107.19	011
	W14	0,80	16	3	16.00	0.80	6	107.19	014
	W16	0,80	18	3	16.00	0.80	6	107.19	016
	W20	0,80	24	3	16.00	0.80	6	107.19	020
	W24	1,25	18	4	16.00	1.25	6	115.56	024
	W25	2,00	11	7	16.00	2.00	3	132.18	025
	W30	1,25	22	4	16.00	1.25	6	115.56	031
	W30	1,25	20	5	16.00	1.25	6	115.56	030
	W35	2,00	16	5	16.00	2.00	6	118.92	035
	W42	1,25	32	4	16.00	1.25	6	115.56	042
	W50	2,00	24	5	16.00	2.00	6	118.92	050

Gear cutters, DIN 5481

▲ Z_w = Tooth Number Wave

Polygon





Ti500



Solid carbide

50 874 ...

Size	Wave	Z_w	CW mm	INSL mm	CRE mm	PDPT mm	NOF	£ W2	
10	26 x 30	35	3	26	0.3	1.638	6	107.19	126
	40 x 44	38	3	26	0.4	1.940	6	107.19	140

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

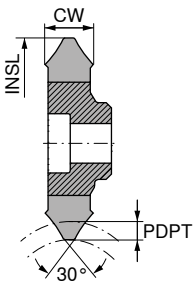
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Gear cutters, DIN 5482

▲ Z_w = Tooth Number Wave

Polygon





Ti500



Solid carbide

Size	Wave	module	Z_w	CW mm	INSL mm	PDPT mm	NOF	50 874 ... £ W2	
7	15 x 12	1,60	8	3.0	16	1.50	6	118.92	215
	17 x 14	1,60	9	5.0	16	1.50	6	107.19	217
	20 x 17	1,60	12	5.0	16	1.50	6	107.19	220
	25 x 22	1,60	14	5.0	16	1.65	6	118.92	225
10	35 x 31	1,75	18	6.5	26	2.00	6	123.82	235
	55 x 50	2,00	26	6.5	26	2.75	6	123.82	255

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

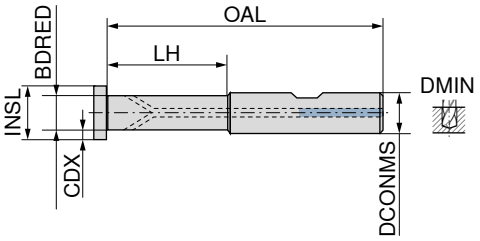
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

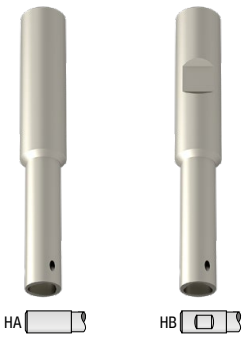
Circular milling cutter

- ▲ For maximum machining depth, note insert width (CW)
- ▲ Size 6 = for INSL 9.6; 10.5; 11.7; 12
- ▲ Size 7 = for INSL 16; 17.7
- ▲ Size 9 = for INSL 18; 20; 21.7
- ▲ Size 10 = for INSL 24; 25; 26; 27.7
- ▲ Holder available as screw-in variant in the online shop

Polygon







Size	LH mm	CDX mm	DCONMS $_{h6}$ mm	OAL mm	BDRED mm	DMIN mm	torque moment Nm	HM 50 805 ... £ W1		HM 50 805 ... £ W1	
6	20.00	2.25	12	67.5	7.0	12	1,0			234.32	050 [1]
	20.00	2.25	12	67.5	7.0	12	1,0			365.05	051
	20.00	2.25	12	67.5	7.0	12	1,0	365.05	052		
	30.00	2.25	12	80.0	7.0	12	1,0			384.81	053
	30.00	2.25	12	80.0	7.0	12	1,0	384.81	054		
	40.00	2.25	12	100.0	7.0	12	1,0			414.31	055
	40.00	2.25	12	100.0	7.0	12	1,0	414.31	056		
7	20.90	4.00	12	67.4	9.0	18	1,1			168.67	002 [1]
	21.00	4.00	12	67.4	9.0	18	1,1			493.19	004
	21.00	4.00	12	67.4	9.0	18	1,1	365.05	005		
	36.00	4.00	12	82.4	9.0	18	1,1			474.03	008
	36.00	4.00	12	82.4	9.0	18	1,1	389.76	085		
		4.00	12	122.5	12.0	18	1,1	485.91	010		
		4.00	12	82.4	12.0	18	1,1	647.00	011		
9	29.75	5.00	16	80.0	11.5	22	3,8			234.32	070 [1]
	30.00	5.00	16	80.0	11.5	22	3,8			431.58	071
	30.00	5.00	16	80.0	11.5	22	3,8	431.58	072		
	50.00	5.00	16	100.0	11.5	22	3,8			443.93	073
	50.00	5.00	16	100.0	11.5	22	3,8	443.93	074		
10	20.50	5.70	16	105.0	15.5	28	5,5	914.29	025		
	20.50	6.80	16	149.7	15.5	28	5,5	631.76	024		
	20.50	6.80	20	175.4	15.5	28	5,5	715.14	026		
	30.40	6.80	16	79.6	13.6	28	5,5			176.51	012 [1]
	30.50	6.80	16	79.6	13.6	28	5,5	431.58	015		
	30.50	6.80	16	79.6	13.6	28	5,5			493.19	014
	45.50	6.80	16	94.6	13.6	28	5,5	443.93	021		
	45.50	6.80	16	94.6	13.6	28	5,5			294.97	020
	60.50	6.80	16	109.6	13.6	28	5,5			304.64	022
	60.50	6.80	16	109.6	13.6	28	5,5	468.62	023		

1) Steel version



Key D



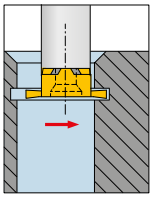
Clamping screw

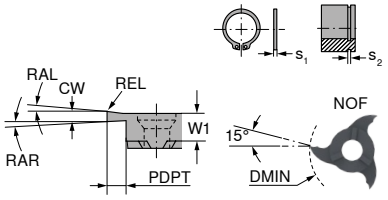
Spare parts Size		80 950 ... £ Y7			70 960 ... £ 2A	
6	T08 - IP	14.16	125	M2,5x7	5.99	246
7	T08 - IP	14.16	125	M3x13	5.99	231
9	T15 - IP	16.56	128	M4x13	5.99	236
10	T20 - IP	17.39	129	M5x13,5	5.99	243

MiniMill – Milling insert for circlip grooves

Mini Mill | ≥ Ø 10 mm | DIN 471/472

CWX500







53 006 ...

Size	DMIN mm	$s_{2\ H13}$ mm	$CW_{-0.02}$ mm	PDPT mm	W1 mm	RAR °	REL mm	s_1 mm	NOF	£ W2	
10	10	0.70	0.74	1.5	3.50	1		0.60	3	70.90	070
	10	0.80	0.84	1.5	3.50	1		0.70	3	70.90	080
	10	0.90	0.94	1.5	3.50	1		0.80	3	70.90	090
	10	1.10	1.21	1.5	3.50	3		1.00	3	63.50	110
	10	1.30	1.41	1.5	3.50	3	0.10	1.20	3	63.50	130
	10	1.60	1.71	1.5	3.50	3	0.10	1.50	3	63.50	160
	12	1.10	1.21	2.5	3.50	3		1.00	3	63.50	112
	12	1.30	1.41	2.5	3.50	3	0.10	1.20	3	63.50	132
	12	1.60	1.71	2.5	3.50	3	0.10	1.50	3	63.50	162
18	18	0.70	0.74	1.5	5.75	1		0.60	3	72.50	270
	18	0.80	0.84	1.7	5.75	1		0.70	3	72.50	280
	18	0.90	0.94	1.9	5.75	1		0.80	3	72.50	290
	18	1.10	1.21	3.5	5.75	3		1.00	3	68.15	310
	18	1.30	1.41	3.5	5.75	3	0.10	1.20	3	68.15	330
	18	1.60	1.71	3.5	5.75	3	0.10	1.50	3	68.15	360
22	22	0.70	0.74	1.5	5.70	1		0.60	3	76.99	470
	22	0.80	0.84	1.7	5.70	1		0.70	3	76.99	480
	22	0.90	0.94	1.9	5.70	1		0.80	3	68.86	490
	22	1.00	1.04	2.1	5.70	1		0.90	3	72.91	500
	22	1.10	1.21	2.5	5.70	1		1.00	3	72.91	510
	22	1.30	1.41	4.5	5.70	3	0.10	1.20	3	69.44	530
	22	1.60	1.71	4.5	5.70	3	0.10	1.50	3	69.44	560
	22	1.85	1.96	4.5	5.70	3	0.15	1.75	3	69.44	585
	22	2.15	2.26	4.5	5.70	3	0.15	2.00	3	69.44	615
	22	2.65	2.76	4.5	5.70	3	0.15	2.50	3	69.44	665
	22	3.15	3.26	4.5	5.70	3	0.20	3.00	3	69.44	415
	22	4.15	4.26	4.5	5.70	3	0.20	4.00	3	69.44	515
	22	5.15	5.26	4.5	5.70	3	0.20	5.00	3	69.44	605

P	●
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S	○
H	○
O	●

→ v_c/f_z Page 76

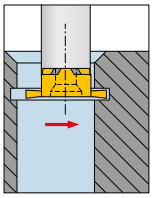
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

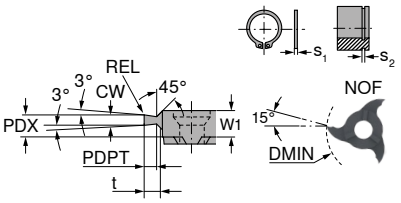
7

MiniMill – Milling insert for circlip grooves with chamfer facet

Mini Mill | ≥ Ø 22 mm | DIN 471/472

CWX500







53 006 ...

Size	DMIN mm	$s_{2\ H13}$ mm	$CW_{-0.02}$ mm	t mm	PDPT mm	W1 mm	PDX mm	REL mm	s_1 mm	NOF	£ W2	
22	22	1.10	1.21	0.50	0.49	5.85	5.07		1.00	3	75.25	**805**
	22	1.30	1.41	0.70	0.67	5.85	5.17		1.20	3	75.25	**807**
	22	1.30	1.41	0.85	0.83	5.85	5.17		1.20	3	75.25	**808**
	22	1.60	1.71	0.85	0.83	5.85	5.07		1.50	3	75.25	**809**
	22	1.60	1.71	1.00	0.97	5.85	5.07		1.50	3	75.25	**810**
	22	1.85	1.96	1.25	1.23	5.85	5.19	0.15	1.75	3	75.25	**812**
	22	2.15	2.26	1.50	1.47	5.85	5.34	0.15	2.00	3	75.25	**815**
	22	2.65	2.76	1.75	1.72	5.85	5.09	0.15	2.50	3	75.25	**817**
	22	2.65	2.76	1.50	1.47	5.85	5.09	0.15	2.50	3	75.25	**816**
	22	3.15	3.26	1.75	1.72	5.85	5.34	0.20	3.00	3	75.25	**818**
	22	4.15	4.26	2.50	2.47	5.85	5.34	0.20	4.00	3	75.25	**825**
	22	4.15	4.26	2.00	1.97	5.85	5.34	0.20	4.00	3	75.25	**820**

P	●
M	●
K	●
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S	○
H	○
O	●

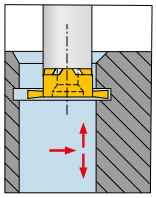
→ v_c/f_z Page 76

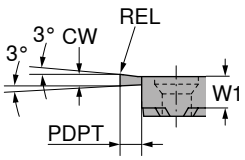
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

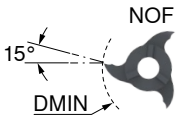
MiniMill – Milling insert for groove milling

Mini Mill | ≥ Ø 10 mm

CWX500









53 007 ...

Size	DMIN mm	CW $_{0.02}$ mm	PDPT mm	W1 mm	REL mm	NOF	£ W2	
10	10	1.0	1.5	3.50	0.1	3	70.90	010
	10	1.5	1.5	3.50	0.2	3	63.50	015
	10	2.0	1.5	3.50	0.2	3	63.50	020
	10	2.5	1.5	3.50	0.2	3	63.50	025
	12	1.5	2.0	3.50	0.2	6	63.98	114
	12	1.5	2.5	3.50	0.2	3	63.50	115
	12	2.0	2.0	3.50	0.2	6	63.98	119
	12	2.0	2.5	3.50	0.2	3	63.50	120
	12	2.5	2.5	3.50	0.2	3	63.50	125
14	14	1.0	2.5	4.50		3	72.50	210
	14	1.5	2.5	4.50	0.2	3	66.54	215
	14	2.0	2.5	4.50	0.2	3	66.54	220
	14	2.5	2.5	4.50	0.2	3	66.54	225
	16	1.5	3.5	4.50	0.2	3	66.54	315
	16	2.0	3.5	4.50	0.2	3	66.54	320
	16	2.5	3.5	4.50	0.2	3	66.54	325
18	18	1.5	3.5	5.75	0.1	6	72.42	414
	18	1.5	3.5	5.75	0.2	3	68.15	415
	18	2.0	3.5	5.75	0.2	6	72.42	419
	18	2.0	3.5	5.75	0.2	3	68.15	420
	18	2.5	3.5	5.75	0.2	6	72.42	424
	18	2.5	3.5	5.75	0.2	3	68.15	425
	18	3.0	3.5	5.75	0.2	6	72.42	429
	18	3.0	3.5	5.75	0.2	3	68.15	430
	18	4.0	3.5	5.75	0.2	3	39.56	440
22	22	1.0	4.5	6.20	0.1	6	70.92	810
	22	1.5	4.5	6.20	0.1	6	153.99	815
	22	1.5	4.5	5.70	0.2	3	81.23	515
	22	2.0	4.5	5.70	0.2	3	81.23	520
	22	2.0	4.5	6.20	0.2	6	153.99	820
	22	2.5	4.5	5.70	0.2	3	81.23	525
	22	2.5	4.5	6.20	0.2	6	153.99	825
	22	3.0	4.5	5.70	0.2	3	81.23	530
	22	3.0	4.5	6.20	0.2	6	153.99	830
	22	3.5	4.5	5.70	0.2	3	41.33	535
	22	4.0	4.5	5.70	0.2	3	81.23	540
	22	4.0	4.5	6.20	0.2	6	153.99	840
28	25	2.0	5.0	6.50	0.2	3	81.23	620
	25	2.5	5.0	6.50	0.2	3	81.23	625
	25	3.0	5.0	6.50	0.2	3	81.23	630
	25	3.5	5.0	6.50	0.2	3	81.23	635
	25	4.0	5.0	6.50	0.2	3	81.23	640
	28	1.0	6.5	6.25	0.1	6	78.83	610
	28	1.5	6.5	6.25	0.1	6	77.75	615
	28	1.5	6.5	6.50	0.2	3	81.23	715
	28	2.0	6.5	6.25	0.2	6	78.71	721
	28	2.0	6.5	6.50	0.2	3	81.23	720
	28	2.5	6.5	6.25	0.2	6	79.53	726
	28	2.5	6.5	6.50	0.2	3	81.23	725
	28	3.0	6.5	6.50	0.2	3	81.23	730
	28	3.0	6.5	6.25	0.2	6	80.35	731
	28	3.5	6.5	6.50	0.2	3	81.23	735
	28	4.0	6.5	6.25	0.2	6	82.12	741
	28	4.0	6.5	6.50	0.2	3	81.23	740
	28	5.0	6.5	6.50	0.2	3	47.33	750
	28	6.0	6.5	6.50	0.2	3	48.30	760

P	●
M	●
K	●
N	●
S	○
H	○
O	●

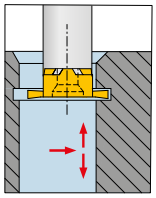
→ v_c/f_z Page 76

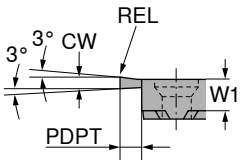
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

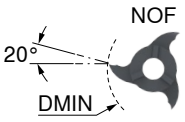
7

MiniMill – Milling insert for groove milling (Specialist for aluminium)

Mini Mill | ≥ Ø 32 mm | CWX500









53 007 ...

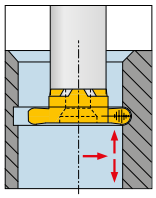
Size	DMIN mm	CW $_{0.02}$ mm	PDPT mm	W1 mm	REL mm	NOF	£ W2	
28	32	2.0	8.5	6.5	0.2	3	90.66	920
	32	2.5	8.5	6.5	0.2	3	90.66	925
	32	3.0	8.5	6.5	0.2	3	90.66	930

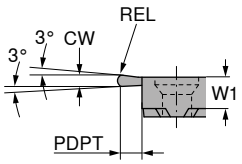
P	
M	
K	
N	●
S	
H	
O	

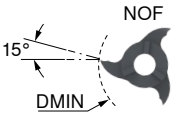
→ v_c/f_z Page 76

MiniMill – Milling insert for groove milling with full radius

Mini Mill | ≥ Ø 12 mm | CWX500









53 008 ...

Size	DMIN mm	CW $_{+0,03}$ mm	PDPT mm	W1 mm	REL mm	NOF	£ W2	
10	12	2.2	2.5	3.50	1.1	3	81.23	011
14	16	2.2	3.5	4.60	1.1	3	82.81	111
18	18	2.2	3.5	5.75	1.1	3	84.26	211
22	22	1.0	4.5	5.75	0.5	3	49.10	305
	22	1.6	4.5	5.75	0.8	3	49.93	308
	22	2.0	4.5	5.75	1.0	3	49.10	310
	22	2.4	4.5	5.75	1.2	3	50.89	312
	22	2.8	4.5	5.75	1.4	3	84.26	314
	22	3.0	4.5	5.75	1.5	3	49.10	315
	22	4.0	4.5	5.75	2.0	3	49.10	320
	22	4.4	4.5	5.75	2.2	3	50.62	322
	22	5.0	4.5	5.75	2.5	3	52.51	325

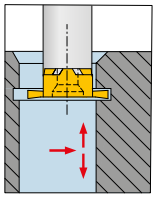
P	●
M	●
K	●
N	●
S	○
H	○
O	●

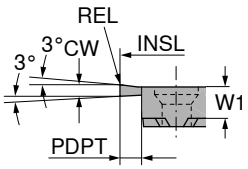
→ v_c/f_z Page 76

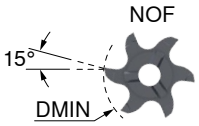
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

MiniMill – Milling insert for groove milling, cross-pitched

Mini Mill | ≥ Ø 12 mm | CWX500









Size	DMIN mm	INSL mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	NOF	53 015 ... £ W2	
10	12	11.7	1.5	2.0	3.5	0.2	6	59.93	114
	12	11.7	2.0	2.0	3.5	0.2	6	59.93	119
14	16	15.7	1.5	2.5	4.5	0.2	6	61.10	314
	16	15.7	2.0	2.5	4.5	0.2	6	61.10	319
	16	15.7	2.5	2.5	4.5	0.2	6	61.10	324
18	18	17.7	2.0	4.0	5.8	0.2	6	68.16	419
	18	17.7	2.5	4.0	5.8	0.2	6	68.16	424
	18	17.7	3.0	4.0	5.8	0.2	6	68.16	429
	20	19.7	2.0	5.0	5.8	0.2	6	68.16	469
	20	19.7	2.5	5.0	5.8	0.2	6	68.16	474
	20	19.7	3.0	5.0	5.8	0.2	6	68.16	479
22	22	21.7	2.0	4.5	6.2	0.2	6	65.80	820
	22	21.7	2.5	4.5	6.2	0.2	6	65.80	825
	22	21.7	3.0	4.5	6.2	0.2	6	65.80	830
	22	21.7	4.0	4.5	6.2	0.2	6	65.80	840
	37	36.7	1.5	12.0	6.2	0.1	6	85.80	865
	37	36.7	2.0	12.0	6.2	0.2	6	85.80	870
28	25	24.8	2.5	5.0	6.4	0.2	6	75.21	626
	25	24.8	3.0	5.0	6.4	0.2	6	75.21	631
	25	24.8	4.0	5.0	6.4	0.2	6	78.74	641
	25	24.8	5.0	5.0	6.4	0.2	6	82.26	651
	25	24.8	6.0	5.0	6.4	0.2	6	83.43	661
	28	27.7	2.5	6.5	6.2	0.2	6	75.21	726
	28	27.7	3.0	6.5	6.2	0.2	6	75.21	731
	28	27.7	4.0	6.5	6.2	0.2	6	77.55	741
	28	27.7	5.0	6.5	6.2	0.2	6	78.74	751
	28	27.7	6.0	6.5	6.2	0.2	6	78.74	761
	35	34.7	2.0	10.0	6.2	0.2	6	82.26	770
	35	34.7	2.5	10.0	6.2	0.2	6	83.43	775
	35	34.7	3.0	10.0	6.2	0.2	6	83.43	780

P	●
M	●
K	●
N	●
S	○
H	○
O	●

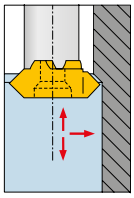
→ v_c/f_z Page 76

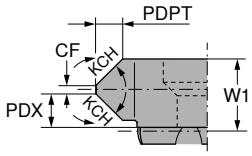
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

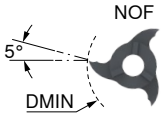
7

MiniMill – Milling insert for groove milling and chamfering

Mini Mill | ≥ Ø 10 mm | CWX500









Size	DMIN mm	CF +0,03 mm	PDPT mm	W1 mm	KCH °	PDX mm	NOF	53 009 ... £ W2	
10	10	0.2	0.35	3.60	15	1.80	6	64.39	015
	10	0.2	0.45	3.60	20	1.80	6	64.39	020
	10	0.2	0.70	3.60	30	1.80	6	64.39	030
	10	0.2	1.20	3.60	45	1.80	6	64.39	045
	12	1.2	0.80	3.50	45	1.20	3	54.62	035
14	16	1.4	1.20	4.50	45	1.60	3	56.25	145
18	18	2.5	1.40	5.85	45	1.70	3	57.11	258
	18	0.2	2.20	5.75	45	3.00	6	71.36	259
22	22	2.0	1.70	5.85	45	2.00	3	60.59	358
	22	0.2	2.50	6.40	45	3.90	6	155.58	463
	22	3.0	3.00	9.40	45	3.25	3	63.50	394 1)
28	28	0.2	1.90	6.05	45	3.75	6	77.62	560

P	●
M	●
K	●
N	●
S	○
H	○
O	●

1) Use clamping screw 73 082 006

→ v_c/f_z Page 76

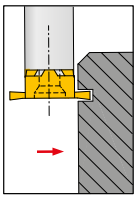
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

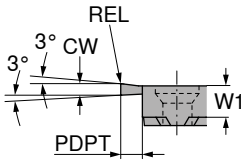
MiniMill – Milling insert for part-off

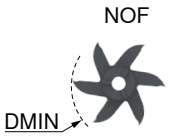
▲ PDPT = 12,0 mm in combination with holder 53 003 624
▲ reduce feed rate by 50 %

Mini Mill | ≥ Ø 37 mm

CWX500









Size	DMIN mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	NOF	53 013 ... £ W2	
22	37	0.5	12	5.6		6	118.97	705 1)
	37	0.6	12	5.7		6	112.67	706 1)
	37	0.8	12	6.0		6	111.16	708 1)
	37	1.0	12	6.2	0.1	6	114.40	710
	37	1.5	12	6.2	0.1	6	97.62	715

P	●
M	●
K	●
N	●
S	○
H	
O	●

1) The end face is not ground free to the center

→ v_c/f_z Page 76

7

MiniMill – Set for cut off

▲ Size 22

Mini Mill



Tool	Designation	Article no.	Bore-Ø mm	Piece	53 014 ... £	
Inserts	Milling inserts for separating	53 013 715	37	2	320.31	990
Tool holder	Endmill short	53 003 624		1		
Screw	M5 x 12	73 082 005		1		
Tightening Key	T20			1		

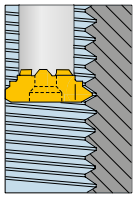
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

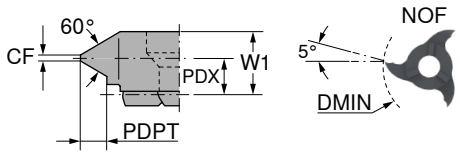
MiniMill – Milling insert for internal thread milling – Partial profile

Mini Mill | ≥ M12

60°

CWX500







53 010 ...

Size	Thread$_{min}$	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	NOF	£ W2	
10	M12	1,0 - 1,75	9.8	0.13	1.02	3.20	2.4	6	72.18	017
	M14	1,0 - 1,75	11.7	0.13	1.08	3.60	2.8	3	84.26	010
	M14	1,0 - 2,0	10.1	0.13	1.25	3.20	2.2	6	72.18	021
	M14	1,0 - 2,0	11.7	0.13	1.25	3.60	2.8	3	84.26	020
	M16	1,5 - 2,75	11.0	0.19	1.67	3.20	2.0	6	72.18	027
	M16	1,5 - 2,75	11.7	0.19	1.67	3.60	2.4	3	84.26	015
	M16	2,0 - 3,0	11.1	0.25	1.78	3.20	1.9	6	72.18	029
	M16	2,0 - 3,0	11.7	0.25	1.78	3.60	2.2	3	84.26	030
14	M18	1,0 - 1,75	15.7	0.12	1.08	4.60	3.8	3	85.70	210
	M18	1,0 - 2,0	15.7	0.12	1.25	4.60	3.5	3	85.70	220
	M20	1,5 - 2,75	15.7	0.18	1.67	4.60	3.5	3	85.70	215
	M22	2,5 - 3,0	15.7	0.31	1.78	4.60	3.4	3	85.70	230
18	M22	1,0 - 1,75	17.7	0.12	1.03	5.85	5.0	3	91.81	410
	M22	1,0 - 2,0	17.7	0.12	1.19	5.85	4.7	3	85.70	412
	M22	1,0 - 2,0	17.7	0.12	1.19	5.85	5.0	6	84.16	416
	M22	1,5 - 2,75	17.7	0.19	1.62	5.85	4.6	3	85.70	415
	M24	2,0 - 3,0	17.7	0.25	1.73	5.85	4.4	3	91.81	425
	M24	2,0 - 3,5	17.7	0.25	2.06	5.85	4.2	3	85.70	455
	M24	2,0 - 3,5	17.7	0.25	2.06	5.85	4.3	6	85.92	434
	M24	2,0 - 3,75	17.7	0.25	2.22	5.85	4.2	3	85.70	420
	M24	2,5 - 5,0	17.7	0.31	2.98	5.85	3.8	3	85.70	430
	M24	3,0 - 5,5	17.7	0.38	3.25	5.85	4.2	3	85.70	435
22	M27	1,0 - 2,0	21.7	0.12	1.19	5.85	4.6	3	88.78	610
	M27	1,0 - 2,0	21.7	0.12	1.19	6.20	5.0	6	182.45	710
	M27	1,5 - 2,75	21.7	0.18	1.62	5.85	4.5	3	88.78	615
	M27	2,0 - 3,75	21.7	0.25	2.22	5.85	4.2	3	88.78	620
	M27	2,5 - 4,5	21.7	0.25	2.70	5.85	3.7	3	91.81	655
	M27	2,0 - 4,5	21.7	0.25	2.70	6.05	4.2	6	187.40	755
	M30	2,5 - 5,0	21.7	0.31	2.98	5.85	3.8	3	88.78	630
	M30	3,5 - 6,0	21.7	0.44	3.52	5.85	3.4	3	91.81	640
	M30	3,5 - 6,5	21.7	0.44	3.84	5.85	3.2	3	91.81	645
28	M33	1,0 - 2,0	27.7	0.12	1.20	6.60	4.5	3	60.44	820
	M33	1,5 - 2,5	27.7	0.18	1.49	6.60	4.3	3	60.44	825
	M33	1,5 - 2,5	27.7	0.19	1.60	6.10	5.0	6	90.44	826
	M36	2,5 - 5,0	27.7	0.38	2.93	6.10	2.3	6	90.44	850
	M36	2,5 - 5,0	27.7	0.37	2.93	6.60	4.0	3	60.44	840
	M39	4,0 - 6,0	27.7	0.62	3.37	6.60	3.6	3	60.44	860

P	●
M	●
K	●
N	●
S	○
H	○
O	●

→ v_c/f_z Page 76

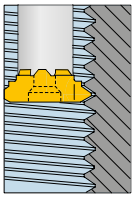
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

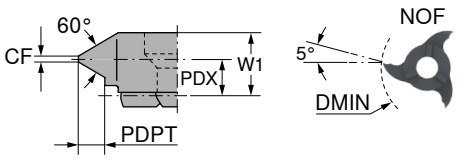
MiniMill – Milling insert for internal thread milling – Full profile

Mini Mill | ≥ M22

60° | M

CWX500







Size	Thread$_{min}$	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	NOF	53 011 ... £ W2	
18	M22	1.50	17.7	0.18	0.81	5.85	4.8	3	88.78	415
	M22	1.75	17.7	0.20	0.95	5.85	4.7	3	94.44	417
	M22	2.00	17.7	0.25	1.08	5.85	4.6	3	94.44	420
	M24	2.50	17.7	0.31	1.35	5.85	4.4	3	94.44	425
	M27	3.00	17.7	0.37	1.62	5.85	4.3	3	94.44	430
	M27	3.50	17.7	0.43	1.89	5.85	4.0	3	94.44	435
22	M24	1.50	21.7	0.19	0.81	5.85	4.8	3	93.12	615
	M24	1.50	21.7	0.19	0.81	6.20	5.3	6	82.38	715
	M27	1.75	21.7	0.22	0.95	6.20	5.2	6	86.61	717
	M27	1.75	21.7	0.22	0.95	5.85	4.7	3	93.12	617
	M27	2.00	21.7	0.25	1.08	5.85	4.6	3	97.47	620
	M27	2.00	21.7	0.25	1.08	6.20	5.0	6	86.61	720
	M30	3.00	21.7	0.37	1.62	5.85	4.3	3	97.47	630
	M30	3.00	21.7	0.37	1.62	6.20	4.8	6	88.26	730
	M30	3.50	21.7	0.43	1.89	5.85	4.0	3	104.87	635
	M33	4.00	21.7	0.50	2.16	5.85	3.9	3	104.87	640
	M33	4.00	21.7	0.50	2.16	6.20	4.4	6	92.90	740
	M33	4.50	21.7	0.56	2.43	5.85	3.7	3	104.87	645

P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 76

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

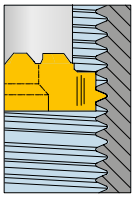
7

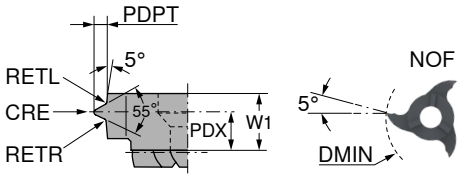
MiniMill – Milling insert for internal thread milling – Full profile

Mini Mill | ≥ G 3/8"

55° | G

CWX500







53 012 ...

Size	Thread$_{min}$	TP mm	DMIN mm	TPI 1/"	W1 mm	PDX mm	PDPT mm	CRE mm	RETL mm	RETR mm	NOF	£ W2	
10	G 3/8"	1.34	11.7	19	3.60	2.5	0.860	0.18	0.18	0.18	3	104.61	113
	G 1/2"	1.81	11.7	14	3.60	2.3	1.160	0.24	0.24	0.24	3	104.61	118
	G 1"	2.31	11.7	11	3.60	2.0	1.480	0.31	0.31	0.31	3	104.61	123
18		1.34	17.7	19	5.85	4.9	0.856	0.18	0.18	0.18	3	52.51	219
	G 3/4"	1.81	17.7	14	5.85	4.6	1.160	0.24	0.24	0.24	3	52.51	214
	G 1"	2.31	17.7	11	5.85	4.4	1.480	0.31	0.31	0.31	3	52.51	211
22	G 1"	2.31	21.7	11	5.85	4.0	1.480	0.31	0.31	0.31	3	109.25	311
		3.17	21.7	8	5.85	3.5	2.030	0.43	0.43	0.43	3	116.81	308
	BSW 1 1/2"	4.23	21.7	6	5.85	3.1	2.710	0.58	0.58	0.58	3	116.81	306

P	●
M	●
K	●
N	●
S	○
H	
O	●

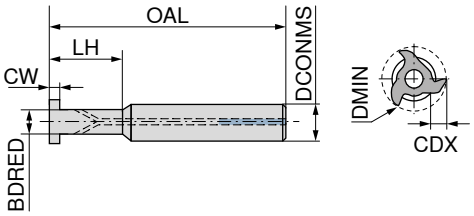
→ v_c/f_z Page 76

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

MiniMill – Circular milling cutter, extra short

▲ Steel Version

Mini Mill





Steel

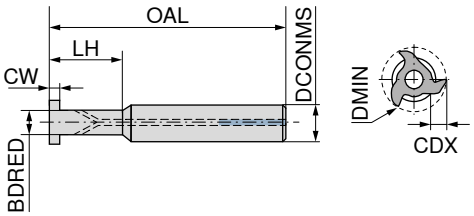
53 004 ...

Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	£ W1	
10	10	6.0	60	15.2	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	245.08	015
14	10	8.0	60	17.7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	245.08	217
	13	8.0	70	25.7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	251.02	225
18	10	9.0	60	17.0	17,7	≤5,6	3,5	4,5	245.08	417
	13	9.0	70	25.0	17,7	≤5,6	3,5	4,5	251.02	425
22	10	11.3	60	10.7	21,7	≤9,15	4,5	7,0	251.02	610
	13	11.3	70	25.7	21,7	≤9,15	4	7,0	259.89	625
28	13	14.0	70	10.7	27,7	≤10	6,5	7,0	251.02	810
	20	14.0	100	35.7	27,7	≤10	6,5	7,0	259.89	835

MiniMill – Circular milling cutter, short

▲ Steel Version

Mini Mill





Steel | Steel

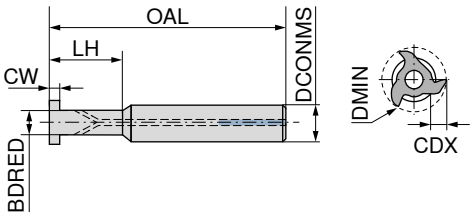
53 002 ... | **53 003 ...**

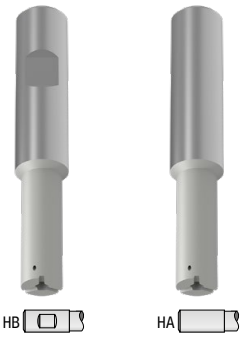
Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	£ W1		£ W1	
10	16	6	80	12.0	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	283.42	012	283.42	012
14	16	8	80	16.0	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	283.42	216	283.42	216
18	16	9	80	18.0	17,7	≤5,6	3,5	4,5	277.32	418	277.32	418
22	16	12	80	24.0	21,7	≤9,15	4,5	7,0	280.37	624	280.37	624
28	20	14	100	35.7	27,7	≤10	6,5	7,0			532.12	835

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

MiniMill – Circular milling cutter, vibration-damped

Mini Mill





HM

HM

Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	53 001 ... £ W1		53 000 ... £ W1	
10	12	6.0	80	21	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	359.96	021	359.96	021
	12	6.0	90	30	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	389.59	030	389.59	030
	12	6.0	100	42	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	445.83	042	445.83	042
	12	7.3	90	30	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0	407.32	130	407.32	130
	16	7.3	100	25	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0	599.21	025	599.21	025
14	12	8.0	95	29	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	359.96	229	359.96	229
	12	8.0	110	42	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	392.50	242	392.50	242
	12	8.0	120	56	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	445.83	256	445.83	256
	12	9.5	110	42	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5	445.83	342	445.83	342
	16	9.5	110	33	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5	548.97	233	548.97	233
18	12	9.0	100	32	17,7	≤5,6	3,5	4,5	448.73	432	448.73	432
	12	9.0	100	45	17,7	≤5,6	3,5	4,5	501.75	445	501.75	445
	12	9.0	120	64	17,7	≤5,6	3,5	4,5	593.26	464	593.26	464
	16	9.0	93	25	17,7	≤5,6	3,5	4,5	501.75	425	501.75	425
	16	9.0	100	32	17,7	≤5,6	3,5	4,5	531.24	532	531.24	532
	16	9.0	110	45	17,7	≤5,6	3,5	4,5	622.76	545	622.76	545
	16	9.0	130	64	17,7	≤5,6	3,5	4,5	717.17	564	717.17	564
	16	13.0	110	64	17,7	≤5,6	1,5	4,5	548.97	465	548.97	465
	16	13.0	130	66	17,7	≤5,6	1,5	4,5	696.56	466	696.56	466
22	12		100	42	21,7	≤9,15	4,5	7,0	395.41	642	395.41	642
	12		130	60	21,7	≤9,15	4,5	7,0	469.21	660	469.21	660
	16	11.5	90	30	21,7	≤9,15	4,5	7,0	501.75	630	501.75	630
	16	12.0	100	42	21,7	≤9,15	4,5	7,0	522.38	742	522.38	742
	16	12.0	130	60	21,7	≤9,15	4,5	7,0	625.66	760	625.66	760
	16	12.0	160	85	21,7	≤9,15	4,5	7,0	711.38	685	711.38	685
	20	16.0	110	45	21,7	≤9,15	2,5	7,0	761.34	645	761.34	645
	20	16.0	130	65	21,7	≤9,15	2,5	7,0	767.27	665	767.27	665
28	16	14.3	100	42	27,7 / 24,8	≤10	6,5 / 5	7,0	554.77	842	554.77	842
	16	14.3	130	60	27,7 / 24,8	≤10	6,5 / 5	7,0	658.05	860	658.05	860
	16	14.3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0	770.32	885	770.32	885
	20	13.5	104	35	27,7 / 24,8	≤10	6,5 / 5	7,0	684.63	835	684.63	835
	20	14.3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0	876.38	985	876.38	985


Key D


Clamping screw


Clamping screw

Spare parts Size		80 950 ... £ Y7			73 082 ... £ Y5			73 082 ... £ Y5	
10	T08	10.82	110				M2,6	7.50	002
14	T10	12.65	112				M3,5	7.50	003
18	T15	12.87	113				M4	7.50	004
22	T20	13.77	114	M5	14.66	006	M5	7.50	005
28	T20	13.77	114				M5	7.50	005

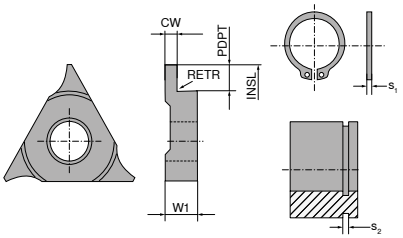
Clamping screw 73 082 006 only for insert 53 009 394

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

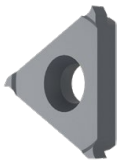
Milling inserts for circlip grooves without chamfer

System 300

DIN 471/472



Ti500



Solid carbide

50 853 ...

Size	$s_{2\ H13}$ mm	INSL mm	W1 mm	$CW_{-0,03}$ mm	PDPT mm	RETR mm	s_1 mm	£ W2	
04	0.90	7.9	2.34	0.98	0.70	0.3	0.80	54.62	300
03	0.90	10.6	2.34	0.98	0.70	0.3	0.80	45.20	302
	1.10	10.6	2.34	1.18	0.90	0.3	1.00	45.20	304
	1.30	10.6	2.34	1.38	1.10	0.3	1.20	45.20	306
	1.60	10.6	2.34	1.68	1.25	0.3	1.50	45.20	308
	1.85	10.6	2.34	1.93	1.25	0.3	1.75	45.20	310
02	0.90	17.5	3.50	0.98	0.70	0.3	0.80	41.19	312
	1.10	17.5	3.50	1.18	0.90	0.3	1.00	41.19	314
	1.30	17.5	3.50	1.38	1.10	0.3	1.20	41.19	316
	1.60	17.5	3.50	1.68	1.25	0.3	1.50	41.19	318
	1.85	17.5	3.50	1.93	1.25	0.3	1.75	41.19	320
	2.15	17.5	3.50	2.23	1.75	0.3	2.00	41.19	322
	2.65	17.5	3.50	2.73	1.75	0.3	2.50	41.19	324
	3.15	17.5	3.50	3.23	2.20	0.3	3.00	41.19	326
01	0.90	23.0	4.00	0.98	0.70	0.3	0.80	41.19	328
	1.10	23.0	4.00	1.18	0.90	0.3	1.00	41.19	330
	1.30	23.0	4.00	1.38	1.10	0.3	1.20	41.19	332
	1.60	23.0	4.00	1.68	1.25	0.3	1.50	41.19	334
	1.85	23.0	4.00	1.93	1.25	0.3	1.75	41.19	336
	2.15	23.0	4.00	2.23	1.75	0.3	2.00	41.19	338
	2.65	23.0	4.00	2.73	1.75	0.3	2.50	41.19	340
	3.15	23.0	4.00	3.23	2.20	0.3	3.00	41.19	342

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 73

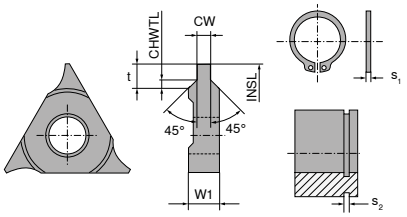
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Milling inserts for circlip grooves with chamfer

System 300

DIN 471/472



Ti500



Solid carbide

50 852 ...

Size	$s_{2\ H13}$ mm	INSL mm	W1 mm	$CW_{-0,03}$ mm	t mm	CHWTL mm	s_1 mm	£ W2	
03	1.10	10.6	2.34	1.18	0.50	0.10	1.00	48.37	302
02	1.10	17.5	3.50	1.18	0.50	0.10	1.00	42.81	312
	1.30	17.5	3.50	1.38	0.85	0.15	1.20	42.81	314
	1.60	17.5	3.50	1.68	1.00	0.15	1.50	42.81	316
	1.85	17.5	3.50	1.93	1.25	0.20	1.75	42.81	317
	2.15	17.5	3.50	2.23	1.50	0.20	2.00	42.81	318
	2.65	17.5	3.50	2.73	1.50	0.20	2.50	42.81	319
01	1.10	23.0	4.00	1.18	0.50	0.10	1.00	42.81	320
	1.30	23.0	4.00	1.38	0.70	0.15	1.20	42.81	321
	1.30	23.0	4.00	1.38	0.85	0.15	1.20	42.81	322
	1.60	23.0	4.00	1.68	1.00	0.15	1.50	42.81	324
	1.60	23.0	4.00	1.68	0.85	0.15	1.50	42.81	323
	1.85	23.0	4.00	1.93	1.25	0.20	1.75	42.81	325
	2.15	23.0	4.00	2.23	1.50	0.20	2.00	42.81	326
	2.65	23.0	4.00	2.73	1.75	0.20	2.50	42.81	328
	2.65	23.0	4.00	2.73	1.50	0.20	2.50	42.81	327
	3.15	23.0	4.00	3.32	1.75	0.20	3.00	42.81	329

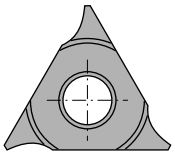
P	●
M	●
K	●
N	●
S	●
H	○
O	●

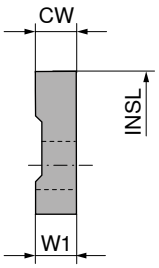
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Milling inserts without profile, ground ready-for-use

System 300





Ti500



Solid carbide

50 851 ...

Size	CW +0,02 mm	INSL mm	W1 mm	£ W2	
04	2.00	7.9	2.34	54.62	302
03	2.34	10.6	2.34	45.20	304
	3.00	10.6	3.00	48.37	306
02	3.50	17.5	3.50	41.19	312
	5.00	17.5	5.00	48.37	314
	6.00	17.5	6.00	52.24	316
01	4.00	23.0	4.00	50.79	322 1)
	6.50	23.0	6.50	50.79	324 1)

P	●
M	●
K	●
N	●
S	●
H	○
O	●

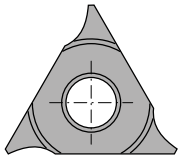
1) with circular milling cutter 50 800 090 PDPT = 3.0 mm

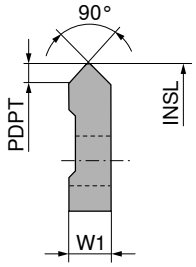
→ v_c/f_z Page 73

7

Milling inserts for chamfering and deburring

System 300





Ti500



Solid carbide

50 857 ...

Size	PDPT mm	INSL mm	W1 mm	£ W2	
03	1.50	10.6	3.0	45.20	304
02	2.50	17.5	5.0	45.20	314
01	3.25	23.0	6.5	45.20	322 1)

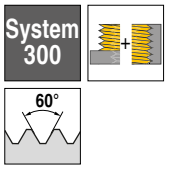
P	●
M	●
K	●
N	●
S	●
H	○
O	●

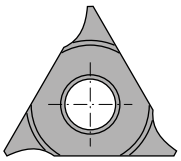
1) with circular milling cutter 50 800 090 PDPT = 3.0 mm

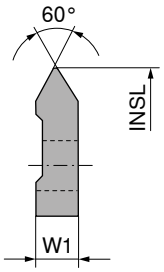
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – Partial profile







Ti500



Solid carbide

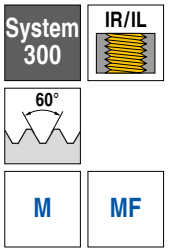
50 855 ...

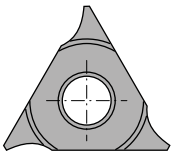
Size	TP mm	INSL mm	W1 mm	£ W2	
02	1 - 3,5	17.5	3.5	50.79	314
01	1 - 4,0	23.0	4.0	50.79	324

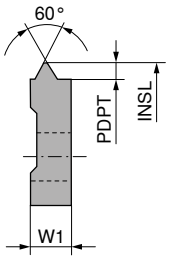
P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 73

Thread milling insert – Full profile







Ti500



Solid carbide

50 859 ...

Size	TP mm	INSL mm	W1 mm	PDPT mm	£ W2		
03	1.0	10.6	2.34	0.578	61.66	304	
	1.5	10.6	2.34	0.864	61.66	308	
	2.0	10.6	2.34	1.159	61.66	310	
02	1.0	17.5	3.50	0.578	61.66	311	
	1.5	17.5	3.50	0.864	61.66	312	
	2.0	17.5	3.50	1.159	61.66	314	
	2.5	16.0	3.50	1.444	85.17	317	1)
	2.5	17.5	3.50	1.444	61.66	316	
	3.0	17.5	3.50	1.728	77.33	318	
01	1.0	23.0	4.00	0.578	64.20	320	
	1.5	23.0	4.00	0.864	64.20	322	
	2.0	23.0	4.00	1.159	64.20	324	
	2.5	23.0	4.00	1.444	64.20	326	
	3.0	23.0	4.00	1.728	64.20	328	
	3.5	23.0	4.00	2.023	64.20	330	
	4.0	23.0	4.00	2.308	64.20	332	
	4.5	23.0	6.50	2.602	73.63	334	
	5.0	23.0	6.50	2.887	73.63	336	
	6.0	23.0	6.50	3.467	73.63	338	2)

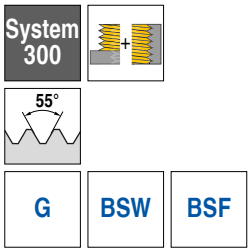
P	●
M	●
K	●
N	●
S	●
H	○
O	●

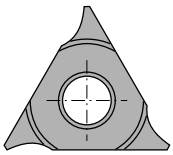
1) M20x2,5 - profile corrected

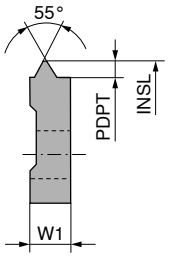
2) with circular milling cutter 50 800 090 PDPT = 3.0 mm

→ v_c/f_z Page 73

Thread milling insert – Full profile







Ti500



Solid carbide

Size	TP mm	TPI 1/"	INSL mm	W1 mm	PDPT mm	50 858 ... £ W2	
02	1.814	14	17.5	3.5	1.162	61.66	314
	2.309	11	17.5	3.5	1.494	61.66	312
01	2.309	11	23.0	4.0	1.494	64.20	322

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 73

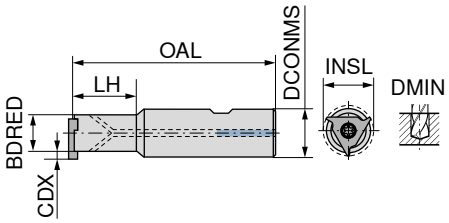
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Circular milling cutter

▲ Size refers to milling inserts

System 300





HB

Size	INSL mm	CDX mm	LH mm	DCONMS h6 mm	OAL mm	BDRED mm	DMIN mm	torque moment Nm	£ W1	50 800 ...
04	7.9	0.35	17.2	10	57.20	7.1	8	0,9	152.52	015 1)
03	10.6	1.60	17.2	10	57.20	7.4	11	0,9	156.75	020 1)
	10.6	1.60	34.2	10	74.20	7.4	11	0,9	338.47	025 2)
02	17.5	2.60	28.7	12	74.05	12.0	20	3,8	167.06	030
	17.5	2.60	63.7	12	108.70	12.0	20	3,8	357.93	045 2)
01	23.0	3.45	38.5	16	87.00	16.1	25	5,5	175.49	050
	23.0	3.45	67.5	16	116.00	16.1	25	5,5	175.42	070
	23.0	3.00	88.5	16	137.00	17.0	25	5,5	377.25	090 2)

1) Without Through Coolant
2) Carbide version



Key D



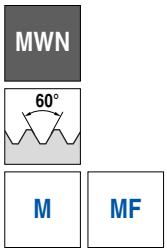
Clamping screw

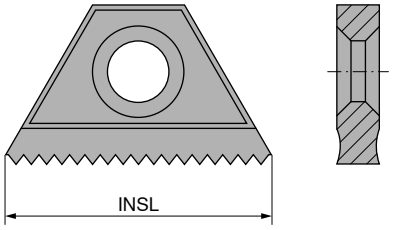
Spare parts Size		£ Y7			£ 2A	
		80 950 ...			70 960 ...	
04	T06 - IP	14.36	123	M2x9	3.98	232
03	T06 - IP	14.36	123	M2x9	3.98	232
02	T15 - IP	16.56	128	M4x12,3	5.99	233
01	T20 - IP	17.39	129	M5x15	5.99	234

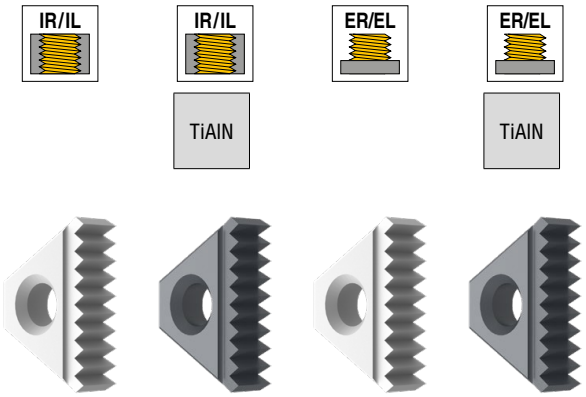
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)







INSL mm	TP mm	Solid carbide 50 890 ... £ W2		Solid carbide 50 890 ... £ W2		Solid carbide 50 891 ... £ W2		Solid carbide 50 891 ... £ W2	
10.4	0.50	88.02	100						
	0.75	88.02	101						
	1.00	70.17	102	90.45	302				
	1.25	70.17	103						
	1.50	70.17	104	90.45	304				
11.0	0.50	60.15	120						
	0.75	76.58	121						
	1.00	60.15	122	79.01	322				
	1.25	60.15	123						
	1.50	60.15	124	77.82	324				
16.0	0.50	89.69	140						
	0.75	71.54	141						
	1.00	71.54	142	97.79	342	71.54	142	92.43	342
	1.25	71.54	143			71.54	143		
	1.50	71.54	144	92.43	344	71.54	144	92.43	344
	1.75	71.54	145			71.54	145		
	2.00	71.54	146	92.43	346	71.54	146	92.43	346
27.0	1.00	136.53	162	168.54	362	136.53	162	168.54	362
	1.25	136.53	163			136.53	163		
	1.50	136.53	164	168.54	364	136.53	164	168.54	364
	1.75	136.53	165						
	2.00	136.53	166	168.54	366	136.53	166	168.54	366
	2.50	136.53	167			136.53	167		
	3.00	136.53	168	168.54	368	136.53	168	168.54	368
	3.50	136.53	169			136.53	169		
	4.00	136.53	170			136.53	170		
P		●		●		●		●	
M		○		●		○		●	
K		●		●		●		●	
N		●		●		●		●	
S									
H									
O		●		○		●		○	

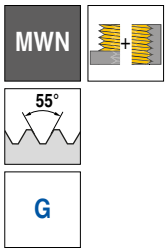
→ v_c/f_z Page 72

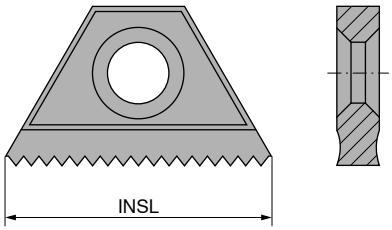
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

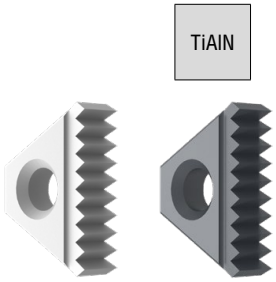
7

Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)







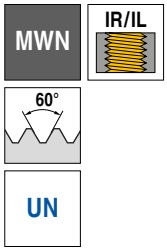
INSL mm	TPI 1/"	TP mm	Solid carbide 50 895 ... £ W2		Solid carbide 50 895 ... £ W2	
10.4	19	1.337	70.17	100	90.45	300
16.0	14	1.814	71.54	142	90.45	342
	11	2.309	71.54	144	90.45	344
27.0	11	2.309	136.53	166	205.92	366

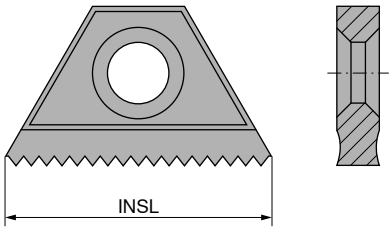
P	●	●
M	○	●
K	●	●
N	●	●
S		
H		
O	●	○

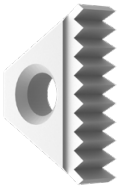
→ v_c/f_z Page 72

Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)







INSL mm	TPI 1/"	TP mm	Solid carbide 50 892 ... £ W2	
10.4	20	1.270	70.17	100
	18	1.411	70.17	102
16.0	16	1.588	71.54	144
	12	2.117	71.54	146
27.0	12	2.117	136.53	166
	8	3.175	136.53	168

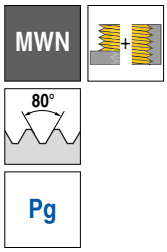
P	●
M	○
K	●
N	●
S	
H	
O	●

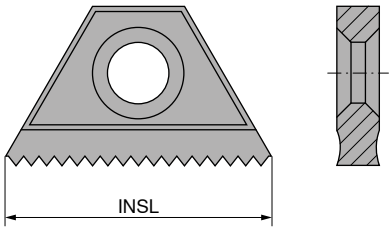
→ v_c/f_z Page 72

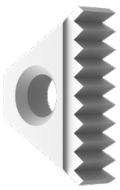
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert

▲ double sided







Solid carbide

50 896 ...

INSL mm	TPI 1/"	TP mm	£ W2	
11	18	1.411	73.40	122
16	18	1.411	85.89	142
	16	1.588	70.15	144

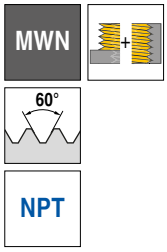
P	●
M	○
K	●
N	●
S	
H	
O	●

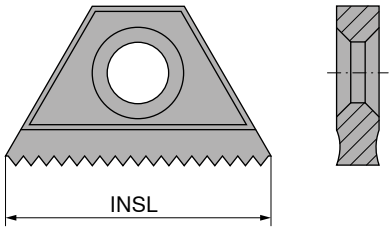
→ v_c/f_z Page 72

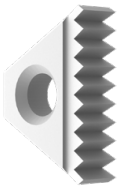
7

Thread milling insert

▲ double sided







Solid carbide

50 897 ...

INSL mm	TPI 1/"	TP mm	£ W2	
16	14.0	1.814	71.54	142
	11.5	2.209	71.54	144
27	11.5	2.209	136.53	164
	8.0	3.175	136.53	166

P	●
M	○
K	●
N	●
S	
H	
O	●

→ v_c/f_z Page 72

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

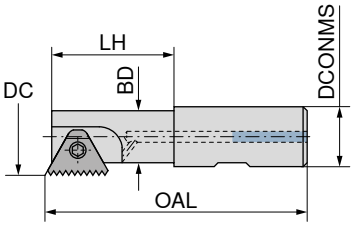
Note! Thread milling inserts are marked R (right-hand thread) and L (left-hand thread). The standard tool holder cannot be used to produce a left-hand thread! Tool holder for left-hand thread available on special request.

Circular milling cutter

▲ INSL refers to milling inserts

Scope of supply:
includes key

MWN 





B 

50 843 ...

INSL mm	BD mm	LH mm	DCONMS h6 mm	OAL mm	DC mm	torque moment Nm	£ W1	
10.4	6.8	12	12	69	9.0	0,9	215.49	101
	6.8	17	20	84	9.0	0,9	221.17	102
11.0	8.9	12	12	70	11.5	1,2	215.49	111
	8.9	20	20	85	11.5	1,2	221.17	112
16.0	13.6	22	16	90	17.0	2,5	242.59	161
	16.6	43	20	95	20.0	2,5	242.59	162
	18.6	25	25	125	22.0	2,5	303.07	163
27.0	24.0	52	25	110	30.0	9,0	307.25	271
	31.0	58	32	120	37.0	9,0	340.86	273
	24.0	92	25	150	30.0	9,0	365.41	272
	31.0	98	32	160	37.0	9,0	419.61	274

Pilot hole diameter for circular end mill 50 843 ...

BD	TP in mm									
	0,5 mm 48 G/"	0,75 mm 32 G/"	1,0 mm 24 G/"	1,25 mm 20 G/"	1,5 mm 16 G/"	2,0 mm 12 G/"	2,5 mm 10 G/"	3,0 mm 8 G/"	3,5 mm 7 G/"	4,0 mm 6 G/"
6,8	9,5	10	10,7	11,4	12					
8,9	12	12,5	13,2	13,9	14,5					
13,6	17,6	18,2	19	19,6	20	21				
16,6	20,7	21,4	22	22,6	23	24				
18,6	22,7	23,4	24	24,6	25	26				
24,0	30,7	31,4	32	32,8	33,5	34,6	36,6	39	42	45
31,0	38	38,6	39,5	40,4	41	42	44	46,5	49	52


Key D


Clamping screw

Spare parts INSL		**80 950 ...** £ Y7			**70 950 ...** £ 2A	
10,4	T07	10.82	109	M2,2x5,0	1.80	200
11	T08	10.82	110	M2,6x6,5	1.80	201
16	T10	12.65	112	UNC5-40 x 8	1.80	202
27	T25	14.16	115	M5x15	2.78	203

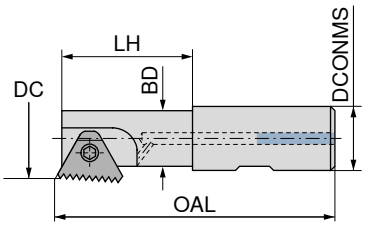
Circular milling cutter

▲ INSL refers to milling inserts

MWN



NPT





B

50 844 ...

INSL mm	BD mm	Thread	LH mm	DCONMS $_{h6}$ mm	OAL mm	DC mm	torque moment Nm	£ W1	
16	12.5	NPT 1/2	22	16	90	15.5	2,5	221.17	161
	15.0	NPT 3/4 - 1 1/4	23	20	85	19.0	2,5	242.59	162
27	24.0	NPT 1 1/2 - 2	52	25	110	30.0	9,0	307.25	271
	31.0	NPT > 2	58	32	120	37.0	9,0	340.86	272

7



Key D

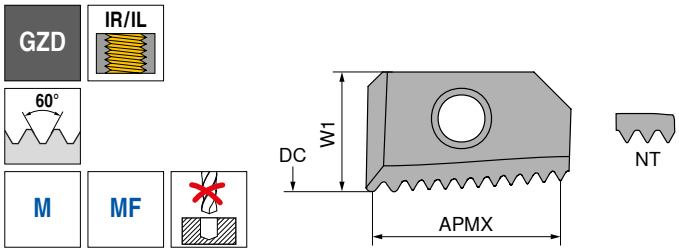


Clamping screw

Spare parts INSL		**80 950 ...** £ Y7			**70 950 ...** £ 2A	
16	T10	12.65	112	UNC5-40 x 8	1.80	202
27	T25	14.16	115	M5x15	2.78	203

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert



Ti500



Solid carbide

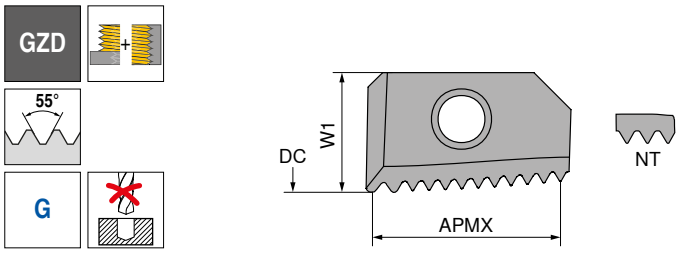
50 863 ...

DC mm	TP mm	W1 mm	APMX mm	NT	£ W2	
12	1.0	7.5	12.0	13	59.27	300
	1.5	7.5	10.5	8	59.27	302
17	1.0	11.0	16.0	17	59.27	310
	1.5	11.0	16.5	12	59.27	312
	2.0	11.0	16.0	9	59.27	314
20	1.0	7.5	12.0	13	59.27	320
	1.5	7.5	10.5	8	59.27	322
25	1.0	11.0	16.0	17	59.27	330
	1.5	11.0	16.5	12	59.27	332
	2.0	11.0	16.0	9	59.27	334

P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 73

Thread milling insert



Ti500



Solid carbide

50 864 ...

DC mm	TPI 1/"	W1 mm	APMX mm	NT	£ W2		
12	14	7.5	9.07	6	59.27	300	
17	14	11.0	16.33	10	77.33	312	1)
	14	11.0	16.33	10	77.33	314	2)
	11	11.0	16.16	8	77.33	310	
25	14	11.0	16.33	10	77.33	332	
	11	11.0	16.16	8	77.33	330	

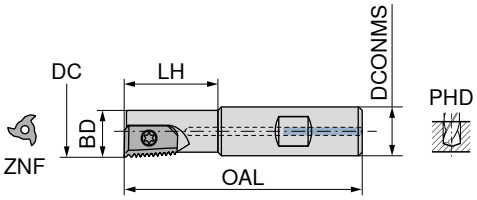
P	●
M	●
K	●
N	●
S	
H	
O	

1) Thread: 5/8 – 3/4 – 7/8
2) 1/2" Profile corrected

→ v_c/f_z Page 73

Circular milling cutter

GZD





B

50 842 ...

DC mm	LH mm	DCONMS $_{h6}$ mm	OAL mm	BD mm	ZNF	PHD mm	torque moment Nm	£ W1	
12	18	16	74.0	9.4	1	14	1,1	182.16	121
17	30	16	79.0	13.7	1	19	3,8	201.21	171
20	32	20	83.0	17.5	3	22	1,1	241.92	201
25	50	25	107.6	21.7	3	26	3,8	299.73	251
	85	25	142.6	21.7	3	26	3,8	852.94	252 1)

1) Heavy metal version with mounted head



Key D

80 950 ...



Clamping screw

70 960 ...

Spare parts DC		£ Y7			£ 2A	
12	T08 - IP	14.16	125	M2,5x6,5	3.98	244
17	T15 - IP	16.56	128	M4x7,5	3.98	245
20	T08 - IP	14.16	125	M2,5x6,5	3.98	244
25	T15 - IP	16.56	128	M4x7,5	3.98	245

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

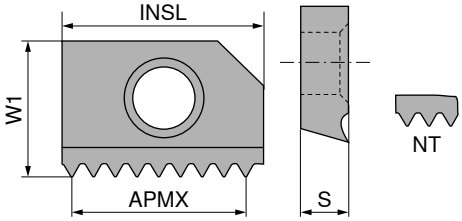
7

Thread milling insert

GZG

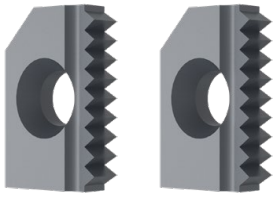
60°

M MF



ER/EL Ti500

IR/IL Ti500



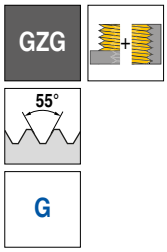
INSL mm	TP mm	W1 mm	APMX mm	S mm	NT	Solid carbide 50 887 ... £ W2		Solid carbide 50 885 ... £ W2	
14.5	0.50	10.0	13.50	3.18	28			94.26	350
	0.75	10.0	13.50	3.18	19			94.26	352
	1.00	10.0	13.00	3.18	14	71.09	304	54.62	354
	1.25	10.0	12.50	3.18	11			71.09	356
	1.50	10.0	12.00	3.18	9	71.09	308	54.62	358
	1.75	10.0	12.25	3.18	8			71.09	360
	2.00	10.0	12.00	3.18	7	71.09	312	54.62	362
	2.50	10.0	10.00	3.18	5			64.20	364
	2.50	10.0	10.00	3.18	5			64.20	366 1)
15.0	3.00	10.5	12.00	3.18	5			77.33	370 2)
	3.50	10.5	10.50	3.18	4			77.33	372 2)
21.0	1.00	10.0	19.00	3.18	20			61.66	380
	1.50	10.0	19.50	3.18	14			61.66	382
	1.50	10.0	18.00	3.18	13	71.09	320		
	2.00	10.0	18.00	3.18	10			61.66	384
26.0	1.50	15.0	24.00	5.00	17			106.46	390
	2.00	15.0	24.00	5.00	13			106.46	392
	3.00	15.0	21.00	5.00	8			106.46	396
	3.50	15.0	20.00	5.00	7			156.80	398
	4.00	15.0	20.00	5.00	6			156.80	400
P						●		●	
M						●		●	
K						●		●	
N						●		●	
S									
H									
O									

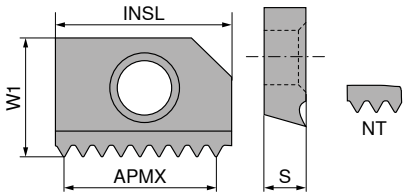
1) M20x2,5 - profile corrected
2) Without chamfer

→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert







Solid carbide

50 888 ...

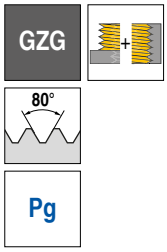
INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	£ W2	
14.5	18	1.411	10	11.28	3.18	9	81.92	310
	16	1.587	10	11.11	3.18	8	81.92	312
	14	1.814	10	12.69	3.18	8	59.27	314
	12	2.116	10	10.58	3.18	6	81.92	316
	11	2.309	10	11.54	3.18	6	59.27	318
21.0	14	1.814	10	18.14	3.18	11	71.09	320
	11	2.309	10	18.47	3.18	9	71.09	322
26.0	11	2.309	15	23.09	5.00	11	116.09	330

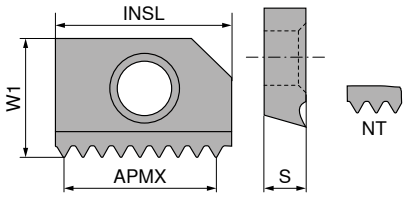
P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 73

7

Thread milling insert







Solid carbide

50 894 ...

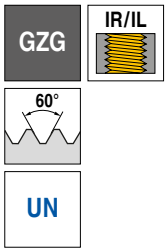
INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	£ W2	
14.5	18	1.411	10	12.69	3.18	10	87.11	302
	16	1.587	10	11.11	3.18	8	87.11	304

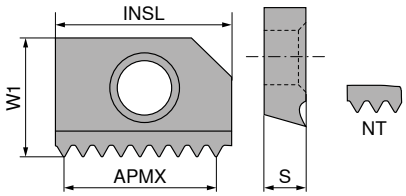
P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert







Solid carbide

50 889 ...

INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	£ W2	
14.5	18	1.411	10	12.69	3.18	10	85.19	**310**
	16	1.587	10	12.70	3.18	9	89.39	**312**
21.0	16	1.587	10	19.05	3.18	13	106.52	**320**
	14	1.814	10	18.14	3.18	11	106.52	**322**
	12	2.116	10	18.04	3.18	10	106.52	**324**

P	●
M	●
K	●
N	●
S	
H	
O	

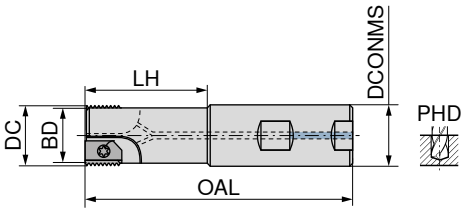
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Circular milling cutter

▲ INSL refers to milling inserts

GZG





B

50 841 ...

INSL mm	DC mm	LH mm	DCONMS $_{h6}$ mm	OAL mm	BD mm	ZNP	PHD mm	torque moment Nm	£ W1	
14.5	16	30.0	16	78	12.7	1	18.5	3,8	168.16	016
	16	50.0	16	98	12.7	1	18.5	3,8	265.57	017 1)
	20	60.0	20	110	16.8	1	23.0	3,8	203.47	020
	25	48.2	25	106	21.5	2	30.0	3,8	293.38	025
	25	92.2	25	150	21.5	2	30.0	3,8	601.42	026 1)
15.0	18	30.0	16	79	12.7	1	20.0	3,8	197.98	218
	22	60.0	20	110	16.8	1	26.0	3,8	218.59	222
	27	48.2	25	106	21.5	2	32.0	3,8	325.19	227
21.0	16	31.3	20	85	12.7	1	18.5	3,8	188.07	316
	22	32.8	25	92	18.7	1	26.0	3,8	193.26	322
	22	62.8	25	122	18.7	1	26.0	3,8	621.30	323 1)
	28	38.3	32	102	24.7	2	35.0	3,8	370.65	328
	28	78.3	32	142	24.5	2	35.0	3,8	1,472.82	327 1)
26.0	25	48.5	25	107	20.0	1	30.0	3,8	234.80	125

1) Heavy metal version



Key D



Clamping screw

Spare parts for Article no.		**80 950 ...** £ Y7			**70 960 ...** £ 2A	
50 841 016	T15 - IP	16.56	128	M4x6,9	5.99	237
50 841 017	T15 - IP	16.56	128	M4x6,9	5.99	237
50 841 020	T15 - IP	16.56	128	M4x7,5	3.98	245
50 841 025	T15 - IP	16.56	128	M4x8	5.99	242
50 841 026	T15 - IP	16.56	128	M4x8	5.99	242
50 841 218	T15 - IP	16.56	128	M4x6,9	5.99	237
50 841 222	T15 - IP	16.56	128	M4x6,9	5.99	237
50 841 227	T15 - IP	16.56	128	M4x8	5.99	242
50 841 316	T15 - IP	16.56	128	M4x6,9	5.99	237
50 841 322	T15 - IP	16.56	128	M4x6,9	5.99	237
50 841 323	T15 - IP	16.56	128	M4x8	5.99	242
50 841 328	T15 - IP	16.56	128	M4x8	5.99	242
50 841 327	T15 - IP	16.56	128	M4x8	5.99	242
50 841 125	T15 - IP	16.56	128	M4x11,5	5.99	241

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

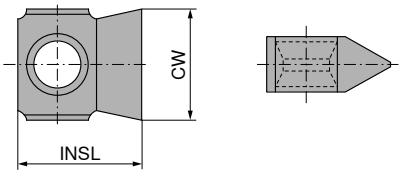
7

Thread milling insert – partial profile

EAW

60°

M UN



TiN



Solid carbide

50 867 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	£ W2	
16,5	1,5 - 3,0	16 - 10	5	7.0	76.13	**115**
18	2,5 - 3,5	10 - 7	5	7.8	76.13	**225**

55°

G

50 868 ...

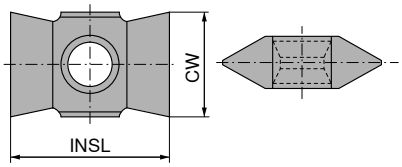
DC mm	TP mm	TPI 1/"	CW mm	INSL mm	£ W2	
16,5	1.814	14	5	7	93.21	**114**

Thread milling insert – partial profile

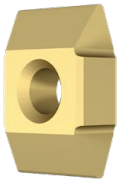
EAW

60°

M UN



TiN



Solid carbide

50 860 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	£ W2	
23,85	1,5 - 2,5	16 - 10	6.35	9.52	58.13	**315**
23,85	2,5 - 4,0	10 - 6	6.35	9.52	58.13	**325**
32,85	1,5 - 2,5	16 - 10	8.50	13.50	64.66	**415**
32,85	2,5 - 5,5	10 - 4,5	8.50	13.50	64.66	**425**

55°

G

50 861 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	£ W2	
23,85	2.309	11	6.35	9.52	64.66	**311**
32,85	2.309	11	8.50	13.50	74.66	**411**

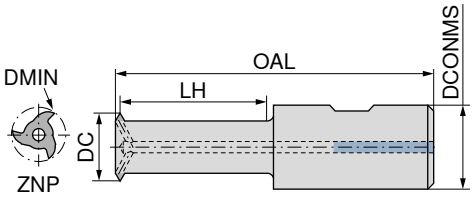
P	●
M	●
K	●
N	●
S	●
H	○
O	○

→ v_c/f_z Page 72

Circular milling cutter

Scope of supply:
including key

EAW  IR/IL





DC mm	DMIN mm	TP mm	TPI 1/"	LH mm	DCONMS h6 mm	OAL mm	ZNP	torque moment Nm	50 848 ... £ W1	
16,5 / 18,0	17,5 / 19,0	1,5 - 3,0	16 - 10	60	20	114	2	0,9	460.65	**020**
23,85	25,5	1,5 - 4,0	24 - 6	90	32	154	3	0,9	543.01	**030**
32,85	35,0	1,5 - 5,5	16 - 4,5	115	32	179	3	2,5	563.60	**040**

7


Key D


Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A	
50 848 020	T07 - IP	14.16 **124**	M2,5x8,5	9.94 **739**
50 848 030	T07 - IP	14.16 **124**	M2,5x8,5	9.94 **739**
50 848 040	T09 - IP	15.51 **126**	M3x11	9.94 **740**

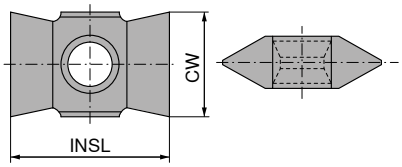
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – partial profile

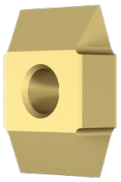
EWM



M UN



TiN



Solid carbide

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	£ W2	50 870 ...
40,25	1,5 - 3,0	16 - 9	9.5	15.50	74.43	**515**
40,25	3,0 - 6,0	9 - 4	9.5	15.50	74.43	**530**
52,55 / 66,55	1,5 - 3,0	16 - 9	12.5	19.00	80.65	**615**
52,55 / 66,55	3,0 - 6,0	9 - 4	12.5	19.00	80.65	**630**
92	6,0 - 8,0	4	14.3	28.58	131.80	**760**

55° G

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	£ W2	50 871 ...
40,25	2.309	11	9.5	15.5	85.12	**511**
52,55	2.309	11	12.5	19.0	99.08	**611**

P	●
M	●
K	●
N	●
S	●
H	○
O	○

→ v_c/f_z Page 72

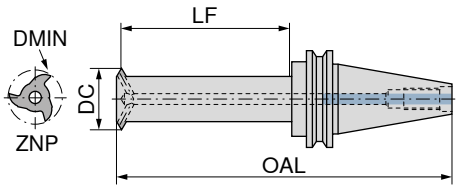
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Circular milling cutter

Scope of supply:

including key

EWM IR/IL







DIN 69871

50 849 ...

DC mm	DMIN mm	TP mm	TPI 1/"	LF mm	OAL mm	Adapter	ZNP	torque moment Nm	£ W1	
40.25	43.0	1,5 - 6,0	16 - 4,0	145	247.0	SK 40	4	5,5	1,130.99	**048**
40.25	43.0	1,5 - 6,0	16 - 4,0	145	280.5	SK 50	4	5,5	1,172.02	**148**
52.55	56.0	1,5 - 6,0	16 - 4,0	195	331.0	SK 50	4	8,0	1,336.61	**164**
66.55	70.5	1,5 - 6,0	16 - 4,0	260	398.0	SK 50	7	8,0	1,809.28	**080**
92.00	100.0	6,0 - 8,0	4,0	360	497.0	SK 50	7	8,0	2,138.27	**115**



Key D



Clamping screw

Spare parts DC		**80 950 ...** £ Y7			**70 950 ...** £ 2A	
40,25	T15 - IP	16.56	**128**	M4x13	9.94	**741**
52,55 - 92	T20 - IP	17.39	**129**	M5x15	9.94	**742**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

MicroMill – Solid Carbide Circular End Milling Cutter

Micro Mill

CWX500







Solid carbide

53 050 ...

DC mm	CW ±0,02 mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	£ W1	
5.8	0.7	0.8	15.2	58	3.8	6	3	6	63.90	070
	0.8	0.8	15.2	58	3.8	6	3	6	63.90	080
	0.9	0.8	15.2	58	3.8	6	3	6	63.90	090
	1.0	0.8	15.2	58	3.8	6	3	6	63.90	100
	1.5	0.8	15.2	58	3.8	6	3	6	63.90	150
7.8	0.7	1.2	25.4	68	5.0	8	3	8	80.62	170
	0.8	1.2	25.4	68	5.0	8	3	8	80.62	180
	0.9	1.2	25.4	68	5.0	8	3	8	80.62	190
	1.0	1.2	25.4	68	5.0	8	3	8	80.62	200
	1.5	1.2	25.4	68	5.0	8	3	8	80.62	250
	2.0	1.2	25.4	68	5.0	8	3	8	80.62	300

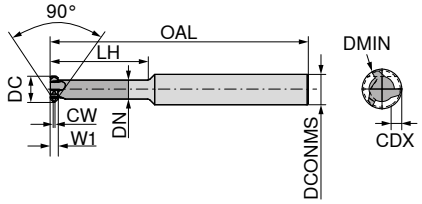
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 76

MicroMill – Solid Carbide Circular End Milling Cutter

Micro Mill

CWX500







Solid carbide

53 051 ...

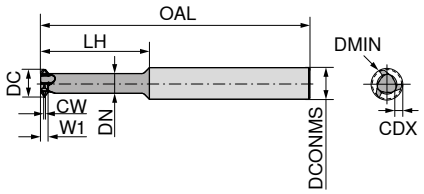
DC mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	£ W1	
5.8	2	0.2	0.8	15	58	4.2	6	3	6	61.64	010
	2	0.2	0.8	25	68	4.2	6	3	6	78.24	020
7.8	2	0.2	1.2	25	68	5.0	8	3	8	94.97	110
	2	0.2	1.2	35	78	5.0	8	3	8	99.99	120

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 76

MicroMill – Solid Carbide Circular Thread Milling Cutter – Full profile

Micro Mill | IR/IL | 60° | M



CWX500





Solid carbide

53 052 ...

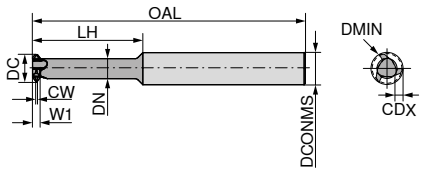
DC mm	Thread	TP mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	£ W1	
1.18	M1,6	0.35	0.40	0.04	0.19	4.0	32	0.64	3	3	1.38	75.09	**160**
1.38	M1,8	0.35	0.50	0.04	0.19	5.0	32	0.70	3	3	1.58	74.21	**180**
1.50	M2	0.40	0.56	0.05	0.22	5.0	32	0.90	3	4	1.70	82.65	**200**
1.95	M2,5	0.45	0.60	0.06	0.25	6.0	32	1.15	3	4	2.15	81.74	**250**
2.40	M3	0.50	0.60	0.06	0.27	7.0	32	1.60	3	4	2.60	81.01	**300**
2.80	M3,5	0.60	0.74	0.08	0.33	8.0	32	1.80	3	4	3.00	79.23	**350**
3.10	M4	0.70	0.82	0.09	0.38	9.0	44	1.98	5	4	3.30	86.04	**400**
3.60	M5	0.80	0.98	0.10	0.43	10.0	44	2.20	5	4	3.80	83.52	**500**
4.10	M6	1.00	0.98	0.13	0.54	12.2	44	2.70	5	4	4.30	81.74	**600**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 76

MicroMill – Solid Carbide Circular Thread Milling Cutter – Partial profile

Micro Mill | IR/IL | 60°



CWX500





Solid carbide

53 053 ...

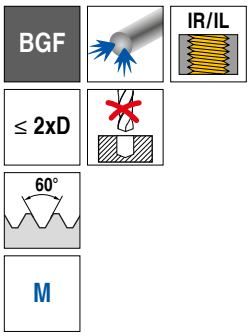
DC mm	TP mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	£ W1	
5.8	0,5 - 1,5	2	0.06	0.91	15.2	58	3.5	6	3	6	66.68	**010**
7.8	0,5 - 1,5	2	0.06	0.91	25.4	68	5.5	8	3	8	88.29	**110**
7.8	1,0 - 2,0	2	0.12	1.19	25.4	68	5.0	8	3	8	88.29	**120**

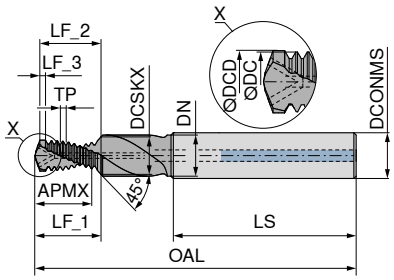
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 76

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Drill thread milling cutter with chamfer facet





NEW



HA

Solid carbide

50 869 ...

NEW

Ti601



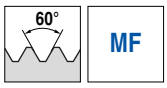
HA

Solid carbide

50 854 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	£ W1		£ W1	
2.45	M3	88901001000013	0.50	49	5.8	36	6	2.5	3.3	4.5	6.8	6.4	0.5	2	212.64	**03000**[1]		
2.45	M3	88906001000013	0.50	49	5.8	36	6	2.5	3.3	4.5	6.8	6.4	0.5	2			228.23	**03000**[1]
3.24	M4	88935001000015	0.70	49	7.3	36	6	3.3	4.3	4.5	9.4	8.9	0.7	2			270.27	**04000**
3.24	M4	88941001000015	0.70	49	7.3	36	6	3.3	4.3	4.5	9.4	8.9	0.7	2	239.09	**04000**		
4.10	M5	88935001000017	0.80	55	9.2	36	6	4.2	5.3	5.5	11.7	11.0	0.8	2			267.84	**05000**
4.10	M5	88941001000017	0.80	55	9.2	36	6	4.2	5.3	5.5	11.7	11.0	0.8	2	235.39	**05000**		
4.85	M6	88935001000018	1.00	62	11.4	36	8	5.0	6.3	6.6	14.5	13.7	1.0	2			267.84	**06000**
4.85	M6	88941001000018	1.00	62	11.4	36	8	5.0	6.3	6.6	14.5	13.7	1.0	2	235.39	**06000**		
6.45	M8	88935001000020	1.25	74	14.2	40	10	6.8	8.3	9.0	18.2	17.1	1.3	2			311.16	**08000**
6.45	M8	88941001000020	1.25	74	14.2	40	10	6.8	8.3	9.0	18.2	17.1	1.3	2	279.86	**08000**		
8.08	M10	88935001000022	1.50	79	18.5	45	12	8.5	10.3	11.0	23.4	22.1	1.5	2			375.95	**10000**
8.08	M10	88941001000022	1.50	79	18.5	45	12	8.5	10.3	11.0	23.4	22.1	1.5	2	314.74	**10000**		
9.74	M12	88935001000024	1.75	89	21.6	45	14	10.3	12.3	13.5	27.1	25.5	1.5	2			502.08	**12000**
9.74	M12	88941001000024	1.75	89	21.6	45	14	10.3	12.3	13.5	27.1	25.5	1.5	2	428.85	**12000**		
11.35	M14	88935001000025	2.00	102	26.6	48	16	12.0	14.3	15.5	32.8	30.9	1.5	2			571.73	**14000**
11.35	M14	88941001000025	2.00	102	26.6	48	16	12.0	14.3	15.5	32.8	30.9	1.5	2	532.11	**14000**		
13.28	M16	88935001000026	2.00	102	30.6	48	18	14.0	16.3	17.5	37.1	35.0	1.5	2			669.09	**16000**
13.28	M16	88941001000026	2.00	102	30.6	48	18	14.0	16.3	17.5	37.1	35.0	1.5	2	621.04	**16000**		

1) Without Through Coolant



NEW

50 869 ...

NEW

50 854 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	£ W1		£ W1	
6.79	M8x1	88935002000070	1.0	74	15.40	40	10	7.0	8.3	9.0	18.8	17.7	1.0	2			356.78	**08100**
6.79	M8x1	88941002000070	1.0	74	15.40	40	10	7.0	8.3	9.0	18.8	17.7	1.0	2	324.32	**08100**		
8.75	M10x1	88941002000094	1.0	79	19.40	45	12	9.0	10.3	11.0	23.2	21.8	1.0	2	349.50	**10100**		
8.75	M10x1	88935002000094	1.0	79	19.40	45	12	9.0	10.3	11.0	23.2	21.8	1.0	2			410.83	**10100**
10.74	M12x1	88935002000111	1.0	89	22.40	45	14	11.0	12.3	13.5	26.4	24.8	1.0	2			524.95	**12100**
10.06	M12x1,5	88935002000113	1.5	89	23.01	45	14	10.5	12.3	13.5	28.2	26.6	1.5	2			524.95	**12200**
10.06	M12x1,5	88941002000113	1.5	89	23.01	45	14	10.5	12.3	13.5	28.2	26.6	1.5	2	481.64	**12200**		

P		
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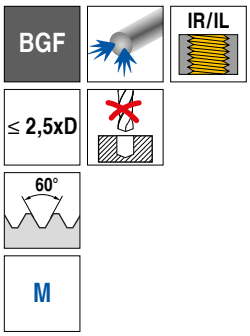
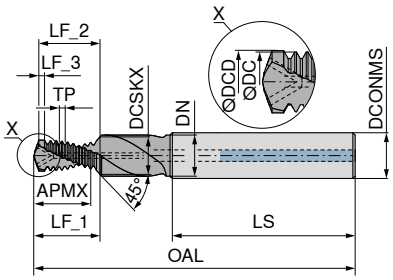
K	○	●
N	●	○
S		
H		
O	●	○

→ v_c/f_z Page 75

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Drill thread milling cutter with chamfer facet





NEW



HA

Solid carbide

50 898 ...

NEW

Ti601



HA

Solid carbide

50 862 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	£ W1		£ W1	
4.10	M5	88961001000017	0.80	55	11.57	36	6	4.2	5.3	5.5	14.1	13.4	0.8	2	235.39	**05000**		
4.85	M6	88961001000018	1.00	62	13.40	36	8	5.0	6.3	6.6	16.5	15.7	1.0	2	235.39	**06000**		
4.85	M6	88956001000018	1.00	62	13.40	36	8	5.0	6.3	6.6	16.5	15.7	1.0	2			267.84	**06000**
6.45	M8	88956001000020	1.25	74	19.20	40	10	6.8	8.3	9.0	23.2	22.1	1.3	2			311.16	**08000**
6.45	M8	88961001000020	1.25	74	19.20	40	10	6.8	8.3	9.0	23.2	22.1	1.3	2	279.86	**08000**		
8.08	M10	88956001000022	1.50	79	23.00	45	12	8.5	10.3	11.0	27.9	26.6	1.5	2			375.95	**10000**
8.08	M10	88961001000022	1.50	79	23.00	45	12	8.5	10.3	11.0	27.9	26.6	1.5	2	314.74	**10000**		
9.74	M12	88956001000024	1.75	89	28.60	45	14	10.3	12.3	13.5	34.1	32.5	1.5	2			502.08	**12000**
9.74	M12	88961001000024	1.75	89	28.60	45	14	10.3	12.3	13.5	34.1	32.5	1.5	2	428.85	**12000**		

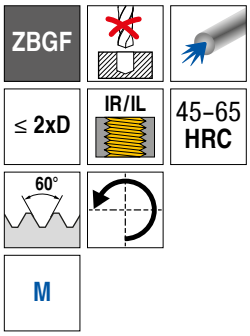
P		
M		
K	○	●
N	●	○
S		
H		
O	●	○

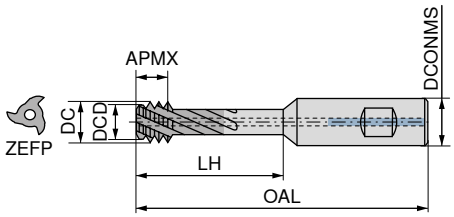
→ v_c/f_z Page 75

7

Circular Thread Milling Cutter

▲ Note: left-hand cutting (M04)







Solid carbide

50 840 ...

DC mm	Thread	TP mm	APMX mm	LH mm	DCONMS mm	DCD mm	OAL mm	ZEFP	£ W1	
2.3	M3x0,5	0.50	2.0	7.0	6	2.10	51	4	154.07	**030** 1)
3.0	M4x0,7	0.70	2.8	9.4	6	2.60	51	4	154.27	**040** 1)
3.8	M5x0,8	0.80	3.2	11.6	6	3.40	51	4	152.88	**050** 1)
4.6	M6x1 - M7x1	1.00	4.0	14.0	8	4.10	60	4	152.78	**060** 1)
6.2	M8x1,25 - M10x1,25	1.25	5.0	19.0	10	5.60	71	4	164.68	**080**
7.8	M10x1,5 - M12x1,5	1.50	6.0	25.0	10	7.00	76	4	177.38	**100**
9.2	M12x1,75	1.75	7.0	31.0	12	8.30	86	4	188.59	**120**
11.1	M14x2 - M16x2	2.00	8.0	36.0	16	10.04	98	4	206.15	**140**

P	
M	
K	
N	
S	○
H	●
O	○

1) Without Through Coolant

→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Caution: left-hand cutting (M04) → spindle rotation left!

Shank thread milling cutter with shank-end countersink

▲ Note: left-hand cutting

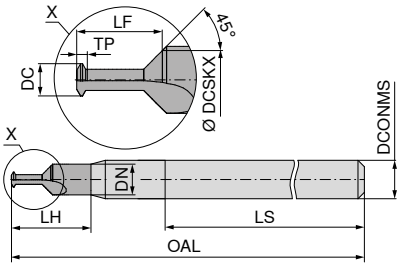
SFSE Micro

60°

M

NEW

Ti602





HA

Solid carbide

50 804 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	DN mm	LS mm	LH mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	£ W1	
0.75	M1	88977001000001	0.25	40	1.8	28	5.2	3	1.5	2.1	2	153.73	**01000**
1.10	M1,4	88977001000004	0.30	40	2.0	28	5.7	3	1.7	2.6	2	153.73	**01400**
1.25	M1,6	88977001000005	0.35	40	2.4	28	6.0	3	2.1	3.1	2	153.73	**01600**
1.60	M2	88977001000008	0.40	40	3.0	28		3	2.6	3.7	2	144.14	**02000**
1.75	M2,2	88977001000009	0.45	40	3.0	28		3	2.5	3.9	2	144.14	**02200**
2.05	M2,5	88977001000011	0.45	40	3.0	28		3	2.9	4.5	2	144.14	**02500**

P	○
M	○
K	
N	○
S	○
H	●
O	

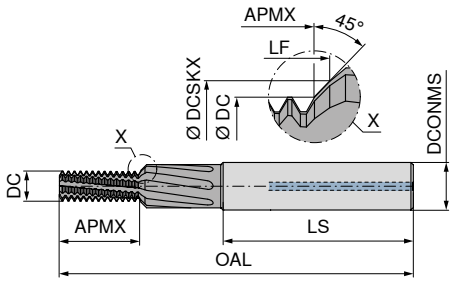
→ v_c/f_z Page 75

Caution: left-hand cutting (M04) → spindle rotation left!

7

Thread Milling Cutter with Chamfer Facet

SFSE | IR/IL | ≤ 2xD | 60° | M



NEW

AlCrN



HA

Solid carbide

50 806 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	£ W1	
3.14	M4	88296001000015	0.70	49	8.0	36	6	4.3	8.6	5	175.33	**04000**
3.95	M5	88296001000017	0.80	55	9.9	36	6	5.3	10.6	5	180.18	**05000**
4.68	M6	88296001000018	1.00	62	12.3	36	8	6.3	13.2	6	192.19	**06000**
6.22	M8	88296001000020	1.25	74	16.6	40	10	8.3	17.8	7	230.65	**08000**
7.79	M10	88296001000022	1.50	79	19.9	45	12	10.3	21.3	7	273.85	**10000**
9.38	M12	88296001000024	1.75	89	24.9	45	14	12.3	26.6	7	387.96	**12000**
10.92	M14	88296001000025	2.00	102	28.5	48	16	14.3	30.4	7	454.03	**14000**
12.83	M16	88296001000026	2.00	102	32.4	48	18	16.3	34.4	8	565.72	**16000**

60° | MF | ≤ 2xD

NEW

50 807 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	£ W1	
3.95	M5x0,5	88296002000037	0.50	55	10.2	36	6	5.3	10.8	5	199.35	**05100**
4.68	M6x0,75	88296002000048	0.75	62	12.2	36	8	6.3	13.0	5	219.80	**06200**
6.22	M8x1	88296002000070	1.00	74	16.2	40	10	8.3	17.3	6	258.26	**08300**
7.79	M10x1	88296002000094	1.00	79	20.1	45	12	10.3	21.5	7	300.30	**10300**
9.38	M12x1	88296002000111	1.00	89	24.0	45	14	12.3	25.6	7	408.41	**12300**
9.38	M12x1,5	88296002000113	1.50	89	24.3	45	14	12.3	25.9	7	417.99	**12500**
10.92	M14x1,5	88296002000131	1.50	102	28.7	48	16	14.3	30.6	7	458.88	**14500**
12.82	M16X1,5	88296002000147	1.50	102	31.7	48	18	16.3	33.6	8	574.15	**16500**

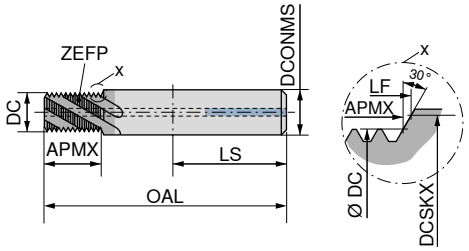
P	●
M	●
K	●
N	
S	●
H	
O	

→ v_c/f_z Page 75

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread Milling Cutter with Chamfer Facet

SFSE | IR/IL | ≤ 2xD | 60° | M



TiAlN



Solid carbide

50 811 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	£ W1	
4.0	M5	0.80	62	11	36	8	5.3	11.16	3	291.03	**050**
4.7	M6	1.00	62	13	36	8	6.3	13.93	3	306.27	**060**
6.5	M8	1.25	74	18	40	10	8.3	18.62	3	336.69	**080**
8.0	M10	1.50	74	22	40	10			3	336.36	**100** 1)
10.0	M12	1.75	90	26	45	14	12.3	26.47	4	517.82	**120**
12.5	M16	2.00	100	35	48	16			4	614.53	**160** 2)

1) Without chamfer
2) Chamfer section at the front of the tool

60° | MF

50 816 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	£ W1	
6.5	M8x1	1.00	74	18	40	10	8.3	18.00	3	346.45	**082**
8.0	M10x1	1.00	74	22	40	10			3	337.47	**102** 1)
8.0	M10x1,25	1.25	74	22	40	10			3	336.36	**103** 1)
10.0	M12x1,25	1.25	90	26	45	14	12.3	26.61	4	517.82	**123**
10.0	M12x1,5	1.50	90	26	45	14	12.3	27.30	4	517.82	**124**
11.0	M14x1	1.00	100	31	48	16	14.3	32.70	4	614.53	**142**
11.0	M14x1,5	1.50	100	31	48	16	14.3	32.08	4	614.53	**144**
12.5	M16x1,5	1.50	100	35	48	16			4	617.59	**164** 2)

1) Without chamfer
2) Chamfer section at the front of the tool

55° | G

50 818 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	£ W1	
7.6	G 1/8-28	0.907	80	20	45	12	10.0	20.97	3	463.60	**018**
11.0	G 1/4-19	1.337	100	27	48	16	13.5	28.39	4	683.49	**014**
13.0	G 3/8-19	1.337	100	34	48	16			4	683.49	**038** 1)
16.0	G1/2-14	1.814	110	44	50	20			5	966.57	**012** 1)

P	●
M	●
K	●
N	●
S	●
H	
O	●

1) Chamfer section at the front of the tool

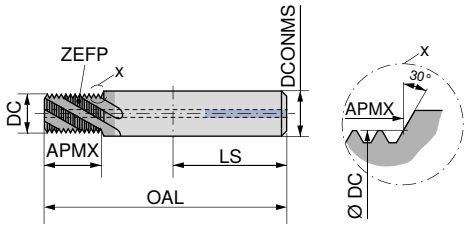
→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Thread Milling Cutter with Chamfer Facet

SFSE | IR/IL | ≤ 2xD | 60° | NPT



TiAlN



Solid carbide

50 819 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	ZEFP	£ W1	
5.8	NPT 1/16-27	0.941	62	10	36	8	3	391.95	**116** 1)
7.6	NPT 1/8-27	0.941	74	10	40	10	3	445.05	**018** 1)
10.1	NPT 1/4-18	1.411	90	15	45	14	3	652.50	**014** 1)
16.0	NPT 1/2-14	1.814	110	19	50	20	5	1,121.83	**012** 1)

P	●
M	●
K	●
N	●
S	●
H	
O	●

1) Without chamfer

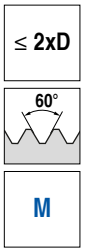
→ v_c/f_z Page 71

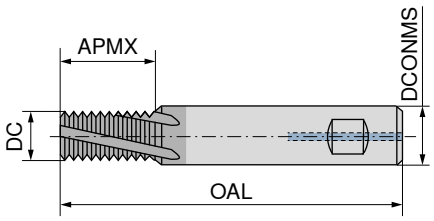
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling cutter with chamfer facet

- ▲ Profile-corrected
- ▲ Hard machining to Ø DC = 4 mm possible
- ▲ Chamfer section at end of shank







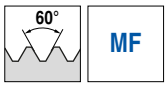


Solid carbide

54 801 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	£ W8	
4.00	M5	0.80	11	8	62	3	140.63	**050** 1)
4.80	M6	1.00	13	8	62	3	140.63	**060** 1)
6.50	M8	1.25	18	10	74	3	165.31	**080**
7.95	M10	1.50	22	12	80	3	196.12	**100**
9.90	M12	1.75	26	14	90	4	251.61	**120**
11.60	M14	2.00	31	16	100	4	288.67	**140**
11.95	M16	2.00	35	12	90	4	196.12	**160** 2)
13.95	M18	2.50	39	20	110	4	406.90	**180**
15.95	M20	2.50	44	16	100	4	288.67	**200** 2)

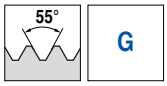
1) Without Through Coolant
2) Chamfer section at the front of the tool



54 803 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	£ W8	
6.0	M8x1	1.00	18	10	74	3	165.31	**080**
8.0	M10x1	1.00	22	12	80	3	196.12	**100**
8.0	M10x1,25	1.25	22	12	80	3	196.12	**101**
9.9	M12x1	1.00	26	14	90	4	251.61	**120**
9.9	M12x1,25	1.25	26	14	90	4	251.61	**121**
9.9	M12x1,5	1.50	26	14	90	4	251.61	**122**
11.6	M14x1	1.00	31	16	100	4	288.67	**140**
11.6	M14x1,5	1.50	31	16	100	4	298.37	**141**
12.0	M16x1,5	1.50	35	12	90	4	196.12	**160** 1)
14.0	M18x1,5	1.50	39	20	110	4	416.78	**180**
16.0	M20x1,5	1.50	44	16	100	4	251.61	**200** 1)

1) Chamfer section at the front of the tool



54 805 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	£ W8	
6.00	G 1/16-28	0.907	16	10	74	3	214.57	**116**
7.95	G 1/8-28	0.907	20	12	80	3	226.92	**018**
9.90	G 1/4-19	1.337	27	16	100	4	323.06	**014**
13.95	G 3/8-19	1.337	34	14	90	4	278.76	**038** 1)
15.95	G 1/2-14	1.814	43	16	100	4	298.37	**012** 1)
17.95	G 5/8-14	1.814	47	18	110	4	416.78	**058** 1)

P	●
M	●
K	●
N	●
S	●
H	●
O	●

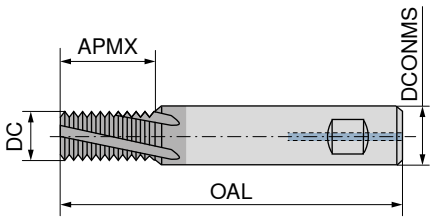
1) Chamfer section at the front of the tool

→ v_c/f_z Page 74

Thread milling cutter with chamfer facet

- ▲ Profile-corrected
- ▲ Hard machining to Ø DC = 4 mm possible
- ▲ Chamfer section at end of shank

SFSE | IR/IL | ≤ 2xD | 60° | UNC | Ti500





HB

Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	54 811 ... £ W8	
4.80	UNC 1/4-20	1.270	14	8	62	3	165.31	**014** 1)
5.95	UNC 5/16-18	1.411	18	10	74	3	185.06	**516**
7.95	UNC 3/8-16	1.588	22	12	80	3	224.45	**038**
7.95	UNC 7/16-14	1.814	22	14	90	3	273.83	**716**
9.90	UNC 1/2-13	1.954	27	14	90	4	278.76	**012**
11.80	UNC 9/16-12	2.117	31	16	100	4	332.96	**916**
12.70	UNC 5/8-11	2.309	34	14	90	4	278.76	**058** 2)
15.20	UNC 3/4-10	2.540	38	20	110	5	478.50	**034**

1) Without Through Coolant
2) Chamfer section at the front of the tool

60° | UNF

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	54 813 ... £ W8	
4.80	UNF 1/4-28	0.907	14	8	62	3	165.31	**014** 1)
5.95	UNF 5/16-24	1.058	18	10	74	3	185.06	**516**
7.60	UNF 3/8-24	1.058	21	12	80	3	224.45	**038**
7.95	UNF 7/16-20	1.270	22	14	90	3	273.83	**716**
9.90	UNF 1/2-20	1.270	26	14	90	4	278.76	**012**
12.00	UNF 9/16-18	1.411	30	16	100	4	332.96	**916**
13.50	UNF 5/8-18	1.411	33	14	90	4	278.76	**058** 2)
17.00	UNF 3/4-16	1.588	38	20	110	5	478.50	**034**

1) Without Through Coolant
2) Chamfer section at the front of the tool

60° | NPT

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	54 809 ... £ W8	
10.1	NPT 1/4-18	1.411	15	14	90	3	315.67	**014** 1)
12.8	NPT 3/8-18	1.411	15	16	100	4	379.87	**038** 1)
16.0	NPT 1/2-14	1.814	19	20	110	5	520.35	**012** 1)
18.5	NPT 3/4-14	1.814	19	20	110	5	520.35	**034** 1)

P	●
M	●
K	●
N	●
S	●
H	●
O	●

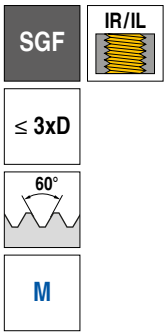
1) Chamfer section at the front of the tool

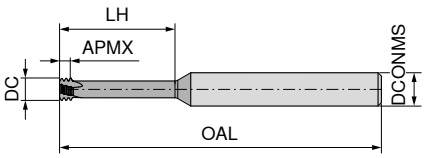
→ v_c/f_z Page 74

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Circular shank thread milling cutter

▲ Available on request from M1





NEW

Ti600



Solid carbide

50 802 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	ZEFP	£ W1	
1.53	M2	0.40	39	0.80	6.0	3	3	76.41	**02000**
2.37	M3	0.50	58	1.35	9.5	6	3	76.41	**03000**
3.10	M4	0.70	58	1.95	12.5	6	3	76.41	**04000**
3.80	M5	0.80	58	2.30	16.0	6	3	76.41	**05000**
4.65	M6	1.00	58	2.70	20.0	6	3	76.41	**06000**
6.00	M8	1.25	58	3.20	24.0	6	3	76.41	**08000**
7.80	M10	1.50	64	3.80	31.5	8	3	95.21	**10000**
9.00	M12	1.75	73	4.55	37.8	10	3	107.03	**12000**



NEW

50 803 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	ZEFP	£ W1	
1.53	M2	0.40	39	1.00	10.4	3	3	86.00	**02000**
2.40	M3	0.50	39	1.30	12.5	3	3	82.17	**03000**
3.10	M4	0.70	58	1.80	16.7	6	3	82.17	**04000**
4.00	M5	0.80	58	2.10	20.8	6	3	82.17	**05000**
4.80	M6	1.00	58	2.55	25.0	6	3	82.17	**06000**
6.40	M8	1.25	64	3.15	33.5	8	3	101.86	**08000**
8.00	M10	1.50	76	3.85	41.5	8	3	101.86	**10000**

P	●
M	●
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 74

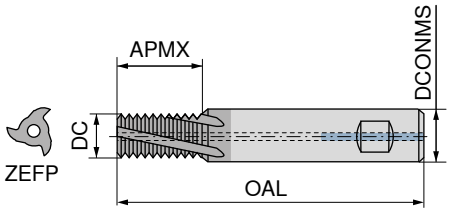
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Thread Milling Cutter

▲ Available on request: M30, M36, M42, M48, M56, M64

SGF | IR/IL | ≤ 2xD | 60° | M



TiAlN



Solid carbide

50 825 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	£ W1	
2.40	M3	0.50	6	4	42	3	257.18	**030** [1]
3.15	M4	0.70	8	6	55	3	276.75	**040**
4.00	M5	0.80	10	6	55	3	276.75	**050**
4.80	M6	1.00	12	6	55	3	276.75	**060**
6.00	M8	1.25	16	6	63	3	283.57	**080**
8.00	M10	1.50	20	8	70	3	323.22	**100**
9.90	M12	1.75	24	10	80	4	391.95	**120**
11.60	M14	2.00	28	12	90	4	461.31	**140**
12.00	M16	2.00	32	12	90	4	459.10	**160**
14.00	M18	2.50	36	14	90	4	608.90	**180**
14.00	M22	2.50	44	14	95	4	848.22	**220**
14.00	M20	2.50	40	14	90	4	691.55	**200**

1) Without Through Coolant

60° | MF

50 826 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	£ W1	
3.35	M4x0,5	0.50	8	6	55	3	332.52	**040**
4.20	M5x0,5	0.50	10	6	55	3	332.52	**050**
5.00	M6x0,75	0.75	12	6	55	3	332.52	**061**
6.00	M8x0,75	0.75	16	6	63	3	332.52	**081**
6.00	M8x1	1.00	16	6	63	3	332.52	**082**
8.00	M10x1	1.00	20	8	70	3	332.52	**102**
10.00	M12x1	1.00	24	10	80	4	395.85	**122**
10.00	M12x1,5	1.50	24	10	80	4	395.85	**124**
10.00	M14x1,5	1.50	28	10	80	4	395.85	**144**
12.00	M16x1,5	1.50	32	12	90	4	483.99	**164**
14.00	M18x1,5	1.50	36	14	90	4	604.15	**184**
14.00	M20x1,5	1.50	40	14	90	4	604.40	**204**
14.00	M22x1,5	1.50	44	14	95	4	634.98	**224**
16.00	M24x1,5	1.50	36	16	90	5	706.67	**244**

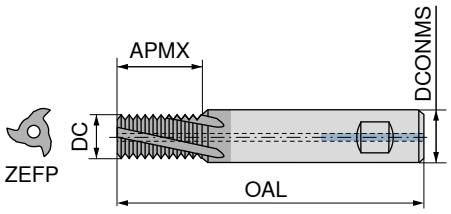
P	●
M	●
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread Milling Cutter

SGF | IR/IL | ≤ 2xD | 55° | G



TiAlN



Solid carbide

50 827 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	£ W1	
8	G 1/8-28	0.907	19.5	8	70	3	339.44	**018**
11	G 1/4-19	1.337	26.5	12	90	4	488.09	**014**
12	G 3/8-19	1.337	33.0	12	90	4	488.09	**038**
14	G 1/2-14	1.814	42.0	14	95	4	670.50	**012**
16	G 3/4-14	1.814	34.0	16	90	5	720.17	**034**
16	G 1-11	2.309	33.0	16	90	5	748.16	**100**
16	G 5/8-14	1.814	34.0	16	90	5	731.83	**058**

P	●
M	●
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 71

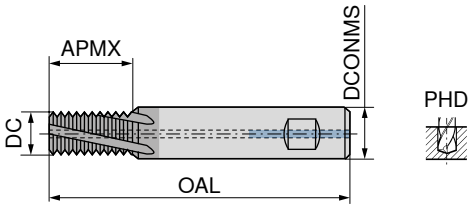
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Thread milling cutter

▲ Profile corrected
▲ Hard machining to Ø DC = 4 mm possible

SGF | IR/IL | ≤ 2xD | 60° | M



Ti500



HB

Solid carbide

54 800 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	£ W8	
2.40	M3	0.50	6.5	4	42	2	2.50	94.44	030 [1]
3.15	M4	0.70	9.0	6	55	3	3.30	94.44	040 [2]
4.00	M5	0.80	11.0	6	55	3	4.20	94.44	050 [2]
4.80	M6	1.00	13.0	6	55	3	5.00	94.44	060 [2]
6.00	M8	1.25	18.0	6	60	3	6.75	99.14	080
8.00	M10	1.50	21.0	8	70	3	8.50	119.87	100
9.90	M12	1.75	26.0	10	75	4	10.25	144.92	120
11.60	M14	2.00	30.0	12	85	4	12.00	167.80	140
12.00	M16	2.00	34.0	12	85	4	14.00	175.42	160
14.00	M18	2.50	40.0	14	90	4	15.50	207.74	180
16.00	M20	2.50	42.0	16	90	4	17.50	215.73	200

1) DIN 6535 HA Shank / Without Through Coolant
2) Without Through Coolant

60° | MF

54 802 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	£ W8	
4.0	M5	0.50	11	6	55	3	4.50	94.44	050 [1]
4.8	M6	0.75	13	6	55	3	5.25	94.44	060 [1]
6.0	M8	1.00	18	6	60	3	7.00	99.14	080
8.0	M10	1.25	21	8	70	3	8.75	119.87	100
9.9	M12	1.00	26	10	75	4	11.00	144.92	120
9.9	M12	1.25	26	10	75	4	10.75	144.92	121
9.9	M12	1.50	26	10	75	4	10.50	144.92	122
11.6	M14	1.00	30	12	85	4	13.00	167.80	140
11.6	M14	1.50	30	12	85	4	12.50	167.80	141
12.0	M16	1.50	34	12	85	4	14.50	175.42	160
14.0	M18	1.50	40	14	90	4	16.50	207.74	180
16.0	M20	1.50	42	16	90	4	18.50	215.73	200

1) DIN 6535 HA Shank / Without Through Coolant

55° | G

54 804 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	£ W8	
8.0	G 1/8-28	0.907	21	8	70	3	8.80	136.20	018
9.9	G 1/4-19	1.337	26	10	75	4	11.80	154.34	014
14.0	G 3/8-19	1.337	40	14	90	4	15.25	179.77	038
16.0	G 1/2-14	1.814	42	16	90	4	19.00	217.89	012

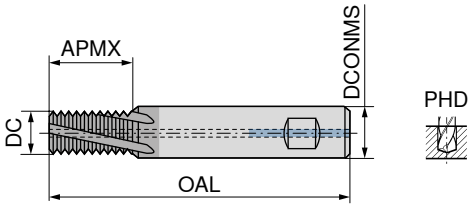
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 74

Thread milling cutter

▲ Profile corrected

SGF | IR/IL | ≤ 2xD | 60° | UNC



Ti500



HB

Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	£ W8	54 810 ...
4.80	UNC 1/4-20	1.270	13	6	55	3	5.1	110.26	**014** [1]
6.00	UNC 5/16-18	1.411	18	6	60	3	6.6	130.74	**516**
7.95	UNC 3/8-16	1.588	21	8	70	3	8.0	136.20	**038**
7.95	UNC 7/16-14	1.814	21	8	70	3	9.4	137.29	**716**
9.90	UNC 1/2-13	1.954	26	10	75	4	10.8	158.71	**012**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) DIN 6535 HA Shank / Without Through Coolant

→ v_c/f_z Page 74

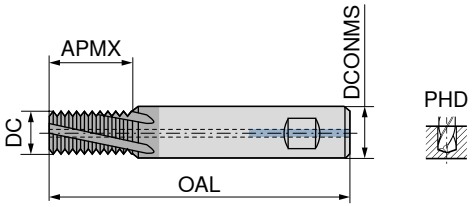
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Thread milling cutter

▲ Profile corrected

SGF | IR/IL | ≤ 2xD | 60° | UNF



Ti500



HB

Solid carbide

54 812 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	£ W8	
4.8	UNF 1/4-28	0.907	13	6	55	3	5.5	110.26	**014** [1]
6.0	UNF 5/16-24	1.058	18	6	60	3	6.9	114.40	**516**
8.0	UNF 3/8-24	1.058	21	8	70	3	8.5	137.41	**038**
8.0	UNF 7/16-20	1.270	21	8	70	3	9.9	137.41	**716**
9.9	UNF 1/2-20	1.270	26	10	75	4	11.5	136.20	**012**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

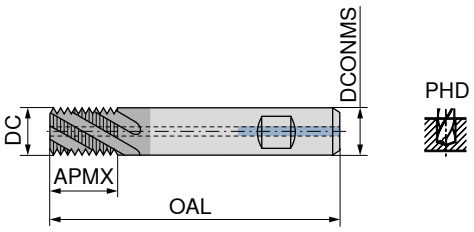
1) Without Through Coolant

→ v_c/f_z Page 74

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling cutter

SGF | IR/IL | ≤ 2xD | 60° | M



Ti500



HB

Solid carbide

54 832 ...

DC mm	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	£ W8	
8	0.50	12	8	70	3	10	359.32	**008**
8	0.75	12	8	70	3	11	359.32	**080**
10	1.00	16	10	75	4	14	363.56	**100**
10	1.50	16	10	75	4	14	363.56	**101**
12	1.00	20	12	85	4	16	443.87	**120**
12	1.50	20	12	85	4	16	443.87	**121**
12	2.00	20	12	85	4	18	443.87	**122**
16	1.00	25	16	90	5	22	600.26	**160**
16	1.50	25	16	90	5	22	549.54	**161**
16	2.00	25	16	90	5	22	608.71	**162**
16	3.00	25	16	90	5	24	617.16	**164**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 72

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values

	ZBGF H VHM 2xD 50 840 ...				SFSE VHM TiAlN 50 811 ..., 50 816 ..., 50 818 ..., 50 819 ...			SGF VHM TiAlN 50 825 ..., 50 826 ..., 50 827 ...		
Index	v_c m/min	Ø 3–5 f_z [mm/tooth]	Ø 6–10 f_z [mm/tooth]	Ø 12–16 f_z [mm/tooth]	v_c m/min	Ø 6–10 f_z [mm/tooth]	Ø 12–20 f_z [mm/tooth]	v_c m/min	Ø 6–10 f_z [mm/tooth]	Ø 12–20 f_z [mm/tooth]
P.1.1					**150**	0,06	0,10	**150**	0,06	0,10
P.1.2					**130**	0,06	0,10	**130**	0,06	0,10
P.1.3					**110**	0,06	0,10	**110**	0,06	0,10
P.1.4					**110**	0,05	0,07	**110**	0,05	0,07
P.1.5					**100**	0,05	0,07	**100**	0,05	0,07
P.2.1					**120**	0,06	0,10	**120**	0,06	0,10
P.2.2					**110**	0,05	0,07	**110**	0,05	0,07
P.2.3					**100**	0,05	0,07	**100**	0,05	0,07
P.2.4					**80**	0,04	0,06	**80**	0,04	0,06
P.3.1					**80**	0,06	0,10	**80**	0,06	0,10
P.3.2					**70**	0,05	0,07	**70**	0,05	0,07
P.3.3					**60**	0,04	0,06	**60**	0,04	0,06
P.4.1					**80**	0,06	0,10	**80**	0,06	0,10
P.4.2					**70**	0,06	0,10	**70**	0,06	0,10
M.1.1					**70**	0,04	0,06	**70**	0,04	0,06
M.2.1					**50**	0,03	0,05	**50**	0,03	0,05
M.3.1					**50**	0,03	0,05	**50**	0,03	0,05
K.1.1					**150**	0,07	0,12	**150**	0,07	0,12
K.1.2					**130**	0,07	0,12	**130**	0,07	0,12
K.2.1					**130**	0,05	0,07	**130**	0,05	0,07
K.2.2					**110**	0,05	0,07	**110**	0,05	0,07
K.3.1					**120**	0,06	0,10	**120**	0,06	0,10
K.3.2					**100**	0,06	0,10	**100**	0,06	0,10
N.1.1					**210**	0,085	0,15	**210**	0,085	0,15
N.1.2					**180**	0,07	0,12	**180**	0,07	0,12
N.2.1					**130**	0,07	0,12	**130**	0,07	0,12
N.2.2					**130**	0,07	0,12	**130**	0,07	0,12
N.2.3					**120**	0,07	0,12	**120**	0,07	0,12
N.3.1					**180**	0,085	0,15	**180**	0,085	0,15
N.3.2					**180**	0,085	0,15	**180**	0,085	0,15
N.3.3					**130**	0,085	0,15	**130**	0,085	0,15
N.4.1					**150**	0,085	0,15	**150**	0,085	0,15
S.1.1					**60**	0,03	0,05	**60**	0,03	0,05
S.1.2	80	0,01	0,03	0,03						
S.2.1	60	0,01	0,02	0,02						
S.2.2	60	0,01	0,02	0,02						
S.2.3	60	0,01	0,02	0,02						
S.3.1					**70**	0,03	0,05	**70**	0,03	0,05
S.3.2	80	0,01	0,03	0,03						
S.3.3	60	0,01	0,02	0,02						
H.1.1	**80**	0,01	0,03	0,03						
H.1.2	**60**	0,01	0,02	0,02						
H.1.3	**40**	0,005	0,01	0,01						
H.1.4										
H.2.1	**100**	0,03	0,04	0,04						
H.3.1	**60**	0,01	0,02	0,02						
O.1.1					**240**	0,10	0,16	**240**	0,10	0,16
O.1.2					**240**	0,10	0,16	**240**	0,10	0,16
O.2.1					**130**	0,05	0,07	**130**	0,05	0,07
O.2.2					**130**	0,05	0,07	**130**	0,05	0,07
O.3.1	180	0,04	0,05	0,08	**110**	0,05	0,07	**110**	0,05	0,07

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

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Cutting data standard values

	MWN uncoated 50 890 ..., 50 891 ..., 50 892 ..., 50 895 ..., 50 896 ..., 50 897 ...		MWN TiAlN 50 890 ..., 50 891 ..., 50 895 ...		EAW / EWM 50 860 ..., 50 861 ..., 50 867 ..., 50 868 ..., 50 870 ..., 50 871 ...			SGF VHM Ti500 54 832 ...		
Index	v_c m/min	f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]	v_c m/min	EAW f_z [mm/tooth]	EWM f_z [mm/tooth]	v_c m/min	8 mm f_z [mm/tooth]	10–16 mm f_z [mm/tooth]
P.1.1	**85**	0,10	**170**	0,10	**280**	0,20	0,20	**150**	0,03–0,07	0,05–0,15
P.1.2	**75**	0,10	**150**	0,10	**240**	0,20	0,20	**150**	0,03–0,07	0,05–0,15
P.1.3	**65**	0,10	**130**	0,10	**200**	0,20	0,20	**120**	0,03–0,07	0,05–0,10
P.1.4	**65**	0,07	**130**	0,07	**200**	0,15	0,15	**120**	0,03–0,06	0,04–0,06
P.1.5	**60**	0,07	**120**	0,07	**180**	0,15	0,15	**120**	0,03–0,06	0,04–0,06
P.2.1	**70**	0,10	**140**	0,10	**220**	0,20	0,20	**120**	0,03–0,06	0,04–0,06
P.2.2	**65**	0,07	**130**	0,07	**200**	0,15	0,15	**120**	0,03–0,06	0,04–0,06
P.2.3	**60**	0,07	**120**	0,07	**180**	0,15	0,15	**80**	0,03–0,06	0,04–0,06
P.2.4	**45**	0,06	**90**	0,06	**150**	0,12	0,12	**70**	0,03–0,06	0,04–0,06
P.3.1	**45**	0,10	**90**	0,10	**150**	0,20	0,20	**80**	0,03–0,06	0,04–0,06
P.3.2	**40**	0,07	**80**	0,07	**130**	0,10	0,10	**70**	0,03–0,06	0,04–0,06
P.3.3	**35**	0,06	**70**	0,06	**110**	0,10	0,10	**60**	0,03–0,06	0,04–0,06
P.4.1	**45**	0,10	**90**	0,10	**150**	0,20	0,20	**50**	0,03–0,06	0,04–0,06
P.4.2	**40**	0,10	**80**	0,10	**130**	0,20	0,20	**50**	0,03–0,06	0,04–0,06
M.1.1	40	0,06	**80**	0,06	**130**	0,10	0,10	**120**	0,04–0,07	0,05–0,12
M.2.1	30	0,05	**60**	0,05	**90**	0,08	0,08	**120**	0,04–0,07	0,05–0,12
M.3.1	30	0,05	**60**	0,05	**90**	0,08	0,08	**120**	0,04–0,07	0,05–0,12
K.1.1	**85**	0,12	**170**	0,12	**280**	0,25	0,25	**140**	0,04–0,07	0,07–0,15
K.1.2	**75**	0,12	**150**	0,12	**240**	0,25	0,25	**100**	0,04–0,07	0,07–0,15
K.2.1	**75**	0,07	**150**	0,07	**240**	0,15	0,15	**140**	0,04–0,07	0,07–0,15
K.2.2	**65**	0,07	**130**	0,07	**200**	0,15	0,15	**120**	0,04–0,07	0,07–0,15
K.3.1	**70**	0,10	**140**	0,10	**220**	0,20	0,20	**140**	0,04–0,07	0,07–0,15
K.3.2	**60**	0,10	**120**	0,10	**190**	0,20	0,20	**100**	0,04–0,07	0,07–0,15
N.1.1	**120**	0,15	**240**	0,15	**390**	0,30	0,30	**400**	0,05–0,08	0,07–0,15
N.1.2	**105**	0,12	**210**	0,12	**330**	0,25	0,25	**350**	0,05–0,08	0,07–0,15
N.2.1	**75**	0,12	**150**	0,12	**240**	0,25	0,25	**350**	0,05–0,08	0,07–0,15
N.2.2	**75**	0,12	**150**	0,12	**240**	0,25	0,25	**250**	0,05–0,08	0,07–0,15
N.2.3	**70**	0,12	**140**	0,12	**220**	0,25	0,25	**200**	0,05–0,08	0,07–0,15
N.3.1	**105**	0,15	**210**	0,15	**330**	0,30	0,30	**160**	0,05–0,08	0,07–0,15
N.3.2	**105**	0,15	**210**	0,15	**330**	0,30	0,30	**160**	0,05–0,08	0,07–0,15
N.3.3	**75**	0,15	**150**	0,15	**240**	0,30	0,30	**160**	0,05–0,08	0,07–0,15
N.4.1	**85**	0,15	**170**	0,15	**280**	0,30	0,30	**160**	0,05–0,08	0,07–0,15
S.1.1					**110**	0,10	0,10	**100**	0,02–0,04	0,04–0,10
S.1.2					**90**	0,07	0,07	**80**	0,02–0,04	0,04–0,10
S.2.1					**70**	0,05	0,05	**60**	0,03–0,05	0,04–0,06
S.2.2					**70**	0,05	0,05	**40**	0,03–0,05	0,04–0,06
S.2.3					**70**	0,05	0,05	**40**	0,03–0,05	0,04–0,06
S.3.1					**130**	0,10	0,10	**100**	0,02–0,04	0,04–0,10
S.3.2					**90**	0,07	0,07	**80**	0,03–0,05	0,04–0,06
S.3.3					**70**	0,05	0,05	**60**	0,03–0,05	0,04–0,06
H.1.1					80	0,05	0,05	**60**	0,01–0,02	0,03–0,05
H.1.2					60	0,04	0,04	**50**	0,01–0,02	0,03–0,05
H.1.3								**40**	0,01–0,02	0,03–0,05
H.1.4								**30**	0,01–0,02	0,03–0,05
H.2.1					80	0,05	0,05	**60**	0,01–0,02	0,03–0,05
H.3.1					60	0,04	0,04	**50**	0,01–0,02	0,03–0,05
O.1.1	**140**	0,16						**180**	0,05–0,10	0,07–0,25
O.1.2	**140**	0,16						**220**	0,05–0,10	0,07–0,25
O.2.1	**75**	0,07						**120**	0,05–0,10	0,07–0,25
O.2.2	**75**	0,07						**120**	0,05–0,10	0,07–0,25
O.3.1			130	0,07	200	0,14	0,14	**400**	0,05–0,10	0,07–0,25

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Cutting data standard values

	GZG / GZD 50 863 ..., 50 864 ..., 50 887 ..., 50 885 ..., 50 888 ..., 50 889 ..., 50 894 ...			Polygon 50 872 ..., 50 874 ..., 50 875 ..., 50 876 ..., 50 879 ..., 50 880 ..., 50 881 ..., 50 882 ..., 50 883 ..., 50 884 ..., 50 886 ...		System 300 50 851 ..., 50 852 ..., 50 853 ..., 50 855 ..., 50 857 ..., 50 858 ..., 50 859 ...	
Index	v_c m/min	12–17 mm f_z [mm/tooth]	20–26 mm f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]
P.1.1	220	0,10–0,30	0,05–0,30	220	0,05–0,25	220	0,05–0,15
P.1.2	220	0,10–0,30	0,05–0,30	220	0,05–0,25	220	0,05–0,15
P.1.3	190	0,10–0,30	0,05–0,30	190	0,05–0,25	190	0,05–0,15
P.1.4	160	0,10–0,30	0,05–0,30	160	0,05–0,25	160	0,05–0,15
P.1.5	160	0,10–0,30	0,05–0,30	160	0,05–0,25	160	0,05–0,15
P.2.1	150	0,10–0,30	0,05–0,30	150	0,05–0,25	150	0,05–0,15
P.2.2	120	0,10–0,30	0,05–0,30	120	0,05–0,25	120	0,05–0,15
P.2.3	100	0,10–0,30	0,05–0,30	100	0,05–0,25	100	0,05–0,15
P.2.4	90	0,10–0,30	0,05–0,30	90	0,05–0,25	90	0,05–0,15
P.3.1	100	0,10–0,20	0,05–0,20	100	0,05–0,20	100	0,05–0,12
P.3.2	90	0,10–0,20	0,05–0,20	90	0,05–0,20	90	0,05–0,12
P.3.3	80	0,10–0,20	0,05–0,20	80	0,05–0,20	80	0,05–0,12
P.4.1	70	0,10–0,20	0,05–0,20	70	0,05–0,20	70	0,05–0,12
P.4.2	60	0,10–0,20	0,05–0,20	60	0,05–0,20	60	0,05–0,12
M.1.1	130	0,10–0,30	0,05–0,30	130	0,05–0,25	130	0,05–0,15
M.2.1	120	0,10–0,30	0,05–0,30	120	0,05–0,25	120	0,05–0,15
M.3.1	120	0,10–0,30	0,05–0,30	120	0,05–0,25	120	0,05–0,15
K.1.1	140	0,10–0,30	0,05–0,30	140	0,05–0,25	140	0,05–0,15
K.1.2	100	0,10–0,30	0,05–0,30	100	0,05–0,25	100	0,05–0,15
K.2.1	140	0,10–0,30	0,05–0,30	140	0,05–0,25	140	0,05–0,15
K.2.2	120	0,10–0,30	0,05–0,30	120	0,05–0,25	120	0,05–0,15
K.3.1	140	0,10–0,30	0,05–0,30	140	0,05–0,25	140	0,05–0,15
K.3.2	100	0,10–0,30	0,05–0,30	100	0,05–0,25	100	0,05–0,15
N.1.1	700	0,10–0,40	0,05–0,40	700	0,15–0,40	700	0,10–0,25
N.1.2	400	0,10–0,40	0,05–0,40	400	0,15–0,40	400	0,10–0,25
N.2.1	400	0,10–0,40	0,05–0,40	400	0,15–0,40	400	0,10–0,25
N.2.2	300	0,10–0,40	0,05–0,40	300	0,15–0,40	300	0,10–0,25
N.2.3	200	0,10–0,40	0,05–0,40	200	0,15–0,40	200	0,10–0,25
N.3.1	160	0,10–0,40	0,05–0,40	160	0,15–0,40	160	0,10–0,25
N.3.2	160	0,10–0,40	0,05–0,40	160	0,15–0,40	160	0,10–0,25
N.3.3	160	0,10–0,40	0,05–0,40	160	0,15–0,40	160	0,10–0,25
N.4.1	160	0,10–0,40	0,05–0,40	160	0,15–0,40	160	0,10–0,25
S.1.1				100	0,01–0,15	100	0,01–0,12
S.1.2				80	0,01–0,15	80	0,01–0,12
S.2.1				60	0,01–0,15	60	0,01–0,12
S.2.2				40	0,01–0,15	40	0,01–0,12
S.2.3				40	0,01–0,15	40	0,01–0,12
S.3.1				100	0,01–0,15	100	0,01–0,12
S.3.2				80	0,01–0,15	80	0,01–0,12
S.3.3				60	0,01–0,15	60	0,01–0,12
H.1.1				60	0,01–0,10	60	0,01–0,10
H.1.2				50	0,01–0,10	50	0,01–0,10
H.1.3				40	0,01–0,10	40	0,01–0,10
H.1.4				30	0,01–0,10	30	0,01–0,10
H.2.1				60	0,01–0,10	60	0,01–0,10
H.3.1				50	0,01–0,10	50	0,01–0,10
O.1.1				180	0,05–0,25	180	0,05–0,15
O.1.2				220	0,05–0,25	220	0,05–0,15
O.2.1				120	0,05–0,25	120	0,05–0,15
O.2.2				120	0,05–0,25	120	0,05–0,15
O.3.1				800	0,05–0,25	800	0,05–0,15

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
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Cutting data standard values

	SFSE / SGF VHM Ti500 54 800 ..., 54 801 ..., 54 802 ..., 54 803 ..., 54 804 ..., 54 805 ..., 54 809 ..., 54 810 ..., 54 811 ..., 54 812 ..., 54 813 ...				Circular shank thread milling cutter 50 802 ..., 50 803 ...				
Index	v_c m/min	Ø 2,4–3,15	Ø 4	Ø 4,8–16	v_c m/min	Ø 1–2	Ø 3–5	Ø 6–8	Ø 9–12
		f_z [mm/tooth]	f_z [mm/tooth]	f_z [mm/tooth]		f_z [mm/tooth]	f_z [mm/tooth]	f_z [mm/tooth]	f_z [mm/tooth]
P.1.1	**150**	0,03–0,04	0,03–0,06	0,05–0,15	**110**	0,05	0,09	0,14	0,16
P.1.2	**150**	0,03–0,04	0,03–0,06	0,05–0,15	**110**	0,05	0,09	0,14	0,16
P.1.3	**120**	0,02–0,03	0,02–0,06	0,05–0,10	**110**	0,05	0,09	0,14	0,16
P.1.4	**120**	0,01–0,02	0,03–0,05	0,04–0,06	**110**	0,05	0,09	0,14	0,16
P.1.5	**120**	0,01–0,02	0,03–0,05	0,04–0,06	**110**	0,05	0,09	0,14	0,16
P.2.1	**120**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
P.2.2	**120**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
P.2.3	**80**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
P.2.4	**70**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
P.3.1	**80**	0,01–0,02	0,03–0,05	0,04–0,06	**60**	0,04	0,08	0,12	0,14
P.3.2	**70**	0,01–0,02	0,03–0,05	0,04–0,06	**60**	0,04	0,08	0,12	0,14
P.3.3	**60**	0,01–0,02	0,03–0,05	0,04–0,06	**60**	0,04	0,08	0,12	0,14
P.4.1	**50**	0,01–0,02	0,03–0,05	0,04–0,06	**60**	0,04	0,08	0,12	0,14
P.4.2	**50**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
M.1.1	**120**	0,03–0,04	0,03–0,04	0,05–0,12	**80**	0,04	0,05	0,07	0,10
M.2.1	**120**	0,03–0,04	0,03–0,04	0,05–0,12	**80**	0,04	0,05	0,07	0,10
M.3.1	**120**	0,03–0,04	0,03–0,04	0,05–0,12	**80**	0,04	0,05	0,07	0,10
K.1.1	**140**	0,03–0,07	0,03–0,07	0,07–0,12	**50**	0,05	0,09	0,14	0,16
K.1.2	**100**	0,03–0,07	0,03–0,07	0,07–0,12	**50**	0,05	0,09	0,14	0,16
K.2.1	**140**	0,03–0,07	0,03–0,07	0,07–0,12	**50**	0,05	0,09	0,14	0,16
K.2.2	**120**	0,03–0,07	0,03–0,07	0,07–0,10	**50**	0,05	0,09	0,14	0,16
K.3.1	**140**	0,03–0,07	0,03–0,07	0,07–0,10	**50**	0,05	0,09	0,14	0,16
K.3.2	**100**	0,03–0,07	0,03–0,07	0,07–0,10	**50**	0,05	0,09	0,14	0,16
N.1.1	**400**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.1.2	**350**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.2.1	**350**	0,05–0,07	0,05–0,07	0,07–0,15	**120**	0,04	0,05	0,07	0,10
N.2.2	**250**	0,05–0,07	0,05–0,07	0,07–0,15	**100**	0,04	0,05	0,07	0,10
N.2.3	**200**	0,05–0,07	0,05–0,07	0,07–0,15	**100**	0,04	0,05	0,07	0,10
N.3.1	**160**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.3.2	**160**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.3.3	**160**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.4.1	**160**	0,05–0,07	0,05–0,07	0,07–0,15	**110**	0,04	0,05	0,07	0,10
S.1.1	**100**	0,02–0,04	0,02–0,04	0,04–0,10	**30**	0,03	0,04	0,06	0,07
S.1.2	**80**	0,02–0,04	0,02–0,04	0,04–0,10	**30**	0,03	0,04	0,06	0,07
S.2.1	**60**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
S.2.2	**40**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
S.2.3	**40**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
S.3.1	**100**	0,02–0,04	0,02–0,04	0,04–0,10	**30**	0,03	0,04	0,06	0,07
S.3.2	**80**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
S.3.3	**60**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
H.1.1	**60**		0,01–0,02	0,03–0,05					
H.1.2	**50**		0,01–0,02	0,03–0,05					
H.1.3	**40**		0,01–0,02	0,03–0,05					
H.1.4	**30**		0,01–0,02	0,03–0,05					
H.2.1	**60**		0,01–0,02	0,03–0,05					
H.3.1	**50**		0,01–0,02	0,03–0,05					
O.1.1	**180**	0,01–0,05	0,05–0,10	0,07–0,25	**150**	0,06	0,12	0,19	0,19
O.1.2	**220**	0,01–0,05	0,05–0,10	0,07–0,25	**150**	0,06	0,12	0,19	0,19
O.2.1	**120**	0,01–0,05	0,05–0,10	0,07–0,25	**150**	0,06	0,12	0,19	0,19
O.2.2	**120**	0,01–0,05	0,05–0,10	0,07–0,25	**150**	0,06	0,12	0,19	0,19
O.3.1	**400**	0,01–0,05	0,05–0,10	0,07–0,25	**100**	0,05	0,09	0,14	0,14

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

	M/MF-BGF 2xD/2,5xD 50 854 ..., 50 862 ..., 50 869 ..., 50 898 ...						HPC solid carbide thread milling cutters 50 806 ..., 50 807 ...				SFSE Micro VHM 50 804 ...	
Index	v_c TiAlN m/min	v_c uncoated m/min	≤ Ø 6 f_B [mm/tooth] *	≤ Ø 12 f_B [mm/tooth] *	≤ Ø 6 f_z [mm/tooth]	≤ Ø 12 f_z [mm/tooth]	v_c m/min	Ø 3–5 f_z [mm/tooth]	Ø 6–10 f_z [mm/tooth]	Ø 10–13 f_z [mm/tooth]	v_c m/min	Ø 0,7–2,1 f_z [mm/tooth]
P.1.1							**100–140**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.1.2							**100–120**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.1.3							**80–100**	0,015–0,02	0,03–0,05	0,03–0,07	20–40	0,01–0,02
P.1.4							**80–100**	0,015–0,02	0,02–0,04	0,03–0,05	20–40	0,01–0,02
P.1.5							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.2.1							**100–120**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.2.2							**80–100**	0,015–0,03	0,02–0,05	0,03–0,07	20–40	0,01–0,02
P.2.3							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.2.4							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.3.1							**100–120**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.3.2							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.3.3							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.4.1							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.4.2							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
M.1.1							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
M.2.1							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
M.3.1							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
K.1.1	**80–120**	50–80	0,10–0,15	0,15–0,22	0,02–0,05	0,05–0,10	**100–120**	0,02–0,04	0,04–0,08	0,06–0,10		
K.1.2	**80–120**	50–80	0,10–0,15	0,15–0,22	0,02–0,05	0,05–0,10	**100–120**	0,02–0,04	0,04–0,08	0,06–0,10		
K.2.1							**100–120**	0,02–0,04	0,04–0,08	0,06–0,10		
K.2.2							**80–100**	0,02–0,04	0,04–0,08	0,06–0,10		
K.3.1							**80–100**	0,02–0,04	0,04–0,08	0,06–0,08		
K.3.2							**80–100**	0,02–0,04	0,04–0,08	0,06–0,08		
N.1.1	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.1.2	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.2.1	100–300		0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.2.2	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.2.3	100–160		0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.3.1	100–300	**100–300**	0,10–0,30	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.3.2											30–50	0,02–0,03
N.3.3											30–50	0,02–0,03
N.4.1	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
S.1.1											20–30	0,01–0,02
S.1.2											20–30	0,01–0,02
S.2.1											20–30	0,01–0,02
S.2.2											20–30	0,01–0,015
S.2.3											20–30	0,01–0,015
S.3.1							**60–80**	0,015–0,02	0,02–0,03	0,03–0,04	20–30	0,01–0,02
S.3.2							**60–80**	0,01–0,015	0,015–0,02	0,025–0,035	20–30	0,01–0,015
S.3.3											20–30	0,01–0,015
H.1.1											**20–30**	0,01–0,015
H.1.2											**20–30**	0,01–0,015
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1	60–100	**60–100**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10						
O.1.2												
O.2.1												
O.2.2												
O.3.1												

* f_B = drilling feed rate in mm / rev

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Cutting data standard values

	MiniMill 53 006 ..., 53 007 ..., 53 008 ..., 53 009 ..., 53 010 ..., 53 011 ..., 53 012 ..., 53 013 ..., 53 015 ...			MicroMill 53 050 ..., 53 051 ..., 53 052 ..., 53 053 ...	
Index	v_c m/min	f_z (drilling) [mm/tooth]	f_z (Threading) [mm/tooth]	v_c m/min	f_z [mm/tooth]
P.1.1	**120** (80–200)	0,03–0,10	0,05–0,20	**70** (40–120)	0,01–0,05
P.1.2	**110** (70–190)	0,03–0,10	0,05–0,20	**60** (40–110)	0,01–0,05
P.1.3	**90** (60–150)	0,03–0,10	0,05–0,20	**50** (30–80)	0,01–0,05
P.1.4	**90** (60–150)	0,03–0,08	0,05–0,18	**50** (30–80)	0,01–0,05
P.1.5	**70** (50–120)	0,03–0,08	0,05–0,18	**40** (30–70)	0,01–0,05
P.2.1	**90** (60–150)	0,03–0,10	0,05–0,20	**50** (30–80)	0,01–0,05
P.2.2	**70** (50–120)	0,03–0,08	0,05–0,18	**40** (30–70)	0,01–0,05
P.2.3	**60** (40–110)	0,02–0,07	0,05–0,16	**40** (20–70)	0,01–0,05
P.2.4	**60** (40–100)	0,03–0,07	0,05–0,16	**30** (20–60)	0,01–0,04
P.3.1	**60** (40–100)	0,03–0,10	0,05–0,20	**30** (20–60)	0,01–0,05
P.3.2	**50** (30–80)	0,02–0,07	0,05–0,16	**30** (20–50)	0,01–0,04
P.3.3	**30** (20–60)	0,02–0,07	0,05–0,16	**20** (10–40)	0,005–0,03
P.4.1	**80** (50–130)	0,03–0,08	0,05–0,18	**40** (30–70)	0,01–0,05
P.4.2	**60** (40–110)	0,02–0,07	0,05–0,16	**40** (20–70)	0,01–0,05
M.1.1	**90** (60–150)	0,02–0,07	0,05–0,16	**50** (30–80)	0,01–0,03
M.2.1	**60** (40–110)	0,02–0,07	0,05–0,16	**40** (20–70)	0,01–0,03
M.3.1	**50** (30–90)	0,02–0,07	0,05–0,16	**30** (20–50)	0,01–0,03
K.1.1	**110** (70–190)	0,03–0,10	0,05–0,20	**60** (40–110)	0,008–0,06
K.1.2	**80** (50–140)	0,03–0,10	0,05–0,20	**50** (30–80)	0,008–0,06
K.2.1	**70** (50–120)	0,03–0,10	0,05–0,20	**40** (30–70)	0,008–0,06
K.2.2	**60** (40–100)	0,03–0,10	0,05–0,20	**30** (20–60)	0,008–0,06
K.3.1	**110** (70–190)	0,03–0,10	0,05–0,20	**60** (40–110)	0,008–0,06
K.3.2	**90** (60–160)	0,03–0,10	0,05–0,20	**50** (30–90)	0,008–0,06
N.1.1	**230** (150–390)	0,04–0,15	0,06–0,25	**150** (90–260)	0,01–0,06
N.1.2	**220** (140–370)	0,04–0,15	0,06–0,25	**140** (90–240)	0,01–0,06
N.2.1	**190** (120–320)	0,04–0,15	0,06–0,25	**120** (70–210)	0,01–0,06
N.2.2	**160** (110–270)	0,04–0,15	0,06–0,25	**100** (60–180)	0,01–0,06
N.2.3	**90** (60–160)	0,04–0,15	0,06–0,25	**60** (40–110)	0,01–0,06
N.3.1	**170** (110–280)	0,04–0,15	0,06–0,25	**110** (70–180)	0,01–0,06
N.3.2	**140** (90–240)	0,04–0,15	0,06–0,25	**80** (50–150)	0,01–0,06
N.3.3	**120** (80–210)	0,04–0,15	0,06–0,25	**80** (50–140)	0,01–0,06
N.4.1	**170** (110–280)	0,04–0,15	0,06–0,25	**70** (40–120)	0,01–0,06
S.1.1	60 (40–100)	0,04–0,15	0,06–0,25	**30** (20–50)	0,01–0,06
S.1.2	40 (30–70)	0,04–0,15	0,06–0,25	**20** (10–30)	0,01–0,06
S.2.1	60 (40–100)	0,04–0,15	0,06–0,25	**30** (20–50)	0,01–0,06
S.2.2	50 (30–80)	0,04–0,15	0,06–0,25	**20** (10–40)	0,01–0,06
S.2.3	30 (20–60)	0,04–0,15	0,06–0,25	**20** (10–30)	0,01–0,06
S.3.1	60 (40–100)	0,04–0,15	0,06–0,25	**20** (10–40)	0,01–0,06
S.3.2	30 (20–60)	0,04–0,15	0,06–0,25	**20** (10–30)	0,01–0,06
S.3.3	30 (20–50)	0,04–0,15	0,06–0,25	**10** (10–20)	0,01–0,06
H.1.1	50 (30–90)	0,02–0,06	0,04–0,14	**20** (10–40)	0,005–0,03
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1	40 (30–70)	0,02–0,10		**20** (10–40)	0,005–0,03
O.1.1	**180** (120–310)	0,04–0,15	0,06–0,25	**80** (50–130)	0,02–0,09
O.1.2	**170** (110–280)	0,04–0,15	0,06–0,25	**70** (40–120)	0,02–0,09
O.2.1	**140** (90–230)	0,04–0,15	0,06–0,25	**50** (30–100)	0,02–0,09
O.2.2	**100** (70–170)	0,04–0,15	0,06–0,25	**40** (30–70)	0,02–0,09
O.3.1	**140** (90–230)	0,005–0,05	0,06–0,25	**60** (40–110)	0,02–0,09

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

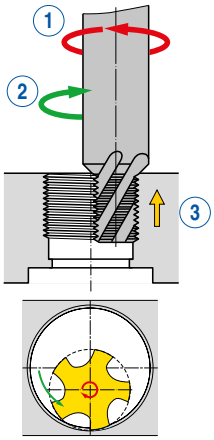
Milling Procedures

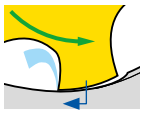
Climb milling

Characteristics:

1. Tool rotation direction „right“
2. Toolpath counter clockwise
3. Feed direction „outwards“

Right hand thread





When climb milling, the chip thickness at the end of cut is always 0 (h=0)

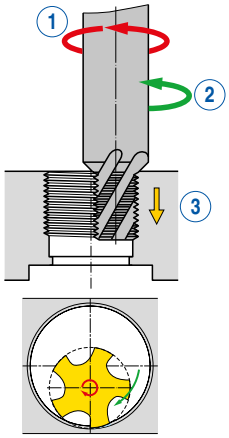
h = 0

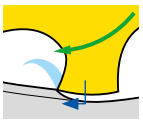
Conventional milling

Characteristics:

1. Tool rotation direction „right“
2. Toolpath clockwise
3. Feed direction „inwards“

Right hand thread



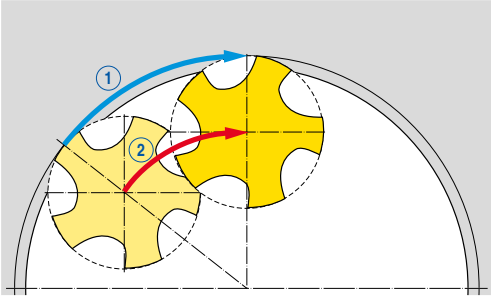


When conventional milling, the chip thickness at the end of cut is always at maximum (h=max)

h = max

7

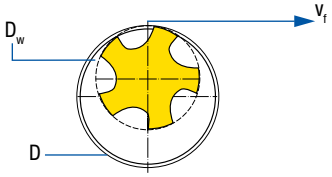
Feed rate calculation



1. Peripheral feedrate v_f
2. Centerline feedrate v_{fm}

Peripheral feedrate v_f

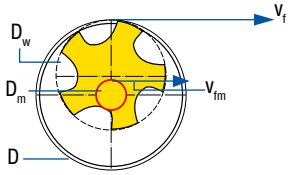
$$v_f = n \cdot f_z \cdot z \quad \text{mm/min.}$$



D_w = Effective diameter in mm
n = RPM in min^{-1}
f_z = Feed per tooth in mm

Centerline feedrate v_{fm}

$$v_{fm} = \frac{v_f \cdot (D - D_w)}{D} \quad \text{mm/min.}$$



z = Number of cutting edges (radial)
D = Nominal thread diameter = external profile diameter in mm
D_m = Centre path diameter ($D-D_W$) in mm

Tips for the User

With thread milling there are two different programme possibilities with the feed motion of the tool.

On the one hand the machine controls the feed at the diameter of the tool, on the other hand the feed control is the tool center line.
In order to ascertain which method the machine control uses, the following method should be employed:

- Enter the thread milling routine into the control.
- Enter a safety margin into the program, so that the tool runs in air.
- Run the program through and check the operating time.
- Compare the actual time with the calculated theoretical time.

If the time is longer than the calculated time the feed is controlling the tool center line.
If the time is shorter than the calculated time the feed is controlling the diameter of the tool.

Numeric calculation of cutting data for thread milling

$$n = \frac{v_c \cdot 1000}{d \cdot \pi}$$

$$v_c = \frac{d \cdot \pi \cdot n}{1000}$$

$$v_f = f_z \cdot z \cdot n$$

$$n = \frac{v_f}{f_z \cdot z}$$

$$f_z = \frac{v_f}{z \cdot n}$$

Milling – external contour

$$v_{fm} = \frac{v_f \cdot (D + d)}{D}$$

$$v_f = \frac{D \cdot v_{fm}}{(D + d)}$$

Milling – internal contour

$$v_{fm} = \frac{v_f \cdot (D - d)}{D}$$

$$v_f = \frac{D \cdot v_{fm}}{(D - d)}$$

Helical plunging

$$U_{arc} = 0{,}25 \cdot v_{fm}$$

Ramping in the arc

$$U_{arc} = v_{fm}$$

n	=	rpm	rev./min.
v_c	=	Cutting speed	m/min
d	=	Tool diameter	mm
D	=	Nominal thread-Ø	mm
v_f	=	Feed rate at the diameter	mm/min.
v_{fm}	=	Feed rate at the centre	mm/min.
U_{arc}	=	programmed ramping feed rate	mm/min.
f_z	=	Feed per tooth	mm
z	=	number of cutting edges of the cutter	Piece

Correction values for the internal thread milling

The cutting edge diameter of the thread milling cutter which is entered into the machine control, can be calculated as follows:

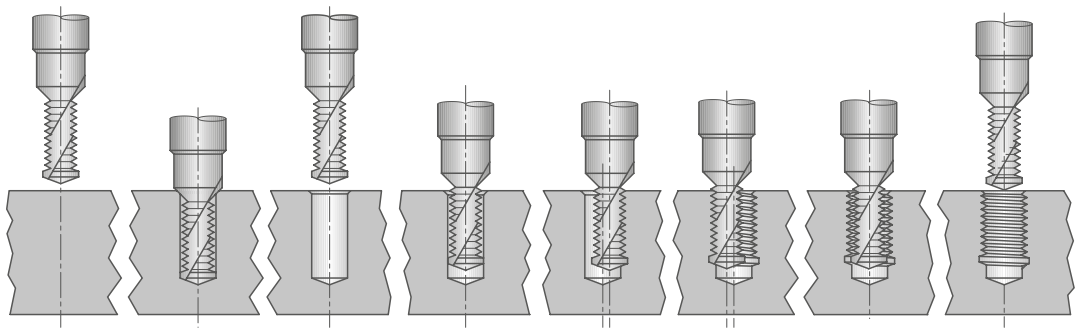
half the cutter Ø – 0.05 x pitch p

Example: M30x3
Cutter-Ø: 20 mm

$$Ø\frac{20}{2} - (0{,}05 \cdot 3) = \underline{9{,}85\ mm}$$

9,85 mm is the cutting radius to be entered into the machine control

Internal thread production



Thread types

M	Metric ISO standard thread
MF	Metric ISO fine thread
G	Whitworth thread
UN	Unified thread
UNC	Unified standard thread
UNF	Unified fine thread
BSW	Whitworth thread
BSF	Whitworth fine thread
NPT	American taper pipe thread
Pg	Steel conduit thread
Tr	Trapezoidal thread

Coatings

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

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

Ti500
- TiAlN-coating
- Maximum application temperature: 500 °C

Ti601
- High-performance TiAlN multilayer coating
- Maximum application temperature: 900°C

AlCrN
- High-performance AlCrN multilayer coating
- max.application temperature: > 1100 ° C

CWX500
- Carbide, TiAlN-coated
- The universal carbide grade for almost all materials

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

Ti600
- TiAlN multilayer coating
- Maximum application temperature: 650°C

Ti602
- TiCN multilayer coating
- Maximum application temperature: 400°C

New products for machining technicians

NEW Inserts and holders for Mini 06 and 08



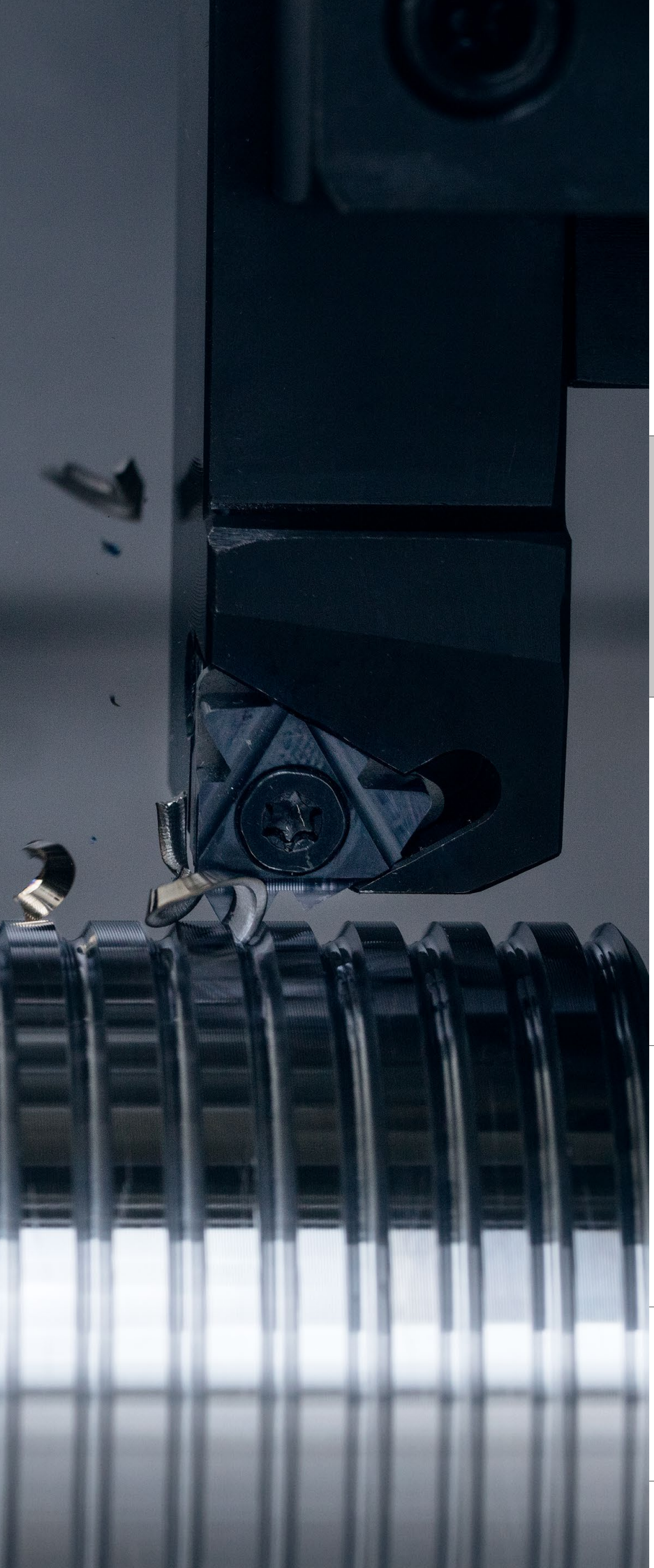
New grade CCN2520: Specialist for corrosion resistant and high-temperature-resistant material machining
Expansion of the existing CCN1525 variety

36–41

NEW Exchangeable head system



Use our standard thread turning inserts with the new exchangeable head system that you can find in Chapter 9 Turning Tools on pages 189–196.



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Symbol explanation	3
Toolfinder	2+3
Product programme	4–41
Shims	42
Technical Information	
Pitch angle	43
Cutting Data	44+45
Thread turning methods	46
Troubleshooting	47
Designation Key	48
Grade description and profile explanation	49

WNT \ Performance

Premium quality tools for high performance.

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

Toolfinder

TC threading system (external thread)

M	BSW
Full profile Partial profile	Full profile Partial profile

→ **Chapter 11 – Grooving tools**

TC threading system (internal thread)

M	BSW
Full profile Partial profile	Full profile Partial profile

→ **Chapter 11 – Grooving tools**

MiniCut

M	G	Tr
Full profile Partial profile	Partial profile	Partial profile

→ **Chapter 12 – Miniature turning tools**

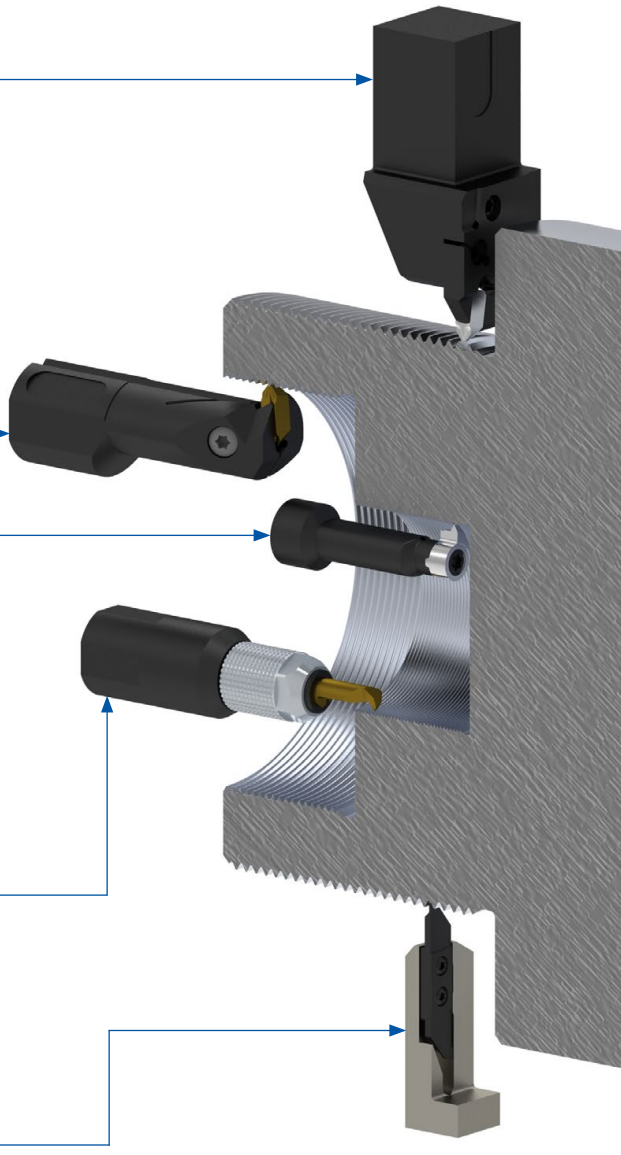
UltraMini

M	MF	G	Tr
Full profile Partial profile	Full profile Partial profile	Partial profile	Partial profile

→ **Chapter 12 – Miniature turning tools**

VertiClamp

→ **Sliding head tooling catalogue**



Symbol explanation

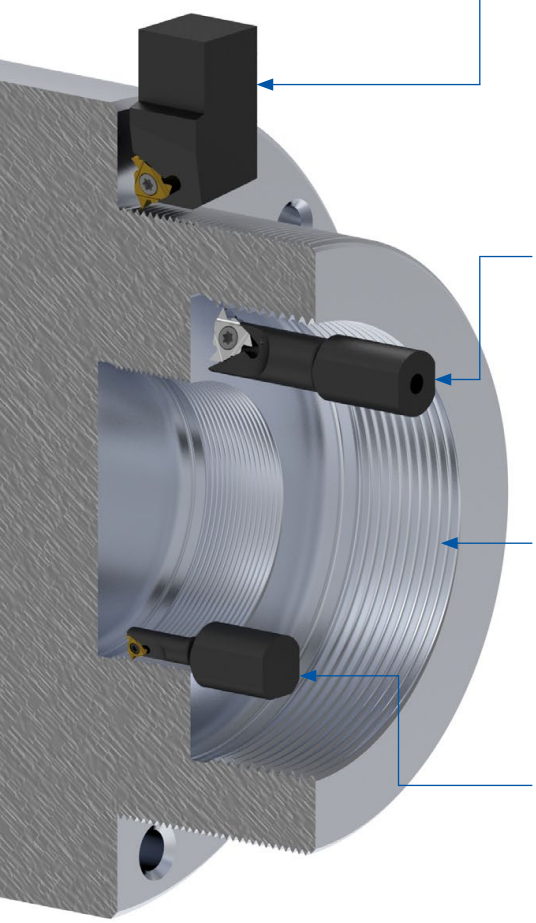
Flank angle

30°	Flank angle 30° (Trapezoidal thread)
30°	Flank angle 30° (Round thread)
55°	Flank angle 55°
60°	Flank angle 60°
80°	Flank angle 80° (Conduit thread)

TP / TPI = Pitch
NT = Number of flutes
● = **Main Application**
○ = Extended application

Thread

M	ISO metric coarse thread DIN 13
MF	ISO Metric fine thread DIN 13
MJ	Metric thread for the aerospace industry DIN ISO 5855
BSW	British Whitworth thread BS 84
UN	American unified thread BS 1580 (ASME B 1.1)
UNC	American unified thread (coarse) BS 1580 (ASME B 1.1)
UNF	American unified thread (fine) BS 1580 (ASME B 1.1)
UNEF	American unified thread (extra fine) BS 1580 (ASME B 1.1)
NPT	American pipe thread ANSI/ASME B 1.20.3
Tr	Trapezoidal thread DIN 103
Rd	Round Thread DIN 405
Pg	Conduit Threads DIN 40430



Standard external thread turning

Full profile

M	MJ	BSW	UN	UNC	UNF	UNEF	NPT	Tr	Rd	Pg
4+5	9	11+12	15+16	15+16	15+16	15+16	19	21	23	25

Partial profile

60°	55°
27	29

Multi-cutting edge

M
8

suitable holder



31+32



Standard internal thread turning

Full profile

M	MJ	BSW	UN	UNC	UNF	UNEF	NPT	Tr	Rd	Pg
6+7	10	13+14	17+18	17+18	17+18	17+18	20	22	24	26

Partial profile

60°	55°
28	30

suitable holder

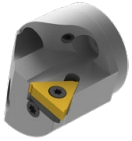


33–35



Standard internal threading with our new exchangeable head system

→ **Chapter 9 – Turning Tools**



Mini 06

Full profile

M	BSW
36	36

Partial profile

60°	55°
37	37

Mini 08

Full profile

M
38

Partial profile

60°	55°
38+39	39+40

suitable holder



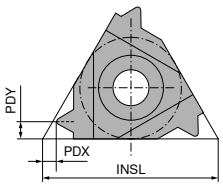
41

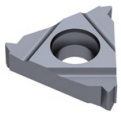
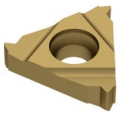
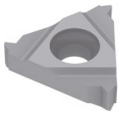
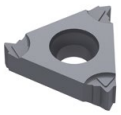
Information on the different thread profiles can be found on → **Page 49.**

Right hand external thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

M | MF | 60°



CCN20	CWN1525	HCN2525	CWK20	CCN7525
				

Designation	TP mm	INSL mm	PDX mm	PDY mm	ER 71 220 ... £ X3		ER 71 220 ... £ X3		ER 71 220 ... £ X3		ER 71 220 ... £ Y1		ER 71 220 ... £ X3	
11 ER 0,35	0.35	11	0.8	0.4	24.30	**204**					17.77	**604**		
11 ER 0,4	0.40	11	0.7	0.4	24.30	**206**					17.77	**606**		
11 ER 0,45	0.45	11	0.7	0.4	24.30	**208**					17.77	**608**		
11 ER 0,5	0.50	11	0.6	0.6	24.30	**209**					17.77	**609**		
11 ER 0,6	0.60	11	0.6	0.6	24.30	**210**					17.77	**610**		
11 ER 0,7	0.70	11	0.6	0.6	24.30	**211**					17.77	**611**		
11 ER 0,75	0.75	11	0.6	0.6	24.30	**212**					17.77	**612**		
11 ER 0,8	0.80	11	0.6	0.6	24.30	**213**					17.77	**613**		
11 ER 1,0	1.00	11	0.7	0.7	24.30	**214**					17.77	**614**		
11 ER 1,25	1.25	11	0.8	0.9	24.30	**216**					17.77	**616**		
11 ER 1,5	1.50	11	0.8	1.0	24.30	**218**					17.77	**618**		
11 ER 1,75	1.75	11	0.8	1.1	24.30	**220**					17.77	**620**		
16 ER 0,35	0.35	16	0.8	0.4	25.15	**234**			22.90	**734**	18.40	**634**		
16 ER 0,4	0.40	16	0.7	0.4	25.15	**236**			22.90	**736**	18.40	**636**		
16 ER 0,45	0.45	16	0.7	0.4	25.15	**238**					18.40	**638**		
16 ER 0,5	0.50	16	0.6	0.6	25.15	**240**	15.72	**140**	17.84	**740**	18.40	**640**	17.84	**940**
16 ER 0,7	0.70	16	0.6	0.6	25.15	**241**	17.40	**141**	18.42	**741**	18.40	**641**		
16 ER 0,75	0.75	16	0.6	0.6	25.15	**242**	16.34	**142**	17.84	**742**	18.40	**642**	17.84	**942**
16 ER 0,8	0.80	16	0.6	0.6	25.15	**243**	16.34	**143**	17.84	**743**	18.40	**643**	17.84	**943**
16 ER 1,0	1.00	16	0.7	0.7	25.15	**244**	15.26	**144**	17.40	**744**	17.90	**644**	17.40	**944**
16 ER 1,25	1.25	16	0.8	0.9	25.15	**246**	15.26	**146**	17.40	**746**	18.40	**646**	17.40	**946**
16 ER 1,5	1.50	16	0.8	1.0	25.15	**248**	15.26	**148**	17.40	**748**	17.90	**648**	17.40	**948**
16 ER 1,75	1.75	16	0.9	1.2	25.15	**250**	15.26	**150**	17.40	**750**	18.40	**650**		
16 ER 2,0	2.00	16	1.0	1.3	25.15	**252**	15.26	**152**	17.40	**752**	18.40	**652**	17.40	**952**
16 ER 2,5	2.50	16	1.1	1.5	25.15	**254**	15.26	**154**	17.40	**754**	18.40	**654**	17.40	**954**
16 ER 3,0	3.00	16	1.2	1.6	25.15	**256**	15.26	**156**	17.40	**756**	18.40	**656**	17.40	**956**
22 ER 3,5	3.50	22	1.6	2.3	34.73	**270**	23.81	**170**	26.20	**770**	30.23	**670**		
22 ER 4,0	4.00	22	1.6	2.3	34.73	**272**	24.84	**172**	27.63	**772**	30.23	**672**		
22 ER 4,5	4.50	22	1.7	2.4	34.73	**274**	26.80	**174**	29.18	**774**	30.23	**674**		
22 ER 5,0	5.00	22	1.7	2.5	34.73	**276**	26.80	**176**	29.18	**776**	30.23	**676**		
22 ER 5,5	5.50	22	1.7	2.6			26.80	**178**						
22 ER 5,5	5.50	22	1.9	2.7	34.73	**278**					30.23	**678**		
22 EN 5,5	5.50	22	2.3	11.0	34.73	**282** [1]					30.23	**682** [1]		
22 ER 6,0	6.00	22	1.9	2.7			26.80	**180**	29.18	**780**				
22 ER 6,0	6.00	22	2.0	2.9	34.73	**280**					30.23	**680**		
22 EN 6,0	6.00	22	2.6	11.0	34.73	**284** [1]					30.23	**684** [1]		

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

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

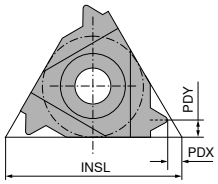
→ v_c Page 45

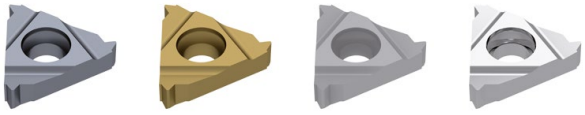
Left hand external thread turning insert

▲ Full profile

M | MF | 60°

CCN20 | CWN1525 | HCN2525 | CWK20





Designation	TP mm	INSL mm	PDX mm	PDY mm	EL 71 222 ... £ X3		EL 71 222 ... £ X3		EL 71 222 ... £ X3		EL 71 222 ... £ Y1	
11 EL 0,35	0.35	11	0.8	0.4	24.30	**204**					17.77	**604**
11 EL 0,4	0.40	11	0.7	0.4	24.30	**206**					17.77	**606**
11 EL 0,45	0.45	11	0.7	0.4	24.30	**208**					17.77	**608**
11 EL 0,5	0.50	11	0.6	0.6	24.30	**209**					17.77	**609**
11 EL 0,6	0.60	11	0.6	0.6	24.30	**210**					17.77	**610**
11 EL 0,7	0.70	11	0.6	0.6	24.30	**211**					17.77	**611**
11 EL 0,75	0.75	11	0.6	0.6	24.30	**212**					17.77	**612**
11 EL 0,8	0.80	11	0.6	0.6	24.30	**213**					17.77	**613**
11 EL 1,0	1.00	11	0.7	0.7	24.30	**214**					17.77	**614**
11 EL 1,25	1.25	11	0.8	0.9	24.30	**216**					17.77	**616**
11 EL 1,5	1.50	11	0.8	1.0	24.30	**218**					17.77	**618**
11 EL 1,75	1.75	11	0.8	1.1	24.30	**220**					17.77	**620**
16 EL 0,35	0.35	16	0.8	0.4	25.15	**234**					18.40	**634**
16 EL 0,4	0.40	16	0.7	0.4	25.15	**236**					18.40	**636**
16 EL 0,45	0.45	16	0.7	0.4	25.15	**238**					18.40	**638**
16 EL 0,5	0.50	16	0.6	0.6	25.15	**240**					18.40	**640**
16 EL 0,7	0.70	16	0.6	0.6	25.15	**241**					18.40	**641**
16 EL 0,75	0.75	16	0.6	0.6	25.15	**242**					18.40	**642**
16 EL 0,8	0.80	16	0.6	0.6	25.15	**243**					18.40	**643**
16 EL 1,0	1.00	16	0.7	0.7	25.15	**244**	16.33	**144**	18.31	**744**	17.90	**644**
16 EL 1,25	1.25	16	0.8	0.9	25.15	**246**	17.37	**146**			18.40	**646**
16 EL 1,5	1.50	16	0.8	1.0	25.15	**248**	16.33	**148**	18.31	**748**	17.90	**648**
16 EL 1,75	1.75	16	0.9	1.2	25.15	**250**			21.37	**750**	18.40	**650**
16 EL 2,0	2.00	16	1.0	1.3	25.15	**252**	17.37	**152**			18.40	**652**
16 EL 2,5	2.50	16	1.1	1.5	25.15	**254**					18.40	**654**
16 EL 3,0	3.00	16	1.2	1.6	25.15	**256**	22.43	**156**			18.40	**656**
22 EL 3,5	3.50	22	1.6	2.3	34.73	**270**					30.23	**670**
22 EL 4,0	4.00	22	1.6	2.3	34.73	**272**					30.23	**672**
22 EL 4,5	4.50	22	1.7	2.4	34.73	**274**					30.23	**674**
22 EL 5,0	5.00	22	1.7	2.5	34.73	**276**					30.23	**676**
22 EL 5,5	5.50	22	1.9	2.7	34.73	**278**					30.23	**678**
22 EL 6,0	6.00	22	2.0	2.9	34.73	**280**					30.23	**680**

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

→ v_c Page 45

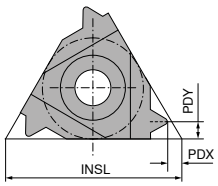
8

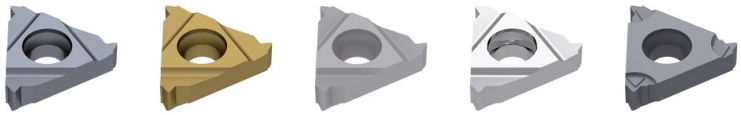
Right hand internal thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

M | MF | 60°

CCN20 | CWN1525 | HCN2525 | CWK20 | CCN7525





Designation	TP mm	INSL mm	PDX mm	PDY mm	IR 71 224 ... £ X3		IR 71 224 ... £ X3		IR 71 224 ... £ X3		IR 71 224 ... £ Y1		IR 71 224 ... £ X3	
11 IR 0,35	0.35	11	0.8	0.3	25.15	204					18.40	604		
11 IR 0,4	0.40	11	0.8	0.4	25.15	206					18.40	606		
11 IR 0,45	0.45	11	0.8	0.4	25.15	208					18.40	608		
11 IR 0,5	0.50	11	0.6	0.6	25.15	210					18.40	610		
11 IR 0,7	0.70	11	0.6	0.6	25.15	211					18.40	611		
11 IR 0,75	0.75	11	0.6	0.6	25.15	212					18.40	612	21.37	912
11 IR 0,8	0.80	11	0.6	0.6	25.15	213			26.10	713	18.40	613		
11 IR 1,0	1.00	11	0.6	0.6									17.40	914
11 IR 1,0	1.00	11	0.6	0.7	25.15	214	15.26	114	17.40	714	17.90	614		
11 IR 1,25	1.25	11	0.8	0.9	25.15	216					18.40	616		
11 IR 1,5	1.50	11	0.8	0.9									17.40	918
11 IR 1,5	1.50	11	0.8	1.0	25.15	218	15.26	118	17.40	718	17.90	618		
11 IR 1,75	1.75	11	0.9	1.1	25.15	220					18.40	620		
11 IR 2,0	2.00	11	0.8	0.9			15.26	122	17.40	722				
11 IR 2,0	2.00	11	0.9	1.1	25.15	222					18.40	622		
11 IR 2,5	2.50	11	0.8	1.2			17.37	124	18.87	724				
11 IR 2,5	2.50	11	0.9	1.1	25.15	224					18.40	624		
16 IR 0,35	0.35	16	0.8	0.4	25.15	234					18.40	634		
16 IR 0,4	0.40	16	0.7	0.4	25.15	236					18.40	636		
16 IR 0,45	0.45	16	0.7	0.4	25.15	238					18.40	638		
16 IR 0,5	0.50	16	0.6	0.6	25.15	240					18.40	640		
16 IR 0,7	0.70	16	0.6	0.6	25.15	241					18.40	641		
16 IR 0,75	0.75	16	0.6	0.6	25.15	242	19.16	142	21.37	742	18.40	642		
16 IR 0,8	0.80	16	0.6	0.6	25.15	243					18.40	643		
16 IR 1,0	1.00	16	0.6	0.7			15.26	144	17.40	744			17.40	944
16 IR 1,0	1.00	16	0.7	0.7	25.15	244					17.90	644		
16 IR 1,25	1.25	16	0.8	0.9	25.15	246			18.31	746	18.40	646	18.31	946
16 IR 1,5	1.50	16	0.8	1.0	25.15	248	15.26	148	17.40	748	17.90	648	17.40	948
16 IR 1,75	1.75	16	0.9	1.2	25.15	250			21.37	750	18.40	650		
16 IR 2,0	2.00	16	1.0	1.3	25.15	252	15.26	152	17.40	752	18.40	652	17.40	952
16 IR 2,5	2.50	16	1.1	1.5	25.15	254	15.26	154	17.40	754	18.40	654	17.40	954
16 IR 3,0	3.00	16	1.1	1.5	25.15	256	15.26	156	17.40	756	18.40	656	17.40	956
22 IR 3,5	3.50	22	1.6	2.3	34.73	270	24.84	170	27.63	770	30.23	670		
22 IR 4,0	4.00	22	1.6	2.3	34.73	272	24.84	172	27.63	772	30.23	672		
22 IR 4,5	4.50	22	1.6	2.4			26.80	174	29.18	774				
22 IR 4,5	4.50	22	1.7	2.4	34.73	274					30.23	674		
22 IR 5,0	5.00	22	1.6	2.3			26.80	176						
22 IR 5,0	5.00	22	1.7	2.5	34.73	276					30.23	676		
22 IR 5,5	5.50	22	1.6	2.3			30.22	178						
22 IR 5,5	5.50	22	1.9	2.7	34.73	278					30.23	678		
22 IN 5,5	5.50	22	2.3	11.0	34.73	282 [1]					30.23	682 [1]		
22 IR 6,0	6.00	22	1.6	2.4			26.80	180						
22 IR 6,0	6.00	22	2.0	2.9	34.73	280					30.23	680		
22 IN 6,0	6.00	22	2.6	11.0	34.73	284 [1]					30.23	684 [1]		

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

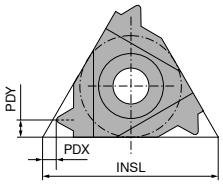
1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

→ v_c Page 45

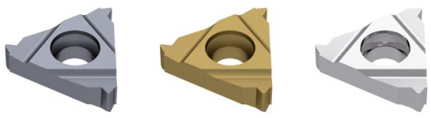
Left hand internal thread turning insert

▲ Full profile

M | MF | 60°



CCN20 | CWN1525 | CWK20



Designation	TP mm	INSL mm	PDX mm	PDY mm	IL 71 226 ... £ X3		IL 71 226 ... £ X3		IL 71 226 ... £ Y1	
11 IL 0,35	0.35	11	0.8	0.3	25.15	**204**			18.40	**604**
11 IL 0,4	0.40	11	0.8	0.4	25.15	**206**			18.40	**606**
11 IL 0,45	0.45	11	0.8	0.4	25.15	**208**			18.40	**608**
11 IL 0,5	0.50	11	0.6	0.6	25.15	**210**			18.40	**610**
11 IL 0,7	0.70	11	0.6	0.6	25.15	**211**			18.40	**611**
11 IL 0,75	0.75	11	0.6	0.6	25.15	**212**			18.40	**612**
11 IL 0,8	0.80	11	0.6	0.6	25.15	**213**			18.40	**613**
11 IL 1,0	1.00	11	0.6	0.7	25.15	**214**			17.90	**614**
11 IL 1,25	1.25	11	0.8	0.9	25.15	**216**			18.40	**616**
11 IL 1,5	1.50	11	0.8	1.0	25.15	**218**			17.90	**618**
11 IL 1,75	1.75	11	0.9	1.1	25.15	**220**			18.40	**620**
11 IL 2,0	2.00	11	0.9	1.1	25.15	**222**			18.40	**622**
11 IL 2,5	2.50	11	0.9	1.1	25.15	**224**			18.40	**624**
16 IL 0,35	0.35	16	0.8	0.4	25.15	**234**			18.40	**634**
16 IL 0,4	0.40	16	0.7	0.4	25.15	**236**			18.40	**636**
16 IL 0,45	0.45	16	0.7	0.4	25.15	**238**			18.40	**638**
16 IL 0,5	0.50	16	0.6	0.6	25.15	**240**			18.40	**640**
16 IL 0,7	0.70	16	0.6	0.6	25.15	**241**			18.40	**641**
16 IL 0,75	0.75	16	0.6	0.6	25.15	**242**			18.40	**642**
16 IL 0,8	0.80	16	0.6	0.6	25.15	**243**			18.40	**643**
16 IL 1,0	1.00	16	0.6	0.7			22.43	**144**		
16 IL 1,0	1.00	16	0.7	0.7	25.15	**244**			17.90	**644**
16 IL 1,25	1.25	16	0.8	0.9	25.15	**246**			18.40	**646**
16 IL 1,5	1.50	16	0.8	1.0	25.15	**248**	19.31	**148**	17.90	**648**
16 IL 1,75	1.75	16	0.9	1.2	25.15	**250**			18.40	**650**
16 IL 2,0	2.00	16	1.0	1.3	25.15	**252**	17.37	**152**	18.40	**652**
16 IL 2,5	2.50	16	1.1	1.5	25.15	**254**			18.40	**654**
16 IL 3,0	3.00	16	1.2	1.6	25.15	**256**			18.40	**656**
22 IL 3,5	3.50	22	1.6	2.3	34.73	**270**			30.23	**670**
22 IL 4,0	4.00	22	1.6	2.3	34.73	**272**			30.23	**672**
22 IL 4,5	4.50	22	1.7	2.4	34.73	**274**			30.23	**674**
22 IL 5,0	5.00	22	1.7	2.5	34.73	**276**			30.23	**676**
22 IL 5,5	5.50	22	1.9	2.7	34.73	**278**			30.23	**678**
22 IL 6,0	6.00	22	2.0	2.9	34.73	**280**			30.23	**680**

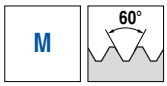
P	●	●	
M	●	○	○
K	●	●	●
N		●	●
S	○		○
H	○		
O		○	

→ v_c Page 45

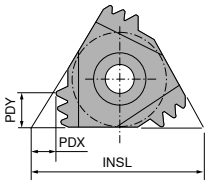
8

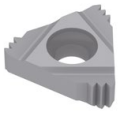
Right hand external thread turning insert

▲ Multi edge insert



HCN2525





Designation	TP mm	INSL mm	PDX mm	PDY mm	NT	ER 71 221 ... £ X3	
16 ER 1,0 3M	1.0	16	1.7	2.5	3	36.81	**700**
16 ER 1,5 2M	1.5	16	1.5	2.3	2	36.15	**702**

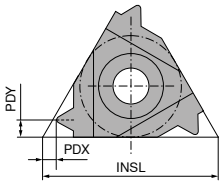
P	○
M	●
K	○
N	○
S	○
H	○
O	

→ v_c Page 45

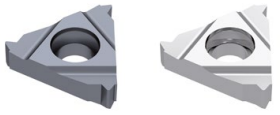
Right hand external thread turning insert

▲ Full profile

MJ 60°



CCN20 CWK20



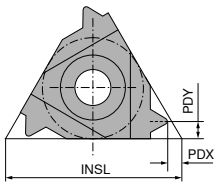
Designation	TP mm	INSL mm	PDX mm	PDY mm	ER 71 286 ... £ X3		ER 71 286 ... £ Y1	
11 ER 1,0	1.00	11	0.7	0.8	33.39	214	26.79	614
11 ER 1,25	1.25	11	0.8	0.9	33.39	216	26.79	616
11 ER 1,5	1.50	11	0.8	1.0	33.39	218	26.79	618
11 ER 2,0	2.00	11	0.9	1.0	33.39	222	26.79	622
16 ER 1,0	1.00	16	0.7	0.8	33.39	244	26.79	644
16 ER 1,25	1.25	16	0.8	0.9	33.39	246	26.79	646
16 ER 1,5	1.50	16	0.8	1.0	33.39	248	26.79	648
16 ER 2,0	2.00	16	1.0	1.3	33.39	252	26.79	652
P					●			
M					●		○	
K					●		●	
N							●	
S					○		○	
H					○			
O								

→ v_c Page 45

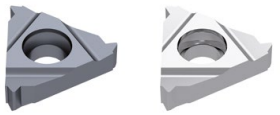
Left hand external thread turning insert

▲ Full profile

MJ 60°



CCN20 CWK20



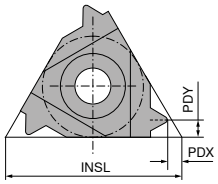
Designation	TP mm	INSL mm	PDX mm	PDY mm	EL 71 287 ... £ X3		EL 71 287 ... £ Y1	
11 EL 1,0	1.00	11	0.7	0.8	33.39	214	26.79	614
11 EL 1,25	1.25	11	0.8	0.9	33.39	216	26.79	616
11 EL 1,5	1.50	11	0.8	1.0	33.39	218	26.79	618
11 EL 2,0	2.00	11	0.9	1.0	33.39	222	26.79	622
16 EL 1,0	1.00	16	0.7	0.8	33.39	244	26.79	644
16 EL 1,25	1.25	16	0.8	0.9	33.39	246	26.79	646
16 EL 1,5	1.50	16	0.8	1.0	33.39	248	26.79	648
16 EL 2,0	2.00	16	1.0	1.3	33.39	252	26.79	652
P					●			
M					●		○	
K					●		●	
N							●	
S					○		○	
H					○			
O								

→ v_c Page 45

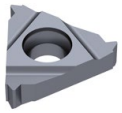
Right hand internal thread turning insert

▲ Full profile

MJ 60°



CCN20 CWK20





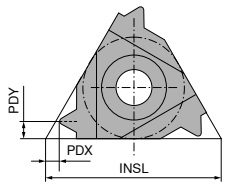
Designation	TP mm	INSL mm	PDX mm	PDY mm	IR 71 284 ... £ X3		IR 71 284 ... £ Y1	
11 IR 1,0	1.00	11	0.7	0.8	33.39	**214**	26.79	**614**
11 IR 1,25	1.25	11	0.8	0.9	33.39	**216**	26.79	**616**
11 IR 1,5	1.50	11	0.8	1.0	33.39	**218**	26.79	**618**
11 IR 2,0	2.00	11	0.9	1.0	33.39	**222**	26.79	**622**
16 IR 1,0	1.00	16	0.7	0.8	33.39	**244**	26.79	**644**
16 IR 1,25	1.25	16	0.8	0.9	33.39	**246**	26.79	**646**
16 IR 1,5	1.50	16	0.8	1.0	33.39	**248**	26.79	**648**
16 IR 2,0	2.00	16	1.0	1.3	33.39	**252**	26.79	**652**
P					●			
M					●		○	
K					●		●	
N							●	
S					○		○	
H					○			
O								

→ v_c Page 45

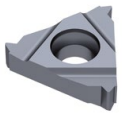
Left hand internal thread turning insert

▲ Full profile

MJ 60°



CCN20 CWK20





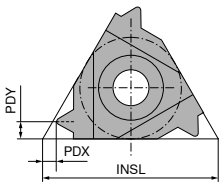
Designation	TP mm	INSL mm	PDX mm	PDY mm	IL 71 285 ... £ X3		IL 71 285 ... £ Y1	
11 IL 1,0	1.00	11	0.7	0.8	33.39	**214**	26.79	**614**
11 IL 1,25	1.25	11	0.8	0.9	33.39	**216**	26.79	**616**
11 IL 1,5	1.50	11	0.8	1.0	33.39	**218**	26.79	**618**
11 IL 2,0	2.00	11	0.9	1.0	33.39	**222**	26.79	**622**
16 IL 1,0	1.00	16	0.7	0.8	33.39	**244**	26.79	**644**
16 IL 1,25	1.25	16	0.8	0.9	33.39	**246**	26.79	**646**
16 IL 1,5	1.50	16	0.8	1.0	33.39	**248**	26.79	**648**
16 IL 2,0	2.00	16	1.0	1.3	33.39	**252**	26.79	**652**
P					●			
M					●		○	
K					●		●	
N							●	
S					○		○	
H					○			
O								

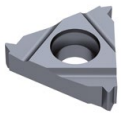
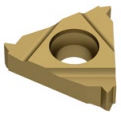
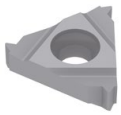
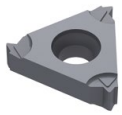
→ v_c Page 45

Right hand external thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

BSW | 55°



CCN20	CWN1525	HCN2525	CWK20	CCN7525
				

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 228 ... £ X3		ER 71 228 ... £ X3		ER 71 228 ... £ X3		ER 71 228 ... £ Y1		ER 71 228 ... £ X3	
11 ER 72	72.0	11	0.7	0.4	24.30	**202**					17.77	**602**		
11 ER 60	60.0	11	0.7	0.4	24.30	**204**					17.77	**604**		
11 ER 56	56.0	11	0.7	0.4	24.30	**206**					17.77	**606**		
11 ER 48	48.0	11	0.6	0.6	24.30	**208**					17.77	**608**		
11 ER 40	40.0	11	0.6	0.6	24.30	**210**					17.77	**610**		
11 ER 36	36.0	11	0.6	0.6	24.30	**212**					17.77	**612**		
11 ER 32	32.0	11	0.6	0.6	24.30	**214**					17.77	**614**		
11 ER 28	28.0	11	0.6	0.7	24.30	**216**					17.77	**616**		
11 ER 26	26.0	11	0.7	0.8	24.30	**218**					17.77	**618**		
11 ER 24	24.0	11	0.7	0.8	24.30	**220**					17.77	**620**		
11 ER 22	22.0	11	0.8	0.9	24.30	**222**					17.77	**622**		
11 ER 20	20.0	11	0.8	0.9	24.30	**224**					17.77	**624**		
11 ER 19	19.0	11	0.8	1.0	24.30	**226**					17.77	**626**		
11 ER 18	18.0	11	0.8	1.0	24.30	**228**					17.77	**628**		
11 ER 16	16.0	11	0.9	1.1	24.30	**230**					17.77	**630**		
11 ER 14	14.0	11	0.9	1.1	24.30	**232**					17.77	**632**		
16 ER 40	40.0	16	0.6	0.6	25.15	**240**					18.40	**640**		
16 ER 36	36.0	16	0.6	0.6	25.15	**242**					18.40	**642**		
16 ER 32	32.0	16	0.6	0.6	25.15	**244**					18.40	**644**		
16 ER 28	28.0	16	0.6	0.7	25.15	**246**	19.76	**146**	21.97	**746**	18.40	**646**		
16 ER 26	26.0	16	0.7	0.7					26.20	**748**				
16 ER 26	26.0	16	0.7	0.8	25.15	**248**					18.40	**648**		
16 ER 24	24.0	16	0.7	0.8	25.15	**250**					18.40	**650**		
16 ER 22	22.0	16	0.8	0.9	25.15	**252**					18.40	**652**		
16 ER 20	20.0	16	0.8	0.9	25.15	**254**			26.20	**754**	18.40	**654**		
16 ER 19	19.0	16	0.8	1.0	25.15	**256**	17.80	**156**	20.00	**756**	18.40	**656**	20.00	**956**
16 ER 18	18.0	16	0.8	1.0	25.15	**258**					18.40	**658**		
16 ER 16	16.0	16	0.9	1.1	25.15	**260**	21.70	**160**	23.94	**760**	18.40	**660**		
16 ER 14	14.0	16	1.0	1.2	25.15	**262**	17.80	**162**	20.00	**762**	18.40	**662**	20.00	**962**
16 ER 12	12.0	16	1.1	1.4	25.15	**264**	21.70	**164**	23.94	**764**	18.40	**664**		
16 ER 11	11.0	16	1.1	1.5	25.15	**266**	17.80	**166**	20.00	**766**	18.40	**666**	20.00	**966**
16 ER 10	10.0	16	1.1	1.5	25.15	**268**					18.40	**668**		
16 ER 9	9.0	16	1.2	1.7	25.15	**270**					18.40	**670**		
16 ER 8	8.0	16	1.2	1.5	25.15	**272**					18.40	**672**		
22 ER 7	7.0	22	1.6	2.3	34.73	**280**					30.23	**680**		
22 ER 6	6.0	22	1.6	2.3	34.73	**282**					30.23	**682**		
22 ER 5	5.0	22	1.7	2.4	34.73	**284**					30.23	**684**		
22 EN 4,5	4.5	22	2.3	11.0	34.73	**290** [1]					30.23	**690** [1]		
22 EN 4	4.0	22	1.8	11.0	34.73	**292** [1]					30.23	**692** [1]		

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

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

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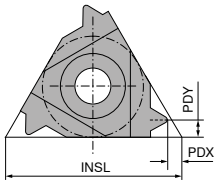
Left hand external thread turning insert

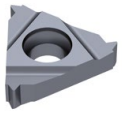
▲ Full profile

BSW





CCN20



CWK20



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 229 ... £ X3		EL 71 229 ... £ Y1	
11 EL 72	72	11	0.7	0.4	24.30	202	17.77	602
11 EL 60	60	11	0.7	0.4	24.30	204	17.77	604
11 EL 56	56	11	0.7	0.4	24.30	206	17.77	606
11 EL 48	48	11	0.6	0.6	24.30	208	17.77	608
11 EL 40	40	11	0.6	0.6	24.30	210	17.77	610
11 EL 36	36	11	0.6	0.6	24.30	212	17.77	612
11 EL 32	32	11	0.6	0.6	24.30	214	17.77	614
11 EL 28	28	11	0.6	0.7	24.30	216	17.77	616
11 EL 26	26	11	0.7	0.8	24.30	218	17.77	618
11 EL 24	24	11	0.7	0.8	24.30	220	17.77	620
11 EL 22	22	11	0.8	0.9	24.30	222	17.77	622
11 EL 20	20	11	0.8	0.9	24.30	224	17.77	624
11 EL 19	19	11	0.8	1.0	24.30	226	17.77	626
11 EL 18	18	11	0.8	1.0	24.30	228	17.77	628
11 EL 16	16	11	0.9	1.1	24.30	230	17.77	630
11 EL 14	14	11	0.9	1.1	24.30	232	17.77	632
16 EL 40	40	16	0.6	0.6	25.15	240	18.40	640
16 EL 36	36	16	0.6	0.6	25.15	242	18.40	642
16 EL 32	32	16	0.6	0.6	25.15	244	18.40	644
16 EL 28	28	16	0.6	0.7	25.15	246	18.40	646
16 EL 26	26	16	0.7	0.8	25.15	248	18.40	648
16 EL 24	24	16	0.7	0.8	25.15	250	18.40	650
16 EL 22	22	16	0.8	0.9	25.15	252	18.40	652
16 EL 20	20	16	0.8	0.9	25.15	254	18.40	654
16 EL 19	19	16	0.8	1.0	25.15	256	18.40	656
16 EL 18	18	16	0.8	1.0	25.15	258	18.40	658
16 EL 16	16	16	0.9	1.1	25.15	260	18.40	660
16 EL 14	14	16	1.0	1.2	25.15	262	18.40	662
16 EL 12	12	16	1.1	1.4	25.15	264	18.40	664
16 EL 11	11	16	1.1	1.5	25.15	266	18.40	666
16 EL 10	10	16	1.1	1.5	25.15	268	18.40	668
16 EL 9	9	16	1.2	1.7	25.15	270	18.40	670
16 EL 8	8	16	1.2	1.5	25.15	272	18.40	672
22 EL 7	7	22	1.6	2.3	37.63	280	30.23	680
22 EL 6	6	22	1.6	2.3	37.63	282	30.23	682
22 EL 5	5	22	1.7	2.4	32.18	284	30.23	684

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O		

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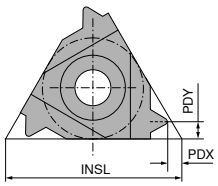
Right hand internal thread turning insert

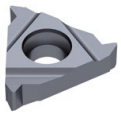
- Full profile
- CCN7525 grade with sintered chip breaker for universal application

BSW





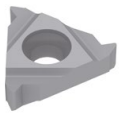
CCN20



CWN1525



HCN2525



CWK20



CCN7525



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 230 ... £ X3		IR 71 230 ... £ X3		IR 71 230 ... £ X3		IR 71 230 ... £ Y1		IR 71 230 ... £ X3	
11 IR 48	48	11	0.6	0.6	25.15	**206**					18.40	**606**		
11 IR 40	40	11	0.6	0.6	25.15	**208**					18.40	**608**		
11 IR 36	36	11	0.6	0.6	25.15	**210**					18.40	**610**		
11 IR 32	32	11	0.6	0.6	25.15	**212**					18.40	**612**		
11 IR 28	28	11	0.6	0.7	25.15	**214**					18.40	**614**		
11 IR 26	26	11	0.7	0.8	25.15	**216**					18.40	**616**		
11 IR 24	24	11	0.7	0.8	25.15	**218**					18.40	**618**		
11 IR 22	22	11	0.8	0.9	25.15	**220**					18.40	**620**		
11 IR 20	20	11	0.8	0.9	25.15	**222**					18.40	**622**		
11 IR 19	19	11	0.8	0.9									20.91	**924**
11 IR 19	19	11	0.8	1.0	25.15	**224**	18.69	**124**	20.91	**724**	18.40	**624**		
11 IR 18	18	11	0.8	1.0	25.15	**226**					18.40	**626**		
11 IR 16	16	11	0.9	1.1	25.15	**228**					18.40	**628**		
11 IR 14	14	11	0.8	0.9									20.91	**930**
11 IR 14	14	11	0.9	1.1	25.15	**230**	18.69	**130**	20.91	**730**	18.40	**630**		
16 IR 40	40	16	0.6	0.6	25.15	**240**					18.40	**640**		
16 IR 36	36	16	0.6	0.6	25.15	**242**					18.40	**642**		
16 IR 32	32	16	0.6	0.6	25.15	**244**					18.40	**644**		
16 IR 28	28	16	0.6	0.7	25.15	**246**					18.40	**646**		
16 IR 26	26	16	0.7	0.8	25.15	**248**					18.40	**648**		
16 IR 24	24	16	0.7	0.8	25.15	**250**					18.40	**650**		
16 IR 22	22	16	0.8	0.9	25.15	**252**					18.40	**652**		
16 IR 20	20	16	0.8	0.9	25.15	**254**					18.40	**654**		
16 IR 19	19	16	0.8	1.0	25.15	**256**					18.40	**656**		
16 IR 18	18	16	0.8	1.0	25.15	**258**					18.40	**658**		
16 IR 16	16	16	0.9	1.1	25.15	**260**			26.20	**760**	18.40	**660**		
16 IR 14	14	16	1.0	1.2	25.15	**262**	17.80	**162**	20.00	**762**	18.40	**662**	20.00	**962**
16 IR 12	12	16	1.1	1.4	25.15	**264**					18.40	**664**		
16 IR 11	11	16	1.1	1.5	25.15	**266**	17.80	**166**	20.00	**766**	18.40	**666**	20.00	**966**
16 IR 10	10	16	1.1	1.5	25.15	**268**					18.40	**668**		
16 IR 9	9	16	1.2	1.7	25.15	**270**					18.40	**670**		
16 IR 8	8	16	1.2	1.5	25.15	**272**					18.40	**672**		
22 IR 7	7	22	1.6	2.3	34.73	**280**					30.23	**680**		
22 IR 6	6	22	1.6	2.3	34.73	**282**					30.23	**682**		
22 IR 5	5	22	1.7	2.4	34.73	**284**					30.23	**684**		

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

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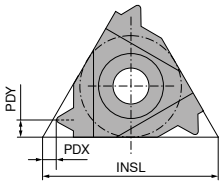
8

Left hand internal thread turning insert

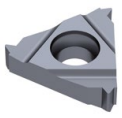
▲ Full profile

BSW





CCN20



CWK20



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 231 ... £ X3		IL 71 231 ... £ Y1	
11 IL 48	48	11	0.6	0.6	25.15	**206**	18.40	**606**
11 IL 40	40	11	0.6	0.6	25.15	**208**	18.40	**608**
11 IL 36	36	11	0.6	0.6	25.15	**210**	18.40	**610**
11 IL 32	32	11	0.6	0.6	25.15	**212**	18.40	**612**
11 IL 28	28	11	0.6	0.7	25.15	**214**	18.40	**614**
11 IL 26	26	11	0.7	0.8	25.15	**216**	18.40	**616**
11 IL 24	24	11	0.7	0.8	25.15	**218**	18.40	**618**
11 IL 22	22	11	0.8	0.9	25.15	**220**	18.40	**620**
11 IL 20	20	11	0.8	0.9	25.15	**222**	18.40	**622**
11 IL 19	19	11	0.8	1.0	25.15	**224**	18.40	**624**
11 IL 18	18	11	0.8	1.0	25.15	**226**	18.40	**626**
11 IL 16	16	11	0.9	1.1	25.15	**228**	18.40	**628**
11 IL 14	14	11	0.9	1.1	25.15	**230**	18.40	**630**
16 IL 40	40	16	0.6	0.6	25.15	**240**	18.40	**640**
16 IL 36	36	16	0.6	0.6	25.15	**242**	18.40	**642**
16 IL 32	32	16	0.6	0.6	25.15	**244**	18.40	**644**
16 IL 28	28	16	0.6	0.7	25.15	**246**	18.40	**646**
16 IL 26	26	16	0.7	0.8	25.15	**248**	18.40	**648**
16 IL 24	24	16	0.7	0.8	25.15	**250**	18.40	**650**
16 IL 22	22	16	0.8	0.9	25.15	**252**	18.40	**652**
16 IL 20	20	16	0.8	0.9	25.15	**254**	18.40	**654**
16 IL 19	19	16	0.8	1.0	25.15	**256**	18.40	**656**
16 IL 18	18	16	0.8	1.0	25.15	**258**	18.40	**658**
16 IL 16	16	16	0.9	1.1	25.15	**260**	18.40	**660**
16 IL 14	14	16	1.0	1.2	25.15	**262**	18.40	**662**
16 IL 12	12	16	1.1	1.4	25.15	**264**	18.40	**664**
16 IL 11	11	16	1.1	1.5	25.15	**266**	18.40	**666**
16 IL 10	10	16	1.1	1.5	25.15	**268**	18.40	**668**
16 IL 9	9	16	1.2	1.7	25.15	**270**	18.40	**670**
16 IL 8	8	16	1.2	1.5	25.15	**272**	18.40	**672**
22 IL 7	7	22	1.6	2.3	34.73	**280**	30.23	**680**
22 IL 6	6	22	1.6	2.3	34.73	**282**	30.23	**682**
22 IL 5	5	22	1.7	2.4	34.73	**284**	30.23	**684**

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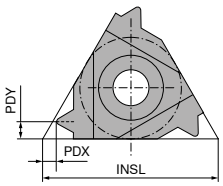
→ v_c Page 45

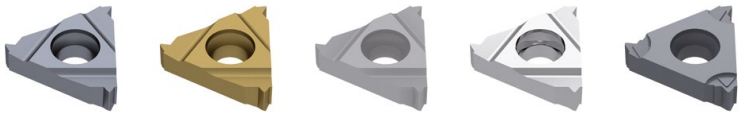
Right hand external thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

UN | UNC | UNF | UNEF | 60°



CCN20 | CWN1525 | HCN2525 | CWK20 | CCN7525



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 264 ... £ X3		ER 71 264 ... £ X3		ER 71 264 ... £ X3		ER 71 264 ... £ Y1		ER 71 264 ... £ X3	
11 ER 72	72.0	11	0.8	0.4	24.30	202					17.77	602		
11 ER 64	64.0	11	0.8	0.4	24.30	204					17.77	604		
11 ER 56	56.0	11	0.7	0.4	24.30	206					17.77	606		
11 ER 48	48.0	11	0.6	0.6	24.30	208					17.77	608		
11 ER 44	44.0	11	0.6	0.6	24.30	210					17.77	610		
11 ER 40	40.0	11	0.6	0.6	24.30	212					17.77	612		
11 ER 36	36.0	11	0.6	0.6	24.30	214					17.77	614		
11 ER 32	32.0	11	0.6	0.6	24.30	216					17.77	616		
11 ER 28	28.0	11	0.6	0.7	24.30	218					17.77	618		
11 ER 27	27.0	11	0.7	0.8	24.30	220					17.77	620		
11 ER 24	24.0	11	0.7	0.8	24.30	222					17.77	622		
11 ER 20	20.0	11	0.8	0.9	24.30	224					17.77	624		
11 ER 18	18.0	11	0.8	1.0	24.30	226					17.77	626		
11 ER 16	16.0	11	0.9	1.1	24.30	228					17.77	628		
11 ER 14	14.0	11	0.9	1.1	24.30	230					17.77	630		
16 ER 72	72.0	16	0.8	0.4	25.15	232					18.40	632		
16 ER 64	64.0	16	0.8	0.4	25.15	234					18.40	634		
16 ER 56	56.0	16	0.7	0.4	25.15	236					18.40	636		
16 ER 48	48.0	16	0.6	0.6	25.15	238					18.40	638		
16 ER 44	44.0	16	0.6	0.6	25.15	240					18.40	640		
16 ER 40	40.0	16	0.6	0.6	25.15	242					18.40	642		
16 ER 36	36.0	16	0.6	0.6	25.15	244					18.40	644		
16 ER 32	32.0	16	0.6	0.6	25.15	246			25.63	746	18.40	646		
16 ER 28	28.0	16	0.6	0.7	25.15	248			23.94	748	18.40	648		
16 ER 27	27.0	16	0.7	0.8	25.15	250					18.40	650		
16 ER 24	24.0	16	0.7	0.8	25.15	252	19.76	152	21.97	752	18.40	652		
16 ER 20	20.0	16	0.8	0.9	25.15	254	18.69	154	20.91	754	18.40	654	20.91	954
16 ER 18	18.0	16	0.8	1.0	25.15	256	19.76	156	21.97	756	18.40	656		
16 ER 16	16.0	16	0.9	1.1	25.15	258	18.69	158	20.91	758	18.40	658	20.91	958
16 ER 14	14.0	16	1.0	1.2	25.15	260	19.76	160	21.97	760	18.40	660		
16 ER 13	13.0	16	1.0	1.3	25.15	262					18.40	662		
16 ER 12	12.0	16	1.1	1.4	25.15	264	19.76	164	21.97	764	18.40	664		
16 ER 11,5	11.5	16	1.1	1.5	25.15	266					18.40	666		
16 ER 11	11.0	16	1.1	1.5	25.15	268	24.39	168			18.40	668		
16 ER 10	10.0	16	1.1	1.5	25.15	270					18.40	670		
16 ER 9	9.0	16	1.2	1.7	25.15	272					18.40	672		
16 ER 8	8.0	16	1.1	1.1									26.20	974
16 ER 8	8.0	16	1.1	1.5			24.39	174						
16 ER 8	8.0	16	1.2	1.6	25.15	274					18.40	674		
22 ER 7	7.0	22	1.6	2.3	34.73	276					30.23	676		
22 ER 6	6.0	22	1.6	2.3	34.73	278					30.23	678		
22 ER 5	5.0	22	1.7	2.5	34.73	280					30.23	680		
22 EN 4,5	4.5	22	2.0	11.0	34.73	282 [1]					30.23	682 [1]		
22 EN 4	4.0	22	2.0	11.0	34.73	284 [1]					30.23	684 [1]		

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

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

→ v_c Page 45

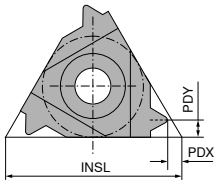
8

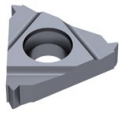
Left hand external thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20 | CWK20







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 266 ... £ X3		EL 71 266 ... £ Y1	
11 EL 72	72.0	11	0.8	0.4	24.30	**202**	17.77	**602**
11 EL 64	64.0	11	0.8	0.4	24.30	**204**	17.77	**604**
11 EL 56	56.0	11	0.7	0.4	24.30	**206**	17.77	**606**
11 EL 48	48.0	11	0.6	0.6	24.30	**208**	17.77	**608**
11 EL 44	44.0	11	0.6	0.6	24.30	**210**	17.77	**610**
11 EL 40	40.0	11	0.6	0.6	24.30	**212**	17.77	**612**
11 EL 36	36.0	11	0.6	0.6	24.30	**214**	17.77	**614**
11 EL 32	32.0	11	0.6	0.6	24.30	**216**	17.77	**616**
11 EL 28	28.0	11	0.6	0.7	24.30	**218**	17.77	**618**
11 EL 27	27.0	11	0.7	0.8	24.30	**220**	17.77	**620**
11 EL 24	24.0	11	0.7	0.8	24.30	**222**	17.77	**622**
11 EL 20	20.0	11	0.8	0.9	24.30	**224**	17.77	**624**
11 EL 18	18.0	11	0.8	1.0	24.30	**226**	17.77	**626**
11 EL 16	16.0	11	0.9	1.1	24.30	**228**	17.77	**628**
11 EL 14	14.0	11	0.9	1.1	24.30	**230**	17.77	**630**
16 EL 72	72.0	16	0.8	0.4	25.15	**232**	18.40	**632**
16 EL 64	64.0	16	0.8	0.4	25.15	**234**	18.40	**634**
16 EL 56	56.0	16	0.7	0.4	25.15	**236**	18.40	**636**
16 EL 48	48.0	16	0.6	0.6	25.15	**238**	18.40	**638**
16 EL 44	44.0	16	0.6	0.6	25.15	**240**	18.40	**640**
16 EL 40	40.0	16	0.6	0.6	25.15	**242**	18.40	**642**
16 EL 36	36.0	16	0.6	0.6	25.15	**244**	18.40	**644**
16 EL 32	32.0	16	0.6	0.6	25.15	**246**	18.40	**646**
16 EL 28	28.0	16	0.6	0.7	25.15	**248**	18.40	**648**
16 EL 27	27.0	16	0.7	0.8	25.15	**250**	18.40	**650**
16 EL 24	24.0	16	0.7	0.8	25.15	**252**	18.40	**652**
16 EL 20	20.0	16	0.8	0.9	25.15	**254**	18.40	**654**
16 EL 18	18.0	16	0.8	1.0	25.15	**256**	18.40	**656**
16 EL 16	16.0	16	0.9	1.1	25.15	**258**	18.40	**658**
16 EL 14	14.0	16	1.0	1.2	25.15	**260**	18.40	**660**
16 EL 13	13.0	16	1.0	1.3	25.15	**262**	18.40	**662**
16 EL 12	12.0	16	1.1	1.4	25.15	**264**	18.40	**664**
16 EL 11,5	11.5	16	1.1	1.5	25.15	**266**	18.40	**666**
16 EL 11	11.0	16	1.1	1.5	25.15	**268**	18.40	**668**
16 EL 10	10.0	16	1.1	1.5	25.15	**270**	18.40	**670**
16 EL 9	9.0	16	1.2	1.7	25.15	**272**	18.40	**672**
16 EL 8	8.0	16	1.2	1.6	25.15	**274**	18.40	**674**
22 EL 7	7.0	22	1.6	2.3	34.73	**276**	30.23	**676**
22 EL 6	6.0	22	1.6	2.3	34.73	**278**	30.23	**678**
22 EL 5	5.0	22	1.7	2.5	34.73	**280**	30.23	**680**

P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

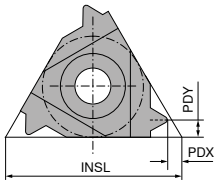
→ v_c Page 45

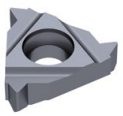
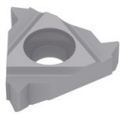
Right hand internal thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20 | HCN2525 | CWK20




Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 268 ... £ X3		IR 71 268 ... £ X3		IR 71 268 ... £ Y1	
11 IR 72	72.0	11	0.8	0.3	25.15	**202**			18.40	**602**
11 IR 64	64.0	11	0.8	0.4	25.15	**204**			18.40	**604**
11 IR 56	56.0	11	0.7	0.4	25.15	**206**			18.40	**606**
11 IR 48	48.0	11	0.6	0.6	25.15	**208**			18.40	**608**
11 IR 44	44.0	11	0.6	0.6	25.15	**210**			18.40	**610**
11 IR 40	40.0	11	0.6	0.6	25.15	**212**			18.40	**612**
11 IR 36	36.0	11	0.6	0.6	25.15	**214**			18.40	**614**
11 IR 32	32.0	11	0.6	0.6	25.15	**216**			18.40	**616**
11 IR 28	28.0	11	0.6	0.7	25.15	**218**			18.40	**618**
11 IR 27	27.0	11	0.7	0.8	25.15	**220**			18.40	**620**
11 IR 24	24.0	11	0.7	0.8	25.15	**222**			18.40	**622**
11 IR 20	20.0	11	0.8	0.9	25.15	**224**			18.40	**624**
11 IR 18	18.0	11	0.8	1.0	25.15	**226**			18.40	**626**
11 IR 16	16.0	11	0.9	1.1	25.15	**228**			18.40	**628**
11 IR 14	14.0	11	1.0	1.1	25.15	**230**			18.40	**630**
16 IR 72	72.0	16	0.8	0.3	25.15	**232**			18.40	**632**
16 IR 64	64.0	16	0.8	0.4	25.15	**234**			18.40	**634**
16 IR 56	56.0	16	0.7	0.4	25.15	**236**			18.40	**636**
16 IR 48	48.0	16	0.6	0.6	25.15	**238**			18.40	**638**
16 IR 44	44.0	16	0.6	0.6	25.15	**240**			18.40	**640**
16 IR 40	40.0	16	0.6	0.6	25.15	**242**			18.40	**642**
16 IR 36	36.0	16	0.6	0.6	25.15	**244**			18.40	**644**
16 IR 32	32.0	16	0.6	0.6	25.15	**246**			18.40	**646**
16 IR 28	28.0	16	0.6	0.7	25.15	**248**			18.40	**648**
16 IR 27	27.0	16	0.7	0.8	25.15	**250**			18.40	**650**
16 IR 24	24.0	16	0.7	0.8	25.15	**252**			18.40	**652**
16 IR 20	20.0	16	0.8	0.9	25.15	**254**			18.40	**654**
16 IR 18	18.0	16	0.8	1.0	25.15	**256**			18.40	**656**
16 IR 16	16.0	16	0.9	1.1	25.15	**258**			18.40	**658**
16 IR 14	14.0	16	1.0	1.2	25.15	**260**	26.20	**760**	18.40	**660**
16 IR 13	13.0	16	1.0	1.3	25.15	**262**			18.40	**662**
16 IR 12	12.0	16	1.1	1.4	25.15	**264**	21.97	**764**	18.40	**664**
16 IR 11,5	11.5	16	1.1	1.5	25.15	**266**			18.40	**666**
16 IR 11	11.0	16	1.1	1.5	25.15	**268**			18.40	**668**
16 IR 10	10.0	16	1.1	1.5	25.15	**270**			18.40	**670**
16 IR 9	9.0	16	1.2	1.7	25.15	**272**			18.40	**672**
16 IR 8	8.0	16	1.2	1.6	25.15	**274**			18.40	**674**
16 IR 8	8.0	16	1.1	1.5			26.20	**774**		
22 IR 7	7.0	22	1.6	2.3	34.73	**276**	34.29	**776**	30.23	**676**
22 IR 6	6.0	22	1.6	2.3	34.73	**278**			30.23	**678**
22 IR 5	5.0	22	1.7	2.5	34.73	**280**			30.23	**680**
22 IN 4,5	4.5	22	2.0	11.0	34.73	**282** [1]			30.23	**682** [1]
22 IN 4	4.0	22	2.0	11.0	34.73	**284** [1]			30.23	**684** [1]

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

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

→ v_c Page 45

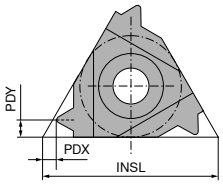
8

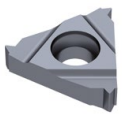
Left hand internal thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20 | CWK20







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 270 ... £ X3		IL 71 270 ... £ Y1	
11 IL 72	72.0	11	0.8	0.3	25.15	**202**	18.40	**602**
11 IL 64	64.0	11	0.8	0.4	25.15	**204**	18.40	**604**
11 IL 56	56.0	11	0.7	0.4	25.15	**206**	18.40	**606**
11 IL 48	48.0	11	0.6	0.6	25.15	**208**	18.40	**608**
11 IL 44	44.0	11	0.6	0.6	25.15	**210**	18.40	**610**
11 IL 40	40.0	11	0.6	0.6	25.15	**212**	18.40	**612**
11 IL 36	36.0	11	0.6	0.6	25.15	**214**	18.40	**614**
11 IL 32	32.0	11	0.6	0.6	25.15	**216**	18.40	**616**
11 IL 28	28.0	11	0.6	0.7	25.15	**218**	18.40	**618**
11 IL 27	27.0	11	0.7	0.8	25.15	**220**	18.40	**620**
11 IL 24	24.0	11	0.7	0.8	25.15	**222**	18.40	**622**
11 IL 20	20.0	11	0.8	0.9	25.15	**224**	18.40	**624**
11 IL 18	18.0	11	0.8	1.0	25.15	**226**	18.40	**626**
11 IL 16	16.0	11	0.9	1.1	25.15	**228**	18.40	**628**
11 IL 14	14.0	11	0.9	1.1	25.15	**230**	18.40	**630**
16 IL 72	72.0	16	0.8	0.3	34.88	**232**	18.40	**632**
16 IL 64	64.0	16	0.8	0.4	25.15	**234**	18.40	**634**
16 IL 56	56.0	16	0.7	0.4	25.15	**236**	18.40	**636**
16 IL 48	48.0	16	0.6	0.6	25.15	**238**	18.40	**638**
16 IL 44	44.0	16	0.6	0.6	25.15	**240**	18.40	**640**
16 IL 40	40.0	16	0.6	0.6	25.15	**242**	18.40	**642**
16 IL 36	36.0	16	0.6	0.6	25.15	**244**	18.40	**644**
16 IL 32	32.0	16	0.6	0.6	25.15	**246**	18.40	**646**
16 IL 28	28.0	16	0.6	0.7	25.15	**248**	18.40	**648**
16 IL 27	27.0	16	0.7	0.8	25.15	**250**	18.40	**650**
16 IL 24	24.0	16	0.7	0.8	25.15	**252**	18.40	**652**
16 IL 20	20.0	16	0.8	0.9	25.15	**254**	18.40	**654**
16 IL 18	18.0	16	0.8	1.0	25.15	**256**	18.40	**656**
16 IL 16	16.0	16	0.9	1.1	25.15	**258**	18.40	**658**
16 IL 14	14.0	16	1.0	1.2	25.15	**260**	18.40	**660**
16 IL 13	13.0	16	1.0	1.3	25.15	**262**	18.40	**662**
16 IL 12	12.0	16	1.1	1.4	25.15	**264**	18.40	**664**
16 IL 11,5	11.5	16	1.1	1.5	25.15	**266**	18.40	**666**
16 IL 11	11.0	16	1.1	1.5	25.15	**268**	18.40	**668**
16 IL 10	10.0	16	1.1	1.5	25.15	**270**	18.40	**670**
16 IL 9	9.0	16	1.2	1.7	25.15	**272**	18.40	**672**
16 IL 8	8.0	16	1.2	1.6	25.15	**274**	18.40	**674**
22 IL 7	7.0	22	1.6	2.3	34.73	**276**	30.23	**676**
22 IL 6	6.0	22	1.6	2.3	34.73	**278**	30.23	**678**
22 IL 5	5.0	22	1.7	2.5	34.73	**280**	30.23	**680**

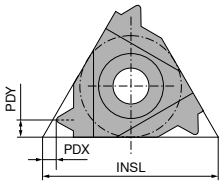
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

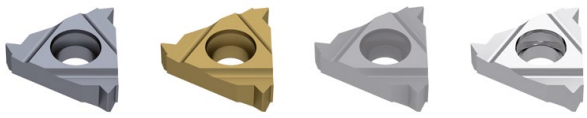
Right hand external thread turning insert

▲ Full profile

NPT 60°



CCN20 | CWN1525 | HCN2525 | CWK20



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 256 ... £ X3		ER 71 256 ... £ X3		ER 71 256 ... £ X3		ER 71 256 ... £ Y1	
16 ER 27	27.0	16	0.7	0.8	27.75	**240**					22.23	**640**
16 ER 18	18.0	16	0.8	1.0	27.75	**242**			25.89	**742**	22.23	**642**
16 ER 14	14.0	16	0.9	1.2	27.75	**244**	21.70	**144**	23.81	**744**	22.23	**644**
16 ER 11,5	11.5	16	1.1	1.5	27.75	**246**	23.64	**146**	25.89	**746**	22.23	**646**
16 ER 8	8.0	16	1.3	1.8	27.75	**248**					22.23	**648**
P					●		●		○			
M					●		○		●		○	
K					●		●		○		●	
N							●		○		●	
S					○				○		○	
H					○				○			
O							○					

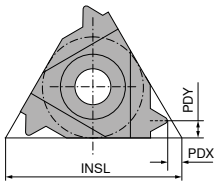
→ v_c Page 45

8

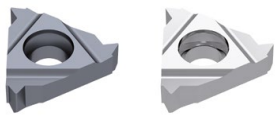
Left hand external thread turning insert

▲ Full profile

NPT 60°



CCN20 | CWK20



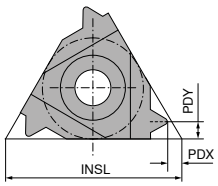
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 258 ... £ X3		EL 71 258 ... £ Y1	
16 EL 27	27.0	16	0.7	0.8	27.75	**240**	22.23	**640**
16 EL 18	18.0	16	0.8	1.0	27.75	**242**	22.23	**642**
16 EL 14	14.0	16	0.9	1.2	27.75	**244**	22.23	**644**
16 EL 11,5	11.5	16	1.1	1.5	27.75	**246**	22.23	**646**
16 EL 8	8.0	16	1.3	1.8	27.75	**248**	22.23	**648**
P					●			
M					●		○	
K					●		●	
N							●	
S					○		○	
H					○			
O								

→ v_c Page 45

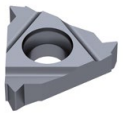
Right hand internal thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

NPT 60°



CCN20 CWK20 CCN7525





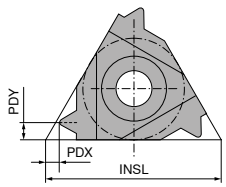
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 260 ... £ X3		IR 71 260 ... £ Y1		IR 71 260 ... £ X3	
11 IR 27	27.0	11	0.7	0.8	27.75	**210**	22.23	**610**		
11 IR 18	18.0	11	0.8	1.0	27.75	**212**	22.23	**612**		
11 IR 14	14.0	11	0.9	1.1	27.75	**214**	22.23	**614**		
16 IR 27	27.0	16	0.7	0.8	27.75	**240**	22.23	**640**		
16 IR 18	18.0	16	0.8	1.0	27.75	**242**	22.23	**642**		
16 IR 14	14.0	16	0.9	1.2	27.75	**244**	22.23	**644**	27.38	**944**
16 IR 11,5	11.5	16	1.1	1.5	27.75	**246**	22.23	**646**	30.68	**946**
16 IR 8	8.0	16	1.3	1.8	27.75	**248**	22.23	**648**		
P					●				●	
M					●		○		●	
K					●		●		●	
N							●			
S					○		○		●	
H					○				○	
O										

→ v_c Page 45

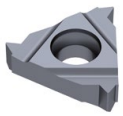
Left hand internal thread turning insert

▲ Full profile

NPT 60°



CCN20 CWK20



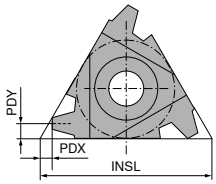

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 262 ... £ X3		IL 71 262 ... £ Y1	
11 IL 27	27.0	11	0.7	0.8	27.75	**210**	22.23	**610**
11 IL 18	18.0	11	0.8	1.0	27.75	**212**	22.23	**612**
11 IL 14	14.0	11	0.9	1.1	27.75	**214**	22.23	**614**
16 IL 27	27.0	16	0.7	0.8	27.75	**240**	22.23	**640**
16 IL 18	18.0	16	0.8	1.0	27.75	**242**	22.23	**642**
16 IL 14	14.0	16	0.9	1.2	27.75	**244**	22.23	**644**
16 IL 11,5	11.5	16	1.1	1.5	27.75	**246**	22.23	**646**
16 IL 8	8.0	16	1.3	1.8	27.75	**248**	22.23	**648**
P					●			
M					●			○
K					●			●
N								●
S					○			○
H					○			
O								

→ v_c Page 45

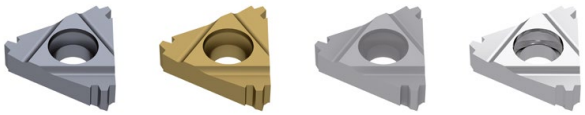
Right hand external thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr | 30°



CCN20 | CWN1525 | HCN2525 | CWK20



Designation	TP mm	INSL mm	PDX mm	PDY mm	ER 71 232 ... £ X3		ER 71 232 ... £ X3		ER 71 232 ... £ X3		ER 71 232 ... £ Y1	
16 ER 1,5	1.5	16	1.0	1.1	27.75	**240**					22.23	**640**
16 ER 2,0	2.0	16	1.1	1.3	27.75	**242**					22.23	**642**
16 ER 2,0	2.0	16	1.0	1.3			23.36	**142**	26.20	**742**		
16 ER 3,0	3.0	16	1.3	1.5	27.75	**244**	22.87	**144**			22.23	**644**
22 ER 4,0	4.0	22	1.7	1.9	39.67	**270**					34.93	**670**
22 ER 4,0	4.0	22	1.8	1.9			32.04	**170**	36.31	**770**		
22 ER 5,0	5.0	22	2.0	2.4			35.55	**172**				
22 ER 5,0	5.0	22	2.1	2.5	39.67	**272**					34.93	**672**
22 ER 6,0	6.0	22	2.3	2.7	39.67	**274**					34.93	**674**
22 EN 6,0	6.0	22	2.0	11.0	39.67	**276** 1)					34.93	**676** 1)
22 EN 7,0	7.0	22	2.3	11.0	39.67	**278** 1)					34.93	**678** 1)
P					●		●		○			
M					●		○		●		○	
K					●		●		○		●	
N							●		○		●	
S					○				○		○	
H					○				○			
O							○					

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

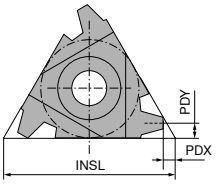
→ v_c Page 45

8

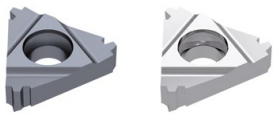
Left hand external thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr | 30°



CCN20 | CWK20

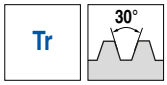


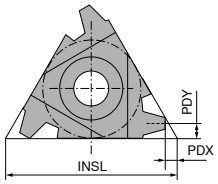
Designation	TP mm	INSL mm	PDX mm	PDY mm	EL 71 234 ... £ X3		EL 71 234 ... £ Y1	
16 EL 1,5	1.5	16	1.0	1.1	27.75	**240**	22.23	**640**
16 EL 2,0	2.0	16	1.1	1.3	27.75	**242**	22.23	**642**
16 EL 3,0	3.0	16	1.3	1.5	27.75	**244**	22.23	**644**
22 EL 4,0	4.0	22	1.7	1.9	39.67	**270**	34.93	**670**
22 EL 5,0	5.0	22	2.1	2.5	39.67	**272**	34.93	**672**
22 EL 6,0	6.0	22	2.3	2.7	39.67	**274**	34.93	**674**
P					●			
M					●		○	
K					●		●	
N							●	
S					○		○	
H					○			
O								

→ v_c Page 45

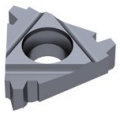
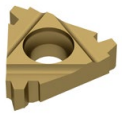
Right hand internal thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103





CCN20 | CWN1525 | CWK20

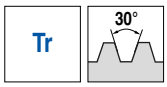

Designation	TP mm	INSL mm	PDX mm	PDY mm	IR 71 236 ... £ X3		IR 71 236 ... £ X3		IR 71 236 ... £ Y1	
11 IR 1,5	1.5	11	0.815	0.9	27.75	**210**			22.23	**610**
16 IR 1,5	1.5	16	1.000	1.1	27.75	**240**			22.23	**640**
16 IR 2,0	2.0	16	1.100	1.3	27.75	**242**			22.23	**642**
16 IR 3,0	3.0	16	1.300	1.5	27.75	**244**	25.94	**144**	22.23	**644**
22 IR 4,0	4.0	22	1.800	1.9			36.24	**170**		
22 IR 4,0	4.0	22	1.700	1.9	39.67	**270**			34.93	**670**
22 IR 5,0	5.0	22	2.000	2.4			38.28	**172**		
22 IR 5,0	5.0	22	2.100	2.5	39.67	**272**			34.93	**672**
22 IR 6,0	6.0	22	2.300	2.7	39.67	**274**			34.93	**674**
22 IN 6,0	6.0	22	2.000	11.0	39.67	**276** 1)			34.93	**676** 1)
22 IN 7,0	7.0	22	2.300	11.0	39.67	**278** 1)			34.93	**678** 1)
P					●		●			
M					●		○		○	
K					●		●		●	
N							●		●	
S					○				○	
H					○					
O							○			

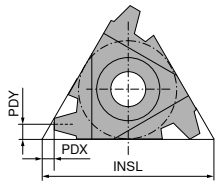
1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

→ v_c Page 45

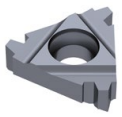
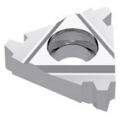
Left hand internal thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103





CCN20 | CWK20

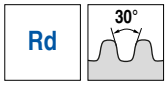



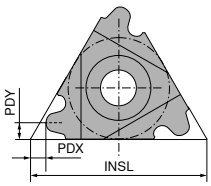
Designation	TP mm	INSL mm	PDX mm	PDY mm	IL 71 238 ... £ X3		IL 71 238 ... £ Y1	
11 IL 1,5	1.5	11	0.8	0.9	27.75	**210**	22.23	**610**
16 IL 1,5	1.5	16	1.0	1.1	27.75	**240**	22.23	**640**
16 IL 2,0	2.0	16	1.1	1.3	27.75	**242**	22.23	**642**
16 IL 3,0	3.0	16	1.3	1.5	27.75	**244**	22.23	**644**
22 IL 4,0	4.0	22	1.7	1.9	39.67	**270**	34.93	**670**
22 IL 5,0	5.0	22	2.1	2.5	39.67	**272**	34.93	**672**
22 IL 6,0	6.0	22	2.3	2.7	39.67	**274**	34.93	**674**
P					●			
M					●		○	
K					●		●	
N							●	
S					○		○	
H					○			
O								

→ v_c Page 45

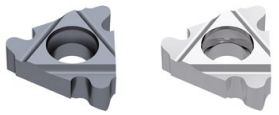
Right hand external thread turning insert

▲ Full profile
▲ Round thread DIN 405





CCN20 | CWK20



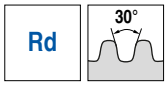
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 248 ... £ X3		ER 71 248 ... £ Y1	
16 ER 10	10	16	1.1	1.2	27.75	**240**	22.23	**640**
16 ER 8	8	16	1.4	1.3	27.75	**242**	22.23	**642**
16 ER 6	6	16	1.5	1.7	27.75	**246**	22.23	**646**
22 ER 6	6	22	1.5	1.7	39.67	**270**	36.07	**670**
22 ER 4	4	22	2.2	2.3	39.67	**272**	36.07	**672**

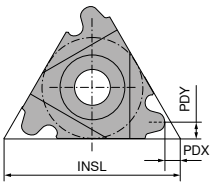
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

Left hand external thread turning insert

▲ Full profile
▲ Round thread DIN 405





CCN20 | CWK20



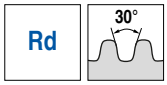
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 250 ... £ X3		EL 71 250 ... £ Y1	
16 EL 10	10	16	1.1	1.2	27.75	**240**	22.23	**640**
16 EL 8	8	16	1.4	1.3	27.75	**242**	22.23	**642**
16 EL 6	6	16	1.5	1.7	27.75	**246**	22.23	**646**
22 EL 6	6	22	1.5	1.7	39.67	**270**	36.07	**670**
22 EL 4	4	22	2.2	2.3	39.67	**272**	36.07	**672**

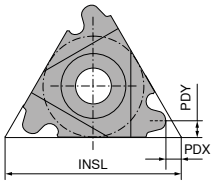
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

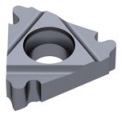
Right hand internal thread turning insert

▲ Full profile
▲ Round thread DIN 405





CCN20 | CWK20





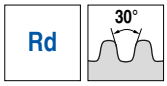
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 252 ... £ X3		IR 71 252 ... £ Y1	
16 IR 10	10	16	1.1	1.2	27.75	**240**	22.23	**640**
16 IR 8	8	16	1.4	1.4	27.75	**242**	22.23	**642**
16 IR 6	6	16	1.4	1.5	27.75	**246**	22.23	**646**
22 IR 6	6	22	1.5	1.7	39.67	**270**	36.07	**670**
22 IR 4	4	22	2.2	2.3	39.67	**272**	36.07	**672**

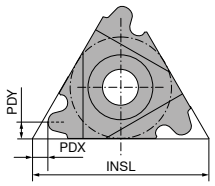
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

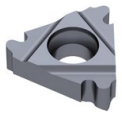
Left hand internal thread turning insert

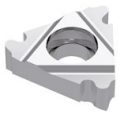
▲ Full profile
▲ Round thread DIN 405





CCN20 | CWK20





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 254 ... £ X3		IL 71 254 ... £ Y1	
16 IL 10	10	16	1.1	1.2	27.75	**240**	22.23	**640**
16 IL 8	8	16	1.4	1.4	27.75	**242**	22.23	**642**
16 IL 6	6	16	1.4	1.5	27.75	**246**	22.23	**646**
22 IL 6	6	22	1.5	1.7	39.67	**270**	36.07	**670**
22 IL 4	4	22	2.2	2.3	39.67	**272**	36.07	**672**

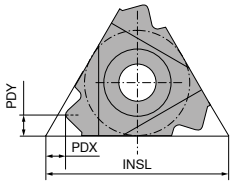
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

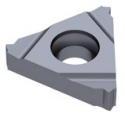
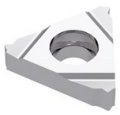
Right hand external thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°



CCN20 | CWK20

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 240 ... £ X3		ER 71 240 ... £ Y1	
16 ER 20	20	16	0.8	0.8	27.75	**240**	22.23	**640**
16 ER 18	18	16	0.8	0.9	27.75	**242**	22.23	**642**
16 ER 16	16	16	0.8	1.0	27.75	**244**	22.23	**644**

P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

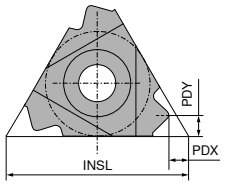
→ v_c Page 45

8

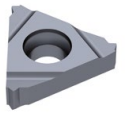
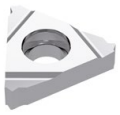
Left hand external thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°



CCN20 | CWK20

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 242 ... £ X3		EL 71 242 ... £ Y1	
16 EL 20	20	16	0.8	0.8	27.75	**240**	22.23	**640**
16 EL 18	18	16	0.8	0.9	27.75	**242**	22.23	**642**
16 EL 16	16	16	0.8	1.0	27.75	**244**	22.23	**644**

P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

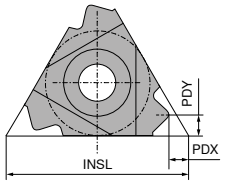
→ v_c Page 45

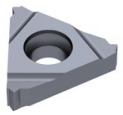
Right hand internal thread turning insert

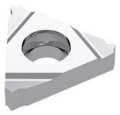
▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°

CCN20 | CWK20







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 244 ... £ X3		IR 71 244 ... £ Y1	
11 IR 18	18	11	0.8	0.9	27.75	**238**	22.23	**638**
16 IR 18	18	16	0.8	0.9	27.75	**242**	22.23	**642**
16 IR 16	16	16	0.8	1.0	27.75	**244**	22.23	**644**

P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

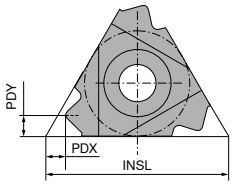
→ v_c Page 45

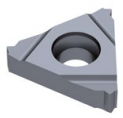
Left hand internal thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°

CCN20 | CWK20







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 246 ... £ X3		IL 71 246 ... £ Y1	
11 IL 18	18	11	0.8	0.9	27.75	**238**	22.23	**638**
16 IL 18	18	16	0.8	0.9	27.75	**242**	22.23	**642**
16 IL 16	16	16	0.8	1.0	27.75	**244**	22.23	**644**

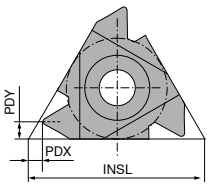
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

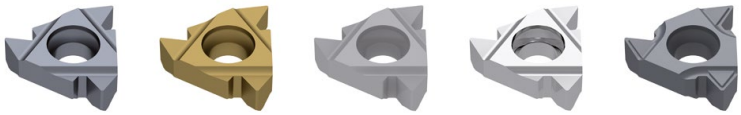
Right hand external thread turning insert

▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application





CCN20 | CWN1525 | HCN2525 | CWK20 | CCN7525



Designation	TP mm	INSL mm	PDX mm	PDY mm	ER 71 206 ... £ X3		ER 71 206 ... £ X3		ER 71 206 ... £ X3		ER 71 206 ... £ Y1		ER 71 206 ... £ X3	
16 ER A60	0,5 - 1,5	16	0.8	0.9	25.15	**240**	17.21	**140**	18.69	**740**	18.40	**640**	18.69	**940**
16 ER G60	1,75 - 3	16	1.2	1.7	25.15	**242**	18.42	**142**	20.44	**742**	18.40	**642**	20.44	**942**
16 ER AG60	0,5 - 3	16	1.2	1.7	25.15	**244**	16.79	**144**	18.11	**744**	18.40	**644**	18.11	**944**
22 ER N60	3,5 - 5	22	1.7	2.5	34.73	**270**	31.27	**170**			30.23	**670**		
22 EN U60	5,5 - 8	22	0.9	11.0	34.73	**272** [1)]					30.23	**672** [1)]		
P					●		●		○				●	
M					●		○		●		○		●	
K					●		●		○		●		●	
N							●		○		●			
S					○				○		○		●	
H					○				○				○	
O							○							

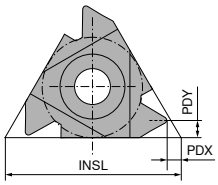
1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

→ v_c Page 45

Left hand external thread turning insert

▲ Partial profile





CCN20 | CWK20



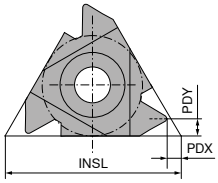
Designation	TP mm	INSL mm	PDX mm	PDY mm	EL 71 208 ... £ X3		EL 71 208 ... £ Y1	
16 EL A60	0,5 - 1,5	16	0.8	0.9	25.15	**240**	18.40	**640**
16 EL G60	1,75 - 3	16	1.2	1.7	25.15	**242**	18.40	**642**
16 EL AG60	0,5 - 3	16	1.2	1.7	25.15	**244**	18.40	**644**
22 EL N60	3,5 - 5	22	1.7	2.5	34.73	**270**	30.23	**670**
P						●		
M						●		○
K						●		●
N								●
S						○		○
H						○		
O								

→ v_c Page 45

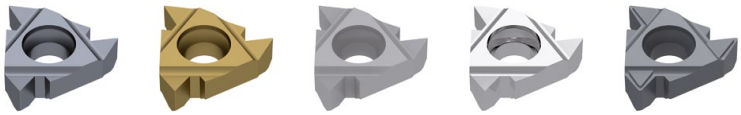
Right hand internal thread turning insert

▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application





CCN20 | CWN1525 | HCN2525 | CWK20 | CCN7525



Designation	TP mm	INSL mm	PDX mm	PDY mm	IR 71 210 ... £ X3		IR 71 210 ... £ X3		IR 71 210 ... £ X3		IR 71 210 ... £ Y1		IR 71 210 ... £ X3	
11 IR A60	0,5 - 1,5	11	0.8	0.9	25.15	**210**	17.37	**110**			18.40	**610**		
16 IR A60	0,5 - 1,5	16	0.8	0.9	25.15	**240**	22.75	**140**			18.40	**640**		
16 IR G60	1,75 - 3	16	1.2	1.7	25.15	**242**	18.42	**142**			18.40	**642**		
16 IR AG60	0,5 - 3	16	1.2	1.7	25.15	**244**	17.84	**144**	19.16	**744**	18.40	**644**	19.16	**944**
22 IR N60	3,5 - 5	22	1.7	2.5	34.73	**270**	30.04	**170**			30.23	**670**		
22 IN U60	5,5 - 8	22	0.9	11.0	34.73	**272** 1)					30.23	**672** 1)		
P					●		●		○				●	
M					●		○		●		○		●	
K					●		●		○		●		●	
N							●		○		●			
S					○				○		○		●	
H					○				○				○	
O							○							

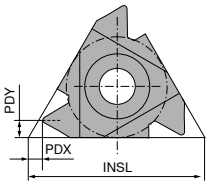
1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

→ v_c Page 45

Left hand internal thread turning insert

▲ Partial profile





CCN20 | CWK20



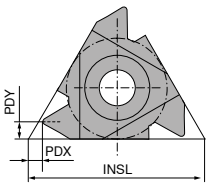
Designation	TP mm	INSL mm	PDX mm	PDY mm	IL 71 212 ... £ X3		IL 71 212 ... £ Y1	
11 IL A60	0,5 - 1,5	11	0.8	0.9	25.15	**210**	18.40	**610**
16 IL A60	0,5 - 1,5	16	0.8	0.9	25.15	**240**	18.40	**640**
16 IL G60	1,75 - 3	16	1.2	1.7	25.15	**242**	18.40	**642**
16 IL AG60	0,5 - 3	16	1.2	1.7	25.15	**244**	18.40	**644**
22 IL N60	3,5 - 5	22	1.7	2.5	34.73	**270**	28.92	**670**
P						●		
M						●		○
K						●		●
N								●
S						○		○
H						○		
O								

→ v_c Page 45

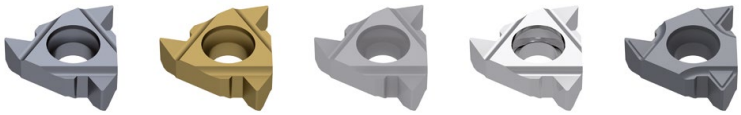
Right hand external thread turning insert

▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application





CCN20 | CWN1525 | HCN2525 | CWK20 | CCN7525



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 200 ... £ X3		ER 71 200 ... £ X3		ER 71 200 ... £ X3		ER 71 200 ... £ Y1		ER 71 200 ... £ X3	
16 ER A55	48 - 16	16	0.8	0.9	25.15	**240**	20.36	**140**	21.70	**740**	18.40	**640**	21.70	**940**
16 ER AG55	48 - 8	16	1.2	1.7	25.15	**244**	18.42	**144**	20.44	**744**	18.40	**644**	20.44	**944**
16 ER G55	14 - 8	16	1.2	1.7	25.15	**242**	20.36	**142**	22.43	**742**	18.40	**642**	22.43	**942**
22 ER N55	7 - 5	22	1.7	2.5	34.73	**270**	36.24	**170**	39.23	**770**	30.23	**670**		
22 EN U55	4,5 - 3,25	22	0.9	11.0	34.73	**272** 1)					30.23	**672** 1)		
P					●		●		○				●	
M					●		○		●		○		●	
K					●		●		○		●		●	
N							●		○		●			
S					○				○		○		●	
H					○				○				○	
O							○							

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

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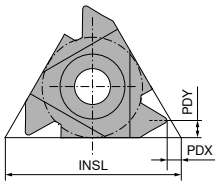
Left hand external thread turning insert

▲ Partial profile





CCN20 | CWK20



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 202 ... £ X3		EL 71 202 ... £ Y1	
16 EL A55	48 - 16	16	0.8	0.9	25.15	**240**	18.40	**640**
16 EL AG55	48 - 8	16	1.2	1.7	25.15	**244**	18.40	**644**
16 EL G55	14 - 8	16	1.2	1.7	25.15	**242**	18.40	**642**
22 EL N55	7 - 5	22	1.7	2.5	34.73	**270**	30.23	**670**
P						●		
M						●		○
K						●		●
N								●
S						○		○
H						○		
O								

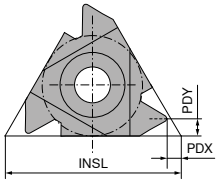
→ v_c Page 45

8

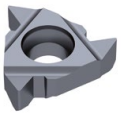
Right hand internal thread turning insert

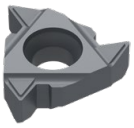
▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application





CCN20 | CWN1525 | CWK20 | CCN7525



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 204 ... £ X3		IR 71 204 ... £ X3		IR 71 204 ... £ Y1		IR 71 204 ... £ X3	
11 IR A55	48 - 16	11	0.8	0.9	25.15	**210**			18.40	**610**		
16 IR A55	48 - 16	16	0.8	0.9	25.15	**240**			18.40	**640**		
16 IR AG55	48 - 8	16	1.2	1.7	25.15	**244**			18.40	**644**		
16 IR G55	14 - 8	16	1.2	1.7	25.15	**242**	20.36	**142**	18.40	**642**	22.43	**942**
22 IR N55	7 - 5	22	1.7	2.5	34.73	**270**			30.23	**670**		
22 IN U55	4,5 - 3,25	22	0.9	11.0	34.73	**272** 1)			30.23	**672** 1)		
P					●		●				●	
M					●		○		○		●	
K					●		●		●		●	
N							●		●			
S					○				○		●	
H					○						○	
O							○					

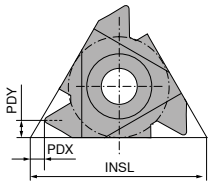
1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

→ v_c Page 45

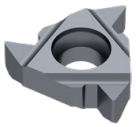
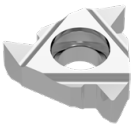
Left hand internal thread turning insert

▲ Partial profile





CCN20 | CWK20

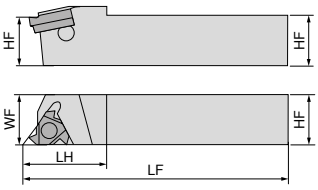



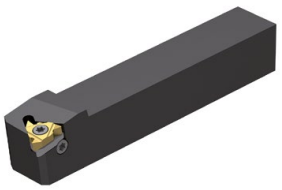
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 203 ... £ X3		IL 71 203 ... £ Y1	
11 IL A55	48 - 16	11	0.8	0.9	23.25	**210**	18.40	**610**
16 IL A55	48 - 16	16	0.8	0.9	23.25	**240**	18.40	**640**
16 IL AG55	48 - 8	16	1.2	1.7	23.25	**244**	18.40	**644**
16 IL G55	14 - 8	16	1.2	1.7	23.25	**242**	18.40	**642**
22 IL N55	7 - 5	22	1.7	2.5	32.70	**270**	30.23	**670**
P						●		
M						●		○
K						●		●
N								●
S						○		○
H						○		
O								

→ v_c Page 45

Standard External Thread Turning Holder

▲ Tool Holder with Approach Angle ß = 1,5°





Illustrations show right-hand versions

Designation	HF mm	WF mm	LF mm	LH mm	Insert	torque moment Nm	Left-hand 71 281 ... £ Y2		Right-hand 71 280 ... £ Y2	
SE R/L 08 08 H11	8	11	100	16	11 ..	1,3	112.08	**908** [2]	112.08	**908** [2]
SE R/L 10 10 H11	10	12	100	18	11 ..	1,3	112.08	**910** [2]	112.08	**910** [2]
SE R/L 12 12 K11	12	12	125	20	11 ..	1,3	112.08	**912** [2]	112.08	**912** [2]
SE R/L 12 12 F16	12	16	80	22	16 ..	3,5	112.08	**012**	112.08	**012**
SE R/L 16 16 H16	16	16	100	25	16 ..	3,5	137.96	**016**	137.96	**016**
SE R/L 20 20 K16	20	20	125	30	16 ..	3,5	137.96	**020**	137.96	**020**
SE R/L 25 25 M16	25	25	150	30	16 ..	3,5	157.45	**025**	157.45	**025**
SE R/L 32 32 P16	32	32	170	30	16 ..	3,5	173.04	**032**	173.04	**032**
SE R/L 25 25 M22	25	25	150	32	22 ..	10	173.04	**125**	173.04	**125**
SE R 32 32 P22	32	32	170	34	22 ..	10			180.83	**132**
SE R 32 32 P22U	32	21	170	32	22 .N	10			180.83	**232** [1]

1) Neutral insert indicated by marking (N)
2) without shim

8


Multi tooth shim


Shim


Screw-U

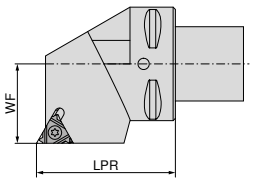
Key D


Clamping screw

Spare parts for Article no.		71 950 ... £ Y2			71 950 ... £ Y2		71 950 ... £ Y2			80 950 ... £ Y7		71 950 ... £ Y2	
71 280 908 / 71 281 908									T08	10.82	**110**	2.13	**230**
71 280 910 / 71 281 910									T08	10.82	**110**	2.13	**230**
71 280 912 / 71 281 912									T08	10.82	**110**	2.13	**230**
71 280 012	ER 16 / IL 16	18.03	**101**	ER 16 / IL 16	14.66	**121**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 281 012	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 280 016	ER 16 / IL 16	18.03	**101**	ER 16 / IL 16	14.66	**121**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 281 016	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 280 020	ER 16 / IL 16	18.03	**101**	ER 16 / IL 16	14.66	**121**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 281 020	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 280 025	ER 16 / IL 16	18.03	**101**	ER 16 / IL 16	14.66	**121**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 281 025	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 280 032	ER 16 / IL 16	18.03	**101**	ER 16 / IL 16	14.66	**121**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 281 032	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 280 125	ER 22 / IL 22	24.84	**110**	ER 22 / IL 22	23.36	**137**	2.56	**235**	T20	13.77	**114**	2.56	**232**
71 281 125	EL 22 / IR 22	24.84	**115**	EL 22 / IR 22	23.36	**145**	2.56	**235**	T20	13.77	**114**	2.56	**232**
71 280 132				ER 22 / IL 22	23.36	**137**	2.56	**235**	T20	13.77	**114**	2.56	**232**
71 280 232				ER 22U / IL 22U	23.36	**153**	2.56	**235**	T20	13.77	**114**	2.56	**232**

Shims for correction of helix angle see page → **Page 42.**

External threading holder





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	WF mm	Insert	torque moment Nm	Left-hand 84 191 ... £ Y8		Right-hand 84 190 ... £ Y8	
PSC40 SE R/L 27050-16.IK	PSC 40	50	27	16 ..	3,5	383.49	**412**	383.49	**412**
PSC40 SE R/L 27050-22.IK	PSC 40	50	27	22 ..	10	383.49	**422**	383.49	**422**
PSC50 SE R/L 35060-16.IK	PSC 50	60	35	16 ..	3,5	423.17	**512**	423.17	**512**
PSC50 SE R/L 35060-22.IK	PSC 50	60	35	22 ..	10	423.17	**522**	423.17	**522**
PSC63 SE R/L 45065-16.IK	PSC 63	65	45	16 ..	3,5	485.73	**612**	485.73	**612**
PSC63 SE R/L 45065-22.IK	PSC 63	65	45	22 ..	10	485.73	**622**	485.73	**622**
PSC80 SE R/L 55080-22.IK	PSC 80	80	55	22 ..	10	512.80	**822**	512.80	**822**


Multi tooth shim


Shim


Screw-U

Key D

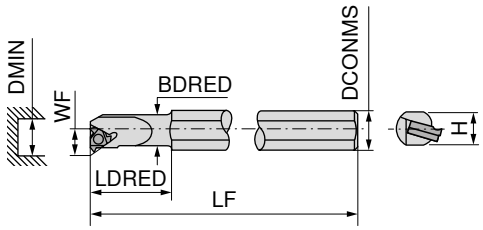

Clamping screw

Spare parts for Article no.		71 950 ... £ Y2			71 950 ... £ Y2		71 950 ... £ Y2			80 950 ... £ Y7		71 950 ... £ Y2	
84 190 412	ER 16 / IL 16	18.03	**101**	ER 16 / IL 16	14.66	**121**	2.07	**234**	T10	12.65	**112**	1.52	**231**
84 191 412	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
84 190 422	ER 22 / IL 22	24.84	**110**	ER 22 / IL 22	23.36	**137**	2.56	**235**	T20	13.77	**114**	2.56	**232**
84 191 422	EL 22 / IR 22	24.84	**115**	EL 22 / IR 22	23.36	**145**	2.56	**235**	T20	13.77	**114**	2.56	**232**
84 190 512	ER 16 / IL 16	18.03	**101**	ER 16 / IL 16	14.66	**121**	2.07	**234**	T10	12.65	**112**	1.52	**231**
84 191 512	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
84 190 522	ER 22 / IL 22	24.84	**110**	ER 22 / IL 22	23.36	**137**	2.56	**235**	T20	13.77	**114**	2.56	**232**
84 191 522	EL 22 / IR 22	24.84	**115**	EL 22 / IR 22	23.36	**145**	2.56	**235**	T20	13.77	**114**	2.56	**232**
84 190 612	ER 16 / IL 16	18.03	**101**	ER 16 / IL 16	14.66	**121**	2.07	**234**	T10	12.65	**112**	1.52	**231**
84 191 612	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
84 190 622	ER 22 / IL 22	24.84	**110**	ER 22 / IL 22	23.36	**137**	2.56	**235**	T20	13.77	**114**	2.56	**232**
84 191 622	EL 22 / IR 22	24.84	**115**	EL 22 / IR 22	23.36	**145**	2.56	**235**	T20	13.77	**114**	2.56	**232**
84 190 822	ER 22 / IL 22	24.84	**110**	ER 22 / IL 22	23.36	**137**	2.56	**235**	T20	13.77	**114**	2.56	**232**
84 191 822	EL 22 / IR 22	24.84	**115**	EL 22 / IR 22	23.36	**145**	2.56	**235**	T20	13.77	**114**	2.56	**232**

Shims for correction of helix angle see page → **Page 42.**

Standard Internal Thread Turning Holder

▲ Tool Holder with Approach Angle ß = 1,5°





Illustrations show right-hand versions

Designation	H mm	LF mm	LDRED mm	DCONMS mm	BDRED mm	WF mm	DMIN mm	Insert	torque moment Nm	Left-hand 71 283 ... £ Y2		Right-hand 71 282 ... £ Y2	
SI R 0010 H11	9.0	100	25	10	9.5	7.4	12	11 ..	1,3			157.45	**011** 1)
SI R/L 0010 K11	14.0	125	25	16	10.0	7.4	12	11 ..	1,3	120.80	**010** 1)	120.80	**010** 1)
SI R 0013 L11	14.0	140	32	16	12.0	8.9	15	11 ..	1,3			129.39	**013** 1)
SI R/L 0013 M16	14.0	150	32	16	13.0	10.2	16	16 ..	3,5	131.57	**015** 1)	131.57	**015** 1)
SI R/L 0016 P16	18.0	170	40	20	15.0	11.7	19	16 ..	3,5	131.57	**016** 1)	131.57	**016** 1)
SI R/L 0020 P16	18.0	170	40	20	19.5	13.7	24	16 ..	3,5	155.11	**020**	155.11	**020**
SI R 0025 R16	22.6	200	40	25	24.5	16.2	29	16 ..	3,5			188.62	**026**
SI R/L 0032 S16	28.8	250	50	32	31.5	19.7	36	16 ..	3,5	202.65	**032**	202.65	**032**
SI R 0040 T16	36.0	300	50	40	39.5	23.7	44	16 ..	3,5			300.86	**040**
SI R 0020 P22	18.0	170	40	20	19.5	15.6	24	22 ..	10			146.70	**120** 1)
SI R/L 0025 R22	22.6	200	40	25	24.5	18.1	29	22 ..	10	188.62	**126**	188.62	**126**
SI R 0032 S22	28.8	250	50	32	31.5	21.6	38	22 ..	10			208.88	**132**
SI R 0040 T22	36.0	300	60	40	39.5	25.6	46	22 ..	10			308.65	**140**
SI R 0032 S22U	28.8	250	60	32	31.5	24.4	38	22 .N	10			184.58	**133** 2)

1) without shim

2) Neutral insert indicated by marking (N)


Multi tooth shim


Shim

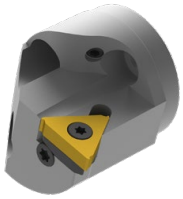

Screw-U


Key D


Clamping screw

Spare parts for Article no.		71 950 ... £ Y2			71 950 ... £ Y2		71 950 ... £ Y2			80 950 ... £ Y7		71 950 ... £ Y2	
71 282 011									T08	10.82	**110**	2.13	**230**
71 282 010 / 71 283 010									T08	10.82	**110**	2.13	**230**
71 282 013									T08	10.82	**110**	2.13	**230**
71 282 015 / 71 283 015									T10	12.65	**112**	2.35	**236**
71 282 016 / 71 283 016									T10	12.65	**112**	2.35	**236**
71 282 020	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 283 020	ER 16 / IL 16	18.03	**101**	ER 16 / IL 16	14.66	**121**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 282 026	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 282 032	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 283 032	ER 16 / IL 16	18.03	**101**	ER 16 / IL 16	14.66	**121**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 282 040	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 282 120							2.07	**234**	T20	13.77	**114**	2.52	**237**
71 282 126	EL 22 / IR 22	24.84	**115**	EL 22 / IR 22	23.36	**145**	2.56	**235**	T20	13.77	**114**	2.56	**232**
71 283 126	ER 22 / IL 22	24.84	**110**	ER 22 / IL 22	23.36	**137**	2.56	**235**	T20	13.77	**114**	2.56	**232**
71 282 132	EL 22 / IR 22	24.84	**115**	EL 22 / IR 22	23.36	**145**	2.56	**235**	T20	13.77	**114**	2.56	**232**
71 282 140	EL 22 / IR 22	24.84	**115**	EL 22 / IR 22	23.36	**145**	2.56	**235**	T20	13.77	**114**	2.56	**232**
71 282 133				AL 22U / IR 22U	23.36	**161**	2.56	**235**				2.56	**232**

Shims for correction of helix angle see page → **Page 42.**



Have you seen our new exchangeable head system?

Use our standard thread turning inserts with the new exchangeable head system.

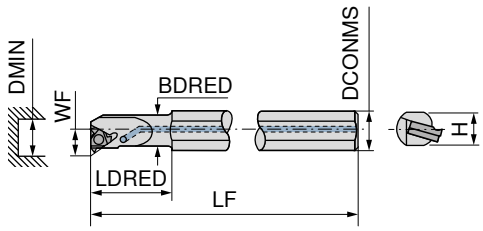
Further information and products can be found in the → **Chapter 9 – Turning Tools**

8

Standard Internal Thread Turning Holder with thro' coolant

▲ Tool Holder with Approach Angle ß = 1,5°





Illustrations show right-hand versions



Designation	H mm	LF mm	LDRED mm	DCONMS mm	BDRED mm	WF mm	DMIN mm	Insert	torque moment Nm	Left-hand 71 283 ... £ Y2		Right-hand 71 282 ... £ Y2	
SI R 0010 M11CB	9.0	150	25	10	9.5	7.4	12	11 ..	1,3			494.14	**510** [2]
SI R 0012 P11CB	11.0	170	30	12	11.5	8.4	15	11 ..	1,3			525.33	**512** [2]
SI R/L 0010 K11B	14.0	125	25	16	10.0	7.4	12	11 ..	1,3	144.66	**310**	144.66	**310**
SI R/L 0013 M16B	14.0	150	32	16	13.0	10.2	16	16 ..	3,5	157.45	**315**	157.45	**315**
SI R 0016 P16B	18.0	170	40	20	16.0	11.7	19	16 ..	3,5			157.45	**316**
SI R 0020 P16B	18.0	170	40	20	19.5	13.7	24	16 ..	3,5			185.48	**320** [1]
SI R/L 0032 S16B	28.8	250	50	32	31.5	19.7	36	16 ..	3,5	229.14	**332** [1]	229.14	**332** [1]

1) with shim seat
2) Carbide version


Multi tooth shim


Shim

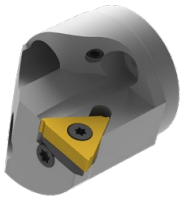

Screw-U


Key D


Clamping screw

Spare parts for Article no.		71 950 ... £ Y2			71 950 ... £ Y2		71 950 ... £ Y2			80 950 ... £ Y7		71 950 ... £ Y2	
71 282 510									T08	10.82	**110**	2.13	**230**
71 282 512									T08	10.82	**110**	2.13	**230**
71 282 310 / 71 283 310									T08	10.82	**110**	2.13	**230**
71 282 315 / 71 283 315									T10	12.65	**112**	2.35	**236**
71 282 316									T10	12.65	**112**	2.35	**236**
71 282 320	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 282 332	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
71 283 332	ER 16 / IL 16	18.03	**101**	ER 16 / IL 16	14.66	**121**	2.07	**234**	T10	12.65	**112**	1.52	**231**

Shims for correction of helix angle see page → **Page 42.**

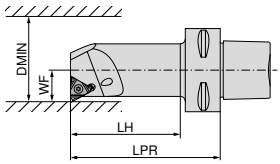


Have you seen our new exchangeable head system?

Use our standard thread turning inserts with the new exchangeable head system.

Further information and products can be found in the → **Chapter 9 – Turning Tools**

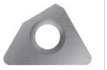
Internal threading holder





Illustrations show right-hand versions

ISO designation	Adapter	WF mm	LPR mm	LH mm	DMIN mm	Insert	torque moment Nm	Left-hand 84 197 ... £ Y8		Right-hand 84 196 ... £ Y8	
PSC40 SI R/L 12060-16.IK	PSC 40	12	60	37	20	16 ..	3,5	535.71	**410**	535.71	**410**
PSC40 SI R/L 14060-16.IK	PSC 40	14	60	38	25	16 ..	3,5	535.71	**412**	535.71	**412**
PSC40 SI R/L 17070-16.IK	PSC 40	17	70	48	32	16 ..	3,5	535.71	**414**	535.71	**414**
PSC40 SI R/L 22090-16.IK	PSC 40	22	90	69	40	16 ..	3,5	535.71	**416**	535.71	**416**
PSC40 SI R/L 27080-16.IK	PSC 40	27	80	60	50	16 ..	3,5	535.71	**418**	535.71	**418**
PSC40 SI R/L 15065-22.IK	PSC 40	15	65	42	25	22 ..	10	535.71	**420**	535.71	**420**
PSC40 SI R/L 19070-22.IK	PSC 40	19	70	48	32	22 ..	10	535.71	**422**	535.71	**422**
PSC40 SI R/L 22090-22.IK	PSC 40	22	90	69	40	22 ..	10	535.71	**424**	535.71	**424**
PSC40 SI R/L 27080-22.IK	PSC 40	27	80	60	50	22 ..	10	535.71	**426**	535.71	**426**
PSC50 SI R/L 12060-16.IK	PSC 50	12	60	35	20	16 ..	3,5	596.18	**510**	596.18	**510**
PSC50 SI R/L 14060-16.IK	PSC 50	14	60	36	25	16 ..	3,5	596.18	**512**	596.18	**512**
PSC50 SI R/L 17070-16.IK	PSC 50	17	70	47	32	16 ..	3,5	596.18	**514**	596.18	**514**
PSC50 SI R/L 22090-16.IK	PSC 50	22	90	68	40	16 ..	3,5	596.18	**516**	596.18	**516**
PSC50 SI R/L 27105-16.IK	PSC 50	27	105	84	50	16 ..	3,5	596.18	**518**	596.18	**518**
PSC50 SI R/L 15065-22.IK	PSC 50	15	65	41	25	22 ..	10	596.18	**520**	596.18	**520**
PSC50 SI R/L 19070-22.IK	PSC 50	19	70	47	32	22 ..	10	596.18	**522**	596.18	**522**
PSC50 SI R/L 22090-22.IK	PSC 50	22	90	68	40	22 ..	10	596.18	**524**	596.18	**524**
PSC50 SI R/L 27105-22.IK	PSC 50	27	105	84	50	22 ..	10	596.18	**526**	596.18	**526**
PSC63 SI R/L 14070-16.IK	PSC 63	14	70	42	25	16 ..	3,5	685.81	**610**	685.81	**610**
PSC63 SI R/L 17075-16.IK	PSC 63	17	75	48	32	16 ..	3,5	685.81	**612**	685.81	**612**
PSC63 SI R/L 22090-16.IK	PSC 63	22	90	64	40	16 ..	3,5	685.81	**614**	685.81	**614**
PSC63 SI R/L 27105-16.IK	PSC 63	27	105	80	50	16 ..	3,5	685.81	**616**	685.81	**616**
PSC63 SI R/L 19075-22.IK	PSC 63	19	75	48	32	22 ..	10	685.81	**620**	685.81	**620**
PSC63 SI R/L 22090-22.IK	PSC 63	22	90	64	40	22 ..	10	685.81	**622**	685.81	**622**
PSC63 SI R/L 27105-22.IK	PSC 63	27	105	80	50	22 ..	10	685.81	**624**	685.81	**624**


Multi tooth shim


Shim

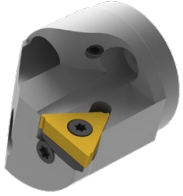

Screw-U

Key D


Clamping screw

Spare parts Insert	R/L/N		71 950 ... £ Y2		71 950 ... £ Y2		71 950 ... £ Y2		80 950 ...	£ Y7		71 950 ... £ Y2	
16 ..	Right-hand	EL 16 / IR 16	18.03	**108**	EL 16 / IR 16	14.66	**129**	2.07	**234**	T10	12.65	**112**	1.52	**231**
16 ..	Left-hand	ER 16 / IL 16	18.03	**101**	ER 16 / IL 16	14.66	**121**	2.07	**234**	T10	12.65	**112**	1.52	**231**
22 ..	Left-hand	ER 22 / IL 22	24.84	**110**	ER 22 / IL 22	23.36	**137**	2.56	**235**	T20	13.77	**114**	2.56	**232**
22 ..	Right-hand	EL 22 / IR 22	24.84	**115**	EL 22 / IR 22	23.36	**145**	2.56	**235**	T20	13.77	**114**	2.56	**232**

Shims for correction of helix angle see page → **Page 42.**



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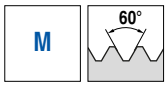
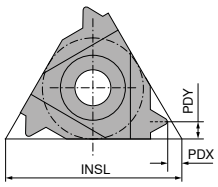
8

Right hand internal thread turning insert – Mini size 06

▲ Full profile
▲ Thread production from diameter 6 mm





NEW

CCN1525 | CCN2520





Designation	TP mm	PDX mm	PDY mm	INSL mm	IR 71 271 ... £ X3		IR 71 224 ... £ X3	
06 IR 0,5	0.50	0.9	0.5	6	23.94	**110**	27.90	**35700**
06 IR 0,75	0.75	0.8	0.5	6	23.94	**112**	27.90	**36100**
06 IR 1,0	1.00	0.7	0.6	6	23.94	**114**	26.26	**36500**
06 IR 1,25	1.25	0.6	0.6	6	23.94	**116**	27.90	**36700**

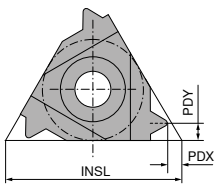
P	●	○
M	●	●
K	●	○
N	○	
S		●
H		○
O	○	

→ v_c Page 45

Right hand internal thread turning insert – Mini size 06

▲ Full profile
▲ Thread production from diameter 6 mm





NEW

CCN1525



NEW

CCN2520



Designation	TPI 1/"	PDX mm	PDY mm	INSL mm	IR 71 230 ... £ X3		IR 71 230 ... £ X3	
06 IR 26	26	0.7	0.6	6	23.94	**13500**	27.90	**33500**
06 IR 22	22	0.6	0.6	6	23.94	**13100**	27.90	**33100**
06 IR 20	20	0.6	0.7	6	23.94	**12900**	27.90	**32900**
06 IR 18	18	0.6	0.7	6	23.94	**12500**	27.90	**32500**

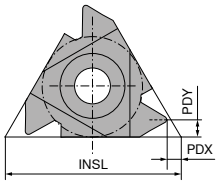
P	●	○
M	●	●
K	●	○
N	○	
S		●
H		○
O	○	

→ v_c Page 45

Right hand internal thread turning insert – Mini size 06

▲ Partial profile
▲ Thread production from diameter 6 mm





NEW

CCN1525 | CCN2520





Designation	TP mm	INSL mm	PDX mm	PDY mm	IR 71 274 ... £ X3		IR 71 272 ... £ X3	
06 IR A60	0,5 - 1,25	6	0.6	0.6	23.94	**210**	27.90	**30000**
P					●		○	
M					●		●	
K					●		○	
N					○			
S							●	
H							○	
O					○			

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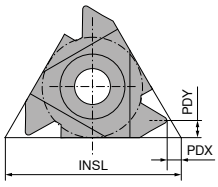
8

Right hand internal thread turning insert – Mini size 06

▲ Partial profile
▲ Thread production from diameter 6 mm

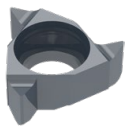




NEW

CCN1525 | CCN2520





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 272 ... £ X3		IR 71 272 ... £ X3	
06 IR A55	48 - 20	6	0.5	0.6	23.94	**10100**	27.90	**30100**
P					●		○	
M					●		●	
K					●		○	
N					○			
S							●	
H							○	
O					○			

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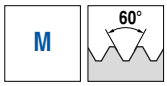
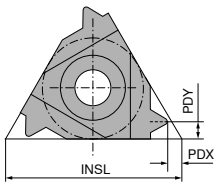
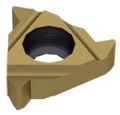
Right hand internal thread turning insert – Mini size 08

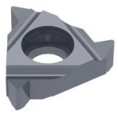
▲ Full profile
▲ Thread production from diameter 8 mm





NEW CCN1525 NEW CCN2520





Designation	TP mm	PDX mm	PDY mm	INSL mm	IR 71 224 ... £ X3		IR 71 224 ... £ X3	
08 IR 0,5	0.50	0.6	0.5	8	27.90	**14300**	27.90	**34300**
08 IR 0,75	0.75	0.6	0.5	8	27.90	**13700**	27.90	**33700**
08 IR 1,0	1.00	0.6	0.6	8	27.90	**13300**	26.26	**33300**
08 IR 1,25	1.25	0.6	0.7	8	27.90	**13100**	27.90	**33100**
08 IR 1,5	1.50	0.6	0.7	8	27.90	**12900**	26.26	**32900**
08 IR 1,75	1.75	0.6	0.8	8	27.90	**12700**	27.90	**32700**
08 IN 2,0	2.00	0.9	4.0	8	27.90	**12500** [1]	33.39	**32500** [1]
P					●		○	
M					●		●	
K					●		○	
N					○			
S							●	
H							○	
O					○			

1) Neutral version (N)

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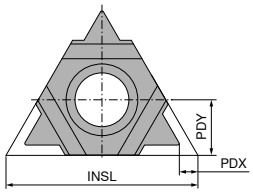
Neutral internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm





NEW CCN1525 NEW CCN2520





Designation	TP mm	INSL mm	PDX mm	PDY mm	IN 71 273 ... £ X3		IN 71 273 ... £ X3	
08 IN M60	1,75 - 2,0	8	0.8	4	27.90	**10800**	33.39	**30800**
P					●		○	
M					●		●	
K					●		○	
N					○			
S							●	
H							○	
O					○			

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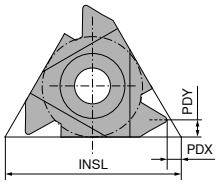
Right hand internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm





NEW CCN1525



NEW CCN2520



Designation	TP mm	PDX mm	PDY mm	INSL mm	IR 71 272 ... £ X3		IR 71 272 ... £ X3	
08 IR A60	0,5 - 1,25	0.6	0.6	8	27.90	**10600**		
08 IR A60	0,5 - 1,5	0.6	0.7	8			27.90	**30600**
P					●		○	
M					●		●	
K					●		○	
N					○			
S							●	
H							○	
O					○			

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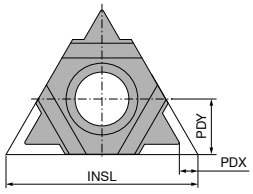
8

Neutral internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm





NEW CCN1525



NEW CCN2520



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IN 71 273 ... £ X3		IN 71 273 ... £ X3	
08 IN M55	14 - 11	8	0.9	4	27.90	**10900**	33.39	**30900**
P					●		○	
M					●		●	
K					●		○	
N					○			
S							●	
H							○	
O					○			

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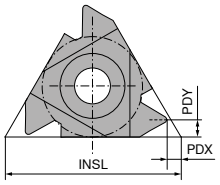
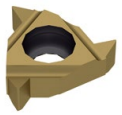
Right hand internal thread turning insert – Mini size 08

- Partial profile
- Thread production from diameter 8 mm

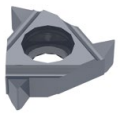




NEW
CCN1525



NEW
CCN2520



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 272 ... £ X3		IR 71 272 ... £ X3	
08 IR A55	48 - 16	8	0.6	0.7	27.90	**10700**	27.90	**30700**
P					●		○	
M					●		●	
K					●		○	
N					○			
S							●	
H							○	
O					○			

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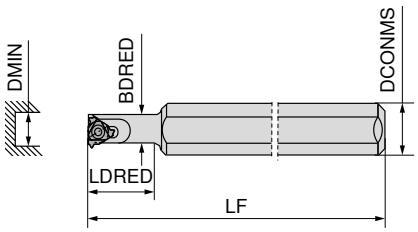
Right Hand Internal Thread Holder – Mini size 06





NEW
Right-hand

Designation	LF mm	LDRED mm	DCONMS mm	BDRED mm	DMIN mm	Insert	torque moment Nm	71 282 ... £ Y2	
SI R 0005 H06	100	12	12	5.1	6	06 ..	0,6	200.21	**00500**
SI R 0005 H06 C	100	26	6	5.1	6	06 ..	0,6	356.97	**10500**[1]

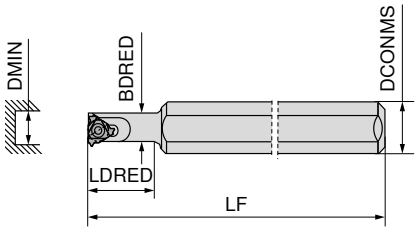
1) Solid Carbide Shank with Thro' Coolant


Key D


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		71 950 ... £ Y2	
71 282 00500	T06	11.71	**108**	1.95	**23800**
71 282 10500	T06	11.71	**108**	1.95	**23800**

Right Hand Internal Thread Holder – Mini size 08





NEW
Right-hand

Designation	LF mm	LDRED mm	DCONMS mm	BDRED mm	DMIN mm	Insert	torque moment Nm	71 282 ... £ Y2	
SI R 0007 K08	125	18	16	6.6	7.8	08 ..	0,6	200.21	**00700**
SI R 0007 K08C	125	30	8	6.6	7.8	08 ..	0,6	405.12	**10700**[2]
SI R 0007 K08U	125	31	16	7.3	9.0	08 .N	0,6	227.86	**00800**[1]

1) Neutral insert indicated by marking (N)
2) Solid Carbide Shank with Thro' Coolant

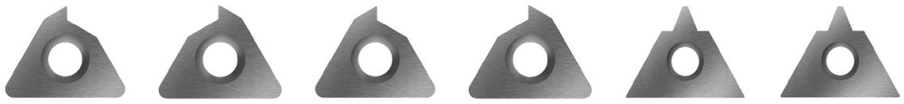

Key D


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		71 950 ... £ Y2	
71 282 00700	T06	11.71	**108**	2.06	**23900**
71 282 10700	T06	11.71	**108**	2.06	**23900**
71 282 00800	T06	11.71	**108**	2.06	**23900**

8

Shims for Standard Threading Inserts



Pitch-angle β	AE 16 ER 16 / IL 16 71 950 ...		AI 16 EL 16 / IR 16 71 950 ...		AE 22 ER 22 / IL 22 71 950 ...		AI 22 EL 22 / IR 22 71 950 ...		AE 22 U ER 22 / IL 22 71 950 ...		AI 22 U EL 22 / IR 22 71 950 ...	
	£ Y2		£ Y2		£ Y2		£ Y2		£ Y2		£ Y2	
+ 4,5°	14.23	118	14.23	126	22.67	134	22.67	142	23.36	150 [1]	23.36	158 [1]
+ 3,5°	14.23	119	14.23	127	22.67	135	22.67	143	23.36	151 [1]	23.36	159 [1]
+ 2,5°	14.23	120	14.23	128	22.67	136	22.67	144	23.36	152 [1]	23.36	160 [1]
+ 1,5°	14.66	121	14.66	129	23.36	137	23.36	145	23.36	153 [1]	23.36	161 [1]
+ 0,5°	14.23	122	14.23	130	22.67	138	22.67	146	23.36	154 [1]	23.36	162 [1]
0°	14.23	123	14.23	131	22.67	139	22.67	147				
- 0,5°	14.23	124	14.23	132	22.67	140	22.67	148	23.36	156 [1]	23.36	164 [1]
- 1,5°	14.23	125	14.23	133	22.67	141	22.67	149	23.36	157 [1]	23.36	165 [1]

1) Neutral version for tool holder identified by (U).

Shims for Multi-Tooth Threading Inserts



Pitch-angle β	AE 16 M ER 16 / IL 16 71 950 ...		AI 16 M EL 16 / IR 16 71 950 ...		AE 22 M ER 22 / IL 22 71 950 ...		AI 22 M EL 22 / IR 22 71 950 ...	
	£ Y2		£ Y2		£ Y2		£ Y2	
+ 1,5°	18.03	101	18.03	108	24.84	110	24.84	115

Pitch angle

Important Information about Standard Shims

- the pitch angle should be determined through calculation or by using the chart below.
- the standard threading holder is supplied with a 1.5 ° inclined insert seat and a shim without angular correction.
  Hence the Tool holders are delivered with an angle of inclination β of 1.5 °.

Without the appropriate correction of the helix angle, the following may occur

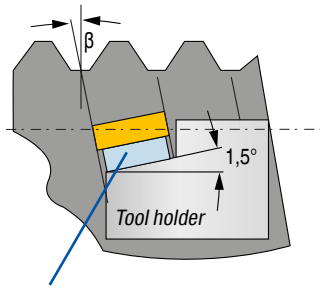
- the profile will be distorted.
- insufficient clearance angle.
- the tool life of the insert is greatly reduced.

Method 1: Calculation

Calculating the helix angle β:

$$\beta = \frac{20 \times TP}{DMIN}$$

20 = constant
β = Helix angle (°)
TP = Pitch (mm)
DMIN = Nominal diameter (mm)



Example calculation

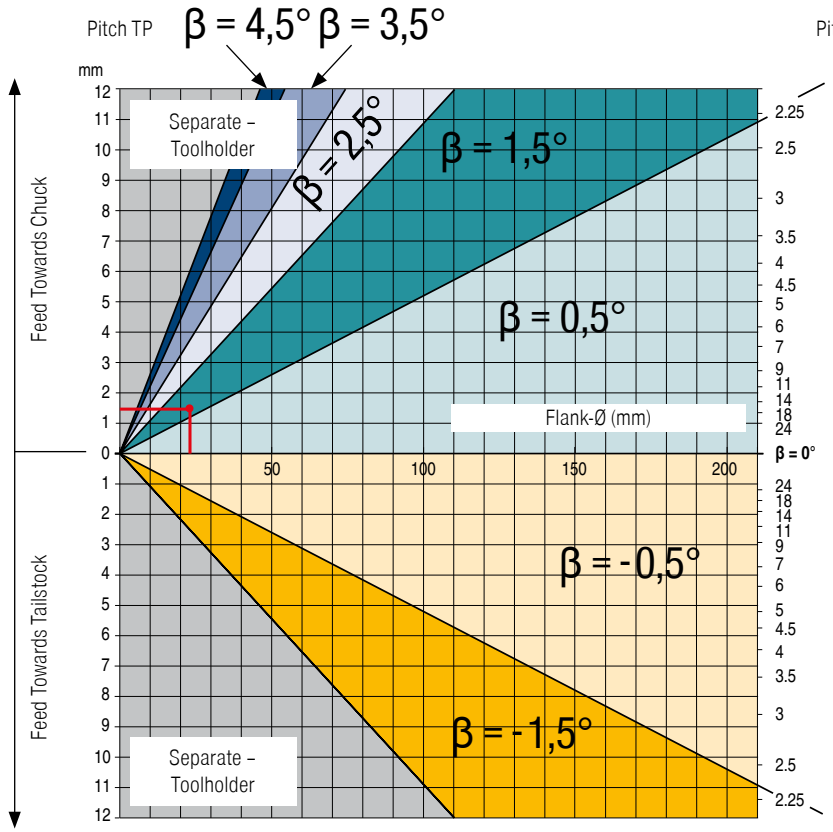
External thread M24 x 1.5
Feed towards chuck
DMIN = Nominal Ø: M24 = 24 mm
TP = Pitch: 1.5 mm

$$\beta = \frac{20 \times 1{,}5 \text{ mm}}{24 \text{ mm}}$$

β = 1,25°

Method 2: Diagram

From the flank Ø in the diagram, a line is drawn vertically upwards until it intersects with the line of the pitch of the thread to be produced. In the color-coded region in which it is now, a horizontal line to the edge of the chart indicates the appropriate factor.



calculated pitch angle β value	Shim
0,0°–0,99°	0,5°
1,0°–1,99°	1,5°
2,0°–2,99°	2,5°
3,0°–3,99°	3,5°
4,0°–4,99°	4,5°
0,0°–(-0,99°)	-0,5°
-1,0°–(-1,99°)	-1,5°

8

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values

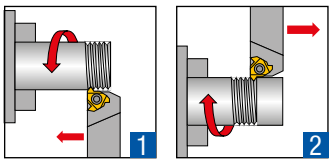
	Mini CCN1525	Mini CCN2520	CWN1525	HCN2525	CCN7525	CCN20	CWK20
Index	v_c in m/min						
P.1.1	**80**	120	**120**	120	**120**	**120**	
P.1.2	**80**	120	**120**	120	**120**	**120**	
P.1.3	**80**	120	**120**	120	**120**	**120**	
P.1.4	**80**	80	**80**	90	**80**	**80**	
P.1.5	**70**	80	**80**	90	**80**	**80**	
P.2.1	**50**	80	**80**	90	**80**	**80**	
P.2.2	**50**	80	**80**	90	**80**	**80**	
P.2.3	**50**	80	**80**	90	**80**	**80**	
P.2.4	**50**	80	**80**	90	**80**	**80**	
P.3.1	**50**	50	**60**	70	**50**	**50**	
P.3.2	**50**	50	**60**	70	**50**	**50**	
P.3.3	**50**	50	**60**	70	**50**	**50**	
P.4.1	**50**	50	**60**	70	**50**	**50**	
P.4.2	**50**	50	**60**	70	**50**	**50**	
M.1.1	**40**	**90**	60	**110**	**90**	**60**	40
M.2.1	**40**	**90**	60	**110**	**90**	**60**	40
M.3.1	**40**	**90**	60	**110**	**90**	**60**	40
K.1.1	**60**	120	**90**	140	**120**	**120**	**80**
K.1.2	**60**	120	**90**	140	**120**	**120**	**80**
K.2.1	**60**	100	**80**	120	**100**	**100**	**70**
K.2.2	**60**	100	**80**	120	**100**	**100**	**70**
K.3.1	**50**	100	**80**	110	**100**	**100**	**70**
K.3.2	**50**	100	**80**	110	**100**	**100**	**70**
N.1.1	500		**600**	700			**150**
N.1.2	300		**600**	700			**150**
N.2.1	120		**250**	280			**120**
N.2.2	120		**250**	280			**120**
N.2.3	120		**250**	280			**120**
N.3.1	110		**150**	190			**100**
N.3.2	150		**150**	190			**100**
N.3.3	150		**150**	190			**100**
N.4.1	300		**300**	220			**150**
S.1.1		**25**		20	**25**	20	20
S.1.2		**25**		20	**25**	20	20
S.2.1		**25**		20	**25**	20	20
S.2.2		**25**		20	**25**	20	20
S.2.3		**25**		20	**25**	20	20
S.3.1		**35**		30	**35**	30	30
S.3.2		**35**		30	**35**	30	30
S.3.3		**35**		30	**35**	30	30
H.1.1		35		30	35	30	
H.1.2		35		30	35	30	
H.1.3		35		30	35	30	
H.1.4		35		30	35	30	
H.2.1		25		20	25	20	
H.3.1		25		20	25	20	
O.1.1	150		200				
O.1.2	150		200				
O.2.1	150		200				
O.2.2	150		200				
O.3.1	150		200				

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

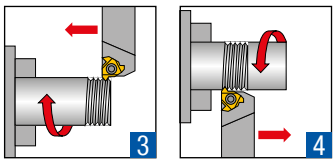
8

Thread turning methods

External right-hand thread

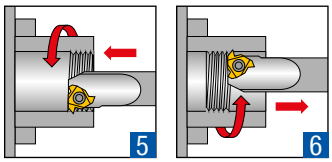


External left-hand thread

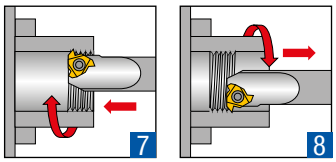


The machining examples 2, 4, 6 and 8 require negative shims!
These shims can be found on → **Page 42.**

Internal right-hand thread

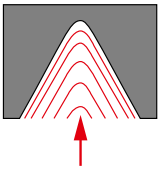


Internal left-hand thread



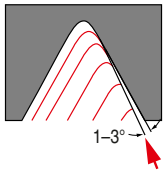
Thread infeed methods

Radial Infeed



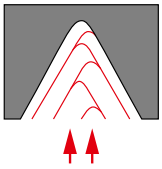
- for pitches less than 1.5mm
- for short chipping materials
- for machining hardened materials
- simple and quick method

Flank infeed



- for pitches larger than 1.5mm
- with radial penetration the effective cutting edge length is too large, which may lead to chattering
- with trapezoidal and ACME threads, chip flow on three sides can be problematic

Alternating infeed



- with large pitches
- for long chipping materials
- uniform wear of the cutting edges
- complicated programming process

Recommended number of cuts and cutting depths

Standard Threading Inserts

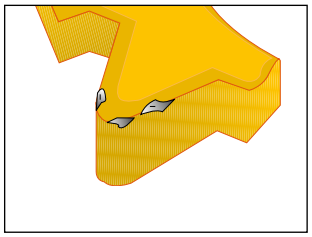
Pitch (TP/TPI)	mm	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,50	3,00	3,50	4,00	4,50	5,00	5,50	6,00	8,00
	TPI	48	32	24	20	16	14	12	10	8	7	6	5.5	5	4.5	4	3
Number of passes		4–6	4–7	4–8	5–9	6–10	7–12	7–12	8–14	9–16	10–18	11–18	11–19	12–20	12–20	12–20	15–24
Number of passes	**(CCN7525)**	3–4	3–4	3–5	4–6	5–6	6–8	6–8	8–10								
Number of passes	**Mini Inserts**	6–9	6–11	6–12	8–14	9–15	11–18	11–18									

Multi edge thread turning insert

Standard	Insert	Insert size		Pitch (TP)	Number of flutes (NT)	Designation	Passes	Cutting depth per pass		
		IC	L mm					1	2	3
ISO external	M	3/8"	16	1,0 mm	3	3 ER 1.0 ISO 3M	2	0,38	0,25	
ISO external	M	3/8"	16	1,5 mm	2	3 ER 1.5 ISO 2M	3	0,42	0,30	0,20

Troubleshooting

Edge chipping



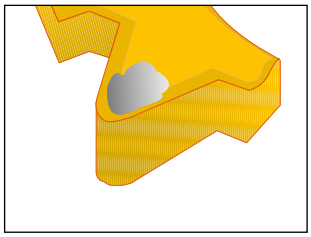
Cause

- Common in stainless materials
- Incorrect grade

Remedy

- Minimize tool overhang length
- Check that the insert is clamped
- Minimize vibration
- Use a tougher grade

Cratering



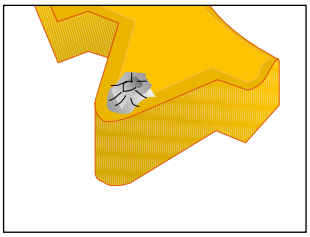
Cause

- Common in stainless materials
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce depth of cut
- Use a harder grade

Built-up edge



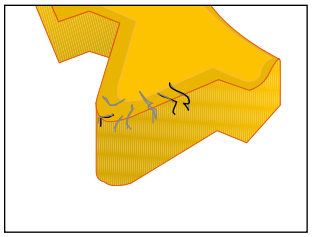
Cause

- Cutting speed too low
- Incorrect grade

Remedy

- Apply coolant
- Increase cutting speed
- Use a tougher grade

Thermal cracking



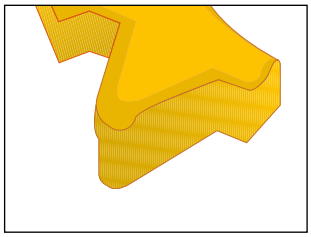
Cause

- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce cutting speed
- Use a tougher grade

Plastic deformation



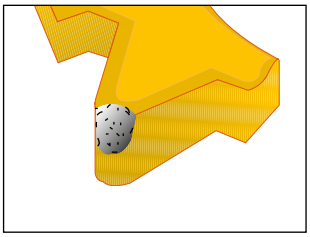
Cause

- Infeed too large
- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce depth of cut
- Reduce cutting speed
- Use a harder grade

Breakage



Cause

- Infeed too large
- Insufficient coolant
- Plastic deformation
- Instability
- Helix angle not appropriate
- Incorrect grade

Remedy

- Reduce depth of cut
- Check machine and tool stability
- Reduce cutting speed
- Check helix angle
- Use a tougher grade

8

Designation Key

Inserts

16	E	R	AG 60	
Insert size	Insert	Cutting design	Pitch (TP/TPI)	Number of flutes (NT)

Insert size

L	I.C.
06	5/32"
08	3/16"
11	1/4"
16	3/8"
22	1/2"

Insert

E	External
I	Internal

Cutting design

R	Right-hand
L	Left-hand
N	neutral

Pitch (TP/TPI)

Full profile

mm	G/Z
0,35	72–4

Partial profile

	mm	G/Z
A	0,5–1,5	48–16
AG	0,5–3,0	48–8
M	1,7–2,0	14–11
G	1,75–3,0	14–8
N	3,5–5,0	7–5
U	5,5–8,0	4,5–3,5

Flank angle
55°
60°

Number of flutes (NT)

2M	Multi-tooth insert with 2 teeth
3M	Multi-tooth insert with 3 teeth

Example

16 ER AG 60
ER16 right hand - external insert with a pitch of 0.5-3.0 mm

Tool holder

SE	R	1212	F	16	
Tool holder	Cutting design	Shank cross-section	Overall length	Insert size	Properties

Tool holder

SE	External
SI	Internal

Cutting design

R	Right-hand
L	Left-hand

Shank cross-section

Example	
External holder square shank	1212 = 12 mm x 12 mm
Internal boring bar	0020 = 20 mm Diameter

Overall length

	mm
F	80
H	100
K	125
L	140
M	150
P	170
R	200
S	250
T	300

Insert size

L	I.C.
06	5/32"
08	3/16"
11	1/4"
16	3/8"
22	1/2"

Properties

B	with thro' coolant
C	with carbide shank
U	neutral holder

Example

SE R 1212 F 16
Right hand holder with 12 x 12 mm square shank, overall length of 80 mm, only suitable for an ER16 threading insert

Grade description

Universal

CCN7525
- Carbide, TiAlN-coated
- ISO | **P25** | **M25** | **K25** | **S25** | H25
- The universal carbide grade with sintered chip breaker for medium to high cutting speeds

CCN2520
- Carbide, TiAlN-coated
- ISO | P25 | **M25** | K25 | **S25** | H25
- The coated carbide grade for the machining of stainless steels at medium to high cutting speeds

CCN1525
- Carbide, TiN-coated
- ISO | **P25** | **M25** | **K25** | N25 | O25
- The coated carbide grade for machining steels and stainless steels at low cutting speeds

Non ferrous metals

CWK20
- Carbide, uncoated
- ISO | M10 | **K10** | **N10** | S10
- The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

Steel

CCN20
- Carbide, TiAlN-coated
- ISO | **P20** | **M20** | **K20** | S20 | H20
- The all-round carbide grade for machining steels at low cutting speeds

CWN1525
- Carbide, TiN-coated
- ISO | **P25** | M25 | **K25** | **N25** | O25
- The universal carbide grade for machining steels and non-ferrous metals at low cutting speeds

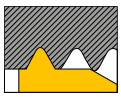
Stainless steel

HCN2525
- Carbide, TiAlN-coated
- ISO | P25 | **M25** | K25 | N25 | S25 | H25
- The coated carbide grade for machining stainless steels at high cutting speeds
- Also suitable for exotic materials

8

Profile Type Description

Full profile



- Thread diameter must not be turned to final thread size
- a minimum infeed of 0.07 mm is necessary
- Insert can only be used only for a specific pitch

Advantages:
- High-quality thread
- No burr formation
- No rework
- In part longer service life

Partial profile



- Core diameter must be premachined to the finished size
- A minimum infeed of 0.07 mm is required

Advantages:
- One threading insert can be used to machine several pitches
- Threading insert can be used for any application
- Reduced stock requirements

Multi-Tooth Thread Turning Insert



- Thread diameter must not be turned to final thread size
- a minimum infeed of 0.07 mm is necessary
- Insert can only be used only for a specific pitch

Advantages:
- Fewer passes required
- Thread production in less time

Attention:
- Check there is sufficient thread run-out

Mini Thread Turning Insert



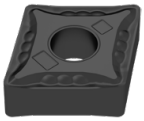


- From a min. core hole diameter of Ø 6 mm or Ø 8 mm

Advantages:
- Special cutting materials for low cutting speeds
- 3 cutting edges for miniature applications

New products for machining technicians

NEW CTCM120 and CTCM130 for stainless turning



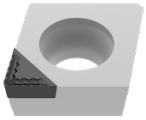
In addition to the all-rounder CTPM125 grade, the CTCM120 and CTCM130 stainless turning grades now provide a tougher and a more wear-resistant option for finer adjustment to the material to be machined. What's more, the stainless range offers geometric compatibility across all three grades.

NEW Standard line



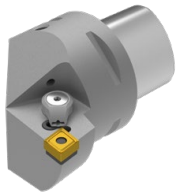
Attractively priced indexable inserts for steel machining – our ISO turning standard line not only impresses on price but also by providing the best levels of performance!

NEW CBN/PCD update



Various cutting edge finishes and chip breakers are being added to the CBN and PCD range to provide a specialist for every application.

NEW MaxiLock tool holders with PSC connection



Our MaxiLock tool holders with PSC connection provide the most stable conditions for your machining process and can be purchased with high-performance cooling to improve the service life of the tools and provide optimal chip control.

NEW Exchangeable head system



Our modular exchangeable head system provides a wide selection of exchangeable cutting heads for PSC and HSK-T base bodies.
You can also opt for the vibration-damped base holder, which will make your internal turning operations much easier.



Solid drilling and bore machining

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

Threading

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

Turning

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

Milling

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

Catalogue – Clamping technology

16 Adaptors and Accessories
17 Workpiece clamping

18 Material examples and article no. Index

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Toolfinder – positive inserts	6+7
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CERATIZIT \ Performance

Premium quality tools for high performance.

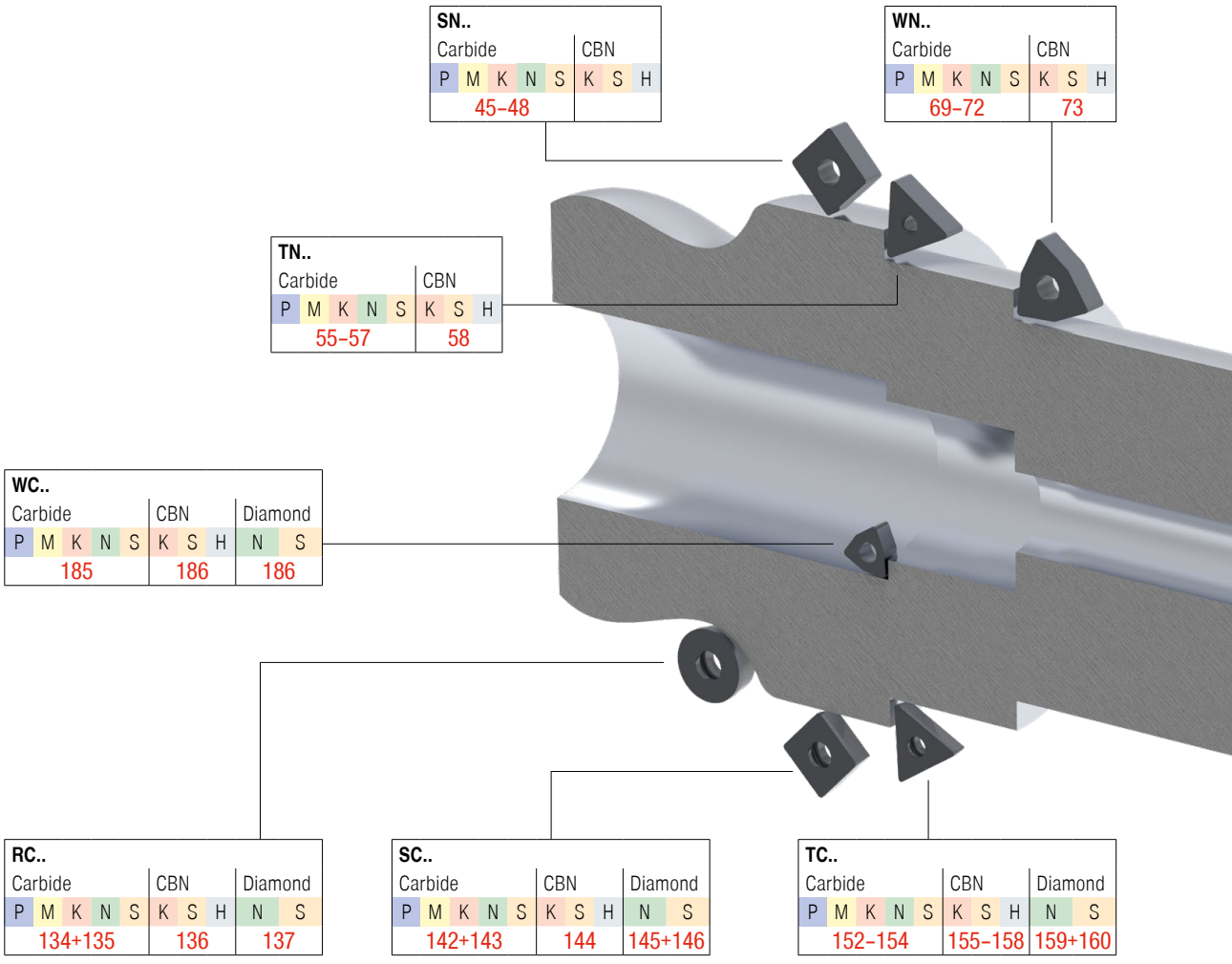
The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium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

CERATIZIT \ Standard

Quality tools for standard applications.

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

Toolfinder – Application



Coding of the chip breakers

All new chip breakers are coded according to the following key:

-M50

Inserts – Basic Type	Application range	Material		Chip breaker width
	F = Fine	1 = Steel	5 = Heat Resistant alloys	1 = Narrow
0 | N = Negative Inserts	M = Medium	2 = Stainless steel	6 = Hard	
5 | P = Positive Inserts	R = Rough	3 = Cast Iron	7 = Universal	
		4 = Non Ferrous Metals		9 = Wide

Detailed information on the chip breakers can be found in the technical appendix → **pages 220–227**

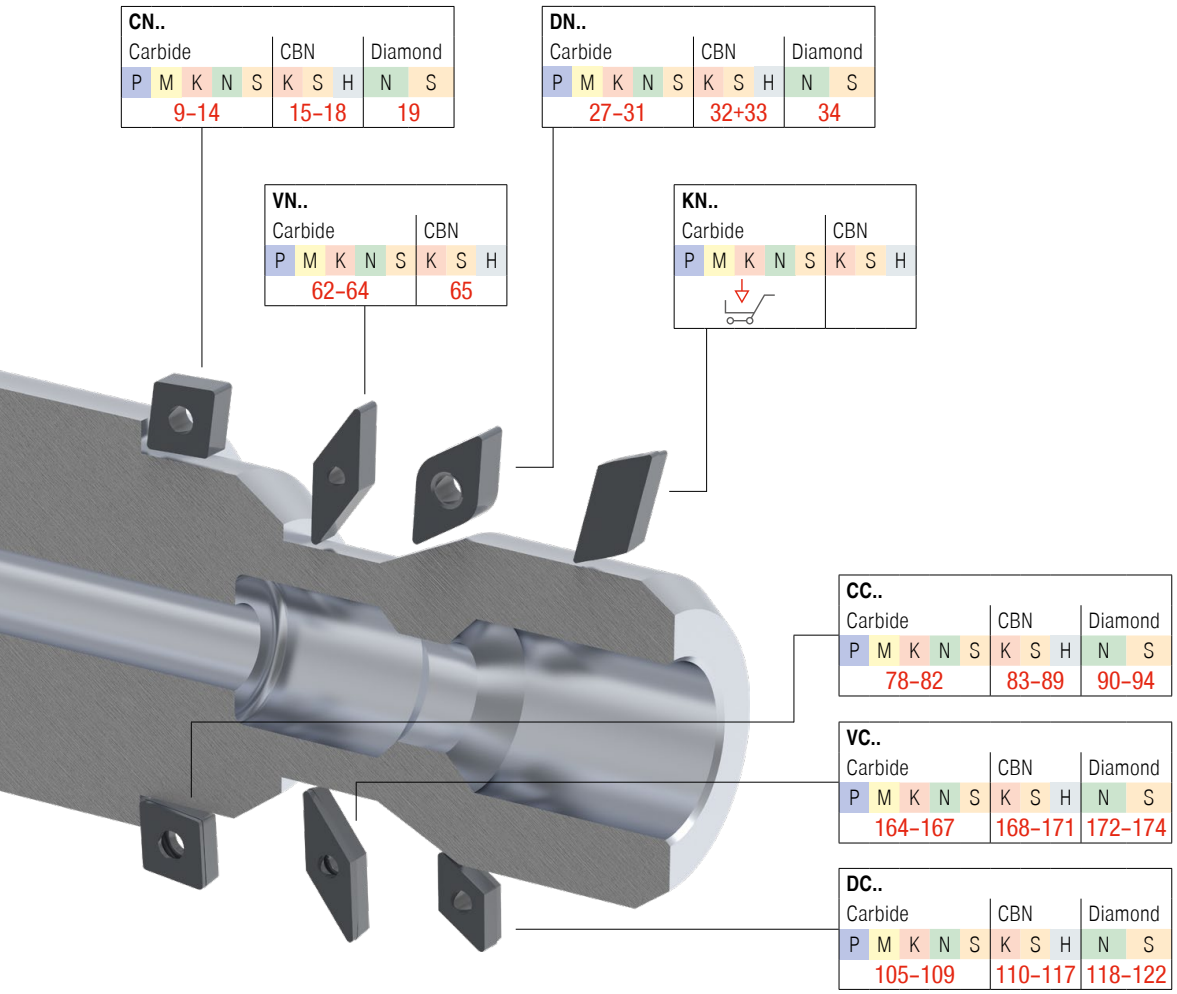
Symbol explanation

CTCP125 *Carbide Grade*

F	Fine Machining
M	Medium Machining
R	Rough Machining

	Smooth cut
	Irregular cutting depth
	Interrupted cut

A detailed overview of grades can be found in the technical appendix on → **page 238**



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Toolfinder – negative inserts

				Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	Geometry CN..	DN..	KN..	SN..	TN..	VN..	WN..
Main application: **Steel and cast iron**	Sharp ▲ stable ▼	Fine	-CF / -CF20	●	○	○					9	27			55		69
			-F40	●		○										62	
			-F50	●		○					9	27		45	55	62	69
			-TFQ	●	○	○					9+10	27+28					69
		Medium	-XU	●		○					10	28				62	70
			-FMS	●		○					14	31				64	72
			-M40	●		○										62	
			-M50	●	○	○					10	28+29		45	55	62	70
			-TMQ	●		○					10	29					70
			-MRS	●	○						14	31					72
			-M70 | -11, -12	●	○	○					10+11	29	🛒	45+46	56		70
		Rough	.NMA	●	○						11	29		46+47	56		71
			-R28	●	○	○					11	29		47	56		
			-R58	●	○	○					11+12	29+30		47	56+57		
			-R88	●	○	○					12			48			
Main application: **Stainless**	Sharp ▲ stable ▼	Fine	-F30	○	●			○			13	30		48	57	62	71
		Medium	-M30	○	●			○			13	30		48	57	62+63	71
			-M42	○	●			●			🛒	🛒		🛒	🛒		🛒
			-M60	○	●			○			13	30		48	57		71
Main application: **Heat-resistant**	Sharp ▲ stable ▼	Fine	-F32		●		○	●			🛒	🛒				🛒	
		Medium	-M34	●	●		○	●			13	30		48	57	63	71
			-M42	○	●		○	●			🛒	🛒			🛒		🛒
			-M52		●		○	●			🛒	🛒		🛒	🛒		🛒

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Toolfinder – negative inserts

Main application:				Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	Geometry CN..	DN..	KN..	SN..	TN..	VN..	WN..
Cast iron, sintered steels, heat resistant, hardened	Fine	CTBS05U				●											73
		CTBS10U				●		●			15+16						
		CTBS10C				●		●			15+16						
		CTBS20U				●		●			15+16	32					
		CTBS20C				●		●			15+16	32					73
		CTBH15U							●								
		CTBH15C							●		17	32					
		CTBH20U							●		17	32			58		
		CTBH20C	48–62 HRC						●		17	33			58	65	73
		CTBH21U	52–65 HRC						●								
	Rough	CTBH40U	54–65 HRC						●		18	33			58	65	
		CTBH40C	48–65 HRC						●		18	33			58	65	73
		CTBH41U	48–65 HRC						●		18						
	Diamond	CTD PD20					●			●	19	34					
		CTD PS30					●			●	19						

With the PCBN grades CTB S10 and CTB S20, sintered steels can also be machined. You can find the cutting data on → **page 200–203**

9

Toolfinder – positive inserts

				Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	Geometry CC..	DC..	RC..	SC..	SP..	TC..	TP..	VC..	WC..
Main application: **Steel and cast iron**	Sharp	Fine	-CF05	●	○	○					78	105		142		152		164	
			-SF	●	○	○					78+79	105		142		152		164	185
		Medium	-CF55	●	○	○					78	105		142		152		164	
			-SMF	●	○	○					78+79	105	134	142		152+153		164+165	
			-FMS	●	○						82	109						167	
			-SM	●	○	●					79	105+106	134	142		153		165	
			-SMQ	●		○					79+80	106							
			-MRS	●	○						82	109						167	
	stable		EN, EL, ER	●	○	●								142	🛒		🛒		
Main application: **Stainless**	Sharp	Fine	-F43	○	●			●			🛒	🛒				🛒			
			-M81	○	●			○			🛒	🛒						🛒	
		Medium	-M25	○	●			●			80	106				153		165	
	stable		-M55	○	●			●			80	106		143		153		165	
Main application: **Non-ferrous metals**	Sharp	Fine	-23P			○	●			○	80	107							
		Medium	-25P	●	●	○	●	●		○	80	107		143				166	
			-25Q	●	●	○	●	●		○	80	107						166	
			-27	●	●	○	●	●		○	80+81	107+108	135	143		154		166	
	stable		-29			○	●			○	81	108						166	
Main application: **Heat-resistant**	Sharp	Fine	-F05	●	●		●	●				108						166	
	stable		-F23		●	○	○	●			🛒	🛒						🛒	

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Toolfinder – positive inserts

Main application:				Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	Geometry CC..	DC..	RC..	SC..	SP..	TC..	TP..	VC..	WC..
Cast iron, sintered steels, heat resistant, hardened	Fine	CTBS10U				●		●			83	110	136	144		155+156		168+169	186
		CTBS10C				●		●				111+112							
		CTBS20U				●		●			84+85	111+112				155+156		168+169	
		CTBS20C				●		●			84+85	111+112				155+156		168+169	
		CTBH15U	< 32 HRC						●		86	111–113				155+156		168+169	186
		CTBH15C	< 32 HRC						●		86	113				157+158		168+169	
		CTBH21U	52–65 HRC						●		87	113–115						170	
		CTBH21C	52–65 HRC						●			114+115							
		CTBH20U							●		87	114+115				155+156		170	186
		CTBH20C	48–62 HRC						●		84–88	113–115				157+158		170	
	Rough	CTBH40U	54–65 HRC						●		88	114–117				157+158		171	186
		CTBH40C	48–65 HRC						●		89	116+117				157+158		171	
		CTBH41U	48–65 HRC						●									171	
		CTBH41C	48–65 HRC						●			116+117							
	Diamond	CTD PD20					●			●	90+91	118+120	137	145		159		172+173	186
		CTD PS30					●			●	92+93	119–121	137	145+146		159+160		173	
		CTD PU20					●			●	93	119–122		146		160		173+174	
		CTD CD10					●			●	94	122				160		174	
		CTD MD05					●			●	90	118						172	

With the PCBN grades CTB S10 and CTB S20, sintered steels can also be machined. You can find the cutting data on → **page 200–203**

9

Toolfinder – holders

Toolholders and Boring Bars for negative inserts

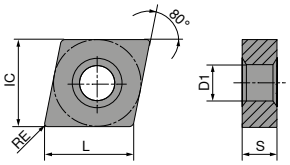
Geometry	Tool holder	Boring bars	HSK-T	PSC	Exchangeable head system	
					Exchangeable cutting heads	Basic holder
CN..	20–22	25+26	23	24	191	188–190
DN..	35+36	43+44	37–39	39–42	191+192	188–190
SN..	49–53	54	53			
TN..	59+60	61				
VN..	66		67	67+68		
WN..	74	76+77	75	75+77	192	188–190

Toolholders and boring bars for positive inserts

Geometry	Tool holder	Boring bars	HSK-T	PSC	Exchangeable head system	
					Exchangeable cutting heads	Basic holder
CC..	95–97	100–104	98+104	99	193	188–190
DC..	123–125	129–133	126+133	127+128	193+194	188–190
RC..	138–140		141			
SC..	147–149	150+151				
TC..	161+162	163				
VC..	175–178	182–184	178–184	180+181		
WC..		187				

CNMG / CNMA / CNMM

Designation	L mm	S mm	D1 mm	IC mm
CNMG 0903..	9.7	3.18	3.81	9.52
CNM. 1204..	12.9	4.76	5.16	12.70
CNM. 1606..	16.1	6.35	6.35	15.87
CNM. 1906..	19.3	6.35	7.94	19.05
CNMM 2509..	25.8	9.52	9.12	25.40



CNMG

	-CF TCM10	-CF20 CTEP110	-TFQ CTEP110	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-TFQ CTCP115
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	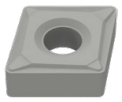	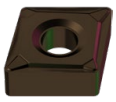					
	F	F	F	F	F	F	F
	CERMET CNMG	CERMET CNMG	CERMET CNMG	CNMG	CNMG	CNMG	CNMG
	70 101 ...	76 101 ...	76 110 ...	76 132 ...	76 132 ...	76 132 ...	76 110 ...
ISO / RE mm	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
090304EN 0.4				7.09 316	7.11 516	7.09 716	
090308EN 0.8				7.09 318	7.11 518	7.09 718	
120404EN 0.4	9.24 904	9.65 028	11.21 028	10.90 328	10.90 528	10.90 728	12.50 328
120408EN 0.8	9.24 908	9.65 030	11.21 030	10.90 330	10.90 530	10.90 730	12.50 330
120412EN 1.2			11.21 032	10.90 332	10.90 532	10.90 732	12.50 320
P	●	●	●	●	●	●	●
M	o	o	o			o	
K	o	o	o	o	o		o
N							
S							
H							
O							

9

CNMG

		-TFQ CTCP125		-XU CTCP115		-XU CTCP125		-M50 CTCK110		-M50 CTCK120		-M50 CTCP115		-M50 CTCP125	
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						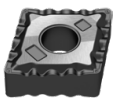		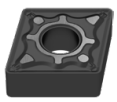		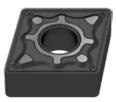		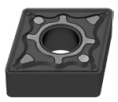		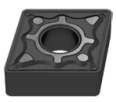	
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120404EN	0.4	12.50	528	10.94	328	10.94	528	10.90	028			10.90	328	10.90	528
120408EN	0.8	12.50	530	10.94	330	10.94	530	10.90	030	10.90	530	10.90	330	10.90	530
120412EN	1.2	12.50	532	10.94	332	10.94	532	10.90	032	10.90	532	10.90	320	10.90	532
120416EN	1.6											10.90	334	10.90	534
160608EN	0.8											17.62	342	17.62	542
160612EN	1.2											17.62	344	17.62	544
160616EN	1.6											17.62	346	17.62	546
P			●		●		●		○		○		●		●
M															
K			○		○		○		●		●		○		○
N															
S															
H															
O															

CNMG

		-M50 CTCP135		-TMQ CTCP115		-TMQ CTCP125		-M70 CTCK110		-M70 CTCK120		-M70 CTCP115		-M70 CTCP125	
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		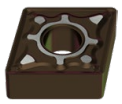		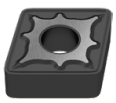		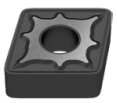		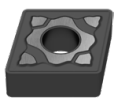		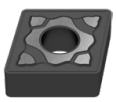		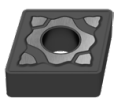		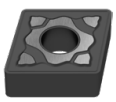	
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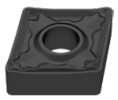
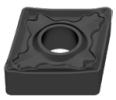
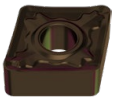
120408EN	0.8	10.90	730	12.50	33000	12.50	530	10.90	030	10.90	530	10.90	330	10.90	530
120412EN	1.2	10.90	732	12.50	320	12.50	532	10.90	032	10.90	532	10.90	320	10.90	532
120416EN	1.6	10.90	734					10.90	034	10.90	534	10.90	334	10.90	534
160608EN	0.8	17.62	742					17.62	042	17.62	542	17.62	342	17.62	542
160612EN	1.2	17.62	744					17.62	044	17.62	544	17.62	344	17.62	544
160616EN	1.6	17.62	746					17.62	046	17.62	546	17.62	346	17.62	546
160624EN	2.4											17.62	348	17.62	548
190608EN	0.8											24.89	354	24.89	554
190612EN	1.2							24.89	056	24.89	556	24.89	356	24.89	556
190616EN	1.6							24.89	058	24.89	558	24.89	358	24.89	558
190624EN	2.4											24.89	360	24.89	560
P			●		●		●		○		○		●		●
M			○												
K					○		○		●		●		○		○
N															
S															
H															
O															

CNMG / CNMA / CNMM

	-M70 CTCP135		CTCK110		CTCK120		-R28 CTCP115		-R28 CTCP125		-R28 CTCP135		-R58 CTCP115	
	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
														
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	CNMG		CNMA		CNMA		CNMM		CNMM		CNMM		CNMM	
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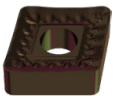
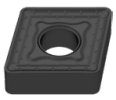
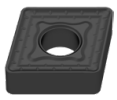
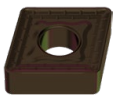
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
120404EN	0.4			10.90	028	10.90	528								
120408EN	0.8	10.90	730	10.90	030	10.90	530	11.10	330	11.10	530			11.10	330
120412EN	1.2	10.90	732	10.90	032	10.90	532	11.10	332	11.10	532	11.10	732	11.10	332
120416EN	1.6	10.90	734	10.90	034	10.90	534	11.10	334	11.10	534	11.10	734	11.10	334
160608EN	0.8	17.62	742	17.62	042	17.62	542								
160612EN	1.2	17.62	744	17.62	044	17.62	544	17.62	344	17.62	544	17.62	744	17.62	344
160616EN	1.6	17.62	746	17.62	046	17.62	546	17.62	346	17.62	546	17.62	746	17.62	346
160624EN	2.4	17.62	748											17.62	348
190608EN	0.8	24.89	754												
190612EN	1.2	24.89	756	24.89	056	24.89	556	24.89	356	24.89	556	24.89	756	24.89	356
190616EN	1.6	24.89	758	24.89	058	24.89	558	24.89	358	24.89	558	24.89	758	24.89	358
190624EN	2.4	24.89	760					24.89	360	24.89	560	24.89	760	24.89	360
250924EN	2.4							57.45	38400	57.45	58400	57.45	78400	57.45	384
P		●		○		○		●		●		●		●	
M		○										○			
K				●		●		○		○				○	
N															
S															
H															
O															

9

CNMM

		-R58 CTCP125		-R58 CTCP135		-R88 CTCP115		-R88 CTCP125		-R88 CTCP135	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
											
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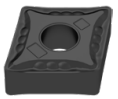
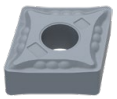
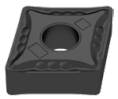
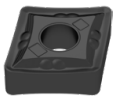
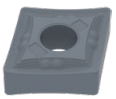
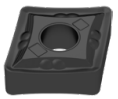
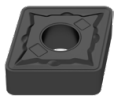
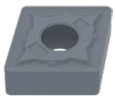
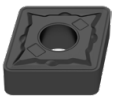
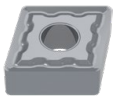
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
120408EN	0.8	11.10	530	11.10	730						
120412EN	1.2	11.10	532	11.10	732						
120416EN	1.6	11.10	534	11.10	734						
160612EN	1.2	17.62	544	17.62	744						
160616EN	1.6	17.62	546	17.62	746						
160624EN	2.4	17.62	548	17.62	748						
160624SN	2.4					17.62	348	17.62	548	17.62	748
190612EN	1.2	24.89	556	24.89	756						
190616EN	1.6	24.89	558	24.89	758						
190616SN	1.6					24.89	358	24.89	558	24.89	758
190624EN	2.4	24.89	524	24.89	760						
190624SN	2.4					24.89	360	24.89	560	24.89	760
250924EN	2.4	57.45	584	57.45	784						
250924SN	2.4					57.45	384	57.45	584	57.45	784
P			●		●		●		●		●
M					○						○
K			○				○		○		
N											
S											
H											
O											

CNMG

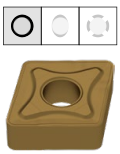
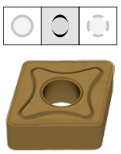
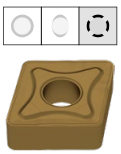
		NEW			NEW	NEW		NEW	
		-F30 CTCM120	-F30 CTPM125		-F30 CTCM130	-M30 CTCM120	-M30 CTPM125	-M30 CTCM130	
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
									
		F	F		F	M	M	M	
		CNMG	CNMG		CNMG	CNMG	CNMG	CNMG	
		75 010 ...	75 010 ...		75 010 ...	75 011 ...	75 011 ...	75 011 ...	
ISO	RE mm	£ 1A/08	£ 1A/08		£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	
120404EN	0.4	10.90 12800	10.90 280		10.90 32800				
120408EN	0.8	10.90 13000	10.90 230		10.90 33000	10.90 13000	10.90 230	10.90 33000	
120412EN	1.2					10.90 13200	10.90 232	10.90 33200	
120416EN	1.6					10.90 13400	10.90 234	10.90 33400	
P		○	○		○	○	○	○	
M		●	●		●	●	●	●	
K									
N									
S					○			○	
H									
O									

CNMG

		NEW		NEW	NEW	
		-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M34 CTPX710	
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
						
		M	M	M	M	
		CNMG	CNMG	CNMG	CNMG	
		75 012 ...	75 012 ...	75 012 ...	75 003 ...	
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	
120404EN	0.4				10.26 62800	
120408EN	0.8	10.90 13000	10.90 230	10.90 33000	10.26 63000	
120412EN	1.2	10.90 13200	10.90 232	10.90 33200	10.26 63200	
120416EN	1.6	10.90 13400	10.90 234	10.90 33400	10.26 63400	
P		○	○	○	●	
M		●	●	●	●	
K						
N					○	
S				○	●	
H						
O						

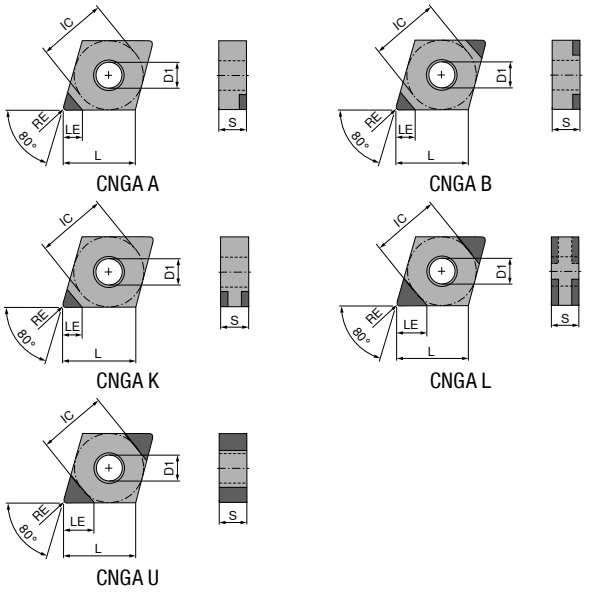
9

CNMG

		NEW	NEW	NEW	NEW	NEW
		-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25	-MRS CT-P35
						
		F	F	M	M	M
		CNMG	CNMG	CNMG	CNMG	CNMG
		75 302 ...	75 302 ...	75 303 ...	75 303 ...	75 303 ...
ISO	RE mm	£ 1S/1N	£ 1S/1N	£ 1S/1N	£ 1S/1N	£ 1S/1N
120404EN	0.4	3.27 02809	3.27 12809			
120408EN	0.8	3.27 03009	3.27 13009	3.27 03009	3.27 13009	3.27 23009
120412EN	1.2	3.27 03209	3.27 13209	3.27 03209	3.27 13209	3.27 23209
120416EN	1.6			3.27 03409	3.27 13409	3.27 23409
160612EN	1.2			4.78 04409	4.78 14409	4.78 24409
160616EN	1.6			4.78 04609	4.78 14609	4.78 24609
190612EN	1.2			7.11 05609	7.11 15609	7.11 25609
190616EN	1.6			7.11 05809	7.11 15809	7.11 25809
P		●	●	●	●	●
M		○	○	○	○	○
K						
N						
S						
H						
O						

CNGA

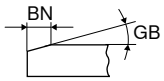
Designation	L mm	S mm	D1 mm	IC mm
CNGA 1204..	12.9	4.76	5.13	12.7



CNGA A
CNGA B
CNGA K
CNGA L
CNGA U

CNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners



	NEW	NEW	NEW		
	CTBS10U	CTBS10C	CTBS20U	CTBS20C	CTBS20C
	F	F	F	F	F
	CBN CNGA	CBN CNGA	CBN CNGA	CBN CNGA	CBN CNGA
	71 406 ...	71 408 ...	71 406 ...	71 400 ...	71 401 ...

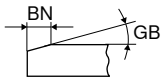
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
120402FN	0.2			A (1)	3.4	48.14	10000								
120402TN	0.2	0.12	20°	A (1)	3.4	48.14	10100								
120404SN	0.4	0.09	10°	L (4)	2.8									88.82	122
120404TN	0.4	0.09	15°	A (1)	3.1					48.14	20000				
120404TN	0.4	0.09	15°	L (4)	2.8			87.56	80000						
120404SN	0.4	0.09	15°	L (4)	2.8									88.82	132
120404SN	0.4	0.11	15°	K (2)	2.8									57.47	142
120404SN	0.4	0.11	15°	L (4)	2.8									88.82	16200
120404SN	0.4	0.09	20°	L (4)	2.8									88.82	152
120404TN	0.4	0.12	20°	A (1)	3.1	48.14	10300								
120404SN	0.4	0.14	20°	K (2)	2.8									57.47	162
120404SN	0.4	0.14	20°	L (4)	2.8									88.82	17100
120404TN	0.4	0.15	25°	L (4)	2.8			87.56	80100						
120404SN	0.4	0.18	30°	K (2)	2.8									57.47	182
120404FN	0.4			A (1)	3.1	48.14	10200								
120404SN	0.4	0.18	30°	L (4)	2.8									88.82	182
120408TN	0.8	0.09	10°	L (4)	2.5			87.56	80200						
120408SN	0.8	0.09	10°	L (4)	2.5									88.82	124
120408SN	0.8	0.09	15°	L (4)	2.5									88.82	134
120408TN	0.8	0.09	15°	L (4)	2.5			87.56	80300						
120408SN	0.8	0.11	15°	K (2)	2.5									57.47	144

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

9

CNGA

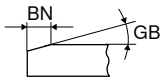
▲ TCE(NOI) = Design and number of equipped cutting edge corners



						NEW		NEW		NEW						
						CTBS10U		CTBS10C		CTBS20U		CTBS20C		CTBS20C		
						F		F		F		F		F		
						CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA		
						71 406 ...		71 408 ...		71 406 ...		71 400 ...		71 401 ...		
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		
120408SN	0.8	0.11	15°	L (4)	2.5									88.82	16300	
120408SN	0.8	0.09	20°	L (4)	2.5									88.82	154	
120408TN	0.8	0.11	20°	L (4)	2.5			87.56	80400							
120408TN	0.8	0.12	20°	A (1)	2.8	48.14	10500									
120408SN	0.8	0.14	20°	K (2)	2.5							57.47	164			
120408SN	0.8	0.14	20°	L (4)	2.5									88.82	17200	
120408TN	0.8	0.15	25°	L (4)	2.5			87.56	80500							
120408SN	0.8	0.16	25°	L (4)	2.5									88.82	18000	
120408SN	0.8	0.18	30°	K (2)	2.5							57.47	184			
120408SN	0.8	0.18	30°	L (4)	2.5									88.82	184	
120408FN	0.8			A (1)	2.8	48.14	10400									
120412SN	1.2	0.09	10°	L (4)	2.2									88.82	126	
120412TN	1.2	0.09	15°	L (4)	2.2			87.56	80600							
120412SN	1.2	0.09	15°	L (4)	2.2									88.82	136	
120412SN	1.2	0.11	15°	K (2)	2.2							57.47	146			
120412SN	1.2	0.11	15°	L (4)	2.2									88.82	16400	
120412SN	1.2	0.09	20°	L (4)	2.2									88.82	156	
120412TN	1.2	0.12	20°	A (1)	2.5	48.14	10700									
120412SN	1.2	0.14	20°	K (2)	2.2							57.47	166			
120412SN	1.2	0.14	20°	L (4)	2.2									88.82	17300	
120412TN	1.2	0.15	25°	L (4)	2.2			87.56	80700							
120412SN	1.2	0.18	30°	K (2)	2.2							57.47	186			
120412FN	1.2			A (1)	2.5	48.14	10600			48.14	20100					
120412SN	1.2	0.18	30°	L (4)	2.2									88.82	186	
P																
M																
K						●		●		●		●		●		
N																
S						●		●		●		●		●		
H																
O																

CNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners

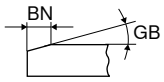


										NEW										NEW			
						CTBH15C		CTBH15C		CTBH20U		CTBH20C		CTBH20C		-Q CTBH20C							
						F		F		F		F		F		F							
						CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA							
						71 003 ...		71 005 ...		71 406 ...		71 400 ...		71 401 ...		71 407 ...							
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0							
120402FN	0.2			A (1)	3.4					48.14	40000												
120402TN	0.2	0.12	20°	A (1)	3.4					48.14	40100												
120404TN	0.4	0.09	15°	K (2)	2.8							57.47	222										
120404TN	0.4	0.09	15°	L (4)	2.8									88.82	21200								
120404SN	0.4	0.11	15°	B (2)	3.0	83.69	32814																
120404SN	0.4	0.11	20°	K (2)	2.8							57.47	25800										
120404SN	0.4	0.11	20°	L (4)	2.8									88.82	242								
120404TN	0.4	0.12	20°	A (1)	3.1					48.14	40300												
120404TN	0.4	0.11	25°	K (2)	2.8							57.47	252										
120404FN	0.4			K (2)	2.8							57.47	212										
120404FN	0.4			A (1)	3.1					48.14	40200												
120404TN	0.4	0.11	25°	L (4)	2.8									88.82	25200								
120404SN	0.4	0.13	25°	L (4)	2.8									88.82	262								
120404SN	0.4	0.14	25°	B (2)	3.0	83.69	32829																
120404RN	0.4			B (2)	3.0	83.69	22800																
120404FN	0.4			L (4)	2.8									88.82	20200								
120408TN	0.8	0.09	15°	K (2)	2.5							57.47	224										
120408SN	0.8	0.11	15°	B (2)	2.7	83.69	33014																
120408TN	0.8	0.09	20°	K (2)	2.5							57.47	234										
120408SN	0.8	0.11	20°	K (2)	2.5							57.47	26000										
120408SN	0.8	0.11	20°	L (4)	2.5									88.82	244								
120408TN	0.8	0.12	20°	A (1)	2.8					48.14	40500												
120408TN	0.8	0.11	25°	K (2)	2.5							57.47	254										
120408TN	0.8	0.11	25°	L (4)	2.5									88.82	25300								
120408FN	0.8			L (4)	2.5									88.82	20300								
120408FN	0.8			A (1)	2.8					48.14	40400												
120408SN	0.8	0.13	25°	L (4)	2.5									88.82	264								
120408SN	0.8	0.14	25°	B (2)	2.7	83.69	33029																
120408SN	0.8	0.14	30°	L (4)	2.5									88.82	274								
120408RN	0.8			B (2)	2.7	83.69	23000																
120408FN	0.8			K (2)	2.5											48.64	30000						
120412TN	1.2	0.09	15°	K (2)	2.2							57.47	226										
120412SN	1.2	0.11	15°	B (2)	2.4			83.69	33214														
120412SN	1.2	0.11	20°	K (2)	2.2							57.47	26200										
120412SN	1.2	0.11	20°	L (4)	2.2									88.82	246								
120412TN	1.2	0.11	25°	K (2)	2.2							57.47	256										
120412FN	1.2			K (2)	2.2							57.47	216										
120412TN	1.2	0.11	25°	L (4)	2.2									88.82	25400								
120412SN	1.2	0.13	25°	L (4)	2.2									88.82	266								
120412SN	1.2	0.14	25°	B (2)	2.4			83.69	33229														
120412RN	1.2			B (2)	2.4			83.69	23200														
P																							
M																							
K																							
N																							
S																							
H							●		●		●		●		●		●						
O																							

9

CNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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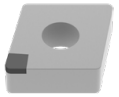
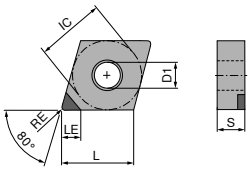
						CTBH40U	CTBH40C	CTBH40C	-Q CTBH40C	CTBH41U
										
						F	F	F	F	F
						CBN CNGA	CBN CNGA	CBN CNGA	CBN CNGA	CBN CNGA
						71 406 ...	71 400 ...	71 401 ...	71 407 ...	71 409 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0
120402FN	0.2			A (1)	3.4	48.14 50000				
120402TN	0.2	0.12	25°	A (1)	3.4	48.14 50100				
120404SN	0.4	0.09	20°	L (4)	2.8			88.82 332		
120404SN	0.4	0.11	20°	L (4)	2.8			88.82 34200		
120404SN	0.4	0.11	25°	K (2)	2.8		57.47 352			
120404SN	0.4	0.11	25°	L (4)	2.8			88.82 352		
120404TN	0.4	0.12	25°	A (1)	3.1	48.14 50300				
120404TN	0.4	0.08	30°	U (2)	2.8					158.76 70000
120404SN	0.4	0.14	30°	L (4)	2.8			88.82 372		
120404SN	0.4	0.14	35°	L (4)	2.8			88.82 38000		
120404FN	0.4			A (1)	3.1	48.14 50200				
120404SN	0.4	0.14	35°	K (2)	2.8		57.47 382			
120408SN	0.8	0.09	15°	L (4)	2.5			88.82 31200		
120408EN	0.8			L (4)	2.5			88.82 30200		
120408SN	0.8	0.09	20°	L (4)	2.5			88.82 334		
120408SN	0.8	0.11	20°	L (4)	2.5			88.82 34300		
120408SN	0.8	0.11	20°	K (2)	2.5		57.47 35800			
120408SN	0.8	0.11	25°	K (2)	2.5		57.47 354			
120408SN	0.8	0.11	25°	L (4)	2.5			88.82 354		
120408TN	0.8	0.12	25°	A (1)	2.8	48.14 50500				
120408SN	0.8	0.13	25°	L (4)	2.5			88.82 364		
120408SN	0.8	0.13	25°	K (2)	2.5		57.47 36200			
120408TN	0.8	0.08	30°	U (2)	2.6					158.76 70100
120408SN	0.8	0.14	30°	L (4)	2.5			88.82 374		
120408SN	0.8	0.14	30°	K (2)	2.5		57.47 38800		87.56 60000	
120408SN	0.8	0.14	35°	L (4)	2.5			88.82 38100		
120408EN	0.8			K (2)	2.5		57.47 314			
120408FN	0.8			A (1)	2.8	48.14 50400				
120408SN	0.8	0.14	35°	K (2)	2.5		57.47 384		87.56 60100	
120412SN	1.2	0.09	20°	L (4)	2.2			88.82 336		
120412SN	1.2	0.11	25°	K (2)	2.2		57.47 356			
120412SN	1.2	0.11	25°	L (4)	2.2			88.82 356		
120412TN	1.2	0.12	25°	A (1)	2.5	48.14 50700				
120412SN	1.2	0.13	25°	L (4)	2.2			88.82 366		
120412TN	1.2	0.08	30°	U (2)	2.4					158.76 70200
120412SN	1.2	0.14	30°	L (4)	2.2			88.82 376		
120412FN	1.2			A (1)	2.5	48.14 50600				
120412SN	1.2	0.14	35°	K (2)	2.2		57.47 386			
P										
M										
K										
N										
S										
H						●	●	●	●	●
O										

For fast and efficient determination of the most appropriate edge preparation CNGA test inserts are available. → **Page 218**

CNGA

Designation	L mm	S mm	D1 mm	IC mm
CNGA 1204..	12.9	4.76	5.13	12.7



CNGA A

CNGA

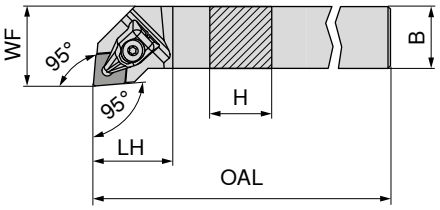
▲ TCE(NOI) = Design and number of equipped cutting edge corners

ISO	RE mm	TCE (NOI)	LE mm		NEW CTDPD20		NEW CTDPS30	
					F DIAMOND CNGA		F DIAMOND CNGA	
					71 127 ...		71 127 ...	
					£ Y0		£ Y0	
120404FN	0.4	**A (1)**	6.3		84.30	**10001**	84.30	**20001**
120408FN	0.8	**A (1)**	6.0		84.30	**10101**	84.30	**20101**
120412FN	1.2	**A (1)**	5.7		95.68	**10201**	95.68	**20201**
P								
M								
K								
N						●		●
S								
H								
O						●		●

9

MaxiLock-D – DCLN 95° – Toolholder with top clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 509 ... £ 2A/24		Right-hand 70 508 ... £ 2A/24	
DCLN R/L 1616 H09	16	16	100	23	20	2	CN.. 0903	72.86	516	72.86	516
DCLN R/L 2020 K09	20	20	125	24	25	2	CN.. 0903	81.18	520	81.18	520
DCLN R/L 2020 K12	20	20	125	32	25	4	CN.. 1204	81.18	620	81.18	620
DCLN R/L 2525 M12	25	25	150	32	32	4	CN.. 1204	83.97	625	83.97	625
DCLN R/L 3225 P12	32	25	170	32	32	4	CN.. 1204	90.08	632	90.08	632
DCLN R/L 2525 M16	25	25	150	38	32	6,5	CN.. 1606	83.97	725	83.97	725
DCLN R/L 3232 P16	32	32	170	36	40	6,5	CN.. 1606	113.40	732	113.40	732
DCLN R/L 3232 P19	32	32	170	42	40	6,5	CN.. 1906	113.40	832	113.40	832
DCLN R/L 4040 S19	40	40	250	42	50	6,5	CN.. 1906	140.98	940	140.98	940
DCLN R/L 4040 S25	40	40	250	60	50	6,5	CN.. 2509	140.98	440	140.98	440


XPress type

Key D

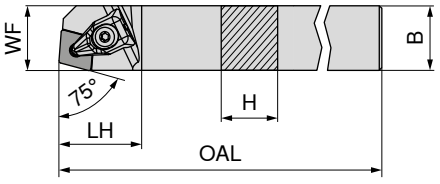

Clamping screw


Carbide type C

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 508 516 / 70 509 516	23.01	823	T09 - IP	15.51 126	M3x7 - IP	2.99 819	6.79	848
70 508 520 / 70 509 520	23.01	823	T09 - IP	15.51 126	M3x7 - IP	2.99 819	6.79	848
70 508 620 / 70 509 620	22.69	824	T15 - IP	16.56 128	M4,5x12 - IP	2.85 820	7.53	810
70 508 625 / 70 509 625	22.69	824	T15 - IP	16.56 128	M4,5x12 - IP	2.85 820	7.53	810
70 508 632 / 70 509 632	22.69	824	T15 - IP	16.56 128	M4,5x12 - IP	2.85 820	7.53	810
70 508 725 / 70 509 725	25.47	825	T20 - IP	17.39 129	M5x14 - IP	4.04 821	11.50	814
70 508 732 / 70 509 732	25.47	825	T20 - IP	17.39 129	M5x14 - IP	4.04 821	11.50	814
70 508 832 / 70 509 832	27.87	826	T20 - IP	17.39 129	M5x14 - IP	4.04 821	12.33	816
70 508 940 / 70 509 940	27.87	826	T20 - IP	17.39 129	M5x14 - IP	4.04 821	12.33	816
70 508 440 / 70 509 440	43.41	827	T25 - IP	20.07 130	M6x16 - IP	7.68 822	23.63	625

MaxiLock-D – DCBN 75° – Toolholder with top clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 501 ... £ 2A/24		Right-hand 70 500 ... £ 2A/24	
DCBN R/L 2525 M12	25	25	150	32	22	4	CN.. 1204	81.18	825	81.18	825


XPress type

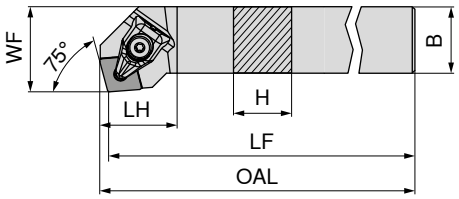
Key D


Clamping screw


Carbide type C

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 501 825 / 70 500 825	22.69	824	T15 - IP	16.56 128	M4,5x12 - IP	2.85 820	7.53	810

MaxiLock-D – DCKN 75° – Toolholder with top clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 505 ... £ 2A/24		Right-hand 70 504 ... £ 2A/24	
DCKN R/L 2525 M12	25	25	152.9	150	28.9	32	4	CN.. 1204	81.18	**825**	81.18	**825**


XPress type

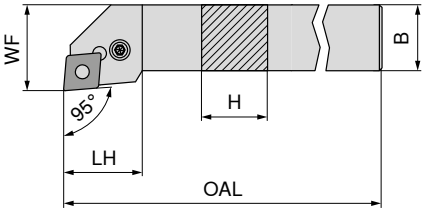
Key D


Clamping screw


Carbide type C

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 505 825 / 70 504 825	22.69	**824**	T15 - IP 16.56	**128**	M4,5x12 - IP 2.85	**820**	7.53	**810**

MaxiLock-N – PCLN 95° – Toolholder with lever clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 509 ... £ 2A/24		Right-hand 70 508 ... £ 2A/24	
PCLN R/L 1616 H12	16	16	100	26.2	20	4	CN.. 1204	72.86	**016**	72.86	**016**
PCLN R/L 2020 K12	20	20	125	27.5	25	4	CN.. 1204	81.18	**020**	81.18	**020**
PCLN R/L 2525 M12	25	25	150	28.1	32	4	CN.. 1204	83.97	**025**	83.97	**025**
PCLN R/L 3225 P12	32	25	170	28.1	32	4	CN.. 1204	90.08	**032**	90.08	**032**
PCLN R/L 2525 M16	25	25	150	32.7	32	4	CN.. 1606	83.97	**125**	83.97	**125**
PCLN R/L 3232 P16	32	32	170	32.6	40	4	CN.. 1606	113.40	**132**	113.40	**132**
PCLN R/L 3232 P19	32	32	170	38.0	40	8	CN.. 1906	113.40	**232**	113.40	**232**
PCLN R/L 4040 S19	40	40	250	38.0	50	8	CN.. 1906	140.98	**54000**	140.98	**54000**
PCLN R/L 4040 S25	40	40	250	50.0	50	8	CN.. 2509	140.98	**340**	140.98	**340**

Key I


Shim


Assembly pin


Lever

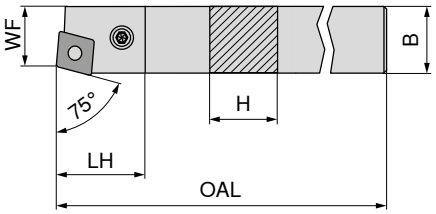

Clamping screw


Carbide type C

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 508 016 / 70 509 016	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	7.53	**233**
70 508 020 / 70 509 020	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	7.53	**233**
70 508 025 / 70 509 025	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	7.53	**233**
70 508 032 / 70 509 032	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	7.53	**233**
70 508 125 / 70 509 125	SW3	2.34	**176**	1.07	**391**	1.17	**394**	11.92	**385**	3.62	**388**	11.92	**380**
70 508 132 / 70 509 132	SW3	2.34	**176**	1.07	**391**	1.17	**394**	11.92	**385**	3.62	**388**	11.92	**380**
70 508 232 / 70 509 232	SW4	2.46	**396**	1.68	**392**	1.17	**395**	18.24	**386**	3.62	**389**	18.33	**381**
70 508 54000 / 70 509 54000	SW4	2.46	**396**	1.68	**392**	1.17	**395**	18.24	**386**	3.62	**389**	18.33	**381**
70 508 340 / 70 509 340	SW5	3.52	**265**	1.07	**621**	1.81	**623**	24.65	**620**	2.17	**622**	23.63	**624**

MaxiLock-N – PCBN 75° – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 501 ... £ 2A/24		Right-hand 70 500 ... £ 2A/24	
PCBN R/L 2525 M12	25	25	150	27.70	22	4	CN.. 1204	81.18	**025**	81.18	**025**
PCBN R/L 2525 M16	25	25	150	31.81	22	4	CN.. 1606	81.18	**12500**	81.18	**125**
PCBN R/L 3232 P19	32	32	170	38.00	27	8	CN.. 1906	113.40	**032**	113.40	**032**


Key I


Shim


Assembly pin


Lever

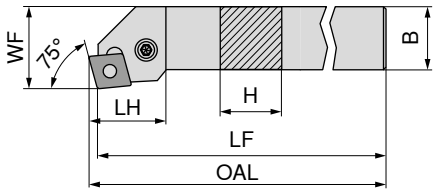

Clamping screw


Carbide type C

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 500 025 / 70 501 025	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	7.53	**233**
70 500 125 / 70 501 12500	SW3	2.34	**176**	1.07	**391**	1.17	**394**	11.92	**385**	3.62	**388**	11.92	**380**
70 500 032 / 70 501 032	SW4	2.46	**396**	1.68	**392**	1.17	**395**	18.24	**386**	3.62	**389**	18.33	**381**

MaxiLock-N – PCKN 75° – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 505 ... £ 2A/24		Right-hand 70 504 ... £ 2A/24	
PCKN R/L 2525 M12	25	25	153.07	150	31.4	32	4	CN.. 1204	81.18	**025**	81.18	**025**


Key I


Shim


Assembly pin

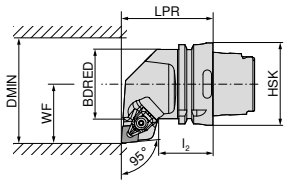

Lever


Clamping screw


Carbide type C

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 505 025 / 70 504 025	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	7.53	**233**

MaxiLock-D – DCLN 95° – Toolholder with top clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 504 ... £ 2D/80		Right-hand 74 503 ... £ 2D/80	
HSK T63 DCLN R/L 12	HSK-T 63	70	42	53	45	100	4	CN.. 1204	327.86	**512**	327.86	**512**
HSK T63 DCLN R/L 16	HSK-T 63	70	42	53	45	125	4	CN.. 1606	327.86	**516**	327.86	**516**
HSK T63 DCLN R/L 19	HSK-T 63	70	42	53	45	125	8	CN.. 1906	327.86	**519**	327.86	**519**
HSK T100 DCLN R/L 12	HSK-T 100	80	45	88	55	125	4	CN.. 1204	384.89	**712**	384.89	**712**
HSK T100 DCLN R/L 19	HSK-T 100	80	45	88	55	125	8	CN.. 1906	384.89	**719**	384.89	**719**


XPress type


Key D

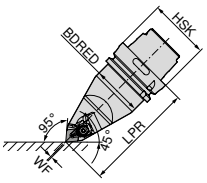

Clamping screw


Carbide type C

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 504 512 / 74 503 512	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	7.53	**810**
74 504 516 / 74 503 516	25.47	**825**	T20 - IP	17.39 **129**	M5x14 - IP	4.04 **821**	11.50	**814**
74 504 519 / 74 503 519	27.87	**826**	T20 - IP	17.39 **129**	M5x14 - IP	4.04 **821**	12.33	**816**
74 504 712 / 74 503 712	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	7.53	**810**
74 504 719 / 74 503 719	27.87	**826**	T20 - IP	17.39 **129**	M5x14 - IP	4.04 **821**	12.33	**816**

9

MaxiLock-D – DCMN 95° – Toolholder with top clamping





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 506 ... £ 2D/80	
HSK T63 DCMN N 12	HSK-T 63	115	53	0	4	CN.. 1204	449.76	**512**
HSK T100 DCMN N 12	HSK-T 100	150	88	0	4	CN.. 1204	529.00	**712**


XPress type


Key D


Clamping screw

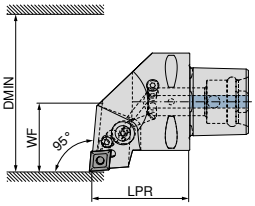

Carbide type C

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 506 512	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	7.53	**810**
74 506 712	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	7.53	**810**

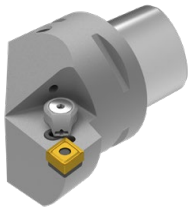
MaxiLock-N – PCLN 95° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 657 ... £ Y8		NEW Right-hand 84 656 ... £ Y8	
PSC40 PCLN R/L 50050-12	PSC 40	50	27	50	5	CN.. 1204	DC	500.81	**01295**	500.81	**01295**
PSC50 PCLN R/L 65060-12	PSC 50	60	35	65	5	CN.. 1204	DC	551.40	**01294**	551.40	**01294**
PSC63 PCLN R/L 80065-12	PSC 63	65	45	80	5	CN.. 1204	DC	626.01	**01293**	626.01	**01293**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.


Shim


Elbow lever screw


Lever

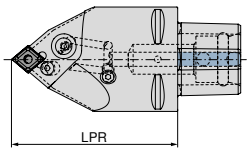

Carbide type C

Spare parts Adapter	Shim 84 950 ... £ Y8			Elbow lever screw 84 950 ... £ Y8		Lever 84 950 ... £ Y8		Carbide type C 84 950 ... £ Y8	
PSC 40	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	29.36	**29000**	28.67	**27800**
PSC 50	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	29.36	**29000**	28.67	**27800**
PSC 63	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	29.36	**29000**	28.67	**27800**

MaxiLock-N – PCMN 50° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set







ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	NEW Neutral 84 675 ... £ Y8	
PSC63 PCMN N 0100-12	PSC 63	100	5	CN.. 1204	DC	626.01	**01293**
PSC63 PCMN N 0130-12	PSC 63	130	5	CN.. 1204	DC	626.01	**11293**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.


Shim


Elbow lever screw

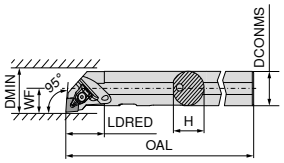

Lever


Carbide type C

Spare parts Adapter	Shim 84 950 ... £ Y8			Elbow lever screw 84 950 ... £ Y8		Lever 84 950 ... £ Y8		Carbide type C 84 950 ... £ Y8	
PSC 63	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	29.36	**29000**	28.67	**27800**

MaxiLock-D – DCLN 95° – Boring bar with top clamping







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 557 ... £ 2A/24		Right-hand 70 556 ... £ 2A/24	
A20Q DCLN R/L 09	20	19	180	35	13	25	2	CN.. 0903	190.33	**720**	190.33	**720**
A25R DCLN R/L 12	25	24	200	36	17	32	4	CN.. 1204	212.10	**825**	212.10	**825**
A32S DCLN R/L 12	32	31	250	40	22	40	4	CN.. 1204	219.36	**832**	219.36	**832**
A40T DCLN R/L 12	40	39	300	45	27	50	4	CN.. 1204	244.37	**840**	244.37	**840**
A40U DCLN L 16	50	47	350	45	35	63	6,5	CN.. 1606	302.40	**85000**		


XPress type


Key D


Clamping screw


Carbide type C

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 556 720 / 70 557 720	23.01	**823**	T09 - IP	15.51 **126**	M3x7 - IP	2.99 **819**	6.79	**848**
70 556 825 / 70 557 825	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**		
70 556 832 / 70 557 832	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	7.53	**810**
70 556 840 / 70 557 840	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	7.53	**810**
70 557 85000	25.47	**825**	T20 - IP	17.39 **129**	M5x14 - IP	4.04 **821**	11.50	**814**

MaxiLock-N – PCLN 95° – Boring bar with lever clamping

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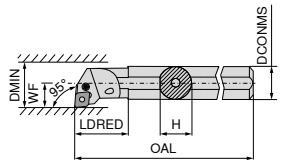
- ▲ A... = with thro' coolant
- ▲ S... = without thro' coolant







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 557 ... £ 2A/24		Right-hand 70 556 ... £ 2A/24	
A25R PCLN R/L 12	25	23	200	36.0	17	32	4	CN.. 1204	212.10	**225**	212.10	**225**
S25T PCLN R/L 12	25	23	300	22.0	17	32	4	CN.. 1204	212.10	**025**	212.10	**025**
A32S PCLN R/L 12	32	30	250	50.0	22	40	4	CN.. 1204	219.36	**232**	219.36	**232**
S32U PCLN R/L 12	32	30	350	24.1	22	40	4	CN.. 1204	219.36	**032**	219.36	**032**
A40T PCLN R/L 12	40	38	300	60.0	27	50	4	CN.. 1204	244.37	**240**	244.37	**240**
S40V PCLN R/L 12	40	38	400	24.1	27	50	4	CN.. 1204	244.37	**040**	244.37	**04000**[1)]
S50W PCLN R/L 16	50	47	450	31.0	35	63	4	CN.. 1606	302.40	**050**	302.40	**050**

1) nickel-plated


Key I


Shim


Assembly pin


Lever


Clamping screw

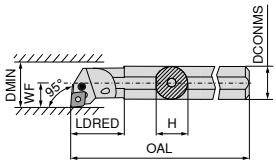

Carbide type C

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 556 225 / 70 557 225	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	4.08	**205**	7.53	**233**
70 556 025 / 70 557 025	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	4.08	**205**	7.53	**233**
70 556 232 / 70 557 232	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	4.08	**205**	7.53	**233**
70 556 032 / 70 557 032	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	4.08	**205**	7.53	**233**
70 556 240 / 70 557 240	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	7.53	**233**
70 556 04000 / 70 557 040	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	7.53	**233**
70 556 050 / 70 557 050	SW3	2.34	**176**	1.07	**391**	1.17	**394**	11.92	**385**	3.62	**388**	11.92	**380**

MaxiLock-N – PCLN 95° – Boring bar with lever clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 559 ... £ 2A		Right-hand 70 558 ... £ 2A	
E-A25R PCLN R/L 12	25	23	200	40	17	31	4	CN.. 1204	677.34	025	677.34	025
E-A32S PCLN R/L 12	32	30	250	50	22	39	4	CN.. 1204	894.13	032	894.13	032
E-A40T PCLN R/L 12	40	38	300	60	27	48	4	CN.. 1204	1,067.18	040	1,067.18	040


Key I


Shim


Assembly pin


Lever

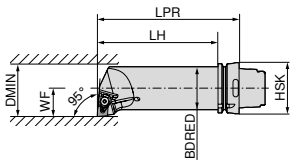

Clamping screw


Carbide type C

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 558 025 / 70 559 025	SW3	2.34	176	1.68	198	1.17	192	12.02	187	4.08	205	7.53	233
70 558 032 / 70 559 032	SW3	2.34	176	1.68	198	1.17	192	12.02	187	4.08	205	7.53	233
70 558 040 / 70 559 040	SW3	2.34	176	1.68	198	1.17	192	12.02	187	3.34	209	7.53	233

MaxiLock-D – DCLN 95° – Boring bar with top clamping





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 529 ... £ 2D/80		Right-hand 74 528 ... £ 2D/80	
HSK T63 50Q DCLN R/L 12	HSK-T 63	175	149	50	35	63	4	CN.. 1204	449.76	512	449.76	512


XPress type

Key D

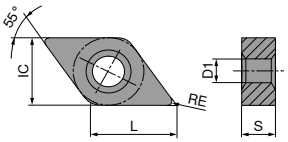

Clamping screw


Carbide type C

Spare parts for Article no.		70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 528 512 / 74 529 512		22.69	824	T15 - IP	16.56	128	M4,5x12 - IP	2.85	820	7.53	810

DNMG / DNMA / DNMM

Designation	L mm	S mm	D1 mm	IC mm
DNMG 1104..	11.6	4.76	3.81	9.52
DNMG 1504..	15.5	4.76	5.16	12.70
DNM. 1506..	15.5	6.35	5.16	12.70



DNMG

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	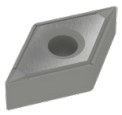	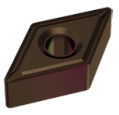	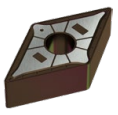	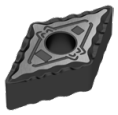	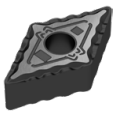		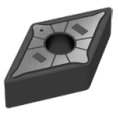
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110404EN 0.4	11.10 904	11.63 004		11.63 304	11.63 504	11.63 704	
110408EN 0.8		11.63 006		11.63 306	11.63 506	11.63 706	
110412EN 1.2				11.63 308	11.63 508	11.63 708	
150404EN 0.4				14.10 316	14.10 516	14.10 716	
150408EN 0.8				14.10 318	14.10 518	14.10 718	
150412EN 1.2				14.10 320	14.10 520	14.10 720	
150604EN 0.4	14.54 914	15.28 028	16.98 028	15.28 328	15.28 528	15.28 728	17.62 32800
150608EN 0.8		15.28 030	16.98 030	15.28 330	15.28 530	15.28 730	17.62 330
150612EN 1.2		15.28 032		15.28 332	15.28 532	15.28 732	
P	●	●	●	●	●	●	●
M	o	o	o			o	
K	o	o	o	o	o		o
N							
S							
H							
O							

9

DNMG

		-TFQ CTCP125		-XU CTCP115		-XU CTCP125		-M50 CTCK110		-M50 CTCK120		-M50 CTCP115		-M50 CTCP125	
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		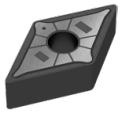						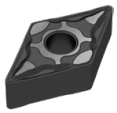		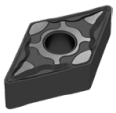		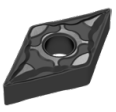		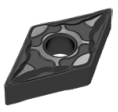	
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110404EN	0.4											11.63	304	11.63	504
110408EN	0.8											11.63	306	11.63	506
110412EN	1.2											11.63	308	11.63	508
150404EN	0.4											14.10	316	14.10	514
150408EN	0.8							14.10	018	14.10	518	14.10	318	14.10	518
150412EN	1.2							14.10	020	14.10	520	14.10	320	14.10	516
150416EN	1.6											14.10	322	14.10	522
150604EN	0.4	17.62	528	15.28	328	15.28	528					15.28	328	15.28	528
150608EN	0.8	17.62	530	15.28	330	15.28	530	15.28	030	15.28	530	15.28	330	15.28	530
150612EN	1.2			15.28	332	15.28	532	15.28	032	15.28	532	15.28	332	15.28	532
150616EN	1.6											15.28	334	15.28	534
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M															
K		○		○		○		●		●		○		○	
N															
S															
H															
O															

DNMG

	-M50 CTCP135		-TMQ CTCP125		-M70 CTCK110		-M70 CTCK120		-M70 CTCP115		-M70 CTCP125		-M70 CTCP135	
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	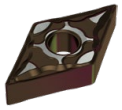		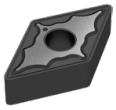		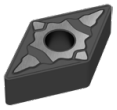		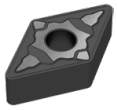		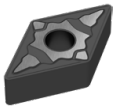		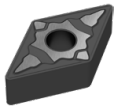		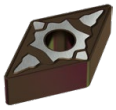	
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	DNMG		DNMG		DNMG		DNMG		DNMG		DNMG		DNMG	
	76 136 ...		76 197 ...		70 263 ...		70 263 ...		76 263 ...		76 263 ...		76 263 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
110404EN	0.4	11.63	704												
110408EN	0.8	11.63	706							11.63	306	11.63	506	11.63	706
110412EN	1.2	11.63	708							11.63	308	11.63	508	11.63	708
150404EN	0.4	14.10	716												
150408EN	0.8	14.10	718			14.10	018	14.10	518	14.10	318	14.10	518	14.10	718
150412EN	1.2	14.10	720			14.10	020	14.10	520	14.10	320	14.10	520	14.10	720
150416EN	1.6	14.10	722							14.10	322	14.10	522	14.10	722
150604EN	0.4	15.28	728												
150608EN	0.8	15.28	730	17.62	530	15.28	030	15.28	530	15.28	330	15.28	530	15.28	730
150612EN	1.2	15.28	732	17.62	532	15.28	032	15.28	532	15.28	332	15.28	532	15.28	732
150616EN	1.6	15.28	734			15.28	034	15.28	534	15.28	334	15.28	534	15.28	734
P		●		●		○		○		●		●		●	
M		○												○	
K				○		●		●		○		○			
N															
S															
H															
O															

DNMA / DNMM

	CTCK110		CTCK120		-R28 CTCP115		-R28 CTCP125		-R28 CTCP135		-R58 CTCP115		-R58 CTCP125	
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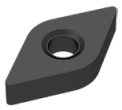
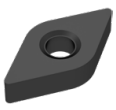
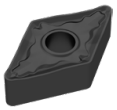
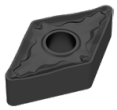
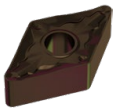
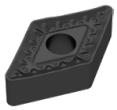
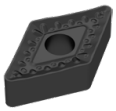
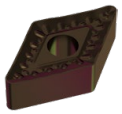
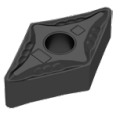
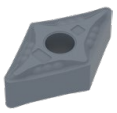
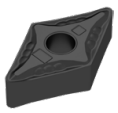
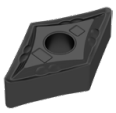
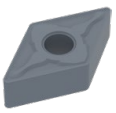
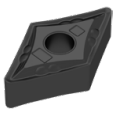
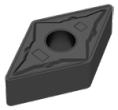
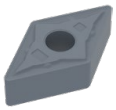
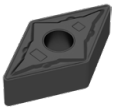
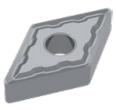
														
	R		R		R		R		R		R		R	
	DNMA		DNMA		DNMM		DNMM		DNMM		DNMM		DNMM	
	70 156 ...		70 156 ...		76 165 ...		76 165 ...		76 165 ...		76 166 ...		76 166 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
150408EN	0.8	14.10	018	14.10	518										
150412EN	1.2	14.10	020	14.10	520										
150608EN	0.8	15.28	030	15.28	530										
150612EN	1.2	15.28	032	15.28	532	15.28	332	15.28	532	15.28	732	15.28	332	15.28	532
150616EN	1.6					15.28	334	15.28	534	15.28	734	15.28	334	15.28	534
P		○		○		●		●		●		●		●	
M										○					
K		●		●		○		○				○		○	
N															
S															
H															
O															

9

DNMM / DNMG

			NEW			NEW	NEW		NEW
		-R58 CTCP135	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125	-M30 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	F	F	F	M	M	M
		DNMM	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
		76 166 ...	75 013 ...	75 013 ...	75 013 ...	75 014 ...	75 014 ...	75 014 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
110404EN	0.4		11.63 10400	11.63 204	11.63 30400			
110408EN	0.8		11.63 10600	11.63 206	11.63 30600	11.63 10600	11.63 206	11.63 30600
110412EN	1.2					11.63 10800	11.63 208	11.63 30800
150604EN	0.4		15.28 12800	15.28 228	15.28 32800			
150608EN	0.8		15.28 13000	15.28 230	15.28 33000	15.28 13000	15.28 230	15.28 33000
150612EN	1.2	15.28 732				15.28 13200	15.28 232	15.28 33200
150616EN	1.6	15.28 734						
P		●	○	○	○	○	○	○
M		○	●	●	●	●	●	●
K								
N								
S					○			○
H								
O								

DNMG

				NEW		NEW	NEW
				-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M34 CTPX710
				DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
				M	M	M	M
				DNMG	DNMG	DNMG	DNMG
				75 015 ...	75 015 ...	75 015 ...	75 004 ...
ISO	RE mm			£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
150404EN	0.4						14.73 61600
150408EN	0.8						14.73 61800
150412EN	1.2						14.73 62000
150608EN	0.8			15.28 13000	15.28 230	15.28 33000	16.14 63000
150612EN	1.2			15.28 13200	15.28 232	15.28 33200	16.14 63200
P				○	○	○	●
M				●	●	●	●
K							
N							○
S						○	●
H							
O							

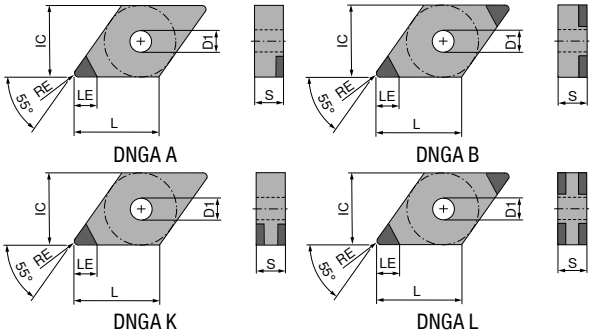
DNMG

		NEW	NEW	NEW	NEW	NEW
		-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25	-MRS CT-P35
						
		F	F	M	M	M
		DNMG	DNMG	DNMG	DNMG	DNMG
		75 306 ...	75 306 ...	75 307 ...	75 307 ...	75 307 ...
ISO	RE mm	£ 1S/1N	£ 1S/1N	£ 1S/1N	£ 1S/1N	£ 1S/1N
150404EN	0.4	4.20 01609	4.20 11609			
150408EN	0.8	4.20 01809	4.20 11809	4.20 01809	4.20 11809	
150604EN	0.4	4.41 02809	4.41 12809			
150608EN	0.8	4.41 03009	4.41 13009	4.41 03009	4.41 13009	4.41 23009
150612EN	1.2	4.41 03209	4.41 13209	4.41 03209	4.41 13209	4.41 23209
150616EN	1.6			4.41 03409	4.41 13409	4.41 23409
P		●	●	●	●	●
M		○	○	○	○	○
K						
N						
S						
H						
O						

9

DNGA

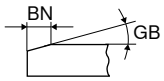
Designation	L mm	S mm	D1 mm	IC mm
DNGA 1504..	15.5	4.76	5.13	12.7
DNGA 1506..	15.5	6.35	5.16	12.7
DNGA 1506..	15.5	6.35	5.13	12.7



DNGA A DNGA B DNGA K DNGA L

DNGA

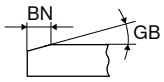
▲ TCE(NOI) = Design and number of equipped cutting edge corners

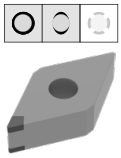
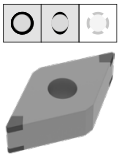
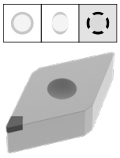
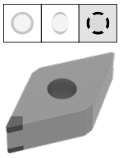
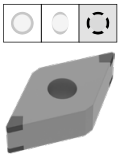


						NEW		NEW						NEW	
						CTBS20U		CTBS20C		CTBS20C		CTBH15C		CTBH20U	
						F		F		F		F		F	
						CBN DNGA		CBN DNGA		CBN DNGA		CBN DNGA		CBN DNGA	
						71 410 ...		71 411 ...		71 403 ...		71 017 ...		71 410 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
150604SN	0.4	0.09	10°	L (4)	2.8					88.82	122				
150604SN	0.4	0.09	15°	L (4)	2.8					88.82	132				
150604TN	0.4	0.09	15°	A (1)	3.5	48.14	20000								
150604SN	0.4	0.11	15°	B (2)	2.8							83.69	32814		
150604SN	0.4	0.09	20°	L (4)	2.8					88.82	152				
150404SN	0.4	0.09	20°	L (4)	2.8					88.82	10200				
150604SN	0.4	0.09	20°	K (2)	2.8			48.64	20000						
150604TN	0.4	0.12	20°	A (1)	3.5									48.14	40500
150404TN	0.4	0.12	20°	A (1)	3.5									48.14	40100
150604SN	0.4	0.14	25°	B (2)	2.8							83.69	32829		
150604FN	0.4			A (1)	3.5									48.14	40400
150604SN	0.4	0.18	30°	L (4)	2.8					88.82	182				
150404FN	0.4			A (1)	3.5									48.14	40000
150608SN	0.8	0.09	10°	L (4)	2.6					88.82	124				
150608SN	0.8	0.09	15°	L (4)	2.6					88.82	134				
150608TN	0.8	0.09	15°	A (1)	3.0	48.14	20100								
150608TN	0.8	0.09	15°	A (1)	5.0	85.61	20200								
150608SN	0.8	0.11	15°	K (2)	2.6			48.64	20100						
150608SN	0.8	0.11	15°	B (2)	2.6							83.69	33014		
150608SN	0.8	0.09	20°	L (4)	2.6					88.82	154				
150408SN	0.8	0.09	20°	L (4)	2.6					88.82	10300				
150608TN	0.8	0.12	20°	A (1)	3.0									48.14	40700
150408TN	0.8	0.12	20°	A (1)	3.0									48.14	40300
150608SN	0.8	0.14	25°	B (2)	2.6							83.69	33029		
150608SN	0.8	0.16	25°	K (2)	2.6			48.64	20200						
150608SN	0.8	0.18	30°	L (4)	2.6					88.82	184				
150608FN	0.8			A (1)	3.0									48.14	40600
150408FN	0.8			A (1)	3.0									48.14	40200
150612SN	1.2	0.11	15°	B (2)	2.8							83.69	33214		
150612SN	1.2	0.14	25°	B (2)	2.8							83.69	33229		
P															
M															
K							●		●		●				
N															
S							●		●		●				
H													●		●
O															

DNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners



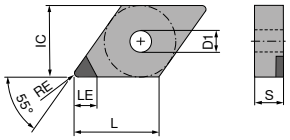
										NEW										
						CTBH20C		CTBH20C		CTBH40U		CTBH40C		CTBH40C						
																					
						F		F		F		F		F						
						CBN DNGA		CBN DNGA		CBN DNGA		CBN DNGA		CBN DNGA						
						71 402 ...		71 403 ...		71 410 ...		71 402 ...		71 403 ...						
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0						
150604FN	0.4			A (1)	3.5					48.14	50400									
150604TN	0.4	0.09	15°	K (2)	2.8	57.47	222													
150604SN	0.4	0.09	20°	K (2)	2.8							57.47	32600							
150404SN	0.4	0.09	20°	L (4)	2.8									88.82	30200					
150604SN	0.4	0.09	20°	L (4)	2.8									88.82	332					
150404SN	0.4	0.11	20°	L (4)	2.8									88.82	30300					
150604SN	0.4	0.11	20°	K (2)	2.8	57.47	24200													
150604SN	0.4	0.11	20°	L (4)	2.8			88.82	242											
150604SN	0.4	0.11	25°	K (2)	2.8							57.47	352							
150404TN	0.4	0.11	25°	L (4)	2.8			88.82	20200											
150604TN	0.4	0.11	25°	L (4)	2.8			88.82	24800											
150404SN	0.4	0.11	25°	L (4)	2.8									88.82	30400					
150604TN	0.4	0.11	25°	K (2)	2.8	57.47	252													
150604SN	0.4	0.11	25°	L (4)	2.8									88.82	352					
150404TN	0.4	0.12	25°	A (1)	3.5					48.14	50100									
150604TN	0.4	0.12	25°	A (1)	3.5					48.14	50500									
150604SN	0.4	0.13	25°	L (4)	2.8			88.82	262											
150404FN	0.4			A (1)	3.5					48.14	50000									
150404SN	0.4	0.13	25°	L (4)	2.8			88.82	20300											
150604SN	0.4	0.14	30°	L (4)	2.8									88.82	372					
150604SN	0.4	0.14	35°	K (2)	2.8							57.47	382							
150604FN	0.4			L (4)	2.8			88.82	29300											
150604FN	0.4			K (2)	2.8	57.47	212													
150604SN	0.4	0.14	35°	L (4)	2.8									88.82	37500					
150408FN	0.8			A (1)	3.0					48.14	50200									
150608TN	0.8	0.09	15°	K (2)	2.6	57.47	224													
150608SN	0.8	0.09	20°	L (4)	2.6									88.82	334					
150608SN	0.8	0.11	20°	K (2)	2.6	57.47	24300					57.47	34200							
150608SN	0.8	0.11	20°	L (4)	2.6			88.82	244					88.82	34400					
150408SN	0.8	0.11	20°	L (4)	2.6									88.82	30500					
150608SN	0.8	0.11	25°	K (2)	2.6							57.47	354							
150408TN	0.8	0.11	25°	L (4)	2.6			88.82	20500											
150608TN	0.8	0.11	25°	L (4)	2.6			88.82	24900											
150408SN	0.8	0.11	25°	L (4)	2.6									88.82	30600					
150608TN	0.8	0.11	25°	K (2)	2.6	57.47	254													
150608SN	0.8	0.11	25°	L (4)	2.6									88.82	354					
150408TN	0.8	0.12	25°	A (1)	3.0					48.14	50300									
150608FN	0.8			A (1)	3.0					48.14	50600									
150608TN	0.8	0.12	25°	A (1)	3.0					48.14	50700									
150608SN	0.8	0.13	25°	K (2)	2.6	57.47	26000													
150608SN	0.8	0.13	25°	L (4)	2.6			88.82	264					88.82	364					
150408SN	0.8	0.14	30°	L (4)	2.6									88.82	30700					
150608SN	0.8	0.14	30°	L (4)	2.6			88.82	274					88.82	374					
150608SN	0.8	0.14	35°	K (2)	2.6							57.47	384							
150608FN	0.8			L (4)	2.6			88.82	29400											
150408FN	0.8			L (4)	2.6			88.82	20400											
150608FN	0.8			K (2)	2.6	57.47	214													
150608SN	0.8	0.14	35°	L (4)	2.6									88.82	37600					

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

9

DNGA

Designation	L mm	S mm	D1 mm	IC mm
DNGA 1504..	15.5	4.76	5.13	12.7
DNGA 1506..	15.5	6.35	5.13	12.7

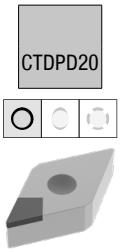


DNGA A

DNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners

NEW



F
DIAMOND
DNGA

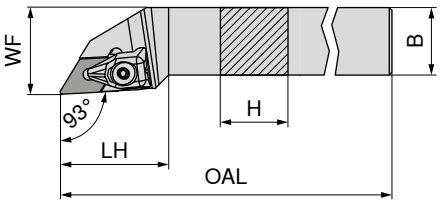
71 128 ...

ISO	RE mm	TCE (NOI)	LE mm	£ Y0	
150404FN	0.4	A (1)	6.4	84.30	10001
150408FN	0.8	A (1)	6.0	84.30	10101
150412FN	1.2	A (1)	5.6	98.91	10201
150604FN	0.4	A (1)	6.4	84.30	10301
150608FN	0.8	A (1)	6.0	84.30	10401
150612FN	1.2	A (1)	5.6	98.91	10501

P	
M	
K	
N	●
S	
H	
O	●

MaxiLock-D – DDJN 93° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 541 ... £ 2A/24		Right-hand 70 540 ... £ 2A/24	
DDJN R/L 1616 H11	16	16	100	33	20	2	DN.. 1104	72.86	**816**	72.86	**816**
DDJN R/L 2020 K11	20	20	125	33	25	2	DN.. 1104	81.18	**820**	81.18	**820**
DDJN R/L 2525 M11	25	25	150	33	32	2	DN.. 1104	83.97	**825**	83.97	**825**
DDJN R/L 2020 K15	20	20	125	40	25	4	DN.. 1504 / 1506	81.18	**720**	81.18	**720**
DDJN R/L 2525 M15	25	25	150	40	32	4	DN.. 1504 / 1506	83.97	**725**	83.97	**725**
DDJN R/L 3225 P15	32	25	170	40	32	4	DN.. 1504 / 1506	90.08	**832**	90.08	**832**

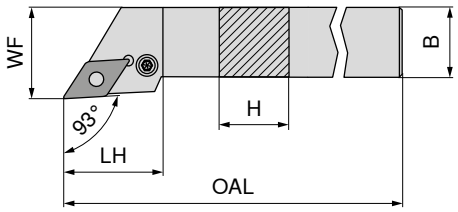
When using DN.. 1504 indexable inserts, use insert seat article no. 70 950 40000.

Spare parts for Article no.	XPress type 70 950 ... £ 2A/28		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat D 70 950 ... £ 2A/28	
70 541 816 / 70 540 816	27.46	**835**	T09 - IP	15.51 **126**	M3x7 - IP	2.99 **819**	3.37	**808**
70 541 820 / 70 540 820	27.46	**835**	T09 - IP	15.51 **126**	M3x7 - IP	2.99 **819**	3.37	**808**
70 541 825 / 70 540 825	27.46	**835**	T09 - IP	15.51 **126**	M3x7 - IP	2.99 **819**	3.37	**808**
70 541 720 / 70 540 720	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	7.53	**811**
70 541 725 / 70 540 725	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	7.53	**811**
70 541 832 / 70 540 832	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	7.53	**811**

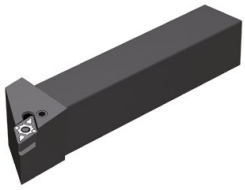
9

MaxiLock-N – PDJN 93° – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 541 ... £ 2A/24		Right-hand 70 540 ... £ 2A/24	
PDJN R/L 1616 H11	16	16	100	30.0	20	3	DN.. 1104	72.86	**116**	72.86	**116**
PDJN R/L 2020 K11	20	20	125	30.0	25	3	DN.. 1104	81.18	**12000**[1)]	81.18	**12000**[1)]
PDJN R/L 2525 M11	25	25	150	30.0	32	3	DN.. 1104	83.97	**12500**[1)]	83.97	**12500**[1)]
PDJN R/L 2020 K15	20	20	125	34.9	25	3,2	DN.. 1506	81.18	**020**	81.18	**020**
PDJN R/L 2525 M15	25	25	150	35.4	32	3,2	DN.. 1506	83.97	**025**	83.97	**025**
PDJN R/L 3225 P15	32	25	170	35.4	32	3,2	DN.. 1506	90.08	**032**	90.08	**032**
PDJN R/L 3232 P15	32	32	170	34.7	40	3,2	DN.. 1506	113.40	**13200**	113.40	**13200**

1) nickel-plated


Key I


Shim

Assembly pin


Lever

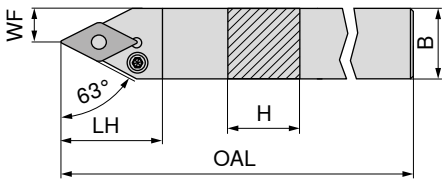

Clamping screw


Solid Carbide Seat D

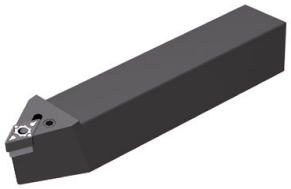
Spare parts for Article no.		70 950 ... £ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28	
70 540 116 / 70 541 116	SW2,5	2.34	**175**	1.96	**122**	1.17	**191**	14.29	**121**	3.05	**208**	6.88	**120**
70 540 12000 / 70 541 12000	SW2,5	2.34	**175**	1.96	**122**	1.17	**191**	14.29	**121**	3.05	**208**	6.88	**120**
70 540 12500 / 70 541 12500	SW2,5	2.34	**175**	1.96	**122**	1.17	**191**	14.29	**121**	3.05	**208**	6.88	**120**
70 540 020 / 70 541 020	SW3	2.34	**176**	1.68	**198**	1.17	**192**	13.06	**188**	3.62	**388**	7.53	**236**
70 540 025 / 70 541 025	SW3	2.34	**176**	1.68	**198**	1.17	**192**	13.06	**188**	3.62	**388**	7.53	**236**
70 540 032 / 70 541 032	SW3	2.34	**176**	1.68	**198**	1.17	**192**	13.06	**188**	3.62	**388**	7.53	**236**
70 540 13200 / 70 541 13200	SW3	2.34	**176**	1.68	**198**	1.17	**192**	13.06	**188**	3.62	**388**		

MaxiLock-N – PDNN 63° – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 537 ... £ 2A/24		Right-hand 70 536 ... £ 2A/24	
PDNN R/L 2525 M11	25	25	150	30.0	12.5	3	DN.. 1104	83.97	**125**	83.97	**125**
PDNN R/L 2525 M15	25	25	150	36.5	12.5	3,2	DN.. 1506	83.97	**025**	83.97	**025**


Key I


Shim

Assembly pin

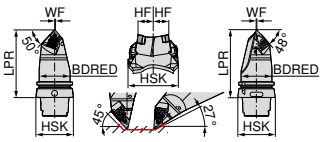

Lever


Clamping screw


Solid Carbide Seat D

Spare parts for Article no.		70 950 ... £ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28	
70 537 125 / 70 536 125	SW2,5	2.34	**175**	1.96	**122**	1.17	**191**	14.29	**121**	3.05	**208**	6.88	**120**
70 537 025 / 70 536 025	SW3	2.34	**176**	1.68	**198**	1.17	**192**	13.06	**188**	3.62	**388**	7.53	**236**

MaxiLock-D – DCMN + DDMN – Toolholder with top clamping



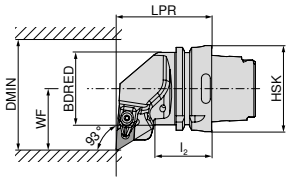


ISO designation	Adapter	LPR mm	BDRED mm	WF mm	HF mm	torque moment Nm	Insert	Neutral 74 600 ... £ 2D/80	
HSK T63 DCMN L 12 + DDMN L 15	HSK-T 63	115	53	0.5	20	4	CN.. 1204 / DN.. 1506	848.89	**501**
HSK T100 DCMN L 12 + DDMN L 15	HSK-T 100	150	88	0.5	20	4	CN.. 1204 / DN.. 1506	969.28	**701**

Face turning maximum 78 mm

	XPress type		Key D		Clamping screw		Solid Carbide Seat D		Carbide type C	
	70 950 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...	
Spare parts for Article no.	£ 2A/28		£ Y7		£ 2A/28		£ 2A/28		£ 2A/28	
74 600 501	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	7.53	**811**	7.53	**810**
74 600 701	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	7.53	**811**	7.53	**810**

MaxiLock-D – DDUN 93° – Toolholder with top clamping



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 516 ... £ 2D/80		Right-hand 74 515 ... £ 2D/80	
HSK T63 DDUN R/L 15	HSK-T 63	70	42	53	45	125	4	DN.. 1506	327.86	**515**	327.86	**515**
HSK T100 DDUN R/L 15	HSK-T 100	80	45	88	55	125	4	DN.. 1506	384.89	**715**	384.89	**715**

	XPress type		Key D		Clamping screw		Solid Carbide Seat D	
	70 950 ...		80 950 ...		70 950 ...		70 950 ...	
Spare parts for Article no.	£ 2A/28		£ Y7		£ 2A/28		£ 2A/28	
74 516 515 / 74 515 515	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	7.53	**811**
74 516 715 / 74 515 715	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	7.53	**811**

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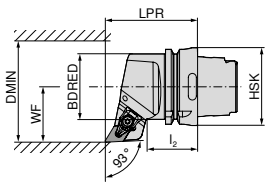
MaxiLock-D – DDJN 93° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 512 ... £ 2D/80		Right-hand 74 511 ... £ 2D/80	
HSK T63 DDJN R/L 15	HSK-T 63	75	42	53	45	125	4	DN.. 1506	327.86	**515**	327.86	**515**
HSK T100 DDJN R/L 15	HSK-T 100	85	45	88	55	125	4	DN.. 1506	384.89	**715**	384.89	**715**


XPress type

Key D

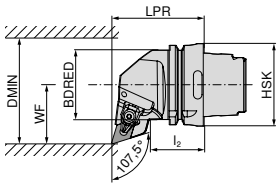

Clamping screw


Solid Carbide Seat D

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 512 515 / 74 511 515	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85	**820**	7.53 **811**
74 512 715 / 74 511 715	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85	**820**	7.53 **811**

MaxiLock-D – DDHN 107.5° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 508 ... £ 2D/80		Right-hand 74 507 ... £ 2D/80	
HSK T63 DDHN R/L 15	HSK-T 63	70	42	53	45	125	4	DN.. 1506	327.86	**515**	327.86	**515**


XPress type

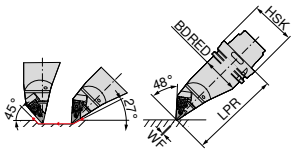
Key D


Clamping screw


Solid Carbide Seat D

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 508 515 / 74 507 515	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85	**820**	7.53 **811**

MaxiLock-D – DDMN 48° – Toolholder with top clamping





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 519 ... £ 2D/80	
HSK T63 DDMN L 15	HSK-T 63	130	53	0	4	DN.. 1506	449.76	**515**
HSK T100 DDMN L 15	HSK-T 100	160	88	0	4	DN.. 1506	529.00	**715**


XPress type

Key D

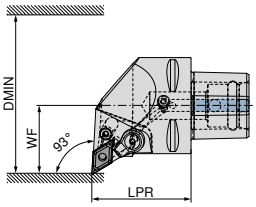

Clamping screw


Solid Carbide Seat D

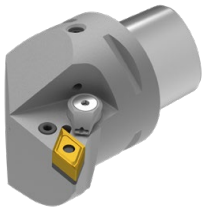
Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 519 515	22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	7.53	**811**
74 519 715	22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	7.53	**811**

MaxiLock-N – PDUN 93° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 661 ... £ Y8		NEW Right-hand 84 660 ... £ Y8	
PSC40 PDUN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1506	DC	500.81	**01595**	500.81	**01595**
PSC50 PDUN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1506	DC	551.40	**01594**	551.40	**01594**
PSC63 PDUN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1506	DC	626.01	**01593**	626.01	**01593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.


Shim


Elbow lever screw


Lever

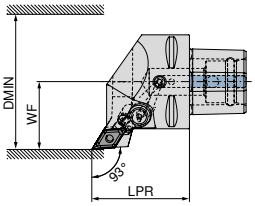

Solid Carbide Seat D

Spare parts Adapter	84 950 ... £ Y8			84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8	
PSC 40	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27900**
PSC 50	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27900**
PSC 63	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27900**

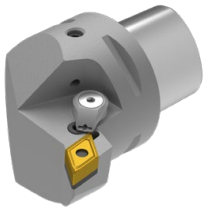
MaxiLock-N – PDJN 93° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 665 ... £ Y8		NEW Right-hand 84 664 ... £ Y8	
PSC40 PDJN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1506	DC	500.81	**01595**	500.81	**01595**
PSC50 PDJN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1506	DC	551.40	**01594**	551.40	**01594**
PSC63 PDJN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1506	DC	626.01	**01593**	626.01	**01593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.


Shim


Elbow lever screw


Lever

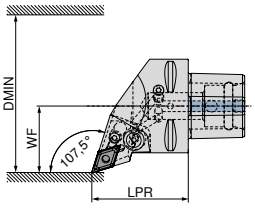

Solid Carbide Seat D

Spare parts Adapter	Shim 84 950 ... £ Y8			Elbow lever screw 84 950 ... £ Y8		Lever 84 950 ... £ Y8		Solid Carbide Seat D 84 950 ... £ Y8	
PSC 40	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27900**
PSC 50	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27900**
PSC 63	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27900**

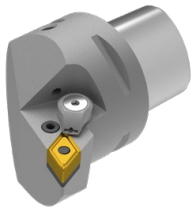
MaxiLock-N – PDHN 107,5° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 669 ... £ Y8		NEW Right-hand 84 668 ... £ Y8	
PSC40 PDHN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1506		500.81	**01595**	500.81	**01595**
PSC50 PDHN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1506		551.40	**01594**	551.40	**01594**
PSC63 PDHN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1506	DC	626.01	**01593**	626.01	**01593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.


Shim


Elbow lever screw


Lever

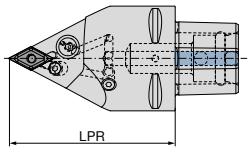

Solid Carbide Seat D

Spare parts Adapter	Shim 84 950 ... £ Y8			Elbow lever screw 84 950 ... £ Y8		Lever 84 950 ... £ Y8		Solid Carbide Seat D 84 950 ... £ Y8	
PSC 40	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27900**
PSC 50	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27900**
PSC 63	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27900**

MaxiLock-N – PDNN 62,5° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set







NEW
Neutral

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	84 676 ... £ Y8	
PSC63 PDNN N 0100-15	PSC 63	100	5	DN.. 1506	DC	626.01	**01593**
PSC63 PDNN N 0130-15	PSC 63	130	5	DN.. 1506	DC	626.01	**11593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



Clamping screw

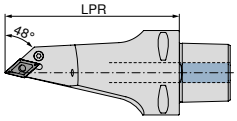
Adapter	84 950 ... £ Y8	
PSC 63	6.97	**27600**

9

MaxiLock-N – PDMN 48° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set







NEW
Neutral

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	84 680 ... £ Y8	
PSC63 PDMN L 0130-15	PSC 63	130	5	DN.. 1506	DC	771.31	**11593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

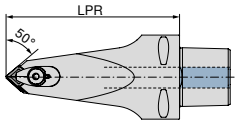


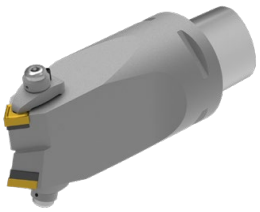
Clamping screw

Adapter	84 950 ... £ Y8	
PSC 63	6.97	**27600**

MaxiLock-D – DCMN + DDMN 50°/48° – Toolholder with top clamping







NEW

Neutral

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	84 683 ... £ Y8	
PSC63 DCMN-DDMN L 0130-12/15	PSC 63	130	10	CN.. 1204 / DN.. 1506	979.67	**01293**

		Clamping Screw	Clamping claw	Ring-shaped nozzle	Clamping screw	Solid Carbide Seat D	Carbide type C
		84 950 ...	**84 950 ...**	**84 950 ...**	**84 950 ...**	**84 950 ...**	**84 950 ...**
Spare parts		£ Y8	£ Y8	£ Y8	£ Y8	£ Y8	£ Y8
Adapter							
PSC 63	M6X28 SW4	44.63 **28300**	52.88 **28500**	17.02 **28400**	10.53 **27500**	52.71 **27900**	28.67 **27800**

High-performance coolant set

- Using the DC kit blocks the other coolant outlet so that all of the pressure is concentrated by the kit!
- Can be used up to 100 bar

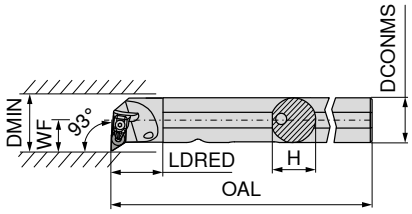
Scope of supply:
Direct cooling nozzle and O-ring



	84 950 ... £ Y8	
Coolant set	226.01	**27400**

MaxiLock-D – DDUN 93° – Boring bar with top clamping





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 569 ... £ 2A/24		Right-hand 70 568 ... £ 2A/24	
A25R DDUN R/L 11	25	24	200	30	17	32	2	DN.. 1104	212.10	**725**	212.10	**725**
A32S DDUN R/L 11	32	31	250	40	22	40	2	DN.. 1104	219.36	**732**	219.36	**732**
A40T DDUN R/L 15	40	39	300	45	27	50	4	DN.. 1506	244.37	**840**	244.37	**840**


XPress type


Key D


Clamping screw

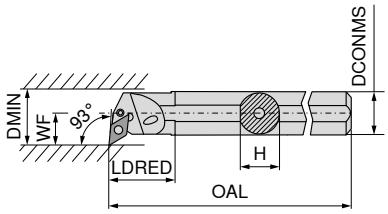

Solid Carbide Seat D

Spare parts for Article no.		70 950 ... £ 2A/28			80 950 ... £ Y7			70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 568 725 / 70 569 725		27.46	**835**	T09 - IP	15.51	**126**	M3x7 - IP	2.99	**819**	3.37	**808**
70 568 732 / 70 569 732		27.46	**835**	T09 - IP	15.51	**126**	M3x7 - IP	2.99	**819**	3.37	**808**
70 568 840 / 70 569 840		22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	7.53	**811**

MaxiLock-N – PDUN 93° – Boring bar with lever clamping

- A... = with thro' coolant
- S... = without thro' coolant





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 569 ... £ 2A/24		Right-hand 70 568 ... £ 2A/24	
A20Q PDUN R/L 11	20	18.5	180	36	16.0	28	3	DN.. 1104	190.33	**12000**[1)]	190.33	**12000**[1)]
A25R PDUN R/L 11	25	23.0	200	36	18.5	32	3	DN.. 1104	212.10	**125**	212.10	**12500**[1)]
A32S PDUN R/L 11	32	30.0	250	36	22.0	40	3	DN.. 1104	219.36	**13200**[1)]	219.36	**132**
A32S PDUN R/L 15	32	30.0	250	50	22.0	40	3,2	DN.. 1506	219.36	**232**	219.36	**232**
A40T PDUN R/L 15	40	38.0	300	60	27.0	50	3,2	DN.. 1506	244.37	**240**	244.37	**240**
S50W PDUN R/L 15	50	47.0	450	31	35.0	63	3,2	DN.. 1506	302.40	**050**	302.40	**050**

1) nickel-plated


Key I


Shim

Assembly pin


Lever


Clamping screw

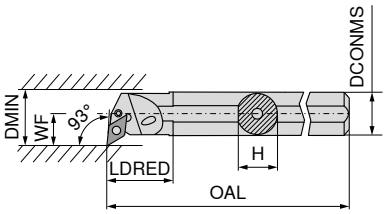

Solid Carbide Seat D

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 568 12000 / 70 569 12000	SW2,5	2.34	**175**					14.29	**125**	2.07	**126**		
70 568 12500 / 70 569 125	SW2,5	2.34	**175**	1.96	**122**	1.17	**191**	14.29	**121**	3.05	**208**	6.88	**120**
70 568 132 / 70 569 13200	SW2,5	2.34	**175**	1.96	**122**	1.17	**191**	14.29	**121**	3.05	**208**	6.88	**120**
70 568 232 / 70 569 232	SW3	2.34	**176**	1.68	**198**	1.17	**192**	13.06	**188**	3.34	**209**	7.53	**236**
70 568 240 / 70 569 240	SW3	2.34	**176**	1.68	**198**	1.17	**192**	13.06	**188**	3.34	**209**	7.53	**236**
70 568 050 / 70 569 050	SW3	2.34	**176**	1.68	**198**	1.17	**192**	13.06	**188**	3.62	**388**	7.53	**236**

MaxiLock-N – PDUN 93° – Boring bar with lever clamping

▲ with carbide core







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 563 ... £ 2A		Right-hand 70 562 ... £ 2A	
E-A25R PDUN R/L 11	25	23	200	40	17	31	3	DN.. 1104	677.34	**025**	677.34	**025**
E-A32S PDUN R/L 15	32	30	250	50	22	39	3,2	DN.. 1506	894.13	**032**	894.13	**032**
E-A40T PDUN R/L 15	40	38	300	60	27	48	3,2	DN.. 1506	1,067.18	**040**	1,067.18	**040**


Key l


Shim


Assembly pin


Lever

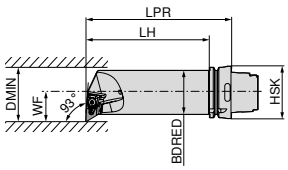

Clamping screw


Solid Carbide Seat D

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 562 025 / 70 563 025	SW2,5	2.34	**175**	1.96	**122**	1.17	**191**	14.29	**121**	3.05	**208**	6.88	**120**
70 562 032 / 70 563 032	SW3	2.34	**176**	1.68	**198**	1.17	**192**	13.06	**188**	3.62	**388**	7.53	**236**
70 562 040 / 70 563 040	SW3	2.34	**176**	1.68	**198**	1.17	**192**	13.06	**188**	3.62	**388**	7.53	**236**

MaxiLock-D – DDUN 93° – Boring bar with top clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 533 ... £ 2D/80		Right-hand 74 532 ... £ 2D/80	
HSK T63 50Q DDUN R/L 15	HSK-T 63	175	149	50	35	63	4	DN.. 1506	449.76	**515**	449.76	**515**


XPress type


Key D

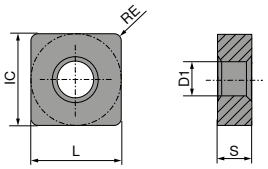

Clamping screw


Solid Carbide Seat D

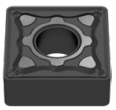
Spare parts for Article no.		70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 533 515 / 74 532 515		22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	7.53	**811**

SNMG / SNMA / SNMM

Designation	L mm	S mm	D1 mm	IC mm
SNMG 0903..	9.52	3.18	3.81	9.52
SNM. 1204..	12.70	4.76	5.16	12.70
SNM. 1506..	15.87	6.35	6.35	15.87
SNM. 1906..	19.05	6.35	7.94	19.05
SNMM 2507..	25.40	7.94	9.12	25.40
SNMM 2509..	25.40	9.52	9.12	25.40



SNMG

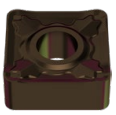
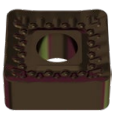
	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-M50 CTCP115	-M50 CTCP125	-M50 CTCP135	-M70 CTCK110
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	M	M	M	M
	SNMG	SNMG	SNMG	SNMG	SNMG	SNMG	SNMG
	76 140 ...	76 140 ...	76 140 ...	76 137 ...	76 137 ...	76 137 ...	70 225 ...
ISO / RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
090308EN 0.8	7.09 306	7.09 506	7.09 706				
120404EN 0.4	11.10 316	11.10 516	11.10 716				
120408EN 0.8	11.10 318	11.10 518	11.10 718	11.10 318	11.10 518	11.10 718	11.10 018
120412EN 1.2	11.10 320	11.10 520	11.10 720	11.10 320	11.10 520	11.10 720	11.10 020
120416EN 1.6				11.10 322	11.10 522	11.10 722	11.10 022
150608EN 0.8				17.62 330	17.62 530	17.62 730	
150612EN 1.2				17.62 332	17.62 532	17.62 732	17.62 032
150616EN 1.6				17.62 334	17.62 534	17.62 734	17.62 034
190612EN 1.2							24.89 044
190616EN 1.6							24.89 046
P	●	●	●	●	●	●	○
M			○			○	
K	○	○		○	○		●
N							
S							
H							
O							

9

SNMG / SNMA

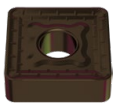
		-M70 CTCK120		-M70 CTCP115		-M70 CTCP125		-M70 CTCP135		CTCP125		CTCP135		CTCK110	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		M		M		M		M		M		M		R	
		SNMG		SNMG		SNMG		SNMG		SNMG		SNMG		SNMA	
		70 225 ...		76 225 ...		76 225 ...		76 225 ...		76 116 ...		76 116 ...		70 114 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
090308EN	0.8									7.09	506	7.09	706		
120408EN	0.8	11.10	518	11.10	318	11.10	518	11.10	718					11.10	018
120412EN	1.2	11.10	520	11.10	320	11.10	520	11.10	720					11.10	020
120416EN	1.6	11.10	522	11.10	322	11.10	522	11.10	722					11.10	022
150612EN	1.2	17.62	532	17.62	332	17.62	532	17.62	732					17.62	032
150616EN	1.6	17.62	534	17.62	334	17.62	534	17.62	734					17.62	034
190612EN	1.2	24.89	544	24.89	344	24.89	544	24.89	744					24.89	044
190616EN	1.6	24.89	546	24.89	346	24.89	546	24.89	746					24.89	046
190624EN	2.4			24.89	348	24.89	548	24.89	748						
P		○		●		●		●		●		●		○	
M								○				○			
K		●		○		○				○				●	
N															
S															
H															
O															

SNMA / SNMM

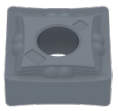
		CTCK120	-R28 CTCP115	-R28 CTCP125	-R28 CTCP135	-R58 CTCP115	-R58 CTCP125	-R58 CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	R	R	R	R	R	R
		SNMA	SNMM	SNMM	SNMM	SNMM	SNMM	SNMM
		70 114 ...	76 128 ...	76 128 ...	76 128 ...	76 129 ...	76 129 ...	76 129 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
120408EN	0.8	11.10 518				11.10 318	11.10 518	11.10 718
120412EN	1.2	11.10 520				11.10 320	11.10 520	11.10 720
120416EN	1.6	11.10 522						
150612EN	1.2	17.62 532	17.62 332	17.62 532	17.62 732	17.62 332	17.62 532	17.62 732
150616EN	1.6	17.62 534	17.62 334	17.62 534	17.62 734	17.62 334	17.62 534	17.62 734
190612EN	1.2	24.89 544				24.89 344	24.89 544	24.89 744
190616EN	1.6	24.89 546	24.89 346	24.89 546	24.89 746	24.89 346	24.89 546	24.89 746
190624EN	2.4					24.89 348	24.89 548	24.89 748
250724EN	2.4				48.91 760	48.91 360	48.91 560	48.91 760
250924EN	2.4		57.45 370	57.45 570	57.45 770	57.45 370	57.45 570	57.45 770
P		○	●	●	●	●	●	●
M					○			○
K		●	○	○		○	○	
N								
S								
H								
O								

9

SNMM / SNMG

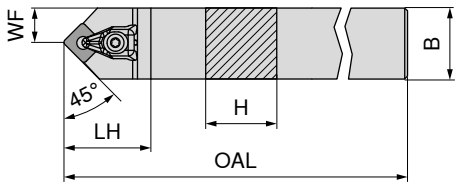
		-R88 CTCP115	-R88 CTCP125	-R88 CTCP135	NEW -F30 CTCM120	-F30 CTPM125	NEW -F30 CTCM130	NEW -M30 CTCM120
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	R	R	F	F	F	M
		SNMM	SNMM	SNMM	SNMG	SNMG	SNMG	SNMG
		76 130 ...	76 130 ...	76 130 ...	75 016 ...	75 016 ...	75 016 ...	75 017 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
120404EN	0.4				11.10 11600	11.10 216	11.10 31600	
120408EN	0.8				11.10 11800	11.10 218	11.10 31800	11.10 11800
120412EN	1.2							11.10 12000
190616SN	1.6	24.89 346	24.89 546	24.89 746				
190624SN	2.4	24.89 348	24.89 548	24.89 748				
250724SN	2.4	48.91 36000	48.91 56000	48.91 760				
250924SN	2.4	57.45 37000	57.45 57000	57.45 770				
P		●	●	●	○	○	○	○
M				○	●	●	●	●
K		○	○					
N								
S							○	
H								
O								

SNMG

		-M30 CTPM125	NEW -M30 CTCM130	NEW -M60 CTCM120	-M60 CTPM125	NEW -M60 CTCM130	NEW -M34 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		M	M	M	M	M	M
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG
		75 017 ...	75 017 ...	75 018 ...	75 018 ...	75 018 ...	75 005 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
120408EN	0.8	11.10 218	11.10 31800	11.10 11800	11.10 218	11.10 31800	11.64 61800
120412EN	1.2		11.10 32000	11.10 12000	11.10 210	11.10 32000	11.64 62000
120416EN	1.6			11.10 12200	11.10 220	11.10 32200	
P		○	○	○	○	○	●
M		●	●	●	●	●	●
K							
N							○
S			○			○	●
H							
O							

MaxiLock-D – DSDN 45° – Toolholder with top clamping







ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 516 ... £ 2A/24	
DSDN N 2020 K12	20	20	125	38	10.3	4	SN.. 1204	81.18	**620**
DSDN N 2525 M12	25	25	150	38	12.5	4	SN.. 1204	83.97	**625**


XPress type


Key D

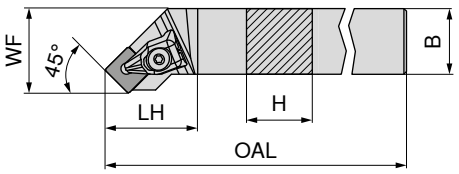

Clamping screw


Solid Carbide support S

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7			70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 516 620	22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	7.53	**813**
70 516 625	22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	7.53	**813**

MaxiLock-D – DSSN 45° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 513 ... £ 2A/24		Right-hand 70 512 ... £ 2A/24	
DSSN R/L 2020 K12	20	20	125	35	25	4	SN.. 1204	81.18	**620**	81.18	**620**
DSSN R/L 2525 M12	25	25	150	35	32	4	SN.. 1204	83.97	**625**	83.97	**625**
DSSN R/L 3225 P12	32	25	170	35	32	4	SN.. 1204	90.08	**632**	90.08	**632**


XPress type


Key D

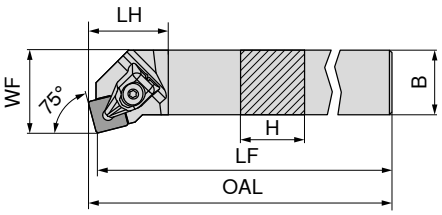

Clamping screw


Solid Carbide support S

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7			70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 512 620 / 70 513 620	22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	7.53	**813**
70 512 625 / 70 513 625	22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	7.53	**813**
70 512 632 / 70 513 632	22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	7.53	**813**

MaxiLock-D – DSKN 75° – Toolholder with top clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 525 ... £ 2A/24		Right-hand 70 524 ... £ 2A/24	
DSKN R/L 2525 M12	25	25	153.3	150	28	32	4	SN.. 1204	83.97	**625**	83.97	**625**



XPress type

70 950 ...

Key D

80 950 ...



Clamping screw

70 950 ...



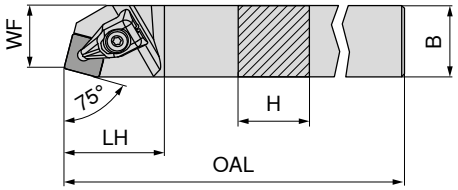
Solid Carbide support S

70 950 ...

Spare parts for Article no.	£ 2A/28			£ Y7			£ 2A/28		£ 2A/28	
70 525 625 / 70 524 625	22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	7.53	**813**

MaxiLock-D – DSBN 75° – Toolholder with top clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Right-hand 70 520 ... £ 2A/24	
DSBN R 2020 K12	20	20	125	35	17	4	SN.. 1204	81.18	**620**
DSBN R 2525 M12	25	25	150	35	22	4	SN.. 1204	83.97	**625**
DSBN R 2525 M15	25	25	150	42	22	6,5	SN.. 1506	83.97	**725**
DSBN R 3232 P15	32	32	170	42	27	6,5	SN.. 1506	113.40	**832**
DSBN R 3232 P19	32	32	170	48	27	6,5	SN.. 1906	113.40	**732**
DSBN R 4040 S19	40	40	250	48	35	6,5	SN.. 1906	140.98	**840**
DSBN R 4040 S25	40	40	250	57	35	6,5	SN.. 2507 / SN.. 2509	140.98	**940**

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40100.



XPress type

70 950 ...

Key D

80 950 ...



Clamping screw

70 950 ...



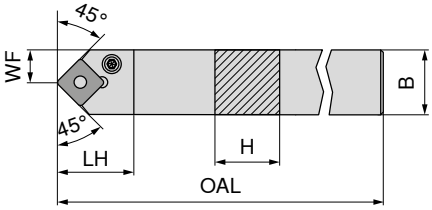
Solid Carbide support S

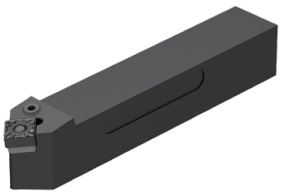
70 950 ...

Spare parts for Article no.	£ 2A/28			£ Y7			£ 2A/28		£ 2A/28	
70 520 620	22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	7.53	**813**
70 520 625	22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	7.53	**813**
70 520 725	25.47	**825**	T20 - IP	17.39	**129**	M5x14 - IP	4.04	**821**	11.50	**833**
70 520 832	25.47	**825**	T20 - IP	17.39	**129**	M5x14 - IP	4.04	**821**	11.50	**833**
70 520 732	27.87	**826**	T20 - IP	17.39	**129**	M5x14 - IP	4.04	**821**	12.33	**817**
70 520 840	27.87	**826**	T20 - IP	17.39	**129**	M5x14 - IP	4.04	**821**	12.33	**817**
70 520 940	43.41	**827**	T25 - IP	20.07	**130**	M6x16 - IP	7.68	**822**	23.01	**818**

MaxiLock-N – PSDN 45° – Toolholder with lever clamping







ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 516 ... £ 2A/24	
PSDN N 1616 H09	16	16	100	21.0	8.3	3	SNM. 0903	72.86	**016**
PSDN N 2020 K12	20	20	125	27.6	10.3	4	SNM. 1204	81.18	**020**
PSDN N 2525 M12	25	25	150	27.6	12.8	4	SNM. 1204	83.97	**025**
PSDN N 3225 P19	32	25	170	40.4	12.5	8	SNM. 1906	90.08	**03200**
PSDN N 4040 S25	40	40	250	48.8	20.0	8	SNM. 2507 / 2509	140.98	**04000**

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.

Spare parts for Article no.		Key I 70 950 ... £ 2A/28		Shim 70 950 ... £ 2A/28		Assembly pin 70 950 ... £ 2A/28		Lever 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide support S 70 950 ... £ 2A/28	
70 516 016	SW2,5	2.34	**175**	1.68	**197**	1.17	**191**	11.92	**185**	3.05	**208**	5.83	**229**
70 516 020	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	5.83	**230**
70 516 025	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	5.83	**230**
70 516 03200	SW4	2.46	**396**	1.68	**392**	1.17	**395**	18.24	**386**	3.62	**389**	18.33	**383**
70 516 04000	SW5	3.52	**265**	1.07	**621**	1.81	**623**	24.65	**620**	2.17	**622**	37.72	**27600**

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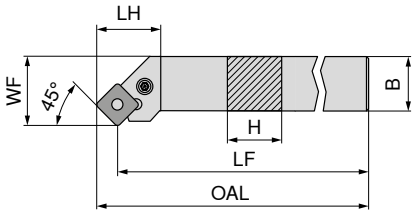
MaxiLock-N – PSSN 45° – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 513 ... £ 2A/24		Right-hand 70 512 ... £ 2A/24	
PSSN R/L 1616 H09	16	16	106.7	100	21.2	20	3	SNM. 0903	72.86	**016**	72.86	**01600**[1]
PSSN R/L 2020 K12	20	20	134.0	125	29.3	25	4	SNM. 1204	81.18	**020**	81.18	**020**
PSSN R/L 2525 M12	25	25	159.0	150	29.3	32	4	SNM. 1204	83.97	**025**	83.97	**025**
PSSN R/L 3225 P12	32	25	179.0	170	32.0	32	4	SNM. 1204	90.08	**032**	90.08	**032**
PSSN R 2525 M15	25	25	161.2	150	29.3	32	4	SNM. 1506			83.97	**125**
PSSN R 3232 P15	32	32	181.2	170	32.0	40	4	SNM. 1506			113.40	**132**
PSSN R/L 3232 P19	32	32	183.5	170	40.2	40	8	SNM. 1906	113.40	**232**	113.40	**232**
PSSN R 4040 S25	40	40	268.0	250	48.8	50	8	SNM. 2507 / 2509			138.32	**04000**

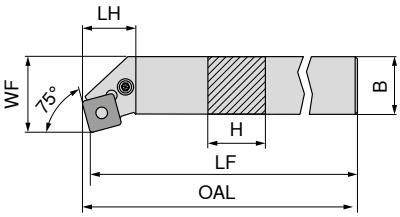
1) nickel-plated

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.

Spare parts for Article no.		Key I 70 950 ... £ 2A/28		Shim 70 950 ... £ 2A/28		Assembly pin 70 950 ... £ 2A/28		Lever 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide support S 70 950 ... £ 2A/28	
70 512 01600 / 70 513 016	SW2,5	2.34	**175**	1.68	**197**	1.17	**191**	11.92	**185**	3.05	**208**	5.83	**229**
70 512 020 / 70 513 020	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	5.83	**230**
70 512 025 / 70 513 025	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	5.83	**230**
70 512 032 / 70 513 032	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	5.83	**230**
70 512 125	SW3	2.34	**176**	1.07	**391**	1.17	**394**	11.92	**385**	3.62	**388**	11.92	**382**
70 512 132	SW3	2.34	**176**	1.07	**391**	1.17	**394**	11.92	**385**	3.62	**388**	11.92	**382**
70 512 232 / 70 513 232	SW4	2.46	**396**	1.68	**392**	1.17	**395**	18.24	**386**	3.62	**389**	18.33	**383**
70 512 04000	SW5	3.52	**265**	1.07	**621**	1.81	**623**	24.65	**620**	2.17	**622**	37.72	**27600**

MaxiLock-N – PSKN 75° – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	H mm	LF mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 525 ... £ 2A/24		Right-hand 70 524 ... £ 2A/24	
PSKN R/L 1616 H09	16	100	16	102.5	18.7	20	3	SNM. 0903	72.86	**016**	72.86	**016**
PSKN R/L 2020 K12	20	125	20	128.3	22.7	25	4	SNM. 1204	81.18	**020**	81.18	**020**
PSKN R/L 2525 M12	25	150	25	153.3	22.7	32	4	SNM. 1204	83.97	**025**	83.97	**025**
PSKN R/L 3225 P12	32	170	25	173.1	24.1	32	4	SNM. 1204	90.08	**03200**	90.08	**03200**
PSKN R 4040 S19	40	250	40	254.6	38.3	50	8	SNM. 1906			140.98	**04000**


Key I


Shim


Assembly pin


Lever


Clamping screw

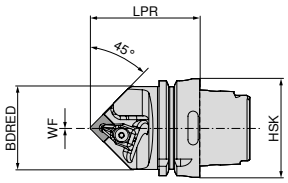

Solid Carbide support S

Spare parts for Article no.		Key I 70 950 ... £ 2A/28		Shim 70 950 ... £ 2A/28		Assembly pin 70 950 ... £ 2A/28		Lever 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide support S 70 950 ... £ 2A/28	
70 524 016 / 70 525 016	SW2,5	2.34	**175**	1.68	**197**	1.17	**191**	11.92	**185**	3.05	**208**	5.83	**229**
70 524 020 / 70 525 020	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	5.83	**230**
70 524 025 / 70 525 025	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	5.83	**230**
70 524 03200 / 70 525 03200	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	5.83	**230**
70 524 04000	SW4	2.46	**396**	1.68	**392**	1.17	**395**	18.24	**386**	3.62	**389**	18.33	**383**

9

MaxiLock-D – DSDN 45° – Toolholder with top clamping







ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 522 ... £ 2D/80	
HSK T63 DSDN N 12	HSK-T 63	70	53	0	4	SN.. 1204	327.86	**512**
HSK T63 DSDN N 15	HSK-T 63	75	53	0	4	SN.. 1506	327.86	**515**
HSK T100 DSDN N 12	HSK-T 100	80	88	0	4	SN.. 1204	384.89	**712**
HSK T100 DSDN N 19	HSK-T 100	85	88	0	8	SN.. 1906	384.89	**719**


XPress type


Key D

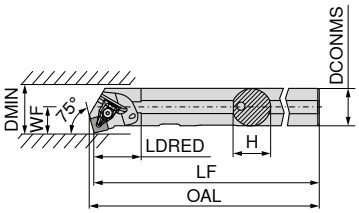

Clamping screw


Solid Carbide support S

Spare parts for Article no.		XPress type 70 950 ... £ 2A/28			Key D 80 950 ... £ Y7			Clamping screw 70 950 ... £ 2A/28		Solid Carbide support S 70 950 ... £ 2A/28	
74 522 512		22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	7.53	**813**
74 522 515		25.47	**825**	T20 - IP	17.39	**129**	M5x14 - IP	4.04	**821**	11.50	**833**
74 522 712		22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	7.53	**813**
74 522 719		27.87	**826**	T20 - IP	17.39	**129**	M5x14 - IP	4.04	**821**	12.33	**817**

MaxiLock-D – DSKN 75° – Boring bar with top clamping





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 561 ... £ 2A/24		Right-hand 70 560 ... £ 2A/24	
A32S DSKN R/L 12	32	31	250	254.2	40	22	40	4	SN.. 1204	219.36	**832**	219.36	**832**



XPress type

Key D



Clamping screw

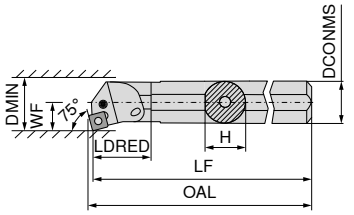


Solid Carbide support S

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 561 832 / 70 560 832	22.69	**824**	T15 - IP 16.56	**128**	M4,5x12 - IP 2.85	**820**	7.53	**813**

MaxiLock-N – PSKN 75° – Boring bar with lever clamping





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 561 ... £ 2A/24		Right-hand 70 560 ... £ 2A/24	
A25R PSKN R/L 12	25	23	200	203	15.5	17	32	4	SNM. 1204	212.10	**225**	212.10	**225**
A32S PSKN R/L 12	32	30	250	253	16.0	22	40	4	SNM. 1204	219.36	**232**	219.36	**232**
A40T PSKN R/L 12	40	38	300	303	23.0	27	50	4	SNM. 1204	244.37	**240**	244.37	**240**



Key I



Shim

Assembly pin



Lever



Clamping screw

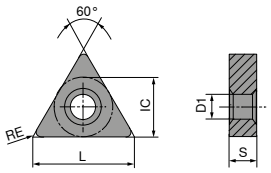


Solid Carbide support S

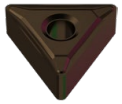
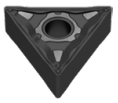
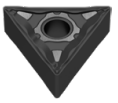
Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 561 225 / 70 560 225	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	4.08	**205**	5.83	**230**
70 561 232 / 70 560 232	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	4.08	**205**	5.83	**230**
70 561 240 / 70 560 240	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	5.83	**230**

TNMG / TNMA / TNMM

Designation	L mm	S mm	D1 mm	IC mm
TNMG 1103..	11.0	3.18	2.26	6.35
TNM. 1604..	16.5	4.76	3.81	9.52
TNM. 2204..	22.0	4.76	5.16	12.70



TNMG

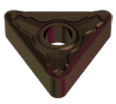
	-CF20 CTEP110	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-M50 CTCP115	-M50 CTCP125	-M50 CTCP135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	M	M	M
	CERMET TNMG	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
	76 149 ...	76 146 ...	76 146 ...	76 146 ...	76 138 ...	76 138 ...	76 138 ...
ISO / RE mm	£ 1A/78	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
110304EN 0.4		6.14 304	6.14 504	6.14 704			
110308EN 0.8		6.14 306	6.14 506	6.14 706			
160404EN 0.4	9.65 016	9.73 316	9.73 516	9.73 716	9.73 316	9.73 516	9.73 716
160408EN 0.8	9.65 018	9.73 318	9.73 518	9.73 718	9.73 318	9.73 518	9.73 718
160412EN 1.2	9.65 020	9.73 320	9.73 520	9.73 720	9.73 320	9.73 520	9.73 720
220408EN 0.8					13.14 330	13.14 530	13.14 730
220412EN 1.2					13.14 332	13.14 532	13.14 732
P	●	●	●	●	●	●	●
M	○			○			○
K	○	○	○		○	○	
N							
S							
H							
O							

9

TNMG

	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135	CTCP125	CTCP135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M	M	M	M	M	M	M
	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
	70 155 ...	70 155 ...	76 155 ...	76 155 ...	76 155 ...	76 142 ...	76 142 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
110302EN	0.2											6.14	702
160404ER	0.4											9.73	516	9.73	716
160408EL	0.8											9.73	518		
160408EN	0.8	9.73	018	9.73	518	9.73	318	9.73	518	9.73	718				
160408ER	0.8											9.73	517	9.73	717
160412EN	1.2	9.73	020	9.73	520	9.73	320	9.73	520	9.73	720				
220404EN	0.4							13.14	528						
220408EN	0.8	13.14	030	13.14	530	13.14	330	13.14	530	13.14	730				
220412EN	1.2	13.14	032	13.14	532	13.14	332	13.14	532	13.14	732				
220416EN	1.6	13.14	034	13.14	534	13.14	334	13.14	534	13.14	734				
P		○		○		●		●		●		●		●	
M										○				○	
K		●		●		○		○				○			
N															
S															
H															
O															

TNMA / TNMM

	CTCK110	CTCK120	-R28 CTCP115	-R28 CTCP125	-R28 CTCP135	-R58 CTCP115	-R58 CTCP125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	R	M	R	R	R	R	R
	TNMA	TNMA	TNMM	TNMM	TNMM	TNMM	TNMM
	70 134 ...	70 134 ...	76 154 ...	76 154 ...	76 154 ...	76 152 ...	76 152 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
160408EN	0.8	9.73	018	9.73	518								
160412EN	1.2	9.73	020	9.73	520								
160416EN	1.6	9.73	022	9.73	522								
220408EN	0.8	13.14	030	13.14	530								
220412EN	1.2	13.14	032	13.14	532							13.14	332	13.14	532
220416EN	1.6	13.14	034	13.14	534	13.14	334	13.14	534	13.14	734				
P		○		○		●		●		●		●		●	
M										○					
K		●		●		○		○				○		○	
N															
S															
H															
O															

TNMM / TNMG

			NEW		NEW	NEW		NEW
		-R58 CTCP135	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125	-M30 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	F	F	F	M	M	M
		TNMM	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
		76 152 ...	75 019 ...	75 019 ...	75 019 ...	75 020 ...	75 020 ...	75 020 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
160404EN	0.4		9.73 11600	9.73 216	9.73 31600			
160408EN	0.8		9.73 11800	9.73 218	9.73 31800	9.73 11800	9.73 218	9.73 31800
160412EN	1.2					9.73 12000	9.73 220	9.73 32000
220412EN	1.2	13.14 732						
P		●	○	○	○	○	○	○
M		○	●	●	●	●	●	●
K								
N								
S					○			○
H								
O								

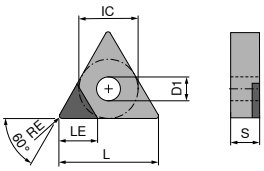
TNMG

				NEW		NEW	NEW
				-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M34 CTPX710
				DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
				M	M	M	M
				TNMG	TNMG	TNMG	TNMG
				75 021 ...	75 021 ...	75 021 ...	75 006 ...
ISO	RE mm			£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
160408EN	0.8			9.73 11800	9.73 218	9.73 31800	9.66 61800
160412EN	1.2			9.73 12000	9.73 220	9.73 32000	
220404EN	0.4						13.89 62800
220408EN	0.8						13.89 63000
220416EN	1.6						13.89 63400
P				○	○	○	●
M				●	●	●	●
K							
N							○
S						○	●
H							
O							

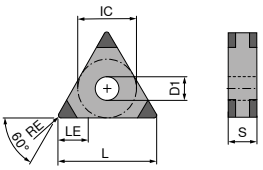
9

TNGA

Designation	L mm	S mm	D1 mm	IC mm
TNGA 1103..	11.0	3.18	2.26	6.35
TNGA 1604..	16.5	4.76	3.81	9.52



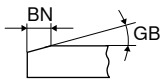
TNGA A

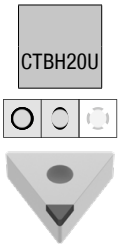


TNGA M

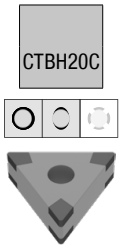
TNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners

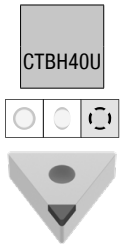




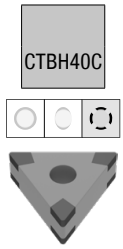
F
CBN
TNGA
71 108 ...



F
CBN
TNGA
71 404 ...



F
CBN
TNGA
71 108 ...



F
CBN
TNGA
71 404 ...

ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0	
110304TN	0.4	0.12	20°	A (1)	2.8	55.39	500						
110308FN	0.8			A (1)	2.5					55.39	802 1)		
110308TN	0.8	0.12	20°	A (1)	2.5	55.39	502						
160404FN	0.4			A (1)	3.5	55.39	404 1)			55.39	804 1)		
160404TN	0.4	0.09	15°	M (6)	2.8			134.66	222				
160404SN	0.4	0.09	20°	M (6)	2.8							134.66	332
160404SN	0.4	0.11	20°	M (6)	2.8			134.66	242			134.66	342
160404TN	0.4	0.12	20°	A (1)	3.5	55.39	504						
160404SN	0.4	0.11	25°	M (6)	2.8							134.66	352
160404TN	0.4	0.11	25°	M (6)	2.8			134.66	252				
160404TN	0.4	0.12	25°	A (1)	3.5					55.39	904		
160404FN	0.4			M (6)	2.8			134.66	212				
160404SN	0.4	0.13	25°	M (6)	2.8			134.66	262				
160404SN	0.4	0.14	30°	M (6)	2.8							134.66	372
160404SN	0.4	0.14	35°	M (6)	2.8							134.66	382
160408TN	0.8	0.09	15°	M (6)	2.5			134.66	224				
160408SN	0.8	0.09	15°	M (6)	2.5							134.66	324
160408SN	0.8	0.09	20°	M (6)	2.5							134.66	334
160408TN	0.8	0.09	20°	M (6)	2.5			134.66	234				
160408SN	0.8	0.11	20°	M (6)	2.5			134.66	244			134.66	344
160408TN	0.8	0.12	20°	A (1)	3.0	55.39	506						
160408SN	0.8	0.11	25°	M (6)	2.5							134.66	354
160408TN	0.8	0.11	25°	M (6)	2.5			134.66	254				
160408TN	0.8	0.12	25°	A (1)	3.0					55.39	906		
160408SN	0.8	0.13	25°	M (6)	2.5			134.66	264			134.66	364
160408SN	0.8	0.14	30°	M (6)	2.5			134.66	27200			134.66	374
160408SN	0.8	0.14	35°	M (6)	2.5							134.66	384
160408FN	0.8			M (6)	2.5			134.66	214				
160408FN	0.8			A (1)	3.0	55.39	406 1)			55.39	80500		
160408EN	0.8			M (6)	2.5							134.66	314
160412TN	1.2	0.09	15°	M (6)	2.2			134.66	226				
160412SN	1.2	0.09	20°	M (6)	2.2							134.66	336
160412SN	1.2	0.11	20°	M (6)	2.2			134.66	246			134.66	346
160412SN	1.2	0.11	25°	M (6)	2.2							134.66	356
160412TN	1.2	0.11	25°	M (6)	2.2			134.66	256				
160412SN	1.2	0.13	25°	M (6)	2.2			134.66	266			134.66	366
160412SN	1.2	0.14	30°	M (6)	2.2							134.66	376
160412SN	1.2	0.14	35°	M (6)	2.2							134.66	386
160412FN	1.2			M (6)	2.2			134.66	216				

P				
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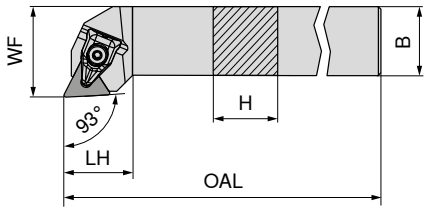
O				

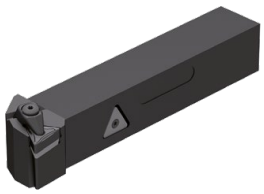
1) Machining to 60 HRC

MaxiLock-D – DTJN 93° – Toolholder with top clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 591 ... £ 2A/24		Right-hand 70 590 ... £ 2A/24	
DTJN R/L 2020 K16	20	20	125	23	25	2	TNM. 1604	81.18	**820**	81.18	**820**
DTJN R/L 2525 M16	25	25	150	24	32	2	TNM. 1604	83.97	**825**	83.97	**825**


XPress type


Key D

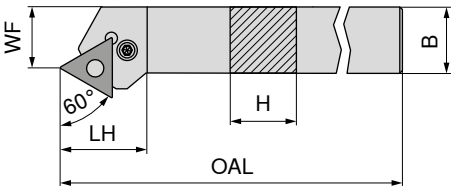

Clamping screw


Solid Carbide Seat T

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 590 820 / 70 591 820	23.01	**823**	T09 - IP	15.51 **126**	M3x7 - IP	2.99 **819**	6.63	**847**
70 590 825 / 70 591 825	23.01	**823**	T09 - IP	15.51 **126**	M3x7 - IP	2.99 **819**	6.63	**847**

MaxiLock-N – PTTN 60° – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 529 ... £ 2A/24		Right-hand 70 528 ... £ 2A/24	
PTTN R/L 2020 K16	20	20	125	25.9	17	3	TNM. 1604	81.18	**020**	81.18	**020**
PTTN R/L 2525 M22	25	25	150	32.7	22	4	TNM. 2204	83.97	**025**	83.97	**025**

Key I


Shim


Assembly pin


Lever

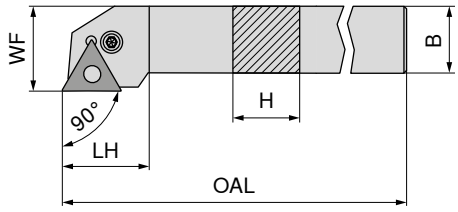

Clamping screw


Solid Carbide Seat T

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 529 020 / 70 528 020	SW2,5	2.34	**175**	1.68	**197**	1.17	**191**	11.92	**185**	3.05	**208**	6.63	**225**
70 529 025 / 70 528 025	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	9.48	**226**

MaxiLock-N – PTGN 90° – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 533 ... £ 2A/24		Right-hand 70 532 ... £ 2A/24	
PTGN R/L 1616 H16	16	16	100	20	20	3	TNM. 1604	72.86	**016**	72.86	**016**
PTGN R/L 2020 K16	20	20	125	20	25	3	TNM. 1604	81.18	**020**	81.18	**020**
PTGN R/L 2525 M16	25	25	150	22	32	3	TNM. 1604	83.97	**025**	83.97	**025**
PTGN R/L 3225 P16	32	25	170	22	32	3	TNM. 1604	90.08	**032**	90.08	**032**
PTGN R/L 2525 M22	25	25	150	29	32	4	TNM. 2204	83.97	**125**	83.97	**125**
PTGN R/L 3232 P22	32	32	170	29	40	4	TNM. 2204	113.40	**132**	113.40	**132**


Key I


Shim


Assembly pin


Lever

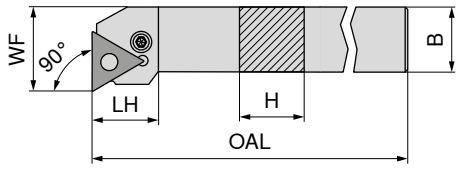

Clamping screw


Solid Carbide Seat T

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 532 016 / 70 533 016	SW2,5	2.34	**175**	1.68	**197**	1.17	**191**	11.92	**185**	3.05	**208**	6.63	**225**
70 532 020 / 70 533 020	SW2,5	2.34	**175**	1.68	**197**	1.17	**191**	11.92	**185**	3.05	**208**	6.63	**225**
70 532 025 / 70 533 025	SW2,5	2.34	**175**	1.68	**197**	1.17	**191**	11.92	**185**	3.05	**208**	6.63	**225**
70 532 032 / 70 533 032	SW2,5	2.34	**175**	1.68	**197**	1.17	**191**	11.92	**185**	3.05	**208**	6.63	**225**
70 532 125 / 70 533 125	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	9.48	**226**
70 532 132 / 70 533 132	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	9.48	**226**

MaxiLock-N – PTFN 90° – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 535 ... £ 2A/24		Right-hand 70 534 ... £ 2A/24	
PTFN R/L 1616 H16	16	16	100	19.7	20	3	TNM. 1604	72.86	**016**	72.86	**016**
PTFN R/L 2020 K16	20	20	125	20.2	25	3	TNM. 1604	81.18	**020**	81.18	**020**
PTFN R/L 2525 M16	25	25	150	20.2	32	3	TNM. 1604	83.97	**025**	83.97	**025**
PTFN R/L 2525 M22	25	25	150	25.2	32	4	TNM. 2204	83.97	**125**	83.97	**125**
PTFN R/L 3225 P22	32	25	170	25.2	32	4	TNM. 2204	90.08	**132**	90.08	**132**


Key I


Shim

Assembly pin


Lever


Clamping screw

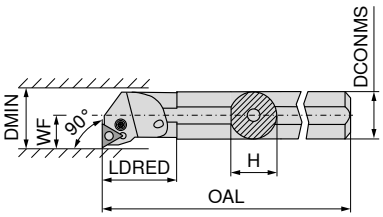

Solid Carbide Seat T

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 534 016 / 70 535 016	SW2,5	2.34	**175**	1.68	**197**	1.17	**191**	11.92	**185**	3.05	**208**	6.63	**225**
70 534 020 / 70 535 020	SW2,5	2.34	**175**	1.68	**197**	1.17	**191**	11.92	**185**	3.05	**208**	6.63	**225**
70 534 025 / 70 535 025	SW2,5	2.34	**175**	1.68	**197**	1.17	**191**	11.92	**185**	3.05	**208**	6.63	**225**
70 534 125 / 70 535 125	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	9.48	**226**
70 534 132 / 70 535 132	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	9.48	**226**

MaxiLock-N – PTFN 90° – Boring bar with lever clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant





Illustrations show right-hand versions



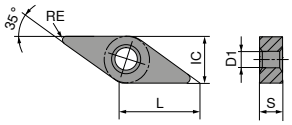
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 565 ... £ 2A/24		Right-hand 70 564 ... £ 2A/24	
A16M PTFN R/L 11	16	15.0	150	14.0	11	20	2,2	TNM. 1103	140.98	**216**	140.98	**216**
A20Q PTFN R/L 11	20	18.5	180	14.0	13	25	2,2	TNM. 1103	190.33	**220**	190.33	**220**
A25R PTFN R/L 16	25	23.0	200	17.5	17	32	3	TNM. 1604	212.10	**225**	212.10	**225**
S25T PTFN R 16	25	23.0	300	17.5	17	32	3	TNM. 1604			212.10	**02500**
A32S PTFN R/L 16	32	30.0	250	18.0	22	40	3	TNM. 1604	219.36	**232**	219.36	**232**
A40T PTFN R/L 22	40	38.0	300	27.0	27	50	4	TNM. 2204	244.37	**240**	244.37	**240**
S50W PTFN R 22	50	47.0	450	35.0	35	63	4	TNM. 2204			302.40	**050**

Spare parts for Article no.	Key I 70 950 ... £ 2A/28		Shim 70 950 ... £ 2A/28		Assembly pin 70 950 ... £ 2A/28		Lever 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat T 70 950 ... £ 2A/28	
70 564 216 / 70 565 216	2.34	**177**					12.02	**184**	2.03	**207**		
70 564 220 / 70 565 220	2.34	**177**					12.02	**184**	2.03	**207**		
70 564 225 / 70 565 225	2.34	**175**	1.68	**197**	1.17	**191**	11.92	**185**	3.05	**208**	6.63	**225**
70 564 02500	2.34	**175**	1.68	**197**	1.17	**191**	11.92	**185**	3.05	**208**	6.63	**225**
70 564 232 / 70 565 232	2.34	**175**	1.68	**197**	1.17	**191**	11.92	**185**	3.05	**208**	6.63	**225**
70 564 240 / 70 565 240	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	9.48	**226**
70 564 050	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	9.48	**226**

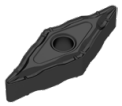
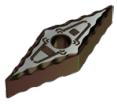
9

VNMG

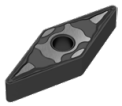
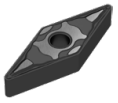
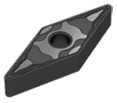
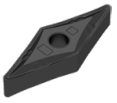
Designation	L mm	S mm	D1 mm	IC mm
VNMG 1604..	16.6	4.76	3.81	9.52



VNMG

	-F40 CTCP125	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-XU CTCP115	-XU CTCP125	-M40 CTCP125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F VNMG	F VNMG	F VNMG	F VNMG	M VNMG	M VNMG	M VNMG
	76 000 ...	76 156 ...	76 156 ...	76 156 ...	76 294 ...	76 294 ...	76 001 ...
ISO / RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
160404EN 0.4	19.65 516	19.65 316	19.65 516	19.65 716	19.60 316	19.60 516	19.65 516
160408EN 0.8	19.65 518	19.65 318	19.65 518	19.65 718	19.60 318	19.60 518	19.65 518
P	●	●	●	●	●	●	●
M				○			
K	○	○	○		○	○	○
N							
S							
H							
O							

VNMG

		NEW		NEW	NEW
	-M50 CTCK120	-M50 CTCP115	-M50 CTCP125	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M VNMG	M VNMG	M VNMG	F VNMG	F VNMG	F VNMG	M VNMG
	70 131 ...	76 131 ...	76 131 ...	75 022 ...	75 022 ...	75 022 ...	75 023 ...
ISO / RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
160404EN 0.4		19.65 316	19.65 516	19.65 11600	19.65 216	19.65 31600	
160408EN 0.8	19.65 518	19.65 318	19.65 518	19.65 11800	19.65 218	19.65 31800	19.65 11800
160412EN 1.2	19.65 520	19.65 320	19.65 520				
P	○	●	●	○	○	○	○
M				●	●	●	●
K	●	○	○				
N							
S						○	
H							
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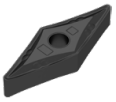
VNMG

				NEW		NEW	
		-M30 CTPM125		-M30 CTCM130		-M34 CTPX710	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
							
		M		M		M	
		VNMG		VNMG		VNMG	
		75 023 ...		75 023 ...		75 009 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08	
160404EN	0.4					18.68	61600
160408EN	0.8	19.65	218	19.65	31800	18.68	61800
160412EN	1.2					18.68	62000
P			○		○		●
M			●		●		●
K							
N							○
S					○		●
H							
O							

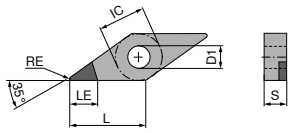
9

VNMG

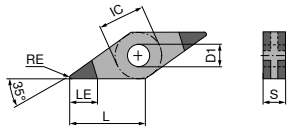
		NEW	NEW
		-FMS CT-P15	-FMS CT-P25
			
		F VNMG	F VNMG
		75 310 ...	75 310 ...
ISO	RE mm	£ 1S/1N	£ 1S/1N
160404EN	0.4	4.15 01609	4.15 11609
160408EN	0.8	4.15 01809	4.15 11809
P		●	●
M		○	○
K			
N			
S			
H			
O			

VNGA

Designation	L mm	S mm	D1 mm	IC mm
VNGA 1604..	16.6	4.76	3.81	9.52



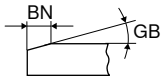
VNGA A

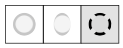


VNGA L

VNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners



						NEW		NEW		NEW	
						CTBH20C		CTBH40U		CTBH40C	
											
											
						F		F		F	
						CBN		CBN		CBN	
						VNGA		VNGA		VNGA	
						71 413 ...		71 412 ...		71 413 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0	
160404FN	0.4			A (1)	5.0			69.55	50000		
160404SN	0.4	0.09	20°	L (4)	2.8					87.56	60000
160404SN	0.4	0.11	20°	L (4)	2.8	87.56	30100				
160404TN	0.4	0.11	25°	L (4)	2.8	87.56	30200				
160404SN	0.4	0.11	25°	L (4)	2.8					87.56	60100
160404TN	0.4	0.12	25°	A (1)	5.0			69.55	50100		
160404SN	0.4	0.13	25°	L (4)	2.8					87.56	60200
160404SN	0.4	0.14	30°	L (4)	2.8					87.56	60300
160404SN	0.4	0.14	35°	L (4)	2.8					87.56	60400
160404FN	0.4			L (4)	2.8	87.56	30000				
160408SN	0.8	0.09	15°	L (4)	2.2					87.56	60500
160408SN	0.8	0.11	20°	L (4)	2.2	87.56	30400			87.56	60600
160408SN	0.8	0.11	25°	L (4)	2.2					87.56	60700
160408TN	0.8	0.11	25°	L (4)	2.2	87.56	30500				
160408TN	0.8	0.12	25°	A (1)	4.4			69.55	50300		
160408SN	0.8	0.13	25°	L (4)	2.2	87.56	30600			87.56	60800
160408SN	0.8	0.14	30°	L (4)	2.2					87.56	60900
160408SN	0.8	0.14	35°	L (4)	2.2					87.56	61000
160408FN	0.8			L (4)	2.2	87.56	30300				
160408FN	0.8			A (1)	4.4			69.55	50200		

P			
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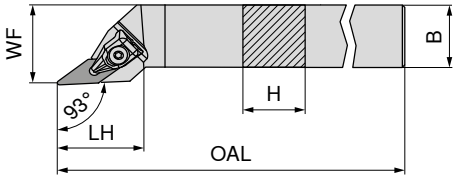
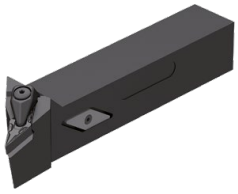
9

→ v_c Page 200–207

MaxiLock-D – DVJN 93° – Toolholder with top clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 503 ... £ 2A/24		Right-hand 70 502 ... £ 2A/24	
DVJN R/L 2020 K16	20	20	125	39	25	2	VN.. 1604	93.39	**620**	93.39	**620**
DVJN R/L 2525 M16	25	25	150	39	32	2	VN.. 1604	99.08	**725**	99.08	**725**


XPress type

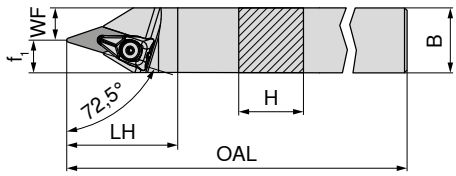
Key D


Clamping screw


Solid Carbide Seat V

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 502 620 / 70 503 620	27.46	**835**	T09 - IP	15.51 **126**	M3x7 - IP	2.99	**819**	5.33 **806**
70 502 725 / 70 503 725	27.46	**835**	T09 - IP	15.51 **126**	M3x7 - IP	2.99	**819**	5.33 **806**

MaxiLock-D – DVVN 72.5° – Toolholder with top clamping





ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	f_1 mm	torque moment Nm	Insert	Neutral 70 506 ... £ 2A/24	
DVVN N 2020 K16	20	20	125	43	7.5	12.5	2	VN.. 1604	93.39	**620**
DVVN N 2525 M16	25	25	150	43	12.5	12.5	2	VN.. 1604	99.08	**625**


XPress type

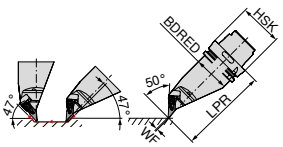

Key D


Clamping screw


Solid Carbide Seat V

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 506 620	27.46	**835**	T09 - IP	15.51 **126**	M3x7 - IP	2.99	**819**	5.33 **806**
70 506 625	27.46	**835**	T09 - IP	15.51 **126**	M3x7 - IP	2.99	**819**	5.33 **806**

MaxiLock-D – DVMN 50° – Toolholder with top clamping





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 525 ... £ 2D/80	
HSK T63 DVMN L 16	HSK-T 63	130	53	0	2	VN.. 1604	522.71	**516**
HSK T100 DVMN L 16	HSK-T 100	160	88	0	2	VN.. 1604	641.43	**716**


XPress type

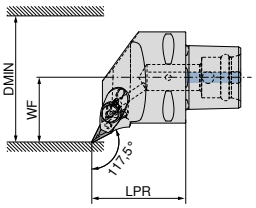

Key D


Clamping screw


Solid Carbide Seat V

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 525 516	27.46	**835**	T09 - IP	15.51 **126**	M3x7 - IP	2.99 **819**	5.33	**806**
74 525 716	27.46	**835**	T09 - IP	15.51 **126**	M3x7 - IP	2.99 **819**	5.33	**806**

MaxiLock-D – DVPN 117,5° – Toolholder with top clamping



Illustrations show right-hand versions



NEW Left-hand **84 673 ...** | **NEW** Right-hand **84 672 ...**

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	£ Y8		£ Y8	
PSC40 DVPN R/L 50050-16	PSC 40	50	27	50	10	VN.. 1604	540.08	**01695**	540.08	**01695**
PSC50 DVPN R/L 65060-16	PSC 50	60	35	65	10	VN.. 1604	607.30	**01694**	607.30	**01694**
PSC63 DVPN R/L 80065-16	PSC 63	65	45	80	10	VN.. 1604	663.43	**01693**	663.43	**01693**


Clamping Screw


Clamping claw


Ring-shaped nozzle

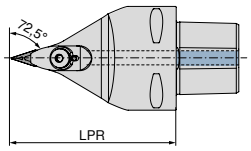

Clamping screw

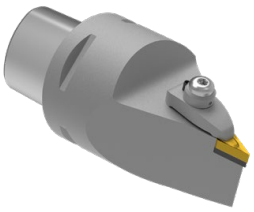

Solid Carbide Seat V

Spare parts Adapter		84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8	
PSC 40	M6X28 SW4	44.63	**28300**	52.88	**28500**	17.02	**28400**	6.97	**27600**	52.71	**28000**
PSC 50	M6X28 SW4	44.63	**28300**	52.88	**28500**	17.02	**28400**	6.97	**27600**	52.71	**28000**
PSC 63	M6X28 SW4	44.63	**28300**	52.88	**28500**	17.02	**28400**	6.97	**27600**	52.71	**28000**

MaxiLock-D – DVVN 72,5° – Toolholder with top clamping







NEW
Neutral
84 679 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	£ Y8	
PSC63 DVVN N 0100-16	PSC 63	100	10	VN.. 1604	663.43	**01693**
PSC63 DVVN N 0130-16	PSC 63	130	10	VN.. 1604	663.43	**11693**


Clamping Screw


Clamping claw


Ring-shaped nozzle

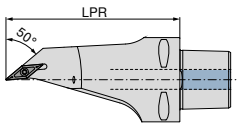

Clamping screw

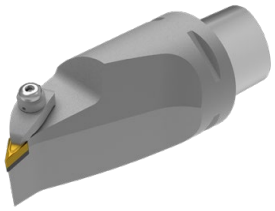

Solid Carbide Seat V

Spare parts Adapter		**84 950 ...** £ Y8		**84 950 ...** £ Y8		**84 950 ...** £ Y8		**84 950 ...** £ Y8		**84 950 ...** £ Y8	
PSC 63	M6X28 SW4	44.63	**28300**	52.88	**28500**	17.02	**28400**	6.97	**27600**	52.71	**28000**

MaxiLock-D – DVMN 50° – Toolholder with top clamping







NEW
Neutral
84 682 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	£ Y8	
PSC63 DVMN L 0130-16	PSC 63	130	10	VN.. 1604	771.31	**01693**


Clamping Screw


Clamping claw


Ring-shaped nozzle

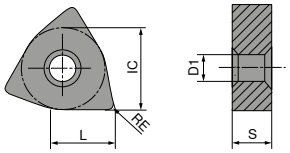

Clamping screw


Solid Carbide Seat V

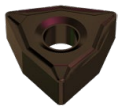
Spare parts Adapter		**84 950 ...** £ Y8		**84 950 ...** £ Y8		**84 950 ...** £ Y8		**84 950 ...** £ Y8		**84 950 ...** £ Y8	
PSC 63	M6X28 SW4	44.63	**28300**	52.88	**28600**	17.02	**28400**	6.97	**27600**	52.71	**28000**

WNMG / WNMA

Designation	L mm	S mm	D1 mm	IC mm
WNMG 0604..	6.5	4.76	3.81	9.52
WNM. 0804..	8.6	4.76	5.16	12.70

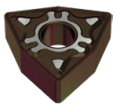


WNMG

		-CF20 CTEP110		-TFQ CTEP110		-F50 CTCP115		-F50 CTCP125		-F50 CTCP135		-TFQ CTCP115		-TFQ CTCP125	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		F		F		F		F		F		F		F	
		CERMET WNMG		CERMET WNMG		WNMG		WNMG		WNMG		WNMG		WNMG	
		76 171 ...		76 177 ...		76 157 ...		76 157 ...		76 157 ...		76 177 ...		76 177 ...	
ISO	RE mm	£ 1A/78		£ 1A/78		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
060404EN	0.4	9.24	004			9.50	304	9.50	504	9.50	704	10.99	304	10.99	514
060408EN	0.8	9.24	006	10.99	006	9.50	306	9.50	506	9.50	706	10.99	306	10.99	506
080404EN	0.4			13.77	016	11.96	316	11.96	516	11.96	716				
080408EN	0.8	11.96	018	13.77	018	11.96	318	11.96	518	11.96	718	13.77	318	13.77	518
080412EN	1.2					11.96	320	11.96	520	11.96	720	13.77	320	13.77	520
P		●		●		●		●		●		●		●	
M		○		○						○					
K		○		○		○		○				○		○	
N															
S															
H															
O															

9

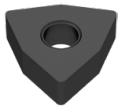
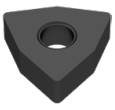
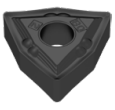
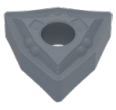
WNMG

		-XU CTCP115		-XU CTCP125		-M50 CTCK110		-M50 CTCK120		-M50 CTCP115		-M50 CTCP125		-M50 CTCP135	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		M		M		M		M		M		M		M	
		WNMG		WNMG		WNMG		WNMG		WNMG		WNMG		WNMG	
		76 295 ...		76 295 ...		70 139 ...		70 139 ...		76 139 ...		76 139 ...		76 139 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
060404EN	0.4									9.50	304	9.50	504	9.50	704
060408EN	0.8									9.50	306	9.50	506	9.50	706
060412EN	1.2									9.50	308	9.50	508	9.50	708
080404EN	0.4	11.97	316	11.97	516					11.96	316	11.96	516	11.96	716
080408EN	0.8	11.97	318	11.97	518	11.96	018	11.96	518	11.96	318	11.96	518	11.96	718
080412EN	1.2	11.97	320	11.97	520	11.96	020	11.96	520	11.96	320	11.96	520	11.96	720
080416EN	1.6									11.96	322	11.96	522	11.96	722
P		●		●		○		○		●		●		●	
M														○	
K		○		○		●		●		○		○			
N															
S															
H															
O															

WNMG

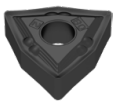
		-TMQ CTCP115		-TMQ CTCP125		-M70 CTCK110		-M70 CTCK120		-M70 CTCP115		-M70 CTCP125		-M70 CTCP135	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		M		M		M		M		M		M		M	
		WNMG		WNMG		WNMG		WNMG		WNMG		WNMG		WNMG	
		76 198 ...		76 198 ...		70 273 ...		70 273 ...		76 273 ...		76 273 ...		76 273 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
060408EN	0.8									9.50	306	9.50	506	9.50	706
060412EN	1.2									9.50	308	9.50	508	9.50	708
080408EN	0.8	13.77	31800	13.77	518	11.96	018	11.96	518	11.96	318	11.96	518	11.96	718
080412EN	1.2	13.77	320	13.77	520	11.96	020	11.96	520	11.96	320	11.96	520	11.96	720
080416EN	1.6					11.96	022	11.96	522	11.96	322	11.96	522	11.96	722
P		●		●		○		○		●		●		●	
M														○	
K		○		○		●		●		○		○			
N															
S															
H															
O															

WNMA / WNMG

				NEW		NEW	NEW	
		CTCK110	CTCK120	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	R	F	F	F	M	M
		WNMA	WNMA	WNMG	WNMG	WNMG	WNMG	WNMG
		70 169 ...	70 169 ...	75 024 ...	75 024 ...	75 024 ...	75 025 ...	75 025 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
060404EN	0.4			9.50 10400	9.50 204	9.50 30400		
060408EN	0.8			9.50 10600	9.50 206	9.50 30600	9.50 10600	9.50 206
060412EN	1.2						9.50 10800	9.50 208
080404EN	0.4			11.96 11600	11.96 216	11.96 31600		
080408EN	0.8	11.96 018	11.96 518	11.96 11800	11.96 218	11.96 31800	11.96 11800	11.96 218
080412EN	1.2	11.96 020	11.96 520				11.96 12000	11.96 220
080416EN	1.6	11.96 022	11.96 522					
P		○	○	○	○	○	○	○
M				●	●	●	●	●
K		●	●					
N								
S						○		
H								
O								

9

WNMG

		NEW	NEW		NEW	NEW
		-M30 CTCM130	-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M34 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		M	M	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG
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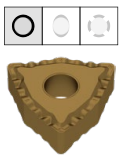
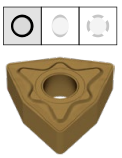
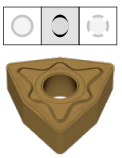
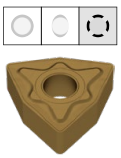
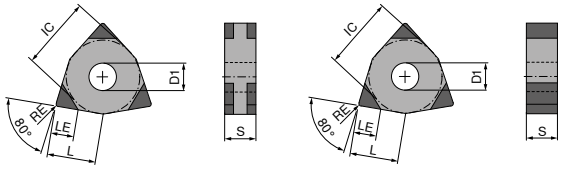
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
060408EN	0.8	9.50 30600	9.50 10600	9.50 206	9.50 30600	
060412EN	1.2	9.50 30800	9.50 10800	9.50 208	9.50 30800	
080408EN	0.8	11.96 31800	11.96 11800	11.96 218	11.96 31800	12.50 61800
080412EN	1.2	11.96 32000	11.96 12000	11.96 220	11.96 32000	12.50 62000
P		○	○	○	○	●
M		●	●	●	●	●
K						
N						○
S		○			○	●
H						
O						

WNMG

		NEW	NEW	NEW	NEW	NEW
		-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25	-MRS CT-P35
						
		F	F	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG
		75 311 ...	75 311 ...	75 312 ...	75 312 ...	75 312 ...
ISO	RE mm	£ 1S/1N	£ 1S/1N	£ 1S/1N	£ 1S/1N	£ 1S/1N
080404EN	0.4	3.84 01609	3.84 11609			
080408EN	0.8	3.84 01809	3.84 11809	3.84 01809	3.84 11809	3.84 21809
080412EN	1.2	3.84 02009	3.84 12009	3.84 02009	3.84 12009	3.84 22009
P		●	●	●	●	●
M		○	○	○	○	○
K						
N						
S						
H						
O						

WNGA

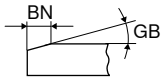
Designation	L mm	S mm	D1 mm	IC mm
WNGA 0804..	8.5	4.76	5.13	12.7



WNGA M WNGA V

WNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners



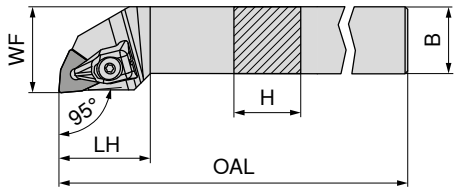
						NEW				NEW
						CTBS05U	CTBS20C	CTBH20C	CTBH40C	-Q CTBH40C
						F	F	F	F	F
						CBN WNGA	CBN WNGA	CBN WNGA	CBN WNGA	CBN WNGA
						71 415 ...	71 405 ...	71 405 ...	71 405 ...	71 414 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0
080404FN	0.4			M (6)	2.8			131.30 20200		
080404SN	0.4	0.09	10°	M (6)	2.8		131.30 122			
080404TN	0.4	0.09	15°	M (6)	2.8			131.30 23200		
080404SN	0.4	0.09	15°	M (6)	2.8		131.30 132			
080404SN	0.4	0.09	20°	M (6)	2.8		131.30 152		131.30 332	
080404SN	0.4	0.11	20°	M (6)	2.8			131.30 242		
080404TN	0.4	0.11	25°	M (6)	2.8			131.30 25200		
080404SN	0.4	0.11	25°	M (6)	2.8				131.30 352	
080404SN	0.4	0.13	25°	M (6)	2.8			131.30 262		
080404SN	0.4	0.14	30°	M (6)	2.8				131.30 372	
080404TN	0.4	0.20	30°	V (3)	2.8	176.53 00100				
080404TN	0.4	0.20	30°	V (3)	4.5	205.13 00200				
080408SN	0.8	0.09	10°	M (6)	2.5		131.30 124			
080408TN	0.8	0.09	15°	M (6)	2.5			131.30 23300		
080408SN	0.8	0.09	15°	M (6)	2.5		131.30 134			
080408SN	0.8	0.09	20°	M (6)	2.5		131.30 154		131.30 334	
080408SN	0.8	0.11	20°	M (6)	2.5			131.30 244		
080408TN	0.8	0.11	25°	M (6)	2.5			131.30 25300		
080408SN	0.8	0.11	25°	M (6)	2.5				131.30 354	129.65 60100
080408SN	0.8	0.13	25°	M (6)	2.5			131.30 264	131.30 364	
080408SN	0.8	0.16	25°	M (6)	2.5		131.30 174			
080408SN	0.8	0.14	30°	M (6)	2.5			131.30 274	131.30 376	
080408TN	0.8	0.20	30°	V (3)	2.6	176.53 00300				
080408TN	0.8	0.20	30°	V (3)	4.2	205.13 00400				
080408SN	0.8	0.14	35°	M (6)	2.5				131.30 38200	
080408EN	0.8			M (6)	2.5					129.65 60000
080412SN	1.2	0.11	20°	M (6)	2.2				131.30 34200	
080412SN	1.2	0.11	25°	M (6)	2.2				131.30 35100	
080412SN	1.2	0.14	30°	M (6)	2.2				131.30 36100	
080412TN	1.2	0.20	30°	V (3)	2.4	176.53 00500				
080412TN	1.2	0.20	30°	V (3)	4.0	205.13 00600				
080412SN	1.2	0.14	35°	M (6)	2.2				131.30 38300	

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

9

MaxiLock-D – DWLN 95° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 543 ... £ 2A/24		Right-hand 70 542 ... £ 2A/24	
DWLN R/L 1616 H06	16	16	100	25	20	2	WN.. 0604	72.86	**716**	72.86	**716**
DWLN R/L 2020 K06	20	20	125	27	25	2	WN.. 0604	81.18	**720**	81.18	**720**
DWLN R/L 2525 M06	25	25	150	27	32	2	WN.. 0604	83.97	**725**	83.97	**725**
DWLN R/L 2020 K08	20	20	125	34	25	4	WN.. 0804	81.18	**620**	81.18	**620**
DWLN R/L 2525 M08	25	25	150	34	32	4	WN.. 0804	83.97	**625**	83.97	**625**


XPress type


Key D

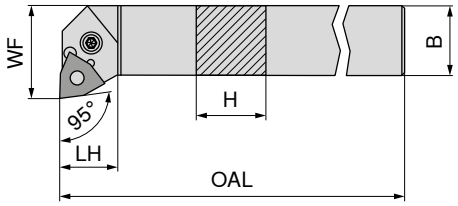

Clamping screw


Solid Carbide Seat W

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 543 716 / 70 542 716	23.01	**823**	T09 - IP	15.51 **126**	M3x7 - IP	2.99 **819**	3.24	**807**
70 543 720 / 70 542 720	23.01	**823**	T09 - IP	15.51 **126**	M3x7 - IP	2.99 **819**	3.24	**807**
70 543 725 / 70 542 725	23.01	**823**	T09 - IP	15.51 **126**	M3x7 - IP	2.99 **819**	3.24	**807**
70 543 620 / 70 542 620	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	9.48	**812**
70 543 625 / 70 542 625	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	9.48	**812**

MaxiLock-N – PWLN 95° – Toolholder with lever clamping







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 543 ... £ 2A/24		Right-hand 70 542 ... £ 2A/24	
PWLN R/L 1616 H06	16	16	100	20	22.5	3	WNMG 0604	72.86	**116**	72.86	**11600**[1)]
PWLN R/L 2020 K06	20	20	125	26	25.0	3	WNMG 0604	81.18	**12000**[1)]	81.18	**12000**[1)]
PWLN R/L 2525 M06	25	25	150	19	32.0	3	WNMG 0604	83.97	**125**	83.97	**12500**[1)]
PWLN R/L 2020 K08	20	20	125	22	25.0	4	WNMG 0804	81.18	**020**	81.18	**020**
PWLN R/L 2525 M08	25	25	150	22	32.0	4	WNMG 0804	83.97	**025**	83.97	**025**
PWLN R/L 3225 P08	32	25	170	22	32.0	4	WNMG 0804	90.08	**032**	90.08	**032**

1) nickel-plated


Key I


Shim

Assembly pin


Lever

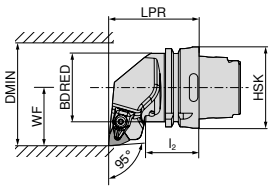

Clamping screw


Solid Carbide Seat W

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 542 11600 / 70 543 116	SW2,5	2.34	**175**	1.96	**122**	1.17	**191**	11.92	**185**	3.05	**208**	6.88	**127**
70 542 12000 / 70 543 12000	SW2,5	2.34	**175**	1.96	**122**	1.17	**191**	11.92	**185**	3.05	**208**	6.88	**127**
70 542 12500 / 70 543 125	SW2,5	2.34	**175**	1.96	**122**	1.17	**191**	11.92	**185**	3.05	**208**	6.88	**127**
70 542 020 / 70 543 020	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	8.33	**235**
70 542 025 / 70 543 025	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	8.33	**235**
70 542 032 / 70 543 032	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	8.33	**235**

MaxiLock-D – DWLN 95° – Toolholder with top clamping





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	Insert	Left-hand 74 529 ... £ 2D/80		Right-hand 74 528 ... £ 2D/80	
HSK T63 DWLN R/L 08	HSK-T 63	70	42	53	45	125	WN.. 0804	327.86	**508**	327.86	**508**
HSK T100 DWLN R/L 08	HSK-T 100	80	45	88	55	125	WN.. 0804	384.89	**708**	384.89	**708**


XPress type


Key D


Clamping screw

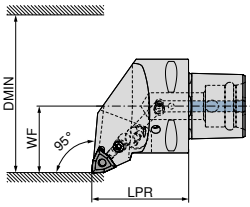

Solid Carbide Seat W

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 528 508 / 74 529 508	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	9.48	**812**
74 528 708 / 74 529 708	22.69	**824**	T15 - IP	16.56 **128**	M4,5x12 - IP	2.85 **820**	9.48	**812**

MaxiLock-N – PWLN 95° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 653 ... £ Y8		NEW Right-hand 84 652 ... £ Y8	
PSC40 PWLN R/L 50050-08	PSC 40	50	27	50	5	WN.. 0804	DC	500.81	**00895**	500.81	**00895**
PSC50 PWLN R/L 65060-08	PSC 50	60	35	65	5	WN.. 0804	DC	551.40	**00894**	551.40	**00894**
PSC63 PWLN R/L 80065-08	PSC 63	65	45	80	5	WN.. 0804	DC	626.01	**00893**	626.01	**00893**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.


Shim

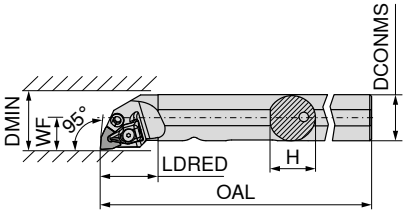

Elbow lever screw


Lever


Solid Carbide Seat W

Spare parts Adapter	84 950 ... £ Y8			84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8	
PSC 40	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27700**
PSC 50	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27700**
PSC 63	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27700**

MaxiLock-D – DWLN 95° – Boring bar with top clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 573 ... £ 2A/24		Right-hand 70 572 ... £ 2A/24	
A25R DWLN R/L 06	25	24	200	32	17	32	2	WN.. 0604	212.10	**725**	212.10	**725**
A32S DWLN R/L 08	32	31	250	40	22	40	4	WN.. 0804	219.36	**732**	219.36	**732**
A40T DWLN R/L 08	40	39	300	45	27	50	4	WN.. 0804	244.37	**64000**	244.37	**640**


XPress type


Key D

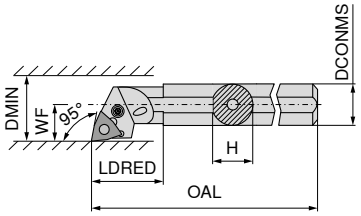

Clamping screw


Hydrant


Solid Carbide Seat W

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 572 725 / 70 573 725	23.01	**823**	T09 - IP	15.51	**126**	M3x7 - IP	2.99	**819**	19.90	**834**	3.24	**807**
70 572 732 / 70 573 732	22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	19.90	**834**	9.48	**812**
70 572 640 / 70 573 64000	22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	19.90	**834**	9.48	**812**

MaxiLock-N – PWLN 95° – Boring bar with lever clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 573 ... £ 2A/24		Right-hand 70 572 ... £ 2A/24	
A16M PWLN R/L 06	16	15	150	20	11	20	3	WNMG 0604	172.29	**11600**[1)]	172.29	**11600**[1)]
A20Q PWLN R/L 06-1	20	19	180	30	13	25	3	WNMG 0604	190.33	**12100**[1)]	190.33	**12100**[1)]
A25R PWLN R/L 06	25	23	200	25	17	32	3	WNMG 0604	212.10	**12500**[1)]	212.10	**12500**[1)]
A32S PWLN R/L 06	32	30	250	50	22	40	3	WNMG 0604	219.36	**132**	219.36	**132**
A25R PWLN R/L 08	25	23	200	40	17	31	4	WNMG 0804	212.19	**225**	212.19	**225**
A32S PWLN R/L 08	32	30	250	50	22	40	4	WNMG 0804	219.36	**032**	219.36	**032**
A40T PWLN R/L 08	40	39	300	60	27	50	4	WNMG 0804	244.37	**040**	244.37	**040**

1) nickel-plated


Key I


Shim


Assembly pin


Lever


Clamping screw

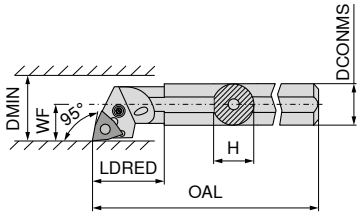

Solid Carbide Seat W

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 572 11600 / 70 573 11600	SW2	2.34	**177**					14.29	**129**	4.04	**217**		
70 572 12100 / 70 573 12100	SW2	2.34	**177**					14.29	**129**	4.04	**217**		
70 572 12500 / 70 573 12500	SW2,5	2.34	**175**	1.96	**122**	1.17	**191**	11.92	**185**	3.05	**208**	6.88	**127**
70 572 132 / 70 573 132	SW2,5	2.34	**175**	1.96	**122**	1.17	**191**	11.92	**185**	3.05	**208**	6.88	**127**
70 572 225 / 70 573 225	SW3	2.34	**176**					12.02	**187**	4.08	**205**		
70 572 032 / 70 573 032	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	8.33	**235**
70 572 040 / 70 573 040	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	8.33	**235**

MaxiLock-N – PWLN 95° – Boring bar with lever clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Right-hand 70 566 ... £ 2A	
E-A16M PWLN R 06	16	15	150	24	11	20	3	WNMG 0604	611.29	**016**
E-A20Q PWLN R 06	20	18	180	29	13	27	3	WNMG 0604	653.48	**020**
E-A25R PWLN R 06	25	23	200	40	17	31	3	WNMG 0604	677.34	**025**
E-A25R PWLN R 08	25	23	200	40	17	31	4	WNMG 0804	677.34	**125**
E-A32S PWLN R 08	32	30	250	50	22	39	4	WNMG 0804	894.13	**032**
E-A40T PWLN R 08	40	38	300	60	27	48	4	WNMG 0804	1,067.18	**040**


Key l


Shim


Assembly pin


Lever

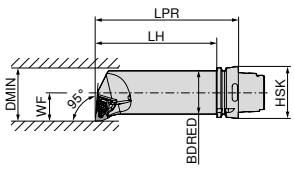

Clamping screw


Solid Carbide Seat W

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 566 016	SW2	2.34	**177**					14.29	**129**	4.04	**217**		
70 566 020	SW2	2.34	**177**					14.29	**129**	4.04	**217**		
70 566 025	SW2,5	2.34	**175**	1.96	**122**	1.17	**191**	11.92	**185**	3.05	**208**	6.88	**127**
70 566 125	SW3	2.34	**176**					12.02	**187**	3.34	**209**		
70 566 032	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	8.33	**235**
70 566 040	SW3	2.34	**176**	1.68	**198**	1.17	**192**	12.02	**187**	3.34	**209**	8.33	**235**

MaxiLock-D – DWLN 95° – Boring bar with top clamping





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 537 ... £ 2D/80		Right-hand 74 536 ... £ 2D/80	
HSK T63 50Q DWLN R/L 08	HSK-T 63	175	149	50	35	63	4	WN.. 0804	449.76	**508**	449.76	**508**


XPress type

Key D


Clamping screw

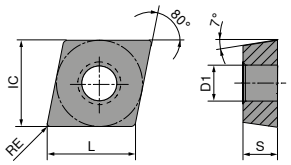

Solid Carbide Seat W

Spare parts for Article no.		70 950 ... £ 2A/28			80 950 ... £ Y7			70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 536 508 / 74 537 508		22.69	**824**	T15 - IP	16.56	**128**	M4,5x12 - IP	2.85	**820**	9.48	**812**

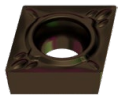
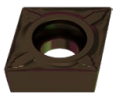
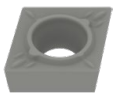
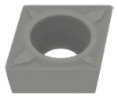
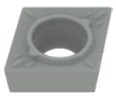
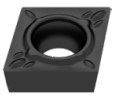
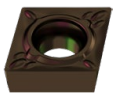
9

CCGT / CCMT

Designation	L mm	S mm	D1 mm	IC mm
CC.T 0602..	6.4	2.38	2.8	6.35
CC.T 09T3..	9.7	3.97	4.4	9.52
CC.T 1204..	12.9	4.76	5.5	12.70

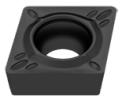
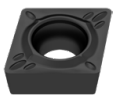
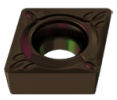
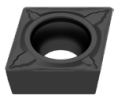
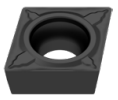
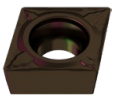
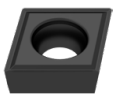


CCGT / CCMT

	-CF05 CTEP110	-CF55 CTEP110	-SF TCM10	-SMF TCM10	-SF TCM407	-SF CTCP125	-SF CTCP135
	DRAGONSKIN	DRAGONSKIN				DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET CCGT	CERMET CCMT	CERMET CCGT	CERMET CCMT	CERMET CCGT	CCGT	CCGT
	76 247 ...	76 248 ...	70 251 ...	70 249 ...	70 251 ...	76 251 ...	76 251 ...

ISO	RE mm	£ 1A/78		£ 1A/78		£ 1A/78		£ 1A/78		£ 1A/78		£ 1A/08		£ 1A/08	
060202EN	0.2	13.23	002			12.82	900			12.82	850	13.23	502	13.23	702
060204EN	0.4	13.23	004	7.19	004	12.82	902	6.95	900	12.82	852				
09T302EN	0.2	14.10	014			13.23	904			13.23	854				
09T304EN	0.4	14.10	016	9.24	016	13.23	906	8.62	904						
09T308EN	0.8	14.10	018	9.24	018	13.23	908	8.62	906						
120404EN	0.4			13.04	028	16.55	910								
P		●		●		●		●		●		●		●	
M		○		○		○		○		○				○	
K		○		○		○		○		○		○			
N															
S															
H															
O															

CCMT / CCGT

		-SF CTCP115		-SF CTCP125		-SF CTCP135		-SMF CTCP115		-SMF CTCP125		-SMF CTCP135		-SM CTCP125	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		F		F		F		F		F		F		M	
		CCMT		CCMT		CCMT		CCMT		CCMT		CCMT		CCGT	
		76 253 ...		76 253 ...		76 253 ...		76 249 ...		76 249 ...		76 249 ...		76 250 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
060202EN	0.2													13.23	502
060204EN	0.4	7.42	304	7.42	504	7.42	704			7.42	504	7.42	704		
060208EN	0.8									7.42	506				
09T304EN	0.4	9.26	316	9.26	516	9.26	716	9.26	316	9.26	516	9.26	716		
09T308EN	0.8	9.26	318	9.26	518			9.26	318	9.26	518				
120404EN	0.4			13.04	528					13.04	528				
120408EN	0.8			13.04	530			13.04	330			13.04	730		
P		●		●		●		●		●		●		●	
M						○						○			
K		○		○				○		○				○	
N															
S															
H															
O															

9

CCGT / CCMT

		-SM CTCP135		-SM CTCK110		-SM CTCK120		-SM CTCP115		-SM CTCP125		-SM CTCP135		-SMQ CTCP115	
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		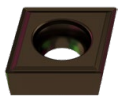		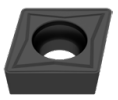				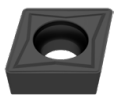		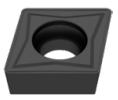		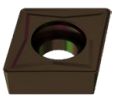		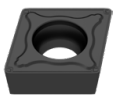	
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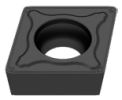
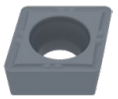
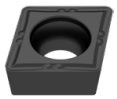
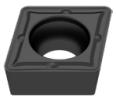
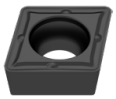
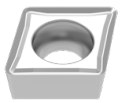
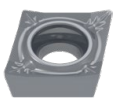
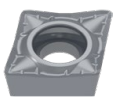
		CCGT		CCMT		CCMT		CCMT		CCMT		CCMT		CCMT	
		76 250 ...		70 252 ...		70 252 ...		76 252 ...		76 252 ...		76 252 ...		76 194 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
060202EN	0.2	13.23	702												
060204EN	0.4			7.42	004	7.42	554	7.42	304	7.42	504	7.42	704		
060208EN	0.8			7.42	006	7.42	506	7.42	306			7.42	706		
09T304EN	0.4			9.26	016	9.26	516	9.26	316	9.26	516	9.26	716	10.42	31600
09T308EN	0.8			9.26	018	9.26	518	9.26	318	9.26	518	9.26	718	10.42	31800
09T312EN	1.2			9.26	020	9.26	520								
120404EN	0.4			13.04	028	13.04	528	13.04	328	13.04	528	13.04	728	14.64	32800
120408EN	0.8			13.04	030	13.04	530	13.04	330	13.04	530	13.04	730	14.64	330
120412EN	1.2									13.04	532				
P		●		○		○		●		●		●		●	
M		○										○			
K				●		●		○		○				○	
N															
S															
H															
O															

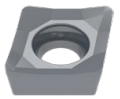
CCMT

		-SMQ CTCP125	NEW -M25 CTCM120	-M25 CTPM125	NEW -M25 CTCM130	NEW -M55 CTCM120	-M55 CTPM125	NEW -M55 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	F	F	M	M	M
		CCMT	CCMT	CCMT	CCMT	CCMT	CCMT	CCMT
		76 194 ...	75 210 ...	75 210 ...	75 210 ...	75 211 ...	75 211 ...	75 211 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
060204EN	0.4		7.42 10400	7.42 204	7.42 30400	7.42 10400	7.42 204	
09T304EN	0.4	10.42 516	9.26 11600	9.26 216	9.26 31600	9.26 11600	9.26 216	9.26 31600
09T308EN	0.8	10.42 518	9.26 11800	9.26 218	9.26 31800	9.26 11800	9.26 218	9.26 31800
120404EN	0.4	14.64 528				13.04 12800	13.04 228	13.04 32800
120408EN	0.8	14.64 530				13.04 13000	13.04 230	13.04 33000
P		●	○	○	○	○	○	○
M			●	●	●	●	●	●
K		○						
N								
S					○			○
H								
O								

CCGT

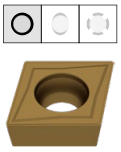
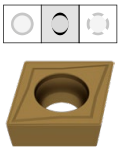
		-23P H216T	-25P H210T	NEW -25P CTPX710	-25Q H210T	NEW -25Q CTPX710	-27 H10T	-27 CWN15
				DRAGONSKIN		DRAGONSKIN		
								
		F	F	M	M	M	M	M
		CCGT	CCGT	CCGT	CCGT	CCGT	CCGT	CCGT
		70 255 ...	70 248 ...	70 248 ...	70 248 ...	70 248 ...	70 254 ...	70 254 ...
ISO	RE mm	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A
060202FN	0.2	10.42 652	10.42 636	12.40 70200			9.75 600	12.38 300
060204FN	0.4	10.42 654	10.42 638	12.40 70400	11.32 678	14.97 75400	9.75 602	12.38 302
09T302FN	0.2		10.90 639	12.70 71400			10.42 604	12.80 304
09T304FN	0.4	10.90 656	10.90 640	12.70 71600	11.96 680	15.68 76600	10.42 606	12.80 306
09T308FN	0.8	10.90 658	10.90 641	12.70 71800	11.96 681	15.68 76800	10.42 608	12.80 308
120402FN	0.2		12.71 643				12.17 610	14.86 310
120404FN	0.4		12.71 642	16.22 72800	14.10 682	17.63 77800	12.17 612	14.86 312
120408FN	0.8		12.71 644	16.22 73000	14.10 686	17.63 78000	12.17 614	14.86 314
P				●		●		
M				●		●		○
K		○	○		○		○	
N		●	●	●	●	●	●	●
S			○	●	○	●		
H								
O		○	○		○		○	

CCGT / CCMT

		NEW	NEW
		-27 CTPX715	-29 H216T
		DRAGONSKIN	
			
		M	M
		CCGT	CCMT
		70 254 ...	70 245 ...
ISO	RE mm	£ 1A/90	£ 1A/90
060202FN	0.2	11.85 80200	
060204EN	0.4		7.51 60400
060204FN	0.4	11.85 80400	
09T302FN	0.2	12.18 81400	
09T304EN	0.4		7.99 61600
09T304FN	0.4	12.18 81600	
09T308EN	0.8		7.99 61800
09T308FN	0.8	12.18 81800	
120402FN	0.2	15.17 82600	
120404FN	0.4	15.17 82800	
120408FN	0.8	15.17 83000	
P		●	
M		●	
K		○	○
N		●	●
S		●	
H			
O		○	○

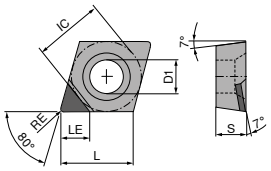
9

CCMT

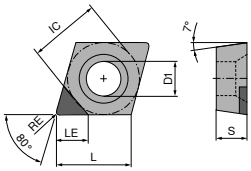
		NEW	NEW	NEW	NEW
		-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25
					
		F	F	M	M
		CCMT	CCMT	CCMT	CCMT
		75 300 ...	75 300 ...	75 301 ...	75 301 ...
ISO	RE mm	£ 1S/1P	£ 1S/1P	£ 1S/1P	£ 1S/1P
09T304EN	0.4	2.37 01609	2.37 11609	2.37 01609	2.37 11609
09T308EN	0.8	2.37 01809	2.37 11809	2.37 01809	2.37 11809
120404EN	0.4	3.18 02809	3.18 12809	3.18 02809	3.18 12809
120408EN	0.8	3.18 03009	3.18 13009	3.18 03009	3.18 13009
120412EN	1.2			3.18 03209	3.18 13209
P		●	●	●	●
M		○	○	○	○
K					
N					
S					
H					
O					

CCGW / CCGT

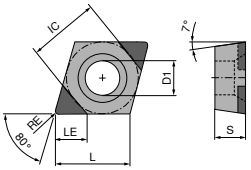
Designation	L mm	S mm	D1 mm	IC mm
CCG. 0602..	6.40	2.38	2.8	6.35
CCGW 0602..	6.45	2.38	2.8	6.35
CCG. 09T3..	9.70	3.97	4.4	9.52
CCGW 1204..	12.90	4.76	5.5	12.70



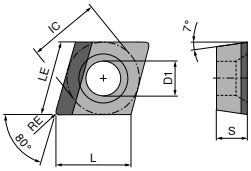
CCGT A



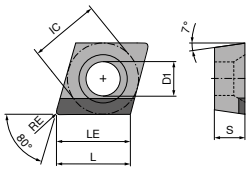
CCGW A



CCGW B



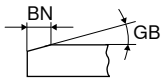
CCGW A LL



CCGW A RR

CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



	NEW			NEW	NEW
	CTBS10U	CTBS10U	CTBS10U	CTBS10U	CTBS10U
	F	F	F	F	F
	CBN CCGW	CBN CCGW	CBN CCGT	CBN CCGW	CBN CCGW
	71 419 ...	71 120 ...	71 124 ...	71 420 ...	71 420 ...

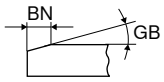
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
060202TN	0.2	0.12	20°	A (1)	3.4			65.13	300						
060202FN	0.2			A (1)	3.4			65.13	200	79.91	200				
060204TN	0.4	0.12	20°	A (1)	3.1			65.13	302						
060204FN	0.4			A (1)	3.1			65.13	202	79.91	202				
060208TN	0.8	0.12	20°	A (1)	2.8			65.13	30300						
09T302FN	0.2			A (1)	3.4					79.91	25000				
09T304FN	0.4			A (1)	2.8			65.13	204						
09T304TN	0.4	0.12	20°	A (1)	2.8			65.13	304						
09T304FN	0.4			A (1)	3.1					79.91	25200				
09T304FN	0.4			B (2)	3.1	80.26	10000								
09T304TRR	0.4	0.12	20°	A (1)	9.7							112.35	10100		
09T304TN	0.4	0.12	20°	B (2)	3.1	80.26	10100								
09T304TLL	0.4	0.12	20°	A (1)	9.7									112.35	10000
09T308FN	0.8			A (1)	2.5			65.13	206						
09T308TRR	0.8	0.12	20°	A (1)	9.7							112.35	10300		
09T308TN	0.8	0.12	20°	A (1)	2.5			65.13	306						
09T308TLL	0.8	0.12	20°	A (1)	9.7									112.35	10200
120404FN	0.4			A (1)	3.1			55.39	208						
120404TN	0.4	0.12	20°	A (1)	3.1			55.39	308						
120408TN	0.8	0.12	20°	A (1)	2.8			55.39	310						
120408FN	0.8			A (1)	2.8			55.39	210						

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

9

CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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						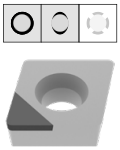	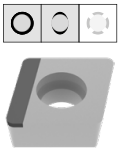	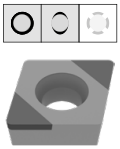	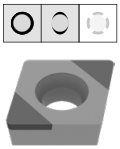	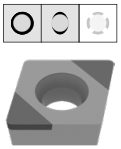	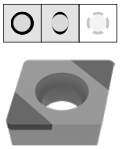
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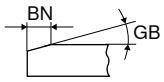
						71 418 ...	71 420 ...	71 162 ...	71 161 ...	71 161 ...	71 162 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0
060202SN	0.2	0.09	10°	B (2)	3.4			76.99 120		76.99 230	76.99 230
060202SN	0.2	0.11	15°	B (2)	3.4			76.99 130			76.99 240
060202TN	0.2	0.12	15°	A (1)	3.4	48.14 20000					
060202SN	0.2	0.09	20°	B (2)	3.4					76.99 250	
060202TN	0.2	0.15	20°	B (2)	3.4			76.99 140			
060202SN	0.2	0.16	20°	B (2)	3.4			76.99 150	76.99 150		
060202TN	0.2	0.14	25°	B (2)	3.4					76.99 260	
060202SN	0.2	0.15	25°	B (2)	3.4					76.99 270	
060202EN	0.2			B (2)	3.4			76.99 110	76.99 110		76.99 220
060202TN	0.2	0.17	25°	B (2)	3.4			76.99 160	76.99 160		
060202FN	0.2			B (2)	3.4						76.99 210
060204SN	0.4	0.09	10°	B (2)	3.1			76.99 121	76.99 121	76.99 231	76.99 231
060204SN	0.4	0.11	15°	B (2)	3.1			76.99 131	76.99 131	76.99 241	76.99 241
060204TN	0.4	0.12	15°	A (1)	3.1	48.14 20200					
060204SN	0.4	0.09	20°	B (2)	3.1					76.99 251	76.99 251
060204TN	0.4	0.15	20°	B (2)	3.1			76.99 141	76.99 141		
060204SN	0.4	0.16	20°	B (2)	3.1			76.99 151	76.99 151		
060204TN	0.4	0.14	25°	B (2)	3.1					76.99 261	76.99 261
060204SN	0.4	0.15	25°	B (2)	3.1					76.99 271	
060204TN	0.4	0.17	25°	B (2)	3.1			76.99 161	76.99 161		
060204SN	0.4	0.18	25°	B (2)	3.1			76.99 171			
060204FN	0.4			A (1)	3.1	48.14 20100					
060204EN	0.4			B (2)	3.1					76.99 221	
060208EN	0.8			B (2)	2.8				76.99 112		
060208SN	0.8	0.09	10°	B (2)	2.8				76.99 122	76.99 232	
060208SN	0.8	0.11	15°	B (2)	2.8				76.99 132		
060208SN	0.8	0.09	20°	B (2)	2.8					76.99 252	
060208TN	0.8	0.15	20°	B (2)	2.8				76.99 142		
060208TN	0.8	0.14	25°	B (2)	2.8					76.99 262	
060208TN	0.8	0.17	25°	B (2)	2.8				76.99 162		
060208SN	0.8	0.18	25°	B (2)	2.8				76.99 172		
060208SN	0.8	0.18	30°	B (2)	2.8				76.99 182	76.99 282	
060208FN	0.8			B (2)	2.8					76.99 212	
09T302SN	0.2	0.09	10°	B (2)	3.4				76.99 123	76.99 233	
09T302SN	0.2	0.11	15°	B (2)	3.4				76.99 133	76.99 243	
09T302SN	0.2	0.09	20°	B (2)	3.4					76.99 253	
09T302SN	0.2	0.16	20°	B (2)	3.4				76.99 153		
09T302SN	0.2	0.15	25°	B (2)	3.4					76.99 273	
09T302EN	0.2			B (2)	3.4				76.99 113		
09T302TN	0.2	0.17	25°	B (2)	3.4				76.99 163		
09T302SN	0.2	0.18	25°	B (2)	3.4				76.99 173		
09T304SN	0.4	0.09	10°	B (2)	3.1			76.99 124	76.99 124	76.99 234	
09T304SN	0.4	0.11	15°	B (2)	3.1			76.99 134	76.99 134	76.99 244	
09T304TN	0.4	0.12	15°	A (1)	2.8	48.14 20400					
09T304SN	0.4	0.09	20°	B (2)	3.1					76.99 254	
09T304TN	0.4	0.15	20°	B (2)	3.1			76.99 144	76.99 144		
09T304SN	0.4	0.16	20°	B (2)	3.1			76.99 154	76.99 154		
09T304TN	0.4	0.14	25°	B (2)	3.1					76.99 264	
09T304SN	0.4	0.15	25°	B (2)	3.1					76.99 274	
09T304TN	0.4	0.17	25°	B (2)	3.1			76.99 164	76.99 164		
09T304SN	0.4	0.18	25°	B (2)	3.1			76.99 174	76.99 174		
09T304SN	0.4	0.18	30°	B (2)	3.1				76.99 184	76.99 284	

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

CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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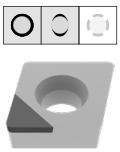
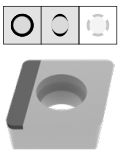
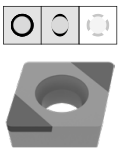
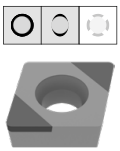
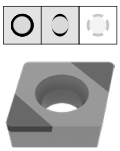
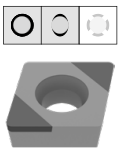
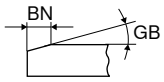
																	
						F		F		F		F		F		F	
						CBN CCGW		CBN CCGW		CBN CCGW		CBN CCGW		CBN CCGW		CBN CCGW	
						71 418 ...		71 420 ...		71 162 ...		71 161 ...		71 161 ...		71 162 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
09T304EN	0.4			B (2)	3.1							76.99	114	76.99	224		
09T304FN	0.4			A (1)	2.8	48.14	20300										
09T308SN	0.8	0.09	10°	B (2)	2.8					76.99	125	76.99	125	76.99	235	76.99	235
09T308SN	0.8	0.11	15°	B (2)	2.8					76.99	135			76.99	245	76.99	245
09T308TLL	0.8	0.12	15°	A (1)	9.7			112.35	20000								
09T308TN	0.8	0.12	15°	A (1)	2.5	48.14	20600										
09T308SN	0.8	0.09	20°	B (2)	2.8											76.99	255
09T308TN	0.8	0.15	20°	B (2)	2.8					76.99	145	76.99	145				
09T308SN	0.8	0.16	20°	B (2)	2.8					76.99	155	76.99	155				
09T308TN	0.8	0.14	25°	B (2)	2.8									76.99	265	76.99	265
09T308SN	0.8	0.15	25°	B (2)	2.8									76.99	275		
09T308TN	0.8	0.17	25°	B (2)	2.8					76.99	165	76.99	165				
09T308SN	0.8	0.18	25°	B (2)	2.8							76.99	175				
09T308FN	0.8			A (1)	2.5	48.14	20500										
09T308EN	0.8			B (2)	2.8					76.99	115					76.99	225
09T308SN	0.8	0.18	30°	B (2)	2.8							76.99	185				
09T308FN	0.8			B (2)	2.8											76.99	215
120404FN	0.4			A (1)	3.1	48.14	20700										
120404TN	0.4	0.12	15°	A (1)	3.1	48.14	20800										
120408TN	0.8	0.12	15°	A (1)	2.8	48.14	20900										
P																	
M																	
K						●		●		●		●					
N																	
S						●		●		●		●					
H															●		●
O																	

9

CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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						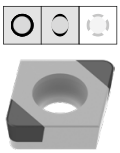								
						F		F		F				
						CBN CCGW		CBN CCGW		CBN CCGW				
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ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0				
060202SN	0.2	0.11	15°	B (2)	3.4	86.52	30214	83.69	30214					
060202EN	0.2			B (2)	3.4	86.52	00200	83.69	00200					
060204SN	0.4	0.11	15°	B (2)	3.1	86.52	30414	83.69	30414					
060204SN	0.4	0.14	25°	B (2)	3.1	86.52	30429	83.69	30429					
060204EN	0.4			B (2)	3.1	86.52	00400	83.69	00400					
060208EN	0.8			B (2)	2.8	86.52	00600	83.69	00600					
060208SN	0.8	0.11	15°	B (2)	2.8	86.52	30614	83.69	30614					
060208SN	0.8	0.14	25°	B (2)	2.8	86.52	30629	83.69	30629					
09T302SN	0.2	0.11	15°	B (2)	3.4			83.69	31414					
09T302SN	0.2	0.14	25°	B (2)	3.4			83.69	31429					
09T304SN	0.4	0.11	15°	B (2)	3.1			83.69	31614	83.69	31614			
09T304SN	0.4	0.14	25°	B (2)	3.1			83.69	31629	83.69	31629			
09T308SN	0.8	0.11	15°	B (2)	2.8			83.69	31814	83.69	31814			
09T308SN	0.8	0.14	25°	B (2)	2.8			83.69	31829	83.69	31829			
P														
M														
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H							●		●		●			
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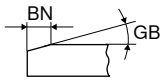
CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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						F		F		F		F		F		F	
						CBN CCGW		CBN CCGT		CBN CCGW		CBN CCGW		CBN CCGW		CBN CCGW	
						71 120 ...		71 124 ...		71 121 ...		71 123 ...		71 120 ...		71 161 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
060202SN	0.2	0.09	10°	B (2)	3.4											76.99	230
060202SN	0.2	0.09	20°	B (2)	3.4											76.99	250
060202TN	0.2	0.12	20°	A (1)	3.4									65.13	500		
060202TN	0.2	0.14	25°	B (2)	3.4											76.99	260
060202SN	0.2	0.15	25°	B (2)	3.4											76.99	270
060202FN	0.2			A (1)	3.4			79.91	400					65.13	400 1)		
060204SN	0.4	0.09	10°	B (2)	3.1											76.99	231
060204SN	0.4	0.11	15°	B (2)	3.1											76.99	241
060204SN	0.4	0.09	20°	B (2)	3.1											76.99	251
060204TN	0.4	0.12	20°	A (1)	3.1									65.13	502		
060204TN	0.4	0.14	25°	B (2)	3.1											76.99	261
060204SN	0.4	0.15	25°	B (2)	3.1											76.99	271
060204FN	0.4			A (1)	3.1			79.91	402					65.13	402 1)		
060204EN	0.4			B (2)	3.1											76.99	221
060208SN	0.8	0.09	10°	B (2)	2.8											76.99	232
060208SN	0.8	0.09	20°	B (2)	2.8											76.99	252
060208TN	0.8	0.14	25°	B (2)	2.8											76.99	262
060208SN	0.8	0.18	30°	B (2)	2.8											76.99	282
060208FN	0.8			B (2)	2.8											76.99	212
09T302SN	0.2	0.09	10°	B (2)	3.4											76.99	233
09T302SN	0.2	0.11	15°	B (2)	3.4											76.99	243
09T302SN	0.2	0.09	20°	B (2)	3.4											76.99	253
09T302TN	0.2	0.12	20°	B (2)	3.4					108.30	50100						
09T302SN	0.2	0.15	25°	B (2)	3.4											76.99	273
09T304FN	0.4			A (1)	2.8									65.13	404 1)		
09T304SN	0.4	0.09	10°	B (2)	3.1											76.99	234
09T304SN	0.4	0.11	15°	B (2)	3.1											76.99	244
09T304SN	0.4	0.09	20°	B (2)	3.1											76.99	254
09T304TN	0.4	0.12	20°	B (2)	3.1					108.30	502	90.01	502				
09T304TN	0.4	0.12	20°	A (1)	2.8									65.13	504		
09T304TN	0.4	0.14	25°	B (2)	3.1											76.99	264
09T304SN	0.4	0.15	25°	B (2)	3.1											76.99	274
09T304FN	0.4			B (2)	3.1					108.30	402 1)						
09T304SN	0.4	0.18	30°	B (2)	3.1											76.99	284
09T304FN	0.4			A (1)	3.1	65.13	40500	79.91	45000								
09T304EN	0.4			B (2)	3.1											76.99	224
09T308FN	0.8			A (1)	2.5									65.13	406 1)		
09T308SN	0.8	0.09	10°	B (2)	2.8											76.99	235
09T308SN	0.8	0.11	15°	B (2)	2.8											76.99	245
09T308TN	0.8	0.12	20°	A (1)	2.5									65.13	506		
09T308FN	0.8			B (2)	2.8					108.30	404 1)	90.01	404 1)				
09T308TN	0.8	0.12	20°	B (2)	2.8					108.30	504	90.01	504				
09T308TN	0.8	0.14	25°	B (2)	2.8											76.99	265
09T308SN	0.8	0.15	25°	B (2)	2.8											76.99	275
09T308FN	0.8			A (1)	2.8			79.91	45200								
120404TN	0.4	0.12	20°	A (1)	3.1									55.39	508		
120408TN	0.8	0.12	20°	A (1)	2.8									55.39	510		

P							
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K							
N							
S							
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O							

1) Machining to 60 HRC

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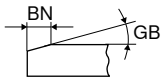
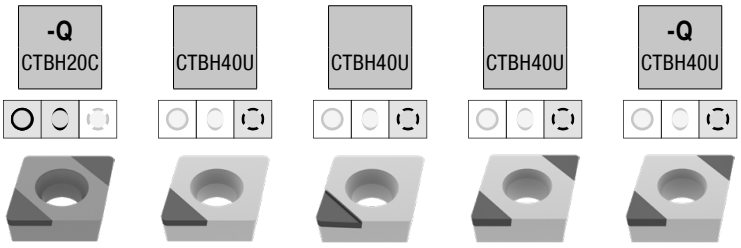
CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

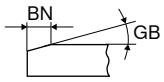




						F		F		F		F		F	
						CBN		CBN		CBN		CBN		CBN	
						CCGW		CCGW		CCGT		CCGW		CCGW	
						71 162 ...		71 120 ...		71 124 ...		71 121 ...		71 123 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
060202SN	0.2	0.09	10°	B (2)	3.4	76.99	230								
060202EN	0.2			B (2)	3.4	76.99	220								
060202FN	0.2			B (2)	3.4	76.99	210								
060202SN	0.2	0.11	15°	B (2)	3.4	76.99	240								
060202TN	0.2	0.12	25°	A (1)	3.4			65.82	900						
060202FN	0.2			A (1)	3.4			65.82	800	79.91	800				
060204SN	0.4	0.09	10°	B (2)	3.1	76.99	231								
060204SN	0.4	0.11	15°	B (2)	3.1	76.99	241								
060204SN	0.4	0.09	20°	B (2)	3.1	76.99	251								
060204TN	0.4	0.12	25°	A (1)	3.1			65.82	902						
060204TN	0.4	0.14	25°	B (2)	3.1	76.99	261								
060204FN	0.4			A (1)	3.1			65.82	802	79.91	802				
060208TN	0.8	0.12	25°	A (1)	2.8			65.82	90300						
09T302FN	0.2			B (2)	3.4							108.30	80100		
09T304FN	0.4			A (1)	3.1					79.91	85000				
09T304FN	0.4			A (1)	2.8			65.82	804						
09T304TN	0.4	0.12	25°	B (2)	3.1							108.30	902	90.01	902
09T304TN	0.4	0.12	25°	A (1)	2.8			65.82	904						
09T304FN	0.4			B (2)	3.1							108.30	802	90.01	802
09T308FN	0.8			A (1)	2.5			65.82	806						
09T308SN	0.8	0.09	10°	B (2)	2.8	76.99	235								
09T308EN	0.8			B (2)	2.8	76.99	225								
09T308SN	0.8	0.11	15°	B (2)	2.8	76.99	245								
09T308SN	0.8	0.09	20°	B (2)	2.8	76.99	255								
09T308TN	0.8	0.12	25°	A (1)	2.5			65.82	906						
09T308TN	0.8	0.12	25°	B (2)	2.8							108.30	904	90.01	904
09T308TN	0.8	0.14	25°	B (2)	2.8	76.99	265								
09T308FN	0.8			B (2)	2.8	76.99	215					108.30	804	90.01	804
120404TN	0.4	0.12	25°	A (1)	3.1			55.39	908						
120404FN	0.4			A (1)	3.1			55.39	808						
120408TN	0.8	0.12	25°	A (1)	2.8			55.39	910						
P															
M															
K															
N															
S															
H							●		●		●		●		●
O															

CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners





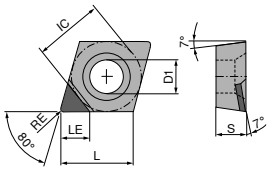


						F		F	
						CBN		CBN	
						CCGW		CCGW	
						71 161 ...		71 162 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0	
060202TN	0.2	0.09	20°	B (2)	3.4	76.99	320		
060202SN	0.2	0.09	20°	B (2)	3.4			76.99	330
060202SN	0.2	0.09	25°	B (2)	3.4	76.99	350	76.99	350
060202TN	0.2	0.11	25°	B (2)	3.4	76.99	340	76.99	340
060202TN	0.2	0.14	30°	B (2)	3.4	76.99	360	76.99	360
060204SN	0.4	0.09	20°	B (2)	3.1	76.99	331		
060204TN	0.4	0.09	20°	B (2)	3.1	76.99	32100		
060204SN	0.4	0.09	25°	B (2)	3.1	76.99	351	76.99	351
060204TN	0.4	0.11	25°	B (2)	3.1	76.99	341	76.99	341
060204TN	0.4	0.14	30°	B (2)	3.1	76.99	361	76.99	361
060204SN	0.4	0.16	30°	B (2)	3.1	76.99	371	76.99	371
060204SN	0.4	0.17	35°	B (2)	3.1	76.99	381	76.99	381
060208TN	0.8	0.09	20°	B (2)	2.8	76.99	322		
060208SN	0.8	0.09	25°	B (2)	2.8	76.99	352		
060208TN	0.8	0.11	25°	B (2)	2.8	76.99	342		
060208TN	0.8	0.14	30°	B (2)	2.8	76.99	362		
060208SN	0.8	0.16	30°	B (2)	2.8	76.99	372		
060208SN	0.8	0.17	35°	B (2)	2.8	76.99	382		
09T302TN	0.2	0.09	20°	B (2)	3.4	76.99	323		
09T302SN	0.2	0.09	25°	B (2)	3.4	76.99	353		
09T302TN	0.2	0.11	25°	B (2)	3.4	76.99	343		
09T302SN	0.2	0.16	30°	B (2)	3.4	76.99	373		
09T302SN	0.2	0.17	35°	B (2)	3.4	76.99	383		
09T304SN	0.4	0.09	20°	B (2)	3.1	76.99	334	76.99	334
09T304TN	0.4	0.09	20°	B (2)	3.1	76.99	324	76.99	324
09T304SN	0.4	0.09	25°	B (2)	3.1	76.99	354	76.99	354
09T304TN	0.4	0.11	25°	B (2)	3.1	76.99	344	76.99	344
09T304TN	0.4	0.14	30°	B (2)	3.1	76.99	364	76.99	364
09T304EN	0.4			B (2)	3.1	76.99	314		
09T304SN	0.4	0.16	30°	B (2)	3.1	76.99	374		
09T304SN	0.4	0.17	35°	B (2)	3.1	76.99	384		
09T308SN	0.8	0.09	20°	B (2)	2.8	76.99	335	76.99	335
09T308TN	0.8	0.09	20°	B (2)	2.8	76.99	325	76.99	325
09T308SN	0.8	0.09	25°	B (2)	2.8	76.99	355	76.99	355
09T308TN	0.8	0.11	25°	B (2)	2.8	76.99	345	76.99	345
09T308TN	0.8	0.14	30°	B (2)	2.8	76.99	365	76.99	365
09T308SN	0.8	0.16	30°	B (2)	2.8			76.99	375
09T308SN	0.8	0.17	35°	B (2)	2.8	76.99	385		
09T308EN	0.8			B (2)	2.8			76.99	315
P									
M									
K									
N									
S									
H							●		●
O									

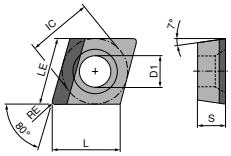
9

CCGW / CCGT

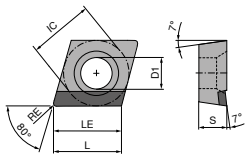
Designation	L mm	S mm	D1 mm	IC mm
CCG. 0602..	6.4	2.38	2.8	6.35
CCG. 0602..	6.5	2.38	2.8	6.35
CCG. 09T3..	9.7	3.97	4.4	9.52
CCG. 1204..	12.9	4.76	5.5	12.70



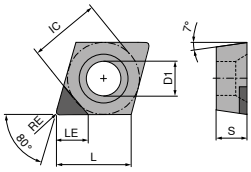
CCGT A



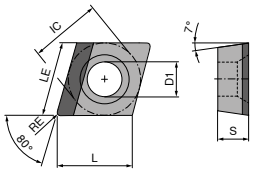
CCGT A LL



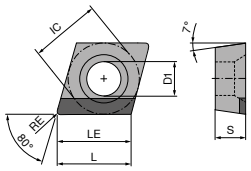
CCGT A RR



CCGW A



CCGW A LL



CCGW A RR

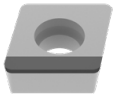
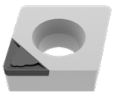
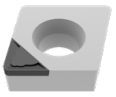
CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDMD05		CTDPD20		CTDPD20		-Q CTDPD20		-Q CTDPD20	
				F		F		F		F		F	
				DIAMOND CCGW		DIAMOND CCGW		DIAMOND CCGT		DIAMOND CCGW		DIAMOND CCGT	
				71 120 ...		71 120 ...		71 124 ...		71 125 ...		71 126 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
060201FN	0.1	A (1)	3.4									103.57	101
060201FN	0.1	A (1)	3.5					95.80	10100				
060202FN	0.2	A (1)	2.5	363.42	050								
060202FN	0.2	A (1)	3.3							103.57	102	103.57	102
060202FN	0.2	A (1)	3.4			102.12	100	95.80	100				
060204FN	0.4	A (1)	2.5	363.42	052								
060204FN	0.4	A (1)	3.1									103.57	104
060204FN	0.4	A (1)	3.2			102.12	102	95.80	102	103.57	104		
060208FN	0.8	A (1)	2.5	363.42	05300								
060208FN	0.8	A (1)	3.0			102.12	10300	95.80	10300				
09T301FN	0.1	A (1)	4.5							103.54	111	103.54	111
09T302FN	0.2	A (1)	4.4							103.54	112	103.54	112
09T302FN	0.2	A (1)	4.5			105.48	10500	98.08	10500				
09T304FN	0.4	A (1)	2.5	370.65	054								
09T304FN	0.4	A (1)	4.2							103.54	114	103.54	114
09T304FN	0.4	A (1)	4.3			105.48	104	98.08	104				
09T308FN	0.8	A (1)	2.5	370.65	056								
09T308FN	0.8	A (1)	4.1			105.48	106	98.08	106				
120402FN	0.2	A (1)	4.4							107.38	122	107.38	122
120404FN	0.4	A (1)	4.2							107.38	124	107.38	124
120404FN	0.4	A (1)	4.3			83.99	108	83.99	108				
120408FN	0.8	A (1)	4.1			83.99	110	83.99	110				
P													
M													
K													
N				●		●		●		●		●	
S													
H													
O				●		●		●		●		●	

CCGW / CCGT

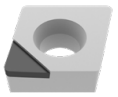
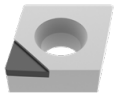
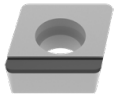
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW		NEW			NEW			NEW	
				CTDPD20		CTDPD20		-CB1 CTDPD20		-CB2 CTDPD20		-CB1 CTDPD20		-Q-CB2 CTDPD20	
															
				F		F		F		M		F		M	
				DIAMOND CCGW		DIAMOND CCGW		DIAMOND CCGT		DIAMOND CCGT		DIAMOND CCGT		DIAMOND CCGT	
				71 172 ...		71 172 ...		71 300 ...		71 168 ...		71 305 ...		71 169 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
060202FN	0.2	A (1)	3.40					92.73	102						
060204FN	0.4	A (1)	3.10									106.50	104		
060204FN	0.4	A (1)	3.20					92.73	104	76.22	10001				
060204FRR	0.4	A (1)	6.45			100.53	10101								
060204FLL	0.4	A (1)	6.45	100.53	10001										
060208FN	0.8	A (1)	3.00					92.73	10600						
09T302FN	0.2	A (1)	4.40											89.19	10001
09T302FN	0.2	A (1)	4.50					91.18	112						
09T304FN	0.4	A (1)	4.20									107.84	114	89.19	10101
09T304FN	0.4	A (1)	4.30					91.18	114						
09T308FN	0.8	A (1)	4.10					91.18	118						
09T308FRR	0.8	A (1)	9.70			107.02	10301								
09T308FLL	0.8	A (1)	9.70	107.02	10201										
09T312FLL	1.2	A (1)	9.70	107.02	10401										
120404FN	0.4	A (1)	4.20									110.48	124	90.79	10201
120404FN	0.4	A (1)	4.30					100.59	124						
120408FN	0.8	A (1)	4.10					100.59	128						
120412FRR	1.2	A (1)	12.90			118.38	10601								
120412FLL	1.2	A (1)	12.90	118.38	10501										
P															
M															
K															
N				●		●		●		●		●		●	
S															
H															
O				●		●		●		●		●		●	

9

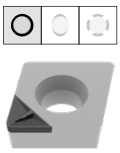
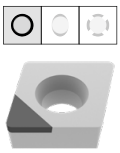
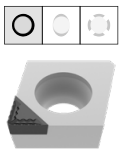
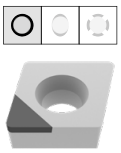
CCGT / CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW						NEW	NEW	
				CTDPS30	-Q CTDPS30	-Q CTDPS30		CTDPS30	CTDPS30	-CB2 CTDPS30		
												
				F	F	F	F	F	F	M		
				DIAMOND CCGT	DIAMOND CCGW	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT		
				71 166 ...	71 125 ...	71 126 ...	71 170 ...	71 170 ...	71 301 ...			
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
060201FN	0.1	A (1)	3.50	69.73	20001								
060202FN	0.2	A (1)	3.30			103.57	152	103.57	152				
060202FN	0.2	A (1)	3.40	69.73	20101							92.73	202
060204FN	0.4	A (1)	3.20									92.73	204
060204FRR	0.4	A (1)	6.45							100.53	20101		
060204FLL	0.4	A (1)	6.45					100.53	20001				
060208FN	0.8	A (1)	3.00									92.73	208
060208FRR	0.8	A (1)	6.45							100.53	20301		
060208FLL	0.8	A (1)	6.45					100.53	20201				
09T301FN	0.1	A (1)	4.50			103.54	16300						
09T302FN	0.2	A (1)	4.40			103.54	162	103.54	162				
09T302FN	0.2	A (1)	4.50	71.34	20201							104.15	212
09T304FN	0.4	A (1)	4.30									104.15	214
09T308FN	0.8	A (1)	4.10									104.15	218
09T308FRR	0.8	A (1)	9.70							107.02	20501		
09T308FLL	0.8	A (1)	9.70					107.02	20401				
120402FN	0.2	A (1)	4.40					107.38	172				
120404FN	0.4	A (1)	4.20					107.38	174				
120404FN	0.4	A (1)	4.30	71.34	20301							100.59	224
120408FN	0.8	A (1)	4.10									100.59	228
120412FRR	1.2	A (1)	12.90							118.38	20701		
120412FLL	1.2	A (1)	12.90					118.38	20601				
P													
M													
K													
N				●		●		●		●		●	
S													
H													
O				●		●		●		●		●	

CCGT / CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

						NEW					NEW			
				-Q-CB2 CTDPS30		CTDPU20		-CB3 CTDPU20		CTDPS30				
														
				M		F		R		F				
				DIAMOND CCGT		DIAMOND CCGW		DIAMOND CCGT		DIAMOND CCGW				
				71 306 ...		71 171 ...		71 302 ...		71 171 ...				
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0				
060201FN	0.1	A (1)	3.5							68.09	20001			
060202FN	0.2	A (1)	3.3	106.50	202									
060202FN	0.2	A (1)	3.4							68.09	20101			
060204FN	0.4	A (1)	3.1	106.50	204									
060204FN	0.4	A (1)	3.2					73.79	204	68.09	20201			
09T302FN	0.2	A (1)	4.4	107.84	212									
09T302FN	0.2	A (1)	4.5							71.34	20301			
09T304FN	0.4	A (1)	4.2	107.84	214									
09T304FN	0.4	A (1)	4.3			72.98	30001	80.61	214	71.34	20401			
09T308FN	0.8	A (1)	4.1			72.98	30101	80.61	218					
120402FN	0.2	A (1)	4.4	110.48	222									
120404FN	0.4	A (1)	4.2	110.48	224									
120404FN	0.4	A (1)	4.3							72.98	20501			
P														
M														
K														
N					●		●		●		●			
S														
H														
O					●		●		●		●			

9

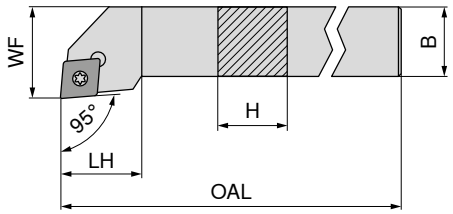
CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW				NEW					
				CTDCD10	-CB1 CTDCD10			-Q-CB1 CTDCD10		-CB2 CTDCD10		-Q-CB2 CTDCD10	
													
				F	F			F		M		M	
				DIAMOND CCGW	DIAMOND CCGT			DIAMOND CCGT		DIAMOND CCGT		DIAMOND CCGT	
				71 171 ...	71 300 ...			71 167 ...		71 301 ...		71 306 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0			£ Y0			£ Y0		£ Y0	
060202FN	0.2	A (1)	2.3					107.02	40001				
060202FN	0.2	A (1)	2.4	79.45	40001	117.67	302			117.67	30200		
060204FN	0.4	A (1)	2.1					107.02	40101			125.29	304
060204FN	0.4	A (1)	2.2	79.45	40101	117.67	304			117.67	304		
060208FN	0.8	A (1)	2.0			117.67	30600						
09T302FN	0.2	A (1)	2.3									131.45	31200
09T302FN	0.2	A (1)	2.4	85.94	40201					117.67	31200		
09T304FN	0.4	A (1)	2.1					108.65	40201			131.45	314
09T304FN	0.4	A (1)	2.2	85.94	40301	121.50	314			121.50	314		
09T308FN	0.8	A (1)	2.0	85.94	40401					121.50	31600		
120404FN	0.4	A (1)	2.1					110.25	40301			129.11	324
120404FN	0.4	A (1)	2.2							136.74	32600		
120408FN	0.8	A (1)	2.0	92.43	40501								
120408FN	0.8	A (1)	2.1							136.74	328		
P													
M													
K													
N				●		●		●		●		●	
S													
H													
O				●		●		●		●		●	

MaxiLock-S – SCLC 95° – Toolholder with screw clamping





Illustrations show right-hand versions

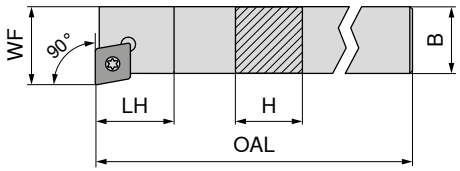


								Left-hand		Right-hand	
								70 653 ...		70 652 ...	
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	£ 2A/24		£ 2A/24	
SCLC R/L 0808 D06	8	8	60	9	10	1,2	CC.. 0602	58.15	008	58.15	008
SCLC R/L 1010 E06	10	10	70	9	12	1,2	CC.. 0602	61.66	010	61.66	010
SCLC R/L 1212 F09	12	12	80	15	16	3,2	CC.. 09T3	61.66	012	61.66	012
SCLC R/L 1616 H09	16	16	100	17	20	3,2	CC.. 09T3	76.37	016	76.37	016
SCLC R/L 2020 K09	20	20	125	17	25	3,2	CC.. 09T3	81.18	020	81.18	020
SCLC R/L 1616 H12	16	16	100	20	20	5	CC.. 1204	76.37	116	76.37	116
SCLC R/L 2020 K12	20	20	125	20	25	5	CC.. 1204	81.18	120	81.18	120
SCLC R/L 2525 M12	25	25	150	20	32	5	CC.. 1204	83.97	125	83.97	125
SCLC R/L 3225 P12	32	25	170	20	32	5	CC.. 1204	87.29	132	87.29	132

	Key D		Combination Key		Clamping screw		Carbide type C		Threaded sleeve	
	80 950 ...		70 950 ...		70 950 ...		70 950 ...		70 950 ...	
Spare parts for Article no.	£ Y7		£ 2A/28		£ 2A		£ 2A/28		£ 2A/28	
70 653 008 / 70 652 008	10.82	110			2.26	112				
70 653 010 / 70 652 010	10.82	110			2.26	112				
70 653 012 / 70 652 012	12.87	113			2.99	113				
70 653 016 / 70 652 016			7.91	398	2.99	113	9.23	165	4.43	171
70 653 020 / 70 652 020			7.91	398	2.99	113	9.23	165	4.43	171
70 653 116 / 70 652 116			7.91	398	2.46	114	11.81	166	4.43	170
70 653 120 / 70 652 120			7.91	398	2.46	114	11.81	166	4.43	170
70 653 125 / 70 652 125			7.91	398	2.46	114	11.81	166	4.43	170
70 653 132 / 70 652 132			7.91	398	2.46	114	11.81	166	4.43	170

MaxiLock-S – SCFC 90° – Toolholder with screw clamping







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 761 ... £ 2A/24		Right-hand 70 760 ... £ 2A/24	
SCFC R/L 0808 D06	8	8	60	10	10	1,2	CC.. 0602	58.15	**00800**[1]	58.15	**008**
SCFC R/L 1010 E06	10	10	70	10	12	1,2	CC.. 0602	61.66	**010**	61.66	**010**
SCFC R/L 1212 F09	12	12	80	13	16	3,2	CC.. 09T3	61.66	**012**	61.66	**012**
SCFC R/L 1616 H09	16	16	100	13	20	3,2	CC.. 09T3	76.37	**016**	76.37	**016**
SCFC R/L 2020 K12	20	20	125	17	25	5	CC.. 1204	81.18	**02000**[1]	81.18	**020**

1) nickel-plated


Key D


Combination Key


Clamping screw

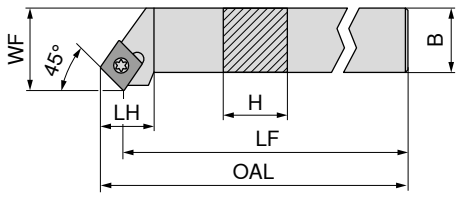

Carbide type C

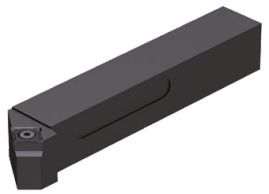

Threaded sleeve

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 760 008 / 70 761 00800	10.82	**110**			2.26	**112**				
70 760 010 / 70 761 010	10.82	**110**			2.26	**112**				
70 760 012 / 70 761 012	12.87	**113**			2.99	**113**				
70 760 016 / 70 761 016			7.91	**398**	2.99	**113**	9.23	**165**	4.43	**171**
70 760 020 / 70 761 02000			7.91	**398**	2.46	**114**	11.81	**166**	4.43	**170**

MaxiLock-S – SCSC 45° – Toolholder with screw clamping







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 641 ... £ 2A/24		Right-hand 70 640 ... £ 2A/24	
SCSC R 1616 H12	16	16	109.1	100	20	20	5	CC.. 1204			76.37	**016**
SCSC R/L 2020 K12	20	20	134.1	125	20	25	5	CC.. 1204	81.18	**020**	81.18	**020**
SCSC R/L 2525 M12	25	25	159.1	150	20	32	5	CC.. 1204	83.97	**025**	83.97	**025**


Combination Key


Clamping screw


Carbide type C

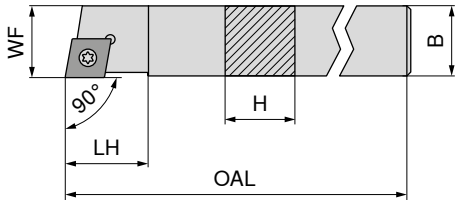

Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A/28			70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
70 640 016	T15/SW	7.91	**398**	M4,5x12	2.46	**114**	11.81	**166**	M4,5	4.43	**170**
70 641 020 / 70 640 020	T15/SW	7.91	**398**	M4,5x12	2.46	**114**	11.81	**166**	M4,5	4.43	**170**
70 641 025 / 70 640 025	T15/SW	7.91	**398**	M4,5x12	2.46	**114**	11.81	**166**	M4,5	4.43	**170**

MaxiLock-S – SCAC 90° – Toolholder with screw clamping

▲ for sliding head lathes





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 757 ... £ 2A/24		Right-hand 70 756 ... £ 2A/24	
SCAC R/L 0808 K06	8	8	125	9	8	1,2	CC.. 0602	61.66	**108**	61.66	**108**
SCAC R/L 0808 D06	8	8	60	9	8	1,2	CC.. 0602	58.15	**008**	58.15	**008**
SCAC R/L 1010 M06	10	10	150	9	10	1,2	CC.. 0602	61.66	**110**	61.66	**110**
SCAC R/L 1010 E06	10	10	70	9	10	1,2	CC.. 0602	61.66	**010**	61.66	**010**
SCAC R/L 1212 M09	12	12	150	13	12	3,2	CC.. 09T3	68.96	**112**	68.96	**112**
SCAC R/L 1212 F09	12	12	80	13	12	3,2	CC.. 09T3	61.66	**012**	61.66	**012**
SCAC R/L 1414 M09	14	14	150	13	14	3,2	CC.. 09T3	68.96	**114**	68.96	**114**
SCAC R/L 1616 H09	16	16	100	13	16	3,2	CC.. 09T3	76.37	**116**	76.37	**116**
SCAC R/L 2020 K12	20	20	125	17	20	5	CC.. 1204	81.18	**120**	81.18	**120**


Key D


Combination Key


Clamping screw

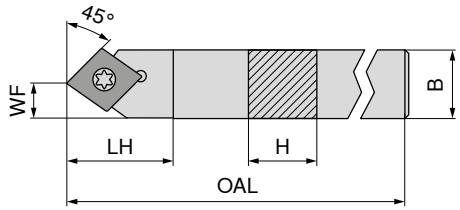

Carbide type C

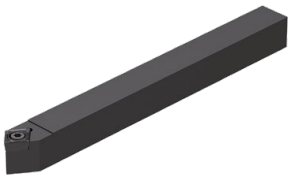

Threaded sleeve

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 756 108 / 70 757 108	10.82	**110**			2.26	**112**				
70 756 008 / 70 757 008	10.82	**110**			2.26	**112**				
70 756 110 / 70 757 110	10.82	**110**			2.26	**112**				
70 756 010 / 70 757 010	10.82	**110**			2.26	**112**				
70 756 112 / 70 757 112	12.87	**113**			2.99	**113**				
70 756 012 / 70 757 012	12.87	**113**			2.99	**113**				
70 756 114 / 70 757 114	12.87	**113**			2.99	**113**				
70 756 116 / 70 757 116			7.91	**398**	2.99	**113**	9.23	**165**	4.43	**171**
70 756 120 / 70 757 120			7.91	**398**	2.46	**114**	11.81	**166**	4.43	**170**

MaxiLock-S – SCDC 45° – Toolholder with screw clamping







ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 752 ... £ 2A/24	
SCDC L 0808 K06	8	8	125	13	4	1,2	CC.. 0602	61.66	**008**
SCDC L 1010 M06	10	10	150	13	5	1,2	CC.. 0602	61.66	**010**
SCDC L 1212 M09	12	12	150	18	6	3,2	CC.. 09T3	68.96	**012**
SCDC L 1414 M09	14	14	150	18	7	3,2	CC.. 09T3	68.96	**014**


Key D

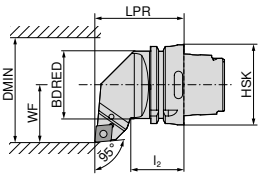

Clamping screw

Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A	
70 752 008	T08	10.82	**110**	M2,5x6	2.26	**112**
70 752 010	T08	10.82	**110**	M2,5x6	2.26	**112**
70 752 012	T15	12.87	**113**	M3,5x11	2.99	**113**
70 752 014	T15	12.87	**113**	M3,5x11	2.99	**113**

9

MaxiLock-S – SCLC 95° – Toolholder with screw clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 541 ... £ 2D/80		Right-hand 74 540 ... £ 2D/80	
HSK T63 SCLC R/L 12	HSK-T 63	70	42	53	45	100	5	CC.. 1204	324.70	**512**	324.70	**512**


Combination Key


Clamping screw

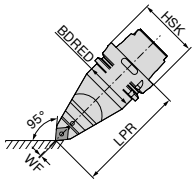

Carbide type C


Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 540 512 / 74 541 512	T15/SW	7.91	**398**	M4,5x12	2.46	**114**	11.81	**166**	M4,5	4.43	**170**

MaxiLock-S – SCMC 50° – Toolholder with screw clamping







ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 542 ... £ 2D/80	
HSK T63 SCMC N 12	HSK-T 63	115	53	0	5	CC.. 1204	443.44	**512**


Combination Key


Clamping screw


Carbide type C

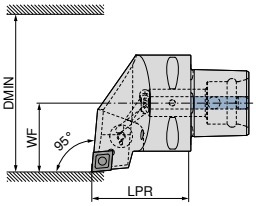

Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 542 512	T15/SW	7.91	**398**	M4,5x12	2.46	**114**	11.81	**166**	M4,5	4.43	**170**

MaxiLock-S – SCLC 95° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 655 ... £ Y8		NEW Right-hand 84 654 ... £ Y8	
PSC40 SCLC R/L 50050-12	PSC 40	50	27	50	5	CC.. 1204	DC	448.60	**01295**	448.60	**01295**
PSC50 SCLC R/L 65060-12	PSC 50	60	35	65	5	CC.. 1204	DC	513.98	**01294**	513.98	**01294**
PSC63 SCLC R/L 80065-12	PSC 63	65	45	80	5	CC.. 1204	DC	571.73	**01293**	571.73	**01293**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



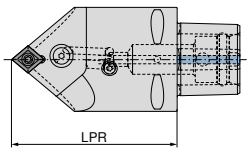
Clamping screw

Adapter	84 950 ... £ Y8	
PSC 40	10.53	**27500**
PSC 50	10.53	**27500**
PSC 63	10.53	**27500**

MaxiLock-S – SCMC 50° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set







ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	NEW Neutral 84 674 ... £ Y8	
PSC63 SCMC N 0100-12	PSC 63	100	5	CC.. 1204	DC	571.73	**01293**
PSC63 SCMC N 0130-12	PSC 63	130	5	CC.. 1204	DC	571.73	**11293**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



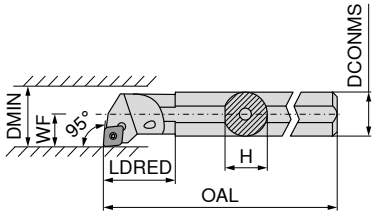
Clamping screw

Adapter	84 950 ... £ Y8	
PSC 63	10.53	**27500**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant





Illustrations show right-hand versions



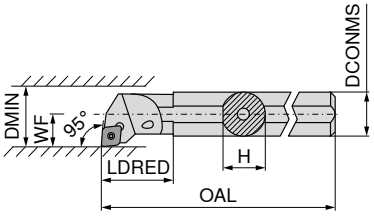
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 717 ... £ 2A/24		Right-hand 70 716 ... £ 2A/24	
S08H SCLC R/L 06	8	7.2	100		5	11	1,2	CC.. 0602	92.18	008	92.18	008
A08F SCLC R/L 06	8	7.6	80	17	5	11	1,2	CC.. 0602	92.18	208	92.18	208
A10H SCLC R/L 06	10	9.5	100	19	7	13	1,2	CC.. 0602	92.18	210	92.18	210
S10K SCLC R/L 06	10	9.0	125		7	13	1,2	CC.. 0602	92.18	010	92.18	010
A12K SCLC R/L 06	12	11.5	125	22	9	16	1,2	CC.. 0602	92.18	212	92.18	212
S12Q SCLC R/L 06	12	11.0	180		9	16	1,2	CC.. 0602	92.18	012	92.18	012
A16M SCLC R/L 06	16	14.0	150	50	9	18	1,2	CC.. 0602	94.19	116	94.19	116
S16R SCLC R/L 09	16	14.5	200		11	20	3,2	CC.. 09T3	94.19	016	94.19	016
A16M SCLC R/L 09	16	15.0	150	29	11	20	3,2	CC.. 09T3	94.19	216	94.19	216
A20Q SCLC R/L 09	20	18.5	180	32	13	25	3,2	CC.. 09T3	117.41	220	117.41	220
S20S SCLC R/L 09	20	18.0	250		13	25	3,2	CC.. 09T3	117.41	020	117.41	020
S25T SCLC R/L 09	25	23.0	300		17	32	3,2	CC.. 09T3	134.98	025	134.98	025
A25R SCLC R/L 09	25	23.0	200	36	17	32	3,2	CC.. 09T3	134.98	225	134.98	225
A32S SCLC R/L 12	32	30.0	250	50	22	40	5	CC.. 1204	185.57	232	185.57	232
A40T SCLC R/L 12	40	38.0	300	60	27	50	5	CC.. 1204	222.79	240	222.79	240

Spare parts for Article no.	Key D 80 950 ... £ Y7		Combination Key 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Carbide type C 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
70 716 008 / 70 717 008	10.82	110			2.46	116				
70 716 208 / 70 717 208	10.82	110			2.46	116				
70 716 210 / 70 717 210	10.82	110			2.46	116				
70 716 010 / 70 717 010	10.82	110			2.46	116				
70 716 212 / 70 717 212	10.82	110			2.46	116				
70 716 012 / 70 717 012	10.82	110			2.46	116				
70 716 116 / 70 717 116	10.82	110			2.46	116				
70 716 016 / 70 717 016	12.87	113			2.99	110				
70 716 216 / 70 717 216	12.87	113			2.99	110				
70 716 220 / 70 717 220	12.87	113			2.99	304				
70 716 020 / 70 717 020	12.87	113			2.99	110				
70 716 025 / 70 717 025	12.87	113			2.99	113				
70 716 225 / 70 717 225	12.87	113			2.99	304				
70 716 232 / 70 717 232			7.91	398	2.46	114	11.81	166	4.43	170
70 716 240 / 70 717 240			7.91	398	2.46	114	11.81	166	4.43	170

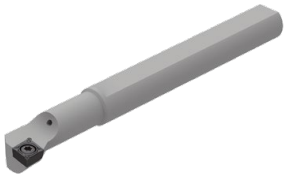
MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ... £ 2A		Right-hand 70 718 ... £ 2A	
E-A08F SCLC R/L 06	8	7.5	80	18	6	12	1,2	CC.. 0602	169.14	**208**	169.14	**208**
E-A10H SCLC R/L 06	10	9.0	100	25	7	14	1,2	CC.. 0602	169.14	**210**	169.14	**210**
E-A12K SCLC R/L 06	12	11.0	125	20	9	18	1,2	CC.. 0602	182.23	**212**	182.23	**212**
E-A16M SCLC R/L 09	16	15.0	150	28	11	22	3,2	CC.. 09T3	309.28	**216**	309.28	**216**
E-A20Q SCLC R/L 09	20	18.0	180	38	13	26	3,2	CC.. 09T3	382.39	**220**	382.39	**220**
E-A25R SCLC R/L 09	25	23.0	200	38	17	34	3,2	CC.. 09T3	485.38	**225**	485.38	**225**
E-A32S SCLC R/L 12	32	30.0	250	43	22	39	5	CC.. 1204	763.73	**232**	763.73	**232**



Key D



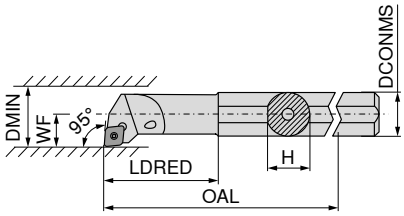
Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 718 208 / 70 719 208	T08	10.82	**110**	M2,5x5	2.46	**116**
70 718 210 / 70 719 210	T08	10.82	**110**	M2,5x5	2.46	**116**
70 718 212 / 70 719 212	T08	10.82	**110**	M2,5x5	2.46	**116**
70 718 216 / 70 719 216	T15	12.87	**113**	M4x9,5	2.99	**449**
70 718 220 / 70 719 220	T15	12.87	**113**	M4x9,5	2.99	**449**
70 718 225 / 70 719 225	T15	12.87	**113**	M4x9,5	2.99	**449**
70 718 232 / 70 719 232	T15	12.87	**113**	M4x11	3.24	**174**

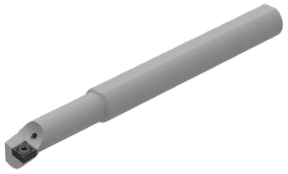
MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ... £ 2A		Right-hand 70 718 ... £ 2A	
E-A0608F SCLC R/L 06	8	7.5	100	25	4	8	1,2	CC.. 0602	182.23	**308**	182.23	**308**
E-A0810H SCLC R/L 06	10	9.0	110	32	6	12	1,2	CC.. 0602	182.23	**310**	182.23	**310**
E-A1012K SCLC R/L 06	12	11.0	125	38	7	14	1,2	CC.. 0602	182.23	**312**	182.23	**312**
E-A1216M SCLC R/L 06	16	15.0	150	50	9	18	1,2	CC.. 0602	182.23	**316**	182.23	**316**



Key D



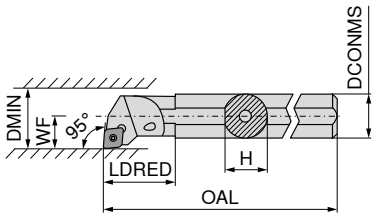
Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28	
70 718 308 / 70 719 308	10.82	**110**	2.46	**116**
70 718 310 / 70 719 310	10.82	**110**	2.46	**116**
70 718 312 / 70 719 312	10.82	**110**	2.46	**116**
70 718 316 / 70 719 316	10.82	**110**	2.46	**116**

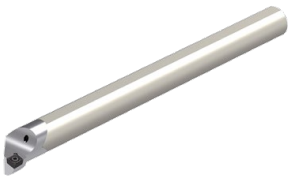
MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ Type: Solid carbide





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ... £ 2A/24		Right-hand 70 718 ... £ 2A/24	
E08H SCLC R/L 06	8	7.6	100		6	11	1,2	CC.. 0602	209.62	**008**	209.62	**008**
E10K SCLC R/L 06	10	9.0	125	22	7	13	1,2	CC.. 0602	242.17	**010**	242.17	**010**
E12Q SCLC R/L 06	12	11.5	180	26	9	16	1,2	CC.. 0602	318.06	**012**	318.06	**012**
E16R SCLC R/L 09	16	15.0	200	34	11	20	3,2	CC.. 09T3	415.61	**016**	415.61	**016**
E20S SCLC R/L 09	20	18.5	250	38	13	25	3,2	CC.. 09T3	519.17	**020**	519.17	**020**
E25T SCLC R/L 09	25	23.0	300	43	17	32	3,2	CC.. 09T3	915.51	**025**	915.51	**025**



Key D

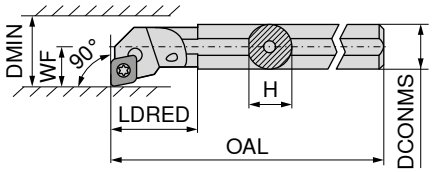


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 719 008 / 70 718 008	T08	10.82	**110**	M2,5x5	2.46	**116**
70 719 010 / 70 718 010	T08	10.82	**110**	M2,5x5	2.46	**116**
70 719 012 / 70 718 012	T08	10.82	**110**	M2,5x5	2.46	**116**
70 719 016 / 70 718 016	T15	12.87	**113**	M3,5x7,2	2.99	**110**
70 719 020 / 70 718 020	T15	12.87	**113**	M3,5x8,6	2.99	**304**
70 719 025 / 70 718 025	T15	12.87	**113**	M3,5x11	2.99	**113**

MaxiLock-S – SCFC 90° – Boring bar with screw clamping







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 793 ... £ 2A/24		Right-hand 70 792 ... £ 2A/24	
A08F SCFC R/L 06	8	7.6	80	17	5	11	1,2	CC.. 0602	92.18	**208**	92.18	**208**
A10H SCFC R/L 06	10	9.5	100	19	7	13	1,2	CC.. 0602	92.18	**210**	92.18	**210**
A12K SCFC R/L 06	12	11.5	125	22	9	16	1,2	CC.. 0602	92.18	**212**	92.18	**212**



Key D

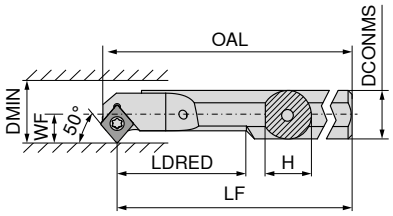


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 792 208 / 70 793 208	T08	10.82	**110**	M2,5x5	2.46	**116**
70 792 210 / 70 793 210	T08	10.82	**110**	M2,5x5	2.46	**116**
70 792 212 / 70 793 212	T08	10.82	**110**	M2,5x5	2.46	**116**

MaxiLock-S – SCMC 50° – Boring bar with screw clamping







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LF mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 723 ... £ 2A		Right-hand 70 722 ... £ 2A	
A08H SCMC R/L 06	8	7	104.15	100	20	5.5	10.5	1,2	CC.. 0602	92.18	**208**	92.18	**208**
A10H SCMC R/L 06	10	9	114.15	110	26	6.0	11.0	1,2	CC.. 0602	92.18	**210**	92.18	**210**
A12K SCMC R/L 06	12	11	129.15	125	32	7.0	13.0	1,2	CC.. 0602	92.18	**212**	92.18	**212**
A16M SCMC R/L 06	16	14	154.15	150	40	9.0	16.0	1,2	CC.. 0602	94.19	**216**	94.19	**216**



Key D



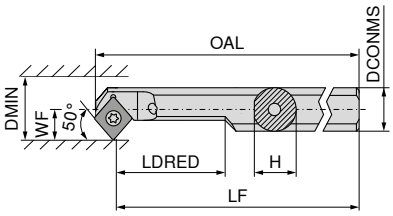
Clamping screw

Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 723 208 / 70 722 208	T08	10.82	**110**	M2,5x5	2.46	**116**
70 723 210 / 70 722 210	T08	10.82	**110**	M2,5x5	2.46	**116**
70 723 212 / 70 722 212	T08	10.82	**110**	M2,5x5	2.46	**116**
70 723 216 / 70 722 216	T08	10.82	**110**	M2,5x5	2.46	**116**

MaxiLock-S – SCMC 50° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LF mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 707 ... £ 2A		Right-hand 70 706 ... £ 2A	
E-A0608H SCMC R/L 06	8	7.5	104.15	100	20	5.5	10.5	1,2	CC.. 0602	182.23	**008**	182.23	**008**
E-A0810H SCMC R/L 06	10	9.0	114.15	110	26	6.0	11.0	1,2	CC.. 0602	182.23	**010**	182.23	**010**
E-A1012K SCMC R/L 06	12	11.0	129.15	125	32	7.0	13.0	1,2	CC.. 0602	182.23	**012**	182.23	**012**
E-A1216M SCMC R/L 06	16	15.0	154.15	150	40	9.0	16.0	1,2	CC.. 0602	182.23	**016**	182.23	**016**

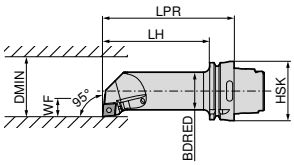

Key D


Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28	
70 706 008 / 70 707 008	10.82	**110**	2.46	**116**
70 706 010 / 70 707 010	10.82	**110**	2.46	**116**
70 706 012 / 70 707 012	10.82	**110**	2.46	**116**
70 706 016 / 70 707 016	10.82	**110**	2.46	**116**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 564 ... £ 2D/80		Right-hand 74 563 ... £ 2D/80	
HSK T63 40L SCLC R/L 12	HSK-T 63	140	114	40	27	50	5	CC.. 1204	446.59	**512**	446.59	**512**


Combination Key


Clamping screw

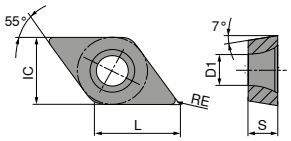

Carbide type C


Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A/28			70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
74 563 512 / 74 564 512	T15/SW	7.91	**398**	M4,5x12	2.46	**114**	11.81	**166**	M4,5	4.43	**170**

DCGT / DCMT / DCET

Designation	L mm	S mm	D1 mm	IC mm
DC.T 0702..	7.75	2.38	2.8	6.35
DC.T 11T3..	11.60	3.97	4.4	9.52



DCGT / DCMT

	-CF05 CTEP110	-CF55 CTEP110	-SF TCM10	-SMF TCM10	-SF TCM407	-SF CTCP125	-SF CTCP115
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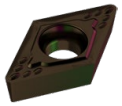
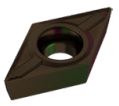
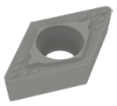
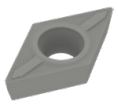
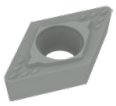
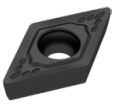
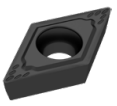
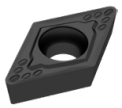
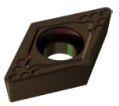
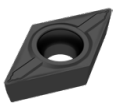
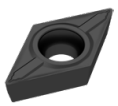
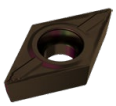
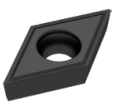
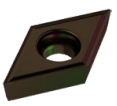
							
	F	F	F	F	F	F	F
	CERMET DCGT	CERMET DCMT	CERMET DCGT	CERMET DCMT	CERMET DCGT	DCGT	DCMT
	76 245 ...	76 246 ...	70 257 ...	70 265 ...	70 257 ...	76 257 ...	76 259 ...
ISO / RE mm	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/08	£ 1A/08
070201EN 0.1			12.82 898				
070202EN 0.2	13.23 002	7.51 002	12.82 900	6.95 898		13.23 502	
070204EN 0.4	13.23 004	7.51 004	12.82 902	6.95 900	12.82 852		7.42 304
11T302EN 0.2	17.51 014		16.34 904		16.34 854		
11T304EN 0.4	17.51 016	10.42 016	16.34 906	9.75 904	16.34 856		10.44 316
11T308EN 0.8	17.51 018	10.42 018	16.34 908	9.75 906	16.34 858		10.44 318
P	●	●	●	●	●	●	●
M	○	○	○	○	○		
K	○	○	○	○	○	○	○
N							
S							
H							
O							

DCMT / DCGT

	-SF CTCP125	-SF CTCP135	-SMF CTCP115	-SMF CTCP125	-SMF CTCP135	-SM CTCP125	-SM CTCP135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
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	DCMT	DCMT	DCMT	DCMT	DCMT	DCGT	DCGT
	76 259 ...	76 259 ...	76 265 ...	76 265 ...	76 265 ...	76 256 ...	76 256 ...
ISO / RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
070202EN 0.2						13.23 502	13.23 702
070204EN 0.4	7.42 504	7.42 704		7.42 504	7.42 704		
070208EN 0.8					7.42 706		
11T304EN 0.4	10.44 516	10.44 716	10.44 316	10.44 516	10.44 716		
11T308EN 0.8	10.44 518	10.44 718	10.44 318	10.44 518	10.44 718		
P	●	●	●	●	●	●	●
M		○			○		○
K	○		○	○		○	
N							
S							
H							
O							

9

DCMT

		-SM CTCK110		-SM CTCK120		-SM CTCP115		-SM CTCP125		-SM CTCP135		-SMQ CTCP115		-SMQ CTCP125	
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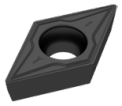
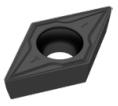
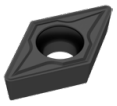
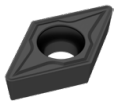
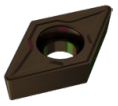
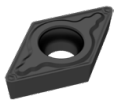
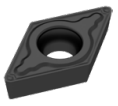
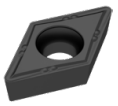
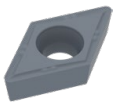
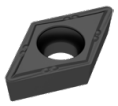
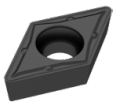
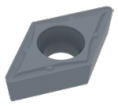
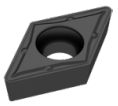
															
		M		M		M		M		M		M		M	
		DCMT		DCMT		DCMT		DCMT		DCMT		DCMT		DCMT	
		70 258 ...		70 258 ...		76 258 ...		76 258 ...		76 258 ...		76 195 ...		76 195 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
070204EN	0.4	7.42	004	7.42	554	7.42	304	7.42	504	7.42	704	8.46	304	8.46	504
070208EN	0.8	7.42	006	7.42	506	7.42	306	7.42	506	7.42	706				
11T304EL	0.4											11.63	31600	11.63	516
11T304EN	0.4	10.44	016	10.44	516	10.44	316	10.44	516	10.44	716	11.63	31500	11.63	515
11T304ER	0.4											11.63	31700	11.63	517
11T308EN	0.8	10.44	018	10.44	518	10.44	318	10.44	518	10.44	718	11.63	31800	11.63	518
11T312EN	1.2							10.44	520						
P		○		○		●		●		●		●		●	
M										○					
K		●		●		○		○				○		○	
N															
S															
H															
O															

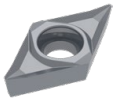
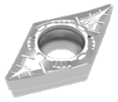
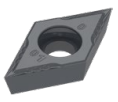
DCMT

		NEW -M25 CTCM120		-M25 CTPM125		NEW -M25 CTCM130		NEW -M55 CTCM120		-M55 CTPM125		NEW -M55 CTCM130	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
													
		F		F		F		M		M		M	
		DCMT		DCMT		DCMT		DCMT		DCMT		DCMT	
		75 213 ...		75 213 ...		75 213 ...		75 214 ...		75 214 ...		75 214 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
070202EN	0.2	7.42	10200	7.42	202	7.42	30200						
070204EN	0.4	7.42	10400	7.42	204	7.42	30400	7.42	10400	7.42	204	7.42	30400
070208EN	0.8							7.42	10600	7.42	206	7.42	30600
11T302EN	0.2	10.44	11400	10.44	214	10.44	31400						
11T304EN	0.4	10.44	11600	10.44	216	10.44	31600	10.44	11600	10.44	216	10.44	31600
11T308EN	0.8	10.44	11800	10.44	218	10.44	31800	10.44	11800	10.44	218	10.44	31800
P		○		○		○		○		○		○	
M		●		●		●		●		●		●	
K													
N													
S						○						○	
H													
O													

DCGT

| | | |

DCGT / DCMT / DCET

		NEW	NEW	NEW
		-27 CTPX715	-29 H216T	-F05 CTPX710
		DRAGONSKIN		DRAGONSKIN
				
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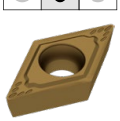
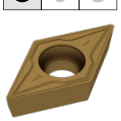
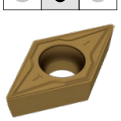
		DCGT	DCMT	DCET
		70 260 ...	70 246 ...	76 254 ...
ISO	RE mm	£ 1A/90	£ 1A/90	£ 1H/17
0702005FN	0.05			16.00 10200
070201FN	0.10			16.00 10400
0702015FN	0.15			16.00 10600
070202FN	0.20	10.77 80200		16.00 10800
070204FN	0.40	10.77 80400		
070204EN	0.40		6.79 60400	
11T3005FN	0.05			21.21 11400
11T301FN	0.10			21.21 11600
11T3015FN	0.15			21.21 11800
11T302FN	0.20	13.03 81400		21.21 12000
11T304EN	0.40		9.17 61600	
11T304FN	0.40	13.03 81600		21.21 12200
11T308EN	0.80		9.17 61800	
11T308FN	0.80	13.03 81800		
P		●		●
M		●		●
K		○	○	
N		●	●	●
S		●		●
H				
O		○	○	

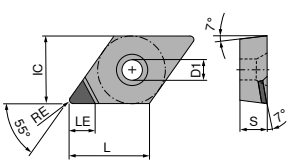
DCMT

		NEW	NEW	NEW	NEW
		-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25
					
		F	F	M	M
		DCMT	DCMT	DCMT	DCMT
		75 304 ...	75 304 ...	75 305 ...	75 305 ...
ISO	RE mm	£ 1S/1P	£ 1S/1P	£ 1S/1P	£ 1S/1P
070204EN	0.4	2.08 00409	2.08 10409	2.08 00409	2.08 10409
070208EN	0.8	2.08 00609	2.08 10609	2.08 00609	2.08 10609
11T304EN	0.4	2.61 01609	2.61 11609	2.61 01609	2.61 11609
11T308EN	0.8	2.61 01809	2.61 11809	2.61 01809	2.61 11809
P		●	●	●	●
M		○	○	○	○
K					
N					
S					
H					
O					

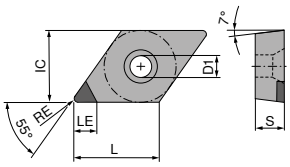
9

DCGW / DCGT

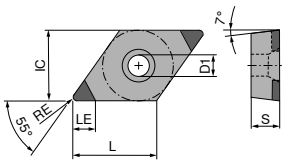
Designation	L mm	S mm	D1 mm	IC mm
DCG. 0702..	7.75	2.38	2.80	6.35
DCG. 11T3..	11.60	3.97	4.40	9.52
DCGW 0702..	7.75	2.38	2.38	6.35



DCGT A



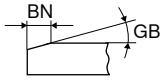
DCGW A

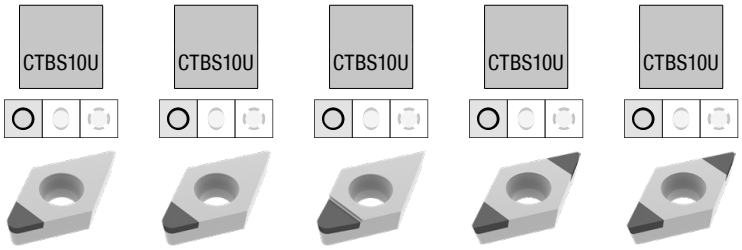


DCGW B

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

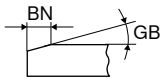


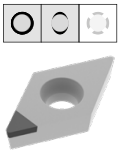
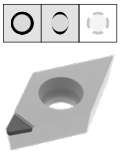
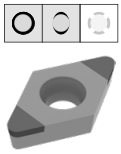
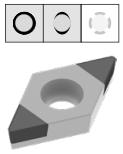


						F		F		F		F		F	
						CBN DCGW		CBN DCGW		CBN DCGT		CBN DCGW		CBN DCGW	
						71 130 ...		71 130 ...		71 134 ...		71 131 ...		71 131 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
070202TN	0.2	0.12	20°	A (1)	3.9	55.39	300								
070202FN	0.2			A (1)	3.9			55.39	200	69.11	200				
070204FN	0.4			A (1)	3.5			55.39	202	69.11	202				
070204TN	0.4	0.12	20°	A (1)	3.5	55.39	302								
070208FN	0.8			A (1)	3.0			55.39	204	69.11	204				
070208TN	0.8	0.12	20°	A (1)	3.0	55.39	304								
11T302FN	0.2			A (1)	3.9			55.39	206	69.11	206				
11T302TN	0.2	0.12	20°	B (2)	3.9							85.17	300		
11T302TN	0.2	0.12	20°	A (1)	3.9	55.39	306								
11T302FN	0.2			B (2)	3.9									85.17	200
11T304TN	0.4	0.12	20°	B (2)	3.5							85.17	302		
11T304FN	0.4			A (1)	3.5			55.39	208	69.11	208				
11T304TN	0.4	0.12	20°	A (1)	3.5	55.39	308								
11T304FN	0.4			B (2)	3.5									85.17	202
11T308TN	0.8	0.12	20°	B (2)	3.0							85.17	304		
11T308FN	0.8			A (1)	3.0			55.39	210	69.11	210				
11T308TN	0.8	0.12	20°	A (1)	3.0	55.39	310								
11T308FN	0.8			B (2)	3.0									85.17	204
P															
M															
K							●		●		●		●		●
N															
S							●		●		●		●		●
H															
O															

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



						NEW		NEW		NEW		NEW				NEW	
						CTBS10C		CTBS20U		CTBS20U		CTBS20U		CTBS20C		CTBH15U	
																	
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ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
070202SN	0.2	0.09	10°	B (2)	3.9	76.22	80100							76.99	120		
070202SN	0.2	0.11	15°	B (2)	3.9									76.99	130	86.52	30214
070202TN	0.2	0.12	15°	A (1)	3.9			48.14	20100								
070202TN	0.2	0.15	20°	B (2)	3.9									76.99	140		
070202SN	0.2	0.16	20°	B (2)	3.9									76.99	150		
070202TN	0.2	0.17	25°	B (2)	3.9									76.99	160		
070202FN	0.2			A (1)	3.9			48.14	20000								
070202FN	0.2			B (2)	3.9	76.22	80000										
070202EN	0.2			B (2)	3.9											86.52	00200
070204SN	0.4	0.09	10°	B (2)	3.5									76.99	121		
070204TN	0.4	0.09	15°	B (2)	3.5	76.22	80300										
070204SN	0.4	0.11	15°	B (2)	3.5									76.99	131	86.52	30414
070204TN	0.4	0.12	15°	A (1)	3.5			48.14	20200								
070204SN	0.4	0.14	15°	B (2)	3.5	76.22	80400										
070204TN	0.4	0.15	20°	B (2)	3.5									76.99	141		
070204SN	0.4	0.16	20°	B (2)	3.5									76.99	151		
070204SN	0.4	0.14	25°	B (2)	3.5											86.52	30429
070204TN	0.4	0.17	25°	B (2)	3.5									76.99	161		
070204SN	0.4	0.18	30°	B (2)	3.5									76.99	181		
070204FN	0.4			B (2)	3.5	76.22	80200										
070204EN	0.4			B (2)	3.5											86.52	00400
070208SN	0.8	0.11	15°	B (2)	3.0									76.99	132		
070208TN	0.8	0.15	20°	B (2)	3.0									76.99	142		
070208SN	0.8	0.16	20°	B (2)	3.0									76.99	152		
070208TN	0.8	0.17	25°	B (2)	3.0									76.99	162		
070208SN	0.8	0.18	25°	B (2)	3.0									76.99	172		
070208EN	0.8			B (2)	3.0									76.99	112		
11T302SN	0.2	0.11	15°	B (2)	3.9									76.99	133		
11T302TN	0.2	0.12	15°	A (1)	3.9			48.14	20400								
11T302TN	0.2	0.15	20°	B (2)	3.9									76.99	143		
11T302SN	0.2	0.16	20°	B (2)	3.9									76.99	153		
11T302TN	0.2	0.17	25°	B (2)	3.9									76.99	163		
11T302FN	0.2			A (1)	3.9			48.14	20300								
11T302EN	0.2			B (2)	3.9									76.99	113		
11T304SN	0.4	0.09	10°	B (2)	3.5									76.99	124		
11T304TN	0.4	0.09	15°	B (2)	3.5	76.22	80600										
11T304TN	0.4	0.12	15°	B (2)	3.5							76.99	13400				
11T304TN	0.4	0.12	15°	A (1)	3.5			48.14	20500								
11T304SN	0.4	0.14	15°	B (2)	3.5	76.22	80700										
11T304SN	0.4	0.14	20°	B (2)	3.5	76.22	80800										
11T304TN	0.4	0.15	20°	B (2)	3.5									76.99	144		
11T304SN	0.4	0.16	20°	B (2)	3.5									76.99	154		
11T304TN	0.4	0.17	25°	B (2)	3.5									76.99	164		
11T304FN	0.4			A (1)	3.5					58.86	20000						
11T304FN	0.4			B (2)	3.5	76.22	80500										
11T304SN	0.4	0.18	25°	B (2)	3.5									76.99	174		
11T304SN	0.4	0.18	30°	B (2)	3.5									76.99	184		

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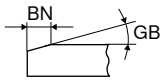
DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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						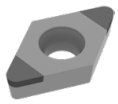		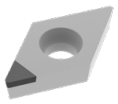		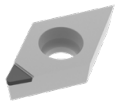		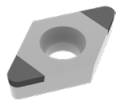		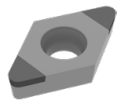		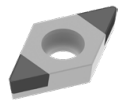	
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						71 424 ...		71 422 ...		71 421 ...		71 163 ...		71 163 ...		71 008 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
11T308SN	0.8	0.09	10°	B (2)	3.0	76.22	81000										
11T308TN	0.8	0.09	15°	B (2)	3.0	76.22	81100										
11T308SN	0.8	0.11	15°	B (2)	3.0									76.99	135		
11T308TN	0.8	0.12	15°	A (1)	3.0			48.14	20600								
11T308SN	0.8	0.14	15°	B (2)	3.0	76.22	81200										
11T308SN	0.8	0.14	20°	B (2)	3.0	76.22	81300										
11T308TN	0.8	0.15	20°	B (2)	3.0									76.99	145		
11T308SN	0.8	0.16	20°	B (2)	3.0									76.99	155		
11T308TN	0.8	0.17	25°	B (2)	3.0									76.99	165		
11T308SN	0.8	0.18	30°	B (2)	3.0									76.99	185		
11T308FN	0.8			A (1)	3.0					58.86	20100						
11T308EN	0.8			B (2)	3.0	76.22	80900							76.99	115		

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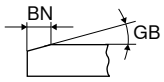
→ v_c Page 200–207

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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						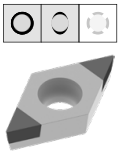								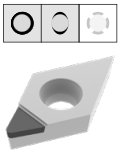		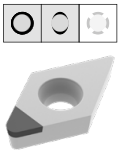	
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ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
070202SN	0.2	0.09	10°	B (2)	3.9			76.99	230								
070202SN	0.2	0.11	15°	B (2)	3.9			76.99	240	83.69	30214						
070202EN	0.2			B (2)	3.9					83.69	00200						
070202SN	0.2	0.09	20°	B (2)	3.9			76.99	250								
070202FN	0.2			A (1)	3.9									69.11	400		
070202TN	0.2	0.13	25°	A (1)	3.9											55.27	40000
070202TN	0.2	0.14	25°	B (2)	3.9			76.99	260								
070204FN	0.4			B (2)	3.5			76.99	211								
070204SN	0.4	0.09	10°	B (2)	3.5			76.99	231								
070204SN	0.4	0.11	15°	B (2)	3.5			76.99	241	83.69	30414						
070204SN	0.4	0.09	20°	B (2)	3.5			76.99	251								
070204TN	0.4	0.13	25°	A (1)	3.5											55.27	40100
070204SN	0.4	0.14	25°	B (2)	3.5					83.69	30429						
070204TN	0.4	0.14	25°	B (2)	3.5			76.99	261								
070204EN	0.4			B (2)	3.5					83.69	00400						
070204SN	0.4	0.15	25°	B (2)	3.5			76.99	271								
070204FN	0.4			A (1)	3.5									69.11	402		
070208FN	0.8			B (2)	3.0			76.99	212								
070208SN	0.8	0.09	10°	B (2)	3.0			76.99	232								
070208SN	0.8	0.11	15°	B (2)	3.0	86.52	30614					83.69	30614				
070208SN	0.8	0.09	20°	B (2)	3.0			76.99	252								
070208SN	0.8	0.14	25°	B (2)	3.0	86.52	30629					83.69	30629				
070208TN	0.8	0.14	25°	B (2)	3.0			76.99	262								
070208EN	0.8			B (2)	3.0	86.52	00600	76.99	222			83.69	00600				
11T302RN	0.2			B (2)	3.9					83.69	21400						
11T302SN	0.2	0.09	15°	B (2)	3.9			76.99	233								
11T302SN	0.2	0.11	15°	B (2)	3.9			76.99	243	83.69	31414						
11T302SN	0.2	0.09	20°	B (2)	3.9			76.99	253								
11T302TN	0.2	0.14	25°	B (2)	3.9			76.99	263								
11T302SN	0.2	0.14	25°	B (2)	3.9					83.69	31429						
11T302SN	0.2	0.15	25°	B (2)	3.9			76.99	273								
11T302FN	0.2			A (1)	3.9									69.11	406		
11T304FN	0.4			B (2)	3.5			76.99	214								
11T304EN	0.4			B (2)	3.5			76.99	224								
11T304SN	0.4	0.09	10°	B (2)	3.5			76.99	234								
11T304SN	0.4	0.11	15°	B (2)	3.5			76.99	244	83.69	31614						
11T304SN	0.4	0.09	20°	B (2)	3.5			76.99	254								
11T304TN	0.4	0.14	25°	B (2)	3.5			76.99	264								
11T304RN	0.4			B (2)	3.5					83.69	21600						
11T304SN	0.4	0.14	25°	B (2)	3.5					83.69	31629						
11T304SN	0.4	0.15	25°	B (2)	3.5			76.99	274								
11T304SN	0.4	0.18	30°	B (2)	3.5			76.99	284								
11T304FN	0.4			A (1)	3.5									69.11	408		
11T308EN	0.8			B (2)	3.0			76.99	225								
11T308FN	0.8			B (2)	3.0			76.99	215								
11T308RN	0.8			B (2)	3.0							83.69	21800				
11T308SN	0.8	0.11	15°	B (2)	3.0			76.99	245			83.69	31814				
11T308SN	0.8	0.09	20°	B (2)	3.0			76.99	255								
11T308TN	0.8	0.14	25°	B (2)	3.0			76.99	265								
11T308SN	0.8	0.14	25°	B (2)	3.0							83.69	31829				
11T308SN	0.8	0.18	30°	B (2)	3.0			76.99	285								
11T308FN	0.8			A (1)	3.0									69.11	410		

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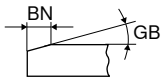
DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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						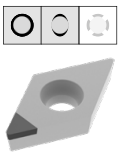	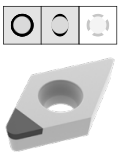	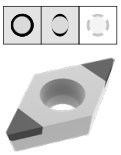	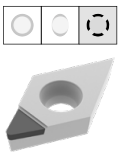	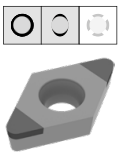	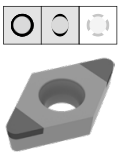
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						CBN DCGW	CBN DCGW	CBN DCGW	CBN DCGT	CBN DCGW	CBN DCGW
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ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0
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070201ER	0.1			A (1)	3.0	67.79 40100					
070202SN	0.2	0.09	10°	B (2)	3.9					76.99 230	
070202SN	0.2	0.11	15°	B (2)	3.9					76.99 240	
070202SN	0.2	0.09	20°	B (2)	3.9					76.99 250	
070202TN	0.2	0.11	20°	B (2)	3.4						81.07 90100
070202TN	0.2	0.12	20°	B (2)	3.9			85.17 53000			
070202TN	0.2	0.12	20°	A (1)	3.9		55.39 500				
070202TN	0.2	0.14	25°	B (2)	3.9					76.99 260	
070202FN	0.2			A (1)	3.9		55.39 400 1)		69.11 800		
070202EN	0.2			B (2)	3.4						81.07 90000
070204SN	0.4	0.09	10°	B (2)	3.5					76.99 231	
070204SN	0.4	0.09	10°	B (2)	3.0						81.07 90300
070204SN	0.4	0.11	15°	B (2)	3.5					76.99 241	
070204SN	0.4	0.09	20°	B (2)	3.5					76.99 251	
070204TN	0.4	0.11	20°	B (2)	3.0						81.07 90400
070204TN	0.4	0.12	20°	B (2)	3.5			85.17 53200			
070204TN	0.4	0.12	20°	A (1)	3.5		55.39 502				
070204TN	0.4	0.14	25°	B (2)	3.5					76.99 261	
070204SN	0.4	0.15	25°	B (2)	3.5					76.99 271	
070204FN	0.4			B (2)	3.5					76.99 211	
070204FN	0.4			A (1)	3.5		55.39 402 1)		69.11 802		
070204EN	0.4			B (2)	3.0						81.07 90200
070208SN	0.8	0.09	10°	B (2)	3.0					76.99 232	
070208SN	0.8	0.09	20°	B (2)	3.0					76.99 252	
070208EN	0.8			B (2)	3.0					76.99 222	
070208FN	0.8			B (2)	3.0					76.99 212	
070208TN	0.8	0.11	20°	B (2)	2.6						81.07 90600
070208TN	0.8	0.12	20°	A (1)	3.0		55.39 504				
070208TN	0.8	0.14	25°	B (2)	3.0					76.99 262	
070208TN	0.8	0.15	35°	B (2)	2.6						81.07 90700
070208FN	0.8			A (1)	3.0		55.39 404 1)				
070208EN	0.8			B (2)	2.6						81.07 90500
11T302SN	0.2	0.09	15°	B (2)	3.9					76.99 233	
11T302SN	0.2	0.11	15°	B (2)	3.9					76.99 243	
11T302SN	0.2	0.09	20°	B (2)	3.9					76.99 253	
11T302TN	0.2	0.11	20°	B (2)	3.4						81.07 90900
11T302TN	0.2	0.12	20°	B (2)	3.9			85.17 500			
11T302TN	0.2	0.12	20°	A (1)	3.9		55.39 506				
11T302TN	0.2	0.14	25°	B (2)	3.9					76.99 263	
11T302FN	0.2			A (1)	3.9		55.39 406 1)		69.11 806		
11T302SN	0.2	0.15	25°	B (2)	3.9					76.99 273	
11T302FN	0.2			B (2)	3.9			85.17 400 1)			
11T302EN	0.2			B (2)	3.4						81.07 90800
11T304SN	0.4	0.09	10°	B (2)	3.5					76.99 234	
11T304SN	0.4	0.09	10°	B (2)	3.0						81.07 91000
11T304TN	0.4	0.09	15°	B (2)	3.0						81.07 91100
11T304SN	0.4	0.11	15°	B (2)	3.5					76.99 244	

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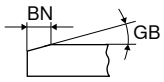
1) Machining to 60 HRC

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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						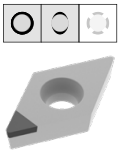		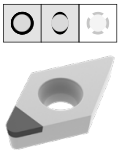		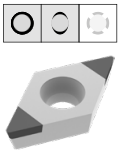		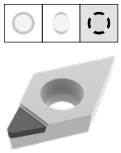		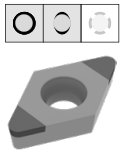		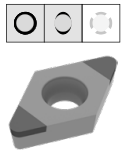		
						F		F		F		F		F		F		
						CBN DCGW		CBN DCGW		CBN DCGW		CBN DCGT		CBN DCGW		CBN DCGW		
						71 423 ...		71 130 ...		71 131 ...		71 134 ...		71 163 ...		71 424 ...		
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		
11T304SN	0.4	0.09	20°	B (2)	3.5									76.99	254			
11T304TN	0.4	0.11	20°	B (2)	3.0											81.07	91200	
11T304TN	0.4	0.12	20°	B (2)	3.5					85.17	502							
11T304TN	0.4	0.12	20°	A (1)	3.5			55.39	508									
11T304TN	0.4	0.14	25°	B (2)	3.5									76.99	264			
11T304EN	0.4			B (2)	3.5									76.99	224			
11T304SN	0.4	0.14	25°	B (2)	3.0											81.07	91300	
11T304SN	0.4	0.15	25°	B (2)	3.5									76.99	274			
11T304TN	0.4	0.15	30°	B (2)	3.0											81.07	91400	
11T304SN	0.4	0.18	30°	B (2)	3.5									76.99	284			
11T304FN	0.4			A (1)	3.5			55.39	408 1)			69.11	808					
11T304FN	0.4			B (2)	3.5					85.17	402 1)			76.99	214			
11T308SN	0.8	0.11	15°	B (2)	3.0									76.99	245			
11T308SN	0.8	0.09	20°	B (2)	3.0									76.99	255			
11T308TN	0.8	0.11	20°	B (2)	2.6											81.07	91600	
11T308TN	0.8	0.12	20°	B (2)	3.0					85.17	504							
11T308TN	0.8	0.12	20°	A (1)	3.0			55.39	510									
11T308TN	0.8	0.14	25°	B (2)	3.0									76.99	265			
11T308EN	0.8			B (2)	3.0									76.99	225			
11T308FN	0.8			B (2)	3.0					85.17	404 1)			76.99	215			
11T308TN	0.8	0.15	30°	B (2)	2.6											81.07	91700	
11T308SN	0.8	0.18	30°	B (2)	3.0									76.99	285			
11T308FN	0.8			A (1)	3.0			55.39	410 1)			69.11	810					
11T308EN	0.8			B (2)	2.6											81.07	91500	
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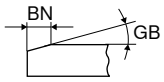
1) Machining to 60 HRC

9

DCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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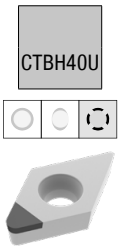

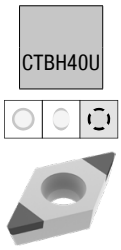

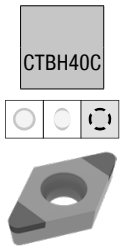



						F	F	F	F
						CBN DCGW	CBN DCGW	CBN DCGW	CBN DCGW
						71 130 ...	71 131 ...	71 163 ...	71 424 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0	£ Y0	£ Y0	£ Y0
070202TN	0.2	0.09	10°	B (2)	3.4				81.07 00201
070202TN	0.2	0.09	20°	B (2)	3.9			76.99 320	
070202SN	0.2	0.09	25°	B (2)	3.9			76.99 350	
070202TN	0.2	0.11	25°	B (2)	3.9			76.99 340	
070202TN	0.2	0.12	25°	B (2)	3.0		85.17 93000		
070202TN	0.2	0.12	25°	A (1)	3.9	55.39 900			
070202TN	0.2	0.14	30°	B (2)	3.9			76.99 360	
070202SN	0.2	0.16	30°	B (2)	3.9			76.99 370	
070202EN	0.2			B (2)	3.9			76.99 310	
070202SN	0.2	0.17	35°	B (2)	3.9			76.99 380	
070202FN	0.2			A (1)	3.9	55.39 800			
070202FN	0.2			B (2)	3.4				81.07 00101
070204TN	0.4	0.09	10°	B (2)	3.0				81.07 00401
070204SN	0.4	0.09	20°	B (2)	3.5			76.99 331	
070204SN	0.4	0.09	25°	B (2)	3.5			76.99 351	
070204TN	0.4	0.11	25°	B (2)	3.5			76.99 341	
070204TN	0.4	0.12	25°	B (2)	3.0		85.17 93200		
070204TN	0.4	0.12	25°	A (1)	3.5	55.39 902			
070204SN	0.4	0.14	25°	B (2)	3.0				81.07 00501
070204TN	0.4	0.14	30°	B (2)	3.5			76.99 361	
070204SN	0.4	0.16	30°	B (2)	3.5			76.99 371	
070204SN	0.4	0.15	35°	B (2)	3.0				81.07 00601
070204SN	0.4	0.17	35°	B (2)	3.5			76.99 381	
070204FN	0.4			A (1)	3.5	55.39 802			
070204FN	0.4			B (2)	3.0				81.07 00301
070208SN	0.8	0.09	20°	B (2)	3.0			76.99 332	
070208SN	0.8	0.13	20°	B (2)	2.6				81.07 00701
070208SN	0.8	0.09	25°	B (2)	3.0			76.99 352	
070208TN	0.8	0.11	25°	B (2)	3.0			76.99 342	
070208TN	0.8	0.12	25°	B (2)	3.0		85.17 93400		
070208TN	0.8	0.12	25°	A (1)	3.0	55.39 904			
070208TN	0.8	0.14	30°	B (2)	3.0			76.99 362	
070208SN	0.8	0.16	30°	B (2)	3.0			76.99 372	
070208SN	0.8	0.15	35°	B (2)	2.6				81.07 00801
070208SN	0.8	0.17	35°	B (2)	3.0			76.99 382	
070208FN	0.8			A (1)	3.0	55.39 804			
070208EN	0.8			B (2)	3.0			76.99 312	
11T302TN	0.2	0.09	20°	B (2)	3.9			76.99 323	
11T302SN	0.2	0.13	20°	B (2)	3.4				81.07 01001
11T302SN	0.2	0.09	25°	B (2)	3.9			76.99 353	
11T302TN	0.2	0.11	25°	B (2)	3.9			76.99 343	
11T302TN	0.2	0.12	25°	A (1)	3.9	55.39 906			
11T302TN	0.2	0.12	25°	B (2)	3.0		85.17 900		
11T302TN	0.2	0.14	30°	B (2)	3.9			76.99 363	
11T302SN	0.2	0.17	35°	B (2)	3.9			76.99 383	
11T302EN	0.2			B (2)	3.9			76.99 313	
11T302FN	0.2			B (2)	3.9		85.17 800 [1]		
11T302FN	0.2			A (1)	3.9	55.39 806			
11T302FN	0.2			B (2)	3.4				81.07 00901

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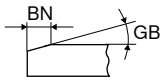
1) Machining to 60 HRC

→ v_c Page 200–207

Continued on next page

DCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW

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	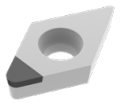	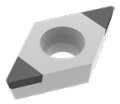	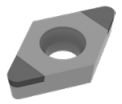	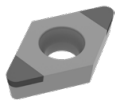
	F	F	F	F
	CBN DCGW	CBN DCGW	CBN DCGW	CBN DCGW
	71 130 ...	71 131 ...	71 163 ...	71 424 ...
	£ Y0	£ Y0	£ Y0	£ Y0

ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm							
11T304SN	0.4	0.09	15°	B (2)	3.0						81.07	01201
11T304TN	0.4	0.09	20°	B (2)	3.5					76.99	324	
11T304SN	0.4	0.09	20°	B (2)	3.5					76.99	334	
11T304SN	0.4	0.13	20°	B (2)	3.0						81.07	01301
11T304SN	0.4	0.09	25°	B (2)	3.5					76.99	354	
11T304TN	0.4	0.11	25°	B (2)	3.5					76.99	344	
11T304TN	0.4	0.12	25°	B (2)	3.0			85.17	902			
11T304TN	0.4	0.12	25°	A (1)	3.5	55.39	908					
11T304SN	0.4	0.14	25°	B (2)	3.0						81.07	01401
11T304TN	0.4	0.14	30°	B (2)	3.5					76.99	364	
11T304SN	0.4	0.15	30°	B (2)	3.0						81.07	01501
11T304SN	0.4	0.16	30°	B (2)	3.5					76.99	374	
11T304SN	0.4	0.17	35°	B (2)	3.5					76.99	384	
11T304EN	0.4			B (2)	3.5					76.99	314	
11T304FN	0.4			B (2)	3.5			85.17	802 [1]			
11T304FN	0.4			A (1)	3.5	55.39	808					
11T304FN	0.4			B (2)	3.0						81.07	01101
11T308TN	0.8	0.09	10°	B (2)	2.6						81.07	01701
11T308SN	0.8	0.09	20°	B (2)	3.0					76.99	335	
11T308TN	0.8	0.09	20°	B (2)	3.0					76.99	325	
11T308SN	0.8	0.09	25°	B (2)	3.0					76.99	355	
11T308TN	0.8	0.11	25°	B (2)	3.0					76.99	345	
11T308TN	0.8	0.12	25°	B (2)	3.0			85.17	904			
11T308TN	0.8	0.12	25°	A (1)	3.0	55.39	910					
11T308SN	0.8	0.14	25°	B (2)	2.6						81.07	01801
11T308TN	0.8	0.14	30°	B (2)	3.0					76.99	365	
11T308SN	0.8	0.15	30°	B (2)	2.6						81.07	01901
11T308SN	0.8	0.16	30°	B (2)	3.0					76.99	375	
11T308SN	0.8	0.17	35°	B (2)	3.0					76.99	385	
11T308FN	0.8			B (2)	3.0			85.17	804 [1]			
11T308FN	0.8			B (2)	2.6						81.07	01601
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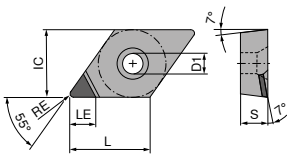
1) Machining to 60 HRC

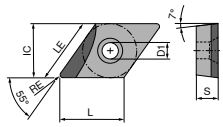
9

DCGW / DCGT

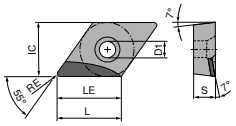
Designation	L mm	S mm	D1 mm	IC mm
DCG. 0702..	7.75	2.38	2.8	6.35
DCG. 11T3..	11.60	3.97	4.4	9.52



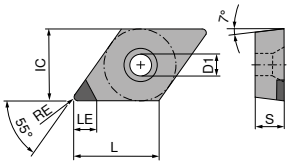
DCGT A



DCGT A L



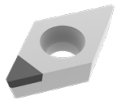
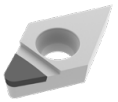
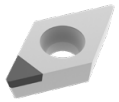
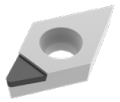
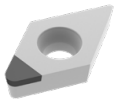
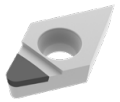
DCGT A R



DCGW A

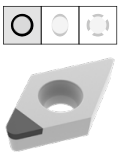
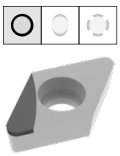
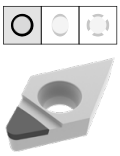
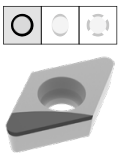
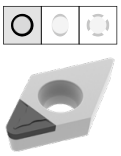
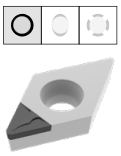
DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

						NEW		NEW				
				CTDMD05		CTDMD05		-Q CTDMD05		-Q CTDMD05		CTDPD20		CTDPD20	
															
				F		F		F		F		F		F	
				DIAMOND DCGW		DIAMOND DCGT		DIAMOND DCGW		DIAMOND DCGT		DIAMOND DCGW		DIAMOND DCGT	
				71 130 ...		71 134 ...		71 178 ...		71 176 ...		71 130 ...		71 134 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
070202FN	0.2	A (1)	2.5	395.64	00200	426.94	050								
070202FN	0.2	A (1)	3.7									81.74	100	81.74	100
070204FN	0.4	A (1)	2.5	395.64	00400	426.94	052								
070204FR	0.4	A (1)	2.5							549.99	50001				
070204FN	0.4	A (1)	3.4									81.74	102	81.74	102
070208FN	0.8	A (1)	2.5	395.64	00600	426.94	054								
070208FN	0.8	A (1)	3.0									81.74	104	81.74	104
11T302FN	0.2	A (1)	2.5			426.94	056								
11T302FN	0.2	A (1)	3.0	395.64	056										
11T302FN	0.2	A (1)	4.7									83.64	106	83.64	106
11T304FN	0.4	A (1)	2.5			426.94	058								
11T304FL	0.4	A (1)	3.0					521.39	50001						
11T304FN	0.4	A (1)	3.0	395.64	058										
11T304FN	0.4	A (1)	4.3									83.64	108	83.64	108
11T308FN	0.8	A (1)	2.5			426.94	060								
11T308FN	0.8	A (1)	4.0									83.64	110	83.64	110
11T312FN	1.2	A (1)	3.5											83.64	11200
11T312FN	1.2	A (1)	3.6									83.64	11200		
P															
M															
K															
N				●		●		●		●		●		●	
S															
H															
O				●		●		●		●		●		●	

DCGW / DCGT

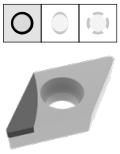
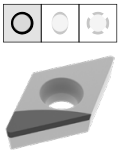
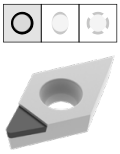
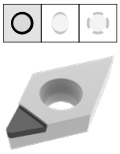
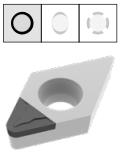
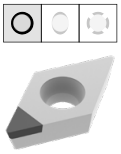
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW	NEW	NEW	NEW	NEW	NEW
				CTDPS30	CTDPS30	CTDPS30	CTDPS30	-CB1 CTDPU20	-CB2 CTDPU20
									
				F	F	F	F	F	M
				DIAMOND DCGW	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT
				71 177 ...	71 173 ...	71 173 ...	71 173 ...	71 174 ...	71 175 ...
ISO	RE mm	TCE (NOI)	LE mm	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0
070201FN	0.1	A (1)	3.8	69.73 20001		71.34 20001			
070202FN	0.2	A (1)	3.7	69.73 20101		71.34 20101		76.22 30001	
070204FN	0.4	A (1)	3.4	69.73 20201				76.22 30101	76.22 30001
070204FL	0.4	A (1)	5.5		100.53 20201				
070208FN	0.8	A (1)	3.0	69.73 20301					
11T301FN	0.1	A (1)	4.8	72.98 20401		74.58 20301			
11T302FN	0.2	A (1)	4.7	72.98 20501		74.58 20401			
11T304FN	0.4	A (1)	4.3	72.98 20601				79.45 30201	79.45 30101
11T304FL	0.4	A (1)	7.5		110.25 20501				
11T308FN	0.8	A (1)	4.0	72.98 20701				79.45 30301	
11T308FL	0.8	A (1)	7.0		110.25 20601				
11T308FR	0.8	A (1)	7.0				110.25 20701		
11T312FN	1.2	A (1)	3.6	72.98 20801					
11T312FL	1.2	A (1)	6.5		110.25 20801				
11T312FR	1.2	A (1)	6.5				110.25 20901		
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

9

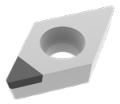
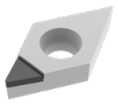
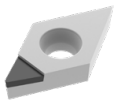
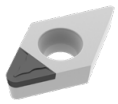
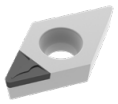
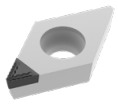
DCGT / DCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPD20		CTDPD20		-Q CTDPD20		-Q CTDPD20		-CB1 CTDPD20		-Q CTDPS30	
															
				F		F		F		F		F		F	
				DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGW	
				71 136 ...		71 135 ...		71 144 ...		71 145 ...		71 310 ...		71 138 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
070201FN	0.1	A (1)	3.8									96.71	10100		
070202FN	0.2	A (1)	3.7									96.71	102		
070204FL	0.4	A (1)	3.0							101.76	104				
070204FR	0.4	A (1)	3.0					101.76	104						
070204FN	0.4	A (1)	3.4									96.71	104		
070204FRR	0.4	A (1)	5.5			113.49	102								
070204FLL	0.4	A (1)	5.5	113.49	102										
070208FN	0.8	A (1)	3.0									96.71	108		
070208FRR	0.8	A (1)	5.0			113.49	104								
070208FLL	0.8	A (1)	5.0	113.49	104										
11T301FN	0.1	A (1)	4.8									98.78	11100		
11T302FR	0.2	A (1)	4.0											107.38	162
11T302FN	0.2	A (1)	4.7									98.78	112		
11T304FL	0.4	A (1)	4.0							107.38	114				
11T304FR	0.4	A (1)	4.0					107.38	114					107.38	164
11T304FN	0.4	A (1)	4.3									98.78	114		
11T304FRR	0.4	A (1)	7.5			122.49	108								
11T304FLL	0.4	A (1)	7.5	122.49	108										
11T308FN	0.8	A (1)	4.0									98.78	118		
11T308FRR	0.8	A (1)	7.0			122.49	110								
11T308FLL	0.8	A (1)	7.0	122.49	110										
P															
M															
K															
N				●		●		●		●		●		●	
S															
H															
O				●		●		●		●		●		●	

DCGW / DCGT

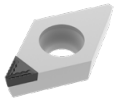
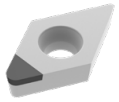
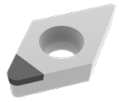
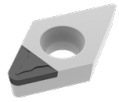
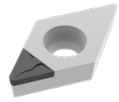
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				-Q CTDPS30		-Q CTDPS30		-Q CTDPS30		-CB1 CTDPS30		-CB2 CTDPS30		-CB3 CTDPU20	
															
				F		F		F		F		M		R	
				DIAMOND DCGW		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT	
				71 139 ...		71 144 ...		71 145 ...		71 310 ...		71 311 ...		71 312 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
070201FL	0.1	A (1)	3.0					101.76	151						
070201FR	0.1	A (1)	3.0			101.76	15000								
070201FN	0.1	A (1)	3.8							96.71	20100				
070202FL	0.2	A (1)	3.0					101.76	152						
070202FR	0.2	A (1)	3.0			101.76	152								
070202FN	0.2	A (1)	3.7							96.71	202	96.71	202		
070204FN	0.4	A (1)	3.4							96.71	204	96.71	204	77.21	204
070208FN	0.8	A (1)	3.0									106.50	208		
11T301FL	0.1	A (1)	4.0					107.38	161						
11T301FR	0.1	A (1)	4.0			107.38	161								
11T301FN	0.1	A (1)	4.8							98.78	21100	104.15	21100		
11T302FL	0.2	A (1)	4.0					107.38	162						
11T302FR	0.2	A (1)	4.0			107.38	162								
11T302FN	0.2	A (1)	4.7							98.78	212	104.15	212		
11T304FL	0.4	A (1)	4.0	107.38	164										
11T304FN	0.4	A (1)	4.3							98.78	214	104.15	214	81.74	214
11T308FN	0.8	A (1)	4.0							114.44	218	114.44	218	91.96	218
P															
M															
K															
N					●		●		●		●		●		●
S															
H															
O					●		●		●		●		●		●

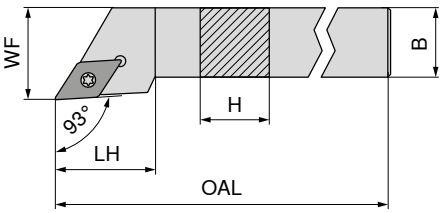
9

DCGT / DCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

					NEW		NEW							
				-CB3 CTDPU20		-CB3 CTDPU20		-CB3 CTDCD10		-CB1 CTDCD10		-CB2 CTDCD10		
														
				R		F		F		F		M		
				DIAMOND DCGT		DIAMOND DCGW		DIAMOND DCGW		DIAMOND DCGT		DIAMOND DCGT		
				71 312 ...		71 177 ...		71 177 ...		71 310 ...		71 311 ...		
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		
070202FN	0.2	A (1)	2.6					72.98	40001	119.68	302	119.68	30200	
070204FN	0.4	A (1)	2.3					74.58	40101	119.68	304	119.68	304	
070204FN	0.4	A (1)	3.4	77.21	204	69.73	30001							
070208FN	0.8	A (1)	2.0					79.45	40201			129.11	308	
070208FN	0.8	A (1)	3.0			69.73	30101							
11T302FN	0.2	A (1)	2.6					76.22	40301	121.50	31200	121.50	31200	
11T304FN	0.4	A (1)	2.3					77.82	40401	121.50	314	121.50	314	
11T304FN	0.4	A (1)	4.3	81.74	214	71.34	30201							
11T308FN	0.8	A (1)	2.0					82.71	40501	136.16	318	136.16	318	
11T308FN	0.8	A (1)	4.0	91.96	218	71.34	30301							
P														
M														
K														
N				●		●		●		●		●		
S														
H														
O				●		●		●		●		●		

MaxiLock-S – SDJC 93° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 685 ... £ 2A/24		Right-hand 70 684 ... £ 2A/24	
SDJC R/L 0808 D07	8	8	60	13.0	10	1,2	DC.. 0702	58.15	008	58.15	008
SDJC R/L 1010 E07	10	10	70	13.0	12	1,2	DC.. 0702	61.66	010	61.66	010
SDJC R/L 1212 F07	12	12	80	14.5	16	1,2	DC.. 0702	61.66	012	61.66	012
SDJC R/L 1616 H11	16	16	100	20.0	20	3,2	DC.. 11T3	76.37	016	76.37	016
SDJC R/L 2020 K11	20	20	125	20.5	25	3,2	DC.. 11T3	81.18	020	81.18	020
SDJC R/L 2525 M11	25	25	150	21.5	32	3,2	DC.. 11T3	83.97	025	83.97	025
SDJC R/L 3225 P11	32	25	170	21.5	32	3,2	DC.. 11T3	87.29	032	87.29	032


Key D


Combination Key


Clamping screw


Solid Carbide Seat D

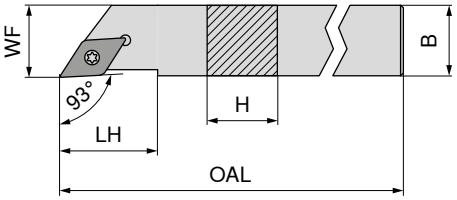

Threaded sleeve

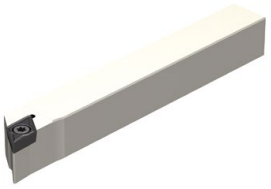
Spare parts Insert	Key D 80 950 ... £ Y7		Combination Key 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A		Solid Carbide Seat D 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
DC.. 0702	10.82	110			2.26	112				
DC.. 11T3			7.91	398	2.99	113	7.15	106	4.43	171

9

MaxiLock-S – SDJC 93° – Toolholder with screw clamping

▲ for sliding head lathes





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 685 ... £ X0		Right-hand 70 684 ... £ X0	
SDJC R/L 0808 H07	8	8	100	13.0	8	1,2	DC.. 0702	185.86	108	185.86	108
SDJC R/L 1010 H07	10	10	100	13.0	10	1,2	DC.. 0702	185.86	110	185.86	110
SDJC R/L 1212 H07	12	12	100	14.5	12	1,2	DC.. 0702	207.91	112	207.91	112
SDJC R/L 1616 K07	16	16	125	33.0	16	1,2	DC.. 0702	230.51	116	230.51	116
SDJC R/L 1212 H11	12	12	100	22.0	12	3,2	DC.. 11T3	207.91	212	207.91	212
SDJC R/L 1616 K11	16	16	125	33.0	16	3,2	DC.. 11T3	230.51	216	230.51	216

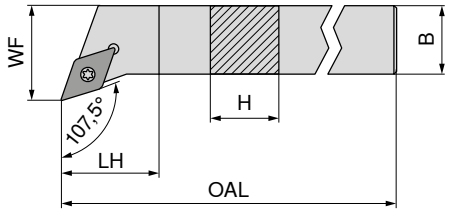

Key D


Clamping screw

Spare parts Insert		Key D 80 950 ... £ Y7		Clamping screw 72 950 ... £ 2A	
DC.. 0702	T08	10.82	110	4.58	002
DC.. 11T3	T15	12.87	113	4.58	006

MaxiLock-S – SDHC 107.5° – Toolholder with screw clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 689 ... £ 2A/24		Right-hand 70 688 ... £ 2A/24	
SDHC R/L 1010 E07	10	10	70	5.5	12	1,2	DC.. 0702	61.66	**010**	61.66	**010**
SDHC R/L 1212 F07	12	12	80	12.0	16	1,2	DC.. 0702	61.66	**012**	61.66	**012**
SDHC R/L 1616 H11	16	16	100	10.4	20	3,2	DC.. 11T3	76.37	**016**	76.37	**016**
SDHC R/L 2020 K11	20	20	125	14.0	32	3,2	DC.. 11T3	81.18	**020**	81.18	**020**
SDHC R/L 2525 M11	25	25	150	20.0	32	3,2	DC.. 11T3	83.97	**025**	83.97	**025**

Key D


Combination Key


Clamping screw


Solid Carbide Seat D

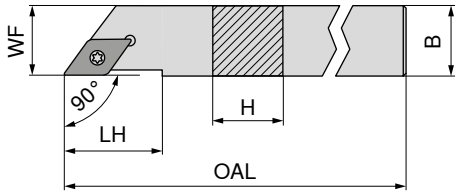

Threaded sleeve

Spare parts for Article no.	Key D 80 950 ... £ Y7		Combination Key 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A		Solid Carbide Seat D 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
70 689 010 / 70 688 010	10.82	**110**			2.26	**112**				
70 689 012 / 70 688 012	10.82	**110**			2.26	**112**				
70 689 016 / 70 688 016			7.91	**398**	2.99	**113**	7.15	**106**	4.43	**171**
70 689 020 / 70 688 020			7.91	**398**	2.99	**113**	7.15	**106**	4.43	**171**
70 689 025 / 70 688 025			7.91	**398**	2.99	**113**	7.15	**106**	4.43	**171**

MaxiLock-S – SDAC 90° – Toolholder with screw clamping

▲ for sliding head lathes





Illustrations show right-hand versions



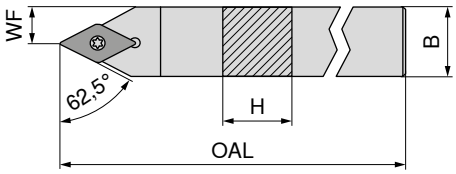
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 789 ... £ 2A/24		Right-hand 70 788 ... £ 2A/24	
SDAC R/L 0808 K07	8	8	125	14	8	1,2	DC.. 0702	61.66	**008**	61.66	**008**
SDAC R/L 1010 M07	10	10	150	14	10	1,2	DC.. 0702	61.66	**010**	61.66	**010**
SDAC R/L 1212 M07	12	12	150	14	12	1,2	DC.. 0702	68.96	**012**	68.96	**012**
SDAC R/L 1212 M11	12	12	150	21	12	3,2	DC.. 11T3	68.96	**11200**	68.96	**11200**
SDAC R/L 1414 M11	14	14	150	21	14	3,2	DC.. 11T3	68.96	**014**	68.96	**014**

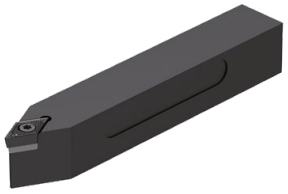

Key D


Clamping screw

Spare parts for Article no.	Key D 80 950 ... £ Y7			Clamping screw 70 950 ... £ 2A		
70 788 008 / 70 789 008	T08	10.82	**110**	M2,5x6	2.26	**112**
70 788 010 / 70 789 010	T08	10.82	**110**	M2,5x6	2.26	**112**
70 788 012 / 70 789 012	T08	10.82	**110**	M2,5x6	2.26	**112**
70 788 11200 / 70 789 11200	T15	12.87	**113**	M3,5x11	2.99	**113**
70 788 014 / 70 789 014	T15	12.87	**113**	M3,5x11	2.99	**113**

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping





ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Neutral 70 680 ... £ 2A/24	
SDNC N 0808 D07	8	8	60	4.0	1,2	DC.. 0702	58.15	008
SDNC N 1010 E07	10	10	70	5.0	1,2	DC.. 0702	61.66	010
SDNC N 1212 F07	12	12	80	6.0	1,2	DC.. 0702	61.66	012
SDNC N 1616 H11	16	16	100	8.0	3,2	DC.. 11T3	76.37	016
SDNC N 2020 K11	20	20	125	10.0	3,2	DC.. 11T3	81.18	020
SDNC N 2525 M11	25	25	150	12.5	3,2	DC.. 11T3	83.97	025

Key D

Combination Key


Clamping screw

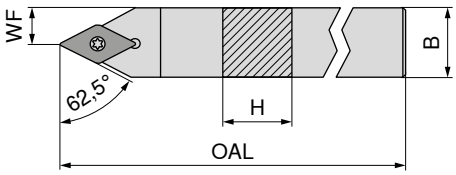

Solid Carbide Seat D


Threaded sleeve

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 680 008	10.82	110			2.26	112				
70 680 010	10.82	110			2.26	112				
70 680 012	10.82	110			2.26	112				
70 680 016			7.91	398	2.99	113	7.15	106	4.43	171
70 680 020			7.91	398	2.99	113	7.15	106	4.43	171
70 680 025			7.91	398	2.99	113	7.15	106	4.43	171

9

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping





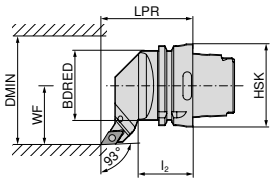
ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Neutral 70 784 ... £ 2A/24	
SDNC N 0808 K07	8	8	125	4	1,2	DC.. 0702	58.15	008
SDNC N 1010 M07	10	10	150	5	1,2	DC.. 0702	61.66	010
SDNC N 1212 M07	12	12	150	6	1,2	DC.. 0702	68.96	012
SDNC N 1212 M11	12	12	150	6	3,2	DC.. 11T3	68.96	11200
SDNC N 1414 M11	14	14	150	7	3,2	DC.. 11T3	68.96	014

Key D


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A	
70 784 008	T08	10.82	110	M2,5x6	2.26	112
70 784 010	T08	10.82	110	M2,5x6	2.26	112
70 784 012	T08	10.82	110	M2,5x6	2.26	112
70 784 11200	T15	12.87	113	M3,5x11	2.99	113
70 784 014	T15	12.87	113	M3,5x11	2.99	113

MaxiLock-S – SDJC 93° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 544 ... £ 2D/80		Right-hand 74 543 ... £ 2D/80	
HSK T63 SDJC R/L 11	HSK-T 63	70	42	53	45	100	3.2	DC.. 11T3	324.70	**511**	324.70	**511**


Combination Key

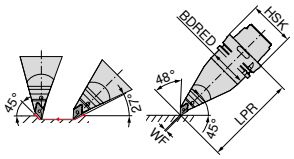

Clamping screw


Solid Carbide Seat D


Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 543 511 / 74 544 511	T15/SW	7.91	**398**	M3,5x11	2.99	**113**	7.15	**106**	M3,5	4.43	**171**

MaxiLock-S – SDMC 48° – Toolholder with screw clamping





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 546 ... £ 2D/80	
HSK T63 SDMC L 11	HSK-T 63	130	53	0	3.2	DC.. 11T3	443.44	**511**


Combination Key


Clamping screw

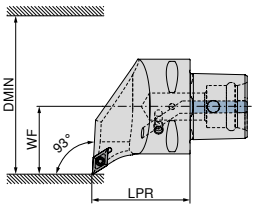

Solid Carbide Seat D


Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 546 511	T15/SW	7.91	**398**	M3,5x11	2.99	**113**	7.15	**106**	M3,5	4.43	**171**

MaxiLock-S – SDUC 93° – Toolholder with screw clamping





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	NEW Left-hand 84 659 ... £ Y8		NEW Right-hand 84 658 ... £ Y8	
PSC40 SDUC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	448.60	**01195**	448.60	**01195**
PSC50 SDUC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	513.98	**01194**	513.98	**01194**
PSC63 SDUC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	571.73	**01193**	571.73	**01193**



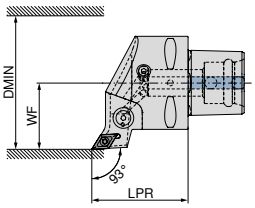
Clamping screw

Adapter	84 950 ... £ Y8	
PSC 40	6.97	**27600**
PSC 50	6.97	**27600**
PSC 63	6.97	**27600**

MaxiLock-S – SDJC 93° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 663 ... £ Y8		NEW Right-hand 84 662 ... £ Y8	
PSC40 SDJC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	DC	448.60	**01195**	448.60	**01195**
PSC50 SDJC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	DC	513.98	**01194**	513.98	**01194**
PSC63 SDJC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	DC	571.73	**01193**	571.73	**01193**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



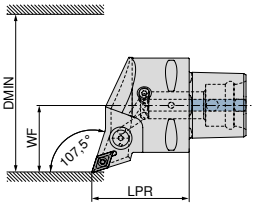
Clamping screw

Adapter	84 950 ... £ Y8	
PSC 40	6.97	**27600**
PSC 50	6.97	**27600**
PSC 63	6.97	**27600**

MaxiLock-S – SDHC 107.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 667 ... £ Y8		NEW Right-hand 84 666 ... £ Y8	
PSC40 SDHC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	DC	448.60	**01195**	448.60	**01195**
PSC50 SDHC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	DC	513.98	**01194**	513.98	**01194**
PSC63 SDHC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	DC	571.73	**01193**	571.73	**01193**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



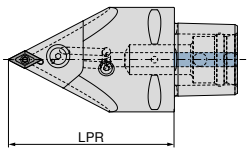
Clamping screw

Adapter	84 950 ... £ Y8	
PSC 40	6.97	**27600**
PSC 50	6.97	**27600**
PSC 63	6.97	**27600**

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set







ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	NEW Neutral 84 677 ... £ Y8	
PSC63 SDNC N 0100-11	PSC 63	100	3	DC.. 11T3	DC	571.73	**01193**
PSC63 SDNC N 0130-11	PSC 63	130	3	DC.. 11T3	DC	571.73	**11193**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



Clamping Screw



Clamping claw



Ring-shaped nozzle



Clamping screw



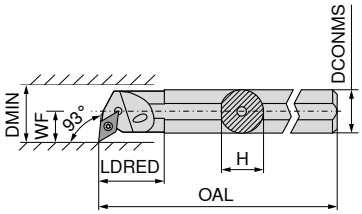
Carbide seat

Adapter		84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8	
PSC 63	M6X28 SW4	44.63	**28300**	52.88	**28600**	17.02	**28400**	10.53	**27500**	52.71	**27900**

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 737 ... £ 2A/24		Right-hand 70 736 ... £ 2A/24	
S12Q SDUC R/L 07	12	11.0	180		9	17	1,2	DC.. 0702	92.18	**012**	92.18	**012**
A12K SDUC R/L 07	12	11.5	125	22	9	16	1,2	DC.. 0702	92.18	**212**	92.18	**212**
A16M SDUC R/L 07	16	15.0	150	29	11	20	1,2	DC.. 0702	94.19	**216**	94.19	**216**
S16R SDUC R/L 07	16	15.0	200		11	21	1,2	DC.. 0702	94.19	**016**	94.19	**016**
A20Q SDUC R/L 07	20	18.5	180	32	13	25	1,2	DC.. 0702	117.41	**220**	117.41	**220**
S20S SDUC R 07	20	18.0	250		13	25	1,2	DC.. 0702			117.41	**020**
S20S SDUC R 11	20	18.0	250		13	25	3,2	DC.. 11T3			117.41	**120**
A20Q SDUC R/L 11	20	18.5	180	32	13	25	3,2	DC.. 11T3	117.41	**320**	117.41	**320**
A25R SDUC R/L 11	25	23.0	200	36	17	32	3,2	DC.. 11T3	134.98	**325**	134.98	**325**
S25T SDUC R/L 11	25	23.0	300		17	32	3,2	DC.. 11T3	134.98	**125**	134.98	**125**
A32S SDUC R/L 11	32	30.0	250	50	22	40	3,2	DC.. 11T3	185.57	**332**	185.57	**332**
S32U SDUC R 11	32	30.0	350		22	40	3,2	DC.. 11T3			185.57	**132**
A40T SDUC R/L 11	40	38.0	300	60	27	50	3,2	DC.. 11T3	222.79	**340**	222.79	**340**


Key D


Combination Key


Clamping screw


Solid Carbide Seat D


Threaded sleeve

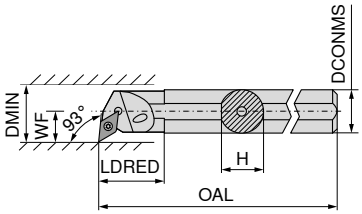
Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 736 012 / 70 737 012	10.82	**110**			2.26	**112**				
70 736 212 / 70 737 212	10.82	**110**			2.26	**112**				
70 736 216 / 70 737 216	10.82	**110**			2.26	**112**				
70 736 016 / 70 737 016	10.82	**110**			2.26	**112**				
70 736 220 / 70 737 220	10.82	**110**			2.26	**112**				
70 736 020	10.82	**110**			2.26	**112**				
70 736 120	12.87	**113**			2.99	**110**				
70 736 320 / 70 737 320	12.87	**113**			2.99	**110**				
70 736 325 / 70 737 325	12.87	**113**			2.99	**113**				
70 736 125 / 70 737 125			7.91	**398**	2.99	**113**	7.15	**106**	4.43	**171**
70 736 332 / 70 737 332			7.91	**398**	2.99	**113**	7.15	**106**	4.43	**171**
70 736 132			7.91	**398**	2.99	**113**	7.15	**106**	4.43	**171**
70 736 340 / 70 737 340			7.91	**398**	2.99	**113**	7.15	**106**	4.43	**171**

9

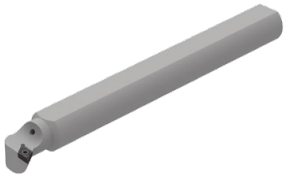
MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 739 ... £ 2A		Right-hand 70 738 ... £ 2A	
E-A10H SDUC R/L 07	10	9	100	28	8	13	1,2	DC.. 0702	171.24	**210**	171.24	**210**
E-A12K SDUC R/L 07	12	11	125	18	9	18	1,2	DC.. 0702	171.24	**212**	171.24	**212**
E-A16M SDUC R/L 07	16	15	150	30	11	22	1,2	DC.. 0702	272.23	**216**	272.23	**216**
E-A20Q SDUC R/L 07	20	18	180	38	13	26	1,2	DC.. 0702	341.34	**220**	341.34	**220**
E-A20Q SDUC R/L 11	20	18	180	38	13	26	3,2	DC.. 11T3	361.39	**320**	361.39	**320**
E-A25R SDUC R/L 11	25	23	200	38	17	34	3,2	DC.. 11T3	520.52	**225**	520.52	**225**
E-A32S SDUC R/L 11	32	30	250	43	22	39	3,2	DC.. 11T3	763.73	**232**	763.73	**232**



Key D



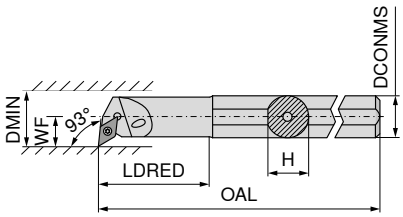
Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A	
70 738 210 / 70 739 210	10.82	**110**	2.26	**112**
70 738 212 / 70 739 212	10.82	**110**	2.26	**112**
70 738 216 / 70 739 216	10.82	**110**	2.26	**112**
70 738 220 / 70 739 220	10.82	**110**	2.26	**112**
70 738 320 / 70 739 320	12.87	**113**	2.99	**449**
70 738 225 / 70 739 225	12.87	**113**	2.99	**449**
70 738 232 / 70 739 232	12.87	**113**	2.99	**449**

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



NEW

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 739 ... £ 2A		Right-hand 70 738 ... £ 2A	
E-A0810H SDUC R/L 07	10	9	100	22	7	12.5	1,2	DC.. 0702	213.24	**410**	213.24	**410**
E-A1012K SDUC R/L 07	12	11	125	28	9	15.5	1,2	DC.. 0702	213.24	**412**	213.24	**412**
E-A1216M SDUC R/L 07	16	15	150	36	11	19.5	1,2	DC.. 0702	213.24	**416**	213.24	**416**



Key D



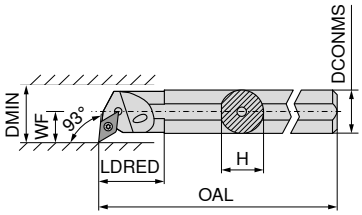
Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A	
70 738 410 / 70 739 410	10.82	**110**	2.26	**112**
70 738 412 / 70 739 412	10.82	**110**	2.26	**112**
70 738 416 / 70 739 416	10.82	**110**	2.26	**112**

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ Type: Solid carbide





Illustrations show right-hand versions



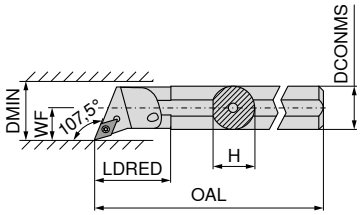
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 739 ... £ 2A/24		Right-hand 70 738 ... £ 2A/24	
E12Q SDUC R/L 07	12	11.5	180	26	9	16	1,2	DC.. 0702	318.06	**012**	318.06	**012**
E16R SDUC R/L 07	16	15.0	200	34	11	20	1,2	DC.. 0702	415.61	**016**	415.61	**016**
E20S SDUC R/L 11	20	18.5	250	38	13	25	3,2	DC.. 11T3	519.17	**120**	519.17	**120**
E25T SDUC R/L 11	25	23.0	300	43	17	32	3,2	DC.. 11T3	915.51	**125**	915.51	**125**

Spare parts for Article no.	Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A	
70 739 012 / 70 738 012	10.82	**110**	2.26	**112**
70 739 016 / 70 738 016	10.82	**110**	2.26	**112**
70 739 120 / 70 738 120	12.87	**113**	2.99	**304**
70 739 125 / 70 738 125	12.87	**113**	2.99	**113**

9

MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping





Illustrations show right-hand versions



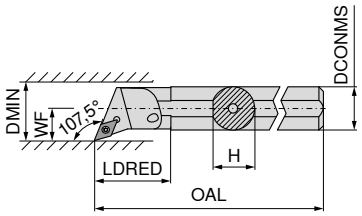
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 741 ... £ 2A		Right-hand 70 740 ... £ 2A	
A10H SDQC R/L 07	10	9.0	100	22	7	12.5	1,2	DC.. 0702	92.18	**210**	92.18	**210**
A12K SDQC R/L 07	12	11.5	125	22	9	16.0	1,2	DC.. 0702	92.18	**212**	92.18	**212**
A16M SDQC R/L 07	16	15.0	150	29	11	20.0	1,2	DC.. 0702	94.19	**216**	94.19	**216**
A20Q SDQC R/L 07	20	18.5	180	32	13	25.0	1,2	DC.. 0702	117.41	**220**	117.41	**220**
A25R SDQC R/L 11	25	23.0	200	36	17	32.0	3,2	DC.. 11T3	134.98	**225**	134.98	**225**
A32S SDQC R/L 11	32	30.0	250	50	22	40.0	3,2	DC.. 11T3	185.57	**232**	185.57	**232**
A40T SDQC R/L 11	40	38.0	300	60	27	50.0	3,2	DC.. 11T3	222.79	**240**	222.79	**240**

Spare parts for Article no.	Key D 80 950 ... £ Y7		Combination Key 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A		Solid Carbide Seat D 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
70 740 210 / 70 741 210	10.82	**110**			2.26	**112**				
70 740 212 / 70 741 212	10.82	**110**			2.26	**112**				
70 740 216 / 70 741 216	10.82	**110**			2.26	**112**				
70 740 220 / 70 741 220	10.82	**110**			2.26	**112**				
70 740 225 / 70 741 225			7.91	**398**	2.99	**113**	7.15	**106**	4.43	**171**
70 740 232 / 70 741 232			7.91	**398**	2.99	**113**	7.15	**106**	4.43	**171**
70 740 240 / 70 741 240			7.91	**398**	2.99	**113**	7.15	**106**	4.43	**171**

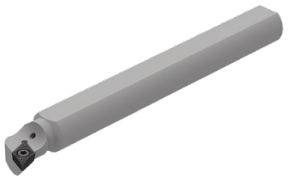
MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 751 ... £ 2A		Right-hand 70 750 ... £ 2A	
E-A12K SDQC R/L 07	12	11	125	24	9	18	1,2	DC.. 0702	171.24	**012**	171.24	**012**
E-A16M SDQC R/L 07	16	15	150	30	11	22	1,2	DC.. 0702	292.28	**016**	292.28	**016**
E-A20Q SDQC R/L 07	20	18	180	38	13	26	1,2	DC.. 0702	341.34	**020**	341.34	**020**
E-A20Q SDQC R/L 11	20	18	180	38	13	26	3,2	DC.. 11T3	361.39	**120**	361.39	**120**
E-A25R SDQC R/L 11	25	23	200	38	17	34	3,2	DC.. 11T3	577.59	**025**	577.59	**025**
E-A32S SDQC R/L 11	32	30	250	43	22	39	3,2	DC.. 11T3	763.73	**032**	763.73	**032**



Key D



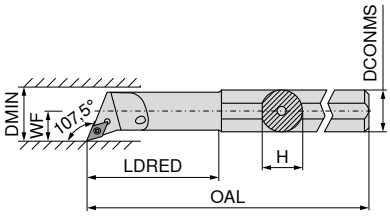
Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A	
70 750 012 / 70 751 012	10.82	**110**	2.26	**112**
70 750 016 / 70 751 016	10.82	**110**	2.26	**112**
70 750 020 / 70 751 020	10.82	**110**	2.26	**112**
70 750 120 / 70 751 120	12.87	**113**	2.99	**449**
70 750 025 / 70 751 025	12.87	**113**	2.99	**449**
70 750 032 / 70 751 032	12.87	**113**	2.99	**449**

MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 751 ... £ 2A		Right-hand 70 750 ... £ 2A	
E-A0810H SDQC R/L 07	10	9	100	22	7	12.5	1,2	DC.. 0702	213.24	**210**	213.24	**210**
E-A1012K SDQC R/L 07	12	11	125	28	9	15.5	1,2	DC.. 0702	213.24	**212**	213.24	**212**
E-A1216M SDQC R/L 07	16	15	150	36	11	19.5	1,2	DC.. 0702	213.24	**216**	213.24	**216**



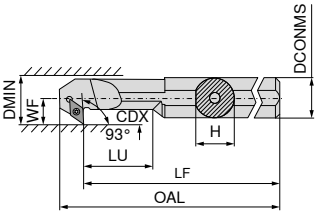
Key D



Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A	
70 750 210 / 70 751 210	10.82	**110**	2.26	**112**
70 750 212 / 70 751 212	10.82	**110**	2.26	**112**
70 750 216 / 70 751 216	10.82	**110**	2.26	**112**

MaxiLock-S – SDXC 93° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LU mm	WF mm	DMIN mm	CDX mm	torque moment Nm	Insert	Left-hand 70 733 ... £ 2A/24		Right-hand 70 732 ... £ 2A/24	
A12K SDXC R/L 07	12	11.5	125	137.0	24	9	16	4.5	1,2	DC.. 0702	92.18	**212**	92.18	**212**
A16M SDXC R/L 07	16	15.0	150	162.0	36	11	20	4.5	1,2	DC.. 0702	94.19	**216**	94.19	**216**
A20Q SDXC R/L 11	20	18.5	180	196.5	40	13	25	6.5	3,2	DC.. 11T3	117.41	**220**	117.41	**220**
A25R SDXC R/L 11	25	23.0	200	216.8	50	17	32	9.5	3,2	DC.. 11T3	134.98	**225**	134.98	**225**

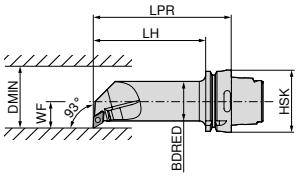

Key D


Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A	
70 733 212 / 70 732 212	10.82	**110**	2.26	**112**
70 733 216 / 70 732 216	10.82	**110**	2.26	**112**
70 733 220 / 70 732 220	12.87	**113**	2.99	**304**
70 733 225 / 70 732 225	12.87	**113**	2.99	**304**

9

MaxiLock-S – SDUC 93° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 566 ... £ 2D/80		Right-hand 74 565 ... £ 2D/80	
HSK T63 40L SDUC R/L 11	HSK-T 63	140	114	40	27	50	3.2	DC.. 11T3	446.59	**511**	446.59	**511**


Combination Key


Clamping screw

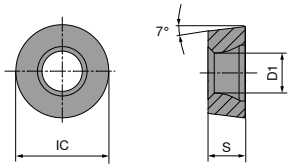

Solid Carbide Seat D


Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 565 511 / 74 566 511	T15/SW	7.91	**398**	M3,5x11	2.99	**113**	7.15	**106**	M3,5	4.43	**171**

RCMT / RCGT

Designation	S mm	D1 mm	IC mm
RCGT 0602..	2.38	2.8	6
RCGT 0803..	3.18	3.4	8
RC.T 1003..	3.18	4.0	10
RCMT 1204..	4.76	4.9	12
RCMT 1606..	6.35	5.3	16
RCMT 2006..	6.35	6.5	20
RCMT 2507..	7.94	7.2	25



RCMT / RCGT

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						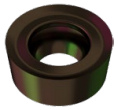	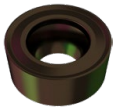
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		RCMT	RCMT	RCGT	RCMT	RCGT	RCMT
		70 188 ...	76 264 ...	76 262 ...	76 264 ...	76 262 ...	76 264 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
0602M0EN	3.0			7.71 502		7.71 702	
0803M0EN	4.0			8.58 512		8.58 712	
1003M0SN	5.0				7.42 514		7.42 714
1204M0SN	6.0		8.80 328		8.80 526		8.80 726
1606M0EN	8.0	17.30 038					
1606M0SN	8.0		17.30 340		17.30 538		17.30 738
2006M0SN	10.0				23.81 550		23.81 750
2507M0SN	12.5		38.36 36200		38.36 562		38.36 762
P		○	●	●	●	●	●
M						○	○
K		●	○	○	○		
N							
S							
H							
O							

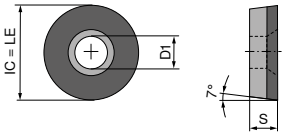
RCGT

		NEW		
		-27 H10T	-27 CWN15	-27 CTPX715
				DRAGONSKIN
				
		M	M	M
		RCGT	RCGT	RCGT
		70 266 ...	70 266 ...	70 266 ...
ISO	RE mm	£ 1A/90	£ 1A	£ 1A/90
0602M0FN	3	5.75 600	7.67 300	
0803M0FN	4	6.43 602	7.67 302	7.51 80200
1003M0FN	5	6.43 604		7.51 80400
P				●
M			○	●
K		○		○
N		●	●	●
S				●
H				
O		○		○

9

RCGW

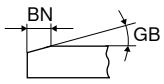
Designation	S mm	D1 mm	IC mm
RCGW 1204..	4.76	4.4	12



RCGW F

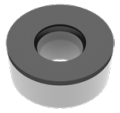
RCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW

CTBS10U



F

CBN

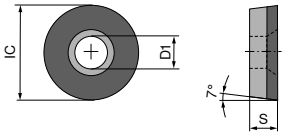
RCGW

71 425 ...

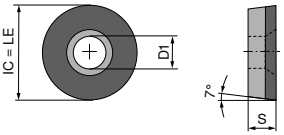
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0	
1204M0TN	6	0.12	20°	**F**	12	276.44	**10000**
P							
M							
K							●
N							
S							●
H							
O							

RCGW / RCGT

Designation	S mm	D1 mm	IC mm
RCG. 0602..	2.38	2.8	6
RCGW 0803..	3.18	3.4	8
RCGW 1003..	3.97	4.4	10
RCGT 10T3..	3.97	4.4	10
RCGW 1204..	4.76	4.4	12



RCGT F



RCGW F

RCGW / RCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

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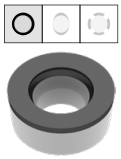
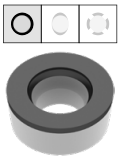
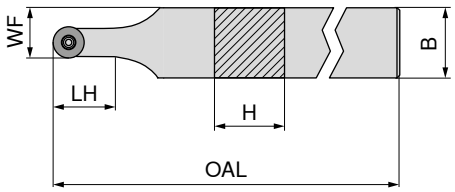
													
				F	F			F	F		M		
				DIAMOND RCGW	DIAMOND RCGT			DIAMOND RCGW	DIAMOND RCGT		DIAMOND RCGT		
				71 179 ...	71 315 ...			71 179 ...	71 315 ...		71 316 ...		
ISO	RE mm	TCE (NOI)	LE mm	£ Y0				£ Y0			£ Y0		
0602M0FN	3	F	6	132.05	10001	234.17	102	132.05	20001	234.17	202	234.17	202
0803M0FN	4	F	8	171.23	10101			171.23	20101				
1003M0FN	6	F	10	221.13	10201								
10T3M0FN	5	F	10			307.83	104			307.83	204	307.83	204
1204M0FN	6	F	12	279.97	10301								
P													
M													
K													
N				●		●		●		●		●	
S													
H													
O				●		●		●		●		●	

9

MaxiLock-S – SRDC 0° – Toolholder with screw clamping





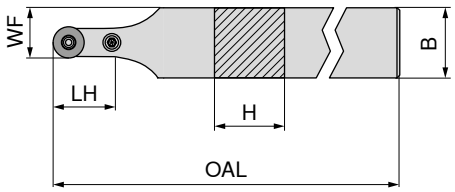


								Neutral	
								70 708 ...	
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	£ 2A/24	
SRDC N 1212 F06	12	12	80	12.4	9.0	1,2	RC.. 0602 M0	70.26	012
SRDC N 1616 H06	16	16	100	12.4	11.0	1,2	RC.. 0602 M0	72.86	016
SRDC N 2020 K06	20	20	125	12.4	13.0	1,2	RC.. 0602 M0	81.18	020
SRDC N 2525 M06	25	25	150	12.4	15.5	1,2	RC.. 0602 M0	83.97	025
SRDC N 1616 H08	16	16	100	16.4	12.0	1,8	RC.. 0803 M0	72.86	116
SRDC N 2020 K08	20	20	125	16.4	14.0	1,8	RC.. 0803 M0	81.18	120
SRDC N 2525 M08	25	25	150	16.4	16.5	1,8	RC.. 0803 M0	83.97	125
SRDC N 1616 H10	16	16	100	20.3	13.0	3,2	RC.. 1003 M0	72.86	216
SRDC N 2020 K10	20	20	125	20.3	15.0	3,2	RC.. 1003 M0	81.18	220
SRDC N 2525 M10	25	25	150	20.3	17.5	3,2	RC.. 1003 M0	83.97	225

	 Key D		 Combination Key		 Clamping screw		 Solid carbide support R		 Threaded sleeve	
	80 950 ...		70 950 ...		70 950 ...		70 950 ...		70 950 ...	
Spare parts for Article no.	£ Y7		£ 2A/28		£ 2A		£ 2A/28		£ 2A/28	
70 708 012	10.82	110			2.26	112				
70 708 016	10.82	110			2.26	112				
70 708 020	10.82	110			2.26	112				
70 708 025	10.82	110			2.26	112				
70 708 116	10.82	110			2.46	115				
70 708 120	10.82	110			2.46	115				
70 708 125	10.82	110			2.46	115				
70 708 216			7.91	398	2.99	113	11.81	117	4.43	171
70 708 220			7.91	398	2.99	113	11.81	117	4.43	171
70 708 225			7.91	398	2.99	113	11.81	117	4.43	171

MaxiLock-N – PRDC 0° – Toolholder with lever clamping







Neutral

70 544 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	£ 2A/24	
PRDC N 2525 M12	25	25	150	24	18.5	3	RCMT 1204	83.97	**025**
PRDC N 3225 P12	32	25	170	24	18.5	3	RCMT 1204	90.08	**032**
PRDC N 3225 P16	32	25	170	28	20.5	4	RCMT 1606	90.08	**132**


Key I


Shim


Assembly pin


Lever

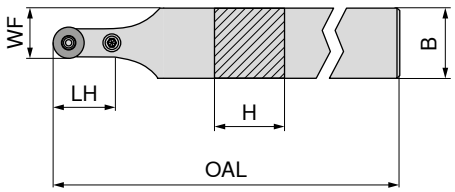

Clamping screw

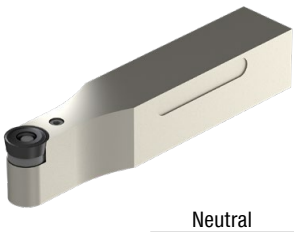

Solid carbide support R

		70 950 ...		70 950 ...		70 950 ...		70 950 ...		70 950 ...		70 950 ...	
Spare parts for Article no.		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28	
70 544 025	SW2,5	2.34	**175**	1.68	**197**	1.17	**191**	14.82	**178**	3.05	**208**	6.77	**215**
70 544 032	SW2,5	2.34	**175**	1.68	**197**	1.17	**191**	14.82	**178**	3.05	**208**	6.77	**215**
70 544 132	SW3	2.34	**176**	1.31	**196**	1.17	**192**	15.33	**387**	3.34	**390**	12.02	**384**

MaxiLock-N – PRDC 0° – Toolholder with lever clamping







Neutral

70 545 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	£ 2A/24	
PRDC N 3225 P20	32	32	170	32	26.0	5	RCMT 2006	111.21	**23200**[1)]
PRDC N 4040 S25	40	40	250	42	32.5	6	RCMT 2507	138.32	**40400**[1)]

1) nickel-plated


Key I


Shim


Assembly pin


Lever

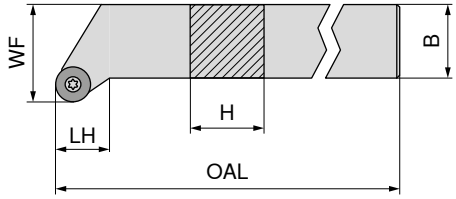

Clamping screw


Solid carbide support R

		70 950 ...		70 950 ...		70 950 ...		70 950 ...		70 950 ...		70 950 ...	
Spare parts for Article no.		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28	
70 545 23200		2.34	**177**	1.07	**391**	1.17	**394**	14.54	**28100**	3.29	**28500**	16.26	**27400**
70 545 40400		2.46	**396**	1.68	**392**	1.17	**395**	17.90	**28400**	7.14	**28600**	30.50	**27500**

MaxiLock-S – SRGC – Toolholder with screw clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 713 ... £ 2A/24		Right-hand 70 712 ... £ 2A/24	
SRGC R/L 1212 F06	12	12	80	10.0	16	1,2	RC.. 0602 M0	70.26	**012**	70.26	**012**
SRGC R 1616 H06	16	16	100	10.0	20	1,2	RC.. 0602 M0			72.86	**016**
SRGC R/L 2020 K06	20	20	125	11.5	25	1,2	RC.. 0602 M0	81.18	**020**	81.18	**020**
SRGC R/L 2525 M06	25	25	150	15.0	32	1,2	RC.. 0602 M0	83.97	**025**	83.97	**025**
SRGC R/L 1616 H08	16	16	100	11.0	20	1,8	RC.. 0803 M0	72.86	**11600**[1]	72.86	**116**
SRGC R 2020 K08	20	20	125	13.0	25	1,8	RC.. 0803 M0			81.18	**120**
SRGC R/L 2525 M08	25	25	150	16.0	32	1,8	RC.. 0803 M0	83.97	**125**	83.97	**125**
SRGC R/L 1616 H10	16	16	100	12.0	20	3,2	RC.. 1003 M0	72.86	**216**	72.86	**216**
SRGC R/L 2020 K10	20	20	125	13.5	25	3,2	RC.. 1003 M0	81.18	**220**	81.18	**220**
SRGC R/L 2525 M10	25	25	150	17.0	32	3,2	RC.. 1003 M0	83.97	**225**	83.97	**225**

1) nickel-plated


Clamping screw


Solid carbide support R


Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
70 712 012 / 70 713 012	M2,5x6	2.26	**112**					
70 712 016	M2,5x6	2.26	**112**					
70 712 020 / 70 713 020	M2,5x6	2.26	**112**					
70 712 025 / 70 713 025	M2,5x6	2.26	**112**					
70 712 116 / 70 713 11600	M3x7,3	2.46	**115**					
70 712 120	M3x7,3	2.46	**115**					
70 712 125 / 70 713 125	M3x7,3	2.46	**115**					
70 712 216 / 70 713 216	M3,5x11	2.99	**113**	11.81	**117**	M3,5	4.43	**171**
70 712 220 / 70 713 220	M3,5x11	2.99	**113**	11.81	**117**	M3,5	4.43	**171**
70 712 225 / 70 713 225	M3,5x11	2.99	**113**	11.81	**117**	M3,5	4.43	**171**

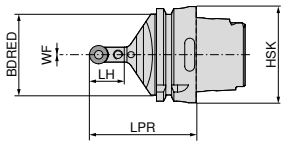

Key D


Combination Key

Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 712 012 / 70 713 012	T08	10.82	**110**			
70 712 016	T08	10.82	**110**			
70 712 020 / 70 713 020	T08	10.82	**110**			
70 712 025 / 70 713 025	T08	10.82	**110**			
70 712 116 / 70 713 11600	T08	10.82	**110**			
70 712 120	T08	10.82	**110**			
70 712 125 / 70 713 125	T08	10.82	**110**			
70 712 216 / 70 713 216				T15/SW	7.91	**398**
70 712 220 / 70 713 220				T15/SW	7.91	**398**
70 712 225 / 70 713 225				T15/SW	7.91	**398**

MaxiLock-N – PRDC 0° – Toolholder with lever clamping







ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 548 ... £ 2D/80	
HSK T63 PRDC N 12	HSK-T 63	70	53	0	3	RC.. 1204 M0	327.86	**512**
HSK T100 PRDC N 12	HSK-T 100	80	88	0	3	RC.. 1204 M0	373.78	**712**
HSK T100 PRDC N 16	HSK-T 100	80	88	0	4	RC.. 1606 M0	373.78	**716**

Key I


Shim


Assembly pin


Lever

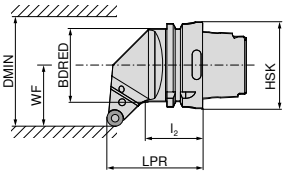

Clamping screw


Solid carbide support R

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 548 512	SW2,5	2.34	175	1.68	197	1.17	191	14.82	178	3.05	208	6.77	215
74 548 712	SW2,5	2.34	175	1.68	197	1.17	191	14.82	178	3.05	208	6.77	215
74 548 716	SW3	2.34	176	1.31	196	1.17	192	15.33	387	3.34	390	12.02	384

MaxiLock-N – PRSC – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 552 ... £ 2D/80		Right-hand 74 551 ... £ 2D/80	
HSK T63 PRSC R/L 12	HSK-T 63	70	44	53	45	100	3	RC.. 1204 M0	327.86	**512**	327.86	**512**
HSK T100 PRSC R/L 12	HSK-T 100	80	57	88	55	106	3	RC.. 1204 M0	373.78	**712**	373.78	**712**
HSK T100 PRSC R/L 16	HSK-T 100	80	55	88	55	125	4	RC.. 1606 M0	373.78	**716**	373.78	**716**

Key I


Shim


Assembly pin


Lever

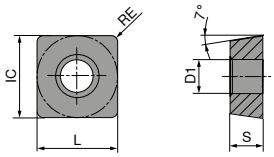

Clamping screw


Solid carbide support R

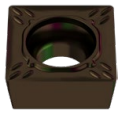
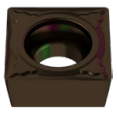
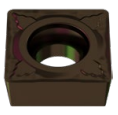
Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 551 512 / 74 552 512	SW2,5	2.34	175	1.68	197	1.17	191	14.82	178	3.05	208	6.77	215
74 551 712 / 74 552 712	SW2,5	2.34	175	1.68	197	1.17	191	14.82	178	3.05	208	6.77	215
74 551 716 / 74 552 716	SW3	2.34	176	1.31	196	1.17	192	15.33	387	3.34	390	12.02	384

SCGT / SCMT / SCMX

Designation	L mm	S mm	D1 mm	IC mm
SC.T 09T3..	9.52	3.97	4.4	9.52
SC.. 1204..	12.70	4.76	5.5	12.70



SCGT / SCMT

	-CF05 CTEP110	-CF55 CTEP110	-SF TCM10	-SF TCM407	-SF CTCP125	-SMF CTCP115	-SMF CTCP135
	DRAGONSKIN	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET SCGT	CERMET SCMT	CERMET SCGT	CERMET SCGT	SCMT	SCMT	SCMT
	76 261 ...	76 260 ...	70 271 ...	70 271 ...	76 269 ...	76 267 ...	76 267 ...

ISO	RE mm	£ 1A/78		£ 1A/78		£ 1A/78		£ 1A/78		£ 1A/08		£ 1A/08		£ 1A/08	
09T304EN	0.4	14.42	004	9.24	004	13.23	902			9.26	504	9.26	304		
09T308EN	0.8	14.42	006	9.24	006	13.23	904	13.23	852	9.26	506	9.26	306		
120408EN	0.8									13.04	518			13.04	718
P		●		●		●		●		●		●		●	
M		o		o		o		o						o	
K		o		o		o		o		o		o			
N															
S															
H															
O															

SCMT / SCMX

	-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135	CTCP135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	M	M	M	M	M	M
	SCMT	SCMT	SCMT	SCMT	SCMT	SCMX
	70 268 ...	70 268 ...	76 268 ...	76 268 ...	76 268 ...	76 182 ...

ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
09T304EN	0.4	9.26	004	9.26	504	9.26	304	9.26	504	9.26	704		
09T308EN	0.8	9.26	006	9.26	506	9.26	306	9.26	506	9.26	706		
120408EN	0.8	13.04	018	13.04	518	13.04	318	13.04	518	13.04	718	11.85	718
120412EN	1.2	13.04	020	13.04	520			13.04	520				
P		o		o		●		●		●		●	
M										o		o	
K		●		●		o		o					
N													
S													
H													
O													

SCMT

		NEW				NEW	
		-M55 CTCM120		-M55 CTPM125		-M55 CTCM130	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
							
		M		M		M	
		SCMT		SCMT		SCMT	
		75 216 ...		75 216 ...		75 216 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08	
09T308EN	0.8	9.26	10600	9.26	206	9.26	30600
120408EN	0.8	13.04	11800	13.04	218	13.04	31800
P		○		○		○	
M		●		●		●	
K							
N							
S						○	
H							
O							

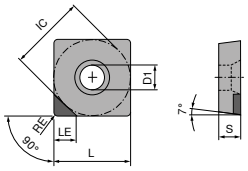
SCGT

			NEW	NEW		
		-25P H210T	-25P CTPX710	-27 CTPX715	-27 H10T	-27 CWN15
			DRAGONSKIN	DRAGONSKIN		
						
		F	M	M	M	M
		SCGT	SCGT	SCGT	SCGT	SCGT
		70 283 ...	70 283 ...	70 270 ...	70 270 ...	70 270 ...
ISO	RE mm	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A
09T304FN	0.4			16.19	80400	10.42	600	12.80	300
09T308FN	0.8			16.19	80600	10.42	602	12.80	302
120408FN	0.8	12.71	634	15.06	71600		12.17	604	15.17	304
P			●	●				
M			●	●				○
K		○		○		○		
N		●	●	●		●		●
S		○	●	●				
H								
O		○		○		○		

9

SCGW

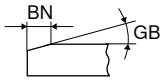
Designation	L mm	S mm	D1 mm	IC mm
SCGW 09T3..	9.52	3.97	4.4	9.52
SCGW 1204..	12.70	4.76	5.5	12.70



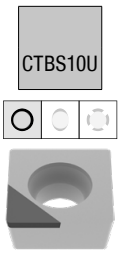
SCGW A

SCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW



F
CBN
SCGW

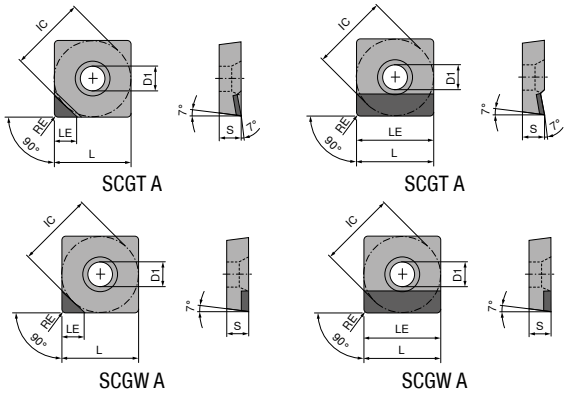
71 426 ...

ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0	
09T304TN	0.4	0.12	20°	A (1)	3.5	48.14	10100
09T304FN	0.4			A (1)	3.5	48.14	10000
09T308FN	0.8			A (1)	3.4	48.14	10200
09T308TN	0.8	0.12	20°	A (1)	3.4	48.14	10300
120404FN	0.4			A (1)	3.5	48.14	10400
120404TN	0.4	0.12	20°	A (1)	3.5	48.14	10500
120408FN	0.8			A (1)	3.4	48.14	10600
120408TN	0.8	0.12	20°	A (1)	3.4	48.14	10700

P	
M	
K	●
N	
S	●
H	
O	

SCGW / SCGT

Designation	L mm	S mm	D1 mm	IC mm
SCG. 09T3..	9.52	3.97	4.4	9.52
SCG. 1204..	12.70	4.76	5.5	12.70



SCGT A SCGT A SCGW A SCGW A

SCGW / SCGT

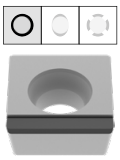
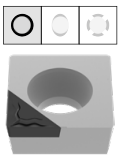
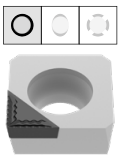
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW	NEW		NEW	NEW
				CTDPD20	CTDPD20	-CB1 CTDPD20	CTDPS30	CTDPS30
				F	F	F	F	F
				DIAMOND SCGW	DIAMOND SCGW	DIAMOND SCGT	DIAMOND SCGW	DIAMOND SCGT
				71 182 ...	71 183 ...	71 320 ...	71 182 ...	71 180 ...
ISO	RE mm	TCE (NOI)	LE mm	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0
09T304FN	0.4	A (1)	9.52		107.02 10001			
09T304FN	0.4	A (1)	4.40	71.34 10001		114.44 114	71.34 20601	71.34 20001
09T308FN	0.8	A (1)	4.30	71.34 10101		114.44 118		71.34 20101
09T308FN	0.8	A (1)	9.52		107.02 10101			
09T312FN	1.2	A (1)	4.20	71.34 10201				71.34 20201
120404FN	0.4	A (1)	12.70		118.38 10201			
120404FN	0.4	A (1)	4.40	72.98 10301				
120408FN	0.8	A (1)	4.30	72.98 10401				
120408FN	0.8	A (1)	12.70		118.38 10301			
120412FN	1.2	A (1)	12.70		118.38 10401			
120412FN	1.2	A (1)	4.20	72.98 10501				
P								
M								
K								
N				●	●	●	●	●
S								
H								
O				●	●	●	●	●

9

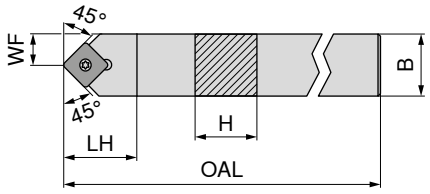
SCGT

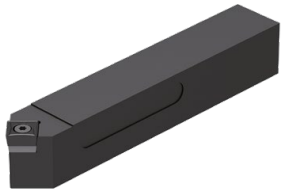
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW		NEW			
				CTDPS30		-CB2 CTDPS30		-CB3 CTDPU20	
									
				F		M		R	
				DIAMOND SCGT		DIAMOND SCGT		DIAMOND SCGT	
				71 181 ...		71 321 ...		71 322 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0	
09T304FN	0.4	A (1)	4.4			106.50	214	85.16	214
09T308FN	0.8	A (1)	9.5	107.02	20001				
09T308FN	0.8	A (1)	4.3			114.44	218	91.96	218
120408FN	0.8	A (1)	12.7	118.38	20101				
120412FN	1.2	A (1)	12.0	118.38	20201				
P									
M									
K									
N					●		●		●
S									
H									
O					●		●		●

MaxiLock-S – SSDC 45° – Toolholder with screw clamping







ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 656 ... £ 2A/24	
SSDC N 1212 F09	12	12	80	16	6.0	3,2	SC.. 09T3..	61.66	**012**
SSDC N 1616 H09	16	16	100	20	8.0	3,2	SC.. 09T3..	76.37	**016**
SSDC N 2020 K09	20	20	125	20	10.0	3,2	SC.. 09T3..	81.18	**020**
SSDC N 1616 H12	16	16	100	25	8.0	5	SC.. 1204..	76.37	**116**
SSDC N 2020 K12	20	20	125	25	10.0	5	SC.. 1204..	81.18	**120**
SSDC N 2525 M12	25	25	150	25	12.5	5	SC.. 1204..	83.97	**125**


Key D


Combination Key


Clamping screw


Solid Carbide support S

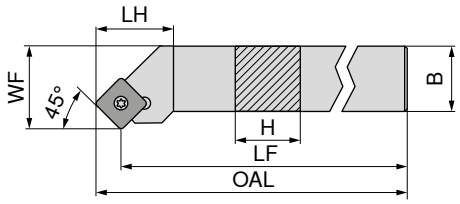

Threaded sleeve

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 656 012	12.87	**113**			2.99	**113**				
70 656 016			7.91	**398**	2.99	**113**	9.23	**167**	4.43	**171**
70 656 020			7.91	**398**	2.99	**113**	9.23	**167**	4.43	**171**
70 656 116			7.91	**398**	2.46	**114**	11.81	**168**	4.43	**170**
70 656 120			7.91	**398**	2.46	**114**	11.81	**168**	4.43	**170**
70 656 125			7.91	**398**	2.46	**114**	11.81	**168**	4.43	**170**

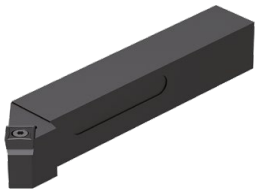
9

MaxiLock-S – SSSC 45° – Toolholder with screw clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	LF mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 661 ... £ 2A/24		Right-hand 70 660 ... £ 2A/24	
SSSC R/L 1212 F09	12	12	80	86.40	18	16	3,2	SC.. 09T3..	61.66	**012**	61.66	**012**
SSSC R/L 1616 H09	16	16	100	106.40	20	20	3,2	SC.. 09T3..	76.37	**016**	76.37	**016**
SSSC R/L 2020 K09	20	20	125	131.40	20	25	3,2	SC.. 09T3..	81.18	**020**	81.18	**020**
SSSC R/L 1616 H12	16	16	100	108.63	25	20	5	SC.. 1204..	76.37	**116**	76.37	**116**
SSSC R/L 2020 K12	20	20	125	133.63	25	25	5	SC.. 1204..	81.18	**120**	81.18	**120**
SSSC R/L 2525 M12	25	25	150	158.63	25	32	5	SC.. 1204..	83.97	**125**	83.97	**125**
SSSC R 3225 P12	32	25	170	178.63	25	32	5	SC.. 1204..			87.29	**132**


Key D


Combination Key

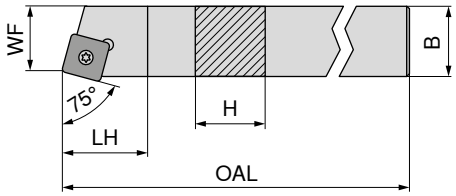

Clamping screw


Solid Carbide support S


Threaded sleeve

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 661 012 / 70 660 012	12.87	**113**			2.99	**113**				
70 661 016 / 70 660 016			7.91	**398**	2.99	**113**	9.23	**167**	4.43	**171**
70 661 020 / 70 660 020			7.91	**398**	2.99	**113**	9.23	**167**	4.43	**171**
70 661 116 / 70 660 116			7.91	**398**	2.46	**114**	11.81	**168**	4.43	**170**
70 661 120 / 70 660 120			7.91	**398**	2.46	**114**	11.81	**168**	4.43	**170**
70 661 125 / 70 660 125			7.91	**398**	2.46	**114**	11.81	**168**	4.43	**170**
70 660 132			7.91	**398**	2.46	**114**	11.81	**168**	4.43	**170**

MaxiLock-S – SSBC 75° – Toolholder with screw clamping





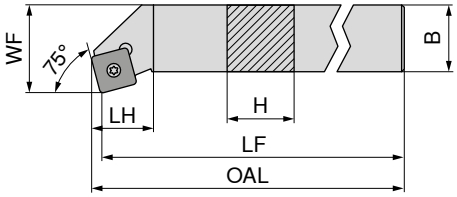
Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 665 ... £ 2A/24		Right-hand 70 664 ... £ 2A/24	
SSBC R/L 1616 H09	16	16	100	20	13	3,2	SC.. 09T3..	76.37	**016**	76.37	**016**
SSBC R 2020 K09	20	20	125	20	17	3,2	SC.. 09T3..			81.18	**020**
SSBC R/L 2020 K12	20	20	125	20	17	5	SC.. 1204..	81.18	**12000**[1)]	81.18	**120**
SSBC R/L 2525 M12	25	25	150	20	22	5	SC.. 1204..	83.97	**125**	83.97	**125**

1) nickel-plated

Spare parts for Article no.	Key D 80 950 ... £ Y7		Combination Key 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide support S 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
70 664 016 / 70 665 016	12.87	**113**	7.91	**398**	2.99	**113**	9.23	**167**	4.43	**171**
70 664 020	12.87	**113**	7.91	**398**	2.99	**113**	9.23	**167**	4.43	**171**
70 664 120 / 70 665 12000	12.87	**113**	7.91	**398**	2.46	**114**	11.81	**168**	4.43	**170**
70 664 125 / 70 665 125	12.87	**113**	7.91	**398**	2.46	**114**	11.81	**168**	4.43	**170**

MaxiLock-S – SSKC 75° – Toolholder with screw clamping





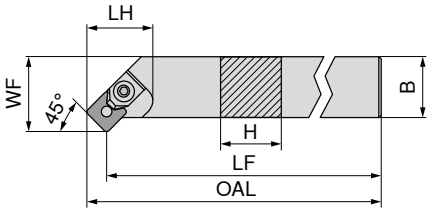
Illustrations show right-hand versions

ISO designation	H mm	B mm	LF mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 669 ... £ 2A/24		Right-hand 70 668 ... £ 2A/24	
SSKC R/L 1616 H09	16	16	100	102.3	22	20	3,2	SC.. 09T3..	76.37	**016**	76.37	**016**
SSKC R/L 2020 K09	20	20	125	127.3	22	25	3,2	SC.. 09T3..	81.18	**020**	81.18	**020**
SSKC R 2020 K12	20	20	125	127.3	23	25	5	SC.. 1204..			81.18	**120**
SSKC R 2525 M12	25	25	150	153.3	23	32	5	SC.. 1204..			83.97	**125**

Spare parts for Article no.	Key D 80 950 ... £ Y7		Combination Key 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide support S 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
70 668 016 / 70 669 016	12.87	**113**	7.91	**398**	2.99	**113**	9.23	**167**	4.43	**171**
70 668 020 / 70 669 020	12.87	**113**	7.91	**398**	2.99	**113**	9.23	**167**	4.43	**171**
70 668 120	12.87	**113**	7.91	**398**	2.46	**114**	11.81	**168**	4.43	**170**
70 668 125	12.87	**113**	7.91	**398**	2.46	**114**	11.81	**168**	4.43	**170**

MaxiLock-P – MSSC 45° – Toolholder with top clamping





Illustrations show right-hand versions

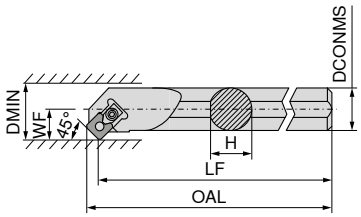


									Left-hand		Right-hand	
									70 589 ...		70 588 ...	
ISO designation	H mm	B mm	LF mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	£ 2A/24		£ 2A/24	
MSSC R/L 2020 K12	20	20	125	133.65	32	25	5	SCMX 1204	88.17	020	88.17	020
MSSC R/L 2525 M12	25	25	150	158.65	28	32	5	SCMX 1204	91.38	025	91.38	025
MSSC R/L 3225 P12	32	25	170	178.65	28	32	5	SCMX 1204	94.19	032	94.19	032

		Key D		Dowel pin		Clamping Element		Wedge		Solid Carbide support S	
		80 950 ...		70 950 ...		70 950 ...		70 950 ...		70 950 ...	
Spare parts for Article no.		£ Y7		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28	
70 588 020 / 70 589 020	T20	13.77	114	3.91	153	11.40	159	7.15	150	11.60	140
70 588 025 / 70 589 025	T20	13.77	114	3.91	153	11.40	159	7.15	150	11.60	140
70 588 032 / 70 589 032	T20	13.77	114	3.91	153	11.40	159	7.15	150	11.60	140

9

MaxiLock-P – MSSC 45° – Boring bar with top clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 625 ... £ 2A/24		Right-hand 70 624 ... £ 2A/24	
S32S MSSC R/L 12	32	30	250	258	22	40	5	SCMX 1204	215.72	**032**	215.72	**032**


Key D


Dowel pin


Clamping Element

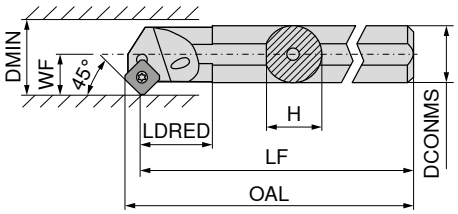

Wedge


Solid Carbide support S

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 625 032 / 70 624 032	T20	13.77	**114**	4.80	**155**	11.40	**163**	7.15	**150**	11.60	**147**

MaxiLock-S – SSSC 45° – Boring bar with screw clamping

- A... = with thro' coolant
- S... = without thro' coolant





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 721 ... £ 2A/24		Right-hand 70 720 ... £ 2A/24	
S16R SSSC R 09	16	15.00	200	206.0	13.97	11	20	3,2	SC.. 09T3..			94.19	**016**
A16M SSSC R/L 09	16	15.25	150	156.0	29.00	11	20	3,2	SC.. 09T3..	94.19	**216**	94.19	**216**
A20Q SSSC R/L 09	20	19.00	180	186.0	32.00	13	25	3,2	SC.. 09T3..	117.41	**220**	117.41	**220**
A25R SSSC R/L 09	25	24.50	200	206.0	36.00	17	32	3,2	SC.. 09T3..	134.98	**225**	134.98	**225**
A32S SSSC R/L 12	32	31.00	250	258.3	50.00	22	40	5	SC.. 1204..	185.57	**232**	185.57	**232**
A40T SSSC R/L 12	40	39.00	300	308.1	60.00	27	50	5	SC.. 1204..	222.79	**240**	222.79	**240**


Key D


Combination Key

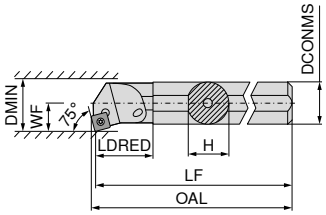

Clamping screw


Solid Carbide support S


Threaded sleeve

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 720 016		12.87	**113**			2.99	**110**				
70 720 216 / 70 721 216		12.87	**113**			2.99	**110**				
70 720 220 / 70 721 220		12.87	**113**			2.99	**304**				
70 720 225 / 70 721 225		12.87	**113**			2.99	**304**				
70 720 232 / 70 721 232				7.91	**398**	2.46	**114**	11.81	**168**	4.43	**170**
70 720 240 / 70 721 240				7.91	**398**	2.46	**114**	11.81	**168**	4.43	**170**

MaxiLock-S – SSKC 75° – Boring bar with screw clamping



Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 725 ... £ 2A/24		Right-hand 70 724 ... £ 2A/24	
A16M SSKC R/L 09	16	15.0	150	152.4	29	11	20	3,2	SC.. 09T3..	94.19	**216**	94.19	**216**
A20Q SSKC R/L 09	20	18.5	180	182.4	32	13	25	3,2	SC.. 09T3..	117.41	**220**	117.41	**220**
A25R SSKC R/L 09	25	23.0	200	202.4	36	17	32	3,2	SC.. 09T3..	134.98	**225**	134.98	**225**



Key D



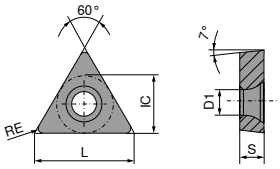
Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 724 216 / 70 725 216	T15	12.87	**113**	M3,5x7,2	2.99	**110**
70 724 220 / 70 725 220	T15	12.87	**113**	M3,5x8,6	2.99	**304**
70 724 225 / 70 725 225	T15	12.87	**113**	M3,5x8,6	2.99	**304**

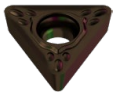
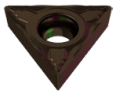
9

TCGT / TCMT

Designation	L mm	S mm	D1 mm	IC mm
TCMT 0902..	9.6	2.38	2.50	5.56
TC.T 1102..	11.0	2.38	2.80	6.35
TC.T 16T3..	16.5	3.97	4.40	9.52
TCMT 2204..	22.0	4.76	5.16	12.70



TCGT / TCMT

		-CF05 CTEP110		-CF55 CTEP110		-SF TCM10		-SMF TCM10		-SF CTCP125		-SMF CTCP115	
		DRAGONSKIN		DRAGONSKIN						DRAGONSKIN		DRAGONSKIN	
													
		F		F		F		F		F		F	
		CERMET TCGT		CERMET TCMT		CERMET TCGT		CERMET TCMT		TCMT		TCMT	
		76 272 ...		76 266 ...		70 273 ...		70 284 ...		76 275 ...		76 284 ...	
ISO	RE mm	£ 1A/78		£ 1A/78		£ 1A/78		£ 1A/78		£ 1A/08		£ 1A/08	
110202EN	0.2	12.93	014			11.96	900						
110204EN	0.4	12.93	016	7.37	016	11.96	902	6.95	902	7.30	516		
110208EN	0.8	12.93	018							7.30	518	7.30	318
16T304EN	0.4	16.38	028			15.17	906			10.54	528	10.54	328
16T308EN	0.8			10.22	030					10.54	530	10.54	330
P		●		●		●		●		●		●	
M		○		○		○		○					
K		○		○		○		○		○		○	
N													
S													
H													
O													

TCMT / TCGT

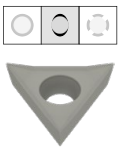
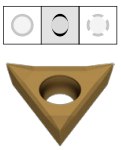
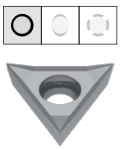
		-SMF CTCP135 DRAGONSKIN		-SM CTCP135 DRAGONSKIN		-SM CTCK110 DRAGONSKIN		-SM CTCK120 DRAGONSKIN		-SM CTCP115 DRAGONSKIN		-SM CTCP125 DRAGONSKIN		-SM CTCP135 DRAGONSKIN	
															
		F TCMT 76 284 ...		M TCGT 76 270 ...		M TCMT 70 274 ...		M TCMT 70 274 ...		M TCMT 76 274 ...		M TCMT 76 274 ...		M TCMT 76 274 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
090204EN	0.4											7.30	504	7.30	704
110202EN	0.2			12.93	714										
110204EN	0.4					7.30	016	7.30	516	7.30	316	7.30	516	7.30	716
110208EN	0.8	7.30	718			7.30	018	7.30	518	7.30	318			7.30	718
16T304EN	0.4					10.54	028	10.54	528	10.54	328	10.54	528	10.54	728
16T308EN	0.8					10.54	030	10.54	530	10.54	330	10.54	530	10.54	730
16T312EN	1.2					10.54	032	10.54	532						
220408EN	0.8											15.17	542	15.17	742
P		●		●		○		○		●		●		●	
M		○		○										○	
K						●		●		○		○			
N															
S															
H															
O															

9

TCMT

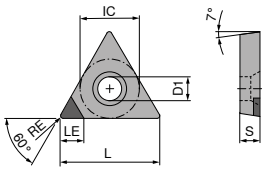
		NEW -M25 CTCM120 DRAGONSKIN		-M25 CTPM125 DRAGONSKIN		NEW -M25 CTCM130 DRAGONSKIN		NEW -M55 CTCM120 DRAGONSKIN		-M55 CTPM125 DRAGONSKIN		NEW -M55 CTCM130 DRAGONSKIN	
													
		F TCMT 75 217 ...		F TCMT 75 217 ...		F TCMT 75 217 ...		M TCMT 75 218 ...		M TCMT 75 218 ...		M TCMT 75 218 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
090204EN	0.4							7.30	10400	7.30	204	7.30	30400
110204EN	0.4	7.30	11600	7.30	216	7.30	31600	7.30	11600	7.30	216	7.30	31600
16T304EN	0.4	10.03	12800	10.54	228	10.54	32800						
16T308EN	0.8	10.03	13000	10.54	230	10.54	33000	10.54	13000	10.54	230	10.54	33000
P		○		○		○		○		○		○	
M		●		●		●		●		●		●	
K													
N													
S						○						○	
H													
O													

TCGT

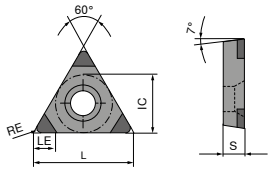
		-27 H10T		-27 CWN15		NEW -27 CTPX715 DRAGONSKIN	
							
		M		M		M	
		TCGT		TCGT		TCGT	
		70 276 ...		70 276 ...		70 276 ...	
ISO	RE mm	£ 1A/90		£ 1A		£ 1A/90	
110202FN	0.2	10.42	600	12.80	300		
110204FN	0.4	10.42	602	12.80	302	19.49	81600
16T302FN	0.2	12.27	604	15.17	304		
16T304FN	0.4	12.27	606	15.17	306		
16T308FN	0.8	12.27	608	15.17	308	19.51	83000
P							●
M					○		●
K			○				○
N			●		●		●
S							●
H							
O			○				○

TCGW

Designation	L mm	S mm	D1 mm	IC mm
TCGW 0902..	9.6	2.38	2.5	5.56
TCGW 1102..	11.0	2.38	2.8	6.35
TCGW 16T3..	16.5	3.97	4.4	9.52



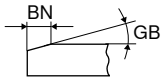
TCGW A



TCGW C

TCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

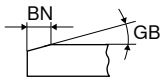


						NEW		NEW			NEW	
						CTBS10U	CTBH15U	CTBH15U	CTBH20U	CTBS20U	CTBS20C	
						F	F	F	F	F	F	
						CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW	
						71 140 ...	71 028 ...	71 029 ...	71 140 ...	71 427 ...	71 164 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0	
090202SN	0.2	0.09	10°	C (3)	2.6						94.71	120
090202SN	0.2	0.11	15°	C (3)	2.6			99.44 30214			94.71	130
090202TN	0.2	0.12	20°	A (1)	3.8	57.52 300			57.52 500			
090202TN	0.2	0.15	20°	C (3)	2.6						94.71	140
090202SN	0.2	0.16	20°	C (3)	2.6						94.71	150
090202FN	0.2			A (1)	3.8				57.52 400			
090202EN	0.2			C (3)	2.6			99.44 00200				
090204SN	0.4	0.09	10°	C (3)	2.2						94.71	121
090204SN	0.4	0.11	15°	C (3)	2.2		99.44 30414				94.71	131
090204TN	0.4	0.12	15°	A (1)	3.5					48.14 20000		
090204TN	0.4	0.12	20°	A (1)	3.5	57.52 302			57.52 502			
090204SN	0.4	0.16	20°	C (3)	2.2						94.71	151
090204TN	0.4	0.17	25°	C (3)	2.2						94.71	161
090204FN	0.4			A (1)	3.5	57.52 202			57.52 402			
090204EN	0.4			C (3)	2.2		99.44 00400				94.71	111
090208SN	0.8	0.09	10°	C (3)	1.8						94.71	122
090208SN	0.8	0.11	15°	C (3)	1.8		99.44 30614				94.71	132
090208TN	0.8	0.12	20°	A (1)	3.0				57.52 504			
090208TN	0.8	0.15	20°	C (3)	1.8						94.71	142
090208EN	0.8			C (3)	1.8		99.44 00600					
090208TN	0.8	0.17	25°	C (3)	1.8						94.71	162
110202SN	0.2	0.09	10°	C (3)	2.9						94.71	123
110202SN	0.2	0.11	15°	C (3)	2.9						94.71	133
110202TN	0.2	0.12	20°	A (1)	3.8	55.39 306			55.39 506			
110202TN	0.2	0.15	20°	C (3)	2.9						94.71	143
110202SN	0.2	0.16	20°	C (3)	2.9						94.71	153
110202FN	0.2			A (1)	3.8	55.39 206			55.39 406			
110204SN	0.4	0.09	10°	C (3)	2.5						94.71	124
110204SN	0.4	0.11	15°	C (3)	2.5						94.71	134
110204TN	0.4	0.12	20°	A (1)	3.5	55.39 308			55.39 508			
110204TN	0.4	0.15	20°	C (3)	2.5						94.71	144
110204SN	0.4	0.16	20°	C (3)	2.5						94.71	154
110204TN	0.4	0.17	25°	C (3)	2.5						94.71	164
110204FN	0.4			A (1)	3.5	55.39 208			55.39 40700			
110204EN	0.4			C (3)	2.5						94.71	114
P												
M												
K						●				●	●	
N												
S						●				●	●	
H							●	●	●			
O												

9

TCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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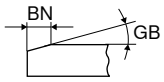
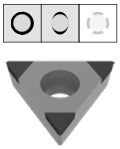
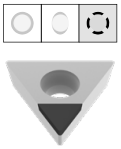
						CTBS10U		CTBH15U		CTBH15U		CTBH20U		CTBS20U		CTBS20C		
						F		F		F		F		F		F		
						CBN TCGW		CBN TCGW		CBN TCGW		CBN TCGW		CBN TCGW		CBN TCGW		
						71 140 ...		71 028 ...		71 029 ...		71 140 ...		71 427 ...		71 164 ...		
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		
110208SN	0.8	0.09	10°	C (3)	2.1											94.71	125	
110208SN	0.8	0.11	15°	C (3)	2.1											94.71	135	
110208TN	0.8	0.12	20°	A (1)	3.0	55.39	310					55.39	510					
110208TN	0.8	0.15	20°	C (3)	2.1											94.71	145	
110208TN	0.8	0.17	25°	C (3)	2.1											94.71	165	
110208FN	0.8			A (1)	3.0	55.39	210					55.39	410					
16T304SN	0.4	0.09	10°	C (3)	3.2											94.71	126	
16T304SN	0.4	0.11	15°	C (3)	3.2											94.71	136	
16T308SN	0.8	0.09	10°	C (3)	2.7											94.71	127	
16T308SN	0.8	0.11	15°	C (3)	2.7											94.71	137	
16T308SN	0.8	0.16	20°	C (3)	2.7											94.71	157	
16T308TN	0.8	0.17	25°	C (3)	2.7											94.71	167	
16T308EN	0.8			C (3)	2.7											94.71	117	
P																		
M																		
K							●								●		●	
N																		
S							●								●		●	
H									●		●		●					
O																		

TCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

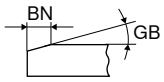


						NEW		NEW									
						CTBH15C		CTBH15C		CTBH20C		CTBH40U		CTBH40C			
																	
						F		F		F		F		F			
						CBN TCGW		CBN TCGW		CBN TCGW		CBN TCGW		CBN TCGW			
						71 027 ...		71 034 ...		71 164 ...		71 140 ...		71 164 ...			
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0			
090202SN	0.2	0.11	15°	C (3)	2.6			97.07	30214								
090202SN	0.2	0.09	20°	C (3)	2.6					94.71	250			94.71	330		
090202TN	0.2	0.09	20°	C (3)	2.6									94.71	320		
090202TN	0.2	0.11	25°	C (3)	2.6									94.71	340		
090202TN	0.2	0.12	25°	A (1)	3.8							57.52	900				
090202FN	0.2			A (1)	3.8							57.52	80100				
090202FN	0.2			C (3)	2.6					94.71	210						
090202EN	0.2			C (3)	2.6			97.07	00200	94.71	220						
090204SN	0.4	0.11	15°	C (3)	2.2	97.07	30414			94.71	241						
090204TN	0.4	0.09	20°	C (3)	2.2									94.71	321		
090204SN	0.4	0.09	25°	C (3)	2.2									94.71	351		
090204TN	0.4	0.11	25°	C (3)	2.2									94.71	341		
090204TN	0.4	0.12	25°	A (1)	3.5							57.52	902				
090204EN	0.4			C (3)	2.2	97.07	00400			94.71	221						
090204FN	0.4			A (1)	3.5							57.52	802				
090204TN	0.4	0.14	25°	C (3)	2.2					94.71	261						
090204SN	0.4	0.15	25°	C (3)	2.2					94.71	271						
090204TN	0.4	0.14	30°	C (3)	2.2									94.71	361		
090204SN	0.4	0.16	30°	C (3)	2.2									94.71	371		
090208SN	0.8	0.09	10°	C (3)	1.8					94.71	232						
090208SN	0.8	0.11	15°	C (3)	1.8	97.07	30614			94.71	242						
090208SN	0.8	0.09	20°	C (3)	1.8					94.71	252						
090208TN	0.8	0.14	20°	C (3)	1.8									94.71	362		
090208SN	0.8	0.09	25°	C (3)	1.8									94.71	352		
090208TN	0.8	0.11	25°	C (3)	1.8									94.71	342		
090208TN	0.8	0.12	25°	A (1)	3.0							57.52	904				
090208EN	0.8			C (3)	1.8	97.07	00600							94.71	312		
110202FN	0.2			A (1)	3.8							55.39	806				
110202SN	0.2	0.11	15°	C (3)	2.9			97.07	31414								
110202SN	0.2	0.09	20°	C (3)	2.9					94.71	253			94.71	333		
110202TN	0.2	0.09	20°	C (3)	2.9									94.71	323		
110202TN	0.2	0.11	25°	C (3)	2.9									94.71	343		
110202TN	0.2	0.12	25°	A (1)	3.8							55.39	906				
110202EN	0.2			C (3)	2.9					94.71	223						
110202FN	0.2			C (3)	2.9					94.71	213						
110202SN	0.2	0.14	25°	C (3)	2.9			97.07	31429								
110202TN	0.2	0.14	30°	C (3)	2.9									94.71	363		
110204FN	0.4			A (1)	3.5							55.39	808				
110204SN	0.4	0.09	10°	C (3)	2.5					94.71	234						
110204SN	0.4	0.11	15°	C (3)	2.5			97.07	31614	94.71	244						
110204TN	0.4	0.09	20°	C (3)	2.5									94.71	324		
110204SN	0.4	0.09	25°	C (3)	2.5									94.71	354		
110204TN	0.4	0.11	25°	C (3)	2.5									94.71	344		
110204TN	0.4	0.12	25°	A (1)	3.5							55.39	908				
110204EN	0.4			C (3)	2.5					94.71	224						
110204TN	0.4	0.14	25°	C (3)	2.5					94.71	264						
110204FN	0.4			C (3)	2.5					94.71	214						
P																	
M																	
K																	
N																	
S																	
H							●		●		●		●		●		
O																	

9

TCGW

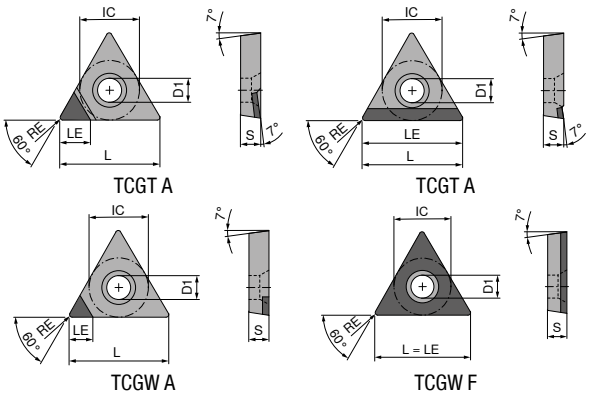
▲ TCE(NOI) = Design and number of equipped cutting edge corners



						NEW		NEW									
						CTBH15C		CTBH15C		CTBH20C		CTBH40U		CTBH40C			
						F		F		F		F		F			
						CBN TCGW		CBN TCGW		CBN TCGW		CBN TCGW		CBN TCGW			
						71 027 ...		71 034 ...		71 164 ...		71 140 ...		71 164 ...			
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0			
110204SN	0.4	0.14	25°	C (3)	2.5			97.07	31629								
110204SN	0.4	0.15	25°	C (3)	2.5					94.71	274						
110204TN	0.4	0.14	30°	C (3)	2.5									94.71	364		
110204SN	0.4	0.16	30°	C (3)	2.5									94.71	374		
110208SN	0.8	0.09	10°	C (3)	2.1					94.71	235						
110208SN	0.8	0.11	15°	C (3)	2.1	97.07	31814			94.71	245						
110208SN	0.8	0.09	20°	C (3)	2.1					94.71	255						
110208TN	0.8	0.09	20°	C (3)	2.1									94.71	325		
110208SN	0.8	0.09	25°	C (3)	2.1									94.71	355		
110208TN	0.8	0.12	25°	A (1)	3.0							55.39	910				
110208EN	0.8			C (3)	2.1									94.71	315		
110208TN	0.8	0.14	25°	C (3)	2.1					94.71	265						
110208SN	0.8	0.14	25°	C (3)	2.1	97.07	31829										
110208TN	0.8	0.14	30°	C (3)	2.1									94.71	365		
110208SN	0.8	0.16	30°	C (3)	2.1									94.71	375		
16T304SN	0.4	0.09	20°	C (3)	3.2					94.71	256			94.71	336		
16T304SN	0.4	0.09	25°	C (3)	3.2									94.71	356		
16T304TN	0.4	0.11	25°	C (3)	3.2									94.71	346		
16T304SN	0.4	0.15	25°	C (3)	3.2					94.71	276						
16T304TN	0.4	0.14	30°	C (3)	3.2									94.71	366		
16T304SN	0.4	0.17	35°	C (3)	3.2									94.71	386		
16T304FN	0.4			C (3)	3.2					94.71	216						
16T304EN	0.4			C (3)	3.2					94.71	226						
16T308SN	0.8	0.11	15°	C (3)	2.7					94.71	247						
16T308SN	0.8	0.09	20°	C (3)	2.7									94.71	337		
16T308SN	0.8	0.09	25°	C (3)	2.7									94.71	357		
16T308TN	0.8	0.11	25°	C (3)	2.7									94.71	347		
16T308TN	0.8	0.14	25°	C (3)	2.7					94.71	267						
16T308SN	0.8	0.15	25°	C (3)	2.7					94.71	277						
16T308TN	0.8	0.14	30°	C (3)	2.7									94.71	367		
16T308SN	0.8	0.16	30°	C (3)	2.7									94.71	377		
16T308SN	0.8	0.18	30°	C (3)	2.7					94.71	287						
16T308EN	0.8			C (3)	2.7					94.71	227			94.71	317		
P																	
M																	
K																	
N																	
S																	
H							●		●		●		●		●		
O																	

TCGW / TCGT

Designation	L mm	S mm	D1 mm	IC mm
TCG. 0902..	9.6	2.38	2.5	5.56
TCG. 1102..	11.0	2.38	2.8	6.35
TCG. 16T3..	16.5	3.97	4.4	9.52



TCGW / TCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW	NEW		NEW		NEW
				CTDPD20	CTDPD20	CTDPD20	CTDPD20	-CB1 CTDPD20	CTDPS30
				F	F	F	F	F	F
				DIAMOND TCGW	DIAMOND TCGW	DIAMOND TCGW	DIAMOND TCGT	DIAMOND TCGT	DIAMOND TCGT
				71 188 ...	71 187 ...	71 140 ...	71 184 ...	71 325 ...	71 184 ...
ISO	RE mm	TCE (NOI)	LE mm	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0
090202FN	0.2	A (1)	3.7			83.64 100		92.73 112	63.25 20001
090204FN	0.4	A (1)	3.4			83.64 102		92.73 114	63.25 20101
090208FN	0.8	A (1)	3.0			83.64 104	63.25 10001		
090208FN	0.8	A (1)	9.6	95.68 10001					
110202FN	0.2	A (1)	3.7			79.93 106	66.49 10101	96.71 122	
110202FN	0.2	F	11.0		215.84 10001				
110204FN	0.4	A (1)	3.4			79.93 108	66.49 10201	96.71 124	66.49 20201
110204FN	0.4	F	11.0		215.84 10101				
110204FN	0.4	A (1)	11.0	100.53 10101					
110208FN	0.8	A (1)	3.0			79.93 110	66.49 10301		
110208FN	0.8	A (1)	11.0	100.53 10201					
16T304FN	0.4	A (1)	4.6			83.64 112	72.98 10401	96.79 134	72.98 20301
16T304FN	0.4	A (1)	16.5	132.93 10301					
16T308FN	0.8	A (1)	4.2			83.64 114	72.98 10501	96.79 13600	
16T308FN	0.8	A (1)	16.5	132.93 10401					
16T312FN	1.2	A (1)	3.8			83.64 11600			
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

9

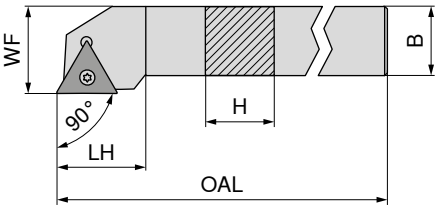
TCGW / TCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW		NEW			NEW			NEW	
				CTDPS30		CTDPS30		-CB2 CTDPS30	CTDPU20		-CB3 CTDPU20	CTDCD10	
													
				F		F		M	F		R	F	
				DIAMOND TCGW		DIAMOND TCGT		DIAMOND TCGT	DIAMOND TCGW		DIAMOND TCGT	DIAMOND TCGW	
				71 186 ...		71 185 ...		71 326 ...	71 188 ...		71 327 ...	71 186 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0	£ Y0		£ Y0	£ Y0	
090202FN	0.2	A (1)	3.7	63.25	20001			92.73	212				
090204FN	0.4	A (1)	3.4					92.73	214				
090204FN	0.4	A (1)	9.6			95.68	20001						
110202FN	0.2	A (1)	2.6									84.30	40001
110202FN	0.2	A (1)	3.7	66.49	20101			96.71	222				
110204FN	0.4	A (1)	2.3									84.30	40101
110204FN	0.4	A (1)	3.4	66.49	20201			96.71	224		77.21	224	
110204FN	0.4	A (1)	11.0			100.53	20101			94.04	30001		
110208FN	0.8	A (1)	2.0									84.30	40201
110208FN	0.8	A (1)	11.0			100.53	20201						
16T304FN	0.4	A (1)	2.3									90.79	40301
16T304FN	0.4	A (1)	4.6					96.79	234				
16T304FN	0.4	A (1)	16.5			132.93	20301						
16T308FN	0.8	A (1)	2.0									90.79	40401
16T308FN	0.8	A (1)	4.2								81.74	238	
16T308FN	0.8	A (1)	16.5			132.93	20401						
P													
M													
K													
N				●		●		●	●		●	●	
S													
H													
O				●		●		●	●		●	●	

MaxiLock-S – STGC 90° – Toolholder with screw clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 677 ... £ 2A/24		Right-hand 70 676 ... £ 2A/24	
STGC R/L 1010 E09	10	10	70	12	12	1	TC.. 0902	61.66	010	61.66	010
STGC R/L 1212 F11	12	12	80	15	16	1,2	TC.. 1102	61.66	012	61.66	012
STGC R/L 1616 H16	16	16	100	22	20	3,2	TC.. 16T3	76.37	016	76.37	016
STGC R/L 2020 K16	20	20	125	22	25	3,2	TC.. 16T3	81.18	020	81.18	020
STGC R/L 2525 M16	25	25	150	22	32	3,2	TC.. 16T3	83.97	025	83.97	025

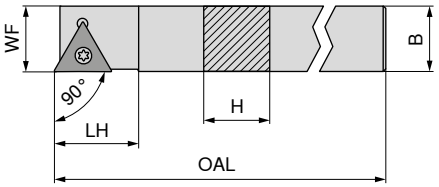
Spare parts for Article no.	Key D 80 950 ... £ Y7		Combination Key 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat T 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
70 676 010 / 70 677 010	10.82	109			2.46	111				
70 676 012 / 70 677 012	10.82	110			2.26	112				
70 676 016 / 70 677 016			7.91	398	2.99	113	7.40	169	4.43	171
70 676 020 / 70 677 020			7.91	398	2.99	113	7.40	169	4.43	171
70 676 025 / 70 677 025			7.91	398	2.99	113	7.40	169	4.43	171

9

MaxiLock-S – STAC 90° – Toolholder with screw clamping

▲ for sliding head lathes





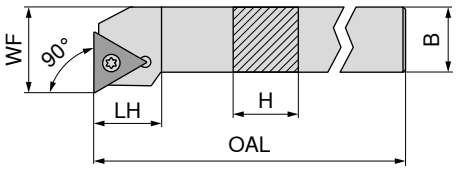
Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 769 ... £ 2A/24		Right-hand 70 768 ... £ 2A/24	
STAC R/L 1010 K09	10	10	125	12	10	1	TC.. 0902	61.66	010	61.66	010
STAC R/L 1212 K11	12	12	125	15	12	1,2	TC.. 1102	68.96	012	68.96	012
STAC R 1414 K11	14	14	125	15	14	1,2	TC.. 1102			68.96	014

Spare parts for Article no.		Key D 80 950 ... £ Y7			Clamping screw 70 950 ... £ 2A/28	
70 769 010 / 70 768 010	T07	10.82	109	M2,2x5	2.46	111
70 769 012 / 70 768 012	T08	10.82	110	M2,5x6	2.26	112
70 768 014	T08	10.82	110	M2,5x6	2.26	112

MaxiLock-S – STFC 90° – Toolholder with screw clamping



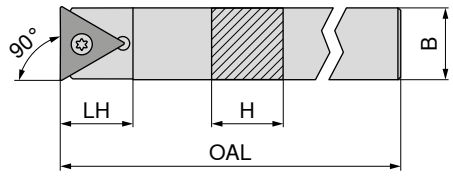


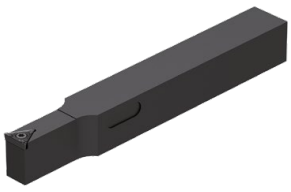
Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 673 ... £ 2A/24		Right-hand 70 672 ... £ 2A/24	
STFC R/L 1212 F11	12	12	80	15	16	1,2	TC.. 1102	61.66	**012**	61.66	**012**
STFC R/L 1616 H16	16	16	100	20	20	3,2	TC.. 16T3	76.37	**016**	76.37	**016**
STFC R/L 2020 K16	20	20	125	20	25	3,2	TC.. 16T3	81.18	**020**	81.18	**020**
STFC R/L 2525 M16	25	25	150	20	32	3,2	TC.. 16T3	83.97	**025**	83.97	**025**

Spare parts for Article no.	Key D 80 950 ... £ Y7		Combination Key 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A		Solid Carbide Seat T 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
70 673 012 / 70 672 012	10.82	**110**			2.26	**112**				
70 673 016 / 70 672 016			7.91	**398**	2.99	**113**	7.40	**169**	4.43	**171**
70 673 020 / 70 672 020			7.91	**398**	2.99	**113**	7.40	**169**	4.43	**171**
70 673 025 / 70 672 025			7.91	**398**	2.99	**113**	7.40	**169**	4.43	**171**

MaxiLock-S – STCC 90° – Toolholder with screw clamping





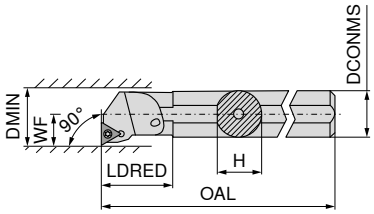
ISO designation	H mm	B mm	OAL mm	LH mm	torque moment Nm	Insert	Neutral 70 782 ... £ 2A/24	
STCC N 0808 K09	8	8	125	11	1	TC.. 0902	58.15	**008**
STCC N 1010 K11	10	10	125	15	1,2	TC.. 1102	61.66	**010**
STCC N 1212 K11	12	12	125	15	1,2	TC.. 1102	68.96	**012**
STCC N 1414 K11	14	14	125	21	1,2	TC.. 1102	68.96	**014**
STCC N 1616 K11	16	16	125	24	1,2	TC.. 1102	76.37	**016**

Spare parts for Article no.		Key D 80 950 ... £ Y7			Clamping screw 70 950 ... £ 2A/28	
70 782 008	T07	10.82	**109**	M2,2x5	2.46	**111**
70 782 010	T08	10.82	**110**	M2,5x6	2.26	**112**
70 782 012	T08	10.82	**110**	M2,5x6	2.26	**112**
70 782 014	T08	10.82	**110**	M2,5x6	2.26	**112**
70 782 016	T08	10.82	**110**	M2,5x6	2.26	**112**

MaxiLock-S – STFC 90° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 729 ... £ 2A/24		Right-hand 70 728 ... £ 2A/24	
A10H STFC R/L 09	10	9.5	100	19	7	13	1	TC.. 0902	92.18	**210**	92.18	**210**
A12K STFC R/L 11	12	11.5	125	22	9	16	1,2	TC.. 1102	92.18	**212**	92.18	**212**
A16M STFC R/L 11	16	15.0	150	29	11	20	1,2	TC.. 1102	94.19	**216**	94.19	**216**
S16R STFC R 11	16	15.0	200		11	21	1,2	TC.. 1102			94.19	**016**
A20Q STFC R/L 11	20	18.5	180	32	13	25	1,2	TC.. 1102	117.41	**220**	117.41	**220**
S20S STFC R 11	20	18.0	250		13	25	1,2	TC.. 1102			117.41	**020**
A25R STFC R/L 16	25	24.0	200	36	17	32	3,2	TC.. 16T3	134.98	**225**	134.98	**225**
A32S STFC R/L 16	32	31.0	250	50	22	40	3,2	TC.. 16T3	185.57	**232**	185.57	**232**
A40T STFC R/L 16	40	39.0	300	60	27	50	3,2	TC.. 16T3	222.79	**240**	222.79	**240**


Clamping screw


Solid Carbide Seat T


Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 729 210 / 70 728 210	M2,2x5	2.46	**111**				
70 729 212 / 70 728 212	M2,5x6	2.26	**112**				
70 729 216 / 70 728 216	M2,5x6	2.26	**112**				
70 728 016	M2,5x6	2.26	**112**				
70 729 220 / 70 728 220	M2,5x6	2.26	**112**				
70 728 020	M2,5x6	2.26	**112**				
70 729 225 / 70 728 225	M3,5x11	2.99	**113**	7.40	**169**	M3,5	4.43 **171**
70 729 232 / 70 728 232	M3,5x11	2.99	**113**	7.40	**169**	M3,5	4.43 **171**
70 729 240 / 70 728 240	M3,5x11	2.99	**113**	7.40	**169**	M3,5	4.43 **171**


Key D

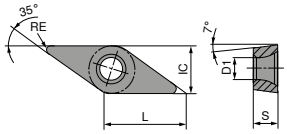

Combination Key

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 729 210 / 70 728 210	T07	10.82	**109**		
70 729 212 / 70 728 212	T08	10.82	**110**		
70 729 216 / 70 728 216	T08	10.82	**110**		
70 728 016	T08	10.82	**110**		
70 729 220 / 70 728 220	T08	10.82	**110**		
70 728 020	T08	10.82	**110**		
70 729 225 / 70 728 225				T15/SW	7.91 **398**
70 729 232 / 70 728 232				T15/SW	7.91 **398**
70 729 240 / 70 728 240				T15/SW	7.91 **398**

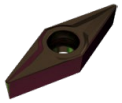
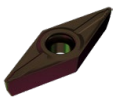
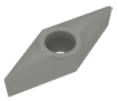
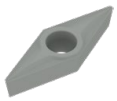
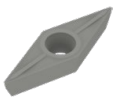
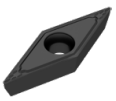
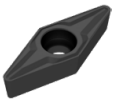
9

VCGT / VCMT / VCET

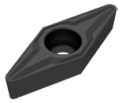
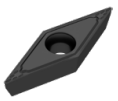
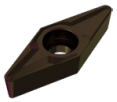
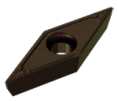
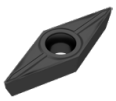
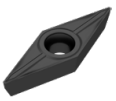
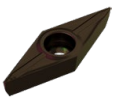
Designation	L mm	S mm	D1 mm	IC mm
VCET 1103..	11.1	3.18	2.8	6.35
VC.T 1103..	11.1	3.18	2.9	6.35
VC.T 1604..	16.6	4.76	4.4	9.52
VCGT 2205..	22.1	5.56	5.5	12.70



VCGT / VCMT

	-CF05 CTEP110	-CF55 CTEP110	-SF TCM10	-SF TCM407	-SMF TCM10	-SF CTCP115	-SF CTCP115
	DRAGONSKIN	DRAGONSKIN				DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET VCGT	CERMET VCMT	CERMET VCGT	CERMET VCGT	CERMET VCMT	VCMT	VCGT
	76 276 ...	76 292 ...	70 277 ...	70 277 ...	70 288 ...	76 279 ...	76 277 ...
ISO / RE mm	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/08	£ 1A/08
110301EN 0.1			14.64 892				
110302EN 0.2	16.03 014		14.64 894	14.64 844			15.28 314
110304EN 0.4	16.03 016	12.44 016	14.64 896	14.64 846	11.75 896		15.28 316
110308EN 0.8							15.28 318
160404EN 0.4	19.12 028	15.28 028	18.48 900	18.48 850	14.54 900	15.28 328	
160408EN 0.8	19.12 030	15.28 030	18.48 902		14.54 902	15.28 330	
P	●	●	●	●	●	●	●
M	o	o	o	o	o		
K	o	o	o	o	o	o	o
N							
S							
H							
O							

VCGT / VCMT

	-SF CTCP125	-SF CTCP125	-SF CTCP135	-SF CTCP135	-SMF CTCP115	-SMF CTCP125	-SMF CTCP135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
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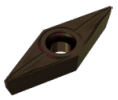
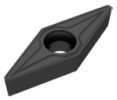
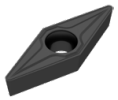
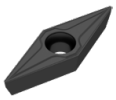
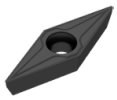
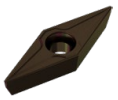
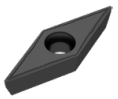
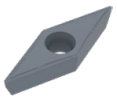
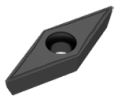
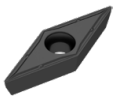
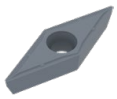
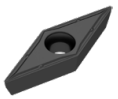
	VCGT	VCMT	VCGT	VCMT	VCMT	VCMT	VCGT
	76 277 ...	76 279 ...	76 277 ...	76 279 ...	76 288 ...	76 288 ...	76 285 ...
ISO / RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
110302EN 0.2	15.28 514		15.28 714				15.28 714
110304EN 0.4	15.28 516		15.28 716		13.14 316	13.14 516	
110308EN 0.8	15.28 518		15.28 718				
160404EN 0.4		15.28 528		15.28 728	15.28 328	15.28 528	
160408EN 0.8		15.28 530			15.28 330	15.28 530	
P	●	●	●	●	●	●	●
M			o	o			o
K	o	o			o	o	
N							
S							
H							
O							

VCMT

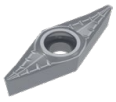
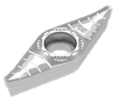
		-SMF CTCP135		-SM CTCK110		-SM CTCK120		-SM CTCP115		-SM CTCP125		-SM CTCP135	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
													
		F		M		M		M		M		M	
		VCMT		VCMT		VCMT		VCMT		VCMT		VCMT	
		76 288 ...		70 278 ...		70 278 ...		76 278 ...		76 278 ...		76 278 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
110304EN	0.4	13.14	716										
160404EN	0.4	15.28	728	15.28	028	15.28	528	15.28	328	15.28	528	15.28	728
160406EN	0.6							15.28	329				
160408EN	0.8	15.28	730	15.28	030	15.28	530	15.28	330	15.28	530	15.28	730
160412EN	1.2			15.28	032	15.28	532	15.28	33200	15.28	53200	15.28	732
P		●		○		○		●		●		●	
M		○										○	
K				●		●		○		○			
N													
S													
H													
O													

VCMT

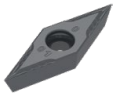
9

		NEW -M25 CTCM120		-M25 CTPM125		NEW -M25 CTCM130		NEW -M55 CTCM120		-M55 CTPM125		NEW -M55 CTCM130	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
													
		F		F		F		M		M		M	
		VCMT		VCMT		VCMT		VCMT		VCMT		VCMT	
		75 219 ...		75 219 ...		75 219 ...		75 220 ...		75 220 ...		75 220 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
160404EN	0.4	15.28	12800	15.28	228	15.28	32800	15.28	12800	15.28	228	15.28	32800
160408EN	0.8	15.28	13000	15.28	23000	15.28	33000	15.28	13000	15.28	230	15.28	33000
P		○		○		○		○		○		○	
M		●		●		●		●		●		●	
K													
N													
S						○						○	
H													
O													

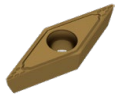
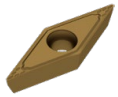
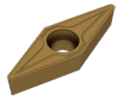
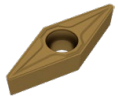
VCGT / VCMT

			NEW					NEW	NEW
		-25P H210T	-25P CTPX710	-25Q H210T	-27 H10T	-27 CWN15	-27 CTPX715	-29 H216T
			DRAGONSKIN				DRAGONSKIN	
								
		F VCGT	M VCGT	M VCGT	M VCGT	M VCGT	M VCGT	M VCMT
		70 282 ...	70 282 ...	70 282 ...	70 280 ...	70 280 ...	70 280 ...	70 247 ...
ISO	RE mm	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A	£ 1A/90	£ 1A/90
110302FN	0.2	14.42 638	16.55 71400		13.77 606	16.20 306	16.13 81400	
110304FL	0.4			16.03 670				
110304FN	0.4	14.42 640	16.55 71600		13.77 608	16.20 308	16.13 81600	
110304FR	0.4			16.03 680				
110308FN	0.8				13.77 610	16.20 310		
160404EN	0.4							12.93 62800
160404FN	0.4	17.62 642	20.51 72800		16.77 612	19.09 312	19.54 82800	
160408EN	0.8							12.93 63000
160408FN	0.8	17.62 644	20.51 73000		16.77 614	19.09 314	19.54 83000	
160412EN	1.2							12.93 63200
160412FN	1.2	17.62 646	20.51 73200		16.77 616	19.09 316		
220530FN	3.0	23.81 648	27.33 75000		22.75 618			
P			●				●	
M			●			○	●	
K		○		○	○		○	○
N		●	●	●	●	●	●	●
S		○	●	○			●	
H								
O		○		○	○		○	○

VCET

		NEW
		-F05 CTPX710
		DRAGONSKIN
		
		F VCET
		76 255 ...
ISO	RE mm	£ 1H/17
1103005FN	0.05	22.23 11400
1103015FN	0.15	22.23 11800
110301FN	0.10	22.23 11600
110302FN	0.20	22.23 12000
110304FN	0.40	22.23 12200
P		●
M		●
K		
N		●
S		●
H		
O		

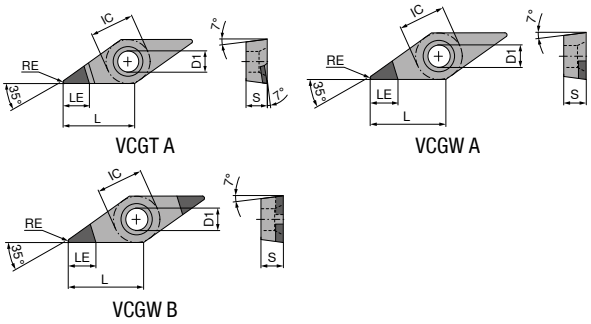
VCMT

		NEW -FMS CT-P15	NEW -FMS CT-P25	NEW -MRS CT-P15	NEW -MRS CT-P25
					
		F VCMT	F VCMT	M VCMT	M VCMT
		75 308 ...	75 308 ...	75 309 ...	75 309 ...
ISO	RE mm	£ 1S/1P	£ 1S/1P	£ 1S/1P	£ 1S/1P
110304EN	0.4	4.02 01609	4.02 11609		
160404EN	0.4	4.06 02809	4.06 12809	4.06 02809	4.06 12809
160408EN	0.8	4.06 03009	4.06 13009	4.06 03009	4.06 13009
P		●	●	●	●
M		○	○	○	○
K					
N					
S					
H					
O					

9

VCGW / VCGT

Designation	L mm	S mm	D1 mm	IC mm
VCG. 1103..	11.1	3.18	2.9	6.35
VCG. 1604..	16.6	4.76	4.4	9.52
VCGW 0702..	6.9	2.38	2.2	3.97



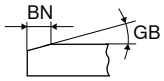
VCGT A

VCGW A

VCGW B

VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

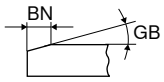


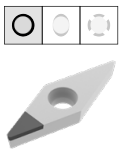
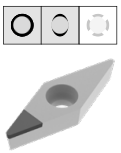
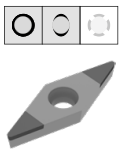
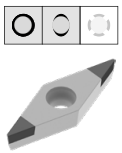
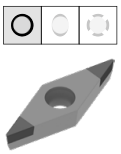
						CTBS10U		NEW CTBS20U		CTBS20C		NEW CTBH15U		NEW CTBH15C	
						F		F		F		F		F	
						CBN VCGW		CBN VCGW		CBN VCGW		CBN VCGW		CBN VCGW	
						71 160 ...		71 429 ...		71 165 ...		71 036 ...		71 035 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
110302SN	0.2	0.11	15°	B (2)	3.4							86.52	32014	83.69	32014
110302TN	0.2	0.12	15°	A (1)	4.7			64.21	20000						
110302FN	0.2			A (1)	4.7	72.90	200								
110302TN	0.2	0.12	20°	A (1)	4.7	72.90	300								
110302SN	0.2	0.14	25°	B (2)	3.4							86.52	32029	83.69	32029
110302EN	0.2			B (2)	3.4							86.52	02000	83.69	02000
110304SN	0.4	0.09	10°	B (2)	3.1					76.99	121				
110304SN	0.4	0.11	15°	B (2)	3.1					76.99	131	86.52	32214	83.69	32214
110304TN	0.4	0.12	20°	A (1)	4.5	72.90	302								
110304TN	0.4	0.15	20°	B (2)	3.1					76.99	141				
110304SN	0.4	0.16	20°	B (2)	3.1					76.99	151				
110304SN	0.4	0.14	25°	B (2)	3.1									83.69	32229
110304SN	0.4	0.18	25°	B (2)	3.1					76.99	171				
110304FN	0.4			A (1)	4.5	72.90	202								
110304EN	0.4			B (2)	3.1							86.52	02200	83.69	02200
110308SN	0.8	0.09	10°	B (2)	2.5					76.99	122				
110308SN	0.8	0.11	15°	B (2)	2.5					76.99	132	86.52	32414	83.69	32414
110308TN	0.8	0.12	20°	A (1)	4.2	72.90	304								
110308SN	0.8	0.16	20°	B (2)	2.5					76.99	152				
110308SN	0.8	0.14	25°	B (2)	3.1							86.52	32229		
110308SN	0.8	0.14	25°	B (2)	2.5							86.52	32429	83.69	32429
110308TN	0.8	0.17	25°	B (2)	2.5					76.99	162				
110308SN	0.8	0.18	25°	B (2)	2.5					76.99	172				
110308FN	0.8			A (1)	4.2	72.90	204								
110308EN	0.8			B (2)	2.5					76.99	112	86.52	02400	83.69	02400
160402SN	0.2	0.11	15°	B (2)	3.4							86.52	33614	83.69	33614
160402TN	0.2	0.12	20°	A (1)	5.3	72.90	305								
160404SN	0.2	0.14	25°	B (2)	3.4							86.52	33629		
160402RN	0.2			B (2)	3.4									83.69	23600
160402FN	0.2			A (1)	5.3	72.90	205								
160402SN	0.2	0.14	25°	B (2)	3.4									83.69	33629
160404SN	0.4	0.09	10°	B (2)	3.1					76.99	125				
160404SN	0.4	0.11	15°	B (2)	3.1					76.99	135	86.52	33814	83.69	33814
P															
M															
K						●		●		●					
N															
S						●		●		●					
H												●		●	
O															

→ v_c Page 200–207
Continued on next page

VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



							NEW				NEW		NEW			
						CTBS10U		CTBS20U		CTBS20C		CTBH15U		CTBH15C		
																
						F		F		F		F		F		
						CBN VCGW		CBN VCGW		CBN VCGW		CBN VCGW		CBN VCGW		
						71 160 ...		71 429 ...		71 165 ...		71 036 ...		71 035 ...		
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		
160404TN	0.4	0.12	15°	A (1)	5.0			69.55	20100							
160404TN	0.4	0.12	20°	A (1)	5.0	72.90	306									
160404TN	0.4	0.15	20°	B (2)	3.1					76.99	145					
160404SN	0.4	0.16	20°	B (2)	3.1					76.99	155					
160404RN	0.4			B (2)	3.4							86.52	23600			
160404SN	0.4	0.14	25°	B (2)	3.1							86.52	33829	83.69	33829	
160404SN	0.4	0.18	25°	B (2)	3.1					76.99	175					
160404FN	0.4			A (1)	5.0	72.90	206									
160404RN	0.4			B (2)	3.1							86.52	23800	83.69	23800	
160408SN	0.8	0.09	10°	B (2)	2.5					76.99	126					
160408SN	0.8	0.11	15°	B (2)	2.5					76.99	136	86.52	34014	83.69	34014	
160408TN	0.8	0.12	15°	A (1)	4.4			69.55	20200							
160408TN	0.8	0.12	20°	A (1)	4.4	72.90	308									
160408SN	0.8	0.16	20°	B (2)	2.5					76.99	156					
160408SN	0.8	0.14	25°	B (2)	2.5							86.52	34029	83.69	34029	
160408TN	0.8	0.17	25°	B (2)	2.5					76.99	166					
160408SN	0.8	0.18	25°	B (2)	2.5					76.99	176					
160408EN	0.8			B (2)	2.5					76.99	116					
160408FN	0.8			A (1)	4.4	72.90	208									
160408RN	0.8			B (2)	2.5							86.52	24000	83.69	24000	
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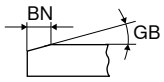
9

VCGW / VCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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						F		F		F		F		F	
						CBN VCGW		CBN VCGW		CBN VCGW		CBN VCGT		CBN VCGW	
						71 160 ...		71 160 ...		71 430 ...		71 428 ...		71 165 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
070202TN	0.2	0.13	25°	A (1)	3.5			72.90	55000						
070204FN	0.4			A (1)	3.2			72.90	45000						
110302TN	0.2	0.12	20°	A (1)	4.7	72.90	500								
110302TN	0.2	0.13	25°	B (2)	3.5					83.81	40100				
110302FN	0.2			A (1)	4.7	72.90	400 1)								
110302FN	0.2			B (2)	3.5					83.81	40000				
110304FN	0.4			A (1)	3.2							64.21	40000		
110304SN	0.4	0.09	20°	B (2)	3.1									76.99	251
110304TN	0.4	0.12	20°	A (1)	4.5	72.90	502								
110304TN	0.4	0.13	25°	B (2)	3.2					83.81	40300				
110304TN	0.4	0.14	25°	B (2)	3.1									76.99	261
110304SN	0.4	0.15	25°	B (2)	3.1									76.99	271
110304FN	0.4			B (2)	3.2					83.81	40200				
110304EN	0.4			B (2)	3.1									76.99	221
110304FN	0.4			A (1)	4.5	72.90	402 1)								
110304FN	0.4			B (2)	3.1									76.99	211
110308SN	0.8	0.11	15°	B (2)	2.5									76.99	242
110308SN	0.8	0.09	20°	B (2)	2.5									76.99	252
110308TN	0.8	0.12	20°	A (1)	4.2	72.90	504								
110308TN	0.8	0.14	25°	B (2)	2.5									76.99	262
110308SN	0.8	0.15	25°	B (2)	2.5									76.99	272
110308SN	0.8	0.18	30°	B (2)	2.5									76.99	282
110308FN	0.8			A (1)	4.2	72.90	404 1)								
110308EN	0.8			B (2)	2.5									76.99	222
160402FN	0.2			A (1)	3.5			72.90	43000			64.21	40100		
160402TN	0.2	0.12	20°	A (1)	5.3	72.90	505								
160402TN	0.2	0.13	25°	A (1)	3.5			72.90	52000						
160402TN	0.2	0.13	25°	B (2)	3.5					83.81	40400				
160402FN	0.2			A (1)	5.3	72.90	405 1)								
160404SN	0.4	0.11	15°	B (2)	3.1									76.99	24400
160404SN	0.4	0.09	20°	B (2)	3.1									76.99	255
160404TN	0.4	0.12	20°	A (1)	5.0	72.90	506								
160404TN	0.4	0.13	25°	B (2)	3.2					83.81	40600				
160404FN	0.4			B (2)	3.2					83.81	40500				
160404TN	0.4	0.13	25°	A (1)	3.2			72.90	52200						
160404TN	0.4	0.14	25°	B (2)	3.1									76.99	265
160404FN	0.4			A (1)	3.2			72.90	41200						
160404EN	0.4			B (2)	3.1									76.99	225
160404FN	0.4			A (1)	5.0	72.90	406 1)								
160404FN	0.4			B (2)	3.1									76.99	215
160408SN	0.8	0.11	15°	B (2)	2.5									76.99	246
160408SN	0.8	0.09	20°	B (2)	2.5									76.99	256
160408TN	0.8	0.12	20°	A (1)	4.4	72.90	508								
160408TN	0.8	0.13	25°	B (2)	2.8					83.81	40800				
160408TN	0.8	0.14	25°	B (2)	2.5									76.99	266
160408SN	0.8	0.15	25°	B (2)	2.5									76.99	276
160408SN	0.8	0.18	30°	B (2)	2.5									76.99	286
160408FN	0.8			A (1)	4.4	72.90	408 1)								
160408FN	0.8			B (2)	2.8					83.81	40700				
160408EN	0.8			B (2)	2.5									76.99	226
160412TN	1.2	0.12	20°	A (1)	3.9	72.90	510								

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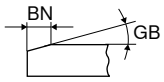
1) Machining to 60 HRC

VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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						F		F		F		F	
						CBN VCGW		CBN VCGW		CBN VCGW		CBN VCGW	
						71 160 ...		71 165 ...		71 429 ...		71 430 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0	
070202FN	0.2			A (1)	3.5					53.53	70000		
070204FN	0.4			A (1)	3.2					53.53	70100		
110302FN	0.2			A (1)	4.7	72.90	800						
110302TN	0.2	0.12	25°	A (1)	4.7	72.90	900						
110302FN	0.2			B (2)	3.5							83.81	70000
110304SN	0.4	0.09	20°	B (2)	3.1			76.99	331				
110304SN	0.4	0.09	25°	B (2)	3.1			76.99	351				
110304TN	0.4	0.11	25°	B (2)	3.1			76.99	341				
110304TN	0.4	0.12	25°	A (1)	4.5	72.90	902						
110304TN	0.4	0.14	30°	B (2)	3.1			76.99	361				
110304SN	0.4	0.17	35°	B (2)	3.1			76.99	381				
110304FN	0.4			A (1)	4.5	72.90	802						
110304FN	0.4			B (2)	3.2							83.81	70100
110308SN	0.8	0.09	20°	B (2)	2.5			76.99	332				
110308SN	0.8	0.09	25°	B (2)	2.5			76.99	352				
110308TN	0.8	0.11	25°	B (2)	2.5			76.99	342				
110308TN	0.8	0.14	30°	B (2)	2.5			76.99	362				
110308SN	0.8	0.16	30°	B (2)	2.5			76.99	372				
110308SN	0.8	0.17	35°	B (2)	2.5			76.99	382				
110308FN	0.8			A (1)	4.2	72.90	804						
110308EN	0.8			B (2)	2.5			76.99	312				
160402FN	0.2			A (1)	5.3	72.90	805						
160402FN	0.2			A (1)	3.5					53.53	70200		
160402TN	0.2	0.12	25°	A (1)	5.3	72.90	905						
160402FN	0.2			B (2)	3.5							83.81	70200
160404SN	0.4	0.09	20°	B (2)	3.1			76.99	335				
160404SN	0.4	0.09	25°	B (2)	3.1			76.99	355				
160404TN	0.4	0.11	25°	B (2)	3.1			76.99	345				
160404TN	0.4	0.12	25°	A (1)	5.0	72.90	906						
160404TN	0.4	0.08	30°	A (1)	3.2					53.53	70400		
160404TN	0.4	0.14	30°	B (2)	3.1			76.99	365				
160404SN	0.4	0.17	35°	B (2)	3.1			76.99	385				
160404FN	0.4			A (1)	3.2					53.53	70300		
160404FN	0.4			A (1)	5.0	72.90	806						
160404FN	0.4			B (2)	3.2							83.81	70300
160408SN	0.8	0.09	20°	B (2)	2.5			76.99	336				
160408SN	0.8	0.09	25°	B (2)	2.5			76.99	356				
160408TN	0.8	0.11	25°	B (2)	2.5			76.99	346				
160408TN	0.8	0.12	25°	A (1)	4.4	72.90	908						
160408TN	0.8	0.14	30°	B (2)	2.5			76.99	366				
160408SN	0.8	0.16	30°	B (2)	2.5			76.99	376				
160408SN	0.8	0.17	35°	B (2)	2.5			76.99	386				
160408EN	0.8			B (2)	2.5			76.99	316				
160408FN	0.8			A (1)	4.4	72.90	808						
160408FN	0.8			A (1)	2.8					53.53	70500		
160408FN	0.8			B (2)	2.8							83.81	70400
160412TN	1.2	0.12	25°	A (1)	3.9	72.90	90900						
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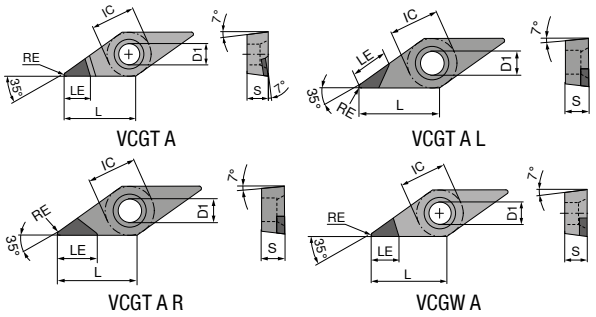
9

VCGT / VCGW

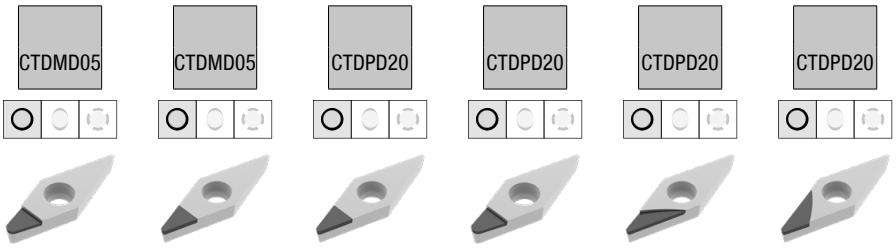
Designation	L mm	S mm	D1 mm	IC mm
VCG. 0702..	6.9	2.38	2.2	3.97
VCG. 1103..	11.1	3.18	2.9	6.35
VCG. 1103..	11.1	3.18	2.8	6.35
VCG. 1303..	13.3	3.18	3.4	7.94
VCG. 1604..	16.6	4.76	4.4	9.52



VCGT / VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

NEW



				F	F	F	F	F	F
				DIAMOND VCGT	DIAMOND VCGW	DIAMOND VCGW	DIAMOND VCGT	DIAMOND VCGT	DIAMOND VCGT
				71 189 ...	71 160 ...	71 160 ...	71 062 ...	71 063 ...	71 064 ...
ISO	RE mm	TCE (NOI)	LE mm	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0
070202FN	0.2	A (1)		625.21 50001					
070204FN	0.4	A (1)		625.21 50101					
110301FN	0.1	A (1)	5.4				95.80 10100		
110302FN	0.2	A (1)	3.0		441.58 050				
110302FN	0.2	A (1)	4.6	648.52 50201		92.43 100	95.80 100		
110304FN	0.4	A (1)	3.0		441.58 052				
110304FN	0.4	A (1)	3.9	648.52 50301		92.43 102	95.80 102		
110304FR	0.4	A (1)	6.5					122.49 102	
110304FL	0.4	A (1)	6.5						122.49 102
110308FN	0.8	A (1)	3.3			95.80 104	95.80 104		
110308FR	0.8	A (1)	6.0					122.49 104	
110308FL	0.8	A (1)	6.0						122.49 104
160401FN	0.1	A (1)	6.0				104.79 10700		
160402FN	0.2	A (1)	5.9			97.58 105	104.79 105		
160402FN	0.2	A (1)		648.52 50401					
160404FN	0.4	A (1)	5.5			99.52 106	104.79 106		
160404FR	0.4	A (1)	7.5					131.49 106	
160404FN	0.4	A (1)		648.52 50501					
160404FL	0.4	A (1)	7.5						131.49 106
160408FN	0.8	A (1)	5.0		605.68 07800	104.79 108	104.79 108		
160408FR	0.8	A (1)	7.0					131.49 108	
160408FN	0.8	A (1)		736.72 50601					
160408FL	0.8	A (1)	7.0						131.49 108
160412FN	1.2	A (1)	4.5			113.49 110	120.66 110		
160412FR	1.2	A (1)	7.0					140.19 110	
160412FL	1.2	A (1)	7.0						140.19 110
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N				●	●	●	●	●	●
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O				●	●	●	●	●	●

VCGT / VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

					NEW		NEW			NEW
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								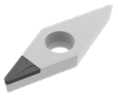	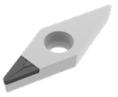	
				F	F		F	F	M	F
				DIAMOND VCGT	DIAMOND VCGW		DIAMOND VCGT	DIAMOND VCGT	DIAMOND VCGT	DIAMOND VCGW
				71 330 ...	71 191 ...		71 189 ...	71 330 ...	71 331 ...	71 191 ...
ISO	RE mm	TCE (NOI)	LE mm	£ Y0	£ Y0		£ Y0	£ Y0	£ Y0	£ Y0
070201FN	0.1	A (1)	3.8				74.58 20001			
070202FN	0.2	A (1)	3.6		74.58 20001					
070204FN	0.4	A (1)	3.2		74.58 20101					
110301FN	0.1	A (1)	5.4	125.29 11000	84.30 20201		84.30 20101			
110302FN	0.2	A (1)	4.6	125.29 112	84.30 20301		84.30 20201	125.29 21200	121.50 212	
110304FN	0.4	A (1)	3.9	125.29 114	84.30 20401		84.30 20301	125.29 214	125.29 214	
110308FN	0.8	A (1)	3.3						125.29 21800	
130302FN	0.2	A (1)	5.9		87.56 20501		87.56 20401			
160401FN	0.1	A (1)	6.0		87.56 20601		87.56 20501			
160402FN	0.2	A (1)	5.9	136.16 13200			87.56 20601		136.16 23200	
160404FN	0.4	A (1)	5.5	136.16 134	87.56 20701		87.56 20701	136.16 234	136.16 234	90.79 30001
160408FN	0.8	A (1)	5.0	149.94 138	87.56 20801			149.94 238	149.94 238	
160412FN	1.2	A (1)	4.5	149.94 14000	97.28 20901			149.94 24000	159.43 242	
P										
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O				●	●		●	●	●	●

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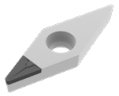
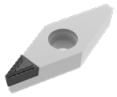
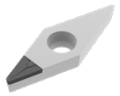
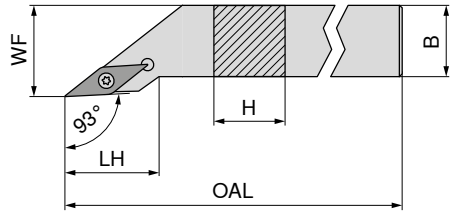
VCGT / VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

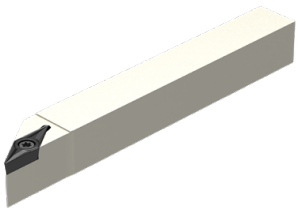
				NEW						NEW					
				-CB2 CTDPU20		-CB3 CTDPU20		CTDCD10		-CB1 CTDCD10		-CB2 CTDCD10	
													
				M		R		F		F		M	
				DIAMOND VCGT		DIAMOND VCGT		DIAMOND VCGW		DIAMOND VCGT		DIAMOND VCGT	
				71 190 ...		71 332 ...		71 191 ...		71 330 ...		71 331 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
110301FN	0.1	A (1)	3.0							149.94	31000		
110302FN	0.2	A (1)	3.0					89.19	40001	149.94	312	149.94	312
110304FN	0.4	A (1)	3.0					89.19	40101	149.94	314	149.94	314
110304FN	0.4	A (1)	3.9			104.45	214						
110308FN	0.8	A (1)	3.0					100.53	40201				
160402FN	0.2	A (1)	3.0					92.43	40301	149.98	32200	149.98	33200
160404FN	0.4	A (1)	3.0					98.91	40401	149.98	32400	149.98	334
160404FN	0.4	A (1)	5.5	116.74	30001	108.99	234						
160408FN	0.8	A (1)	3.0					111.89	40501	167.06	32600	167.06	338
160412FN	1.2	A (1)	3.0							167.06	32800	167.06	34000
P													
M													
K													
N				●		●		●		●		●	
S													
H													
O				●		●		●		●		●	

MaxiLock-S – SVJC 93° – Toolholder with screw clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 697 ... £ 2A/24		Right-hand 70 696 ... £ 2A/24	
SVJC R/L 1212 F11	12	12	80	21.5	16	1,2	VC.. 1103	75.66	**012**	75.66	**012**
SVJC R/L 1616 H11	16	16	100	21.5	20	1,2	VC.. 1103	83.97	**016**	83.97	**016**
SVJC R/L 2020 K11	20	20	125	23.0	25	1,2	VC.. 1103	96.32	**020**	96.32	**020**
SVJC R/L 2525 M11	25	25	150	25.5	32	1,2	VC.. 1103	103.28	**025**	103.28	**025**
SVJC R/L 2020 K16	20	20	125	29.5	25	3,2	VC.. 1604	96.32	**120**	96.32	**120**
SVJC R/L 2525 M16	25	25	150	32.5	32	3,2	VC.. 1604	103.28	**125**	103.28	**125**
SVJC R/L 3225 P16	32	25	170	32.5	32	3,2	VC.. 1604	111.39	**132**	111.39	**132**


Key D


Combination Key


Clamping screw


Solid Carbide Seat V

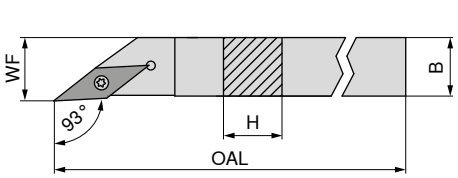

Threaded sleeve

Spare parts Insert	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
VC.. 1103	10.82	**110**			2.26	**112**				
VC.. 1604			7.91	**398**	2.99	**113**	9.61	**107**	4.43	**171**

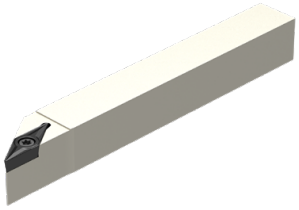
9

MaxiLock-S – SVJC 93° – Toolholder with screw clamping





Illustrations show right-hand versions



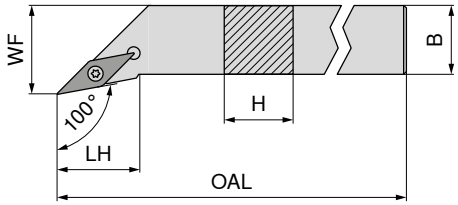
ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand 70 697 ... £ X0		Right-hand 70 696 ... £ X0	
SVJC R/L 0808 H11	8	8	100	8	1,2	VC.. 1103	191.34	**008**	191.34	**008**
SVJC R/L 1010 H11	10	10	100	10	1,2	VC.. 1103	191.34	**010**	191.34	**010**
SVJC R/L 1212 H11	12	12	100	12	1,2	VC.. 1103	227.50	**112**	227.50	**112**
SVJC R/L 1616 K11	16	16	125	16	1,2	VC.. 1103	238.60	**116**	238.60	**116**


Key D


Clamping screw

Spare parts Insert	80 950 ... £ Y7		70 950 ... £ 2A	
VC.. 1103	10.82	**110**	2.26	**112**

MaxiLock-S – SVZC 100° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 701 ... £ 2A/24		Right-hand 70 700 ... £ 2A/24	
SVZC R/L 2525 M16	25	25	150	28.5	32	3,2	VC.. 1604	103.28	**025**	103.28	**025**


Combination Key

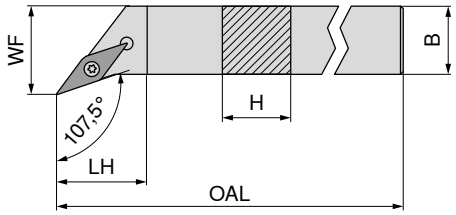

Clamping screw


Solid Carbide Seat V


Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A/28			70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
70 701 025 / 70 700 025	T15/SW	7.91	**398**	M3,5x11	2.99	**113**	9.61	**107**	M3,5	4.43	**171**

MaxiLock-S – SVHC 107.5° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 705 ... £ 2A/24		Right-hand 70 704 ... £ 2A/24	
SVHC R/L 1212 F11	12	12	80	11.4	16	1,2	VC.. 1103	75.66	**012**	75.66	**012**
SVHC R/L 1616 H11	16	16	100	11.4	20	1,2	VC.. 1103	83.97	**016**	83.97	**016**
SVHC R/L 2020 K11	20	20	125	14.6	25	1,2	VC.. 1103	96.32	**020**	96.32	**020**
SVHC R/L 2525 M11	25	25	150	20.9	32	1,2	VC.. 1103	103.28	**025**	103.28	**025**
SVHC R/L 2020 K16	20	20	125	13.2	25	3,2	VC.. 1604	96.32	**120**	96.32	**120**
SVHC R/L 2525 M16	25	25	150	19.6	32	3,2	VC.. 1604	103.28	**125**	103.28	**125**
SVHC R/L 3225 P16	32	25	170	19.6	32	3,2	VC.. 1604	111.39	**132**	111.39	**132**
SVHC R/L 2525 M22	25	25	150	19.6	32	5	VC.. 2205	103.28	**225**	103.28	**225**
SVHC R/L 3225 P22	32	25	170	19.6	32	5	VC.. 2205	111.39	**232**	111.39	**232**


Key D


Combination Key


Clamping screw


Solid Carbide Seat V

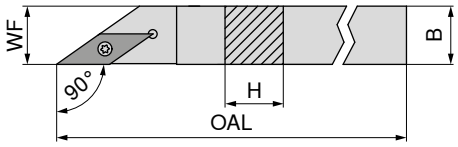

Threaded sleeve

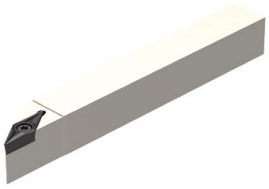
Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28		70 950 ... £ 2A			70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 704 012 / 70 705 012		10.82	**110**				2.26	**112**					
70 704 016 / 70 705 016		10.82	**110**				2.26	**112**					
70 704 020 / 70 705 020		10.82	**110**				2.26	**112**					
70 704 025 / 70 705 025		10.82	**110**				2.26	**112**					
70 704 120 / 70 705 120					7.91	**398**	2.99	**113**		9.61	**107**	4.43	**171**
70 704 125 / 70 705 125					7.91	**398**	2.99	**113**		9.61	**107**	4.43	**171**
70 704 132 / 70 705 132					7.91	**398**	2.99	**113**		9.61	**107**	4.43	**171**
70 704 225 / 70 705 225					7.91	**398**	2.46	**114**		12.75	**109**	4.43	**170**
70 704 232 / 70 705 232					7.91	**398**	2.46	**114**		12.75	**109**	4.43	**170**

MaxiLock-S – SVAC 90° – Toolholder with screw clamping

▲ for sliding head lathes







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand 70 695 ... £ X0		Right-hand 70 694 ... £ X0	
SVAC R/L 0808 H11	8	8	100	8	1,2	VC.. 1103	191.34	008	191.34	008
SVAC R/L 1010 H11	10	10	100	10	1,2	VC.. 1103	191.34	010	191.34	010
SVAC R/L 1212 H11	12	12	100	12	1,2	VC.. 1103	227.50	012	227.50	012


Key D

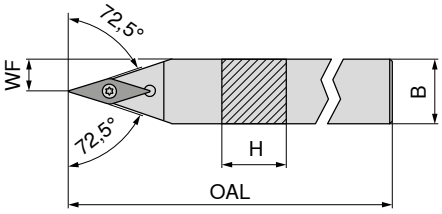

Clamping screw

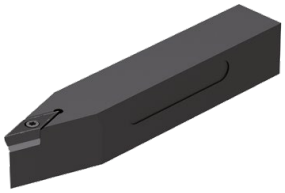
Spare parts for Article no.		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A	
70 694 008 / 70 695 008	T08	10.82	110	M2,5x6	2.26	112
70 694 010 / 70 695 010	T08	10.82	110	M2,5x6	2.26	112
70 694 012 / 70 695 012	T08	10.82	110	M2,5x6	2.26	112

9

MaxiLock-S – SVVC 72.5° – Toolholder with screw clamping







ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Neutral 70 692 ... £ 2A/24	
SVVC N 1212 F11	12	12	80	6.0	1,2	VC.. 1103	75.66	012
SVVC N 1616 H11	16	16	100	8.0	1,2	VC.. 1103	83.97	016
SVVC N 2020 K11	20	20	125	10.0	1,2	VC.. 1103	96.32	020
SVVC N 2525 M11	25	25	150	12.5	1,2	VC.. 1103	103.28	025
SVVC N 2020 K16	20	20	125	10.0	3,2	VC.. 1604	96.32	120
SVVC N 2525 M16	25	25	150	12.5	3,2	VC.. 1604	103.28	125
SVVC N 3225 P16	32	25	170	12.5	3,2	VC.. 1604	111.39	132

Key D

Combination Key


Clamping screw

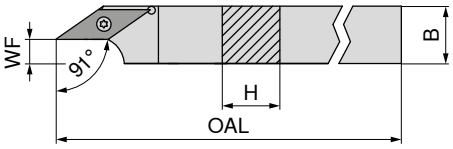

Solid Carbide Seat V

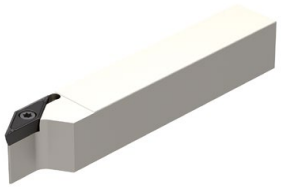

Threaded sleeve

Spare parts for Article no.	Key D 80 950 ... £ Y7		Combination Key 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A		Solid Carbide Seat V 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
70 692 012	10.82	110			2.26	112				
70 692 016	10.82	110			2.26	112				
70 692 020	10.82	110			2.26	112				
70 692 025	10.82	110			2.26	112				
70 692 120			7.91	398	2.99	113	9.61	107	4.43	171
70 692 125			7.91	398	2.99	113	9.61	107	4.43	171
70 692 132			7.91	398	2.99	113	9.61	107	4.43	171

MaxiLock-S – SVXC 91° – Toolholder with screw clamping

▲ for sliding head lathes





Illustrations show right-hand versions

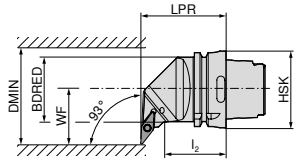
ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand 70 691 ... £ X0		Right-hand 70 690 ... £ X0	
SVXC R/L 1010 H11	10	10	100	3.4	1,2	VC.. 1103	191.34	**010**	191.34	**010**
SVXC R/L 1212 H11	12	12	100	5.4	1,2	VC.. 1103	227.50	**012**	227.50	**012**
SVXC R/L 1616 K11	16	16	125	8.9	1,2	VC.. 1103	238.60	**016**	252.63	**016**
SVXC R/L 2020 K16	20	20	125	10.4	3,2	VC.. 1604	275.01	**020**	275.01	**020**


Key D


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A	
70 691 010 / 70 690 010	T08	10.82	**110**	M2,5x6	2.26	**112**
70 691 012 / 70 690 012	T08	10.82	**110**	M2,5x6	2.26	**112**
70 691 016 / 70 690 016	T08	10.82	**110**	M2,5x6	2.26	**112**
70 691 020 / 70 690 020	T15	12.87	**113**	M3,5x11	2.99	**113**

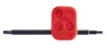
MaxiLock-S – SVUC 93° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 557 ... £ 2D/80		Right-hand 74 558 ... £ 2D/80	
HSK T63 SVUC R/L 16	HSK-T 63	70	42	53	45	100	3.2	VC.. 1604	389.55	**516**	389.55	**516**


Combination Key

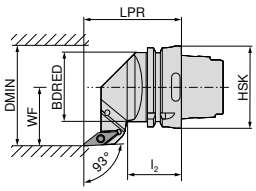

Clamping screw


Solid Carbide Seat V


Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A/28			70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
74 558 516 / 74 557 516	T15/SW	7.91	**398**	M3,5x11	2.99	**113**	9.61	**107**	M3,5	4.43	**171**

MaxiLock-S – SVJC 93° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 556 ... £ 2D/80		Right-hand 74 555 ... £ 2D/80	
HSK T63 SVJC R/L 16	HSK-T 63	75	42	53	45	100	3.2	VC.. 1604	389.55	**516**	389.55	**516**


Combination Key

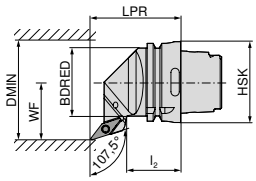

Clamping screw


Solid Carbide Seat V


Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 555 516 / 74 556 516	T15/SW	7.91	**398**	M3,5x11	2.99	**113**	9.61	**107**	M3,5	4.43	**171**

MaxiLock-S – SVHC 107.5° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 554 ... £ 2D/80		Right-hand 74 553 ... £ 2D/80	
HSK T63 SVHC R/L 16	HSK-T 63	70	42	53	45	100	3.2	VC.. 1604	389.55	**516**	389.55	**516**


Combination Key

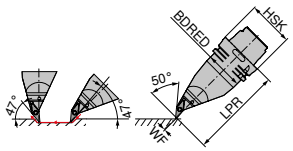

Clamping screw


Solid Carbide Seat V


Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 553 516 / 74 554 516	T15/SW	7.91	**398**	M3,5x11	2.99	**113**	9.61	**107**	M3,5	4.43	**171**

MaxiLock-S – SVMC 50° – Toolholder with screw clamping



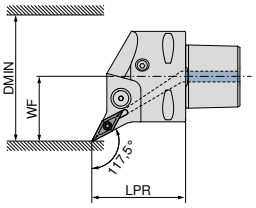


ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 560 ... £ 2D/80	
HSK T63 SVMC L 16	HSK-T 63	130	53	0	3.2	VC.. 1604	522.71	**516**

		Combination Key 70 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat V 70 950 ...		Threaded sleeve 70 950 ...	
Spare parts for Article no.		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28	
74 560 516	T15/SW	7.91	**398**	M3,5x11	2.99	**113**	9.61	**107**	M3,5	4.43	**171**

MaxiLock-S – SVPC 117,5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 671 ... £ Y8		NEW Right-hand 84 670 ... £ Y8	
PSC40 SVPC R/L 50050-16	PSC 40	50	27	50	3	VC.. 1604	DC	448.60	**01695**	448.60	**01695**
PSC50 SVPC R/L 65060-16	PSC 50	60	35	65	3	VC.. 1604	DC	513.98	**01694**	513.98	**01694**
PSC63 SVPC R/L 80065-16	PSC 63	65	45	80	3	VC.. 1604	DC	571.73	**01693**	571.73	**01693**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

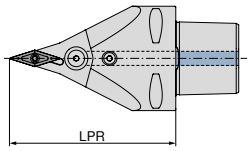


	Clamping screw 84 950 ...
Spare parts Adapter	£ Y8
PSC 40	6.97 **27600**
PSC 50	6.97 **27600**
PSC 63	6.97 **27600**

MaxiLock-S – SVVC 72.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set







NEW
Neutral

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	84 678 ... £ Y8	
PSC63 SVVC N 0100-16	PSC 63	100	3	VC.. 1604	DC	571.73	**01693**
PSC63 SVVC N 0130-16	PSC 63	130	3	VC.. 1604	DC	571.73	**11693**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



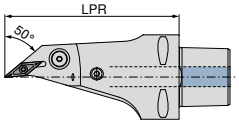
Clamping screw

Spare parts Adapter	84 950 ... £ Y8	
PSC 63	6.97	**27600**

MaxiLock-S – SVMC 50° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set







NEW
Neutral

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	84 681 ... £ Y8	
PSC63 SVMC L 0130-16	PSC 63	130	3	VC.. 1604	DC	771.31	**11693**

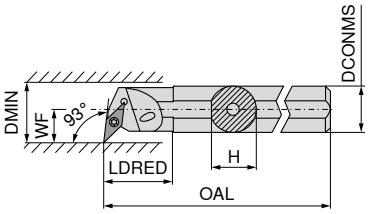
The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



Clamping screw

Spare parts Adapter	84 950 ... £ Y8	
PSC 63	6.97	**27600**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping



Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 745 ... £ 2A/24		Right-hand 70 744 ... £ 2A/24	
A16M SVUC R/L 11	16	15.0	150	29	11	20	1,2	VC.. 1103	120.17	**216**	120.17	**216**
A20Q SVUC R/L 11	20	18.5	180	32	13	25	1,2	VC.. 1103	138.51	**220**	138.51	**220**
A25R SVUC R/L 11	25	23.0	200	36	17	32	1,2	VC.. 1103	169.72	**225**	169.72	**225**
A32S SVUC R/L 16	32	30.0	250	50	22	40	3,2	VC.. 1604	203.61	**232**	203.61	**232**
A40T SVUC R/L 16	40	38.0	300	60	27	50	3,2	VC.. 1604	236.25	**240**	236.25	**240**


Key D


Combination Key


Clamping screw

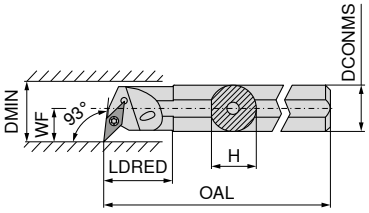

Solid Carbide Seat V


Threaded sleeve

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 744 216 / 70 745 216	10.82	**110**			2.26	**112**				
70 744 220 / 70 745 220	10.82	**110**			2.26	**112**				
70 744 225 / 70 745 225	10.82	**110**			2.26	**112**				
70 744 232 / 70 745 232			7.91	**398**	2.99	**113**	9.61	**107**	4.43	**171**
70 744 240 / 70 745 240			7.91	**398**	2.99	**113**	9.61	**107**	4.43	**171**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Right-hand 70 746 ... £ 2A	
E-A16M SVUC R 11	16	15	150	16.5	11	21	1,2	VC.. 1103	311.27	**216**
E-A20Q SVUC R 11	20	18	180	20.5	13	25	1,2	VC.. 1103	443.38	**220**
E-A25R SVUC R 11	25	23	200	25.5	17	31	1,2	VC.. 1103	752.66	**225**
E-A25R SVUC R 16	25	23	200	25.5	17	31	3,2	VC.. 1604	752.66	**325**
E-A32S SVUC R 16	32	30	250	32.5	22	39	3,2	VC.. 1604	811.74	**232**


Key D

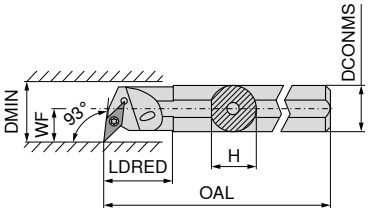

Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A	
70 746 216	10.82	**110**	2.26	**112**
70 746 220	10.82	**110**	2.26	**112**
70 746 225	10.82	**110**	2.26	**112**
70 746 325	12.87	**113**	2.99	**449**
70 746 232	12.87	**113**	2.99	**449**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

▲ Type: Solid carbide





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 747 ... £ 2A/24		Right-hand 70 746 ... £ 2A/24	
E16R SVUC R/L 11	16	15.0	200	34	11	20	1,2	VC.. 1103	460.18	**016**	460.18	**016**
E20S SVUC R/L 11	20	18.5	250	38	13	25	1,2	VC.. 1103	545.81	**020**	545.81	**020**

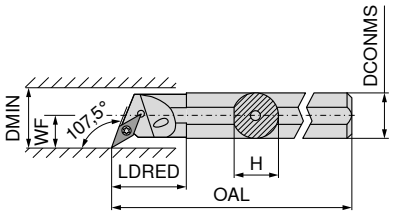

Key D


Clamping screw

Spare parts for Article no.		Key D 80 950 ... £ Y7			Clamping screw 70 950 ... £ 2A	
70 746 016 / 70 747 016	T08	10.82	**110**	M2,5x6	2.26	**112**
70 746 020 / 70 747 020	T08	10.82	**110**	M2,5x6	2.26	**112**

MaxiLock-S – SVQC 107.5° – Boring bar with screw clamping





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 749 ... £ 2A/24		Right-hand 70 748 ... £ 2A/24	
A16M SVQC R/L 11	16	15.0	150	29	11	20	1,2	VC.. 1103	120.17	**216**	120.17	**216**
A20Q SVQC R/L 11	20	18.5	180	32	13	25	1,2	VC.. 1103	138.51	**220**	138.51	**220**
A25R SVQC R/L 11	25	23.0	200	36	17	32	1,2	VC.. 1103	169.72	**225**	169.72	**225**
A32S SVQC R/L 16	32	30.0	250	50	22	40	3,2	VC.. 1604	203.61	**232**	203.61	**232**
A40T SVQC R/L 16	40	38.0	300	60	27	50	3,2	VC.. 1604	236.25	**240**	236.25	**240**


Key D


Combination Key


Clamping screw

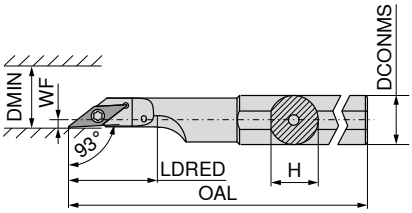

Solid Carbide Seat V


Threaded sleeve

Spare parts for Article no.		Key D 80 950 ... £ Y7		Combination Key 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A		Solid Carbide Seat V 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
70 748 216 / 70 749 216		10.82	**110**			2.26	**112**				
70 748 220 / 70 749 220		10.82	**110**			2.26	**112**				
70 748 225 / 70 749 225		10.82	**110**			2.26	**112**				
70 748 232 / 70 749 232				7.91	**398**	2.99	**113**	9.61	**107**	4.43	**171**
70 748 240 / 70 749 240				7.91	**398**	2.99	**113**	9.61	**107**	4.43	**171**

9

MaxiLock-S – SVJC 93° – Boring bar with screw clamping





Illustrations show right-hand versions

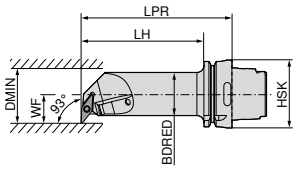
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 727 ... £ 2A		Right-hand 70 726 ... £ 2A	
A16M SVJC R/L 11	16	15	150	30	2	22	1,2	VC.. 1103	109.11	216	109.11	216
A20M SVJC R/L 11	20	19	150	38	2	25	1,2	VC.. 1103	109.11	220	109.11	220
A25M SVJC R/L 16	25	24	150	44	2	28	3,2	VC.. 1604	109.11	225	109.11	225


Key D


Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A	
70 727 216 / 70 726 216	10.82	110	2.26	112
70 727 220 / 70 726 220	10.82	110	2.26	112
70 727 225 / 70 726 225	12.87	113	3.24	174

MaxiLock-S – SVUC 93° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 568 ... £ 2D/80		Right-hand 74 567 ... £ 2D/80	
HSK T63 40L SVUC R/L 16	HSK-T 63	140	114	40	27	50	3.2	VC.. 1604	519.40	516	519.40	516


Combination Key


Clamping screw

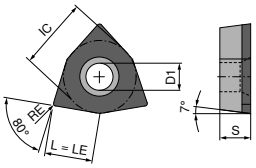

Solid Carbide Seat V


Threaded sleeve

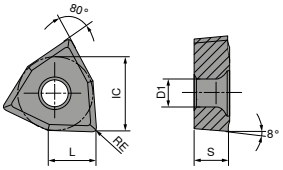
Spare parts for Article no.		70 950 ... £ 2A/28			70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
74 567 516 / 74 568 516	T15/SW	7.91	398	M3,5x11	2.99	113	9.61	107	M3,5	4.43	171

WCGT / WCGW

Designation	L mm	S mm	D1 mm	IC mm
WCGW 0201..	2.70	1.58	2.3	3.97
WCGT 0201..	2.71	1.59	2.1	3.97



CBN/PKD WCGW F



WCGT

WCGT

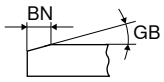
	-SF TCM10	-SF CTPP430	-SF H216T
		DRAGONSKIN	
			
	F	F	F
	CERMET WCGT	WCGT	WCGT
	70 287 ...	70 287 ...	70 287 ...
	£ 1A/78	£ 1A/08	£ 1A/08

ISO	RE mm					
020102EN	0.2	15.49	**900**	16.67	**450**	12.74	**600**
020104EN	0.4	15.49	**902**	16.67	**452**	12.74	**602**
P		●		●			
M		○		●			
K		○		○		○	
N				○		●	
S				○			
H							
O						○	

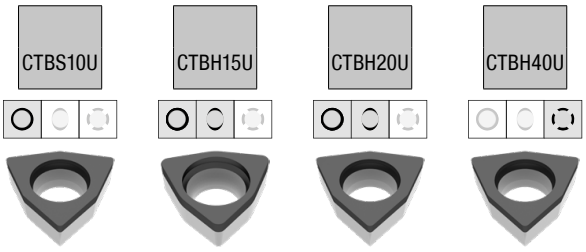
9

WCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW



						F	F	F	F
						CBN WCGW	CBN WCGW	CBN WCGW	CBN WCGW
						71 154 ...	71 037 ...	71 154 ...	71 154 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	£ Y0	£ Y0	£ Y0	£ Y0
020102EN	0.2			F	2.7		167.53 00200		
020102SN	0.2	0.11	15°	F	2.7		167.53 30214		
020102TN	0.2	0.12	20°	F	2.7			210.96 500	
020102TN	0.2	0.12	25°	F	2.7				210.96 900
020102FN	0.2			F	2.7	210.96 200		210.96 400 1)	210.96 800
020104SN	0.4	0.11	15°	F	2.7		167.53 30414		
020104TN	0.4	0.12	20°	F	2.7			210.96 502	
020104FN	0.4			F	2.7			210.96 402 1)	210.96 80100
020104EN	0.4			F	2.7		167.53 00400		
020104TN	0.4	0.12	25°	F	2.7				210.96 902
P									
M									
K						●			
N									
S						●			
H							●	●	●
O									

1) Machining to 60 HRC

WCGW

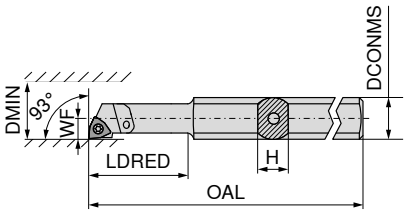
▲ TCE(NOI) = Design and number of equipped cutting edge corners



					F
					DIAMOND WCGW
					71 154 ...
ISO	RE mm	TCE (NOI)	LE mm		£ Y0
020102FN	0.2	F	2.7		209.13 100
020104FN	0.4	F	2.7		209.13 102
P					
M					
K					
N					●
S					
H					
O					●

MaxiLock-S – SWUC 93° – Boring bar with screw clamping





Illustrations show right-hand versions



ISO designation	H mm	OAL mm	LDRED mm	WF mm	DCONMS mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 731 ... £ 2A		Right-hand 70 730 ... £ 2A	
A0508H SWUC R/L 02	7	100	24	2.9	8	5.8	0,4	WC.. 0201..	132.11	**005**	132.11	**005**
A0608H SWUC R/L 02	7	100	24	3.9	8	7.8	0,4	WC.. 0201..	132.11	**006**	132.11	**006**


Key D

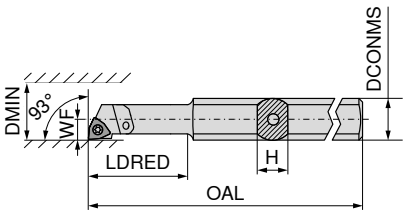

Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 731 005 / 70 730 005	T06	11.71	**108**	M1,8x3,4	3.52	**334**
70 731 006 / 70 730 006	T06	11.71	**108**	M1,8x3,4	3.52	**334**

MaxiLock-S – SWUC 93° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	H mm	OAL mm	LDRED mm	WF mm	DCONMS mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 743 ... £ 2A		Right-hand 70 742 ... £ 2A	
E-A0508H SWUC R/L 02	7	100	24	2.9	8	5.8	0,4	WC.. 0201..	147.09	**005**	147.09	**005**
E-A0608H SWUC R/L 02	7	100	24	3.9	8	7.8	0,4	WC.. 0201..	147.09	**006**	147.09	**006**
SET							0,4	WC.. 0201..	292.28	**999**	292.28	**999**

Set includes boring bars 70 743 005 and 70 743 006 or 70 742 005 and 70 742 006

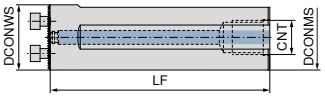

Key D

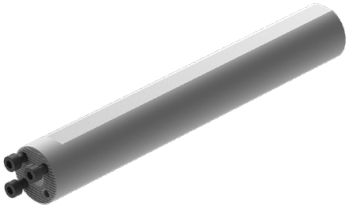

Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 743 005 / 70 742 005	T06	11.71	**108**	M1,8x3,4	3.52	**334**
70 743 006 / 70 742 006	T06	11.71	**108**	M1,8x3,4	3.52	**334**

Base holders for the exchangeable head system – cylindrical

- ▲ Connection thread for thro' coolant
- ▲ 3 clamping flats





NEW



DCONWS mm	LF mm	DCONMS mm	CNT		£ Y8	
						84 194 ...
25	200	25	1/4		557.87	**02599**
32	218	32	3/8		593.44	**03299**
40	283	40	1/2		724.42	**04099**

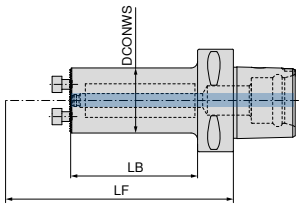


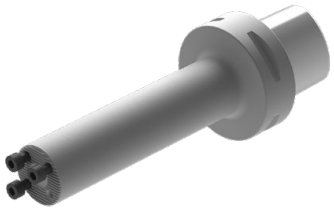
Clamping Screw

Spare parts for Article no.		£ Y8	
			84 950 ...
84 194 02599	M4X12 (SW3)	3.79	**30000**
84 194 03299	M5X14 (SW4)	3.79	**29900**
84 194 04099	M6X16 (SW5)	3.79	**29800**

Base holders for the exchangeable head system – vibration-damped

Scope of supply:
Includes clamping screws





NEW



right / left

Adapter	LF mm	LB mm	DCONWS mm		£ Y8	
						84 195 ...
PSC 63	150	93	25		1,987.29	**02593**
PSC 63	185	128	32		2,196.58	**03293**
PSC 63	225	163	40		2,407.02	**04093**

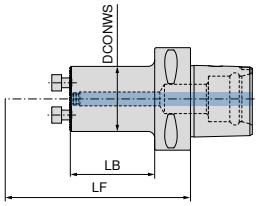


Clamping Screw

Spare parts for Article no.		£ Y8	
			84 950 ...
84 195 02593	M4X12 (SW3)	3.79	**30000**
84 195 03293	M5X14 (SW4)	3.79	**29900**
84 195 04093	M6X16 (SW5)	3.79	**29800**

Base holders for the exchangeable head system

Scope of supply:
Includes clamping screws





NEW



right / left

Adapter	LF mm	LB mm	DCONWS mm	£ Y8	84 192 ...
PSC 40	90	35	25	575.19	**02595**
PSC 40	110	55	32	575.19	**03295**
PSC 40	120		40	575.19	**04095**
PSC 50	90	35	25	647.26	**02594**
PSC 50	110	55	32	647.26	**03294**
PSC 50	140	80	40	647.26	**04094**
PSC 63	100	43	25	706.17	**02593**
PSC 63	125	68	32	706.17	**03293**
PSC 63	140	78	40	706.17	**04093**
PSC 63	160	68	32	706.17	**13293**
PSC 63	180	118	40	706.17	**14093**

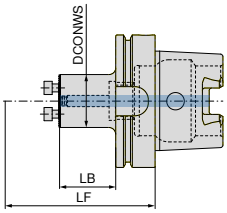


Clamping Screw

Spare parts for Article no.		£ Y8	84 950 ...
84 192 02595	M4X12 (SW3)	3.79	**30000**
84 192 03295	M5X14 (SW4)	3.79	**29900**
84 192 04095	M6X16 (SW5)	3.79	**29800**
84 192 02594	M4X12 (SW3)	3.79	**30000**
84 192 03294	M5X14 (SW4)	3.79	**29900**
84 192 04094	M6X16 (SW5)	3.79	**29800**
84 192 02593	M4X12 (SW3)	3.79	**30000**
84 192 03293	M5X14 (SW4)	3.79	**29900**
84 192 04093	M6X16 (SW5)	3.79	**29800**
84 192 13293	M5X14 (SW4)	3.79	**29900**
84 192 14093	M6X16 (SW5)	3.79	**29800**

Base holders for the exchangeable head system

Scope of supply:
Includes clamping screws





NEW



right / left

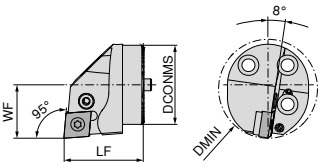
Adapter	LF mm	LB mm	DCONWS mm	£ Y8	84 193 ...
HSK-T 40	90	35	25	575.19	**02539**
HSK-T 40	110	55	25	575.19	**12539**
HSK-T 40	115	60	32	575.19	**03239**
HSK-T 40	120		40	575.19	**04039**
HSK-T 63	105	35	25	706.17	**02537**
HSK-T 63	125	64	32	706.17	**03237**
HSK-T 63	140	74	40	706.17	**04037**
HSK-T 63	160	99	32	706.17	**13237**
HSK-T 63	180	114	40	706.17	**14037**
HSK-T 100	180	111	40	931.85	**04035**



Clamping Screw

Spare parts for Article no.		£ Y8	84 950 ...
84 193 02539	M4X12 (SW3)	3.79	**30000**
84 193 12539	M4X12 (SW3)	3.79	**30000**
84 193 03239	M5X14 (SW4)	3.79	**29900**
84 193 04039	M6X16 (SW5)	3.79	**29800**
84 193 02537	M4X12 (SW3)	3.79	**30000**
84 193 03237	M5X14 (SW4)	3.79	**29900**
84 193 04037	M6X16 (SW5)	3.79	**29800**
84 193 13237	M5X14 (SW4)	3.79	**29900**
84 193 14037	M6X16 (SW5)	3.79	**29800**
84 193 04035	M6X16 (SW5)	3.79	**29800**

Exchangeable cutting head PCLN 95°





Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 159 ... £ Y8		NEW Right-hand 84 160 ... £ Y8	
25	35	32	17	10	CN.. 1204	437.51	**02500**	437.51	**02500**
32	35	40	22	10	CN.. 1204	449.99	**03200**	449.99	**03200**
40	40	50	27	10	CN.. 1204	455.99	**04000**	455.99	**04000**


Shim

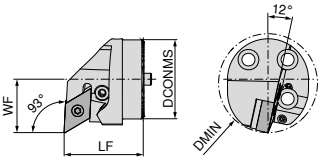

Elbow lever screw

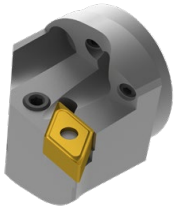

Lever


Carbide seat

Spare parts for Article no.	84 950 ... £ Y8			84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8	
84 160 02500 / 84 159 02500	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	29.36	**29000**	28.67	**27800**
84 160 03200 / 84 159 03200	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	29.36	**29000**	28.67	**27800**
84 160 04000 / 84 159 04000	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	29.36	**29000**	28.67	**27800**

Exchangeable cutting head PDUN 93°





Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 161 ... £ Y8		NEW Right-hand 84 162 ... £ Y8	
25	35	32	17	5	DN.. 1104	437.51	**02500**	437.51	**02500**
32	35	40	22	5	DN.. 1104	449.99	**03200**	449.99	**03200**
32	35	40	22	5	DN.. 1506	449.99	**13200**	449.99	**13200**
40	40	50	27	5	DN.. 1104	455.99	**04000**	455.99	**04000**
40	40	50	27	5	DN.. 1506	455.99	**14000**	455.99	**14000**


Shim

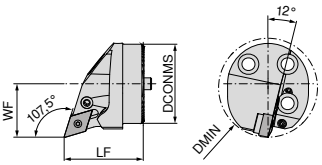

Elbow lever screw


Lever


Carbide seat

Spare parts for Article no.	84 950 ... £ Y8			84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8	
84 162 02500 / 84 161 02500	2.54	**29300**	M6/ L14 SW2,5	9.89	**28800**	34.19	**29100**	52.71	**28100**
84 162 03200 / 84 161 03200	2.54	**29300**	M6/ L14 SW2,5	9.89	**28800**	34.19	**29100**	52.71	**28100**
84 162 13200 / 84 161 13200	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27900**
84 162 04000 / 84 161 04000	2.54	**29300**	M6/ L14 SW2,5	9.89	**28800**	34.19	**29100**	52.71	**28100**
84 162 14000 / 84 161 14000	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27900**

Exchangeable cutting head PDQN 107.5°





Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 163 ... £ Y8		NEW Right-hand 84 164 ... £ Y8	
25	35	32	17	5	DN.. 1104	437.51	**02500**	437.51	**02500**
32	35	40	22	5	DN.. 1104	449.99	**03200**	449.99	**03200**
40	40	50	27	5	DN.. 1104	455.99	**04000**	455.99	**04000**


Shim

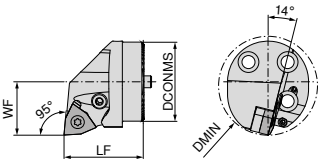

Elbow lever screw


Lever


Carbide seat

Spare parts for Article no.	84 950 ... £ Y8			84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8	
84 163 02500 / 84 164 02500	2.54	**29300**	M6/ L14 SW2,5	9.89	**28800**	34.19	**29100**	52.71	**28100**
84 163 03200 / 84 164 03200	2.54	**29300**	M6/ L14 SW2,5	9.89	**28800**	34.19	**29100**	52.71	**28100**
84 163 04000 / 84 164 04000	2.54	**29300**	M6/ L14 SW2,5	9.89	**28800**	34.19	**29100**	52.71	**28100**

Exchangeable cutting head PWLN 95°





Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 165 ... £ Y8		NEW Right-hand 84 166 ... £ Y8	
32	35	40	22	5	WN.. 0804	449.99	**03200**	449.99	**03200**
40	40	50	27	5	WN.. 0804	455.99	**04000**	455.99	**04000**


Shim


Elbow lever screw

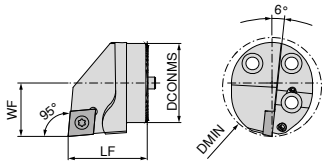

Lever

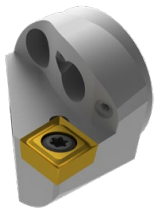

Carbide seat

Spare parts for Article no.	84 950 ... £ Y8			84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8	
84 166 03200 / 84 165 03200	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27700**
84 166 04000 / 84 165 04000	2.54	**29200**	M8X1/L17 SW3	9.89	**28700**	34.19	**28900**	52.71	**27700**

Exchangeable cutting head SCLC 95°







Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 147 ... £ Y8		NEW Right-hand 84 148 ... £ Y8	
25	35	32	17	5	CC.. 1204	357.36	**02500**	357.36	**02500**
32	35	40	22	5	CC.. 1204	363.59	**03200**	363.59	**03200**
40	40	50	27	5	CC.. 1204	369.83	**04000**	369.83	**04000**

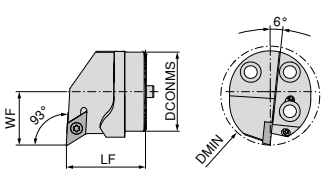


Clamping screw

Spare parts for Article no.	84 950 ... £ Y8	
84 148 02500 / 84 147 02500	10.53	**27500**
84 148 03200 / 84 147 03200	10.53	**27500**
84 148 04000 / 84 147 04000	10.53	**27500**

Exchangeable cutting head SDUC 93°







Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 143 ... £ Y8		NEW Right-hand 84 144 ... £ Y8	
25	35	32	17	3	DC.. 11T3	357.36	**02500**	357.36	**02500**
32	35	40	22	3	DC.. 11T3	363.59	**03200**	363.59	**03200**
40	40	50	27	3	DC.. 11T3	369.83	**04000**	369.83	**04000**

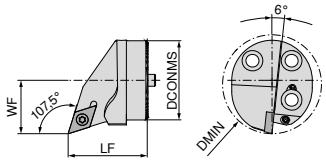


Clamping screw

Spare parts for Article no.	84 950 ... £ Y8	
84 144 02500 / 84 143 02500	6.97	**27600**
84 144 03200 / 84 143 03200	6.97	**27600**
84 144 04000 / 84 143 04000	6.97	**27600**

Exchangeable cutting head SDQC 107.5°







Illustrations show right-hand versions

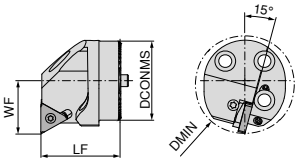
DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 145 ... £ Y8		NEW Right-hand 84 146 ... £ Y8	
25	35	32	17	3	DC.. 11T3	357.36	**02500**	357.36	**02500**
32	35	40	22	3	DC.. 11T3	363.59	**03200**	363.59	**03200**
40	40	50	27	3	DC.. 11T3	369.83	**04000**	369.83	**04000**

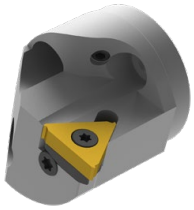


Clamping screw

Spare parts for Article no.	84 950 ... £ Y8	
84 146 02500 / 84 145 02500	6.97	**27600**
84 146 03200 / 84 145 03200	6.97	**27600**
84 146 04000 / 84 145 04000	6.97	**27600**

Exchangeable cutting head for internal thread





Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 167 ... £ Y8		NEW Right-hand 84 168 ... £ Y8	
25	35	32	17	2	16 ..	474.47	**02500**	474.47	**02500**
32	35	40	22	2	16 ..	494.80	**03200**	494.80	**03200**
40	40	50	27	2	16 ..	520.67	**04000**	520.67	**04000**

Suitable internal thread inserts can be found in → **Chapter 8 – Thread Turning, pages 6-30**

Spare parts for Article no.	 Shim 84 950 ... £ Y8			 Clamping Screw 84 950 ... £ Y8		 Clamping screw 84 950 ... £ Y8	
84 168 02500	62.07	**29500**	UNC5x7,3	12.50	**29700**	12.50	**29400**
84 167 02500	62.07	**29600**	UNC5x7,3	12.50	**29700**	12.50	**29400**
84 168 03200	62.07	**29500**	UNC5x7,3	12.50	**29700**	12.50	**29400**
84 167 03200	62.07	**29600**	UNC5x7,3	12.50	**29700**	12.50	**29400**
84 168 04000	62.07	**29500**	UNC5x7,3	12.50	**29700**	12.50	**29400**
84 167 04000	62.07	**29600**	UNC5x7,3	12.50	**29700**	12.50	**29400**

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values

			DRAGONSKIN														
	TCM407	TCM10	CTEP110	CTCP115	CTCP125	CTCP135	CTCK110	CTCK120	CTPM125	CTCM120	CTCM130	CTPX710 -M34	CTPX710 -25P/-25Q	CTPX715 -27	H210T	H10T/ H216T	CWN15
Index	v_c in m/min																
P.1.1	**379**	**309**	**463**	**370**	**295**	**210**	395	328	203	229	184	**325**	**340**	**275**			
P.1.2	**328**	**266**	**404**	**315**	**250**	**175**	344	281	171	200	152	**286**	**300**	**236**			
P.1.3	**280**	**227**	**348**	**270**	**210**	**145**	297	238	142	173	123	**250**	**260**	**200**			
P.1.4	**265**	**213**	**330**	**250**	**200**	**135**	281	223	132	164	113	**238**	**250**	**188**			
P.1.5	**241**	**193**	**302**	**230**	**180**	**120**	258	202	118	150	98	**220**	**235**	**170**			
P.2.1	**336**	**273**	**413**	**325**	**260**	**180**	352	288	176	204	157	**292**	**300**	**242**			
P.2.2	**261**	**210**	**325**	**250**	**195**	**130**	278	220	130	161	110	**235**	**250**	**185**			
P.2.3	**241**	**193**	**302**	**230**	**180**	**120**	258	202	118	150	98	**220**	**235**	**170**			
P.2.4	**182**	**144**	**233**	**170**	**130**	**85**	199	148	81	116	61	**175**	**190**	**125**			
P.3.1	**281**	**219**	**344**	**200**	**170**	**150**	273	220	142	159	124	**140**	**150**	**138**			
P.3.2	**224**	**167**	**278**	**140**	**105**	**95**	225	176	97	116	81	**85**	**95**	**81**			
P.3.3	**167**	**114**	**213**	**85**	**40**	**35**	178	131	51	73	38	**30**	**35**	**24**			
P.4.1	**281**	**219**	**344**	**200**	**170**	**155**			142	159	124	**140**	**155**	**138**			
P.4.2	**253**	**193**	**311**	**170**	**135**	**125**			119	138	103	**113**	**130**	**109**			
M.1.1	281	219	344			155			**142**	**159**	**124**	**140**	**150**	**138**			100
M.2.1						95			**97**	**116**	**81**	**85**	**90**	**81**			55
M.3.1						135			**128**	**146**	**111**	**124**	**130**	**120**			85
K.1.1			410	255	170		**400**	**275**						200	170	140	
K.1.2			310	235	160		**310**	**265**						160	130	115	
K.2.1	355	260	440	270	180		**320**	**290**						190	180	150	
K.2.2	315	215	350	205	160		**275**	**230**						150	130	110	
K.3.1	325	300	415	250	200		**310**	**275**						210	190	170	
K.3.2	250	205	250	210	160		**265**	**230**						180	160	140	
N.1.1												1840	**1840**	**1750**	**1650**	**1400**	**1650**
N.1.2												1600	**1600**	**1500**	**1350**	**1100**	**1400**
N.2.1												1250	**1250**	**1200**	**1200**	**950**	**1250**
N.2.2												1250	**1250**	**1200**	**1100**	**950**	**1200**
N.2.3												750	**750**	**700**	**600**	**500**	**750**
N.3.1												650	**650**	**625**	**525**	**425**	**600**
N.3.2												630	**630**	**600**	**500**	**400**	**570**
N.3.3												500	**500**	**475**	**375**	**275**	**460**
N.4.1												340	**340**	**325**	**275**	**225**	**280**
S.1.1											35	**100**	**110**	**40**	43		
S.1.2											26	**80**	**85**	**30**	33		
S.2.1											20	**63**	**75**	**30**	33		
S.2.2											20	**40**	**45**	**24**	25		
S.2.3											18	**38**	**43**	**20**	20		
S.3.1											110	**95**	**100**	**110**	110		
S.3.2											63	**55**	**60**	**70**	70		
S.3.3											45	**40**	**45**	**50**	50		
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1														140	160	130	
O.1.2																	
O.2.1														150	140	105	
O.2.2																	
O.3.1																	

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

9

Cutting data standard values

	CT-P15	CT-P25	CT-P35
Index	v_c in m/min		
P.1.1	**290**	**235**	**165**
P.1.2	**250**	**200**	**140**
P.1.3	**215**	**170**	**115**
P.1.4	**200**	**160**	**110**
P.1.5	**185**	**145**	**100**
P.2.1	**260**	**210**	**145**
P.2.2	**200**	**155**	**105**
P.2.3	**185**	**145**	**95**
P.2.4	**135**	**105**	**65**
P.3.1	**160**	**135**	**120**
P.3.2	**115**	**85**	**75**
P.3.3	**65**	**34**	**26**
P.4.1	**160**	**135**	**120**
P.4.2	**140**	**110**	**100**
M.1.1	150	130	120
M.2.1	125	105	75
M.3.1	140	120	110
K.1.1			
K.1.2			
K.2.1			
K.2.2			
K.3.1			
K.3.2			
N.1.1			
N.1.2			
N.2.1			
N.2.2			
N.2.3			
N.3.1			
N.3.2			
N.3.3			
N.4.1			
S.1.1			
S.1.2			
S.2.1			
S.2.2			
S.2.3			
S.3.1			
S.3.2			
S.3.3			
H.1.1			
H.1.2			
H.1.3			
H.1.4			
H.2.1			
H.3.1			
O.1.1			
O.1.2			
O.2.1			
O.2.2			
O.3.1			

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Machinability of non-ferrous metals with carbide indexable inserts

	Material group	Material examples			Machinability of aluminium alloys *	Comments
N	Pure aluminium	non hardenable	Al 99,5	W7	5	▲ Snarl chips ▲ Possibly bad surface ▲ Excessive built-up edge ▲ Long tool life ▲ Use coolant emulsion
			Al 99,5	F13	4	
			Al 99	W8	5	
			Al 99	F14	4	
	Aluminium wrought alloys	non hardenable	Al Mn	W10	5	▲ Snarl, continuous or fragmented chip ▲ Large feed rates necessary for good swarf control ▲ Built-up edge ▲ Long tool life ▲ Emulsion coolant is advantageous
			Al Mn	F16	4	
			Al Mg 1	W10	5	
			Al Mg 1	F19	4	
			Al Mg 3	W18	4	
			Al Mg 3	F25	3	
			Al Mg 5	W25	4	
			AL Mg 5	F28	2	
			Al Mg 4,5 Mn	W27	4	
			Al Mg 4,5 Mn	G35	3	
		hardenable	Al Mg Si 0,5	W	4	▲ Good swarf control with higher feed rates
			Al Mg Si 0,5	F13-25	3	
			Al Mg Si 1	W	4	
			Al Mg Si 1	F21-30	3	
			Al Mg Si Pb	F20-28	2	▲ Very good swarf control ▲ No built up edge ▲ Very good surface quality
			Al Cu Si Pb	F28-37	1	
			Al Cu Mg Pb	F34-37	1	
			Al Cu Mg 1	W	3	▲ Good swarf control ▲ Good surface quality ▲ Little built-up edge
			Al Cu Mg 1	F33-40	2	
			Al Cu Mg 2	W	3	
			Al Cu Mg 2	F40-47	2	
			Al Cu Si Mn	W	3	
			Al Cu Si Mn	F43-46	2	
			Al Zn Mg Cu 1,5	F50-52	2	
			Al Sn 6 Cu		1	
	Cast Aluminium Alloys	non hardenable	G-Al Si 12		3	▲ Good swarf control ▲ Built-up edge ▲ Higher Si content results in lower tool life
			G-Al Si 10 Mg		3	
			G-Al Si 5 Mg		2	
			G-Al Si 7 Mg (9 Mg)		2	
			G-Al Si Cu 3		2	▲ High wear of the carbide
			G-Al Si 6 Cu 4		2	
			G-Al Mg 3 (Mg 5)		2	▲ Good swarf control ▲ Good surface quality ▲ Long tool life
			G-Al Mg 9		2	
			G-Al Mg 10		2	
			G-Al Mg 3 Si (5 Si)		2	
			G-Al Cu 4 Ti (Mg)		2	
			G-Al Si 12 Cu Mg Ni		2	
	Copper wrought alloys		Cu Ag			
			Cu As			
			Cu Cd			
			Cu Cd Sn			
			Cu Mg			
			Cu Mn			
		brass	Cu Zn Al			
		bronze	Cu Sn			
			Cu Sn Zn			
			Cu Ni			
			Cu Ni Fe			
			Cu Al			
O	Non metal materials	Duroplastics				
		Fibre-reinforced plastics				
		hard rubber				

* 1 = good machinability, 5 = bad machinability

9

Cutting data values for CBN inserts

			CTB S05U					
	Cutting edges code negative insert*		EN			F / TN-F		
	Cutting edges code positive insert*		EN			TN-D		
Index	Material	Strength N/mm²* / HB / HRC	v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)							
	general sintered steel (> HV300)							
	high density sintered steel (> HV600)							
K.1.1	Grey cast iron	350 N/mm² / 180 HB	900–1600	0,02–0,25	0,15–4,5	900–1600	0,02–0,25	0,15–4,5
K.1.2		500 N/mm² / 260 HB	900–1600	0,02–0,25	0,15–4,5	900–1600	0,02–0,25	0,15–4,5
K.2.1	Spherulitic graphite cast iron	540 N/mm² / 160 HB	1000–1750	0,02–0,25	0,15–4,5	1000–1750	0,02–0,25	0,15–4,5
K.2.2		845 N/mm² / 250 HB	1000–1750	0,02–0,25	0,15–4,5	1000–1750	0,02–0,25	0,15–4,5
K.3.1	Malleable iron	440 N/mm² / 130 HB	1000–1750	0,02–0,25	0,15–4,5	1000–1750	0,02–0,25	0,15–4,5
K.3.2		780 N/mm² / 220 HB	1000–1750	0,02–0,25	0,15–4,5	1000–1750	0,02–0,25	0,15–4,5
S.1.1	Heat-resistant alloys	680 N/mm² / 200 HB						
S.1.2		950 N/mm² / 280 HB						
S.2.1		840 N/mm² / 250 HB						
S.2.2		1180 N/mm² / 350 HB						
S.2.3		1080 N/mm² / 320 HB						
S.3.1	Titanium alloys	400 N/mm²						
S.3.2		1050 N/mm² / 320 HB						
S.3.3		1400 N/mm² / 410 HB						

* Tensile strength

			CTB S10U / CTB S10C					
	Cutting edges code negative insert*		EN			F / FN		
	Cutting edges code positive insert*		EN / FN			TN-D		
Index	Material	Strength N/mm²* / HB / HRC	v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		250–750	0,02–0,25	0,02–0,4	210–550	0,08–0,35	0,1–0,4
	general sintered steel (> HV300)		200–700	0,02–0,25	0,02–0,4	150–400	0,08–0,35	0,1–0,4
	high density sintered steel (> HV600)		150–350	0,02–0,25	0,02–0,4	100–220	0,08–0,35	0,1–0,4
K.1.1	Grey cast iron	350 N/mm² / 180 HB	900–1600	0,02–0,25	0,05–0,25	700–1200	0,08–0,35	0,08–0,4
K.1.2		500 N/mm² / 260 HB	900–1600	0,02–0,25	0,05–0,25	700–1200	0,08–0,35	0,08–0,4
K.2.1	Spherulitic graphite cast iron	540 N/mm² / 160 HB	1000–1750	0,02–0,25	0,02–0,25	800–1250	0,08–0,35	0,08–0,4
K.2.2		845 N/mm² / 250 HB	1000–1750	0,02–0,25	0,02–0,25	800–1250	0,08–0,35	0,08–0,4
K.3.1	Malleable iron	440 N/mm² / 130 HB	1000–1750	0,02–0,25	0,02–0,25	800–1250	0,08–0,35	0,08–0,4
K.3.2		780 N/mm² / 220 HB	1000–1750	0,02–0,25	0,02–0,25	800–1250	0,08–0,35	0,08–0,4
S.1.1	Heat-resistant alloys	680 N/mm² / 200 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.1.2		950 N/mm² / 280 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.2.1		840 N/mm² / 250 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.2.2		1180 N/mm² / 350 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.2.3		1080 N/mm² / 320 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.3.1	Titanium alloys	400 N/mm²						
S.3.2		1050 N/mm² / 320 HB						
S.3.3		1400 N/mm² / 410 HB						

* Tensile strength

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

CTB S10C								
TN-B			TN-C			TN-D / TN-E		
SN-B			SN-C / TN-C			TN-D / SN-D		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
200-400	0,05-0,4	0,06-0,4	150-350	0,06-0,5	0,08-0,5	150-300	0,1-0,35	0,1-0,4
350-550	0,05-0,4	0,06-0,4	300-500	0,06-0,5	0,08-0,5	250-450	0,1-0,35	0,1-0,4
300-500	0,05-0,4	0,06-0,4	200-400	0,06-0,5	0,08-0,5	200-400	0,1-0,35	0,1-0,4
750-1200	0,05-0,4	0,06-0,4	800-1300	0,06-0,5	0,08-0,5	600-1100	0,1-0,35	0,1-0,4
750-1200	0,05-0,4	0,06-0,4	800-1300	0,06-0,5	0,08-0,5	600-1100	0,1-0,35	0,1-0,4
750-1200	0,05-0,4	0,06-0,4	800-1300	0,06-0,5	0,08-0,5	600-1100	0,1-0,35	0,1-0,4
750-1200	0,05-0,4	0,06-0,4	800-1300	0,06-0,5	0,08-0,5	600-1100	0,1-0,35	0,1-0,4
750-1200	0,05-0,4	0,06-0,4	800-1300	0,06-0,5	0,08-0,5	600-1100	0,1-0,35	0,1-0,4
750-1200	0,05-0,4	0,06-0,4	800-1300	0,06-0,5	0,08-0,5	600-1100	0,1-0,35	0,1-0,4
400-600	0,05-0,4	0,06-0,4	300-500	0,06-0,5	0,08-0,5	250-450	0,1-0,35	0,1-0,4
400-600	0,05-0,4	0,06-0,4	300-500	0,06-0,5	0,08-0,5	250-450	0,1-0,35	0,1-0,4
400-600	0,05-0,4	0,06-0,4	300-500	0,06-0,5	0,08-0,5	250-450	0,1-0,35	0,1-0,4
400-600	0,05-0,4	0,06-0,4	300-500	0,06-0,5	0,08-0,5	250-450	0,1-0,35	0,1-0,4
400-600	0,05-0,4	0,06-0,4	300-500	0,06-0,5	0,08-0,5	250-450	0,1-0,35	0,1-0,4

CCGW 120404 FN-...

CTB H15U / CT
FN
FN
1,6 - 6,4

v_c	f	a_p
0-240	0,03-0,15	0,06
240	0,03-0,15	0,0
	0,03-0,15	

Cutting data values for CBN inserts

			CTB S20C / CTB S20U					
	Cutting edges code negative insert*		EN / FN			SN-B		
	Cutting edges code positive insert*		EN / FN			SN-B		
Index	Material	Strength N/mm²* / HB / HRC	v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		250–750	0,02–0,25	0,02–0,4	250–700	0,04–0,25	0,03–0,4
	general sintered steel (> HV300)		200–700	0,02–0,25	0,02–0,4	200–700	0,04–0,25	0,03–0,4
	high density sintered steel (> HV600)		150–350	0,02–0,25	0,02–0,4	150–350	0,04–0,25	0,03–0,4
K.1.1	Grey cast iron	350 N/mm² / 180 HB	800–1450	0,02–0,25	0,05–0,25	700–1400	0,04–0,25	0,05–0,25
K.1.2		500 N/mm² / 260 HB	800–1450	0,02–0,25	0,05–0,25	700–1400	0,04–0,25	0,05–0,25
K.2.1	Spherulitic graphite cast iron	540 N/mm² / 160 HB	900–1600	0,02–0,25	0,05–0,25	800–1600	0,04–0,25	0,05–0,25
K.2.2		845 N/mm² / 250 HB	900–1600	0,02–0,25	0,05–0,25	800–1600	0,04–0,25	0,05–0,25
K.3.1	Malleable iron	440 N/mm²/ 130 HB	900–1600	0,02–0,25	0,05–0,25	800–1600	0,04–0,25	0,05–0,25
K.3.2		780 N/mm² / 220 HB	900–1600	0,02–0,25	0,05–0,25	800–1600	0,04–0,25	0,05–0,25
S.1.1	Heat-resistant alloys	680 N/mm² / 200 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.1.2		950 N/mm² / 280 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.2.1		840 N/mm² / 250 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.2.2		1180 N/mm² / 350 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.2.3		1080 N/mm² / 320 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.3.1	Titanium alloys	400 N/mm²						
S.3.2		1050 N/mm² / 320 HB						
S.3.3		1400 N/mm² / 410 HB						

* Tensile strength

			CTB S20C / CTB S20U					
	Cutting edges code negative insert*					SN-E		
	Cutting edges code positive insert*		TN-E			SN-E		
Index	Material	Strength N/mm²* / HB / HRC	v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		210–550	0,08–0,35	0,1–0,4	200–520	0,1–0,35	0,1–0,4
	general sintered steel (> HV300)		150–400	0,08–0,35	0,1–0,4	130–350	0,1–0,35	0,1–0,4
	high density sintered steel (> HV600)		100–220	0,08–0,35	0,1–0,4	100–200	0,1–0,35	0,1–0,4
K.1.1	Grey cast iron	350 N/mm² / 180 HB	550–1000	0,08–0,35	0,08–0,4	550–950	0,1–0,35	0,1–0,4
K.1.2		500 N/mm² / 260 HB	550–1000	0,08–0,35	0,08–0,4	550–950	0,1–0,35	0,1–0,4
K.2.1	Spherulitic graphite cast iron	540 N/mm² / 160 HB	700–1200	0,08–0,35	0,08–0,4	700–1100	0,1–0,35	0,1–0,4
K.2.2		845 N/mm² / 250 HB	700–1200	0,08–0,35	0,08–0,4	700–1100	0,1–0,35	0,1–0,4
K.3.1	Malleable iron	440 N/mm²/ 130 HB	700–1200	0,08–0,35	0,08–0,4	700–1100	0,1–0,35	0,1–0,4
K.3.2		780 N/mm² / 220 HB	700–1200	0,08–0,35	0,08–0,4	700–1100	0,1–0,35	0,1–0,4
S.1.1	Heat-resistant alloys	680 N/mm² / 200 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.1.2		950 N/mm² / 280 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.2.1		840 N/mm² / 250 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.2.2		1180 N/mm² / 350 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.2.3		1080 N/mm² / 320 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.3.1	Titanium alloys	400 N/mm²						
S.3.2		1050 N/mm² / 320 HB						
S.3.3		1400 N/mm² / 410 HB						

* Tensile strength

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

CTB S20C / CTB S20U								
			SN-C / TN-C			SN-D		
SN-C / TN-C			TN-D			SN-D		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
250-650	0,05-0,25	0,06-0,4	250-600	0,05-0,35	0,06-0,4	220-580	0,06-0,35	0,08-0,4
200-600	0,05-0,25	0,06-0,4	180-550	0,05-0,35	0,06-0,4	170-510	0,06-0,35	0,08-0,4
150-350	0,05-0,25	0,06-0,4	130-300	0,05-0,35	0,06-0,4	120-250	0,06-0,35	0,08-0,4
650-1300	0,05-0,25	0,06-0,4	650-1100	0,05-0,35	0,06-0,4	600-1000	0,06-0,35	0,08-0,5
650-1300	0,05-0,25	0,06-0,4	650-1100	0,05-0,35	0,06-0,4	600-1000	0,06-0,35	0,08-0,5
780-1400	0,05-0,25	0,06-0,4	750-1300	0,05-0,35	0,06-0,4	700-1250	0,06-0,35	0,08-0,5
780-1400	0,05-0,25	0,06-0,4	750-1300	0,05-0,35	0,06-0,4	700-1250	0,06-0,35	0,08-0,5
780-1400	0,05-0,25	0,06-0,4	750-1300	0,05-0,35	0,06-0,4	700-1250	0,06-0,35	0,08-0,5
780-1400	0,05-0,25	0,06-0,4	750-1300	0,05-0,35	0,06-0,4	700-1250	0,06-0,35	0,08-0,5
200-550	0,05-0,25	0,06-0,4	180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5
200-550	0,05-0,25	0,06-0,4	180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5
200-550	0,05-0,25	0,06-0,4	180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5
200-550	0,05-0,25	0,06-0,4	180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5
200-550	0,05-0,25	0,06-0,4	180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5

CTB S20C / CTB S20U		
SN-F		
SN-F		
v_c	f	a_p
180-480	0,12-0,35	0,12-0,4
80-250	0,12-0,35	0,12-0,4
80-150	0,12-0,35	0,12-0,4
500-850	0,12-0,35	0,12-0,4
500-850	0,12-0,35	0,12-0,4
650-1000	0,12-0,35	0,12-0,4
650-1000	0,12-0,35	0,12-0,4
650-1000	0,12-0,35	0,12-0,4
650-1000	0,12-0,35	0,12-0,4
130-300	0,12-0,35	0,12-0,4
130-300	0,12-0,35	0,12-0,4
130-300	0,12-0,35	0,12-0,4
130-300	0,12-0,35	0,12-0,4
130-300	0,12-0,35	0,12-0,4

CCGW 120404 FN-...

CTB H15U / CT		
FN		
FN		
1,6 - 6,4		
v_c	f	a_p
0-240	0,03-0,15	0,06
240	0,03-0,15	0,0
	0,03-0,15	

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Cutting data values for CBN inserts

					CTB H15U / CTB H15C					
		Cutting edges code negative insert*			FN			EN		
		Cutting edges code positive insert*			FN			EN		
			Ra (theo.)		1,6–6,4			1,0–3,2		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.1.2		56–60 HRC	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.1.3		61–65 HRC	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.1.4		66–70 HRC	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.2.1	Chilled iron	400 HB	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.3.1	Hardened cast iron	55 HRC								

					CTB H21U / CTB H20C / CTB H21C					
		Cutting edges code negative insert*			FN			TN-C		
		Cutting edges code positive insert*			EN / FN			TN-C		
			Ra (theo.)		1,6–6,4			1,0–4,5		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.1.2		56–60 HRC	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.1.3		61–65 HRC	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.1.4		66–70 HRC	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.2.1	Chilled iron	400 HB	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.3.1	Hardened cast iron	55 HRC								

					CTB H21U / CTB H20C / CTB H21C					
		Cutting edges code negative insert*			TN-E / SN-E			SN-F		
		Cutting edges code positive insert*			TN-E			TN-F / SN-E		
			Ra (theo.)		0,35–1,6			0,2–0,8		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.1.2		56–60 HRC	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.1.3		61–65 HRC	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.1.4		66–70 HRC	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.2.1	Chilled iron	400 HB	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.3.1	Hardened cast iron	55 HRC								

					CTB H40U / CTB H40C / CTB H41U / CTB H41C					
		Cutting edges code negative insert*			FN / EN					
		Cutting edges code positive insert*			FN / EN			SN-B / TN-B		
			Ra (theo.)		1,0–3,2			1,6–3,2		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.1.2		56–60 HRC	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.1.3		61–65 HRC	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.1.4		66–70 HRC	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.2.1	Chilled iron	400 HB	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.3.1	Hardened cast iron	55 HRC								

					CTB H40U / CTB H40C / CTB H41U / CTB H41C					
		Cutting edges code negative insert*			EN-T / SN-E			TN-E / SN-E		
		Cutting edges code positive insert*			EN-T / TN-E / SN-E			TN-F		
			Ra (theo.)		0,5–1,6			0,4–1,0		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.1.2		56–60 HRC	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.1.3		61–65 HRC	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.1.4		66–70 HRC	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.2.1	Chilled iron	400 HB	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.3.1	Hardened cast iron	55 HRC								

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

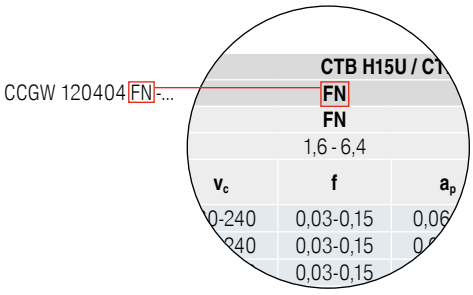
CTB H15U / CTB H15C								
SN-C			**SN-E**			**RN** (Rounded chamfer)		
SN-C			**SN-E**			**RN** (Rounded chamfer)		
0,5-1,6			0,1-0,8			0,1-0,8		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
140-200	0,06-0,2	0,08-0,3	120-180	0,06-0,25	0,1-0,4	130-210	0,06-0,2	0,08-0,3
140-200	0,06-0,2	0,08-0,3	120-180	0,06-0,25	0,1-0,4	130-210	0,06-0,2	0,08-0,3
140-200	0,06-0,2	0,08-0,3	120-180	0,06-0,25	0,1-0,4	130-210	0,06-0,2	0,08-0,3
140-200	0,06-0,2	0,08-0,3	120-180	0,06-0,25	0,1-0,4	130-210	0,06-0,2	0,08-0,3
140-200	0,06-0,2	0,08-0,3	120-180	0,06-0,25	0,1-0,4	130-210	0,06-0,2	0,08-0,3

CTB H21U / CTB H20C / CTB H21C								
TN-D			**TN-D / SN-D**			**TN-E**		
SN-B			**TN-D / SN-C**			**SN-D**		
0,8-3,0			0,5-2,0			0,35-2,5		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
270-330	0,06-0,25	0,05-0,5	250-320	0,06-0,25	0,08-1,0	220-290	0,05-0,15	0,08-0,5
270-330	0,06-0,25	0,05-0,5	250-320	0,06-0,25	0,08-1,0	220-290	0,05-0,15	0,08-0,5
270-330	0,06-0,25	0,05-0,5	250-320	0,06-0,25	0,08-1,0	220-290	0,05-0,15	0,08-0,5
270-330	0,06-0,25	0,05-0,5	250-320	0,06-0,25	0,08-1,0	220-290	0,05-0,15	0,08-0,5
270-330	0,06-0,25	0,05-0,5	250-320	0,06-0,25	0,08-1,0	220-290	0,05-0,15	0,08-0,5

CTB H21U / CTB H20C / CTB H21C		
SN-G		
TN-G / SN-F		
0,1-0,5		
v_c	f	a_p
160-200	0,05-0,12	0,1-0,5
160-200	0,05-0,12	0,1-0,5
160-200	0,05-0,12	0,1-0,5
160-200	0,05-0,12	0,1-0,5
160-200	0,05-0,12	0,1-0,5

CTB H40U / CTB H40C / CTB H41U / CTB H41C								
SN-C			**SN-D**					
SN-C / TN-D			**SN-D**			**TN-D**		
0,8-3,0			0,8-2,0			0,5-1,6		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
180-240	0,04-0,15	0,03-0,5	160-220	0,04-0,15	0,03-0,5	150-210	0,04-0,25	0,08-0,5
180-240	0,04-0,15	0,03-0,5	160-220	0,04-0,15	0,03-0,5	150-210	0,04-0,25	0,08-0,5
180-240	0,04-0,15	0,03-0,5	160-220	0,04-0,15	0,03-0,5	150-210	0,04-0,25	0,08-0,5
180-240	0,04-0,15	0,03-0,5	160-220	0,04-0,15	0,03-0,5	150-210	0,04-0,25	0,08-0,5
180-240	0,04-0,15	0,03-0,5	160-220	0,04-0,15	0,03-0,5	150-210	0,04-0,25	0,08-0,5

CTB H40U / CTB H40C / CTB H41U / CTB H41C					
TN-F / SN-F			**SN-G**		
SN-F			**SN-G**		
0,2-0,8			0,1-0,5		
v_c	f	a_p	v_c	f	a_p
130-200	0,04-0,15	0,1-0,5	120-190	0,04-0,12	0,1-0,5
130-200	0,04-0,15	0,1-0,5	120-190	0,04-0,12	0,1-0,5
130-200	0,04-0,15	0,1-0,5	120-190	0,04-0,12	0,1-0,5
130-200	0,04-0,15	0,1-0,5	120-190	0,04-0,12	0,1-0,5
130-200	0,04-0,15	0,1-0,5	120-190	0,04-0,12	0,1-0,5



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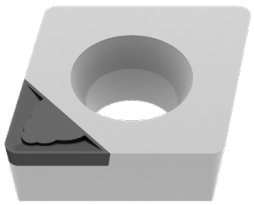
Cutting data standard values for diamond cutting materials CTD PD20 / PS30 / PU20 / CD10 / MD05

Index	Material group			a_p = 0,04–0,4 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,04–0,4 mm Surface roughness R_z in µm 5,0–10	a_p = 0,4–1,0 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,4–1,0 mm Surface roughness R_z in µm 5,0–10	a_p = 0,4–2,5 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,4–2,5 mm Surface roughness R_z in µm 5,0–10
				CTD ...	CTD ...	CTD ...	CTD ...	CTD ...	CTD ...
N.1.1 N.1.2	Aluminium wrought alloys without Si f=0.05–0.5 mm/rev.	○	Tool Material	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05
			v_c in m/min	**400–2500**	**400–2500**	**400–2000**	**400–2000**	**400–1600**	**400–1600**
		◐	Tool Material		PD20 / CD10		PD20 / CD10		PD20 / CD10
			v_c in m/min		**400–2500**		**400–2000**		**400–1600**
		◌	Tool Material	PD20 / PU20	PD20 / PU20	PD20 / PU20	PD20 / PU20	PD20 / PU20	PD20 / PU20
			v_c in m/min	**400–2500**	**400–2500**	**400–2000**	**400–2000**	**400–1600**	**400–1600**
N.2.1	Cast Aluminium Alloys Si≤12 % – hardened or Si=12–20% – non hardened f=0,05–0,5 mm/rev.	○	Tool Material	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05
			v_c in m/min	**600–2000**	**600–2200**	**600–1800**	**600–2000**	**600–1500**	**600–1800**
		◐	Tool Material	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10
			v_c in m/min	**400–2000**	**400–2200**	**400–1800**	**600–2000**	**400–1500**	**400–1800**
		◌	Tool Material	PS30	PS30	PS30	PS30	PS30	
			v_c in m/min	**600–2000**	**600–2200**	**600–1800**	**600–2000**	**600–1500**	
N.2.2 N.2.3	Aluminium cast alloys Si=12–20 % f=0.05–0.5 mm/rev.	○	Tool Material	PU20 / CD10 / MD05	PU20 / CD10 / MD05	PU20 / CD10 / MD05	PU20 / CD10 / MD05	PU20 / CD10 / MD05	PU20 / CD10 / MD05
			v_c in m/min	**800-1200**	**400–1800**	**700–1000**	**400–1500**	**600–900**	**400–1200**
		◐	Tool Material		PU20 / CD10		PU20 / CD10		PU20 / CD10
			v_c in m/min		**600–1800**		**600–1500**		**600–1200**
		◌	Tool Material		PU20		PU20		
			v_c in m/min		**600–1800**		**600–1500**		
N.3.1 N.3.2 N.3.3	Copper and copper wrought alloys f=0.05–0.5 mm/rev.	○	Tool Material	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05
			v_c in m/min	**400–1800**	**300–1600**	**400–1600**	**300–1600**	**400–1400**	**400–1500**
		◐	Tool Material	PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PS30 / PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10
			v_c in m/min	**300–1500**	**300–1500**	**400–1600**	**300–1500**	**400–1500**	**300–1400**
		◌	Tool Material		PD20 / PU20		PS30 / PU20	PD20 / PU20	PS30 / PU20
			v_c in m/min		**300–1800**		**300–1700**	**300–1600**	**200–1300**
O.1.1 O.1.2	Plastic materials without reinforcement (acrylic glass) f=0.05–0.7 mm/rev.	○	Tool Material		PD20 / CD10 / MD05		PD20 / CD10 / MD05		PS30 / CD10 / MD05
			v_c in m/min		**400–1200**		**300–1000**		**200–1000**
		◐	Tool Material		PD20 / CD10		PD20 / CD10		PS30 / CD10
			v_c in m/min		**300–1200**		**200–1000**		**200–900**
		◌	Tool Material		PD20 / CD10		PD20 / CD10		PD20 / CD10
			v_c in m/min		**400–1200**		**300–1000**		**200–1000**
O.2.1 O.2.2	Plastic materials with reinforcement (glass-fibre, carbon-fibre reinforced) f=0.05–0.7 mm/rev.	○	Tool Material	PS30 / PU20 / CD10 / MD05		PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05
			v_c in m/min	**500–1000**		**400–900**	**300–900**	**300–800**	**200–1200**
		◐	Tool Material	PS30 / PU20 / CD10		PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10
			v_c in m/min	**400–900**		**300–800**	**200–900**	**200–800**	**200–1400**
		◌	Tool Material	PU20		PU20	PU20	PU20	
			v_c in m/min	**500–1000**		**400–800**	**300–1000**	**300–800**	
O.3.1	Graphite		Tool Material	PD20 / PS30 / PU20 / CD10		PD20 / PS30 / PU20 / CD10		PD20 / PS30 / PU20 / CD10	
			v_c in m/min	**100–3000**		**100–3000**		**100–3000**	

○ Smooth cut | ◐ Irregular cutting depth | ◌ Interrupted cut

Cutting data standard values for the CB chip breaker geometries

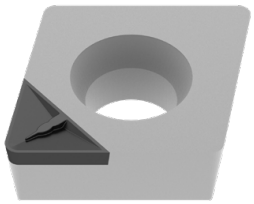
-CB1



3D-Chip Breaker -CB1				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,1 mm	0,05	0,30	0,02	0,05
0,2 mm	0,06	0,40	0,03	0,08
0,4 mm	0,10	0,80	0,04	0,15
0,8 mm	0,15	1,00	0,08	0,20
1,2 mm	0,30	1,50	0,12	0,25

- Finish and Superfinish
- Extremely sharp cutting edge geometry
- Depth of Cut a_p: 0.05–1.5 mm
- Smallest cutting pressure for highest accuracies
- For machining of thin-walled and unstable workpieces

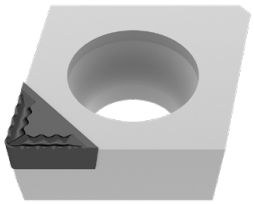
-CB2



3D-Chip Breaker -CB2				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,2 mm	0,50	0,80	0,08	0,12
0,4 mm	0,60	1,50	0,08	0,20
0,8 mm	0,70	1,50	0,15	0,30
1,2 mm	0,80	2,00	0,20	0,40

- Semi-finish and Finish machining
- Negative edge preperation
- Cutting Depth a_p: 0,5–2,0 mm
- High surface quality and tight tolerances
- Machining of solid workpieces under stable conditions

-CB3



3D-Chip Breaker -CB3				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,4 mm	1,00	3,00	0,10	0,20
0,8 mm	1,00	3,00	0,15	0,35

- Medium and rough machining
- Highly aggressive chip breaker
- Cutting depth a_p: 1,0–3,0 mm
- Stable component conditions necessary
- Cooling must be ensured

Cutting data standard values for negative inserts

	Designation	-CF20 (Cermet)						-F50					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304							0,06	**0,15**	0,25	0,2	**0,5**	1,5
	CN.. 090308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	CN.. 120404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	CN.. 120408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	CN.. 120412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	CN.. 120416												
	CN.. 160608												
	CN.. 160612												
	CN.. 160616												
	CN.. 160624												
	CN.. 190608												
	CN.. 190612												
	CN.. 190616												
	CN.. 190624												
	CN.. 250924												
	DN.. 110402							0,04	**0,10**	0,20	0,1	**0,4**	2,3
	DN.. 110404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 110408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 110412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 150408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 150412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150416												
	DN.. 150604	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 150608	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 150612	0,10	**0,20**	0,30	0,5	**0,7**	1,5	0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150616												
	SN.. 090308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	SN.. 120404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	SN.. 120408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	SN.. 120412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	SN.. 120416												
	SN.. 150608												
	SN.. 150612												
	SN.. 150616												
	SN.. 190612												
	SN.. 190616												
	SN.. 190624												
	SN.. 250724												
	SN.. 250924												
	TN.. 110304							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	TN.. 110308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	TN.. 160404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	TN.. 160408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	TN.. 160412	0,10	**0,20**	0,30	0,5	**0,7**	1,5	0,14	**0,25**	0,35	0,6	**1,4**	2,6
	TN.. 220404												
	TN.. 220408												
	TN.. 220412												
	TN.. 220416												
	VN.. 160404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	VN.. 160408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	VN.. 160412												
	WN.. 060404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	WN.. 060408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	WN.. 060412												
	WN.. 080404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	WN.. 080408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	WN.. 080412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	WN.. 080416												

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-TFQ						-XU						-M50					
	f			a_p			f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404	0,10	**0,15**	0,35	0,4	**1,0**	3,0	0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**2,0**	5,0
CN.. 120408	0,10	**0,25**	0,50	0,5	**1,5**	4,0	0,13	**0,25**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**2,0**	5,0
CN.. 120412	0,15	**0,30**	0,70	0,8	**2,0**	5,0	0,15	**0,30**	0,45	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**2,0**	5,0
CN.. 120416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
CN.. 160608													0,15	**0,25**	0,40	0,6	**3,0**	8,0
CN.. 160612													0,20	**0,30**	0,50	1,0	**3,0**	8,0
CN.. 160616													0,25	**0,40**	0,60	1,4	**3,0**	8,0
CN.. 160624																		
CN.. 190608																		
CN.. 190612																		
CN.. 190616																		
CN.. 190624																		
CN.. 250924																		
DN.. 110402																		
DN.. 110404													0,10	**0,20**	0,30	0,4	**1,5**	4,0
DN.. 110408													0,15	**0,25**	0,40	0,6	**1,5**	4,0
DN.. 110412													0,20	**0,30**	0,50	1,0	**1,5**	4,0
DN.. 150404													0,10	**0,20**	0,30	0,4	**2,0**	5,0
DN.. 150408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
DN.. 150412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
DN.. 150416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
DN.. 150604	0,10	**0,15**	0,30	0,4	**1,0**	3,0	0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**2,0**	5,0
DN.. 150608	0,10	**0,25**	0,40	0,5	**1,5**	4,0	0,13	**0,25**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**2,0**	5,0
DN.. 150612							0,15	**0,25**	0,40	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**2,0**	5,0
DN.. 150616													0,25	**0,40**	0,60	1,4	**2,0**	5,0
SN.. 090308																		
SN.. 120404																		
SN.. 120408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
SN.. 120412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
SN.. 120416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
SN.. 150608													0,15	**0,25**	0,40	0,6	**3,0**	8,0
SN.. 150612													0,20	**0,30**	0,50	1,0	**3,0**	8,0
SN.. 150616													0,25	**0,40**	0,60	1,4	**3,0**	8,0
SN.. 190612																		
SN.. 190616																		
SN.. 190624																		
SN.. 250724																		
SN.. 250924																		
TN.. 110304																		
TN.. 110308																		
TN.. 160404													0,10	**0,20**	0,30	0,4	**2,0**	5,0
TN.. 160408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
TN.. 160412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
TN.. 220404																		
TN.. 220408													0,15	**0,25**	0,40	0,6	**3,0**	8,0
TN.. 220412													0,20	**0,30**	0,50	1,0	**3,0**	8,0
TN.. 220416																		
VN.. 160404							0,08	**0,15**	0,20	0,3	**1,0**	1,8	0,10	**0,20**	0,30	0,4	**1,0**	4,0
VN.. 160408							0,13	**0,20**	0,30	0,6	**1,5**	2,5	0,15	**0,25**	0,40	0,6	**1,0**	4,0
VN.. 160412													0,20	**0,30**	0,50	1,0	**1,0**	4,0
WN.. 060404	0,10	**0,18**	0,35	0,4	**0,8**	3,0							0,10	**0,20**	0,30	0,4	**1,0**	3,0
WN.. 060408	0,10	**0,20**	0,50	0,5	**1,5**	3,0							0,15	**0,25**	0,40	0,6	**1,0**	3,0
WN.. 060412													0,20	**0,30**	0,50	1,0	**1,0**	3,0
WN.. 080404							0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**1,5**	4,0
WN.. 080408	0,10	**0,25**	0,50	0,5	**1,5**	4,0	0,13	**0,22**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**1,5**	4,0
WN.. 080412	0,15	**0,30**	0,70	0,8	**2,0**	5,0	0,15	**0,25**	0,45	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**1,5**	4,0
WN.. 080416													0,25	**0,40**	0,60	1,4	**1,5**	4,0

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

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Cutting data standard values for negative inserts

	Designation	-TMQ						-M70					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304												
	CN.. 090308												
	CN.. 120404												
	CN.. 120408	0,20	**0,40**	0,65	0,8	**3,0**	5,0	0,20	**0,30**	0,45	0,8	**3,0**	6,0
	CN.. 120412	0,25	**0,50**	0,85	1,0	**3,0**	6,0	0,25	**0,40**	0,60	1,2	**3,0**	6,0
	CN.. 120416							0,30	**0,45**	0,70	1,6	**3,0**	6,0
	CN.. 160608							0,20	**0,30**	0,45	0,8	**4,0**	8,0
	CN.. 160612							0,25	**0,40**	0,60	1,2	**4,0**	8,0
	CN.. 160616							0,30	**0,45**	0,70	1,6	**4,0**	8,0
	CN.. 160624							0,40	**0,70**	1,20	2,4	**4,0**	8,0
	CN.. 190608							0,20	**0,30**	0,45	0,8	**4,5**	9,0
	CN.. 190612							0,25	**0,40**	0,60	1,2	**4,5**	9,0
	CN.. 190616							0,30	**0,45**	0,70	1,6	**4,5**	9,0
	CN.. 190624							0,40	**0,70**	1,20	2,4	**4,5**	9,0
	CN.. 250924							0,40	**0,70**	1,20	2,4	**6,0**	13,0
	DN.. 110402												
	DN.. 110404												
	DN.. 110408							0,20	**0,25**	0,45	0,8	**2,0**	5,0
	DN.. 110412							0,25	**0,35**	0,60	1,2	**2,0**	5,0
	DN.. 150404												
	DN.. 150408							0,20	**0,25**	0,45	0,8	**2,5**	6,0
	DN.. 150412							0,25	**0,35**	0,60	1,2	**2,5**	6,0
	DN.. 150416							0,30	**0,40**	0,70	1,6	**2,5**	6,0
	DN.. 150604												
	DN.. 150608	0,15	**0,30**	0,50	0,8	**2,5**	5,0	0,20	**0,25**	0,45	0,8	**2,5**	6,0
	DN.. 150612	0,20	**0,40**	0,60	1,0	**3,0**	5,0	0,25	**0,35**	0,60	1,2	**2,5**	6,0
	DN.. 150616							0,30	**0,40**	0,70	1,6	**2,5**	6,0
	SN.. 090308												
	SN.. 120404												
	SN.. 120408							0,20	**0,30**	0,50	0,8	**3,0**	6,0
	SN.. 120412							0,25	**0,40**	0,65	1,2	**3,0**	6,0
	SN.. 120416							0,30	**0,45**	0,70	1,6	**3,0**	6,0
	SN.. 150608												
	SN.. 150612							0,25	**0,40**	0,65	1,2	**4,0**	8,0
	SN.. 150616							0,30	**0,45**	0,75	1,6	**4,0**	8,0
	SN.. 190612							0,25	**0,40**	0,65	1,2	**4,5**	9,0
	SN.. 190616							0,30	**0,45**	0,75	1,6	**4,5**	9,0
	SN.. 190624							0,40	**0,70**	1,20	2,4	**4,5**	9,0
	SN.. 250724												
	SN.. 250924							0,40	**0,70**	1,20	2,4	**6,0**	13,0
	TN.. 110304												
	TN.. 110308												
	TN.. 160404												
	TN.. 160408							0,20	**0,25**	0,45	0,8	**2,5**	6,0
	TN.. 160412							0,25	**0,35**	0,60	1,2	**2,5**	6,0
	TN.. 220404							0,15	**0,20**	0,30	0,4	**3,0**	7,0
	TN.. 220408							0,20	**0,25**	0,45	0,8	**3,0**	7,0
	TN.. 220412							0,25	**0,35**	0,60	1,2	**3,0**	7,0
	TN.. 220416							0,30	**0,40**	0,70	1,6	**3,0**	7,0
	VN.. 160404												
	VN.. 160408												
	VN.. 160412												
	WN.. 060404												
	WN.. 060408							0,20	**0,30**	0,45	0,8	**2,0**	4,0
	WN.. 060412							0,25	**0,40**	0,60	1,2	**2,0**	4,0
	WN.. 080404												
	WN.. 080408	0,20	**0,30**	0,65	0,8	**3,0**	5,0	0,20	**0,30**	0,45	0,8	**2,5**	5,0
	WN.. 080412	0,25	**0,40**	0,85	1,0	**3,0**	6,0	0,25	**0,40**	0,60	1,2	**2,5**	5,0
	WN.. 080416							0,30	**0,45**	0,70	1,6	**2,5**	5,0

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-R28						-R58						-R88					
	f			a_p			f			a_p			f			a_p		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404																		
CN.. 120408	0,25	**0,35**	0,55	0,8	**3,0**	7,0	0,25	**0,45**	0,70	1,0	**3,0**	7,0						
CN.. 120412	0,30	**0,45**	0,70	1,0	**3,0**	7,0	0,30	**0,55**	0,85	1,5	**3,0**	7,0						
CN.. 120416	0,30	**0,60**	0,90	1,5	**3,0**	7,0	0,35	**0,65**	1,00	2,0	**3,0**	7,0						
CN.. 160608																		
CN.. 160612	0,30	**0,45**	0,70	1,0	**4,0**	9,0	0,30	**0,55**	0,85	1,5	**4,0**	9,0						
CN.. 160616	0,35	**0,60**	0,90	1,5	**4,0**	9,0	0,35	**0,65**	1,00	2,0	**4,0**	9,0						
CN.. 160624							0,40	**0,75**	1,20	2,5	**4,0**	9,0	0,40	**0,70**	1,20	2,0	**5,0**	9,0
CN.. 190608																		
CN.. 190612	0,30	**0,45**	0,70	1,0	**5,5**	12,0	0,35	**0,55**	0,85	1,5	**5,5**	12,0						
CN.. 190616	0,35	**0,60**	0,90	1,5	**5,5**	12,0	0,40	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,70**	1,00	2,0	**5,0**	12,0
CN.. 190624	0,35	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,75**	1,20	2,5	**5,5**	12,0	0,40	**0,70**	1,20	2,0	**5,0**	12,0
CN.. 250924							0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
DN.. 110402																		
DN.. 110404																		
DN.. 110408																		
DN.. 110412																		
DN.. 150404																		
DN.. 150408																		
DN.. 150412																		
DN.. 150416																		
DN.. 150604																		
DN.. 150608																		
DN.. 150612	0,25	**0,45**	0,70	1,0	**2,5**	6,0	0,30	**0,50**	0,80	1,5	**2,5**	6,0						
DN.. 150616	0,30	**0,60**	0,85	1,5	**2,5**	6,0	0,35	**0,60**	0,90	2,0	**2,5**	6,0						
SN.. 090308																		
SN.. 120404																		
SN.. 120408							0,25	**0,45**	0,70	1,0	**3,0**	7,0						
SN.. 120412							0,30	**0,55**	0,85	1,5	**3,0**	7,0						
SN.. 120416																		
SN.. 150608																		
SN.. 150612	0,30	**0,35**	0,70	1,0	**4,0**	9,0	0,30	**0,55**	0,85	1,5	**4,0**	9,0						
SN.. 150616	0,35	**0,60**	0,90	1,5	**4,0**	9,0	0,35	**0,65**	1,00	2,0	**4,0**	9,0						
SN.. 190612							0,35	**0,55**	0,85	1,5	**5,5**	12,0						
SN.. 190616	0,35	**0,60**	0,90	1,5	**5,5**	12,0	0,40	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,70**	1,00	2,0	**5,0**	12,0
SN.. 190624							0,40	**0,75**	1,20	2,0	**5,5**	12,0	0,40	**0,70**	1,20	2,0	**5,0**	12,0
SN.. 250724	0,35	**0,65**	1,00	2,0	**7,0**	16,0	0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
SN.. 250924	0,35	**0,65**	1,00	2,0	**7,0**	16,0	0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
TN.. 110304																		
TN.. 110308																		
TN.. 160404																		
TN.. 160408																		
TN.. 160412																		
TN.. 220404																		
TN.. 220408																		
TN.. 220412							0,30	**0,50**	0,80	1,5	**3,0**	7,0						
TN.. 220416	0,30	**0,55**	0,85	1,5	**3,0**	7,0												
VN.. 160404																		
VN.. 160408																		
VN.. 160412																		
WN.. 060404																		
WN.. 060408																		
WN.. 060412																		
WN.. 080404																		
WN.. 080408																		
WN.. 080412																		
WN.. 080416																		

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

Cutting data standard values for negative inserts

	Designation	-F30						-M30					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304												
	CN.. 090308												
	CN.. 120404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	CN.. 120408	0,10	**0,22**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	CN.. 120412							0,20	**0,30**	0,50	1,2	**2,5**	5,0
	CN.. 120416							0,25	**0,35**	0,55	1,6	**2,5**	5,0
	CN.. 160608												
	CN.. 160612												
	CN.. 160616												
	CN.. 160624												
	CN.. 190608												
	CN.. 190612												
	CN.. 190616												
	CN.. 190624												
	CN.. 250924												
	DN.. 110402												
	DN.. 110404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	DN.. 110408	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	DN.. 110412							0,20	**0,30**	0,50	1,2	**2,0**	4,5
	DN.. 150404												
	DN.. 150408												
	DN.. 150412												
	DN.. 150416												
	DN.. 150604	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	DN.. 150608	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	5,5
	DN.. 150612							0,20	**0,30**	0,50	1,2	**2,0**	5,5
	DN.. 150616												
	SN.. 090308												
	SN.. 120404	0,10	**0,15**	0,30	0,4	**1,0**	2,0						
	SN.. 120408	0,15	**0,20**	0,40	0,8	**1,5**	2,5	0,20	**0,25**	0,45	1,0	**2,0**	4,5
	SN.. 120412	0,15	**0,20**	0,40	1,2	**1,8**	2,5	0,25	**0,30**	0,50	1,2	**2,0**	5,0
	SN.. 120416												
	SN.. 150608												
	SN.. 150612												
	SN.. 150616												
	SN.. 190612												
	SN.. 190616												
	SN.. 190624												
	SN.. 250724												
	SN.. 250924												
	TN.. 110304												
	TN.. 110308												
	TN.. 160404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	TN.. 160408	0,10	**0,15**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	TN.. 160412							0,20	**0,30**	0,50	1,2	**2,0**	4,5
	TN.. 220404												
	TN.. 220408												
	TN.. 220412												
	TN.. 220416												
	VN.. 160404	0,08	**0,10**	0,20	0,4	**1,0**	2,0						
	VN.. 160408	0,10	**0,15**	0,30	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**1,5**	4,0
	VN.. 160412												
	WN.. 060404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	WN.. 060408	0,10	**0,20**	0,30	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**1,5**	3,5
	WN.. 060412							0,20	**0,30**	0,45	1,2	**1,5**	4,0
	WN.. 080404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	WN.. 080408	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	WN.. 080412							0,20	**0,30**	0,50	1,2	**2,0**	5,0
	WN.. 080416												

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M60						-M34					
	f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm		
CN.. 090304												
CN.. 090308												
CN.. 120404							0,08	**0,12**	0,18	1,0	**1,5**	3,0
CN.. 120408	0,25	**0,30**	0,50	1,5	**2,5**	6,0	0,10	**0,15**	0,35	1,0	**1,8**	3,5
CN.. 120412	0,30	**0,35**	0,55	2,0	**3,0**	6,0	0,13	**0,20**	0,40	1,5	**2,0**	4,0
CN.. 120416	0,30	**0,40**	0,60	2,0	**3,0**	6,0	0,15	**0,25**	0,45	2,0	**3,0**	4,5
CN.. 160608												
CN.. 160612	0,30	**0,35**	0,55	2,0	**3,0**	8,0						
CN.. 160616												
CN.. 160624												
CN.. 190608												
CN.. 190612												
CN.. 190616												
CN.. 190624												
CN.. 250924												
DN.. 110402												
DN.. 110404												
DN.. 110408												
DN.. 110412												
DN.. 150404							0,08	**0,12**	0,18	0,8	**1,2**	2,5
DN.. 150408							0,10	**0,15**	0,30	1,0	**1,8**	3,5
DN.. 150412							0,13	**0,20**	0,38	1,5	**2,0**	4,0
DN.. 150416												
DN.. 150604												
DN.. 150608	0,25	**0,30**	0,45	1,5	**2,5**	6,0	0,10	**0,15**	0,30	1,0	**1,8**	3,5
DN.. 150612	0,30	**0,40**	0,55	1,5	**2,5**	6,0	0,13	**0,20**	0,38	1,5	**2,0**	4,0
DN.. 150616												
SN.. 090308												
SN.. 120404												
SN.. 120408	0,30	**0,35**	0,50	1,5	**2,0**	6,0	0,15	**0,25**	0,40	1,0	**2,0**	4,0
SN.. 120412	0,30	**0,40**	0,55	2,0	**2,5**	6,0	0,15	**0,25**	0,45	1,5	**2,5**	4,5
SN.. 120416	0,30	**0,40**	0,60	2,0	**2,5**	6,0						
SN.. 150608												
SN.. 150612												
SN.. 150616												
SN.. 190612												
SN.. 190616												
SN.. 190624												
SN.. 250724												
SN.. 250924												
TN.. 110304												
TN.. 110308												
TN.. 160404												
TN.. 160408	0,25	**0,25**	0,45	1,5	**2,5**	5,0	0,10	**0,15**	0,35	1,0	**2,0**	4,0
TN.. 160412	0,30	**0,30**	0,55	2,0	**2,5**	5,5						
TN.. 220404							0,10	**0,15**	0,35	1,0	**2,0**	4,0
TN.. 220408							0,13	**0,20**	0,40	1,5	**2,5**	4,0
TN.. 220412												
TN.. 220416							0,15	**0,25**	0,45	2,0	**2,5**	4,5
VN.. 160404							0,07	**0,10**	0,18	0,8	**1,2**	2,0
VN.. 160408							0,10	**0,15**	0,20	1,0	**1,5**	2,5
VN.. 160412							0,13	**0,18**	0,25	1,5	**1,8**	3,0
WN.. 060404												
WN.. 060408	0,25	**0,30**	0,45	1,5	**2,0**	4,0						
WN.. 060412	0,30	**0,35**	0,50	2,0	**2,5**	4,5						
WN.. 080404												
WN.. 080408	0,25	**0,30**	0,50	1,5	**2,0**	5,0	0,10	**0,15**	0,35	1,0	**2,0**	4,0
WN.. 080412	0,30	**0,35**	0,55	2,0	**2,5**	5,5	0,13	**0,20**	0,40	1,5	**2,0**	4,0
WN.. 080416												

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

Cutting data values for positive inserts

	Designation	-CF05						-SF					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CC.. 060200							0,02	**0,035**	0,05	0,1	**0,4**	1,5
	CC.. 060201							0,02	**0,035**	0,05	0,2	**0,4**	1,5
	CC.. 060202	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,03	**0,1**	0,15	0,2	**0,4**	1,5
	CC.. 060204	0,05	**0,10**	0,12	0,1	**0,3**	1,3	0,05	**0,1**	0,2	0,2	**0,6**	1,5
	CC.. 060208							0,05	**0,125**	0,2	0,2	**1**	1,5
	CC.. 09T300							0,02	**0,035**	0,05	0,2	**0,75**	2
	CC.. 09T301							0,02	**0,035**	0,05	0,2	**0,75**	2
	CC.. 09T302	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,05	**0,075**	0,1	0,2	**0,75**	2
	CC.. 09T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,75**	2
	CC.. 09T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,05	**0,125**	0,25	0,4	**1**	2
	CC.. 09T312												
	CC.. 120402							0,05	**0,075**	0,1	0,2	**0,8**	2,5
	CC.. 120404							0,05	**0,12**	0,2	0,2	**1**	2,5
	CC.. 120408							0,08	**0,15**	0,25	0,4	**1**	2,5
	CC.. 120412							0,08	**0,15**	0,25	0,4	**1,5**	2,5
	DC.. 0702005												
	DC.. 070201												
	DC.. 0702015												
	DC.. 070202	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,03	**0,1**	0,15	0,1	**0,4**	1,5
	DC.. 070204	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,6**	1,5
	DC.. 070208												
	DC.. 11T3005												
	DC.. 11T301												
	DC.. 11T3015												
	DC.. 11T302	0,03	**0,08**	0,12	0,1	**0,3**	1,3						
	DC.. 11T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	DC.. 11T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	DC.. 11T312												
	RC.. 0602M0												
	RC.. 0803M0												
	RC.. 1003M0												
	RC.. 1204M0												
	RC.. 1606M0												
	RC.. 2006M0												
	RC.. 2507M0												
	SC.. 09T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	SC.. 09T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	SC.. 120408							0,08	**0,15**	0,25	0,4	**1**	2,5
	SC.. 120412												
	TC.. 090204												
	TC.. 110202	0,03	**0,08**	0,12	0,1	**0,3**	1,3						
	TC.. 110204	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	TC.. 110208	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	TC.. 16T302												
	TC.. 16T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,8**	2,5
	TC.. 16T308							0,08	**0,15**	0,25	0,4	**1**	2,5
	TC.. 16T312												
	TC.. 220408												
	VC.. 1103005												
	VC.. 110301												
	VC.. 1103015												
	VC.. 110302	0,03	**0,06**	0,12	0,1	**0,3**	1,3	0,02	**0,08**	0,15	0,1	**0,4**	1,5
	VC.. 110304	0,05	**0,08**	0,22	0,2	**0,4**	1,3	0,05	**0,1**	0,2	0,2	**0,6**	1,5
	VC.. 110308							0,08	**0,12**	0,22	0,4	**1**	1,5
	VC.. 160402												
	VC.. 160404	0,05	**0,08**	0,22	0,2	**0,4**	1,3	0,05	**0,1**	0,2	0,2	**0,7**	2
	VC.. 160408	0,06	**0,10**	0,22	0,2	**0,4**	1,3	0,08	**0,12**	0,22	0,4	**1**	2
	VC.. 160412												
	VC.. 220530												
	WC.. 020102							0,02	**0,075**	0,1	0,1	**0,4**	1
	WC.. 020104							0,02	**0,1**	0,2	0,1	**0,6**	1,5

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-CF55						-SMF						-SM					
	f			a_p			f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CC.. 060200																		
CC.. 060201																		
CC.. 060202													0,04	**0,12**	0,2	0,2	**0,6**	2,5
CC.. 060204	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,7**	2	0,08	**0,17**	0,3	0,4	**0,8**	2,5
CC.. 060208							0,1	**0,17**	0,27	0,6	**1**	2	0,12	**0,2**	0,35	0,8	**1**	2,5
CC.. 09T300																		
CC.. 09T301																		
CC.. 09T302																		
CC.. 09T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,08	**0,17**	0,3	0,4	**1**	3
CC.. 09T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
CC.. 09T312													0,15	**0,22**	0,4	1,2	**1,5**	3
CC.. 120402																		
CC.. 120404	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**1**	3	0,08	**0,17**	0,3	0,4	**1,2**	3,5
CC.. 120408							0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
CC.. 120412													0,15	**0,22**	0,4	1,2	**2**	3,5
DC.. 0702005																		
DC.. 070201																		
DC.. 0702015																		
DC.. 070202	0,03	**0,10**	0,12	0,1	**0,4**	1,3							0,04	**0,12**	0,2	0,2	**0,6**	2,5
DC.. 070204	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,7**	2	0,08	**0,17**	0,3	0,4	**0,8**	2,5
DC.. 070208							0,1	**0,17**	0,27	0,6	**1**	2	0,12	**0,2**	0,3	0,8	**1**	2,5
DC.. 11T3005																		
DC.. 11T301																		
DC.. 11T3015																		
DC.. 11T302																		
DC.. 11T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,8	**0,17**	0,3	0,4	**1**	3
DC.. 11T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1,2**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
DC.. 11T312													0,15	**0,22**	0,4	1,2	**1,7**	3
RC.. 0602M0													0,2	**0,3**	0,5	0,2	**0,5**	1,5
RC.. 0803M0													0,2	**0,3**	0,6	0,2	**0,6**	2
RC.. 1003M0													0,25	**0,4**	0,7	0,2	**0,7**	2,5
RC.. 1204M0													0,3	**0,5**	0,8	0,2	**0,8**	3
RC.. 1606M0							0,15	**0,3**	0,6	0,25	**2**	3,5	0,4	**0,6**	1	0,3	**1**	3,5
RC.. 2006M0													0,5	**0,8**	1,2	0,4	**1,2**	4
RC.. 2507M0													0,6	**0,9**	1,4	0,6	**2**	5
SC.. 09T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,08	**0,17**	0,3	0,4	**1**	3
SC.. 09T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
SC.. 120408							0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
SC.. 120412													0,15	**0,22**	0,4	1,2	**2**	3,5
TC.. 090204													0,08	**0,12**	0,2	0,4	**0,8**	2
TC.. 110202													0,08	**0,1**	0,2	0,4	**0,6**	3
TC.. 110204	0,05	**0,12**	0,22	0,2	**0,5**	1,3							0,12	**0,2**	0,35	0,8	**1,2**	3
TC.. 110208							0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
TC.. 16T302																		
TC.. 16T304							0,07	**0,15**	0,25	0,3	**1**	3	0,08	**0,17**	0,3	0,4	**1,2**	3,5
TC.. 16T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
TC.. 16T312													0,15	**0,22**	0,4	1,2	**1,7**	3,5
TC.. 220408													0,12	**0,2**	0,35	0,8	**2,5**	6
VC.. 1103005																		
VC.. 110301																		
VC.. 1103015																		
VC.. 110302							0,05	**0,1**	0,18	0,2	**0,5**	2						
VC.. 110304	0,05	**0,10**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,23	0,3	**0,7**	2						
VC.. 110308																		
VC.. 160402																		
VC.. 160404	0,05	**0,10**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,23	0,3	**0,8**	2,5	0,08	**0,17**	0,25	0,4	**1**	3
VC.. 160408	0,06	**0,12**	0,22	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,3	0,8	**1,2**	3
VC.. 160412													0,15	**0,22**	0,32	1,2	**1,5**	3
VC.. 220530																		
WC.. 020102																		
WC.. 020104																		

Sharp ◄——————————————————————————————► stable

Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

Cutting data values for positive inserts

	Designation	-SMQ						-M25					
		f			a_p			f			a_p		
		min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
		mm/rev.			mm			mm/rev.			mm		
	CC.. 060200												
	CC.. 060201												
	CC.. 060202												
	CC.. 060204							0,06	**0,13**	0,20	0,2	**1,1**	2,0
	CC.. 060208												
	CC.. 09T300												
	CC.. 09T301												
	CC.. 09T302												
	CC.. 09T304	0,10	**0,25**	0,4	0,4	**2**	4	0,06	**0,14**	0,22	0,2	**1,2**	2,2
	CC.. 09T308	0,15	**0,30**	0,5	0,8	**2**	4	0,10	**0,20**	0,30	0,4	**1,8**	3,2
	CC.. 09T312												
	CC.. 120402												
	CC.. 120404	0,10	**0,25**	0,4	0,4	**2**	4						
	CC.. 120408	0,15	**0,30**	0,5	0,8	**2**	4						
	CC.. 120412												
	DC.. 0702005												
	DC.. 070201												
	DC.. 0702015												
	DC.. 070202							0,04	**0,09**	0,13	0,1	**0,9**	1,6
	DC.. 070204	0,10	**0,18**	0,25	0,4	**1,5**	3	0,06	**0,12**	0,18	0,2	**1,1**	2,0
	DC.. 070208												
	DC.. 11T3005												
	DC.. 11T301												
	DC.. 11T3015												
	DC.. 11T302							0,04	**0,10**	0,16	0,1	**1,1**	2,0
	DC.. 11T304	0,10	**0,25**	0,4	0,4	**2**	4	0,06	**0,14**	0,22	0,2	**1,2**	2,2
	DC.. 11T308	0,15	**0,30**	0,5	0,8	**2**	4	0,10	**0,20**	0,30	0,4	**1,8**	3,2
	DC.. 11T312												
	RC.. 0602M0												
	RC.. 0803M0												
	RC.. 1003M0												
	RC.. 1204M0												
	RC.. 1606M0												
	RC.. 2006M0												
	RC.. 2507M0												
	SC.. 09T304												
	SC.. 09T308												
	SC.. 120408												
	SC.. 120412												
	TC.. 090204												
	TC.. 110202												
	TC.. 110204							0,06	**0,13**	0,20	0,2	**1,2**	2,2
	TC.. 110208												
	TC.. 16T302												
	TC.. 16T304							0,06	**0,14**	0,22	0,2	**1,6**	3,0
	TC.. 16T308							0,10	**0,20**	0,30	0,4	**1,9**	3,4
	TC.. 16T312												
	TC.. 220408												
	VC.. 1103005												
	VC.. 110301												
	VC.. 1103015												
	VC.. 110302												
	VC.. 110304												
	VC.. 110308												
	VC.. 160402												
	VC.. 160404							0,06	**0,13**	0,20	0,2	**1,2**	2,2
	VC.. 160408							0,10	**0,15**	0,25	0,4	**1,4**	3,0
	VC.. 160412												
	VC.. 220530												
	WC.. 020102												
	WC.. 020104												

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M55						-F05					
	f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm		
CC.. 060200												
CC.. 060201												
CC.. 060202												
CC.. 060204	0,06	**0,13**	0,20	0,4	**1,5**	2,6						
CC.. 060208												
CC.. 09T300												
CC.. 09T301												
CC.. 09T302												
CC.. 09T304	0,08	**0,16**	0,24	0,4	**1,7**	3,0						
CC.. 09T308	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
CC.. 09T312												
CC.. 120402												
CC.. 120404	0,08	**0,18**	0,28	0,4	**2,2**	4,0						
CC.. 120408	0,12	**0,26**	0,40	0,8	**2,8**	4,8						
CC.. 120412												
DC.. 0702005							0,02	**0,025**	0,04	0,1	**1**	2
DC.. 070201							0,02	**0,03**	0,05	0,1	**1**	2
DC.. 0702015							0,02	**0,04**	0,075	0,1	**1**	2
DC.. 070202							0,02	**0,05**	0,1	0,1	**1**	2
DC.. 070204	0,06	**0,14**	0,22	0,4	**1,3**	2,2						
DC.. 070208	0,08	**0,16**	0,24	0,8	**1,6**	2,4						
DC.. 11T3005							0,02	**0,025**	0,04	0,1	**1,25**	2,5
DC.. 11T301							0,02	**0,03**	0,05	0,1	**1,25**	2,5
DC.. 11T3015							0,02	**0,04**	0,075	0,1	**1,25**	2,5
DC.. 11T302							0,02	**0,075**	0,1	0,1	**1,25**	2,5
DC.. 11T304	0,08	**0,16**	0,24	0,4	**1,7**	3,0	0,02	**0,1**	0,25	0,1	**1,25**	2,5
DC.. 11T308	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
DC.. 11T312												
RC.. 0602M0												
RC.. 0803M0												
RC.. 1003M0												
RC.. 1204M0												
RC.. 1606M0												
RC.. 2006M0												
RC.. 2507M0												
SC.. 09T304	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
SC.. 09T308	0,12	**0,26**	0,40	0,8	**2,8**	4,8						
SC.. 120408												
SC.. 120412												
TC.. 090204	0,06	**0,12**	0,18	0,4	**1,3**	2,2						
TC.. 110202												
TC.. 110204	0,06	**0,14**	0,22	0,4	**1,4**	2,4						
TC.. 110208												
TC.. 16T302												
TC.. 16T304												
TC.. 16T308	0,12	**0,24**	0,35	0,8	**2,6**	4,4						
TC.. 16T312												
TC.. 220408												
VC.. 1103005							0,02	**0,025**	0,04	0,1	**1,25**	2,5
VC.. 110301							0,02	**0,03**	0,05	0,1	**1,25**	2,5
VC.. 1103015							0,02	**0,04**	0,075	0,1	**1,25**	2,5
VC.. 110302							0,02	**0,075**	0,1	0,1	**1,25**	2,5
VC.. 110304							0,02	**0,15**	0,25	0,1	**1,25**	2,5
VC.. 110308												
VC.. 160402												
VC.. 160404	0,08	**0,14**	0,20	0,4	**1,7**	3,0						
VC.. 160408	0,12	**0,21**	0,30	0,8	**2,1**	3,4						
VC.. 160412												
VC.. 220530												
WC.. 020102												
WC.. 020104												

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

9

Application range of CBN grades

Cutting material grade	Cutting material designation	Properties		Application range	Interrupted cut	Material suitability / ISO hardness			
						Cast iron	Sintered steels	Heat resistant	hardened
		PCBN content	Main binder			K	P	S	H
High PCBN content	**CTB S05U**	90 %		Chilled iron (NiHard), grey cast iron	Smooth to strongly interrupted cut	05		05	
	CTB S10C	95 %		Grey cast iron (GG252), sintered steels, super alloys	Smooth to medium interrupted cut	10	10	10	
	CTB S10U	95 %		Grey cast iron, sintered steels, super alloys		10	10	10	
	CTB S20C	90 %		Spheroidal graphite cast iron, sintered steels, super alloys		20	20	20	
Low PCBN content	**CTB H15C**	40 %	TiN	Tempered steels from 32 HRC	Smooth cut				15
	CTB H15U	40 %	TiN		Smooth to slightly interrupted cut				15
	CTB H20C	65 %	TiCN	48–62 HRC					20
	CTB H21C	65 %	TiCN	52–65 HRC					20
	CTB H21U	65 %	TiCN	52–65 HRC					20
	CTB H40C	55 %	TiN	48–65 HRC	Interrupted cut				40
	CTB H40U	65 %	TiN	54–65 HRC					40
	CTB H41C	65 %	TiN	48–65 HRC	Strongly interrupted cut				40
	CTB H41U	65 %	TiN	54–65 HRC					40

CBN – The Next Generation

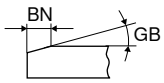
The ‚Sandwich' Technology

The singular system (patent), to apply CBN segments on a tungsten carbide base in a single process reduces the edge price significantly and opens up the possibility for the development of different CBN grades.

Specialized edge preperations! To achieve the highest efficiency for each application, the new CBN sandwich inserts are available with up to 8 edge preperations.

CBN Test Insert

The type CNGA test insert was specifically used, in order to identify the **quickest and most effective** type. The insert is manufactured with four edge preperations for trial. The cutting edge with highest performance gives the correct chamfer style.



Article no.	Designation	Chamfers (BN x GB)				Price / £
71 499 ...		**Cutting edge 1**	**Cutting edge 2**	**Cutting edge 3**	**Cutting edge 4**	
290	CNGA 120408XN_L2 **CTBS20C**	009B (0,09 mm x 10°)	011C (0,11 mm x 15°)	014D (0,14 mm x 20°)	018F (0,18 mm x 30°)	85.52
292	CNGA 120408XN_L2 **CTBH20C**	009D (0,09 mm x 20°)	011E (0,11 mm x 25°)	014F (0,14 mm x 30°)	018F (0,18 mm x 30°)	85.52
294	CNGA 120408XN_L2 **CTBH40C**	009D (0,09 mm x 20°)	011E (0,11 mm x 25°)	013E (0,13 mm x 25°)	014F (0,14 mm x 30°)	85.52

Diamond as a cutting material



Ensures

- Optimal surface quality
- burr-free workpieces
- high service lives
- lowest cutting forces
- High Process Security

Complete programme of roughing, finishing and wiper inserts for machining aluminium, non ferrous metals, plastics, ...

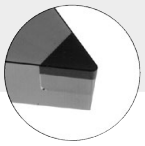
The cutting materials

	CTD CD10 (CVD)	CTD PD20 (PKD)	CTD PU20 (PKD)	CTD PS30 (PKD)
	Fine grain Size (N10)	Fine grain grade (N20)	Coarse grain grade (N20)	Coarse grain Size (N30)
Properties	▲ perfect sharp edges ▲ no cutting pressure ▲ very close tolerances ▲ highest abrasion resistance with highest toughness ▲ very high heat conductivity	▲ high sharpness ▲ lower cutting pressure than PDC-S ▲ close tolerance ▲ lower abrasion resistance with increased toughness	▲ Very sharp cutting edge ▲ Reduced cutting pressure ▲ Tight tolerances ▲ Very high level of wear resistance and toughness	▲ high sharpness ▲ lower cutting pressure ▲ close tolerance ▲ lower abrasion resistance than with the PDC, with increased toughness
Material	suitable for superfinishing and semi-finishing of all non ferrous metals and NE-composite materials with small to high levels of abrasiveness	suitable for fine machining of all NE-materials with low abrasiveness	suitable for finishing to roughing non-ferrous metals and non-ferrous materials with highly abrasive alloying element. High chip removal on fibre-reinforced plastics such as CFRP and GFRP.	suitable for fine machining of all NE-materials and non-ferrous metals with low to very high levels of abrasiveness

Cutting Geometries

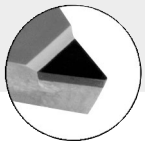
Neutral rake angle:

- higher cuting force
- higher temperature
- improved surface quality
- for stable workpieces



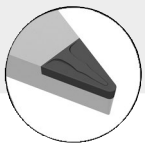
Positive rake angle:

- Lower cutting force
- Lower temperature
- reduction in surface quality
- for unstable workpieces
- improved accuracy



CB chip breaker geometries:

- Reliable chip control
- Ideal for low-alloy aluminium
- For F | M | R applications



Notes on diamond usage

- Coolant is not generally needed, however it facilitates chip removal
- Note the chemical reaction to carbide-forming elements (PCD)
- Note the thermal interaction and critical temperature:
  PCD: 600 °C, CVD: 700 °C
  Depending on the material, use cooling.

Standard chip breakers / application notes

Main application steel and cast iron, secondary application stainless steels

Negative

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-CF / -CF20 ▲ Fine finishing ▲ Sharp cutting edge for low cutting forces ▲ Good chip control even at small depths of cut	**CTEP110 / TCM10** CTEP110 / TCM10 CTEP110 / TCM10			0,30–1,50	0,07–0,25	CN.. DN.. TN.. WN..
-F40 ▲ Fine turning chip breaker for machining steels ▲ Good chip control ▲ Ideal for copy turning work	**CTCP125** CTCP125	**CTCP125** CTCP125		0,50–2,00	0,10–0,30	VN..
-F50 ▲ Fine turning chip breaker for fine machining ▲ Steel and stainless steels ▲ Excellent chip control ▲ High surface quality	**CTCP115 / CTCP125**	**CTCP115 / CTCP125 / CTCP135** CTCP135	**CTCP135** CTCP135	0,10–2,60	0,06–0,35	CN.. DN.. SN.. TN.. VN.. WN..
-TFQ ▲ Wiper geometry ▲ Finishing to medium machining ▲ Very high feedrate ▲ High surface quality	**CTEP110 / CTCP115** CTEP110 CTEP110 / CTCP115	**CTCP115 / CTCP125** CTCP115 / CTCP125		0,50–5,00	0,10–0,60	CN.. DN.. WN..
-XU ▲ Finishing to light roughing ▲ Universal chip breaker ▲ Copy turning ▲ Excellent chip formation ▲ Low cutting forces	**CTCP115 / CTCP125** CTCP115	CTCP115 / **CTCP125** CTCP115 / CTCP125	CTCP125	0,40–4,50	0,12–0,40	CN.. DN.. VN.. WN..
-FMS ▲ Finishing to medium machining ▲ very good chip control ▲ universal chip breaker ▲ low cutting forces	**CT-P15 / CT-P25** CT-P15 / CT-P25 CT-P15 / CT-P25	CT-P15 / **CT-P25** CT-P25 CT-P15 / CT-P25	CT-P25	0,40–3,00	0,10–0,30	CN.. DN.. VN.. WN..

Standard chip breakers / application notes

Main application steel and cast iron, secondary application stainless steels

Negative

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-M40 ▲ Stable geometry ▲ Medium feed rates ▲ Can be used for any application ▲ Good chip control	**CTCP125** CTCP125	**CTCP125** CTCP125		0,50–3,00	0,50–3,00	VN..
-M50 ▲ Medium machining ▲ First choice for steel machining ▲ Universal application ▲ Wide range of applications	**CTCP115 / CTCP125 / CTCK110 / CTCK120** CTCP115 CTCP115 / CTCP125 / **CTCK110 / CTCK120**	CTCP115 / **CTCP125** CTCP125 CTCP115 / CTCP125 / **CTCK110 / CTCK120**	CTCP125 / **CTCP135** CTCP135 CTCP125 / **CTCK120**	0,50–5,00	0,12–0,40	CN.. DN.. SN.. TN.. VN.. WN..
-TMQ ▲ Wiper geometry ▲ Light to medium rough machining ▲ Very high feedrate ▲ High surface quality	**CTCP115** CTCP125 CTCP125	**CTCP125** CTCP125 CTCP125		0,80–6,00	0,20–0,85	CN.. DN.. WN..
-MRS ▲ medium to rough machining ▲ well suited for components with cast crust or forged skin ▲ works well with interrupted cuts	**CT-P15 / CT-P25 /** CT-P35 CT-P15 / CT-P25	**CT-P15 / CT-P25 / CT-P35** CT-P25 / CT-P35	**CT-P25 / CT-P35** CT-P35	0,50–4,50	0,20–0,60	CN.. DN.. WN..
-M70 ▲ Light to medium rough machining ▲ Cast crust and forging skin ▲ Stable cutting edge ▲ Interrupted cut ▲ Raw materials and forgings	**CTCK110 / CTCK120 / CTCP115** CTCP115 **CTCK110 / CTCK120 /** CTCP115 / CTCP125	CTCP115 / **CTCP125** CTCP125 **CTCK120 /** CTCP125	**CTCP125 / CTCP135** CTCP135 CTCP125 / **CTCK120**	1,50–4,50	0,20–0,80	CN.. DN.. SN.. TN.. WN..
.NMA ▲ Rough machining ▲ Stable cutting edge ▲ For short-chipping materials ▲ First choice for grey cast iron	**CTCK110**	**CTCK110 / CTCK120**	**CTCK120**	1,50–4,50	0,20–0,80	CN.. DN.. SN.. TN.. WN..
-R28 ▲ Single sided roughing geometry ▲ Longitudinal, face and copy turning ▲ Varying depths of cut ▲ Steels with low tensile strength (800 N / mm²) ▲ Good chip control	**CTCP115** / CTCP125 CTCP115 / CTCP125 CTCP115	**CTCP115 / CTCP135 / CTCP125** CTCP125 / CTCP135 CTCP125	**CTCP135** CTCP135 CTCP135	1,00–12,00	0,25–0,80	CN.. DN.. SN..

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Standard chip breakers / application notes

Negative

Main application steel and cast iron, secondary application stainless steels

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-R58 ▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ Light interrupted cut ▲ Low cutting forces ▲ Unstable machines	**CTCP115 / CTCP125** CTCP115 / CTCP125 CTCP115	**CTCP115 / CTCP125 / CTCP135** CTCP125 / CTCP135 CTCP115 / CTCP125	**CTCP135** CTCP135 CTCP125	1,50–12,00	0,30–1,20	CN.. DN.. SN.. TN..
-R88 ▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ High feedrate ▲ Large depths of cut ▲ Heavily interrupted cut	**CTCP115 / CTCP125** CTCP115 / CTCP125 CTCP115	**CTCP115 / CTCP125 / CTCP135** CTCP115 / CTCP125 CTCP115 / CTCP125	**CTCP135** CTCP135 CTCP125	3,50–16,00	0,50–1,50	SN..

Negative

Main application stainless steels, secondary application steel and super alloys

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-F30 ▲ Finishing of stainless steels ▲ Continous cut ▲ High surface quality ▲ Good swarf control	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	0,08–2,5	0,10–0,35	CN.. DN.. SN.. TN.. VN.. WN..
-M30 ▲ Option for stainless steel machining ▲ Good swarf control ▲ Little edg build up ▲ Low cutting forces ▲ Little built-up edge ▲ Applicable on unstable machines	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	1,00-4,50	0,15-0,40	CN.. DN.. SN.. TN.. VN.. WN..
-M60 ▲ Light to medium roughing ▲ Stable cutting edge ▲ Interrupted cut ▲ Forged skin and cast crust	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	1,50–6,00	0,25–0,50	CN.. DN.. SN.. TN.. WN..

Standard chip breakers / application notes

Negative

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application super alloys, secondary application stainless steels						
-M34 ▲ First choice for superalloys ▲ Light cutting geometry ▲ Little built-up edge ▲ Low cutting forces	**CTPX710** **CTPX710** CTPX710 **CTPX710**	**CTPX710** **CTPX710** CTPX710 **CTPX710**		0,80–3,0	0,10–0,30	CN.. DN.. SN.. VN.. WN..
M						

Positive

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application steel and cast iron, secondary application stainless steels and super alloys						
-CF05 ▲ Fine finishing ▲ For all common steel materials, stainless steels and GGG ▲ Good swarf control ▲ High surface quality	**CTEP110 / TCM407** CTEP110 CTEP110	TCM10 / TCM407 TCM10 / TCM407		0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..
F						
-SF ▲ Finishing / contour turning ▲ Good swarf control ▲ High surface quality ▲ Low cutting forces	**CTCP115**	**CTCP125**	**CTCP125 / CTCP135**	0,05–2,50	0,05–0,25	CC.. DC.. SC.. TC.. VC.. WC..
F		CTCP125	CTCP125			
-CF55 ▲ Finishing to medium machining ▲ Suitable for general and stainless steels ▲ Low cutting forces ▲ Good swarf control ▲ High surface quality	**CTEP110** CTEP110 CTEP110	**TCM10 /** CTEP110 CTEP110 CTEP110		0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..
F **M**						

9

Standard chip breakers / application notes

Positive

Main application steel and cast iron, secondary application stainless steels and super alloys

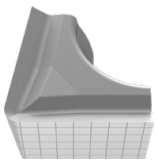
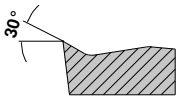
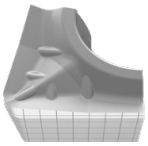
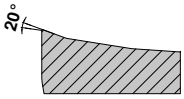
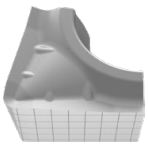
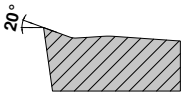
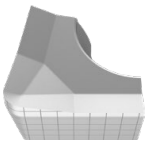
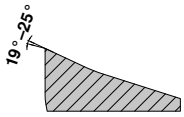
Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-SMF ▲ Finishing to medium machining ▲ Low cutting forces ▲ Good swarf control ▲ High surface quality	**CTEP110 / CTCP115** CTEP110 CTEP110	**TCM10 / CTCP125 / CTCP115** CTCP135	**CTCP135** CTCP135	13°		CC.. DC.. SC.. TC.. VC..
F M				0,20–1,30	0,06–0,25	
-FMS ▲ Finishing to medium machining ▲ very good chip control ▲ universal chip breaker ▲ low cutting forces	**CT-P15 / CT-P25** CT-P15 / CT-P25	**CT-P15 / CT-P25** CT-P15 / CT-P25	CT-P25	15°		CC.. DC.. VC..
F M				0,10–2,00	0,05–0,20	
-SM ▲ Medium machining ▲ Universal application ▲ Stable cutting edge ▲ Varying depths of cut ▲ Wide range of applications	**CTCP115 / CTCP125** CTCP115 / **CTCK110 / CTCK120**	**CTCP125 / CTCP135 / CTCP115** CTCP135 CTCP125 / **CTCK110 / CTCK120**	**CTCP125 / CTCP135** CTCP135 CTCK120	15° 0,1		CC.. DC.. RC.. SC.. TC.. VC..
M				0,05–5,00	0,15–0,45	
-SMQ ▲ Positive wiper geometry ▲ Finishing to medium machining ▲ Very high feedrate ▲ High surface quality	**CTCP115** CTCP125 / CTCP115	**CTCP125** CTCP125	**CTCP125** CTCP125	15° 0,2		CC.. DC..
M				1,00–4,00	0,15–0,45	
-MRS ▲ light to medium roughing ▲ universal chip breaker ▲ stable cutting edge	**CT-P15 / CT-P25** CT-P15 / CT-P25	**CT-P15 / CT-P25** CT-P15 / CT-P25	**CT-P25**	15° 0,1		CC.. DC.. VC..
M R				0,15–3,50	0,15–0,35	

Positive

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-M25 ▲ First choice for medium machining of stainless steels ▲ High surface quality ▲ Little built-up edge	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	10° 0,1–0,15		CC.. DC.. TC.. VC..
F M				0,40–3,20	0,10–0,30	
-M55 ▲ First choice for medium machining to roughing of stainless steels ▲ Smooth to lightly interrupted cut ▲ Good swarf control ▲ Stable cutting edge	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	16° 0,15-0,2		CC.. DC.. SC.. TC.. VC..
M				0,40–4,80	0,06–0,35	

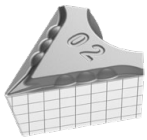
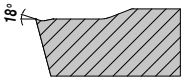
Standard chip breakers / application notes

Main application non-ferrous metals,
secondary application stainless steels, steels, super alloys, cast iron

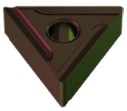
Positive	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-23P ▲ Low adhesion ▲ Good chip control with soft aluminium alloys							CC.. DC..
		H216T	H216T				
		H216T	**H216T**	**H216T**			
	F	H216T	H216T	H216T	0,2–4,0	0,05–0,3	
-25P ▲ Sharp cutting edge ▲ Good swarf control on soft aluminium alloys ▲ Low adhesion		**CTPX710**	CTPX710				CC.. DC.. SC.. VC..
		CTPX710	CTPX710				
		CTPX710 / H216T	**CTPX710 / H216T**	**CTPX710 / H216T**			
		CTPX710	CTPX710				
	F						
	M	CTPX710	CTPX710		0,50–4,50	0,05–0,60	
-25Q ▲ Wiper geometry ▲ High feed rates ▲ High surface quality ▲ Good swarf control on soft aluminium alloys ▲ Low adhesion		**CTPX710**	CTPX710				CC.. DC.. VC..
		CTPX710	CTPX710				
		H210T	H210T				
		H210T / CTPX710	**H210T / CTPX710**	**H210T / CTPX710**			
		H210T / **CTPX710**	H210T / CTPX710				
	M	H210T	H210T	H210T	0,05–6,50	0,05–0,60	
-27 ▲ The universal Alu geometry ▲ Sharp cutting edge ▲ Extremely positive rake angle ▲ Low adhesion ▲ High feed rates		**CTPX715**	CTPX715				CC.. DC.. RC.. SC.. TC.. VC..
		CTPX715	CTPX715				
		CTPX715 / H216T	CTPX715 / H216T				
		CTPX715 / H216T	**CTPX715 / H216T**	**CTPX715 / H216T**			
		CTPX715	CTPX715				
	M						
	R	CTPX715 / H216T	CTPX715 / H216T	CTPX715 / H216T	1,00–10,00	0,10–0,75	

9

Standard chip breakers / application notes

Positive	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application super alloys and stainless steels, secondary application steels and non-ferrous metals	-F05 ▲ Maximum tolerance class ▲ Outstanding chip control, even with the smallest cutting depths ▲ Very low cutting forces	 **F**	**CTPX710** **CTPX710** CTPX710 **CTPX710** **CTPX710** CTPX710	CTPX710 CTPX710 CTPX710 **CTPX710** **CTPX710** CTPX710	 0,10–2,50	0,02–0,25	DC.. VC..

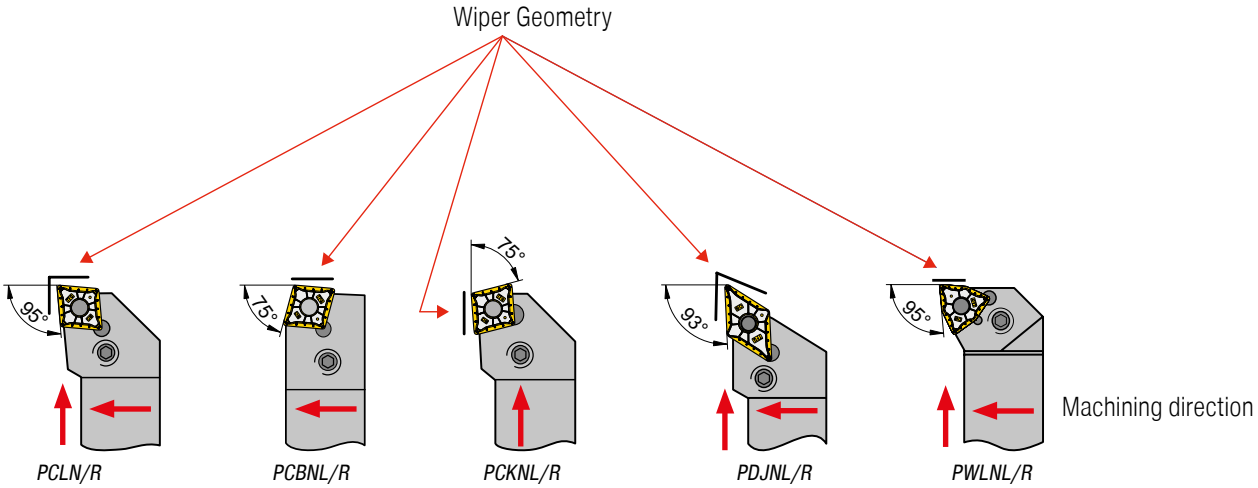
Supplementary chip breakers / application notes

	Model	Smooth cut	Irregular cutting depth	Interrupted cut
-EN ▲ Universal chip breaker for general steels	 M	**CTCP115** CTCP125 **CTCK110**	**CTCP125** CTCP135 **CTCK120**	**CTCP135** CTCP135 CTCP125
-ER|EL ▲ A problem solver for unstable conditions ▲ Can be used on less powerful machines ▲ Can be used for general steels and on stainless materials as a secondary application	 M		**CTCP125**	**CTCP135**

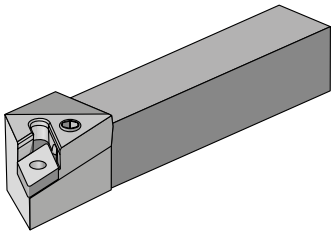
9

Masterfinish – wiper geometry – notes

Through the use of indexable inserts with wiper edge (-TFQ; -TMQ; -SMQ; -25Q) high quality surfaces can be produced economically.

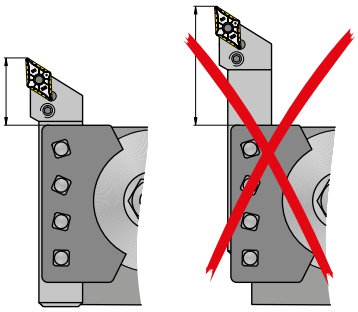


All turning inserts with wiper cutting edge are clamped in standard ISO tool holders.

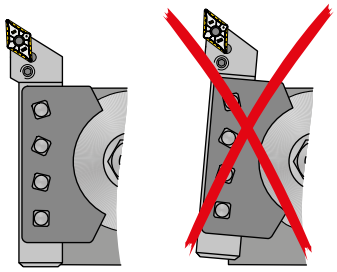


Check toolholder:

- Insert seat
- Shim
- Clamping Lever



Short tool overhang



Ensure correct tool alignment

Feed rate guide values for surface finish quality

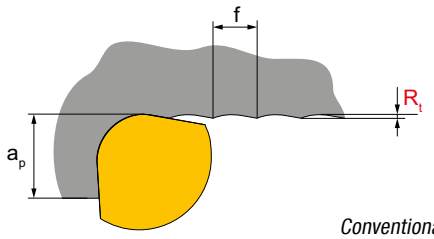
Roughness range R_z in µm	$R_{t\,max.}$	Corresponds to R_a	Roughness index	ISO 1302	Corner radius r_ε in mm and feed rate f in mm/rev.			
					r_ε = 0,4	r_ε = 0,8	r_ε = 1,2	r_ε = 1,6
63–100	R_t100	12,5–25	N11	25		0,51	0,69	0,88
40–63	R_t63	6,3–25	N10	12,5	0,27	0,43	0,56	0,68
31,5–40	R_t40	4,9–6,3	N9	6,3	0,25	0,37	0,49	0,57
25–31,5	R_t31,5	4,0–4,9			0,22	0,32	0,41	0,47
16–25	R_t25	2,5–4,0	N8	3,2	0,20	0,28	0,36	0,39
10–16	R_t16	1,6–2,5			0,15	0,22	0,29	0,31
6,3–10	R_t10	1,0–1,6	N7	1,6	0,10	0,13	0,18	0,20

Masterfinish – wiper geometry – functional principle

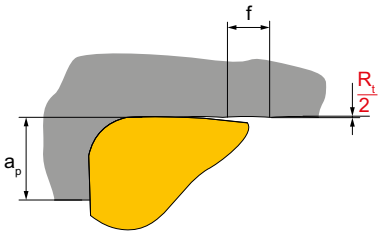
Relationship of feed rate to surface roughness

Improved Surface Quality

With the same feed rate an insert with wiper cutting edge reaches a roughness value R_t which is many times better than a conventional insert.



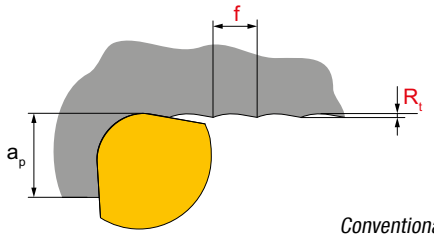
Conventional



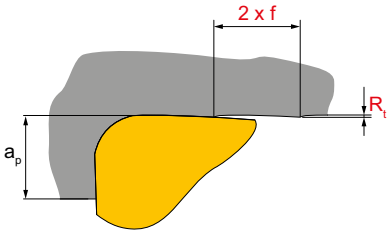
-TFQ

Shorter machining time

To achieve the same R_t-value as with a standard insert, double the feed rate can be applied for the insert with wiper cutting edge **(= shorter production time per component!)**



Conventional



-TFQ

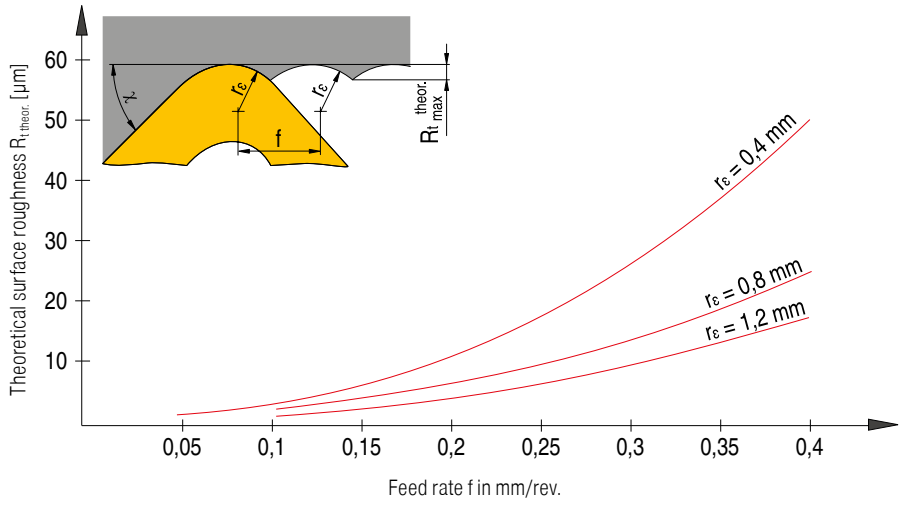
Theoretical Surface Quality

The maximum theoretical surface roughness with turning $Rt_{theor.}$ is the combination of feed rate and corner radius:

$$Rt_{theor.} = \left(r_\varepsilon - \sqrt{r_\varepsilon^2 - \frac{f^2}{4}}\right) \cdot 1000$$

or approximately:

$$Rt_{theor.} = \frac{125 \cdot f^2}{r\varepsilon} \quad [\mu m]$$



9

ISO designation system for inserts

Indexable inserts – metric

C	N	M	G	12	04	08	E	N	-	M50
1	2	3	4	5	6	7	8	9		13

Indexable inserts – inch

C	N	M	G	4	3	2	E	N	-	M50
1	2	3	4	5	6	7	8	9		13

Indexable inserts, CBN, ceramic – metric

C	N	G	A	12	04	08	S	N	-	020D	_	B	3	-	Q
1	2	3	4	5	6	7	8	9		10		11	12		13

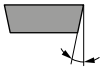
Indexable inserts, CBN, ceramic – inch

C	N	G	A	4	3	2	S	N	-	020D	_	B	3	-	Q
1	2	3	4	5	6	7	8	9		10		11	12		13

1 Insert shape

V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

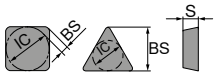
2 Clearance angle



	α		α
A	3°	F	25°
B	5°	G	30°
C	7°	N	0°
D	15°	P	11°
E	20°		

O — Clearance angles not included within the standard for which particular information is necessary.

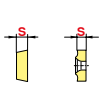
3 Tolerances



	IC±		BS		S	
	mm	inch	mm	inch	mm	inch
A	0,025	.0010	0,005	.0002	0,025	.001
F	0,013	.0005	0,005	.0002	0,025	.001
C	0,025	.0010	0,013	.0005	0,025	.001
H	0,013	.0005	0,013	.0005	0,025	.001
E	0,025	.0010	0,025	.0010	0,025	.001
G	0,025	.0010	0,025	.0010	0,13	.005
J	0,05-0,15*	.002-.006*	0,005	.0002	0,025	.001
K	0,05-0,15*	.002-.006*	0,013	.0005	0,025	.001
L	0,05-0,15*	.002-.006*	0,025	.0010	0,025	.001
M	0,05-0,15*	.002-.006*	0,05-0,20*	.003-.008*	0,13	.005
N	0,05-0,15*	.002-.006*	0,05-0,20*	.003-.008*	0,025	.001
U	0,08-0,25*	.003-.010*	0,13-0,38*	.005-.015*	0,13	.005

* Depends on insert size

6 Insert thickness



		Code	
mm	inch	mm	inch
1,59	1/16	01	1
2,38	3/32	02	
3,18	1/8	03	2
3,97	5/32	T3	
4,76	3/16	04	3
5,56	7/32	05	
6,35	1/4	06	4
7,94	5/16	07	5
9,52	3/8	09	6

7 Corner radius

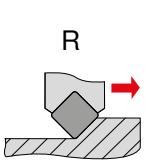


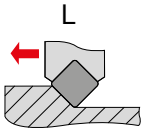
		Code		RN **00** RC **MO**
mm	inch	mm	inch	
≤ 0,05	.0015	00	X0	
0,1	.004	01	0	
0,2	.008	02	.5	
0,4	1/64	04	1	
0,8	1/32	08	2	
1,2	3/64	12	3	
1,6	1/16	16	4	
2,0	5/64	20	5	
2,4	3/32	24	6	
2,8	7/64	28	7	
3,2	1/8	32	8	

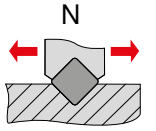
8 Cutting edge

F	Sharp
E	rounded
T	chamfered
S	Chamfered and honed
K	Double-chamfered
P	Double-chamfered and honed
R	Round chamfer

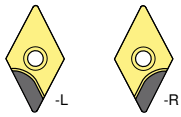
9 Direction of cut

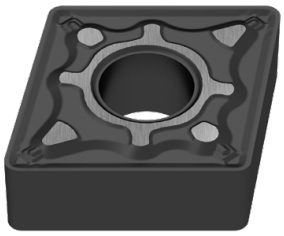






CBN and PCD segment orientation





4 Characteristics

N	
R	
F	
A	
M, P	
G, P	
W	
T	
Q	
U	
B	
H	
C	
J	
X	Special version

inch
Change at inscribed circle
IK < 1/4"

IK > 1/4“	IK < 1/4“
N / R / F	E
A / M / G	D
X	X

5 Cutting length

Type	ISO	ANSI	L mm	L inch	d mm	d inch
C	06	2	6,4	.250	6,35	.250
	09	3	9,7	.382	9,525	.375
	12	4	12,9	.508	12,70	.500
	16	5	16,1	.634	15,875	.625
	19	6	19,3	.760	19,05	.750
	25	8	25,8	1.016	25,4	1.000
	32	12	35,24	1.269	31,75	1.250
S	06	2	6,35	.250	6,35	.250
	09	3	9,525	.375	9,525	.375
	12	4	12,7	.500	12,7	.500
	15	5	15,875	.625	15,875	.625
	19	6	19,05	.750	19,05	.750
	25	8	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
D	07	2	7,7	.303	6,35	.250
	11	3	11,6	.457	9,525	.375
	15	4	15,5	.610	12,70	.500
V	11	2	11,1	.437	6,35	.250
	16	3	16,6	.653	9,525	.375
	22	4	22,10	.870	12,70	.500

* inch version

Type	ISO	ANSI	L mm	L inch	d mm	d inch
T	06	1.2	6,9	.272	3,97	.156
	09	1.8	9,6	.378	5,56	.219
	11	2	11,0	.433	6,35	.250
	16	3	16,5	.650	9,525	.375
	22	4	22,	.079	12,70	.039
	27	5	27,5	1.083	15,875	.625
	33	6	33,0	1.299	19,05	.750
W	06	3	6,5	.256	9,525	.375
	08	4	8,7	.331	12,70	.039
	10	5	10,9	.429	15,875	.625
R	06	2	6,35	.250	6,35	.250
	08	-	8,0	.315	8,0	.315
	09	3	9,52	.375	9,52	.375
	10	-	10,0	.394	10,0	.394
	12*	-	12,0	.472	12,0	.472
	12	4	12,7	.488	12,70	.488
	15	5	15,875	.625	15,875	.625
	16	-	16,0	.630	16,0	.630
	19	6	19,05	.750	19,05	.750
	25	8	25,0	.984	25,0	.984
	25*	-	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
	32	-	32,0	1.260	32,0	1.260

9

10 Chamfer type

T / S

K / P [1)]

	mm	inch		
015	0,15	.006	A	05°
020	0,20	.008	B	10°
025	0,25	.010	C	15°
050	0,50	.020	D	20°
075	0,75	.030	E	25°
100	1,00	.040	F	30°
			G	35°

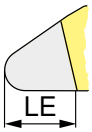
1) Two letters are assigned for double-chamfered cutting edges
e.g. BE =
chamfer angle 1 (y_1) = 10°
chamfer angle 2 (y_2) = 25°

11 Number of cutting edges

Single sided		Complete insert thickness	
A		T	
B		U	
C		V	
D		W	
G		X	
H		Y	

Double sided		Entire clamping flat	
K		S	
L		F	
M		E	
N			
P			
Q			

12 Segment length



Approx. specification in mm

13 Chip breaker designation

You can find a comprehensive chip breaker overview on
→ **page 220–227**

ISO designation system for tool holders

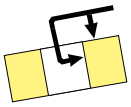
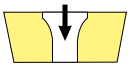
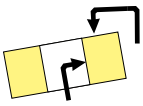
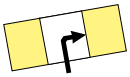
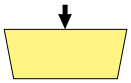
	P	C	L	N	R	20	20	K	12	-	T
	1	2	3	4	5	6	7	8	9		10
UT50	-	P	C	L	N	R			-12		
0		1	2	3	4	5	6	7	8	9	10
HSK-T63	-	D	C	L	N	R			-12		
0		1	2	3	4	5	6	7	8	9	10

0 System/size

UT = UTS
according to ISO 26622
UT40 = UTS 40 mm
UT50 = UTS 50 mm
UT63 = UTS 63 mm

HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm

1 Tool holder

D  Retained from above and via bore	**S**  Retained via centre screw
M  Retained from above and via bore	**P**  Retained via the bore
C  Retained from above	**X** Special version

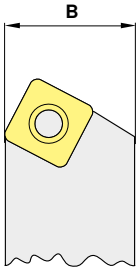
2 Insert shape

V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

6 Shank height

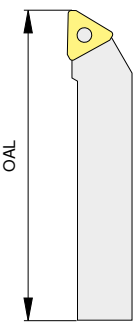


7 Shank width



8 Tool length

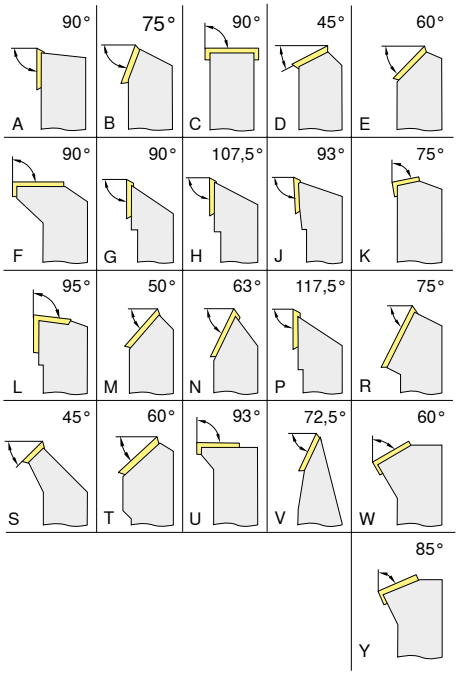
OAL mm	OAL inch		OAL mm	OAL inch	
32	4.000	**A**	160	4.500	**N**
40	4.500	**B**	170	5.500	**P**
50	5.000	**C**	180	–	**Q**
60	6.000	**D**	200	6.000	**R**
70	7.000	**E**	250	7.000	**S**
80	8.000	**F**	300	8.000	**T**
90	5.500	**G**	350	5.500	**U**
100	5.625	**H**	400	3.500	**V**
110	5.300	**J**	450	3.500	**W**
125	14.000	**K**	500	3.750	**Y**
140	6.800	**L**	Special version		**X**
150	4.400	**M**			





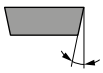
3

Style



4

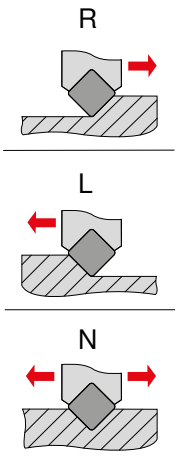
Clearance angle



	α		α
A	3°	**F**	25°
B	5°	**G**	30°
C	7°	**N**	0°
D	15°	**P**	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		

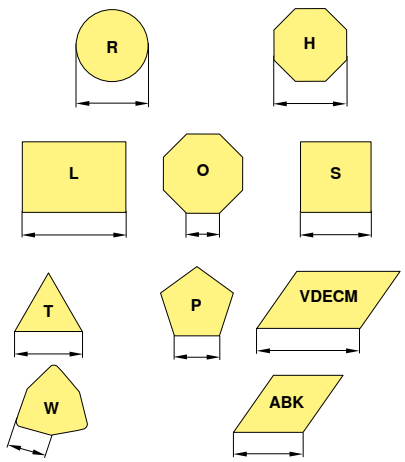
5

Direction of cut



9

Cutting length



10

Manufacturer specification

T = Toggle
Special length (mm)
Insert thickness (deviating from standard)
Special version (X..)
Machine manufacturer (specific)

ISO designation system for boring bars

		A	25	R	P	C	L	N	R	12	
		1	2	3	4	5	6	7	8	9	10
UT40	-		25	G	- P	C	L	N	R	- 12	
0		1	2	3	4	5	6	7	8	9	10
HSK-T63	-		50	Q	- D	C	L	N	R	- 12	
0		1	2	3	4	5	6	7	8	9	10

0 System/size

UT = UTS
according to ISO 26622
UT40 = UTS 40 mm
UT50 = UTS 50 mm
UT63 = UTS 63 mm

HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm

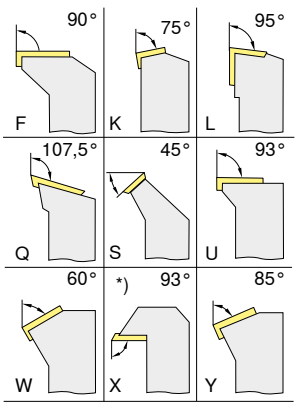
1 Shank type

S	Steel shank	**E**	As C with coolant hole
A	Steel shank with coolant hole	**F**	As C with antivibration system
B	Steel shank with antivibration system	**G**	As C with coolant hole and antivibration system
D	Steel shank with coolant hole and antivibration system	**H**	Heavy metal
C	Carbide shank with steel head	**J**	Heavy metal with coolant hole

5 Insert shape

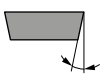
V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

6 Style



*) CERATIZIT factory standard

7 Clearance angle

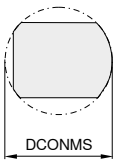


	α		α
A	3°	**F**	25°
B	5°	**G**	30°
C	7°	**N**	0°
D	15°	**P**	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		



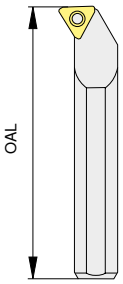
2 Shank type & size

DCONMS mm	DCONMS inch
08	A two-digit figure indicating the boring bar diameter in 1/16 of an inch.
10	
12	
16	
20	
25	
32	
40	
50	
60	

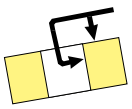
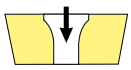
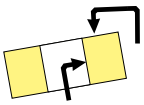
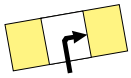
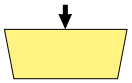


3 Tool length

OAL mm	OAL inch	
80	3	F
100	3,5	H
110	4	J
125	4,5	K
140	5	L
150	5,5	M
160	6	N
170	6,5	P
180	6,75	Q
200	7	R
250	8	S
300	10	T
350	12	U
400	14	V
450	16	W
500	18	Y
	20	
Special version		X

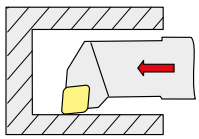


4 Clamping method

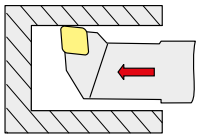
D  Retained from above and via bore	**S**  Retained via centre screw
M  Retained from above and via bore	**P**  Retained via the bore
C  Retained from above	**X** Special version

8 Direction of cut

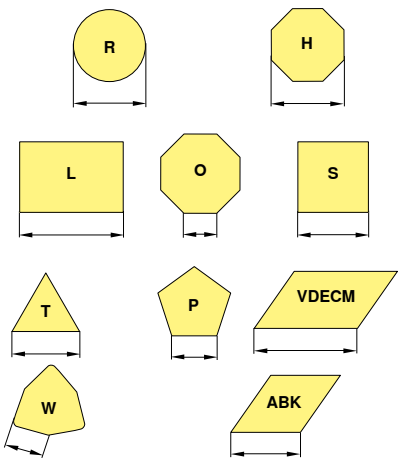
R



L



9 Cutting length



10 Manufacturer specification

T = Toggle
Special length (mm)
Insert thickness (deviating from standard)
Special version (X..)
Machine manufacturer (specific)

Types of wear

Wear on clearance face

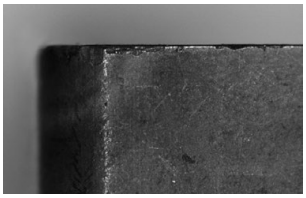


Abrasion on flank: normal wear after a certain machining time

Cause
- Too high cutting speed
- Carbide grade with too low wear resistance
- Feed rate not adapted

Remedy
- Reduce cutting speed
- Use grade with higher wear resistance
- Adapt feed rate to cutting speed and cutting depth

Edge chipping

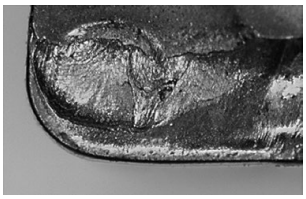


Through excessive mechanical stress at the cutting edge fracture and chipping can occur.

Cause
- Grade with too high wear resistance
- Vibration
- Too high cutting speed and / or feed rate
- Interrupted cut
- Swarf damage

Remedy
- Use tougher grade
- Use negative cutting edge geometry with chip groove
- Improve stability (tool, work piece)

Cratering

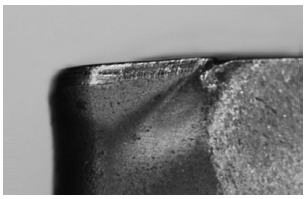


The hot chip which is being evacuated causes cratering at the rake face of the cutting edge.

Cause
- Too high cutting speed and / or feed rate
- Rake angle too shallow
- Grade with insufficient wear resistance
- Insufficient coolant supply

Remedy
- Reduce cutting speed and / or feed rate
- Use grade with higher wear resistance
- Increase coolant quantity and / or pressure, optimise coolant supply
- Use grade which is more resistant to cratering

Plastic deformation

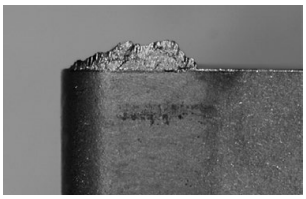


High machining temperature and simultaneous mechanical stress can lead to plastic deformation.

Cause
- Too high machining temperature resulting in softening of substrate
- Damage of coating
- Grade with insufficient wear resistance
- Insufficient coolant supply

Remedy
- Reduce cutting speed
- Use grade with higher wear resistance
- Provide cooling

Built-up edge

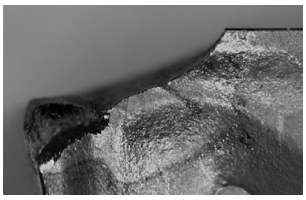


Built-up material / edges occur when the chip is not evacuated properly due to insufficient cutting temperature.

Cause
- Insufficient cutting speed
- Rake angle too shallow
- Wrong cutting material
- Lack of cooling / lubrication

Remedy
- Increase cutting speed
- Increase rake angle
- Apply TiN coating
- Use emulsion with higher concentration

Insert breakage

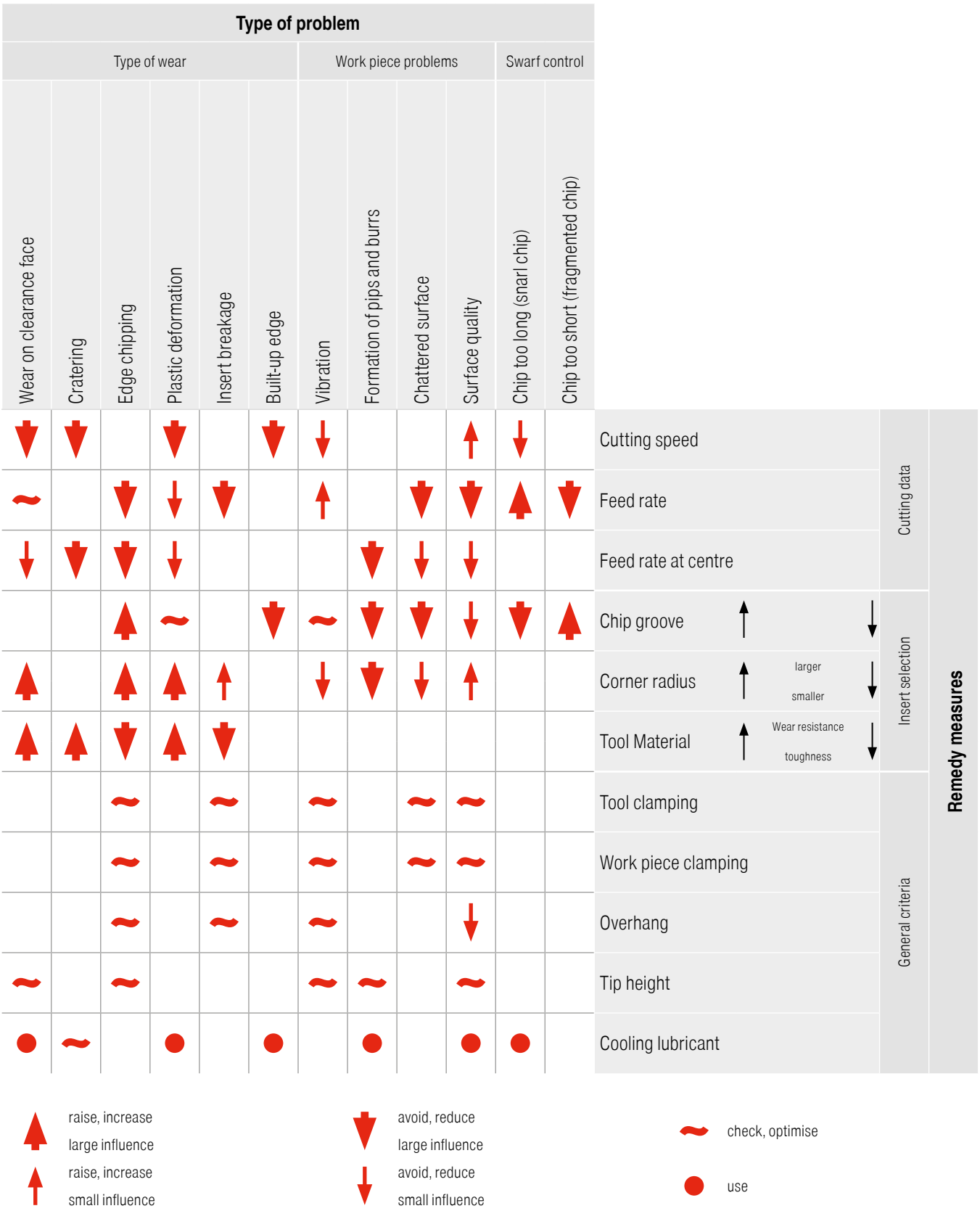


Excessive stress of the insert causes breakage.

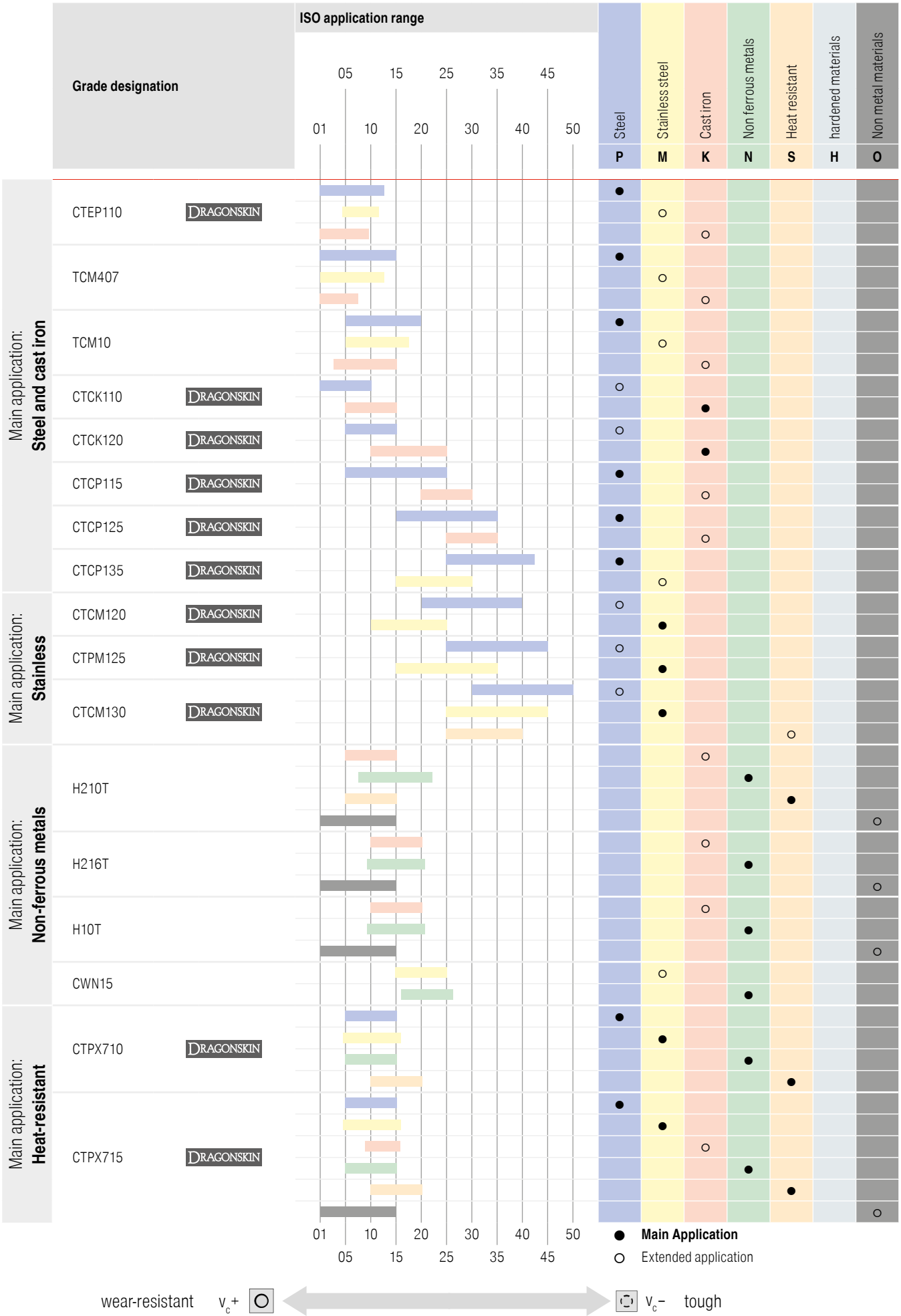
Cause
- Excessive stress of cutting material
- Lack of stability
- Clearance angle too small

Remedy
- Use tougher grade
- Use protective edge chamfer
- Increase edge hone
- Use geometry with higher stability

Recommendation for Optimum Results



Grades Overview



Grade description

TCM407
- Cermet, uncoated
- ISO | **P10** | M05 | K05
- The uncoated cermet grade for super-fine finishing steel materials

CTEP110
- Cermet, TiCN-Al_2O_3-coated
- ISO | **P10** | M10 | K05
- The cermet grade with reserves of toughness for finish machining at high cutting speeds

TCM10
- Cermet, uncoated
- ISO | **P15** | M10 | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

CTCP115
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P15** | K25
- The wear-resistant high-performance grade for stable conditions and a continuous cut

CTCP125
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P25** | K30
- The first choice for universal machining of steels

CTCP135
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P35** | M25
- The tough alternative for heavily interrupted cut and unstable conditions

CT-P15
- Carbide, coated
- ISO | **P15** | M10
- Wear-resistant standard steel grade for smooth cut

CT-P25
- Carbide, coated
- ISO | **P25** | M20
- Standard steel grade for universal steel machining

CT-P35
- Carbide, coated
- ISO | **P35** | M25
- Tough standard steel grade for interrupted cutting

CTCM120
- Carbide, TiCN-Al_2O_3-coated
- ISO | P15 | **M20**
- Wear-resistant turning grade for austenitic stainless steel; top performance for smooth cuts

CTCM130
- Carbide, TiCN-Al_2O_3-coated
- ISO | P25 | **M30**
- Robust turning grade for austenitic stainless steel with interrupted cuts

CTPM125
- ISO | P35 | **M25**
- The universal carbide grade with maximum toughness, without affecting the necessary hot hardness and wear resistance for stainless machining

CTCK110
- Carbide, TiCN-Al_2O_3-coated
- ISO | P05 | **K10**
- The wear-resistant grade for machining cast iron materials at high cutting speeds in a continuous cut

CTCK120
- Carbide, TiCN-Al_2O_3-coated
- ISO | P10 | **K20**
- The grade for cast iron machining, with high toughness reserves for difficult conditions and interrupted cuts

H10T
- Carbide, uncoated
- ISO | K15 | **N15** | O10
- The uncoated carbide grade for machining aluminium and other non-ferrous metals

H210T
- Carbide, uncoated
- ISO | **N10** | **S10** | K10 | O10
- The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

H216T
- Carbide, uncoated
- ISO | K15 | **N15** | O10
- The uncoated carbide grade for machining aluminium and other non-ferrous metals
- Also highly suitable for HSC machining

CWN15
- Carbide, TiN-coated
- ISO | M15 | **K15**
- Special carbide grade for abrasive aluminium alloys

CTPX710
- Carbide, AlTiN-coated
- ISO | **P10** | **M10** | K10 | **N10** | **S15**
- Universal multi-material grade from the X7 line for highest machining requirements

CTPX715
- Carbide, AlTiN-coated
- ISO | **P10** | **M10** | K10 | **N10** | **S15** | O10
- Universal multi-material grade from the X7 line for highest machining requirements

Grade description

C T C P 1 2 5 (Example)

Main application – material

1|P	Steel
2|M	Stainless steel
3|K	Cast iron
4|N	Light and non ferrous metals
5|S	Super alloys, titanium
6|H	Hard materials
7|X	Universal application

Application

1	Turning
2	Milling
3	Grooving
4	Drilling
5	Thread turning
6	Others
7	Several processes

Degree of hardness

05	ISO 05
10	ISO 10
15	ISO 15
	...

New products for machining technicians



→ Page 17–24

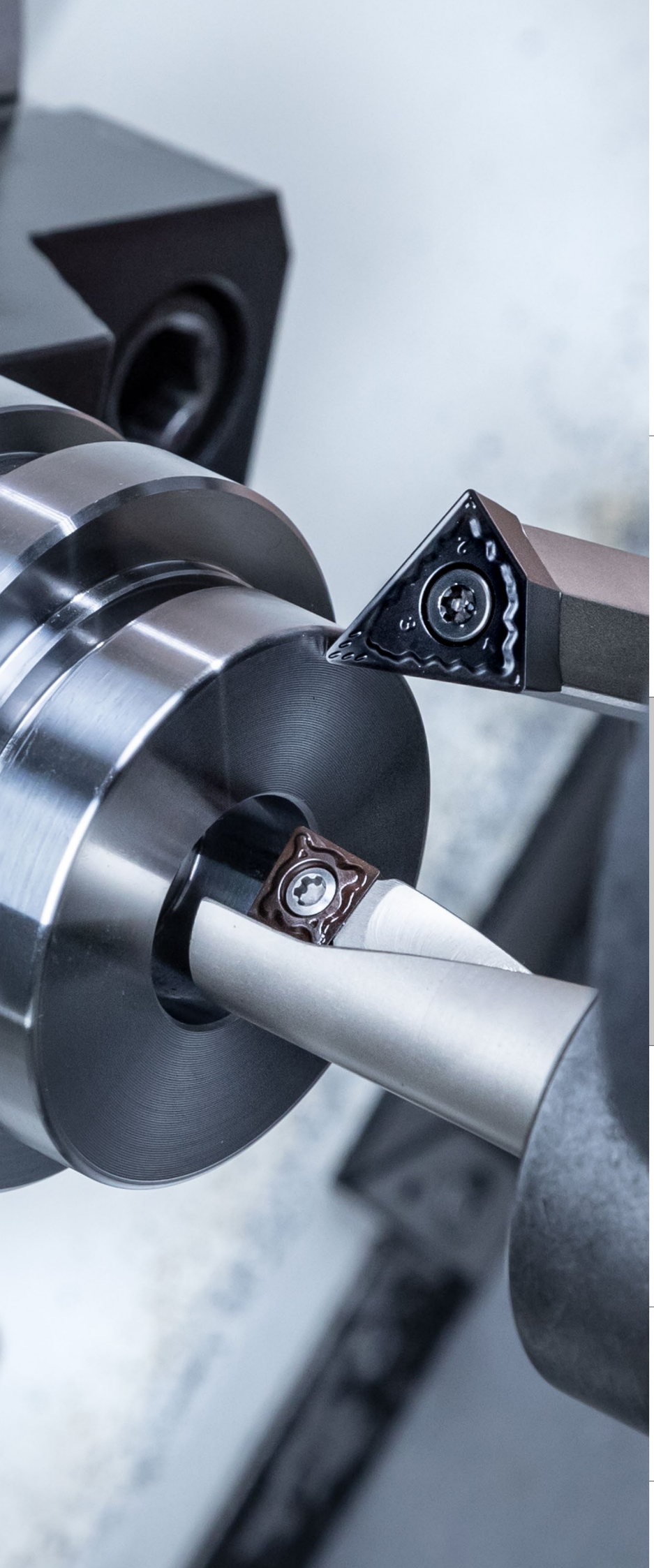
NEW FreeTurn

The innovative and extremely flexible FreeTurn tools have 3 cutting edges and are suitable for almost all external turning operations.

With High Dynamic Turning, HDT for short, and the dynamic FreeTurn turning tools, CERATIZIT is turning the conventional method of turning completely on its head. All familiar turning operations such as roughing, finishing, contour turning, facing and longitudinal turning can now be completed using just one tool.

Curious? More information about High Dynamic Turning and FreeTurn can be found on our website:

https://cuttingtools.ceratizit.com/gb/en/freeturn.html



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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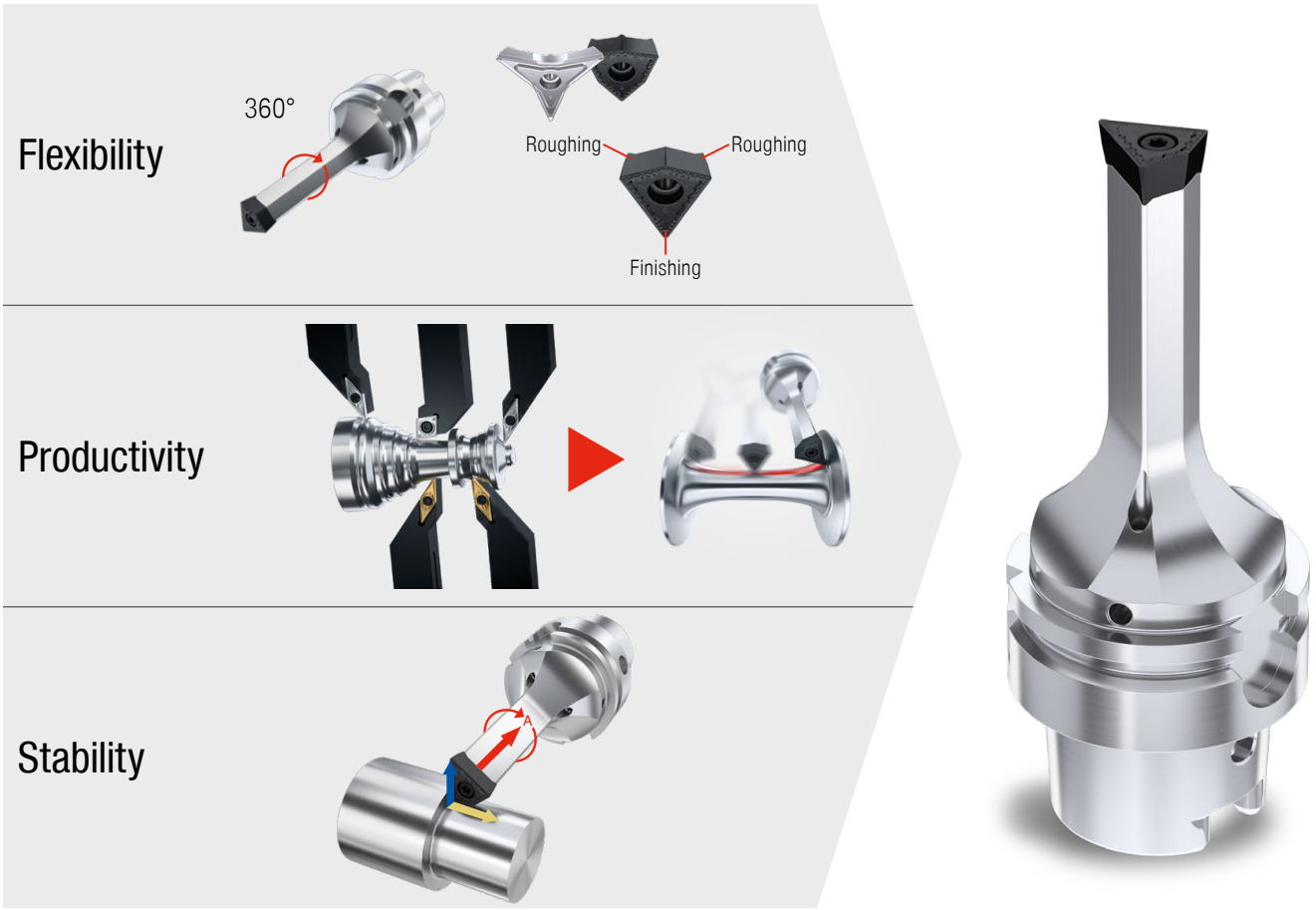
CERATIZIT \ Performance

Premium quality tools for high performance.

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

Advantages of FreeTurn



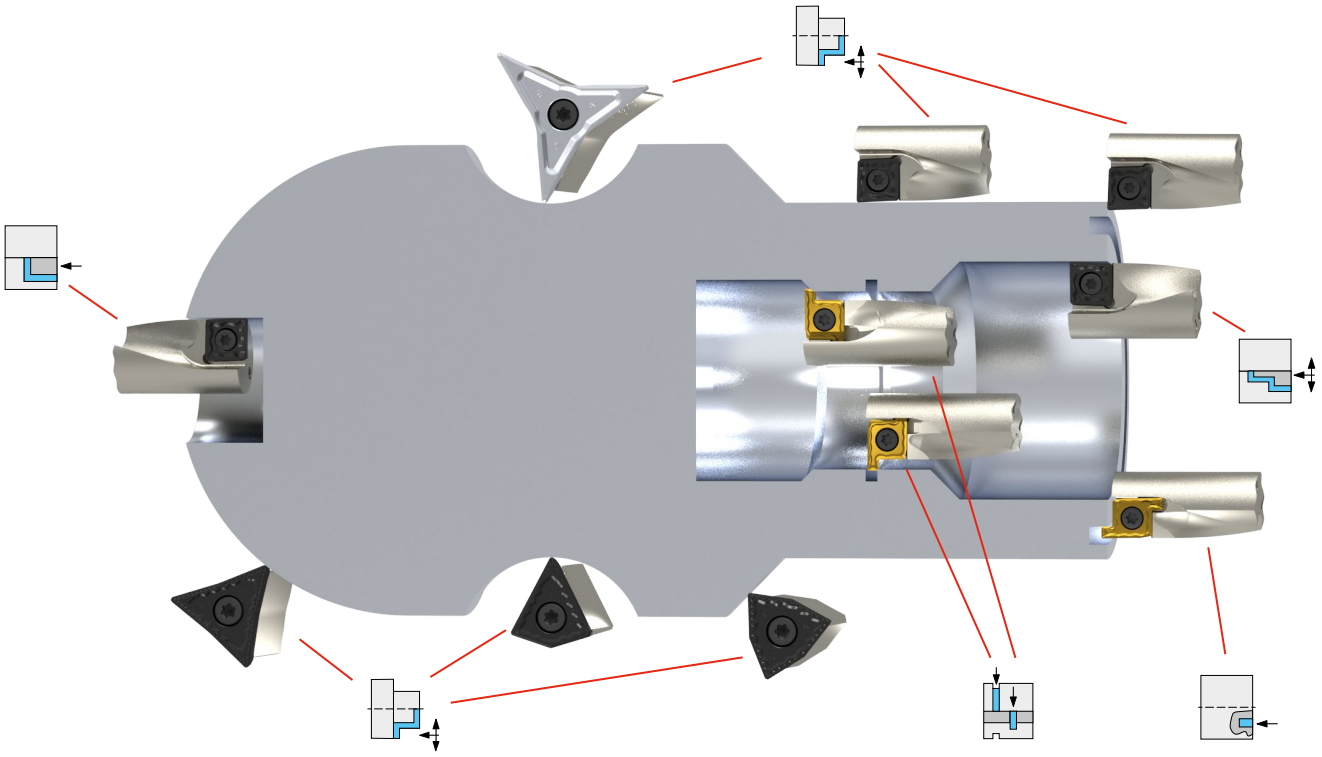
Advantages of EcoCut

- reduced machining time
- reduced need for tool positions
- generates flat bottom of hole
- less programming
- lower set-up costs / reduced setting time
- time savings due to fewer tool changes





Application examples



Symbol explanation


Turning outside profiles


Drilling into full material


Turning internal profiles


External / internal radial grooving

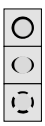

Axial grooving


Int. coolant supply

-28P Polished chip breaker
H216T Carbide Grade

F	Fine Machining
M	Medium Machining
R	Rough Machining

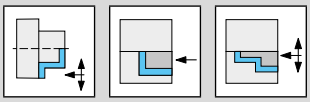
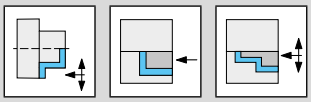
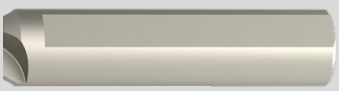
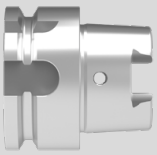
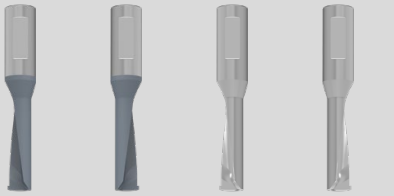
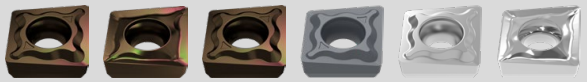
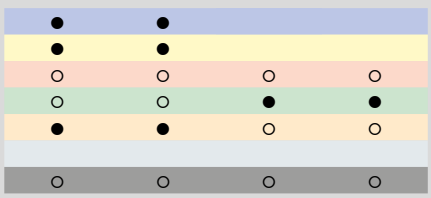
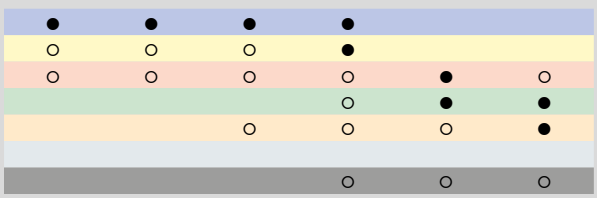




Smooth cut
Irregular cutting depth
Interrupted cut

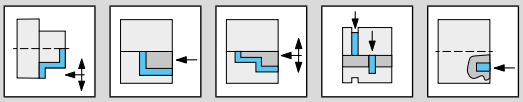
10

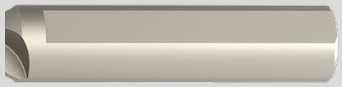
Toolfinder

Tool system	EcoCut Mini	EcoCut Classic
Application		
Machine interface	  → 7+8 Adapter for EcoCut Mini	  HSK-T 63
Lengths and diameters Versions	2,25xD Ø 2–8  → 6 4,0xD Ø 2–8  → 6	1,5xD Ø 8–32  → 10 2,25xD Ø 8–32  → 11 3,0xD Ø 8–32  → 12 2,25xD Ø 25–32  → 13
Cutting material designation	CTPP435 | CTPP435 | CTWN425 | CTWN425	CTCP425 | -M50Q CTCP425 | CTCP435 | CTPP430 | -27P H216T | -27Q H210T
Cutting conditions	DRAGONSKIN	DRAGONSKIN
		
	Solid carbide Left-hand | Solid carbide Right-hand | Solid carbide Left-hand | Solid carbide Right-hand	M XCNT | M XCNT | M XCNT | M XCNT | M XCET | M XCET
Application range		
Page No.	→ 6 | → 6 | → 6 | → 6	→ 9 | → 9 | → 9 | → 9 | → 9 | → 9
	→ v_c Page 26	→ v_c Page 26

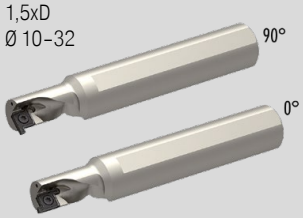
EcoCut tools are suitable for off-centre drilling. This permits certain deviations from the nominal tool diameter to be achieved → **For details, see the technical information.**

EcoCut ProfileMaster





1,5xD
Ø 10–32



→ 15

2,25xD
Ø 10–32



→ 16

-M20 CTPP430	-M20 CTPP430
DRAGONSKIN	DRAGONSKIN



M	M
PM-R	PM-L
●	●
●	●
○	○
○	○
●	●
○	○

→ 14 → 14

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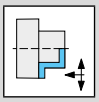
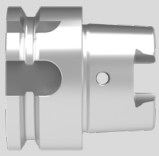
FreeTurn





HSK-T 63



PSC 63

LPR = 100
LPR = 125



→ 20+23

LPR = 100
LPR = 125



→ 21+24

CTCP125	CTPM125	-28P H216T	CTCP125	CTPM125	CTCP125	CTPM125
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



M M F	F F F	F F F	M M M
FT15 . 808055...	FT15 . 353535...	FT15 . 555555...	FT17 . 808080...
● ○		● ○	● ○
●		●	●
○	○	○	○
	●		
	○		

→ 17 → 17 → 18 → 19 → 19 → 22 → 22

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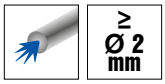
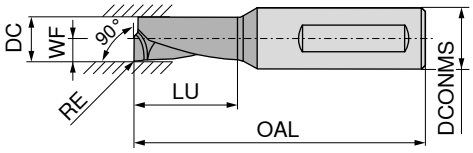
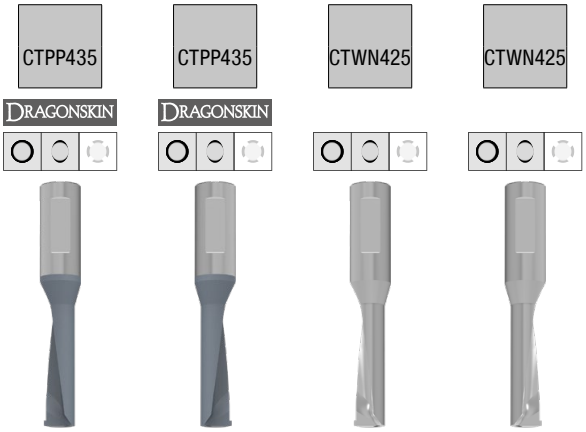
10

EcoCut – Mini

▲ Drilling and turning tool for small diameters







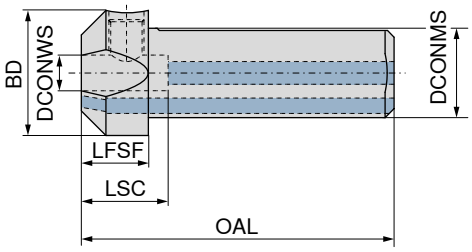
Solid carbide Left-hand | Solid carbide Right-hand | Solid carbide Left-hand | Solid carbide Right-hand

Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	RE mm	70 805 ... £ 2B/20		70 804 ... £ 2B/20		70 805 ... £ 2B/20		70 804 ... £ 2B/20	
ECM 02 R/L 2,25D	2.0	4	28	4.50	1.00	0.1	48.65	**320**	48.65	**320**				
ECM 02 R/L 2,25D AL	2.0	4	28	4.50	1.00	0.1					42.89	**420**	42.89	**420**
ECM 02 R/L 4,00D	2.0	4	31	8.00	1.00	0.1	51.03	**321**	51.03	**321**				
ECM 02 R/L 4,00D AL	2.0	4	31	8.00	1.00	0.1					44.97	**421**	44.97	**421**
ECM 02,5 R/L 2,25D	2.5	4	29	5.63	1.25	0.1	50.14	**325**	50.14	**325**				
ECM 02,5 R/L 2,25D AL	2.5	4	29	5.63	1.25	0.1					44.17	**425**	44.17	**425**
ECM 02,5 R/L 4,00D	2.5	4	33	10.00	1.25	0.1	52.62	**326**	52.62	**326**				
ECM 02,5 R/L 4,00D AL	2.5	4	33	10.00	1.25	0.1					46.36	**426**	46.36	**426**
ECM 03 R/L 2,25D	3.0	4	31	6.75	1.50	0.1	51.71	**330**	51.71	**330**				
ECM 03 R/L 2,25D AL	3.0	4	31	6.75	1.50	0.1					45.57	**430**	45.57	**430**
ECM 03 R/L 4,00D	3.0	4	35	12.00	1.50	0.1	54.31	**331**	54.31	**331**				
ECM 03 R/L 4,00D AL	3.0	4	35	12.00	1.50	0.1					47.85	**431**	47.85	**431**
ECM 03,5 R/L 2,25D	3.5	4	32	7.88	1.75	0.1	53.71	**335**	53.71	**335**				
ECM 03,5 R/L 2,25D AL	3.5	4	32	7.88	1.75	0.1					47.36	**435**	47.36	**435**
ECM 03,5 R/L 4,00D	3.5	4	37	14.00	1.75	0.1	56.39	**336**	56.39	**336**				
ECM 03,5 R/L 4,00D AL	3.5	4	37	14.00	1.75	0.1					49.73	**436**	49.73	**436**
ECM 04 R/L 2,25D	4.0	6	35	9.00	2.00	0.2	57.04	**300**	57.04	**300**				
ECM 04 R/L 2,25D AL	4.0	6	35	9.00	2.00	0.2					50.24	**450**	50.24	**450**
ECM 04 R/L 4,00D	4.0	6	41	16.00	2.00	0.2	59.87	**301**	59.87	**301**				
ECM 04 R/L 4,00D AL	4.0	6	41	16.00	2.00	0.2					52.76	**451**	52.76	**451**
ECM 05 R/L 2,25D	5.0	6	37	11.25	2.50	0.2	59.01	**302**	59.01	**302**				
ECM 05 R/L 2,25D AL	5.0	6	37	11.25	2.50	0.2					51.66	**452**	51.66	**452**
ECM 05 R/L 4,00D	5.0	6	45	20.00	2.50	0.2	61.74	**303**	61.74	**303**				
ECM 05 R/L 4,00D AL	5.0	6	45	20.00	2.50	0.2					54.18	**453**	54.18	**453**
ECM 06 R/L 2,25D	6.0	8	38	13.50	3.00	0.2	60.53	**306**	60.53	**306**				
ECM 06 R/L 2,25D AL	6.0	8	38	13.50	3.00	0.2					53.41	**456**	53.41	**456**
ECM 06 R/L 4,00D	6.0	8	49	24.00	3.00	0.2	63.59	**312**	63.59	**312**				
ECM 06 R/L 4,00D AL	6.0	8	49	24.00	3.00	0.2					55.83	**462**	55.83	**462**
ECM 07 R/L 2,25D	7.0	8	42	15.75	3.50	0.2	62.40	**308**	62.40	**308**				
ECM 07 R/L 2,25D AL	7.0	8	42	15.75	3.50	0.2					55.06	**458**	55.06	**458**
ECM 07 R/L 4,00D	7.0	8	53	28.00	3.50	0.2	65.68	**314**	65.68	**314**				
ECM 07 R/L 4,00D AL	7.0	8	53	28.00	3.50	0.2					57.58	**464**	57.58	**464**
ECM 08 R/L 2,25D	8.0	8	45	18.00	4.00	0.2	64.47	**310**	64.47	**310**				
ECM 08 R/L 2,25D AL	8.0	8	45	18.00	4.00	0.2					56.60	**460**	56.60	**460**
ECM 08 R/L 4,00D	8.0	8	57	32.00	4.00	0.2	67.54	**316**	67.54	**316**				
ECM 08 R/L 4,00D AL	8.0	8	57	32.00	4.00	0.2					59.33	**466**	59.33	**466**

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

→ v_c Page 26

EcoCut – Adapter Mini





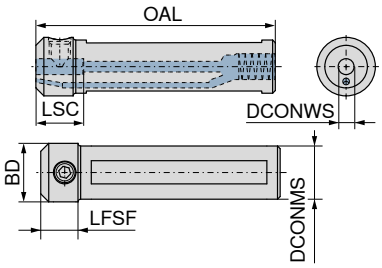
Designation	DCONWS mm	DCONMS mm	BD mm	OAL mm	LFSF mm	LSC mm	70 800 ... £ 2B/20	
EC-ADX16-04	4	16.00	22	59.0	14	18	180.22	**716**
EC-ADX12-04-E	4	19.05	25	63.5	14	18	180.22	**719**
EC-ADX20-04	4	20.00	25	64.0	14	18	180.22	**720**
EC-ADX16-06	6	16.00	22	59.0	14	18	180.22	**976**
EC-ADX12-06-E	6	19.05	25	63.5	14	18	180.22	**986**
EC-ADX20-06	6	20.00	25	64.0	14	18	180.22	**996**
EC-ADX16-08	8	16.00	22	59.0	14	18	180.22	**978**
EC-ADX12-08-E	8	19.05	25	63.5	14	18	180.22	**988**
EC-ADX20-08	8	20.00	25	64.0	14	18	180.22	**998**


Clamping screw

Spare parts for Article no.		70 950 ... £ 2A/28	
70 800 716	M5x10 ISO 4026	2.85	**867**
70 800 719	M5x10 ISO 4026	2.85	**867**
70 800 720	M5x10 ISO 4026	2.85	**867**
70 800 976	M8x1x8 - SW4	2.85	**123**
70 800 986	M8x1x8 - SW4	2.85	**123**
70 800 996	M8x1x8 - SW4	2.85	**123**
70 800 978	M8x1x8 - SW4	2.85	**123**
70 800 988	M8x1x8 - SW4	2.85	**123**
70 800 998	M8x1x8 - SW4	2.85	**123**

EcoCut – Mini adapter with coolant connection thread







Designation	DCONWS mm	DCONMS mm	BD mm	OAL mm	LFSF mm	LSC mm	Thread	70 801 ... £ 2B/20	
ECA 16-04	4	16.00	20.0	75	14	18	G 1/8	96.22	**716**
ECA 0750-04	4	19.05	20.0	100	14	18	G 1/8	98.23	**719**
ECA 20-04	4	20.00	19.6	90	14	18	G 1/8	98.23	**720**
ECA 22-04	4	22.00	21.6	110	14	18	G 1/8	101.18	**722**
ECA 25-04	4	25.00	24.6	110	14	18	G 1/8	102.13	**725**
ECA 1000-04	4	25.40	25.0	110	14	18	G 1/8	102.13	**726**
ECA 16-06	6	16.00	22.0	75	14	18	G 1/8	96.22	**816**
ECA 0750-06	6	19.05	22.0	100	14	18	G 1/8	98.23	**819**
ECA 20-06	6	20.00	22.0	90	14	18	G 1/8	98.23	**820**
ECA 22-06	6	22.00	21.6	110	14	18	G 1/8	101.18	**822**
ECA 25-06	6	25.00	24.6	110	14	18	G 1/8	102.13	**825**
ECA 1000-06	6	25.40	25.0	110	14	18	G 1/8	102.13	**826**
ECA 16-08	8	16.00	22.0	75	14	18	G 1/8	96.22	**916**
ECA 0750-08	8	19.05	22.0	100	14	18	G 1/8	98.23	**919**
ECA 20-08	8	20.00	22.0	90	14	18	G 1/8	98.23	**920**
ECA 22-08	8	22.00	21.6	110	14	18	G 1/8	101.18	**922**
ECA 25-08	8	25.00	24.6	110	14	18	G 1/8	102.13	**925**
ECA 1000-08	8	25.40	25.0	110	14	18	G 1/8	102.13	**926**

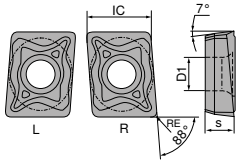


Clamping screw

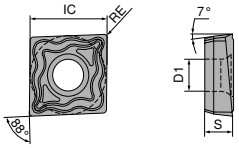
Spare parts for Article no.		70 950 ... £ 2A/28	
70 801 716	M5X8 - DIN 913	1.43	**13200**
70 801 719	M5X8 - DIN 913	1.43	**13200**
70 801 720	M5X8 - DIN 913	1.43	**13200**
70 801 722	M5X8 - DIN 913	1.43	**13200**
70 801 725	M5x10 ISO 4026	2.85	**867**
70 801 726	M5x10 ISO 4026	2.85	**867**
70 801 816	M8x1x8 - SW4	2.85	**123**
70 801 819	M8x1x8 - SW4	2.85	**123**
70 801 820	M8x1x8 - SW4	2.85	**123**
70 801 822	M8x1x8 - SW4	2.85	**123**
70 801 825	M8x1x8 - SW4	2.85	**123**
70 801 826	M8x1x8 - SW4	2.85	**123**
70 801 916	M8x1x8 - SW4	2.85	**123**
70 801 919	M8x1x8 - SW4	2.85	**123**
70 801 920	M8x1x8 - SW4	2.85	**123**
70 801 922	M8x1x8 - SW4	2.85	**123**
70 801 925	M8x1x8 - SW4	2.85	**123**
70 801 926	M8x1x8 - SW4	2.85	**123**

XCNT / XCET

Designation	S mm	D1 mm	IC mm
XC.T 0401..	1.80	2.10	4.5
XC.T 0502..	2.10	2.25	5.8
XC.T 0602..	2.38	2.50	6.5
XC.T 0703..	3.18	2.80	7.6
XC.T 0803..	3.18	3.40	8.5
XC.T 09T3..	3.97	3.40	9.6
XC.T 10T3..	3.97	4.40	10.6
XC.T 1304..	4.76	5.30	13.5
XC.T 1705..	5.56	5.30	17.5

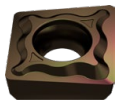
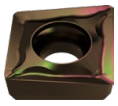
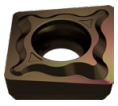
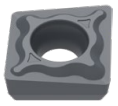
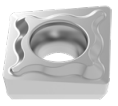


XC. T 04..



XC. T 05../06../07../08../09../10../13../17..

XCNT / XCET

	CTCP425	-M50Q CTCP425	CTCP435	CTPP430	-27P H216T	-27Q H210T
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
						
	M	M	M	M	M	M
	XCNT	XCNT	XCNT	XCNT	XCET	XCET
	70 386 ...	70 386 ...	70 386 ...	70 386 ...	70 286 ...	70 286 ...
ISO	RE mm	£ 1D/19	£ 1D/19	£ 1D/19	£ 1D/19	£ 1D/19
040102EL	0.2	14.77 720		14.77 820	14.77 920		
040102ER	0.2	14.77 722		14.77 822	14.77 922		
040102FL	0.2					16.54 620	17.19 120
040102FR	0.2					16.54 622	17.19 122
040104EL	0.4	14.77 700	15.41 750	14.77 800	14.77 900		
040104ER	0.4	14.77 702	15.41 752	14.77 802	14.77 902		
040104FL	0.4					16.54 600	17.19 100
040104FR	0.4					16.54 602	17.19 102
050202EN	0.2	14.77 723		14.77 823	14.77 923		
050202FN	0.2					16.54 623	17.19 123
050204EN	0.4	14.77 703	15.41 753	14.77 803	14.77 903		
050204FN	0.4					16.54 603	17.19 103
060202EN	0.2	14.77 724		14.77 824	14.77 924		
060202FN	0.2					16.54 624	17.19 124
060204EN	0.4	14.77 704	15.41 754	14.77 804	14.77 904		
060204FN	0.4					16.54 604	17.19 104
070304EN	0.4	14.77 705	15.41 755	14.77 805	14.77 905		
070304FN	0.4					16.54 605	17.19 105
080304EN	0.4	14.99 706	15.66 756	14.99 806	14.99 906		
080304FN	0.4					16.76 606	17.40 106
09T304EN	0.4	15.21 707	15.98 757	15.21 807	15.21 907		
09T304FN	0.4					16.85 607	17.51 107
10T304EN	0.4	15.98 708	16.64 758	15.98 808	15.98 908		
10T304FN	0.4					17.19 608	18.07 108
10T308EN	0.8	15.98 738	16.64 788	15.98 838	15.98 938		
10T308FN	0.8					17.19 628	18.07 128
130404EN	0.4	18.28 710	19.15 760	18.28 810	18.28 910		
130404FN	0.4					21.03 610	21.89 110
130408EN	0.8	18.28 740	19.15 790	18.28 840	18.28 940		
130408FN	0.8					21.03 611	21.89 111
170508EN	0.8	19.27 712	20.25 762	19.27 812	19.27 912		
170508FN	0.8					21.34 612	22.43 112
P		●	●	●	●		
M		○	○	○	●		
K		○	○	○	○	●	○
N					○	●	●
S				○	○	○	●
H							
O					○	○	○

→ v_c Page 26

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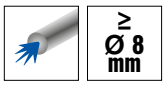
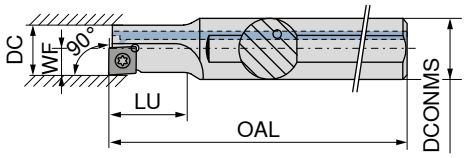
EcoCut – Classic 1.5xD

▲ Drilling and turning tool

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver







Left-hand | Right-hand

Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert	70 805 ... £ 2B/20		70 804 ... £ 2B/20	
ECC 08 L 1,5D 04	8	12	80	12.0	4.0	0,4	XC.T 0401..EL	151.87	**008** [2]		
ECC 08 R 1,5D 04	8	12	80	12.0	4.0	0,4	XC.T 0401..ER			151.87	**008** [1]
ECC 10 R/L 1,5D 05	10	12	90	15.0	5.0	0,7	XC.T 0502..	151.87	**010**	151.87	**010**
ECC 12 R/L 1,5D 06	12	16	100	18.0	6.0	1,0	XC.T 0602..	154.35	**012**	154.35	**012**
ECC 14 R/L 1,5D 07	14	16	110	21.0	7.0	1,2	XC.T 0703..	158.08	**014**	158.08	**014**
ECC 16 R/L 1,5D 08	16	20	125	24.0	8.0	2,2	XC.T 0803..	160.56	**016**	160.56	**016**
ECC 18 R/L 1,5D 09	18	25	135	27.0	9.0	2,2	XC.T 09T3..	185.18	**018**	185.18	**018**
ECC 20 R/L 1,5D 10	20	25	150	30.0	10.0	3,2	XC.T 10T3..	208.76	**020**	208.76	**020**
ECC 25 R/L 1,5D 13	25	32	180	37.5	12.5	5,0	XC.T 1304..	240.73	**025**	240.73	**025**
ECC 32 R/L 1,5D 17	32	40	200	48.0	16.0	5,0	XC.T 1705..	272.91	**032**	272.91	**032**

1) Note! Right-hand insert on right-hand tool → **Page 39**
2) Note! Left-hand insert on left-hand tool → **Page 39**



Key D



Clamping screw

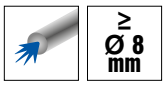
Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 805 008	T06 - IP	14.36	**123**	M1,8x3,6 - IP	3.52	**862**
70 804 008	T06 - IP	14.36	**123**	M1,8x3,6 - IP	3.52	**862**
70 805 010 / 70 804 010	T06 - IP	14.36	**123**	M2x4,3 - IP	3.13	**863**
70 805 012 / 70 804 012	T07 - IP	14.16	**124**	M2,2x5 - IP	3.03	**856**
70 805 014 / 70 804 014	T08 - IP	14.16	**125**	M2,5x6 - IP	3.91	**857**
70 805 016 / 70 804 016	T09 - IP	15.51	**126**	M3x7 - IP	2.99	**819**
70 805 018 / 70 804 018	T09 - IP	15.51	**126**	M3x7 - IP	2.99	**819**
70 805 020 / 70 804 020	T15 - IP	16.56	**128**	M3,5x8,6 - IP	2.99	**859**
70 805 025 / 70 804 025	T20 - IP	17.39	**129**	M4,5x10,5 - IP	2.99	**864**
70 805 032 / 70 804 032	T20 - IP	17.39	**129**	M4,5x10,5 - IP	2.99	**864**

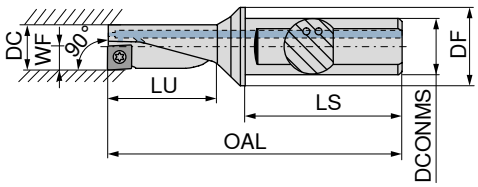
EcoCut – Classic 2.25xD

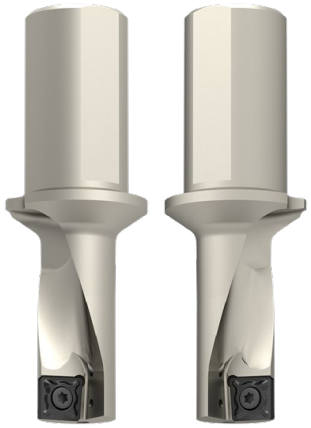
▲ Drilling and turning tool

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver







Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LS mm	WF mm	torque moment Nm	Insert	Left-hand 70 805 ... £ 2B/20		Right-hand 70 804 ... £ 2B/20	
ECC 08 L 2,25D 04	8	10	12	60.0	18.0	38	4.0	0,4	XC.T 0401..EL	225.94	108 [2]		
ECC 08 R 2,25D 04	8	10	12	60.0	18.0	38	4.0	0,4	XC.T 0401..ER			225.94	108 [1]
ECC 10 R/L 2,25D 05	10	12	16	69.5	22.5	42	5.0	0,7	XC.T 0502..	225.94	110	225.94	110
ECC 12 R/L 2,25D 06	12	16	20	78.0	27.0	45	6.0	1,0	XC.T 0602..	232.14	112	232.14	112
ECC 14 R/L 2,25D 07	14	16	20	83.5	31.5	45	7.0	1,2	XC.T 0703..	237.21	114	237.21	114
ECC 16 R/L 2,25D 08	16	20	25	94.0	36.0	50	8.0	2,2	XC.T 0803..	242.17	116	242.17	116
ECC 18 R/L 2,25D 09	18	25	32	109.5	40.5	56	9.0	2,2	XC.T 09T3..	266.79	118	266.79	118
ECC 20 R/L 2,25D 10	20	25	32	111.0	45.0	56	10.0	3,2	XC.T 10T3..	290.38	120	290.38	120
ECC 25 R/L 2,25D 13	25	32	40	129.0	56.5	60	12.5	5,0	XC.T 1304..	337.14	125	337.14	125
ECC 32 R/L 2,25D 17	32	40	50	158.0	72.0	70	16.0	5,0	XC.T 1705..	379.05	132	379.05	132

1) Note! Right-hand insert on right-hand tool → **Page 39**
2) Note! Left-hand insert on left-hand tool → **Page 39**


Key D


Clamping screw

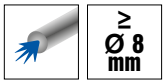
Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 805 108	T06 - IP	14.36	123	M1,8x3,6 - IP	3.52	862
70 804 108	T06 - IP	14.36	123	M1,8x3,6 - IP	3.52	862
70 805 110 / 70 804 110	T06 - IP	14.36	123	M2x4,3 - IP	3.13	863
70 805 112 / 70 804 112	T07 - IP	14.16	124	M2,2x5 - IP	3.03	856
70 805 114 / 70 804 114	T08 - IP	14.16	125	M2,5x6 - IP	3.91	857
70 805 116 / 70 804 116	T09 - IP	15.51	126	M3x7 - IP	2.99	819
70 805 118 / 70 804 118	T09 - IP	15.51	126	M3x7 - IP	2.99	819
70 805 120 / 70 804 120	T15 - IP	16.56	128	M3,5x8,6 - IP	2.99	859
70 805 125 / 70 804 125	T20 - IP	17.39	129	M4,5x10,5 - IP	2.99	864
70 805 132 / 70 804 132	T20 - IP	17.39	129	M4,5x10,5 - IP	2.99	864

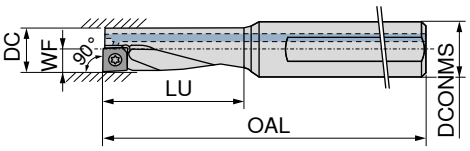
EcoCut – Classic 3xD – Heavy metal

▲ Drilling and turning tool
▲ vibration-damped

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver







Left-hand



Right-hand

Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert	70 805 ... £ 2B/20		70 804 ... £ 2B/20	
ECC 08 L 3,00D 04 H	8	12	80	24	4.0	0,4	XC.T 0401..EL	557.17	**608** [2]		
ECC 08 R 3,00D 04 H	8	12	80	24	4.0	0,4	XC.T 0401..ER			557.17	**608** [1]
ECC 10 R/L 3,00D 05 H	10	12	85	30	5.0	0,7	XC.T 0502..	559.65	**610**	559.65	**610**
ECC 12 R/L 3,00D 06 H	12	16	95	36	6.0	1,0	XC.T 0602..	604.03	**612**	604.03	**612**
ECC 14 R/L 3,00D 07 H	14	16	100	42	7.0	1,2	XC.T 0703..	618.07	**614**	618.07	**614**
ECC 16 R/L 3,00D 08 H	16	20	110	48	8.0	2,2	XC.T 0803..	677.72	**616**	677.72	**616**
ECC 18 R/L 3,00D 09 H	18	25	125	54	9.0	2,2	XC.T 09T3..	820.43	**618**	820.43	**618**
ECC 20 R/L 3,00D 10 H	20	25	130	60	10.0	3,2	XC.T 10T3..	837.04	**620**	837.04	**620**
ECC 25 R/L 3,00D 13 H	25	32	150	75	12.5	5,0	XC.T 1304..	1,066.22	**625**	1,066.22	**625**
ECC 32 R/L 3,00D 17 H	32	40	185	96	16.0	5,0	XC.T 1705..	1,395.54	**632**	1,395.54	**632**

1) Note! Right-hand insert on right-hand tool → **Page 39**
2) Note! Left-hand insert on left-hand tool → **Page 39**



Key D



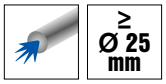
Clamping screw

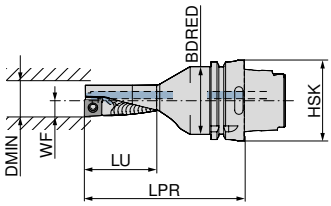
Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 805 608	T06 - IP	14.36	**123**	M1,8x3,6 - IP	3.52	**862**
70 804 608	T06 - IP	14.36	**123**	M1,8x3,6 - IP	3.52	**862**
70 805 610 / 70 804 610	T06 - IP	14.36	**123**	M2x4,3 - IP	3.13	**863**
70 805 612 / 70 804 612	T07 - IP	14.16	**124**	M2,2x5 - IP	3.03	**856**
70 805 614 / 70 804 614	T08 - IP	14.16	**125**	M2,5x6 - IP	3.91	**857**
70 805 616 / 70 804 616	T09 - IP	15.51	**126**	M3x7 - IP	2.99	**819**
70 805 618 / 70 804 618	T09 - IP	15.51	**126**	M3x7 - IP	2.99	**819**
70 805 620 / 70 804 620	T15 - IP	16.56	**128**	M3,5x8,6 - IP	2.99	**859**
70 805 625 / 70 804 625	T20 - IP	17.39	**129**	M4,5x10,5 - IP	2.99	**864**
70 805 632 / 70 804 632	T20 - IP	17.39	**129**	M4,5x10,5 - IP	2.99	**864**

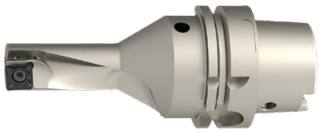
EcoCut – HSK-T 2.25xD

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver







Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LU mm	BDRED mm	WF mm	DMIN mm	Left-hand 74 591 ... £ 2D/80		Right-hand 74 590 ... £ 2D/80	
HSK T63 EC 25 R/L 2,25D 13	HSK-T 63	125	56.5	53	12.5	25	459.34	**525**	459.34	**525**
HSK T63 EC 32 R/L 2,25D 17	HSK-T 63	125	72.0	53	16.0	32	459.34	**532**	459.34	**532**


Key D


Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28	
74 590 525 / 74 591 525	13.77	**114**	2.99	**01200**
74 590 532 / 74 591 532	13.77	**114**	2.99	**01200**

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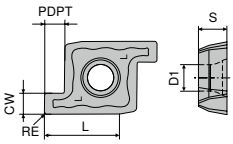
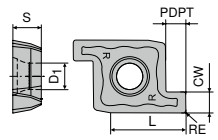
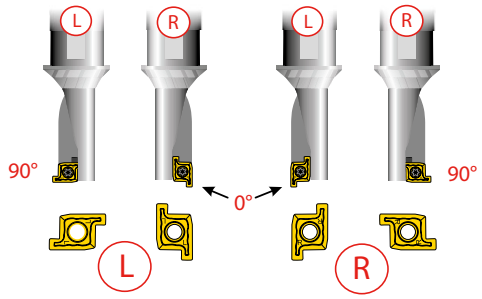
PM-R / PM-L

Designation	CW mm	PDPT mm	L mm	S mm	D1 mm
PM 10 G 201504	2.0	1.5	5.0	2.10	2.1
PM 12 G 201804	2.0	1.8	6.0	2.30	2.5
PM 16 G 252004	2.5	2.0	8.0	2.80	3.4
PM 20 G 302504	3.0	2.5	10.0	3.70	4.0
PM 25 G 353004	3.5	3.0	12.5	4.50	4.4
PM 32 G 404004	4.0	4.0	16.0	5.60	6.0



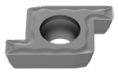


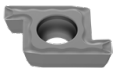


PM-L / PM-R









ISO	RE mm		M PM-L 70 289 ... £ 1F/P2		M PM-R 70 289 ... £ 1F/P2	
PM 10 G 201504	0.4		15.91	510	15.91	511
PM 12 G 201804	0.4		16.03	515	16.03	516
PM 16 G 252004	0.4		16.22	520	16.22	521
PM 20 G 302504	0.4		16.98	525	16.98	526
PM 25 G 353004	0.4		18.90	530	18.90	531
PM 32 G 404004	0.4		20.40	535	20.40	536
P				●		●
M				●		●
K				○		○
N				○		○
S				●		●
H						
O				○		○

→ v_c Page 26

EcoCut – ProfileMaster 1.5xD

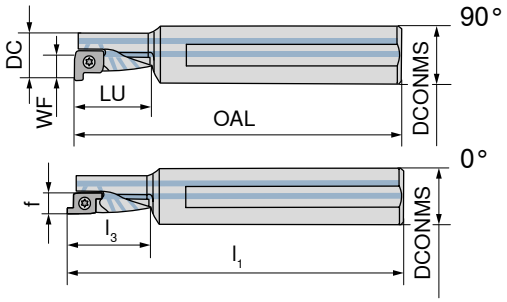
▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver









Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	l_1 mm	l_3 mm	f mm	torque moment Nm	Insert	Left-hand 70 821 ... £ 2G/P1		Right-hand 70 820 ... £ 2G/P1	
PMC 10 R/L 1,5D	10	12	80	15.0	5.0				0,4	PM 10R/L	163.71	**010** 1)	163.71	**010** 1)
PMC 12 R/L 1,5D	12	16	90	18.0	6.0				1,0	PM 12R/L	169.72	**012** 1)	169.72	**012** 1)
PMC 16 R/L 1,5D	16	20	125	24.0	8.0	127.3	26.3	5.7	2,2	PM 16R/L	179.55	**016**	179.55	**016**
PMC 20 R/L 1,5D	20	25	150	30.0	10.0	152.8	32.8	7.2	2,2	PM 20R/L	221.55	**020**	221.55	**020**
PMC 25 R/L 1,5D	25	32	180	37.5	12.5	183.3	40.8	9.2	3,2	PM 25R/L	251.81	**025**	251.81	**025**
PMC 32 R/L 1,5D	32	40	200	48.0	16.0	204.3	52.3	11.7	5,0	PM 32R/L	287.98	**032**	287.98	**032**

1) only usable as 90° version


Key D


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 820 010 / 70 821 010	T06 - IP	14.36	**123**	M1,8x3,6 - IP	3.52	**862**
70 820 012 / 70 821 012	T07 - IP	14.16	**124**	M2,2x4,2 - IP	3.03	**137**
70 820 016 / 70 821 016	T09 - IP	15.51	**126**	M3x5,7 - IP	2.99	**008**
70 820 020 / 70 821 020	T15 - IP	16.56	**128**	M3x5,7 - IP	2.99	**009**
70 820 025 / 70 821 025	T15 - IP	16.56	**128**	M3,5x8,6 - IP	2.99	**859**
70 820 032 / 70 821 032	T20 - IP	17.39	**129**	M5x10,8 - IP	7.79	**010**

EcoCut – ProfileMaster 2.25xD

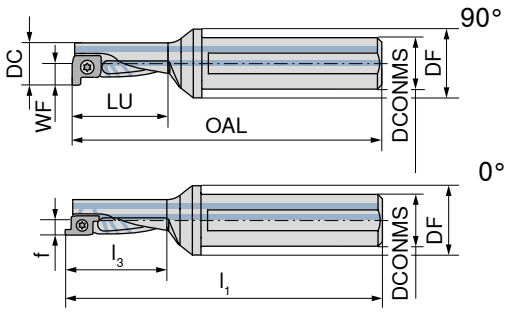
▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver









Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	WF mm	l_1 mm	l_3 mm	f mm	torque moment Nm	Insert	Left-hand 70 821 ... £ 2G/P1		Right-hand 70 820 ... £ 2G/P1	
PMC 10 R/L 2,25D	10	12	18	72.4	22.5	5.0				0,4	PM 10R/L	240.83	**110** 1)	240.83	**110** 1)
PMC 12 R/L 2,25D	12	16	22	78.0	27.0	6.0				1,0	PM 12R/L	245.89	**112** 1)	245.89	**112** 1)
PMC 16 R/L 2,25D	16	20	28	96.5	36.0	8.0	98.8	38.3	5.7	2,2	PM 16R/L	259.07	**116**	259.07	**116**
PMC 20 R/L 2,25D	20	25	35	111.0	45.0	10.0	113.8	47.8	7.2	2,2	PM 20R/L	309.56	**120**	309.56	**120**
PMC 25 R/L 2,25D	25	32	44	132.6	56.3	12.5	135.9	59.6	9.2	3,2	PM 25R/L	355.48	**125**	355.48	**125**
PMC 32 R/L 2,25D	32	40	54	158.0	72.0	16.0	162.3	76.3	11.7	5,0	PM 32R/L	398.81	**132**	398.81	**132**

1) only usable as 90° version



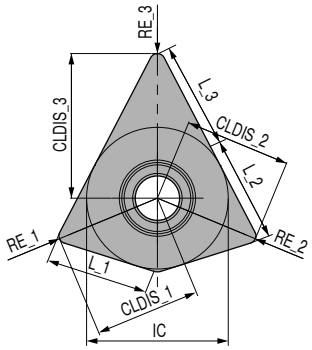
Key D

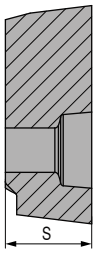


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 820 110 / 70 821 110	T06 - IP	14.36	**123**	M1,8x3,6 - IP	3.52	**862**
70 820 112 / 70 821 112	T07 - IP	14.16	**124**	M2,2x4,2 - IP	3.03	**137**
70 820 116 / 70 821 116	T09 - IP	15.51	**126**	M3x5,7 - IP	2.99	**008**
70 820 120 / 70 821 120	T15 - IP	16.56	**128**	M3x5,7 - IP	2.99	**009**
70 820 125 / 70 821 125	T15 - IP	16.56	**128**	M3,5x8,6 - IP	2.99	**859**
70 820 132 / 70 821 132	T20 - IP	17.39	**129**	M5x10,8 - IP	7.79	**010**

FT15 . 808055...



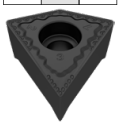


Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT15 M 808055R080804-MMF	15	11.22	10.8	11.22	11.4	15.78	11.4	9.14
FT15 M 808055R08-MMF	15	11.22	10.8	11.22	11.2	15.31	11.2	9.14
FT15 M 808055R121208-MMF	15	11.00	10.7	11.00	11.2	15.31	11.2	9.14

NEW

CTCP125

DRAGONSKIN



M M F

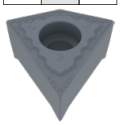
FT15 . 808055...

74 003 ...

NEW

CTPM125

DRAGONSKIN



M M F

FT15 . 808055...

74 003 ...

ISO	RE_1 mm	RE_2 mm	RE_3 mm	£ FW		£ FW	
FT15 M 808055R080804-MMF	0.8	0.8	0.4	20.55	**00400**		
FT15 M 808055R08-MMF	0.8	0.8	0.8	20.55	**00200**	20.55	**10200**
FT15 M 808055R121208-MMF	1.2	1.2	0.8	20.55	**00600**		
P				●		○	
M						●	
K				○			
N							
S							
H							
O							

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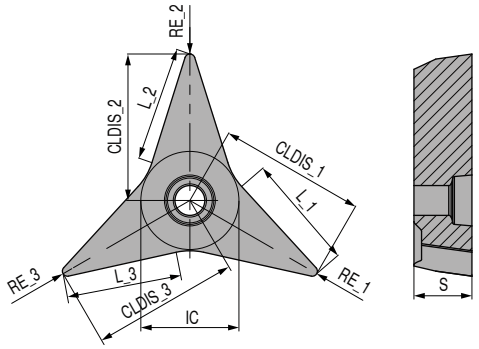
→ v_c Page 27

FT15 . 353535...



Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT15 G 353535R04-28P	15	24.01	16.1	24.01	16.1	24.01	16.1	9.14
FT15 G 353535R08-28P	15	23.08	15.2	23.08	15.2	23.08	15.2	9.14

NEW

-28P
H216T

DRAGONSKIN



F F F

FT15 . 353535...

74 001 ...

ISO	RE_1 mm	RE_2 mm	RE_3 mm	£ FW	
FT15 G 353535R04-28P	0.4	0.4	0.4	34.35	**20200**
FT15 G 353535R08-28P	0.8	0.8	0.8	34.35	**20400**

P	
M	
K	○
N	●
S	
H	
O	○

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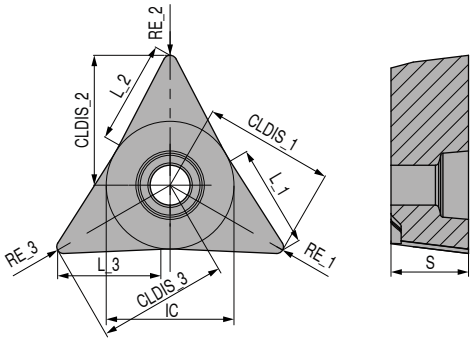
FT15 . 555555...



Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT15 M 555555R04-FFF	15	15.78	12.6	15.78	12.6	15.78	12.6	9.14
FT15 M 555555R08-FFF	15	15.31	12.3	15.31	12.3	15.31	12.3	9.14

NEW

CTCP125

DRAGONSKIN



F F F

FT15 . 555555...

74 002 ...

NEW

CTPM125

DRAGONSKIN



F F F

FT15 . 555555...

74 002 ...

ISO	RE_1 mm	RE_2 mm	RE_3 mm	£ FW		£ FW	
FT15 M 555555R04-FFF	0.4	0.4	0.4	17.68	**00200**		
FT15 M 555555R08-FFF	0.8	0.8	0.8	17.68	**00400**	17.68	**10400**
P				●		○	
M						●	
K				○			
N							
S							
H							
O							

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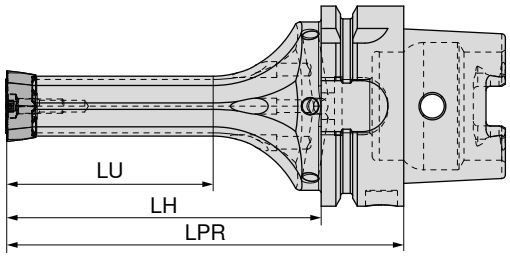
FreeTurn – HSK-T tool holder FT15

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply







Figures show version FT15 . 808055...

NEW

DirectCooling

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	74 700 ... £ FT	
HSK-T63-100-FT15 353535	HSK-T 63	100	74	40	FT15 . 353535...	559.00	**00137**
HSK-T63-100-FT15 555555	HSK-T 63	100	74	40	FT15 . 555555...	559.00	**00337**
HSK-T63-100-FT15 808055	HSK-T 63	100	74	40	FT15 . 808055...	559.00	**00537**
HSK-T63-125-FT15 353535	HSK-T 63	125	99	65	FT15 . 353535...	569.00	**00237**
HSK-T63-125-FT15 555555	HSK-T 63	125	99	65	FT15 . 555555...	569.00	**00437**
HSK-T63-125-FT15 808055	HSK-T 63	125	99	65	FT15 . 808055...	569.00	**00637**



Key D



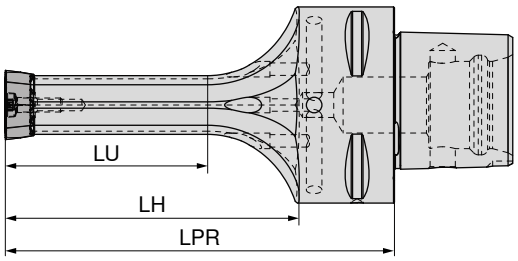
Clamping screw

Spare parts		80 950 ... £ Y7			70 950 ... £ 2A	
Adapter						
HSK-T 63	T20 - IP	13.55	**121**	M4,5x18 - IP	8.20	**25900**

FreeTurn – PSC tool holder FT15

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply







Figures show version FT15 . 808055...

NEW

DirectCooling

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	74 700 ... £ FT	
PSC-63-100-FT15 353535	PSC 63	100	69.4	40	FT15 . 353535...	649.01	**00193**
PSC-63-100-FT15 555555	PSC 63	100	69.6	40	FT15 . 555555...	649.01	**00393**
PSC-63-100-FT15 808055	PSC 63	100	69.3	40	FT15 . 808055...	649.01	**00593**
PSC-63-125-FT15 353535	PSC 63	125	94.4	65	FT15 . 353535...	659.00	**00293**
PSC-63-125-FT15 555555	PSC 63	125	94.6	65	FT15 . 555555...	659.00	**00493**
PSC-63-125-FT15 808055	PSC 63	125	94.3	65	FT15 . 808055...	659.00	**00693**



Key D

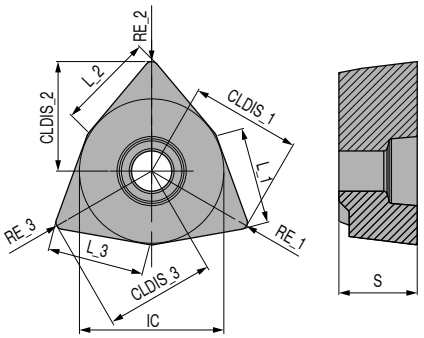


Clamping screw

Spare parts		80 950 ... £ Y7			70 950 ... £ 2A	
Adapter						
PSC 63	T20 - IP	13.55	**121**	M4,5x18 - IP	8.20	**25900**

10

FT17 . 808080...

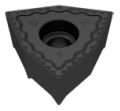


Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT17 M 808080R04-MMM	17	13.00	11.3	13.00	11.3	13.00	11.3	9.14
FT17 M 808080R08-MMM	17	12.78	11.3	12.78	11.3	12.78	11.3	9.14
FT17 M 808080R12-MMM	17	12.56	11.2	12.56	11.2	12.56	11.2	9.14

NEW

CTCP125

DRAGONSKIN



M M M

FT17 . 808080...

74 000 ...

NEW

CTPM125

DRAGONSKIN



M M M

FT17 . 808080...

74 000 ...

ISO	RE_1 mm	RE_2 mm	RE_3 mm	£ FW		£ FW	
FT17 M 808080R04-MMM	0.4	0.4	0.4	23.72	**00200**		
FT17 M 808080R08-MMM	0.8	0.8	0.8	23.72	**00400**	23.72	**10400**
FT17 M 808080R12-MMM	1.2	1.2	1.2	23.72	**00600**		

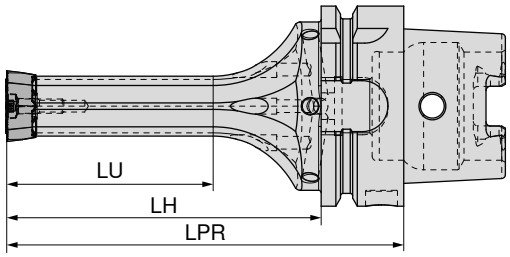
P	●	○
M		●
K	○	
N		
S		
H		
O		

→ v_c Page 27

FreeTurn – HSK-T tool holder FT17

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply







NEW

DirectCooling

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	74 701 ... £ FT	
HSK-T63-100-FT17 808080	HSK-T 63	100	74	40	FT17 . 808080...	559.00	**00737**
HSK-T63-125-FT17 808080	HSK-T 63	125	99	65	FT17 . 808080...	569.00	**00837**



Key D



Clamping screw

Spare parts		80 950 ... £ Y7			70 950 ... £ 2A	
Adapter						
HSK-T 63	T20 - IP	13.55	**121**	M4,5x18 - IP	8.20	**25900**

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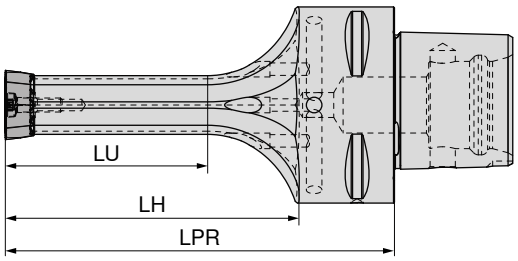
FreeTurn – PSC tool holder FT17

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply







NEW

DirectCooling

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	74 701 ... £ FT	
PSC-63-100-FT17 808080	PSC 63	100	69.3	40	FT17 . 808080...	649.01	**00793**
PSC-63-125-FT17 808080	PSC 63	125	94.3	65	FT17 . 808080...	659.00	**00893**



Key D



Clamping screw

Spare parts		80 950 ... £ Y7			70 950 ... £ 2A	
Adapter						
PSC 63	T20 - IP	13.55	**121**	M4,5x18 - IP	8.20	**25900**

Material examples for cutting data tables

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

*** Tensile strength**

10

Cutting data standard values for EcoCut

		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN			DRAGONSKIN
	EcoCut Mini CTWN425	EcoCut Mini CTPP435	EcoCut Classic CTCP425	EcoCut Classic CTCP435	EcoCut Classic CTPP430	EcoCut Classic H210T	EcoCut Classic H216T	EcoCut ProfileMaster CTPP430
Index	v_c in m/min							
P.1.1		**146**	**227**	**208**	**182**			**168**
P.1.2		**125**	**197**	**179**	**156**			**141**
P.1.3		**106**	**169**	**151**	**132**			**115**
P.1.4		**100**	**160**	**142**	**124**			**106**
P.1.5		**90**	**146**	**128**	**112**			**94**
P.2.1		**128**	**202**	**183**	**160**			**145**
P.2.2		**98**	**158**	**140**	**122**			**104**
P.2.3		**90**	**146**	**128**	**112**			**94**
P.2.4		**67**	**112**	**94**	**82**			**61**
P.3.1		**104**	**156**	**143**	**116**			**112**
P.3.2		**67**	**113**	**98**	**86**			**76**
P.3.3		**31**	**70**	**53**	**56**			**39**
P.4.1		**104**	**156**	**143**	**116**			**112**
P.4.2		**86**	**134**	**120**	**101**			**94**
M.1.1		**104**	156	143	**116**			**112**
M.2.1		**67**			**86**			**76**
M.3.1		**93**			**107**			**102**
K.1.1	140	140	205	185	160	110	**170**	180
K.1.2	115	120	205	185	140	90	**130**	260
K.2.1	150	140	200	180	160	120	**180**	160
K.2.2	110	120	200	180	140	85	**130**	250
K.3.1	170	150	195	175	125	140	**190**	130
K.3.2	140	125	195	175	110	110	**160**	230
N.1.1	**300**	40			40	**40**	**60**	300
N.1.2	**50**	290			290	**290**	**310**	200
N.2.1	**300**	290			290	**290**	**60**	300
N.2.2	**300**	190			190	**190**	**460**	200
N.2.3	**450**	340			340	**340**	**60**	150
N.3.1	**350**	240			240	**240**	**460**	300
N.3.2	**350**	240			240	**240**	**460**	300
N.3.3	**250**	190			190	**190**	**360**	200
N.4.1	**200**	140			140	**140**	**260**	200
S.1.1	38	**35**		35	55	**33**	43	**35**
S.1.2	28	**30**		30	55	**25**	33	**30**
S.2.1	28	**18**		18	55	**25**	33	**20**
S.2.2	24	**15**		15	55	**20**	25	**15**
S.2.3	20	**15**		15	55	**20**	20	**15**
S.3.1	90	**85**		85	70	**65**	110	**85**
S.3.2	55	**40**		40	60	**43**	70	**40**
S.3.3	40	**30**		30	40	**30**	50	**30**
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	130	110			110	110	155	130
O.1.2								
O.2.1	105	95			95	95	140	105
O.2.2								
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for FreeTurn

	F		M		-28P
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
	CTCP125	CTPM125	CTCP125	CTPM125	H216T
Index	v_c in m/min		v_c in m/min		v_c in m/min
P.1.1	**296**	203	**296**	203	
P.1.2	**253**	171	**253**	171	
P.1.3	**213**	142	**213**	142	
P.1.4	**199**	132	**199**	132	
P.1.5	**179**	118	**179**	118	
P.2.1	**259**	176	**259**	176	
P.2.2	**196**	130	**196**	130	
P.2.3	**179**	118	**179**	118	
P.2.4	**129**	81	**129**	81	
P.3.1	**169**	142	**169**	142	
P.3.2	**106**	97	**106**	97	
P.3.3	**43**	51	**43**	51	
P.4.1	**169**	142	**169**	142	
P.4.2	**137**	119	**137**	119	
M.1.1		**142**		**142**	
M.2.1		**97**		**97**	
M.3.1		**128**		**128**	
K.1.1	170		170		170
K.1.2	160		160		130
K.2.1	180		180		180
K.2.2	160		160		130
K.3.1	200		200		190
K.3.2	160		160		160
N.1.1					**1650**
N.1.2					**1350**
N.2.1					**1200**
N.2.2					**1100**
N.2.3					**600**
N.3.1					**525**
N.3.2					**500**
N.3.3					**375**
N.4.1					**275**
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1					
S.3.2					
S.3.3					
H.1.1					
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1					160
O.1.2					
O.2.1					140
O.2.2					
O.3.1					

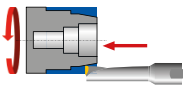
10

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Depth of Cut and Feedrate for EcoCut Mini

Turning

2.25xD

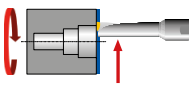


EcoCut Mini Size	Depth of Cut a_p in mm									
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.									
ECM 02..	0,02–0,07	0,02–0,07								
ECM 02,5..	0,02–0,07	0,02–0,07	0,02–0,05							
ECM 03..	0,02–0,07	0,02–0,07	0,02–0,05	0,02–0,05						
ECM 03,5..	0,02–0,07	0,02–0,07	0,02–0,05	0,02–0,05	0,02–0,05					
ECM 04..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,07	0,01–0,05				
ECM 05..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04			
ECM 06..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04		
ECM 07..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04	
ECM 08..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04

4xD

EcoCut Mini Size	Depth of Cut a_p in mm									
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.									
ECM 02..	0,02–0,05	0,01–0,05								
ECM 02,5..	0,02–0,05	0,01–0,05								
ECM 03..	0,02–0,05	0,02–0,05	0,01–0,05							
ECM 03,5..	0,02–0,05	0,02–0,05	0,02–0,05	0,01–0,05						
ECM 04..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,01–0,05					
ECM 05..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,085	0,02–0,06	0,01–0,04				
ECM 06..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,085	0,02–0,06	0,01–0,04				
ECM 07..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04			
ECM 08..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,095	0,03–0,08	0,02–0,06	0,01–0,04		

Face turning

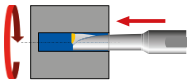


EcoCut Mini Size	2,25xD		4xD	
	$a_{p\,max.}$ in mm	f in mm/rev.	$a_{p\,max.}$ in mm	f in mm/rev.
ECM 02..	0,30	0,01–0,05	0,30	0,01–0,03
ECM 02,5..	0,30	0,01–0,05	0,30	0,01–0,03
ECM 03..	0,50	0,01–0,06	0,50	0,01–0,04
ECM 03,5..	0,50	0,01–0,06	0,50	0,01–0,04
ECM 04..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 05..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 06..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 07..	1,00	0,04–0,08	1,00	0,03–0,06
ECM 08..	1,00	0,04–0,08	1,00	0,03–0,06

Depth of Cut and Feedrate for EcoCut Mini

Drilling

Feed rate



EcoCut Mini Size	2,25xD	4xD
	f in mm/rev.	f in mm/rev.
ECM 02..	0,0025–0,0075	0,0025–0,005
ECM 02,5..	0,0025–0,010	0,0025–0,005
ECM 03..	0,0025–0,0125	0,0025–0,010
ECM 03,5..	0,0025–0,0150	0,0025–0,010
ECM 04..	0,005–0,030	0,005–0,0125
ECM 05..	0,005–0,030	0,005–0,015
ECM 06..	0,005–0,030	0,005–0,020
ECM 07..	0,005–0,035	0,005–0,025
ECM 08..	0,005–0,040	0,005–0,030

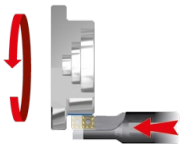
max. bore depth

EcoCut Mini Size	2,25xD	4xD
	Max. hole depth in mm	Max. hole depth in mm
ECM 02..	4,50	8,0
ECM 02,5..	5,63	10,0
ECM 03..	6,75	12,0
ECM 03,5..	7,88	14,0
ECM 04..	9,0	16,0
ECM 05..	11,25	20,0
ECM 06..	13,5	24,0
ECM 07..	15,75	28,0
ECM 08..	18,0	32,0

Depth of Cut and Feedrate for EcoCut Classic

Turning

1.5xD



EcoCut Classic Size	Depth of Cut a_p in mm											
	1	2	3	4	5	6	7	8	9	10	12	14
	Feed rate f in mm/rev.											
ECC 08	0,06–0,12	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,07–0,15	0,05–0,13	0,04–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,10–0,20	0,10–0,20	0,08–0,18	0,06–0,16	0,04–0,14	0,02–0,12				
ECC 18	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,05–0,16	0,03–0,13			
ECC 20	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,11–0,23	0,09–0,21	0,07–0,19	0,05–0,17	0,03–0,15		
ECC 25	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,11–0,24	0,09–0,22	0,07–0,20	0,03–0,16	
ECC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,14–0,30	0,15–0,30	0,15–0,30	0,13–0,28	0,11–0,26	0,07–0,22	0,03–0,18

Feed f may be increased by 50–75 % when using -M50Q and -27Q.

2.25xD

EcoCut Classic Size	Depth of Cut a_p in mm										
	1,0	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	7,0
	Feed rate f in mm/rev.										
ECC 08	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,05–0,13	0,03–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,04–0,13	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,09–0,19	0,07–0,17	0,05–0,15	0,03–0,13					
ECC 18	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,05–0,16	0,03–0,14				
ECC 20	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,10–0,22	0,08–0,20	0,06–0,18	0,04–0,16			
ECC 25	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,12–0,25	0,10–0,23	0,08–0,21	0,06–0,19	0,04–0,17	
ECC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,14–0,29	0,12–0,27	0,10–0,25	0,08–0,23	0,05–0,20

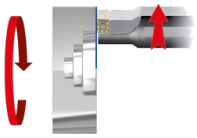
Feed f may be increased by 50–75 % when using -M50Q and -27Q.

3xD

EcoCut Classic Size	Depth of Cut a_p in mm								
	1,0	2,0	2,5	3,0	3,5	4,0	5,0	6,0	7,0
	Feed rate f in mm/rev.								
ECC 08	0,05–0,10	0,02–0,06							
ECC 10	0,06–0,11	0,03–0,07							
ECC 12	0,06–0,12	0,04–0,10	0,02–0,08						
ECC 14	0,07–0,13	0,05–0,11	0,02–0,09						
ECC 16	0,07–0,15	0,06–0,14	0,04–0,12	0,02–0,09					
ECC 18	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12					
ECC 20	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,03–0,12			
ECC 25	0,10–0,19	0,10–0,19	0,10–0,19	0,08–0,17	0,06–0,15	0,03–0,13			
ECC 32	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,03–0,14		

Depth of Cut and Feedrate for EcoCut Classic

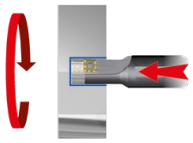
Face turning



EcoCut Classic Size	1,5xD		2,25xD		3xD	
	a_p in mm	f in mm/rev.	a_p in mm	f in mm/rev.	a_p in mm	f in mm/rev.
ECC 08	2,00	0,05–0,10	1,90	0,04–0,09	1,10	0,04–0,07
ECC 10	2,50	0,06–0,12	2,20	0,05–0,10	1,20	0,04–0,09
ECC 12	3,00	0,07–0,14	2,60	0,06–0,12	1,40	0,05–0,11
ECC 14	3,50	0,08–0,16	3,00	0,07–0,14	1,60	0,06–0,12
ECC 16	4,00	0,09–0,18	3,40	0,08–0,16	1,90	0,06–0,13
ECC 18	4,50	0,10–0,20	3,80	0,09–0,18	2,00	0,07–0,14
ECC 20	5,00	0,11–0,22	4,20	0,10–0,20	2,20	0,08–0,15
ECC 25	6,00	0,12–0,24	5,00	0,11–0,22	2,60	0,09–0,18
ECC 32	8,00	0,13–0,27	6,00	0,12–0,25	3,00	0,10–0,20

Drilling

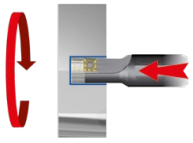
Feed rate



EcoCut Classic Size	1,5xD	2,25xD	3xD
	f in mm/rev.	f in mm/rev.	f in mm/rev.
ECC 08	0,01–0,04	0,01–0,04	0,01–0,02
ECC 10	0,01–0,05	0,01–0,05	0,01–0,03
ECC 12	0,01–0,05	0,01–0,05	0,01–0,04
ECC 14	0,01–0,07	0,01–0,07	0,01–0,05
ECC 16	0,02–0,08	0,02–0,08	0,02–0,06
ECC 18	0,03–0,09	0,03–0,09	0,03–0,07
ECC 20	0,03–0,10	0,03–0,10	0,03–0,08
ECC 25	0,03–0,12	0,03–0,12	0,04–0,09
ECC 32	0,05–0,15	0,05–0,15	0,05–0,11

10

max. bore depth

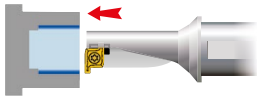


EcoCut Classic Size	1,5xD	2,25xD	3xD
	Max. hole depth in mm	Max. hole depth in mm	Max. hole depth in mm
ECC 08	12,0	18,0	24,0
ECC 10	15,0	22,5	30,0
ECC 12	18,0	27,0	36,0
ECC 14	21,0	31,5	42,0
ECC 16	24,0	36,0	48,0
ECC 18	27,0	40,5	54,0
ECC 20	30,0	45,0	60,0
ECC 25	37,5	56,5	75,0
ECC 32	48,0	72,0	96,0

Depth of Cut and Feedrate for EcoCut ProfileMaster 90°

Turning

1,5xD



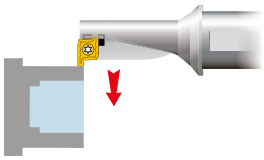
EcoCut ProfileMaster Size	Depth of Cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
EC PM 10	0,07–0,20	0,05–0,17	0,02–0,12					
EC PM 12	0,07–0,20	0,05–0,17	0,02–0,12					
EC PM 16	0,10–0,25	0,07–0,23	0,05–0,21	0,02–0,17				
EC PM 20	0,12–0,27	0,10–0,26	0,007–0,24	0,05–0,20	0,02–0,14			
EC PM 25	0,15–0,30	0,15–0,30	0,13–0,28	0,10–0,26	0,05–0,22	0,02–0,18		
EC PM 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,10–0,27	0,07–0,24	0,05–0,21	0,02–0,15

2,25xD

EcoCut ProfileMaster Size	Depth of Cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
EC PM 10	0,07–0,19	0,02–0,13						
EC PM 12	0,07–0,19	0,02–0,13						
EC PM 16	0,10–0,25	0,07–0,21	0,02–0,13					
EC PM 20	0,12–0,27	0,07–0,24	0,05–0,19					
EC PM 25	0,15–0,30	0,10–0,27	0,07–0,23	0,02–0,15				
EC PM 32	0,15–0,30	0,15–0,30	0,10–0,27	0,07–0,23	0,02–0,15			

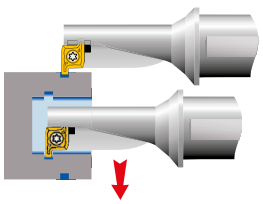
Face turning

1.5xD and 2.25xD



EcoCut ProfileMaster Size	Depth of Cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 10	0,02–0,15	0,02–0,15				
EC PM 12	0,02–0,15	0,02–0,15				
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 20	0,08–0,22	0,08–0,22	0,08–0,22	0,08–0,22		
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

Internal + external – radial grooving

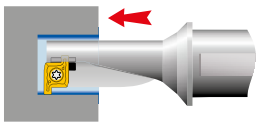


EcoCut ProfileMaster Size	1,5xD
	f in mm/rev.
EC PM 10	0,01–0,08
EC PM 12	0,02–0,10
EC PM 16	0,04–0,15
EC PM 20	0,04–0,16
EC PM 25	0,07–0,20
EC PM 32	0,08–0,22

EcoCut ProfileMaster Size	2,25xD
	f in mm/rev.
EC PM 10	0,01–0,08
EC PM 12	0,02–0,10
EC PM 16	0,04–0,15
EC PM 20	0,04–0,16
EC PM 25	0,07–0,20
EC PM 32	0,08–0,22

Drilling

Feed and max. hole depth



EcoCut ProfileMaster Size	1,5xD	
	f in mm/rev.	Max. hole depth in mm
EC PM 10	0,01–0,05	15,0
EC PM 12	0,01–0,06	18,0
EC PM 16	0,02–0,09	24,0
EC PM 20	0,03–0,10	30,0
EC PM 25	0,04–0,12	37,5
EC PM 32	0,04–0,14	48,0

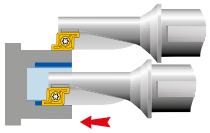
EcoCut ProfileMaster Size	2,25xD	
	f in mm/rev.	Max. hole depth in mm
EC PM 10	0,01–0,05	22,5
EC PM 12	0,01–0,06	27,0
EC PM 16	0,02–0,09	36,0
EC PM 20	0,03–0,10	45,0
EC PM 25	0,04–0,12	56,3
EC PM 32	0,04–0,14	72,0

Depth of Cut and Feedrate for EcoCut ProfileMaster 0°

EcoCut ProfileMaster Sizes 10 and 12 can not be used as 0 ° version.

Turning

1,5xD



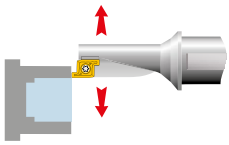
EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 16	0,04–0,20	0,04–0,20	0,04–0,20			
EC PM 20	0,06–0,22	0,06–0,22	0,06–0,22	0,06–0,22		
EC PM 25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	
EC PM 32	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 16	0,04–0,20	0,04–0,20	0,04–0,20			
EC PM 20	0,06–0,22	0,06–0,22	0,06–0,22	0,06–0,22		
EC PM 25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	
EC PM 32	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28

Face turning

1,5xD

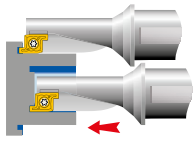


EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20				
EC PM 20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25		
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20				
EC PM 20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25		
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

Axial grooving external + internal



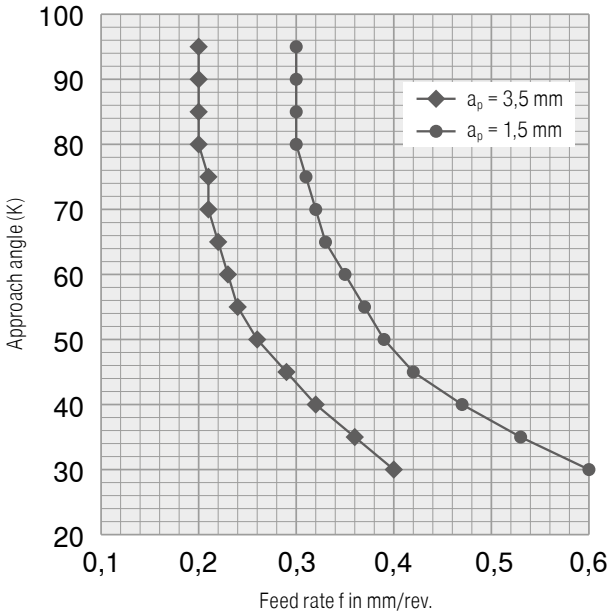
EcoCut ProfileMaster Size	1,5xD
	Feed rate f in mm/rev.
EC PM 16	0,02–0,12
EC PM 20	0,04–0,14
EC PM 25	0,06–0,18
EC PM 32	0,08–0,20

EcoCut ProfileMaster Size	2,25xD
	Feed rate f in mm/rev.
EC PM 16	0,02–0,12
EC PM 20	0,04–0,14
EC PM 25	0,06–0,18
EC PM 32	0,08–0,20

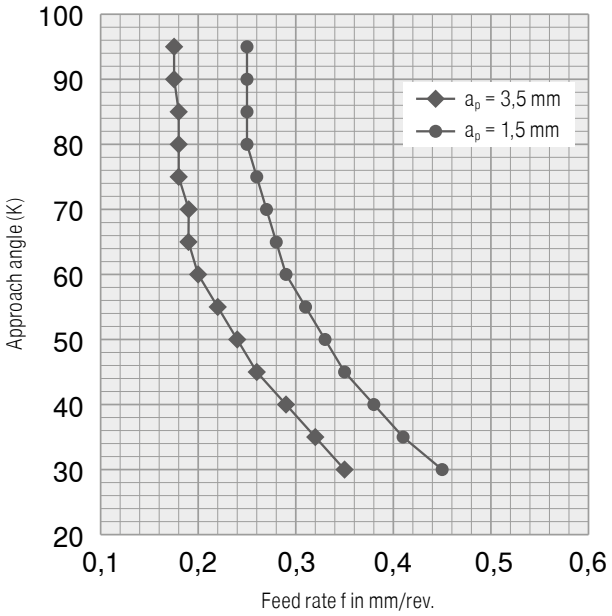
Initial curves for FreeTurn

	Material				Inserts		v_c in m/min	Cooling
Steel	1.7225	42CrMo4	1010 N/mm²	P.2.3	FT1x M 80xxxxR08 -M	CTCP125	200	Emulsion
Stainless steel	1.4301	X5CrNi18-10	610 N/mm²	M.1.1	FT1x M 80xxxxR08 -M	CTPM125	180	Emulsion
Non ferrous metals	3.2341	G-AlSi 5 Mg	200 N/mm²	N.2.2	FT1x G 35xxxxR08-28P	H210T	900	Emulsion

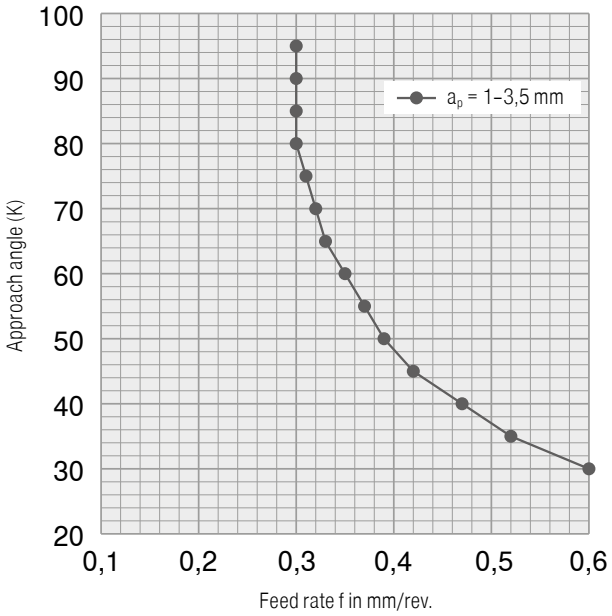
Steel



Stainless steel

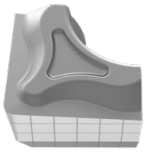
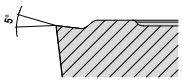
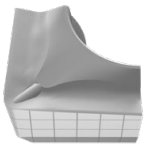
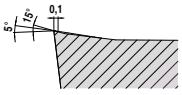
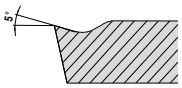
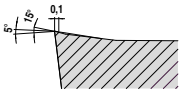


Non ferrous metals

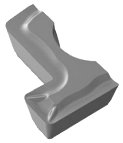
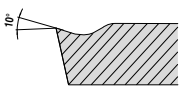


Chip Breakers Overview

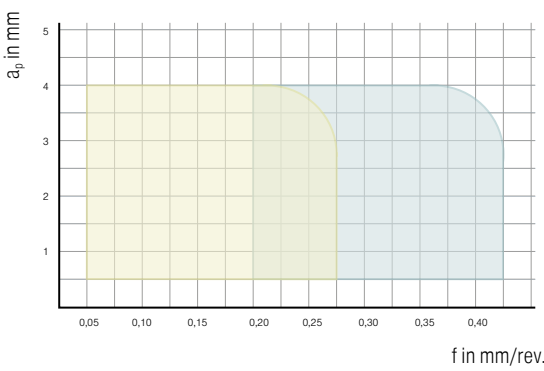
EcoCut Classic

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration f mm
-EN ▲ Universal geometry ▲ Excellent chip breakage ▲ Positive cutting edge ▲ Low to medium feeds		**CTCP425** **CTCP425 / CTPP430** CTCP425 CTPP430 CTCP435 / CTPP430 CTCP435 / CTPP430	**CTCP435 / CTPP430** **CTPP430** CTCP435 / CTPP430 CTPP430 CTCP435 / CTPP430 CTCP435 / CTPP430	**CTPP430 / CTCP435** **CTPP430** CTCP435 CTPP430 CTCP435 CTCP435	 0,05–0,275
-M50Q ▲ With wiper geometry ▲ Excellent surface qualities ▲ Good chip formation ▲ Medium to high feeds		**CTCP425** CTCP425 CTCP425	**CTCP425** CTCP425	 0,2–0,425
-27P ▲ Positive cutting edge ▲ Periphery ground ▲ Polished rake face ▲ First choice for non-ferrous metals		**H216T** **H216T** H216T H216T	**H216T** **H216T** H216T H216T	**H216T** **H216T**	 0,1–0,4
-27Q ▲ With wiper geometry ▲ Extremely positive geometry ▲ Periphery ground ▲ Low adhesion		H210T **H210T** **H210T** H210T	H210T **H210T** **H210T** H210T	 0,2–0,5

EcoCut ProfileMaster

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration f mm
-M20 ▲ Positive geometry ▲ Universal application ▲ Low to medium feeds		**CTPP430** **CTPP430** CTPP430 CTPP430 **CTPP430** CTPP430	**CTPP430** **CTPP430** CTPP430 CTPP430 **CTPP430** CTPP430	**CTPP40** **CTPP430** CTPP430 CTPP430 CTPP430	 0,05–0,25

Application area of -EN and -M50Q chip breakers



EcoCut Classic 2.25xD – ECC16 – XCNT 080304

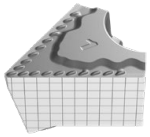
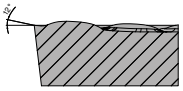
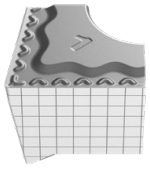
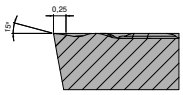
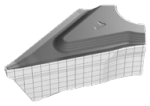
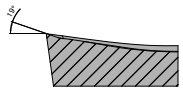
= -M50Q

= Standard

10

Chip Breakers Overview

FreeTurn

	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration f mm
-F ▲ Traditional finishing geometry ▲ High surface quality ▲ First choice for finishing steel		**CTCP125** CTCP125	**CTCP125** CTCP125		 0–6
-M ▲ Average to rough machining ▲ Aggressive chip breaker		CTPM125 **CTPM125**	CTPM125 **CTPM125**		 0–6
-28P ▲ Traditional finishing geometry ▲ Sharp cutting edge ▲ First choice for aluminium		H216T **H216T** H216T	H216T **H216T** H216T	H216T **H216T**	 0–1,8

EcoCut Classic – Application as the most stable boring tool

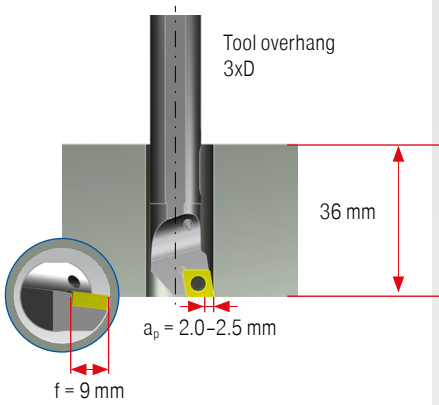
EcoCut can be used not only as a multifunctional tool. In comparison with a boring bar EcoCut used as a pure boring tool gives the user enormous benefits.

Example: machining bores, 16 mm diameter by 36 mm depth

Differences in the tool

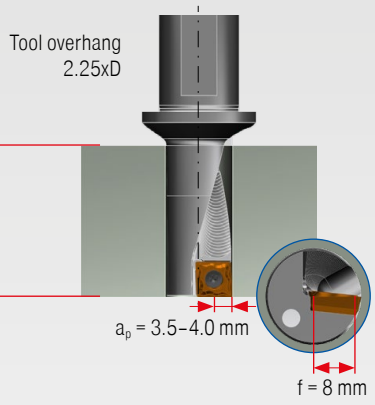
Boring Bar

A12K SCFCR 06



EcoCut Classic

ECC 16R-2.25D 08



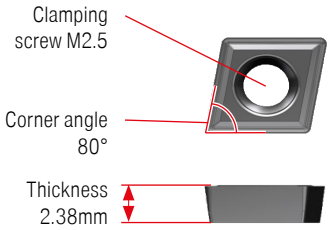
Your Advantages

Large, stable toolholder
- Absorption of high cutting forces
- Low vibration
- Chip Booster for perfect cooling and chip evacuation

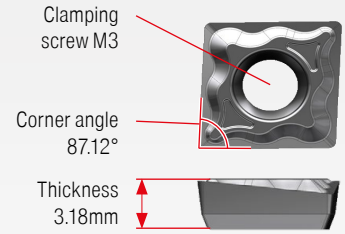
Benefits
- High surface quality
- Perfect chip control
- Max. process security

Differences in the insert

CCMT 060204



XCNT 080304

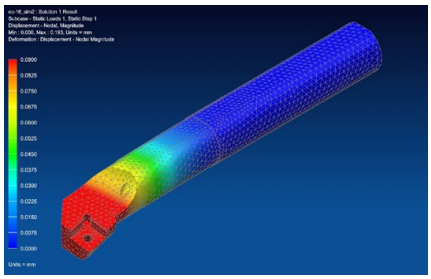


Large and stable insert
- Increased process security
- Enables large depths of cut
- Higher cutting data
- Higher tool life

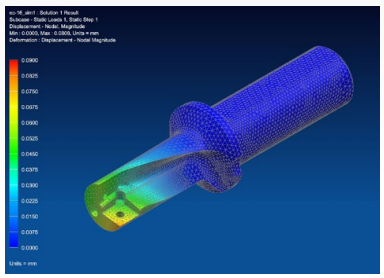
Benefits
- Reduction in machining time
- Increased productivity
- Reduced tooling costs

Stability Comparison

Calculation using FEM
A load of 1000 N on the insert seat corresponds to an approx. a_p of 2.0 mm and f 0.2 mm



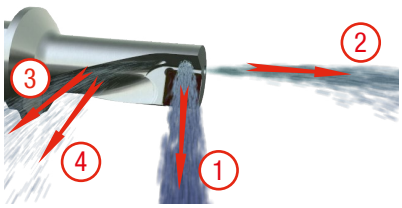
Deflection 0.19mm



Deflection 0.08mm

Practical experience shows:
- Reduced machining time by up to **75 %**
- Increase in tool life by **400 %** possible

Innovative chip removal – Chip-Booster



EcoCut tools are equipped with a unique coolant and chip removal system.

1. Cooling of the indexable insert
2. General coolant stream
3. Chip booster for improved chip transport
4. Chip booster prevents chips from getting stuck between tool and workpiece

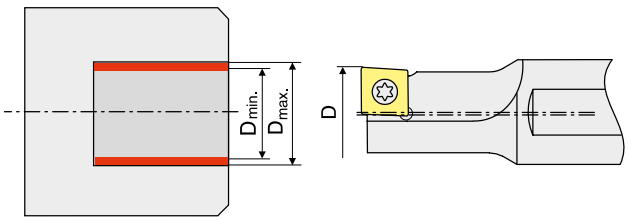
For maximum chip transport efficiency when drilling, coolant pressure must be 3–6 bar minimum (optimal 7–10 bar).

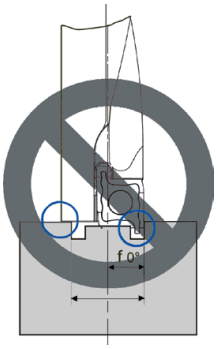
10

Application Tips

Drilling Off centre

Due to the special construction of the EcoCut tool and insert, off-centre drilling is possible.
Deviations from the tool nominal Ø, can be achieved (see adjacent table).





ProfileMaster 0°
Not suitable for drilling!

EcoCut Mini	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
ECM 02 L/R - ...D	2	1,95	2,1
ECM 02,5 L/R - ...D	2,5	2,45	2,6
ECM 03 L/R - ...D	3	2,95	3,15
ECM 03,5 L/R - ...D	3,5	3,45	3,65
ECM 04 R/L - ...D	4	3,90	4,20
ECM 05 R/L - ...D	5	4,90	5,20
ECM 06 R/L - ...D	6	5,90	6,20
ECM 07 R/L - ...D	7	6,90	7,20
ECM 08 R/L - ...D	8	7,90	8,20

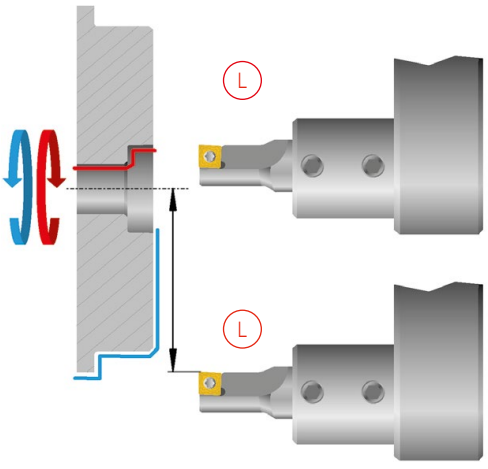
EcoCut Classic	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
ECC 08 R/L - ... 04	8	7,85	8,30
ECC 10 R/L - ... 05	10	9,85	10,50
ECC 12 R/L - ... 06	12	11,85	12,50
ECC 14 R/L - ... 07	14	13,85	14,50
ECC 16 R/L - ... 08	16	15,85	16,50
ECC 18 R/L - ... 09	18	17,85	18,50
ECC 20 R/L - ... 10	20	19,80	20,50
ECC 25 R/L - ... 13	25	24,80	25,80
ECC 32 R/L - ... 17	32	31,80	33,00

EcoCut ProfileMaster	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
PM 10R/L ...	10	9,85	12
PM 12R/L ...	12	11,85	15
PM 16R/L ...	16	15,85	19
PM 20R/L ...	20	19,80	24
PM 25R/L ...	25	24,80	29
PM 32R/L ...	32	31,80	38

Machining over centre

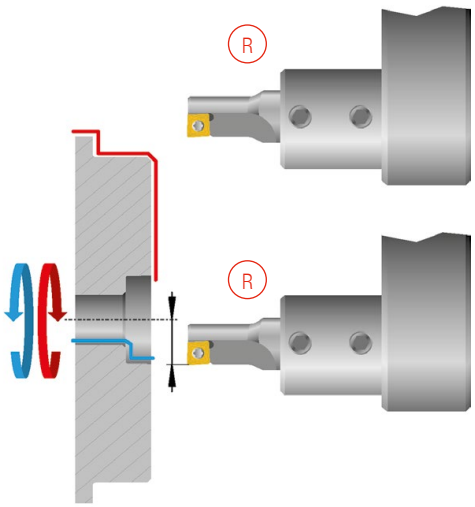
Problem

In case of insufficient movement of the machine across the centre line, the external diameter can not be machined with the same tool.



Solution

Use a right hand EcoCut tool.

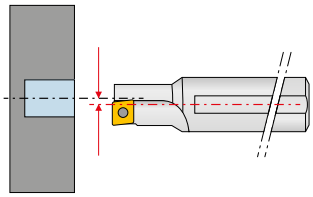


Application Tips

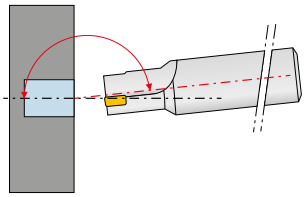
With axial displacement there is the danger of collision!

Problems

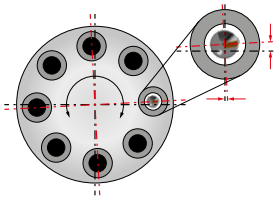
Displacement in x-direction:



Angular error:



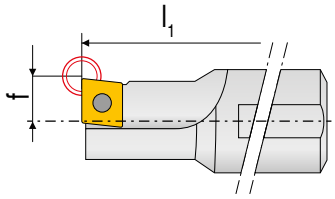
Turret position error:



Remedy

When pre-setting the tool:

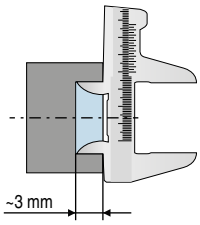
- Definition as an internal turning tool for programming



- Enter the tool nominal Ø as bore target Ø

At the machine:

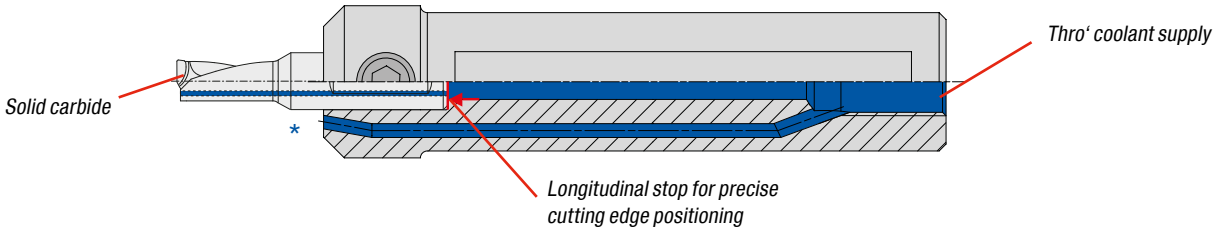
- Make measuring cut, approx. 3 mm deep
- Measure drilled diameter produced



- If necessary correct drilling Ø
- Start machining

10

EcoCut Mini adapter – Design



* Cross-section rotated by 90° for clarity

Mounting of the insert for EcoCut Classic

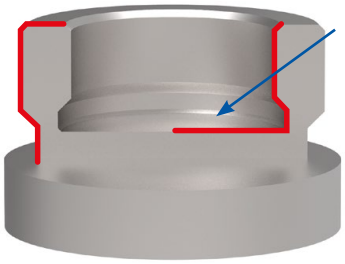
For tools up to Ø 8 mm right and left handed inserts are required. From Ø 10–32 mm neutral inserts are used.

Note!
Ensure correct installation position.





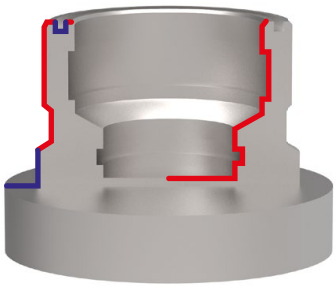
EcoCut ProfileMaster – the highlight with regard to efficiency



Right hand tools



right hand insert



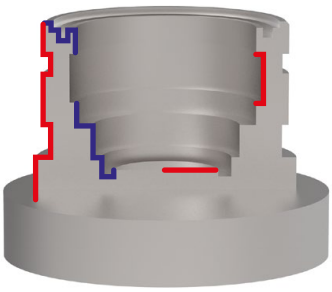
Right hand tools



left hand insert



right hand insert



Left hand tool

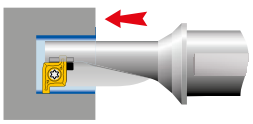


Right hand tools



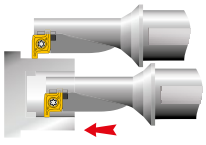
right hand insert

Version 90°



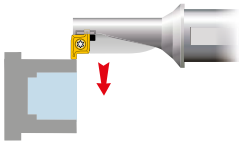
Drilling into solid material with flat bottom hole

Boring

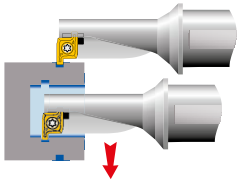


Turning External Diameters

Turning Internal Diameters



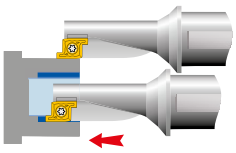
Turning Profiles



External radial grooving

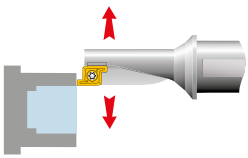
Internal radial grooving

Version 0°

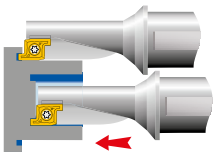


Turning External Diameters

Turning Internal Diameters



Turning Profiles



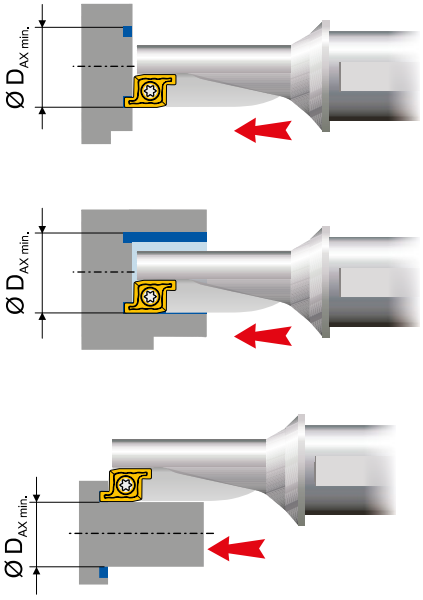
Axial grooving external

Axial grooving internal

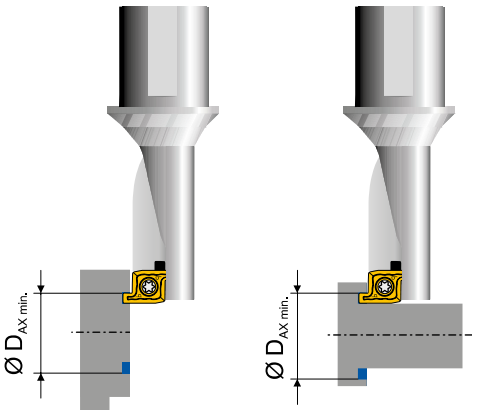
For maximum chip transport efficiency when drilling, coolant pressure must be 3 – 6 bar minimum (optimal 7 – 10 bar).

EcoCut ProfileMaster – Axial Grooving

0° (from Ø 16 mm)

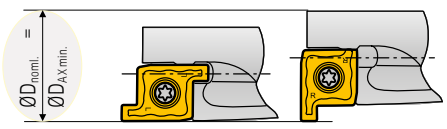


90°



EcoCut ProfileMaster	$ØD_{noml.}$ mm	$ØD_{AX\ min.}$ mm	$ØD_{AX\ max.}$ mm
PM 10R/L 1,5D	10	10	> 10
PM 10R/L 2,25D	10	10	> 10
PM 12R/L 1,5D	12	12	> 12
PM 12R/L 2,25D	12	12	> 12
PM 16R/L 1,5D	16	16	> 16
PM 16R/L 2,25D	16	16	> 16
PM 20R/L 1,5D	20	20	> 20
PM 20R/L 2,25D	20	20	> 20
PM 25R/L 1,5D	25	25	> 25
PM 25R/L 2,25D	25	25	> 25
PM 32R/L 1,5D	32	32	> 32
PM 32R/L 2,25D	32	32	> 32

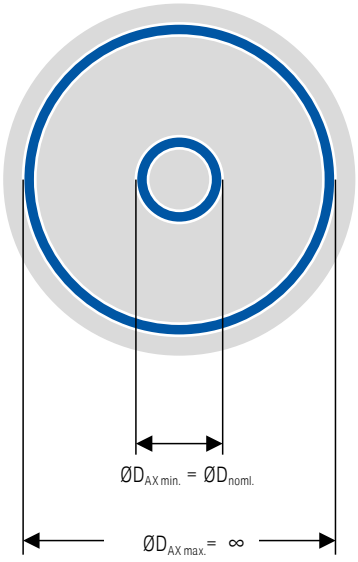
$ØD_{AX\ min.} = ØD_{noml.}$



$ØD_{noml.}$ = Nominal tool diameter

$ØD_{AX\ min.}$ = smallest diameter for axial grooving

$ØD_{AX\ max.}$ = largest diameter for axial grooving



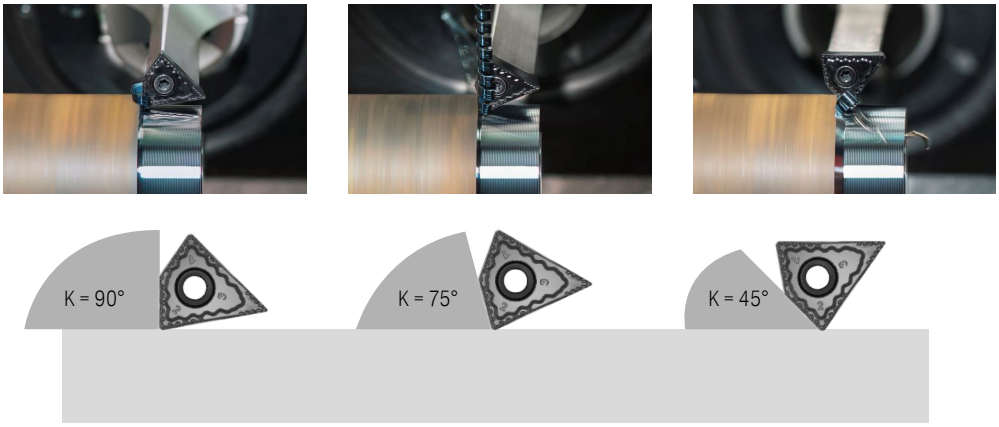
Application Tips

Recommendation for Optimum Results

Type of problem								Remedy measures		
Type of wear				Work piece problems		Swarf control				
Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)			
	↑	↓	↓	↓	↑	↓			Cutting data	Cutting speed
↓		~	↓	↑	↓	↑	↓			Feed rate
↑		↑	↑	↓	↑				Insert selection	Corner radius (larger ↑ / smaller ↓)
↓		↑	↑							Tool Material (Wear resistance ↑ / toughness ↓)
~				~	~				General criteria	Tool clamping
~				~	~					Work piece clamping
~				~	↓					Overhang
~		~		~	~					Tip height
	●	●	●		●	●				Cooling lubricant

↑ raise, increase large influence
↑ raise, increase small influence
↓ avoid, reduce large influence
↓ avoid, reduce small influence
~ control, optimize
● use

Factors influencing the selection of the correct cutting angle

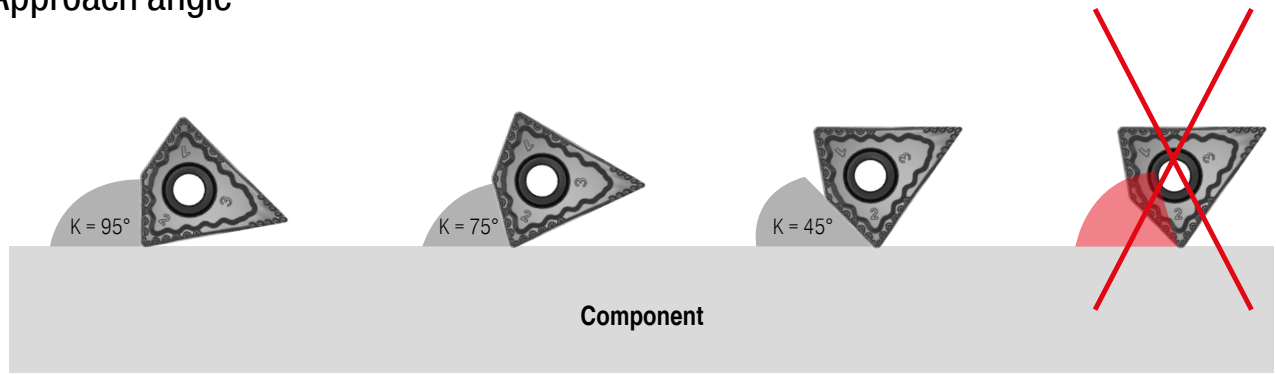


Feed rate	low	high
Axial force	high	low
Radial force	low	high
maximum depth of cut	high	low
Chip thickness	high	low
Heat	high	low
clamping stability	low	high

Heat distribution on the cutting edge

10

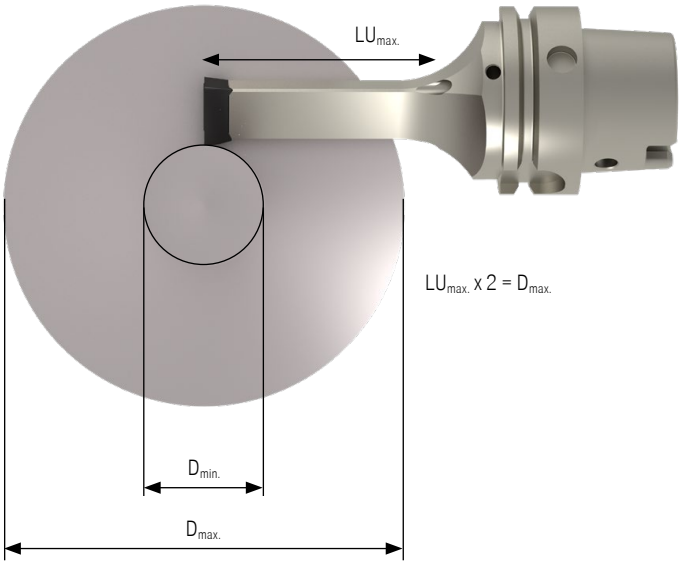
Approach angle



The approach angle always works from the edge of the component to the main cutting edge (tool).

Tool / workpiece length ratio



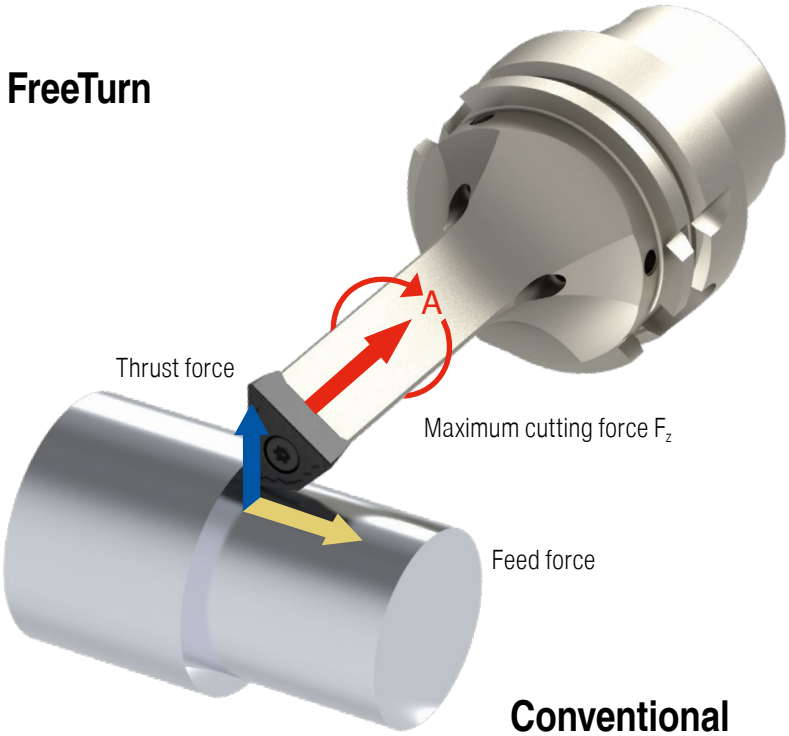


This table shows the diameter ranges you can work in with the different tool lengths.

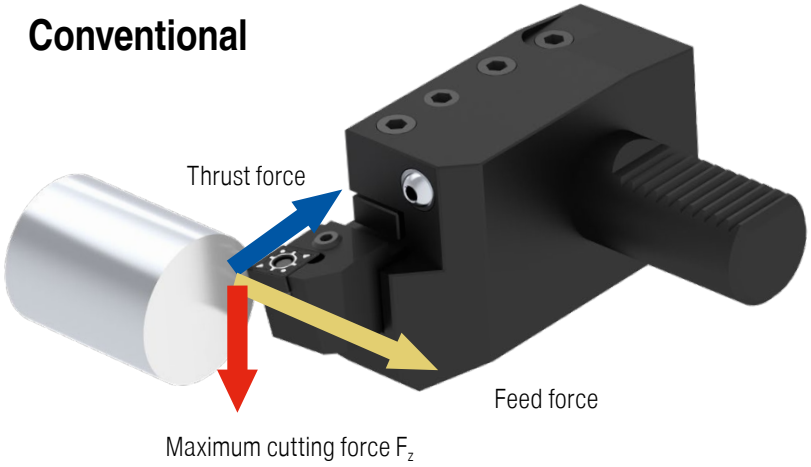
Tool	$D_{max.}$ in mm	200	190	180	170	160	150	140	130	120	110	100	90	80
PSC-63-**100**-FT 808055	$D_{min.}$ in mm					127	115	102	88	73	56	34	0	0
PSC-63-**125**-FT 808055	$D_{min.}$ in mm	138	125	110	90	70	42	0	0	0	0	0	0	0

Force data from the process

FreeTurn



Conventional



Practical test	
Steel machining shaft Ø 60 mm 1.7227 / 42CrMoS4 R_m 850 Nm	Cutting data: v_c = 175 m/min. f = 0.3 mm/rev. a_p = 3.0 mm K = 95°

10

FreeTurn		Conventional
2136 N	F XYZ	2206 N
920 N	F XY (feed force)	2143 N
1928 N	Maximum cutting force F_z	526 N

Grades Overview

EcoCut Classic

CTCP425
Carbide, Ti+Al_2O_3-coated
ISO | **P25** | K30 | M20
The wear-resistant choice for steel and cast iron materials under stable conditions and at high cutting speeds

CTCP435
Carbide, Ti+Al_2O_3-coated
ISO | **P35** | M30 | K40
The reliable choice for steel and cast iron materials under unstable conditions

CTPP430
Carbide. TiAlN-coated
ISO | **P30** | **M25** | K30 | N25 | S25 | O25
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

H210T
Carbide, uncoated
ISO | K10 | **N10** | **S10** | O10
The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

H216T
Carbide, uncoated
ISO | **K15** | **N15** | S15 | O15
The uncoated carbide grade for machining aluminium and other non-ferrous metals
Also highly suitable for HSC machining

FreeTurn

CTCP125
Carbide, TiCN-Al_2O_3-coated
ISO | **P25** | K25
The first choice for universal machining of steels

CTPM125
ISO | P35 | **M25**
The universal carbide grade with maximum toughness, without affecting the necessary hot hardness and wear resistance for stainless machining

H216T
Carbide, uncoated
ISO | K15 | **N15** | S15 | O15
The uncoated carbide grade for machining aluminium and other non-ferrous metals
Also highly suitable for HSC machining

EcoCut Mini

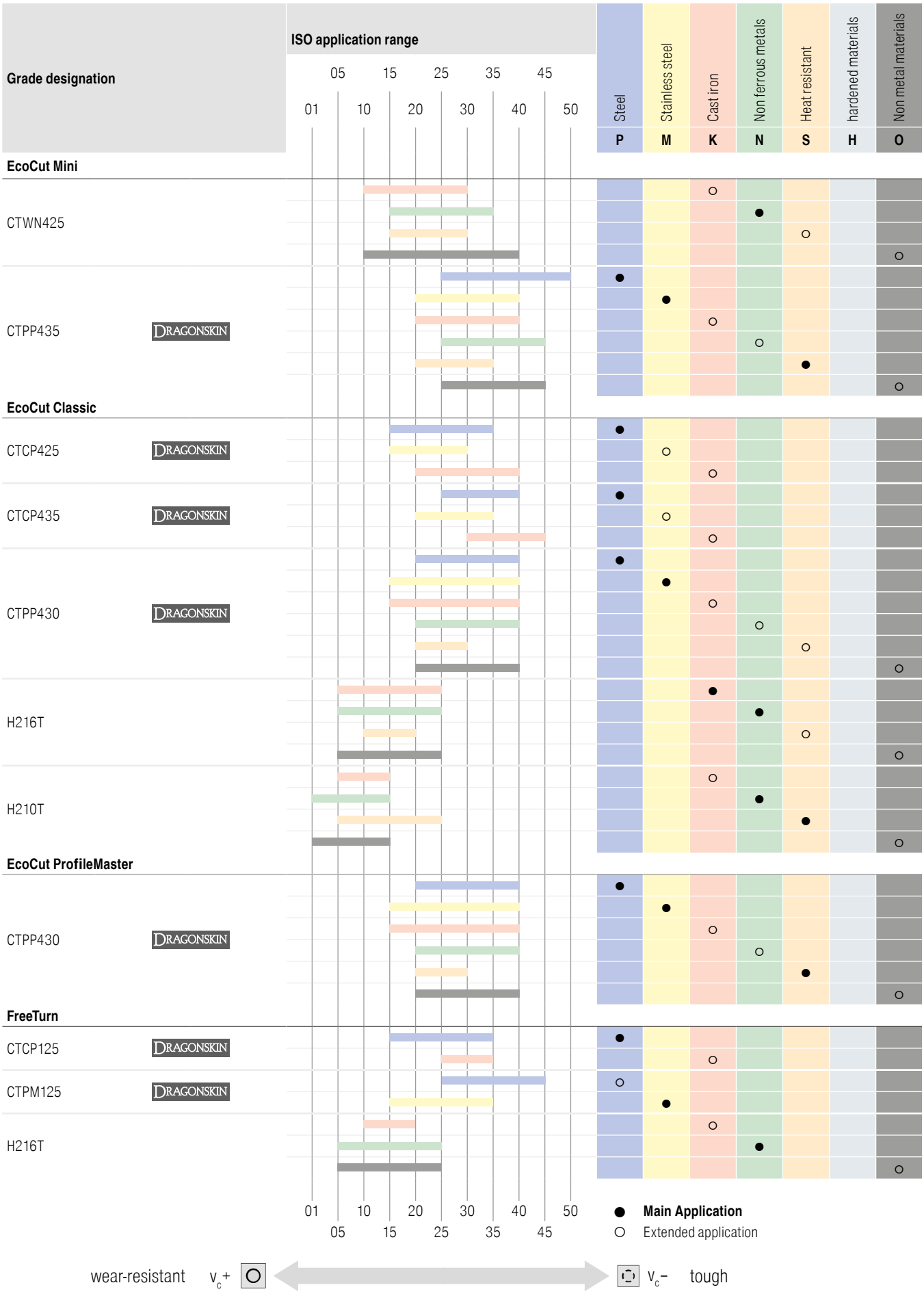
CTPP435
Carbide, TiAlN-coated
ISO | **P35** | **M30** | K30 | N30 | **S30** | O30
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

CTWN425
Carbide, uncoated
ISO | K20 | **N25** | S25 | O25
The uncoated carbide grade for machining aluminium and other non-ferrous metals

EcoCut ProfileMaster

CTPP430
Carbide. TiAlN-coated
ISO | **P30** | **M25** | K30 | N25 | **S25** | O25
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

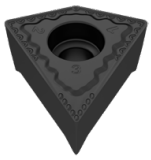
Application



10

Designation System

FreeTurn – indexable insert designation



FT15	M/G	808055	R	080804	Q	MMF	CTCP125
1 2	3	4 5 6	7	8 9	10	11	12

1 FreeTurn
2 Nominal diameter in mm
3 ISO tolerance (M = sintered, G = polished)
4 Cutter angle 1 in degrees
5 Cutter angle 2 in degrees
6 Cutter angle 3 in degrees
7 Corner radius 1 in mm
8 Corner radius 2 in mm
9 Corner radius 3 in mm
10 Masterfinish – wiper geometry
11 Chip breaker (M = medium, F = fine)
12 Carbide Grade

FreeTurn – holder designation



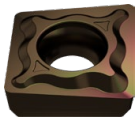
HSK	-	T63	-	100	-	FT15	808055
1		2		3		4 5	6 7 8

1 System
2 Size
3 Overhang length
4 FreeTurn
5 Nominal diameter in mm
6 Cutter angle 1 in degrees
7 Cutter angle 2 in degrees
8 Cutter angle 3 in degrees

Designation System

EcoCut – indexable insert designation

X	C	E	T		17	05	08	F	N	-	27P
1	2	3	4		5	6	7	8	9		10



1 Insert shape
2 Clearance angle
3 Tolerances
4 Characteristics
5 Cutting length
6 Insert thickness
7 Corner radius
8 Cutting edge
9 Direction of cut
10 Chip groove

EcoCut – holder designation

ECC	32	R	-	3.0D	17	H
1	2	3		4	5	6

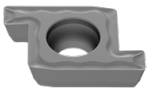


1 System
2 Nominal diameter in mm
3 Direction of cut
4 maximum hole depth
5 insert size
6 Tool holder version in Densimet

10

EcoCut ProfileMaster – indexable insert designation

PM	25	R	G	35	30	04	-	M20
1	2	3	4	5	6	7		8



1 ProfileMaster
2 Nominal diameter in mm
3 Direction of cut
4 Version
5 Groove width in mm/10
6 Groove depth in mm/10
7 Corner radius
8 Chip groove

EcoCut ProfileMaster – holder designation

PMC	25	R	-	2.25D
1	2	3		4



1 ProfileMaster
2 Nominal diameter in mm
3 Direction of cut
4 maximum hole depth





Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools 11

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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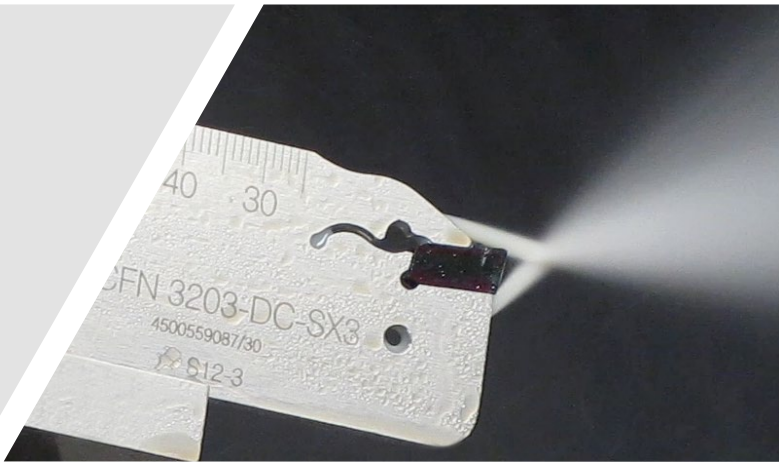
CERATIZIT \ Performance

Premium quality tools for high performance.

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

Advantages of the DirectCooling blade

- The best machining results, even with reduced pump output
  Highest flow volume of all thro' coolant blades on the market
- User friendly
  Reinforced blades without sealing screw
- Process-secure spare part for easy handling and a long service life
  Single-piece sealing screw made from steel (for standard blades)



Symbol explanation


Grooving


Turning


Face turning


Axial grooving


Main Application


Extended application


Repeatability

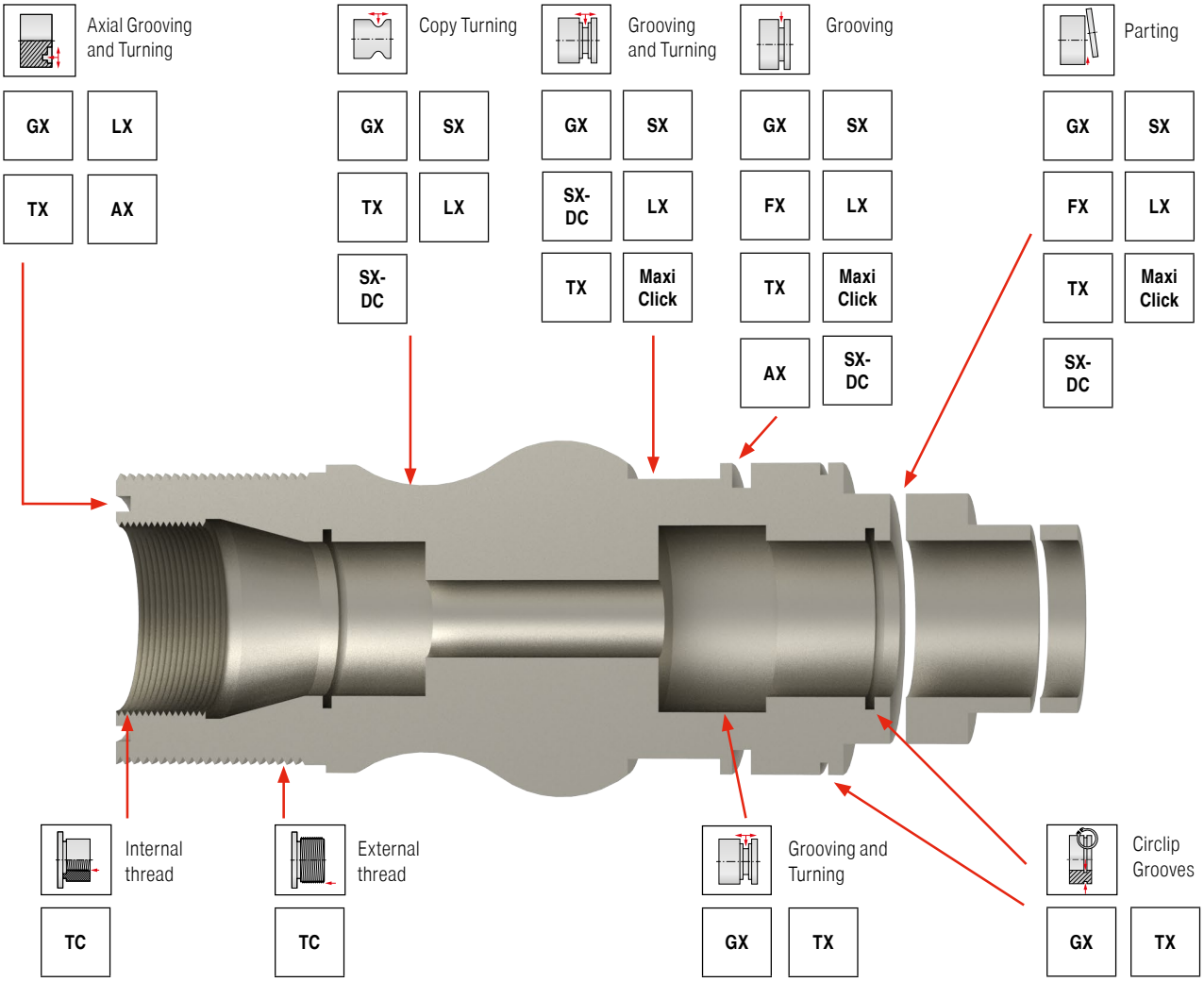
F	M	R

F: Fine Machining
M: Medium Machining
R: Rough Machining


Smooth cut
Irregular cutting depth
Interrupted cut

CTCP325 Carbide Grade

Toolfinder – System Overview

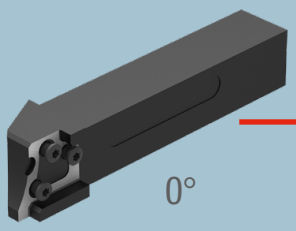


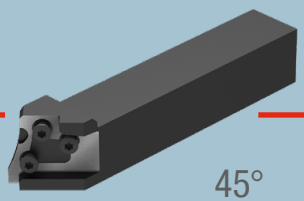
System Description

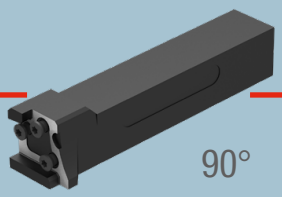
		Page No.
SX	The single edged SX grooving system is even more versatile with the -M3 chip breaker. Besides grooving / parting with the -F2, -M2, or -27P chip breakers, the SX -M3 type also allows copying turning operations with the highest chip control. With this additional option, the SX grooving system can cover all areas of grooving making it a universal grooving tool. Available as a Modular or Mono system.	8–21
SX-DC	Our tried-and-tested single-edged SX grooving system is now available with targeted DirectCooling (DC) thro' coolant supply. The coolant is guided through two coolant holes – one above and one below the grooving insert – straight to the point where it will be most effective: the cutting edge itself.	14–20
FX	A single-edged grooving system with a variety of specialized chip geometries. From fine machining in unstable parts through to high-performance machining under stable conditions. Available as a Modular or Mono system.	22–29
GX	Double edged grooving system for grooving, parting off, turning and for producing circlip grooves. Available in sizes GX09, GX16 and GX24. Available as a Modular or Mono system.	30–60
TX	Three-edged system for parting, grooving, axial grooving, radial grooving, and fine turning. Positive ground cutting geometries, with a very soft cut with minimum cutting forces. Universally applicable for almost all materials. Available as a Monosystem.	61–70
LX	Single edged system for extreme applications starting from a cutting width of 8.0 mm. The LX system is for use in stable conditions. Available as a Modular or Mono system	71–74
AX	Double-edged Axial grooving system for grooving and groove turning with high precision. Due to the three different depths (5 mm, 10 mm and 15 mm) stable tools are available for each application.	75–78
TC	Double-edged thread turning system for the production of external and internal threads. Advantage is the use without pitch angle correction and in narrow or difficult areas of application. Available as a Modular or Mono system.	79–87
Maxi Click	Five-edged grooving system for grooving and parting	88–92

Toolfinder – External Machining

ModularClamp


93
0°


94
45°


95
90°

GX 09


38


39

GX 16


38

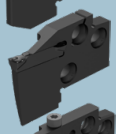

39

GX 24

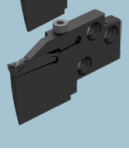
Deep Radial Grooving, Parting and Turning


53

Axial Grooving and Face Turning


55

Deep Axial Grooving and Face Turning


56

GX 09

Circlip grooves


35

Cutting width
CW = 0,5–3,15 mm (H13)

Radius grooves

Standard

36

CRE = 0,8–1,2 mm

Grooving and Turning

-F2

30

Standard

31

-M40

32

Cutting width
CW = 2,0–3,5 mm

GX 16

Circlip grooves


35

Cutting width
CW = 0,5–5,15 mm (H13)

Radius grooves

Standard

36

-27P

37

CRE = 0,8–3,0 mm

Grooving and Turning

-F2

30

Standard

31

-M40

32

-M1

33

-27P

34

Cutting width
CW = 2,0–6,0 mm

GX 24

Radial, axial and deep axial grooving and parting, face turning and turning

-F2

46

-E

47

-M1

48

-M40

49

-27P

51

Cutting width
CW = 2,0–6,0 mm

-M3

50

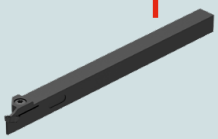
-27P

52

CRE = 1,5–4,0 mm

MonoClamp

GX 09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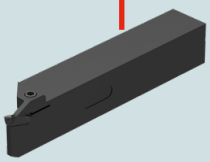
GX 16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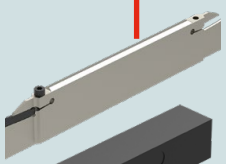
GX 24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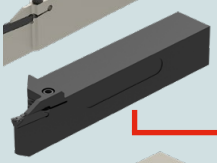
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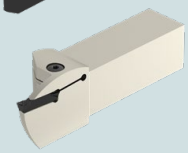
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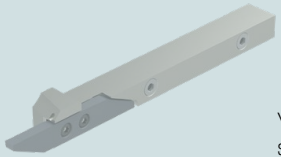
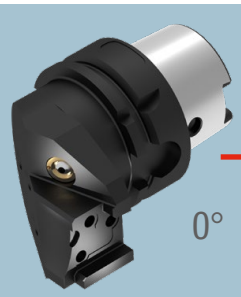
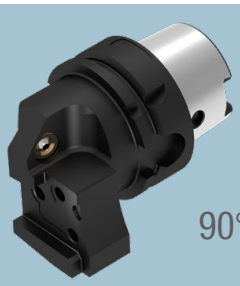
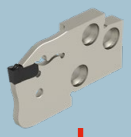


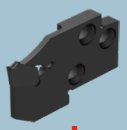
You will find the VertiClamp grooving system → in our sliding head tooling catalogue.

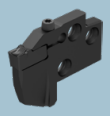




SX FX LX TC AX











SX FX LX TC AX TX Maxi Click

Parting, Grooving and Turning

-F2 8 Parting and Grooving
-27P 11 Grooving and copy turning
-M1 9
-M3 12 CRE = 1,5–3,0 mm
-M2 10
Cutting width CW = 2,0–6,0 mm

Parting and Grooving

-F1 22
23+24
-M1
-27P 25
-R2 26
Cutting width CW = 2,2 – 9,7 mm

Deep Parting and Grooving

-M2 71
-M3 72
Cutting width CW = 8,0 – 10,0 mm

Thread turning

Full profile
60° 79+80
55° 82
Partial profile
60° 81
55° 83

Axial Grooving and Turning

-F50 75
Groove width CW = 3,0 mm

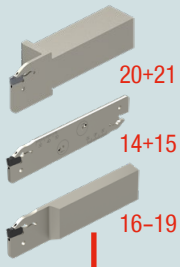
TX

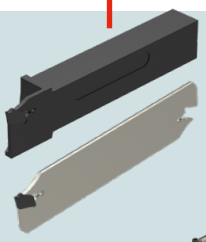
Parting 61
Circlip Grooves 62
Corner undercut 63
Fine and copy turning 64
Axial grooving 65

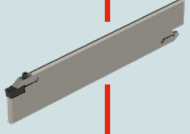
Maxi Click

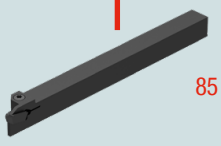
-F2 5 mm 88
-F2 10 mm 89
-F3 10 mm 90
Cutting width CW = 1,0 – 2,5 mm

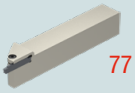
SX - SX-DC FX LX TC AX TX Maxi Click



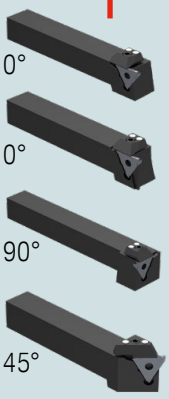


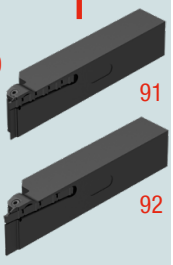














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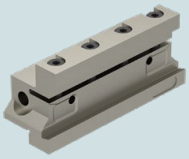


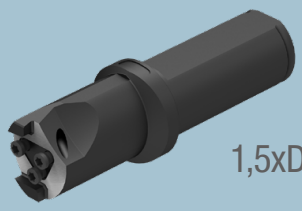


* These articles can be found in → **Catalogue – Clamping technology, Chapter 16**

11

Toolfinder – Internal Machining

ModularClamp



97

1,5xD

GX 09



40



41

GX 16



40



41

GX 09

Circlip grooves



35

Cutting width
CW = 0,5–3,15 mm (H13)

Radius grooves

Standard



36

CRE = 0,8–1,2 mm

Grooving and Turning

-F2



30

Standard



31

-M40



32

Cutting width
CW = 2,0–3,5 mm

GX 16

Circlip grooves



35

Cutting width
CW = 0,5–5,15 mm (H13)

Radius grooves

Standard



36

-27P

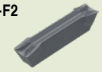


37

CRE = 0,8–3,0 mm

Grooving and Turning

-F2



30

Standard



31

-M40



32

-M1



33

-27P

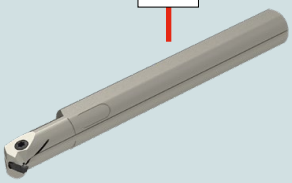


34

Cutting width
CW = 2,0–6,0 mm

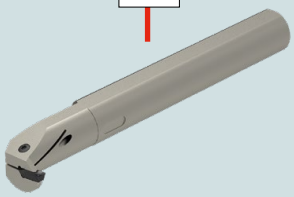
MonoClamp

GX 09

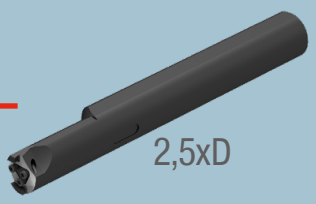


44

GX 16



45



97

GX 24



54

TC



86

GX 24

Radial, axial and deep axial grooving and parting, face turning and turning

-M1 48



-M40 49



-E 47



-F2 46



-27P 51



Cutting width
CW = 2,0 - 6,0 mm

-M3 50



-27PF 52



CRE = 1,5 - 4,0 mm

TC

Thread turning

Partial profile 60° 81



Full profile 60° 80



Full profile 55° 82



Partial profile 55° 83



TX

Parting 61



Circlip Grooving Inserts 62



For corner relief 63



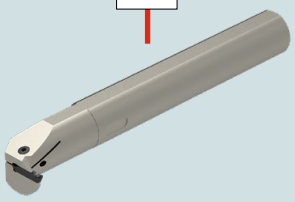
Fine and copy turning 64



Axial grooving 65

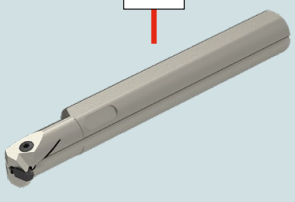


GX 24



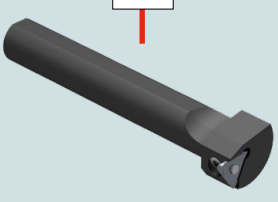
59

TC



87

TX

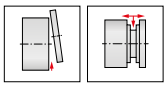


70

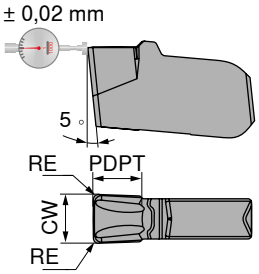
11

Insert SX

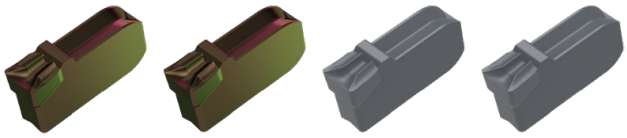
▲ High Precision polished geometry



F	M	R



-F2 CTCP325	-F2 CTCP335	-F2 CTPP345	-F2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 346 ... £ 1C/72		70 346 ... £ 1C/72		70 346 ... £ 1C/72		70 346 ... £ 1C/72	
SX E2.00 N 0.20	2	0.2	1.5	-SX2					17.19	**822**	17.19	**622**
SX E3.00 N 0.30	3	0.3	2.0	-SX3	18.48	**923**	18.48	**523**	18.48	**823**	18.48	**623**
SX E4.00 N 0.40	4	0.4	2.5	-SX4					19.55	**824**	19.55	**624**
P					●		●		●		●	
M					○		○		●		●	
K					●		●				●	
N											○	
S					○				○		●	
H												
O											○	

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→ Application recommendation on page 108

Internal machining | *External machining*



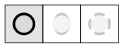
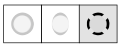
→ 13 | → 14–19 | → 20+21

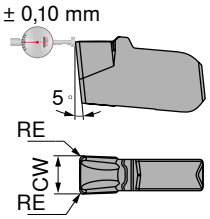
Insert SX

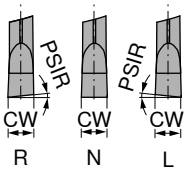
▲ Specially developed geometry with negative edge-chamfers available in right, left and neutral types

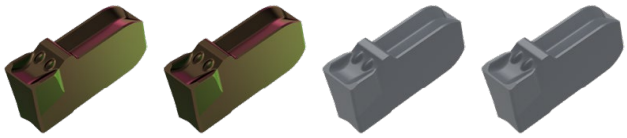


F	M	R
		

-M1 CTCP325	-M1 CTCP335	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
			







Designation	IH	CW +/-0,05 mm	RE +/-0,05 mm	PSIR	for tool holder	70 342 ... £ 1C/72		70 342 ... £ 1C/72		70 342 ... £ 1C/72		70 342 ... £ 1C/72	
SX E2.00 L 6	L	2	0.2	6°	-SX2							11.53	**612**
SX E3.00 L 6	L	3	0.2	6°	-SX3	12.27	**913**					12.27	**613**
SX E4.00 L 6	L	4	0.3	6°	-SX4							12.93	**614**
SX E2.00 N 0.20	N	2	0.2		-SX2	11.53	**922**			11.53	**822**	11.53	**622**
SX E3.00 N 0.20	N	3	0.2		-SX3	12.27	**923**	12.27	**523**	12.27	**823**	12.27	**623**
SX E4.00 N 0.30	N	4	0.3		-SX4	12.93	**924**	12.93	**524**	12.93	**824**	12.93	**624**
SX E5.00 N 0.30	N	5	0.3		-SX5	13.77	**925**			13.77	**825**	13.77	**625**
SX E6.00 N 0.40	N	6	0.4		-SX6	14.85	**926**			14.85	**826**	14.85	**626**
SX E2.00 R 6	R	2	0.2	6°	-SX2							11.53	**602**
SX E3.00 R 6	R	3	0.2	6°	-SX3	12.27	**903**					12.27	**603**
SX E4.00 R 6	R	4	0.3	6°	-SX4							12.93	**604**
P						●		●		●		●	
M						○		○		●		●	
K						●		●				●	
N												○	
S						○				○		●	
H													
O												○	

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→ Application recommendation on page 109

11

Note: reduce feed rate by 20–50 % with R/L version!

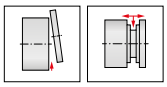
Internal machining *External machining*



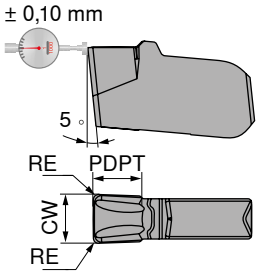
→ 13 → 14–19 → 20+21

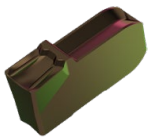
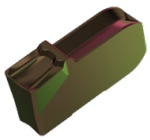
Insert SX

▲ All purpose geometry for parting, grooving & turning.



F	M	R
		



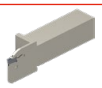
-M2 CTCP325	-M2 CTCP335	-M2 CTPP345	-M2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
			

Designation	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 343 ... £ 1C/72		70 343 ... £ 1C/72		70 343 ... £ 1C/72		70 343 ... £ 1C/72	
SX E2.00 N 0.20	2	0.2	1.5	-SX2	11.53	**922**	11.53	**522**	11.53	**822**	11.53	**622**
SX E3.00 N 0.30	3	0.3	2.0	-SX3	12.27	**923**	12.27	**523**	12.27	**823**	12.27	**623**
SX E4.00 N 0.40	4	0.4	2.5	-SX4	12.93	**924**	12.93	**524**	12.93	**824**	12.93	**624**
SX E5.00 N 0.40	5	0.4	2.7	-SX5	13.77	**925**	13.77	**525**	13.77	**825**	13.77	**625**
SX E6.00 N 0.50	6	0.5	3.0	-SX6	14.85	**926**	14.85	**526**	14.85	**826**	14.85	**626**
P						●		●		●		●
M						○		○		●		●
K						●		●				●
N												○
S						○				○		●
H												
O												○

→ v_c Page 102
→ Application recommendation on page 108

Internal machining | *External machining*

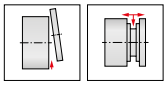




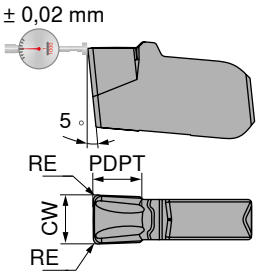
→ 13 → 14–19 → 20+21

Insert SX

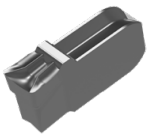
- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ Specialist for aluminum and other soft long-chipping non-ferrous metals



F	M	R



-27P
H216T



Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 349 ... £ 1C/72	
SX E2.00 N 0.20	2	0.2	2.0	-SX2	13.67	**122**
SX E3.00 N 0.30	3	0.3	2.5	-SX3	14.64	**123**
SX E4.00 N 0.40	4	0.4	3.0	-SX4	15.49	**124**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 102
→ Application recommendation on page 108

Internal machining | *External machining*



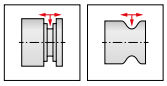


→ 13 → 14–19 → 20+21

11

Radius Grooving Insert SX

- ▲ for grooving and copy turning
- ▲ very good chip control



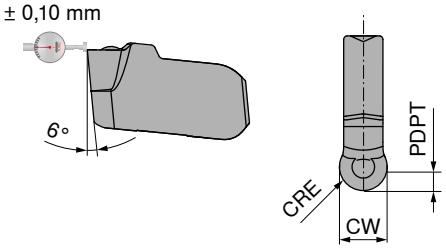
F	M	R

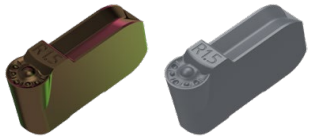
-M3
CTCP335

DRAGONSKIN

-M3
CTP1340

DRAGONSKIN





Designation	CW +/-0,05 mm	CRE mm	PDPT mm	for tool holder	70 344 ... £ 1C/72		70 344 ... £ 1C/72	
SX R3.00 N 1.50	3	1.5	1.5	-SX3	13.04	531	13.04	631
SX R4.00 N 2.00	4	2.0	2.0	-SX4	13.77	532	13.77	632
SX R5.00 N 2.50	5	2.5	2.5	-SX5	14.54	533	14.54	633
SX R6.00 N 3.00	6	3.0	3.0	-SX6			15.80	634
P						●		●
M						○		●
K						●		●
N								○
S								●
H								
O								○

→ v_c Page 102
→ Application recommendation on page 109

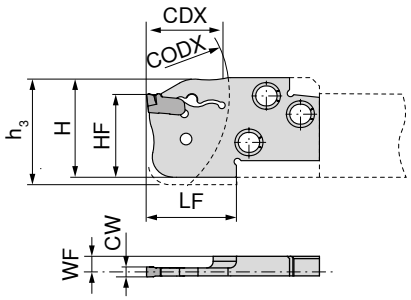
Internal machining | *External machining*



→ 13 | → 14–19 | → 20+21

ModularClamp MSS – Radial grooving module SX

▲ for parting, grooving and finish turning



Illustrations show right-hand versions

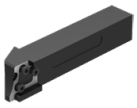


Designation	HF mm	CW mm	WF mm	LF mm	H mm	h_3 mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 897 ... £ 2C/71		Right-hand 70 896 ... £ 2C/71	
E20 R/L 20-SX2	20	2	3.57	22	24	27	60	20	SX .2..	81.97	**020**	81.97	**020**
E20 R/L 20-SX3	20	3	3.20	22	24	27	60	20	SX .3..	81.97	**120**	81.97	**120**
E25 R/L 20-SX2	25	2	5.07	22	30		75	20	SX .2..	82.58	**025**	82.58	**025**
E25 R/L 25-SX3	25	3	4.70	27	30		75	25	SX .3..	82.58	**125**	82.58	**125**
E25 R/L 35-SX3	25	3	4.70	37	30		75	35	SX .3..	83.37	**225**	83.37	**225**
E25 R/L 25-SX4	25	4	4.30	27	30		75	25	SX .4..	82.58	**325**	82.58	**325**
E25 R/L 35-SX4	25	4	4.30	37	30		75	35	SX .4..	83.37	**425**	83.37	**425**
E32 R/L 35-SX3	32	3	4.70	37	38		96	35	SX .3..	84.88	**032**	84.88	**032**
E32 R/L 35-SX4	32	4	4.30	37	38		96	35	SX .4..	84.88	**132**	84.88	**132**



Ejector SX

Spare parts for grooving inserts		70 950 ... £ 2A/28	
SX .2..	SX 2-3	25.38	**836**
SX .3..	SX 2-3	25.38	**836**
SX .4..	SX 4-6	25.89	**837**

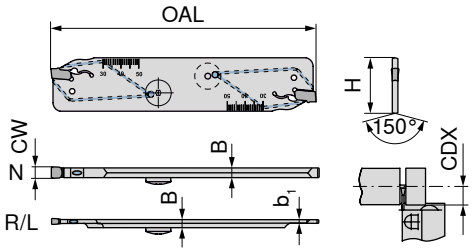




→ 8–12 → 93–95 → 96

Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX-DC Standard







Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	R/L/N	70 884 ... £ 2A/25	
XLCF L 2602-DC-SX2	2	26	2.4	1,6	110	25	SX .2..	L	144.13	**712**
XLCF L 3202-DC-SX2	2	32	2.4	1,6	150	26	SX .2..	L	156.17	**702**
XLCF R 2602-DC-SX2	2	26	2.4	1,6	110	25	SX .2..	R	144.13	**512**
XLCF R 3202-DC-SX2	2	32	2.4	1,6	150	26	SX .2..	R	156.17	**502**
XLCF N 2603-DC-SX3	3	26	2.5		110	35	SX .3..	N	144.13	**613**
XLCF N 3203-DC-SX3	3	32	2.5		150	50	SX .3..	N	156.17	**603**
XLCF N 2604-DC-SX4	4	26	3.3		110	40	SX .4..	N	144.13	**614**
XLCF N 3204-DC-SX4	4	32	3.3		150	50	SX .4..	N	156.17	**604**
XLCF N 3205-DC-SX5	5	32	4.3		150	55	SX .5..	N	156.17	**605**
XLCF N 3206-DC-SX6	6	32	5.2		150	60	SX .6..	N	156.17	**606**


Key D


Ejector SX


Sealing screw

Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28			70 950 ... £ 2A/28	
SX .2..	T15 - IP	16.56	**128**	SX 2-3	25.38	**836**	M4 x 3	12.31	**450**
SX .3..	T15 - IP	16.56	**128**	SX 2-3	25.38	**836**	M4 x 3	12.31	**450**
SX .4..	T15 - IP	16.56	**128**	SX 4-6	25.89	**837**	M4 x 3	12.31	**450**
SX .5..	T15 - IP	16.56	**128**	SX 4-6	25.89	**837**	M4 x 3	12.31	**450**
SX .6..	T15 - IP	16.56	**128**	SX 4-6	25.89	**837**	M4 x 3	12.31	**450**


→ 8–12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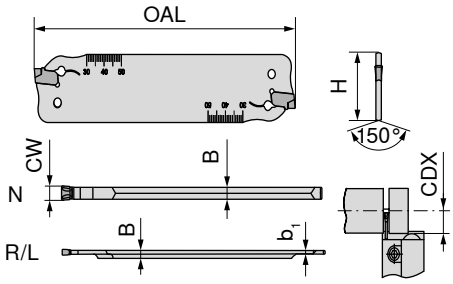
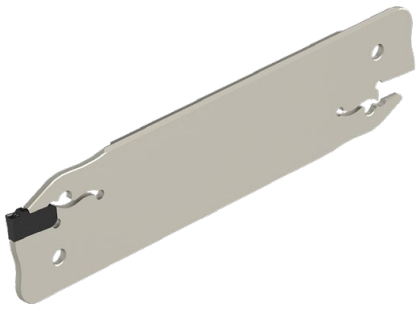
→ Chapter 16


→ Chapter 16

Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX Standard





Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	R/L/N	70 884 ... £ 2A/25	
XLCF L 2602-SX2	2	26	2.4	1.5	110	25	SX .2..	L	84.47	**212**
XLCF L 3202-SX2	2	32	2.4	1.5	150	25	SX .2..	L	88.38	**202**
XLCF R 2602-SX2	2	26	2.4	1.5	110	25	SX .2..	R	84.47	**012**
XLCF R 3202-SX2	2	32	2.4	1.5	150	25	SX .2..	R	88.38	**002**
XLCF N 2603-SX3	3	26	2.4		110	35	SX .3..	N	84.47	**113**
XLCF N 3203-SX3	3	32	2.4		150	50	SX .3..	N	88.38	**103**
XCLF N 2604-SX4	4	26	3.2		110	40	SX .4..	N	84.47	**114**
XLCF N 3204-SX4	4	32	3.2		150	50	SX .4..	N	88.38	**104**
XLCF N 3205-SX5	5	32	4.2		150	55	SX .5..	N	88.38	**105**
XLCF N 3206-SX6	6	32	5.2		150	60	SX .6..	N	88.38	**106**



Ejector SX

Spare parts for grooving inserts		70 950 ... £ 2A/28	
SX .2..	SX 2-3	25.38	**836**
SX .3..	SX 2-3	25.38	**836**
SX .4..	SX 4-6	25.89	**837**
SX .5..	SX 4-6	25.89	**837**
SX .6..	SX 4-6	25.89	**837**



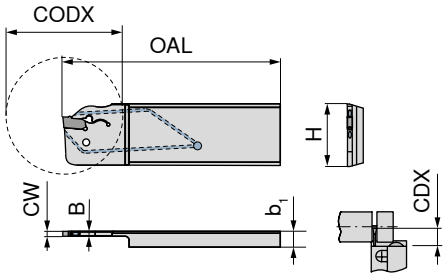



→ 8–12 → 99+100 → Chapter 16 → Chapter 16

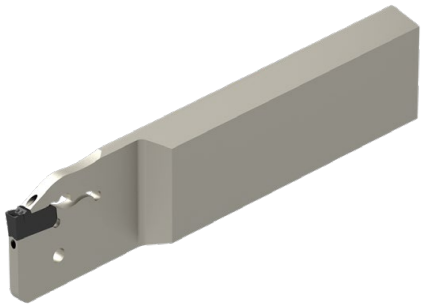
Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX-DC reinforced





Illustrations show right-hand versions



Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	R/L/N	70 879 ... £ 2A/25	
XLCF L 2608-DC-SX3	3	26	2.5	8	110	66	33	SX .3..	L	144.13	**713**
XLCF L 3208-DC-SX3	3	32	2.5	8	110	66	33	SX .3..	L	156.17	**703**
XLCF R 2608-DC-SX3	3	26	2.5	8	110	66	33	SX .3..	R	144.13	**513**
XLCF R 3208-DC-SX3	3	32	2.5	8	110	66	33	SX .3..	R	156.17	**503**

Ejector SX

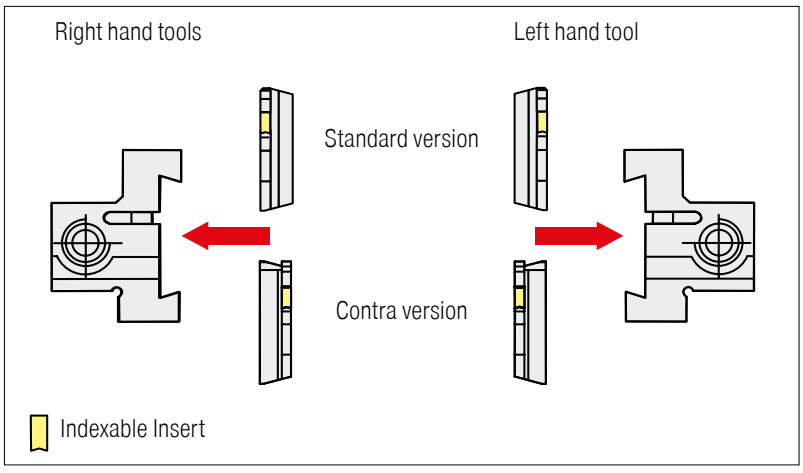
Spare parts for grooving inserts		70 950 ... £ 2A/28	
SX .3..	SX 2-3	25.38	**836**



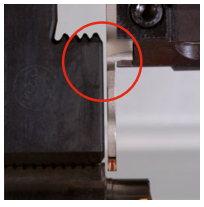



→ 8–12 → 98 → Chapter 16 → Chapter 16

Correct Tool Selection

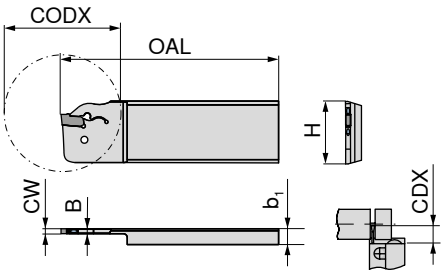


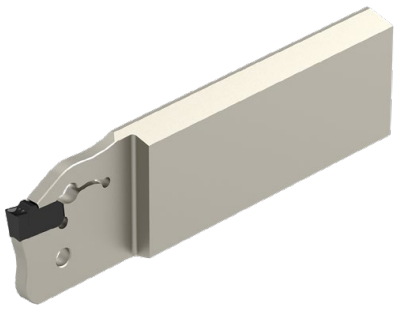




Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX reinforced





Illustrations show right-hand versions

Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	R/L/N	70 879 ... £ 2A/25	
XLCF L 2608-SX2	2	26	1.5	8	110	44	22	SX .2..	L	129.34	**212** 1)
XLCF L 2608-SX3	3	26	2.5	8	110	44	22	SX .3..	L	129.34	**213** 1)
XLCF L 3208-SX3	3	32	2.5	8	110	66	33	SX .3..	L	121.61	**203**
XLCF L 3208-SX4	4	32	3.4	8	110	66	33	SX .4..	L	121.61	**204**
XLCF R 2608-SX2	2	26	1.5	8	110	44	22	SX .2..	R	129.34	**012** 1)
XLCF R 2608-SX3	3	26	2.5	8	110	44	22	SX .3..	R	129.34	**013** 1)
XLCF R 3208-SX3	3	32	2.5	8	110	66	33	SX .3..	R	121.61	**003**
XLCF R 3208-SX4	4	32	3.4	8	110	66	33	SX .4..	R	121.61	**004**

1) can be used in both directions



Ejector SX

Spare parts for grooving inserts		70 950 ... £ 2A/28	
SX .2..	SX 2-3	25.38	**836**
SX .3..	SX 2-3	25.38	**836**
SX .4..	SX 4-6	25.89	**837**





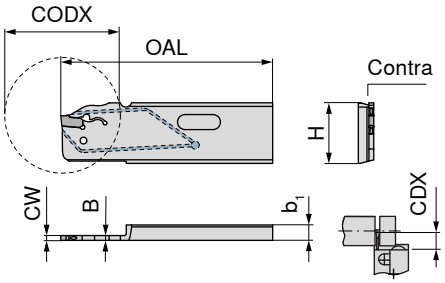

→ 8–12 → 99+100 → Chapter 16 → Chapter 16

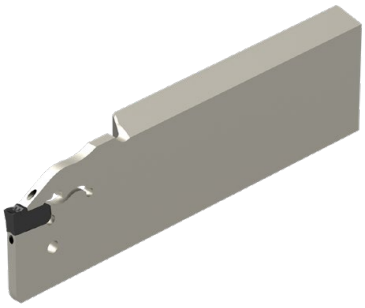
Please order SX assembly key separately if required.

11

MonoClamp – SX-DC reinforced Contra radial blade







Illustrations show right-hand versions

Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	R/L/N	70 877 ... £ 2A/25	
XLCF L 3208C-DC-SX3	3	32	2.5	8	110	66	33	SX .3..	L	156.17	**703**
XLCF R 3208C-DC-SX3	3	32	2.5	8	110	66	33	SX .3..	R	156.17	**503**



Ejector SX

Spare parts for grooving inserts		70 950 ... £ 2A/28	
SX .3..	SX 2-3	25.38	**836**



→ 8–12



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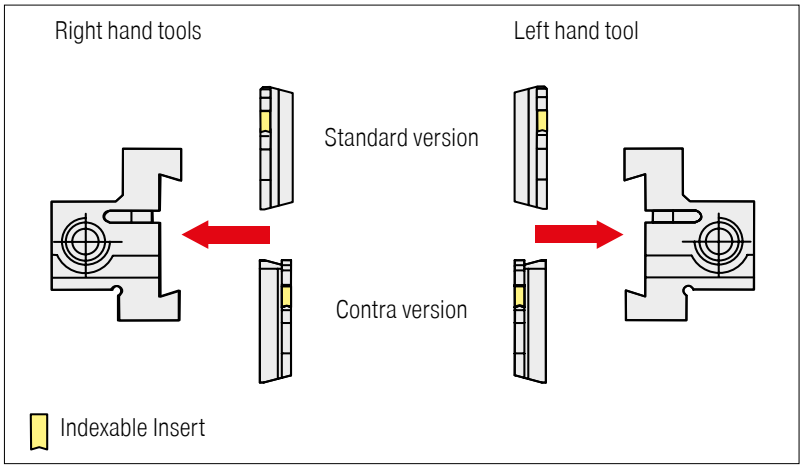
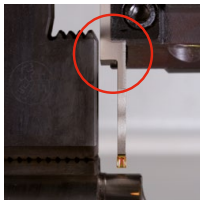
→ Chapter 16

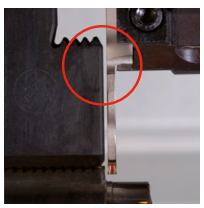


→ Chapter 16

Correct Tool Selection

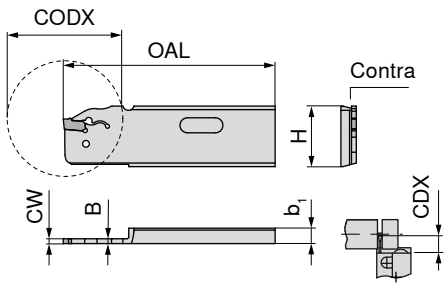


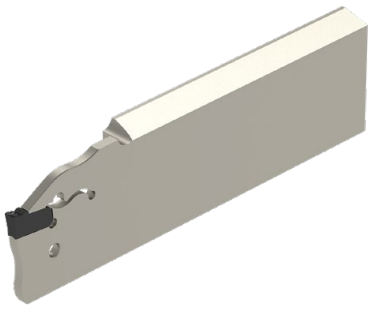




Please order SX assembly key separately if required.

MonoClamp – SX reinforced Contra radial blade





Illustrations show right-hand versions

Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	R/L/N	70 877 ... £ 2A/25	
XLCF L 3208C-SX3	3	32	2.5	8	110	66	33	SX .3..	L	121.61	**203**
XLCF R 3208C-SX3	3	32	2.5	8	110	66	33	SX .3..	R	121.61	**003**



Ejector SX

Spare parts for grooving inserts		70 950 ... £ 2A/28	
SX .3..	SX 2-3	25.38	**836**





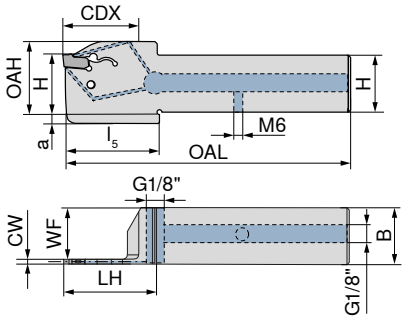

→ 8–12 | → 99+100 | → Chapter 16 | → Chapter 16

Please order SX assembly key separately if required.

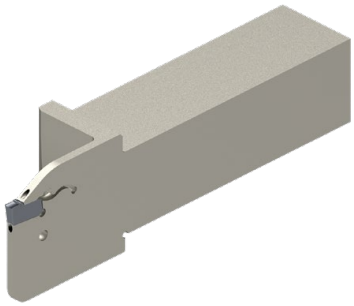
11

MonoClamp – Radial Monoholder SX-DC





Illustrations show right-hand versions



Designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	l_5 mm	OAH mm	CDX mm	a mm	for grooving inserts	Left-hand 70 847 ... £ 2C/71		Right-hand 70 847 ... £ 2C/71	
E12 R/L 0022-1212X-K-DC-SX2	12	12	2	11.2	71	27	28	22	22	5	SX .2..	139.46	**21201**	139.46	**21200**
E16 R/L 0026-1616X-K-DC-SX2	16	16	2	15.2	87	32	33	26	26	4	SX .2..	147.38	**21601**	147.38	**21600**
E20 R/L 0026-2020X-K-DC-SX2	20	20	2	19.2	102	32	33	31	26	5	SX .2..	166.95	**22001**	166.95	**22000**
E25 R/L 0033-2525X-K-DC-SX2	25	25	2	24.2	126	41	42	36	33	5	SX .2..	179.74	**22501**	179.74	**22500**
E16 R/L 0026-1616X-K-DC-SX3	16	16	3	14.8	87	32	33	26	26	4	SX .3..	147.38	**31601**	147.38	**31600**
E20 R/L 0026-2020X-K-DC-SX3	20	20	3	18.8	102	32	33	31	26	5	SX .3..	166.95	**32001**	166.95	**32000**
E25 R/L 0026-2525X-K-DC-SX3	25	25	3	23.8	117	33		31	26		SX .3..	179.74	**32501**	179.74	**32500**
E25 R/L 0033-2525X-K-DC-SX3	25	25	3	23.8	126	41	42	36	33	5	SX .3..	179.74	**32601**	179.74	**32600**
E20 R/L 0033-2020X-K-DC-SX4	20	20	4	18.3	109	39	40	32	33	5	SX .4..	166.95	**42001**	166.95	**42000**
E25 R/L 0033-2525X-K-DC-SX4	25	25	4	23.3	126	41	42	36	33	5	SX .4..	179.74	**42501**	179.74	**42500**
E25 R/L 0040-2525X-K-DC-SX4	25	25	4	23.3	133	48	49	38	40	6	SX .4..	179.74	**42601**	179.74	**42600**
E25 R/L 0040-2525X-K-DC-SX5	25	25	5	22.9	133	48	49	38	40	6	SX .5..	179.74	**52501**	179.74	**52500**
E25 R/L 0040-2525X-K-DC-SX6	25	25	6	22.4	133	48	49	38	40	6	SX .6..	179.74	**62501**	179.74	**62500**

Ejector SX



Coolant screw plug



Grubscrew

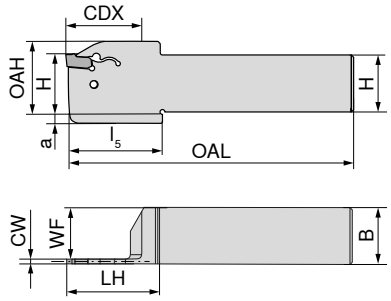
Spare parts for grooving inserts		70 950 ... £ 2A/28			70 950 ... £ 2A/28			70 950 ... £ 2A/28	
SX .2..	SX 2-3	25.38	**836**	G 1/8"	3.40	**294**	M6x6	2.77	**86700**
SX .3..	SX 2-3	25.38	**836**	G 1/8"	3.40	**294**	M6x6	2.77	**86700**
SX .4..	SX 4-6	25.89	**837**	G 1/8"	3.40	**294**	M6x6	2.77	**86700**
SX .5..	SX 4-6	25.89	**837**	G 1/8"	3.40	**294**	M6x6	2.77	**86700**
SX .6..	SX 4-6	25.89	**837**	G 1/8"	3.40	**294**	M6x6	2.77	**86700**

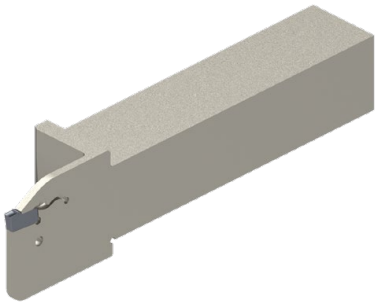


→ 8–12

Please order SX assembly key separately if required.

MonoClamp – Radial Monoholder SX





Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	l_5 mm	OAH mm	CDX mm	a mm	for grooving inserts	Left-hand 70 846 ... £ 2C/71		Right-hand 70 846 ... £ 2C/71	
E12 R/L 0022-1212K-K-SX2	12	12	2	11.2	125	27	28	22	22	5	SX .2..	94.29	**21201**	94.29	**21200**
E16 R/L 0026-1616K-K-SX2	16	16	2	15.2	125	33	33	26	26	4	SX .2..	96.22	**21601**	96.22	**21600**
E20 R/L 0026-2020K-K-SX2	20	20	2	19.2	125	33	33	31	26	5	SX .2..	112.93	**22001**	112.93	**22000**
E25 R/L 0033-2525M-K-SX2	25	25	2	24.2	150	42	42	36	33	5	SX .2..	119.79	**22501**	119.79	**22500**
E16 R/L 0026-1616K-K-SX3	16	16	3	14.8	125	33	33	26	26	4	SX .3..	96.22	**31601**	96.22	**31600**
E20 R/L 0026-2020K-K-SX3	20	20	3	18.8	125	31	33	31	26	5	SX .3..	112.93	**32001**	112.93	**32000**
E25 R/L 0026-2525M-K-SX3	25	25	3	23.8	150	33		31	26		SX .3..	119.79	**32501**	119.79	**32500**
E25 R/L 0033-2525M-K-SX3	25	25	3	23.8	150	42	42	36	33	5	SX .3..	119.79	**32601**	119.79	**32600**
E20 R/L 0033-2020K-K-SX4	20	20	4	18.3	125	40	40	32	33	5	SX .4..	112.93	**42001**	112.93	**42000**
E25 R/L 0033-2525M-K-SX4	25	25	4	23.3	150	42	42	36	33	5	SX .4..	119.79	**42501**	119.79	**42500**
E25 R/L 0040-2525M-K-SX4	25	25	4	23.3	150	49	49	38	40	6	SX .4..	119.79	**42601**	119.79	**42600**
E25 R/L 0040-2525M-K-SX5	25	25	5	22.9	150	49	49	38	40	6	SX .5..	119.79	**52501**	119.79	**52500**
E25 R/L 0040-2525M-K-SX6	25	25	6	22.4	150	49	49	38	40	6	SX .6..	119.79	**62501**	119.79	**62500**



Ejector SX

Spare parts for grooving inserts		70 950 ... £ 2A/28	
SX .2..	SX 2-3	25.38	**836**
SX .3..	SX 2-3	25.38	**836**
SX .4..	SX 4-6	25.89	**837**
SX .5..	SX 4-6	25.89	**837**
SX .6..	SX 4-6	25.89	**837**

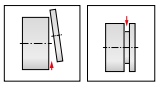


→ 8–12

Please order SX assembly key separately if required.

Insert FX

- ▲ Excellent cutting geometry with low cutting forces
- ▲ Very good swarf control also with low feed rates
- ▲ Reduced built-up edge

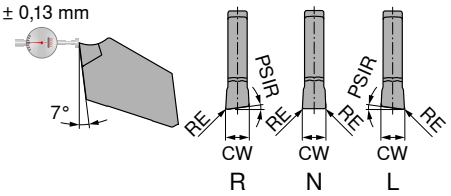


F	M	R

-F1 CTCP325 DRAGONSKIN

-F1 CTPP345 DRAGONSKIN

-F1 CTP1340 DRAGONSKIN





Designation	IH	CW $_{-0.1}$ mm	RE $_{+/-0.05}$ mm	PSIR	for tool holder	70 331 ... £ 1A/15		70 331 ... £ 1A/15		70 331 ... £ 1A/15	
FX 2.2 L 5-F1	L	2.2	0.15	5°	-FX 2.2			13.14	847	13.14	647
FX 3.1 L 5-F1	L	3.1	0.20	5°	-FX 3.1			13.14	851	13.14	651
FX 3.1 L 8-F1	L	3.1	0.20	8°	-FX 3.1			13.14	855		
FX 2.2 N 0.15-F1	N	2.2	0.15		-FX 2.2	13.14	998	13.14	848	13.14	648
FX 3.1 N 0.40-F1	N	3.1	0.40		-FX 3.1	13.14	906	13.14	856	13.14	656
FX 3.1 N 0.20-F1	N	3.1	0.20		-FX 3.1	13.14	902	13.14	852	13.14	652
FX 4.1 N 0.20-F1	N	4.1	0.20		-FX 4.1			14.10	860	14.10	660
FX 4.1 N 0.50-F1	N	4.1	0.50		-FX 4.1			14.10	864		
FX 2.2 R 5-F1	R	2.2	0.15	5°	-FX 2.2			13.14	849	13.14	649
FX 3.1 R 8-F1	R	3.1	0.20	8°	-FX 3.1			13.14	857		
FX 3.1 R 5-F1	R	3.1	0.20	5°	-FX 3.1			13.14	853	13.14	653
P						●		●		●	
M						○		●		●	
K						●				●	
N										○	
S						○		○		●	
H											
O										○	

→ v_c Page 102
→ Application recommendation on page 110

Note: reduce feed rate by 20–50 % with R/L version!

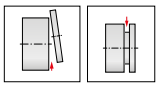
Internal machining *External machining*



→ 27 → 29 → 28

Insert FX

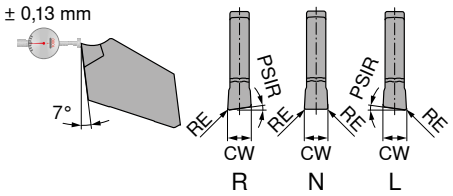
▲ narrow version

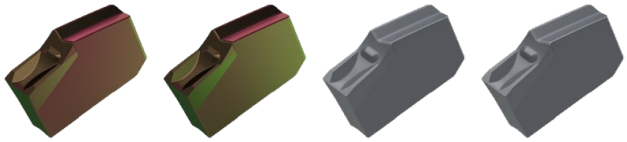


F	M	R
		

-M1 CTCP325 | -M1 CTCP335 | -M1 CTPP345 | -M1 CTP1340

DRAGONSKIN





Designation	IH	CW $_{-0.1}$ mm	RE $_{+/-0.05}$ mm	PSIR	for tool holder	70 330 ... £ 1A/15		70 330 ... £ 1A/15		70 330 ... £ 1A/15		70 330 ... £ 1A/15	
FX 2.2 L 4-M1	L	2.2	0.1	4°	-FX 2.2			13.14	**550**	13.14	**800**	13.14	**600**
FX 2.2 N 0.10-M1	N	2.2	0.1		-FX 2.2	13.14	**902**	13.14	**552**	13.14	**802**	13.14	**602**
FX 2.2 R 4-M1	R	2.2	0.1	4°	-FX 2.2			13.14	**554**	13.14	**804**	13.14	**604**
P						●		●		●		●	
M						○		○		●		●	
K						●		●				●	
N												○	
S						○				○		●	
H													
O												○	

→ v_c Page 102
→ Application recommendation on page 110

Note: reduce feed rate by 20–50 % with R/L version!

Internal machining | *External machining*

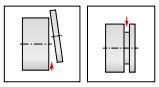


→ 27 | → 29 | → 28

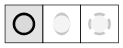
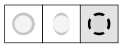
11

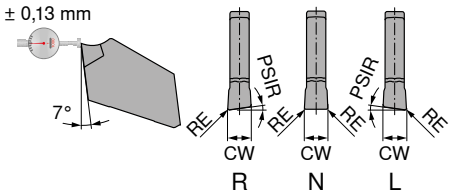
Insert FX

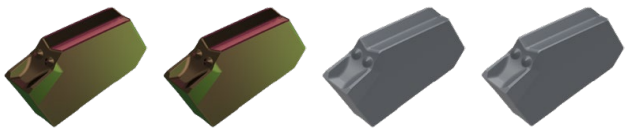
▲ wide version



F	M	R
		

-M1 CTCP325	-M1 CTCP335	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
			





Designation	IH	CW +/-0,05 mm	RE +/-0,05 mm	PSIR	for tool holder	70 332 ... £ 1A/15		70 332 ... £ 1A/15		70 332 ... £ 1A/15		70 332 ... £ 1A/15	
FX 3.1 L 6-M1	L	3.1	0.15	6°	-FX 3.1	13.14	900	13.14	550	13.14	800	13.14	600
FX 4.1 L 6-M1	L	4.1	0.20	6°	-FX 4.1			14.10	556	14.10	806	14.10	606
FX 3.1 N 0.15-M1	N	3.1	0.15		-FX 3.1	13.14	902	13.14	552	13.14	802	13.14	602
FX 4.1 N 0.20-M1	N	4.1	0.20		-FX 4.1	14.10	908	14.10	558	14.10	808	14.10	608
FX 5.1 N 0.25-M1	N	5.1	0.25		-FX 5.1	15.07	914	15.07	564	15.07	814	15.07	614
FX 6.5 N 0.30-M1	N	6.5	0.30		-FX 6.5	15.49	920	15.49	570			15.49	620
FX 8.2 N 0.40-M1	N	8.2	0.40		XLCEN 4608	17.62	924	17.62	574			17.62	624
FX 9.7 N 0.40-M1	N	9.7	0.40		XLCEN 4609	25.53	926	25.53	576			25.53	626
FX 3.1 R 6-M1	R	3.1	0.15	6°	-FX 3.1	13.14	904	13.14	554	13.14	804	13.14	604
FX 4.1 R 6-M1	R	4.1	0.20	6°	-FX 4.1			14.10	560	14.10	810	14.10	610
FX 5.1 R 6-M1	R	5.1	0.25	6°	-FX 5.1					15.07	816		
P							●		●		●		●
M							○		○		●		●
K							●		●				●
N													○
S							○				○		●
H													
O													○

→ v_c Page 102
→ Application recommendation on page 110

Note: reduce feed rate by 20–50 % with R/L version!

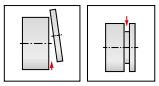
Internal machining *External machining*



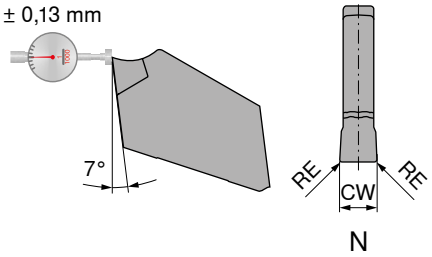
→ 27 → 29 → 28

Insert FX

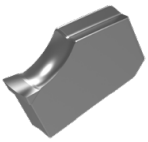
▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ Reduced built-up edge



F	M	R
		



-27P
H216T



Designation	IH	CW -0,1 mm	RE +/-0,05 mm	for tool holder	70 334 ... £ 1A/90	
FX 2.2 N 0.10	N	2.2	0.10	-FX 2.2	12.27	**650**
FX 3.1 N 0.15	N	3.1	0.15	-FX 3.1	12.27	**652**
FX 4.1 N 0.15	N	4.1	0.15	-FX 4.1	13.14	**654**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 102
→ Application recommendation on page 110

Internal machining | *External machining*



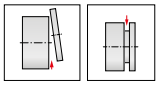


→ 27 → 29 → 28

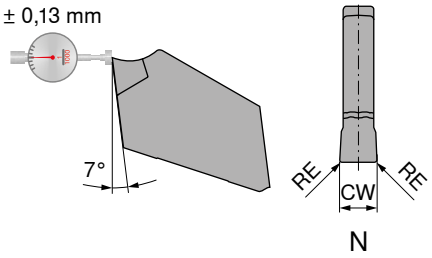
11

Insert FX

- Insert with excellent swarf control for a wide range of feed rates
- Very stable cutting edge



F	M	R



-R2 CTCP325	-R2 CTPP345	-R2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



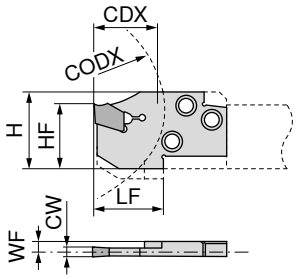
Designation	IH	CW $_{-0.1}$ mm	RE $_{+/-0,05}$ mm	for tool holder	70 335 ... £ 1A/15		70 335 ... £ 1A/15		70 335 ... £ 1A/15	
FX 3.1 N 0.40-R2	N	3.1	0.4	-FX 3.1	13.14	**902**	13.14	**852**	13.14	**652**
FX 4.1 N 0.50-R2	N	4.1	0.5	-FX 4.1	14.10	**908**	14.10	**858**	14.10	**658**
P					●		●		●	
M					○		●		●	
K					●				●	
N									○	
S					○		○		●	
H										
O									○	

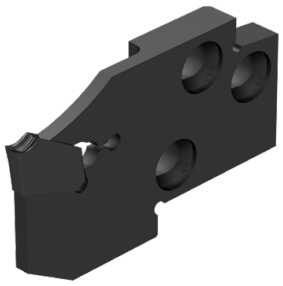
→ v_c Page 102
→ Application recommendation on page 110

Internal machining	*External machining*						
		→ 27	→ 29	→ 28			

ModularClamp MSS – Radial grooving module FX short/long

▲ For parting and grooving





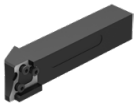
Illustrations show right-hand versions

Designation	HF mm	CW mm	WF mm	LF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 876 ... £ 2C/71		Right-hand 70 875 ... £ 2C/71	
E20 R/L 20-FX 2.2	23	2.2	3.58	22	27	60	20	FX 2.2 ..	81.97	**020**	81.97	**020**
E20 R/L 20-FX 3.1	23	3.1	3.20	22	27	60	20	FX 3.1 ..	81.97	**120**	81.97	**120**
E20 R/L 20-FX 4.1	23	4.1	2.80	22	27	60	20	FX 4.1 ..	81.97	**220**	81.97	**220**
E25 R/L 20-FX 2.2	25	2.2	5.08	22	30	75	20	FX 2.2 ..	82.58	**025**	82.58	**025**
E25 R/L 25-FX 3.1	25	3.1	4.70	27	30	75	25	FX 3.1 ..	82.58	**125**	82.58	**125**
E25 R/L 25-FX 4.1	25	4.1	4.30	27	30	75	25	FX 4.1 ..	82.58	**225**	82.58	**225**
E25 R/L 25-FX 5.1	25	5.1	3.90	27	30	75	25	FX 5.1 ..	82.58	**325**	82.58	**325**
E25 R/L 25-FX 6.5	25	6.5	3.30	27	30	75	25	FX 6.5 ..	82.58	**425**	82.58	**425**
E25 R/L 35-FX 3.1	25	3.1	4.70	37	30	75	35	FX 3.1 ..	83.37	**525**	83.37	**525**
E25 R/L 35-FX 4.1	25	4.1	4.30	37	30	75	35	FX 4.1 ..	83.37	**625**	83.37	**625**
E25 R/L 35-FX 5.1	25	5.1	3.90	37	30	75	35	FX 5.1 ..	83.37	**725**	83.37	**725**
E25 R/L 35-FX 6.5	25	6.5	3.30	37	30	75	35	FX 6.5 ..	83.37	**825**	83.37	**825**
E32 R/L 32-FX 3.1	32	3.1	4.70	34	38	96	32	FX 3.1 ..	84.88	**032**	84.88	**032**
E32 R/L 32-FX 4.1	32	4.1	4.30	34	38	96	32	FX 4.1 ..	84.88	**132**	84.88	**132**
E32 R/L 32-FX 5.1	32	5.1	3.90	34	38	96	32	FX 5.1 ..	84.88	**232**	84.88	**232**
E32 R/L 32-FX 6.5	32	6.5	3.30	34	38	96	32	FX 6.5 ..	84.88	**332**	84.88	**332**
E32 R/L 45-FX 3.1	32	3.1	4.70	47	38	96	45	FX 3.1 ..	86.28	**432**	86.28	**432**
E32 R/L 45-FX 4.1	32	4.1	4.30	47	38	96	45	FX 4.1 ..	86.28	**532**	86.28	**532**
E32 R/L 45-FX 5.1	32	5.1	3.90	47	38	96	45	FX 5.1 ..	86.28	**632**	86.28	**632**
E32 R/L 45-FX 6.5	32	6.5	3.30	47	38	96	45	FX 6.5 ..	86.28	**732**	86.28	**732**



Ejector

Spare parts for grooving inserts	70 950 ... £ 2A/28	
FX 2.2 ..	4.15	**375**
FX 3.1 ..	4.15	**376**
FX 4.1 ..	4.15	**376**
FX 5.1 ..	4.15	**376**
FX 6.5 ..	4.15	**376**

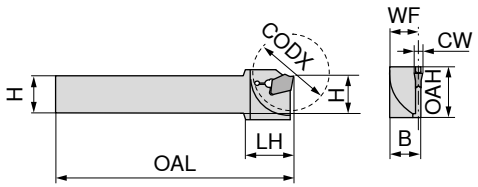



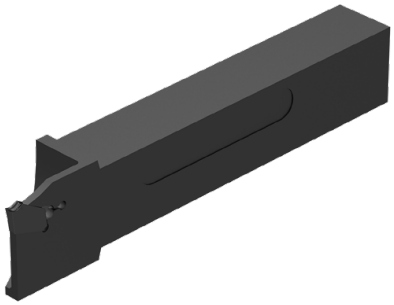

→ 22–26 → 93–95 → 96

MonoClamp – Radial Monoholder FX

Scope of supply:

Blade and ejector





Illustrations show right-hand versions

Designation	H mm	B mm	OAL mm	LH mm	OAH mm	CW mm	WF mm	CODX mm	for grooving inserts	Left-hand 70 837 ... £ 2A/25		Right-hand 70 836 ... £ 2A/25	
XLCE R/L 1010 M-FX2.2	10	10	150	19.4	21	2.2	9.18	30	FX 2.2 ..	94.78	**101**	94.78	**101**
XLCE R/L 1212 F-FX2.2	12	12	80	21.0	21	2.2	11.18	30	FX 2.2 ..	94.78	**102**	94.78	**102**
XLCE R/L 1212 M-FX2.2	12	12	150	19.4	21	2.2	11.18	30	FX 2.2 ..	94.78	**103**	94.78	**103**
XLCE R/L 1414 M-FX2.2	14	14	150	19.4	21	2.2	13.18	30	FX 2.2 ..	97.65	**104**	97.65	**104**
XLCE R/L 1612 H-FX2.2	16	12	100	21.0	21	2.2	11.18	30	FX 2.2 ..	99.16	**105**	99.16	**105**
XLCF R/L 1612 H-FX3.1	16	12	100	21.4	25	3.1	10.80	35	FX 3.1 ..	99.16	**106**	99.16	**106**
XLCF R/L 2016 K-FX3.1	20	16	125	26.4	26	3.1	14.80	40	FX 3.1 ..	100.52	**107**	100.52	**107**
XLCF R/L 2520 M-FX3.1	25	20	150	35.2	34	3.1	18.80	50	FX 3.1 ..	103.28	**108**	103.28	**108**
XLCF R/L 2016 K-FX4.1	20	16	125	26.4	26	4.1	14.40	40	FX 4.1 ..	100.52	**109**	100.52	**109**
XLCF R/L 2520 M-FX4.1	25	20	150	35.2	34	4.1	18.40	50	FX 4.1 ..	103.28	**110**	103.28	**110**



Ejector

Spare parts for grooving inserts	70 950 ... £ 2A/28	
FX 2.2 ..	4.15	**375**
FX 3.1 ..	4.15	**376**
FX 4.1 ..	4.15	**376**

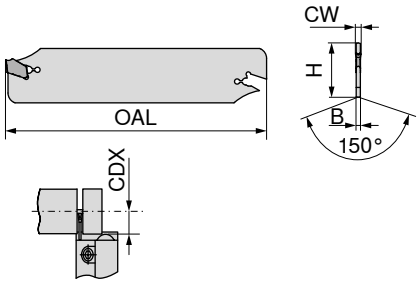


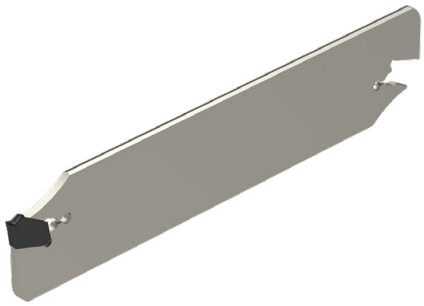
→ 22–26

MonoClamp – Radial Blade FX

Scope of supply:

Blade and ejector





Designation	H mm	B mm	OAL mm	CW mm	CDX mm	for grooving inserts	70 832 ... £ 2A/25	
XLCEN 2602 J 22 FX	26	1.65	110	2.2	25	FX 2.2 ..	77.27	**101**
XLCFN 2603 J 31 FX	26	2.40	110	3.1	35	FX 3.1 ..	78.48	**102**
XLCFN 2604 J 41 FX	26	3.20	110	4.1	40	FX 4.1 ..	84.68	**103**
XLCEN 3202 M 22 FX	32	1.65	150	2.2	30	FX 2.2 ..	77.27	**004**
XLCFN 3203 M 31 FX	32	2.40	150	3.1	50	FX 3.1 ..	78.48	**104**
XLCFN 3204 M 41 FX	32	3.20	150	4.1	50	FX 4.1 ..	84.68	**105**
XLCFN 3205 M 51 FX	32	4.00	150	5.1	55	FX 5.1 ..	92.87	**106**
XLCFN 3206 M 65 FX	32	5.20	150	6.5	55	FX 6.5 ..	100.52	**107**
XLCEN 4608 S 82 FX	46	6.80	250	8.2	80	FX 8.2 ..	239.87	**108**
XLCEN 4609 S 97 FX	46	8.00	250	9.7	80	FX 9.7 ..	239.87	**109**



Ejector

Spare parts for grooving inserts	70 950 ... £ 2A/28	
FX 2.2 ..	4.15	**375**
FX 3.1 ..	4.15	**376**
FX 4.1 ..	4.15	**376**
FX 5.1 ..	4.15	**376**
FX 6.5 ..	4.15	**376**
FX 8.2 ..	5.20	**377**
FX 9.7 ..	5.20	**377**

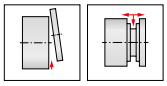




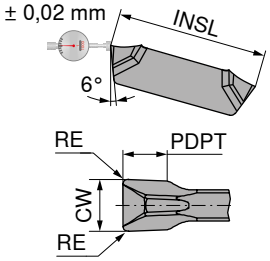
→ 22-26 → 99+100

Insert GX 09/16

▲ Insert with ground periphery
▲ Suitable also for parting off tubes and thin-walled workpieces



F	M	R



-F2
CTP1340

DRAGONSKIN



Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 360 ... £ 1C/72	
GX 09-1 E2.00 N 0.20	9	2.0	0.2	1.5	GX 09-1	24.73	**600**
GX 09-1 E2.50 N 0.20	9	2.5	0.2	1.5	GX 09-1	24.73	**602**
GX 09-2 E3.00 N 0.30	9	3.0	0.3	2.0	GX 09-2	24.73	**604**
GX 16-1 E2.00 N 0.20	16	2.0	0.2	2.5	GX 16-1	25.15	**650**
GX 16-2 E3.00 N 0.30	16	3.0	0.3	3.0	GX 16-2	25.15	**652**
GX 16-3 E4.00 N 0.40	16	4.0	0.4	3.5	GX 16-3	27.53	**654**
GX 16-3 E5.00 N 0.40	16	5.0	0.4	3.5	GX 16-3	27.53	**656**

P	●
M	●
K	●
N	○
S	●
H	
O	○

→ v_c Page 102
→ Application recommendation on page 104

Internal machining | *External machining*





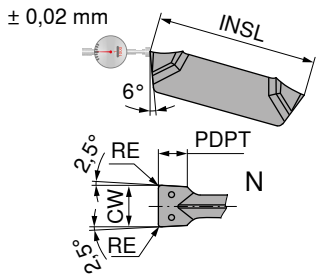

→ 40+41 | → 44+45 | → 38+39 | → 42+43

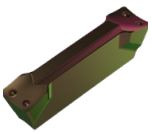
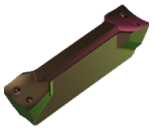
Insert GX 09/16 – Standard

▲ Suitable for parting thin-walled workpieces



F	M	R
		



CTCP325	CTCP335	CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ... £ 1C/72		70 350 ... £ 1C/72		70 350 ... £ 1C/72	
GX 09-1 E2.00 N 0.20	9	2.0	0.2	1.5	GX 09-1	24.73	**984**			24.73	**634**
GX 09-1 E2.50 N 0.20	9	2.5	0.2	1.5	GX 09-1	24.73	**988**			24.73	**638**
GX 09-2 E3.00 N 0.30	9	3.0	0.3	2.0	GX 09-2	24.73	**992**			24.73	**642**
GX 16-1 E2.00 N 0.20	16	2.0	0.2	2.5	GX 16-1	25.15	**900**	25.15	**500**	25.15	**600**
GX 16-1 E2.50 N 0.20	16	2.5	0.2	2.5	GX 16-1	25.15	**904**	25.15	**504**	25.15	**604**
GX 16-2 E3.00 N 0.30	16	3.0	0.3	3.0	GX 16-2	25.15	**908**	25.15	**508**	25.15	**608**
GX 16-2 E3.00 N 0.50	16	3.0	0.5	3.0	GX 16-2	25.15	**910**				
GX 16-2 E3.50 N 0.30	16	3.5	0.3	3.0	GX 16-2	25.15	**912**	25.15	**512**	25.15	**612**
GX 16-3 E4.00 N 0.60	16	4.0	0.6	3.5	GX 16-3	27.53	**918**				
GX 16-3 E4.00 N 0.40	16	4.0	0.4	3.5	GX 16-3	27.53	**916**	27.53	**516**	27.53	**616**
GX 16-3 E5.00 N 0.40	16	5.0	0.4	3.5	GX 16-3	27.53	**924**	27.53	**524**	27.53	**624**
GX 16-4 E6.00 N 0.50	16	6.0	0.5	4.0	GX 16-4	29.05	**928**			29.05	**628**
GX 16-4 E6.00 N 0.80	16	6.0	0.8	4.0	GX 16-4	29.05	**930**				

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S	○		●
H			
O			○

→ v_c Page 102
→ Application recommendation on page 104

11

Internal machining *External machining*

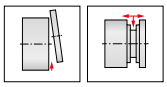




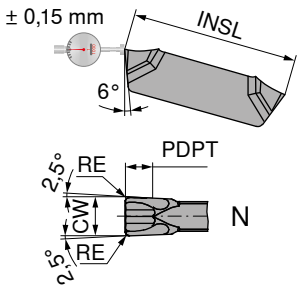

→ 40+41 → 44+45 → 38+39 → 42+43

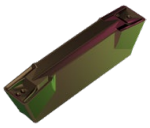
Insert GX 09/16

▲ Very good swarf control



F	M	R
		



-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 351 ... £ 1C/72		70 351 ... £ 1C/72		70 351 ... £ 1C/72	
GX 09-1 E2.00 N 0.20	9	2	0.2	1.5	GX 09-1	16.15	**986**	16.15	**886**	16.15	**686**
GX 09-2 E3.00 N 0.30	9	3	0.3	2.0	GX 09-2	16.15	**994**	16.15	**894**	16.15	**694**
GX 16-1 E2.00 N 0.20	16	2	0.2	2.5	GX 16-1	16.36	**902**	16.36	**802**	16.36	**602**
GX 16-2 E3.00 N 0.30	16	3	0.3	3.0	GX 16-2	16.36	**910**	16.36	**810**	16.36	**610**
GX 16-3 E4.00 N 0.40	16	4	0.4	3.5	GX 16-3	18.22	**918**	18.22	**818**	18.22	**618**
GX 16-3 E5.00 N 0.40	16	5	0.4	3.5	GX 16-3	20.07	**926**	20.07	**826**	20.07	**626**
GX 16-4 E6.00 N 0.50	16	6	0.5	4.0	GX 16-4	21.89	**930**	21.89	**830**	21.89	**630**
P							●		●		●
M							○		●		●
K							●				●
N											○
S							○		○		●
H											
O											○

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→ Application recommendation on page 104

Internal machining | *External machining*





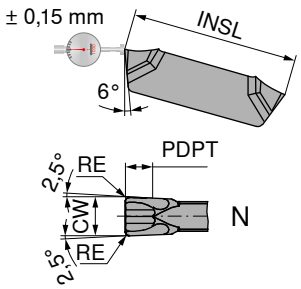

→ 40+41 | → 44+45 | → 38+39 | → 42+43

Insert GX 16

▲ Very good swarf control



F	M	R
		



-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 362 ... £ 1C/72		70 362 ... £ 1C/72		70 362 ... £ 1C/72	
GX 16-1 E2.00 N 0.20	16	2	0.2	2.0	GX 16-1			16.36	**800**	16.36	**600**
GX 16-2 E3.00 N 0.20	16	3	0.2	2.5	GX 16-2	16.36	**902**	16.36	**802**	16.36	**602**
GX 16-3 E4.00 N 0.30	16	4	0.3	3.0	GX 16-3	18.22	**904**			18.22	**604**
P						●		●		●	
M						○		●		●	
K						●				●	
N										○	
S						○		○		●	
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→ Application recommendation on page 105

Internal machining | *External machining*



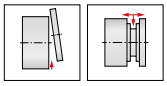



→ 40+41 | → 45 | → 38+39 | → 43

11

Insert GX 16

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery



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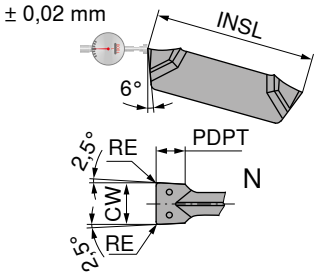

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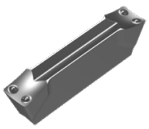

70 350 ...

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	£ 1C/72	
GX 16-1 E2.00 N 0.20	16	2	0.2	2.5	GX 16-1	19.08	**650**
GX 16-2 E3.00 N 0.30	16	3	0.3	3.0	GX 16-2	19.08	**658**
GX 16-3 E4.00 N 0.40	16	4	0.4	3.5	GX 16-3	20.81	**670**
GX 16-4 E6.00 N 0.50	16	6	0.5	4.0	GX 16-4	21.89	**678**

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→ Application recommendation on page 104

Internal machining | *External machining*



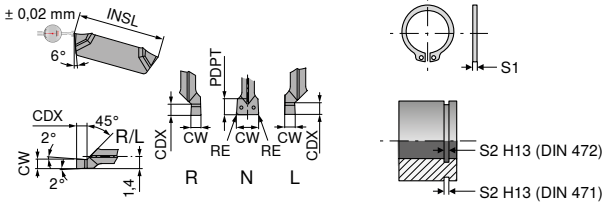


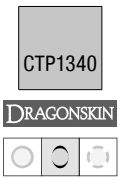

→ 40+41 | → 45 | → 38+39 | → 43

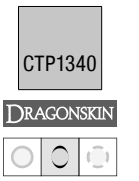
Circlip groove insert GX 09/16 – Standard



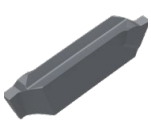
F	M	R
		











Designation	IH	INSL mm	s_1 mm	s_2 mm	CW +/-0,02 mm	RE +/-0,05 mm	CDX mm	PDPT mm	for tool holder	70 352 ... £ 1C/72		70 352 ... £ 1C/72	
GX 09-1 S0.60 L	L	9	0.40	0.50	0.60		0.75		R/L 02-GX 09-1			24.73	679
GX 09-1 S0.80 L	L	9	0.60	0.70	0.80		0.94		R/L 02-GX 09-1			24.73	681
GX 09-1 S0.90 L	L	9	0.70	0.80	0.90		1.04		R/L 02-GX 09-1			24.73	683
GX 09-1 S1.00 L	L	9	0.80	0.90	1.00		1.14		R/L 02-GX 09-1			24.73	684
GX 09-1 S1.20 L	L	9	1.00	1.10	1.20		1.34		R/L 02-GX 09-1			24.73	686
GX 09-1 S1.40 L	L	9	1.20	1.30	1.40		1.53		R/L 02-GX 09-1			24.73	688
GX 09-1 S1.70 L	L	9	1.50	1.60	1.70		1.82		R/L 02-GX 09-1			24.73	690
GX 16-2 S0.60 L	L	16	0.40	0.50	0.60		0.75		R/L 03-GX 16-2			25.15	607
GX 16-2 S0.80 L	L	16	0.60	0.70	0.80		0.94		R/L 03-GX 16-2			25.15	609
GX 16-2 S0.90 L	L	16	0.70	0.80	0.90		1.04		R/L 03-GX 16-2			25.15	611
GX 16-2 S1.00 L	L	16	0.80	0.90	1.00		1.14		R/L 03-GX 16-2			25.15	612
GX 16-2 S1.20 L	L	16	1.00	1.10	1.20		1.34		R/L 03-GX 16-2			25.15	614
GX 16-2 S1.40 L	L	16	1.20	1.30	1.40		1.53		R/L 03-GX 16-2			25.15	616
GX 16-2 S1.70 L	L	16	1.50	1.60	1.70		1.82		R/L 03-GX 16-2			25.15	618
GX 16-2 S1.95 L	L	16	1.75	1.85	1.95		2.07		R/L 03-GX 16-2			25.15	620
GX 16-2 S2.25 L	L	16	2.00	2.15	2.25		2.36		R/L 03-GX 16-2			25.15	622
GX 09-1 S1.95 N	N	9	1.75	1.85	1.95	0.1		2.0	GX 09-1	24.73	692		
GX 09-1 S2.25 N	N	9	2.00	2.15	2.25	0.1		2.0	GX 09-1	24.73	694		
GX 09-2 S2.75 N	N	9	2.50	2.65	2.75	0.1		2.0	GX 09-2	24.73	696		
GX 09-2 S3.25 N	N	9	3.00	3.15	3.25	0.1		2.0	GX 09-2	24.73	698		
GX 16-2 S2.75 N	N	16	2.50	2.65	2.75	0.1		3.0	GX 16-2	25.15	624		
GX 16-2 S3.25 N	N	16	3.00	3.15	3.25	0.1		3.0	GX 16-2	25.15	626		
GX 16-3 S4.25 N	N	16	4.00	4.15	4.25	0.2		3.5	GX 16-3	27.53	628		
GX 16-4 S5.25 N	N	16	5.00	5.15	5.25	0.2		4.0	GX 16-4	29.05	630		
GX 09-1 S0.60 R	R	9	0.40	0.50	0.60		0.75		R/L 02-GX 09-1			24.73	670
GX 09-1 S0.80 R	R	9	0.60	0.70	0.80		0.94		R/L 02-GX 09-1			24.73	672
GX 09-1 S0.90 R	R	9	0.70	0.80	0.90		1.04		R/L 02-GX 09-1			24.73	674
GX 09-1 S1.00 R	R	9	0.80	0.90	1.00		1.14		R/L 02-GX 09-1			24.73	676
GX 09-1 S1.20 R	R	9	1.00	1.10	1.20		1.34		R/L 02-GX 09-1			24.73	678
GX 09-1 S1.40 R	R	9	1.20	1.30	1.40		1.53		R/L 02-GX 09-1			24.73	680
GX 09-1 S1.70 R	R	9	1.50	1.60	1.70		1.82		R/L 02-GX 09-1			24.73	682
GX 16-2 S0.60 R	R	16	0.40	0.50	0.60		0.75		R/L 03-GX 16-2			25.15	695
GX 16-2 S0.80 R	R	16	0.60	0.70	0.80		0.94		R/L 03-GX 16-2			25.15	697
GX 16-2 S0.90 R	R	16	0.70	0.80	0.90		1.04		R/L 03-GX 16-2			25.15	699
GX 16-2 S1.00 R	R	16	0.80	0.90	1.00		1.14		R/L 03-GX 16-2			25.15	600
GX 16-2 S1.20 R	R	16	1.00	1.10	1.20		1.34		R/L 03-GX 16-2			25.15	602
GX 16-2 S1.40 R	R	16	1.20	1.30	1.40		1.53		R/L 03-GX 16-2			25.15	604
GX 16-2 S1.70 R	R	16	1.50	1.60	1.70		1.82		R/L 03-GX 16-2			25.15	606
GX 16-2 S1.95 R	R	16	1.75	1.85	1.95		2.07		R/L 03-GX 16-2			25.15	608
GX 16-2 S2.25 R	R	16	2.00	2.15	2.25		2.36		R/L 03-GX 16-2			25.15	610

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N	○	○
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O	○	○

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→ Application recommendation on page 105

Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining *External machining*





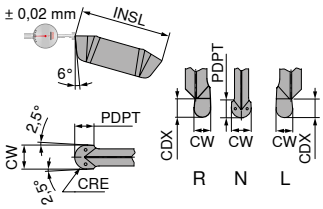

→ 40+41 → 44+45 → 38+39 → 42+43

11

Radius groove insert GX 09/16

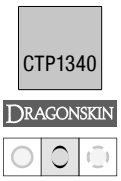


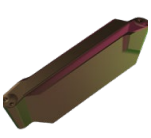
F	M	R
		















Designation	IH	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	CDX mm	for tool holder	70 354 ... £ 1C/72		70 354 ... £ 1C/72		70 354 ... £ 1C/72	
GX 09-1 R0.80 L	L	9	1.6	0.8		1.78	R/L 02-GX 09-1	29.81	**988**				
GX 16-2 R0.80 L	L	16	1.6	0.8		1.78	R/L 03-GX 16-2	30.57	**912**				
GX 16-2 R1.00 L	L	16	2.0	1.0		2.18	R/L 03-GX 16-2	30.57	**916**				
GX 16-2 R1.20 L	L	16	2.4	1.2		2.58	R/L 03-GX 16-2	30.57	**920**				
GX 09-1 R1.00 N	N	9	2.0	1.0	1.0		GX 09-1			29.81	**992**		
GX 09-1 R1.20 N	N	9	2.4	1.2	1.2		GX 09-1			29.81	**996**		
GX 16-2 R1.50 N	N	16	3.0	1.5	1.5		GX 16-2			30.57	**924**	30.57	**624**
GX 16-3 R2.00 N	N	16	4.0	2.0	2.0		GX 16-3			33.18	**928**	33.18	**628**
GX 16-3 R2.50 N	N	16	5.0	2.5	2.5		GX 16-3			33.18	**932**	33.18	**632**
GX 16-4 R3.00 N	N	16	6.0	3.0	3.0		GX 16-4			34.70	**936**	34.70	**636**
GX 09-1 R0.80 R	R	9	1.6	0.8		1.78	R/L 02-GX 09-1	29.81	**984**				
GX 16-2 R0.80 R	R	16	1.6	0.8		1.78	R/L 03-GX 16-2	30.57	**900**				
GX 16-2 R1.00 R	R	16	2.0	1.0		2.18	R/L 03-GX 16-2	30.57	**904**				
GX 16-2 R1.20 R	R	16	2.4	1.2		2.58	R/L 03-GX 16-2	30.57	**908**				
P								●		●		●	
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K								●		●		●	
N												○	
S								○		○		●	
H													
O												○	

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→ Application recommendation on page 105

Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining | *External machining*









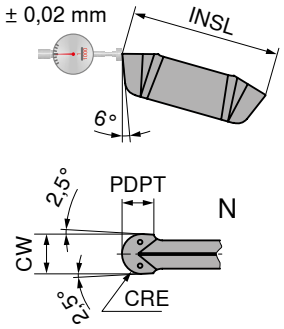
→ 40+41 | → 44+45 | → 38+39 | → 42+43

Radius groove insert GX 16

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery



F	M	R
		



-27P
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70 354 ...

Designation	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	for tool holder	£ 1C/72	
GX 16-2 R1.50 N	16	3	1.5	1.5	GX 16-2	22.97	**674**
GX 16-3 R2.00 N	16	4	2.0	2.0	GX 16-3	24.83	**678**
GX 16-3 R2.50 N	16	5	2.5	2.5	GX 16-3	24.83	**682**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 102
→ Application recommendation on page 105

Internal machining | *External machining*



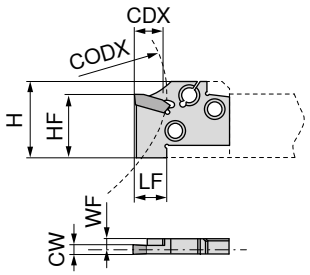



→ 40+41 | → 45 | → 38+39 | → 43

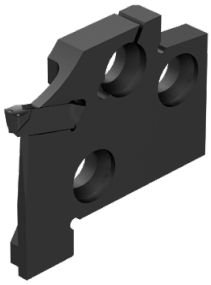
11

ModularClamp MSS – Radial grooving module GX 09/16

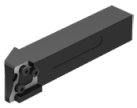
- For circlip grooves ≤ 2.75 mm
- For radius grooves up to ≤ 1.2 mm
- For external recessing



Illustrations show right-hand versions



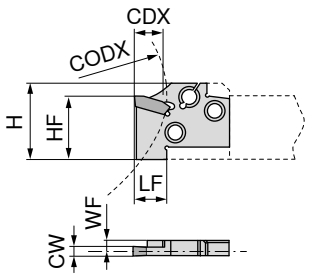
Designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 871 ... £ 2C/71		Right-hand 70 870 ... £ 2C/71	
E12 R/L 02-GX 09-1	<1,95	3.15	8	12	14.5	36	2	GX 09-1 ..R/L	81.07	**112**	81.07	**112**
E16 R/L 02-GX 09-1	<1,95	3.15	8	16	19.5	48	2	GX 09-1 ..R/L	81.97	**116**	81.97	**116**
E20 R/L 03-GX 16-2	<2,75	3.40	13	20	24.0	60	3	GX 16-2 ..R/L	81.97	**120**	81.97	**120**
E25 R/L 03-GX 16-2	<2,75	4.90	13	25	30.0	75	3	GX 16-2 ..R/L	82.58	**125**	82.58	**125**
E32 R/L 03-GX 16-2	<2,75	4.90	13	32	38.0	96	3	GX 16-2 ..R/L	83.37	**132**	83.37	**132**

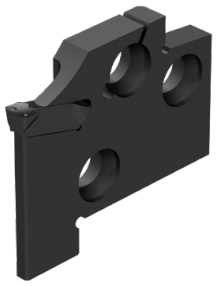

→ 30–37 → 93–95 → 96

ModularClamp MSS – Radial grooving module GX 09/16

- For grooving and turning
- For circlip grooves ≤ 5.25 mm
- For radius grooves up to ≤ 3.0 mm
- For external recessing

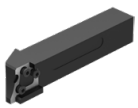


Illustrations show right-hand versions



Designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 866 ... £ 2C/71		Right-hand 70 865 ... £ 2C/71	
E12 R/L 07-GX 09-1	2,00 - 2,75	3.15	8	12	14.5	36	7	GX 09-1 ..N	81.07	**012**	81.07	**012**
E12 R/L 07-GX 09-2	2,76 - 3,75	3.15	8	12	14.5	36	7	GX 09-2 ..N	81.07	**112**	81.07	**112**
E16 R/L 07-GX 09-1	2,00 - 2,75	3.15	8	16	19.5	48	7	GX 09-1 ..N	81.97	**016**	81.97	**016**
E16 R/L 07-GX 09-2	2,76 - 3,75	3.15	8	16	19.5	48	7	GX 09-2 ..N	81.97	**116**	81.97	**116**
E20 R/L 12-GX 16-1	2,00 - 2,75	3.75	13	20	24.0	60	12	GX 16-1 ..N	81.97	**020**	81.97	**020**
E20 R/L 12-GX 16-2	2,76 - 3,75	3.40	13	20	24.0	60	12	GX 16-2 ..N	81.97	**120**	81.97	**120**
E20 R/L 12-GX 16-3	3,76 - 5,00	2.93	13	20	24.0	60	12	GX 16-3 ..N	81.97	**220**	81.97	**220**
E25 R/L 12-GX 16-1	2,00 - 2,75	5.25	13	25	30.0	75	12	GX 16-1 ..N	82.58	**025**	82.58	**025**
E25 R/L 12-GX 16-2	2,76 - 3,75	4.90	13	25	30.0	75	12	GX 16-2 ..N	82.58	**125**	82.58	**125**
E25 R/L 12-GX 16-3	3,76 - 5,00	4.43	13	25	30.0	75	12	GX 16-3 ..N	82.58	**225**	82.58	**225**
E25 R/L 12-GX 16-4	5,01 - 6,50	3.80	13	25	30.0	75	12	GX 16-4 ..N	82.58	**325**	82.58	**325**
E32 R/L 12-GX 16-2	2,76 - 3,75	4.90	13	32	38.0	96	12	GX 16-2 ..N	83.37	**132**	83.37	**132**
E32 R/L 12-GX 16-3	3,76 - 5,00	4.43	13	32	38.0	96	12	GX 16-3 ..N	83.37	**232**	83.37	**232**
E32 R/L 12-GX 16-4	5,01 - 6,50	3.80	13	32	38.0	96	12	GX 16-4 ..N	83.37	**332**	83.37	**332**

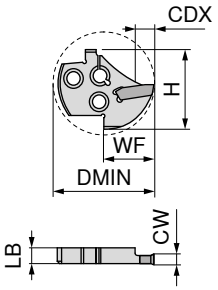
11

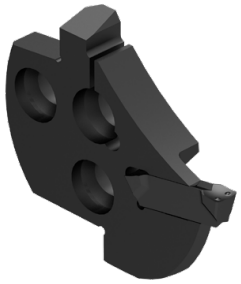

→ 30–37 → 93–95 → 96

ModularClamp MSS – Radial Grooving module GX 09/16 for Internal machining

- For circlip grooves ≤ 2.75 mm
- For radius grooves up to ≤ 1.2 mm



Illustrations show right-hand versions



								Left-hand		Right-hand	
								70 886 ...		70 885 ...	
Designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	£ 2C/71		£ 2C/71	
I16 R/L 02-GX 09-1	<1,95	3.8	10.0	16.4	2	20	GX 09-1 ..R/L	81.97	**016**	81.97	**016**
I20 R/L 02-GX 09-1	<1,95	3.8	12.0	20.3	2	25	GX 09-1 ..R/L	81.97	**020**	81.97	**020**
I25 R/L 02-GX 09-1	<1,95	3.8	15.5	24.9	2	32	GX 09-1 ..R/L	82.58	**025**	82.58	**025**
I32 R/L 03-GX 16-2	<2,75	5.9	20.0	32.2	3	40	GX 16-2 ..R/L	83.37	**032**	83.37	**032**
I40 R/L 03-GX 16-2	<2,75	5.9	24.5	39.6	3	50	GX 16-2 ..R/L	84.07	**040**	84.07	**040**

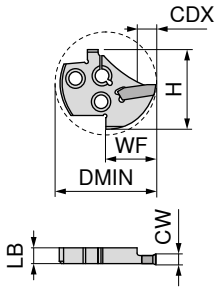
Right hand module → left hand insert only
Left hand module → right hand insert only




→ 30–37 → 97

ModularClamp MSS – Radial Grooving module 09/16 for Internal machining

- For circlip grooves ≤ 5.25 mm
- For radius grooves up to ≤ 3.0 mm



Illustrations show right-hand versions



Designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	Left-hand 70 881 ... £ 2C/71		Right-hand 70 880 ... £ 2C/71	
I16 R/L 04-GX 09-1	2,00 - 2,75	3.8	10.0	16.4	4	20	GX 09-1 ..N	81.97	**017**	81.97	**017**
I16 R/L 04-GX 09-2	2,76 - 3,75	3.8	10.0	16.4	4	20	GX 09-2 ..N	81.97	**117**	81.97	**117**
I20 R/L 05-GX 09-1	2,00 - 2,75	3.8	12.0	20.3	5	25	GX 09-1 ..N	81.97	**021**	81.97	**021**
I20 R/L 05-GX 09-2	2,76 - 3,75	3.8	12.0	20.3	5	25	GX 09-2 ..N	81.97	**121**	81.97	**121**
I25 R/L 06-GX 09-1	2,00 - 2,75	3.8	15.5	24.9	6	32	GX 09-1 ..N	82.58	**026**	82.58	**026**
I25 R/L 06-GX 09-2	2,76 - 3,75	3.8	15.5	24.9	6	32	GX 09-2 ..N	82.58	**126**	82.58	**126**
I32 R/L 09-GX 16-1	2,00 - 2,75	5.9	20.0	32.2	9	40	GX 16-1 ..N	83.37	**033**	83.37	**033**
I32 R/L 09-GX 16-2	2,76 - 3,75	5.9	20.0	32.2	9	40	GX 16-2 ..N	83.37	**133**	83.37	**133**
I32 R/L 09-GX 16-3	3,76 - 5,00	5.9	20.0	32.2	9	40	GX 16-3 ..N	83.37	**233**	83.37	**233**
I32 R/L 09-GX 16-4	5,01 - 6,50	5.9	20.0	32.2	9	40	GX 16-4 ..N	83.37	**333**	83.37	**333**
I40 R/L 10-GX 16-1	2,00 - 2,75	5.9	24.5	39.6	10	50	GX 16-1 ..N	84.07	**041**	84.07	**041**
I40 R/L 10-GX 16-2	2,76 - 3,75	5.9	24.5	39.6	10	50	GX 16-2 ..N	84.07	**141**	84.07	**141**
I40 R/L 10-GX 16-3	3,76 - 5,00	5.9	24.5	39.6	10	50	GX 16-3 ..N	84.07	**241**	84.07	**241**
I40 R/L 10-GX 16-4	5,01 - 6,50	5.9	24.5	39.6	10	50	GX 16-4 ..N	84.07	**341**	84.07	**341**

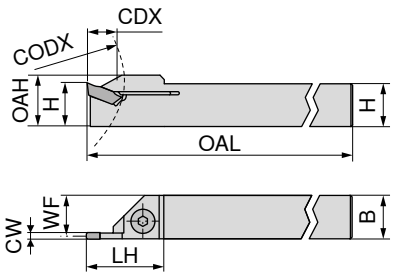


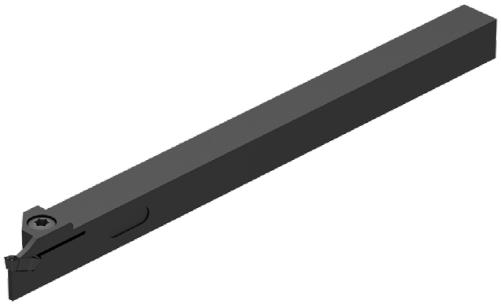


→ 30–37 → 97

11

MonoClamp – Radial Monoholder GX 09

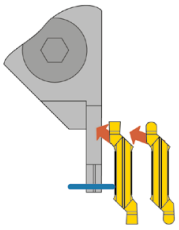




Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 863 ... £ 2C/71		Right-hand 70 862 ... £ 2C/71	
E10 R/L 00-1010M-GX09	10	10	2,00 - 3,50	9.35	12	150	18	30	7	GX 09 ..	117.88	**010**	117.88	**010**

When using 'R' or 'L' tools the tool must be modified at the end face to ensure cutting clerance.




Key D

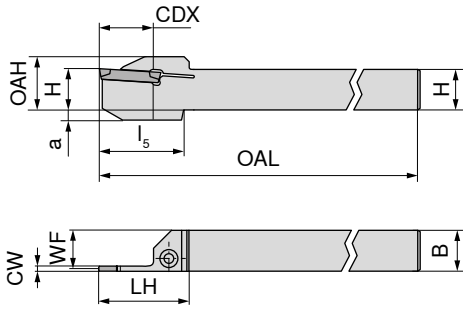

Clamping screw

Spare parts for grooving inserts		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28	
GX 09 ..	T15	12.87	**113**	M4x11	9.87 **442**



→ 30–36

MonoClamp – Radial Monoholder GX 16

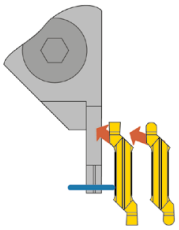




Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	a mm	CDX mm	for grooving inserts	Left-hand 70 889 ... £ 2C/71		Right-hand 70 888 ... £ 2C/71	
E12 R/L 0012-1212K-GX16-1	12	12	2,00 - 2,75	11.35	17	125	26	24	4	12	GX 16-1	86.98	**212**	86.98	**212**
E12 R/L 0012-1212K-GX16-2	12	12	2,76 - 3,75	11.00	17	125	26	24	4	12	GX 16-2	86.98	**312**	86.98	**312**
E16 R/L 0012-1616K-GX16-1	16	16	2,00 - 2,75	15.35	21	125	26	24	4	12	GX 16-1	92.87	**216**	92.87	**216**
E16 R/L 0012-1616K-GX16-2	16	16	2,76 - 3,75	15.00	21	125	26	24	4	12	GX 16-2	92.87	**316**	92.87	**316**
E16 R/L 0012-1616K-GX16-3	16	16	3,76 - 5,00	14.53	21	125	26	24	4	12	GX 16-3	92.87	**416**	92.87	**416**
E20 R/L 0012-2020K-GX16-1	20	20	2,00 - 2,75	19.35	25	125	26			12	GX 16-1	106.91	**220**	106.91	**220**
E20 R/L 0012-2020K-GX16-2	20	20	2,76 - 3,75	19.00	25	125	26			12	GX 16-2	106.91	**320**	106.91	**320**
E20 R/L 0012-2020K-GX16-3	20	20	3,76 - 5,00	18.53	25	125	26			12	GX 16-3	106.91	**420**	106.91	**420**
E25 R/L 0012-2525M-GX16-2	25	25	2,76 - 3,75	24.00	30	150	26			12	GX 16-2	113.68	**325**	113.68	**325**
E25 R/L 0012-2525M-GX16-3	25	25	3,76 - 5,00	23.53	30	150	26			12	GX 16-3	113.68	**425**	113.68	**425**

When using 'R' or 'L' tools the tool must be modified at the end face to ensure cutting clearance.



11

Key D

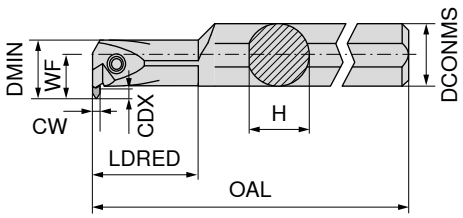

Clamping screw

Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28	
GX 16-1	T15	12.87	**113**	M3,5x14	3.91	**160**
GX 16-2	T15	12.87	**113**	M3,5x14	3.91	**160**
GX 16-3	T15	12.87	**113**	M3,5x14	3.91	**160**



→ 30–37

MonoClamp – Radial Mono-boring bars GX 09



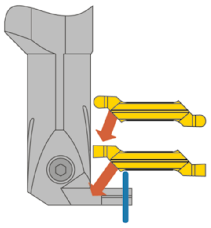


Illustrations show right-hand versions

Designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 859 ... £ 2C/71		Right-hand 70 858 ... £ 2C/71	
I12 R/L 90-2,5D-GX09	15.25	16	16	2,00 - 3,75	3	11	150	30	GX 09 ..	144.52	**012**	144.52	**012**

Right hand boring bar→ left hand insert only
Left hand boring bar→ right hand insert only

When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.



Key D

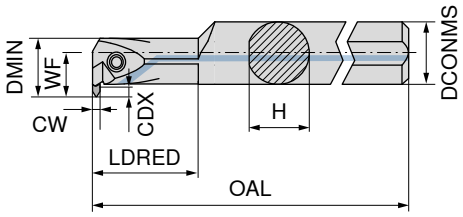

Clamping screw

Spare parts for grooving inserts		80 950 ... £ Y7		70 950 ... £ 2A/28	
GX 09 ..	T15	12.87	**113**	M3,5x12,5	8.56 **441**



→ 30–36

MonoClamp – Radial Mono-boring bars GX 16



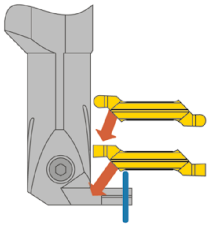


Illustrations show right-hand versions

Designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 893 ... £ 2C/71		Right-hand 70 892 ... £ 2C/71	
I16 R/L 90-2.0D-GX16-1	15.25	16	20.5	2,00 - 2,75	5.0	13.5	150	32	GX 16-1	127.24	**516**	127.24	**516**
I16 R/L 90-2.0D-GX16-2	15.25	16	20.5	2,76 - 3,75	5.0	13.5	150	32	GX 16-2	127.24	**616**	127.24	**616**
I20 R/L 90-2.0D-GX16-2	19.00	20	25.0	2,76 - 3,75	5.5	15.5	180	40	GX 16-2	137.46	**620**	137.46	**620**
I25 R/L 90-2.0D-GX16-2	24.00	25	32.0	2,76 - 3,75	8.0	20.5	200	50	GX 16-2	159.79	**625**	159.79	**625**
I25 R/L 90-2.0D-GX16-3	24.00	25	32.0	3,76 - 5,00	10.0	22.5	200	50	GX 16-3	159.79	**725**	159.79	**725**
I32 R/L 90-2.0D-GX16-2	31.00	32	42.0	2,76 - 3,75	11.0	27.5	250	64	GX 16-2	185.76	**632**	185.76	**632**
I32 R/L 90-2.0D-GX16-3	31.00	32	42.0	3,76 - 5,00	11.0	27.5	250	64	GX 16-3	185.76	**732**	185.76	**732**

Right hand boring bar→ left hand insert only
Left hand boring bar→ right hand insert only

When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.



11


Key D


Clamping screw

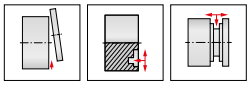
Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28	
GX 16-1	T15	12.87	**113**	M4x14	8.19	**403**
GX 16-2	T15	12.87	**113**	M4x14	8.19	**403**
GX 16-3	T15	12.87	**113**	M4x14	8.19	**403**



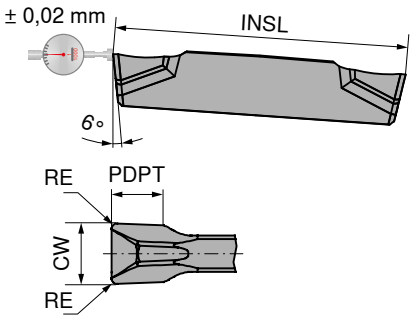
→ 30–37

Insert GX 24

▲ Insert with ground periphery
▲ Suitable also for parting off tubes and thin-walled workpieces



F	M	R



-F2 CTCP325	-F2 CTPP345	-F2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ... £ 1C/72		70 350 ... £ 1C/72		70 350 ... £ 1C/72	
GX 24-2 E3.00 N 0.30	24	3.0	0.3	2.5	GX 24-2	25.90	**962**	25.90	**862**	25.90	**662**
GX 24-2 E3.50 N 0.30	24	3.5	0.3	2.5	GX 24-2			25.90	**864**		
GX 24-3 E4.00 N 0.40	24	4.0	0.4	3.0	GX 24-3	27.96	**966**	27.96	**866**	27.96	**666**
GX 24-3 E5.00 N 0.40	24	5.0	0.4	3.5	GX 24-3	30.68	**970**	30.68	**870**	30.68	**671**
GX 24-4 E6.00 N 0.50	24	6.0	0.5	4.0	GX 24-4			33.72	**872**	33.72	**672**
P							●		●		●
M							○		●		●
K							●				●
N											○
S							○		○		●
H											
O											○

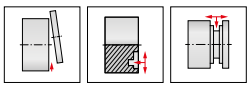
→ v_c Page 102
→ Application recommendation on page 104

Internal machining *External machining*

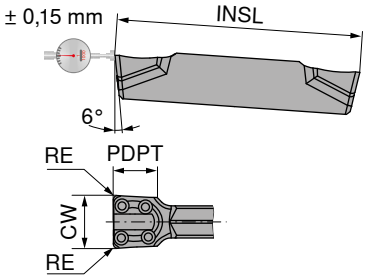


→ 54 → 59 → 53–56 → 57 → 58 → 60

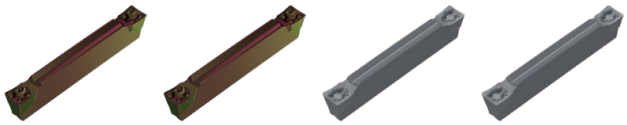
Insert GX 24



F	M	R



-E CTCP325	-E CTCP335	-E CTPP345	-E CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ... £ 1C/72		70 350 ... £ 1C/72		70 350 ... £ 1C/72		70 350 ... £ 1C/72	
GX 24-2 E3.00 N 0.30	24	3	0.3	2.5	GX 24-2	17.44	**932**	17.44	**532**	17.44	**832**	17.44	**632**
GX 24-3 E4.00 N 0.40	24	4	0.4	3.0	GX 24-3	19.08	**936**	19.08	**536**	19.08	**836**	19.08	**636**
GX 24-3 E5.00 N 0.40	24	5	0.4	3.0	GX 24-3	20.81	**940**	20.81	**540**	20.81	**840**	20.81	**640**
GX 24-4 E6.00 N 0.50	24	6	0.5	3.5	GX 24-4	22.87	**944**	22.87	**544**	22.87	**844**	22.87	**644**
P							●		●		●		●
M							○		○		●		●
K							●		●				●
N													○
S							○				○		●
H													
O													○

→ v_c Page 102
→ Application recommendation on page 104

Internal machining *External machining*



→ 54 → 59 → 53–56 → 57 → 58 → 60

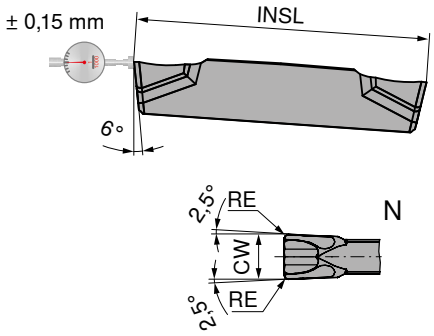
11

Insert GX 24

▲ Very good swarf control



F	M	R



-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	for tool holder	70 363 ... £ 1C/72		70 363 ... £ 1C/72		70 363 ... £ 1C/72	
GX 24-1 E2.00 N 0.20	24	2	0.2	GX 24-1	17.44	**900**	17.44	**800**	17.44	**600**
GX 24-2 E3.00 N 0.20	24	3	0.2	GX 24-2	17.44	**902**	17.44	**802**	17.44	**602**
GX 24-3 E4.00 N 0.30	24	4	0.3	GX 24-3	19.08	**904**	19.08	**804**	19.08	**604**
P					●		●		●	
M					○		●		●	
K					●				●	
N									○	
S					○		○		●	
H										
O									○	

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→ Application recommendation on page 105

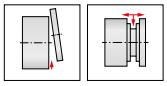
Internal machining | *External machining*



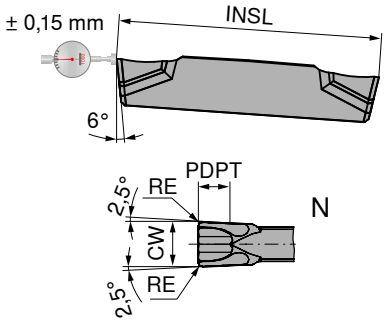
→ 54 | → 59 | → 53–56 | → 57 | → 58 | → 60

Insert GX 24

▲ Very good swarf control



F	M	R



-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 364 ... £ 1C/72		70 364 ... £ 1C/72		70 364 ... £ 1C/72	
GX 24-2 E3.00 N 0.30	24	3	0.3	3.5	GX 24-2	17.44	**900**	17.44	**800**	17.44	**600**
GX 24-3 E4.00 N 0.40	24	4	0.4	4.0	GX 24-3	19.08	**902**	19.08	**802**	19.08	**602**
GX 24-3 E5.00 N 0.40	24	5	0.4	4.0	GX 24-3	20.81	**904**	20.81	**804**	20.81	**604**
GX 24-4 E6.00 N 0.50	24	6	0.5	4.0	GX 24-4	22.87	**906**	22.87	**806**	22.87	**606**
P							●		●		●
M							○		●		●
K							●				●
N											○
S							○		○		●
H											
O											○

→ v_c Page 102
→ Application recommendation on page 104

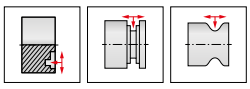
Internal machining | *External machining*



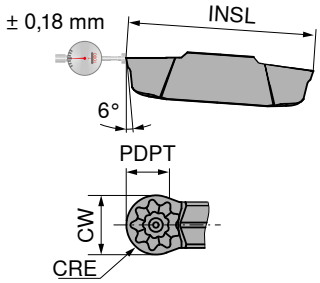
→ 54 | → 59 | → 53–56 | → 57 | → 58 | → 60

11

Radius groove insert GX 24

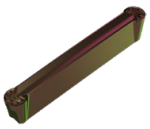


F	M	R



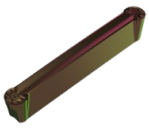
-M3
CTCP325

DRAGONSKIN



-M3
CTCP335

DRAGONSKIN



Designation	INSL mm	CW +/-0,05 mm	CRE mm	PDPT mm	for tool holder	70 354 ... £ 1C/72		70 354 ... £ 1C/72	
GX 24-2 R1.50 N	24.4	3	1.5	1.5	GX 24-2	23.19	**952**	23.19	**552**
GX 24-3 R2.00 N	24.4	4	2.0	2.5	GX 24-3	24.83	**954**	24.83	**554**
GX 24-3 R2.50 N	24.4	5	2.5	3.0	GX 24-3	25.90	**956**	25.90	**556**
GX 24-4 R3.00 N	24.4	6	3.0	4.0	GX 24-4	27.86	**958**	27.86	**558**

P	●	●
M	○	○
K	●	●
N		
S	○	
H		
O		

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→ Application recommendation on page 105

Internal machining | *External machining*



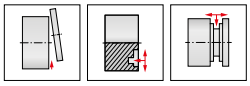




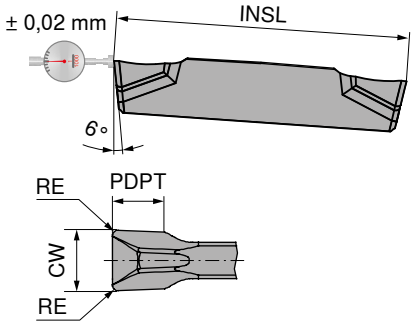

→ 54 | → 59 | → 53–56 | → 57 | → 58 | → 60

Insert GX 24

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery

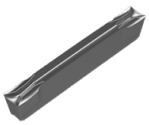


F	M	R



-27P
H216T





70 350 ...

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	£ 1C/72	
GX 24-2 E3.00 N 0.30	24	3	0.3	2.5	GX 24-2	20.81	**682**
GX 24-3 E4.00 N 0.40	24	4	0.4	3.0	GX 24-3	22.87	**684**
GX 24-3 E5.00 N 0.40	24	5	0.4	3.5	GX 24-3	23.85	**686**
GX 24-4 E6.00 N 0.50	24	6	0.5	4.0	GX 24-4	24.73	**688**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 102
→ Application recommendation on page 104

Internal machining *External machining*

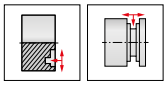


→ 54 → 59 → 53–56 → 57 → 58 → 60

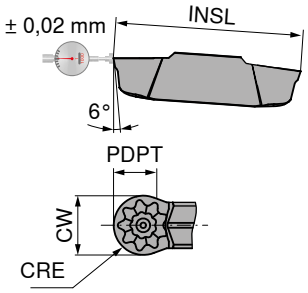
11

Radius grooving insert GX 24

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery



F	M	R



-27PF
H216T





Designation	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	for tool holder	70 353 ... £ 1C/72	
GX 24-4 R3.00 N	25.4	6	3	4	GX 24-4	31.10	**500**
GX 24-5 R4.00 N	25.4	8	4	5	GX 24-5	32.83	**506**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 102
→ Application recommendation on page 105

Internal machining | *External machining*



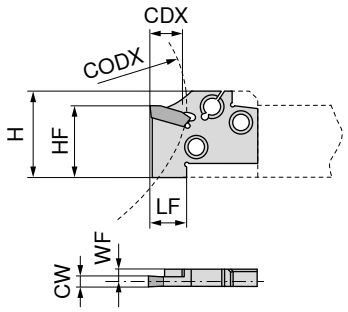




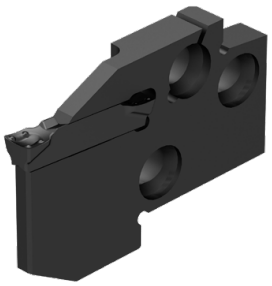

→ 54 | → 59 | → 53–56 | → 57 | → 58 | → 60

ModularClamp MSS – Radial grooving module GX 24

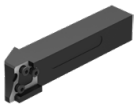
- For deep radial parting and grooving
- For turning



Illustrations show right-hand versions



Designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 868 ... £ 2C/71		Right-hand 70 867 ... £ 2C/71	
E20 R/L 21-GX 24-1	2,00 - 2,75	3.85	22	20	24	60	21	GX 24-1	81.97	**020**	81.97	**020**
E20 R/L 21-GX 24-2	3	3.40	22	20	24	60	21	GX 24-2	81.97	**120**	81.97	**120**
E20 R/L 21-GX 24-3	4/5	3.00	22	20	24	30	21	GX 24-3	81.97	**22000**	81.97	**22000**
E25 R/L 21-GX 24-1	2,00 - 2,75	5.10	22	25	30	75	21	GX 24-1	82.58	**025**	82.58	**025**
E25 R/L 21-GX 24-2	3	4.90	22	25	30	75	21	GX 24-2	82.58	**125**	82.58	**125**
E25 R/L 21-GX 24-3	4/5	4.43	22	25	30	75	21	GX 24-3	82.58	**225**	82.58	**225**
E25 R/L 21-GX 24-4	6	3.80	22	25	30	75	21	GX 24-4	82.58	**325**	82.58	**325**
E25 R/L 21-GX 24-5	8	2.95	22	25	30	75	21	GX 24-5	82.58	**425**	82.58	**425**
E32 R 21-GX 24-2	3	4.95	22	32	38	48	21	GX 24-2			83.37	**13200**
E32 R/L 21-GX 24-3	4/5	4.43	22	32	38	96	21	GX 24-3	83.37	**232**	83.37	**232**
E32 R/L 21-GX 24-4	6	3.80	22	32	38	96	21	GX 24-4	83.37	**332**	83.37	**332**

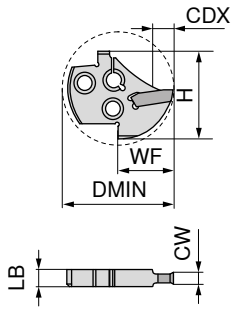




→ 46-52 → 93-95 → 96

11

ModularClamp MSS – Radial Grooving module GX 24 for Internal machining

▲ for grooving and turning





Neutral

Designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	70 880 ... £ 2C/71	
I40 N 19-GX 24-2	2,76 - 3,75	6.2	33.5	40.7	19	60	GX 24-2 ..N	95.46	**340**
I40 N 19-GX 24-3	3,76 - 5,00	6.2	33.5	40.7	19	60	GX 24-3 ..N	95.46	**440**
I40 N 19-GX 24-4	5,01 - 6,50	6.2	33.5	40.7	19	60	GX 24-4 ..N	95.46	**540**

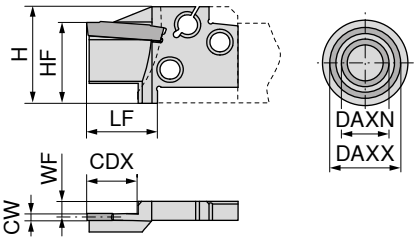


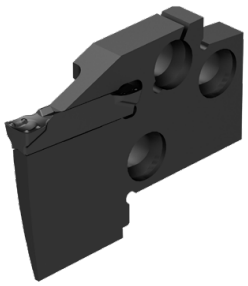


→ 46–52 → 97

ModularClamp MSS – Axial grooving module GX 24 short

- For axial grooving
- For face turning





Illustrations show right-hand versions

Designation	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	HF mm	H mm	CDX mm	for grooving inserts	Left-hand 70 891 ... £ 2C/71		Right-hand 70 890 ... £ 2C/71	
E20 R/L 14-GX 24-2 A	50	70	3	3.40	22	20	24	14	GX 24-2	106.43	**100**	106.43	**100**
E20 R/L 14-GX 24-2 A	70	100	3	3.40	22	20	24	14	GX 24-2	106.43	**102**	106.43	**102**
E20 R/L 14-GX 24-2 A	100	150	3	3.40	22	20	24	14	GX 24-2	106.43	**104**	106.43	**104**
E25 R/L 15-GX 24-2 A	50	70	3	4.90	22	25	30	15	GX 24-2	107.38	**200**	107.38	**200**
E25 R/L 15-GX 24-2 A	70	100	3	4.90	22	25	30	15	GX 24-2	107.38	**202**	107.38	**202**
E25 R/L 15-GX 24-2 A	100	150	3	4.90	22	25	30	15	GX 24-2	107.38	**204**	107.38	**204**
E25 R/L 15-GX 24-3 A	50	70	4/5	4.43	22	25	30	15	GX 24-3	107.38	**206**	107.38	**206**
E25 R/L 15-GX 24-3 A	70	100	4/5	4.43	22	25	30	15	GX 24-3	107.38	**208**	107.38	**208**
E25 R/L 15-GX 24-3 A	100	150	4/5	4.43	22	25	30	15	GX 24-3	107.38	**210**	107.38	**210**
E25 R/L 15-GX 24-3 A	150	300	4/5	4.43	22	25	30	15	GX 24-3	107.38	**212**	107.38	**212**
E25 R/L 15-GX 24-4 A	50	70	6	3.80	22	25	30	15	GX 24-4	107.38	**214**	107.38	**214**
E25 R/L 15-GX 24-4 A	70	100	6	3.80	22	25	30	15	GX 24-4	107.38	**216**	107.38	**216**
E25 R/L 15-GX 24-4 A	100	150	6	3.80	22	25	30	15	GX 24-4	107.38	**218**	107.38	**218**
E25 R/L 15-GX 24-4 A	150	300	6	3.80	22	25	30	15	GX 24-4	107.38	**220**	107.38	**220**
E32 R/L 15-GX 24-3 A	70	100	4/5	4.43	22	32	38	15	GX 24-3	108.24	**300**	108.24	**300**
E32 R/L 15-GX 24-3 A	100	150	4/5	4.43	22	32	38	15	GX 24-3	108.24	**302**	108.24	**302**
E32 R/L 15-GX 24-3 A	150	300	4/5	4.43	22	32	38	15	GX 24-3	108.24	**304**	108.24	**304**
E32 R/L 15-GX 24-4 A	70	100	6	3.80	22	32	38	15	GX 24-4	108.24	**306**	108.24	**306**
E32 R/L 15-GX 24-4 A	100	150	6	3.80	22	32	38	15	GX 24-4	108.24	**308**	108.24	**308**
E32 R/L 15-GX 24-4 A	150	300	6	3.80	22	32	38	15	GX 24-4	108.24	**310**	108.24	**310**
E32 R/L 15-GX 24-4 A	300	900	6	3.80	22	32	38	15	GX 24-4	108.24	**312**	108.24	**312**

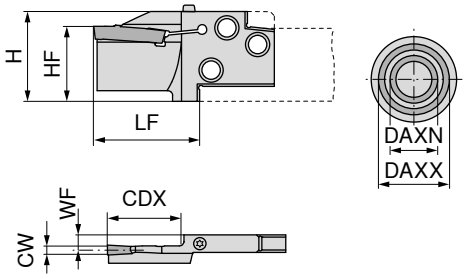




→ 46–52 → 93–95 → 96

ModularClamp MSS – Axial grooving module GX 24 long

- For axial grooving
- For face turning





Illustrations show right-hand versions

Designation	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	HF mm	H mm	CDX mm	for grooving inserts	Left-hand 70 895 ... £ 2C/71		Right-hand 70 894 ... £ 2C/71	
E25 R/L 21-GX 24-3 AS	50	70	4/5	4.53	35	25	30	21	GX 24-3	109.58	**200**	109.58	**200**
E25 R/L 21-GX 24-3 AS	70	100	4/5	4.53	35	25	30	21	GX 24-3	109.58	**202**	109.58	**202**
E25 R/L 21-GX 24-3 AS	100	150	4/5	4.53	35	25	30	21	GX 24-3	109.58	**204**	109.58	**204**
E25 R/L 21-GX 24-3 AS	150	300	4/5	4.53	35	25	30	21	GX 24-3	109.58	**206**	109.58	**206**
E25 R/L 25-GX 24-4 AS	50	70	6	3.90	35	25	30	25	GX 24-4	109.58	**210**	109.58	**210**
E25 R/L 25-GX 24-4 AS	70	100	6	3.90	35	25	30	25	GX 24-4	109.58	**212**	109.58	**212**
E25 R/L 25-GX 24-4 AS	100	150	6	3.90	35	25	30	25	GX 24-4	109.58	**214**	109.58	**214**
E25 R/L 25-GX 24-4 AS	150	300	6	3.90	35	25	30	25	GX 24-4	109.58	**216**	109.58	**216**

Axial modules version „GX 24 long“ can be clamped on both sides.


Key D


Clamping screw

Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28	
GX 24-3	T15	12.87	**113**	M3,5x14	3.91	**160**
GX 24-4	T15	12.87	**113**	M3,5x14	3.91	**160**



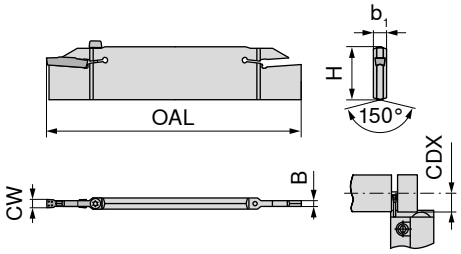


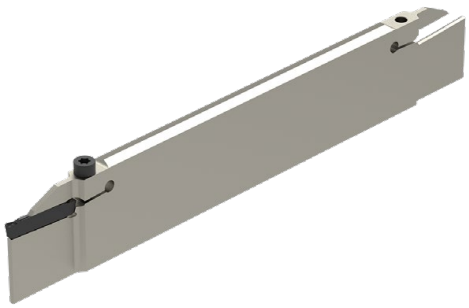
→ 46–52 → 93–95 → 96

MonoClamp – Radial Blade GX 24

Scope of supply:

Blade incl. clamping screw and tightening wrench





Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	70 834 ... £ 2A/25	
XLCF N 3203-GX24-1S	2	32	1.05	6.2	180	21	GX 24-1	79.97	**102**
XLCF N 3203-GX24-2S	3	32	2.10	6.2	180	21	GX 24-2	81.18	**103**
XLCF N 3204-GX24-3S	4/5	32	3.05	6.2	180	21	GX 24-3	86.57	**104**
XLCF N 3206-GX24-4S	6	32	4.20	6.2	180	21	GX 24-4	102.32	**106**


Key D


Clamping screw

Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28	
GX 24-1	T15	12.87	**113**	M3,5x14	3.91	**160**
GX 24-2	T15	12.87	**113**	M3,5x14	3.91	**160**
GX 24-3	T15	12.87	**113**	M3,5x14	3.91	**160**
GX 24-4	T15	12.87	**113**	M3,5x14	3.91	**160**

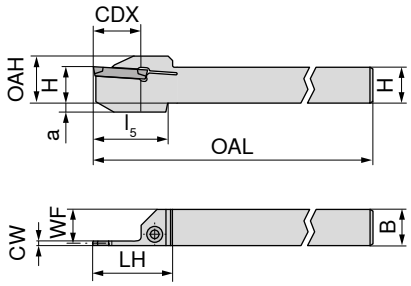




→ 46–52 → 99+100 → **Chapter 16**

11

MonoClamp – Radial Monoholder GX 24





Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	CDX mm	a mm	for grooving inserts	Left-hand 70 863 ... £ 2C/71		Right-hand 70 862 ... £ 2C/71	
E16 R/L 0021-1616K-GX24-1	16	16	2,00 - 2,75	15.20	21	125	35	32	21	4	GX 24-1	99.84	**160**	99.84	**160**
E16 R/L 0021-1616K-GX24-2	16	16	2,76 - 3,75	15.00	21	125	35	32	21	4	GX 24-2	99.84	**016**	99.84	**016**
E20 R/L 0021-2020K-GX24-1	20	20	2,00 - 2,75	19.20	25	125	35		21		GX 24-1	114.92	**200**	114.92	**200**
E20 R/L 0021-2020K-GX24-2	20	20	2,76 - 3,75	19.00	25	125	35		21		GX 24-2	114.92	**020**	114.92	**020**
E20 R/L 0021-2020K-GX24-3	20	20	3,76 - 5,00	18.53	25	125	35		21		GX 24-3	114.92	**120**	114.92	**120**
E25 R/L 0021-2525M-GX24-2	25	25	2,76 - 3,75	24.00	30	150	35		21		GX 24-2	122.85	**025**	122.85	**025**
E25 R/L 0021-2525M-GX24-3	25	25	3,76 - 5,00	23.53	30	150	35		21		GX 24-3	122.85	**125**	122.85	**125**
E25 R/L 0021-2525M-GX24-4	25	25	5,01 - 6,50	22.90	30	150	35		21		GX 24-4	122.85	**225**	122.85	**225**
E32 R/L 0021-3225P-GX24-2	32	25	2,76 - 3,75	24.00	37	170	35		21		GX 24-2	131.25	**032**	131.25	**032**
E32 R/L 0021-3225P-GX24-3	32	25	3,76 - 5,00	23.53	37	170	35		21		GX 24-3	131.25	**132**	131.25	**132**
E32 R/L 0021-3225P-GX24-4	32	25	5,01 - 6,50	22.90	37	170	35		21		GX 24-4	131.25	**232**	131.25	**232**


Key D

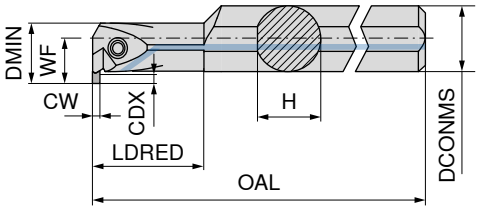

Clamping screw

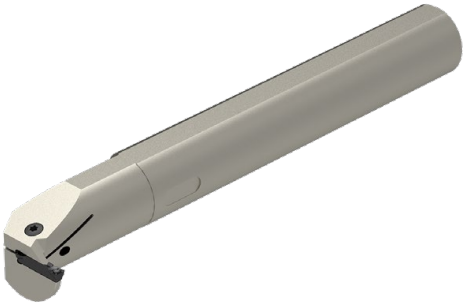
Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28	
GX 24-1	T20	13.77	**114**	M4x18	4.55	**204**
GX 24-2	T20	13.77	**114**	M4x18	4.55	**204**
GX 24-3	T20	13.77	**114**	M4x18	4.55	**204**
GX 24-4	T20	13.77	**114**	M4x18	4.55	**204**



→ 46–52

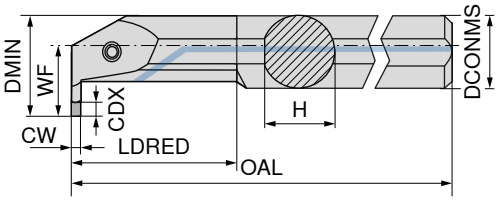
MonoClamp – Radial Mono-boring bars GX 24

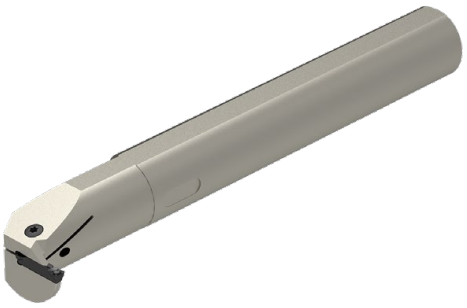




Designation	H	DCONMS	DMIN	CW	CDX	WF	OAL	LDRED	for grooving inserts	Left-hand 70 895 ... £ 2C/71		Right-hand 70 894 ... £ 2C/71	
	mm	mm	mm	mm	mm	mm	mm	mm					
I32 R/L 90-2.0D-GX24-2	31.0	32	42	2,76 - 3,75	11	27.5	250	64	GX 24-2	185.76	132	185.76	132
I32 R/L 90-2.0D-GX24-3	31.0	32	42	3,76 - 5,00	11	27.5	250	64	GX 24-3	185.76	232	185.76	232
I40 R/L 90-2.0D-GX24-3	38.5	40	53	3,76 - 5,00	12	32.5	300	80	GX 24-3	230.81	240	230.81	240

MonoClamp – Radial Mono-boring bars GX 24





Designation	H	DCONMS	DMIN	CW	CDX	WF	OAL	LDRED	for grooving inserts	Left-hand 70 895 ... £ 2C/71		Right-hand 70 894 ... £ 2C/71	
	mm	mm	mm	mm	mm	mm	mm	mm					
I32 R/L 90-2.0D-GX24-4	31.0	32	47	5,01 - 6,50	17.5	30.4	250	64	GX 24-4	185.76	332	185.76	332
I40 R/L 90-2.0D-GX24-4	38.5	40	57	5,01 - 6,50	17.5	34.4	300	80	GX 24-4	230.81	340	230.81	340


Key D


Clamping screw

Spare parts for grooving inserts	80 950 ... £ Y7		70 950 ... £ 2A/28	
GX 24-2	13.77	114	5.46	404
GX 24-3	13.77	114	5.46	404
GX 24-4	13.77	114	5.46	404



→ 46–52

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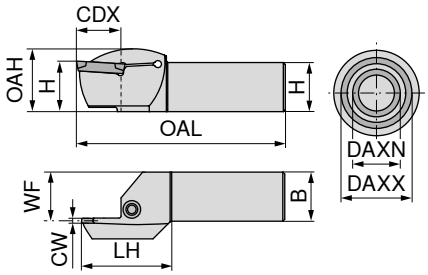
MonoClamp – Axial Monoholder GX24





Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	DAXN mm	DAXX mm	OAH mm	OAL mm	LH mm	CDX mm	for grooving inserts	Left-hand 70 904 ... £ 2C/71		Right-hand 70 903 ... £ 2C/71	
E25 R/L 0012-2525X-GX24-2	25	25	3	24.7	40	45	32	115	45	12	GX 24-2	125.14	**200**	125.14	**200**
E25 R/L 0012-2525X-GX24-2	25	25	3	24.7	45	50	32	115	45	12	GX 24-2	125.14	**202**	125.14	**202**
E25 R/L 0016-2525X-GX24-2	25	25	3	24.7	50	60	32	115	45	16	GX 24-2	125.14	**204**	125.14	**204**
E25 R/L 0019-2525X-GX24-2	25	25	3	24.7	60	75	32	115	45	19	GX 24-2	125.14	**206**	125.14	**206**
E25 R/L 0019-2525X-GX24-2	25	25	3	24.7	75	100	32	115	45	19	GX 24-2	125.14	**208**	125.14	**208**
E25 R/L 0022-2525X-GX24-2	25	25	3	24.7	100	130	32	115	45	22	GX 24-2	125.14	**210**	125.14	**210**
E25 R/L 0022-2525X-GX24-2	25	25	3	24.7	130	180	32	115	45	22	GX 24-2	125.14	**212**	125.14	**212**
E25 R/L 0022-2525X-GX24-2	25	25	3	24.7	180	300	32	115	45	22	GX 24-2	125.14	**214**	125.14	**214**
E25 R/L 0012-2525X-GX24-3	25	25	4+5	24.2	40	45	32	115	45	12	GX 24-3	125.14	**230**	125.14	**230**
E25 R/L 0012-2525X-GX24-3	25	25	4+5	24.2	45	50	32	115	45	12	GX 24-3	125.14	**232**	125.14	**232**
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24.2	50	60	32	115	45	20	GX 24-3	125.14	**234**	125.14	**234**
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24.2	60	75	32	115	45	20	GX 24-3	125.14	**236**	125.14	**236**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24.2	75	100	32	115	45	22	GX 24-3	125.14	**238**	125.14	**238**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24.2	100	150	32	115	45	22	GX 24-3	125.14	**240**	125.14	**240**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24.2	150	300	32	115	45	22	GX 24-3	125.14	**242**	125.14	**242**
E25 R/L 0020-2525X-GX24-4	25	25	6	23.2	40	50	32	115	45	20	GX 24-4	125.14	**260**	125.14	**260**
E25 R/L 0022-2525X-GX24-4	25	25	6	23.2	50	70	32	115	45	22	GX 24-4	125.14	**262**	125.14	**262**
E25 R/L 0025-2525X-GX24-4	25	25	6	23.2	70	100	32	115	45	25	GX 24-4	125.14	**264**	125.14	**264**
E25 R/L 0025-2525X-GX24-4	25	25	6	23.2	100	150	32	115	45	25	GX 24-4	125.14	**266**	125.14	**266**
E25 R/L 0025-2525X-GX24-4	25	25	6	23.2	150	300	32	115	45	25	GX 24-4	125.14	**268**	125.14	**268**


Key D


Clamping screw

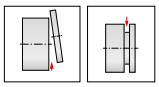
Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28	
GX 24-2	T15 - IP	16.56	**128**	M5x18	9.10	**865**
GX 24-3	T15 - IP	16.56	**128**	M5x18	9.10	**865**
GX 24-4	T15 - IP	16.56	**128**	M5x18	9.10	**865**



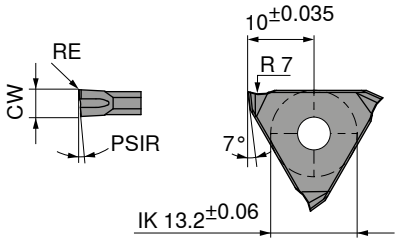
→ 46–52

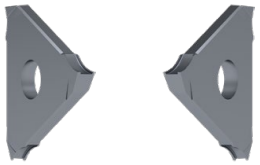
TX grooving insert for grooving and parting off

- Cutting depth 5.0 mm
- Cutting width 1.99–2.79 mm



CWX500 CWX500





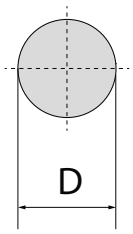
Illustrations show right-hand versions

Designation	CW -0,05 mm	RE mm	PSIR	for tool holder	Left-hand 73 302 ... £ Y6		Right-hand 73 301 ... £ Y6	
TX R/L 0518.00.1	1.99	0.1	5°	R/L 207 .. . / 780 .. . 1	48.39	**204**	47.07	**204**
TX R/L 0521.00.2	2.29	0.1	5°	R/L 207 .. . / 780 .. . 2	46.58	**206**	48.60	**206**
TX R/L 0526.00.2	2.79	0.1	5°	R/L 207 .. . / 780 .. . 2	46.58	**208**	48.60	**208**
P					●		●	
M					●		●	
K					●		●	
N					●		●	
S					●		●	
H					○		○	
O					●		●	

→ v_c Page 103

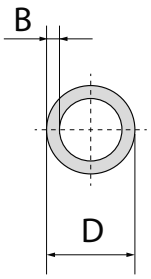
Grooving depth

Full material



max. 10 mm

Pipe



D ≤ 50 mm: Wall thickness B = approx. 5 mm
D ≥ 50 mm: Wall thickness B = approx. 4 mm

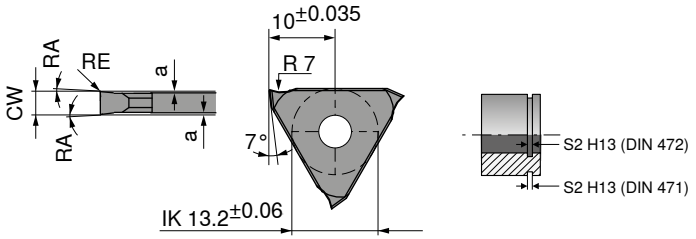
Internal machining	*External machining*
	
	→ 66–68

TX insert for circlip grooves

▲ For circlip grooves according to DIN 471 / 472



CWX500





Neutral

73 300 ...

Designation	s_2 mm	CW $_{-0,05}$ mm	RE mm	RA °	a $_{+/-0,02}$ mm	for tool holder	£ Y6	
TX N 0050.00.1	0.50	0.57	0.05	1	0.07	R/L .. .1	32.16	**204**
TX N 0060.00.1	0.60	0.67	0.05	1	0.07	R/L .. .1	32.16	**206**
TX N 0070.00.1	0.70	0.77	0.05	1	0.08	R/L .. .1	32.16	**208**
TX N 0080.00.1	0.80	0.87	0.05	1	0.08	R/L .. .1	32.16	**210**
TX N 0090.00.1	0.90	0.97	0.05	1	0.08	R/L .. .1	32.16	**212**
TX N 0100.00.1	1.00	1.07	0.10	1	0.09	R/L .. .1	32.16	**214**
TX N 0110.00.1	1.10	1.24	0.10	3	0.15	R/L .. .1	32.16	**216**
TX N 0130.00.1	1.30	1.44	0.10	3	0.15	R/L .. .1	32.16	**218**
TX N 0160.00.1	1.60	1.74	0.10	3	0.20	R/L .. .1	32.16	**220**
TX N 0185.00.1	1.85	1.99	0.10	3	0.20	R/L .. .1	32.16	**222**
TX N 0215.00.2	2.15	2.29	0.10	3	0.20	R/L .. .2	32.16	**224**
TX N 0265.00.2	2.65	2.79	0.10	3	0.20	R/L .. .2	32.16	**226**
TX N 0315.00.3	3.15	3.29	0.10	3	0.20	R/L .. .3	36.69	**228**
TX N 0415.00.4	4.15	4.29	0.10	3	0.20	R/L .. .4	36.89	**230**
TX N 0515.00.4	5.15	5.29	0.10	3	0.20	R/L .. .4	38.06	**232**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

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Internal machining



→ 70

External machining



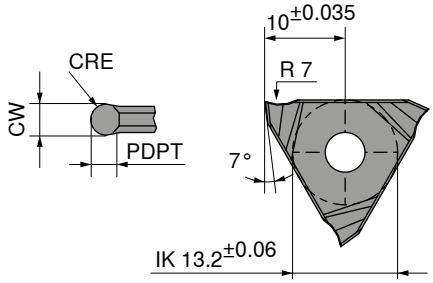
→ 66-69

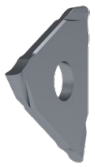
Radial TX insert for corner recessing

▲ Full radius for cutting width 0.5–5.0 mm



CWX500





Neutral

Designation	CRE mm	CW +/-0,05 mm	PDPT mm	for tool holder	73 304 ... £ Y6	
TX N 0002.05.1	0.25	0.5	0.20	R/L .. .1	46.78	**212**
TX N 0005.10.1	0.50	1.0	0.35	R/L .. .1	46.78	**214**
TX N 0006.12.1	0.60	1.2	0.40	R/L .. .1	46.78	**216**
TX N 0008.16.1	0.80	1.6	0.55	R/L .. .1	46.78	**218**
TX N 0010.20.2	1.00	2.0	0.70	R/L .. .2	48.81	**204**
TX N 0012.25.2	1.25	2.5	0.85	R/L .. .2	54.11	**220**
TX N 0015.30.3	1.50	3.0	1.00	R/L .. .3	51.61	**206**
TX N 0020.40.4	2.00	4.0	1.20	R/L .. .4	51.25	**208**
TX N 0025.50.4	2.50	5.0	1.50	R/L .. .4	52.11	**210**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 103

11

Internal machining



→ 70

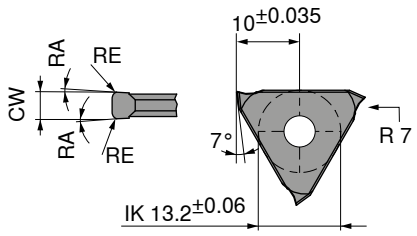
External machining

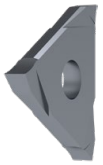


→ 66–69

TX insert for fine and copy turning

CWX500





Neutral

73 303 ...

Designation	CW +0,03 mm	RE mm	RA °	for tool holder	£ Y6	
TX N 0150.02.1	1.5	0.2	3	R/L 207 .. . / 738 .. . / 660 .. . 1	40.14	**204**
TX N 0200.02.1	2.0	0.2	3	R/L 207 .. . / 738 .. . / 660 .. . 1	40.14	**206**
TX N 0200.04.1	2.0	0.4	3	R/L 207 .. . / 738 .. . / 660 .. . 1	40.14	**208**
TX N 0300.06.2	3.0	0.6	3	R/L 207 .. . / 738 .. . / 660 .. . 2	42.33	**212**
TX N 0300.08.2	3.0	0.8	3	R/L 207 .. . / 738 .. . / 660 .. . 2	42.33	**214**
TX N 0300.02.2	3.0	0.2	3	R/L 207 .. . / 738 .. . / 660 .. . 2	42.33	**210**
TX N 0400.02.3	4.0	0.2	3	R/L 207 .. . / 738 .. . / 660 .. . 3	42.69	**216**
TX N 0400.12.3	4.0	1.2	3	R/L 207 .. . / 738 .. . / 660 .. . 3	42.69	**220**
TX N 0400.08.3	4.0	0.8	3	R/L 207 .. . / 738 .. . / 660 .. . 3	42.69	**218**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 103

Internal machining



→ 70

External machining



→ 66-68

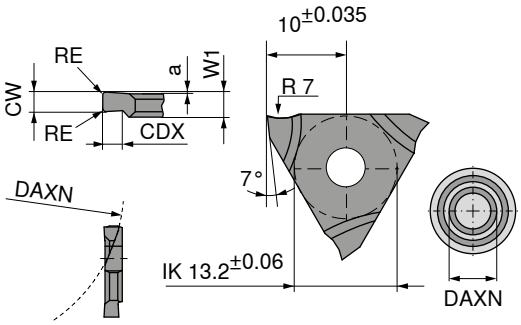
TX insert for axial grooving

- Up to cutting depth 3.5 mm
- Cutting width 1.5–5.0 mm
- Groove-Ø external $D_a \geq 20$ mm









Illustrations show right-hand versions





Designation	CW mm	W1 mm	CDX mm	a mm	DAXN mm	RE mm	for tool holder	Left-hand 73 306 ... £ Y6		Right-hand 73 305 ... £ Y6	
TX R/L 2015.2.2	1.5	2.7	2.0	0.2	20	0.2	R/L 207 .. . 2	46.02	**204**	46.02	**204**
TX R/L 3020.2.2	2.0	2.7	3.0	0.2	30	0.2	R/L 207 .. . 2	46.02	**206**	46.02	**206**
TX R/L 3030.2.3	3.0	3.7	3.0	0.2	30	0.2	R/L 207 .. . 3	46.55	**208**	46.55	**208**
TX R/L 3040.2.4	4.0	4.3	3.5	0.2	30	0.2	R/L 207 .. . 4	47.07	**210**	47.07	**210**
TX R/L 3050.2.4	5.0	5.3	3.5	0.2	30	0.2	R/L 207 .. . 4	49.22	**212**	49.22	**212**
P									●		●
M									●		●
K									●		●
N									●		●
S									●		●
H									○		○
O									●		●

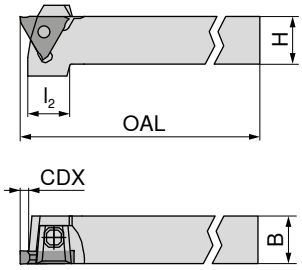
→ v_c Page 103

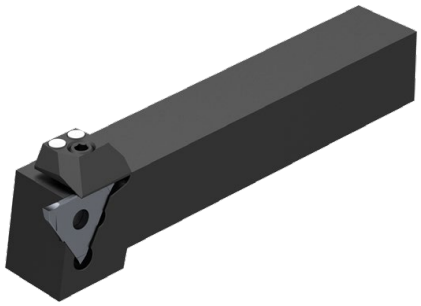
11

Internal machining	*External machining*
	
	→ 66

MonoClamp – Radial/Axial TX Grooving Holder 0°, 6 mm cutting depth

- For radial and axial grooving
- Cutting width 0.5 – 6.3 mm

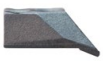


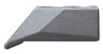


Illustrations show right-hand versions

Designation	H mm	B +/-0,1 mm	OAL mm	l_2 mm	CDX mm	for grooving inserts	Left-hand 73 501 ... £ Y6		Right-hand 73 500 ... £ Y6	
R/L 207.1212.1	12	12	100	24	4	TX R/N/L ...1	205.70	112	203.47	112
R/L 207.1616.1	16	16	125	22	4	TX R/N/L ...1	183.54	116	181.60	116
R/L 207.2020.1	20	20	125	21	4	TX R/N/L ...1	142.33	120	140.83	120
R/L 207.2525.1	25	25	150		4	TX R/N/L ...1	149.72	125	148.20	125
R/L 207.3232.1	32	32	170		4	TX R/N/L ...1	174.01	132	172.25	132
R/L 207.1212.2	12	12	100	24	6	TX R/N/L ...2	205.70	212	203.47	212
R/L 207.1616.2	16	16	125	22	6	TX R/N/L ...2	183.54	216	181.60	216
R/L 207.2020.2	20	20	125	21	6	TX R/N/L ...2	142.33	220	140.83	220
R/L 207.2525.2	25	25	150		6	TX R/N/L ...2	149.72	225	148.20	225
R/L 207.3232.2	32	32	170		6	TX R/N/L ...2	174.01	232	172.25	232
R/L 207.1212.3	12	12	100	24	6	TX R/N/L ...3	205.70	312	203.47	312
R/L 207.1616.3	16	16	125	22	6	TX R/N/L ...3	183.54	316	181.60	316
R/L 207.2020.3	20	20	125	21	6	TX R/N/L ...3	142.33	320	140.83	320
R/L 207.2525.3	25	25	150		6	TX R/N/L ...3	149.72	325	148.20	325
R/L 207.3232.3	32	32	170		6	TX R/N/L ...3	174.01	332	172.25	332
R/L 207.1616.4	16	16	125	22	6	TX R/N/L ...4	183.54	416	183.54	416
R/L 207.2020.4	20	20	125	21	6	TX R/N/L ...4	142.33	420	142.33	420
R/L 207.2525.4	25	25	150		6	TX R/N/L ...4	149.72	425	149.72	425
R/L 207.3232.4	32	32	170		6	TX R/N/L ...4	174.01	432	174.01	432


Key I


right hand


left hand


Clamping screw


Guide pin

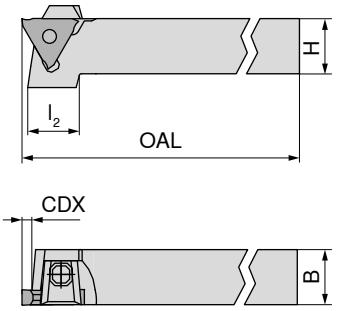
Spare parts for grooving inserts		70 950 ... £ 2A/28		73 950 ... £ Y6		73 950 ... £ Y6		73 950 ... £ Y6		73 950 ... £ Y6	
TX R/N/L ...1	SW3	2.34	176	41.37	020			M6x20	8.70	028	Ø 4x18	1.05	030
TX R/N/L ...1	SW3	2.34	176			41.37	024	M6x20	8.70	028	Ø 4x18	1.05	030
TX R/N/L ...2	SW3	2.34	176			41.37	024	M6x20	8.70	028	Ø 4x18	1.05	030
TX R/N/L ...2	SW3	2.34	176	41.37	020			M6x20	8.70	028	Ø 4x18	1.05	030
TX R/N/L ...3	SW3	2.34	176			41.37	024	M6x20	8.70	028	Ø 4x18	1.05	030
TX R/N/L ...3	SW3	2.34	176	41.37	020			M6x20	8.70	028	Ø 4x18	1.05	030
TX R/N/L ...4	SW3	2.34	176			45.96	026	M6x20	8.70	028	Ø 4x18	1.05	030
TX R/N/L ...4	SW3	2.34	176	45.96	022			M6x20	8.70	028	Ø 4x18	1.05	030

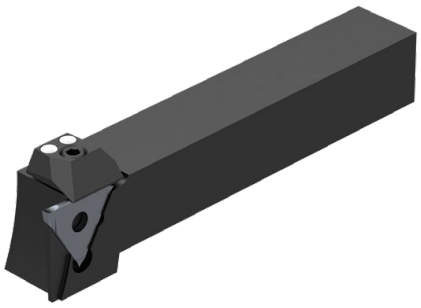


→ 61-65

MonoClamp – Radial TX Grooving holder 0° 8 mm cutting depth

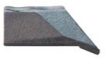
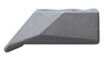
- For radial parting and grooving
- Cutting width 1,9 – 6,3 mm





Illustrations show right-hand versions

Designation	H mm	$B_{+/-0,1}$ mm	OAL mm	l_2 mm	CDX mm	for grooving inserts	Left-hand 73 503 ... £ Y6		Right-hand 73 502 ... £ Y6	
R/L 780.2020.2	20	20	125	24	8	TX R/N/L ...2	151.67	**120**	151.67	**120**
R/L 780.2525.2	25	25	150		8	TX R/N/L ...2	160.06	**125**	160.06	**125**
R/L 780.3232.2	32	32	170		8	TX R/N/L ...2	191.07	**132**	191.07	**132**
R/L 780.2020.3	20	20	125	24	8	TX R/N/L ...3	151.67	**220**	151.67	**220**
R/L 780.2525.3	25	25	150		8	TX R/N/L ...3	160.06	**225**	160.06	**225**
R/L 780.3232.3	32	32	170		8	TX R/N/L ...3	191.07	**232**	191.07	**232**
R/L 780.2020.4	20	20	125	24	8	TX R/N/L ...4	151.67	**320**	151.67	**320**
R/L 780.2525.4	25	25	150		8	TX R/N/L ...4	160.06	**325**	160.06	**325**
R/L 780.3232.4	32	32	170		8	TX R/N/L ...4	191.07	**332**	191.07	**332**



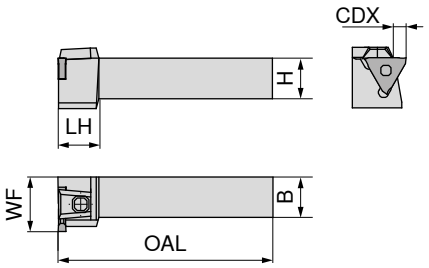
Spare parts for grooving inserts		Key I 70 950 ... £ 2A/28		right hand 73 950 ... £ Y6		left hand 73 950 ... £ Y6		Clamping screw 73 950 ... £ Y6			Guide pin 73 950 ... £ Y6	
TX R/N/L ...2	SW3	2.34	**176**	41.37	**020**			M6x20	8.70	**028**	Ø 4x18	1.05	**030**
TX R/N/L ...2	SW3	2.34	**176**			41.37	**024**	M6x20	8.70	**028**	Ø 4x18	1.05	**030**
TX R/N/L ...3	SW3	2.34	**176**	41.37	**020**			M6x20	8.70	**028**	Ø 4x18	1.05	**030**
TX R/N/L ...3	SW3	2.34	**176**			41.37	**024**	M6x20	8.70	**028**	Ø 4x18	1.05	**030**
TX R/N/L ...4	SW3	2.34	**176**			45.96	**026**	M6x20	8.70	**028**	Ø 4x18	1.05	**030**
TX R/N/L ...4	SW3	2.34	**176**	45.96	**022**			M6x20	8.70	**028**	Ø 4x18	1.05	**030**

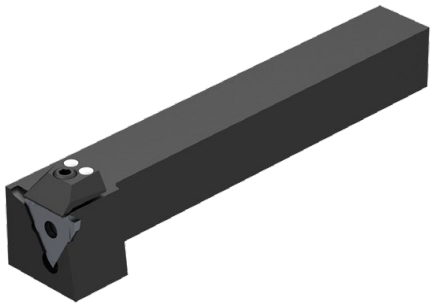


→ 61-63

MonoClamp – Radial TX Grooving holder 90° 6 mm cutting depth

- For radial grooving
- Cutting width 0,5 – 6,3 mm

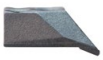


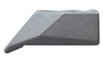


Illustrations show right-hand versions

Designation	H mm	B +/-0,1 mm	OAL mm	LH mm	WF +/-0,07 mm	CDX mm	for grooving inserts	Left-hand 73 505 ... £ Y6		Right-hand 73 504 ... £ Y6	
R/L 738.2020.1	20	20	150	20	27	4	TX R/N/L ...1	177.14	**120**	177.14	**120**
R/L 738.2525.1	25	25	150		32	4	TX R/N/L ...1	170.55	**125**	183.54	**125**
R/L 738.2020.2	20	20	150	20	27	6	TX R/N/L ...2	177.14	**220**	177.14	**220**
R/L 738.2525.2	25	25	150		32	6	TX R/N/L ...2	183.54	**225**	183.54	**225**
R/L 738.2020.3	20	20	150	20	27	6	TX R/N/L ...3	180.24	**320**	177.14	**320**
R/L 738.2525.3	25	25	150		32	6	TX R/N/L ...3	183.54	**325**	183.54	**325**
R/L 738.2020.4	20	20	150	20	27	6	TX R/N/L ...4	177.14	**420**	172.42	**420**
R/L 738.2525.4	25	25	150		32	6	TX R/N/L ...4	183.54	**425**	183.54	**425**


Key I


right hand


left hand


Clamping screw


Guide pin

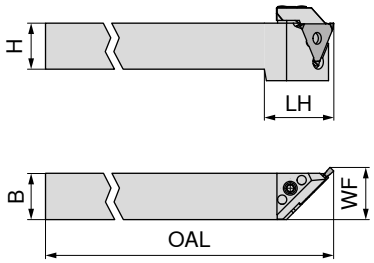
Spare parts for grooving inserts		70 950 ... £ 2A/28		73 950 ... £ Y6		73 950 ... £ Y6		73 950 ... £ Y6		73 950 ... £ Y6	
TX R/N/L ...1	SW3	2.34	**176**	41.37	**020**			M6x20	8.70	**028**	Ø 4x18	1.05	**030**
TX R/N/L ...1	SW3	2.34	**176**			41.37	**024**	M6x20	8.70	**028**	Ø 4x18	1.05	**030**
TX R/N/L ...2	SW3	2.34	**176**			41.37	**024**	M6x20	8.70	**028**	Ø 4x18	1.05	**030**
TX R/N/L ...2	SW3	2.34	**176**	41.37	**020**			M6x20	8.70	**028**	Ø 4x18	1.05	**030**
TX R/N/L ...3	SW3	2.34	**176**			41.37	**024**	M6x20	8.70	**028**	Ø 4x18	1.05	**030**
TX R/N/L ...3	SW3	2.34	**176**	41.37	**020**			M6x20	8.70	**028**	Ø 4x18	1.05	**030**
TX R/N/L ...4	SW3	2.34	**176**			45.96	**026**	M6x20	8.70	**028**	Ø 4x18	1.05	**030**
TX R/N/L ...4	SW3	2.34	**176**	45.96	**022**			M6x20	8.70	**028**	Ø 4x18	1.05	**030**

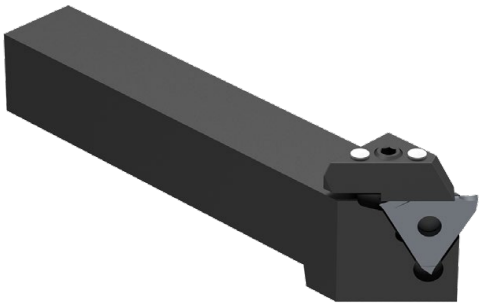


→ 62-64

MonoClamp – Tool holder TX 45°

▲ For recessing
▲ Cutting width 1,9 – 6,3 mm





Illustrations show right-hand versions

Designation	H mm	B +/-0,1 mm	OAL mm	WF mm	LH mm	for grooving inserts	Left-hand 73 507 ... £ Y6		Right-hand 73 506 ... £ Y6	
R/L 618.2020.2	20	20	125	21.5	30	TX R/N/L ...2	205.70	**120**	205.70	**120**
R/L 618.2525.2	25	25	150	26.5		TX R/N/L ...2	214.53	**125**	214.53	**125**
R/L 618.3232.2	32	32	170	33.5		TX R/N/L ...2	240.99	**132**	240.99	**132**
R/L 618.2020.3	20	20	125	21.5	30	TX R/N/L ...3	205.70	**220**	191.12	**220**
R/L 618.2525.3	25	25	150	26.5		TX R/N/L ...3	214.53	**225**	214.53	**225**
R/L 618.3232.3	32	32	170	33.5		TX R/N/L ...3	240.99	**232**	240.99	**232**
R/L 618.2020.4	20	20	125	21.5	30	TX R/N/L ...4	205.70	**320**	205.70	**320**
R/L 618.2525.4	25	25	150	26.5		TX R/N/L ...4	214.53	**325**	214.53	**325**
R/L 618.3232.4	32	32	170	33.5		TX R/N/L ...4	240.99	**332**	240.99	**332**

Spare parts for grooving inserts		Key I 70 950 ... £ 2A/28		right hand 73 950 ... £ Y6		left hand 73 950 ... £ Y6		Clamping screw 73 950 ... £ Y6		Guide pin 73 950 ... £ Y6	
TX R/N/L ...2	SW3	2.34	**176**	59.93	**001**			M6x20	8.70 **028**	Ø 4x18	1.05 **030**
TX R/N/L ...2	SW3	2.34	**176**			59.93	**005**	M6x20	8.70 **028**	Ø 4x18	1.05 **030**
TX R/N/L ...3	SW3	2.34	**176**	59.93	**001**			M6x20	8.70 **028**	Ø 4x18	1.05 **030**
TX R/N/L ...3	SW3	2.34	**176**			59.93	**005**	M6x20	8.70 **028**	Ø 4x18	1.05 **030**
TX R/N/L ...4	SW3	2.34	**176**			59.93	**007**	M6x20	8.70 **028**	Ø 4x18	1.05 **030**
TX R/N/L ...4	SW3	2.34	**176**	59.93	**002**			M6x20	8.70 **028**	Ø 4x18	1.05 **030**

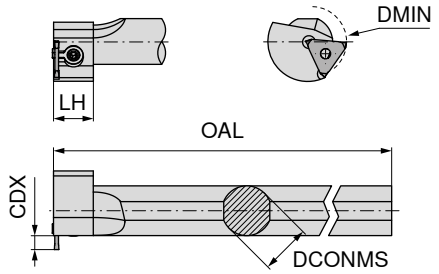


→ 62+63

11

MonoClamp – Radial Boring bar TX

- For radial internal grooving
- Cutting width 0,5 – 6,3 mm





Illustrations show right-hand versions

Designation	DCONMS $_{g7}$ mm	DMIN mm	OAL mm	LH mm	CDX mm	for grooving inserts	Left-hand 73 511 ... £ Y6		Right-hand 73 510 ... £ Y6	
R/L 660.0025.1	25	46	170	20	2	TX R/N/L ...1	250.24	**125**	245.44	**125**
R/L 660.0032.1	32	46	200	20	2	TX R/N/L ...1	299.24	**132**	304.05	**132**
R/L 660.0040.1	40	46	250		2	TX R/N/L ...1	299.24	**140**	298.43	**140**
R/L 660.0025.2	25	46	170	20	2	TX R/N/L ...2	245.89	**225**	245.44	**225**
R/L 660.0032.2	32	46	200	20	2	TX R/N/L ...2	299.24	**232**	304.05	**232**
R/L 660.0040.2	40	46	250		2	TX R/N/L ...2	299.24	**240**	298.43	**240**
R/L 660.0025.3	25	46	170	20	2	TX R/N/L ...3	245.89	**325**	245.44	**325**
R/L 660.0032.3	32	46	200	20	2	TX R/N/L ...3	299.24	**332**	304.05	**332**
R/L 660.0040.3	40	46	250		2	TX R/N/L ...3	299.24	**340**	298.43	**340**
R/L 660.0025.4	25	46	170	20	2	TX R/N/L ...4	245.89	**425**	245.44	**425**
R/L 660.0032.4	32	46	200	20	2	TX R/N/L ...4	299.24	**432**	304.05	**432**
R/L 660.0040.4	40	46	250		2	TX R/N/L ...4	299.24	**440**	298.43	**440**

Bore-Ø$_{min.}$ in mm	46	50	60	80	100	for grooving insert
CDX$_{max.}$ (mm)	2	3	4	4,5	5	TX R/N/L ...1
	2	3	4	4,5	5	TX R/N/L ...2
	2	3	4	4,5	5	TX R/N/L ...3
	2	3	4	4,5	5	TX R/N/L ...4


Clamping element


Key I


Clamping screw

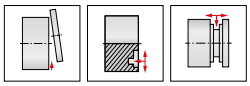
Spare parts for grooving inserts	73 950 ... £ Y6		70 950 ... £ 2A/28		73 950 ... £ Y6	
TX R/N/L ...1	51.05	**011**	SW3	2.34	**176**	M6x30	8.70	**009**
TX R/N/L ...2	51.05	**011**	SW3	2.34	**176**	M6x30	8.70	**009**
TX R/N/L ...3	51.05	**011**	SW3	2.34	**176**	M6x30	8.70	**009**
TX R/N/L ...4	51.05	**011**	SW3	2.34	**176**	M6x30	8.70	**009**



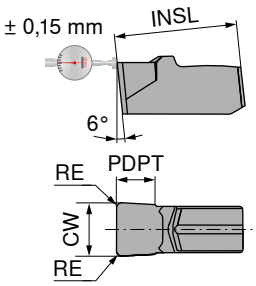
→ 62–64

Insert LX

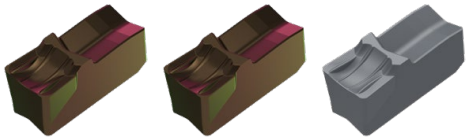
- Grooving width 8 and 10 mm
- Axial grooving from Ø 500 mm onwards
- Internal grooving and turning, from Ø 200 mm onwards



F	M	R



-M2 CTCP325	-M2 CTCP335	-M2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW -/+0,08 mm	RE +/-0,1 mm	PDPT mm	for tool holder	70 337 ... £ 1A/15		70 337 ... £ 1A/15		70 337 ... £ 1A/15	
LXE 8.00N0.80-M2	19	8	0.8	5	E32 N ..-LX	17.93	**928**	17.93	**578**	17.93	**682**
LXE 10.00N0.80-M2	19	10	0.8	5	E32 N ..-LX	23.91	**932**	23.91	**582**	23.91	**678**
P							●		●		●
M							○		○		●
K							●		●		●
N											○
S							○				●
H											
O											○

→ v_c Page 102
→ Application recommendation on page 109

Internal machining



→ 73

External machining



→ 73

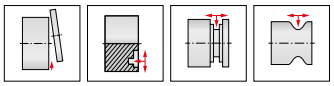


→ 74

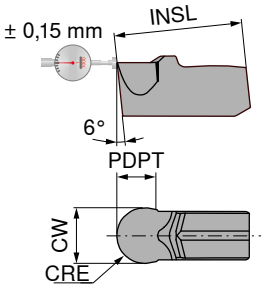
11

Radial Grooving Insert LX

- Grooving width 8 mm
- Axial grooving from Ø 500 mm
- Internal grooving and turning, from Ø 200 mm



F	M	R



-M3 CTCP325	-M3 CTCP335	-M3 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW -/+0,08 mm	CRE mm	PDPT mm	for tool holder	70 337 ... £ 1A/15		70 337 ... £ 1A/15		70 337 ... £ 1A/15	
LXR 4.00N-M3	19	8	4	5	E32 N ..-LX	19.12	**908**	19.12	**518**	19.12	**618**
P						●		●		●	
M						○		○		●	
K						●		●		●	
N										○	
S						○				●	
H											
O										○	

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→ Application recommendation on page 109

Internal machining



→ 73

External machining



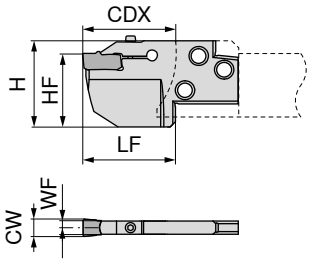
→ 73



→ 74

ModularClamp MSS – Axial and radial grooving module LX

- Grooving width 8 and 10 mm
- Axial grooving from Ø 500 mm onwards
- Internal grooving and turning, from Ø 200 mm onwards

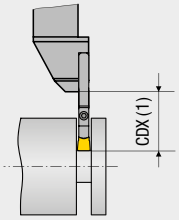




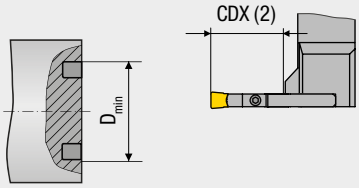
Neutral

Designation	CW mm	WF mm	LF mm	HF mm	H mm	CDX (1) mm	CDX (2) mm	CDX (3) mm	for grooving inserts	70 835 ... £ 2C/71	
E32 N 25-LX	8 / 10	3.4	27	32	44	25	19	14	LX ..	91.49	**032**
E32 N 32-LX	8 / 10	3.4	37	32	44	32	26	21	LX ..	91.49	**132**
E32 N 45-LX	8 / 10	3.4	47	32	44	45	39	34	LX ..	91.49	**232**

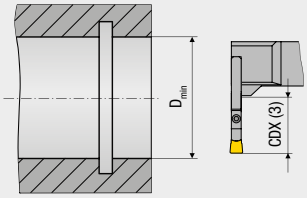
Radial grooving



Axial grooving D_{min} > 500 mm



Internal grooving D_{min} > 200 mm





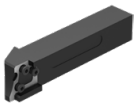
Key D



Clamping screw

Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28	
LX ..	T20	13.77	**114**	M4x18	4.55	**204**





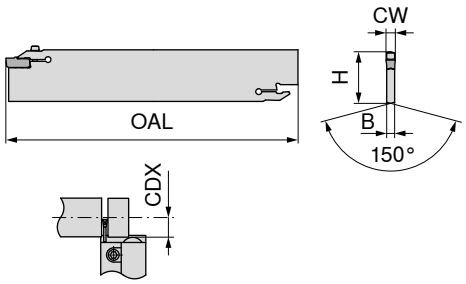
→ 71+72 → 93-95

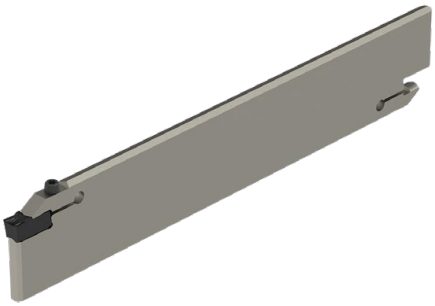
11

MonoClamp – Blade LX

Scope of supply:

Blade incl. clamping screw and tightening wrench





Designation	H mm	B mm	OAL mm	CW mm	CDX mm	for grooving inserts		70 833 ... £ 2A/25	
XLCEN 4608-LX	46	6.8	250	8/10	80	LX ..		239.87	**108**


Key D


Clamping screw

Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28	
LX ..	T20	13.77	**114**	M4x18	4.55	**204**





→ 71+72 → 99+100 → **Chapter 16**

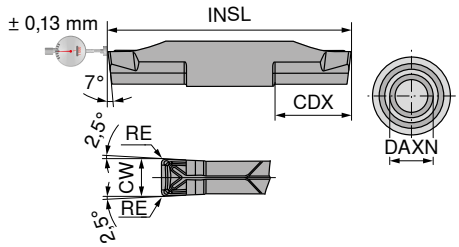
Grooving insert AX

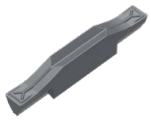
▲ very good chip control
▲ DAXN minimum groove diameter refers to the outside diameter

F	M	R

-F50
CTP1340

DRAGONSKIN





Designation	IH	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	CDX mm	DAXN mm	for tool holder	70 327 ... £ 1C/72	
AX 05 E3.00 N 0.30	N	24	3	0.3	5	10	E.. R/L.. -AX 05	26.24	**005**
AX 10 E3.00 N 0.30	N	34	3	0.3	10	20	E.. R/L.. -AX 10	27.22	**010**
AX 15 E3.00 N 0.30	N	44	3	0.3	15	30	E.. R/L.. -AX 15	28.61	**015**

P	●
M	●
K	●
N	○
S	●
H	
O	○

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→ Application recommendation on page 110

Internal machining | *External machining*



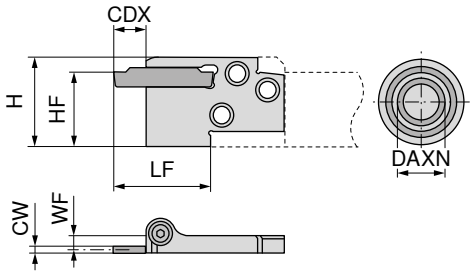


→ 76 → 77 → 78

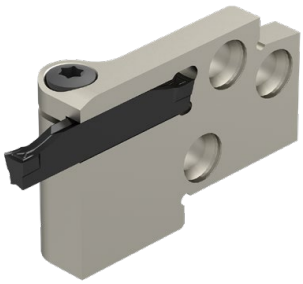
11

ModularClamp MSS – Axial grooving module AX

▲ for axial grooving and turning



Illustrations show right-hand versions



Designation	HF mm	CW mm	WF mm	LF mm	H mm	DAXN mm	CDX mm	for grooving inserts	Left-hand 70 827 ... £ 2C/71		Right-hand 70 828 ... £ 2C/71	
E16 R/L 05-AX 05	16	3	2.5	24.0	20.5	10	5	AX05	90.08	**016**	90.08	**016**
E20 R/L 05-AX 05	20	3	3.1	28.0	25.0	10	5	AX05	90.08	**020**	90.08	**020**
E25 R/L 05-AX 05	25	3	4.6	27.5	30.0	10	5	AX05	91.09	**025**	91.09	**025**
E20 R/L 10-AX 10	20	3	3.1	33.0	25.0	20	10	AX10	90.08	**120**	90.08	**120**
E25 R/L 10-AX 10	25	3	4.6	32.5	30.0	20	10	AX10	91.09	**125**	91.09	**125**
E20 R/L 15-AX 15	20	3	3.1	44.0	25.0	30	15	AX15	90.08	**220**	90.08	**220**
E25 R/L 15-AX 15	25	3	4.6	43.5	30.0	30	15	AX15	91.09	**225**	91.09	**225**

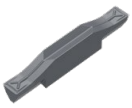


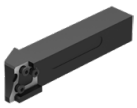
Key D



Clamping screw

Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 827 016 / 70 828 016	T15	12.87	**113**	M3,5x12,5	8.56	**441**
70 827 020 / 70 828 020	T15	12.87	**113**	M4x14	8.19	**403**
70 827 025 / 70 828 025	T20	13.77	**114**	M5x18	5.46	**404**
70 827 120 / 70 828 120	T15	12.87	**113**	M4x14	8.19	**403**
70 827 125 / 70 828 125	T20	13.77	**114**	M5x18	5.46	**404**
70 827 220 / 70 828 220	T15	12.87	**113**	M4x14	8.19	**403**
70 827 225 / 70 828 225	T20	13.77	**114**	M5x18	5.46	**404**

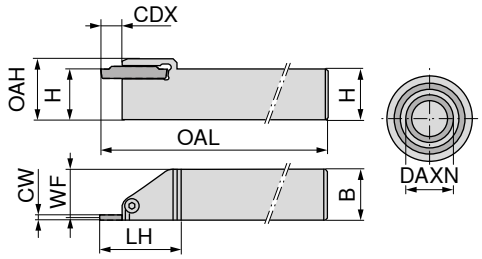


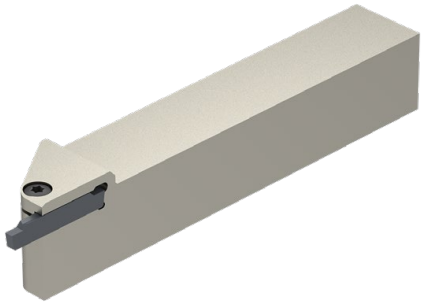




→ 75 → 93-95 → 96

MonoClamp – Axial AX Grooving Holder 0°, up to 15 mm groove depth





Illustrations show right-hand versions

Designation	H mm	B mm	OAL mm	LH mm	OAH mm	CDX mm	CW mm	WF mm	DAXN mm	for grooving inserts	Left-hand 70 823 ... £ 2C/71		Right-hand 70 824 ... £ 2C/71	
E20 R/L 0005-2020-AX 05	20	20	140	28	25	5	3	18.7	10	AX05	126.09	**02000**	126.09	**02000**
E20 R/L 0010-2020-AX 10	20	20	140	38	25	10	3	18.7	20	AX10	126.09	**12000**	126.09	**12000**
E20 R/L 0015-2020-AX 15	20	20	140	49	25	15	3	18.7	30	AX15	126.09	**22000**	126.09	**22000**
E25 R/L 0005-2525-AX 05	25	25	160	28	30	5	3	23.7	10	AX05	135.07	**02500**	135.07	**02500**
E25 R/L 0010-2525-AX 10	25	25	160	38	30	10	3	23.7	20	AX10	135.07	**12500**	135.07	**12500**
E25 R/L 0015-2525-AX 15	25	25	160	49	30	15	3	23.7	30	AX15	135.07	**22500**	135.07	**22500**


Key D


Clamping screw

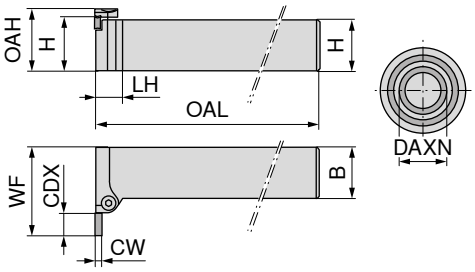
Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 824 02000 / 70 823 02000	T20	10.09	**106**	M5x18	5.46	**404**
70 824 12000 / 70 823 12000	T20	10.09	**106**	M5x18	5.46	**404**
70 824 22000 / 70 823 22000	T20	10.09	**106**	M5x18	5.46	**404**
70 824 02500 / 70 823 02500	T20	10.09	**106**	M5x18	5.46	**404**
70 824 12500 / 70 823 12500	T20	10.09	**106**	M5x18	5.46	**404**
70 824 22500 / 70 823 22500	T20	10.09	**106**	M5x18	5.46	**404**

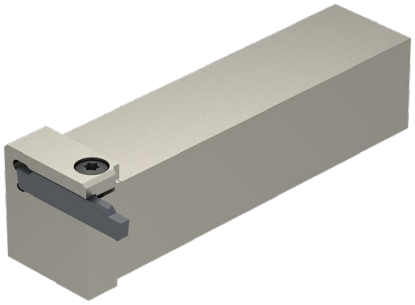


→ 75

11

MonoClamp – Axial AX Grooving Holder 90°, up to 15 mm groove depth





Illustrations show right-hand versions

Designation	H mm	B mm	WF mm	OAH mm	OAL mm	LH mm	CDX mm	DAXN mm	CW mm	Left-hand 70 825 ... £ 2C/71		Right-hand 70 826 ... £ 2C/71	
E20 R/L 9005-2020-AX 05	20	20	28	25	110	12	5	10	3	126.09	**02000**	126.09	**02000**
E20 R/L 9010-2020-AX 10	20	20	38	25	110	13	10	20	3	126.09	**12000**	126.09	**12000**
E20 R/L 9015-2020-AX 15	20	20	49	25	110	13	15	30	3	126.09	**22000**	126.09	**22000**
E25 R/L 9005-2525-AX 05	25	25	33	30	140	12	5	10	3	135.07	**02500**	135.07	**02500**
E25 R/L 9010-2525-AX 10	25	25	43	30	110	13	10	20	3	135.07	**12500**	135.07	**12500**
E25 R/L 9015-2525-AX 15	25	25	49	30	140	13	15	30	3	135.07	**22500**	135.07	**22500**



Key D



Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 825 02000 / 70 826 02000	T15	9.83	**105**	M4x14	8.19	**403**
70 825 12000 / 70 826 12000	T20	10.09	**106**	M5x18	5.46	**404**
70 825 22000 / 70 826 22000	T20	10.09	**106**	M5x18	5.46	**404**
70 825 02500 / 70 826 02500	T15	9.83	**105**	M4x14	8.19	**403**
70 825 12500 / 70 826 12500	T20	10.09	**106**	M5x18	5.46	**404**
70 825 22500 / 70 826 22500	T20	10.09	**106**	M5x18	5.46	**404**

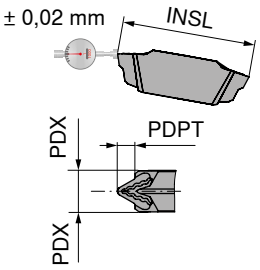


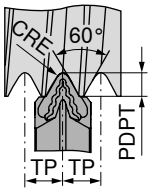
→ 75

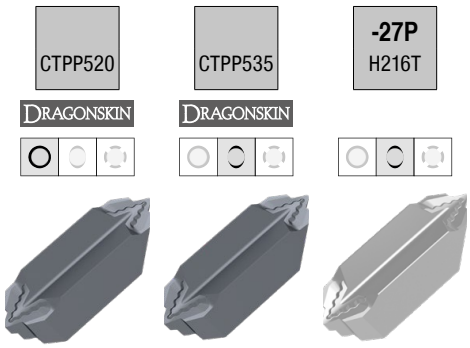
Threading inserts TC full profile – External thread 60°



F	M	R
		







Designation	Size	TP mm	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 357 ... £ 1C/84		70 357 ... £ 1C/84		70 357 ... £ 1C/84	
TC 16-1 E 0.5 ISO	TC 16-1 ...	0.50	16	0.32	1.05	0.06	E.. R/L TC 16-1	20.81	**010**	20.81	**110**	16.80	**610**
TC 16-1 E 0.75 ISO	TC 16-1 ...	0.75	16	0.48	1.05	0.09	E.. R/L TC 16-1	20.81	**012**	20.81	**112**	16.80	**612**
TC 16-1 E 1.0 ISO	TC 16-1 ...	1.00	16	0.64	1.05	0.12	E.. R/L TC 16-1	20.81	**014**	20.81	**114**	16.80	**614**
TC 16-1 E 1.25 ISO	TC 16-1 ...	1.25	16	0.80	1.05	0.15	E.. R/L TC 16-1	20.81	**016**	20.81	**116**	16.80	**616**
TC 16-1 E 1.5 ISO	TC 16-1 ...	1.50	16	0.95	1.05	0.18	E.. R/L TC 16-1	20.81	**018**	20.81	**118**	16.80	**618**
TC 16-2 E 1.75 ISO	TC 16-2 ...	1.75	16	1.10	2.15	0.22	E.. R/L/N TC 16-2	20.81	**030**	20.81	**130**	16.80	**630**
TC 16-2 E 2.0 ISO	TC 16-2 ...	2.00	16	1.26	2.15	0.25	E.. R/L/N TC 16-2	20.81	**032**	20.81	**132**	16.80	**632**
TC 16-2 E 2.5 ISO	TC 16-2 ...	2.50	16	1.58	2.15	0.32	E.. R/L/N TC 16-2	20.81	**034**	20.81	**134**	16.80	**634**
TC 16-2 E 3.0 ISO	TC 16-2 ...	3.00	16	1.89	2.15	0.38	E.. R/L/N TC 16-2	20.81	**036**	20.81	**136**	16.80	**636**
TC 16-3 E 3.5 ISO	TC 16-3 ...	3.50	16	2.21	3.10	0.44	E25 N TC 16-3	20.81	**050**	20.81	**150**		
TC 16-3 E 4.0 ISO	TC 16-3 ...	4.00	16	2.53	3.10	0.50	E25 N TC 16-3	20.81	**052**	20.81	**152**		
TC 16-3 E 5.0 ISO	TC 16-3 ...	5.00	16	3.16	3.10	0.63	E25 N TC 16-3	20.81	**056**	20.81	**156**		

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→ Application recommendation on page 111

Internal machining *External machining*



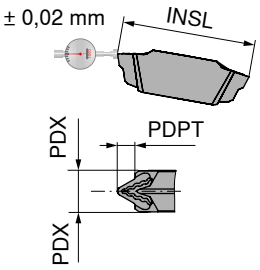

→ 84 → 85

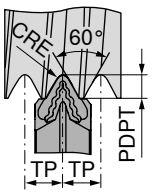
11

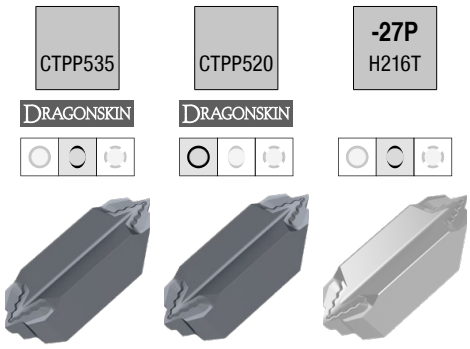
Threading inserts TC full profile – Internal thread 60°



F	M	R
		







Designation	Size	TP mm	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 358 ... £ 1C/84		70 358 ... £ 1C/84		70 358 ... £ 1C/84	
TC 16-1 I 1.0 ISO	TC 16-1 ...	1.00	16	0.59	1.05	0.06	I32 R/L TC 16-1	20.81	**114**	20.81	**014**	16.80	**614**
TC 16-1 I 1.25 ISO	TC 16-1 ...	1.25	16	0.74	1.05	0.07	I32 R/L TC 16-1			20.81	**016**		
TC 16-1 I 1.5 ISO	TC 16-1 ...	1.50	16	0.89	1.05	0.09	I32 R/L TC 16-1	20.81	**118**	20.81	**018**	16.80	**618**
TC 16-2 I 1.75 ISO	TC 16-2 ...	1.75	16	1.02	2.15	0.11	I32 R/L TC 16-2			20.81	**030**		
TC 16-2 I 2.0 ISO	TC 16-2 ...	2.00	16	1.17	2.15	0.13	I32 R/L TC 16-2	20.81	**132**	20.81	**032**	16.80	**632**
TC 16-2 I 3.0 ISO	TC 16-2 ...	3.00	16	1.76	2.15	0.19	I32 R/L TC 16-2	20.81	**136**	20.81	**036**	16.80	**636**

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H		○	
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→ Application recommendation on page 111

Internal machining *External machining*

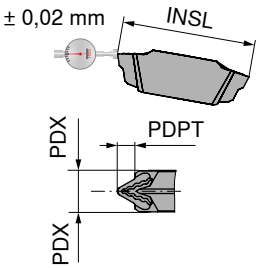


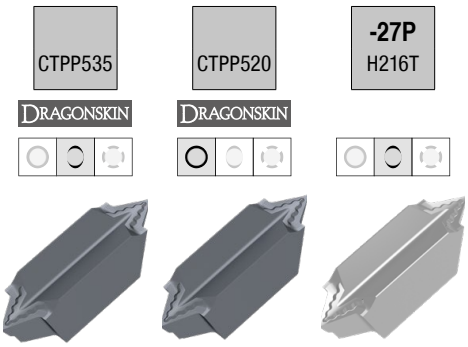

→ 86 → 87

Threading inserts TC partial profile 60°



F	M	R
		





Designation	Size	TP mm	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 355 ... £ 1C/84		70 355 ... £ 1C/84		70 355 ... £ 1C/84	
TC 16-1 EI A 60	TC 16-1 ...	0,5 - 1,5	16	1.27	1.05	0.03	E/I.. R/L TC 16-1	20.81	**110**	20.81	**010**	16.80	**610**
TC 16-2 EI G 60	TC 16-2 ...	1,75 - 3,0	16	2.49	2.15	0.11	E/I.. R/L/N TC 16-2	20.81	**130**	20.81	**030**	16.80	**630**
TC 16-2 EI AG 60	TC 16-2 ...	0,5 - 3,0	16	2.57	2.15	0.03	E/I.. R/L/N TC 16-2	20.81	**132**	20.81	**032**	16.80	**632**
TC 16-3 EI N 60	TC 16-3 ...	3,5 - 5,0	16	4.11	3.10	0.22	E/I.. N TC 16-3	20.81	**150**	20.81	**050**	16.80	**650**
P									●		●		
M									●		●		
K									●		●		●
N													●
S									●		○		
H											○		
O													○

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→ Application recommendation on page 111

Internal machining *External machining*



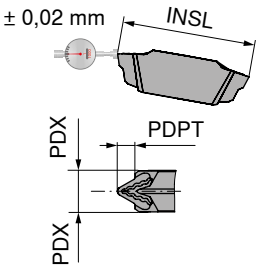
→ 86 → 87 → 84 → 85

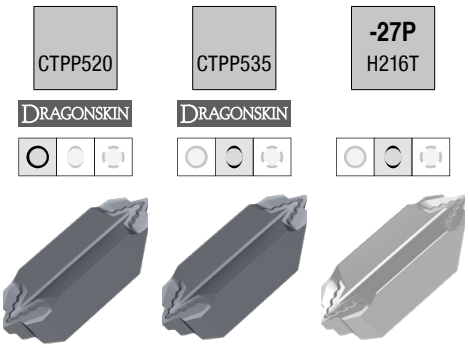
11

Threading inserts TC full profile 55°



F	M	R
		





Designation	Size	TPI 1/"	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 359 ... £ 1C/84		70 359 ... £ 1C/84		70 359 ... £ 1C/84	
TC 16-1 EI 28 W	TC 16-1 ...	28	16	0.60	1.05	0.12	E/I.. R/L TC 16-1	20.81	**010**	20.81	**110**		
TC 16-1 EI 20 W	TC 16-1 ...	20	16	0.84	1.05	0.17	E/I.. R/L TC 16-1	20.81	**016**				
TC 16-1 EI 19 W	TC 16-1 ...	19	16	0.88	1.05	0.17	E/I.. R/L TC 16-1	20.81	**018**	20.81	**118**	16.80	**618**
TC 16-1 EI 16 W	TC 16-1 ...	16	16	1.05	1.05	0.21	E/I.. R/L TC 16-1	20.81	**022**				
TC 16-2 EI 14 W	TC 16-2 ...	14	16	1.20	2.15	0.23	E/I.. R/L/N TC 16-2	20.81	**030**	20.81	**130**	16.80	**630**
TC 16-2 EI 12 W	TC 16-2 ...	12	16	1.40	2.15	0.27	E/I.. R/L/N TC 16-2			20.81	**132**		
TC 16-2 EI 11 W	TC 16-2 ...	11	16	1.53	2.15	0.30	E/I.. R/L/N TC 16-2	20.81	**034**	20.81	**134**	16.80	**634**
P								●		●			
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K								●		●			●
N													●
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H								○					
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→ Application recommendation on page 111

Internal machining *External machining*



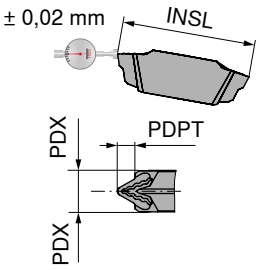


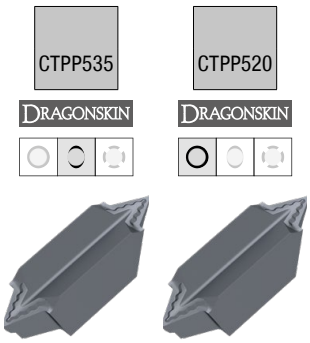

→ 86 → 87 → 84 → 85

Threading inserts TC partial profile 55°



F	M	R
		





Designation	Size	TPI 1/"	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 356 ... £ 1C/84		70 356 ... £ 1C/84	
TC 16-1 EI A 55	TC 16-1 ...	28 - 16	16	1.39	1.05	0.12	E/I.. R/L TC 16-1	20.81	**110**	20.81	**010**
TC 16-2 EI AG 55	TC 16-2 ...	28 - 8	16	2.91	2.15	0.12	E/I.. R/L/N TC 16-2	20.81	**132**	20.81	**032**
TC 16-2 EI G 55	TC 16-2 ...	14 - 8	16	2.78	2.15	0.23	E/I.. R/L/N TC 16-2	20.81	**130**	20.81	**030**
TC 16-3 EI N 55	TC 16-3 ...	7 - 5	16	4.34	3.10	0.46	E/I.. N TC 16-3	20.81	**150**	20.81	**050**
P									●		●
M									●		●
K									●		●
N											
S									●		○
H											○
O											

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→ Application recommendation on page 111

Internal machining *External machining*

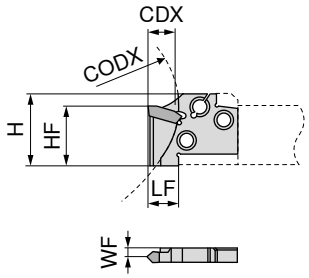




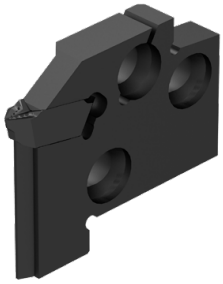

→ 86 → 87 → 84 → 85

11

ModularClamp MSS – Threading module TC for external threads



Illustrations show right-hand versions



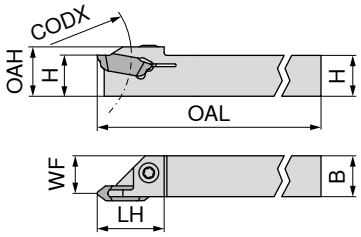
Designation	TP mm	TPI 1/"	WF mm	HF mm	LF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 872 ... £ 2C/82		Neutral 70 872 ... £ 2C/82		Right-hand 70 872 ... £ 2C/82	
E20 R/L TC 16-1	0,5 - 1,5	28 - 16	3.45	13	20	24	60	8	TC 16-1 ...	81.97	**120**			81.97	**020**
E20 N TC 16-2	1,75 - 3,0	14 - 8	2.20	13	20	24		12	TC 16-2 ...			81.97	**220**		
E25 R/L TC 16-1	0,5 - 1,5	28 - 16	5.20	13	25	30	75	8	TC 16-1 ...	82.58	**125**			82.58	**025**
E25 R/L TC 16-2	1,75 - 3,0	14 - 8	4.10	13	25	30	75	10	TC 16-2 ...	82.58	**325**			82.58	**225**
E25 N TC 16-3	3,5 - 5,0	7 - 5	3.10	13	25	30		12	TC 16-3 ...			82.58	**425**		

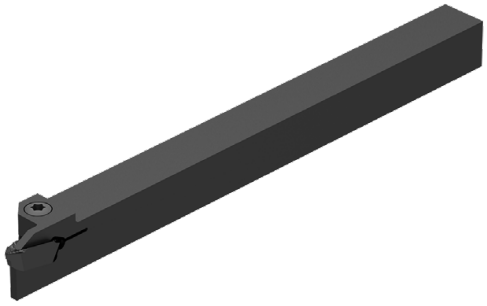




→ 79–83 → 93–95 → 96

MonoClamp – Monoholder TC – external thread





Illustrations show right-hand versions

Designation	TP mm	TPI 1/"	H mm	B mm	OAL mm	LH mm	OAH mm	WF mm	CODX mm	for grooving inserts	Left-hand 70 883 ... £ 2C/83		Right-hand 70 882 ... £ 2C/83	
E12 R/L 00-1212 TC16	0,5 - 3	28 - 8	12	12	150	20	14.5	11	30	TC16-1/2..	121.61	**012**	121.61	**012**


Key D


Clamping screw

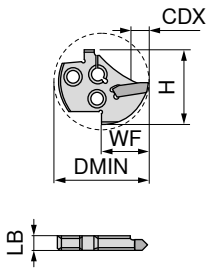
Spare parts for grooving inserts		80 950 ... £ Y7		70 950 ... £ 2A/28	
TC16-1/2..	T15	12.87	**113**	M4x11	9.87 **442**

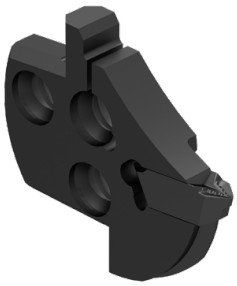


→ 79–83

11

ModularClamp MSS – Threading module TC for internal threads





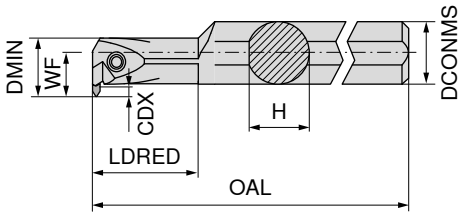
Designation	TP mm	TPI 1/"	LB mm	WF mm	H mm	DMIN mm	CDX mm	for grooving inserts	Left-hand 70 887 ... £ 2C/82		Neutral 70 887 ... £ 2C/82		Right-hand 70 887 ... £ 2C/82	
I32 R/L TC 16-1	0,5 - 1,5	28 - 16	6.2	5.2	32.2	40	7	TC 16-1 ...	83.37	**132**			83.37	**032**
I32 R/L TC 16-2	1,75 - 3,0	14 - 8	6.2	4.1	32.2	40	7	TC 16-2 ...	83.37	**332**			83.37	**232**
I32 N TC 16-3	3,5 - 5,0	7 - 5	6.2	3.1	32.2	40	7	TC 16-3 ...			83.37	**432**		





→ 79–83 → 97

MonoClamp – Monobloc boring bar TC – internal thread





Illustrations show right-hand versions

Designation	WF mm	DCONMS mm	H mm	OAL mm	LDRED mm	CDX mm	DMIN mm	for grooving inserts	Left-hand 70 857 ... £ 2C/83		Right-hand 70 856 ... £ 2C/83	
I16 R/L 90-2D TC16	14.0	20	18	180	32	4	20	TC16-1/2..	132.39	**016**	132.39	**016**
I20 R/L 90-2D TC16	17.5	25	23	200	40	5	25	TC16-..	145.86	**020**	145.86	**020**
I25 R/L 90-2D TC16	22.0	32	30	250	50	6	32	TC16-..	165.04	**025**	165.04	**025**

Key D


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 857 016 / 70 856 016	T15	12.87	**113**	M4x14	8.19	**403**
70 857 020 / 70 856 020	T20	13.77	**114**	M5x18	5.46	**404**
70 857 025 / 70 856 025	T25	14.16	**115**	M6x20	4.04	**405**

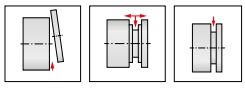


→ 79–83

11

MaxiClick – Insert – cutting depth 5 mm

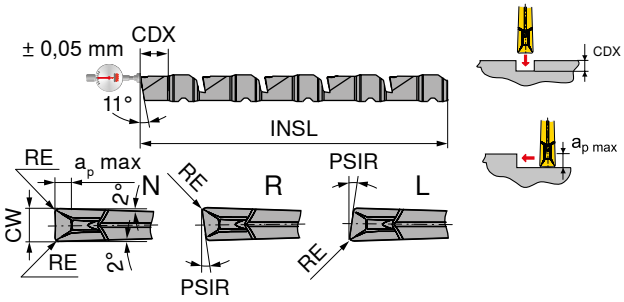
▲ 5 cutting edges

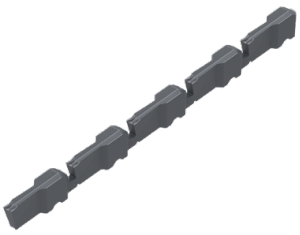


-F2
CTP1340

DRAGONSKIN

F	M	R
		





70 338 ...

Designation	IH	CW mm	RE mm	PSIR	INSL mm	$a_{p\,max}$ mm	CDX mm	for tool holder	£ 1C/72	
MC 05-5-1.00 L 07-F2	L	1.0	0.1	7°	59.2		5	MC 05 R/L	33.22	**250**
MC 05-5-1.50 L 07-F2	L	1.5	0.1	7°	59.2		5	MC 05 R/L	33.22	**260**
MC 05-5-1.00 N 0.10-F2	N	1.0	0.1		59.2	0.5	5	MC 05 R/L	33.22	**210**
MC 05-5-1.50 N 0.10-F2	N	1.5	0.1		59.2	1.0	5	MC 05 R/L	33.22	**220**
MC 05-5-1.00 R 07-F2	R	1.0	0.1	7°	59.2		5	MC 05 R/L	33.22	**230**
MC 05-5-1.50 R 07-F2	R	1.5	0.1	7°	59.2		5	MC 05 R/L	33.22	**240**

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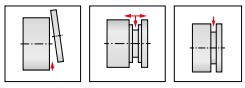
→ Application recommendation on page 107

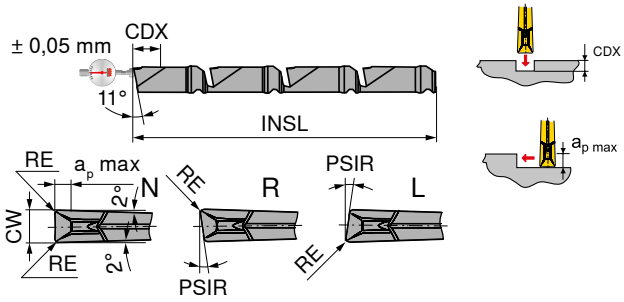
Internal machining	*External machining*
	
	→ 91

MaxiClick – Insert – cutting depth 10 mm

▲ 4 cutting edges



F	M	R
		



-F2
CTP1340

DRAGONSKIN



Designation	IH	CW mm	RE mm	PSIR	INSL mm	$a_{p\,max}$ mm	CDX mm	for tool holder	70 339 ... £ 1C/72	
MC 10-4-1.50 L 07-F2	L	1.5	0.1	7°	59.2		10	MC 10 R/L	27.34	**270**
MC 10-4-2.00 L 07-F2	L	2.0	0.1	7°	59.2		10	MC 10 R/L	27.34	**280**
MC 10-4-2.50 L 07-F2	L	2.5	0.1	7°	59.2		10	MC 10 R/L	27.34	**290**
MC 10-4-1.50 N 0.10-F2	N	1.5	0.1		59.2	1.0	10	MC 10 R/L	27.34	**210**
MC 10-4-2.00 N 0.10-F2	N	2.0	0.1		59.2	1.5	10	MC 10 R/L	27.34	**220**
MC 10-4-2.50 N 0.10-F2	N	2.5	0.1		59.2	2.0	10	MC 10 R/L	27.34	**230**
MC 10-4-1.50 R 07-F2	R	1.5	0.1	7°	59.2		10	MC 10 R/L	27.34	**240**
MC 10-4-2.00 R 07-F2	R	2.0	0.1	7°	59.2		10	MC 10 R/L	27.34	**250**
MC 10-4-2.50 R 07-F2	R	2.5	0.1	7°	59.2		10	MC 10 R/L	27.34	**260**

P	●
M	●
K	●
N	○
S	●
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O	○

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11

Internal machining	*External machining*
	
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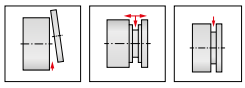
MaxiClick – Insert – cutting depth 10 mm

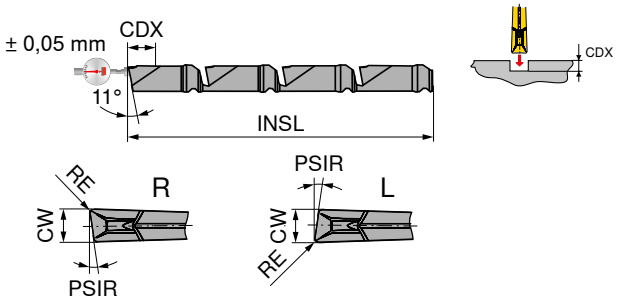
▲ 4 cutting edges



-F3
CTP1340

DRAGONSKIN

F	M	R





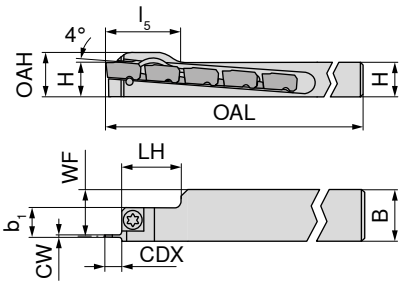
Designation	IH	CW mm	RE mm	PSIR	INSL mm	CDX mm	for tool holder	70 340 ... £ 1C/72	
MC 10-4-1.50 L 12-F3	L	1.5	0.1	12°	59.2	10	MC 10 R/L	27.34	**270**
MC 10-4-2.00 L 12-F3	L	2.0	0.1	12°	59.2	10	MC 10 R/L	27.34	**280**
MC 10-4-2.50 L 12-F3	L	2.5	0.1	12°	59.2	10	MC 10 R/L	27.34	**290**
MC 10-4-1.50 R 12-F3	R	1.5	0.1	12°	59.2	10	MC 10 R/L	27.34	**240**
MC 10-4-2.00 R 12-F3	R	2.0	0.1	12°	59.2	10	MC 10 R/L	27.34	**250**
MC 10-4-2.50 R 12-F3	R	2.5	0.1	12°	59.2	10	MC 10 R/L	27.34	**260**

P	●
M	●
K	●
N	○
S	●
H	
O	○

→ v_c Page 102
→ Application recommendation on page 107

Internal machining	*External machining*
	
	→ 92

MaxiClick – Toolholder – cutting depth 5 mm





Illustrations show right-hand versions

Designation	H mm	OAH mm	B mm	CW mm	CDX mm	WF mm	OAL mm	LH mm	l_5 mm	for grooving inserts	Left-hand 70 873 ... £ 2C/71		Right-hand 70 873 ... £ 2C/71	
MC 05 R/L -1010K	10	13	10	1,00 - 1,50	5	8.5	125	23	27	MC 05	84.58	**210**	84.58	**110**
MC 05 R/L -1212K	12	15	12	1,00 - 1,50	5	10.5	125	23	27	MC 05	84.58	**212**	84.58	**112**
MC 05 R/L -1616K	16	19	16	1,00 - 1,50	5	14.5	125	23	20	MC 05	84.58	**216**	84.58	**116**
MC 05 R/L -2020K	20	23	20	1,00 - 1,50	5	18.8	125	23	20	MC 05	98.32	**220**	98.32	**120**
MC 05 R/L -2525M	25	28	25	1,00 - 1,50	5	23.5	150	23	21	MC 05	104.72	**225**	104.72	**125**


Key-T


Clamping screw

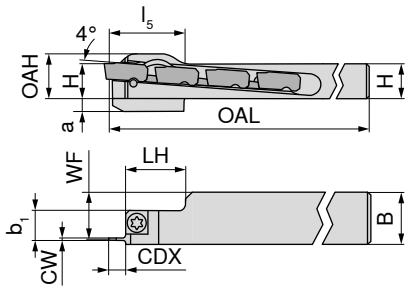
Spare parts for grooving inserts		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
MC 05	T15	6.12	**738**	M4x11	3.24	**174**

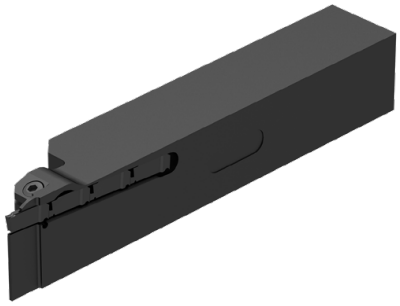


→ 88

11

MaxiClick – Toolholder – cutting depth 10 mm





Illustrations show right-hand versions

Designation	H mm	OAH mm	B mm	a mm	CW mm	CDX mm	WF mm	OAL mm	LH mm	l_5 mm	for grooving inserts	Left-hand 70 874 ... £ 2C/71		Right-hand 70 874 ... £ 2C/71	
MC 10 R/L -1010K	10	13	10		1,50 - 2,50	10	8.5	125	28		MC 10	84.58	**210**	84.58	**110**
MC 10 R/L -1010K-S	10	13	10	6	1,50 - 2,50	10	8.5	125	28	27	MC 10	84.58	**410** 1)	84.58	**310** 1)
MC 10 R/L -1212K	12	15	12		1,50 - 2,50	10	10.5	125	28		MC 10	84.58	**212**	84.58	**112**
MC 10 R/L -1212K-S	12	15	12	4	1,50 - 2,50	10	10.5	125	28	27	MC 10	84.58	**412** 1)	84.58	**312** 1)
MC 10 R/L -1616K	16	19	16		1,50 - 2,50	10	14.5	125	28	20	MC 10	84.58	**216**	84.58	**116**
MC 10 R/L -2020K	20	23	20		1,50 - 2,50	10	18.8	125	28	20	MC 10	98.32	**220**	98.32	**120**
MC 10 R/L -2525M	25	28	25		1,50 - 2,50	10	23.5	150	28	21	MC 10	104.72	**225**	104.72	**125**

1) -S = strengthened variant


Key-T

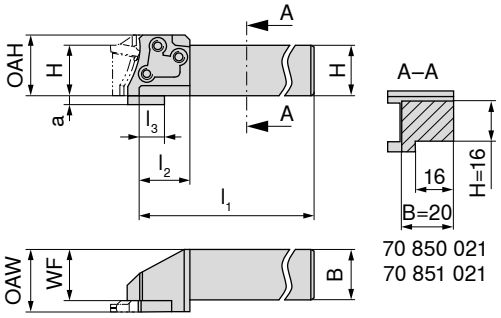

Clamping screw

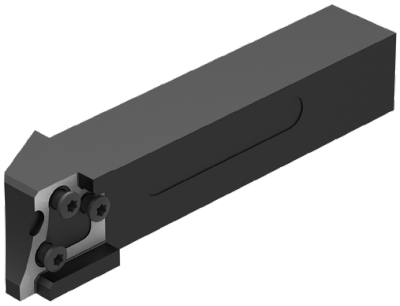
Spare parts for grooving inserts		Key-T 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28	
MC 10	T15	6.12	**738**	M4x11	3.24	**174**



→ 89+90

ModularClamp MSS – Tool holder 0°





Illustrations show right-hand versions

Designation	H mm	B mm	OAW mm	OAH mm	WF mm	l_1 mm	l_2 mm	l_3 mm	for modules	Left-hand 70 851 ... £ 2C/71		Right-hand 70 850 ... £ 2C/71	
E12 R/L 00-1212E	12	12	15.25	14.5	11.75	70	12		E12 R/L ...	125.23	**012**	125.23	**012**
E16 R/L 00-1616G	16	16	19.25	19.5	15.75	90	16		E16 R/L ...	126.47	**016**	126.47	**016**
E20 R/L 00-1620G	16	20	24.25	24.0	20.15	90	20		E20 R/L ...	127.63	**021** 1)	127.63	**021** 1)
E20 R/L 00-2020J	20	20	24.25	24.0	20.15	110	20		E20 R/L ...	127.63	**020**	127.63	**020**
E25 R/L 00-2525L	25	25	31.00	30.0	25.50	140	25		E25 R/L ...	130.29	**025**	130.29	**025**
E32 R/L 00-3225N	32	25	31.00	38.0	25.50	160	32		E32 R/L ...	133.82	**032**	133.82	**032**
E32 L 00-3232N	32	32	38.00	38.8	32.50	180	32	16	E32 R/L ...	136.12	**13200**		
E32 R 00-3232Q	32	32	38.00	38.8	32.50	180	32	16	E32 R/L ...			136.12	**13200**

1) see view A-A


Key D


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 851 012 / 70 850 012	T08	10.82	**110**	M2,5x10	6.77	**440**
70 851 016 / 70 850 016	T15	12.87	**113**	M3,5x12,5	8.56	**441**
70 851 021 / 70 850 021	T15	12.87	**113**	M4x14	8.19	**403**
70 851 020 / 70 850 020	T15	12.87	**113**	M4x14	8.19	**403**
70 851 025 / 70 850 025	T20	13.77	**114**	M5x18	5.46	**404**
70 851 032 / 70 850 032	T25	14.16	**115**	M6x20	4.04	**405**

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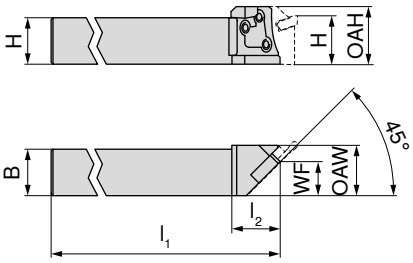
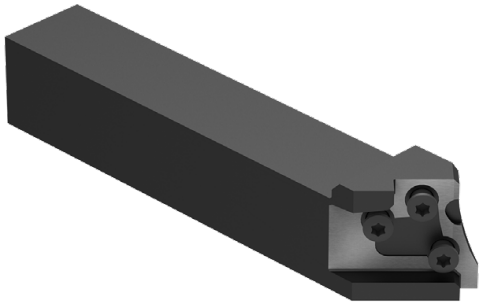
Module Overview



→ 4+5

ModularClamp MSS – Tool holder 45°





Illustrations show right-hand versions

Designation	H mm	B mm	OAW mm	OAH mm	WF mm	l_1 mm	l_2 mm	for modules	Left-hand 70 853 ... £ 2C/71		Right-hand 70 852 ... £ 2C/71	
E20 R/L 45-2020J	20	20	21.5	24	14.5	110	20	E20 R/L ...	127.63	**020**	127.63	**020**
E25 R/L 45-2525L	25	25	26.0	30	18.0	140	25	E25 R/L ...	130.29	**025**	130.29	**025**

For right hand holder → left hand module only
For left hand holder → right hand module only

Key D


Clamping screw


Clamping screw

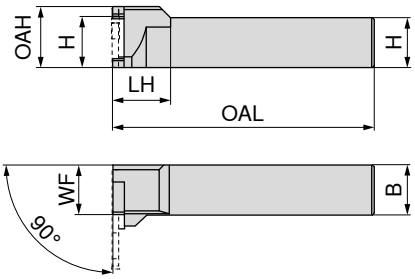
Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 853 020 / 70 852 020	T15	12.87	**113**	M4x11	9.87	**442**	M4x14	8.19	**403**
70 853 025 / 70 852 025	T20	13.77	**114**	M5x13,5	10.26	**513**	M5x18	5.46	**404**

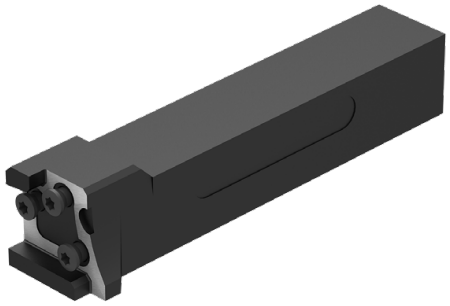
Module Overview



→ 4+5

ModularClamp MSS – Tool holder 90°





Illustrations show right-hand versions

Designation	H mm	B mm	OAH mm	WF mm	OAL mm	LH mm	for modules	Left-hand 70 855 ... £ 2C/71		Right-hand 70 854 ... £ 2C/71	
E20 R/L 90-2020J	20	20	24	20	110	20	E20 R/L ...	127.63	**020**	127.63	**020**
E25 R/L 90-2525L	25	25	30	25	140	28	E25 R/L ...	130.29	**025**	130.29	**025**
E32 R/L 90-3225N	32	25	38	32	160	34	E32 R/L ...	133.82	**032**	133.82	**032**

For right hand holder → left hand module only
For left hand holder → right hand module only


Key D


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 855 020 / 70 854 020	T15	12.87	**113**	M4x14	8.19	**403**
70 855 025 / 70 854 025	T20	13.77	**114**	M5x18	5.46	**404**
70 855 032 / 70 854 032	T25	14.16	**115**	M6x20	4.04	**405**

Module Overview



→ 4+5

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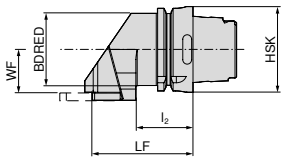
ModularClamp MSS – HSK-T Base Holder 0°



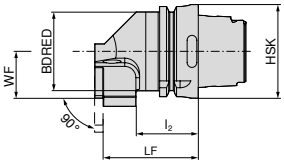


Illustrations show right-hand versions

ISO designation	Adapter	LF mm	l_2 mm	BDRED mm	WF mm	for Grooving Module	Left-hand 74 581 ... £ 2D/80		Right-hand 74 580 ... £ 2D/80	
HSK T63 E25 R/L 00	HSK-T 63	67	42	53	38.7	E25 R/L...	503.63	**525**	503.63	**525**
HSK T63 E32 R/L 00	HSK-T 63	74	42	53	38.7	E32 R/L...	503.63	**532**	503.63	**532**
HSK T100 E32 R/L 00	HSK-T 100	77	45	88	48.7	E32 R/L...	574.93	**732**	574.93	**732**

Spare parts for Article no.	Protection plugs 70 950 ... £ 2A/28		Nozzle 70 950 ... £ 28		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28		Hollow key with nose 70 950 ... £ 2A/28	
74 580 525 / 74 581 525	19.29	**05600**	27.73	**05500**	13.77	**114**	5.46	**404**	42.87	**05700**
74 580 532 / 74 581 532	19.29	**05600**	27.73	**05500**	14.16	**115**	4.04	**405**	42.87	**05700**
74 580 732 / 74 581 732	19.29	**05600**	27.73	**05500**	14.16	**115**	4.04	**405**	42.87	**05700**

ModularClamp MSS – 90° HSK-T Base Holder





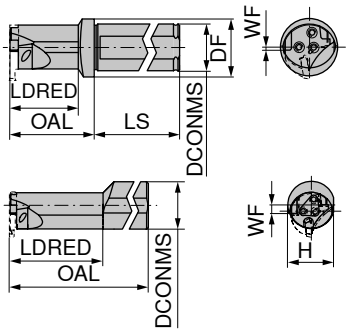
Illustrations show right-hand versions

ISO designation	Adapter	LF mm	l_2 mm	BDRED mm	WF mm	for Grooving Module	Left-hand 74 583 ... £ 2D/80		Right-hand 74 582 ... £ 2D/80	
HSK T63 E32 R/L 90	HSK-T 63	63.7	42	53	31.5	E32 R/L...	503.63	**532**	503.63	**532**
HSK T100 E32 R/L 90	HSK-T 100	73.7	45	88	50.0	E32 R/L...	574.93	**732**	574.93	**732**

Spare parts for Article no.	Protection plugs 70 950 ... £ 2A/28		Nozzle 70 950 ... £ 28		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28		Hollow key with nose 70 950 ... £ 2A/28	
74 582 532 / 74 583 532	19.29	**05600**	27.73	**05500**	14.16	**115**	4.04	**405**	42.87	**05700**
74 582 732 / 74 583 732	19.29	**05600**	27.73	**05500**	14.16	**115**	4.04	**405**	42.87	**05700**

ModularClamp MSS – Boring bars GX / TC

▲ With internal coolant supply





Illustrations show right-hand versions

	Designation	DCONMS mm	DF mm	WF mm	H mm	OAL mm	LDRED mm	LS mm	for modules	Left-hand 70 861 ... £ 2C/71		Right-hand 70 860 ... £ 2C/71	
≤ 1,5xD	I16 R/L 90-1,5 D-N	20	25	1.0		32	24	50	I 16 R/L	139.74	017	139.74	017
	I20 R/L 90-1,5 D-N	20	25	1.0		37	30	50	I 20 R/L	171.24	021	171.24	021
	I25 R/L 90-1,5 D-N	25	32	1.5		46	38	56	I 25 R/L	196.26	026	196.26	026
	I32 R/L 90-1,5 D-N	32	40	2.0		59	48	60	I 32 R/L	253.05	033 1)	253.05	033 1)
	I40 R/L 90-1,5 D-N	40	50	2.5		72	60	70	I 40 R/L/N	315.58	041	315.58	041
≤ 2,5xD	I16 R/L 90-2,5 D-N	20		4.5	19.0	180	40		I 16 R/L	150.62	117	150.62	117
	I20 R/L 90-2,5 D-N	25		6.0	24.0	200	50		I 20 R/L	183.17	121	183.17	121
	I25 R/L 90-2,5 D-N	32		7.0	31.0	250	63		I 25 R/L	209.62	126	209.62	126
	I32 R/L 90-2,5 D-N	40		9.5	38.0	300	80		I 32 R/L	273.38	133 1)	273.38	133 1)
	I40 R/L 90-2,5 D-N	50		11.5	48.5	350	100		I 40 R/L/N	348.13	141	348.13	141

1) with 2 clamping surfaces

11


Key D


Clamping screw

Spare parts for modules		80 950 ... £ Y7			70 950 ... £ 2A/28	
I 16 R/L	T08	10.82	110	M2,5x10	6.77	440
I 20 R/L	T10	12.65	112	M3x11	7.01	444
I 25 R/L	T15	12.87	113	M3,5x12,5	8.56	441
I 32 R/L	T20	13.77	114	M4,5x17	7.79	445
I 40 R/L/N	T20	13.77	114	M5x18	5.46	404

Module Overview



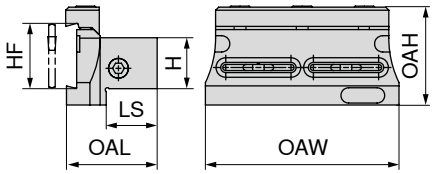
→ 6+7

Split clamping block for blades DC

Scope of supply:

Complete clamping block, but without blade







Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 829 ... £ 2A/25	
SBN 2020-26-DC	20	26	43.0	20	40.0	82	XLC.. 26..	228.13	**020**
SBN 2020-32-DC	20	32	43.0	20	40.0	95	XLC.. 32..	228.13	**120**
SBN 2525-32-DC	25	32	48.5	25	44.5	95	XLC.. 32..	235.29	**025**
SBN 3232-32-DC	32	32	52.0	32	51.0	95	XLC.. 32..	246.28	**032**



Coolant screw plug



Clamping rail



clamping screw

Spare parts for Article no.		70 950 ... £ 2A/28			70 950 ... £ 2A/28			70 950 ... £ 2A/28	
70 829 020	G 1/8"	3.40	**294**	CU70	30.83	**290**	M6x12	2.12	**861**
70 829 120	G 1/8"	3.40	**294**	CU85	30.83	**291**	M6x12	2.12	**861**
70 829 025	G 1/8"	3.40	**294**	CU85	30.83	**291**	M6x12	2.12	**861**
70 829 032	G 1/8"	3.40	**294**	CU85	30.83	**291**	M6x12	2.12	**861**



Key l



O-Ring



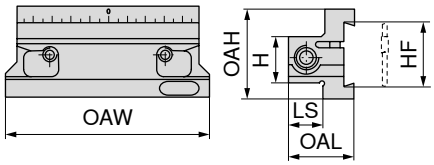
O-Ring

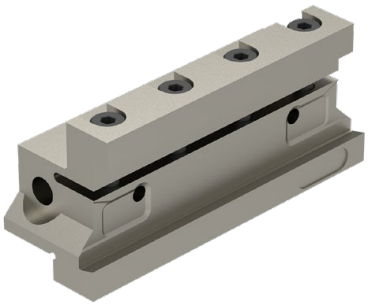
Spare parts for Article no.		70 950 ... £ 2A/28			70 950 ... £ 2A/28			70 950 ... £ 2A/28	
70 829 020	SW5	3.52	**265**	19x2,5	4.11	**293**			
70 829 120	SW5	3.52	**265**	19x2,5	4.11	**293**	23x2,5	4.11	**292**
70 829 025	SW5	3.52	**265**				23x2,5	4.11	**292**
70 829 032	SW5	3.52	**265**				23x2,5	4.11	**292**

Clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set





Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 830 ... £ 2A/25	
SBN 2020-26-K	20	26	39	20	33.0	90	XLC.. 26..	156.64	**020**
SBN 2520-32-K	25	32	48	20	36.0	110	XLC.. 32..	156.64	**025**
SBN 3229-32-K	32	32	48	29	44.5	120	XLC.. 32..	160.07	**032**
SBN 3229-46-K	32	46	70	29	52.0	150	XLC.. 46..	264.98	**132**
SBN 4037-46-K	40	46	70	37	60.0	150	XLC.. 46..	321.68	**140**


Key I


Cooling agent set


clamping screw

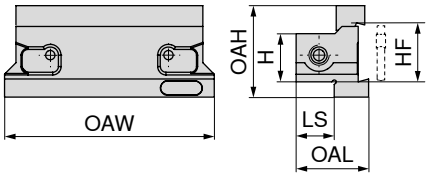
Spare parts for blades		70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
XLC.. 26..	SW5	3.52	**265**	39.89	**278**	M6x25	1.96	**269**
XLC.. 32..	SW5	3.52	**265**	39.89	**278**	M6x25	1.96	**269**
XLC.. 46..	SW6	4.94	**266**	38.85	**279**	M8x35	1.96	**282**

11

Split clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set





Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 831 ... £ 2A/25	
SBN 2020-26-KS	20	26	39	20	35.0	90	XLC.. 26..	190.33	**020**
SBN 2520-32-KS	25	32	48	20	38.0	110	XLC.. 32..	196.26	**025**
SBN 3229-32-KS	32	32	48	29	46.5	120	XLC.. 32..	203.61	**032**


Key I


Cooling agent set


clamping screw

Spare parts for blades		70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
XLC.. 26..	SW5	3.52	**265**	39.89	**278**	M6x25	1.96	**269**
XLC.. 32..	SW5	3.52	**265**	39.89	**278**	M6x25	1.96	**269**

Material examples for cutting data tables

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

*** Tensile strength**

11

Cutting data values for grooving inserts GX/LX/FX/SX/AX/TC/MaxiClick

	DRAGONSKIN CTCP325	DRAGONSKIN CTCP335	DRAGONSKIN CTPP345	DRAGONSKIN CTPP520	DRAGONSKIN CTPP535	DRAGONSKIN CTP1340	H216T (SX/FX/GX)	H216T (TC)
Index	v_c in m/min.							
P.1.1	**220**	**184**	**135**	**236**	**180**	**177**		
P.1.2	**194**	**160**	**119**	**204**	**152**	**149**		
P.1.3	**171**	**138**	**105**	**174**	**126**	**123**		
P.1.4	**163**	**131**	**100**	**165**	**118**	**115**		
P.1.5	**151**	**120**	**93**	**150**	**105**	**102**		
P.2.1	**198**	**164**	**122**	**209**	**157**	**153**		
P.2.2	**161**	**129**	**99**	**162**	**116**	**112**		
P.2.3	**151**	**120**	**93**	**150**	**105**	**102**		
P.2.4	**121**	**92**	**74**	**113**	**73**	**70**		
P.3.1	**149**	**127**	**101**	**185**	**119**	**112**		
P.3.2	**96**	**89**	**80**	**131**	**88**	**76**		
P.3.3	**44**	**51**	**59**	**76**	**58**	**39**		
P.4.1	**149**	**127**	**101**	**185**	**119**	**112**		
P.4.2	**123**	**108**	**90**	**158**	**103**	**94**		
M.1.1	149	127	**101**	**185**	**119**	**112**		
M.2.1	96	89	**80**	**131**	**88**	**76**		
M.3.1	133	116	**94**	**169**	**109**	**102**		
K.1.1	**170**	**135**		**140**	**165**	**150**	**140**	**140**
K.1.2	**150**	**115**		**115**	**150**	**125**	**115**	**115**
K.2.1	**160**	**130**		**180**	**145**	**140**	**150**	**150**
K.2.2	**145**	**105**		**115**	**155**	**120**	**110**	**110**
K.3.1	**210**	**150**		**130**	**190**	**170**	**170**	**170**
K.3.2	**140**	**115**		**110**	**145**	**120**	**140**	**140**
N.1.1						300	**400**	**450**
N.1.2						200	**100**	**450**
N.2.1						300	**450**	**300**
N.2.2						200	**450**	**300**
N.2.3						150	**500**	**225**
N.3.1						300	**425**	**190**
N.3.2						300	**400**	**290**
N.3.3						200	**275**	**290**
N.4.1						200	**225**	**290**
S.1.1	35			40	**30**	**35**	38	
S.1.2	30		30	30	**25**	**30**	28	
S.2.1	20		25	20	**15**	**20**	28	
S.2.2	15			15	**15**	**15**	24	
S.2.3	15			18	**15**	**15**	20	
S.3.1				125	**85**	**85**	90	
S.3.2				50	**35**	**40**	55	
S.3.3				35	**25**	**30**	40	
H.1.1				30				
H.1.2				25				
H.1.3								
H.1.4								
H.2.1				25				
H.3.1				40				
O.1.1						130	130	290
O.1.2								
O.2.1						105	105	290
O.2.2								
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data values for TX grooving inserts

	CWX500		
Index	v_c m/min.	f mm/rev.	Cooling
P.1.1	**160**	0,03–0,1	Emulsion
P.1.2	**140**	0,03–0,1	Emulsion
P.1.3	**110**	0,03–0,1	Emulsion
P.1.4	**110**	0,03–0,1	Emulsion
P.1.5	**90**	0,03–0,1	Emulsion
P.2.1	**110**	0,03–0,1	Emulsion
P.2.2	**90**	0,03–0,1	Emulsion
P.2.3	**90**	0,03–0,07	Emulsion
P.2.4	**80**	0,03–0,06	Emulsion
P.3.1	**80**	0,03–0,07	Emulsion
P.3.2	**60**	0,03–0,07	Emulsion
P.3.3	**50**	0,03–0,07	Emulsion
P.4.1	**100**	0,03–0,06	Emulsion
P.4.2	**90**	0,03–0,06	Emulsion
M.1.1	**110**	0,02–0,06	Emulsion
M.2.1	**90**	0,02–0,06	Emulsion
M.3.1	**70**	0,02–0,06	Emulsion
K.1.1	**140**	0,03–0,1	Emulsion
K.1.2	**100**	0,03–0,1	Emulsion
K.2.1	**90**	0,03–0,1	Emulsion
K.2.2	**80**	0,03–0,1	Emulsion
K.3.1	**140**	0,03–0,1	Emulsion
K.3.2	**120**	0,03–0,1	Emulsion
N.1.1	**330**	0,05–0,12	Emulsion
N.1.2	**310**	0,05–0,12	Emulsion
N.2.1	**270**	0,05–0,12	Emulsion
N.2.2	**230**	0,05–0,12	Emulsion
N.2.3	**140**	0,05–0,12	Emulsion
N.3.1	**240**	0,05–0,12	Emulsion
N.3.2	**200**	0,05–0,12	Emulsion
N.3.3	**180**	0,05–0,12	Emulsion
N.4.1	**180**	0,05–0,12	Emulsion
S.1.1	**60**	0,02–0,07	Emulsion
S.1.2	**50**	0,02–0,08	Emulsion
S.2.1	**60**	0,02–0,09	Emulsion
S.2.2	**50**	0,02–0,10	Emulsion
S.2.3	**40**	0,02–0,11	Emulsion
S.3.1	**60**	0,02–0,12	Emulsion
S.3.2	**40**	0,02–0,13	Emulsion
S.3.3	**30**	0,02–0,14	Emulsion
H.1.1	50	0,01–0,07	Emulsion
H.1.2			
H.1.3			
H.1.4			
H.2.1			
H.3.1			
O.1.1	**180**	0,05–0,12	Emulsion
O.1.2	**180**	0,05–0,12	Emulsion
O.2.1	**150**	0,05–0,12	Emulsion
O.2.2	**110**	0,05–0,12	Emulsion
O.3.1	**170**	0.03–0,1	Emulsion

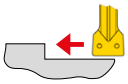
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

11

GX – Depths of cut and feed rates

GX Standard / GX-E

Turning



Parting / Grooving

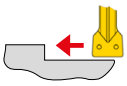


	Depth of Cut a_p in mm							
GX Standard / GX-E	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**GX Standard / GX-E**
Cutting width in mm	Feed rate f in mm/rev.							Feed rate f in mm/rev.
2	0,10–0,15	0,05–0,15	0,05–0,12	0,05–0,10				0,05–0,20
3	0,10–0,17	0,05–0,17	0,05–0,17	0,05–0,15	0,05–0,12			0,10–0,25
4	0,10–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,17	0,07–0,15		0,10–0,25
5	0,10–0,25	0,10–0,25	0,07–0,25	0,07–0,25	0,07–0,22	0,07–0,20		0,10–0,30
6	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,25	0,15–0,22	0,15–0,35

When axial grooving reduce feed by 40%.

GX-F2

Turning



Parting / Grooving

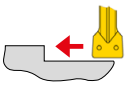


	Depth of Cut a_p in mm								
GX-F2	**0,50**	**0,75**	**1,00**	**1,25**	**1,50**	**1,75**	**2,00**	**2,25**	**2,50**	**GX-F2**
Cutting width in mm	Feed rate f in mm/rev.									Feed rate f in mm/rev.
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10						0,05–0,15
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12				0,075–0,20
4	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,17	0,05–0,15			0,10–0,25
5	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,17	0,07–0,15		0,10–0,30
6	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,19	0,10–0,15	0,15–0,325

When axial grooving reduce feed by 40%.

GX-M40

Turning



Parting / Grooving

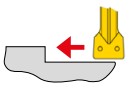


	Depth of Cut a_p in mm								
GX-M40	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**	**GX-M40**
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,10–0,20	0,05–0,20	0,05–0,17	0,05–0,15					0,05–0,15
3	0,10–0,22	0,10–0,22	0,10–0,21	0,10–0,20	0,10–0,17				0,075–0,20
4	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,22	0,10–0,17			0,10–0,25
5	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,27	0,10–0,23	0,10–0,20		0,10–0,30
6	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,32	0,10–0,27	0,10–0,23	0,10–0,20	0,15–0,325

When axial grooving reduce feed by 40%.

GX-27P

Turning



Parting / Grooving



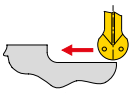
	Depth of Cut a_p in mm								
GX-27P	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**	**GX-27P**
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20					0,05–0,20
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20				0,05–0,25
4	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,25			0,05–0,30
5	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,32	0,10–0,30		0,10–0,35
6	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,36	0,10–0,33	0,10–0,30	0,10–0,40

When axial grooving reduce feed by 40%.

GX – Depths of cut and feed rates

GX-M3

Turning



Parting / Grooving

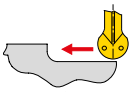


	Depth of Cut a_p in mm							
GX–M3	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius RE in mm	Feed rate f in mm/rev.							
1,5	0,15–0,35	0,15–0,35	0,15–0,30					
2	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30				
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35			
3	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40		

GX–M3
Feed rate f in mm/rev.
0,05–0,20
0,10–0,25
0,10–0,25
0,10–0,35

GX-27P Full Radius

Turning



Parting / Grooving



	Depth of Cut a_p in mm							
GX-27P Full Radius	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius RE in mm	Feed rate f in mm/rev.							
1,5	0,10–0,45	0,05–0,45	0,05–0,40					
2	0,15–0,50	0,10–0,50	0,10–0,50	0,10–0,40				
2,5	0,15–0,60	0,10–0,60	0,10–0,60	0,10–0,50	0,10–0,45			
3	0,25–0,70	0,20–0,70	0,15–0,70	0,15–0,70	0,15–0,65	0,15–0,60	0,15–0,55	
4	0,25–0,80	0,20–0,80	0,15–0,80	0,15–0,80	0,15–0,80	0,15–0,80	0,15–0,75	0,15–0,70

GX-27P Full Radius
Feed rate f in mm/rev.
0,05–0,15
0,075–0,20
0,10–0,25
0,10–0,30
0,15–0,35

GX-M1

Parting / Grooving



GX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2	0,05–0,15
3	0,10–0,20
4	0,10–0,25

GX Radius grooving inserts

Parting / Grooving



GX Radius grooving insert	
Radius RE in mm	Feed rate f in mm/rev.
0,80	0,05–0,10
1,00	0,05–0,15
1,20	0,05–0,15

GX circlip grooving

Grooving

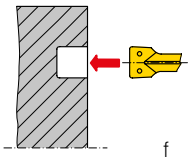
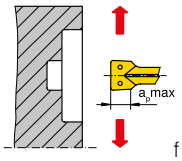


GX circlip grooves	
Cutting width in mm	Feed rate f in mm/rev.
0,60–1,70	0,02–0,09
1,95–2,25	0,05–0,10
2,75–3,25	0,05–0,12

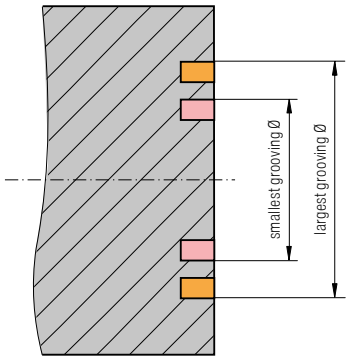
Feed guide and machining instructions for axial grooving and face turning with GX 24 axial

Approximate feed rates

GX

Designation	 f in mm/rev.	 f in mm/rev.	$a_p$max mm
GX 24-2 E 3.00 ..	0,05–0,15	0,05–0,20	2,5
GX 24-3 E 4.00 ..	0,05–0,15	0,05–0,25	3,0
GX 24-3 E 5.00 ..	0,05–0,15	0,10–0,25	3,0
GX 24-4 E 6.00 ..	0,05–0,20	0,10–0,30	3,5

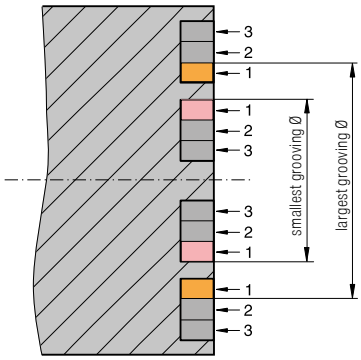
Axial grooving



It is only possible to plunge within the fixed diameter range of the axial grooving module or monoholder (e.g. 50 - 70 mm).

Important: The indicated diameter range is always valid for the external diameter of the groove!

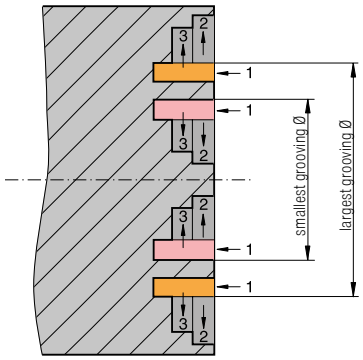
Axial grooving – Groove widening



In case of face turning it is possible to widen the groove above and below the diameter range indicated on the Axial grooving module or monoholder.

Important: Only the first groove must lie within the diameter range of the axial grooving module or axial monoholder. The depth of the widening groove must not be larger than the depth of the original groove.

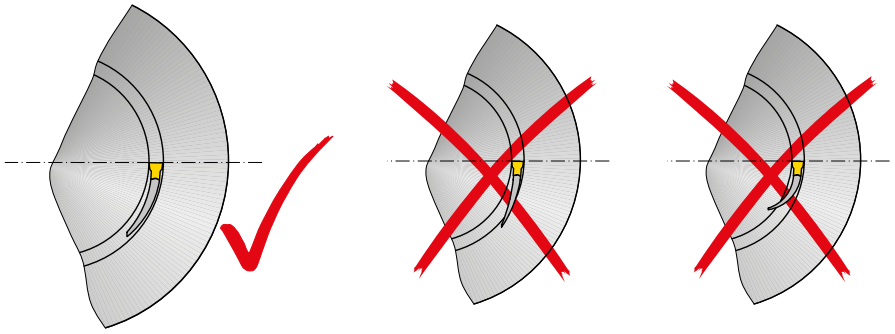
Axial grooving and face turning



Groove widening by face turning in the diameter range above and below the values specified for the Axial grooving module and Axial monoholder are possible.

Important: Only the first groove must lie within the diameter range of the module.

Attention: The diameter of face grooves must lie within the diameter range indicated on the axial grooving module and axial monoholder. Not following this range will result in the tool being damaged or destroyed.



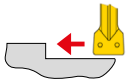
Correct Axial mono holder

Incorrect Axial mono holder

MaxiClick – Depths of cut and feed rates

MaxiClick 05

Turning



	Depth of Cut a_p in mm		
MaxiClick 05	**0,25**	**0,50**	**0,75**
Cutting width in mm	Feed rate f in mm/rev.		
1	0,02–0,15	0,02–0,10	
1,5	0,02–0,20	0,02–0,20	0,02–0,14

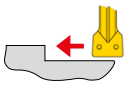
Parting / Grooving



MaxiClick 05
Feed rate f in mm/rev.
0,03–0,10
0,03–0,11

MaxiClick 10

Turning



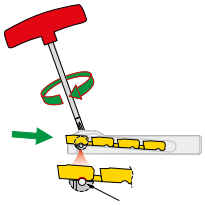
	Depth of Cut a_p in mm				
MaxiClick 10	**0,50**	**0,75**	**1,00**	**1,25**	**1,50**
Cutting width in mm	Feed rate f in mm/rev.				
1,5	0,02–0,20	0,02–0,15	0,02–0,10		
2	0,02–0,20	0,02–0,20	0,02–0,14	0,02–0,10	
2,5	0,02–0,20	0,02–0,20	0,02–0,17	0,02–0,13	0,02–0,10

Parting / Grooving

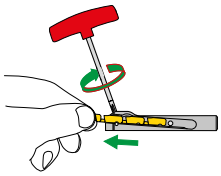


MaxiClick 10
Feed rate f in mm/rev.
0,03–0,11
0,03–0,12
0,03–0,15

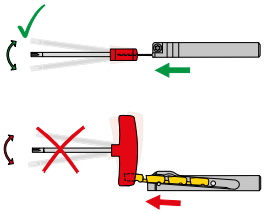
MaxiClick – System function



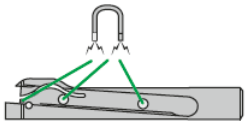
Correct insert location in the seat



Withdraw cutting insert



Worn-out cutting edge is broken off towards the left or right side



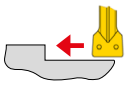
Magnets prevent the cutting insert from falling out of the tool holder during positioning

11

SX – Depths of cut and feed rates

SX-F2

Turning



Parting / Grooving

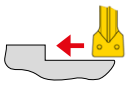


	Depth of Cut a_p in mm								
SX -F2	**0,50**	**0,75**	**1,00**	**1,25**	**1,50**	**1,75**	**2,00**	**2,25**	**2,50**
Cutting width in mm	Feed rate f in mm/rev.								
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10					
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12			
4	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,17	0,05–0,15		

SX -F2
Feed rate f in mm/rev.
0,05–0,15
0,075–0,20
0,10–0,25

SX-M2

Turning



Parting / Grooving

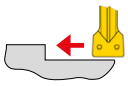


	Depth of Cut a_p in mm							
SX–M2	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Cutting width in mm	Feed rate f in mm/rev.							
2	0,05–0,17	0,05–0,13	0,05–0,10					
3	0,07–0,20	0,07–0,20	0,07–0,18	0,07–0,15				
4	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,22	0,10–0,18			
5	0,12–0,27	0,12–0,27	0,12–0,27	0,12–0,25	0,12–0,22			
6	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,25	0,15–0,20		

SX–M2
Feed rate f in mm/rev.
0,05–0,15
0,075–0,20
0,10–0,25
0,10–0,30
0,15–0,35

SX-27P

Turning



Parting / Grooving



	Depth of Cut a_p in mm							
SX-27P	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Cutting width in mm	Feed rate f in mm/rev.							
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20				
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20			
4	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,25		

SX-27P
Feed rate f in mm/rev.
0,05–0,20
0,05–0,25
0,05–0,30

SX/LX – Depths of cut and feed rates

SX-M1

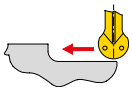
Parting / Grooving



SX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2	0,05–0,15
3	0,10–0,20
4	0,10–0,25
5	0,15–0,30
6	0,15–0,35

SX-M3

Turning



Parting / Grooving

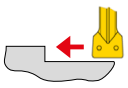


	Depth of Cut a_p in mm							
SX–M3	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius in mm	Feed rate f in mm/rev.							
1,5	0,15–0,35	0,15–0,35	0,15–0,30					
2	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30				
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35			
3	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40		

SX–M3
Feed rate f in mm/rev.
0,05–0,20
0,10–0,25
0,10–0,25
0,10–0,35

LX-M2

Turning



Parting / Grooving

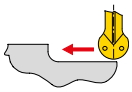


	Depth of Cut a_p in mm							
LX–M2	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Cutting width in mm	Feed rate f in mm/rev.							
8	0,17–0,45	0,17–0,45	0,17–0,45	0,17–0,45	0,17–0,40	0,17–0,37	0,17–0,35	
10	0,20–0,50	0,20–0,50	0,20–0,50	0,20–0,50	0,20–0,46	0,20–0,42	0,20–0,38	0,20–0,35

LX–M2
Feed rate f in mm/rev.
0,20–0,50
0,20–0,50

LX-M3

Turning



Parting / Grooving



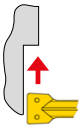
	Depth of Cut a_p in mm							
LX–M3	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius in mm	Feed rate f in mm/rev.							
4	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,70	0,25–0,60	0,25–0,50

LX–M3
Feed rate f in mm/rev.
0,15–0,35

AX/FX – Depths of cut and feed rates

AX-F50

Face turning



	Depth of Cut a_p in mm			
AX-F50	**0,5**	**1,0**	**1,5**	**2,3**
Size	Feed rate f in mm/rev.			
AX 05	0,03–0,10	0,03–0,10		
AX 10	0,03–0,13	0,03–0,13	0,03–0,135	
AX 15	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,15

Axial grooving



1. Plunging	
Feed rate f in mm/rev.	Feed rate f in mm/rev.
0,025–0,080	0,025–0,20
0,025–0,065	0,05–0,25
0,025–0,050	0,05–0,30

FX-F1

Parting / Grooving



FX-F1	
Cutting width in mm	Feed rate f in mm/rev.
2,2	0,025–0,10
3,1	0,05–0,15
4,1	0,05–0,20

FX-M1

Parting / Grooving



FX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2,20	0,05–0,15
3,10	0,08–0,18
4,10	0,10–0,20
5,10	0,15–0,28
6,50	0,15–0,33
8,20	0,20–0,40
9,70	0,20–0,40

FX-27P

Parting / Grooving



FX-27P	
Cutting width in mm	Feed rate f in mm/rev.
2,20	0,01–0,10
3,10	0,015–0,125
4,10	0,05–0,15

FX-R2

Grooving



FX-R2	
Cutting width in mm	Feed rate f in mm/rev.
3,10	0,10–0,275
4,10	0,15–0,35

TC – Reference values for profile depth and number of passes

All listed values are guide values for steel machining

Metric ISO 60° external thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	4–8	5–9	6–10	7–11	8–12	9–14	10–18	10–18	12–20	12–20	12–20
Thread profile depth in mm	0,32	0,48	0,64	0,8	0,95	1,10	1,26	1,58	1,89	2,21	2,53	2,84	3,16

Metric ISO 60° internal thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	4–8	5–9	6–10	7–11	8–12	9–14	10–18	10–18	12–20	12–20	12–20
Thread profile depth in mm	0,30	0,45	0,59	0,74	0,89	1,02	1,17	1,46	1,76	2,02	2,35	2,64	2,93

Whitworth 55° external and internal thread

TPI	28	26	24	20	19	18	16	14	12	11	10	9	8	7	6	5
Number/cuts	5–8	5–8	5–9	5–9	6–10	6–10	7–11	8–12	9–14	9–14	10–17	10–18	10–18	12–20	12–20	12–20
Thread profile depth in mm	0,60	0,65	0,70	0,84	0,88	0,93	1,05	1,20	1,40	1,53	1,68	1,87	2,11	2,41	2,81	3,37

Partial profile 60° external and internal thread

External	TC 16-2EI-AG60																
	TC 16-1EI-A60									TC 16-2EI-G60				TC 16-3EI-N60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	5–9	6–10	7–11	8–12	9–14	10–15	12–19	8–12	9–14	10–15	12–20	12–20	13–21	14–22	14–22
Thread profile depth in mm	0,33	0,52	0,71	0,90	1,09	1,28	1,47	1,84	2,22	1,23	1,42	1,79	2,17	2,45	2,83	3,21	3,59

Internal	TC 16-2EI-AG60																
	TC 16-1EI-A60									TC 16-2EI-G60				TC 16-3EI-N60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	5–9	6–10	7–11	8–12	9–14	10–15	12–19	8–12	9–14	10–15	12–20	12–20	13–21	14–22	14–22
Thread profile depth in mm	0,27	0,44	0,60	0,76	0,92	1,09	1,25	1,57	1,90	1,04	1,20	1,52	1,85	2,07	2,40	2,72	3,05

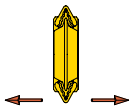
Partial profile 55° external and internal thread

External	TC 16-2EI-AG55												
	TC 16-1EI-A55												
TPI	28	26	24	20	19	18	16	14	12	11	10	9	8
Number/cuts	5–8	5–8	6–9	6–9	7–12	7–12	8–14	9–14	10–16	10–16	11–18	12–20	12–20
Thread profile depth in mm	0,66	0,72	0,79	0,95	1,01	1,07	1,21	1,39	1,63	1,79	1,97	2,20	2,48

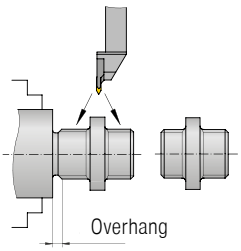
Internal	TC 16-2EI-G55						TC 16-3EI-N55		
TPI	14	12	11	10	9	8	7	6	5
Number/cuts	8–12	9–14	10–15	11–18	12–20	12–20	12–20	12–20	14–22
Thread profile depth in mm	1,22	1,46	1,56	1,80	2,03	2,31	2,40	2,89	3,56

Comparison threading system with TC and conventional

TC

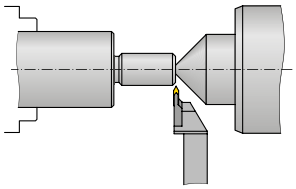


- Neutral configuration of insert makes operation in both directions possible
- Only one threading insert per pitch for partial profile and Whitworth thread; only two threading inserts (internal – external) per pitch for ISO threads
- Reduced stock holding
- good chip formation due to chip breaker with rake angle + 10 °

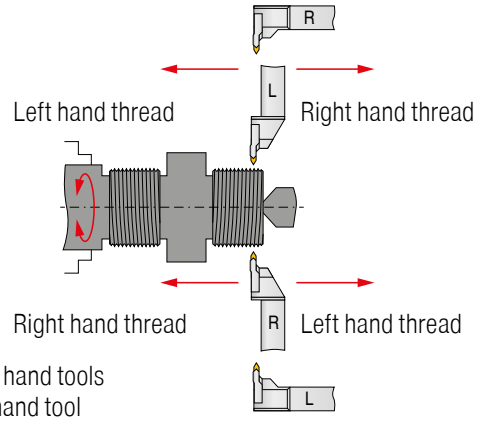


Greater efficiency through:

- shorter operating time
- Less tool changing
- High stability wih small overhang
- Material saving
- Thread turning between shoulders
- Fewer tools and indexable inserts



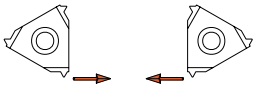
- Very good access to workpiece, therefore use of tailstock also possible with small thread diameters



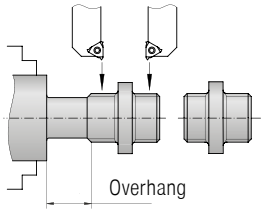
R = Right hand tools
L = Left hand tool

- ease of use, as the tools have no pitch angle correction they can be used in both directions

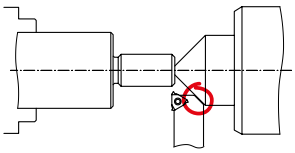
Conventional



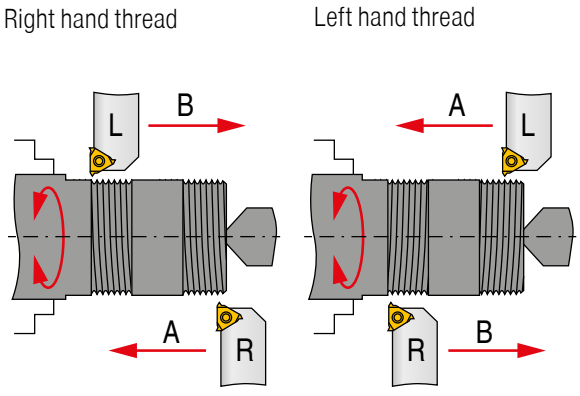
- Right-hand and left-hand version of indexable insert, therefore operation only in one direction
- For every pitch 4 threading inserts are necessary (right – left, internal – external)



- For this machining method 2 tools are required
- additional material and stability loss with large overhang



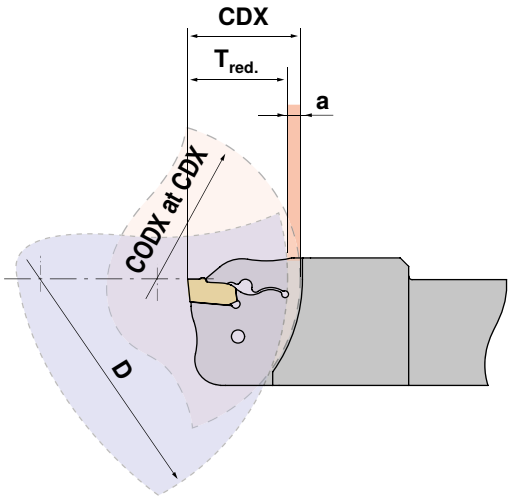
- poor accessibility
- Collision danger



- With conventional thread turning the correction of the helix angle is necessary, therefore a high degree of application know-how is required
- Can only be operated in one direction

ModularClamp

GX SX LX FX



The ModularClamp grooving modules are matched according to size on a particular workpiece diameter CODX. If the diameter of the workpiece is greater than CODX of the grooving Modules, this reduces the achievable penetration depth by the dimension „a“. The extent of reduction can be determined with the following table.

CDX maximum plunge depth in mm
CODX maximum workpiece Ø with full penetration depth in mm
a Reduction amount in mm

$T_{red.}$ = CDX – a

Grooving depth reduction

	Reduction a (mm) of the maximum grooving depth (CDX)																
Size		0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	6,5	7,0	7,5	8,0
E12	35	40	45	60	75	115	>250										
E16	50	55	60	70	80	100	130	200	>420								
E20	60	65	70	75	85	95	110	130	165	220	>330						
E25	75	80	85	90	100	110	125	140	160	190	240	320	>500				
E32	95	100	105	110	120	125	135	145	160	180	200	225	270	320	400	530	>800
	Workpiece diameter D (mm)																

Maximum workpiece diameter (CODX) with full penetration depth (CDX) in mm

Calculation example:

E25R**21**-GX24-3

Size 25

CDX = 21 mm, Ø 75 mm

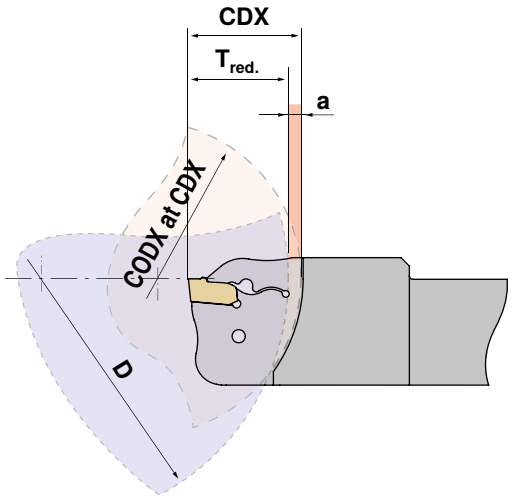
D = Ø 100 mm

CDX - a = $T_{red.}$
21 - 2 = 19 mm

11

MonoClamp

SX



Depending on the groove width and shank size, the MonoClamp tools are designed for use with a specific workpiece diameter CODX. If the workpiece diameter is larger than the CODX of the grooving module, the achievable groove depth is reduced by the dimension „a“. The extent of the reduction is determined using the following table.

CDX maximum plunge depth in mm
CODX maximum workpiece Ø with full penetration depth in mm
a Reduction amount in mm

$T_{red.} = CDX - a$

Grooving depth reduction

	Reduction a (mm) of the maximum grooving depth (CDX)																
Shank	0	0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8
E12R/L0022...	44	70	80	95	115	150	225	>450									
E16R/L0026...	52	90	105	125	155	210	305	>600									
E20R/L0026...	52	110	125	140	160	195	240	320	475	>950							
E20R/L0033...	66	110	125	140	160	195	240	320	475	>950							
E25R/L0026...	52	140	160	190	235	310	465	>930									
E25R/L0033...	66	155	175	200	230	275	340	450	675	>1350							
E25R/L0040...	80	155	175	200	230	275	340	450	675	>1350							
	Workpiece diameter D (mm)																

Maximum workpiece diameter (CODX) with full penetration depth (CDX) in mm

Calculation example:

E25R0033...

CDX = 33 mm, Ø 66 mm

D = Ø 200 mm

CDX - a = $T_{red.}$
33 - 1,5 = 31,5 mm

Clamping Method – SX-System

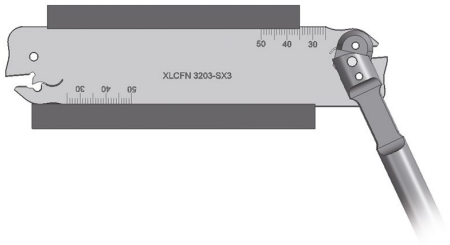
System function – inserting and removing the cutting inserts

Precision system for internal and external grooving.

The key has been designed in such a way that it will not stress the material beyond its 'elastic limit'.

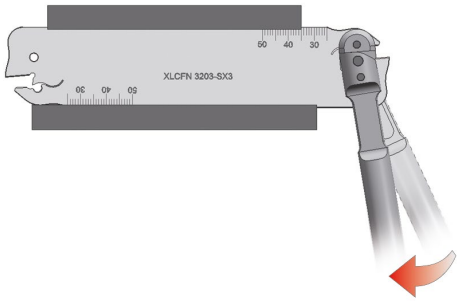
With this alternate system the material always remains in its flexible range and provides a substantial increase in tool life.

1



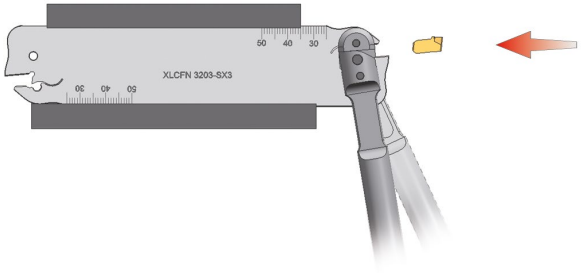
Locate wrench into blade with pins located in two holes

2



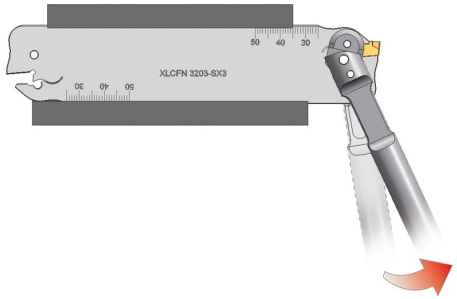
Movement of the fitting key in the direction of the insert seat opens the tool.

3



Load the grooving insert into position and press against the seat.

4

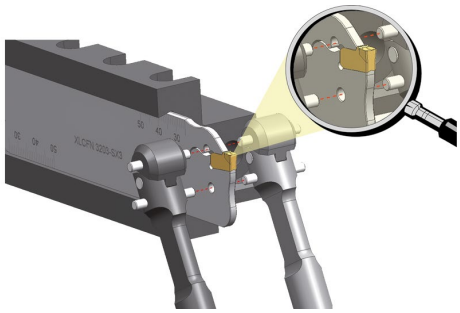


Moving the key forward causes the insert seat to close and clamp the insert.

11

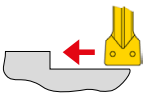
When changing the inserts, always maintain tension on the key!

The clamp is designed so that the wrench can be inserted from both sides of the blade according to the accessibility.



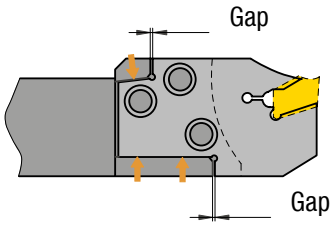
Maximum blade projection when turning

Blade	max. overhang
SX 2 – SX 3	25 mm
SX 4 – SX 5	30 mm
SX 6	35 mm



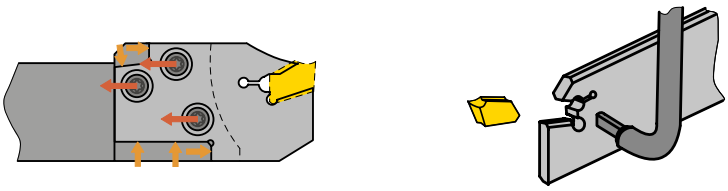
Clamping function – ModularClamp-Module

Module unclamped



- Gap between module and support face for axial clamping

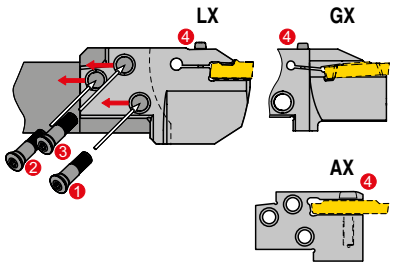
Module clamped



- Axial clamping with support face
- Connection free from play, therefore maximum stability

GX LX AX

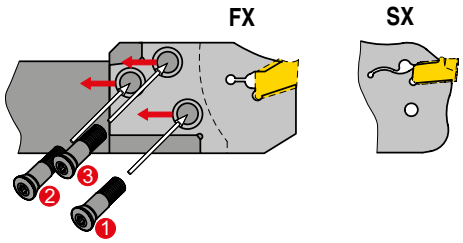
Active insert clamping



Clamping screws 1, 2 and 3 are used to clamp the modules.
The insert is clamped in the module via the additional screw 4.

FX SX

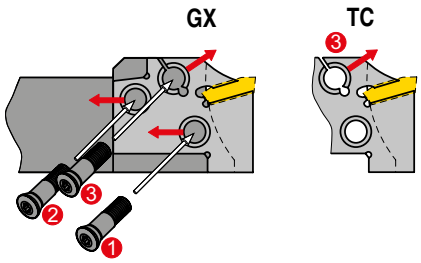
Self clamping of the insert



Clamping screws 1, 2 and 3 are used for clamping the module.
The insert is self-clamping.

GX TC

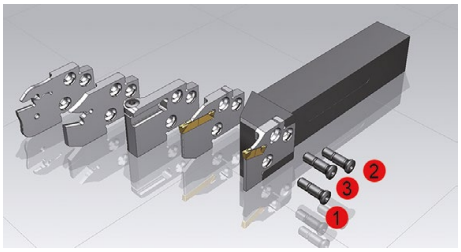
Active insert clamping



Clamping screws 1 and 2 are used for clamping the module.
Important: first tighten clamp screws 1 and 2.
Then clamp the insert with screw 3.

Torque Moment ModularClamp Module Screws

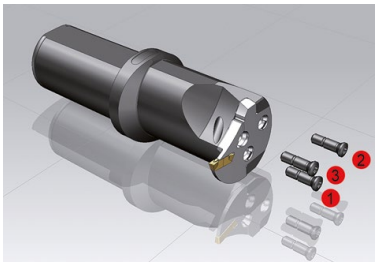
ModularClamp – Tool holder



Tighten screws to the correct Torque moment in this order.

ModularClamp – Tool holder	Screw	Torx	Torque moment	
			Nm	in.lbs
E12..	M2,5x10	T08	1,2	10,6
E16..	M3,5x12,5	T15	3,2	28,3
E20..	M4x14	T15	4,0	35,4
E25..	M5x18	T20	5,0	44,3
E32..	M6x20	T25	6,0	53,1

ModularClamp – Boring bar



Tighten screws to the correct Torque moment in this order.

ModularClamp – Boring bar	Screw	Torx	Torque moment	
			Nm	in.lbs
I16..	M2,5x10	T08	1,2	10,6
I20..	M3x11	T10	2,0	17,7
I25..	M3,5x12,5	T15	3,2	28,3
I32..	M4,5x17	T20	4,0	35,4
I40..	M5x18	T20	5,0	44,3

11

Tightening torque for the insert clamping

Recommended tightening torque

Grooving systems	Screw	Torx	Torque moment	
			Nm	in.lbs
GX / AX / LX	M3,5	T15	3,2	28,3
	M4,0	T15/T20	4,0	35,4
	M5,0	T20	5,0	44,3

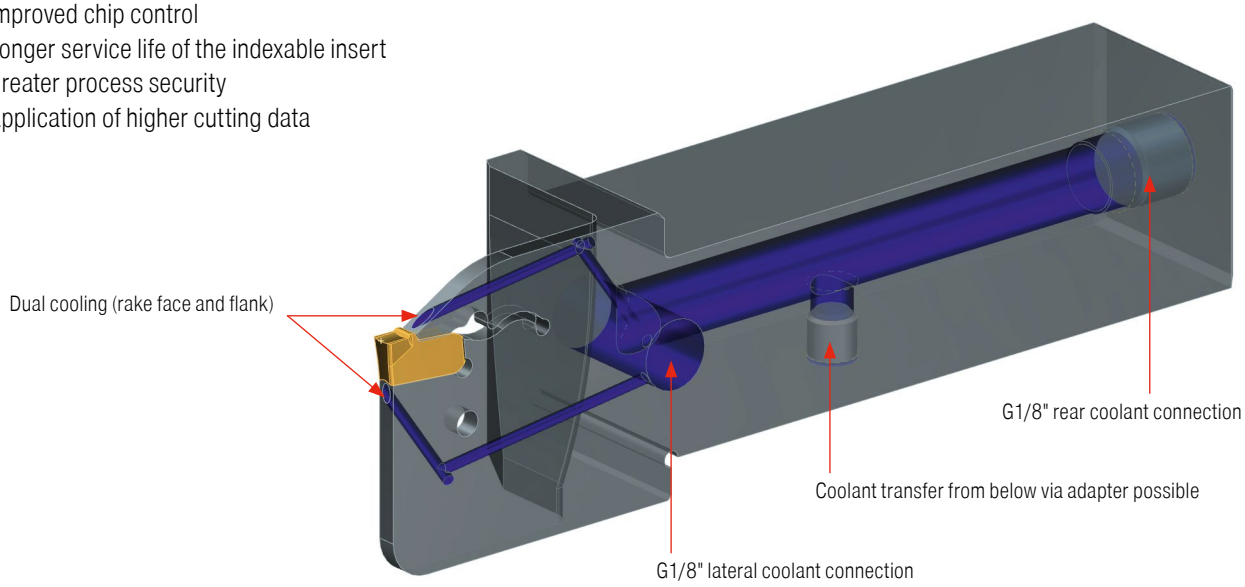
Advantages due to DirectCooling

Internal coolant supply with groove machining has a decisively positive effect on your turning process.
In our CERATIZIT grooving range, the following grooving systems have an internal coolant supply:

- **SX** Grooving holder (single tool)

Advantages due to DirectCooling

- Improved chip control
- Longer service life of the indexable insert
- Greater process security
- Application of higher cutting data



Advantages of the trochoidal turning strategy

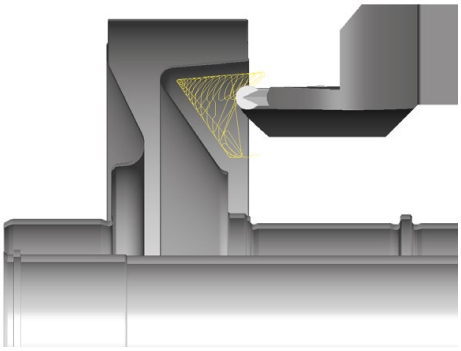
- Less wear and longer tool life due to softer entry and exit
- Smaller angle of engagement = less vibration
- Up to 40% higher feed rate values possible
- Broad field of application in austenitic steels, heat-resistant steels, Inconel and nickel-base alloys as well as long-chipping ductile materials
- Savings on tools

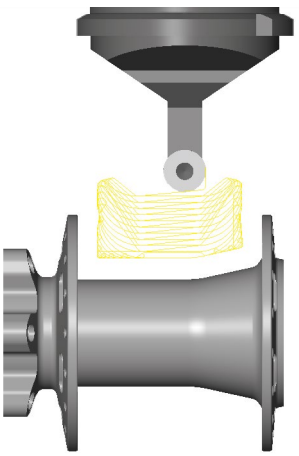
Trochoidal turning with support of the following CAM systems:

- hyperMill – High-performance turning
- Esprit CAM – ProfitTurning
- SolidCAM – Turning
- EdgeCAM – Waveform turning
- MasterCAM – Dynamic turning

Possible applications

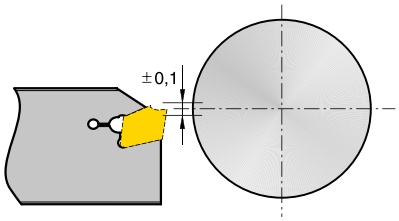
- Radial and axial recesses and grooves
- Rough machining – high-speed turning with button insert

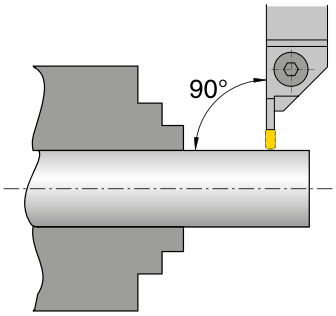




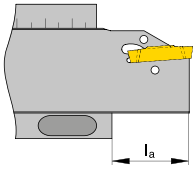
General references

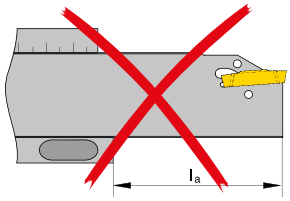
Tool position

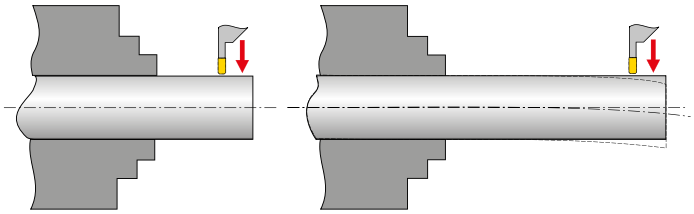




Tool overhang

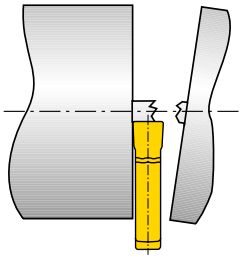




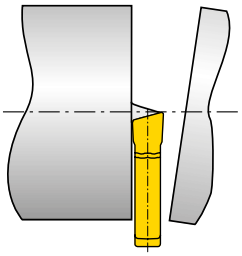


As a rule of thumb: Overhang l_a should not be greater than 8 x s (Groove width).

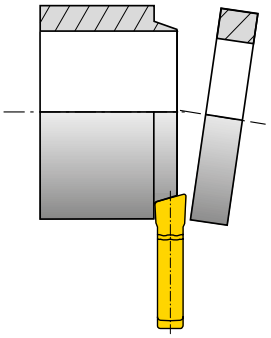
References for Parting off



From Ø 5 mm on, reduce feed “f“ by approx. 50%. No parting across centre (risk of breakage).

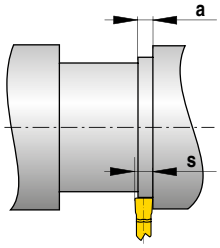


For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20–50 %.

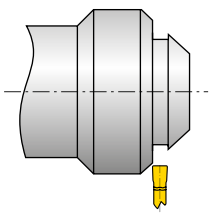


In order to prevent ring formation, use R or L inserts. Reduce feed “f“ because of lateral deflection by approx. 20 % – 50%.

References for grooving



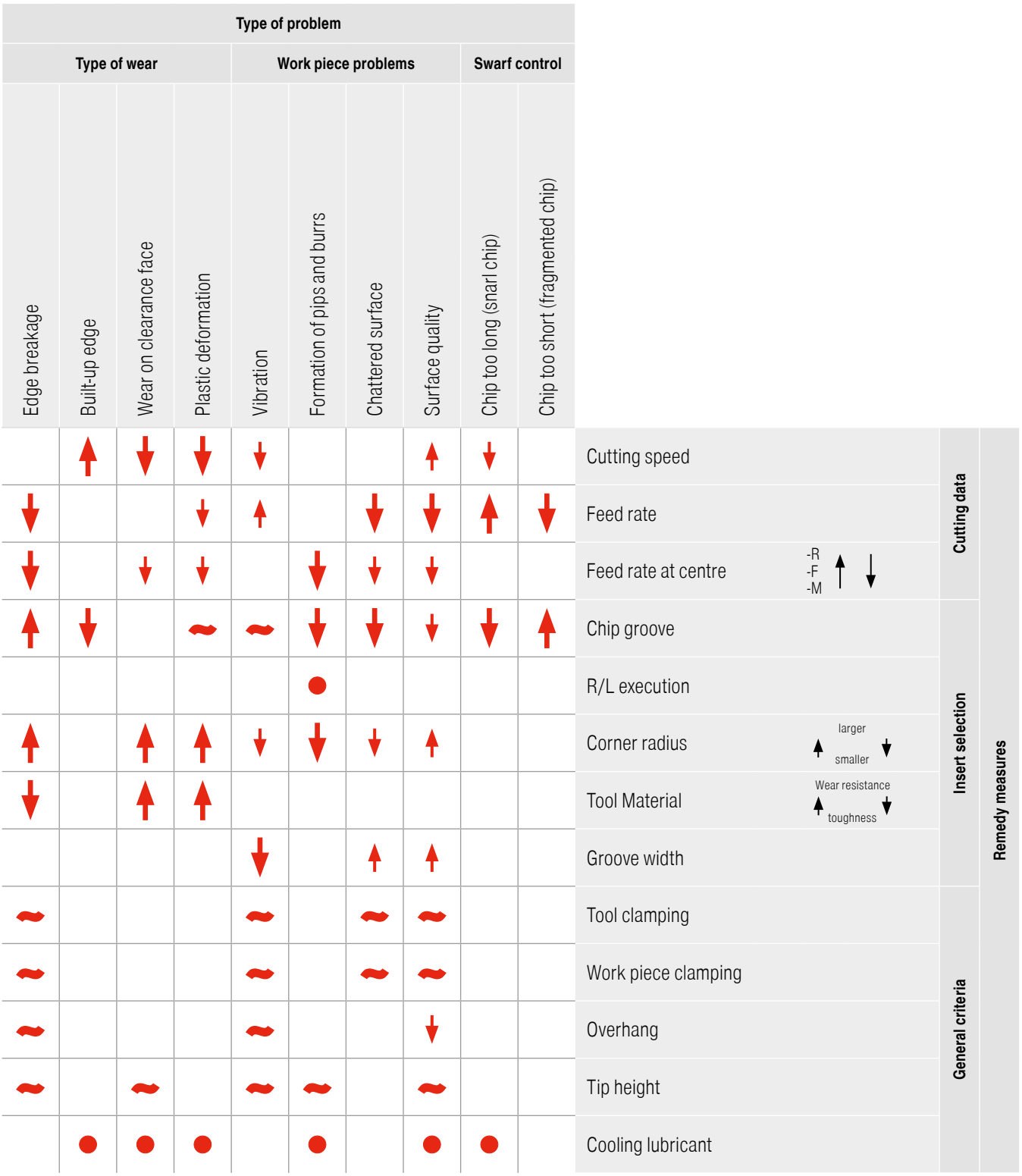
When grooving with an axial displacement the width **„a“** should amount to at least 70 % of the grooving width **„s“**.



When grooving oblique surfaces the feed should be reduced by approx. 20% - 50 % until fully engaged.

11

Trouble shooting guide for grooving FX/SX/GX/LX



raise, increase large influence

raise, increase small influence

avoid, reduce large influence

avoid, reduce small influence

check, optimise

use

Trouble shooting guide for TC threading

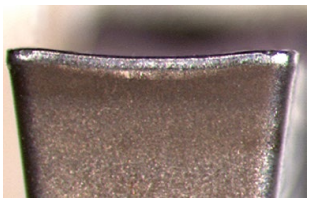
Type of problem												
Type of wear				Workpiece				Swarf control				
Wear on clearance face	Break out cut	Plastic deformation	Built-up edge	Formation of a shoulder at the external thread Ø	Profile	Surface quality	Chatter marks, vibrations	Chip too thick	Chip too thin	Chip shape (snarl chip)		
↓		↓	↑			↑	↓				Cutting speed	Cutting data
a, b	a, b		a, b	a, b		a, b	a, b	a, b		a, b	Feed (a – over the flanks; b – Alternating flanks)	Cutting data
↑	↓	↓		↓	↓	↓	↓	↓	↑	~	Feed (Cutting depth)	Cutting data
↓	↑	↑		~	~	↑	~	↑	↓	↓	Number of passes	Cutting data
				●	●	●					Spring cut (Air cut)	Cutting data
			●			●	●			●	Chip groove	Indexable insert selection
↑	↓	↑									Tool Material (Wear resistance ↑ / toughness ↓)	Indexable insert selection
				●	●	●					Full profile	Indexable insert selection
											Partial profile	Indexable insert selection
	~					~	~				Stable tool holder / insert	Various criteria
	~					~	~				Stable workpiece	Various criteria
	↓					↓	↓				Overhang	Various criteria
~	~	~			~	~	~				Tip height	Various criteria
●	●	●	●	●		●					Cooling lubricant	Various criteria

Remedy measures

↑ raise, increase large influence
↑ raise, increase small influence
↓ avoid, reduce large influence
↓ avoid, reduce small influence
~ check, optimise
● use

Wear causes

Wear on clearance face



Abrasion on the flank, normal wear after a given operation time

Cause

- cutting speed too high
- grade with too low wear resistance
- insufficient coolant

Remedy

- Reduce the cutting speed
- select a more wear resistant grade
- Improve/check coolant feed

Edge chipping



Excessive mechanical stress on the cutting edge causing carbide particles to break out.

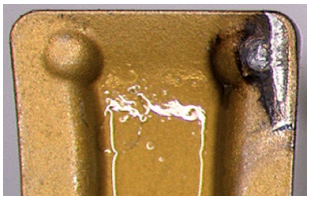
Cause

- too hard grade
- vibration
- too high feed and depth of cut
- chip impact

Remedy

- use tougher grade
- use negative geometry with chip breaker
- reduce overhang, check center height
- stabilize the cutting edge

Cratering



The outgoing hot chip causes cratering of the insert on the clamping surface.

Cause

- too high cutting speed, feed, or both
- too low rake angle
- grade with too low wear resistance
- incorrectly supplied cooling

Remedy

- Reduce cutting speed and / or feed
- Check coolant flow and / or increase pressure
- Use harder grade

Plastic deformation



Large mechanical load produces high temperature machining, this can lead to plastic deformation.

Cause

- too high operating temperature, thus softening the base material
- unsuitable grade
- inadequate coolant supply

Remedy

- Reduce the cutting speed
- select a more wear resistant grade
- use coolant

Built-up edge



Weld deposits of material on the cutting edge occurs when the chip does not flow caused by low average temperature.

Cause

- too low cutting speed
- too low rake angle
- Incorrect grade
- lack of cooling / lubrication

Remedy

- Increase the cutting speed
- Increase rake angle
- Use TiN coating
- increase coolant strength

Notch wear



Contraction at maximum cutting depth.

Cause

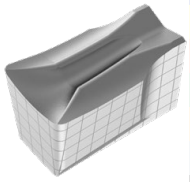
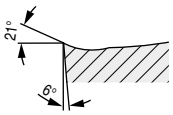
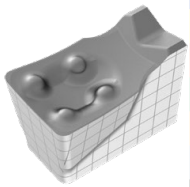
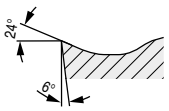
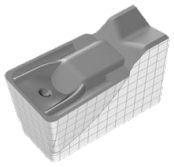
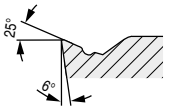
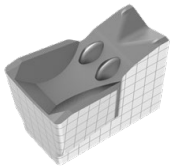
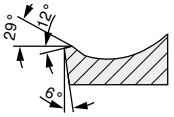
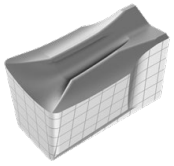
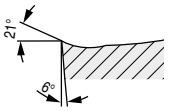
- Oxidation at the cutting edge
- Too high a temperature at the edge

Remedy

- Use different cutting depths
- Reduce cutting speed
- Improve/check coolant feed

Chip breakers / Applications

System GX

		smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTPP345 		0,05–0,15
-Standard / -E ▲ positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ universal application ▲ first choice for axial grooving		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340/CTPP345** **CTCP335/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,05–0,17
-M40 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,075–0,20
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,1–0,20
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		0,05–0,25

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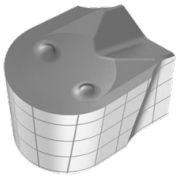
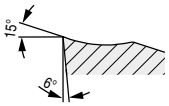
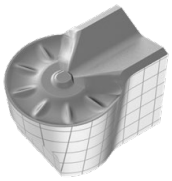
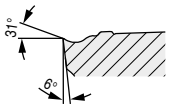
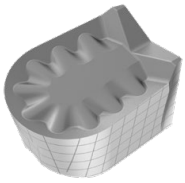
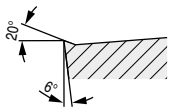
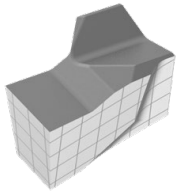
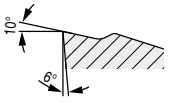
Chip breakers / Applications

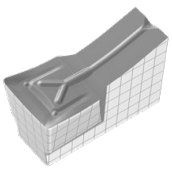
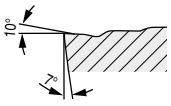
System GX

		smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
Standard – Radius ▲ positive geometry ▲ honed cutting edge ▲ low-medium feed rates ▲ low cutting forces ▲ Radius grooving/copy turning		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 		0,05–0,20
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		**CTCP325** CTCP335 **CTCP325** CTCP325 CTCP325 	**CTCP325/CTCP335** CTCP335 **CTCP325/CTCP335** 	**CTCP335** **CTCP335** 		0,07–0,20
-27P – Radius ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		0,05–0,30

Circlip grooving

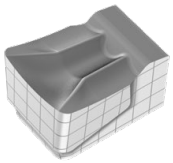
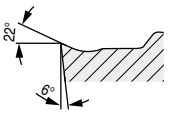
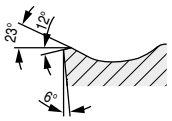
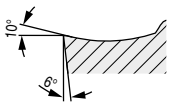
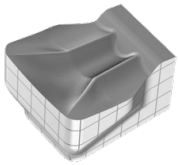
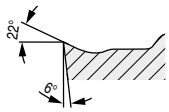
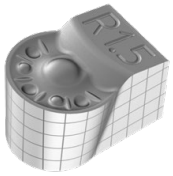
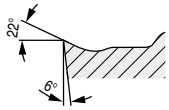
Standard ▲ positive geometry ▲ honed cuttign edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 CTP1340 CTP1340 		0,05–0,30

System AX

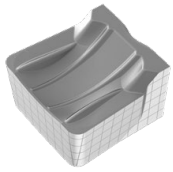
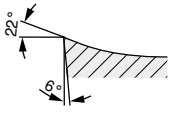
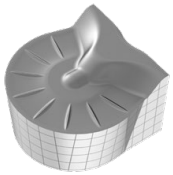
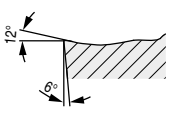
-F50 ▲ positive geometry ▲ honed cuttign edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 CTP1340 CTP1340 		0,025–0,125

Chip breakers / Applications

System SX

		smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** **CTP1340** CTPP345		0,05–0,15
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		CTCP325 **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	CTCP335/CTP1340 **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTPP345 **CTPP345** CTP1340 CTPP345		0,10–0,20
-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		CTCP325 **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	CTCP335/CTP1340 **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTPP345 **CTPP345** CTP1340 CTPP345		0,075–0,20
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		**H216T** **H216T** H216T H216T	**H216T** **H216T** H216T	**H216T** **H216T**		0,05–0,25
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving / copy turning		**CTCP335** **CTP1340** **CTCP335** **CTP1340** CTP1340	**CTCP335/CTP1340** **CTP1340** **CTCP335/CTP1340** **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340		0,05–0,20

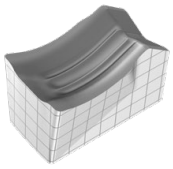
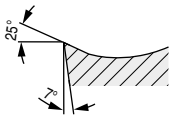
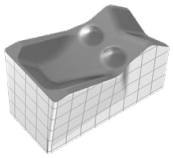
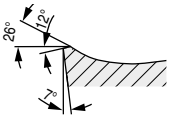
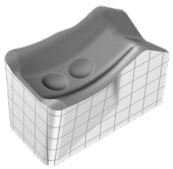
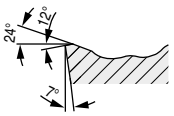
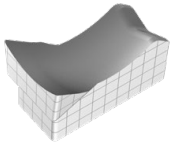
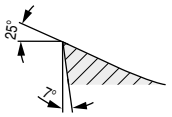
System LX

-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325** CTCP335 **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340** **CTCP325** **CTP1340** CTP1340	**CTCP335** CTP1340 **CTCP335** CTP1340		0,20–0,50
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		**CTCP325** CTCP335 **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTCP335/CTP1340** **CTCP325/CTCP335** **CTP1340** CTP1340	**CTCP335** CTP1340 **CTCP335** CTP1340		0,15–0,35

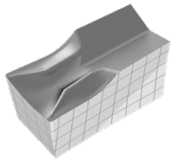
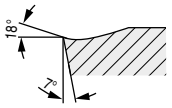
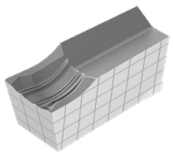
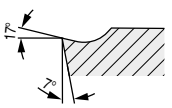
11

Chip breakers / Applications

System FX

		smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-F1 ▲ very positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ good chip control ▲ low cutting edge build up		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,05–0,15
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,08–0,20
-R2 ▲ very stable cutting edge ▲ high feed rates ▲ good chip control		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,10–0,27
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		0,03–0,13

System MC

-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 CTP1340 CTP1340 		0,05–0,10
-F3 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ reduced burrs / edge build up		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 CTP1340 CTP1340 		0,02–0,06

Example of Coding Grooving Tools

Grooving insert

GX	16	2	E	3.00	N	0.50
Grooving system (GX)	Insert length (16 mm)	Width class of the holder / module or support surface (2 mm)	Type of insert, application	Groove width (3.0 mm)	Insert seat N=Neutral L=Left Handed R=Right Handed	Corner radius size (0.5 mm)

Module

E	25	R	12	GX	16	2
Application E = external I = internal	Size (25 mm)	Module version R=Right Handed L=Left Handed	Maximum groove depth (12 mm)	Grooving system (GX)	Insert size (16 mm)	Width class 2

Basic holder

E	25	R	00	2525	L
Application E = external I = internal	Size (25 mm)	Holder version R=Right Handed L=Left Handed	Approach angle 0°	Shank type 25x25mm	Shank length L = (sh. ISO)

Monobloc tool holder

E	25	R	00	33	2525	M	K	DC	SX3
Application E = external I = internal	Size (25 mm)	Holder version R=Right Handed L=Left Handed	Approach angle 0°	Groove depth (33 mm)	Shank type 25x25mm	Shank length M = (sh. ISO)	Insert clamping K = Key	Cooling system DC = DirectCooling	Grooving system/width (3 mm)

Compilation

Basic holder: **E25 R 00 - 2525L**

Module: **E25 R 12 - GX 16-2**

Grooving insert: **GX 16-2 E3.00 N 0.50**

Grades Overview

CTCP325

- Carbide, TiCN-Al_2O_3-coated
- ISO | **P25** | M20 | **K30** | S25
- The wear-resistant solution for steel and cast iron materials at high cutting speeds

CTCP335

- Carbide, TiCN-Al_2O_3-coated
- ISO | **P35** | M30 | **K35**
- The reliable choice for machining steel and cast iron materials

CTPP345

- Carbide, TiAlTaN-coated
- ISO | **P45** | **M40** | S40
- The reliable solution for steel materials and austenitic steels under unstable conditions

CTP1340

- Carbide, TiAlTaN-coated
- ISO | **P30** | **M25** | **K30** | N30 | **S30** | O30
- The universal high-performance grade for steel materials, austenitic steel, cast iron materials and heat-resistant alloys

CTPP520

- Carbide, TiAlTaN-coated
- ISO | **P20** | **M15** | **K25** | S25 | H5
- The wear-resistant grade for wet machining of steels

CTPP535

- Carbide, AlTiN-coated
- ISO | **P35** | **M30** | **K25** | **S30**
- The tough thread turning grade for universal application

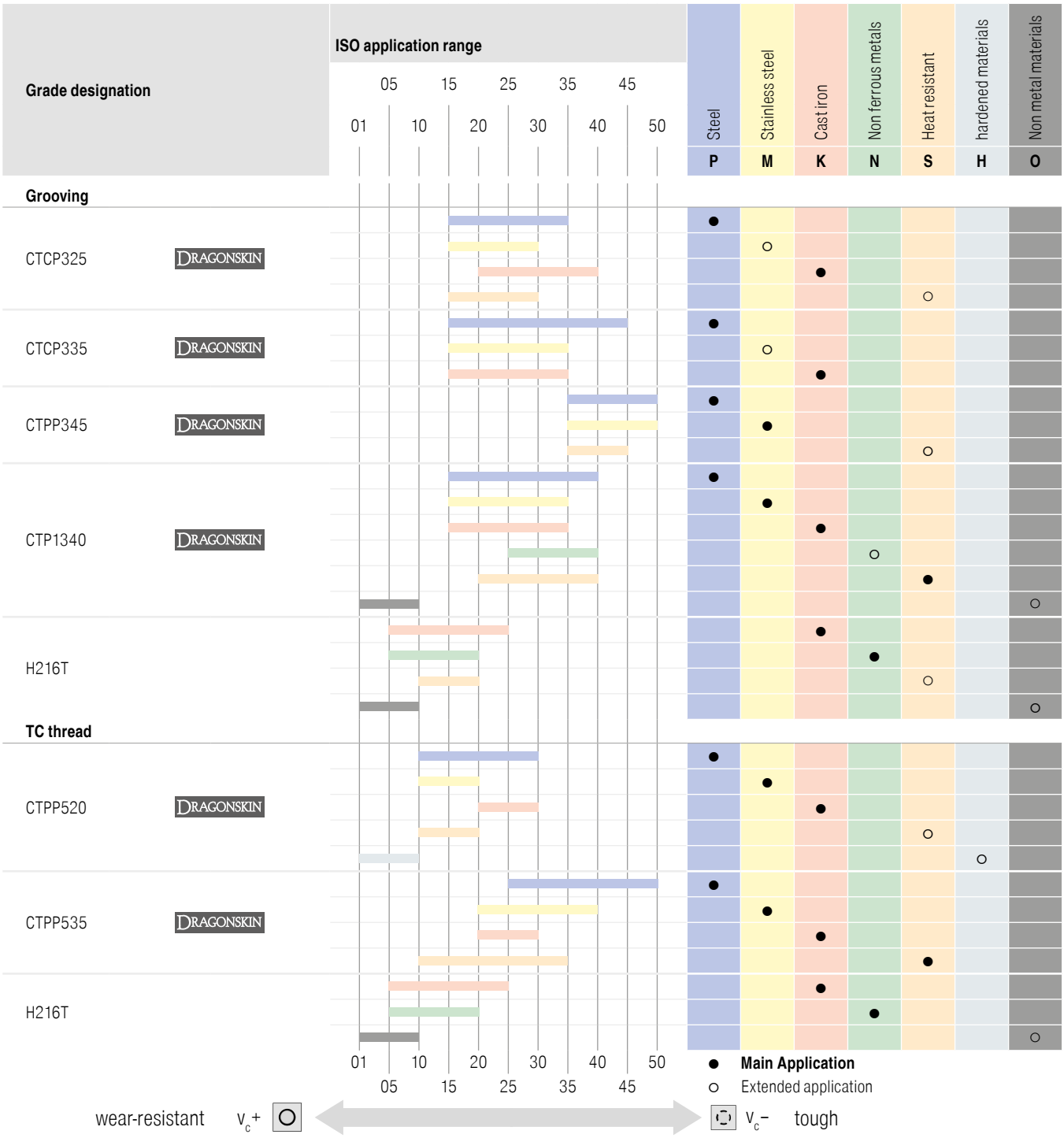
H216T

- Carbide, uncoated
- ISO | **K15** | **N15** | S15 | O5
- The uncoated carbide grade for machining aluminium and other non-ferrous metals
- Also highly suitable for HSC machining

CWX500

- Carbide, TiAlN-coated
- ISO | **K30**
- The universal carbide grade for almost all materials

Application



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Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools 12

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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MiniCut	35–53
UltraMini + MiniCut Hard Turning	8+36
SlotCut – Broaching	54–57
Technical Information	
Cutting Data	58–61
Broaching – Recommendations for Correct Use	62
Symbol explanation, coatings and thread types	63

WNT \ Performance

Premium quality tools for high performance.

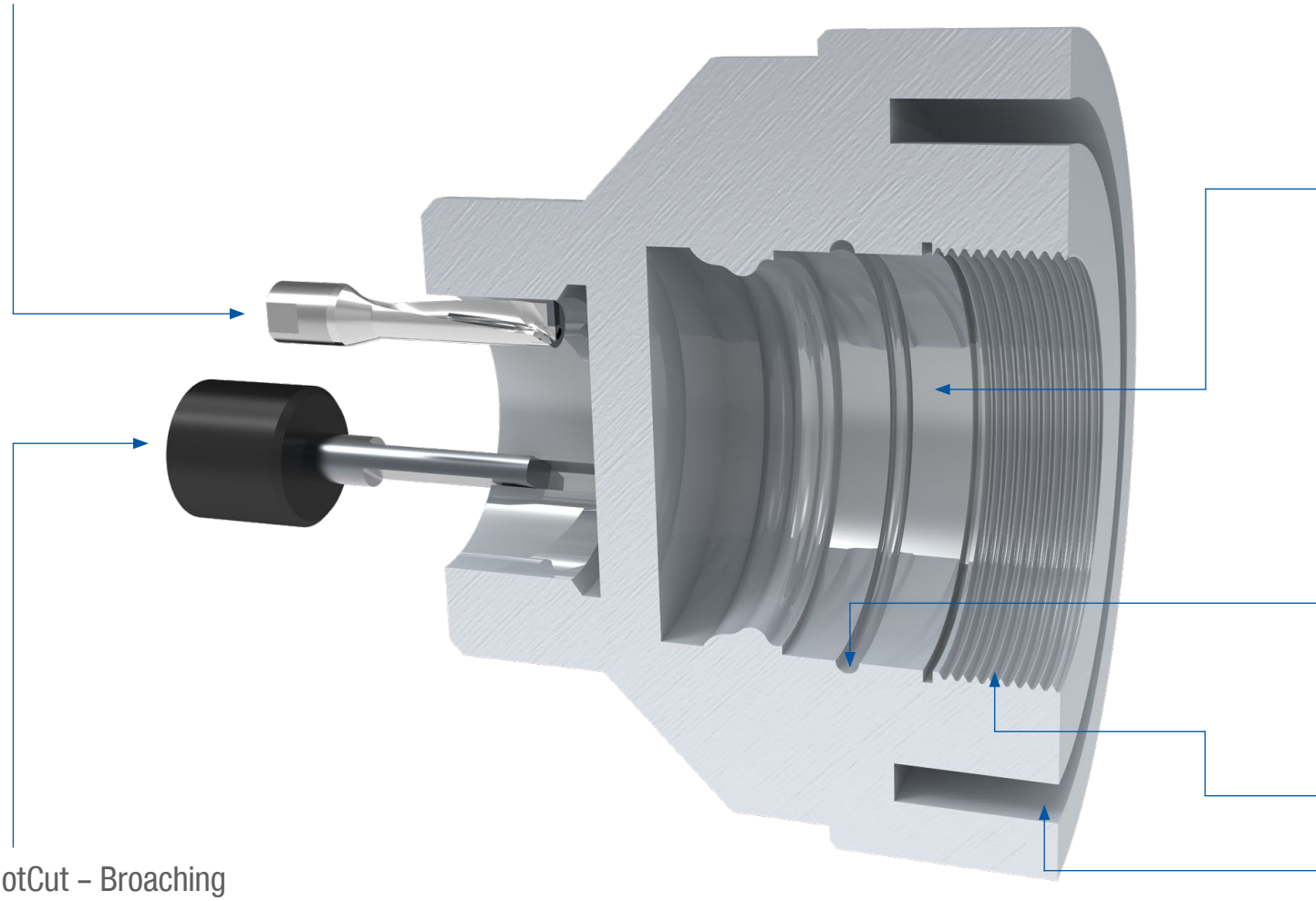
The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools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

Toolfinder

EcoCut Mini

From Ø 2 mm

Inserts and tool holders can be found in → **Chapter 10 – Multifunctional Tools – EcoCut and FreeTurn**



SlotCut – Broaching

Inserts + Holder DIN138 54–57

System overview

UltraMini



- from Ø 0.5 mm
- flexible system
- ground inserts
- high repeatability
- coolant supply to the cutting edge

MiniCut



- from Ø 7.8 mm
- stable three-rib interface
- easy handling
- coolant supply to the cutting edge
- precise cutting edge position

SlotCut



- broaching directly on the machine
- usable from Ø 6 mm
- low machine load
- variety of tolerance classes

Hole diameter in mm		UltraMini										MiniCut					
		≥ 0,5	≥ 2	≥ 2,4	≥ 2,8	≥ 3	≥ 4	≥ 5	≥ 6	≥ 8	≥ 16		≥ 8	≥ 9	≥ 11	≥ 14	≥ 16
Internal turning and profiling		4–7	4–7	4–7	4–7		4–7	4–7	4–7				35	35	35	35	35
Internal turning and profiling – hard turning			8		8		8	8	8				36		36	36	36
High-feed turning			10			10	10	10	10								
Turning and profile turning – super alloys			9		9		9	9	9								
Internal turning					11		11	11					37	37	37	37	37
Back boring						12	12	12	12				38	38	38	38	
Turning and chamfering								13	13				38	38	38	38	
Pre-parting and chamfering							13	13	13				39	39	39	39	39
Groove turning			14–16			14–16	14–16	14–16	14–16				40+41	40+41	40+41	40+41	40+41
Internal Undercuts			17		17		17	17	17				42	42	42	42	42
Groove and profile turning							18	18	18				43	43	43	43	43
Internal thread turning				19–21			19–21	19–21	19–21				44–47	44–47	44–47	44–47	44–47
Axial grooving								22–27	22–27	22–27	22–27		48+49	48+49	48+49	48+49	48+49
suitable holder			30–34										50–53				
Sets			28+29										49				

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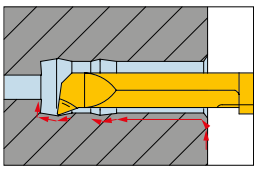
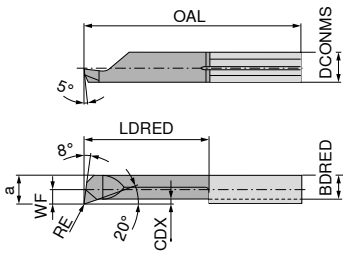
UltraMini – Inserts for internal turning and profiling







Illustrations show right-hand versions

TiN



TiN



TiAlN



TiAlN



											Left-hand		Right-hand		Left-hand		Right-hand	
											73 005 ...		73 004 ...		73 005 ...		73 004 ...	
Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	£ Y5		£ Y5		£ Y5		£ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm									
R/L 050.05-2	4		0.5	0.4	20	2	0.03	0.32	0.02	645.00..-D	64.80	500	64.80	500				
R/L 050.06-2	4		0.6	0.5	20	2	0.05	0.40	0.04	645.00..-D	64.80	510	64.80	510				
R/L 050.06-3	4		0.6	0.5	20	3	0.05	0.40	0.04	645.00..-D	66.90	511	66.90	511				
R/L 050.08-4	4		0.8	0.7	20	4	0.05	0.60	0.04	645.00..-D					65.21	812	65.21	812
R/L 050.1-8	4		1.0	0.9	22	8	0.10	0.75	0.05	645.00..-D					64.59	813	64.59	813
R/L 050.15-5	4		1.5	1.3	19	5	0.10	1.15	0.05	645.00..-D	61.80	515	61.80	515				
R/L 050.15-10	4		1.5	1.3	24	10	0.10	1.15	0.05	645.00..-D	62.39	516	62.39	516				
R/L 050.15-12	4		1.5	1.3	26	12	0.10	1.15	0.05	645.00..-D					64.59	818	64.59	818
R/L 050.2-5	4		2.0	1.7	19	5	0.10	1.50	0.05	645.00..-D	52.52	520	48.18	520				
R/L 050.2-10	4		2.0	1.7	24	10	0.10	1.50	0.05	645.00..-D	53.13	521	52.52	521				
R/L 050.2-15	4		2.0	1.7	29	15	0.10	1.50	0.05	645.00..-D	57.04	522	52.08	522				
R/L 050.3-10	4	0.6	2.8	2.6	24	10	0.20	2.30	0.10	645.00..-D	57.04	531	55.38	531				
R/L 050.3-16	4	0.6	2.8	2.6	30	16	0.20	2.30	0.10	645.00..-D	62.55	530	60.75	530				
R/L 050.3-20	4	0.6	2.8	2.6	34	20	0.20	2.30	0.10	645.00..-D	59.41	532	60.67	532				
R/L 050.35-10	4	1.1	3.5	3.1	24	10	0.25	2.80	0.10	645.00..-D					51.08	835	51.08	835
R/L 050.35-16	4	1.1	3.5	3.1	30	16	0.25	2.80	0.10	645.00..-D					53.84	836	53.84	836
R/L 050.35-20	4	1.1	3.5	3.1	34	20	0.25	2.80	0.10	645.00..-D					64.70	837	64.70	837
R/L 050.35-24	4	1.1	3.5	3.1	38	24	0.25	2.80	0.10	645.00..-D					70.88	838	70.88	838
R/L 050.4-10	4	1.5	4.0	3.5	24	10	0.30	3.00	0.10	645.00..-D	57.32	541	54.61	541	52.38	841	52.38	841
R/L 050.4-16	4	1.5	4.0	3.5	30	16	0.30	3.00	0.10	645.00..-D	57.32	540	54.61	540	55.38	840	55.38	840
R/L 050.4-20	4	1.5	4.0	3.5	34	20	0.30	3.00	0.10	645.00..-D	58.57	542	58.21	542	61.94	842	61.94	842
R/L 050.4-24	4	1.5	4.0	3.5	38	24	0.30	3.00	0.10	645.00..-D	70.32	545	68.23	545	70.32	845	70.32	845
R/L 050.4-28	4	1.5	4.0	3.5	42	28	0.30	3.00	0.10	645.00..-D	78.27	546	74.72	546	78.27	846	78.27	846
R/L 050.5-10	5	1.9	5.0	4.4	25	10	0.50	3.80	0.15	645.00..-D	56.67	551	51.67	551	49.08	851	49.08	851
R/L 050.5-15	5	1.9	5.0	4.4	30	15	0.50	3.80	0.15	645.00..-D	57.54	552	55.05	552	52.38	852	52.38	852
R/L 050.5-20	5	1.9	5.0	4.4	35	20	0.50	3.80	0.15	645.00..-D	57.99	550	56.51	550	60.30	850	60.30	850
R/L 050.5-25	5	1.9	5.0	4.4	40	25	0.50	3.80	0.15	645.00..-D	66.79	553	63.84	553	68.23	853	68.23	853
R/L 050.5-30	5	1.9	5.0	4.4	45	30	0.50	3.80	0.15	645.00..-D	71.98	554	70.18	554	76.92	854	76.92	854
R/L 050.5-35	5	1.9	5.0	4.4	50	35	0.50	3.80	0.15	645.00..-D	85.29	556	81.47	556	85.29	856	85.29	856
R/L 050.5-40	5	1.9	5.0	4.4	55	40	0.50	3.80	0.15	645.00..-D					92.70	857	92.70	857
R/L 050.6-15	6	2.3	6.0	5.3	30	15	0.50	4.50	0.15	676.00..-D	58.95	561	54.03	561	52.38	861	52.38	861
R/L 050.6-22	6	2.3	6.0	5.3	37	22	0.50	4.50	0.15	676.00..-D	60.45	560	58.82	560	60.30	860	60.30	860
R/L 050.6-25	6	2.3	6.0	5.3	40	25	0.50	4.50	0.15	676.00..-D	68.41	562	62.55	562	68.23	862	68.23	862
R/L 050.6-30	6	2.3	6.0	5.3	45	30	0.50	4.50	0.15	676.00..-D	73.05	563	71.09	563	76.92	863	76.92	863
R/L 050.6-35	6	2.3	6.0	5.3	50	35	0.50	4.50	0.15	676.00..-D	85.29	564	81.47	564	85.29	864	85.29	864
R/L 050.6-42	6	2.3	6.0	5.3	57	42	0.50	4.50	0.15	676.00..-D	95.33	565	92.64	565	95.33	865	95.33	865
R/L 050.7-20	7	2.8	6.8	6.3	35	20	0.60	5.50	0.15	676.00..-D	61.80	572	60.02	572	59.45	872	59.45	872
R/L 050.7-25	7	2.8	6.8	6.3	40	25	0.60	5.50	0.15	676.00..-D	77.35	573	74.21	573	68.99	873	68.99	873
R/L 050.7-30	7	2.8	6.8	6.3	45	30	0.60	5.50	0.15	676.00..-D	77.07	574	75.26	574	76.61	874	76.61	874
R/L 050.7-35	7	2.8	7.0	6.3	50	35	0.60	5.50	0.15	676.00..-D	86.77	575	86.77	575	86.77	875	86.77	875
R/L 050.7-40	7	2.8	7.0	6.3	55	40	0.60	5.50	0.15	676.00..-D	96.66	576	96.66	576	96.66	876	96.66	876
R/L 050.7-45	7	2.8	7.0	6.3	60	45	0.60	5.50	0.15	676.00..-D	100.55	577	100.55	577	100.55	877	100.55	877
R/L 050.7-50	7	2.8	7.0	6.3	65	50	0.60	5.50	0.15	676.00..-D	110.27	578	110.27	578	110.27	878	110.27	878

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

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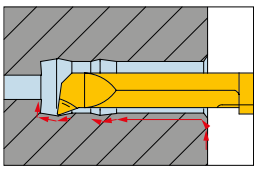
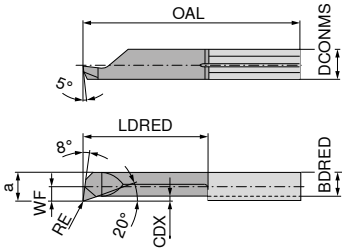
UltraMini – Inserts for internal turning and profiling









Illustrations show right-hand versions

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Left-hand 73 005 ... £ Y5		Right-hand 73 004 ... £ Y5	
R/L 050.2-5	4		2.0	1.7	19	5	0.1	1.5	0.05	645.00..-D	41.99	020	41.99	020
R/L 050.2-10	4		2.0	1.7	24	10	0.1	1.5	0.05	645.00..-D	44.01	021	44.01	021
R/L 050.2-15	4		2.0	1.7	29	15	0.1	1.5	0.05	645.00..-D	46.99	022	46.99	022
R/L 050.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.10	645.00..-D	44.46	031	44.46	031
R/L 050.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.10	645.00..-D	51.23	030	51.23	030
R/L 050.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	0.10	645.00..-D	52.50	032	52.50	032
R/L 050.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.10	645.00..-D	44.59	041	44.59	041
R/L 050.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.10	645.00..-D	46.25	040	46.25	040
R/L 050.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	0.10	645.00..-D	49.08	042	48.47	042
R/L 050.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	0.15	645.00..-D	44.91	051	44.91	051
R/L 050.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	0.15	645.00..-D	47.28	052	47.28	052
R/L 050.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	0.15	645.00..-D	48.93	050	48.93	050
R/L 050.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	0.15	645.00..-D	56.67	053	56.67	053
R 050.5-30	5	1.9	5.0	4.4	45	30	0.5	3.8	0.05	645.00..-D			62.17	054
L 050.5-30	5	1.9	5.0	4.4	45	30	0.5	3.8	0.15	645.00..-D	61.35	054		
R/L 050.6-15	6	2.3	6.0	5.3	30	15	0.5	4.5	0.15	676.00..-D	48.47	061	48.47	061
R/L 050.6-22	6	2.3	6.0	5.3	37	22	0.5	4.5	0.15	676.00..-D	49.32	060	49.32	060
R/L 050.6-25	6	2.3	6.0	5.3	40	25	0.5	4.5	0.15	676.00..-D	58.57	062	58.57	062
R/L 050.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	0.15	676.00..-D	63.15	063	62.24	063
R/L 050.7-20	7	2.8	6.8	6.3	35	20	0.6	5.5	0.15	676.00..-D	52.08	072	52.08	072
R/L 050.7-25	7	2.8	6.8	6.3	40	25	0.6	5.5	0.15	676.00..-D	59.45	073	59.45	073
R/L 050.7-30	7	2.8	6.8	6.3	45	30	0.6	5.5	0.15	676.00..-D	69.43	074	63.84	074

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→ v_c Page 59

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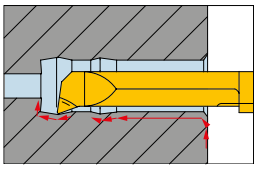
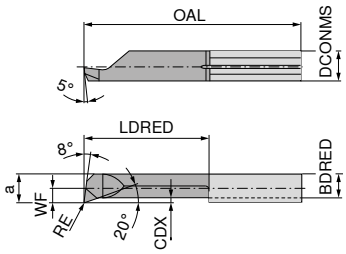
UltraMini – Inserts for internal turning and profiling

▲ with corner radius ≤ 0.05 mm





TiAlN TiAlN TiAlN TiAlN



Illustrations show right-hand versions

											Left-hand		Right-hand		Left-hand		Right-hand	
											73 021 ...		73 020 ...		73 023 ...		73 022 ...	
Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	£		£		£		£	
	mm	mm	mm	mm	mm	mm	mm	mm	mm		Y5		Y5		Y5		Y5	
R/L 053.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.03	645.00..-D	56.56	310	56.56	310				
R/L 053.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.03	645.00..-D	59.55	316	59.55	316				
R/L 053.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	0.03	645.00..-D	69.29	320	69.29	320				
R/L 053.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.03	645.00..-D	56.56	410	56.56	410				
R/L 053.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.03	645.00..-D	59.55	416	59.55	416				
R/L 053.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	0.03	645.00..-D	67.35	420	67.35	420				
R/L 053.4-24	4	1.5	4.0	3.5	38	24	0.3	3.0	0.03	645.00..-D	74.53	424	74.53	424				
R/L 053.4-28	4	1.5	4.0	3.5	42	28	0.3	3.0	0.03	645.00..-D	81.03	428	81.03	428				
R/L 055.2-10	4		2.0	1.7	24	10	0.1	1.5	0.05	645.00..-D					57.11	210	57.11	210
R/L 055.2-15	4		2.0	1.7	29	15	0.1	1.5	0.05	645.00..-D					61.05	215	61.05	215
R/L 055.2-5	4		2.0	1.7	19	5	0.1	1.5	0.05	645.00..-D					56.56	205	56.56	205
R/L 055.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.05	645.00..-D					56.56	310	56.56	310
R/L 055.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.05	645.00..-D					59.55	316	59.55	316
R/L 055.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	0.05	645.00..-D					70.78	320	70.78	320
R/L 055.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.05	645.00..-D					56.56	410	56.56	410
R/L 055.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.05	645.00..-D					59.55	416	59.55	416
R/L 055.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	0.05	645.00..-D					67.35	420	67.35	420
R/L 055.4-24	4	1.5	4.0	3.5	38	24	0.3	3.0	0.05	645.00..-D					74.53	424	74.53	424
R/L 055.4-28	4	1.5	4.0	3.5	42	28	0.3	3.0	0.05	645.00..-D					81.03	428	81.03	428
R/L 055.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	0.05	645.00..-D					53.40	510	50.89	510
R/L 055.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	0.05	645.00..-D					56.56	515	56.56	515
R/L 055.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	0.05	645.00..-D					64.35	520	64.35	520
R/L 055.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	0.05	645.00..-D					71.19	525	71.19	525
R/L 055.5-30	5	1.9	5.0	4.4	45	30	0.5	3.8	0.05	645.00..-D					80.97	530	80.97	530
R/L 055.5-35	5	1.9	5.0	4.4	50	35	0.5	3.8	0.05	645.00..-D					89.48	535	89.48	535
R/L 055.6-15	6	2.3	6.0	5.3	30	15	0.5	4.5	0.05	676.00..-D					56.56	615	56.56	615
R/L 055.6-22	6	2.3	6.0	5.3	37	22	0.5	4.5	0.05	676.00..-D					62.98	622	62.98	622
R/L 055.6-25	6	2.3	6.0	5.3	40	25	0.5	4.5	0.05	676.00..-D					71.19	625	71.19	625
R/L 055.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	0.05	676.00..-D					80.97	630	80.97	630
R/L 055.6-35	6	2.3	6.0	5.3	50	35	0.5	4.5	0.05	676.00..-D					89.48	635	89.48	635
R/L 055.6-42	6	2.3	6.0	5.3	57	42	0.5	4.5	0.05	676.00..-D					97.62	642	97.62	642

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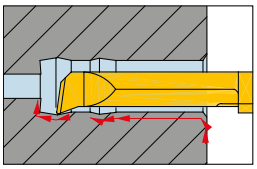
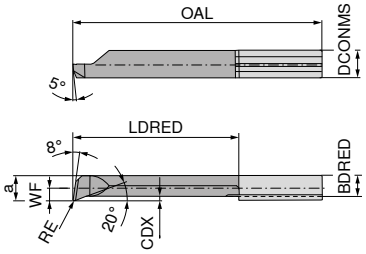
→ v_c Page 59

UltraMini – Inserts for internal turning and profiling

▲ with chip former





TiAlN



TiAlN



Illustrations show right-hand versions

Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	Left-hand 73 017 ... £ Y5		Right-hand 73 016 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 050.4-10C	4	1.5	4	3.5	24	10	0.3	3.0	0.2	645.00..-D	52.38	**410**	52.38	**410**
R/L 050.4-16C	4	1.5	4	3.5	30	16	0.3	3.0	0.2	645.00..-D	55.38	**416**	55.38	**416**
R/L 050.4-20C	4	1.5	4	3.5	34	20	0.3	3.0	0.2	645.00..-D	61.94	**420**	61.94	**420**
R/L 050.4-24C	4	1.5	4	3.5	38	24	0.3	3.0	0.2	645.00..-D	70.32	**424**	70.32	**424**
R/L 050.4-28C	4	1.5	4	3.5	42	28	0.3	3.0	0.2	645.00..-D	78.27	**428**	78.27	**428**
R/L 050.5-10C	5	1.9	5	4.4	25	10	0.5	3.8	0.2	645.00..-D	49.08	**510**	49.08	**510**
R/L 050.5-15C	5	1.9	5	4.4	30	15	0.5	3.8	0.2	645.00..-D	52.38	**515**	52.38	**515**
R/L 050.5-20C	5	1.9	5	4.4	35	20	0.5	3.8	0.2	645.00..-D	60.30	**520**	60.30	**520**
R/L 050.5-25C	5	1.9	5	4.4	40	25	0.5	3.8	0.2	645.00..-D	68.23	**525**	68.23	**525**
R/L 050.5-30C	5	1.9	5	4.4	45	30	0.5	3.8	0.2	645.00..-D	76.92	**530**	76.92	**530**
R/L 050.5-35C	5	1.9	5	4.4	50	35	0.5	3.8	0.2	645.00..-D	85.29	**535**	85.29	**535**
R/L 050.6-15C	6	2.3	6	5.3	30	15	0.5	4.5	0.2	676.00..-D	52.38	**615**	52.38	**615**
R/L 050.6-22C	6	2.3	6	5.3	37	22	0.5	4.5	0.2	676.00..-D	60.30	**622**	60.30	**622**
R/L 050.6-25C	6	2.3	6	5.3	40	25	0.5	4.5	0.2	676.00..-D	68.23	**625**	68.23	**625**
R/L 050.6-30C	6	2.3	6	5.3	45	30	0.5	4.5	0.2	676.00..-D	76.92	**630**	76.92	**630**
R/L 050.6-35C	6	2.3	6	5.3	50	35	0.5	4.5	0.2	676.00..-D	85.29	**635**	85.29	**635**
R/L 050.6-42C	6	2.3	6	5.3	57	42	0.5	4.5	0.2	676.00..-D	95.33	**642**	95.33	**642**
R/L 050.7-20C	7	2.8	7	6.3	35	20	0.6	5.5	0.2	676.00..-D	59.45	**720**	59.45	**720**
R/L 050.7-25C	7	2.8	7	6.3	40	25	0.6	5.5	0.2	676.00..-D	68.99	**725**	68.99	**725**
R/L 050.7-30C	7	2.8	7	6.3	45	30	0.6	5.5	0.2	676.00..-D	76.61	**730**	76.61	**730**
R/L 050.7-35C	7	2.8	7	6.3	50	35	0.6	5.5	0.2	676.00..-D	86.77	**735**	86.77	**735**
R/L 050.7-40C	7	2.8	7	6.3	55	40	0.6	5.5	0.2	676.00..-D	96.66	**740**	96.66	**740**
R/L 050.7-45C	7	2.8	7	6.3	60	45	0.6	5.5	0.2	676.00..-D	100.55	**745**	100.55	**745**
R/L 050.7-50C	7	2.8	7	6.3	65	50	0.6	5.5	0.2	676.00..-D	110.27	**750**	110.27	**750**

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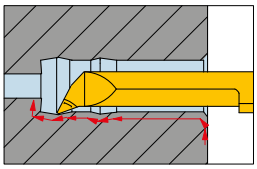
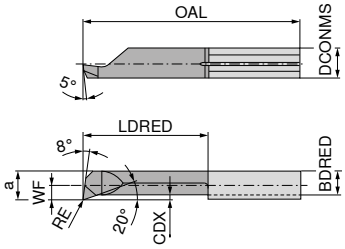
UltraMini – Inserts for internal turning and profiling – hard turning

▲ 46 to 65 HRC





TiAlN+



TiAlN+



Illustrations show right-hand versions

Designation	DCONMS $_{h6}$	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	Left-hand 73 025 ... £ Y5		Right-hand 73 024 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 050.2-5	4		2.0	1.7	19	5	0.1	1.5	0.05	645.00..-D	77.93	**920**	77.93	**920**
R/L 050.2-10	4		2.0	1.7	24	10	0.1	1.5	0.05	645.00..-D	79.37	**921**	79.37	**921**
R/L 050.2-15	4		2.0	1.7	29	15	0.1	1.5	0.05	645.00..-D	82.35	**922**	82.35	**922**
R/L 050.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.10	645.00..-D	77.67	**931**	77.67	**931**
R/L 050.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.10	645.00..-D	80.94	**930**	80.94	**930**
R/L 050.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	0.10	645.00..-D	92.62	**932**	92.62	**932**
R/L 050.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.10	645.00..-D	77.67	**941**	77.67	**941**
R/L 050.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.10	645.00..-D	80.94	**940**	80.94	**940**
R/L 050.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	0.10	645.00..-D	89.11	**942**	89.11	**942**
R/L 050.4-24	4	1.5	4.0	3.5	38	24	0.3	3.0	0.10	645.00..-D	96.92	**945**	96.92	**945**
R/L 050.4-28	4	1.5	4.0	3.5	42	28	0.3	3.0	0.10	645.00..-D	105.21	**946**	105.21	**946**
R/L 050.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	0.15	645.00..-D	75.33	**951**	75.33	**951**
R/L 050.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	0.15	645.00..-D	78.84	**952**	78.84	**952**
R/L 050.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	0.15	645.00..-D	87.30	**950**	87.30	**950**
R/L 050.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	0.15	645.00..-D	95.87	**953**	95.87	**953**
R/L 050.5-30	5	1.9	5.0	4.4	45	30	0.5	3.8	0.15	645.00..-D	105.09	**954**	105.09	**954**
R/L 050.5-35	5	1.9	5.0	4.4	50	35	0.5	3.8	0.15	645.00..-D	113.93	**956**	113.93	**956**
R/L 050.6-15	6	2.3	6.0	5.3	30	15	0.5	4.5	0.15	676.00..-D	80.00	**961**	80.00	**961**
R/L 050.6-22	6	2.3	6.0	5.3	37	22	0.5	4.5	0.15	676.00..-D	88.45	**960**	88.45	**960**
R/L 050.6-25	6	2.3	6.0	5.3	40	25	0.5	4.5	0.15	676.00..-D	97.03	**962**	97.03	**962**
R/L 050.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	0.15	676.00..-D	106.25	**963**	106.25	**963**
R/L 050.6-35	6	2.3	6.0	5.3	50	35	0.5	4.5	0.15	676.00..-D	115.35	**964**	115.35	**964**
R/L 050.6-42	6	2.3	6.0	5.3	57	42	0.5	4.5	0.15	676.00..-D	125.62	**965**	125.62	**965**
R/L 050.7-20	7	2.8	6.8	6.3	35	20	0.6	5.5	0.15	676.00..-D	89.38	**972**	89.38	**972**
R/L 050.7-25	7	2.8	6.8	6.3	40	25	0.6	5.5	0.15	676.00..-D	98.46	**973**	98.46	**973**
R/L 050.7-30	7	2.8	6.8	6.3	45	30	0.6	5.5	0.15	676.00..-D	108.09	**974**	108.09	**974**
R/L 050.7-35	7	2.8	6.8	6.3	50	35	0.6	5.5	0.15	676.00..-D	117.18	**975**	117.18	**975**
R/L 050.7-40	7	2.8	6.8	6.3	55	40	0.6	5.5	0.15	676.00..-D	127.95	**976**	127.95	**976**
R/L 050.7-45	7	2.8	6.8	6.3	60	45	0.6	5.5	0.15	676.00..-D	134.06	**977**	134.06	**977**
R/L 050.7-50	7	2.8	6.8	6.3	65	50	0.6	5.5	0.15	676.00..-D	142.51	**978**	142.51	**978**

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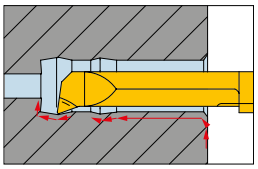
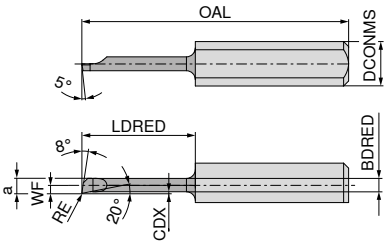
UltraMini – Inserts for internal turning and profiling

▲ Specially designed for super alloys





Illustrations show right-hand versions

DPX 57S DRAGONSKIN



DPX 57S DRAGONSKIN



Designation	DCONMS $_{h6}$	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	Left-hand 73 027 ... £ Y5		Right-hand 73 026 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L M050.05-2	4	0.20	0.5	0.40	20	2	0.02	0.02	0.02	645.00..-D	54.50	**052**	54.50	**052**
R/L M050.08-4	4	0.35	0.8	0.70	20	4	0.08	0.03	0.02	645.00..-D	55.63	**082**	55.63	**082**
R/L M050.1-5	4	0.40	1.0	0.90	20	5	0.05	0.05	0.02	645.00..-D	51.09	**102**	51.09	**102**
R/L M050.1-7	4	0.40	1.0	0.90	22	7	0.05	0.05	0.02	645.00..-D	53.36	**103**	53.36	**103**
R/L M050.15-5	4	0.60	1.5	1.15	19	5	0.08	0.08	0.02	645.00..-D	51.09	**151**	51.09	**151**
R/L M050.15-10	4	0.60	1.5	1.15	24	10	0.08	0.08	0.02	645.00..-D	53.36	**154**	53.36	**154**
R/L M050.2-5	4	0.80	2.0	1.70	19	5	0.08	0.08	0.02	645.00..-D	44.28	**201**	44.28	**201**
R/L M050.2-10	4	0.80	2.0	1.70	24	10	0.08	0.08	0.02	645.00..-D	45.41	**204**	45.41	**204**
R/L M050.25-5	4	0.20	2.5	2.20	19	5	0.10	0.10	0.02	645.00..-D	44.28	**251**	44.28	**251**
R/L M050.25-10	4	0.20	2.5	2.20	24	10	0.10	0.10	0.02	645.00..-D	45.41	**254**	45.41	**254**
R/L M050.3-10	4	0.60	3.0	2.60	24	10	0.15	0.15	0.02	645.00..-D	44.28	**304**	44.28	**304**
R/L M050.3-16	4	0.60	3.0	2.60	30	16	0.15	0.15	0.02	645.00..-D	46.55	**307**	46.55	**307**
R/L M050.35-10	4	1.10	3.5	3.10	24	10	0.17	0.17	0.02	645.00..-D	44.28	**350**	44.28	**350**
R/L M050.35-16	4	1.10	3.5	3.10	30	16	0.17	0.17	0.02	645.00..-D	46.55	**353**	46.55	**353**
R/L M050.35-20	4	1.10	3.5	3.10	34	20	0.17	0.17	0.02	645.00..-D	55.63	**354**	55.63	**354**
R/L M050.4-10	4	1.50	4.0	3.50	24	10	0.20	0.20	0.02	645.00..-D	44.28	**400**	44.28	**400**
R/L M050.4-16	4	1.50	4.0	3.50	30	16	0.20	0.20	0.02	645.00..-D	46.55	**403**	46.55	**403**
R/L M050.4-20	4	1.50	4.0	3.50	34	20	0.20	0.20	0.02	645.00..-D	52.23	**404**	52.23	**404**
R/L M050.4-24	4	1.50	4.0	3.50	38	24	0.20	0.20	0.02	645.00..-D	59.04	**406**	59.04	**406**

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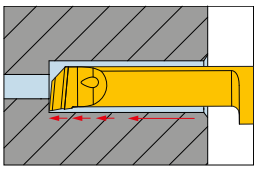
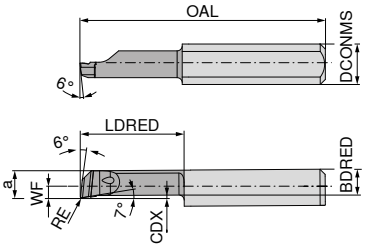
UltraMini – Inserts for internal turning

- ▲ with chip former
- ▲ High-feed internal turning





Illustrations show right-hand versions

DPX77S DRAGONSKIN



DPX77S DRAGONSKIN



Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	Left-hand 73 001 ... £ Y5		Right-hand 73 000 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L X050.1-5	4		1.0	0.90	20	5	0.03	0.85	0.05	645.00..-D	46.89	121	46.89	121
R/L X050.15-7	4		1.5	1.35	22	7	0.05	1.25	0.10	645.00..-D	53.59	233	53.59	233
R/L X050.2-5	4		2.0	1.80	19	5	0.10	1.60	0.15	645.00..-D	40.77	245	40.77	245
R/L X050.2-10	4		2.0	1.80	24	10	0.10	1.60	0.05	645.00..-D	41.84	215	41.84	215
R/L X050.2-10	4		2.0	1.80	24	10	0.10	1.60	0.15	645.00..-D	41.84	241	41.84	241
R/L X050.3-10	4	0.7	3.0	2.70	24	10	0.15	2.55	0.05	645.00..-D	40.66	341	40.66	341
R/L X050.3-10	4	0.7	3.0	2.70	24	10	0.15	2.55	0.20	645.00..-D	40.66	347	40.66	347
R/L X050.3-16	4	0.7	3.0	2.70	30	16	0.15	2.55	0.05	645.00..-D	42.89	371	42.89	371
R/L X050.3-16	4	0.7	3.0	2.70	30	16	0.15	2.55	0.10	645.00..-D	42.89	373	42.89	373
R/L X050.3-16	4	0.7	3.0	2.70	30	16	0.15	2.55	0.20	645.00..-D	42.89	377	42.89	377
R/L X050.4-10	4	1.6	4.0	3.60	24	10	0.20	3.20	0.10	645.00..-D	40.66	403	40.66	403
R/L X050.4-10	4	1.6	4.0	3.60	24	10	0.20	3.20	0.20	645.00..-D	40.66	407	40.66	407
R/L X050.4-16	4	1.6	4.0	3.60	30	16	0.20	3.20	0.05	645.00..-D	42.89	431	42.89	431
R/L X050.4-16	4	1.6	4.0	3.60	30	16	0.20	3.20	0.10	645.00..-D	42.89	433	42.89	433
R/L X050.4-16	4	1.6	4.0	3.60	30	16	0.20	3.20	0.20	645.00..-D	42.89	437	42.89	437
R/L X050.4-24	4	1.6	4.0	3.60	38	24	0.20	3.20	0.10	645.00..-D	54.52	463	54.52	463
R/L X050.4-24	4	1.6	4.0	3.60	38	24	0.20	3.20	0.20	645.00..-D	54.52	467	54.52	467
R/L X050.5-15	5	2.1	5.0	4.60	30	15	0.30	4.05	0.05	645.00..-D	40.66	511	40.66	511
R/L X050.5-15	5	2.1	5.0	4.60	30	15	0.30	4.05	0.10	645.00..-D	40.66	513	40.66	513
R/L X050.5-15	5	2.1	5.0	4.60	30	15	0.30	4.05	0.20	645.00..-D	40.66	517	40.66	517
R/L X050.5-25	5	2.1	5.0	4.60	40	25	0.30	4.05	0.10	645.00..-D	52.99	543	52.99	543
R/L X050.5-25	5	2.1	5.0	4.60	40	25	0.30	4.05	0.20	645.00..-D	52.99	547	52.99	547
R/L X050.5-30	5	2.1	5.0	4.60	45	30	0.30	4.05	0.10	645.00..-D	59.93	553	59.93	553
R/L X050.5-30	5	2.1	5.0	4.60	45	30	0.30	4.05	0.20	645.00..-D	59.93	557	59.93	557
R/L X050.6-15	6	2.5	6.0	5.50	30	15	0.40	4.90	0.05	676.00..-D	40.66	611	40.66	611
R/L X050.6-15	6	2.5	6.0	5.50	30	15	0.40	4.90	0.10	676.00..-D	40.66	613	40.66	613
R/L X050.6-15	6	2.5	6.0	5.50	30	15	0.40	4.90	0.20	676.00..-D	40.66	617	40.66	617
R/L X050.6-22	6	2.5	6.0	5.50	37	22	0.40	4.90	0.20	676.00..-D	46.77	637	46.77	637
R/L X050.6-30	6	2.5	6.0	5.50	45	30	0.40	4.90	0.20	676.00..-D	59.93	657	59.93	657
R/L X050.6-35	6	2.5	6.0	5.50	50	35	0.40	4.90	0.20	676.00..-D	66.27	667	66.27	667
R/L X050.6-50	6	2.5	6.0	5.50	65	50	0.40	4.90	0.20	676.00..-D	82.50	697	82.50	697
R/L X050.7-25	7	3.0	7.0	6.50	40	25	0.50	5.90	0.20	676.00..-D	53.81	747	53.81	747
R/L X050.7-30	7	3.0	7.0	6.50	45	30	0.50	5.90	0.20	676.00..-D	60.64	757	60.64	757

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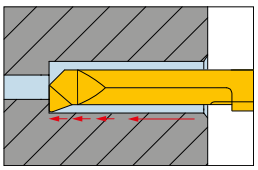
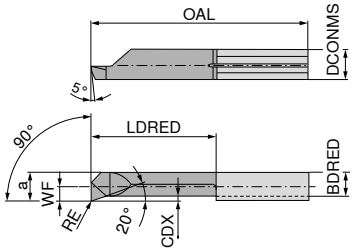
UltraMini – Inserts for internal turning





TiN

TiN





Illustrations show right-hand versions

Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	Left-hand 73 015 ... £	Y5		Right-hand 73 014 ... £	Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm							
R/L 090.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.2	645.00..-D	52.38	**541**		52.38	**541**	
R/L 090.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.2	645.00..-D	55.51	**542**		55.51	**542**	
R/L 090.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.2	645.00..-D	52.38	**545**		52.38	**545**	
R/L 090.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.2	645.00..-D	55.51	**546**		55.51	**546**	
R/L 090.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	0.2	645.00..-D	52.38	**550**		52.38	**550**	
R/L 090.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	0.2	645.00..-D	55.51	**551**		55.51	**551**	
R/L 090.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	0.2	645.00..-D	60.30	**552**		60.30	**552**	
P													●			●
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H													○			○
O													●			●

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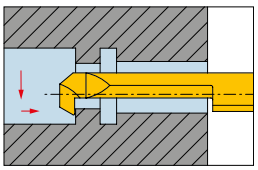
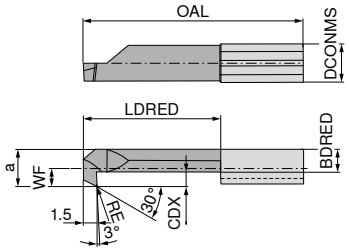
UltraMini – Inserts for back boring







Illustrations show right-hand versions

TiN



TiN



Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	Left-hand 73 013 ... £ Y5		Right-hand 73 012 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 080.0003-15	4	0.6	3	2.6	29	15	0.5	2.0	0.10	645.00..-D	64.04	**542**	64.04	**542**
R/L 080.0003-20	4	0.6	3	2.6	34	20	0.5	2.0	0.10	645.00..-D	76.32	**544**	76.32	**544**
R/L 080.0004-15	4	1.5	4	3.5	29	15	0.8	2.4	0.15	645.00..-D	64.04	**546**	64.04	**546**
R/L 080.0004-25	4	1.5	4	3.5	39	25	0.8	2.4	0.15	645.00..-D	71.79	**548**	71.79	**548**
R/L 080.0005-20	5	1.9	5	4.4	35	20	1.0	3.3	0.20	645.00..-D	65.42	**554**	65.42	**554**
R/L 080.0005-30	5	1.9	5	4.4	45	30	1.0	3.3	0.20	645.00..-D	67.95	**558**	67.95	**558**
R/L 080.0006-20	6	2.3	6	5.3	35	20	1.8	3.4	0.20	676.00..-D	68.23	**564**	68.23	**564**
R/L 080.0006-30	6	2.3	6	5.3	45	30	1.8	3.4	0.20	676.00..-D	81.69	**568**	81.69	**568**
R/L 080.0007-20	7	2.7	7	6.3	35	20	2.5	3.8	0.20	676.00..-D	68.23	**574**	68.23	**574**
R/L 080.0007-30	7	2.7	7	6.3	45	30	2.5	3.8	0.20	676.00..-D	81.69	**578**	81.69	**578**

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H	o	o
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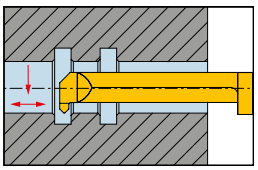
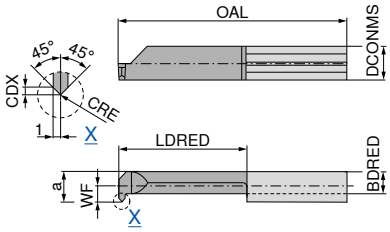
UltraMini – Inserts for internal turning and chamfering





TiN



TiN

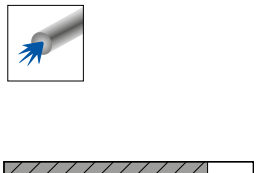


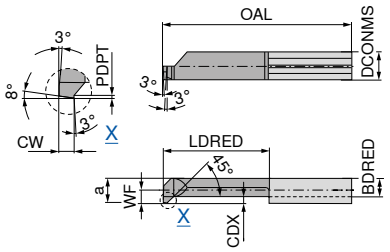
Illustrations show right-hand versions

Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CRE	Standard tool holder	Left-hand 73 007 ... £ Y5		Right-hand 73 006 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 060.5-15	5	1.9	5.0	4.4	30	15	0.7	3.3	0.2	645.00..-D	53.13	**551**	49.36	**551**
R/L 060.5-20	5	1.9	5.0	4.4	35	20	0.7	3.3	0.2	645.00..-D	55.18	**550**	54.94	**550**
R/L 060.7-20	7	2.7	6.8	6.3	35	20	0.7	3.8	0.2	676.00..-D	61.94	**570**	57.32	**570**
P												●		●
M												●		●
K												●		●
N												●		●
S												○		○
H												○		○
O												●		●

→ v_c Page 59

UltraMini – Inserts for internal chamfering for subsequent parting off





TiN



TiN



Illustrations show right-hand versions

Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	PDPT	Standard tool holder	Left-hand 73 009 ... £ Y5		Right-hand 73 008 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 070.4-10	4	1.5	4	3.5	25	10	0.8	2.4	1	0.2	645.00..-D	54.99	**410**	54.99	**410**
R/L 070.4-16	4	1.5	4	3.5	30	16	0.8	2.4	1	0.2	645.00..-D	56.64	**416**	56.64	**416**
R/L 070.5-15	5	1.9	5	4.4	30	15	1.0	3.3	1	0.2	645.00..-D	54.32	**551**	54.32	**551**
R/L 070.5-20	5	1.9	5	4.4	35	20	1.0	3.3	1	0.2	645.00..-D	57.32	**550**	57.32	**550**
R/L 070.5-30	5	1.9	5	4.4	45	30	1.0	3.3	1	0.2	645.00..-D	76.56	**530**	76.56	**530**
R/L 070.6-30	6	2.3	6	5.3	45	30	1.0	4.2	1	0.2	676.00..-D	76.56	**630**	76.56	**630**
R/L 070.6-42	6	2.3	6	5.3	57	42	1.0	4.2	1	0.2	676.00..-D	89.55	**642**	89.55	**642**
P													●		●
M													●		●
K													●		●
N													●		●
S													○		○
H													○		○
O													●		●

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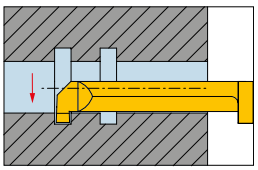
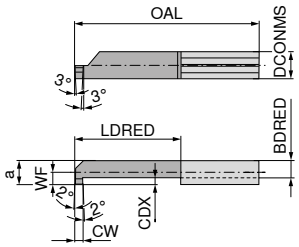
UltraMini – Inserts for Internal Grooving











TiN



TiN



Illustrations show right-hand versions

											Left-hand		Right-hand		Left-hand		Right-hand	
											73 003 ...		73 002 ...		73 003 ...		73 002 ...	
Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	Standard tool holder	£		£		£		£	
	mm	mm	mm	mm	mm	mm	mm	mm	mm		Y5		Y5		Y5		Y5	
R/L 004.0100-10	4	1.5	4.0	3.5	24	10	0.8	2.4	1.0	645.00..-D	40.86	040	40.86	040	49.76	540	48.65	540
R/L 004.0100-16	4	1.5	4.0	3.5	30	16	0.8	2.4	1.0	645.00..-D	51.03	041	51.03	041	61.05	541	59.41	541
R/L 004.0100-20	4	1.5	4.0	3.5	34	20	0.8	2.4	1.0	645.00..-D	55.07	042	55.07	042	65.86	542	64.04	542
R/L 005.0100-10	5	1.9	5.0	4.4	25	10	1.0	3.3	1.0	645.00..-D	40.52	150	40.52	150	50.89	650	47.86	650
R/L 005.0150-10	5	1.9	5.0	4.4	25	10	1.0	3.3	1.5	645.00..-D	40.52	154	40.52	154	50.89	654	49.54	654
R/L 005.0200-10	5	1.9	5.0	4.4	25	10	1.0	3.3	2.0	645.00..-D	40.52	158	40.52	158	50.89	658	49.54	658
R/L 005.0100-15	5	1.9	5.0	4.4	30	15	1.0	3.3	1.0	645.00..-D	47.86	151	47.86	151	58.82	651	56.07	651
R/L 005.0150-15	5	1.9	5.0	4.4	30	15	1.0	3.3	1.5	645.00..-D	47.86	155	47.86	155	58.82	655	56.07	655
R/L 005.0200-15	5	1.9	5.0	4.4	30	15	1.0	3.3	2.0	645.00..-D	47.86	159	47.86	159	58.82	659	56.07	659
R/L 005.0100-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.0	645.00..-D	55.07	051	55.07	051	63.84	551	63.47	551
R/L 005.0150-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.5	645.00..-D	55.07	052	55.07	052	63.84	552	63.47	552
R/L 005.0200-20	5	1.9	5.0	4.4	35	20	1.0	3.3	2.0	645.00..-D	55.07	053	55.07	053	63.84	553	63.47	553
R/L 005.0100-25	5	1.9	5.0	4.4	40	25	1.0	3.3	1.0	645.00..-D	61.94	152	61.94	152	72.28	652	70.32	652
R/L 005.0150-25	5	1.9	5.0	4.4	40	25	1.0	3.3	1.5	645.00..-D	61.94	156	61.94	156	72.28	656	70.32	656
R/L 005.0200-25	5	1.9	5.0	4.4	40	25	1.0	3.3	2.0	645.00..-D	61.94	250	61.94	250	72.72	750	70.78	750
R/L 005.0100-30	5	1.9	5.0	4.4	45	30	1.0	3.3	1.0	645.00..-D	69.89	153	69.89	153	80.50	653	78.27	653
R/L 005.0150-30	5	1.9	5.0	4.4	45	30	1.0	3.3	1.5	645.00..-D	69.89	157	69.89	157	80.50	657	78.27	657
R/L 005.0200-30	5	1.9	5.0	4.4	45	30	1.0	3.3	2.0	645.00..-D	69.89	251	69.89	251	80.97	751	78.87	751
R/L 005.0100-35	5	1.9	5.0	4.4	50	35	1.0	3.3	1.0	645.00..-D					89.48	680	85.43	680
R/L 006.0100-10	6	2.3	6.0	5.3	25	10	1.8	3.4	1.0	676.00..-D	42.49	160	42.49	160	50.21	660	48.74	660
R/L 006.0150-10	6	2.3	6.0	5.3	25	10	1.8	3.4	1.5	676.00..-D	42.49	164	42.49	164	50.21	664	46.68	664
R/L 006.0200-10	6	2.3	6.0	5.3	25	10	1.8	3.4	2.0	676.00..-D	42.49	168	42.49	168	50.21	668	48.74	668
R/L 006.0100-15	6	2.3	6.0	5.3	30	15	1.8	3.4	1.0	676.00..-D	50.57	161	50.57	161	57.99	661	56.51	661
R/L 006.0150-15	6	2.3	6.0	5.3	30	15	1.8	3.4	1.5	676.00..-D	50.57	165	50.57	165	57.99	665	56.51	665
R/L 006.0200-15	6	2.3	6.0	5.3	30	15	1.8	3.4	2.0	676.00..-D	50.57	169	50.57	169	57.99	669	56.51	669
R/L 006.0100-22	6	2.3	6.0	5.3	37	22	1.8	3.4	1.0	676.00..-D	55.51	061	55.51	061	64.44	561	63.91	561
R/L 006.0150-22	6	2.3	6.0	5.3	37	22	1.8	3.4	1.5	676.00..-D	55.51	062	55.51	062	64.44	562	63.91	562
R/L 006.0200-22	6	2.3	6.0	5.3	37	22	1.8	3.4	2.0	676.00..-D	55.51	063	55.51	063	64.44	563	63.91	563
R/L 006.0100-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.0	676.00..-D	63.91	162	63.91	162	72.72	662	70.78	662
R/L 006.0150-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.5	676.00..-D	63.91	166	63.91	166	72.72	666	70.78	666
R/L 006.0200-25	6	2.3	6.0	5.3	40	25	1.8	3.4	2.0	676.00..-D	63.91	260	63.91	260	72.72	760	70.78	760
R/L 006.0100-30	6	2.3	6.0	5.3	45	30	1.8	3.4	1.0	676.00..-D	72.28	163	72.28	163	80.97	663	78.87	663
R/L 006.0150-30	6	2.3	6.0	5.3	45	30	1.8	3.4	1.5	676.00..-D	72.28	167	72.28	167	80.97	667	78.87	667
R/L 006.0200-30	6	2.3	6.0	5.3	45	30	1.8	3.4	2.0	676.00..-D	72.28	261	72.28	261	80.97	761	78.87	761
R/L 006.0100-35	6	2.3	6.0	5.3	50	35	1.8	3.4	1.0	676.00..-D					89.48	682	85.43	682
R/L 006.0150-35	6	2.3	6.0	5.3	50	35	1.8	3.4	1.5	676.00..-D					89.48	684	85.43	684
R/L 006.0100-42	6	2.3	6.0	5.3	57	42	1.8	3.4	1.0	676.00..-D					98.75	685	95.92	685
R/L 007.0100-10	7	2.7	6.8	6.3	25	10	2.5	3.8	1.0	676.00..-D	42.93	070	42.93	070	50.65	570	49.54	570
R/L 007.0150-10	7	2.7	6.8	6.3	25	10	2.5	3.8	1.5	676.00..-D	42.93	075	42.93	075	50.65	575	49.54	575
R/L 007.0200-10	7	2.7	6.8	6.3	25	10	2.5	3.8	2.0	676.00..-D	42.93	170	42.93	170	50.65	670	49.54	670
R/L 007.0100-15	7	2.7	6.8	6.3	30	15	2.5	3.8	1.0	676.00..-D	51.03	071	51.03	071	58.57	571	57.11	571
R/L 007.0150-15	7	2.7	6.8	6.3	30	15	2.5	3.8	1.5	676.00..-D	51.03	076	51.03	076	58.57	576	57.11	576
R/L 007.0200-15	7	2.7	6.8	6.3	30	15	2.5	3.8	2.0	676.00..-D	51.03	171	51.03	171	58.57	671	54.62	671
R/L 007.0100-22	7	2.7	6.8	6.3	37	22	2.5	3.8	1.0	676.00..-D	58.37	072	58.37	072	65.91	572	65.24	572
R/L 007.0150-22	7	2.7	6.8	6.3	37	22	2.5	3.8	1.5	676.00..-D	58.37	077	58.37	077	65.91	577	65.24	577
R/L 007.0200-22	7	2.7	6.8	6.3	37	22	2.5	3.8	2.0	676.00..-D	58.37	172	58.37	172	65.91	672	65.24	672
R/L 007.0100-25	7	2.7	6.8	6.3	40	25	2.5	3.8	1.0	676.00..-D	62.98	073	62.98	073	73.49	573	71.53	573
R/L 007.0150-25	7	2.7	6.8	6.3	40	25	2.5	3.8	1.5	676.00..-D	62.98	078	62.98	078	73.49	578	71.53	578
R/L 007.0200-25	7	2.7	6.8	6.3	40	25	2.5	3.8	2.0	676.00..-D	62.98	173	62.98	173	73.49	673	70.49	673
R/L 007.0100-30	7	2.7	6.8	6.3	45	30	2.5	3.8	1.0	676.00..-D	73.49	074	73.49	074	81.03	574	80.20	574
R/L 007.0150-30	7	2.7	6.8	6.3	45	30	2.5	3.8	1.5	676.00..-D	73.49	079	73.49	079	81.03	579	77.64	579
R/L 007.0200-30	7	2.7	6.8	6.3	45	30	2.5	3.8	2.0	676.00..-D	73.93	174	65.72	174	81.03	674	75.26	674
R/L 007.0100-35	7	2.7	7.0	6.3	50	35	2.5	3.8	1.0	676.00..-D					90.37	688	87.84	688
R/L 007.0150-35	7	2.7	7.0	6.3	50	35	2.5	3.8	1.5	676.00..-D					90.37	690	87.84	690
R/L 007.0200-35	7	2.7	7.0	6.3	50	35	2.5	3.8	2.0	676.00..-D					90.37	692	87.84	692
R/L 007.0100-40	7	2.7	7.0	6.3	55	40	2.5	3.8	1.0	676.00..-D					100.25	700	97.41	700
R/L 007.0150-40	7	2.7	7.0	6.3	55	40	2.5	3.8	1.5	676.00..-D					100.25	702	97.41	702
R/L 007.0100-45	7	2.7	7.0	6.3	60	45	2.5	3.8	1.0	676.00..-D					108.78	712	105.81	712
R/L 007.0100-50	7	2.7	7.0	6.3	65	50	2.5	3.8	1.0	676.00..-D					116.56	714	113.12	714

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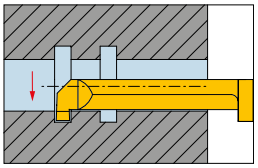
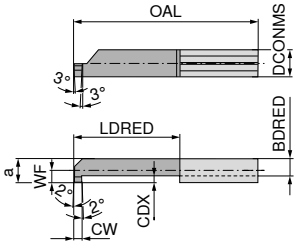
UltraMini – Inserts for Internal Grooving





Illustrations show right-hand versions

TiAlN



TiAlN



Designation	DCONMS $_{h6}$ mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	Standard tool holder	Left-hand 73 003 ... £ Y5		Right-hand 73 002 ... £ Y5	
R/L 002.0050-5	4		2	1.8	19	5	0.4	1.2	0.5	645.00..-D	62.55	**820**	62.55	**820**
R/L 002.0050-10	4		2	1.8	24	10	0.4	1.2	0.5	645.00..-D	62.98	**821**	62.98	**821**
R/L 002.0050-15	4		2	1.8	29	15	0.4	1.2	0.5	645.00..-D	69.29	**822**	69.29	**822**
R/L 003.0070-5	4	0.7	3	2.7	19	5	0.6	1.9	0.7	645.00..-D	57.99	**830**	57.99	**830**
R/L 003.0070-10	4	0.7	3	2.7	24	10	0.6	1.9	0.7	645.00..-D	66.90	**831**	66.90	**831**
R/L 003.0070-16	4	0.7	3	2.7	30	16	0.6	1.9	0.7	645.00..-D	74.53	**832**	74.53	**832**
P												●		●
M												●		●
K												●		●
N												●		●
S												●		●
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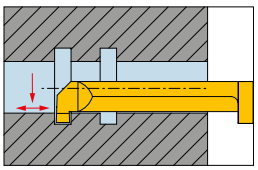
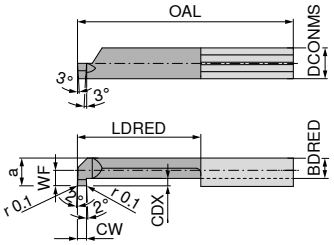
UltraMini – Inserts for Internal Grooving







TiAlN



TiAlN



Illustrations show right-hand versions

Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	Standard tool holder	Left-hand 73 203 ... £ Y5		Right-hand 73 202 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 004M0100-10	4	1.5	4.0	3.5	24	10	0.8	2.4	1.0	645.00..-D	53.48	800	53.48	800
R/L 004M0100-16	4	1.5	4.0	3.5	30	16	0.8	2.4	1.0	645.00..-D	61.05	802	61.05	802
R/L 004M0100-20	4	1.5	4.0	3.5	34	20	0.8	2.4	1.0	645.00..-D	67.24	804	67.24	804
R/L 005M0100-10	5	1.9	5.0	4.4	25	10	1.0	3.3	1.0	645.00..-D	50.47	806	50.47	806
R/L 005M0150-10	5	1.9	5.0	4.4	25	10	1.0	3.3	1.5	645.00..-D	50.47	816	50.47	816
R/L 005M0200-10	5	1.9	5.0	4.4	25	10	1.0	3.3	2.0	645.00..-D	50.47	826	50.47	826
R/L 005M0100-15	5	1.9	5.0	4.4	30	15	1.0	3.3	1.0	645.00..-D	57.86	808	57.86	808
R/L 005M0150-15	5	1.9	5.0	4.4	30	15	1.0	3.3	1.5	645.00..-D	57.86	818	57.86	818
R/L 005M0200-15	5	1.9	5.0	4.4	30	15	1.0	3.3	2.0	645.00..-D	57.86	828	57.86	828
R/L 005M0100-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.0	645.00..-D	64.65	810	64.65	810
R/L 005M0150-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.5	645.00..-D	64.65	820	64.65	820
R/L 005M0200-20	5	1.9	5.0	4.4	35	20	1.0	3.3	2.0	645.00..-D	64.65	830	64.65	830
R/L 005M0100-25	5	1.9	5.0	4.4	40	25	1.0	3.3	1.0	645.00..-D	70.22	812	70.22	812
R/L 005M0150-25	5	1.9	5.0	4.4	40	25	1.0	3.3	1.5	645.00..-D	70.22	822	70.22	822
R/L 005M0200-25	5	1.9	5.0	4.4	40	25	1.0	3.3	2.0	645.00..-D	70.22	832	70.22	832
R/L 005M0100-30	5	1.9	5.0	4.4	45	30	1.0	3.3	1.0	645.00..-D	77.83	814	77.83	814
R/L 005M0150-30	5	1.9	5.0	4.4	45	30	1.0	3.3	1.5	645.00..-D	77.83	824	77.83	824
R/L 005M0200-30	5	1.9	5.0	4.4	45	30	1.0	3.3	2.0	645.00..-D	77.83	834	77.83	834
R/L 006M0100-10	6	2.3	6.0	5.3	25	10	1.8	3.4	1.0	676.00..-D	50.47	836	50.47	836
R/L 006M0150-10	6	2.3	6.0	5.3	25	10	1.8	3.4	1.5	676.00..-D	50.47	846	50.47	846
R/L 006M0200-10	6	2.3	6.0	5.3	25	10	1.8	3.4	2.0	676.00..-D	50.47	856	50.47	856
R/L 006M0100-15	6	2.3	6.0	5.3	30	15	1.8	3.4	1.0	676.00..-D	57.86	838	57.86	838
R/L 006M0150-15	6	2.3	6.0	5.3	30	15	1.8	3.4	1.5	676.00..-D	57.86	848	57.86	848
R/L 006M0200-15	6	2.3	6.0	5.3	30	15	1.8	3.4	2.0	676.00..-D	57.86	858	57.86	858
R/L 006M0100-20	6	2.3	6.0	5.3	35	22	1.8	3.4	1.0	676.00..-D	64.65	840	64.65	840
R/L 006M0150-20	6	2.3	6.0	5.3	37	22	1.8	3.4	1.5	676.00..-D	64.65	850	64.65	850
R/L 006M0200-20	6	2.3	6.0	5.3	37	22	1.8	3.4	2.0	676.00..-D	64.65	860	64.65	860
R/L 006M0100-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.0	676.00..-D	70.22	842	70.22	842
R/L 006M0150-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.5	676.00..-D	70.22	852	70.22	852
R/L 006M0200-25	6	2.3	6.0	5.3	40	25	1.8	3.4	2.0	676.00..-D	70.22	862	70.22	862
R/L 006M0100-30	6	2.3	6.0	5.3	45	30	1.8	3.4	1.0	676.00..-D	77.83	844	77.83	844
R/L 006M0150-30	6	2.3	6.0	5.3	45	30	1.8	3.4	1.5	676.00..-D	77.83	854	77.83	854
R/L 006M0200-30	6	2.3	6.0	5.3	45	30	1.8	3.4	2.0	676.00..-D	77.83	864	77.83	864
R/L 007M0100-10	7	2.7	6.8	6.3	25	10	2.5	3.7	1.0	676.00..-D	50.47	866	50.47	866
R/L 007M0150-10	7	2.7	6.8	6.3	25	10	2.5	3.7	1.5	676.00..-D	50.47	876	50.47	876
R/L 007M0200-10	7	2.7	6.8	6.3	25	10	2.5	3.7	2.0	676.00..-D	50.47	886	50.47	886
R/L 007M0100-15	7	2.7	6.8	6.3	30	15	2.5	3.7	1.0	676.00..-D	57.86	868	57.86	868
R/L 007M0150-15	7	2.7	6.8	6.3	30	15	2.5	3.7	1.5	676.00..-D	57.86	878	57.86	878
R/L 007M0200-15	7	2.7	6.8	6.3	30	15	2.5	3.7	2.0	676.00..-D	57.86	888	57.86	888
R/L 007M0100-22	7	2.7	6.8	6.3	37	22	2.5	3.7	1.0	676.00..-D	64.65	870	64.65	870
R/L 007M0150-22	7	2.7	6.8	6.3	37	22	2.5	3.7	1.5	676.00..-D	64.65	880	64.65	880
R/L 007M0200-22	7	2.7	6.8	6.3	37	22	2.5	3.7	2.0	676.00..-D	64.65	890	64.65	890
R/L 007M0100-25	7	2.7	6.8	6.3	40	25	2.5	3.7	1.0	676.00..-D	70.22	872	70.22	872
R/L 007M0150-25	7	2.7	6.8	6.3	40	25	2.5	3.7	1.5	676.00..-D	70.22	882	70.22	882
R/L 007M0200-25	7	2.7	6.8	6.3	40	25	2.5	3.7	2.0	676.00..-D	70.22	892	70.22	892
R/L 007M0100-30	7	2.7	6.8	6.3	45	30	2.5	3.7	1.0	676.00..-D	78.41	874	78.41	874
R/L 007M0150-30	7	2.7	6.8	6.3	45	30	2.5	3.7	1.5	676.00..-D	78.41	884	78.41	884
R/L 007M0200-30	7	2.7	6.8	6.3	45	30	2.5	3.7	2.0	676.00..-D	78.41	894	78.41	894

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

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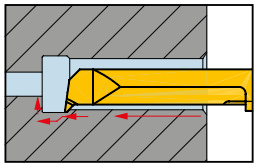
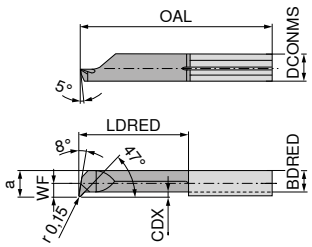
UltraMini – Inserts for internal undercuts







Illustrations show right-hand versions

	TiN	TiN	TiAlN	TiAlN
				
	Left-hand	Right-hand	Left-hand	Right-hand
	73 011 ...	**73 010 ...**	**73 011 ...**	**73 010 ...**
	£ Y5	£ Y5	£ Y5	£ Y5

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	Standard tool holder							
R/L 047.2-10	4		2.0	1.7	24	10	0.4	1.2	645.00..-D					58.89	**221**	58.89	**221**
R/L 047.3-15	4	0.6	2.8	2.6	29	15	0.6	1.9	645.00..-D					61.30	**231**	61.30	**231**
R/L 047.4-10	4	1.5	4.0	3.5	24	10	0.6	2.8	645.00..-D					56.13	**241**	56.13	**241**
R/L 047.T4-20	4	1.5	4.0	3.5	34	20	0.6	2.8	645.00..-D					65.84	**242**	65.84	**242**
R/L 047.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	645.00..-D	63.30	**542**	62.40	**542**				
R/L 047.5-15	5	1.9	5.0	4.4	30	15	0.8	3.5	645.00..-D					63.18	**251**	63.18	**251**
R/L 047.T5-25	5	1.9	5.0	4.4	40	25	0.8	3.5	645.00..-D					66.84	**252**	66.84	**252**
R/L 047.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	645.00..-D	62.98	**552**	62.98	**552**				
R/L 047.T6-22	6	2.3	6.0	5.3	37	22	1.8	3.4	676.00..-D					64.70	**262**	64.70	**262**
R/L 047.T6-30	6	2.3	6.0	5.3	45	30	1.8	3.4	676.00..-D					86.14	**263**	68.37	**263**
R/L 047.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	676.00..-D	64.44	**562**	65.42	**562**				

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

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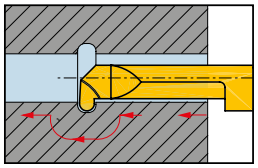
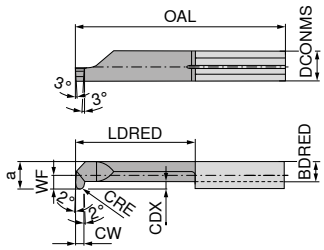
UltraMini – Inserts for internal grooving and turning







TiN

TiN





Illustrations show right-hand versions

Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	CRE	Standard tool holder	Left-hand 73 019 ... £ Y5		Right-hand 73 018 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 006-0.75-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.5	0.75	676.00..-D	66.44	**564**	66.44	**564**
R/L 006-0.50-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.0	0.50	676.00..-D	66.44	**562**	66.44	**562**
R/L 006-1.00-25	6	2.3	6.0	5.3	40	25	1.8	3.4	2.0	1.00	676.00..-D	66.44	**566**	65.42	**566**
R/L 005-1.00-20	5	1.9	5.0	4.4	35	20	1.0	3.3	2.0	1.00	645.00..-D	64.95	**556**	64.95	**556**
R/L 007-0.50-30	7	2.7	6.8	6.3	45	30	2.5	3.8	1.0	0.50	676.00..-D	68.52	**572**	65.33	**572**
R/L 005-0.75-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.5	0.75	645.00..-D	64.95	**554**	64.95	**554**
R/L 007-0.75-30	7	2.7	6.8	6.3	45	30	2.5	3.8	1.5	0.75	676.00..-D	68.52	**574**	68.52	**574**
R/L 005-0.50-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.0	0.50	645.00..-D	64.95	**552**	64.95	**552**
R/L 007-1.00-30	7	2.7	6.8	6.3	45	30	2.5	3.8	2.0	1.00	676.00..-D	68.52	**576**	68.52	**576**
R/L 004-0.50-16	4	1.5	4.0	3.5	30	16	0.8	2.4	1.0	0.50	645.00..-D	61.49	**541**	58.82	**541**
P													●		●
M													●		●
K													●		●
N													●		●
S													o		o
H													o		o
O													●		●

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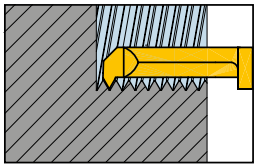
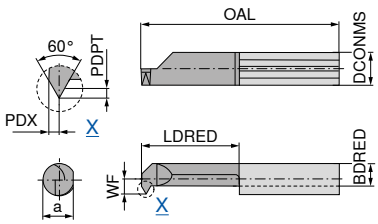
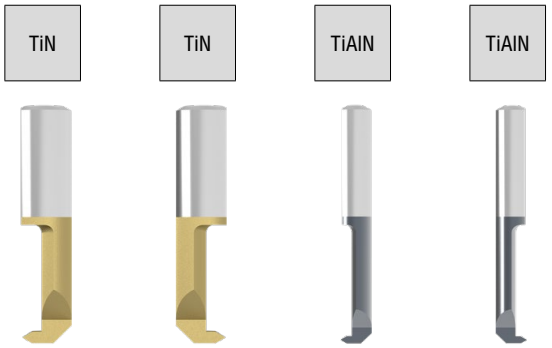
UltraMini – Inserts for internal threading (Partial profile)









Illustrations show right-hand versions

Designation	DCONMS h6	TP	WF	DMIN	a	OAL	LDRED	BDRED	PDPT	PDX	Standard tool holder	Left-hand 73 101 ... £ Y5		Right-hand 73 100 ... £ Y5		Left-hand 73 101 ... £ Y5		Right-hand 73 100 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm									
R/L 003.0105-8	4	0.50	0.30	2.4	2.3	22	8	1.8	0.27	0.33	645.00..-D					59.52	**551**	59.52	**551**
R/L 004.0408-15	4	0.80	1.75	4.0	3.5	30	15	2.4	0.43	0.45	645.00..-D					62.06	**552**	62.06	**552**
R/L 005.0510-15	5	1.00	1.90	4.8	4.4	30	15	3.3	0.55	0.55	645.00..-D	56.61	**545**	54.87	**545**				
R/L 005.0510-20	5	1.00	1.90	4.8	4.4	35	20	3.3	0.55	0.55	645.00..-D	57.39	**544**	57.16	**544**				
R/L 006.0612-15	6	1.25	2.30	6.0	5.3	30	15	3.4	0.68	0.65	676.00..-D	55.49	**547**	54.87	**547**				
R/L 006.0612-22	6	1.25	2.30	6.0	5.3	37	22	3.4	0.68	0.65	676.00..-D	58.15	**546**	56.74	**546**				
R/L 006.0815-15	6	1.50	2.30	6.0	5.3	30	15	3.4	0.81	0.75	676.00..-D	56.61	**549**	55.58	**549**				
R/L 006.0815-22	6	1.50	2.30	6.0	5.3	37	22	3.4	0.81	0.75	676.00..-D	58.15	**548**	56.74	**548**				
R/L 007.0815-15	7	1.50	2.70	7.0	6.3	30	15	3.8	0.81	0.75	676.00..-D	56.27	**550**	56.74	**550**				
P													●		●		●		●
M													●		●		●		●
K													●		●		●		●
N													●		●		●		●
S													○		○		●		●
H													○		○		●		●
O													●		●		●		●

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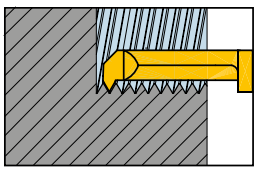
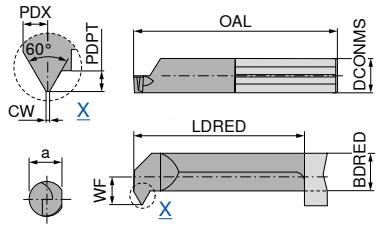
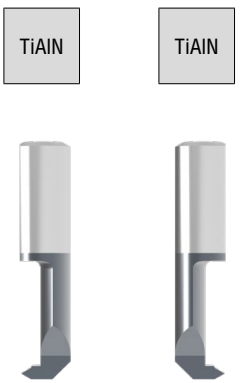
UltraMini – Inserts for Internal thread turning (Full profile)









Illustrations show right-hand versions

Designation	DCONMS h6	TP	WF	DMIN	a	OAL	LDRED	BDRED	PDPT	PDX	CW	Standard tool holder	Left-hand 73 209 ... £ Y5		Right-hand 73 208 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 105.0408-15	5	0.80	1.9	4.8	4.4	30	15	3.3	0.43	0.50	0.10	645.00..-D	64.33	**799**	64.33	**799**
R/L 105.510-15	5	1.00	1.9	4.8	4.4	30	15	3.3	0.54	0.55	0.12	645.00..-D	59.45	**800**	59.45	**800**
R/L 106.612-15	6	1.25	2.3	6.0	5.3	30	15	3.4	0.67	0.65	0.15	676.00..-D	59.45	**802**	59.45	**802**
R/L 106.815-15	6	1.50	2.3	6.0	5.3	30	15	3.4	0.81	0.75	0.18	676.00..-D	59.45	**804**	59.45	**804**
R/L 106.815-15	7	1.50	2.7	7.0	6.3	30	15	3.8	0.81	0.75	0.18	676.00..-D	59.45	**806**	59.45	**806**
P														●		●
M														●		●
K														●		●
N														●		●
S														●		●
H														●		●
O														●		●

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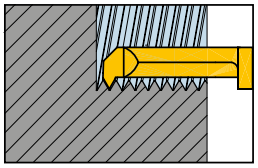
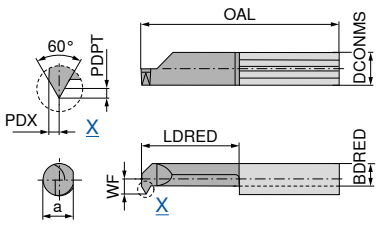
UltraMini – Inserts for internal thread turning (Partial profile)









Illustrations show right-hand versions

Designation	DCONMS h6 mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	Standard tool holder	Left-hand 73 103 ... £ Y5		Right-hand 73 102 ... £ Y5		Left-hand 73 103 ... £ Y5		Right-hand 73 102 ... £ Y5	
R/L 004.0105-10	4	0.50	1.0	3.2	3.0	24	10	2.3	0.27	0.44	645.00..-D					58.65	509	58.65	509
R/L 004.0205-15	4	0.50	1.5	4.0	3.5	30	15	2.4	0.27	0.35	645.00..-D	58.62	510	58.62	510				
R/L 005.0205-15	5	0.50	1.9	5.0	4.4	30	15	3.3	0.27	0.35	645.00..-D	56.61	539	56.61	539				
R/L 005.0205-20	5	0.50	1.9	5.0	4.4	35	20	3.3	0.27	0.35	645.00..-D	57.39	540	57.39	540				
R/L 005.0407-15	5	0.75	1.9	5.0	4.4	30	15	3.3	0.40	0.45	645.00..-D	56.61	541	56.61	541				
R/L 005.0407-20	5	0.75	1.9	5.0	4.4	35	20	3.3	0.40	0.45	645.00..-D	57.39	542	57.39	542				
R/L 006.0510-15	6	1.00	2.3	6.0	5.3	30	15	3.4	0.55	0.55	676.00..-D	56.61	543	56.61	543				
R/L 006.0510-22	6	1.00	2.3	6.0	5.3	37	22	3.4	0.55	0.55	676.00..-D	58.15	544	58.15	544				
P												●		●		●		●	
M												●		●		●		●	
K												●		●		●		●	
N												●		●		●		●	
S												○		○		●		●	
H												○		○		●		●	
O												●		●		●		●	

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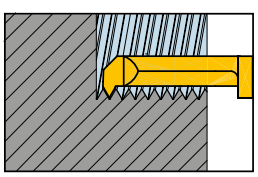
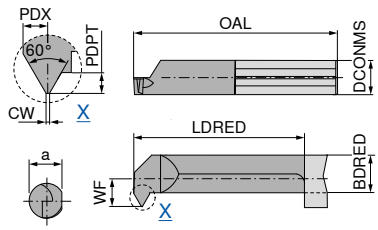
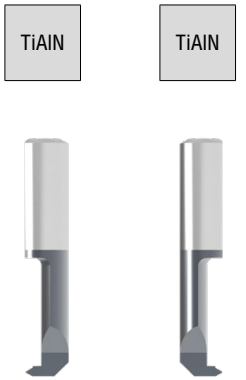
UltraMini – Inserts for Internal thread turning (Full profile)









Illustrations show right-hand versions

Designation	DCONMS h6 mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	CW mm	Standard tool holder	Left-hand 73 207 ... £ Y5		Right-hand 73 206 ... £ Y5	
R/L 104.0205-15	5	0.50	1.5	4	3.5	30	15	2.4	0.27	0.35	0.06	645.00..-D	62.66	800	62.66	800
R/L 105.0205-15	5	0.50	1.9	5	4.4	30	15	3.3	0.27	0.35	0.06	645.00..-D	59.45	802	59.45	802
R/L 105.0407-15	5	0.75	1.9	5	4.4	30	15	3.3	0.40	0.45	0.09	645.00..-D	59.45	804	59.45	804
R/L 106.0510-15	6	1.00	2.3	6	5.3	30	15	3.4	0.54	0.55	0.12	676.00..-D	59.45	806	59.45	806
P													●		●	
M													●		●	
K													●		●	
N													●		●	
S													●		●	
H													●		●	
O													●		●	

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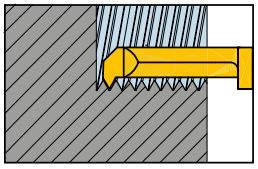
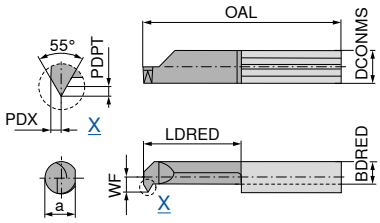
UltraMini – Inserts for internal thread turning (Partial profile)



TiN | TiN









Illustrations show right-hand versions

Left-hand | Right-hand

73 105 ... | **73 104 ...**

Designation	DCONMS h6 mm	TPI 1/"	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	Standard tool holder	£ Y5		£ Y5	
R/L 005.5548-15	5	48 - 24	1.9	4.8	4.4	30	15	3.3	0.40	0.45	645.00..-D	60.48	**552**	60.48	**552**
R/L 006.5548-15	6	48 - 24	2.3	6.0	5.3	30	15	3.4	0.40	0.45	676.00..-D	60.48	**562**	60.48	**562**
R/L 006.5524-15	6	24 - 16	2.3	6.0	5.3	30	15	3.4	0.81	0.75	676.00..-D	60.48	**563**	60.48	**563**
R/L 007.5524-15	7	24 - 16	2.7	7.0	6.3	30	15	3.8	0.81	0.75	676.00..-D	60.48	**572**	60.48	**572**

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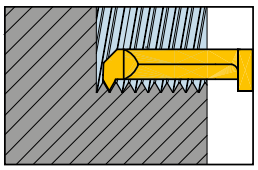
→ v_c Page 59

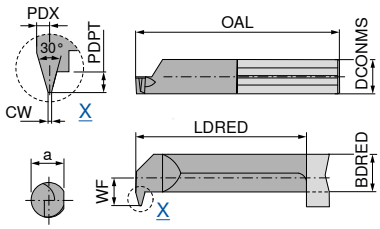
UltraMini – Inserts for internal thread turning (Partial profile)

▲ Trapezoidal thread DIN 103



TiAlN | TiAlN









Illustrations show right-hand versions

Left-hand | Right-hand

73 211 ... | **73 210 ...**

Designation	DCONMS h6 mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	CW mm	Standard tool holder	£ Y5		£ Y5	
R/L 007.1220-22	7	2	2.8	7	6.3	37	22	3.8	1.25	0.75	0.6	676.00..-D	80.47	**222**	80.47	**222**
R/L 007.1220-30	7	2	2.8	7	6.3	45	30	3.8	1.25	0.75	0.6	676.00..-D	97.24	**230**	97.24	**230**
R/L 007.1730-22	7	3	2.8	7	6.3	37	22	3.8	1.75	1.10	1.0	676.00..-D	80.47	**322**	80.47	**322**
R/L 007.1730-30	7	3	2.8	7	6.3	45	30	3.8	1.75	1.10	1.0	676.00..-D	97.24	**330**	97.24	**330**

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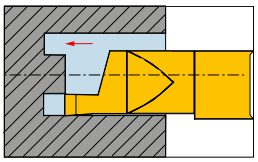
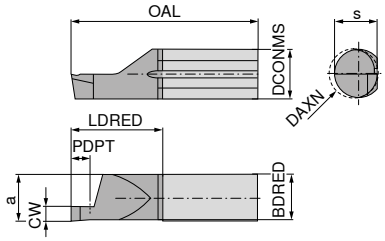
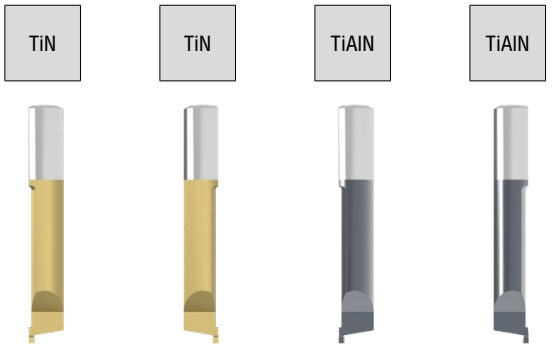
UltraMini – Inserts for axial grooving







Illustrations show right-hand versions

											Left-hand		Right-hand		Left-hand		Right-hand	
											73 051 ...		73 050 ...		73 053 ...		73 052 ...	
Designation	DCONMS h6	a	DAXN	s	OAL	LDRED	PDPT	BDRED	CW	Standard tool holder	£		£		£		£	
	mm	mm	mm	mm	mm	mm	mm	mm	mm		Y5		Y5		Y5		Y5	
R/L 010.1006-10	6	5.2	6	5.3	26	11	1.5	4.9	1.0	676.00..-D	62.84	**561**	61.05	**561**	62.55	**561**	62.55	**561**
R/L 010.1506-10	6	5.2	6	5.3	26	11	2.0	4.9	1.5	676.00..-D	62.84	**563**	61.05	**563**	62.55	**563**	62.55	**563**
R/L 010.1008-10	7	5.9	8	6.3	26	11	1.5	5.6	1.0	676.00..-D	62.98	**571**	62.40	**571**	64.04	**571**	64.04	**571**
R/L 010.1008-20	7	5.9	8	6.3	35	20	1.5	5.6	1.0	676.00..-D	68.52	**671**	66.73	**671**	68.41	**671**	68.41	**671**
R/L 010.1008-30	7	5.9	8	6.3	45	30	1.5	5.6	1.0	676.00..-D	72.28	**771**	70.32	**771**	70.76	**771**	70.76	**771**
R/L 010.1508-10	7	5.9	8	6.3	26	11	2.5	5.6	1.5	676.00..-D	62.98	**573**	60.48	**573**	64.04	**573**	64.04	**573**
R/L 010.1508-20	7	5.9	8	6.3	35	20	2.5	5.6	1.5	676.00..-D	68.52	**673**	64.44	**673**	68.41	**673**	68.41	**673**
R/L 010.1508-30	7	5.9	8	6.3	45	30	2.5	5.6	1.5	676.00..-D	72.28	**773**	70.32	**773**	70.76	**773**	70.76	**773**
R/L 010.2008-10	7	5.9	8	6.3	26	11	3.0	5.6	2.0	676.00..-D	62.98	**575**	60.48	**575**	64.04	**575**	64.04	**575**
R/L 010.2008-20	7	5.9	8	6.3	35	20	3.0	5.6	2.0	676.00..-D	68.52	**675**	64.44	**675**	68.41	**675**	68.41	**675**
R/L 010.2008-30	7	5.9	8	6.3	45	30	3.0	5.6	2.0	676.00..-D	72.28	**775**	70.32	**775**	70.76	**775**	70.76	**775**
R/L 010.2508-10	7	5.9	8	6.3	26	11	3.5	5.6	2.5	676.00..-D	62.98	**577**	62.40	**577**	64.04	**577**	64.04	**577**
R/L 010.2508-20	7	5.9	8	6.3	35	20	3.5	5.6	2.5	676.00..-D	68.52	**677**	66.73	**677**	68.41	**677**	68.41	**677**
R/L 010.2508-30	7	5.9	8	6.3	45	30	3.5	5.6	2.5	676.00..-D	72.28	**777**	70.32	**777**	70.76	**777**	70.76	**777**
R/L 010.3008-10	7	5.9	8	6.3	26	11	3.5	5.6	3.0	676.00..-D	62.98	**579**	62.40	**579**	64.04	**579**	64.04	**579**
R/L 010.3008-20	7	5.9	8	6.3	35	20	3.5	5.6	3.0	676.00..-D	68.52	**679**	64.44	**679**	68.41	**679**	68.41	**679**
R/L 010.3008-30	7	5.9	8	6.3	45	30	3.5	5.6	3.0	676.00..-D	72.28	**779**	70.32	**779**	70.76	**779**	70.76	**779**

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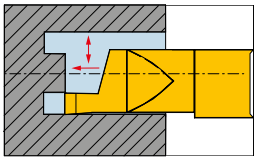
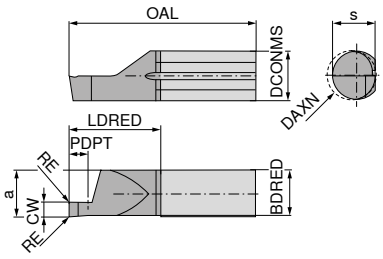
UltraMini – Inserts for axial grooving

▲ with corner radius







TiAlN



TiAlN



Illustrations show right-hand versions

Designation	DCONMS h6	a	DAXN	s	OAL	LDRED	PDPT	BDRED	CW	RE	Standard tool holder	Left-hand 73 253 ... £ Y5		Right-hand 73 252 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 510M1008-10	5	4.3	5	6.3	26	11	2	4.0	1.0	0.05	645.00..-D	76.31	**510**	76.31	**510**
R/L 510M1008-20	5	4.3	5	6.3	35	20	2	4.0	1.0	0.05	645.00..-D	80.59	**610**	80.59	**610**
R/L 510M1508-10	5	4.3	5	6.3	26	11	3	4.0	1.5	0.05	645.00..-D	76.31	**515**	76.31	**515**
R/L 510M1508-20	5	4.3	5	6.3	35	20	3	4.0	1.5	0.05	645.00..-D	80.59	**615**	80.59	**615**
R/L 510M2008-10	5	4.3	5	6.3	26	11	4	4.0	2.0	0.05	645.00..-D	76.31	**520**	76.31	**520**
R/L 510M2008-20	5	4.3	5	6.3	35	20	4	4.0	2.0	0.05	645.00..-D	80.59	**620**	80.59	**620**
R/L 010M1008-10	7	5.9	8	6.3	26	11	2	5.6	1.0	0.10	676.00..-D	70.62	**800**	70.62	**800**
R/L 010M1008-20	7	5.9	8	6.3	35	20	2	5.6	1.0	0.10	676.00..-D	74.60	**810**	74.60	**810**
R/L 010M1008-30	7	5.9	8	6.3	45	30	2	5.6	1.0	0.10	676.00..-D	78.00	**820**	78.00	**820**
R/L 010M1508-10	7	5.9	8	6.3	26	11	3	5.6	1.5	0.10	676.00..-D	70.62	**802**	70.62	**802**
R/L 010M1508-20	7	5.9	8	6.3	35	20	3	5.6	1.5	0.10	676.00..-D	74.60	**812**	74.60	**812**
R/L 010M1508-30	7	5.9	8	6.3	45	30	3	5.6	1.5	0.10	676.00..-D	78.00	**822**	78.00	**822**
R/L 010M2008-10	7	5.9	8	6.3	26	11	4	5.6	2.0	0.10	676.00..-D	70.62	**804**	70.62	**804**
R/L 010M2008-20	7	5.9	8	6.3	35	20	4	5.6	2.0	0.10	676.00..-D	74.60	**814**	74.60	**814**
R/L 010M2008-30	7	5.9	8	6.3	45	30	4	5.6	2.0	0.10	676.00..-D	78.00	**824**	78.00	**824**
R/L 010M2508-10	7	5.9	8	6.3	26	11	5	5.6	2.5	0.10	676.00..-D	70.62	**806**	70.62	**806**
R/L 010M2508-20	7	5.9	8	6.3	35	20	5	5.6	2.5	0.10	676.00..-D	74.60	**816**	74.60	**816**
R/L 010M2508-30	7	5.9	8	6.3	45	30	5	5.6	2.5	0.10	676.00..-D	78.00	**826**	78.00	**826**
R/L 010M3008-10	7	5.9	8	6.3	26	11	6	5.6	3.0	0.10	676.00..-D	70.62	**808**	70.62	**808**
R/L 010M3008-20	7	5.9	8	6.3	35	20	6	5.6	3.0	0.10	676.00..-D	74.60	**818**	74.60	**818**
R/L 010M3008-30	7	5.9	8	6.3	45	30	6	5.6	3.0	0.10	676.00..-D	78.00	**828**	78.00	**828**

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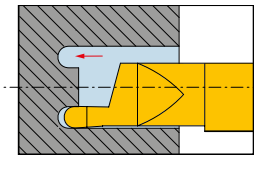
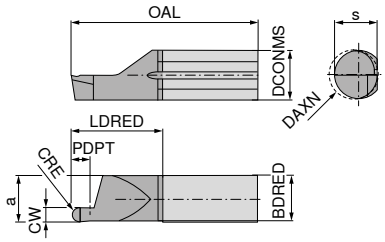
UltraMini – Inserts for axial grooving (Full radius)







TiAlN



TiAlN



Illustrations show right-hand versions

Designation	DCONMS $_{h6}$	a	DAXN	s	OAL	LDRED	PDPT	BDRED	CW	CRE	Standard tool holder	Left-hand 73 059 ... £ Y5		Right-hand 73 058 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 610.1005-10	6	5.2	6	5.3	26	11	2	4.9	1.0	0.50	676.00..-D	77.68	**071**	77.68	**071**
R/L 610.1005-20	6	5.2	6	5.3	35	20	2	4.9	1.0	0.50	676.00..-D	82.24	**171**	82.24	**171**
R/L 610.1608-10	6	5.2	6	5.3	26	11	3	4.9	1.6	0.80	676.00..-D	77.68	**073**	77.68	**073**
R/L 610.1608-20	6	5.2	6	5.3	35	20	3	4.9	1.6	0.80	676.00..-D	82.24	**173**	82.24	**173**
R/L 610.2010-10	6	5.2	6	5.3	26	11	4	4.9	2.0	1.00	676.00..-D	77.68	**075**	77.68	**075**
R/L 610.2010-20	6	5.2	6	5.3	35	20	4	4.9	2.0	1.00	676.00..-D	82.24	**175**	82.24	**175**
R/L 610.2512-10	6	5.2	6	5.3	26	11	5	4.9	2.5	1.25	676.00..-D	77.68	**077**	77.68	**077**
R/L 610.2512-20	6	5.2	6	5.3	35	20	5	4.9	2.5	1.25	676.00..-D	82.24	**177**	82.24	**177**
R/L 610.3015-10	6	5.2	6	5.3	26	11	6	4.9	3.0	1.50	676.00..-D	77.68	**079**	77.68	**079**
R/L 610.3015-20	6	5.2	6	5.3	35	20	6	4.9	3.0	1.50	676.00..-D	82.24	**179**	82.24	**179**
R/L 010.1005-10	7	5.9	8	6.3	26	11	2	5.6	1.0	0.50	676.00..-D	74.53	**571**	74.53	**571**
R/L 010.1005-20	7	5.9	8	6.3	35	20	2	5.6	1.0	0.50	676.00..-D	78.87	**671**	78.87	**671**
R/L 010.1608-10	7	5.9	8	6.3	26	11	3	5.6	1.6	0.80	676.00..-D	74.53	**573**	74.53	**573**
R/L 010.1608-20	7	5.9	8	6.3	35	20	3	5.6	1.6	0.80	676.00..-D	78.87	**673**	78.87	**673**
R/L 010.2010-10	7	5.9	8	6.3	26	11	4	5.6	2.0	1.00	676.00..-D	74.53	**575**	74.53	**575**
R/L 010.2010-20	7	5.9	8	6.3	35	20	4	5.6	2.0	1.00	676.00..-D	78.87	**675**	78.87	**675**
R/L 010.2512-10	7	5.9	8	6.3	26	11	5	5.6	2.5	1.25	676.00..-D	74.53	**577**	74.53	**577**
R/L 010.2512-20	7	5.9	8	6.3	35	20	5	5.6	2.5	1.25	676.00..-D	78.87	**677**	78.87	**677**
R/L 010.3015-10	7	5.9	8	6.3	26	11	6	5.6	3.0	1.50	676.00..-D	74.53	**579**	74.53	**579**
R/L 010.3015-20	7	5.9	8	6.3	35	20	6	5.6	3.0	1.50	676.00..-D	78.87	**679**	78.87	**679**

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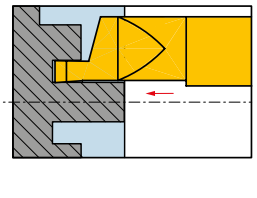
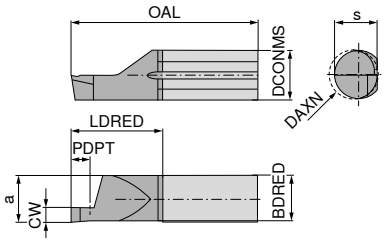
→ v_c Page 59

UltraMini – Inserts for axial grooving over a spigot



TiAlN TiAlN









Illustrations show right-hand versions

Left-hand Right-hand

73 061 ... **73 060 ...**

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	Standard tool holder	£ Y5		£ Y5	
R/L 620.1006-20	6	5.2	6	5.3	35	20	2	4.9	1.0	676.00..-D	78.87	**561**	78.87	**561**
R/L 620.1506-20	6	5.2	6	5.3	35	20	3	4.9	1.5	676.00..-D	78.87	**563**	78.87	**563**
R/L 620.2006-20	6	5.2	6	5.3	35	20	4	4.9	2.0	676.00..-D	78.87	**565**	78.87	**565**
R/L 620.2506-20	6	5.2	6	5.3	35	20	5	4.9	2.5	676.00..-D	78.87	**567**	78.87	**567**
R/L 620.3006-20	6	5.2	6	5.3	35	20	6	4.9	3.0	676.00..-D	78.87	**569**	78.87	**569**

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

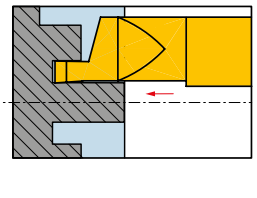
→ v_c Page 59

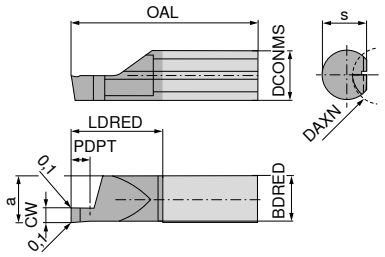
UltraMini – Inserts for axial grooving over a spigot

▲ with corner radius



TiAlN TiAlN









Illustrations show right-hand versions

Left-hand Right-hand

73 261 ... **73 260 ...**

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	Standard tool holder	£ Y5		£ Y5	
R/L 620M1006-20	6	5.2	6	5.3	35	20	2	4.9	1.0	676.00..-D	75.42	**800**	75.42	**800**
R/L 620M1506-20	6	5.2	6	5.3	35	20	3	4.9	1.5	676.00..-D	75.42	**802**	75.42	**802**
R/L 620M2006-20	6	5.2	6	5.3	35	20	4	4.9	2.0	676.00..-D	75.42	**804**	75.42	**804**
R/L 620M2506-20	6	5.2	6	5.3	35	20	5	4.9	2.5	676.00..-D	75.42	**806**	75.42	**806**
R/L 620M3006-20	6	5.2	6	5.3	35	20	6	4.9	3.0	676.00..-D	75.42	**808**	75.42	**808**

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→ v_c Page 59

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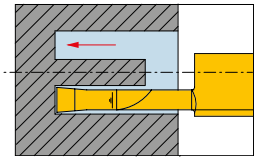
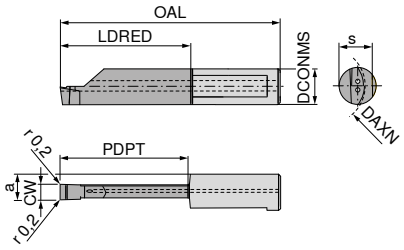
UltraMini – Inserts for axial grooving

- up to 70 bar
- dual cooling channel







TiAlN



TiAlN



Illustrations show right-hand versions

Designation	DCONMS h6	a	DAXN	s	OAL	LDRED	PDPT	CW	Standard tool holder	Left-hand 73 263 ... £ Y5		Right-hand 73 262 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 012.0200-10	8	5.00	12	7.3	30	10	10	2.0	687.00..-D	69.78	**700**	69.78	**700**
R/L 012.0200-15	8	5.00	12	7.3	35	15	15	2.0	687.00..-D	71.14	**702**	71.14	**702**
R/L 012.0250-10	8	5.25	12	7.3	30	10	10	2.5	687.00..-D	69.78	**704**	69.78	**704**
R/L 012.0250-20	8	5.25	12	7.3	40	20	20	2.5	687.00..-D	72.41	**706**	72.41	**706**
R/L 016.0300-10	8	5.50	16	7.3	30	10	10	3.0	687.00..-D	98.94	**800**	98.94	**800**
R/L 016.0300-20	8	5.50	16	7.3	40	20	20	3.0	687.00..-D	101.57	**802**	101.57	**802**
R/L 020.0300-25	8	5.50	20	7.3	45	25	25	3.0	687.00..-D	102.95	**804**	102.95	**804**
R/L 020.0300-30	8	5.50	20	7.3	50	30	30	3.0	687.00..-D	102.95	**806**	102.95	**806**
R/L 020.0300-35	8	5.50	20	7.3	55	35	35	3.0	687.00..-D	105.34	**808**	105.34	**808**
R/L 020.0300-40	8	5.50	20	7.3	60	40	40	3.0	687.00..-D	105.34	**810**	105.34	**810**
R/L 016.0400-10	8	6.00	16	7.3	30	10	10	4.0	687.00..-D	98.94	**812**	98.94	**812**
R/L 016.0400-20	8	6.00	16	7.3	40	20	20	4.0	687.00..-D	101.57	**814**	101.57	**814**
R/L 020.0400-25	8	6.00	20	7.3	45	25	25	4.0	687.00..-D	102.95	**816**	102.95	**816**
R/L 020.0400-30	8	6.00	20	7.3	50	30	30	4.0	687.00..-D	102.95	**818**	102.95	**818**
R/L 020.0400-35	8	6.00	20	7.3	55	35	35	4.0	687.00..-D	105.34	**820**	105.34	**820**
R/L 020.0400-40	8	6.00	20	7.3	60	40	40	4.0	687.00..-D	105.34	**822**	105.34	**822**
R/L 020.0500.20	8	6.50	20	7.3	40	20	20	5.0	687.00..-D	98.94	**824**	98.94	**824**
R/L 020.0500.25	8	6.50	20	7.3	45	25	25	5.0	687.00..-D	100.15	**826**	100.15	**826**
R/L 020.0500.30	8	6.50	20	7.3	50	30	30	5.0	687.00..-D	100.15	**828**	100.15	**828**
R/L 020.0500.35	8	6.50	20	7.3	55	35	35	5.0	687.00..-D	102.95	**830**	102.95	**830**
R/L 020.0500.40	8	6.50	20	7.3	60	40	40	5.0	687.00..-D	100.11	**832**	100.11	**832**

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

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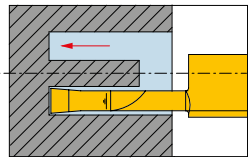
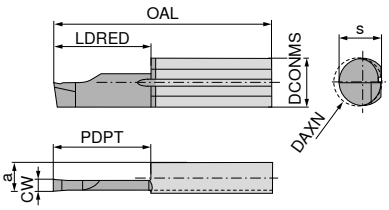
UltraMini – Inserts for axial grooving







TiN | TiN | TiAlN | TiAlN



Illustrations show right-hand versions

										Left-hand		Right-hand		Left-hand		Right-hand	
										73 055 ...		73 054 ...		73 057 ...		73 056 ...	
Designation	DCONMS h6	a	DAXN	s	OAL	LDRED	PDPT	CW	Standard tool holder	£ Y5		£ Y5		£ Y5		£ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm									
R/L 015.2515-20	7	5.9	15	6.3	35	20	20	2.5	676.00..-D	86.18	**572**	80.81	**572**	85.89	**572**	85.89	**572**
R/L 015.3015-20	7	5.9	15	6.3	35	20	20	3.0	676.00..-D	80.81	**574**	80.81	**574**	85.89	**574**	85.89	**574**
R/L 015.3015-30	7	5.9	15	6.3	45	30	30	3.0	676.00..-D	94.88	**674**	94.88	**674**	94.71	**674**	94.71	**674**
P										●		●		●		●	
M										●		●		●		●	
K										●		●		●		●	
N										●		●		●		●	
S										○		○		●		●	
H										○		○		●		●	
O										●		●		●		●	

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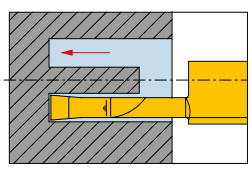
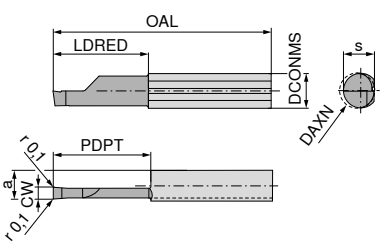
UltraMini – Inserts for axial grooving

▲ with corner radius







TiAlN | TiAlN



Illustrations show right-hand versions

										Left-hand		Right-hand	
										73 257 ...		73 256 ...	
Designation	DCONMS h6	a	DAXN	s	OAL	LDRED	PDPT	CW	Standard tool holder	£ Y5		£ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 015M2515-20	7	5.9	8	6.3	35	20	20	2.5	676.00..-D	82.60	**800**	82.60	**800**
R/L 015M3015-20	7	5.9	8	6.3	35	20	20	3.0	676.00..-D	82.60	**802**	82.60	**802**
R/L 015M3015-30	7	5.9	8	6.3	45	30	30	3.0	676.00..-D	90.37	**804**	90.37	**804**
P										●		●	
M										●		●	
K										●		●	
N										●		●	
S										●		●	
H										●		●	
O										●		●	

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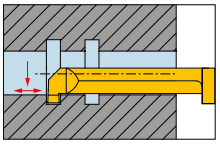
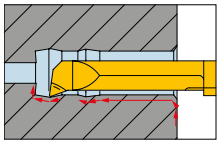
UltraMini – Set: Internal turning, grooving and chamfering, right hand

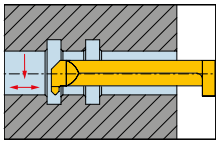
- extensive assortment of right-hand tools
- K10F – TiN



Grooving (E)



Profile turn (A)



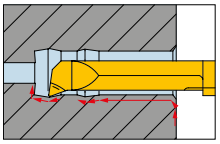
Chamfers (F)



Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Grooving depth mm	Groove width mm	Piece	fig.	73 085 ... £ Y5	
Inserts	**R 004.0100-16**	**73 002 541**	4	16	0,8	1,0	1	E		
Inserts	**R 005.0150-20**	**73 002 552**	5	20	1,0	1,5	1	E		
Inserts	**R 005.0200-20**	**73 002 553**	5	20	1,0	2,0	1	E		
Inserts	**R 006.0150-22**	**73 002 562**	6	22	1,8	1,5	1	E		
Inserts	**R 006.0200-22**	**73 002 563**	6	22	1,8	2,0	1	E		
Inserts	**R 050.3-16**	**73 004 530**	3	16			1	A	1,000.84	999
Inserts	**R 050.4-16**	**73 004 540**	4	16			1	A		
Inserts	**R 050.5-20**	**73 004 550**	5	20			1	A		
Inserts	**R 050.6-22**	**73 004 560**	6	22			1	A		
Inserts	**R 060.5-20**	**73 006 550**	5	20			1	F		
Tool holder	**645.0016-D**	**73 080 164**					1			
Tool holder	**676.0016-D**	**73 080 166**					1			
Tightening Key	**110.645**	**70 950 175**					1			

UltraMini – Set: Internal Turning

- extensive assortment of right-hand tools
- K10F – TiN





Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Piece	73 085 ... £ Y5	
Inserts	R 050.3-16	73 004 530	3	16	1		
Inserts	R 050.4-16	73 004 540	4	16	1		
Inserts	R 050.5-20	73 004 550	5	20	1	629.02	994
Inserts	R 050.6-22	73 004 560	6	22	1		
Tool holder	645.0016-D	73 080 164			1		
Tool holder	676.0016-D	73 080 166			1		
Tightening Key	110.645	70 950 175			1		

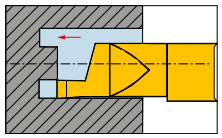
UltraMini – Set: Holder



Tool	Designation	Article no.	for cutting insert Ø mm	Piece	73 085 ... £ Y5	
Tool holder	**645.0016-D**	**73 080 164**	3 / 4 / 5	1		
Tool holder	**676.0016-D**	**73 080 166**	6 / 7	1	392.18	990
Tightening Key	**110.645**	**70 950 175**		1		

UltraMini – Set: Axial Grooving

- extensive assortment of right-hand tools
- K10F – TiN





73 085 ...

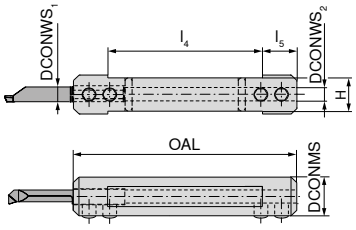
Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Grooving depth mm	Groove width mm	Piece	£ Y5	
Inserts	**R 010.1008-10**	**73 050 571**	8	10	1,5	1,0	1		
Inserts	**R 010.1508-10**	**73 050 573**	8	10	2,5	1,5	1		
Inserts	**R 010.2008-10**	**73 050 575**	8	10	3,0	2,0	1	507.82	**996**
Inserts	**R 010.2508-20**	**73 050 677**	8	20	3,5	2,5	1		
Inserts	**R 010.3008-20**	**73 050 679**	8	20	3,5	3,0	1		
Tool holder	**676.0016-D**	**73 080 166**					1		
Tightening Key	**110.645**	**70 950 175**					1		

UltraMini – Standard tool holder for cutting inserts

- ▲ double ended
- ▲ Machining diameter from Ø 0.5 mm

Scope of supply:

Tool holder with allen key





Designation	DCONWS$_1$ mm	DCONWS$_2$ mm	DCONMS mm	OAL mm	l_4 mm	l_5 mm	H mm	73 080 ... £ Y5	
687.0020-D	7	8	20.00	90	70	10	18.0	236.81	**169**
645.001905-D	4	5	19.05	90	70	10	17.2	158.95	**170**
687.0016-D	7	8	16.00	75	55	10	14.0	221.26	**168**
645.0022-D	4	5	22.00	90	70	10	20.0	165.76	**171**
676.0020-D	6	7	20.00	90	70	10	18.0	205.45	**167**
645.00254-D	4	5	25.40	95	75	10	23.4	175.98	**172**
676.0016-D	6	7	16.00	75	55	10	14.0	190.79	**166**
676.001905-D	6	7	19.05	90	70	10	17.2	158.95	**173**
645.0020-D	4	5	20.00	90	70	10	18.0	205.45	**165**
676.0022-D	6	7	22.00	90	70	10	20.0	165.76	**174**
645.0016-D	4	5	16.00	75	55	10	14.0	190.79	**164**
676.00254-D	6	7	25.40	95	75	10	23.4	175.98	**175**
645.0012-D	4	5	12.00	75	55	10	10.3	181.64	**163**


Key I


Clamping screw

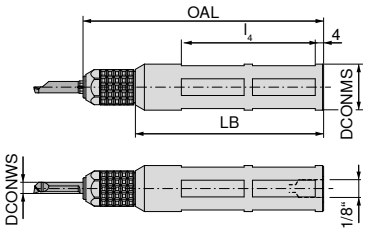
Spare parts for Article no.		70 950 ... £ 2A/28			73 082 ... £ Y5	
73 080 169	SW2,5	2.34	**175**	M6x6	8.58	**014**
73 080 170	SW2,5	2.34	**175**	M5x6	6.03	**001**
73 080 168	SW2,5	2.34	**175**	M6x6	8.58	**014**
73 080 171	SW2,5	2.34	**175**	M5x8	7.31	**008**
73 080 167	SW2,5	2.34	**175**	M5x8	7.31	**008**
73 080 172	SW2,5	2.34	**175**	M5x8	7.31	**008**
73 080 166	SW2,5	2.34	**175**	M5x6	6.03	**001**
73 080 173	SW2,5	2.34	**175**	M5x6	6.03	**001**
73 080 165	SW2,5	2.34	**175**	M5x8	7.31	**008**
73 080 174	SW2,5	2.34	**175**	M5x8	7.31	**008**
73 080 164	SW2,5	2.34	**175**	M5x6	6.03	**001**
73 080 175	SW2,5	2.34	**175**	M5x8	7.31	**008**
73 080 163	SW2,5	2.34	**175**	M5x4	7.34	**013**

UltraMini – Quick change tool holder for cutting inserts

Scope of supply:

Tool holder, lock nut and clamping wedge







Designation	DCONWS mm	DCONMS g6 mm	OAL mm	LB mm	l_4 mm	73 089 ... £ Y5	
UM600H.0012.4	4	12.00	115	90	64	342.88	**124**
UM600H.0016.4	4	16.00	115	90	64	311.08	**164**
UM600H.001905.4	4	19.05	115	90	64	333.80	**194**
UM600H.0020.4	4	20.00	115	90	64	329.26	**204**
UM600H.0022.4	4	22.00	115	90	64	334.93	**224**
UM600H.0025.4	4	25.00	115	90	64	341.74	**254**
UM600H.00254.4	4	25.40	115	90	64	348.56	**264**
UM600H.0028.4	4	28.00	115	90	64	348.56	**284**
UM600H.0012.5	5	12.00	115	90	64	342.88	**125**
UM600H.0016.5	5	16.00	115	90	64	311.08	**165**
UM600H.001905.5	5	19.05	115	90	64	333.80	**195**
UM600H.0020.5	5	20.00	115	90	64	329.26	**205**
UM600H.0022.5	5	22.00	115	90	64	334.93	**225**
UM600H.0025.5	5	25.00	115	90	64	341.74	**255**
UM600H.00254.5	5	25.40	115	90	64	348.56	**265**
UM600H.0028.5	5	28.00	115	90	64	348.56	**285**
UM600H.0012.6	6	12.00	115	90	64	342.88	**126**
UM600H.0016.6	6	16.00	115	90	64	311.08	**166**
UM600H.001905.6	6	19.05	115	90	64	333.80	**196**
UM600H.0020.6	6	20.00	115	90	64	329.26	**206**
UM600H.0022.6	6	22.00	115	90	64	334.93	**226**
UM600H.0025.6	6	25.00	115	90	64	341.74	**256**
UM600H.00254.6	6	25.40	115	90	64	348.56	**266**
UM600H.0028.6	6	28.00	115	90	64	348.56	**286**
UM600H.0012.7	7	12.00	115	90	64	342.88	**127**
UM600H.0016.7	7	16.00	115	90	64	311.08	**167**
UM600H.001905.7	7	19.05	115	90	64	333.80	**197**
UM600H.0020.7	7	20.00	115	90	64	329.26	**207**
UM600H.0022.7	7	22.00	115	90	64	334.93	**227**
UM600H.0025.7	7	25.00	115	90	64	341.74	**257**
UM600H.00254.7	7	25.40	115	90	64	348.56	**267**
UM600H.0028.7	7	28.00	115	90	64	348.56	**287**

12

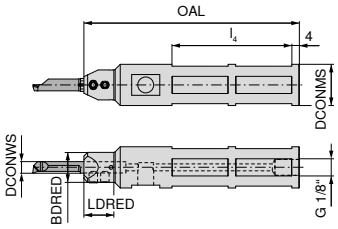
Avoid pulling cuts. Ensure a suitable clamping force is used when using thro' coolant supply. Can be tightened using a key.

Spare parts DCONWS		Lock nut UM600H 73 950 ... £ Y5		Clamping wedge UM600H 73 950 ... £ Y5	
4	M4	77.21	**104**	49.96	**111**
5	M5	77.21	**105**	49.96	**111**
6	M6	77.21	**106**	49.96	**111**
7	M7	77.21	**107**	49.96	**111**

UltraMini – Toolholder for inserts

▲ Tool holder suitable for high coolant pressures







Designation	DCONWS mm	BDRED mm	DCONMS $_{g6}$ mm	OAL mm	LDRED mm	l_4 mm	73 088 ... £ Y5	
UMST.0016.4	4	16	16.00	115	24	42	366.72	**164**
UMST.001905.4	4	16	19.05	115	24	42	397.37	**194**
UMST.0020.4	4	16	20.00	115	24	42	374.67	**204**
UMST.0022.4	4	16	22.00	115	24	42	386.02	**224**
UMST.00254.4	4	16	25.40	115	24	42	397.37	**264**
UMST.0028.4	4	16	28.00	115	24	42	397.37	**284**
UMST.0016.5	5	16	16.00	115	24	42	366.72	**165**
UMST.001905.5	5	16	19.05	115	24	42	397.37	**195**
UMST.0020.5	5	16	20.00	115	24	42	374.67	**205**
UMST.0022.5	5	16	22.00	115	24	42	386.02	**225**
UMST.00254.5	5	16	25.40	115	24	42	397.37	**265**
UMST.0028.5	5	16	28.00	115	24	42	397.37	**285**
UMST.0016.6	6	16	16.00	115	24	42	366.72	**166**
UMST.001905.6	6	16	19.05	115	24	42	397.37	**196**
UMST.0020.6	6	16	20.00	115	24	42	374.67	**206**
UMST.0022.6	6	16	22.00	115	24	42	386.02	**226**
UMST.00254.6	6	16	25.40	115	24	42	397.37	**266**
UMST.0028.6	6	16	28.00	115	24	42	397.37	**286**
UMST.0016.7	7	16	16.00	115	24	42	366.72	**167**
UMST.001905.7	7	16	19.05	115	24	42	397.37	**197**
UMST.0020.7	7	16	20.00	115	24	42	374.67	**207**
UMST.0022.7	7	16	22.00	115	24	42	386.02	**227**
UMST.00254.7	7	16	25.40	115	24	42	397.37	**267**
UMST.0028.7	7	16	28.00	115	24	42	397.37	**287**
UMST.0016.8	8	16	16.00	115	24	42	366.72	**168**
UMST.001905.8	8	16	19.05	115	24	42	397.37	**198**
UMST.0020.8	8	16	20.00	115	24	42	374.67	**208**
UMST.0022.8	8	16	22.00	115	24	42	386.02	**228**
UMST.00254.8	8	16	25.40	115	24	42	397.37	**268**
UMST.0028.8	8	16	28.00	115	24	42	397.37	**288**

up to 150 bar



Key D



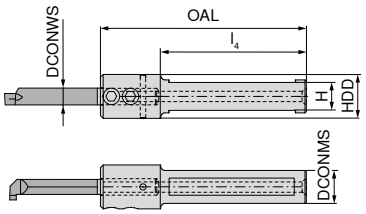
Clamping screw

Spare parts DCONWS		80 950 ... £ Y7			73 950 ... £ Y5	
4	T10	9.54	**104**	M5x0,5x6T10	11.35	**050**
5	T10	9.54	**104**	M5x0,5x6T10	11.35	**050**
6	T10	9.54	**104**	M5x0,5x6T10	11.35	**050**
7	T10	9.54	**104**	M5x0,5x6T10	11.35	**050**
8	T10	9.54	**104**	M5x0,5x6T10	11.35	**050**

UltraMini – Toolholder for inserts

▲ single ended

Scope of supply:
Tool holder with allen key





Designation	DCONWS mm	HDD mm	DCONMS mm	OAL mm	l_4 mm	H mm	73 081 ... £ Y5	
640.0012-D	4	16	12	75	53	10.2	187.33	**264**
650.0012-D	5	16	12	75	53	10.2	187.33	**265**
660.0012-D	6	16	12	75	53	10.2	267.88	**266**
670.0012-D	7	16	12	75	53	10.2	267.88	**267**
680.0012-D	8	16	12	75	53	10.2	267.88	**268**


Key I


Clamping screw

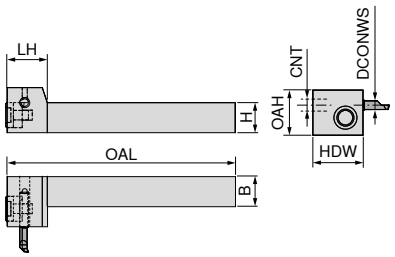
Spare parts DCONWS	70 950 ...	£ 2A/28		73 082 ...	£ Y5	
4	SW2,5	2.34	**175**	M5x0,5x6	4.83	**010**
5	SW2,5	2.34	**175**	M5x0,5x6	4.83	**010**
6	SW2,5	2.34	**175**	M5x0,5x6	4.83	**010**
7	SW2,5	2.34	**175**	M5x0,5x6	4.83	**010**
8	SW2,5	2.34	**175**	M5x0,5x6	4.83	**010**

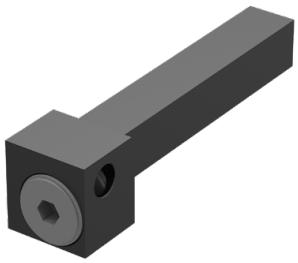
UltraMini – Toolholder for inserts

Scope of supply:

Tool holder with allen key







Designation	DCONWS	OAL	LH	B	HDW	H	OAH	CNT	Left-hand 73 083 ... £ Y5		Right-hand 73 084 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm					
R/L .IK.UHCM.1212.4	4	90	17	12	20	12	18	M5	340.52	**124**	340.52	**124**
R/L .IK.UHCM.1212.5	5	90	17	12	20	12	18	M5	340.52	**125**	340.52	**125**
R/L .IK.UHCM.1212.6	6	90	17	12	20	12	21	M5	340.52	**126**	340.52	**126**
R/L .IK.UHCM.1212.7	7	90	17	12	20	12	21	M5	340.52	**127**	340.52	**127**

Suitable coolant connections can be found in our sliding head tooling catalogue.


Clamping key - T

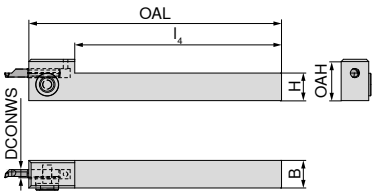

Clamping screw

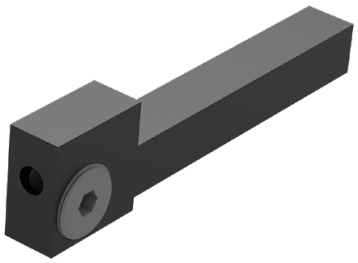
Spare parts DCONWS		80 397 ... £ Y7			73 082 ... £ Y5	
4	SW5	6.39	**050**	UM 12	40.41	**011**
5	SW5	6.39	**050**	UM 12	40.41	**011**
6	SW5	6.39	**050**	UM 16	40.41	**012**
7	SW5	6.39	**050**	UM 16	40.41	**012**

UltraMini – Toolholder for inserts

Scope of supply:

Tool holder with allen key





Designation	DCONWS	OAL	l_4	B	H	OAH	73 086 ... £ Y5	
	mm	mm	mm	mm	mm	mm		
UM.1010.4	4	100	75	10	10	20	340.52	**104**
UM.1010.5	5	100	75	10	10	20	340.52	**105**
UM.1212.4	4	100	75	12	12	22	340.52	**124**
UM.1212.5	5	100	75	12	12	22	340.52	**125**
UM.1212.6	6	100	75	12	12	22	340.52	**126**

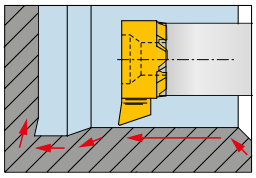
Clamping key - T

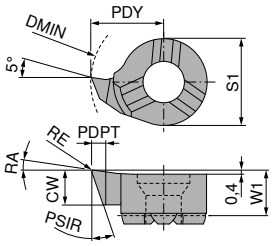

Clamping screw

Spare parts DCONWS		80 397 ... £ Y7			73 082 ... £ Y5	
4	SW5	6.39	**050**	UM 12	40.41	**011**
5	SW5	6.39	**050**	UM 12	40.41	**011**
6	SW5	6.39	**050**	UM 16	40.41	**012**

MiniCut – Insert for turning and profiling

CWX500 CWX500







Illustrations show right-hand versions

Size	Designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	RA °	Left-hand 73 324 ... £ Y5		Right-hand 73 322 ... £ Y5	
08	8,00. R/L .3,30.18°	7.8	3.3	3.5	4.65	6.0	0.20	0.6	18	8	38.91	033	38.91	033
	8,00. R/L .3,50.18°	7.8	3.5	3.5	4.65	6.0	0.05	0.6	18	8	42.26	035	42.26	035
	8,00. R/L .3,50.20°	7.8	3.5	3.5	4.65	6.0	0.20	0.6	20	20	40.87	135	40.87	135
09	9,00. R/L .3,60.18°	9.0	3.6	3.6	5.50	6.2	0.20	0.8	18	8	36.82	136	36.82	136
	9,00. R/L .3,60.20°	9.0	3.6	3.6	5.50	6.2	0.20	0.8	20	20	41.62	236	41.62	236
11	9,80. R/L .3,90.18°	9.8	3.9	4.2	5.50	8.0	0.20	1.0	18	8	38.91	139	38.91	139
	11,00. R/L .3,90.18°	11.0	3.9	4.2	6.70	8.0	0.20	1.0	18	8	38.48	339	38.48	339
	11,00. R/L .4,20.20°	11.0	4.2	4.2	6.70	8.0	0.20	1.0	20	20	41.62	342	41.62	342
14	14,00. R/L .5,00.18°	13.8	5.0	5.1	8.70	9.0	0.20	1.5	18	8	38.48	550	38.48	550
	14,00. R/L .5,30.20°	14.0	5.3	5.3	8.70	9.0	0.20	1.5	20	20	41.62	553	41.62	553
16	15,50. R/L .5,00.18°	15.5	5.0	5.4	9.70	11.0	0.20	1.5	18	8	42.05	750	42.05	750
P											●		●	
M											●		●	
K											●		●	
N											●		●	
S											●		●	
H											●		●	
O											●		●	

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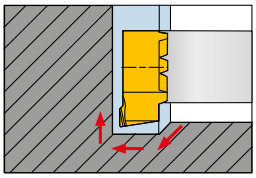
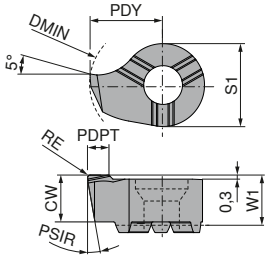
MiniCut – Insert for copy turning

▲ with chip breaker

CWX500 CWX500

12







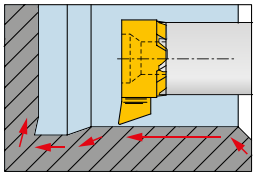
Illustrations show right-hand versions

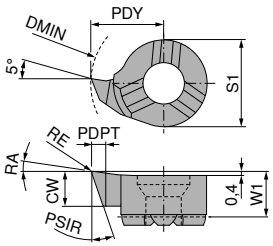
Size	Designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	Left-hand 73 388 ... £ Y5		Right-hand 73 386 ... £ Y5	
08	8,00. R/L .3,40.10°	8	3.4	3.5	4.65	6.0	0.2	0.5	10	32.52	13400	32.52	13400
09	9,00. R/L .3,50.10°	9	3.5	3.6	5.50	6.2	0.2	0.5	10	33.88	136	33.88	136
11	11,00. R .4,10.10°	11	4.1	4.2	6.70	8.0	0.2	0.5	10	32.52	14100	32.52	14100
P										●		●	
M										●		●	
K										●		●	
N										●		●	
S										●		●	
H										●		●	
O										●		●	

→ v_c Page 59

MiniCut – CBN insert for profiling – hard turning

▲ 56 to 65 HRC





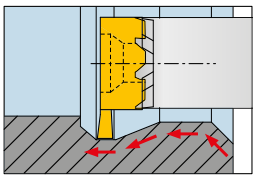


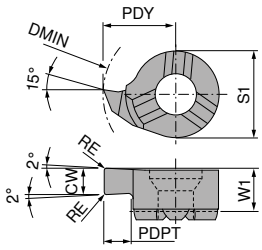
Illustrations show right-hand versions

Size	Designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	RA °	Left-hand CBN 73 368 ... £ Y5		Right-hand CBN 73 366 ... £ Y5	
08	8,00. R/L .3,30.18°	7.8	3.3	3.5	4.65	6	0.2	0.39	18	8	175.94	033	175.94	033
11	11,00. R/L .3,90.18°	11.0	3.9	4.2	6.70	8	0.2	0.55	18	8	184.14	139	184.14	139
14	14,00. R/L .5,00.18°	13.8	5.0	5.3	8.70	9	0.2	0.69	18	8	195.10	550	195.10	550
16	16,00. R/L .5,00.18°	15.5	5.0	5.4	9.70	11	0.2	0.77	18	8	203.44	750	203.44	750
P														
M														
K														
N														
S												○		○
H												●		●
O														

→ v_c Page 59

MiniCut – Internal turning insert





CWX500 CWX500



Illustrations show right-hand versions

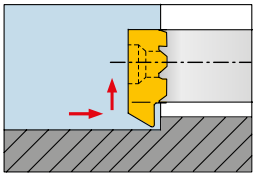
Size	Designation	DMIN mm	CW +0.05 mm	PDPT mm	W1 mm	PDY mm	S1 mm	RE mm	CDX mm	Left-hand 73 316 ... £ Y5		Right-hand 73 314 ... £ Y5	
08	8,00. R/L .1,50.1,0	8	1.5	1.0	3.3	4.8	6.0	0.2	0.2	39.36	015	39.36	015
	8,00. R/L .2,00.1,0	8	2.0	1.0	3.3	4.8	6.0	0.2	0.2	37.57	020	37.57	020
09	9,00. R/L .1,50.2,0	9	1.5	2.0	3.6	5.5	6.2	0.2	0.2	40.24	115	40.24	115
	9,00. R/L .1,50.3,0	10	1.5	3.0	3.6	6.5	6.2	0.2	0.2	40.24	121	40.24	121
	9,00. R/L .2,00.2,0	9	2.0	2.0	3.6	5.5	6.2	0.2	0.2	35.68	120	35.68	120
	9,00. R/L .2,00.3,0	10	2.0	3.0	3.6	6.5	6.2	0.2	0.2	35.68	122	35.68	122
11	11,00. R/L .1,50.2,3	11	1.5	2.3	4.2	6.7	8.0	0.2	0.2	41.45	315	41.45	315
	11,00. R/L .2,00.2,3	11	2.0	2.3	4.2	6.7	8.0	0.2	0.2	38.91	320	38.91	320
14	14,00. R/L .1,50.4,0	14	1.5	4.0	5.3	9.0	9.0	0.2	0.2	38.00	515	38.00	515
	14,00. R/L .1,50,5,5	16	1.5	5.5	5.2	10.5	9.0	0.2	0.2	48.35	516	48.35	516
	14,00. R/L .1,50.6,5	17	1.5	6.5	5.2	11.5	9.0	0.2	0.2	48.35	517	48.35	517
	14,00. R/L .2,00.4,0	14	2.0	4.0	5.3	9.0	9.0	0.2	0.2	38.91	520	38.91	520
	14,00. R/L .2,00.5,5	16	2.0	5.5	5.2	10.5	9.0	0.2	0.2	48.35	521	48.35	521
	14,00. R/L .2,00.6,5	17	2.0	6.5	5.2	11.5	9.0	0.2	0.2	48.35	522	48.35	522
	14,00. R/L .2,50.5,5	16	2.5	5.5	5.2	10.5	9.0	0.2	0.2	48.35	525	48.35	525
	14,00. R/L .2,50.6,5	17	2.5	6.5	5.2	11.5	9.0	0.2	0.2	48.35	526	48.35	526
	14,00. R/L .3,00.5,5	16	3.0	5.5	5.2	10.5	9.0	0.2	0.2	48.35	530	48.35	530
	14,00. R/L .3,00.6,5	17	3.0	6.5	5.2	11.5	9.0	0.2	0.2	48.35	531	48.35	531
16	16,00. R/L .2,00.4,3	16	2.0	4.3	5.4	10.2	11.0	0.2	0.2	42.43	720	42.43	720

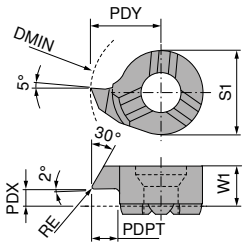
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

12

→ v_c Page 59

MiniCut – Back boring insert





CWX500 CWX500

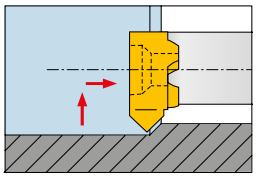


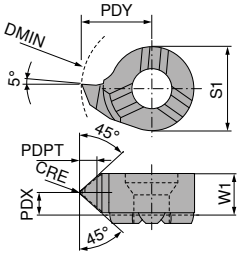
Illustrations show right-hand versions

Size	Designation	DMIN mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	RE mm	CDX mm	Left-hand 73 332 ... £ Y5		Right-hand 73 330 ... £ Y5	
08	8,00. R/L .30°.1,3	7.8	1.3	3.50	1.0	4.65	6.0	0.2	0.6	44.77	013	44.77	013
09	9,00. R/L .30°.1,7	9.0	1.7	3.55	1.2	5.50	6.2	0.2	0.8	40.87	117	40.87	117
	9,00. R/L .30°.2,3	10.0	2.3	3.55	1.2	6.50	6.2	0.2	0.8	40.87	123	40.87	123
11	11,00. R/L .30°.2,3	11.0	2.3	4.30	1.6	6.70	8.0	0.2	1.0	43.84	323	43.84	323
14	14,00. R/L .30°.3,5	13.8	3.5	5.40	2.4	8.70	9.0	0.2	1.5	44.77	535	44.77	535
P											●		●
M											●		●
K											●		●
N											●		●
S											●		●
H											●		●
O											●		●

→ v_c Page 59

MiniCut – Internal turning and chamfering insert





CWX500 CWX500



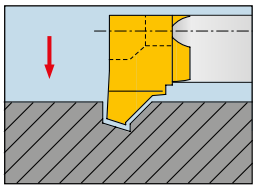
Illustrations show right-hand versions

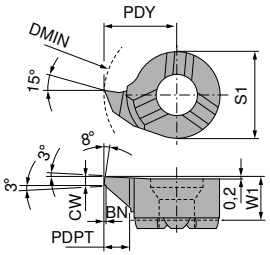
Size	Designation	DMIN mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	CRE mm	CDX mm	Left-hand 73 336 ... £ Y5		Right-hand 73 334 ... £ Y5	
08	8,00. R/L .45°.1,4	8	1.4	3.50	1.8	4.8	6.0	0.2	0.6	37.40	010	37.40	010
09	9,00. R/L .45°.1,3	9	1.3	3.55	1.8	5.5	6.2	0.2	0.8	35.05	110	35.05	110
11	11,00. R/L .45°.1,5	11	1.5	4.30	2.2	6.7	8.0	0.2	1.0	37.40	310	37.40	310
14	14,00. R/L .45°.1,5	14	1.5	5.40	2.8	9.0	9.0	0.2	1.2	40.40	510	40.40	510
P											●		●
M											●		●
K											●		●
N											●		●
S											●		●
H											●		●
O											●		●

→ v_c Page 59

MiniCut – Insert for pregrooving and chamfering

CWX500 CWX500







Illustrations show right-hand versions

Size	Designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	BN mm	Left-hand 73 340 ... £ Y5		Right-hand 73 338 ... £ Y5	
08	8,00. R/L .1,00.45°	8	1	1.0	3.3	4.8	6.0	0.2	38.01	100	38.01	100
09	9,00. R/L .1,00.45°	9	1	1.5	3.6	5.5	6.2	0.2	36.20	215	36.20	215
11	11,00. R/L .1,00.45°	11	1	1.5	4.2	6.7	8.0	0.2	38.01	315	38.01	315
14	14,00. R/L .1,00.45°	14	1	1.5	5.3	9.0	9.0	0.2	38.01	515	38.01	515
16	16,00. R/L .1,00.45°	16	1	1.5	5.4	10.2	11.0	0.2	38.01	715	38.01	715
P									●		●	
M									●		●	
K									●		●	
N									●		●	
S									●		●	
H									●		●	
O									●		●	

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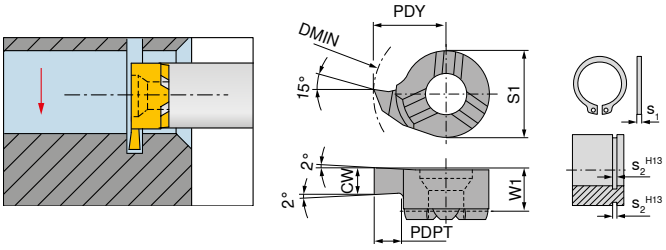
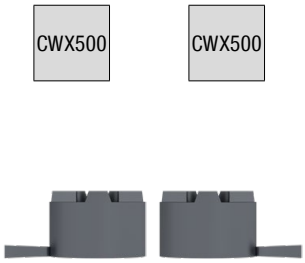
MiniCut – Grooving insert





Illustrations show right-hand versions

Size	Designation	DMIN	CW	PDPT	W1	s_1	$s_{2\ H13}$	PDY	S1	Left-hand 73 312 ... £ Y5		Right-hand 73 310 ... £ Y5	
		mm	mm	mm	mm	mm	mm	mm	mm				
08	8,00. R/L .0,73.1,0	8	0.73	1.0	3.3	0.6	0.7	4.8	6.0	33.62	073	33.62	073
	8,00. R/L .0,83.1,0	8	0.83	1.0	3.3	0.7	0.8	4.8	6.0	33.62	083	33.62	083
	8,00. R/L .0,93.1,0	8	0.93	1.0	3.3	0.8	0.9	4.8	6.0	33.62	093	33.62	093
	8,00. R/L .1,00.1,0	8	1.00	1.0	3.3			4.8	6.0	33.62	110	33.62	110
	8,00. R/L .1,20.1,0	8	1.20	1.0	3.3	1.0	1.1	4.8	6.0	33.62	112	33.62	112
	8,00. R/L .1,40.1,0	8	1.40	1.0	3.3	1.2	1.3	4.8	6.0	33.62	114	33.62	114
	8,00. R/L .1,50.1,0	8	1.50	1.0	3.3			4.8	6.0	33.62	115	33.62	115
	8,00. R/L .1,70.1,0	8	1.70	1.0	3.3	1.5	1.6	4.8	6.0	33.62	117	33.62	117
	8,00. R/L .2,00.1,0	8	2.00	1.0	3.3			4.8	6.0	33.62	120	33.62	120
09	9,00. R/L .0,73.1,2	9	0.73	1.2	3.6	0.6	0.7	5.5	6.2	32.79	173	32.79	173
	9,00. R/L .0,83.1,3	9	0.83	1.3	3.6	0.7	0.8	5.5	6.2	32.79	183	32.79	183
	9,00. R/L .0,93.1,5	9	0.93	1.5	3.6	0.8	0.9	5.5	6.2	32.79	193	32.79	193
	9,00. R/L .1,00.1,8	9	1.00	1.8	3.6			5.5	6.2	32.79	210	32.79	210
	9,00. R/L .1,20.1,8	9	1.20	1.8	3.6	1.0	1.1	5.5	6.2	32.79	212	32.79	212
	9,00. R/L .1,40.1,8	9	1.40	1.8	3.6	1.2	1.3	5.5	6.2	32.79	214	32.79	214
	9,00. R/L .1,50.1,8	9	1.50	1.8	3.6			5.5	6.2	32.79	215	32.79	215
	9,00. R/L .1,70.1,8	9	1.70	1.8	3.6	1.5	1.6	5.5	6.2	32.79	217	32.79	217
	9,00. R/L .2,00.1,8	9	2.00	1.8	3.6			5.5	6.2	32.79	220	32.79	220
	9,00. R/L .2,50.1,8	9	2.50	1.8	3.6			5.5	6.2	32.79	225	32.79	225
	9,00. R/L .3,00.1,8	9	3.00	1.8	3.6			5.5	6.2	32.79	230	32.79	230
11	11,00. R/L .0,73.1,2	11	0.73	1.2	4.2	0.6	0.7	6.7	8.0	33.62	373	33.62	373
	11,00. R/L .0,83.1,3	11	0.83	1.3	4.2	0.7	0.8	6.7	8.0	33.62	383	33.62	383
	11,00. R .0,93.1,5	11	0.93	1.5	4.2	0.9	0.9	6.7	8.0			33.62	393
	11,00. L .0,93.1,5	11	0.93	1.5	4.2	0.8	0.9	6.7	8.0	33.62	393		
	11,00. R/L .1,00.2,3	11	1.00	2.3	4.2			6.7	8.0	33.62	310	33.62	310
	11,00. R/L .1,20.2,3	11	1.20	2.3	4.2	1.0	1.1	6.7	8.0	33.62	312	33.62	312
	11,00. R/L .1,40.2,3	11	1.40	2.3	4.2	1.2	1.3	6.7	8.0	33.62	314	33.62	314
	11,00. R/L .1,50.2,3	11	1.50	2.3	4.2			6.7	8.0	33.62	315	33.62	315
	11,00. R/L .1,70.2,3	11	1.70	2.3	4.2	1.5	1.6	6.7	8.0	33.62	317	33.62	317
	11,00. R/L .2,00.2,3	11	2.00	2.3	4.2			6.7	8.0	33.62	320	33.62	320
	11,00. R/L .2,50.2,3	11	2.50	2.3	4.2			6.7	8.0	33.62	325	33.62	325
	11,00. R/L .3,00.2,3	11	3.00	2.3	4.2			6.7	8.0	33.62	330	33.62	330
14	14,00. R/L .0,73.1,2	14	0.73	1.2	5.3	0.6	0.7	9.0	9.0	33.62	573	33.62	573
	14,00. R/L .0,83.1,3	14	0.83	1.3	5.3	0.7	0.8	9.0	9.0	33.62	583	33.62	583
	14,00. R/L .0,93.1,5	14	0.93	1.5	5.3	0.8	0.9	9.0	9.0	33.62	593	33.62	593
	14,00. R/L .1,20.4,0	14	1.20	4.0	5.3	1.0	1.1	9.0	9.0	33.62	512	33.62	512
	14,00. R/L .1,40.4,0	14	1.40	4.0	5.3	1.2	1.3	9.0	9.0	33.62	514	33.62	514
	14,00. R/L .1,50.4,0	14	1.50	4.0	5.3			9.0	9.0	33.62	515	33.62	515
	14,00. R/L .1,70.4,0	14	1.70	4.0	5.3	1.5	1.6	9.0	9.0	33.62	517	33.62	517
	14,00. R/L .2,00.4,0	14	2.00	4.0	5.3			9.0	9.0	33.62	520	33.62	520
	14,00. R/L .2,50.4,0	14	2.50	4.0	5.3			9.0	9.0	33.62	525	33.62	525
	14,00. R/L .3,00.4,0	14	3.00	4.0	5.3			9.0	9.0	33.62	530	33.62	530
16	16,00. R/L .0,73.1,2	16	0.73	1.2	5.4	0.6	0.7	10.2	11.0	40.95	773	40.95	773
	16,00. R/L .0,83.1,3	16	0.83	1.3	5.4	0.7	0.8	10.2	11.0	40.95	783	40.95	783
	16,00. R/L .0,93.1,5	16	0.93	1.5	5.4	0.8	0.9	10.2	11.0	40.95	793	40.95	793
	16,00. R/L .1,20.4,3	16	1.20	4.3	5.4	1.0	1.1	10.2	11.0	36.99	712	36.99	712
	16,00. R/L .1,40.4,3	16	1.40	4.3	5.4	1.2	1.3	10.2	11.0	36.99	714	36.99	714
	16,00. R/L .1,50.4,3	16	1.50	4.3	5.4			10.2	11.0	36.99	715	36.99	715
	16,00. R/L .1,70.4,3	16	1.70	4.3	5.4	1.5	1.6	10.2	11.0	36.99	717	36.99	717
	16,00. R/L .2,00.4,3	16	2.00	4.3	5.4			10.2	11.0	36.99	720	36.99	720
	16,00. R/L .2,50.4,3	16	2.50	4.3	5.4			10.2	11.0	36.99	725	36.99	725
	16,00. R/L .3,00.4,3	16	3.00	4.3	5.4			10.2	11.0	36.99	730	36.99	730
	16,00. R/L .3,50.4,3	16	3.50	4.3	5.4			10.2	11.0	36.99	735	36.99	735
	16,00. R/L .4,00.4,3	16	4.00	4.3	5.4			10.2	11.0	36.99	740	36.99	740

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

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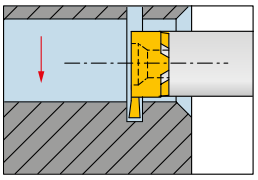
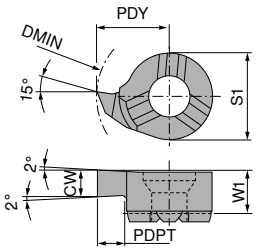
MiniCut – Grooving insert

CWX500 CWX500







Illustrations show right-hand versions

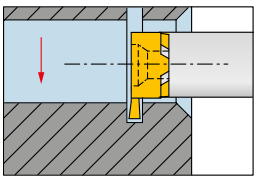
Size	Designation	DMIN mm	CW +0.03 mm	PDPT mm	W1 mm	PDY mm	S1 mm	Left-hand 73 372 ... £ Y5		Right-hand 73 370 ... £ Y5	
14	14,00. R/L .1,50.5,5	16	1.5	5.5	5.2	10.5	9	39.04	715	39.04	715
	14,00. R/L .2,00.5,5	16	2.0	5.5	5.2	10.5	9	39.04	720	39.04	720
	14,00. R/L .2,50.5,5	16	2.5	5.5	5.2	10.5	9	39.04	725	39.04	725
	14,00. R/L .3,00.5,5	16	3.0	5.5	5.2	10.5	9	39.04	730	39.04	730

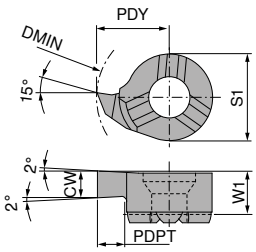
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

MiniCut – Grooving insert

CWX500 CWX500







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Illustrations show right-hand versions

Size	Designation	DMIN mm	CW +0.03 mm	PDPT mm	W1 mm	PDY mm	S1 mm	Left-hand 73 384 ... £ Y5		Right-hand 73 382 ... £ Y5	
14	14,00. R/L .1,50.6,5	17	1.5	6.5	5.2	11.5	9	39.04	515	39.04	515
	14,00. R/L .2,00.6,5	17	2.0	6.5	5.2	11.5	9	39.04	520	39.04	520
	14,00. R/L .2,50.6,5	17	2.5	6.5	5.2	11.5	9	39.04	525	39.04	525
	14,00. R/L .3,00.6,5	17	3.0	6.5	5.2	11.5	9	39.04	530	39.04	530

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

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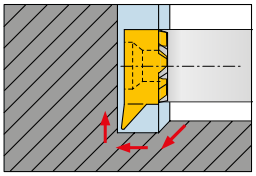
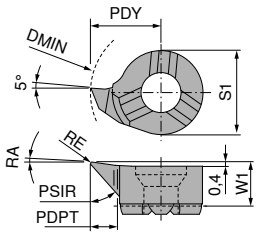
MiniCut – Internal undercut insert





CWX500 CWX500

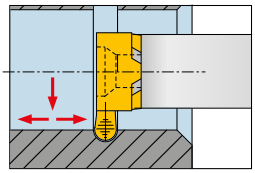


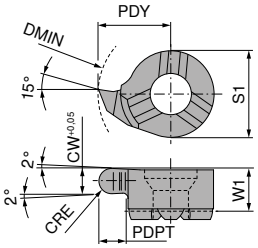
Illustrations show right-hand versions

Size	Designation	DMIN mm	PDPT mm	W1 mm	PDY mm	S1 mm	RE mm	CDX mm	PSIR °	RA °	Left-hand 73 328 ... £ Y5		Right-hand 73 326 ... £ Y5	
08	8,00. R/L .30°.1,0	7.8	1.0	3.5	4.65	6.0	0.2	0.4	30	3	44.94	010	44.94	010
	8,00. R/L .47°.1,2	7.8	1.2	3.5	4.65	6.0	0.2	0.4	47	3	39.04	012	39.04	012
09	9,00. R/L .47°.1,5	9.0	1.5	3.6	5.50	6.2	0.2	0.5	47	3	36.20	115	36.20	115
11	11,00. R/L .30°.2,3	11.0	2.3	4.2	6.70	8.0	0.2	0.6	30	3	43.89	423	43.89	423
	11,00. R/L .47°.2,3	11.0	2.3	4.2	6.70	8.0	0.2	0.6	47	3	38.01	323	38.01	323
14	13,70. R/L .47°.3,0	13.7	3.0	5.3	8.70	9.0	0.2	0.8	47	3	39.04	530	39.04	530
	13,70. R/L .30°.4,0	13.7	4.0	5.3	8.70	9.0	0.2	0.8	30	3	44.94	540	44.94	540
16	15,80. R/L .30°.4,3	15.8	4.3	5.4	10.20	11.0	0.2	1.0	30	3	43.62	744	43.62	744
P												●		●
M												●		●
K												●		●
N												●		●
S												●		●
H												●		●
O												●		●

→ v_c Page 59

MiniCut – Full radius grooving and turning insert





CWX500 CWX500



Illustrations show right-hand versions

Size	Designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	CRE mm	Left-hand 73 320 ... £ Y5		Right-hand 73 318 ... £ Y5	
08	8,00. R/L .0,80.1,0	8	0.8	1.0	3.3	4.8	6.0	0.4	41.91	008	41.91	008
	8,00. R/L .1,20.1,0	8	1.2	1.0	3.3	4.8	6.0	0.6	41.91	012	41.91	012
	8,00. R/L .1,80.1,0	8	1.8	1.0	3.3	4.8	6.0	0.9	41.91	018	41.91	018
	8,00. R/L .2,00.1,0	8	2.0	1.0	3.3	4.8	6.0	1.0	38.84	020	38.84	020
09	9,00. R/L .0,80.1,6	9	0.8	1.6	3.6	5.5	6.2	0.4	40.24	108	40.24	108
	9,00. R/L .1,20.1,6	9	1.2	1.6	3.6	5.5	6.2	0.6	40.24	112	40.24	112
	9,00. R/L .1,80.1,6	9	1.8	1.6	3.6	5.5	6.2	0.9	40.24	118	40.24	118
	9,00. R/L .2,00.1,6	9	2.0	1.6	3.6	5.5	6.2	1.0	40.24	120	40.24	120
11	11,00. R/L .0,80.2,3	11	0.8	2.3	4.2	6.7	8.0	0.4	42.43	308	42.43	308
	11,00. R/L .1,20.2,3	11	1.2	2.3	4.2	6.7	8.0	0.6	42.43	312	42.43	312
	11,00. R/L .1,60.2,3	11	1.6	2.3	4.2	6.7	8.0	0.8	40.24	316	40.24	316
	11,00. R/L .1,80.2,3	11	1.8	2.3	4.2	6.7	8.0	0.9	42.43	318	42.43	318
	11,00. R/L .2,00.2,3	11	2.0	2.3	4.2	6.7	8.0	1.0	42.43	320	42.43	320
	11,00. R/L .2,40.2,3	11	2.4	2.3	4.2	6.7	8.0	1.2	40.24	324	40.24	324
	11,00. R/L .3,00.2,3	11	3.0	2.3	4.2	6.7	8.0	1.5	42.43	330	42.43	330
14	14,00. R/L .0,80.4,0	14	0.8	4.0	5.3	9.0	9.0	0.4	41.88	508	41.88	508
	14,00. R/L .1,20.4,0	14	1.2	4.0	5.3	9.0	9.0	0.6	44.91	512	44.91	512
	14,00. R/L .1,80.4,0	14	1.8	4.0	5.3	9.0	9.0	0.9	44.91	518	44.91	518
	14,00. R/L .2,00.4,0	14	2.0	4.0	5.3	9.0	9.0	1.0	44.91	520	44.91	520
	14,00. R/L .2,20.4,0	14	2.2	4.0	5.3	9.0	9.0	1.1	44.91	522	44.91	522
	14,00. R/L .3,00.4,0	14	3.0	4.0	5.3	9.0	9.0	1.5	44.91	530	44.91	530
16	16,00. R/L .1,60.4,3	16	1.6	4.3	5.4	10.2	11.0	0.8	43.01	716	43.01	716
	16,00. R/L .1,80.4,3	16	1.8	4.3	5.4	10.2	11.0	0.9	45.37	718	45.37	718
	16,00. R/L .2,00.4,3	16	2.0	4.3	5.4	10.2	11.0	1.0	43.01	720	43.01	720
	16,00. R/L .2,20.4,3	16	2.2	4.3	5.4	10.2	11.0	1.1	45.37	722	45.37	722
	16,00. R/L .2,40.4,3	16	2.4	4.3	5.4	10.2	11.0	1.2	43.01	724	43.01	724
	16,00. R/L .3,00.4,3	16	3.0	4.3	5.4	10.2	11.0	1.5	45.37	730	45.37	730
	16,00. R/L .3,20.4,3	16	3.2	4.3	5.4	10.2	11.0	1.6	43.01	732	43.01	732
	16,00. R/L .4,00.4,3	16	4.0	4.3	5.4	10.2	11.0	2.0	45.37	740	45.37	740
P									●		●	
M									●		●	
K									●		●	
N									●		●	
S									●		●	
H									●		●	
O									●		●	

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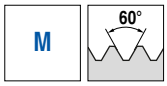
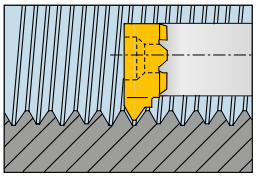
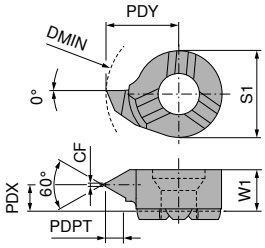
MiniCut – Threading insert (Partial profile)











Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 344 ... £ Y5		Right-hand 73 342 ... £ Y5	
08	8,00. R/L .0,5/0,75.60°	8	0,5 - 0,75	0.06	0.43	3.50	2.7	4.8	6.0	45.37	012	45.37	012
	8,00. R/L .1,0/1,25.60°	8	1,0 - 1,25	0.12	0.70	3.50	2.7	4.8	6.0	45.37	014	45.37	014
	8,00. R/L .1,5/1,75.60°	8	1,5 - 1,75	0.18	0.95	3.50	2.5	4.8	6.0	45.37	010	45.37	010
09	9,00. R/L .0,5/0,75.60°	9	0,5 - 0,75	0.06	0.27	3.55	3.2	5.5	6.2	43.01	112	43.01	112
	9,00. R/L .1,0/1,25.60°	9	1,0 - 1,25	0.12	0.54	3.55	3.0	5.5	6.2	43.01	114	43.01	114
	9,00. R/L .1,5/1,75.60°	9	1,5 - 1,75	0.18	0.81	3.55	2.8	5.5	6.2	43.01	116	43.01	116
	9,00. R/L .1,75/2,0.60°	9	1,75 - 2,0	0.20	0.95	3.55	2.6	5.5	6.2	43.01	118	43.01	118
	9,00. R/L .2,0/2,5.60°	9	2,0 - 2,5	0.25	1.08	3.55	2.5	5.5	6.2	43.01	120	43.01	120
	9,00. R/L .2,5/3,0.60°	9	2,5 - 3,0	0.31	1.35	3.55	2.1	5.5	6.2	43.01	122	43.01	122
	9,00. R/L .3,0/3,5.60°	9	3,0 - 3,5	0.37	1.62	3.55	1.9	5.5	6.2	43.01	124	43.01	124
11	11,00. R/L .0,5/0,75.60°	11	0,5 - 0,75	0.06	0.75	4.30	3.5	6.7	8.0	45.37	312	45.37	312
	11,00. R/L .1,0/1,25.60°	11	1,0 - 1,25	0.12	0.55	4.30	3.5	6.7	8.0	45.37	314	45.37	314
	11,00. R/L .1,5/1,75.60°	11	1,5 - 1,75	0.18	0.81	4.30	3.5	6.7	8.0	45.37	316	45.37	316
	11,00. R/L .2,0/2,5.60°	11	2,0 - 2,5	0.25	1.08	4.30	3.0	6.7	8.0	45.37	310	45.37	310
	11,00. R/L .2,5/3,0.60°	11	2,5 - 3,0	0.31	1.35	4.30	3.0	6.7	8.0	45.37	320	45.37	320
14	14,00. R/L .1,0/1,25.60°	14	1,0 - 1,25	0.12	0.55	5.40	4.7	9.0	9.0	45.37	512	45.37	512
	14,00. R/L .1,5/1,75.60°	14	1,5 - 1,75	0.18	0.81	5.40	4.5	9.0	9.0	45.37	514	45.37	514
	14,00. R/L .2,0/2,5.60°	14	2,0 - 2,5	0.25	1.08	5.40	4.2	9.0	9.0	45.37	510	45.37	510
	14,00. R/L .2,5/3,0.60°	14	2,5 - 3,0	0.31	1.35	5.40	4.7	9.0	9.0	45.37	520	45.37	520
16	16,00. R/L .1,0/1,25.60°	16	1,0 - 1,25	0.12	0.55	5.50	4.7	10.2	11.0	45.37	712	45.37	712
	16,00. R/L .1,5/1,75.60°	16	1,5 - 1,75	0.18	0.81	5.50	4.5	10.2	11.0	45.37	714	45.37	714
	16,00. R/L .2,0/2,5.60°	16	2,0 - 2,5	0.25	1.08	5.50	4.2	10.2	11.0	45.37	716	45.37	716
	16,00. R/L .2,5/3,0.60°	16	2,5 - 3,0	0.31	1.35	5.50	4.2	10.2	11.0	45.37	710	45.37	710

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

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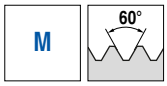
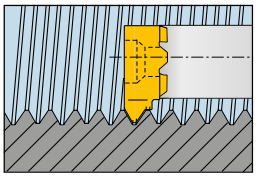
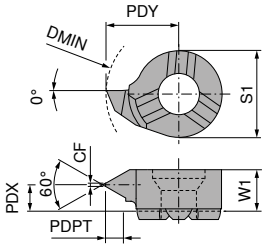
MiniCut – Threading insert (Full profile)













Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 348 ... £ Y5		Right-hand 73 346 ... £ Y5	
09	9,00. R/L .0,5.60°	9	0.50	0.06	0.27	3.55	3.25	5.5	6.2	47.93	405	47.93	405
	9,00. R/L .1,0.60°	9	1.00	0.12	0.54	3.55	3.00	5.5	6.2	47.93	410	47.93	410
	9,00. R/L .1,5.60°	9	1.50	0.18	0.81	3.55	2.80	5.5	6.2	47.93	415	47.93	415
	9,00. R/L .1,75.60°	9	1.75	0.20	0.95	3.55	2.70	5.5	6.2	47.93	418	47.93	418
	9,00. R/L .2,0.60°	9	2.00	0.25	1.08	3.55	2.60	5.5	6.2	47.93	420	47.93	420
	9,00. R/L .2,5.60°	9	2.50	0.31	1.35	3.55	2.50	5.5	6.2	47.93	425	47.93	425
	9,00. R/L .3,0.60°	9	3.00	0.37	1.62	3.55	2.20	5.5	6.2	47.93	430	47.93	430
11	11,00. R/L .1,0.60°	11	1.00	0.12	0.54	4.30	3.50	6.7	8.0	51.47	314	51.47	314
	11,00. R/L .1,5.60°	11	1.50	0.18	0.81	4.30	3.50	6.7	8.0	50.65	316	51.47	316
	11,00. R/L .2,0.60°	11	2.00	0.25	1.08	4.30	3.20	6.7	8.0	51.47	310	51.47	310
	11,00. R/L .2,5.60°	11	2.50	0.31	1.35	4.30	3.00	6.7	8.0	51.47	320	51.47	320
	11,00. R/L .3,0.60°	11	3.00	0.37	1.62	4.30	2.90	6.7	8.0	51.47	330	51.47	330
14	14,00. R/L .0,5.60°	14	0.50	0.06	0.27	5.40	3.50	9.0	9.0	52.11	510	52.11	510
	14,00. R/L .1,0.60°	14	1.00	0.12	0.54	5.40	3.50	9.0	9.0	47.44	512	47.44	512
	14,00. R/L .1,5.60°	14	1.50	0.18	0.81	5.40	3.30	9.0	9.0	47.44	514	47.44	514
	14,00. R/L .2,0.60°	14	2.00	0.25	1.08	5.40	4.20	9.0	9.0	47.44	610	47.44	610
	14,00. R/L .2,5.60°	14	2.50	0.31	1.35	5.40	4.70	9.0	9.0	47.44	520	47.44	520
16	16,00. R/L .1,0.60°	16	1.00	0.12	0.54	5.50	4.70	10.2	11.0	57.32	712	57.32	712
	16,00. R/L .1,5.60°	16	1.50	0.18	0.81	5.50	4.50	10.2	11.0	57.32	714	57.32	714
	16,00. R/L .2,0.60°	16	2.00	0.25	1.08	5.50	4.20	10.2	11.0	57.32	716	57.32	716
	16,00. R/L .2,5.60°	16	2.50	0.31	1.35	5.50	4.20	10.2	11.0	57.32	710	57.32	710
	16,00. R/L .3,0.60°	16	3.00	0.37	1.62	5.50	4.00	10.2	11.0	57.32	720	57.32	720
	16,00. R/L .3,5.60°	16	3.50	0.43	1.89	5.50	3.80	10.2	11.0	57.32	730	57.32	730
	16,00. R/L .4,0.60°	16	4.00	0.50	2.16	5.50	3.60	10.2	11.0	57.32	740	57.32	740
P											●		●
M											●		●
K											●		●
N											●		●
S											●		●
H											●		●
O											●		●

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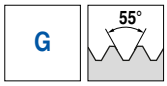
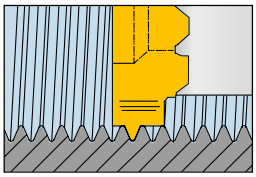
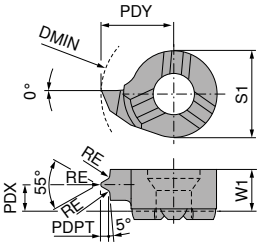
MiniCut – Threading insert (Full profile)













Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	TPI 1/"	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	RE mm	Left-hand 73 352 ... £ Y5		Right-hand 73 350 ... £ Y5	
11	11,00. R/L .1,814.55°	11	1.814	14	1.16	4.30	3.0	6.7	8	0.24	66.79	306	66.79	306
	11,00. R/L .1,337.55°	11	1.337	19	0.85	4.30	2.7	6.7	8	0.18	66.79	304	66.79	304
14	14,00. R/L .1,814.55°	14	1.814	14	1.16	5.35	3.6	9.0	9	0.24	65.91	506	65.91	506
	14,00. R/L .1,337.55°	14	1.337	19	0.85	5.35	3.8	9.0	9	0.18	65.91	504	65.91	504
16	16,00. R/L .2,309.55°	16	2.309	11	1.48	5.50	3.5	10.2	11	0.31	72.72	708	72.72	708
	16,00. R/L .1,814.55°	16	1.814	14	1.16	5.50	3.9	10.2	11	0.24	72.72	706	72.72	706
P											●		●	
M											●		●	
K											●		●	
N											●		●	
S											●		●	
H											●		●	
O											●		●	

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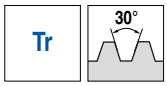
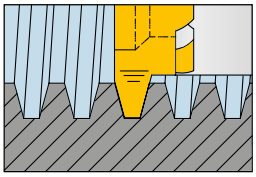
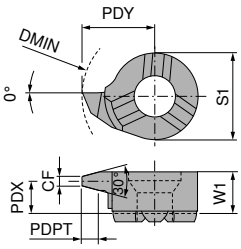
MiniCut – Threading insert (Partial profile)

▲ Trapezoidal thread DIN 103











Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 356 ... £ Y5		Right-hand 73 354 ... £ Y5	
09	9,00. R/L .1,5.30°	9	1.5	0.47	0.90	3.55	3.00	5.5	6.2	44.27	415	44.27	415
	9,00. R/L .2,0.30°	9	2.0	0.60	1.25	3.55	2.85	5.5	6.2	44.27	420	44.27	420
	9,00. R/L .3,0.30°	9	3.0	0.96	1.75	3.55	2.25	5.5	6.2	44.27	430	44.27	430
	9,00. R/L .4,0.30°	10	4.0	1.33	2.25	3.55	2.25	5.5	6.2	44.27	440	44.27	440
11	11,00. R/L .1,5.30°	11	1.5	0.47	0.90	4.30	3.70	6.7	8.0	46.85	315	46.85	315
	11,00. R/L .2,0.30°	11	2.0	0.60	1.25	4.30	3.50	6.7	8.0	46.85	320	46.85	320
	11,00. R/L .3,0.30°	11	3.0	0.96	1.75	4.30	3.20	6.7	8.0	46.85	330	46.85	330
	11,00. R/L .4,0.30°	11	4.0	1.33	2.25	3.95	2.60	6.7	8.0	44.77	340	44.77	340
14	14,00. R/L .2,0.30°	14	2.0	0.60	1.25	5.30	4.30	9.0	9.0	46.99	520	46.99	520
	14,00. R/L .3,0.30°	14	3.0	0.96	1.75	5.30	4.00	9.0	9.0	46.99	530	46.99	530
	14,00. R/L .4,0.30°	14	4.0	1.33	2.25	5.30	3.60	9.0	9.0	46.99	540	46.99	540
	14,00. R/L .5,0.30°	14	5.0	1.69	2.75	5.30	3.30	9.0	9.0	46.99	550	46.99	550
16	16,00. R/L .2,0.30°	16	2.0	0.60	1.25	5.50	4.50	9.7	11.0	54.32	720	54.32	720
	16,00. R/L .3,0.30°	16	3.0	0.96	1.75	5.50	4.30	9.7	11.0	54.32	730	54.32	730
	16,00. R/L .4,0.30°	16	4.0	1.33	2.25	5.50	4.00	9.7	11.0	54.32	740	54.32	740
	16,00. R/L .5,0.30°	16	5.0	1.69	2.75	5.50	3.55	9.7	11.0	50.78	750	50.78	750
	16,00. R/L .6,0.30°	16	6.0	1.92	3.50	5.50	3.30	10.2	11.0	47.49	760	47.49	760
P											●		●
M											●		●
K											●		●
N											●		●
S											●		●
H											●		●
O											●		●

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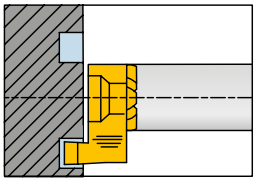
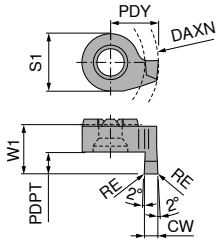
MiniCut – Axial grooving insert

CWX500 CWX500







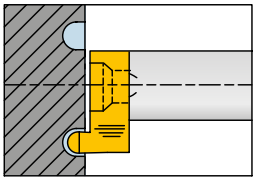
Illustrations show right-hand versions

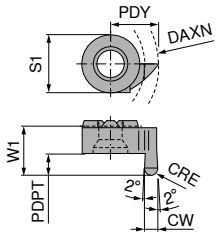
Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	RE mm	S1 mm	Left-hand 73 364 ... £ Y5		Right-hand 73 362 ... £ Y5	
14	14,00. R/L .1,0.1,5	14	1.0	1.5	8.3	9		9	36.55	510	36.55	510
	14,00. R/L .1,5.2,5	14	1.5	2.5	8.3	9	0.2	9	36.55	515	36.55	515
	14,00. R/L .2,0.3,0	14	2.0	3.0	8.3	9	0.2	9	36.55	520	36.55	520
	14,00. R/L .2,0.5,0	14	2.0	5.0	10.3	9	0.2	9	42.43	620	42.43	620
	14,00. R/L .2,5.3,0	14	2.5	3.0	8.3	9	0.2	9	36.55	525	36.55	525
	14,00. R/L .2,5.5,0	14	2.5	5.0	10.3	9	0.2	9	42.43	625	42.43	625
	14,00. R/L .3,0.3,0	14	3.0	3.0	8.3	9	0.2	9	36.55	530	36.55	530
	14,00. R/L .3,0.5,0	14	3.0	5.0	10.3	9	0.2	9	42.43	630	42.43	630
P									●		●	
M									●		●	
K									●		●	
N									●		●	
S									●		●	
H									●		●	
O									●		●	

→ v_c Page 59

MiniCut – Full radius axial grooving insert

CWX500 CWX500







Illustrations show right-hand versions

Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	CRE mm	S1 mm	Left-hand 73 376 ... £ Y5		Right-hand 73 374 ... £ Y5	
14	14,00. R/L . 1,0.1,5	14	1.0	1.5	8.3	9	0.5	9	42.26	510	42.26	510
	14,00. R/L . 1,6.2,5	14	1.6	2.5	8.3	9	0.8	9	42.26	516	42.26	516
	14,00. R/L . 2,0.3,0	14	2.0	3.0	8.3	9	1.0	9	42.26	520	42.26	520
	14,00. R/L . 2,5.3,0	14	2.5	3.0	8.3	9	1.2	9	42.26	525	42.26	525
	14,00. R/L . 3,0.3,0	14	3.0	3.0	8.3	9	1.5	9	42.26	530	42.26	530
P									●		●	
M									●		●	
K									●		●	
N									●		●	
S									●		●	
H									●		●	
O									●		●	

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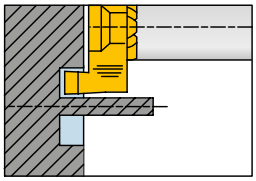
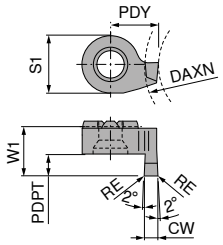
MiniCut – Axial grooving insert over a spigot

CWX500 CWX500







Illustrations show right-hand versions

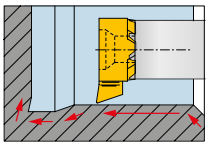
Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	RE mm	S1 mm	Left-hand 73 360 ... £ Y5		Right-hand 73 358 ... £ Y5	
14	14/12. R/L .1,0.1,5	12	1.0	1.5	8.3	7.0		9	38.01	310	38.01	310
	14/12. R/L .1,5.2,5	12	1.5	2.5	8.3	7.5	0.2	9	38.91	315	38.91	315
	14/12. R/L .2,0.3,0	12	2.0	3.0	8.3	8.0	0.2	9	38.91	320	38.91	320
	14/12. R/L .2,0.5,0	12	2.0	5.0	10.3	8.0	0.2	9	45.36	420	45.36	420
	14/12. R/L .2,5.3,0	12	2.5	3.0	8.3	8.5	0.2	9	38.91	325	38.91	325
	14/12. R/L .2,5.5,0	12	2.5	5.0	10.3	8.5	0.2	9	45.36	425	45.36	425
	14/12. R/L .3,0.3,0	12	3.0	3.0	8.3	9.0	0.2	9	38.91	330	38.91	330
	14/12. R/L .3,0.5,0	12	3.0	5.0	10.3	9.0	0.2	9	45.36	430	45.36	430

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

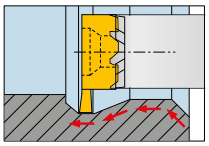
→ v_c Page 59

MiniCut – Set

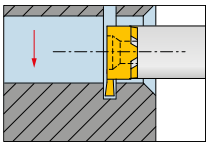
- ▲ Extensive range of size 9 inserts
- ▲ CWX500



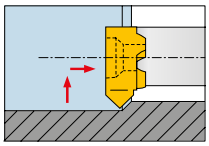
Profile turning (K)



Profile turn (A)



Grooving (E)



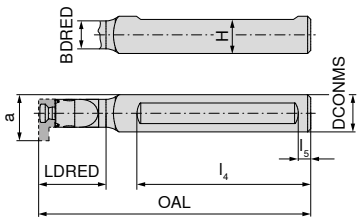
Chamfers (F)

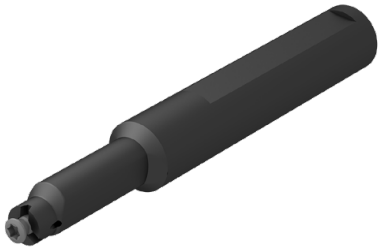


12

Size	Tool	Designation	Article no.	Bore Ø mm	Width mm	Grooving depth mm	Piece	fig.	73 528 ... £ Y5	
09	**Grooving insert**	**9,00. R .1,00.1,8**	**73 310 210**	9	1,00	1,8	1	E		
	NC fine turning insert	**9,00. R .2,00.2,0**	**73 314 120**	9	2,0 +0,05	2,0	1	A		
	Profiling insert	**9,00. R .3,60.10°**	**73 386 136**	9	3,6		1	K		
	Profiling insert	**9,00. R .3,60.20°**	**73 322 236**	9	3,6		1	K	273.68	125
	Chamfering insert	**9,00. R .45°.1,3**	**73 334 110**	9		1,3	1	F		
	Tool holder	**9,00/16.N.25.1,0**	**73 522 125**				1			
	Tightening Key		**70 950 105**				1			

MiniCut – Steel Tool holder





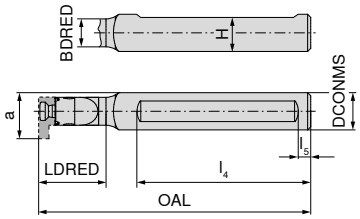
Size	Designation	a mm	DCONMS $_{f7}$ mm	OAL mm	l_4 mm	LDRED mm	BDRED mm	H mm	l_5 mm	73 522 ... £ Y5	
08	8,00/16.N.12.1,0	7.8	16	80	60	12	6.0	15.0	5	201.08	012
	8,00/16.N.22.1,0	7.8	16	90	60	22	6.0	15.0	5	230.73	122
09	9,00/16.N.14.1,8	8.6	16	95	60	14	7.4	15.0	5	182.37	014
	9,00/16.N.25.1,8	8.6	16	105	60	25	7.4	15.0	5	209.11	125
11	11,00/16.N.16.2,3	10.7	16	97	60	16	8.0	14.5	5	201.08	016
	11,00/16.N.29.2,3	10.7	16	110	60	29	8.0	14.5	5	230.73	129
14	14,00/16.N.18.4,0	13.8	16	100	60	18	11.0	14.5	5	230.73	018
	14,00/16.N.38.4,0	13.8	16	120	60	38	11.0	14.5	5	230.73	138
16	16,00/16.N.22.4,3	15.7	16	100	60	22	11.0	14.5	5	201.08	022
	16,00/16.N.42.4,3	15.7	16	120	60	42	11.0	14.5	5	230.73	142

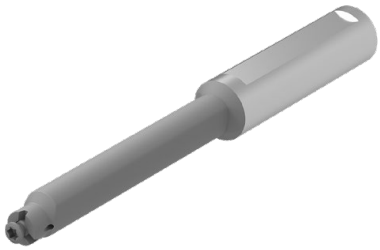

Key D


Clamping screw

Spare parts Size		80 950 ... £ Y7			73 082 ... £ Y5	
08	T08	10.82	110	M2,6	7.50	002
09	T08	10.82	110	M2,6	7.50	002
11	T10	12.65	112	M3,5	7.50	003
14	T15	12.87	113	M4	7.50	004
16	T20	13.77	114	M5	7.50	005

MiniCut – Solid Carbide Tool holder – vibration damped





Size	Designation	a mm	DCONMS f7 mm	OAL mm	l_4 mm	LDRED mm	BDRED mm	H mm	l_5 mm	73 520 ... £ Y5	
08	8,00/12.N.21.1,0 HM	7.8	12	80	48	21	6.0	11.0	5	325.30	021
	8,00/12.N.30.1,0 HM	7.8	12	90	48	30	6.0	11.0	5	351.78	030
	8,00/12.N.42.1,0 HM	7.8	12	100	48	42	6.0	11.0	5	413.87	042
	8,00/12.N.50.1,0 HM	7.8	12	115	48	50	6.0	11.0	5	472.80	050
09	9,00/12.N.22.1,0 HM	8.6	12	90	60	22	7.4	11.0	5	326.91	222
	9,00/12.N.30.2,0 HM	8.6	12	98	60	30	7.4	11.0	5	381.38	230
	9,00/12.N.42.3,0 HM	8.6	12	110	60	42	7.4	11.0	5	429.06	242
	9,00/12.N.56.4,0 HM	8.6	12	122	60	56	7.4	11.0	5	485.81	256
11	11,00/12.N.29.2,3 HM	10.7	12	95	60	29	8.0	10.5	5	325.30	129
	11,00/12.N.42.2,3 HM	10.7	12	110	60	42	8.0	10.5	5	351.78	142
	11,00/12.N.56.2,3 HM	10.7	12	120	60	56	8.0	10.5	5	413.87	156
	11,00/12.N.64.2,3 HM	10.7	12	130	60	64	8.0	10.5	5	472.80	164
14	14,00/12.N.34.4,0 HM	13.8	12	100	60	34	11.0	10.5	5	395.90	234
	14,00/12.N.45.4,0 HM	13.8	12	110	60	45	11.0	10.5	5	446.17	245
	14,00/12.N.64.4,0 HM	13.8	12	130	60	64	11.0	10.5	5	526.07	264
	14,00/16.N.34.4,0 HM	13.8	16	100	60	34	11.0	14.5	5	464.00	334
	14,00/16.N.45.4,0 HM	13.8	16	110	60	45	11.0	14.5	5	528.94	345
	14,00/16.N.64.4,0 HM	13.8	16	130	60	64	11.0	14.5	5	608.38	364
	14,00/16.N.75.4,0 HM	13.8	16	145	60	75	11.0	14.5	5	649.94	375
16	16,00/12.N.40.4,3 HM	15.7	12	130	60	40	11.0	10.5	5	419.70	440
	16,00/12.N.56.4,3 HM	15.7	12	130	60	56	11.0	10.5	5	446.17	456
	16,00/12.N.80.4,3 HM	15.7	12	150	60	80	11.0	10.5	5	526.07	480
	16,00/16.N.40.4,3 HM	15.7	16	130	60	40	11.0	14.5	5	511.28	540
	16,00/16.N.56.4,3 HM	15.7	16	130	60	56	11.0	14.5	5	528.94	556
	16,00/16.N.80.4,3 HM	15.7	16	150	60	80	11.0	14.5	5	608.38	580

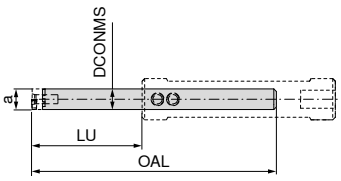
12

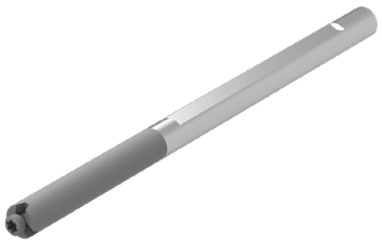

Key D


Clamping screw

Spare parts Size		80 950 ... £ Y7			73 082 ... £ Y5	
08	T08	10.82	110	M2,6	7.50	002
09	T08	10.82	110	M2,6	7.50	002
11	T10	12.65	112	M3,5	7.50	003
14	T15	12.87	113	M4	7.50	004
16	T20	13.77	114	M5	7.50	005

MiniCut – HM – Flexoholder





Size	Designation	DCONMS mm	OAL mm	LU mm	a mm	73 525 ... £ Y5	
08	8,0/6.N16/2	6	65	18	8	460.85	818
	8,0/6.N40/4	6	103	40	8	524.40	840
11	11,0/8.N20/2	8	79	20	11	583.43	120 1)
	11,0/8.N50/4	8	129	50	11	662.89	150 1)

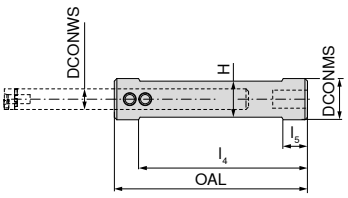
1) with thro' coolant


Key D


Clamping screw

Spare parts Size		80 950 ... £ Y7			73 082 ... £ Y5	
08	T08	10.82	110	M2,6	7.50	002
11	T10	12.65	112	M3,5	7.50	003

MiniCut – Base holder for solid carbide Flexoholder





Size	Designation	DCONWS mm	DCONMS mm	H mm	OAL mm	l_4 mm	l_5 mm	73 526 ... £ Y5	
08	8/16.75	6	16	14	75	55	10	276.96	816
	8/20.90	6	20	18	90	70	10	276.96	820
11	11/16.75	8	16	14	75	55	10	276.96	116
	11/20.90	8	20	18	90	70	10	276.96	120

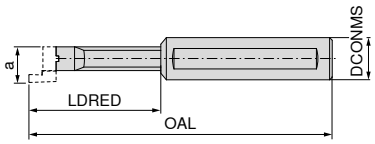

Key I

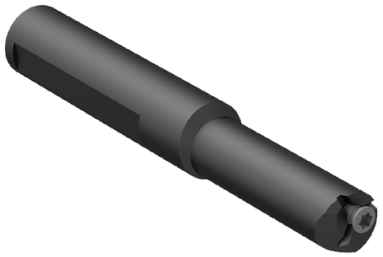

Clamping screw

Spare parts for Article no.		70 950 ... £ 2A/28			73 082 ... £ Y5	
73 526 816	SW2,5	2.34	175	M5x0,5x6	4.83	010
73 526 820	SW2,5	2.34	175	M5x0,5x6	4.83	010
73 526 116	SW2,5	2.34	175	M5x0,5x4	4.83	009
73 526 120	SW2,5	2.34	175	M5x0,5x6	4.83	010

MiniCut – Steel holder

▲ for axial machining





Size	Designation	a mm	DCONMS mm	OAL mm	LDRED mm	Left-hand 73 523 ... £ Y5		Right-hand 73 524 ... £ Y5	
14	14,0/16. R/L .25.1,0	13.5	16	90	25	247.45	025	247.45	025
	14,0/16. R/L .45.1,0	13.5	16	110	45	263.33	145	263.33	145



Key D



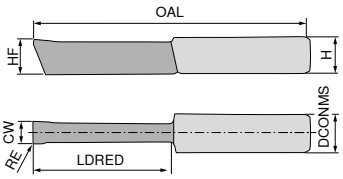
Clamping screw

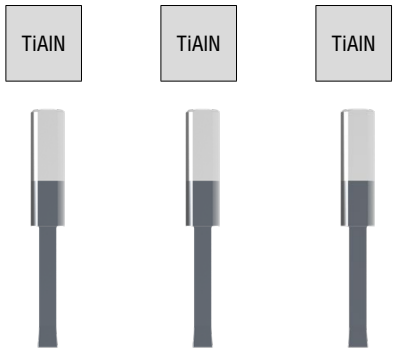
Spare parts Size		Key D 80 950 ... £ Y7			Clamping screw 73 082 ... £ Y5	
14	T15	12.87	113	M4	7.50	004

12

SlotCut – Inserts – DIN 138

▲ b_1 = Groove width



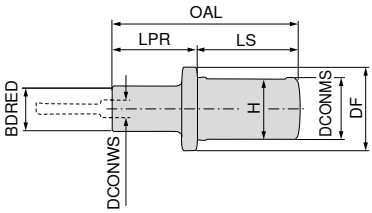


Designation	b_1 P 9/JS 9/C 11	CW	HF	RE	OAL	LDRED	DMIN	DCONMS h6	H	clamping holder	73 600 ... £ Y5		73 601 ... £ Y5		73 602 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm							
NPU.0198.01.1	2	1.98	5.5	0.10	38	12.5	6	7	6.3	NHU					85.29	**099**
NPU.0200.01.1	2	2.01	5.5	0.10	38	12.5	6	7	6.3	NHU			85.29	**099**		
NPU.0210.03.1	2	2.10	5.5	0.35	38	12.5	6	7	6.3	NHU	85.29	**098**				
NPU.0298.01.1	3	2.98	6.2	0.10	38	12.5	7	7	6.3	NHU					85.29	**100**
NPU.0300.01.1	3	3.01	6.2	0.10	38	12.5	7	7	6.3	NHU			85.29	**100**		
NPU.0310.03.1	3	3.10	6.2	0.35	38	12.5	7	7	6.3	NHU	85.29	**099**				
NPU.0310.05.1	3	3.10	6.2	0.50	38	12.5	7	7	6.3	NHU	85.29	**100**				
NPU.0398.01.1	4	3.98	6.2	0.10	40	15.0	7	7	6.3	NHU					74.83	**101**
NPU.0398.02.2	4	3.98	6.2	0.20	50	25.0	7	7	6.3	NHU					98.18	**102**
NPU.0400.01.1	4	4.01	6.2	0.10	40	15.0	7	7	6.3	NHU			74.83	**101**		
NPU.0400.02.1	4	4.01	6.2	0.20	40	15.0	7	7	6.3	NHU			74.83	**102**		
NPU.0400.02.2	4	4.01	6.2	0.20	50	25.0	7	7	6.3	NHU			98.18	**103**		
NPU.0410.05.1	4	4.10	6.2	0.50	40	15.0	7	7	6.3	NHU	74.83	**101**				
NPU.0410.05.2	4	4.10	6.2	0.50	50	25.0	7	7	6.3	NHU	98.18	**102**				
NPU.0498.02.2	5	4.98	5.8	0.20	50	25.0	7	7	6.3	NHU					98.18	**103**
NPU.0500.02.2	5	5.01	5.8	0.20	50	25.0	8	7	6.3	NHU			98.18	**104**		

Tolerance **C 11** for 73 600 ..., Tolerance **JS 9** for 73 601 ..., Tolerance **P 9** for 73 602 ...

SlotCut – Toolholder for broaching inserts

Scope of supply:
Tool holder with clamping screw, without insert





Designation	DCONWS	BDRED	DCONMS g6	DF	OAL	LS	LPR	H	Inserts	73 610 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm			
NHU.25	7	18	25	33	73	40	33	23	NPU	408.80	**025**
NHU.32	7	20	32	40	73	40	33	30	NPU	428.38	**032**

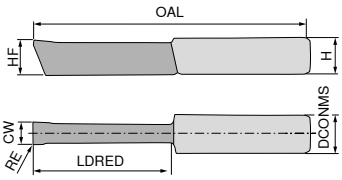

Key I

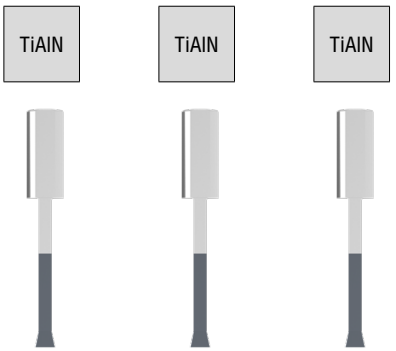

Clamping screw

Spare parts for Article no.		70 950 ... £ 2A/28			73 082 ... £ Y5	
73 610 025	SW2,5	2.34	**175**	M5x6	6.03	**001**
73 610 032	SW2,5	2.34	**175**	M5x6	6.03	**001**

SlotCut – Inserts – DIN 138

▲ b_1 = Groove width



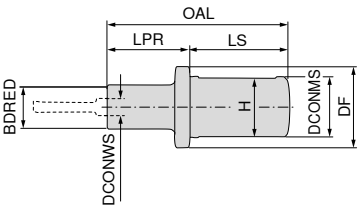


Designation	$b_{1\ JS9/P9/C11}$ mm	CW mm	HF mm	RE mm	OAL mm	LDRED mm	DMIN mm	$DCONMS_{h6}$ mm	H mm	clamping holder	73 606 ... £ Y5		73 607 ... £ Y5		73 608 ... £ Y5	
NP10.398.02.2	4	3.98	9	0.2	50	25	10	10	9.2	NH 10			119.71	101		
NP10.398.02.3	4	3.98	9	0.2	66	41	10	10	9.2	NH 10			149.63	102		
NP10.400.02.2	4	4.01	9	0.2	50	25	10	10	9.2	NH 10					119.71	101
NP10.400.02.3	4	4.01	9	0.2	66	41	10	10	9.2	NH 10					149.63	102
NP10.410.05.2	4	4.10	9	0.5	50	25	10	10	9.2	NH 10	119.71	101				
NP10.410.05.3	4	4.10	9	0.5	66	41	10	10	9.2	NH 10	149.63	102				
NP10.498.02.2	5	4.98	9	0.2	50	25	10	10	9.2	NH 10			119.71	103		
NP10.498.02.3	5	4.98	9	0.2	66	41	10	10	9.2	NH 10			149.63	104		
NP10.500.02.2	5	5.01	9	0.2	50	25	10	10	9.2	NH 10					119.71	103
NP10.500.02.3	5	5.01	9	0.2	66	41	10	10	9.2	NH 10					149.63	104
NP10.510.05.2	5	5.10	9	0.5	50	25	10	10	9.2	NH 10	119.71	103				
NP10.510.05.3	5	5.10	9	0.5	66	41	10	10	9.2	NH 10	149.63	104				

Tolerance **C 11** for 73 606 ..., Tolerance **P 9** for 73 607 ..., Tolerance **JS 9** for 73 608 ...

SlotCut – Toolholder for Cutting Inserts

Scope of supply:
Tool holder with clamping screw, without insert





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Designation	DCONWS mm	BDRED mm	$DCONMS_{g6}$ mm	DF mm	OAL mm	LS mm	LPR mm	H mm	Inserts	73 612 ... £ Y5	
NH10.0025.1	10	20	25	33	73	40	33	23	NP10	465.34	025
NH10.0032.1	10	20	32	40	73	40	33	30	NP10	465.34	032

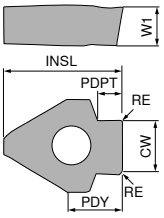

Key I

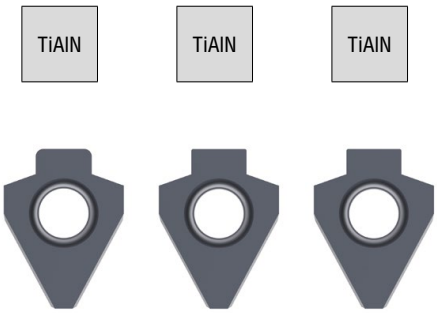

Grubscrew

Spare parts for Article no.		70 950 ... £ 2A/28			70 950 ... £ Y5	
73 612 032	SW3	2.34	176	M6x5,5	7.50	031
73 612 025	SW3	2.34	176	M6x5,5	7.50	031

SlotCut – Inserts – DIN 138

▲ b_1 = Groove width





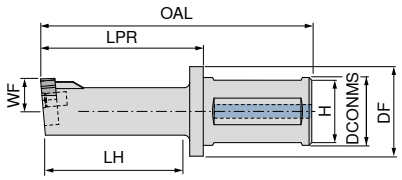
Designation	$b_{1\ P9/JS9/C11}$	CW	RE	PDY	INSL	PDPT	DMIN	W1	clamping holder	73 603 ... £ Y5		73 604 ... £ Y5		73 605 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm							
NV15.0398.02	4	3.98	0.20	6.5	13.0	2.3	15	3.2	NHV 15					78.58	110
NV15.0401.02	4	4.01	0.20	6.5	13.0	2.3	15	3.2	NHV 15			78.58	110		
NV15.0410.050	4	4.10	0.50	6.5	13.0	2.2	15	3.2	NHV 15	78.58	108				
NV15.0498.02	5	4.98	0.20	6.5	13.0	2.8	15	3.2	NHV 15					78.58	111
NV15.0501.02	5	5.01	0.20	6.5	13.0	2.8	15	3.2	NHV 15			78.58	111		
NV15.0510.050	5	5.10	0.50	6.5	13.0	2.5	15	3.2	NHV 15	78.58	109				
NV15.0598.02	6	5.98	0.20	6.5	13.0	3.3	15	3.2	NHV 15					78.58	112
NV15.0601.02	6	6.01	0.20	6.5	13.0	3.3	15	3.2	NHV 15			78.58	112		
NV15.0612.085	6	6.12	0.85	6.5	13.0	2.6	15	3.2	NHV 15	78.58	110				
NPV.0498.02	5	4.98	0.20	8.0	17.3	2.7	22	5.3	NHV 22					76.32	100
NPV.0501.02	5	5.01	0.20	8.0	17.3	2.7	22	5.3	NHV 22			76.32	100		
NPV.0598.02	6	5.98	0.20	8.0	17.3	3.4	22	5.3	NHV 22					69.12	101
NPV.0601.02	6	6.01	0.20	8.0	17.3	3.4	22	5.3	NHV 22			69.12	101		
NPV.0612.085	6	6.12	0.85	8.0	17.3	2.6	22	5.3	NHV 22	69.12	101				
NPV.0713.085	7	7.13	0.85	8.0	17.3	3.3	22	5.3	NHV 22	69.12	102				
NPV.0798.02	8	7.98	0.20	8.0	17.3	4.1	22	5.3	NHV 22/30					69.12	102
NPV.0801.02	8	8.01	0.20	8.0	17.3	4.1	22	5.3	NHV 22/30			69.12	102		
NPV.0813.105	8	8.13	1.05	8.0	17.3	3.4	22	5.3	NHV 22/30	69.12	103				
NPV.0998.03	10	9.98	0.30	8.0	17.3	4.2	30	5.3	NHV 30					69.12	103
NPV.1001.03	10	10.01	0.30	8.0	17.3	4.2	30	5.3	NHV 30			69.12	103		
NPV.1013.105	10	10.13	1.05	10.9	20.2	4.2	40	5.3	NHV 38	69.12	104				
NPV.1197.03	12	11.97	0.30	10.9	20.2	5.7	40	5.3	NHV 38					76.32	104
NPV.1202.05	20	12.02	0.50	10.9	20.2	8.5	40	5.3	NHV 38			76.32	105		
NPV.1202.03	12	12.02	0.30	10.9	20.2	5.7	40	5.3	NHV 38			76.32	104		
NPV.1215.135	12	12.15	1.35	10.9	20.2	5.1	40	5.3	NHV 38	76.32	105				
NPV.1215.175	16	12.15	1.75	10.9	20.2	6.6	40	5.3	NHV 38	76.32	106				
NPV.1215.225	24	12.15	2.25	10.9	20.2	8.5	40	5.3	NHV 38	76.32	107				
NPV.1397.03	14	13.97	0.30	10.9	20.1	7.5	45	5.3	NHV 45					89.03	106
NPV.1402.03	14	14.02	0.30	10.9	20.1	7.5	45	5.3	NHV 45			89.03	106		
NPV.1597.03	16	15.97	0.30	10.9	20.1	7.5	45	5.3	NHV 45					89.03	107
NPV.1602.03	16	16.02	0.30	10.9	20.1	7.5	45	5.3	NHV 45			89.03	107		
NPV.1797.05	18	17.97	0.50	10.9	20.1	9.5	45	5.3	NHV 45					89.03	108
NPV.1802.05	18	18.02	0.50	10.9	20.1	9.5	45	5.3	NHV 45			89.03	108		
NPV.1997.05	20	19.97	0.50	10.9	20.1	10.0	45	5.3	NHV 45					89.03	109
NPV.2002.05	20	20.02	0.50	10.9	20.1	10.0	45	5.3	NHV 45			89.03	109		

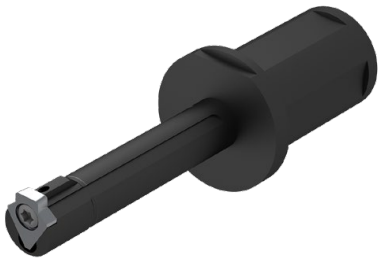
Tolerance **C 11** for 73 603 ..., Tolerance **JS 9** for 73 604 ..., Tolerance **P 9** for 73 605 ...

SlotCut – Toolholder for inserts

Scope of supply:
Tool holder with clamping screw, without insert





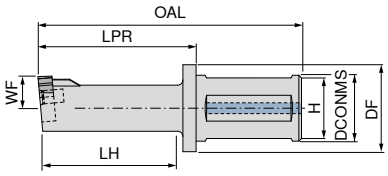


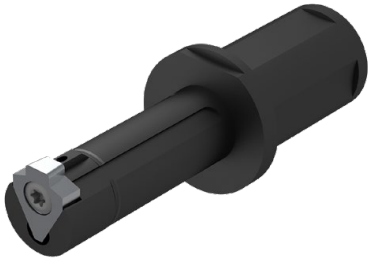
Designation	DCONMS g6	DMIN	DF	OAL	LH	LPR	H	WF	Inserts	73 613 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm			
NHV.15.1	25	15	33	75	25	35	23	8.4	NV15	399.54	**025**
NHV.15.2	25	15	33	90	40	50	23	8.4	NV15	438.13	**125**
NHV.15.3	25	15	33	110	60	70	23	8.4	NV15	499.43	**225**

SlotCut – Toolholder for inserts

Scope of supply:
Tool holder with clamping screw, without insert







Designation	DCONMS g6	DMIN	DF	OAL	LH	LPR	H	WF	Inserts	73 611 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm			
NHV.22	25	22	33	100	50	60	23	12.0	NPV	383.32	**025**
NHV.30	32	30	45	100	50	60	30	16.5	NPV	383.32	**032**
NHV.30	32	30	45	125	75	85	30	16.5	NPV	436.94	**532**
NHV.38	32	38	45	100	50	60	30	22.0	NPV	383.32	**132**
NHV.38	32	38	45	125	75	85	30	22.0	NPV	436.94	**632**
NHV.45	40	45	55	120	50	60	38	24.0	NPV	590.25	**040**
NHV.45	40	45	55	175	105	115	38	24.0	NPV	799.08	**140**
NHV.45	40	45	55	225	155	165	38	24.0	NPV	901.24	**240**


Key D


Clamping screw

Spare parts DCONMS g6		80 950 ... £ Y7			73 082 ... £ Y5	
25	T20	13.77	**114**	M5x13	7.88	**007**
32	T20	13.77	**114**	M5x13	7.88	**007**
40	T20	13.77	**114**	M5x13	7.88	**007**

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values

Index	UltraMini K10F uncoated	UltraMini K10F-TiN	UltraMini K10-TiAlN	UltraMini DPX 57S	MiniCut CWX500	UltraMini TiAlN+	MiniCut CBN
	v_c in m/min						
P.1.1		**90**	**110**	110	**160**	110	
P.1.2		**80**	**100**	100	**140**	100	
P.1.3		**60**	**80**	80	**140**	80	
P.1.4		**60**	**80**	80	**110**	80	
P.1.5		**60**	**60**	60	**100**	60	
P.2.1		**60**	**80**	80	**110**	80	
P.2.2		**60**	**60**	60	**100**	60	
P.2.3		**50**	**60**	60	**90**	60	
P.2.4		**50**	**60**	60	**80**	60	
P.3.1		**50**	**60**	60	**80**	60	
P.3.2		**30**	**50**	**50**	**70**	50	
P.3.3		**30**	**30**	**30**	**50**	30	
P.4.1		**60**	**70**	**70**	**100**	70	
P.4.2		**50**	**60**	**60**	**90**	60	
M.1.1		**60**	**80**	**80**	**80**	80	
M.2.1		**50**	**60**	**60**	**70**	60	
M.3.1		**40**	**50**	**50**	**60**	50	
K.1.1		**80**	**100**	100	**90**	100	
K.1.2		**60**	**70**	70	**100**	70	
K.2.1		**60**	**60**	60	**80**	60	
K.2.2		**50**	**60**	60	**70**	60	
K.3.1		**80**	**100**	100	**120**	100	
K.3.2		**70**	**80**	80	**100**	80	
N.1.1	100	**200**	**230**	230	**290**	230	
N.1.2	100	**180**	**220**	220	**280**	220	
N.2.1	90	**160**	**190**	190	**240**	190	
N.2.2	70	**140**	**170**	170	**200**	170	
N.2.3	50	**80**	**100**	100	**120**	100	
N.3.1	80	**140**	**170**	170	**210**	170	
N.3.2	70	**120**	**140**	140	**180**	140	
N.3.3	50	**100**	**120**	120	**130**	120	
N.4.1	50	**100**	**120**	120	**100**	120	
S.1.1		30	**50**	50	**50**	50	
S.1.2		30	**30**	30	**30**	30	30
S.2.1		30	**50**	50	**50**	50	50
S.2.2		30	**30**	30	**40**	30	30
S.2.3			**30**	30	**30**	30	30
S.3.1		30	**50**	**50**	**50**	50	
S.3.2		20	**30**	**30**	**40**	30	
S.3.3			**20**	20	**30**	20	20
H.1.1		30	**40**	40	**50**	**40**	**40**
H.1.2			30	30	40	**30**	**30**
H.1.3				20		**30**	**30**
H.1.4							
H.2.1							
H.3.1		20	**30**	30	**40**	**30**	**30**
O.1.1	**50**	**90**	**110**	110	**150**	110	
O.1.2	**50**	**100**	**120**	120	**150**	120	
O.2.1		**90**	**110**	110	**130**	110	
O.2.2		**60**	**80**	80	**100**	80	
O.3.1	50	**100**	**120**	120	**150**	120	

	UltraMini	MiniCut
	f in mm/rev.	
Internal turning and profiling	0,02–0,05	0,03–0,10
Internal turning and profiling – hard turning	0,02–0,06	0,03–0,10
Turning and profile turning – super alloys	0,02–0,08	
Internal turning	0,02–0,05	0,01–0,03
Back boring	0,02–0,04	0,03–0,10
Turning and chamfering	0,01–0,03	0,03–0,10
Pre-parting and chamfering	0,01–0,02	0,01–0,03
Groove turning	0,01–0,02	0,01–0,03
Internal Undercuts	0,01–0,03	0,03–0,08
Groove and profile turning	0,01–0,02	0,01–0,03
Axial grooving	0,02–0,05	0,02–0,05

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The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values – 73 000 ... / 73 001 ...

		Roughing										
	UltraMini DPX77S	Ø ≤ 2 mm Corner radius in mm			Ø 2,5–4 mm Corner radius in mm				Ø ≥ 5 mm Corner radius in mm			
Index		0,05	0,1	0,15	0,05	0,1	0,15	0,2 / 0,4	0,05	0,1	0,15	0,2 / 0,4
	v_c in m/min	f in mm/rev.			f in mm/rev.				f in mm/rev.			
P.1.1	110	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.2	100	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.3	80	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.4	80	0,023–0,065	0,025–0,071	0,026–0,076	0,046–0,13	0,05–0,142	0,053–0,151	0,055–0,158	0,085–0,244	0,093–0,266	0,099–0,284	0,104–0,297
P.1.5	60	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
P.2.1	80	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
P.2.2	60	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
P.2.3	60	0,019–0,054	0,021–0,059	0,022–0,063	0,038–0,109	0,042–0,119	0,044–0,127	0,046–0,132	0,071–0,204	0,078–0,222	0,083–0,238	0,087–0,248
P.2.4	60	0,018–0,051	0,02–0,056	0,021–0,06	0,036–0,103	0,039–0,112	0,042–0,12	0,044–0,125	0,067–0,193	0,074–0,21	0,079–0,224	0,082–0,235
P.3.1	60	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
P.3.2	50	0,02–0,057	0,022–0,063	0,023–0,067	0,04–0,115	0,044–0,125	0,047–0,134	0,049–0,14	0,075–0,215	0,082–0,235	0,088–0,251	0,092–0,262
P.3.3	30	0,016–0,045	0,017–0,049	0,018–0,053	0,032–0,091	0,035–0,099	0,037–0,106	0,039–0,11	0,06–0,17	0,065–0,185	0,069–0,198	0,072–0,207
P.4.1	70	0,022–0,064	0,024–0,069	0,026–0,074	0,044–0,127	0,048–0,138	0,052–0,148	0,054–0,155	0,083–0,238	0,091–0,26	0,097–0,277	0,101–0,29
P.4.2	60	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
M.1.1	80	0,015–0,042	0,016–0,046	0,017–0,049	0,03–0,085	0,032–0,092	0,034–0,099	0,036–0,103	0,056–0,159	0,061–0,173	0,065–0,185	0,068–0,193
M.2.1	60	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
M.3.1	50	0,014–0,039	0,015–0,043	0,016–0,046	0,028–0,079	0,03–0,086	0,032–0,092	0,033–0,096	0,052–0,147	0,056–0,161	0,06–0,172	0,063–0,179
K.1.1	100	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
K.1.2	70	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
K.2.1	60	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
K.2.2	60	0,021–0,059	0,022–0,064	0,024–0,069	0,041–0,118	0,045–0,129	0,048–0,137	0,05–0,144	0,077–0,221	0,084–0,241	0,09–0,257	0,094–0,269
K.3.1	100	0,025–0,073	0,028–0,079	0,03–0,084	0,051–0,145	0,055–0,158	0,059–0,169	0,062–0,177	0,095–0,272	0,104–0,297	0,111–0,317	0,116–0,331
K.3.2	80	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
N.1.1	230	0,032–0,091	0,035–0,099	0,037–0,106	0,064–0,181	0,069–0,198	0,074–0,211	0,077–0,221	0,119–0,34	0,13–0,371	0,139–0,396	0,145–0,414
N.1.2	220	0,031–0,089	0,034–0,097	0,036–0,104	0,062–0,178	0,068–0,194	0,073–0,208	0,076–0,217	0,117–0,335	0,128–0,365	0,136–0,389	0,142–0,407
N.2.1	190	0,03–0,085	0,032–0,092	0,034–0,099	0,059–0,169	0,065–0,185	0,069–0,197	0,072–0,206	0,111–0,318	0,121–0,346	0,129–0,37	0,135–0,386
N.2.2	170	0,029–0,083	0,032–0,091	0,034–0,097	0,058–0,166	0,063–0,181	0,068–0,194	0,071–0,202	0,109–0,312	0,119–0,34	0,127–0,363	0,133–0,38
N.2.3	100	0,029–0,082	0,031–0,089	0,033–0,095	0,057–0,163	0,062–0,178	0,067–0,19	0,07–0,199	0,107–0,306	0,117–0,334	0,125–0,356	0,13–0,373
N.3.1	170	0,03–0,085	0,032–0,092	0,034–0,099	0,059–0,169	0,065–0,185	0,069–0,197	0,072–0,206	0,111–0,318	0,121–0,346	0,129–0,37	0,135–0,386
N.3.2	140	0,028–0,08	0,031–0,087	0,033–0,093	0,056–0,16	0,061–0,175	0,065–0,187	0,068–0,195	0,105–0,301	0,115–0,328	0,122–0,35	0,128–0,366
N.3.3	120	0,027–0,077	0,029–0,084	0,031–0,09	0,054–0,154	0,059–0,168	0,063–0,18	0,066–0,188	0,101–0,289	0,11–0,315	0,118–0,337	0,123–0,352
N.4.1	120	0,027–0,077	0,029–0,084	0,031–0,09	0,054–0,154	0,059–0,168	0,063–0,18	0,066–0,188	0,101–0,289	0,11–0,315	0,118–0,337	0,123–0,352
S.1.1	50	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
S.1.2	30	0,019–0,053	0,02–0,058	0,022–0,062	0,037–0,106	0,04–0,115	0,043–0,123	0,045–0,129	0,069–0,198	0,076–0,216	0,081–0,231	0,085–0,242
S.2.1	50	0,018–0,051	0,02–0,056	0,021–0,06	0,036–0,103	0,039–0,112	0,042–0,12	0,044–0,125	0,067–0,193	0,074–0,21	0,079–0,224	0,082–0,235
S.2.2	30	0,014–0,039	0,015–0,043	0,016–0,046	0,028–0,079	0,03–0,086	0,032–0,092	0,033–0,096	0,052–0,147	0,056–0,161	0,06–0,172	0,063–0,179
S.2.3	30	0,015–0,042	0,016–0,046	0,017–0,049	0,03–0,085	0,032–0,092	0,034–0,099	0,036–0,103	0,056–0,159	0,061–0,173	0,065–0,185	0,068–0,193
S.3.1	50	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
S.3.2	30	0,019–0,054	0,021–0,059	0,022–0,063	0,038–0,109	0,042–0,119	0,044–0,127	0,046–0,132	0,071–0,204	0,078–0,222	0,083–0,238	0,087–0,248
S.3.3	20	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
H.1.1	40	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
H.1.2	30	0,011–0,03	0,012–0,033	0,012–0,035	0,021–0,06	0,023–0,066	0,025–0,07	0,026–0,074	0,036–0,102	0,039–0,111	0,042–0,119	0,043–0,124
H.1.3												
H.1.4												
H.2.1	30	0,014–0,041	0,016–0,044	0,017–0,048	0,029–0,082	0,031–0,089	0,033–0,095	0,035–0,099	0,054–0,153	0,058–0,167	0,062–0,178	0,065–0,186
H.3.1	30	0,013–0,036	0,014–0,04	0,015–0,042	0,025–0,073	0,028–0,079	0,03–0,084	0,031–0,088	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166
O.1.1	110	0,031–0,089	0,034–0,097	0,036–0,104	0,062–0,178	0,068–0,194	0,073–0,208	0,076–0,217	0,117–0,335	0,128–0,365	0,136–0,389	0,142–0,407
O.1.2	120	0,028–0,079	0,03–0,086	0,032–0,092	0,055–0,157	0,06–0,171	0,064–0,183	0,067–0,191	0,103–0,295	0,112–0,321	0,12–0,343	0,126–0,359
O.2.1	110	0,017–0,05	0,019–0,054	0,02–0,058	0,035–0,1	0,038–0,109	0,041–0,116	0,043–0,121	0,065–0,187	0,071–0,204	0,076–0,218	0,08–0,228
O.2.2	80	0,017–0,048	0,018–0,053	0,02–0,056	0,034–0,097	0,037–0,105	0,039–0,113	0,041–0,118	0,064–0,181	0,069–0,198	0,074–0,211	0,077–0,221
O.3.1	120											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

	Finishing												
	Ø ≤ 2 mm Corner radius in mm			Ø 2,5–4 mm Corner radius in mm					Ø ≥ 5 mm Corner radius in mm				
Index	0,05	0,1	0,15	0,05	0,1	0,15	0,2	0,4	0,05	0,1	0,15	0,2	0,4
	f in mm/rev.			f in mm/rev.					f in mm/rev.				
P.1.1	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.2	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.3	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.4	0,006–0,016	0,007–0,019	0,008–0,022	0,015–0,042	0,017–0,05	0,02–0,056	0,022–0,061	0,028–0,079	0,023–0,065	0,027–0,077	0,03–0,086	0,033–0,095	0,043–0,122
P.1.5	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
P.2.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
P.2.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
P.2.3	0,005–0,014	0,006–0,016	0,006–0,018	0,012–0,036	0,015–0,042	0,016–0,047	0,018–0,051	0,023–0,066	0,019–0,055	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102
P.2.4	0,005–0,013	0,005–0,015	0,006–0,017	0,012–0,034	0,014–0,039	0,015–0,044	0,017–0,049	0,022–0,063	0,018–0,052	0,021–0,061	0,024–0,068	0,026–0,075	0,034–0,097
P.3.1	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
P.3.2	0,005–0,014	0,006–0,017	0,007–0,019	0,013–0,038	0,015–0,044	0,017–0,049	0,019–0,054	0,025–0,07	0,02–0,058	0,024–0,068	0,027–0,076	0,029–0,084	0,038–0,108
P.3.3	0,004–0,011	0,005–0,013	0,005–0,015	0,01–0,03	0,012–0,035	0,014–0,039	0,015–0,043	0,019–0,055	0,016–0,046	0,019–0,053	0,021–0,06	0,023–0,066	0,03–0,085
P.4.1	0,006–0,016	0,007–0,019	0,007–0,021	0,015–0,041	0,017–0,049	0,019–0,055	0,021–0,06	0,027–0,078	0,022–0,064	0,026–0,075	0,029–0,084	0,032–0,092	0,042–0,119
P.4.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
M.1.1	0,004–0,011	0,004–0,012	0,005–0,014	0,01–0,028	0,011–0,032	0,013–0,036	0,014–0,04	0,018–0,052	0,015–0,043	0,017–0,05	0,02–0,056	0,022–0,062	0,028–0,08
M.2.1	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
M.3.1	0,003–0,01	0,004–0,012	0,005–0,013	0,009–0,026	0,011–0,03	0,012–0,034	0,013–0,037	0,017–0,048	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074
K.1.1	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
K.1.2	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
K.2.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
K.2.2	0,005–0,015	0,006–0,017	0,007–0,02	0,013–0,039	0,016–0,045	0,018–0,051	0,02–0,056	0,025–0,072	0,021–0,059	0,024–0,069	0,027–0,078	0,03–0,086	0,039–0,111
K.3.1	0,006–0,018	0,007–0,021	0,008–0,024	0,017–0,047	0,019–0,056	0,022–0,062	0,024–0,069	0,031–0,089	0,026–0,073	0,03–0,085	0,034–0,096	0,037–0,106	0,048–0,136
K.3.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
N.1.1	0,008–0,023	0,009–0,027	0,011–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.1.2	0,008–0,022	0,009–0,026	0,01–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.1	0,007–0,021	0,009–0,025	0,01–0,028	0,019–0,055	0,023–0,065	0,025–0,073	0,028–0,08	0,036–0,103	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.2	0,007–0,021	0,009–0,024	0,01–0,028	0,019–0,054	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.3	0,007–0,021	0,008–0,024	0,009–0,027	0,019–0,053	0,022–0,062	0,025–0,07	0,027–0,077	0,035–0,1	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.1	0,007–0,021	0,009–0,025	0,01–0,028	0,019–0,055	0,023–0,065	0,025–0,073	0,028–0,08	0,036–0,103	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.2	0,007–0,02	0,008–0,024	0,009–0,027	0,018–0,052	0,021–0,061	0,024–0,069	0,027–0,076	0,034–0,098	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.3	0,007–0,019	0,008–0,023	0,009–0,026	0,018–0,05	0,021–0,059	0,023–0,066	0,026–0,073	0,033–0,094	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.4.1	0,007–0,019	0,008–0,023	0,009–0,026	0,018–0,05	0,021–0,059	0,023–0,066	0,026–0,073	0,033–0,094	0,027–0,078	0,032–0,091	0,036–0,102	0,039–0,112	0,051–0,145
S.1.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
S.1.2	0,005–0,013	0,005–0,016	0,006–0,018	0,012–0,035	0,014–0,04	0,016–0,046	0,018–0,05	0,023–0,065	0,019–0,053	0,022–0,062	0,025–0,07	0,027–0,077	0,035–0,099
S.2.1	0,005–0,013	0,005–0,015	0,006–0,017	0,012–0,034	0,014–0,039	0,015–0,044	0,017–0,049	0,022–0,063	0,018–0,052	0,021–0,061	0,024–0,068	0,026–0,075	0,034–0,097
S.2.2	0,003–0,01	0,004–0,012	0,005–0,013	0,009–0,026	0,011–0,03	0,012–0,034	0,013–0,037	0,017–0,048	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074
S.2.3	0,004–0,011	0,004–0,012	0,005–0,014	0,01–0,028	0,011–0,032	0,013–0,036	0,014–0,04	0,018–0,052	0,015–0,043	0,017–0,05	0,02–0,056	0,022–0,062	0,028–0,08
S.3.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
S.3.2	0,005–0,014	0,006–0,016	0,006–0,018	0,012–0,036	0,015–0,042	0,016–0,047	0,018–0,051	0,023–0,066	0,019–0,055	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102
S.3.3	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
H.1.1	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
H.1.2	0,003–0,008	0,003–0,009	0,004–0,01	0,007–0,02	0,008–0,023	0,009–0,026	0,01–0,029	0,013–0,037	0,011–0,03	0,012–0,036	0,014–0,04	0,015–0,044	0,02–0,057
H.1.3													
H.1.4													
H.2.1	0,004–0,01	0,004–0,012	0,005–0,014	0,009–0,027	0,011–0,031	0,012–0,035	0,014–0,039	0,017–0,05	0,014–0,041	0,017–0,048	0,019–0,054	0,021–0,059	0,027–0,077
H.3.1	0,003–0,009	0,004–0,011	0,004–0,012	0,008–0,024	0,01–0,028	0,011–0,031	0,012–0,034	0,016–0,044	0,013–0,036	0,015–0,043	0,017–0,048	0,018–0,053	0,024–0,068
O.1.1	0,008–0,022	0,009–0,026	0,01–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
O.1.2	0,007–0,02	0,008–0,023	0,009–0,026	0,018–0,051	0,021–0,06	0,024–0,068	0,026–0,074	0,034–0,096	0,028–0,079	0,032–0,093	0,036–0,104	0,04–0,114	0,052–0,148
O.2.1	0,004–0,013	0,005–0,015	0,006–0,017	0,011–0,033	0,013–0,038	0,015–0,043	0,017–0,047	0,021–0,061	0,018–0,05	0,021–0,059	0,023–0,066	0,025–0,073	0,033–0,094
O.2.2	0,004–0,012	0,005–0,014	0,006–0,016	0,011–0,032	0,013–0,037	0,015–0,042	0,016–0,046	0,021–0,059	0,017–0,049	0,02–0,057	0,022–0,064	0,025–0,07	0,032–0,091
O.3.1													

12

Broaching – Recommendations for Correct Use

SlotCut

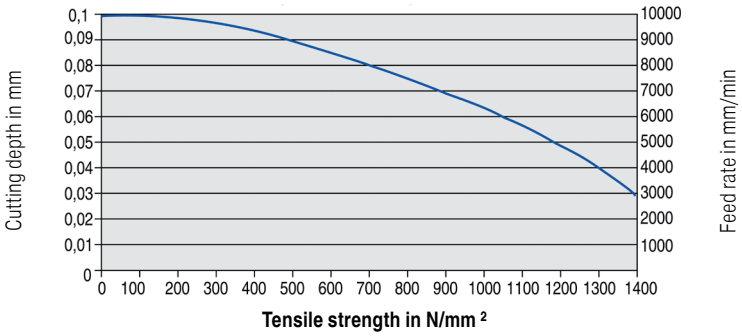
More and more often small and medium sized batch sizes are manufactured with precision grooves.

To directly machine such grooves in one set-up on one machine, it requires a special application of “Broaching” tools.

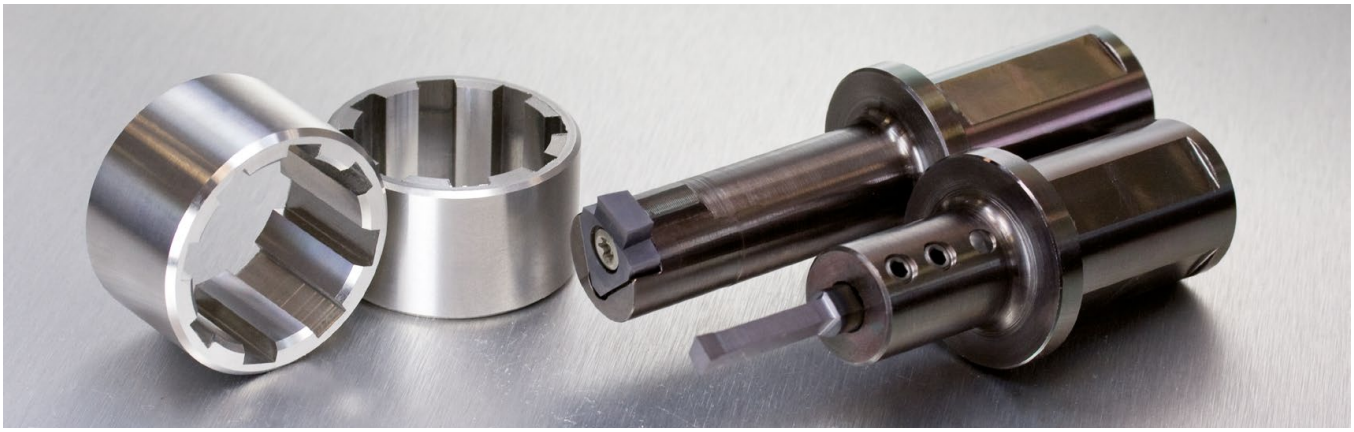
The SlotCut system can produce grooves with the most common groove tolerances.
To this end, there are four options. Two concepts are based on a
solid carbide solution, which gives great success with small
diameters.
For larger diameters, the concept with screw-on inserts is more suitable.

Broaching, on both lathes and machining centers is now
economical, and provides highly accurate results in the shortest
possible time.

Appoximate values when broaching



The data depends strongly on the conditions and represent only an appoximate value, factors such as machine stability, application and material may require adjustment of the data upward or downward.



Tips for the User

- Avoid interrupted cuts.
- Where possible, orientate the part so the groove is at the top, so the chips fall away!
- Ensure there is a relief at the end of the groove.
- Lift the tool out of the groove when retracting.
- Use coolant. This will increase tool life and surface quality.
- Adjustment of the tool is essential, therefore the tool diameter must be considered.



Symbol explanation

UltraMini


Internal turning and profiling


Back boring


Internal Undercuts


High-feed turning


Turning and chamfering


Groove and profile turning


Turning and profile turning – super alloys


Pre-parting and chamfering


Internal thread turning


Internal turning


Groove turning


Axial grooving

MiniCut


Internal turning and profiling


Pre-parting and chamfering


Internal thread turning


Internal turning


Groove turning


Axial grooving


Back boring


Internal Undercuts


Turning and chamfering


Groove and profile turning

Coatings

TiAlN+
- ▲ TiAlN multilayer coating
- ▲ Maximum application temperature: 1000°C

CWX500
- ▲ Carbide, TiAlN-coated
- ▲ The universal carbide grade for almost all materials

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

DXP77S
- ▲ TiAlN+X-coating
- ▲ Maximum application temperature: 900°C

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

DPX57S
- ▲ TiCrN coating
- ▲ Maximum application temperature: 900°C

Thread types

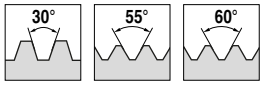
M Metric ISO standard thread

MF Metric ISO fine thread

G Whitworth thread

Tr Metric ISO trapezoidal fine thread

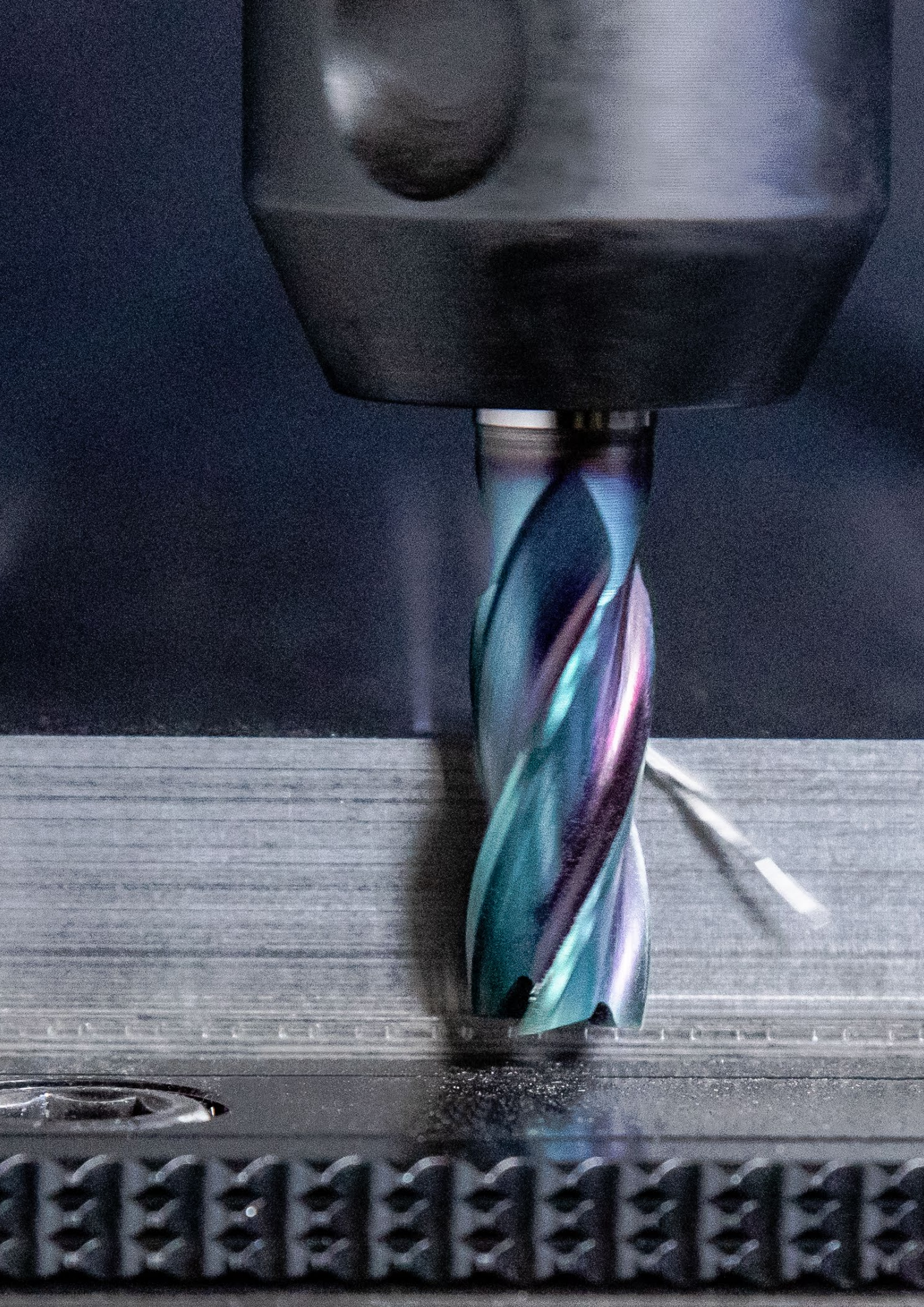
Thread flank angle



Cooling


with thro‘ coolant

12





Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters 13

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Symbol explanation	2
Toolfinder	3
List of contents	4+5
Product programme	6–38
Technical Information:	
Cutting Data	39–47
Formula for cutting data calculation	47
Version description	48
Coating	48

WNT \ Performance

Premium quality tools for high performance.

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

Symbol explanation

Shank



Shank type



Length:
extra short / short / medium / long / extra long



Cutting edge preparation



Sharp



Corner chamfer (CHW = chamfer width in mm)



Full Radius



Application



Machining example



The red arrows describe the possible feed directions



Number of flutes



Cutting geometry
λ_s = helix angle
γ_s = rake angle

● = **Main Application**

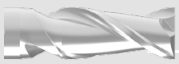
○ = Extended application

Toolfinder

softer — Material to machine — harder

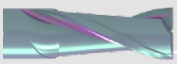
Finish milling

W


6+7


37

N


8–15


25

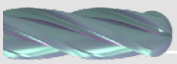

28+29


31


33+34


37

H

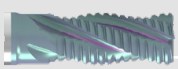

26


32


35+36

Rough and finish machining

NTI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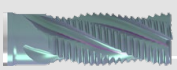
HS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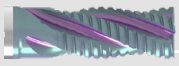
NF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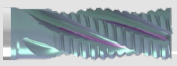
30

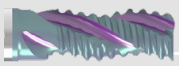

37

HF


19

Rough machining

WR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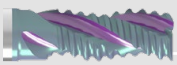
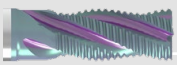
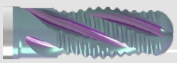
NR


21+22


38

HR

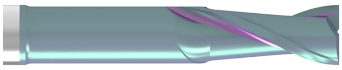
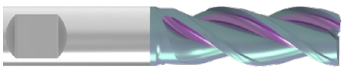
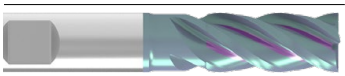
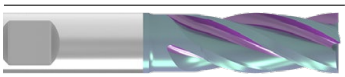
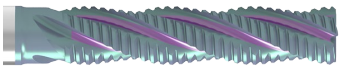
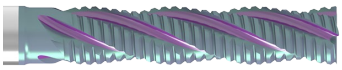
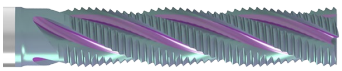
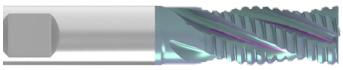
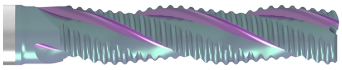
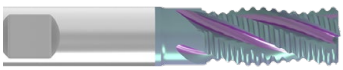
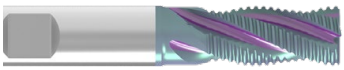
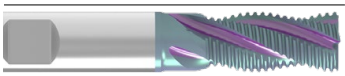

23+24


27


38

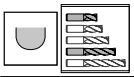
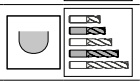
13

Overview HSS milling cutters

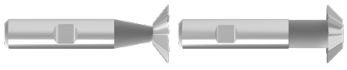
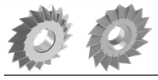
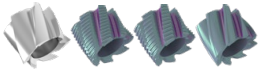
	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Material, e.g. PM = Powdersteel	coated ■	uncoated □	WNT \ Performance
Finishing cutter																			
	W	2	2–22				●			●	■					HSS-E		□	6
	W	3–4	2–40				●			●	■					HSS-E		□	7
	N	2	1–26	●	●	●	○	○		○	■					HSS-E	■	□	8+9
	N	3	1–10	●	●	●	○	●		○	■					HSS-E	■	□	10
	N	3	1,8–24,7	●	●	●	○	○		○	■					HSS-E	■	□	11+12
	N	4–5	4–25	○	●	○	●	●		●	■					HSS-E	■	□	13
	N	4–8	2–50	●	●	●	○	○		○	■					HSS-E	■	□	14+15
Rough and finish milling cutters																			
	NTI	4–6	6–40	●	●	○	○	●		○		■				PM	■		16
	NF	4–5	6–28	●	○	●	○	○		○	■					HSS-E	■		17
	HS	4–6	6–40	○		●		●		○		■				PM	■		18
	HF	4	6–25	●	○	●	○	○		○	■					PM	■		19
Rough milling cutters																			
	WR	3	6–32				●			●	■					HSS-E	■		20
	NR	3	6–25	●	○	●	○	○		○		■				HSS-E	■	□	21
	NR	4–6	6–40	●	○	●	○	○		○		■				HSS-E	■	□	22
	HR	4–6	6–32	●	●	●	○	○		○		■				PM	■		23
	HR	3–6	4–32	●	●	●	○	○		○		■				HSS-E	■	□	24

Overview HSS milling cutters

Ball nose end milling cutters

	Tool type	Number of flutes	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Material, e.g. PM = Powdersteel	coated	uncoated	WNT \ Performance
	N	2	2–30	●	○	●	○	○		○						HSS-E	■	□	25
	H	4–5	6–25	●	○	●	○	○		○						HSS-E	■	□	26
	HR	4	6–20	●	○	●	○	○		○						HSS-E	■		27

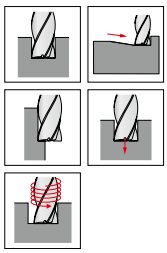
Form / Side and Face / Shell milling cutters

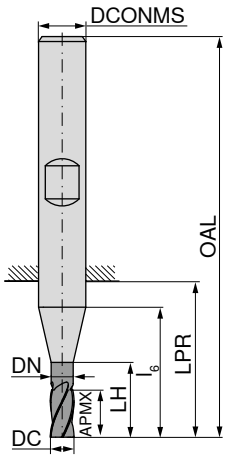
	N	6–10	11–60	●	○	●	○	○		○						HSS-E		□	28
	N	6–12	10,5–45,5	●	○	●	○	○		○						HSS-E		□	29
	NF	6–8	21–45	●	○	●	○	○		○						HSS-E		□	30
	N	4–6	6–16	●	○	●	○	○		○						HSS-E		□	31
	H	10	16–25	●	○	●	○	○		○						HSS-E		□	32
	N	14–28	40–125	●	○	●	○	○		○						HSS-E		□	33
		12–52	50–160	●	●	●	●	●		●						HSS-E		□	34–36
		6–12	40–100	●	●	●	●	○		●						HSS-E	■	□	37+38

13

Slot milling cutter HSS-E Co 8











DIN 844

B

50 144 ...

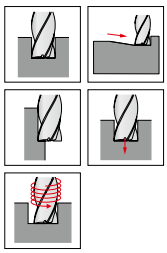
DC e8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ U6	
2.0	7		7	13	15	51	6	2	29.18	**020**
2.5	8		8	14	16	52	6	2	27.84	**025**
3.0	8		8	14	16	52	6	2	27.16	**030**
3.5	10		10	16	18	54	6	2	30.68	**035**
4.0	11		11	17	19	55	6	2	27.84	**040**
4.5	11		11	17	19	55	6	2	31.84	**045**
5.0	13		13	19	21	57	6	2	28.54	**050**
5.5	13		13	19	21	57	6	2	32.54	**055**
6.0	13		13	19	21	57	6	2	28.54	**060**
6.5	16	6.0	22	24	26	66	10	2	38.76	**065**
7.0	16	6.5	22	24	26	66	10	2	36.61	**070**
8.0	19	7.5	25	27	29	69	10	2	32.78	**080**
9.0	19	8.5	26	27	29	69	10	2	41.69	**090**
10.0	22	9.5	30	30	32	72	10	2	39.83	**100**
12.0	26	11.5	36	36	38	83	12	2	45.80	**120**
14.0	26	11.5	36	36	38	83	12	2	53.12	**140**
16.0	32	15.0	42	42	44	92	16	2	58.42	**160**
18.0	32	15.0	42	42	44	92	16	2	74.31	**180**
20.0	38	19.0	52	52	54	104	20	2	91.22	**200**
22.0	38	19.0	52	52	54	104	20	2	132.64	**220**

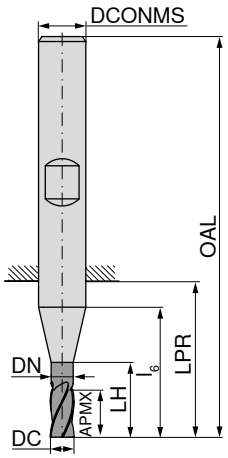
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 40–42

End milling cutter HSS-E Co 8











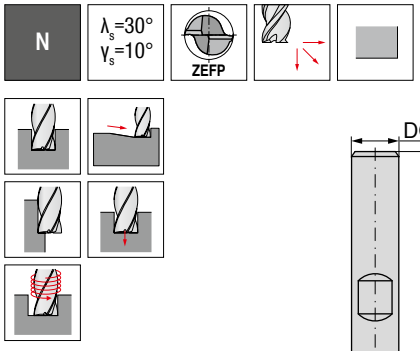


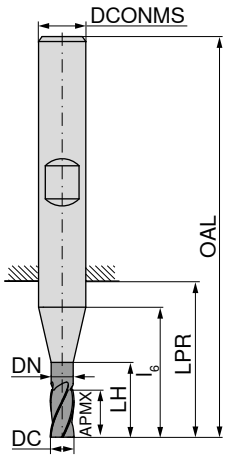


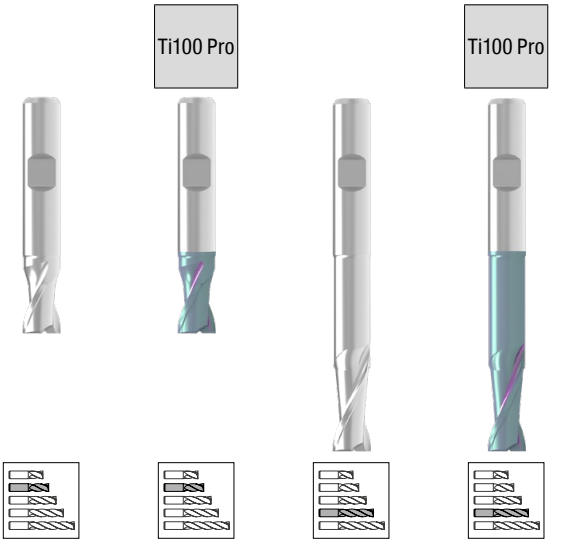
									DIN 69844		DIN 844	
									B		B	
									50 120 ...		50 121 ...	
DC k10 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ U8		£ U8	
2	7		7	13	15	51	6	3	35.18	020		
3	8		8	14	16	52	6	3	27.47	030		
3	12		12	18	20	56	6	3			34.03	030
4	11		11	17	19	55	6	3	27.84	040		
4	19		19	25	27	63	6	3			33.81	040
5	13		13	19	21	57	6	3	28.33	050		
5	24		24	30	32	68	6	3			33.81	050
6	13	5.5	19	19	21	57	6	3	28.77	060		
6	24	5.5	30	30	32	68	6	3			35.07	060
7	16	6.5	22	24	26	66	10	3	30.25	070		
7	30	6.5	36	38	40	80	10	3			44.40	070
8	19	7.5	25	27	29	69	10	3	32.50	080		
8	38	7.5	44	46	48	88	10	3			37.72	080
9	19	8.5	26	27	29	69	10	3	34.63	090		
9	38	8.5	45	46	48	88	10	3			50.49	090
10	22	9.5	30	30	32	72	10	3	35.68	100		
10	45	9.5	53	53	55	95	10	3			41.64	100
12	26	11.5	36	36	38	83	12	3	39.83	120		
12	53	11.5	63	63	65	110	12	3			46.99	120
14	26	11.5	36	36	38	83	12	3	46.24	140		
14	53	11.5	63	63	65	110	12	3			53.83	140
16	32	15.0	42	42	44	92	16	3	46.69	160		
16	63	15.0	73	73	75	123	16	3			54.62	160
18	32	15.0	42	42	44	92	16	3	77.07	180		
18	63	15.0	73	73	75	123	16	3			94.57	180
20	38	19.0	52	52	54	104	20	3	75.96	200		
20	75	19.0	89	89	91	141	20	3			89.08	200
22	38	19.0	52	52	54	104	20	3	104.95	220		
22	75	19.0	89	89	91	141	20	3			123.10	220
24	90	23.0	106	108	110	166	25	3			169.31	240
25	45	24.0	63	45	65	121	25	4	137.13	250		
25	90	24.0	108	108	110	166	25	4			160.62	250
28	90	24.0	108	108	110	166	25	4			194.48	280
30	90	24.0	108	108	110	166	25	4			231.24	300
32	106	31.0	123	123	126	186	32	4			253.83	320
36	106	31.0	123	123	126	186	32	4			372.03	360
40	125	38.0	142	142	147	217	40	4			450.26	400
P												
M												
K												
N										●		●
S												
H												
O										●		●

→ v_c/f_z Page 40–42

Slot milling cutter HSS-E Co 8







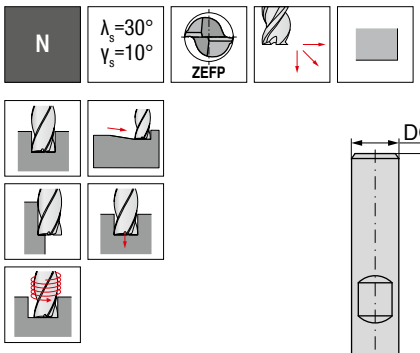
										50 100 ...		54 025 ...		50 122 ...		54 020 ...	
										DIN 327		DIN 327		Factory standard		Factory standard	
										B		B		B		B	
DC	Tol.	APMX	DN	LH	l_6	LPR	OAL	DCONMS $_{h6}$	ZEFP	£		£		£		£	
mm		mm	mm	mm	mm	mm	mm	mm		U8		U8		U8		U8	
1.00	h10	2.5		2.5	9	11	47	6	2	24.41	010 [1]	24.12	010 [1]				
1.50	h10	3.0		3.0	9	11	47	6	2	23.05	015 [1]	23.19	015 [1]				
1.80	h10	4.0		4.0	10	12	48	6	2	16.42	018	30.52	018				
2.00	e8	4.0		4.0	10	12	48	6	2	14.34	020	27.05	020				
2.50	e8	5.0		5.0	11	13	49	6	2	14.34	025	27.05	025				
2.80	h10	5.0		5.0	11	13	49	6	2	15.25	028	22.27	028				
3.00	e8	5.0		5.0	11	13	49	6	2	14.34	030	21.86	030				
3.00	e8	8.0		8.0	18	20	56	6	2					23.10	030	42.72	030
3.50	h10	6.0		6.0	12	14	50	6	2	14.34	035	20.44	035				
3.50	h10	10.0		10.0	21	23	59	6	2					27.63	035	45.92	035
3.80	h10	7.0		7.0	13	15	51	6	2	15.11	038	28.58	038				
4.00	e8	7.0		7.0	13	15	51	6	2	14.34	040	18.52	040				
4.00	e8	11.0		11.0	25	27	63	6	2					24.24	040	28.78	040
4.50	h10	7.0		7.0	13	15	51	6	2	16.34	045	20.44	045				
4.50	h10	11.0		11.0	25	27	63	6	2					30.04	045	32.04	045
4.80	h10	8.0		8.0	14	16	52	6	2	17.80	048	29.49	048				
5.00	e8	8.0		8.0	14	16	52	6	2	14.68	050	20.85	050				
5.00	e8	13.0		13.0	30	32	68	6	2					24.24	050	28.78	050
5.50	h10	8.0		8.0	14	16	52	6	2	16.34	055	21.78	055				
5.50	h10	13.0		13.0	30	32	68	6	2					30.04	055	32.04	055
5.75	h10	8.0		8.0	14	16	52	6	2	16.79	057	29.49	057				
6.00	e8	8.0	5.50	14.0	14	16	52	6	2	14.68	060	20.54	060				
6.00	e8	13.0	5.50	30.0	30	32	68	6	2					25.87	060	30.22	060
6.50	h10	10.0	6.00	16.0	18	20	60	10	2	19.62	065	26.76	065				
6.50	h10	16.0	6.35	36.0	38	40	80	10	2					35.68	065	39.87	065
6.75	h10	10.0	6.50	16.0	18	20	60	10	2	20.20	067	26.76	067				
7.00	e8	10.0	6.50	16.0	18	20	60	10	2	18.87	070	26.76	070				
7.00	e8	16.0	6.35	36.0	38	40	80	10	2					32.78	070	38.24	070
7.50	h10	10.0	7.00	16.0	18	20	60	10	2	20.36	075	26.85	075				
7.50	h10	16.0	7.35	36.0	38	40	80	10	2					35.68	075	39.87	075
7.75	h10	11.0	7.50	17.0	19	21	61	10	2	20.36	077	42.72	077				
8.00	e8	11.0	7.50	17.0	19	21	61	10	2	19.16	080	28.58	080				
8.00	e8	19.0	7.35	44.0	46	48	88	10	2					28.62	080	35.90	080
8.50	h10	11.0	8.00	18.0	19	21	61	10	2	24.72	085	30.22	085				
8.50	h10	19.0	8.35	45.0	46	48	88	10	2					38.29	085	42.08	085
8.70	h10	11.0	8.50	18.0	19	21	61	10	2	25.94	087	45.32	087				
9.00	h10	11.0	8.50	18.0	19	21	61	10	2	22.82	090	42.81	090				
9.00	h10	19.0	8.35	45.0	46	48	88	10	2					35.68	090	58.66	090
9.50	h10	11.0	9.00	18.0	19	21	61	10	2	24.39	095	43.69	095				
9.50	h10	19.0	9.35	45.0	46	48	88	10	2					58.28	095	56.85	095
9.70	h10	13.0	9.50	21.0	21	23	63	10	2	24.39	097	45.28	097				
10.00	e8	13.0	9.50	21.0	21	23	63	10	2	23.70	100	28.39	100				
10.00	e8	22.0	9.35	53.0	53	55	95	10	2					31.38	100	38.02	100
10.50	h10	13.0	10.00	21.0	23	25	70	12	2	43.17	105	45.66	105				
10.70	h10	13.0	10.50	21.0	23	25	70	12	2	46.77	107	48.42	107				
11.00	h10	13.0	10.50	21.0	23	25	70	12	2	31.73	110	41.29	110				
11.00	h10	22.0	10.50	53.0	55	57	102	12	2					40.89	110	45.96	110
P											●		●		●		●
M											○		●		○		●
K											●		●		●		●
N											○		○		○		○
S											○		○		○		○
H																	
O											○		○		○		○

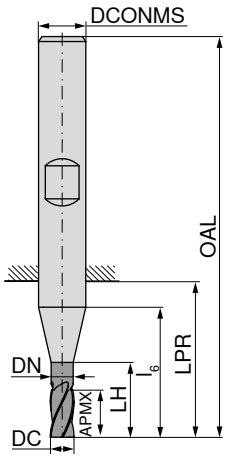
1) Factory standard

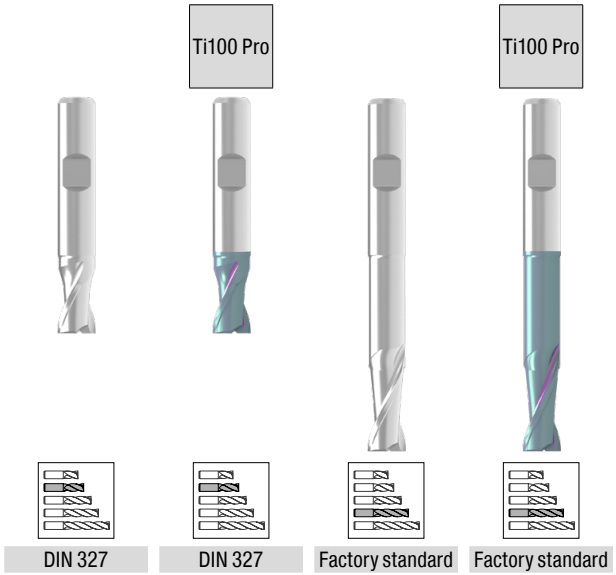
→ v_c/f_z Page 40–42

Continued on next page

Slot milling cutter HSS-E Co 8







										50 100 ...		54 025 ...		50 122 ...		54 020 ...	
										DIN 327		DIN 327		Factory standard		Factory standard	
										B		B		B		B	
DC	Tol.	APMX	DN	LH	l_6	LPR	OAL	DCONMS $_{h6}$	ZEFP	£		£		£		£	
mm		mm	mm	mm	mm	mm	mm	mm		U8		U8		U8		U8	
11.50	h10	13.0	11.00	21.0	23	25	70	12	2	44.03	**115**	46.38	**115**				
11.70	h10	16.0	11.50	26.0	26	28	73	12	2	34.03	**117**	49.04	**117**				
12.00	e8	16.0	11.50	26.0	26	28	73	12	2	29.36	**120**	37.13	**120**				
12.00	e8	26.0	11.50	63.0	63	65	110	12	2					35.61	**120**	43.63	**120**
12.70	h10	16.0	11.50	26.0	26	28	73	12	2	60.14	**127**	66.12	**127**				
13.00	h10	16.0	11.50	26.0	26	28	73	12	2	49.97	**130**	59.08	**130**				
13.00	h10	26.0	11.50	63.0	63	65	110	12	2					55.39	**130**	63.88	**130**
13.70	h10	16.0	11.50	26.0	26	28	73	12	2	41.70	**137**	55.32	**137**				
14.00	e8	16.0	11.50	26.0	26	28	73	12	2	36.61	**140**	49.52	**140**				
14.00	e8	26.0	11.50	63.0	63	65	110	12	2					44.91	**140**	58.58	**140**
14.70	h10	16.0	11.50	26.0	26	28	73	12	2	56.28	**147**						
15.00	h10	16.0	11.50	26.0	26	28	73	12	2	46.38	**150**	54.92	**150**				
15.00	h10	26.0	11.50	63.0	63	65	110	12	2					56.44	**150**	97.34	**150**
15.70	h10	19.0	15.00	29.0	29	31	79	16	2	47.30	**157**	75.96	**157**				
16.00	e8	19.0	15.00	29.0	29	31	79	16	2	45.02	**160**	53.30	**160**				
16.00	e8	32.0	15.00	73.0	73	75	123	16	2					53.75	**160**	64.87	**160**
16.70	h10	19.0	15.00	29.0	29	31	79	16	2	76.57	**167**						
17.00	h10	19.0	15.00	29.0	29	31	79	16	2	72.79	**170**	85.12	**170**				
17.00	h10	32.0	15.00	73.0	73	75	123	16	2					118.97	**170**	124.08	**170**
17.70	h10	19.0	15.00	29.0	29	31	79	16	2	56.28	**177**	84.82	**177**				
18.00	e8	19.0	15.00	29.0	29	31	79	16	2	55.51	**180**	65.01	**180**				
18.00	e8	32.0	15.00	73.0	73	75	123	16	2					72.17	**180**	88.67	**180**
19.00	h10	19.0	15.00	29.0	29	31	79	16	2	85.87	**190**	90.92	**190**				
19.00	h10	32.0	15.00	73.0	73	75	123	16	2					124.64	**190**	128.03	**190**
19.70	h10	22.0	19.00	36.0	36	38	88	20	2	68.63	**197**	99.89	**197**				
20.00	e8	22.0	19.00	36.0	36	38	88	20	2	64.54	**200**	78.31	**200**				
20.00	e8	38.0	19.00	89.0	89	91	141	20	2					70.76	**200**	90.18	**200**
21.70	h10	22.0	19.00	36.0	36	38	88	20	2	122.47	**217**	131.20	**217**				
22.00	e8	22.0	19.00	36.0	36	38	88	20	2	81.05	**220**	119.90	**220**				
22.00	e8	38.0	19.00	89.0	89	91	141	20	2					108.30	**220**	153.56	**220**
23.70	h10	26.0	23.00	42.0	44	46	102	25	2	159.37	**237**	158.04	**237**				
24.00	e8	26.0	23.00	42.0	44	46	102	25	2	90.45	**240**	149.37	**240**				
24.00	e8	45.0	23.00	106.0	108	110	166	25	2					134.39	**240**	238.42	**240**
24.70	h10	26.0	24.00	44.0	44	46	102	25	2	159.37	**247**	152.74	**247**				
25.00	e8	26.0	24.00	44.0	44	46	102	25	2	89.08	**250**	150.31	**250**				
25.00	e8	45.0	24.00	108.0	108	110	166	25	2					134.39	**250**	158.93	**250**
26.00	h10	26.0	24.00	44.0	44	46	102	25	2	111.04	**260**	166.86	**260**				

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

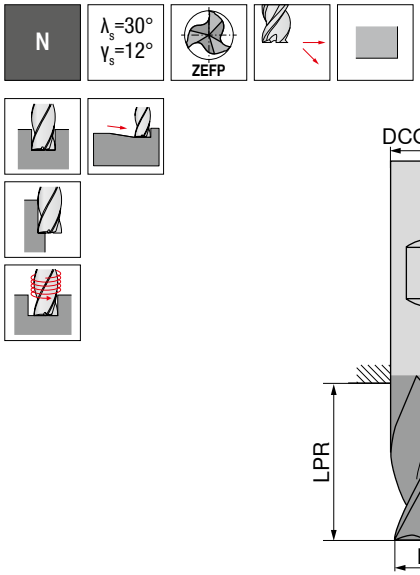
1) Factory standard

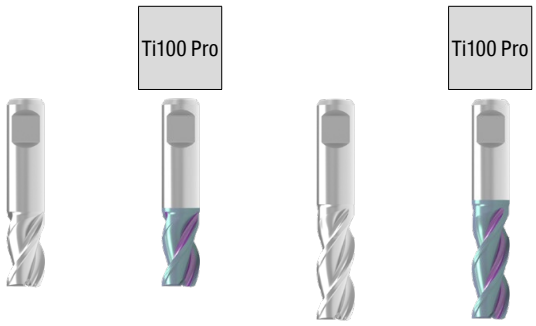
→ v_c/f_z Page 40–42

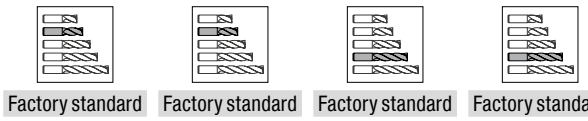
13

Throw-away milling cutter, HSS-E Co 8

▲ Shank similar to DIN 1835 B







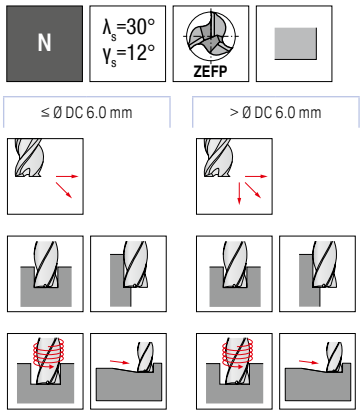
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 092 ... £ U6		54 014 ... £ U8		50 093 ... £ U6		54 042 ... £ U8	
1.00	2	8	34	6	3	12.71	010	16.34	010				
1.50	3	8	34	6	3	12.71	015	16.34	015				
1.50	4	10	35	6	3					14.63	015 1)	18.07	015 1)
1.80	3	8	34	6	3	12.71	018	16.34	018				
2.00	4	9	35	6	3	12.71	020	16.34	020				
2.00	7	12	38	6	3					14.63	020 1)	18.07	020
2.30	4	9	35	6	3	12.71	023	16.34	023				
2.50	5	10	36	6	3	12.71	025	16.34	025				
2.50	8	13	39	6	3					14.63	025 1)	18.07	025
2.80	5	10	36	6	3	12.71	028	16.34	028				
3.00	5	10	36	6	3	12.71	030	16.34	030				
3.00	8	13	39	6	3					14.63	030 1)	18.07	030
3.30	6	11	37	6	3	12.71	033	16.34	033				
3.50	6	11	37	6	3	12.71	035	16.34	035				
3.50	10	15	41	6	3					14.63	035 1)	18.07	035
3.80	7	12	38	6	3	12.71	038	16.34	038				
4.00	7	12	38	6	3	12.71	040	16.34	040				
4.00	11	16	42	6	3					14.63	040 1)	18.07	040
4.30	7	12	38	6	3	12.71	043	16.34	043				
4.50	7	12	38	6	3	12.71	045	16.34	045				
4.50	11	16	42	6	3					14.63	045 1)	18.07	045
4.80	8	13	39	6	3	12.71	048	16.34	048				
5.00	8	13	39	6	3	12.71	050	16.34	050				
5.00	13	18	44	6	3					14.63	050 1)	18.07	050
5.30	8	13	39	6	3	12.71	053	16.34	053				
5.50	8	13	39	6	3	12.71	055	16.34	055				
5.50	13	18	44	6	3					14.63	055 1)	18.07	055
5.75	8	13	39	6	3	12.71	057	16.34	057				
6.00	8	13	39	6	3	12.71	060	16.34	060				
6.00	13	18	44	6	3					14.63	060 1)	18.07	060
6.50	10	14	42	8	3	14.71	065	21.53	065				
6.50	16	20	48	8	3					17.55	065 1)	23.96	065
7.00	10	14	42	8	3	14.71	070	21.53	070				
7.00	16	20	48	8	3					17.55	070 1)	23.96	070
7.50	10	14	42	8	3	14.71	075	21.53	075				
7.50	16	20	48	8	3					17.55	075 1)	23.96	075
8.00	11	15	43	8	3	14.71	080	21.53	080				
8.00	19	23	51	8	3					17.55	080 1)	23.96	080
8.50	11	16	48	10	3	19.05	085	25.41	085				
8.50	19	24	56	10	3					22.06	085 1)	27.18	085
9.00	11	16	48	10	3	19.05	090	25.41	090				
9.00	19	24	56	10	3					22.06	090 1)	27.18	090
9.50	11	16	48	10	3	19.05	095	25.41	095				
9.50	19	24	56	10	3					22.06	095 1)	27.18	095
10.00	13	18	50	10	3	19.05	100	25.41	100				
10.00	22	27	59	10	3					22.06	100 1)	27.18	100
P						●		●		●		●	
M						○		●		○		●	
K						●		●		●		●	
N						○		○		○		○	
S						○		○		○		○	
H													
O						○		○		○		○	

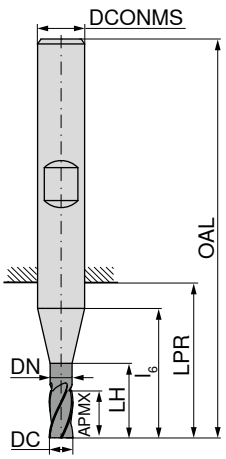
1) Shank tolerance -0,025 / -0,0323

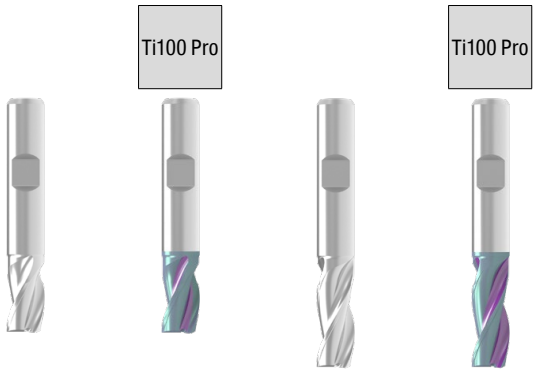
→ v_c/f_z Page 40–42

End milling cutter HSS-E Co 8

▲ ≤ Ø DC 6 mm, 3 cutting edges to centre







										DIN 327		DIN 327		DIN 844 K		DIN 844 K			
										B		B		B		B			
										50 105 ...		54 021 ...		50 106 ...		54 016 ...			
DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ U8		£ U8		£ U8		£ U8			
1.80	h10	4		4	10	12	48	6	3	25.59	018	26.24	018						
2.00	e8	4		4	10	12	48	6	3	18.42	020	23.29	020						
2.50	e8	5		5	11	13	49	6	3	18.42	025	23.29	025						
2.80	h10	5		5	11	13	49	6	3	25.59	028	28.68	028						
2.80	h10	8		8	18	20	56	6	3					30.95	028 1)	33.97	028 1)		
3.00	e8	5		5	11	13	49	6	3	18.42	030	23.29	030						
3.00	e8	8		8	14	16	52	6	3					22.53	030	28.17	030		
3.50	h10	6		6	12	14	50	6	3	18.42	035	27.27	035						
3.50	h10	10		10	16	18	54	6	3					30.80	035	33.88	035		
3.80	h10	7		7	13	15	51	6	3	25.59	038	28.78	038						
3.80	h10	11		11	25	27	63	6	3					30.95	038 1)	33.97	038 1)		
4.00	e8	7		7	13	15	51	6	3	18.42	040	23.29	040						
4.00	e8	11		11	17	19	55	6	3					22.53	040	20.95	040		
4.50	h10	7		7	13	15	51	6	3	18.42	045	27.27	045						
4.50	h10	11		11	17	19	55	6	3					30.95	045	23.71	045		
4.80	h10	8		8	14	16	52	6	3	25.59	048	28.68	048						
5.00	e8	8		8	14	16	52	6	3	18.42	050	23.29	050						
5.00	e8	13		13	19	21	57	6	3					22.53	050	20.95	050		
5.50	h10	8		8	14	16	52	6	3	18.42	055	27.27	055						
5.50	h10	13		13	19	21	57	6	3					30.80	055	23.71	055		
5.75	h10	8		8	14	16	52	6	3	25.59	057	28.68	057						
6.00	e8	8	5.5	14	14	16	52	6	3	18.42	060	23.29	060						
6.00	e8	13	5.5	19	19	21	57	6	3					22.53	060	20.95	060		
6.50	h10	10	6.0	16	18	20	60	10	3	29.35	065	32.76	065						
6.50	h10	16	6.0	22	24	26	66	10	3					39.08	065	43.63	065		
6.75	h10	10	6.5	16	18	20	60	10	3	36.92	067	38.72	067						
7.00	e8	10	6.5	16	18	20	60	10	3	29.35	070	36.02	070						
7.00	e8	16	6.5	22	24	26	66	10	3					39.08	070	43.63	070		
7.50	h10	10	7.0	16	18	20	60	10	3	29.35	075	38.02	075						
7.50	h10	16	7.0	22	24	26	66	10	3					40.70	075	44.33	075		
7.75	h10	11	7.5	17	19	21	61	10	3	32.41	077	41.38	077						
8.00	e8	11	7.5	17	19	21	61	10	3	27.47	080	35.68	080						
8.00	e8	19	7.5	25	27	29	69	10	3					31.84	080	29.82	080		
8.50	h10	11	8.0	18	19	21	61	10	3	27.47	085	38.02	085						
8.50	h10	19	8.0	26	27	29	69	10	3					48.39	085	49.84	085		
8.70	h10	11	8.5	18	19	21	61	10	3	34.30	087	38.72	087						
9.00	h10	11	8.5	18	19	21	61	10	3	30.69	090	38.02	090						
9.00	h10	19	8.5	26	27	29	69	10	3					38.07	090	42.91	090		
9.50	h10	11	9.0	18	19	21	61	10	3	30.69	095	38.02	095						
9.50	h10	19	9.0	26	27	29	69	10	3					41.69	095	42.08	095		
9.70	h10	13	9.5	21	21	23	63	10	3	30.69	097	42.91	097						
10.00	e8	13	9.5	21	21	23	63	10	3	26.10	100	35.61	100						
10.00	e8	22	9.5	30	30	32	72	10	3					31.84	100	30.81	100		
10.50	h10	13	10.0	21	23	25	70	12	3	47.22	105	48.72	105						
10.70	h10	13	10.5	21	23	25	70	12	3	48.39	107	49.32	107						
11.00	h10	13	10.5	21	23	25	70	12	3	35.68	110	39.46	110						

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

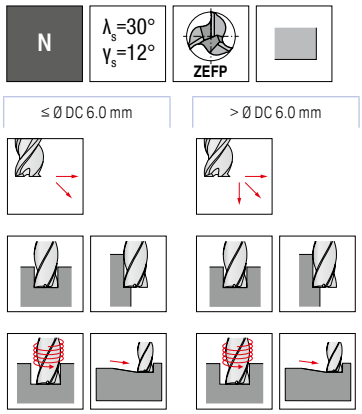
1) Factory standard

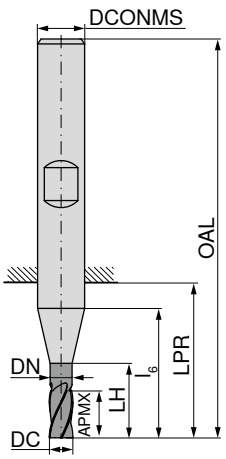
→ v_c/f_z Page 40–42

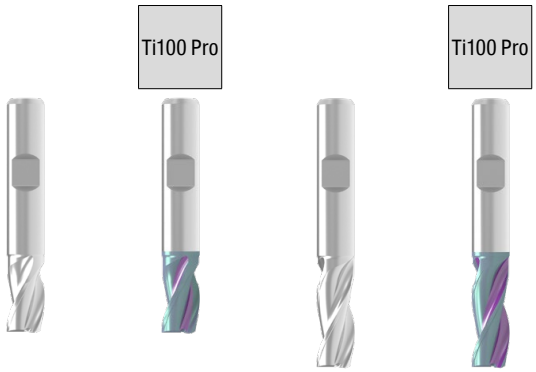
Continued on next page

End milling cutter HSS-E Co 8

▲ ≤ Ø DC 6 mm, 3 cutting edges to centre





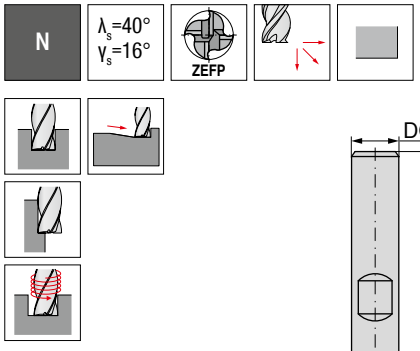


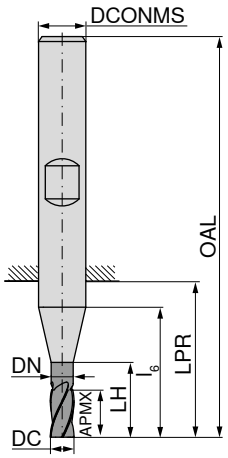
										DIN 327		DIN 327		DIN 844 K		DIN 844 K	
										B		B		B		B	
										50 105 ...		**54 021 ...**		**50 106 ...**		**54 016 ...**	
DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ U8		£ U8		£ U8		£ U8	
11.00	h10	22	10.5	30	32	34	79	12	3					44.46	**110**	49.52	**110**
11.50	h10	13	11.0	21	23	25	70	12	3	47.22	**115**	48.72	**115**				
11.50	h10	22	11.0	30	32	34	79	12	3					57.98	**115**	59.29	**115**
11.70	h10	16	11.5	26	26	28	73	12	3	40.82	**117**	47.91	**117**				
12.00	e8	16	11.5	26	26	28	73	12	3	34.17	**120**	40.89	**120**				
12.00	e8	26	11.5	36	36	38	83	12	3					37.93	**120**	34.37	**120**
12.70	h10	16	11.5	26	26	28	73	12	3	64.07	**127**	68.36	**127**				
13.00	h10	16	11.5	26	26	28	73	12	3	45.80	**130**	55.11	**130**				
13.00	h10	26	11.5	36	36	38	83	12	3					60.02	**130**	68.85	**130**
13.70	h10	16	11.5	26	26	28	73	12	3	53.54	**137**	56.26	**137**				
14.00	e8	16	11.5	26	26	28	73	12	3	45.80	**140**	49.73	**140**				
14.00	e8	26	11.5	36	36	38	83	12	3					50.83	**140**	41.91	**140**
15.00	h10	16	11.5	26	26	28	73	12	3	48.37	**150**	65.19	**150**				
15.00	h10	26	11.5	36	36	38	83	12	3					65.70	**150**	71.70	**150**
15.50	h10	32	15.0	42	42	44	92	16	3					79.61	**155**	82.69	**155**
15.70	h10	19	15.0	29	29	31	79	16	3	53.54	**157**	74.95	**157**				
16.00	e8	19	15.0	29	29	31	79	16	3	45.80	**160**	68.92	**160**				
16.00	e8	32	15.0	42	42	44	92	16	3					57.11	**160**	61.02	**160**
17.00	h10	19	15.0	29	29	31	79	16	3	76.70	**170**	87.55	**170**				
17.00	h10	32	15.0	42	42	44	92	16	3					99.66	**170**	110.22	**170**
17.70	h10	19	15.0	29	29	31	79	16	3	74.31	**177**	86.55	**177**				
18.00	e8	19	15.0	29	29	31	79	16	3	61.22	**180**	78.10	**180**				
18.00	e8	32	15.0	42	42	44	92	16	3					69.30	**180**	70.98	**180**
19.00	h10	19	15.0	29	29	31	79	16	3	92.68	**190**	98.84	**190**				
19.00	h10	32	15.0	42	42	44	92	16	3					105.62	**190**	115.11	**190**
19.50	h10	38	19.0	52	52	54	104	20	3					113.16	**195**	129.77	**195**
19.70	h10	22	19.0	36	36	38	88	20	3	81.57	**197**	98.84	**197**				
20.00	e8	22	19.0	36	36	38	88	20	3	71.69	**200**	90.92	**200**				
20.00	e8	38	19.0	52	52	54	104	20	3					80.19	**200**	73.93	**200**
21.70	h10	22	19.0	36	36	38	88	20	3	130.74	**217**	130.18	**217**				
22.00	e8	22	19.0	36	36	38	88	20	3	102.33	**220**	117.36	**220**				
22.00	e8	38	19.0	52	52	54	104	20	3					111.42	**220**	159.02	**220**
23.70	h10	26	23.0	42	44	46	102	25	3	158.06	**237**	165.54	**237**				
24.00	e8	26	23.0	42	44	46	102	25	3	119.57	**240**	144.92	**240**				
24.70	h10	26	24.0	44	44	46	102	25	3	169.82	**247**	165.54	**247**				
P										●		●		●		●	
M										○		●		○		●	
K										●		●		●		●	
N										○		○		○		○	
S										○		○		○		○	
H																	
O										○		○		○		○	

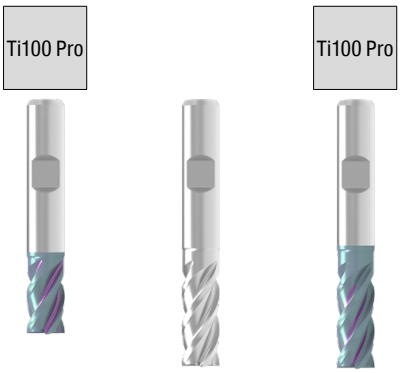
1) Factory standard

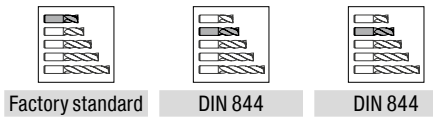
→ v_c/f_z Page 40–42

End milling cutter HSS-E Co 8









	Factory standard	DIN 844	DIN 844
	B	B	B
	54 017 ...	**50 124 ...**	**54 011 ...**

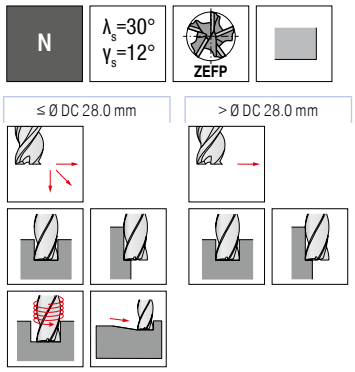
DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ U8		£ U8		£ U8	
4	k10	11		11	17	19	55	6	4			30.99	**040**	39.00	**040**
5	k10	13		13	19	21	57	6	4			30.99	**050**	40.76	**050**
6	e8	8	5.5	14	14	16	52	6	4	18.91	**060**				
6	k10	13	5.5	19	19	21	57	6	4			33.72	**060**	41.86	**060**
8	e8	11	7.5	17	19	21	61	10	4	25.84	**080**				
8	k10	19	7.5	25	27	29	69	10	4			37.22	**080**	50.04	**080**
9	k10	19	8.5	26	27	29	69	10	4			42.88	**090**	54.81	**090**
10	e8	13	9.5	21	21	23	63	10	4	26.64	**100**				
10	k10	22	9.5	30	30	32	72	10	4			40.74	**100**	50.04	**100**
12	e8	16	11.5	26	26	28	73	12	4	32.33	**120**				
12	k10	26	11.5	36	36	38	83	12	4			46.85	**120**	65.59	**120**
14	e8	16	11.5	26	26	28	73	12	4	44.65	**140**				
14	k10	26	11.5	36	36	38	83	12	4			62.18	**140**	89.39	**140**
15	k10	26	11.5	36	36	38	83	12	4			67.28	**150**		
16	e8	19	15.0	29	29	31	79	16	4	46.58	**160**				
16	k10	32	15.0	42	42	44	92	16	4			63.60	**160**	91.68	**160**
17	k10	32	15.0	42	42	44	92	16	4			77.82	**170**	129.32	**170**
18	e8	19	15.0	29	29	31	79	16	4	54.20	**180**				
18	k10	32	15.0	42	42	44	92	16	4			86.52	**180**	127.55	**180**
20	e8	22	19.0	36	36	38	88	20	4	65.19	**200**				
20	k10	38	19.0	52	52	54	104	20	4			99.03	**200**	132.55	**200**
25	k10	45	24.0	63	63	65	121	25	5			153.99	**250**	208.06	**250**

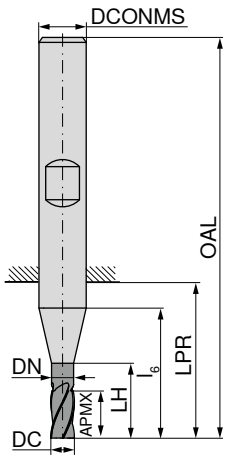
P	o	o	o
M	●	●	●
K	o	o	o
N	●	●	●
S	●	●	●
H			
O	●	●	●

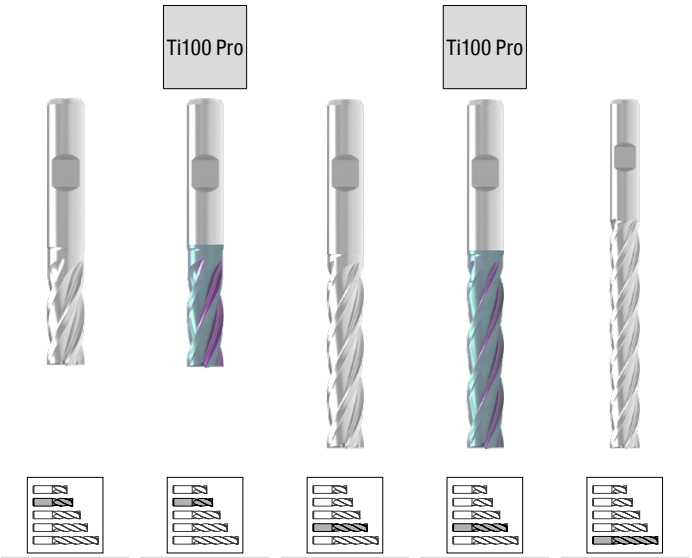
→ v_c/f_z Page 40–42

End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre







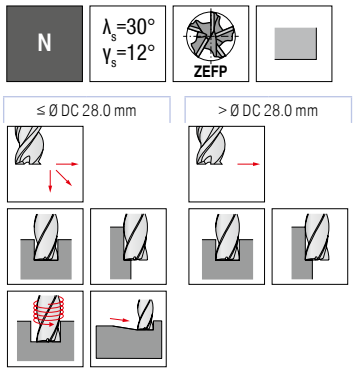
									DIN 69844		DIN 69844		DIN 844		DIN 844		Factory standard	
									B		B		B		B		B	
									50 110 ...		54 018 ...		50 111 ...		54 019 ...		50 104 ...	
DC k10 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ U8		£ U8		£ U8		£ U8		£ U6	
2.0	7		7	13	15	51	6	4	16.34	020	23.51	020						
2.5	8		8	14	16	52	6	4	16.34	025	23.51	025						
3.0	8		8	14	16	52	6	4	16.34	030	23.51	030						
3.0	12		12	18	20	56	6	4					27.01	030	31.13	030		
3.5	10		10	16	18	54	6	4	16.34	035	23.51	035						
4.0	11		11	17	19	55	6	4	16.34	040	23.25	040						
4.0	19		19	25	27	63	6	4					27.75	040	31.53	040		
4.5	11		11	17	19	55	6	4	16.34	045	23.51	045						
5.0	13		13	19	21	57	6	4	16.34	050	23.25	050						
5.0	24		24	30	32	68	6	4					24.39	050	31.53	050		
5.5	13		13	19	21	57	6	4	16.34	055	23.51	055						
6.0	13	5.5	19	19	21	57	6	4	16.34	060	23.64	060						
6.0	24	5.5	30	30	32	68	6	4					24.39	060	29.49	060		
6.0	56	5.5	62	62	64	100	6	4									57.61	060
6.5	16	6.0	22	24	26	66	10	4	20.81	065	38.46	065						
7.0	16	6.5	22	24	26	66	10	4	20.81	070	29.23	070						
7.0	30	6.5	36	38	40	80	10	4					35.55	070	45.86	070		
7.5	16	7.0	22	24	26	66	10	4	20.81	075	38.46	075						
8.0	19	7.5	25	27	29	69	10	4	20.19	080	32.75	080						
8.0	38	7.5	44	46	48	88	10	4					35.55	080	41.38	080		
8.0	70	7.5	73	73	75	115	10	4									68.36	080
8.5	19	8.0	26	27	29	69	10	4	20.81	085	30.54	085						
9.0	19	8.5	26	27	29	69	10	4	22.75	090	39.36	090						
9.0	38	8.5	45	46	48	88	10	4					35.55	090	49.04	090		
9.5	19	9.0	26	27	29	69	10	4	22.75	095	44.68	095						
10.0	22	9.5	30	30	32	72	10	4	22.75	100	34.56	100						
10.0	45	9.5	53	53	55	95	10	4					35.55	100	44.24	100		
10.0	75	9.5	79	79	81	121	10	4									82.38	100
10.5	22	10.0	30	32	34	79	12	4	35.55	105	50.54	105						
11.0	22	10.5	30	32	34	79	12	4	33.86	110	39.24	110						
11.0	45	10.5	53	55	57	102	12	4					46.38	110	53.38	110		
11.5	22	11.0	30	32	34	79	12	4	31.27	115	39.24	115						
12.0	26	11.5	36	36	38	83	12	4	31.27	120	37.67	120						
12.0	53	11.5	63	63	65	110	12	4					47.07	120	48.21	120		
12.0	85		85	85	85	130	12	4									89.39	120
13.0	26	11.5	36	36	38	83	12	4	44.40	130	53.77	130						
14.0	26	11.5	36	36	38	83	12	4	40.13	140	44.29	140						
14.0	53	11.5	63	63	65	110	12	4					54.19	140	57.06	140		
14.0	85		85	85	85	130	12	4									108.75	140
P									●		●		●		●		●	
M									○		●		○		●		○	
K									●		●		●		●		●	
N									○		○		○		○		○	
S									○		○		○		○		○	
H																		
O									○		○		○		○		○	

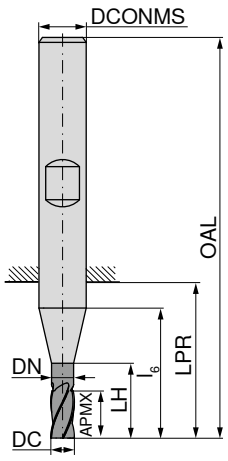
→ v_c/f_z Page 40–42

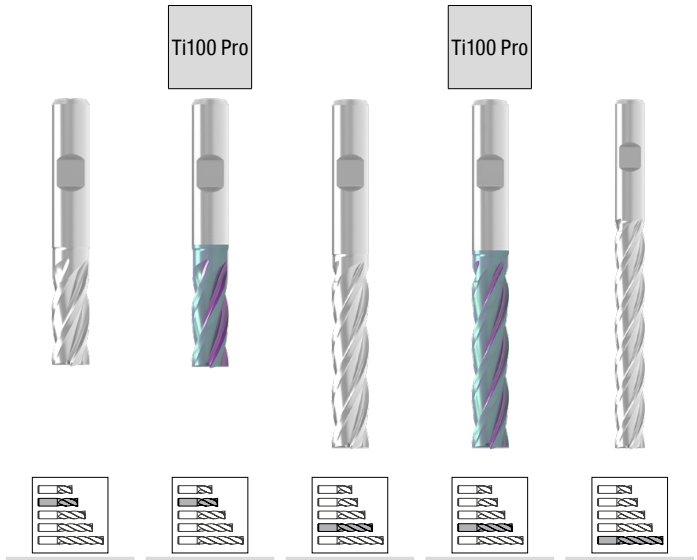
Continued on next page

End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre







DC k10 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	DIN 69844		DIN 69844		DIN 844		DIN 844		Factory standard	
									B		B		B		B		B	
									50 110 ...		54 018 ...		50 111 ...		54 019 ...		50 104 ...	
									£ U8		£ U8		£ U8		£ U8		£ U6	
15.0	26	11.5	36	36	38	83	12	4	46.69	**150**	55.86	**150**						
15.0	53	11.5	63	63	65	110	12	4					48.99	**150**	77.67	**150**		
16.0	32	15.0	42	42	44	92	16	4	44.40	**160**	62.48	**160**						
16.0	63	15.0	73	73	75	123	16	4					65.82	**160**	77.37	**160**		
16.0	90	15.0	95	95	97	145	16	4									118.41	**160**
18.0	32	15.0	42	42	44	92	16	4	60.11	**180**	71.73	**180**						
18.0	63	15.0	73	73	75	123	16	4					80.63	**180**	93.25	**180**		
18.0	100	15.0	110	110	112	160	16	5									166.29	**180**
20.0	38	19.0	52	52	54	104	20	4	66.21	**200**	78.72	**200**						
20.0	75	19.0	89	89	91	141	20	4					78.56	**200**	104.95	**200**		
20.0	110	19.0	128	128	130	180	20	5									171.45	**200**
22.0	38	19.0	52	52	54	104	20	5	78.56	**220**	98.46	**220**						
22.0	75	19.0	89	89	91	141	20	5					102.83	**220**	151.01	**220**		
22.0	110	19.0	128	128	130	180	20	5									218.85	**220**
24.0	45	23.0	61	63	65	121	25	5	98.52	**240**	121.84	**240**						
24.0	90	23.0	106	108	110	166	25	5					128.73	**240**	211.61	**240**		
25.0	45	24.0	63	63	65	121	25	5	98.52	**250**	121.08	**250**						
25.0	90	24.0	108	108	110	166	25	5					128.73	**250**	210.40	**250**		
25.0	125	24.0	142	142	144	200	25	6									224.02	**250**
28.0	45	24.0	63	63	65	121	25	5	103.57	**280**	136.77	**280**						
28.0	90	24.0	108	108	110	166	25	5					159.73	**280**	248.84	**280**		
28.0	140	24.0	147	147	149	205	25	6									308.87	**280**
30.0	45	24.0	63	63	65	121	25	5	153.14	**300**	197.85	**300**						
30.0	90	24.0	108	108	110	166	25	5					178.75	**300**	272.61	**300**		
32.0	53	31.0	70	70	73	133	32	6	153.14	**320**								
32.0	53	31.0	70	70	73	133	32	5			157.07	**320**						
32.0	106	31.0	123	123	126	186	32	6					188.41	**320**	300.27	**320**		
32.0	160	31.0	167	167	170	230	32	6									372.79	**320**
36.0	53	31.0	70	70	73	133	32	6	196.28	**360**	261.49	**360**						
40.0	63	38.0	80	80	85	155	40	6	255.52	**400**	310.09	**400**						
40.0	125	38.0	142	142	147	217	40	6					340.75	**400**	370.34	**400**		
40.0	180	31.0	197	197	200	260	32	8									627.17	**400**
45.0	125	38.0	142	142	147	217	40	8					672.74	**450**	641.63	**450**		
50.0	150	48.0	172	172	172	252	50	8					819.59	**500**	791.62	**500**		

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

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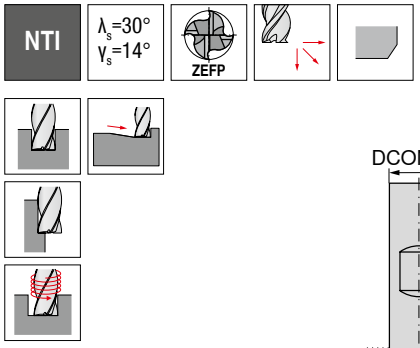
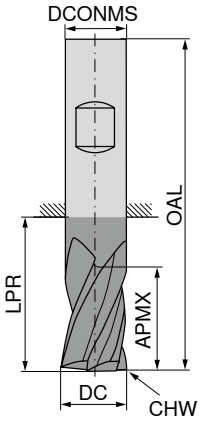
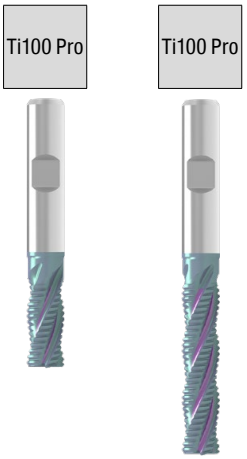
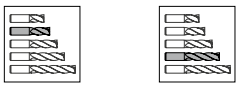
Powdersteel roughing finishing cutter









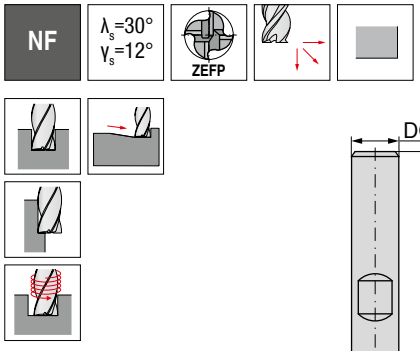
DIN 69844 | DIN 844

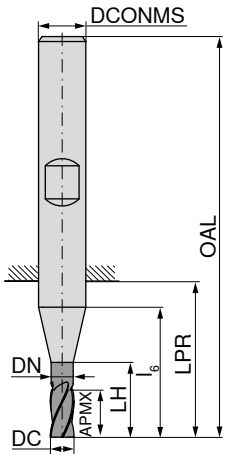
B | B

DC k12 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	54 007 ... £ U8		54 008 ... £ U8	
6	13	21	57	6	0.3	4	87.09	060		
6	24	32	68	6	0.3	4			127.22	060
7	16	26	66	10	0.3	4	125.69	070		
8	19	29	69	10	0.3	4	116.53	080		
8	38	48	88	10	0.3	4			150.55	080
9	19	29	69	10	0.5	4	134.39	090		
10	22	32	72	10	0.5	4	125.69	100		
10	45	55	95	10	0.5	4			157.72	100
12	26	38	83	12	0.7	4	129.05	120		
12	53	65	110	12	0.7	4			175.56	120
14	26	38	83	12	0.8	4	163.08	140		
14	53	65	110	12	0.8	4			209.74	140
16	32	44	92	16	0.8	4	184.73	160		
16	63	75	123	16	0.8	4			238.42	160
18	32	44	92	16	0.8	4	231.24	180		
18	63	75	123	16	0.8	4			302.62	180
20	38	54	104	20	0.8	4	245.45	200		
20	75	91	141	20	0.8	4			327.79	200
25	45	65	121	25	1.0	5	363.64	250		
25	90	110	166	25	1.0	4			531.72	250
30	90	110	166	25	1.3	5			836.02	300
32	53	73	133	32	1.3	6	486.86	320		
32	106	126	186	32	1.3	5			773.33	320
40	63	85	155	40	1.3	6	836.02	400		
40	125	147	217	40	1.3	6			1,203.00	400
P							○		○	
M							●		●	
K							○		○	
N							○		○	
S							●		●	
H										
O							○		○	

→ v_c/f_z Page 40–42

Roughing-finishing milling cutter HSS-E Co 5



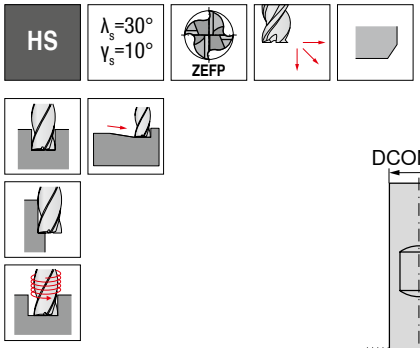


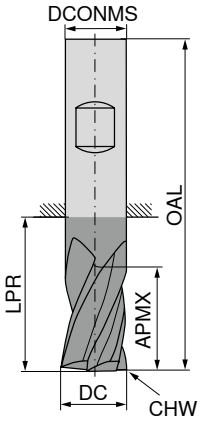


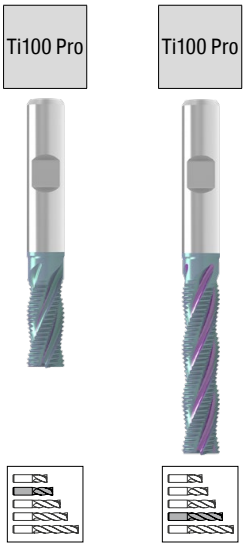
									DIN 69844		DIN 844	
									B		B	
									54 028 ...		54 029 ...	
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ U8		£ U8	
6	13	5.5	19	19	21	57	6	4	34.67	060		
6	24	5.5	30	30	32	68	6	4			49.04	060
7	16	6.5	22	24	26	66	10	4	44.24	070		
8	19	7.5	25	27	29	69	10	4	42.41	080		
8	38	7.5	44	46	48	88	10	4			67.33	080
9	19	8.5	26	27	29	69	10	4	51.57	090		
10	22	9.5	30	30	32	72	10	4	48.31	100		
10	45	9.5	53	53	55	95	10	4			70.49	100
11	22	10.5	30	32	32	79	12	4	59.49	110		
11	45	10.5	53	55	57	102	12	4			85.12	110
12	26	11.5	36	36	38	83	12	4	53.92	120		
12	53	11.5	63	63	65	110	12	4			76.89	120
13	26	11.5	36	36	38	83	12	4	67.22	130		
14	26	11.5	36	36	38	83	12	4	61.53	140		
15	26	11.5	36	36	38	83	12	4	78.93	150		
15	53	11.5	63	63	65	110	12	4			108.82	150
16	32	15.0	42	42	44	92	16	4	79.32	160		
16	63	15.0	73	73	75	123	16	4			111.66	160
18	32	15.0	42	42	44	92	16	4	98.25	180		
20	38	19.0	52	52	54	104	20	4	105.97	200		
20	75	19.0	89	89	91	141	20	4			146.41	200
22	75	19.0	89	89	91	141	20	4			263.57	220
22	38	19.0	52	52	54	104	20	4	131.68	220		
25	90	24.0	108	108	110	166	25	4			285.52	250
25	45	24.0	63	63	65	121	25	4	162.00	250		
28	90	24.0	108	108	110	166	25	5			317.56	280
P									●		●	
M									○		○	
K									●		●	
N									○		○	
S									○		○	
H												
O									○		○	

→ v_c/f_z Page 40–42

Powdersteel roughing finishing cutter







DIN 69844 | DIN 844

B | B

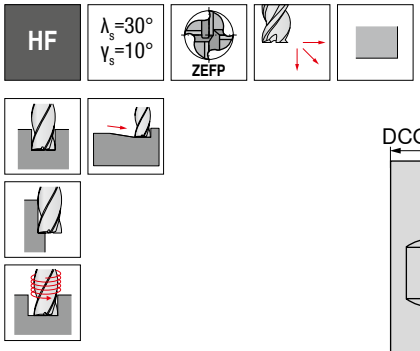
DC k12 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	54 009 ... £ U8		54 012 ... £ U8	
6	13	21	57	6	0.45	4	87.09	060		
6	24	32	68	6	0.45	4			127.22	060
8	19	29	69	10	0.45	4	116.53	080		
8	38	48	88	10	0.45	4			150.55	080
10	22	32	72	10	0.45	4	125.69	100		
10	45	55	95	10	0.45	4			157.72	100
12	26	38	83	12	0.45	4	129.05	120		
12	53	65	110	12	0.45	4			175.56	120
14	26	38	83	12	0.45	4	163.08	140		
14	53	65	110	12	0.45	4			209.74	140
16	32	44	92	16	0.60	4	184.73	160		
16	63	75	123	16	0.60	4			238.42	160
18	32	44	92	16	0.60	4	231.24	180		
18	63	75	123	16	0.60	4			302.62	180
20	38	54	104	20	0.60	4	245.45	200		
20	75	91	141	20	0.60	4			327.79	200
22	38	54	104	20	0.60	5	322.44	220		
25	45	65	121	25	0.75	5	363.64	250		
25	90	110	166	25	0.75	5			531.72	250
28	45	65	121	25	0.75	5	456.51	280		
28	90	110	166	25	0.75	5			802.15	280
30	45	65	121	25	0.75	5	528.06	300		
30	90	110	166	25	0.75	5			836.02	300
32	53	73	133	32	0.75	6	486.86	320		
32	106	126	186	32	0.75	5			773.33	320
40	63	85	155	40	0.90	6	836.02	400		

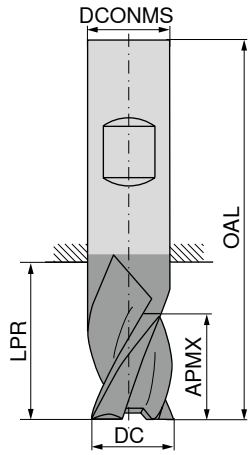
P	○	○
M		
K	●	●
N		
S	●	●
H		
O	○	○

→ v_c/f_z Page 40–42

Powdersteel roughing finishing cutter

HF | λ_s=30° γ_s=10° | ZEFP





Ti100 Pro





DIN 844



54 034 ...

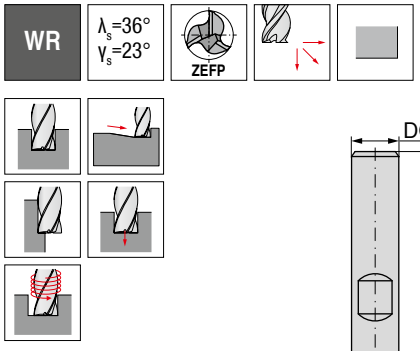
DC $_{k12}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ U8	
6	13	21	57	6	4	40.54	**060**
8	19	29	69	10	4	55.26	**080**
10	22	32	72	10	4	57.53	**100**
12	26	38	83	12	4	63.54	**120**
14	26	38	83	12	4	72.25	**140**
16	32	44	92	16	4	95.99	**160**
18	32	44	92	16	4	132.09	**180**
20	38	54	104	20	4	121.50	**200**
25	45	65	121	25	4	183.48	**250**

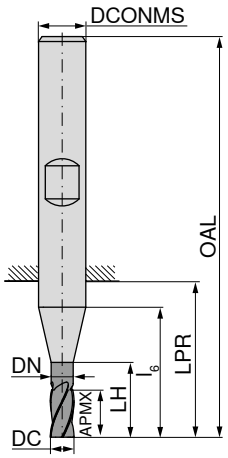
P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c/f_z Page 40–42

13

Rough milling cutter HSS-E Co 8













DIN 844 | Factory standard

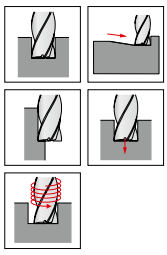
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 013 ... £ U8		54 010 ... £ U8	
6	13	5.5	19	19	21	57	6	3	68.69	**060**		
6	19	5.5	25	25	27	63	6	3			89.64	**060**
8	19	7.5	25	27	29	69	10	3	91.59	**080**		
8	28	7.5	34	36	38	78	10	3			107.70	**080**
10	22	9.5	30	30	32	72	10	3	102.06	**100**		
10	34	9.5	42	42	44	84	10	3			111.21	**100**
12	26	11.5	36	36	38	83	12	3	109.53	**120**		
12	40	11.5	50	50	52	97	12	3			125.69	**120**
16	32	15.0	42	42	44	92	16	3	152.39	**160**		
16	48	15.0	58	58	60	108	16	3			168.42	**160**
20	38	19.0	52	52	54	104	20	3	204.39	**200**		
20	56	19.0	70	70	72	122	20	3			239.95	**200**
25	45	24.0	63	63	65	121	25	3	293.77	**250**		
25	68	24.0	86	86	88	144	25	3			383.15	**250**
32	80	31.0	97	97	100	160	32	3			535.38	**320**

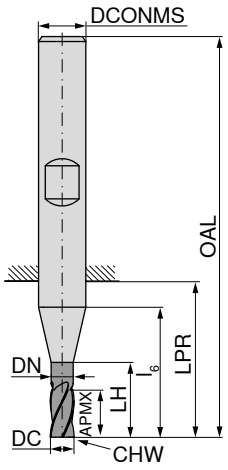
P		
M		
K		
N	●	●
S		
H		
O	●	●

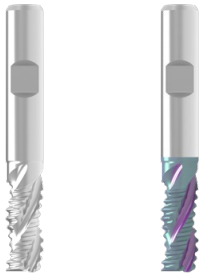
→ v_c/f_z Page 40–42

Rough milling cutter HSS-E Co 8

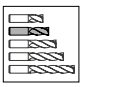
NR | λ_s=30° γ_s=14° | ZEFP

















	DIN 69844	DIN 69844	DIN 844	DIN 844
	B	B	B	B
	50 153 ...	**54 026 ...**	**50 157 ...**	**54 027 ...**

DC $_{k12}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	£ U8		£ U8		£ U8		£ U8	
6	13	5.5	19	19	21	57	6	0.5	3	41.24	**060**	42.01	**060**				
6	24	5.5	30	30	32	68	6	0.5	3					48.81	**060**	50.64	**060**
7	16	6.5	22	24	26	66	10	0.5	3	46.24	**070**	53.09	**070**				
8	19	7.5	25	27	29	69	10	0.7	3	46.85	**080**	53.59	**080**				
8	38	7.5	44	46	48	88	10	0.7	3					52.73	**080**	65.99	**080**
9	19	8.5	26	27	29	69	10	0.7	3	50.49	**090**	56.94	**090**				
9	38	8.5	45	46	48	88	10	0.7	3					58.73	**090**	68.36	**090**
10	22	9.5	30	30	32	72	10	0.7	3	46.69	**100**	54.20	**100**				
10	45	9.5	53	53	55	95	10	0.7	3					60.11	**100**	69.35	**100**
11	22	10.5	30	32	34	79	12	0.7	3	53.12	**110**	61.73	**110**				
11	45	10.5	53	55	55	102	12	0.7	3					66.65	**110**	77.99	**110**
12	26	11.5	36	36	38	83	12	0.7	3	54.19	**120**	65.39	**120**				
12	53	11.5	63	63	65	110	12	0.7	3					64.20	**120**	79.22	**120**
14	26	11.5	36	36	38	83	12	0.9	3	63.47	**140**	69.46	**140**				
14	53	11.5	63	63	65	110	12	0.9	3					78.56	**140**	89.27	**140**
15	26	11.5	36	36	38	83	12	0.9	3	66.08	**150**	71.41	**150**				
15	53	11.5	63	63	65	110	12	0.9	3					90.13	**150**	90.09	**150**
16	32	15.0	42	42	44	92	16	0.9	3	70.18	**160**	92.74	**160**				
16	63	15.0	73	73	75	123	16	0.9	3					88.46	**160**	120.61	**160**
18	32	15.0	42	42	44	92	16	0.9	3	88.03	**180**	106.59	**180**				
18	63	15.0	73	73	75	123	16	0.9	3					110.44	**180**	132.09	**180**
20	38	19.0	52	52	54	104	20	0.9	3	106.05	**200**	125.69	**200**				
20	75	19.0	89	89	91	141	20	0.9	3					127.82	**200**	154.05	**200**
25	45	24.0	63	63	65	121	25	0.9	3	150.09	**250**	183.13	**250**				
25	90	24.0	108	108	110	166	25	0.9	3					189.89	**250**	235.23	**250**

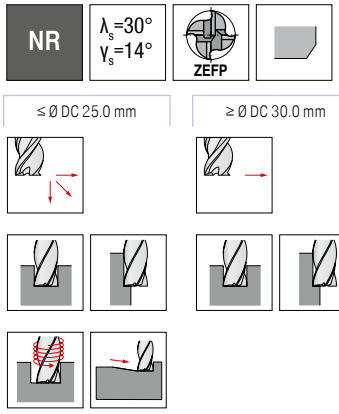
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

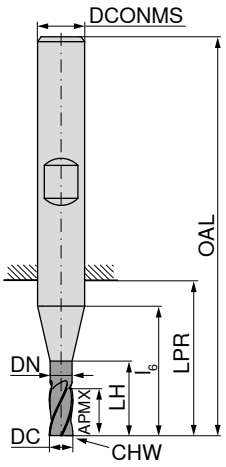
→ v_c/f_z Page 40–42

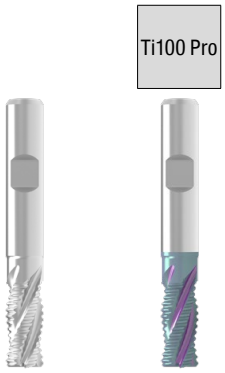
13

Rough milling cutter HSS-E Co 5

▲ > Ø 25,0 mm recessed centre









DIN 69844

B

50 125 ...



DIN 69844

B

54 030 ...

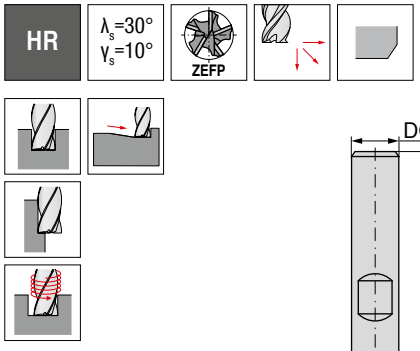
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ U8		£ U8	
6	13	5.5	19	19	21	57	6	0.5	4	35.73	060	34.67	060
7	16	6.5	22	24	26	66	10	0.5	4	43.60	070	46.89	070
8	19	7.5	25	27	29	69	10	0.7	4	36.61	080	42.41	080
9	19	8.5	26	27	29	69	10	0.7	4	45.33	090	53.30	090
10	22	9.5	30	30	32	72	10	0.7	4	36.61	100	48.31	100
11	22	10.5	30	32	32	79	12	0.7	4	54.04	110	59.49	110
12	26	11.5	36	36	38	83	12	0.7	4	50.83	120	53.92	120
13	26	11.5	36	36	38	83	12	0.7	4			67.22	130
14	26	11.5	36	36	38	83	12	0.9	4	53.33	140	60.62	140
15	26	11.5	36	36	38	83	12	0.9	4			78.93	150
16	32	15.0	42	42	44	92	16	0.9	4	60.59	160	79.32	160
18	32	15.0	42	42	44	92	16	0.9	4	67.85	180	89.19	180
20	38	19.0	52	52	54	104	20	0.9	4	84.26	200	106.06	200
22	38	19.0	52	52	54	104	20	0.9	4			130.25	220
24	45	23.0	61	63	65	121	25	0.9	4			162.91	240
25	45	24.0	63	63	65	121	25	0.9	4	123.92	250	162.00	250
30	45	24.0	63	63	65	121	25	1.1	5			213.54	300
32	53	31.0	70	70	73	133	32	1.1	6			220.46	320
40	63	38.0	80	80	85	155	40	1.1	6			436.43	400

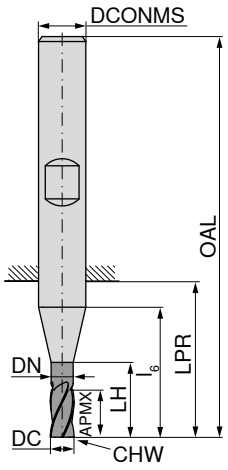
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		
O	○	○

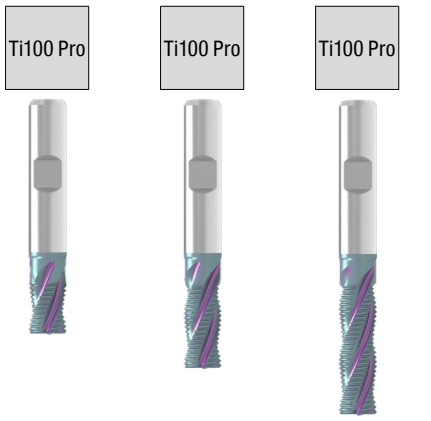
→ v_c/f_z Page 40–42

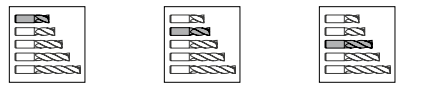
Powdersteel Fine rough milling cutter

HR | λ_s=30° γ_s=10° | ZEFP









Factory standard | DIN 844 | Factory standard



DC $_{k12}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	54 031 ... £ U8		54 032 ... £ U8		54 033 ... £ U8	
6	8	5.5	14	14	16	52	6	0.35	4	51.35	060				
6	13	5.5	19	19	21	57	6	0.35	4			37.67	060		
8	11	7.5	17	19	21	61	10	0.45	4	57.19	080				
8	19	7.5	25	27	29	69	10	0.45	4			51.05	080		
8	28	7.5	34	36	38	78	10	0.45	4					65.82	080
10	13	9.5	21	21	23	63	10	0.45	4	58.07	100				
10	22	9.5	30	30	32	72	10	0.45	4			53.12	100		
10	34	9.5	42	42	44	84	10	0.45	4					81.05	100
12	16	11.5	26	26	28	73	12	0.60	4	69.42	120				
12	26	11.5	36	36	38	83	12	0.60	4			58.58	120		
12	40	11.5	50	50	52	97	12	0.60	4					96.11	120
14	16	11.5	26	26	28	73	12	0.60	4	89.02	140				
14	26	11.5	36	36	38	83	12	0.60	4			66.77	140		
14	40	11.5	50	50	52	97	12	0.60	4					121.93	140
16	19	15.0	29	29	31	79	16	0.70	4	95.99	160				
16	32	15.0	42	42	44	92	16	0.70	4			88.71	160		
16	48	15.0	58	58	60	108	16	0.70	4					156.79	160
18	19	15.0	29	29	31	79	16	0.70	4	116.49	180				
18	32	15.0	42	42	44	92	16	0.70	4			102.50	180		
18	48	15.0	58	58	60	108	16	0.70	4					197.76	180
20	22	19.0	36	36	38	88	20	0.70	4	129.65	200				
20	38	19.0	52	52	54	104	20	0.70	4			113.93	200		
20	56	19.0	70	70	72	122	20	0.70	4					238.59	200
22	22	19.0	36	36	38	88	20	0.70	4	175.21	220				
22	38	19.0	52	52	54	104	20	0.70	4			183.29	220		
22	56	19.0	70	70	72	122	20	0.70	4					299.19	220
25	26	24.0	44	44	46	102	25	0.70	4	205.05	250				
25	45	24.0	63	63	65	121	25	0.70	4			171.75	250		
25	68	24.0	86	86	88	144	25	0.70	4					349.42	250
28	26	24.0	44	44	46	102	25	0.90	5	285.45	280				
30	45	24.0	63	63	65	121	25	0.90	5			272.53	300		
32	32	31.0	49	49	52	112	32	0.90	6	347.54	320				
32	53	31.0	70	70	73	133	32	0.90	6			241.88	320		

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

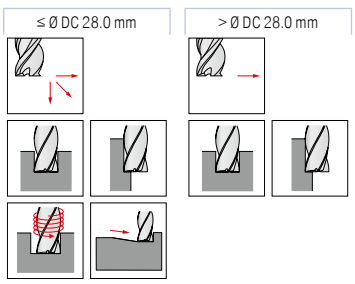
→ v_c/f_z Page 40–42

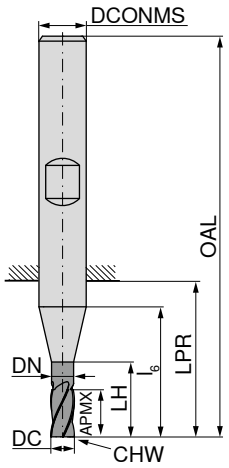
13

Fine profile milling cutter HSS-E Co 8

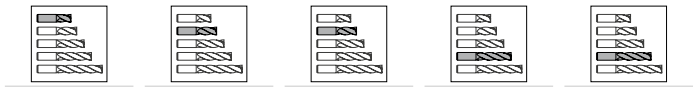
▲ > Ø 28,0 mm recessed centre

HR | λ_s=30° γ_s=10° | ZEFP









	Factory standard	DIN 69844	DIN 69844	DIN 844	DIN 844
B	●	●	●	●	●
	54 022 ...	**50 140 ...**	**54 023 ...**	**50 141 ...**	**54 024 ...**

DC $_{k12}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	£ U8		£ U8		£ U8		£ U8		£ U8	
4	11		11	17	19	55	6	0.35	3			44.17	**040**	48.06	**040**				
5	13		13	19	21	57	6	0.35	3			44.17	**050**	28.84	**050**				
6	8	5.5	14	14	16	52	6	0.35	4	36.71	**060**								
6	13	5.5	19	19	21	57	6	0.35	4			37.35	**060**	25.98	**060**				
6	24	5.5	30	30	32	68	6	0.35	4							64.95	**060**	49.68	**060**
8	11	7.5	17	19	21	61	10	0.45	4	43.02	**080**								
8	19	7.5	25	27	29	69	10	0.45	4			39.67	**080**	31.45	**080**				
8	38	7.5	44	46	48	88	10	0.45	4							75.69	**080**	69.30	**080**
10	13	9.5	21	21	23	63	10	0.45	4	39.35	**100**								
10	22	9.5	30	30	32	72	10	0.45	4			42.72	**100**	34.94	**100**				
10	45	9.5	53	53	55	95	10	0.45	4							81.05	**100**	72.26	**100**
12	16	11.5	26	26	28	73	12	0.60	4	46.99	**120**								
12	26	11.5	36	36	38	83	12	0.60	4			51.00	**120**	38.70	**120**				
12	53	11.5	63	63	65	110	12	0.60	4							90.36	**120**	79.32	**120**
14	16	11.5	26	26	28	73	12	0.60	4	62.44	**140**								
14	26	11.5	36	36	38	83	12	0.60	4			56.81	**140**	51.58	**140**				
14	53	11.5	63	63	65	110	12	0.60	4							98.23	**140**	103.99	**140**
16	19	15.0	29	29	31	79	16	0.70	4	63.66	**160**								
16	32	15.0	42	42	44	92	16	0.70	4			64.07	**160**	55.99	**160**				
16	63	15.0	73	73	75	123	16	0.70	4							118.24	**160**	115.13	**160**
18	19	15.0	29	29	31	79	16	0.70	4	84.32	**180**								
18	32	15.0	42	42	44	92	16	0.70	4			72.22	**180**	73.78	**180**				
18	63	15.0	73	73	75	123	16	0.70	4							136.85	**180**	135.89	**180**
20	22	19.0	36	36	38	88	20	0.70	4	85.72	**200**								
20	38	19.0	52	52	54	104	20	0.70	4			90.07	**200**	77.54	**200**				
20	75	19.0	89	89	91	141	20	0.70	4							161.98	**200**	149.49	**200**
22	38	19.0	52	52	54	114	20	0.70	4			114.78	**220**	99.91	**220**				
22	75	19.0	89	89	91	141	20	0.70	4							195.10	**220**	186.33	**220**
25	45	24.0	63	63	65	121	25	0.70	4			129.45	**250**	117.71	**250**				
25	90	24.0	108	108	110	166	25	0.70	4									297.31	**250**
28	45	24.0	63	63	65	121	25	0.90	5					139.39	**280**				
28	90	24.0	108	108	110	166	25	0.90	5									333.03	**280**
30	45	24.0	63	63	65	121	25	0.90	5					152.38	**300**				
30	90	24.0	108	108	110	166	25	0.90	5									347.76	**300**
32	53	31.0	70	70	73	133	32	0.90	6					171.09	**320**				
32	106	31.0	123	123	126	186	32	0.90	6									351.26	**320**

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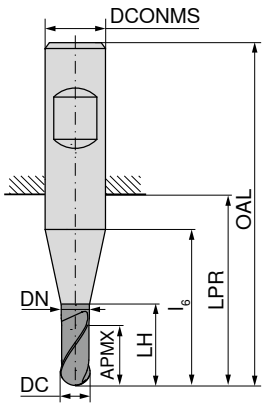
H					
O	○	○	○	○	○

→ v_c/f_z Page 40–42

Ball nosed end milling cutter HSS-E Co 8

















Factory standard | Factory standard | Factory standard







DC h10 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 320 ... £ U8		54 041 ... £ U8		50 321 ... £ U8	
2	4		4	10	12	48	6	2	35.02	020	33.04	020		
3	5		5	11	13	49	6	2	33.27	030	31.85	030		
3	8		8	18	20	56	6	2					38.76	030
4	7		7	13	15	51	6	2	33.27	040	31.85	040		
4	11		11	25	27	63	6	2					38.76	040
5	8		8	14	16	52	6	2	33.27	050	31.85	050		
5	13		13	30	32	68	6	2					39.84	050
6	8	5.50	14	14	16	52	6	2	32.97	060	31.73	060		
6	13	5.50	30	30	32	68	6	2					40.74	060
7	10	6.50	16	18	20	60	10	2	40.89	070	60.56	070		
7	16	6.35	36	38	40	80	10	2					48.37	070
8	11	7.50	17	19	21	61	10	2	36.48	080	56.28	080		
8	19	7.35	44	46	48	88	10	2					44.70	080
9	11	8.50	18	19	21	61	10	2	43.30	090	65.13	090		
9	19	8.35	45	46	48	88	10	2					50.28	090
10	13	9.50	21	21	23	63	10	2	41.57	100	42.08	100		
10	22	9.35	53	53	55	95	10	2					50.28	100
11	13	10.50	21	23	25	70	12	2	48.50	110				
11	22	10.50	53	55	57	102	12	2					56.00	110
12	16	11.50	26	26	28	73	12	2	46.77	120	48.42	120		
12	26	11.50	63	63	65	110	12	2					56.89	120
13	16	11.50	26	26	28	73	12	2	56.36	130	87.09	130		
14	16	11.50	26	26	28	73	12	2	54.19	140	62.13	140		
14	26	11.50	63	63	65	110	12	2					67.59	140
15	16	11.50	26	26	28	73	12	2	63.79	150	103.29	150		
15	26	11.50	63	63	65	110	12	2					85.61	150
16	19	15.50	29	29	31	79	16	2	66.39	160	105.71	160		
16	32	15.00	73	73	75	123	16	2					85.61	160
18	19	15.50	29	29	31	79	16	2	82.38	180	91.82	180		
18	32	15.00	73	73	75	123	16	2					107.38	180
20	22	19.00	36	36	38	88	20	2	87.89	201	95.60	201		
22	22	19.00	36	36	38	88	20	2	119.98	220				
24	26	23.00	42	44	46	102	25	2	114.78	240	190.97	240		
24	45	23.00	106	108	110	166	25	2					161.70	240
25	26	24.00	44	44	46	102	25	2	114.78	250				
25	45	24.00	108	108	110	166	25	2					151.63	250
26	26	24.00	44	44	46	102	25	2	157.34	260				
28	26	24.00	44	44	46	102	25	2	157.47	280				
30	26	24.00	44	44	46	102	25	2	172.04	300				
30	45	24.00	108	108	110	166	25	2					219.04	300

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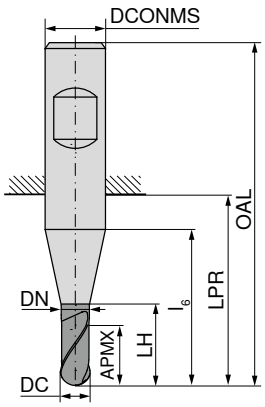
S	○	○	○
H			
O	○	○	○

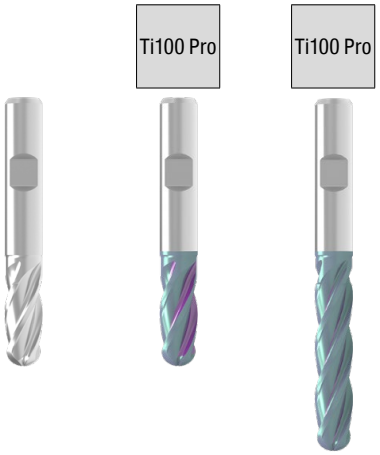
→ v_c/f_z Page 40–42

13

Ball nosed cutter HSS-E Co 8

H | λ_s=30° γ_s= 6° | ZEFP





DIN 1889 B | DIN 1889 B | DIN 1889 B

B | B | B

		50 308 ...		54 038 ...		54 039 ...	
DC $_{k12}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ U8		£ U8		£ U8	
6	13	5.5	19	19	21	57	6	4	93.57	**060**	71.89	**060**		
6	24	5.5	30	30	32	68	6	4					84.19	**060** [1]
8	19	7.5	25	27	29	69	10	4	114.78	**080**	94.26	**080**		
8	38	7.5	44	46	48	88	10	4					109.61	**080** [1]
10	22	9.5	30	30	32	72	10	4	126.25	**100**	101.18	**100**		
10	45	9.5	53	53	55	95	10	4					119.08	**100**
12	26	11.5	36	36	38	83	12	4	124.36	**120**	113.39	**120**		
12	53	11.5	63	63	65	110	12	4					134.55	**120**
16	32	15.0	42	42	44	92	16	4	185.67	**160**	163.74	**160**		
16	63	15.0	73	73	75	123	16	4					193.62	**160**
20	38	19.0	52	52	54	104	20	4			213.43	**200**		
20	75	19.0	89	89	91	141	20	4					261.94	**200**
25	45	24.0	63	63	65	121	25	5			276.37	**250**		
P									●		●		●	
M									○		○		○	
K									●		●		●	
N									○		○		○	
S									○		○		○	
H														
O									○		○		○	

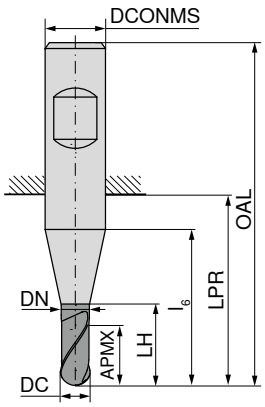
1) Factory standard

→ v_c/f_z Page 40–42

Ball nosed fine rough milling cutter HSS-E Co 8

HR | λ_s=30° γ_s=10° | ZEFP

Ti100 Pro





DIN 1889 B

54 040 ...

DC $_{js14}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ U8	
6	13	5.5	19	19	21	57	6	4	84.19	**060**
8	19	7.5	25	27	29	69	10	4	103.81	**080**
10	22	9.5	30	30	32	72	10	4	104.23	**100**
12	26	11.5	36	36	38	83	12	4	121.12	**120**
16	32	15.0	42	42	44	92	16	4	179.17	**160**
20	38	19.0	52	52	54	104	20	4	218.64	**200**

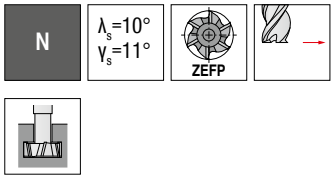
P	●
M	○
K	●
N	○
S	○
H	
O	○

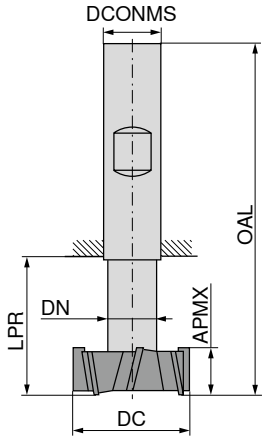
→ v_c/f_z Page 40–42

13

T-slot milling cutter HSS-E Co 5, cross pitched

▲ For slots according to DIN 650







DIN 851 A

B 

50 240 ...

DC $_{d11}$ mm	APMX $_{d11}$ mm	DN $_{h12}$ mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ U6	
11.0	4	4	13.5	53.5	10	6	92.43	**110**
12.5	6	5	17.0	57.0	10	6	90.13	**125**
16.0	8	7	22.0	62.0	10	6	102.06	**160**
18.0	8	8	25.0	70.0	12	6	115.96	**180**
19.0	9	8	26.0	71.0	12	6	147.82	**190** 1)
21.0	9	10	29.0	74.0	12	6	132.71	**210**
22.0	10	10	30.0	75.0	12	6	172.66	**220** 1)
25.0	11	12	34.0	82.0	16	8	156.04	**250**
28.0	12	13	37.0	85.0	16	8	210.49	**280** 1)
32.0	14	15	42.0	90.0	16	8	224.22	**320**
36.0	16	17	47.0	103.0	25	8	341.97	**360** 1)
40.0	18	19	52.0	108.0	25	10	457.01	**400**
45.0	20	21	57.0	113.0	25	10	486.41	**450** 1)
50.0	22	25	64.0	124.0	32	10	584.12	**500**
60.0	28	30	79.0	139.0	32	10	763.41	**600**

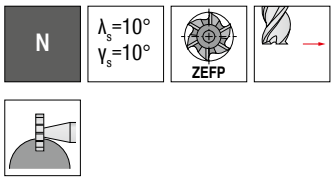
P	●
M	○
K	●
N	○
S	○
H	
O	○

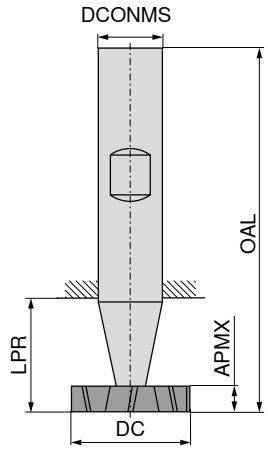
1) Factory standard

→ v_c/f_z Page 43

Slot milling cutter HSS-E Co 5, cross-pitched

▲ For slots according to DIN 6888
▲ CDX = $a_{p\,max.}$







DIN 850
B

50 234 ...

DC h12 mm	APMX e8 mm	LPR mm	OAL mm	DCONMS h6 mm	CDX mm	ZEFP	£ U6	
10.5	2.0	14	50	6	3.25	6	69.42	**100**
10.5	2.5	14	50	6	3.15	6	69.42	**101**
10.5	3.0	14	50	6	3.15	6	69.42	**102**
13.5	2.0	16	56	10	4.45	6	69.35	**130** 1)
13.5	3.0	16	56	10	4.45	6	69.35	**132**
13.5	4.0	16	56	10	4.45	6	69.35	**133**
16.5	3.0	16	56	10	5.95	6	75.26	**161**
16.5	4.0	16	56	10	5.95	6	75.26	**162**
16.5	5.0	16	56	10	5.75	6	75.26	**163**
19.5	3.0	23	63	10	6.95	8	83.59	**190** 1)
19.5	4.0	23	63	10	6.95	8	83.59	**191**
19.5	5.0	23	63	10	6.75	8	83.59	**192**
22.5	4.0	23	63	10	8.25	8	98.62	**220** 1)
22.5	5.0	23	63	10	8.25	8	98.62	**221**
22.5	6.0	23	63	10	8.00	8	98.62	**222**
25.5	5.0	23	63	10	9.00	10	102.83	**250** 1)
25.5	6.0	23	63	10	9.00	10	102.83	**251**
28.5	6.0	23	63	10	10.00	10	143.28	**281**
28.5	8.0	23	63	10	10.00	10	143.28	**283**
32.5	6.0	26	71	12	12.00	10	146.22	**321** 1)
32.5	8.0	26	71	12	12.00	10	146.22	**322**
38.5	8.0	26	71	12	13.35	10	212.18	**381** 1)
45.5	10.0	26	71	12	16.85	12	259.19	**450**

P	●
M	○
K	●
N	○
S	○
H	
O	○

1) Factory standard

→ v_c/f_z Page 43

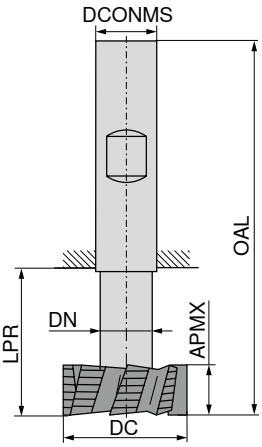
13

T-slot milling cutter HSS-E Co 5

▲ For slots according to DIN 650

NF | λ_s=20° γ_s=11° | ZEFP







DIN 851 A

B 

50 241 ...

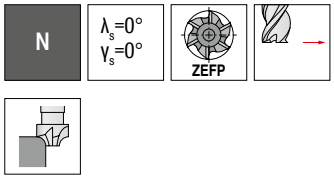
DC $_{d11}$ mm	APMX mm	DN $_{h12}$ mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ U6	
21	9	10	29	74	12	6	193.37	**210**
22	10	10	30	75	12	6	228.23	**220** 1)
25	11	12	34	82	16	6	231.55	**250**
28	12	13	37	85	16	6	247.72	**280** 1)
32	14	15	42	90	16	6	320.01	**320**
36	16	17	47	103	25	6	395.71	**360** 1)
40	18	19	52	108	25	8	481.07	**400**
45	20	21	57	113	25	8	580.34	**450** 1)

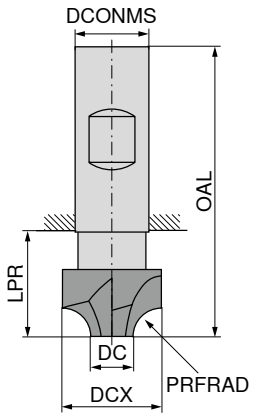
P	●
M	○
K	●
N	○
S	○
H	
O	○

1) Factory standard

→ v_c/f_z Page 43

Quarter-round profile milling cutter HSS-E Co 5, concave







DIN 6518

B

50 248 ...

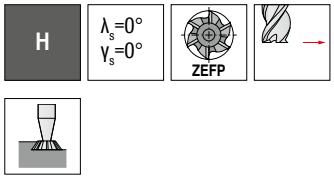
PRFRAD h11 mm	DCX mm	DC mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ U6	
1.0	8	6	20	60	10	4	78.02	**010**
1.5	9	6	20	60	10	4	81.91	**015**
2.0	10	6	20	60	10	4	78.02	**020**
2.5	11	6	20	60	10	4	81.91	**025**
3.0	12	6	15	60	12	4	81.91	**030**
4.0	14	6	15	60	12	4	87.85	**040**
5.0	16	6	15	60	12	4	104.19	**050**
6.0	20	8	19	67	16	4	121.42	**060**
8.0	24	8	23	71	16	4	143.35	**080**
9.0	26	8	29	85	25	4	199.46	**090**
10.0	28	8	29	85	25	4	181.23	**100**
12.0	34	10	34	90	25	4	259.74	**120**
15.0	46	16	44	100	25	6	484.59	**150**
16.0	48	16	44	100	25	6	508.82	**160**

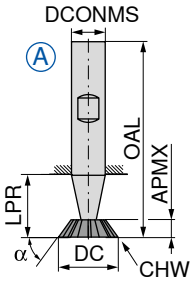
P	●
M	○
K	●
N	○
S	○
H	
O	○

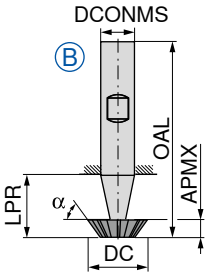
→ v_c/f_z Page 43

13

Single angle miling cutters HSS-E Co 5











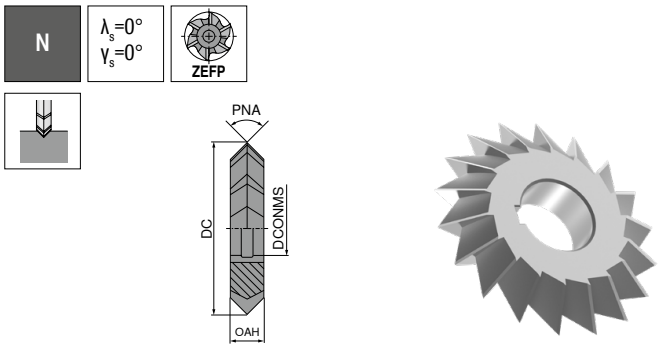
α°	DC mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Fig.	DIN 1833 B 50 246 ... £ U6		DIN 1833 B 50 245 ... £ U6	
45	16	4.0	15	60	12	0.3	10	A			77.33	016
	16	4.0	15	60	12		10	B	88.38	016		
	20	5.0	18	63	12	0.3	10	A			116.41	020
	20	5.0	18	63	12		10	B	116.41	020		
	25	6.3	22	67	12	0.3	10	A			138.41	025
	25	6.3	22	67	12		10	B	138.41	025		
60	16	6.3	15	60	12	0.3	10	A			88.38	116
	16	6.3	15	60	12		10	B	88.38	116		
	20	8.0	18	63	12	0.3	10	A			116.41	120
	20	8.0	18	63	12		10	B	116.41	120		
	25	10.0	22	67	12	0.3	10	A			121.12	125
	25	10.0	22	67	12		10	B	138.41	125		
70	16	7.0	15	60	12	0.3	10	A			117.67	216 1)
	20	9.0	18	63	12	0.3	10	A			148.17	220 1)
	25	11.0	19	67	16	0.3	10	A			198.01	225 1)
P										●		●
M										○		○
K										●		●
N										○		○
S										○		○
H												
O										○		○

1) Factory standard

→ v_c/f_z Page 44

Double angle milling cutter HSS

▲ with keyway to DIN 138



DIN 847

50 360 ...

PNA °	DC mm	OAH mm	DCONMS mm	ZEFP	£ U6	
45	50	8	16	22	146.06	045
	63	10	22	24	182.16	145
	80	12	27	26	281.34	245
	100	18	32	28	421.50	345
60	50	10	16	18	146.06	060
	63	14	22	20	203.02	160
	80	18	27	22	326.50	260
	100	25	32	24	523.11	360
90	50	14	16	16	173.22	090
	63	20	22	18	220.84	190
	80	22	27	20	359.37	290
	100	32	32	24	600.51	390
120	50	14	16	16	195.41	120 1)
	63	20	22	16	277.64	121 1)

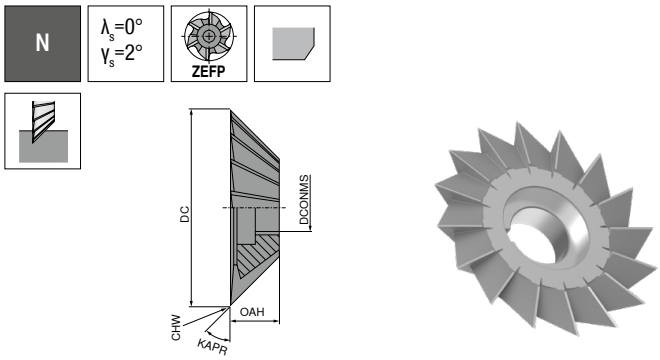
P	●
M	○
K	●
N	○
S	○
H	
O	○

1) Factory standard

→ v_c/f_z Page 44

Shell type single angle milling cutter HSS

▲ with keyway to DIN 138



DIN 842 A

50 362 ...

KAPR °	DC mm	OAH mm	DCONMS mm	CHW mm	ZEFP	£ U6	
45	40	10	10	0.3	14	163.21	045
	50	13	13	0.3	16	224.37	145
	63	18	16	0.3	18	283.67	245
	80	22	22	0.3	20	400.61	345
	100	28	27	0.3	22	604.92	445
50	50	16	13	0.3	16	224.37	150
60	40	13	10	0.3	14	146.22	060
	50	16	13	0.3	16	179.60	160
	63	20	16	0.3	18	251.21	260
	80	25	22	0.3	20	403.02	360
	100	32	27	0.3	22	613.94	460
	125	40	32	0.3	28	1,034.29	560

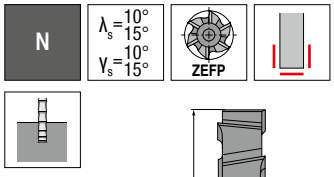
P	●
M	○
K	●
N	○
S	○
H	
O	○

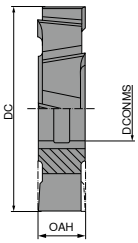
→ v_c/f_z Page 44

13

Side and face milling cutter HSS-E Co 5

▲ Coarse cross-pitched
▲ with keyway to DIN 138







DIN 885 A

50 348 ...

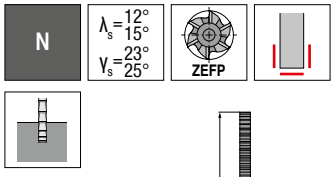
DC js16 mm	OAH k11 mm	DCONMS H7 mm	ZEFP	£ U6	
50	4	16	12	156.02	100
50	5	16	12	158.50	102
50	6	16	12	161.11	104
50	8	16	12	179.27	106
50	10	16	12	192.94	108
63	4	22	12	169.54	200
63	5	22	12	180.58	202
63	6	22	12	177.82	204
63	8	22	12	196.12	206
63	10	22	12	220.67	208
63	12	22	12	248.27	210
63	14	22	12	281.25	212
80	5	27	14	228.80	300
80	6	27	14	232.42	302
80	8	27	14	248.27	304
80	10	27	14	254.50	306
80	12	27	14	286.62	308
80	14	27	14	328.29	310
80	16	27	14	355.61	312
80	18	27	14	413.70	314
80	20	27	14	442.63	316
100	6	32	14	333.10	400
100	8	32	14	330.91	402
100	10	32	14	354.30	404
100	12	32	14	382.03	406
100	14	32	14	426.06	408
100	16	32	14	449.46	410
100	18	32	14	528.34	412
100	20	32	14	522.38	414
100	25	32	14	675.49	418
125	8	32	16	438.41	500
125	10	32	16	470.07	502
125	12	32	16	510.17	504
125	14	32	16	574.82	506
125	16	32	16	606.32	508
125	18	32	16	657.34	510
125	20	32	16	700.48	512
125	25	32	16	846.16	516
160	10	40	18	693.06	600
160	12	40	18	774.55	602
160	14	40	18	816.96	604
160	16	40	18	879.13	606
160	18	40	18	982.56	608
160	20	40	18	992.15	610
160	25	40	18	1,216.88	614
160	32	40	18	1,543.42	618

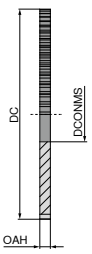
P	○
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 45

Narrow side and face milling cutter HSS-E Co 5

▲ Coarse cross-pitched
▲ with keyway to DIN 138







Factory standard

50 342 ...

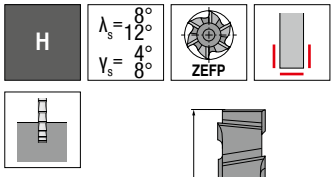
DC js16 mm	OAH k11 mm	DCONMS H7 mm	ZEFP	£ U6	
63	1.6	22	16	165.76	200
63	2.0	22	16	146.73	202
63	2.5	22	16	149.92	204
63	3.0	22	16	153.99	206
80	1.6	27	20	177.23	300
80	2.0	27	20	172.17	302
80	2.5	27	20	175.21	304
80	3.0	27	20	179.83	306
80	4.0	27	20	192.77	310
100	1.6	32	24	226.19	400
100	2.0	32	24	224.87	402
100	2.5	32	24	224.58	404
100	3.0	32	24	228.65	406
100	4.0	32	24	246.67	410
100	5.0	32	24	261.35	414
125	1.6	32	26	285.89	500
125	2.0	32	26	275.12	502
125	2.5	32	26	281.97	504
125	3.0	32	26	288.67	506
125	4.0	32	26	309.28	510
125	5.0	32	26	331.09	514
125	6.0	32	26	320.17	516
160	2.0	40	30	443.07	600
160	2.5	40	30	426.50	602
160	3.0	40	30	434.65	604
160	4.0	40	30	459.34	606
160	5.0	40	30	486.35	608
160	6.0	40	30	522.22	610
160	8.0	40	22	596.16	612

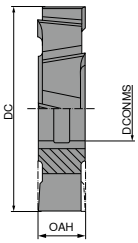
P	○
M	●
K	
N	●
S	○
H	
O	●

→ v_c/f_z Page 45

Side and face milling cutter HSS-E Co 5

▲ Fine cross-pitched version
▲ with keyway to DIN 138







DIN 885 A

50 349 ...

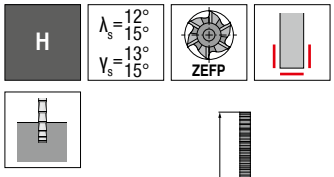
DC js16 mm	OAH k11 mm	DCONMS H7 mm	ZEFP	£ U6	
50	4	16	16	183.32	100
50	5	16	16	184.51	102
50	6	16	16	194.08	104
50	8	16	16	208.60	106
50	10	16	16	228.34	108
63	4	22	18	200.78	200
63	5	22	18	215.73	202
63	6	22	18	207.01	204
63	8	22	18	232.12	206
63	10	22	18	258.99	208
63	12	22	18	294.17	210
63	14	22	18	330.34	212
80	5	27	20	271.07	300
80	6	27	20	280.07	302
80	8	27	20	291.54	304
80	10	27	18	298.82	306
80	12	27	18	336.60	308
80	14	27	18	388.73	310
80	16	27	18	421.40	312
80	18	27	18	485.78	314
80	20	27	18	486.06	316
100	6	32	22	391.05	400
100	8	32	22	388.58	402
100	10	32	20	419.54	404
100	12	32	20	452.51	406
100	14	32	20	504.64	408
100	16	32	20	532.25	410
100	18	32	20	625.37	412
100	20	32	20	629.58	414
100	25	32	20	779.18	418
125	8	32	24	519.18	500
125	10	32	22	556.66	502
125	12	32	22	598.77	504
125	14	32	22	674.89	506
125	16	32	22	699.60	508
125	18	32	22	805.91	510
125	20	32	22	822.48	512
125	25	32	22	984.74	516
160	10	40	26	828.01	600
160	12	40	26	901.50	602
160	14	40	26	968.06	604
160	16	40	26	1,041.40	606
160	18	40	26	1,143.51	608
160	20	40	26	1,144.69	610
160	25	40	26	1,429.09	614
160	32	40	26	1,796.32	618

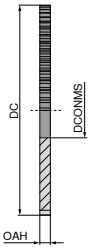
P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 45

Narrow side and face milling cutter HSS-E Co 5

▲ Fine cross-pitched version
▲ with keyway to DIN 138







DIN 1834 A

50 340 ...

DC js16 mm	OAH k11 mm	DCONMS H7 mm	ZEFP	£ U6	
63	1.6	22	28	139.27	200
63	2.0	22	28	136.99	202
63	2.5	22	28	139.91	204
63	3.0	22	28	143.81	206
80	1.6	27	32	165.48	300
80	2.0	27	32	160.67	302
80	2.5	27	32	163.43	304
80	3.0	27	32	168.08	306
80	4.0	27	32	179.83	310
100	1.6	32	36	197.86	400
100	2.0	32	36	196.71	402
100	2.5	32	36	196.71	404
100	3.0	32	36	200.17	406
100	4.0	32	36	215.73	410
100	5.0	32	36	236.79	414
125	1.6	32	40	259.16	500
125	2.0	32	40	249.14	502
125	2.5	32	40	256.60	504
125	3.0	32	40	261.62	506
125	4.0	32	40	280.22	510
125	5.0	32	40	300.12	514
125	6.0	32	40	290.13	516
160	2.0	40	48	415.32	600
160	2.5	40	48	399.92	602
160	3.0	40	48	407.48	604
160	4.0	40	48	430.72	606
160	5.0	40	48	455.99	608
160	6.0	40	48	489.56	610
160	8.0	40	36	558.84	612

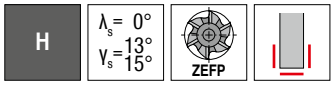
P	●
M	
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 45

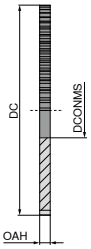
13

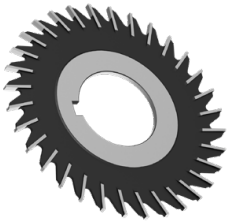
Narrow side and face milling cutter HSS-E Co 5

- straight cut
- with keyway to DIN 138









				DIN 1834 B	
				50 341 ...	
DC js16 **mm**	OAH k11 mm	DCONMS H7 mm	ZEFP	£ U6	
63	1.6	22	32	182.32	**200**
63	2.0	22	32	161.42	**202**
63	2.5	22	32	164.72	**204**
63	3.0	22	32	169.38	**206**
80	1.6	27	36	194.95	**300**
80	2.0	27	36	189.43	**302**
80	2.5	27	36	192.62	**304**
80	3.0	27	36	197.70	**306**
80	4.0	27	36	211.94	**310**
100	1.6	32	40	233.15	**400**
100	2.0	32	40	231.84	**402**
100	2.5	32	40	231.70	**404**
100	3.0	32	40	235.91	**406**
100	4.0	32	40	254.37	**410**
100	5.0	32	40	269.61	**414**
125	1.6	32	44	314.63	**500**
125	2.0	32	44	302.60	**502**
125	2.5	32	44	309.98	**504**
125	3.0	32	44	317.70	**506**
125	4.0	32	44	340.21	**510**
125	5.0	32	44	364.18	**514**
125	6.0	32	44	352.03	**516**
160	2.0	40	52	487.21	**600**
160	2.5	40	52	469.06	**602**
160	3.0	40	52	478.20	**604**
160	4.0	40	52	505.24	**606**
160	5.0	40	52	535.03	**608**
160	6.0	40	52	574.37	**610**
160	8.0	40	40	655.59	**612**

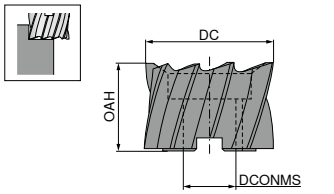
P	●
M	○
K	●
N	●
S	○
H	
O	●

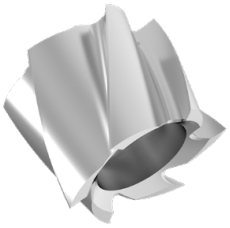
→ v_c/f_z Page 45

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

W | λ_s=30° γ_s=24° | ZEFP





DIN 1880

50 255 ...

DC $_{k10}$ mm	OAH mm	DCONMS mm	ZEFP	£ U8	
40	32	16	6	167.48	040
50	36	22	6	213.21	050
63	40	27	6	285.08	063
80	45	27	6	420.69	080
100	50	32	6	682.11	100

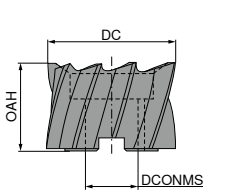
P	
M	
K	
N	●
S	
H	
O	●

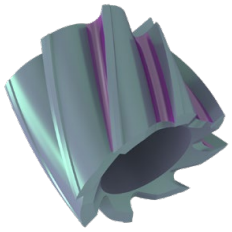
→ v_c/f_z Page 46+47

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

N | λ_s=25° γ_s=10° | ZEFP | Ti100 Pro





DIN 1880

54 035 ...

DC $_{k10}$ mm	OAH mm	DCONMS mm	ZEFP	£ U8	
40	32	16	8	233.54	040
50	36	22	8	286.45	050
63	40	27	8	264.00	063
80	45	27	10	410.40	080
100	50	32	12	687.78	100

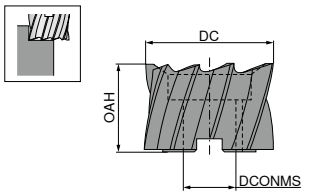
P	●
M	●
K	●
N	●
S	○
H	
O	●

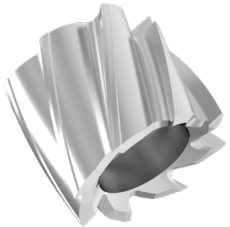
→ v_c/f_z Page 46+47

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

N | λ_s=25° γ_s=10° | ZEFP





DIN 1880

50 250 ...

DC $_{k10}$ mm	OAH mm	DCONMS mm	ZEFP	£ U8	
40	32	16	8	159.10	040
50	36	22	8	203.95	050
63	40	27	8	289.80	063
80	45	27	10	425.10	080
100	50	32	12	676.31	100

P	●
M	●
K	●
N	●
S	○
H	
O	●

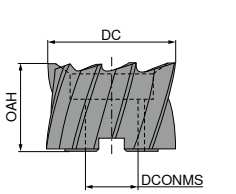
→ v_c/f_z Page 46+47

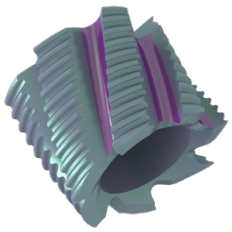
Roughing-finishing face milling cutters HSS-Co 5

▲ with keyway to DIN 138

▲ Manufacturing tolerance lies on the plus range of the tolerance js14

NF | λ_s=25° γ_s=12° | ZEFP | Ti100 Pro





DIN 1880

54 036 ...

DC $_{js14}$ mm	OAH mm	DCONMS mm	ZEFP	£ U8	
40	32	16	7	157.62	040
50	36	22	8	202.25	050
63	40	27	8	413.66	063
80	45	27	10	623.99	080
100	50	32	12	931.04	100

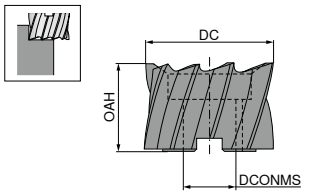
P	●
M	●
K	●
N	●
S	○
H	
O	●

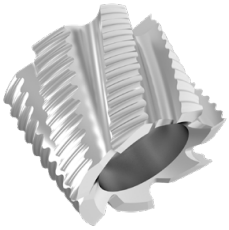
→ v_c/f_z Page 46+47

Roughing face milling cutters HSS-E Co 5

▲ with keyway to DIN 138
▲ Manufacturing tolerance lies on the plus range of the tolerance js14

NR | λ_s=25° γ_s=14° | ZEFP





DIN 1880

50 260 ...

DC js14 mm	OAH mm	DCONMS mm	ZEFP	£ U8	
40	32	16	7	162.11	**040**
50	36	22	8	214.99	**050**
63	40	27	8	287.78	**063**
80	45	27	10	397.45	**080**
100	50	32	12	602.93	**100**

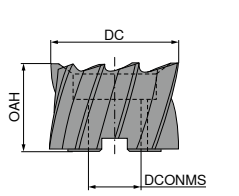
P	●
M	●
K	●
N	●
S	○
H	
O	●

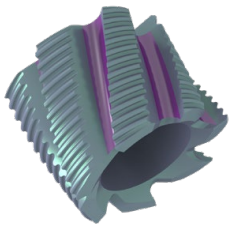
→ v_c/f_z Page 46+47

Roughing-finishing face milling cutters HSS-E Co 8

▲ with keyway to DIN 138
▲ Manufacturing tolerance lies on the plus range of the tolerance js14

HR | λ_s=25° γ_s=10° | ZEFP | Ti100 Pro





DIN 1880

54 037 ...

DC js14 mm	OAH mm	DCONMS mm	ZEFP	£ U8	
40	32	16	7	166.97	**040**
50	36	22	8	206.43	**050**
63	40	27	8	446.90	**063**
80	45	27	10	443.76	**080**
100	50	32	12	712.01	**100**

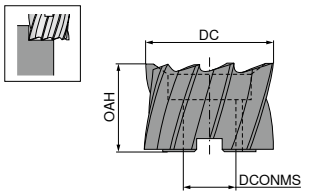
P	●
M	●
K	●
N	●
S	○
H	
O	●

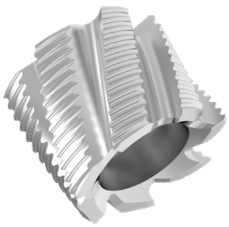
→ v_c/f_z Page 46+47

Roughing-finishing face milling cutters HSS-E Co 8

▲ with keyway to DIN 138
▲ Manufacturing tolerance lies on the plus range of the tolerance js14

HR | λ_s=25° γ_s=10° | ZEFP





DIN 1880

50 297 ...

DC js14 mm	OAH mm	DCONMS mm	ZEFP	£ U8	
40	32	16	7	162.11	**040**
50	36	22	8	214.99	**050**
63	40	27	8	287.78	**063**
80	45	27	10	397.45	**080**
100	50	32	12	617.10	**100**

P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 46+47

Material examples for cutting data tables

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

*** Tensile strength**

13

Cutting data – slot and end milling cutters

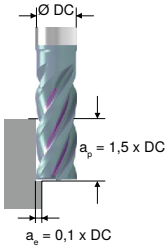
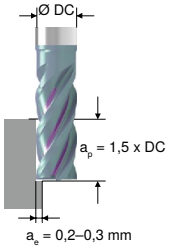
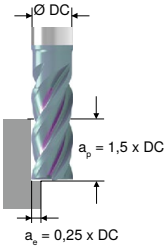
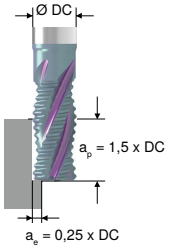
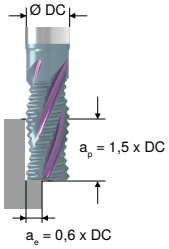
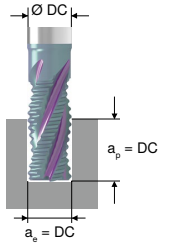
		uncoated	Ti100 Pro	Powder steel	● 1st choice		
				Ti100 Pro	○ suitable		
Index	Kf f_z	v_c in m/min			Emulsion	Compressed air	MMS
P.1.1	1,2	20	45	50	●		
P.1.2	1,2	20	45	50	●		
P.1.3	1,2	20	45	50	●		
P.1.4	1,0	15	30	35	●		
P.1.5	1,0	15	30	35	●		
P.2.1	1,2	20	40	45	●		
P.2.2	1,0	15	40	45	●		
P.2.3	0,8	15	30	35	●		
P.2.4	0,8	15	30	35	●		
P.3.1	1,0	15	30	35	●		
P.3.2	0,8	12	25	30	●		
P.3.3	0,8	10	20	25	●		
P.4.1	1,0	10	20	25	●		
P.4.2	1,0	10	20	25	●		
M.1.1	1,0	10	20	25	●		
M.2.1	0,9	7	15	20	●		
M.3.1	1,0	5	10	15	●		
K.1.1	1,0	18	35	40	●		
K.1.2	1,0	18	25	30	●		
K.2.1	1,0	15	30	35	●		
K.2.2	1,0	15	30	35	●		
K.3.1	1,0	15	35	40	●		
K.3.2	0,8	12	25	30	●		
N.1.1	1,9	150	240	260	●		
N.1.2	1,9	100	130	150	●		
N.2.1	1,8		100	140	●		
N.2.2	1,7		60	80	●		
N.2.3							
N.3.1	1,1		100	130	●		
N.3.2	1,2	30	60	80	●		
N.3.3	1,2	30	60	80	●		
N.4.1	1,8	90	140	160		●	
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1	1,0	10	15	25	●		
S.3.2	1,1	10	15	25	●		
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1	2,0	30	50	70	●		
O.1.2	2,0	20	25	40	●		
O.2.1							
O.2.2							
O.3.1	1,0		30	40	o		

For full slot milling reduce the cutting speed (Vc), indicated in this table by approx. 15 - 20%!

Kf f_z = Correction factor for feed per tooth

Feed per tooth for HSS end mills

Appoximate values (in mm) for the feed per tooth (f_z)

	Peripheral milling										Full slot milling	
												
	f_z in mm		f_z in mm		f_z in mm		f_z in mm		f_z in mm		f_z in mm	
Ø DC mm	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated
2	0,008	0,009	0,008	0,009	0,008	0,009						
3	0,011	0,012	0,010	0,012	0,009	0,010						
4	0,017	0,018	0,014	0,015	0,013	0,014	0,015	0,016	0,013	0,014	0,011	0,012
5	0,024	0,026	0,018	0,020	0,014	0,015	0,019	0,021	0,016	0,018	0,014	0,016
6	0,032	0,035	0,022	0,024	0,015	0,017	0,024	0,027	0,020	0,022	0,018	0,019
8	0,047	0,051	0,029	0,032	0,020	0,022	0,032	0,036	0,027	0,030	0,024	0,026
10	0,065	0,072	0,037	0,041	0,026	0,028	0,042	0,047	0,035	0,039	0,031	0,034
12	0,084	0,091	0,044	0,049	0,031	0,034	0,051	0,057	0,043	0,047	0,037	0,041
14	0,100	0,106	0,054	0,059	0,037	0,041	0,063	0,069	0,053	0,058	0,045	0,050
16	0,111	0,121	0,061	0,067	0,042	0,046	0,072	0,079	0,060	0,066	0,052	0,057
18	0,126	0,136	0,070	0,077	0,048	0,053	0,084	0,093	0,071	0,078	0,061	0,067
20	0,141	0,151	0,076	0,083	0,052	0,057	0,092	0,101	0,077	0,084	0,066	0,073
22	0,160	0,166	0,085	0,094	0,059	0,065	0,104	0,114	0,087	0,096	0,075	0,082
25	0,170	0,188	0,095	0,104	0,065	0,072	0,117	0,129	0,098	0,108	0,084	0,093
28	0,196	0,210	0,109	0,120	0,075	0,083	0,136	0,150	0,114	0,125	0,098	0,108
32	0,212	0,240	0,124	0,137	0,086	0,094	0,157	0,173	0,131	0,145	0,113	0,125
36	0,224	0,240	0,144	0,159	0,099	0,109	0,170	0,194	0,142	0,162	0,126	0,140
40	0,240	0,240	0,157	0,173	0,108	0,119	0,184	0,202	0,154	0,169	0,132	0,146
45	0,240	0,240	0,157	0,173	0,108	0,119	0,200	0,220	0,170	0,180	0,140	0,160
50	0,240	0,240	0,157	0,173	0,108	0,119	0,200	0,220	0,170	0,180	0,140	0,160

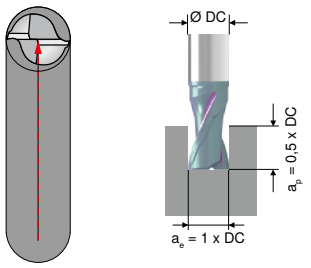
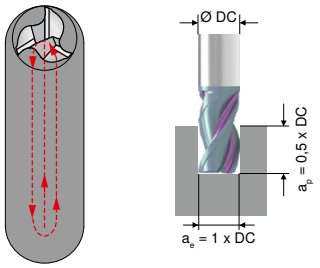
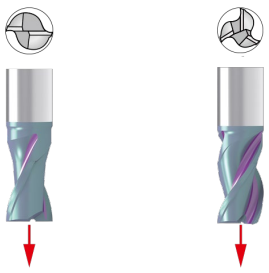
Attention:
In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 40**.

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Feed per tooth when milling parallel key slots with HSS slot drills

Appoximate values (in mm) for the feed per tooth (f_z)

	Full slot milling (in one cut)		Profile slot milling (internal profile milling)				Circular ramping			
										
			Roughing cut		Finishing cut					
	f_z in mm		f_z in mm				f_z in mm			
Ø DC mm	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated
2	0,005	0,006	0,005	0,006	0,008	0,009	0,003	0,003	0,002	0,002
3	0,009	0,010	0,009	0,010	0,015	0,016	0,004	0,005	0,003	0,003
4	0,012	0,013	0,012	0,013	0,022	0,024	0,006	0,007	0,004	0,004
5	0,016	0,017	0,016	0,017	0,030	0,033	0,008	0,009	0,005	0,006
6	0,020	0,022	0,020	0,022	0,039	0,043	0,010	0,011	0,007	0,007
8	0,026	0,029	0,026	0,029	0,055	0,061	0,013	0,014	0,009	0,010
10	0,034	0,037	0,034	0,037	0,075	0,082	0,017	0,019	0,011	0,012
12	0,040	0,044	0,040	0,044	0,093	0,101	0,020	0,022	0,013	0,015
14	0,049	0,054	0,049	0,054	0,117	0,118	0,024	0,027	0,016	0,018
16	0,056	0,062	0,056	0,062	0,135	0,135	0,028	0,031	0,019	0,021
18	0,065	0,072	0,065	0,072	0,151	0,151	0,033	0,036	0,022	0,024
20	0,071	0,078	0,071	0,078	0,167	0,167	0,035	0,039	0,024	0,026
22	0,080	0,088	0,080	0,088	0,184	0,184	0,040	0,044	0,027	0,029
25	0,089	0,098	0,089	0,098	0,208	0,208	0,044	0,049	0,030	0,033
28	0,103	0,113	0,103	0,113	0,233	0,233	0,051	0,056	0,034	0,037
32	0,118	0,130	0,118	0,130	0,260	0,260	0,060	0,065	0,040	0,043
36	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
40	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
45	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
50	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043

Attention:
In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 40.**

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Cutting data standard values – Form cutters

		50 241 ...			50 240 ...					50 234 ...				50 248 ...				● 1st choice ○ suitable		
		Ø DC = 21–25 mm	Ø DC = 28–36 mm	Ø DC = 40–45 mm	Ø DC = 11–16 mm	Ø DC = 18–22 mm	Ø DC = 25–32 mm	Ø DC = 36–45 mm	Ø DC = 50–60 mm	Ø DC = 10–17 mm	Ø DC = 19–26 mm	Ø DC = 28–33 mm	Ø DC = 33–46 mm	Ø DC = 8–11 mm	Ø DC = 12–24 mm	Ø DC = 26–34 mm	Ø DC = 46–48 mm			
Index	v_c m/min	f_z mm			f_z mm					v_c m/min	f_z mm			f_z mm				Emulsion	Compressed air	MMS
P.1.1	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.1.2	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.1.3	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.1.4	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.1.5	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.2.1	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.2.2	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.2.3	20	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	20	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.2.4	20	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	20	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
P.4.2	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
M.1.1	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
M.2.1																				
M.3.1																				
K.1.1	28	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	24	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.1.2																				
K.2.1	22	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	22	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.2.2	20	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	20	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.3.1	15	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	15	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.3.2	15	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	15	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
N.1.1	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15	●		
N.1.2	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15	●		
N.2.1	80	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	80	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.2.2	60	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	60	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.2.3																				
N.3.1	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03	0,035	25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.3.2	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03		25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.3.3	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03		25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.4.1	70	0,1	0,12	0,15	0,018	0,04	0,03	0,035	0,045	70	0,03	0,035	0,05	0,06	0,025	0,06	0,1	0,12	●		
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1	20	0,06	0,08	0,1	0,012	0,025	0,025	0,025	0,035	20	0,015	0,025	0,035	0,045	0,02	0,05	0,07	0,09	●		
S.3.2																				
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1	65	0,12	0,15	0,18		0,06	0,055	0,055	0,07	65	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●		
O.1.2	80	0,12	0,15	0,18		0,06	0,055	0,055	0,07	80	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●		
O.2.1																				
O.2.2																				
O.3.1																				

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

Cutting data standard values – Form cutters

		50 245 ... / 50 246 ...			50 360 ...					50 362 ...				● 1st choice ○ suitable		
		Ø DC = 16 mm a_e = 3,2	Ø DC = 20 mm a_e = 4	Ø DC = 25 mm a_e = 5	Ø DC = 50 mm a_e = 5	Ø DC = 63 mm a_e = 6,3	Ø DC = 80 mm a_e = 8	Ø DC = 100 mm a_e = 10	Ø DC = 40–50 mm	Ø DC = 63 mm	Ø DC = 80 mm	Ø DC = 100 mm				
Index	v_c m/min	f_z mm			v_c m/min	f_z mm				f_z mm				Emulsion	Compressed air	MMS
P.1.1	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.2	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.3	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.4	22	0,01	0,015	0,018	20	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.1.5	22	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.1	22	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.2	28	0,01	0,015	0,018	22	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.2.3	20	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.4	20	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.3.1																
P.3.2																
P.3.3																
P.4.1	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.4.2	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
M.1.1	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
M.2.1																
M.3.1																
K.1.1	24	0,01	0,012	0,015	19	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.1.2					12	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.2.1	22	0,01	0,012	0,015	15	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.2.2	20	0,01	0,012	0,015	12	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.3.1	15	0,01	0,012	0,015	16	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.3.2	15	0,01	0,012	0,015	13	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
N.1.1	90	0,01	0,015	0,02										●		
N.1.2	90	0,01	0,015	0,02	70	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.1	80	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.2	60	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.3																
N.3.1	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.3.2	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.3.3	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.4.1	70	0,01	0,015	0,0175	45	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,01	●		
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1	20	0,008	0,01	0,015	20	0,008	0,01	0,012	0,016	0,005	0,007	0,009	0,012	●		
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1	65	0,018	0,02	0,025	60	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
O.1.2	80	0,018	0,02	0,025	65	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
O.2.1																
O.2.2																
O.3.1																

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

Cutting data – side and face cutters

		50 340 ... / 50 341 ... / 50 342 ... / 50 348 ... / 50 349 ...						● 1st choice ○ suitable		
		Ø DC = 50 mm	Ø DC = 63 mm	Ø DC = 80 mm	Ø DC = 100 mm	Ø DC = 125 mm	Ø DC = 160 mm			
Index	v_c in m/min	f_z mm						Emulsion	Compressed air	MMS
P.1.1	30	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
P.1.2	20	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
P.1.3	20	0,05–0,07	0,06–0,08	0,07–0,09	0,08–0,10	0,095–0,12	0,1–0,13	●		
P.1.4	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.1.5	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.2.1	20	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.2.2	20	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.2.3	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.2.4	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.3.1	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.3.2	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.3.3	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.4.1	10	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.4.2	10	0,04–0,06	0,05–0,07	0,06–0,08	0,07–0,09	0,08–0,10	0,09–0,2	●		
M.1.1	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
M.2.1	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
M.3.1	8	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.1.1	20	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.1.2	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.2.1	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.2.2	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.3.1	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.3.2	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
N.1.1	150	0,06–0,075	0,075–0,09	0,009–0,1	0,01–0,12	0,12–0,135	0,135–0,15	●		
N.1.2	100	0,06–0,075	0,075–0,09	0,009–0,1	0,01–0,12	0,12–0,135	0,135–0,15	●		
N.2.1	80	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
N.2.2	40	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
N.2.3										
N.3.1	80	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
N.3.2	30	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
N.3.3	30	0,05–0,07	0,06–0,08	0,07–0,09	0,08–0,10	0,095–0,12	0,1–0,13	●		
N.4.1	90	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12		●	
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1	10	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
S.3.2	10	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1	30	0,08–0,1	0,1–0,12	0,12–0,14	0,14–0,16	0,16–0,18	0,18–0,2	●		
O.1.2	20	0,08–0,1	0,1–0,12	0,12–0,14	0,14–0,16	0,16–0,18	0,18–0,2	●		
O.2.1										
O.2.2										
O.3.1										

Feed correction factor (Kf f_z) for side and face cutters in relation to the cutting depth (a_e)

a_e	Kf f_z
0,05 x DC	1,4
0,1 x DC	1,0
0,15 x DC	0,8
0,2 x DC	0,7
0,25 x DC	0,6

The indicated feed rates apply to straight pitched cutters with a cutting depth of 0.1 x DC! With cross-pitched cutters the feed rate is to be reduced by 50 %!

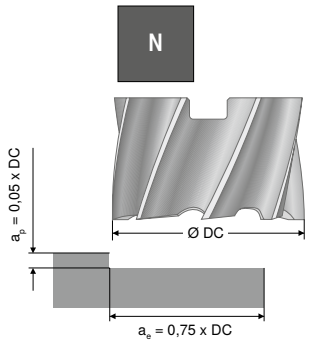
13

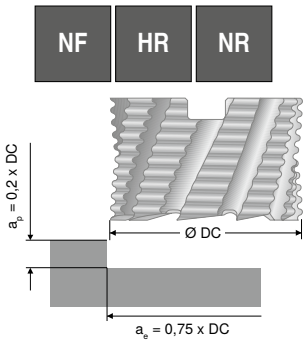
Cutting data – face mills

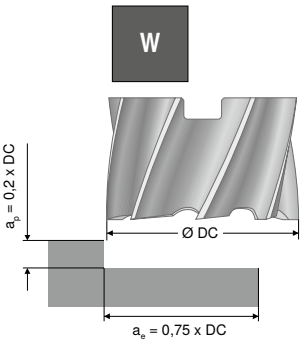
		50 250 ... / 50 255 ... / 50 260 ... / 50 297 ... uncoated	54 035 ... / 54 036 ... / 54 037 ... Ti100 Pro	● 1st choice ○ suitable		
Index	Kf f_z	v_c in m/min		Emulsion	Compressed air	MMS
P.1.1	1,2	25	45	●		
P.1.2	1,2	20	40	●		
P.1.3	1,2	20	40	●		
P.1.4	1,0	15	30	●		
P.1.5	1,0	15	30	●		
P.2.1	1,2	20	40	●		
P.2.2	1,0	20	40	●		
P.2.3	0,8	10	20	●		
P.2.4	0,8	10	20	●		
P.3.1	1,0	15	30	●		
P.3.2	0,8	10	20	●		
P.3.3	0,8	10	20	●		
P.4.1	1,0	10	15	●		
P.4.2	1,0	10	15	●		
M.1.1	1,0	10	15	●		
M.2.1	0,9	7	15	●		
M.3.1	1,0	5	10	●		
K.1.1	1,0	20	30	●		
K.1.2	1,0	18	30	●		
K.2.1	1,0	18	30	●		
K.2.2	1,0	15	25	●		
K.3.1	1,0	18	30	●		
K.3.2	1,0	18	30	●		
N.1.1	1,5	150				
N.1.2	1,5	100				
N.2.1	1,3	80				
N.2.2	1,3	40				
N.2.3						
N.3.1	1,1	80	110	●		
N.3.2	1,2	30	60	●		
N.3.3	1,2	30	60	●		
N.4.1	1,3	90	120		●	
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1	1,0	10	15	●		
S.3.2	1,1	10	15	●		
S.3.3	0,8		10	●		
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1	2,0	30	50	●		
O.1.2	2,0	20	25	●		
O.2.1						
O.2.2						
O.3.1						

Feed per tooth for HSS face mills

Appoximate values (in mm) for the feed per tooth (f_z)







	f_z in mm		f_z in mm		f_z in mm
Ø DC mm	uncoated	Ti100 Pro	uncoated	Ti100 Pro	uncoated
40	0,049	0,054	0,064	0,070	0,060
50	0,055	0,060	0,071	0,078	0,066
63	0,061	0,067	0,079	0,087	0,074
80	0,065	0,071	0,084	0,092	0,078
100	0,059	0,065	0,076	0,084	0,071

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 46**.

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Formula for cutting data calculation

Designation	Abbreviation	Unit	Formula
Number of revolutions	n	min^{-1}	$n = \frac{v_c \times 1000}{DC \times \pi}$
Cutting speed	v_c	m/min	$v_c = \frac{DC \times \pi \times n}{1000}$
Feed per tooth	f_z	mm	$f_z = \frac{v_f}{ZEFP \times n}$ $f_z = h_m \times \sqrt{\frac{DC}{a_e}}$
Feed per revolution	f	mm	$f = f_z \times ZEFP$
Feed rate	v_f	mm/min.	$v_f = f_z \times ZEFP \times n$
Average chip thickness	h_m	mm	$h_m = f_z \times \sqrt{\frac{a_e}{DC}}$

ZEFP = Number of flutes
a_e = cutting width (for side milling cutter cutting depth)
DC = Cutting diameter

13

Version description

H	For high-strength steels and tempered materials
HF	For high-strength steels and tempered materials – with roughing-finishing profile
HR	For high-strength steels and tempered materials – with roughing profile
HS	For high-strength steels and tempered materials – with fine chip breaker especially for cast and nickel alloys
N	For machining steel and cast materials, as well as stainless steels
NF	For machining steel and cast materials, as well as stainless steels – with roughing-finishing profile
NR	For machining steel and cast materials, as well as stainless steels – with roughing profile
NTI	For machining steel and cast materials, as well as stainless steels – with medium chip breaker
W	For soft materials and non-ferrous metals (aluminium, copper, brass)
WF	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing-finishing profile
WR	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing profile

Coating

Ti100 Pro

- Ti multilayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.7
- Maximum application temperature: 900°C



New products for machining technicians

NEW

MonsterMill – NCR

NCR



→ Page 32–37

Masters one of the most challenging areas of machining – nickel-based alloys

---

NEW

MonsterMill – PCR – plunge milling cutter with chip breaker

PCR



→ Page 47

NEW

CircularLine – UNI – 5xDC

CCR UNI

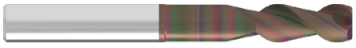


→ Page 59+60

NEW

AluLine – program update

W



→ Page 67–104

NEW

PCD end mill

W



→ Page 107–119

End mill with PCD indexable insert for machining non-ferrous metals and plastics

---

NEW

SilverLine – program update

N



→ Page 120–135

NEW

S-Cut – rough milling cutters

SC NR



→ Page 144

NEW

3D Finish

N



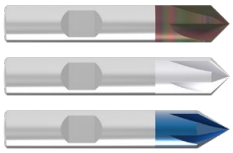
→ Page 145–149

Circle segment milling cutter for efficient 3D finish machining

---

NEW

AluLine/SilverLine/BlueLine – deburring cutters



→ Page 105+106

→ Page 136+137

→ Page 176

NEW

MultiLock

N



→ Page 181–187

The exchangeable head system for advanced performance

NEW

Mini cutter – program update

N



→ Page 222+223

NEW

HPC rough milling cutters

HPC NR



→ Page 247

NEW

Type N – program update

N



→ Page 209–263

NEW

T-slot cutters

N



→ Page 299



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters 14

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Shank





Shank type


Length: extra short / short / medium / long / extra long


Axial thro' coolant


Radial thro' coolant



Cutting edge preparation


Sharp


Corner chamfer (CHW = chamfer width in mm)


Corner radius


Full Radius



Application



High volume machining



High-feed milling



Hard materials


Machining example


The red arrows describe the possible feed directions



Number of flutes



Cutting geometry
λ_s = Helix Angle
γ_s = Rake Angle



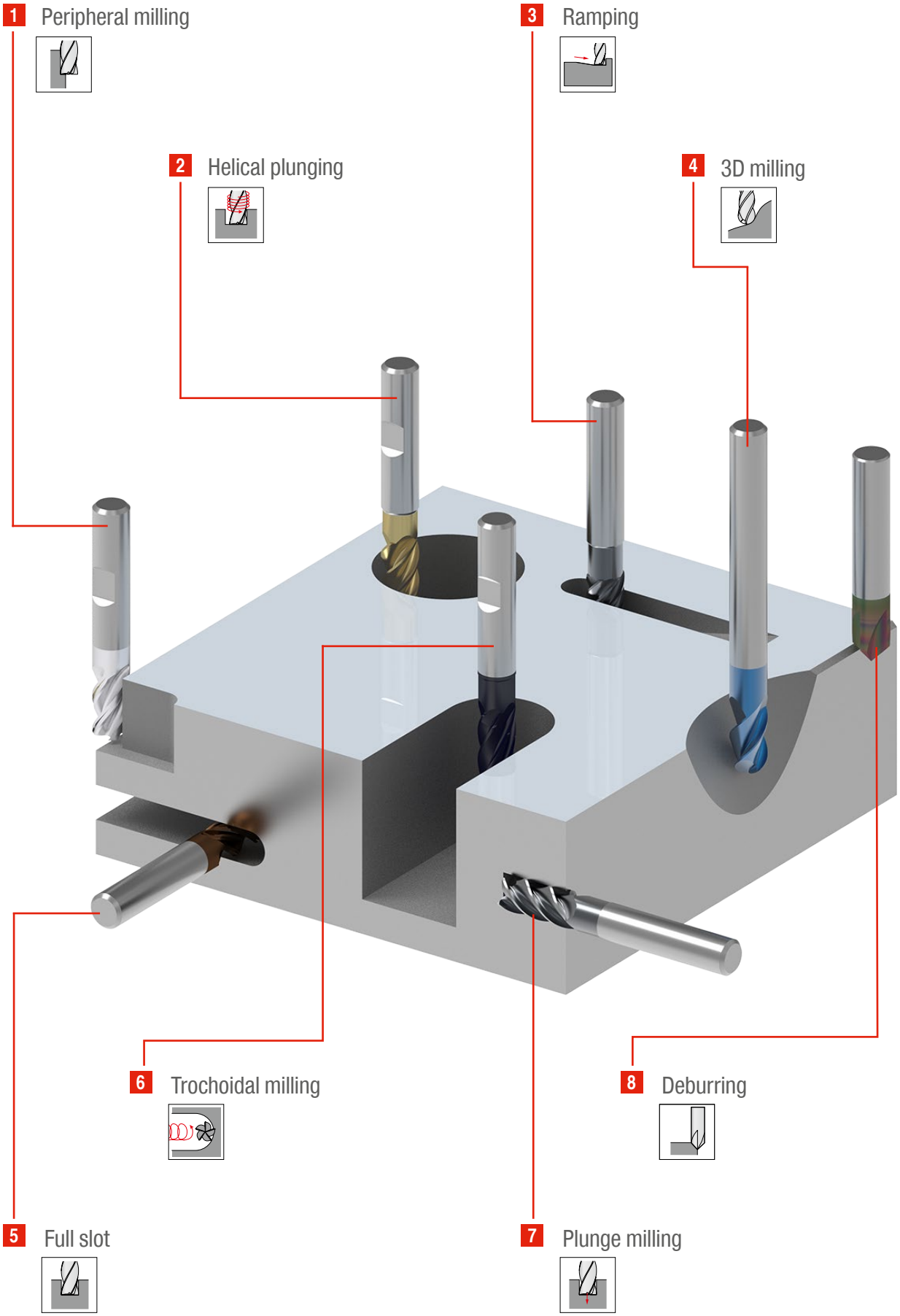
Variable helix angle


Trochoidal milling

● = **Main Application**

○ = Extended application

Toolfinder for High Performance Milling Cutters



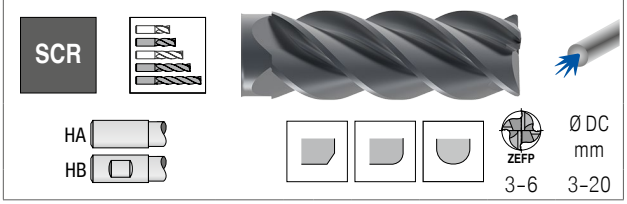
Toolfinder for high-performance milling cutters – MonsterMill

	1 Peripheral milling	2 Helical plunging	3 Ramping	4 3D milling
Steel	MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – SCR
Stainless steel	MonsterMill – ICR	MonsterMill – ICR	MonsterMill – ICR	MonsterMill – TCR
Cast iron	MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – SCR
Non ferrous metals	MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
Heat resistant alloys	MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – TCR
Hardened steel < 55 HRC				
Hardened steel > 55 HRC	MonsterMill – HCR			MonsterMill – HCR
Non metal materials				

MonsterMill – SCR

→ Page 17–24

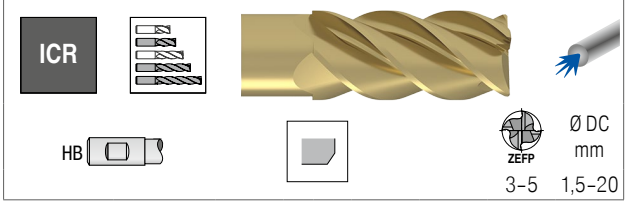
The specialist for machining steel and cast iron



MonsterMill – ICR

→ Page 25+26

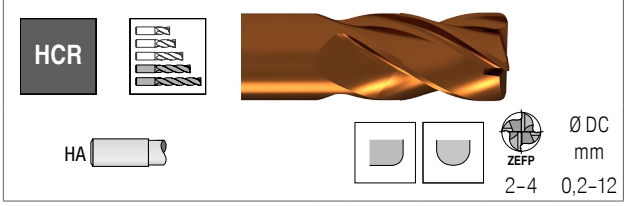
The specialist for machining stainless steel



MonsterMill – HCR

→ Page 38–44

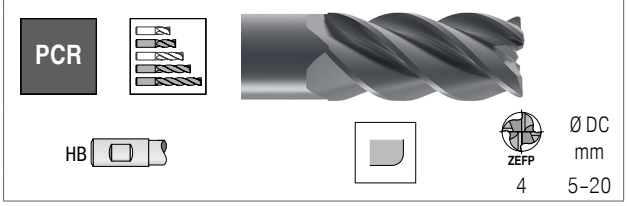
The specialist for finish machining tempered steel up to 70 HRC



MonsterMill – PCR

→ Page 45–49

The specialist for ramping, plunging and helical milling



5 Full slot	6 Trochoidal milling	7 Plunge milling	8 Deburring
MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
MonsterMill – ICR			
MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR			

MonsterMill – TCR

→ Page 27–31

The specialist for machining titanium and titanium alloys

TCR



HB

ZEFP: 2–5

Ø DC mm: 2–20

MonsterMill – NCR

→ Page 32–37

The specialist for machining nickel-based alloys

NCR



HB

ZEFP: 4–5

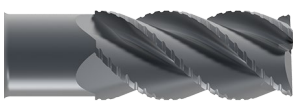
Ø DC mm: 4–20

MonsterMill – MCR

→ Page 50

The specialist for rough machining steel and cast iron

MCR



HB

ZEFP: 3–4

Ø DC mm: 1–20

14

Toolfinder for high-performance milling cutters

	1 Peripheral milling	2 Helical plunging	3 Ramping	4 3D milling
Steel	SilverLine S-Cut Micro-milling tools MultiLock / MultiChange	MultiLock / MultiChange		3D Finish SilverLine Micro-milling tools MultiLock / MultiChange
Stainless steel	SilverLine S-Cut Micro-milling tools			3D Finish SilverLine Micro-milling tools
Cast iron	SilverLine S-Cut Micro-milling tools MultiLock / MultiChange	MultiLock / MultiChange	MultiLock / MultiChange	3D Finish SilverLine Micro-milling tools MultiLock / MultiChange
Non ferrous metals	AluLine PCD milling tools Micro-milling tools MultiChange	AluLine PCD milling tools MultiChange	AluLine PCD milling tools MultiChange	3D Finish AluLine PCD milling tools Micro-milling tools MultiChange
Heat resistant alloys	Micro-milling tools MultiLock	MultiLock	MultiLock	3D Finish Micro-milling tools MultiLock
Hardened steel < 55 HRC	BlueLine Micro-milling tools	BlueLine	BlueLine	BlueLine Micro-milling tools
Hardened steel > 55 HRC				
Non metal materials	PCD milling tools Micro-milling tools	PCD milling tools	PCD milling tools	3D Finish PCD milling tools Micro-milling tools

CircularLine
→ Page 51–66

The specialist for trochoidal machining

CCR



HB

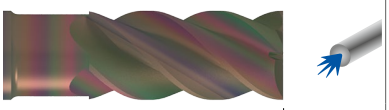
ZEFP: 4–6

Ø DC mm: 6–20

AluLine
→ Page 67–106

The specialist for machining non-ferrous metals

W / WF / WR



HA
HB

ZEFP: 2–6

Ø DC mm: 2–25

S-Cut
→ Page 138–144

The all-rounder with soft cut and low power consumption

SC UNI



HB

ZEFP: 4–5

Ø DC mm: 3–25

3D Finish
→ Page 145–149

The specialist for 3D finish machining

N



HA

ZEFP: 2–4

Ø DC mm: 4–16

MultiLock
→ Page 181–187

The sustainable exchangeable head system

N



A
B

ZEFP: 4–6

Ø DC mm: 12–25

MultiChange
→ Page 188–193

The exchangeable head system for the highest demands and a wide range of applications

PCR | W | N



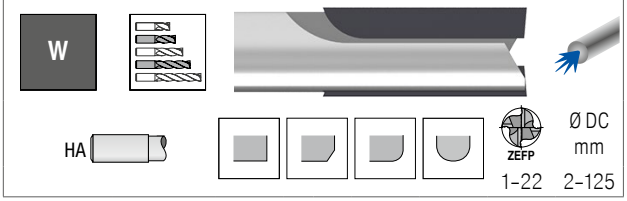
ZEFP: 3–6

Ø DC mm: 8–20

5 Full slot	6 Trochoidal milling	7 Plunge milling	8 Deburring
S-Cut SilverLine Micro-milling tools MultiLock / MultiChange	CircularLine		SilverLine MultiLock MultiChange
S-Cut SilverLine Micro-milling tools	CircularLine		SilverLine
S-Cut SilverLine Micro-milling tools MultiLock / MultiChange	CircularLine		SilverLine MultiLock MultiChange
AluLine PCD milling tools Micro-milling tools MultiChange	CircularLine	PCD milling tools	AluLine MultiChange
Micro-milling tools MultiLock	CircularLine		SilverLine
BlueLine Micro-milling tools	CircularLine		BlueLine
	CircularLine		BlueLine
PCD milling tools Micro-milling tools		PCD milling tools	AluLine

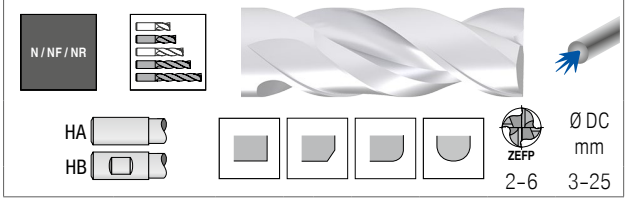
PCD milling tools
→ Page 107–119

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics



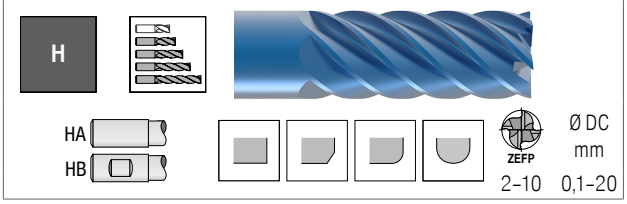
SilverLine
→ Page 120–137

The all-rounder for universal application



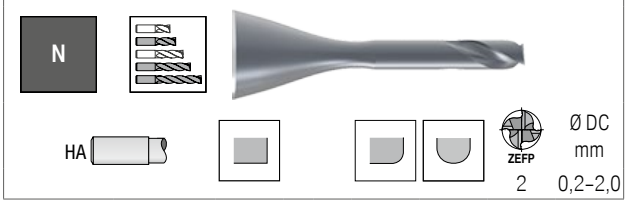
BlueLine
→ Page 150–176

The all-rounder for machining tempered steel up to 65 HRC

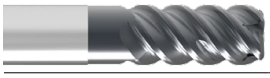
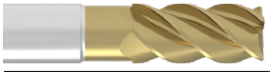
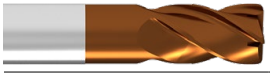
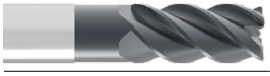
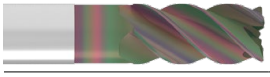
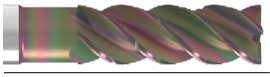
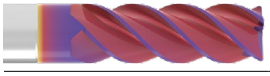


Micro-milling tools
→ Page 177–180

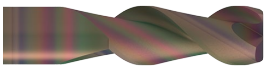
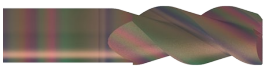
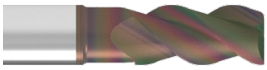
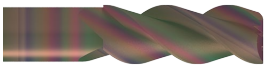
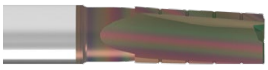
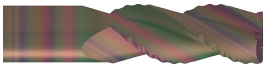
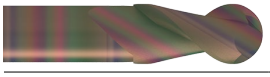
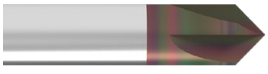
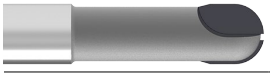
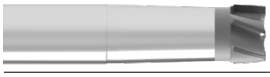
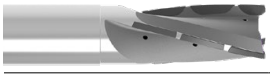
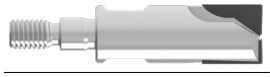
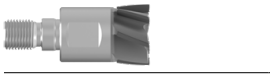
The universal milling cutter for micro-cutting



Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
MonsterMill																				
	SCR	4–6	3–20	●	○	●	○	○	○	○		■	■		■	HPC		■		17–22
	SCR	3–4	3–16	●	○	●	○	○	○	○				■	■	HPC		■		23
	SCR	4	3–16	●		●	○		○				■		■	HPC HFC	■	■		24
	ICR	3–5	1,5–20	○	●	○	○	●	○	○		■			■	HPC	■	■		25+26
	TCR	4–5	4–20	○	○			●					■		■	HPC		■	□	27–29
	TCR	4	2–16	○	○			●						■	■			■	□	30
	TCR	2–5	2–16	○	○			●					■		■	HPC HFC		■	□	31
	NCR	4–5	4–20		○			●					■		■	HPC		■		32–37
	HCR	2–4	0,2–12	○					●				■		■			■		38–41
	HCR	2–4	0,2–12	○					●					■	■			■		42–44
	PCR UNI	4	5–20	●	○	●							■		■	HPC		■		45–47
	PCR ALU	4	5–20				●						■		■	HPC		■		48+49
	MCR	3–4	1–20	●	○	●	○	○	○			■			■	HPC		■		50
CircularLine																				
	CCR UNI	5–6	6–20	●	○	●		○				■	■		■	HPC		■		51–60
	CCR AL	4	6–20				●					■	■		■			■		61–64
	CCR Ti	5	6–20	○	○			●					■		■	HPC		■	□	65
	CCR H	6	6–20						●				■		■			■		66

Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
AluLine																				
	W	2	2–20	HA			●		HB		■	■			■			■	□	67–72
	W	3	2–20	HA			●		HB		■	■			■			■	□	73–81
	W	3	2–20	HA			●		HB			■	■		■	HPC		■	□	82–88
	W	3	6–20	HA			●		HB				■		■		■	■	□	89–91
	W	4	2–25	HA			●		HB		■	■			■			■	□	92–97
	WF	3	3–20	HA			●		HB				■		■			■		98
	WR	3	6–20	HA			●		HB			■			■	HPC	■	■		99+100
	W	6	6–20	HA			●				■				■	HPC		■		101
	W	2	3–20	HA			●		HB	○				■	■			■	□	102–104
	W	4	4–16	HA			●		HB	●								■	□	105+106
PCD milling tools																				
	W	1–4	2–20	HA			●			●	■	■			■				□	107–109
	W	1–2	2–20	HA			●			●				■	■				□	110
	W	1–2	2–20	HA			●			●			■		■				□	111+112
	W	4–10	10–32	HA			●			●		■			■	HPC	■		□	113
	W	3	16–25	HA			●			●		■			■		■		□	114
	W	2–3	10–25				●			●			■				■		□	115
	W	2–6	10–32				●			●		■					■		□	116
	W	4–10	10–32				●			●		■				HPC	■		□	117
	W	2–3	10–16				●			●				■			■		□	118
	W	10–22	40–125				●			●							■		□	119

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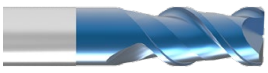
Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■	uncoated □	WNT \ Performance
SilverLine																				
	N	2	3–20	●	●	●	○	●								HPC		■		120
	N	3	3–20	●	●	●	○	●								HPC		■		121–123
	N	4	3–20	●	●	●	○	●								HPC		■		124–126
	N	4	6–20	●	●	●	○	●								HPC		■		127
	N	4	3–20	●	●	●	○	●								HPC		■		128+129
	NF	4	3–20	●	●	●	○	●								HPC		■		130
	NR	4	3–20	●	●	●	○	●								HPC		■		131
	N	6	6–25	●	●	○	○	●										■		132
	N	2	3–20	●		●	○			○								■		133
	N	4	4–20	●	○	●	○											■		134
	N	4	6–20	●	○	●	○			○						HPC HFC		■		135
	N	5	4–16	●	●	●		●										■	□	136+137
S-Cut																				
	SC UNI	4	3–25	●	●	●	○	○	○							HPC		■		138–142
	SC UNI	5	6–20	●	●	●		○								HPC		■		143
	SC NR	4	3–20	●	●	●		○								HPC		■		144
3D Finish																				
	N	4	10	●	●	●	●	●	○	●								■		145
	N	3–4	6–16	●	●	●	●	●	○	●								■		146
	N	3	6–16	●	●	●	●	●	○	●								■		147
	N	2	10	●	●	●	●	●	○	●								■		148
	N	3	4–12	●	●	●	●	●										■		149

Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■	uncoated □	WNT \ Performance
BlueLine																				
	H	2	0,2–3	● HA					●		■							■		150–152
	H	2	0,2–3	● HA					●					□				■		153–155
	H	2	0,4–3	● HA					●				■					■		156–159
	H	2	0,5–20	● HA					●			■						■		160
	H	4–6	1–20	● HA					● HB				■					■		161–163
	H	4–10	2–20	● HA					● HB		■		■					■		164+165
	H	2	0,1–20	○ HA					● HB					□				■		166–170
	H	3	3–12	● HA					●					□				■		171
	H	4	2–20	○ HA					● HB					□				■		172
	H	2	0,5–16	○ HA					● HB				■					■		173–175
	H	5–8	4–16	● HA					● HB									■		176
Micro-milling tools																				
	N	2	0,2–2	● HA	●	●	●	●	●	●	■							■		177
	N	2	0,2–2	● HA	●	●	●	●	●	●				□				■		178+179
	N	2	0,5–2	● HA	●	●	●	●	●	●			■					■		180

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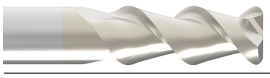
Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■	uncoated □	WNT \ Performance
MultiLock – exchangeable head system																				
	N	4	12–25	●	○	●	○	●						■				■		181
	N	4–6	12–25	●	○	●	○	●					■				■	■		182
	N	5–6	12–25	●	○	●		●					■			HFC	■	■		183
	N	4	12–16	●	○	●	○											■		184
MultiLock – Adapters and holders																				
				A						B										185–187
MultiChange – exchangeable head system																				
	PCR	4	9,7–20	●	○	●	●						■			HPC		■		189
	W	3	10–20				●						■					■		189
	N	3–4	8–20	●		●						■				HPC		■		190
	N	4–6	8–20	●	○	●	●					■						■		190
	N	6	8–20	●	○	●	●				■							■		191
	N	4	10–20	●	○	●	●			○				■				■		191
	N	4	8–20	●	○	●	●			○			■					■		191
	N	6	8–20	●	○	●							■			HFC	■	■		192
	N	4	8–20	●	○	●	●											■		192
	N	4–6	10–20	●	○	●	●											■		193

End Mills Overview

Tool type	Number of flutes	Diameter in mm	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Standard
	ZEFP	Ø DC																	

End Mills with Finishing Geometry

	W	2	0,2–6,0	HA		194+195
	W	2	2,7–25	HA HB	HPC	196–202
	W	3	3–25	HA HB	HPC	203–205
	W	4	6–20	HA HB	HPC	206+207
	W	5–7	6–20	HA	HPC	208
	N	2	0,2–20	HA HB		209–216
	N	3	3–20	HB		217
	N	3	0,5–20	HA HB		218–223
	N	4	1,5–25	HA HB	HPC	224–227
	N	4	2–12	HA	HPC	228
	N	4	3–20	HA HB		229
	N	4	3–20	HB	HPC	230–234
	N	6–8	4–32	HA HB		235–237
	N	5–13	4–25	HA		238
	N	8–16	6–20	HA		239
	H	4	4–20	HB		240+241
	H	6–8	4–32	HA HB		242+243

End Mills with Roughing and Finishing Geometry

	WF	4	5–20	HB		244
	NTR	3–4	6–20	HB		245

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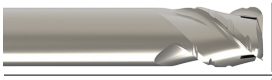
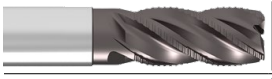
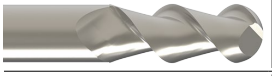
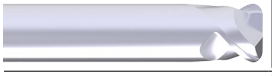
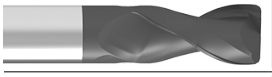
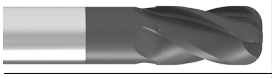
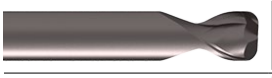
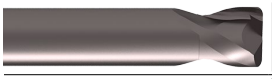
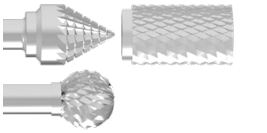
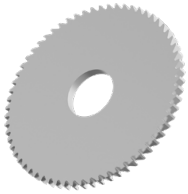
Overview of end milling, ball-nosed and torus cutters

Tool type	Number of flutes	Diameter in mm	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Standard
	ZEFP	Ø DC																	
End Mills with Roughing Geometry																			
	WR	3	3–20				●									HPC		■		246
	NR	4–6	3–25	●	●	●	○	●		○		●				HPC		■		247–250
	HR	4–5	6–25	●	●	●						●						■		251–253
Ball Nosed End Mills with Finishing Geometry																			
	W	2	0,5–12				●	○		●			●						□	254
	W	2	0,2–6				●						●					■		255+256
	W	2	3–20				●						●			HPC		■	□	257
	W	2	0,5–12				●			●			●					■		258+259
	N	2	0,1–20	●	○	●	○	○	○	○			●					■	□	260–265
	N	2	1–12	●	○	●	○	○	○	○			●					■		266
	N	2	3–20	●	●	○	○	●					●			HPC		■		267
	N	4	3–20	●	●	●	●	●	○	●			●			HPC		■	□	268–270
	H	2	0,2–20	●	○	●	○	○	○	○			●					■		271–273
Ball Nosed End Mills with Roughing Geometry																			
	NR	4	6–20	●	○	●	○	○		○			●					■		274
Torus Milling Cutters with Finishing Geometry																			
	W	2	0,2–12				●					●						■		275–278
	W	2	2–12				●			●		●						■		279
	W	4	4–12				●			●		●						■		280+281
	N	2	0,5–16	●	○	●	○	○	○	○		●						■		282
	H	2	0,2–12	●	○	●	○	○	○	○		●						■		283–286
	H	4–8	3–16	●		○			●			●						■		287

Overview Special Milling Cutters

	Tool type	Number of flutes	Diameter in mm	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance	WNT \ Standard
		ZEFP	Ø DC															■	□		
Intermediate Size Torus End Mills																					
	H	4	7–17	●	●	○	●	●		●			■		■			■			288
				HA																	
High Feed Cutter																					
	N	4	6–16	●	○	○	○	○	●				■		■	HFC		■			289+290
				HA																	
Form / Chamfering and Die Sinking / Deburring Cutters																					
	W	1	3–6	○	○	○	●	○		●									□		291
				HA																	
	N	4	4–12	●	○	●	○	○	○	●								■	□		292
								HB													
	N	4	4–12	●	○	●	○	○	○	●								■	□		293
								HB													
	N	4	3–12	●	○	●	○	○	○	●								■	□		294
				HA																	
	N	4	6–10	●	○	●	○	○	○	●								■			295
				HA																	
	N	4–6	2–16	●	○	●	○	○	○	●								■			296–298
				HA					HB												
	N	6–10	11–40	●	○	●												■			299
									HB												
			3–16																□		300+301
Circular saw blades																					
		24–160	15–63	●	●	●	●	●		●									□		302+303
		24–160	80–200	●	●	●	●	●		●									□		
Cylindrical shank adapter for circular saw blades																					
																					304

This article can be found in our online shop at cuttingtools.ceratizit.com

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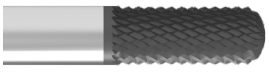
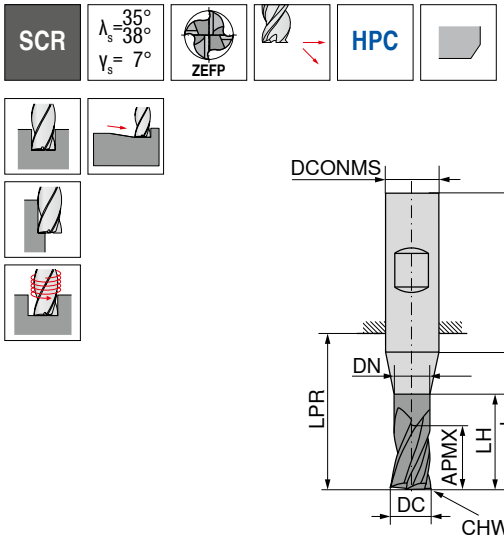
Overview Special Milling Cutters

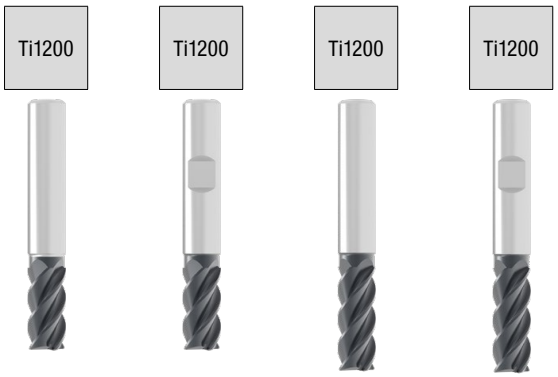
Plastics-GFK-CFK-Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■	uncoated □	WNT \ Standard
	W		2–20	HA						●									□	306
	W		2–20	HA						●									□	307
	W		2–20	HA						●								■		308
	W		5–16	HA						●								■		309
	W		6–44	HA						●								■		310
	W	2	2–12	HA			●			●								■		311
	W	1	1,5–20	HA			●			●									□	312
	W	1	1,5–12	HA			●			●								■		313
	W	2	2–12	HA			●			●								■		314
	W	3	3–20	HA			●			●								■		315
	N	2	2–12	HA	●	○	●	○	○		●								□	316

MonsterMill – End milling cutter

SCR | λ_s=35° γ_s= 7° | ZEFP | HPC







DIN 6527 | DIN 6527 | DIN 6527 | DIN 6527

HA | HB | HA | HB

DC $_{f8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	CHW mm	ZEFP	52 600 ... £ V2		52 601 ... £ V2		52 602 ... £ V2		52 603 ... £ V2	
3.0	5	2.9	9	14	14	50	6	0.07	4	57.14	**030**	57.14	**030**				
3.0	8	2.9	14	20	22	58	6	0.07	4					57.14	**030**	57.14	**030**
3.5	5	3.4	9	14	14	50	6	0.07	4	57.14	**035**	57.14	**035**				
3.5	8	3.4	14	20	22	58	6	0.07	4					57.14	**035**	57.14	**035**
4.0	8	3.8	12	18	18	54	6	0.07	4	57.14	**040**	57.14	**040**				
4.0	11	3.8	18	20	22	58	6	0.07	4					57.14	**040**	57.14	**040**
4.5	9	4.3	12	18	18	54	6	0.07	4	58.39	**045**	58.39	**045**				
4.5	13	4.3	18	20	22	58	6	0.07	4					58.39	**045**	58.39	**045**
5.0	9	4.8	16	18	18	54	6	0.07	4	58.39	**050**	58.39	**050**				
5.0	13	4.8	19	20	22	58	6	0.07	4					58.39	**050**	58.39	**050**
5.5	9	5.3	16	18	18	54	6	0.07	4	56.45	**055**	56.45	**055**				
5.5	13	5.3	19	20	22	58	6	0.07	4					56.45	**055**	56.45	**055**
6.0	10	5.8		16	18	54	6	0.07	4	56.45	**060**	56.45	**060**				
6.0	13	5.8		20	22	58	6	0.07	4					56.45	**060**	56.45	**060**
6.5	12	6.3	18	20	23	59	8	0.07	4	75.13	**065**	75.13	**065**				
6.5	19	6.3	23	25	28	64	8	0.07	4					75.13	**065**	75.13	**065**
7.0	12	6.8	18	20	23	59	8	0.07	4	75.13	**070**	75.13	**070**				
7.0	19	6.8	23	25	28	64	8	0.07	4					75.13	**070**	75.13	**070**
7.5	12	7.3	18	20	23	59	8	0.12	4	75.13	**075**	75.13	**075**				
7.5	19	7.3	23	25	28	64	8	0.12	4					75.13	**075**	75.13	**075**
8.0	12	7.7		20	23	59	8	0.12	4	75.13	**080**	75.13	**080**				
8.0	19	7.7		25	28	64	8	0.12	4					75.13	**080**	75.13	**080**
8.5	15	8.2	22	24	27	67	10	0.20	4	98.08	**085**	98.08	**085**				
8.5	22	8.2	28	30	33	73	10	0.20	4					98.08	**085**	98.08	**085**
9.0	15	8.7	22	24	27	67	10	0.20	4	98.08	**090**	98.08	**090**				
9.0	22	8.7	28	30	33	73	10	0.20	4					98.08	**090**	98.08	**090**
9.5	15	9.2	22	24	27	67	10	0.20	4	98.08	**095**	98.08	**095**				
9.5	22	9.2	28	30	33	73	10	0.20	4					98.08	**095**	98.08	**095**
10.0	15	9.5		24	27	67	10	0.20	4	98.08	**100**	98.08	**100**				
10.0	22	9.5		30	33	73	10	0.20	4					98.08	**100**	98.08	**100**
11.0	18	10.5	24	26	28	73	12	0.20	4	155.10	**110**	155.10	**110**				
11.0	26	10.5	32	35	39	84	12	0.20	4					155.10	**110**	155.10	**110**
11.5	18	11.0	24	26	28	73	12	0.20	4	155.10	**115**	155.10	**115**				
11.5	26	11.0	32	35	39	84	12	0.20	4					155.10	**115**	155.10	**115**
12.0	18	11.5		26	28	73	12	0.20	4	155.10	**120**	155.10	**120**				
12.0	26	11.5		35	39	84	12	0.20	4					155.10	**120**	155.10	**120**
14.0	21	13.5		28	30	75	14	0.20	4	199.09	**140**	199.09	**140**				
14.0	26	13.5		35	39	84	14	0.20	4					199.09	**140**	199.09	**140**
15.0	24	14.5	30	32	35	83	16	0.20	4	245.98	**150**	245.98	**150**				
15.0	32	14.5	38	40	45	93	16	0.20	4					245.98	**150**	245.98	**150**
15.5	24	15.0	30	32	35	83	16	0.20	4	245.98	**155**	245.98	**155**				

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

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f_z Page 318+319

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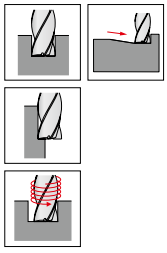
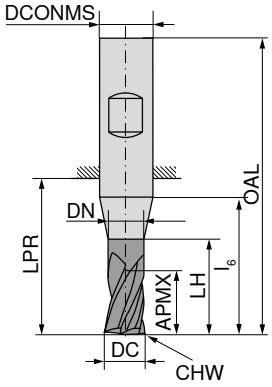
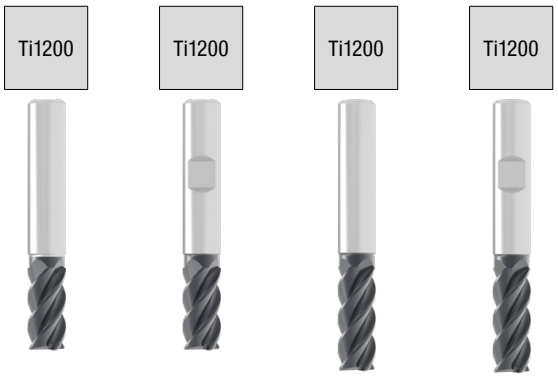
Continued on next page

MonsterMill – End milling cutter

SCR | λ_s=35° γ_s= 7° | ZEFP | HPC









DIN 6527 | DIN 6527 | DIN 6527 | DIN 6527

HA | HB | HA | HB

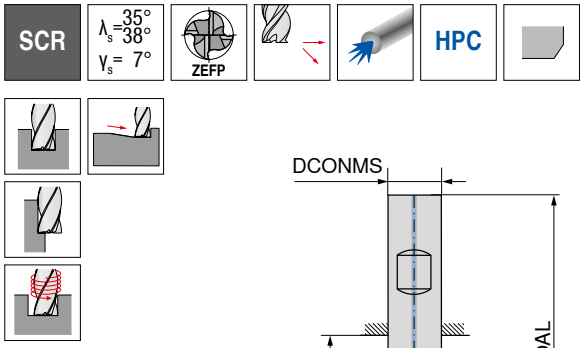
DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	52 600 ... £ V2		52 601 ... £ V2		52 602 ... £ V2		52 603 ... £ V2	
15.5	32	15.0	38	40	45	93	16	0.20	4					245.98	155	245.98	155
16.0	24	15.5		32	35	83	16	0.20	4	245.98	160	245.98	160				
16.0	24	15.5		32	35	83	16	0.20	5	258.87	161 1)	258.87	161 1)				
16.0	32	15.5		40	45	93	16	0.20	5					258.87	161 1)	258.87	161 1)
16.0	32	15.5		40	45	93	16	0.20	4					245.98	160	245.98	160
17.0	27	16.5	32	34	37	85	18	0.20	4	334.52	170	334.52	170				
17.0	32	16.5	48	50	52	100	18	0.20	4					334.52	170	334.52	170
18.0	27	17.5		34	37	85	18	0.20	4	334.52	180	334.52	180				
18.0	27	17.5		34	37	85	18	0.20	5	352.22	181 1)	352.22	181 1)				
18.0	32	17.5		50	52	100	18	0.20	5					352.22	181 1)	352.22	181 1)
18.0	32	17.5		50	52	100	18	0.20	4					334.52	180	334.52	180
19.0	30	18.5	38	40	43	93	20	0.30	4	379.48	190	379.48	190				
19.0	38	18.5	48	50	54	104	20	0.30	4					379.48	190	379.48	190
19.5	30	19.0	38	40	43	93	20	0.30	4	379.48	195	379.48	195				
19.5	38	19.0	48	50	54	104	20	0.30	4					379.48	195	379.48	195
20.0	30	19.5		40	43	93	20	0.30	4	379.48	200	379.48	200				
20.0	30	19.5		40	43	93	20	0.30	5	399.40	201 1)	399.40	201 1)				
20.0	38	19.5		50	54	104	20	0.30	5					399.40	201 1)	399.40	201 1)
20.0	38	19.5		50	54	104	20	0.30	4					379.48	200	379.48	200

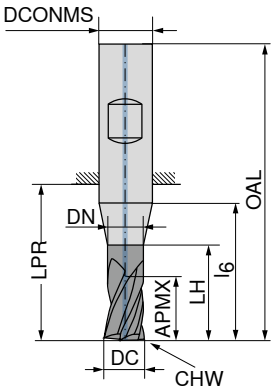
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f_z Page 318+319

MonsterMill – End milling cutter





Ti1200





DIN 6527

HB 

52 606 ...

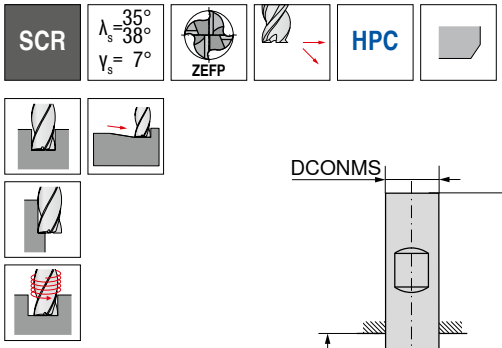
DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	£ V2	
3	8	2.9	14	20	22	58	6	0.07	4	70.01	**030**
4	11	3.8	18	20	22	58	6	0.07	4	70.01	**040**
5	13	4.8	19	20	22	58	6	0.07	4	71.25	**050**
6	13	5.8		20	22	58	6	0.07	4	69.31	**060**
8	19	7.7		25	28	64	8	0.12	4	90.49	**080**
10	22	9.5		30	33	73	10	0.20	4	116.20	**100**
12	26	11.5		35	39	84	12	0.20	4	184.29	**120**
14	26	13.5		35	39	84	14	0.20	4	253.87	**140**
16	32	15.5		40	45	93	16	0.20	4	311.28	**160**
18	32	17.5		50	52	100	18	0.20	4	430.68	**180**
20	38	19.5		50	54	104	20	0.30	4	499.58	**200**

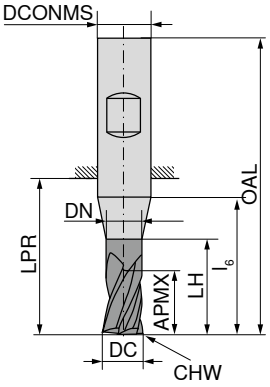
P	●
M	○
K	●
N	○
S	○
H	○
O	○

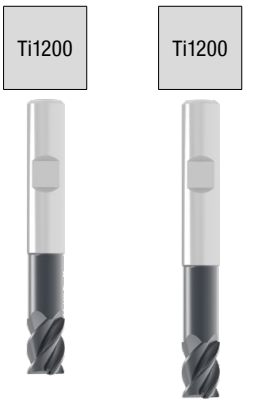
→ v_c/f_z Page 318+319

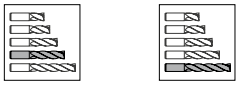
MonsterMill – End milling cutter

SCR | λ_s=35° γ_s= 7° | ZEFP | HPC









Factory standard | Factory standard

HB | HB

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	52 604 ... £ V2		52 605 ... £ V2	
3	5	2.9	14	20	22	58	6	0.07	4	57.14	030		
3	5	2.9	19	23	26	62	6	0.07	4			66.70	030
4	8	3.8	18	20	22	58	6	0.07	4	57.14	040		
4	8	3.8	23	25	26	62	6	0.07	4			66.70	040
5	9	4.8	19	20	22	58	6	0.07	4	58.39	050		
5	9	4.8	24	25	26	62	6	0.07	4			67.95	050
6	10	5.8		20	22	58	6	0.07	4	56.45	060		
6	10	5.8		25	26	62	6	0.07	4			65.99	060
8	12	7.7		25	28	64	8	0.12	4	75.13	080		
8	12	7.7		30	32	68	8	0.12	4			87.16	080
10	15	9.5		30	33	73	10	0.20	4	98.08	100		
10	15	9.5		35	40	80	10	0.20	4			112.90	100
12	18	11.5		35	39	84	12	0.20	4	155.10	120		
12	18	11.5		45	48	93	12	0.20	4			177.64	120
14	21	13.5		35	39	84	14	0.20	4	199.09	140		
14	21	13.5		50	54	99	14	0.20	4			241.02	140
16	24	15.5		40	45	93	16	0.20	4	245.98	160		
16	24	15.5		40	45	93	16	0.20	5	258.87	161 [1]		
16	24	15.5		55	60	108	16	0.20	4			291.35	160
16	24	15.5		55	60	108	16	0.20	5			304.92	161 [1]
18	27	17.5		50	52	100	18	0.20	4	334.52	180		
18	27	17.5		50	52	100	18	0.20	5	352.22	181 [1]		
18	27	17.5		60	66	114	18	0.20	4			414.23	180
18	27	17.5		60	66	114	18	0.20	5			432.74	181 [1]
20	30	19.5		50	54	104	20	0.30	4	379.48	200		
20	30	19.5		50	54	104	20	0.30	5	399.40	201 [1]		
20	30	19.5		70	76	126	20	0.30	4			464.70	200
20	30	19.5		70	76	126	20	0.30	5			485.59	201 [1]

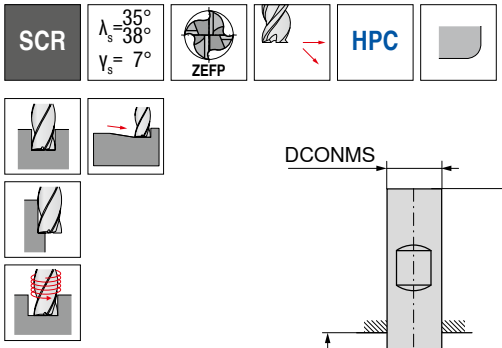
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f_z Page 318–321

MonsterMill – End milling cutter with corner radius

SCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC



Ti1200



Factory standard

HB

52 607 ...

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V2	
3	0.10	8	2.9	14	20	22	58	6	4	64.76	030
3	0.30	8	2.9	14	20	22	58	6	4	64.76	031
3	0.50	8	2.9	14	20	22	58	6	4	64.76	032
4	0.10	11	3.8	18	20	22	58	6	4	64.76	040
4	0.40	11	3.8	18	20	22	58	6	4	64.76	041
4	0.50	11	3.8	18	20	22	58	6	4	64.76	042
5	0.10	13	4.8	19	20	22	58	6	4	66.14	050
5	0.50	13	4.8	19	20	22	58	6	4	66.14	051
5	1.00	13	4.8	19	20	22	58	6	4	66.14	052
6	0.10	13	5.8		20	22	58	6	4	64.05	060
6	0.50	13	5.8		20	22	58	6	4	64.05	061
6	1.00	13	5.8		20	22	58	6	4	64.05	062
8	0.15	19	7.7		25	28	64	8	4	85.08	080
8	0.50	19	7.7		25	28	64	8	4	85.08	081
8	1.00	19	7.7		25	28	64	8	4	85.08	082
8	2.00	19	7.7		25	28	64	8	4	85.08	083
10	0.15	22	9.5		30	33	73	10	4	111.25	100
10	0.50	22	9.5		30	33	73	10	4	111.25	101
10	1.00	22	9.5		30	33	73	10	4	111.25	102
10	1.50	22	9.5		30	33	73	10	4	111.25	103
10	2.00	22	9.5		30	33	73	10	4	111.25	104
12	0.20	26	11.5		35	39	84	12	4	175.84	120
12	0.50	26	11.5		35	39	84	12	4	175.84	121
12	1.00	26	11.5		35	39	84	12	4	175.84	122
12	1.50	26	11.5		35	39	84	12	4	175.84	123
12	2.00	26	11.5		35	39	84	12	4	175.84	124
14	1.00	26	13.5		35	39	84	14	4	225.77	140
16	0.30	32	15.5		40	45	93	16	4	278.91	160
16	0.50	32	15.5		40	45	93	16	4	278.91	161
16	1.00	32	15.5		40	45	93	16	4	278.91	162
16	2.00	32	15.5		40	45	93	16	4	278.91	163
16	4.00	32	15.5		40	45	93	16	4	278.91	164
20	0.30	38	19.5		50	54	104	20	4	430.27	200
20	0.50	38	19.5		50	54	104	20	4	430.27	201
20	1.00	38	19.5		50	54	104	20	4	430.27	202
20	2.00	38	19.5		50	54	104	20	4	430.27	203

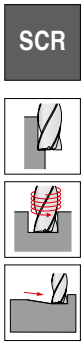
P	●
M	○
K	●
N	○
S	○
H	○
O	○

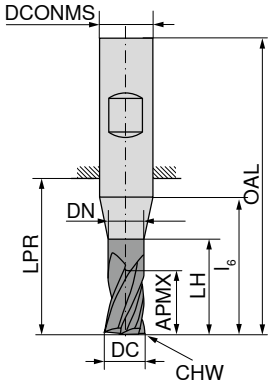
→ v_c/f_z Page 318+319

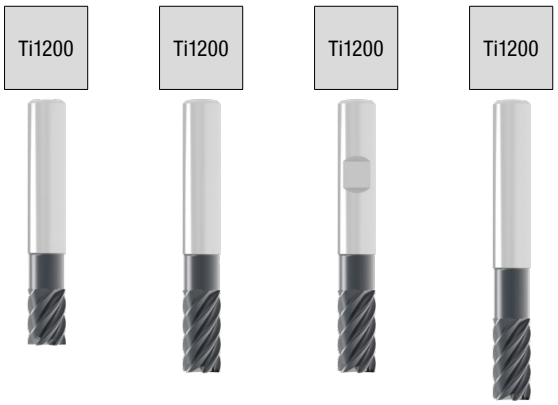
14

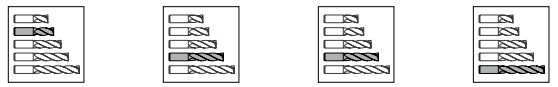
MonsterMill – End milling cutter

SCR | λ_s=35° γ_s= 7° | ZEFP | HPC









DIN 6527 | DIN 6527 | DIN 6527 | Factory standard

HA | HA | HB | HA

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	52 608 ... £ V2		52 608 ... £ V2		52 608 ... £ V2		52 608 ... £ V2	
5	9	4.8	16	18	18	54	6	0.12	6	76.51	050						
5	13	4.8	19	20	22	58	6	0.12	6			76.51	051				
5	13	4.8	24	25	26	62	6	0.12	6							86.91	052
6	10	5.8		16	18	54	6	0.12	6	74.15	060						
6	13	5.8		20	22	58	6	0.12	6			74.15	061				
6	13	5.8		25	26	62	6	0.12	6							84.40	062
8	12	7.7		20	23	59	8	0.12	6	98.49	080						
8	19	7.7		25	28	64	8	0.12	6			98.49	081				
8	19	7.7		30	32	68	8	0.12	6							111.51	082
10	15	9.5		24	27	67	10	0.20	6	128.66	100						
10	22	9.5		30	33	73	10	0.20	6			128.66	101	128.66	103		
10	22	9.5		35	40	80	10	0.20	6							144.45	102
12	18	11.5		26	28	73	12	0.20	6	203.51	120						
12	26	11.5		35	39	84	12	0.20	6			203.51	121	203.51	123		
12	26	11.5		45	48	93	12	0.20	6							227.31	122
16	24	15.5		32	35	83	16	0.20	6	322.76	160						
16	32	15.5		40	45	93	16	0.20	6			322.76	161	322.76	163		
16	32	15.5		55	60	108	16	0.20	6							372.98	162
20	30	19.5		40	43	93	20	0.30	6	498.04	200						
20	38	19.5		50	54	104	20	0.30	6			498.04	201	498.04	203		
20	38	19.5		70	76	126	20	0.30	6							594.76	202

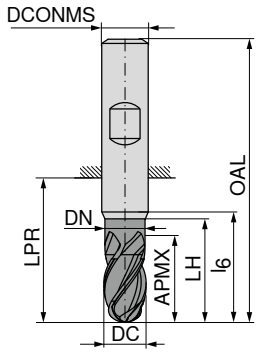
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

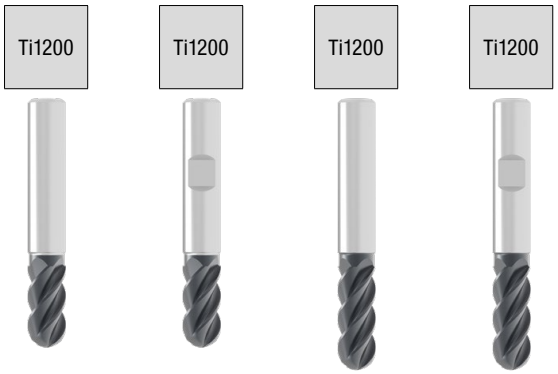
→ v_c/f_z Page 318–321

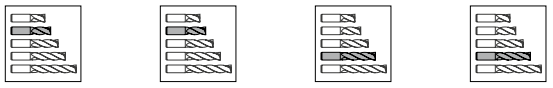
MonsterMill – Ball Nosed Cutter

▲ Radius accuracy: - 0,015 mm for Ø ≤ 6,0 mm / - 0,02 mm for Ø > 6,0 mm

SCR | λ_s=35° λ_s=38° γ_s= 7° | ZEFP | HPC







									DIN 6527 HA		DIN 6527 HB		DIN 6527 HA		DIN 6527 HB	
									52 611 ...		52 611 ...		52 612 ...		52 612 ...	
DC $_{f8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	£ V2		£ V2		£ V2		£ V2	
3	5	2.9	9	14	14	50	6	3	58.28	030						
3	8	2.9	14	20	22	58	6	3					60.52	030		
4	11	3.8	18	20	22	58	6	3					60.52	040		
4	8	3.8	12	18	18	54	6	3	58.28	040						
5	13	4.8	19	20	22	58	6	3					61.57	050		
5	9	4.8	16	18	18	54	6	3	59.33	050						
6	10	5.8		16	18	54	6	4	59.19	060	59.19	061				
6	13	5.8		20	22	58	6	4					61.52	060	61.52	061
8	19	7.7		25	28	64	8	4					81.70	080	81.70	081
8	12	7.7		20	23	59	8	4	78.71	080	78.71	081				
10	22	9.5		30	33	73	10	4					106.67	100	106.67	101
10	15	9.5		24	27	67	10	4	102.70	100	102.70	101				
12	26	11.5		35	39	84	12	4					169.13	120	169.13	121
12	18	11.5		26	28	73	12	4	162.31	120	162.31	121				
16	32	15.5		40	45	93	16	4					267.33	160	267.33	161
16	24	15.5		32	35	83	16	4	257.79	160	257.79	161				
P									●		●		●		●	
M									○		○		○		○	
K									●		●		●		●	
N									○		○		○		○	
S									○		○		○		○	
H									○		○		○		○	
O									○		○		○		○	

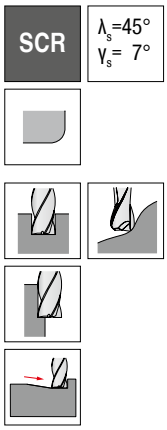
→ v_c/f_z Page 318+319

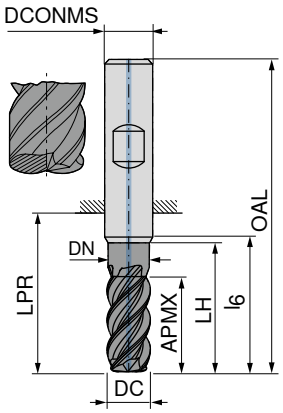
14

MonsterMill – Torus Face Milling Cutter

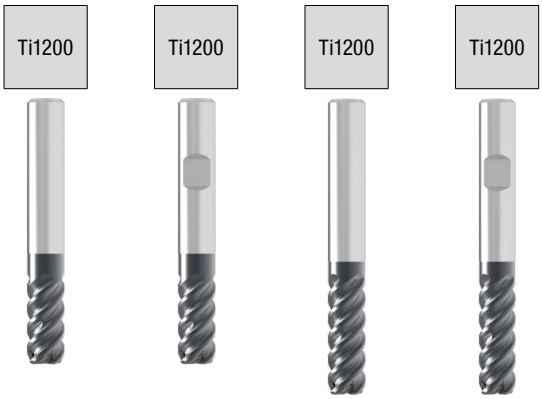
▲ r_{3D} = programmed corner radius

SCR | λ_s=45° γ_s= 7° | ZEFP | HFC | HPC | ≤ 60 HRC





LPR with Shank DIN 6535 HB





DIN 6527 | DIN 6527 | DIN 6527 | DIN 6527

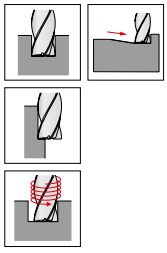
HA | HB | HA | HB

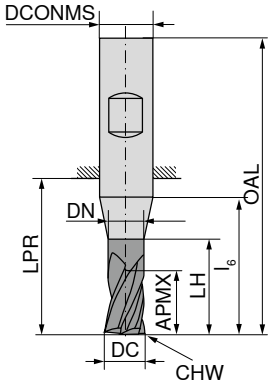
DC -0.04 mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	l_6 mm	DCONMS h5 mm	$T_{max.}$ mm	ZEFP	52 609 ... £ V2		52 609 ... £ V2		52 610 ... £ V2		52 610 ... £ V2	
3	0.4	3	2.9	14.00	21	57	20	6	0.10	4	124.08	030	124.08	031				
4	0.5	4	3.8	18.00	21	57	20	6	0.15	4	127.19	040	127.19	041				
5	0.6	5	4.8	18.00	21	57	20	6	0.20	4	140.30	050	140.30	051				
6	0.8	13	5.8	19.90	21	57	20	6	0.20	4	128.88	060	128.88	061				
8	1.0	19	7.7	24.85	27	63	25	8	0.30	4	148.08	080	148.08	081				
8	1.0	19	7.7	29.85	32	68	30	8	0.30	4					175.36	080	175.36	081
10	1.2	22	9.5	29.75	32	72	30	10	0.40	4	175.36	100	175.36	101				
10	1.2	22	9.5	34.75	40	80	35	10	0.40	4					185.76	100	185.76	101
12	1.6	26	11.5	34.75	38	83	35	12	0.40	4	223.41	120	223.41	121				
12	1.6	26	11.5	44.75	47	93	45	12	0.40	4					244.21	120	244.21	121
16	2.2	32	15.5	39.75	44	92	40	16	0.50	4	352.03	160	352.03	161				
16	2.2	32	15.5	54.75	60	108	55	16	0.50	4					371.53	160	371.53	161
P												●		●		●		●
M																		
K												●		●		●		●
N																		
S																		
H												○		○		○		○
O																		

→ v_c/f_z Page 322–325

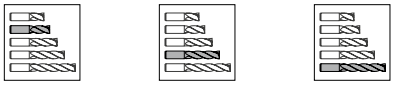
MonsterMill – End milling cutter

ICR | λ_s=40° γ_s=10° | ZEFP | HPC









	DIN 6527	Factory standard	Factory standard
	HB	HB	HB
	52 784 ...	52 784 ...	52 784 ...

DC_{e8} mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	$DCONMS_{h6}$ mm	CHW mm	ZEFP	£ V1		£ V1		£ V1	
1.5	2.3	1.4	6	14	21	57	6	0.04	3	67.50	**017**				
2.0	3.0	1.9	8	15	21	57	6	0.04	3	67.50	**022**				
2.5	3.8	2.4	10	16	21	57	6	0.07	3	67.50	**027**				
3.0	5.0	2.9	14	18	21	57	6	0.07	3	67.50	**032**				
3.0	8.0	2.9	14	18	21	57	6	0.07	3			70.71	**034**		
3.0	5.0	2.9	19	23	26	62	6	0.07	3					70.71	**036**
4.0	8.0	3.8	18	20	21	57	6	0.07	3	67.50	**042**				
4.0	11.0	3.8	18	20	21	57	6	0.07	3			72.63	**044**		
4.0	8.0	3.8	23	25	26	62	6	0.07	3					72.63	**046**
5.0	9.0	4.8	19	20	21	57	6	0.12	3	67.50	**052**				
5.0	13.0	4.8	19	20	21	57	6	0.12	3			72.63	**054**		
5.0	9.0	4.8	24	25	26	62	6	0.12	3					72.63	**056**
6.0	10.0	5.8	20		21	57	6	0.12	4	98.20	**062**				
6.0	13.0	5.8	20		21	57	6	0.12	4			98.20	**064**		
6.0	10.0	5.8	25		26	62	6	0.12	4					98.20	**066**
8.0	12.0	7.7	25		27	63	8	0.12	4	115.98	**082**				
8.0	19.0	7.7	25		27	63	8	0.12	4			115.98	**084**		
8.0	12.0	7.7	30		32	68	8	0.12	4					115.98	**086**
10.0	15.0	9.5	30		32	72	10	0.20	4	148.93	**102**				
10.0	22.0	9.5	30		32	72	10	0.20	4			148.93	**104**		
10.0	15.0	9.5	35		40	80	10	0.20	4					148.93	**106**
12.0	18.0	11.5	35		38	83	12	0.20	4	212.31	**122**				
12.0	26.0	11.5	35		38	83	12	0.20	4			212.31	**124**		
12.0	18.0	11.5	45		48	93	12	0.20	4					212.31	**126**
14.0	21.0	13.5	35		38	83	14	0.20	4	279.87	**142**				
14.0	26.0	13.5	35		38	83	14	0.20	4			279.87	**144**		
14.0	21.0	13.5	50		54	99	14	0.20	4					293.86	**146**
16.0	24.0	15.5	40		44	92	16	0.20	4	291.68	**161**				
16.0	24.0	15.5	40		44	92	16	0.20	5	321.86	**162** [1]				
16.0	32.0	15.5	40		44	92	16	0.20	4			309.67	**163**		
16.0	32.0	15.5	40		44	92	16	0.20	5			321.86	**164** [1]		
16.0	24.0	15.5	55		60	108	16	0.20	4					319.31	**165**
16.0	24.0	15.5	55		60	108	16	0.20	5					321.86	**166** [1]
18.0	27.0	17.5	40		44	92	18	0.20	4	378.79	**181**				
18.0	27.0	17.5	40		44	92	18	0.20	5	424.18	**182** [1]				
18.0	32.0	17.5	40		44	92	18	0.20	4			400.98	**183**		
18.0	32.0	17.5	40		44	92	18	0.20	5			424.18	**184** [1]		
18.0	27.0	17.5	60		66	114	18	0.20	4					434.02	**185**
18.0	27.0	17.5	60		66	114	18	0.20	5					424.18	**186** [1]
20.0	30.0	19.5	50		54	104	20	0.30	4	440.97	**201**				
20.0	30.0	19.5	50		54	104	20	0.30	5	480.09	**202** [1]				
20.0	38.0	19.5	50		54	104	20	0.30	4			467.17	**203**		
20.0	38.0	19.5	50		54	104	20	0.30	5			504.07	**204** [1]		
20.0	30.0	19.5	70		76	126	20	0.30	4					493.47	**205**
20.0	30.0	19.5	70		76	126	20	0.30	5					504.07	**206** [1]

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

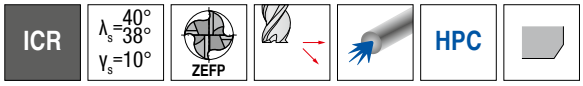
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

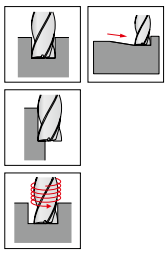
→ v_c/f_z Page 326–331

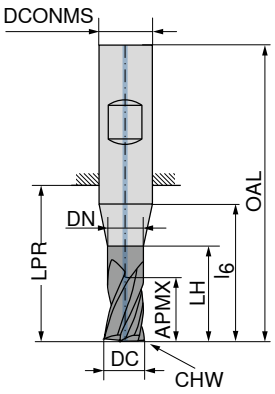
14

MonsterMill – End milling cutter

▲ with axial through coolant













DIN 6527

HB 

52 786 ...

DC e8 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1	
3	8	2.9	14	18	21	57	6	0.07	3	77.83	**034**
4	11	3.8	18	20	21	57	6	0.07	3	77.83	**044**
5	13	4.8	19	20	21	57	6	0.12	3	81.51	**054**
6	13	5.8	20		21	57	6	0.12	4	106.88	**064**
8	19	7.7	25		27	63	8	0.12	4	128.25	**084**
10	22	9.5	30		32	72	10	0.20	4	159.60	**104**
12	26	11.5	35		38	83	12	0.20	4	229.41	**124**
14	26	13.5	35		38	83	14	0.20	4	314.22	**144**
16	32	15.5	40		44	92	16	0.20	4	353.87	**163**
16	32	15.5	40		44	92	16	0.20	5	344.14	**164** 1)
18	32	17.5	40		44	92	18	0.20	4	467.17	**183**
18	32	17.5	40		44	92	18	0.20	5	471.30	**184** 1)
20	38	19.5	50		54	104	20	0.30	4	551.52	**203**
20	38	19.5	50		54	104	20	0.30	5	523.69	**204** 1)

P	○
M	●
K	○
N	○
S	●
H	○
O	○

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

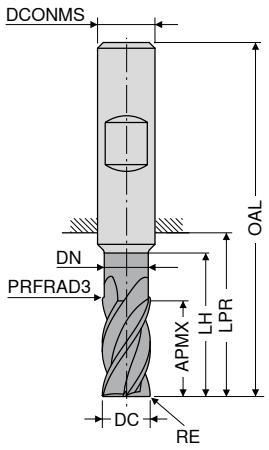
→ v_c/f_z Page 326–329

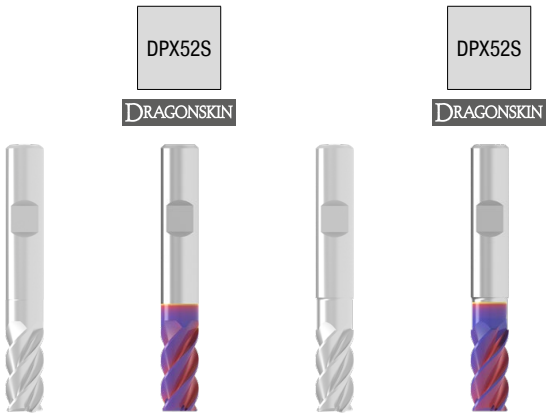
MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

TCR | λ_s=40° γ_s=10° | ZEFP | HPC







DC e8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	Factory standard HB	£ V1	52 503 ...	Factory standard HB	£ V1	52 504 ...	Factory standard HB	£ V1	52 505 ...	Factory standard HB	£ V1	52 506 ...
4	0.1	11		14	21	57	6	4		59.69	04000		67.70	04000						
4	0.1	11	3.8	17	21	57	6	5								65.01	04000[1)]		73.02	04000[1)]
5	0.1	13		16	21	57	6	4		59.69	05000		67.70	05000						
5	0.1	13	4.8	19	21	57	6	5								67.98	05000[1)]		75.99	05000[1)]
6	0.1	13			21	57	6	4		59.69	06000		67.70	06000						
6	0.1	13	5.8	19	21	57	6	5								67.98	06000[1)]		75.99	06000[1)]
8	0.2	21			27	63	8	4		82.80	08000		94.11	08000						
8	0.2	21	7.7	25	27	63	8	5								82.80	08000[1)]		94.11	08000[1)]
10	0.2	22			32	72	10	4		100.62	10000		114.59	10000						
10	0.2	22	9.7	30	32	72	10	5								119.07	10000[1)]		133.01	10000[1)]
12	0.2	26			38	83	12	4		107.76	12000		123.55	12000						
12	0.2	26	11.6	36	38	83	12	5								149.99	12000[1)]		165.63	12000[1)]
16	0.3	36			44	92	16	4		187.09	16000		206.37	16000						
16	0.3	36	15.5	42	44	92	16	5								206.86	16000[1)]		226.25	16000[1)]
20	0.3	41			54	104	20	4		272.57	20000		296.34	20000						
20	0.3	41	19.5	52	54	104	20	5								332.84	20000[1)]		356.60	20000[1)]
P										○			○			○			○	
M										○			○			○			○	
K																				
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S										●			●			●			●	
H																				
O																				

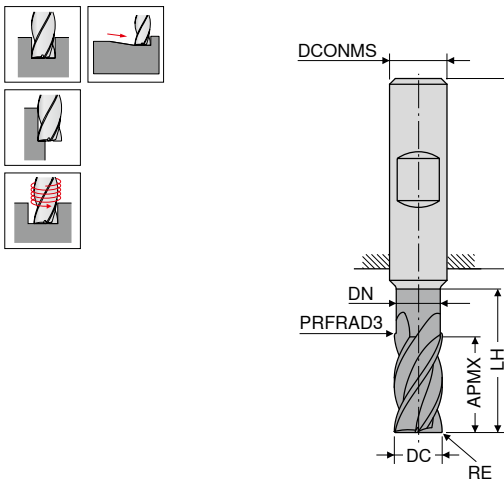
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

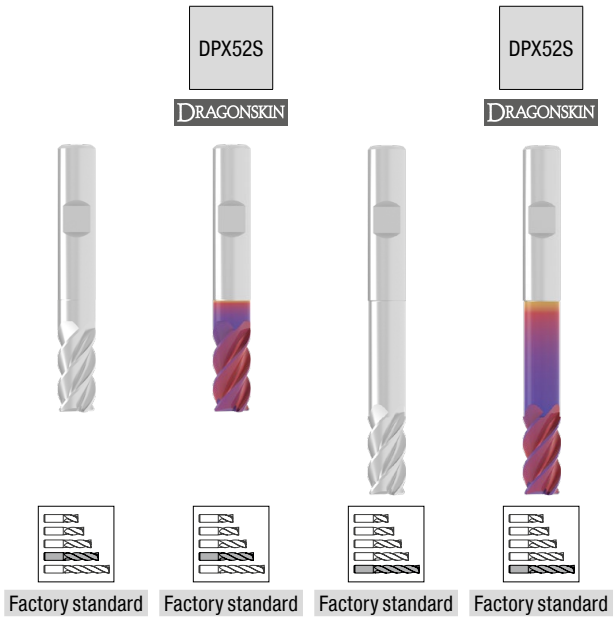
→ v_c/f_z Page 332+333

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

TCR | λ_s=40° γ_s=10° | ZEFP | HPC





									Factory standard	Factory standard	Factory standard	Factory standard
									HB	HB	HB	HB
									52 507 ...	52 508 ...	52 507 ...	52 508 ...
DC $_{e8}$ mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	£ V1	£ V1	£ V1	£ V1
4	0.4	8.5	3.8	20	26	62	6	4			62.64 04104	70.65 04104
4	0.5	8.5	3.8	20	26	62	6	4			62.64 04105	70.65 04105
4	0.8	8.5	3.8	20	26	62	6	4			62.64 04108	70.65 04108
4	0.2	11.0		14	21	57	6	4	59.69 04002	67.70 04002		
4	0.4	11.0		14	21	57	6	4	59.69 04004	67.70 04004		
4	0.5	11.0		14	21	57	6	4	59.69 04005	67.70 04005		
5	0.5	10.5	4.8	25	34	70	6	4			70.36 05105	78.37 05105
5	0.8	10.5	4.8	25	34	70	6	4			70.36 05108	78.37 05108
5	0.5	13.0		16	21	57	6	4	62.64 05005	70.65 05005		
5	1.0	13.0		16	21	57	6	4	62.64 05010	70.65 05010		
6	0.4	13.0			21	57	6	4	62.64 06004	70.65 06004		
6	0.5	13.0			21	57	6	4	62.64 06005	70.65 06005		
6	0.6	13.0			21	57	6	4	62.64 06006	70.65 06006		
6	0.6	13.0	5.8	30	34	70	6	4			74.54 06106	82.55 06106
6	0.8	13.0			21	57	6	4	62.64 06008	70.65 06008		
6	0.8	13.0	5.8	30	34	70	6	4			74.54 06108	82.55 06108
6	1.0	13.0	5.8	30	34	70	6	4			74.54 06110	82.55 06110
6	1.0	13.0			21	57	6	4	65.91 06010	73.92 06010		
6	1.5	13.0			21	57	6	4	65.91 06015	73.92 06015		
8	0.8	17.0	7.7	40	44	80	8	4			103.91 08108	115.19 08108
8	1.0	17.0	7.7	40	44	80	8	4			103.91 08110	115.19 08110
8	1.5	17.0	7.7	40	44	80	8	4			103.91 08115	115.19 08115
8	2.0	17.0	7.7	40	44	80	8	4			103.91 08120	115.19 08120
8	0.5	21.0			27	63	8	4	82.80 08005	94.11 08005		
8	0.8	21.0			27	63	8	4	82.80 08008	94.11 08008		
8	1.0	21.0			27	63	8	4	86.39 08010	97.67 08010		
8	1.2	21.0			27	63	8	4	86.39 08012	97.67 08012		
8	1.5	21.0			27	63	8	4	86.39 08015	97.67 08015		
8	2.0	21.0			27	63	8	4	86.39 08020	97.67 08020		
10	0.5	21.0	9.7	50	54	94	10	4			127.92 10105	141.87 10105
10	1.0	21.0	9.7	50	54	94	10	4			127.92 10110	141.87 10110
10	1.5	21.0	9.7	50	54	94	10	4			127.92 10115	141.87 10115
10	2.0	21.0	9.7	50	54	94	10	4			127.92 10120	141.87 10120
10	0.5	22.0			32	72	10	4	100.62 10005	114.59 10005		
10	1.0	22.0			32	72	10	4	103.91 10010	117.87 10010		
10	1.2	22.0			32	72	10	4	103.91 10012	117.87 10012		
10	1.5	22.0			32	72	10	4	103.91 10015	117.87 10015		
10	1.6	22.0			32	72	10	4	103.91 10016	117.87 10016		
10	2.0	22.0			32	72	10	4	103.91 10020	117.87 10020		
12	0.5	25.0	11.6	60	65	110	12	4			160.66 12105	176.31 12105
12	1.0	25.0	11.6	60	65	110	12	4			160.66 12110	176.31 12110
12	1.5	25.0	11.6	60	65	110	12	4			160.66 12115	176.31 12115
P									○	○	○	○
M									○	○	○	○
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S									●	●	●	●
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→ v_c/f_z Page 332+333

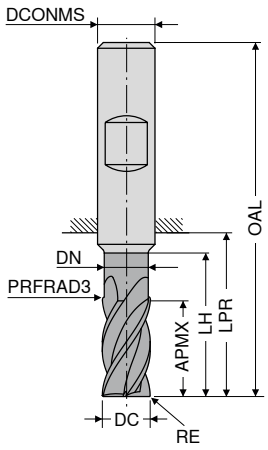
Continued on next page

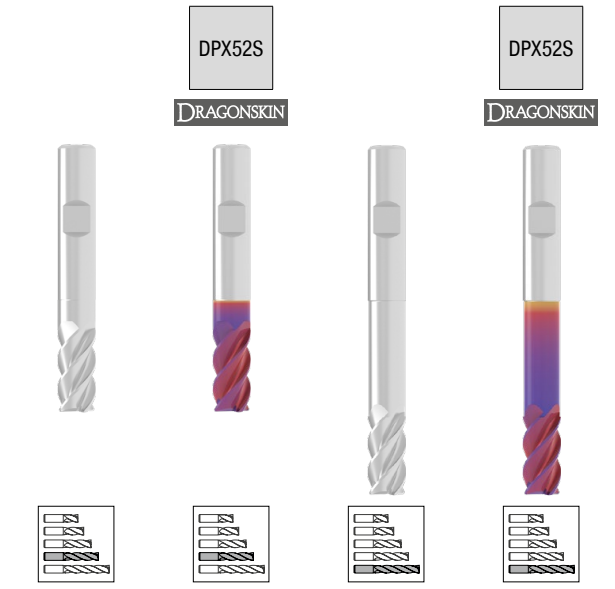
MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

TCR | λ_s=40° γ_s=10° | ZEFP | HPC







Factory standard | Factory standard | Factory standard | Factory standard

HB | HB | HB | HB

DC $_{e8}$ mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	52 507 ... £ V1		52 508 ... £ V1		52 507 ... £ V1		52 508 ... £ V1	
12	2.0	25.0	11.6	60	65	110	12	4					160.66	12120	176.31	12120
12	3.0	25.0	11.6	60	65	110	12	4					164.42	12130	180.18	12130
12	4.0	25.0	11.6	60	65	110	12	4					164.42	12140	180.18	12140
12	0.5	26.0			38	83	12	4	107.76	12005	123.55	12005				
12	1.0	26.0			38	83	12	4	111.34	12010	127.07	12010				
12	1.2	26.0			38	83	12	4	111.34	12012	127.07	12012				
12	1.5	26.0			38	83	12	4	111.34	12015	127.07	12015				
12	1.6	26.0			38	83	12	4	111.34	12016	127.07	12016				
12	2.0	26.0			38	83	12	4	111.34	12020	127.07	12020				
12	2.5	26.0			38	83	12	4	111.34	12025	127.07	12025				
12	3.0	26.0			38	83	12	4	111.34	12030	127.07	12030				
14	1.0	29.0	13.6	70	75	120	14	4					222.62	14110	241.90	14110
14	2.0	29.0	13.6	70	75	120	14	4					222.62	14120	241.90	14120
14	3.0	29.0	13.6	70	75	120	14	4					226.50	14130	245.77	14130
14	4.0	29.0	13.6	70	75	120	14	4					226.50	14140	245.77	14140
16	1.0	33.0	15.5	80	84	132	16	4					267.24	16110	286.51	16110
16	2.0	33.0	15.5	80	84	132	16	4					267.24	16120	286.51	16120
16	3.0	33.0	15.5	80	84	132	16	4					270.75	16130	290.03	16130
16	4.0	33.0	15.5	80	84	132	16	4					270.75	16140	290.03	16140
16	1.0	36.0			44	92	16	4	195.34	16010	214.62	16010				
16	1.6	36.0			44	92	16	4	195.34	16016	214.62	16016				
16	2.0	36.0			44	92	16	4	195.34	16020	214.62	16020				
16	2.5	36.0			44	92	16	4	195.34	16025	214.62	16025				
16	3.0	36.0			44	92	16	4	195.34	16030	214.62	16030				
16	3.2	36.0			44	92	16	4	200.07	16032	219.35	16032				
16	4.0	36.0			44	92	16	4	200.07	16040	219.35	16040				
18	1.0	38.0	17.5	90	94	142	18	4					348.23	18110	372.00	18110
18	2.0	38.0	17.5	90	94	142	18	4					348.23	18120	372.00	18120
18	3.0	38.0	17.5	90	94	142	18	4					352.12	18130	375.88	18130
18	4.0	38.0	17.5	90	94	142	18	4					352.12	18140	375.88	18140
20	2.0	41.0			54	104	20	4	272.57	20020	296.34	20020				
20	3.0	41.0			54	104	20	4	272.57	20030	296.34	20030				
20	4.0	41.0			54	104	20	4	277.55	20040	301.31	20040				
20	5.0	41.0			54	104	20	4	277.55	20050	301.31	20050				
20	6.3	41.0			54	104	20	4	281.42	20063	305.19	20063				
20	1.0	42.0	19.5	100	104	154	20	4					380.61	20110	404.38	20110
20	2.0	42.0	19.5	100	104	154	20	4					380.61	20120	404.38	20120
20	3.0	42.0	19.5	100	104	154	20	4					384.12	20130	407.89	20130
20	4.0	42.0	19.5	100	104	154	20	4					384.12	20140	407.89	20140

P	○	○	○	○
M	○	○	○	○
K				
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S	●	●	●	●
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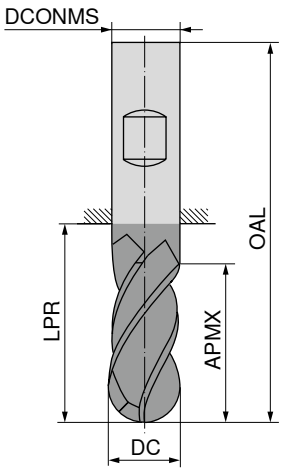
→ v_c/f_z Page 332+333

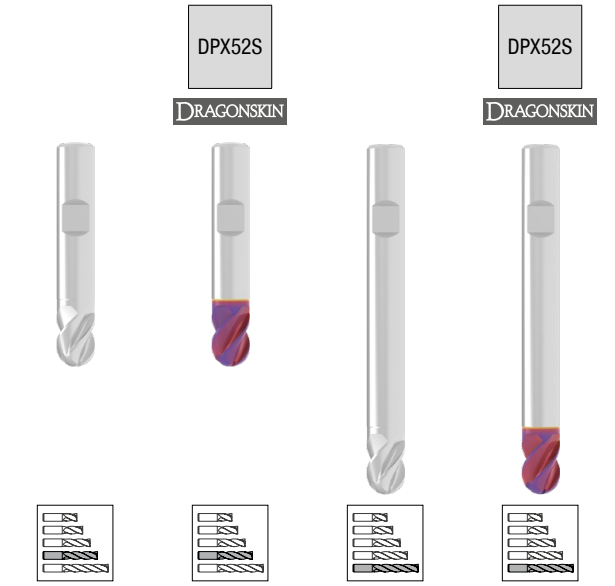
14

MonsterMill – Ball Nosed Cutter









DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	52 513 ... Factory standard HB £ V1		52 514 ... Factory standard HB £ V1		52 513 ... Factory standard HB £ V1		52 514 ... Factory standard HB £ V1	
2	4	18	54	6	4	50.78	02000	62.64	02000				
2	4	44	80	6	4					73.92	02100	88.49	02100
3	5	18	54	6	4	50.78	03000	62.64	03000				
3	5	44	80	6	4					73.92	03100	88.49	03100
4	8	18	54	6	4	50.78	04000	62.64	04000				
4	8	44	80	6	4					73.92	04100	88.49	04100
5	9	18	54	6	4	54.94	05000	69.78	05000				
5	9	44	80	6	4					78.37	05100	92.60	05100
6	10	18	54	6	4	54.94	06000	69.78	06000				
6	10	44	80	6	4					78.37	06100	92.60	06100
8	12	22	58	8	4	61.14	08000	79.28	08000				
8	12	64	100	8	4					79.83	08100	99.16	08100
10	14	26	66	10	4	81.93	10000	104.78	10000				
10	14	60	100	10	4					103.58	10100	127.07	10100
12	16	28	73	12	4	105.11	12000	137.14	12000				
12	16	55	100	12	4					133.26	12100	159.09	12100
16	20	34	82	16	4	162.72	16000	205.77	16000				
16	20	52	100	16	4					183.70	16100	227.71	16100

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

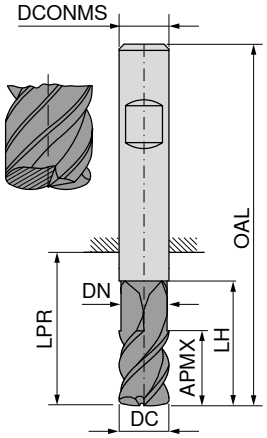
→ v_c/f_z Page 334+335

MonsterMill – Torus Face Milling Cutter

▲ r_{3D} = programmed corner radius
▲ APMX does not correspond to the maximum cutting depth

TCR | λ_s=15° γ_s=10° | ZEFP | HFC | HPC







DPX52S
DRAGONSKIN





DPX52S
DRAGONSKIN











DIN 6527 | DIN 6527 | DIN 6527 | DIN 6527

HB | HB | HB | HB

DC $_{e8}$ mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	52 511 ... £ V1		52 512 ... £ V1		52 511 ... £ V1		52 512 ... £ V1	
2	0.3	1.5	1.7	13	18	54	6	2	60.57	**02000**	68.59	**02000**				
2	0.3	1.5	1.7	18	39	75	6	2					64.73	**02100**	72.75	**02100**
3	0.3	1.5	2.7	15	18	54	6	2	60.57	**03000**	68.59	**03000**				
3	0.3	1.5	2.7	20	39	75	6	2					64.73	**03100**	72.75	**03100**
4	0.5	2.5	3.6	16	22	58	6	2	60.57	**04000**	68.59	**04000**				
4	0.5	2.5	3.6	24	49	85	6	2					67.98	**04100**	75.99	**04100**
5	0.5	3.5	4.6	18	29	65	6	4	65.60	**05000**	73.63	**05000**				
5	0.5	3.5	4.6	28	64	100	6	4					77.19	**05100**	85.20	**05100**
6	1.0	3.5	5.2	20	29	65	6	4	65.60	**06000**	73.63	**06000**				
6	1.0	3.5	5.2	28	64	100	6	4					77.19	**06100**	85.20	**06100**
8	1.5	4.8	7.0	24	34	70	8	5	76.88	**08000**	88.17	**08000**				
8	1.5	4.8	7.0	40	64	100	8	5					100.35	**08100**	111.59	**08100**
10	2.0	5.8	9.0	26	45	85	10	5	104.20	**10000**	118.17	**10000**				
10	2.0	5.8	9.0	48	60	100	10	5					141.87	**10100**	155.93	**10100**
12	2.0	6.8	11.0	30	48	93	12	5	141.87	**12000**	157.63	**12000**				
12	2.0	6.8	11.0	56	75	120	12	5					183.70	**12100**	199.46	**12100**
16	2.5	8.8	14.5	35	52	100	16	5	169.75	**16000**	189.16	**16000**				
16	2.5	8.8	14.5	65	102	150	16	5					223.59	**16100**	242.87	**16100**

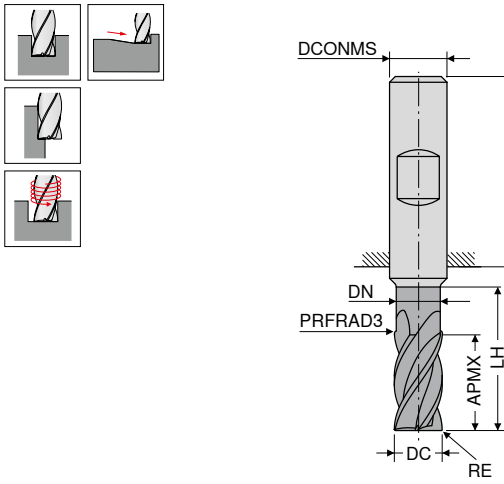
P	○	○	○	○
M	○	○	○	○
K				
N				
S	●	●	●	●
H				
O				

→ v_c/f_z Page 334

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC



NEW

DPA52S

DRAGONSKIN



Factory standard

HB

53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V1	
4	0.1	11	3.8	17	21	57	6	4	54.77	04201
4	0.2	11	3.8	17	21	57	6	4	56.00	04202
4	0.4	11	3.8	17	21	57	6	4	56.91	04204
4	0.5	11	3.8	17	21	57	6	4	56.91	04205
5	0.1	13	4.8	19	21	57	6	4	58.11	05201
5	0.5	13	4.8	19	21	57	6	4	57.60	05205
5	1.0	13	4.8	19	21	57	6	4	57.60	05210
6	0.1	13	5.8	19	21	57	6	4	56.44	06201
6	0.4	13	5.8	19	21	57	6	4	58.80	06204
6	0.5	13	5.8	19	21	57	6	4	56.00	06205
6	0.6	13	5.8	19	21	57	6	4	56.23	06206
6	0.8	13	5.8	19	21	57	6	4	56.65	06208
6	1.0	13	5.8	19	21	57	6	4	56.00	06210
6	1.5	13	5.8	19	21	57	6	4	56.23	06215
8	0.2	19	7.7	25	27	63	8	4	72.64	08202
8	0.5	21	7.7	25	27	63	8	4	71.96	08205
8	0.8	21	7.7	25	27	63	8	4	72.64	08208
8	1.0	21	7.7	25	27	63	8	4	71.67	08210
8	1.2	21	7.7	25	27	63	8	4	71.96	08212
8	1.5	21	7.7	25	27	63	8	4	72.19	08215
8	2.0	21	7.7	25	27	63	8	4	71.67	08220
10	0.2	22	9.7	30	32	72	10	4	94.03	10202
10	0.5	22	9.7	30	32	72	10	4	93.30	10205
10	1.0	22	9.7	30	32	72	10	4	93.09	10210
10	1.2	22	9.7	30	32	72	10	4	93.59	10212
10	1.5	22	9.7	30	32	72	10	4	93.09	10215
10	1.6	22	9.7	30	32	72	10	4	93.09	10216
10	2.0	22	9.7	30	32	72	10	4	93.30	10220
12	0.2	26	11.6	36	38	83	12	4	145.30	12202
12	0.5	26	11.6	36	38	83	12	4	145.04	12205
12	1.0	26	11.6	36	38	83	12	4	144.77	12210
12	1.2	26	11.6	36	38	83	12	4	145.43	12212
12	1.5	26	11.6	36	38	83	12	4	144.77	12215
12	1.6	26	11.6	36	38	83	12	4	144.77	12216
12	2.0	26	11.6	36	38	83	12	4	144.77	12220
12	2.5	26	11.6	36	38	83	12	4	145.30	12225
12	3.0	26	11.6	36	38	83	12	4	145.43	12230

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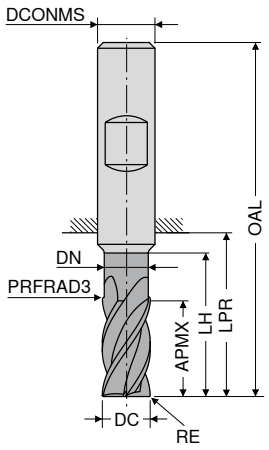
MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC



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DPA52S

DRAGONSKIN



Factory standard

HB

53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V1	
16	0.3	36	15.5	42	44	92	16	4	226.01	**16203**
16	1.0	36	15.5	42	44	92	16	4	225.62	**16210**
16	1.6	36	15.5	42	44	92	16	4	227.72	**16216**
16	2.0	36	15.5	42	44	92	16	4	225.36	**16220**
16	2.5	36	15.5	42	44	92	16	4	226.01	**16225**
16	3.0	36	15.5	42	44	92	16	4	226.80	**16230**
16	3.2	36	15.5	42	44	92	16	4	226.80	**16232**
16	4.0	36	15.5	42	44	92	16	4	225.36	**16240**
20	0.3	41	19.5	52	54	104	20	4	355.82	**20203**
20	1.0	41	19.5	52	54	104	20	4	355.04	**20210**
20	2.0	41	19.5	52	54	104	20	4	355.04	**20220**
20	3.0	41	19.5	52	54	104	20	4	356.74	**20230**
20	4.0	41	19.5	52	54	104	20	4	358.31	**20240**
20	5.0	41	19.5	52	54	104	20	4	358.84	**20250**
20	6.3	41	19.5	52	54	104	20	4	359.50	**20263**

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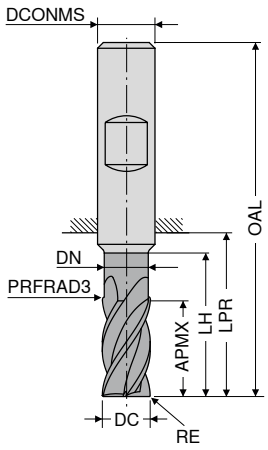
MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC





NEW

DPA52S

DRAGONSKIN





Factory standard

HB

53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V1	
4	0.1	8.5	3.8	20	26	62	6	4	53.84	04401
4	0.2	8.5	3.8	20	26	62	6	4	55.06	04402
4	0.4	8.5	3.8	20	26	62	6	4	56.00	04404
4	0.5	8.5	3.8	20	26	62	6	4	56.00	04405
5	0.1	10.5	4.8	25	34	70	6	4	58.53	05401
5	0.5	10.5	4.8	25	34	70	6	4	58.11	05405
5	1.0	10.5	4.8	25	34	70	6	4	58.11	05410
6	0.1	13.0	5.8	30	34	70	6	4	57.60	06401
6	0.4	13.0	5.8	30	34	70	6	4	59.96	06404
6	0.5	13.0	5.8	30	34	70	6	4	57.16	06405
6	0.6	13.0	5.8	30	34	70	6	4	57.39	06406
6	0.8	13.0	5.8	30	34	70	6	4	57.84	06408
6	1.0	13.0	5.8	30	34	70	6	4	56.91	06410
6	1.5	13.0	5.8	30	34	70	6	4	57.39	06415
8	0.2	17.0	7.7	40	44	80	8	4	75.44	08402
8	0.5	17.0	7.7	40	44	80	8	4	74.51	08405
8	0.8	17.0	7.7	40	44	80	8	4	75.26	08408
8	1.0	17.0	7.7	40	44	80	8	4	74.34	08410
8	1.2	17.0	7.7	40	44	80	8	4	74.51	08412
8	1.5	17.0	7.7	40	44	80	8	4	74.75	08415
8	2.0	17.0	7.7	40	44	80	8	4	74.34	08420
10	0.2	21.0	9.7	50	54	94	10	4	97.79	10402
10	0.5	21.0	9.7	50	54	94	10	4	99.87	10405
10	1.0	21.0	9.7	50	54	94	10	4	99.42	10410
10	1.2	21.0	9.7	50	54	94	10	4	99.87	10412
10	1.5	21.0	9.7	50	54	94	10	4	99.18	10415
10	1.6	21.0	9.7	50	54	94	10	4	99.18	10416
10	2.0	21.0	9.7	50	54	94	10	4	99.18	10420
12	0.2	25.0	11.6	60	65	110	12	4	160.52	12402
12	0.5	25.0	11.6	60	65	110	12	4	159.86	12405
12	1.0	25.0	11.6	60	65	110	12	4	159.34	12410
12	1.2	25.0	11.6	60	65	110	12	4	159.86	12412
12	1.5	25.0	11.6	60	65	110	12	4	159.08	12415
12	1.6	25.0	11.6	60	65	110	12	4	159.34	12416
12	2.0	25.0	11.6	60	65	110	12	4	158.81	12420
12	2.5	25.0	11.6	60	65	110	12	4	159.34	12425
12	3.0	25.0	11.6	60	65	110	12	4	159.60	12430

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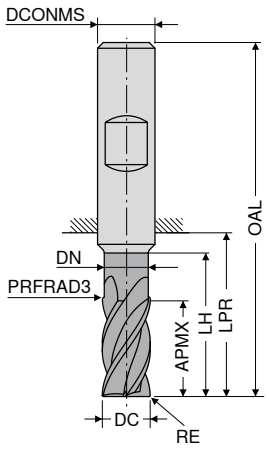
MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC





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DPA52S

DRAGONSKIN





Factory standard

HB

53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V1	
16	0.3	33.0	15.5	80	84	132	16	4	265.00	**16403**
16	1.0	33.0	15.5	80	84	132	16	4	263.69	**16410**
16	1.6	33.0	15.5	80	84	132	16	4	265.52	**16416**
16	2.0	33.0	15.5	80	84	132	16	4	262.76	**16420**
16	2.5	33.0	15.5	80	84	132	16	4	263.42	**16425**
16	3.0	33.0	15.5	80	84	132	16	4	263.81	**16430**
16	3.2	33.0	15.5	80	84	132	16	4	264.08	**16432**
16	4.0	33.0	15.5	80	84	132	16	4	261.98	**16440**
20	0.3	42.0	19.5	100	104	154	20	4	437.59	**20403**
20	1.0	42.0	19.5	100	104	154	20	4	434.96	**20410**
20	2.0	42.0	19.5	100	104	154	20	4	433.79	**20420**
20	3.0	42.0	19.5	100	104	154	20	4	435.75	**20430**
20	4.0	42.0	19.5	100	104	154	20	4	437.06	**20440**
20	5.0	42.0	19.5	100	104	154	20	4	437.85	**20450**
20	6.3	42.0	19.5	100	104	154	20	4	438.51	**20463**

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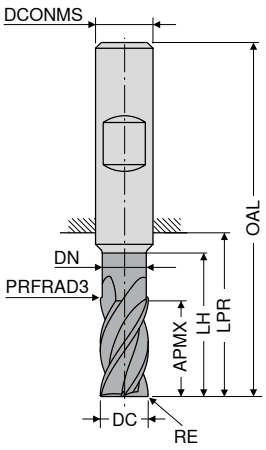
MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC





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DPA52S

DRAGONSKIN





Factory standard

HB

53 031 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V1	
6	0.1	13	5.8	19	21	57	6	5	60.23	06201
6	0.4	13	5.8	19	21	57	6	5	63.03	06204
6	0.5	13	5.8	19	21	57	6	5	59.96	06205
6	0.6	13	5.8	19	21	57	6	5	60.41	06206
6	0.8	13	5.8	19	21	57	6	5	60.89	06208
6	1.0	13	5.8	19	21	57	6	5	59.96	06210
6	1.5	13	5.8	19	21	57	6	5	60.41	06215
8	0.2	19	7.7	25	27	63	8	5	76.87	08202
8	0.5	21	7.7	25	27	63	8	5	76.43	08205
8	0.8	21	7.7	25	27	63	8	5	77.37	08208
8	1.0	21	7.7	25	27	63	8	5	76.43	08210
8	1.2	21	7.7	25	27	63	8	5	76.64	08212
8	1.5	21	7.7	25	27	63	8	5	76.87	08215
8	2.0	21	7.7	25	27	63	8	5	76.43	08220
10	0.2	22	9.7	30	32	72	10	5	100.64	10202
10	0.5	22	9.7	30	32	72	10	5	99.87	10205
10	1.0	22	9.7	30	32	72	10	5	99.87	10210
10	1.2	22	9.7	30	32	72	10	5	100.34	10212
10	1.5	22	9.7	30	32	72	10	5	99.87	10215
10	1.6	22	9.7	30	32	72	10	5	100.15	10216
10	2.0	22	9.7	30	27	72	10	5	100.34	10220
12	0.2	26	11.6	36	38	83	12	5	153.96	12202
12	0.5	26	11.6	36	38	83	12	5	154.22	12205
12	1.0	26	11.6	36	38	83	12	5	154.22	12210
12	1.2	26	11.6	36	38	83	12	5	154.88	12212
12	1.5	26	11.6	36	38	83	12	5	154.49	12215
12	1.6	26	11.6	36	38	83	12	5	154.61	12216
12	2.0	26	11.6	36	38	83	12	5	154.49	12220
12	2.5	26	11.6	36	38	83	12	5	154.88	12225
12	3.0	26	11.6	36	38	83	12	5	155.40	12230
16	0.3	36	15.5	42	44	92	16	5	238.22	16203
16	1.0	36	15.5	42	44	92	16	5	238.88	16210
16	1.6	36	15.5	42	44	92	16	5	241.37	16216
16	2.0	36	15.5	42	44	92	16	5	238.88	16220
16	2.5	36	15.5	42	44	92	16	5	239.93	16225
16	3.0	36	15.5	42	44	92	16	5	240.59	16230
16	3.2	36	15.5	42	44	92	16	5	240.85	16232

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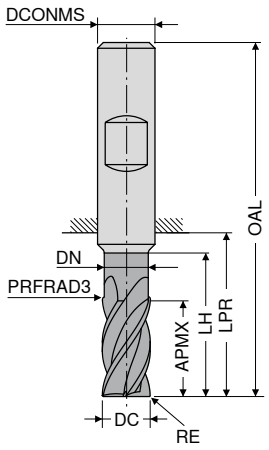
MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° γ_s= 7° | ZEFP | HPC





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DPA52S

DRAGONSKIN





Factory standard

HB 

53 031 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V1	
16	4.0	36	15.5	42	44	92	16	5	239.27	**16240**
20	0.3	41	19.5	52	54	104	20	5	373.41	**20203**
20	2.0	41	19.5	52	54	104	20	5	374.33	**20220**
20	3.0	41	19.5	52	54	104	20	5	376.43	**20230**
20	4.0	41	19.5	52	54	104	20	5	378.26	**20240**
20	5.0	41	19.5	52	54	104	20	5	379.45	**20250**
20	6.3	41	19.5	52	54	104	20	5	379.97	**20263**

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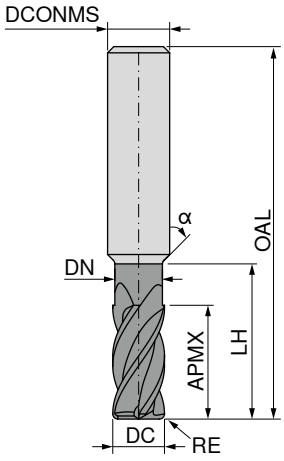
MonsterMill – Finish milling cutter with corner radius

- Radius accuracy ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

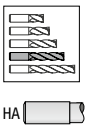
HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC

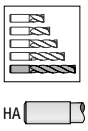












DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 603 ... £ V1		53 604 ... £ V1	
0.2	0.05	0.5		0.5	30	48	4	2,5 x DC	2	72.75	**30205**		
0.2	0.05	0.5	0.18	1.0	30	48	4	5 x DC	2	72.75	**40205**		
0.3	0.05	0.6	0.27	1.0	30	48	4	3,3 x DC	2	68.93	**30305**		
0.3	0.05	0.6	0.27	2.0	30	48	4	6,7 x DC	2	68.93	**40305**		
0.4	0.05	0.7	0.35	1.0	30	48	4	2,5 x DC	2	68.93	**30405**		
0.4	0.05	0.7	0.35	2.0	30	48	4	5 x DC	2	68.93	**40405**		
0.4	0.05	0.7	0.35	3.0	30	48	4	7,5 x DC	2	68.93	**50405**		
0.5	0.05	0.7	0.45	1.0	30	48	4	2 x DC	2	66.98	**30505**		
0.5	0.05	0.7	0.45	2.0	30	48	4	4 x DC	2	66.98	**40505**		
0.5	0.05	0.7	0.45	2.5	30	48	4	5 x DC	2	66.98	**50505**		
0.5	0.05	0.7	0.45	3.0	30	48	4	6 x DC	2	66.98	**60505**		
0.5	0.05	0.7	0.45	4.0	30	48	4	8 x DC	2	66.98	**70505**		
0.6	0.05	0.8	0.55	2.0	30	48	4	3,3 x DC	2	65.16	**30605**		
0.6	0.05	0.8	0.55	3.0	30	48	4	5 x DC	2	65.16	**40605**		
0.6	0.05	0.8	0.55	4.5	30	48	4	7,5 x DC	2	65.16	**50605**		
0.6	0.05	0.8	0.55	6.0	30	48	4	10 x DC	2			65.16	**30605**
0.8	0.05	1.0	0.75	2.0	30	48	4	2,5 x DC	2	65.16	**30805**		
0.8	0.05	1.0	0.75	4.0	30	48	4	5 x DC	2	65.16	**40805**		
0.8	0.05	1.0	0.75	6.0	30	48	4	7,5 x DC	2	65.16	**50805**		
0.8	0.05	1.0	0.75	8.0	30	48	4	10 x DC	2			67.22	**30805**
0.8	0.05	1.0	0.75	10.0	30	48	4	12,5 x DC	2			67.22	**40805**
1.0	0.10	1.5	0.95	2.0	30	48	4	2 x DC	4	73.76	**31001**		
1.0	0.10	1.5	0.95	4.0	30	48	4	4 x DC	4	75.33	**41001**		
1.0	0.10	1.5	0.95	6.0	30	48	4	6 x DC	4	75.33	**51001**		
1.0	0.10	1.5	0.95	8.0	30	48	4	8 x DC	4	77.24	**61001**		
1.0	0.10	1.5	0.95	10.0	30	48	4	10 x DC	4			77.24	**31001**
1.0	0.10	1.5	0.95	14.0	30	48	4	14 x DC	4			77.24	**41001**
1.5	0.10	2.0	1.45	4.0	30	48	4	2,7 x DC	4	74.94	**31501**		
1.5	0.10	2.0	1.45	6.0	30	48	4	4 x DC	4	76.64	**41501**		
1.5	0.10	2.0	1.45	10.0	30	48	4	6,7 x DC	4	76.64	**51501**		
1.5	0.10	2.0	1.45	12.0	30	48	4	8 x DC	4	78.32	**61501**		
1.5	0.10	2.0	1.45	15.0	30	60	4	10 x DC	4			79.26	**31501**
1.5	0.10	2.0	1.45	20.0	30	60	4	13,3 x DC	4			81.22	**41501**
2.0	0.20	2.5	1.90	4.0	30	48	4	2 x DC	4	74.94	**32002**		
2.0	0.20	2.5	1.90	6.0	30	48	4	3 x DC	4	76.64	**42002**		

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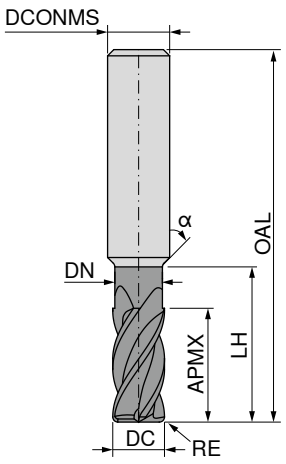
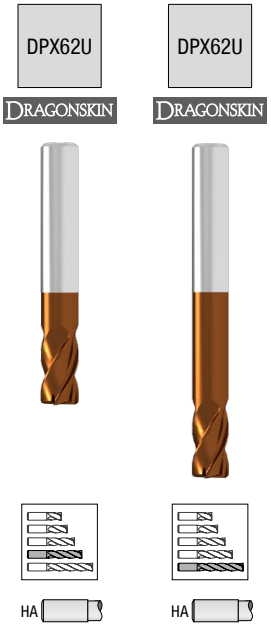
MonsterMill – Finish milling cutter with corner radius

- Radius accuracy ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC





DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 603 ... £ V1		53 604 ... £ V1	
2.0	0.20	2.5	1.90	8.0	30	48	4	4 x DC	4	76.64	**52002**		
2.0	0.20	2.5	1.90	10.0	30	48	4	5 x DC	4	76.64	**62002**		
2.0	0.20	2.5	1.90	12.0	30	48	4	6 x DC	4	78.32	**72002**		
2.0	0.20	2.5	1.90	16.0	30	60	4	8 x DC	4	79.26	**82002**		
2.0	0.20	2.5	1.90	20.0	30	60	4	10 x DC	4			81.22	**32002**
2.0	0.20	2.5	1.90	25.0	30	60	4	12,5 x DC	4			81.22	**42002**
3.0	0.20	3.5	2.90	8.0	30	60	6	2,7 x DC	4	85.61	**33002**		
3.0	0.20	3.5	2.90	12.0	30	60	6	4 x DC	4	87.48	**43002**		
3.0	0.20	3.5	2.90	16.0	30	60	6	5,3 x DC	4	87.48	**53002**		
3.0	0.20	3.5	2.90	20.0	30	70	6	6,7 x DC	4	89.07	**63002**		
3.0	0.20	3.5	2.90	24.0	30	70	6	8 x DC	4	91.15	**73002**		
4.0	0.20	4.5	3.90	8.0	30	60	6	2 x DC	4	89.24	**34002**		
4.0	0.20	4.5	3.90	12.0	30	60	6	3 x DC	4	91.26	**44002**		
4.0	0.20	4.5	3.90	16.0	30	60	6	4 x DC	4	91.26	**54002**		
4.0	0.20	4.5	3.90	20.0	30	70	6	5 x DC	4	92.87	**64002**		
4.0	0.20	4.5	3.90	24.0	30	70	6	6 x DC	4	94.90	**74002**		
4.0	0.20	4.5	3.90	28.0	30	70	6	7 x DC	4	94.90	**84002**		
4.0	0.50	4.5	3.90	8.0	30	60	6	2 x DC	4	89.24	**34005**		
4.0	0.50	4.5	3.90	12.0	30	60	6	3 x DC	4	91.26	**44005**		
4.0	0.50	4.5	3.90	16.0	30	60	6	4 x DC	4	91.26	**54005**		
4.0	0.50	4.5	3.90	20.0	30	70	6	5 x DC	4	92.87	**64005**		
4.0	0.50	4.5	3.90	24.0	30	70	6	6 x DC	4	94.90	**74005**		
4.0	0.50	4.5	3.90	28.0	30	70	6	7 x DC	4	94.90	**84005**		
4.0	1.00	4.5	3.90	8.0	30	60	6	2 x DC	4	89.24	**34010**		
4.0	1.00	4.5	3.90	12.0	30	60	6	3 x DC	4	91.26	**44010**		
4.0	1.00	4.5	3.90	16.0	30	60	6	4 x DC	4	91.26	**54010**		
4.0	1.00	4.5	3.90	20.0	30	70	6	5 x DC	4	92.87	**64010**		
4.0	1.00	4.5	3.90	24.0	30	70	6	6 x DC	4	94.90	**74010**		
4.0	1.00	4.5	3.90	28.0	30	70	6	7 x DC	4	94.90	**84010**		
6.0	0.20	6.5	5.90	12.0		60	6	2 x DC	4	94.17	**36002**		
6.0	0.20	6.5	5.90	16.0		60	6	2,7 x DC	4	97.20	**46002**		
6.0	0.20	6.5	5.90	20.0		60	6	3,3 x DC	4	97.20	**56002**		
6.0	0.50	6.5	5.90	12.0		60	6	2 x DC	4	94.17	**36005**		
6.0	0.50	6.5	5.90	16.0		60	6	2,7 x DC	4	97.20	**46005**		
6.0	0.50	6.5	5.90	20.0		60	6	3,3 x DC	4	97.20	**56005**		

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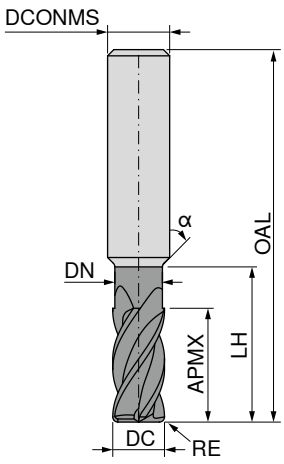
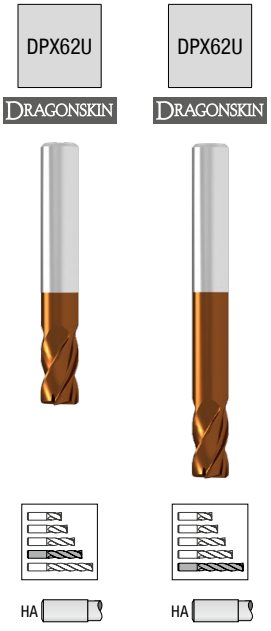
MonsterMill – Finish milling cutter with corner radius

- Radius accuracy ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC







DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 603 ... £ V1		53 604 ... £ V1
6.0	1.00	6.5	5.90	12.0		60	6	2 x DC	4	94.17	**36010**	
6.0	1.00	6.5	5.90	16.0		60	6	2,7 x DC	4	97.20	**46010**	
6.0	1.00	6.5	5.90	20.0		60	6	3,3 x DC	4	97.20	**56010**	
8.0	0.50	8.5	7.90	16.0		60	8	2 x DC	4	119.22	**38005**	
8.0	0.50	8.5	7.90	40.0		80	8	5 x DC	4	126.60	**48005**	
8.0	1.00	8.5	7.90	16.0		60	8	2 x DC	4	119.22	**38010**	
8.0	1.00	8.5	7.90	40.0		80	8	5 x DC	4	126.60	**48010**	
10.0	0.50	10.5	9.90	20.0		70	10	2 x DC	4	149.37	**10005**	
10.0	0.50	10.5	9.90	40.0		90	10	4 x DC	4	159.56	**10105**	
10.0	1.00	10.5	9.90	20.0		70	10	2 x DC	4	149.37	**10010**	
10.0	1.00	10.5	9.90	40.0		90	10	4 x DC	4	159.56	**10110**	
12.0	1.00	12.5	11.90	24.0		70	12	2 x DC	4	193.36	**12010**	
12.0	1.00	12.5	11.90	40.0		90	12	3,3 x DC	4	207.08	**12110**	

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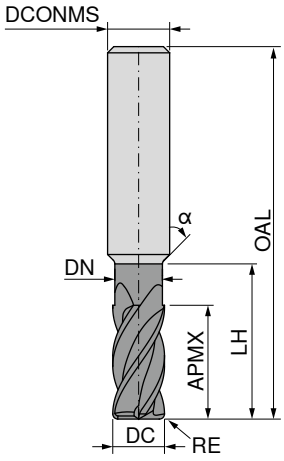
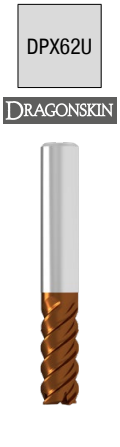
MonsterMill – Finish milling cutter with corner radius

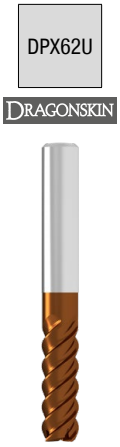
- Radius accuracy ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0/-0.01 mm
  from Ø 6 mm: 0/ -0.02 mm

HCR | λ_s = 50° γ_s = -15° | ZEFP | 54–70 HRC













Factory standard | HA

Factory standard | HA

DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 605 ... £ V1		53 606 ... £ V1	
1	0.03	2			30	48	4	2 x DC	4	78.57	410		
1	0.03	3	0.95	4	30	48	4	3 x DC	4			94.87	410
2	0.03	6	1.90	8	30	48	4	3 x DC	4			96.13	420
2	0.03	4			30	48	4	2 x DC	4	79.88	420		
3	0.03	6			30	60	6	2 x DC	4	92.49	030		
3	0.03	9	2.90	12	30	60	6	3 x DC	4			110.45	030
4	0.05	8			30	60	6	2 x DC	4	97.47	040		
4	0.05	12	3.90	16	30	60	6	3 x DC	4			113.10	040
6	0.05	12				60	6	2 x DC	4	93.54	060		
6	0.05	18	5.90	24		60	6	3 x DC	4			110.45	060
8	0.05	16				60	8	2 x DC	4	136.48	080		
8	0.05	24	7.90	32		70	8	3 x DC	4			156.01	080
10	0.05	20				70	10	2 x DC	4	165.15	100		
10	0.05	30	9.90	40		80	10	3 x DC	4			188.49	100
12	0.05	24				70	12	2 x DC	4	187.16	120		
12	0.05	36	11.90	44		90	12	3 x DC	4			215.79	120
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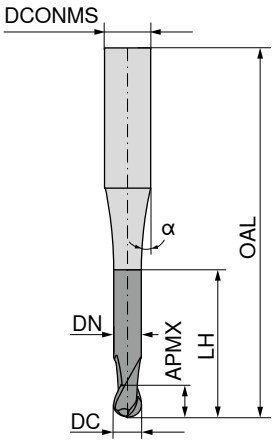
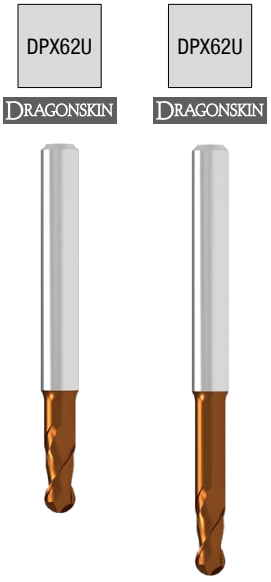
MonsterMill – Ball Nosed Cutter

- Radius accuracy: ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC





Factory standard | Factory standard

HA | HA

DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 600 ... £ V1		53 601 ... £ V1	
0.2	0.5		0.5	15	48	4	2,5 x DC	2	72.75	302		
0.2	0.5	0.18	1.0	15	48	4	5 x DC	2	72.75	402		
0.3	0.5	0.27	1.0	15	48	4	3,3 x DC	2	68.93	303		
0.3	0.5	0.27	2.0	15	48	4	6,7 x DC	2	68.93	403		
0.4	0.5	0.35	1.0	15	48	4	2,5 x DC	2	68.93	304		
0.4	0.5	0.35	2.0	15	48	4	5 x DC	2	68.93	404		
0.4	0.5	0.35	3.0	15	48	4	7,5 x DC	2	68.93	504		
0.5	0.5	0.45	1.0	15	48	4	2 x DC	2	66.98	305		
0.5	0.5	0.45	2.0	15	48	4	4 x DC	2	66.98	405		
0.5	0.5	0.45	2.5	15	48	4	5 x DC	2	66.98	505		
0.5	0.5	0.45	3.0	15	48	4	6 x DC	2	66.98	605		
0.5	0.5	0.45	4.0	15	48	4	8 x DC	2	66.98	705		
0.6	0.6	0.55	2.0	15	48	4	3,3 x DC	2	66.98	306		
0.6	0.6	0.55	3.0	15	48	4	5 x DC	2	66.98	406		
0.6	0.6	0.55	4.5	15	48	4	7,5 x DC	2	66.98	506		
0.6	0.6	0.55	6.0	15	48	4	10 x DC	2			66.98	306
0.8	1.0	0.75	2.0	15	48	4	2,5 x DC	2	65.16	308		
0.8	1.0	0.75	4.0	15	48	4	5 x DC	2	65.16	408		
0.8	1.0	0.75	6.0	15	48	4	7,5 x DC	2	65.16	508		
0.8	1.0	0.75	8.0	15	48	4	10 x DC	2			65.16	308
0.8	1.0	0.75	10.0	15	48	4	12,5 x DC	2			65.16	408
1.0	1.5	0.95	2.0	15	48	4	2 x DC	2	62.98	310		
1.0	1.5	0.95	4.0	15	48	4	4 x DC	2	62.98	410		
1.0	1.5	0.95	6.0	15	48	4	6 x DC	2	62.98	510		
1.0	1.5	0.95	8.0	15	48	4	8 x DC	2	62.98	610		
1.0	1.5	0.95	10.0	15	48	4	10 x DC	2			62.98	310
1.0	1.5	0.95	14.0	15	48	4	14 x DC	2			64.94	410
1.5	1.5	1.45	4.0	15	48	4	2,7 x DC	2	64.01	315		
1.5	1.5	1.45	6.0	15	48	4	4 x DC	2	64.01	415		
1.5	1.5	1.45	8.0	15	48	4	5,3 x DC	2	64.01	515		
1.5	1.5	1.45	10.0	15	48	4	6,7 x DC	2	64.01	615		
1.5	1.5	1.45	15.0	15	60	4	10 x DC	2			65.16	315
1.5	1.5	1.45	20.0	15	60	4	13,3 x DC	2			66.09	415
2.0	2.5	1.90	4.0	15	48	4	2 x DC	2	64.01	320		

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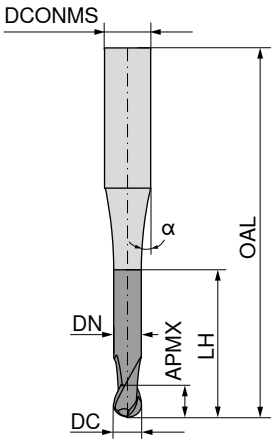
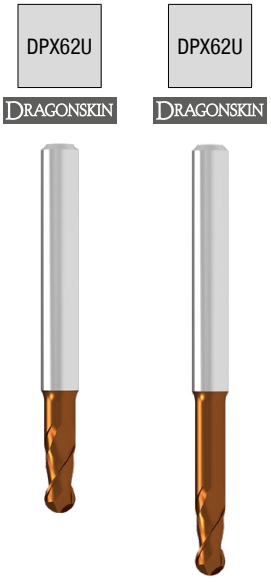
MonsterMill – Ball Nosed Cutter

- Radius accuracy: ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC





Factory standard | Factory standard

HA | HA

DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 600 ... £ V1		53 601 ... £ V1	
2.0	2.5	1.90	6.0	15	48	4	3 x DC	2	64.01	**420**		
2.0	2.5	1.90	8.0	15	48	4	4 x DC	2	64.01	**520**		
2.0	2.5	1.90	10.0	15	48	4	5 x DC	2	65.16	**620**		
2.0	2.5	1.90	12.0	15	48	4	6 x DC	2	65.16	**720**		
2.0	2.5	1.90	16.0	15	60	4	8 x DC	2	66.22	**820**		
2.0	2.5	1.90	20.0	15	60	4	10 x DC	2			68.33	**320**
2.0	2.5	1.90	25.0	15	60	4	12,5 x DC	2			68.33	**420**
3.0	3.5	2.90	8.0	15	60	6	2,7 x DC	2	68.93	**330**		
3.0	3.5	2.90	12.0	15	60	6	4 x DC	2	68.93	**430**		
3.0	3.5	2.90	16.0	15	60	6	5,3 x DC	2	68.93	**530**		
3.0	3.5	2.90	20.0	15	70	6	6,7 x DC	2	70.54	**630**		
3.0	3.5	2.90	24.0	15	70	6	8 x DC	2	72.58	**730**		
4.0	4.5	3.90	8.0	15	60	6	2 x DC	2	68.93	**340**		
4.0	4.5	3.90	12.0	15	60	6	3 x DC	2	68.93	**440**		
4.0	4.5	3.90	16.0	15	60	6	4 x DC	2	68.93	**540**		
4.0	4.5	3.90	20.0	15	70	6	5 x DC	2	70.54	**640**		
4.0	4.5	3.90	24.0	15	70	6	6 x DC	2	72.58	**740**		
4.0	4.5	3.90	28.0	15	70	6	7 x DC	2	72.58	**840**		
6.0	6.5	5.90	12.0		60	6	2 x DC	2	68.93	**360**		
6.0	6.5	5.90	16.0		60	6	2,7 x DC	2	68.93	**460**		
6.0	6.5	5.90	20.0		60	6	3,3 x DC	2	68.93	**560**		
8.0	8.5	7.90	16.0		60	8	2 x DC	2	102.64	**380**		
8.0	8.5	7.90	40.0		80	8	5 x DC	2	110.05	**480**		
10.0	10.5	9.90	20.0	15	70	10	2 x DC	2	121.12	**100**		
10.0	10.5	9.90	40.0		90	10	4 x DC	2	131.30	**101**		
12.0	12.5	11.90	24.0		75	12	2 x DC	2	161.02	**120**		
12.0	12.5	11.90	40.0		90	12	3,3 x DC	2	171.95	**121**		
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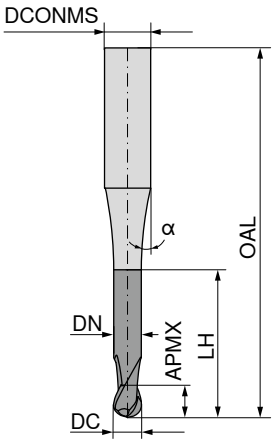
MonsterMill – Ball Nosed Cutter

- Radius accuracy: ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC





DPX62U

DRAGONSKIN





Factory standard

HA

53 602 ...

DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	£ V1	
3	3.5	2.9	8	15	60	6	2,7 x DC	4	78.81	**330**
3	3.5	2.9	12	15	60	6	4 x DC	4	78.81	**430**
3	3.5	2.9	16	15	60	6	5,3 x DC	4	78.81	**530**
3	3.5	2.9	20	15	70	6	6,7 x DC	4	80.44	**630**
3	3.5	2.9	24	15	70	6	8 x DC	4	82.44	**730**
4	4.5	3.9	8	15	60	6	2 x DC	4	80.93	**340**
4	4.5	3.9	12	15	60	6	3 x DC	4	82.37	**440**
4	4.5	3.9	16	15	60	6	4 x DC	4	82.37	**540**
4	4.5	3.9	20	15	70	6	5 x DC	4	83.95	**640**
4	4.5	3.9	24	15	70	6	6 x DC	4	85.97	**740**
4	4.5	3.9	28	15	70	6	7 x DC	4	85.97	**840**
6	6.5	5.9	12		60	6	2 x DC	4	85.86	**360**
6	6.5	5.9	16		60	6	2,7 x DC	4	88.86	**460**
6	6.5	5.9	20		60	6	3,3 x DC	4	88.86	**560**
8	8.5	7.9	16		60	8	2 x DC	4	113.10	**380**
8	8.5	7.9	40		80	8	5 x DC	4	120.44	**480**
10	10.5	9.9	20		70	10	2 x DC	4	133.89	**100**
10	10.5	9.9	40		90	10	4 x DC	4	144.13	**101**
12	12.5	11.9	24		75	12	2 x DC	4	176.23	**120**
12	12.5	11.9	40		90	12	3,3 x DC	4	187.16	**121**

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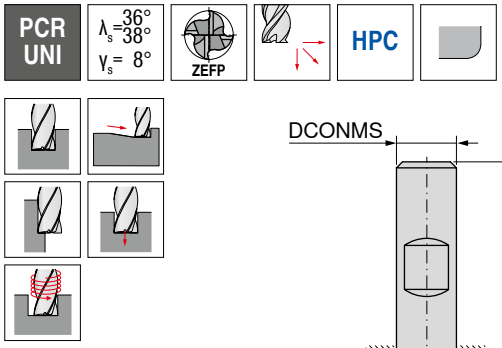
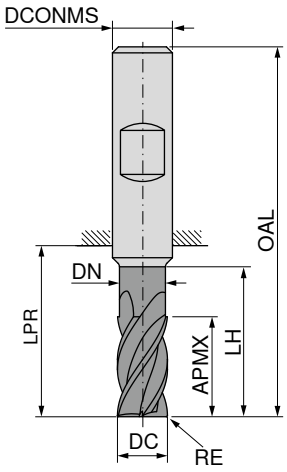
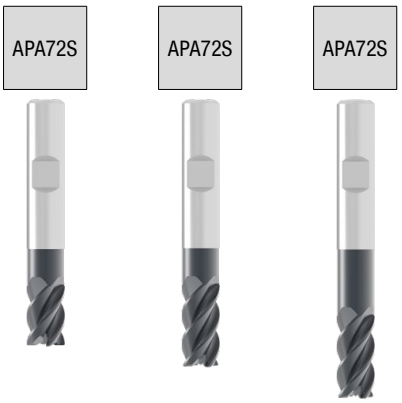
→ v_c/f_z Page 348

MonsterMill – Plunge milling cutter with corner radius

PCR UNI | λ_s=36° 38° γ_s= 8° | ZEFP | HPC







DIN 6527 | DIN 6527 | DIN 6527

HB | HB | HB

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 613 ... £ V1		52 614 ... £ V1		52 615 ... £ V1	
5.0	0.20	9			18	54	6	4	55.27	05000				
5.0	0.20	13	4.8	19	21	57	6	4			55.56	05000		
5.0	0.20	13	4.8	24	26	62	6	4					64.10	05000
5.7	0.20	10			18	54	6	4	52.36	057				
5.7	0.20	13	5.5	19	21	57	6	4			52.63	057		
5.7	0.20	13	5.5	24	26	62	6	4					61.86	057
6.0	0.20	10			18	54	6	4	52.36	060				
6.0	0.20	13	5.8	19	21	57	6	4			54.84	060		
6.0	0.20	13	5.8	24	26	62	6	4					63.70	060
6.7	0.20	11			22	58	8	4	62.81	067				
6.7	0.20	16	6.5	25	27	63	8	4			62.15	067		
6.7	0.20	16	6.4	30	32	68	8	4					84.43	067
7.0	0.20	11			22	58	8	4	62.81	070				
7.0	0.20	16	6.8	25	27	63	8	4			62.15	070		
7.0	0.20	16	6.7	30	32	68	8	4					84.43	070
7.7	0.20	12			22	58	8	4	62.81	077				
7.7	0.20	19	7.5	25	27	63	8	4			63.98	077		
7.7	0.20	21	7.4	30	32	68	8	4					84.43	077
8.0	0.20	12			22	58	8	4	62.81	080				
8.0	0.20	19	7.8	25	27	63	8	4			66.20	080		
8.0	0.20	21	7.7	30	32	68	8	4					88.23	080
8.7	0.32	13			26	66	10	4	81.62	087				
8.7	0.32	19	8.5	30	32	72	10	4			92.97	087		
8.7	0.32	22	8.4	38	40	80	10	4					105.49	087
9.0	0.32	13			26	66	10	4	81.62	090				
9.0	0.32	19	8.8	30	32	72	10	4			92.97	090		
9.0	0.32	22	8.7	38	40	80	10	4					105.49	090
9.7	0.32	14			26	66	10	4	81.62	097				
9.7	0.32	22	9.5	30	32	72	10	4			92.97	097		
9.7	0.32	22	9.4	38	40	80	10	4					105.49	097
10.0	0.32	14			26	66	10	4	81.62	100				
10.0	0.32	22	9.8	30	32	72	10	4			88.40	100		
10.0	0.32	22	9.7	38	40	80	10	4					100.45	100
11.7	0.32	16			28	73	12	4	106.54	117				
11.7	0.32	26	11.5	36	38	83	12	4			119.08	117		
11.7	0.32	26	11.3	46	48	93	12	4					144.14	117
12.0	0.32	16			28	73	12	4	106.54	120				
12.0	0.32	26	11.8	36	38	83	12	4			113.59	120		
12.0	0.32	26	11.6	46	48	93	12	4					137.24	120
13.7	0.32	18			30	75	14	4	134.48	137				

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→ v_c/f_z Page 368–371

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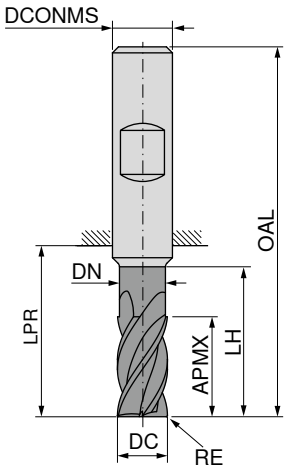
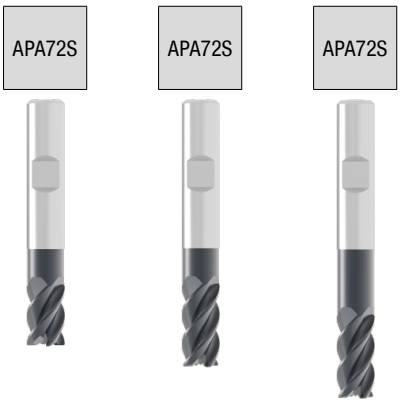
Continued on next page

MonsterMill – Plunge milling cutter with corner radius

PCR UNI | λ_s=36° γ_s= 8° | ZEFP | HPC





DIN 6527 | DIN 6527 | DIN 6527

HB | HB | HB

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 613 ... £ V1		52 614 ... £ V1		52 615 ... £ V1	
13.7	0.32	26	13.5	36	38	83	14	4			141.02	137		
13.7	0.32	26	13.3	52	54	99	14	4					173.92	137
14.0	0.32	18			30	75	14	4	134.48	140				
14.0	0.32	26	13.8	36	38	83	14	4			146.23	140		
14.0	0.32	26	13.6	52	54	99	14	4					169.48	140
15.5	0.32	22			34	82	16	4	171.05	155				
15.5	0.32	32	15.3	42	44	92	16	4			191.93	155		
15.5	0.32	36	15.0	58	60	108	16	4					242.59	155
16.0	0.32	22			34	82	16	4	171.05	160				
16.0	0.32	32	15.8	42	44	92	16	4			198.46	160		
16.0	0.32	36	15.5	58	60	108	16	4					236.99	160
17.5	0.32	24			36	84	18	4	203.68	175				
17.5	0.32	32	17.3	42	44	92	18	4			224.57	175		
17.5	0.32	36	17.0	67	69	117	18	4					272.76	175
18.0	0.32	24			36	84	18	4	203.68	180				
18.0	0.32	32	17.8	42	44	92	18	4			231.11	180		
18.0	0.32	36	17.5	67	69	117	18	4					272.23	180
19.5	0.50	26			42	92	20	4	251.99	195				
19.5	0.50	38	19.3	52	54	104	20	4			302.91	195		
19.5	0.50	41	19.0	74	76	126	20	4					400.19	195
20.0	0.50	26			42	92	20	4	251.99	200				
20.0	0.50	38	19.8	52	54	104	20	4			313.36	200		
20.0	0.50	41	19.5	74	76	126	20	4					393.00	200
P										●		●		●
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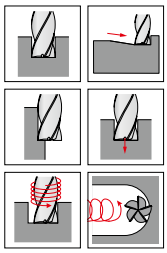
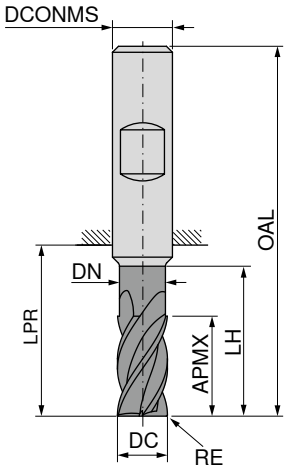
→ v_c/f_z Page 368-371

MonsterMill – Plunge milling cutter with corner radius

- suitable for trochoidal milling
- Chip breaker 0.9 x DC
- Cutting depth: 3 x DC

PCR UNI | λ_s=36° γ_s=10° | ZEFP | HPC





NEW

APA72S





DIN 6527

HB 

52 619 ...

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
5	0.20	17	4.8	24	26	62	6	4	71.51	**05202**
6	0.20	17	5.8	25	26	62	6	4	71.51	**06202**
8	0.20	24	7.7	30	32	68	8	4	95.16	**08202**
10	0.32	30	9.7	35	40	80	10	4	111.12	**10203**
12	0.32	36	11.6	45	48	93	12	4	150.15	**12203**
14	0.32	42	13.6	50	54	99	14	4	190.05	**14203**
16	0.32	48	15.5	56	60	108	16	4	255.94	**16203**
18	0.32	54	17.5	67	69	117	18	4	313.04	**18203**
20	0.50	60	19.5	70	76	126	20	4	420.53	**20205**

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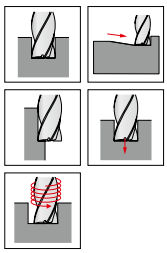
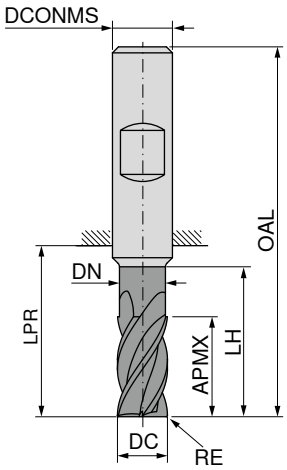
→ v_c/f_z Page 368–371

14

MonsterMill – Plunge milling cutter with corner radius

PCR ALU | λ_s=36° γ_s=13° | ZEFP | HPC










DIN 6527 | HB | 52 616 ...

DIN 6527 | HB | 52 617 ...

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1		£ V1	
5.0	0.20	13	4.8	19	21	57	6	4	65.19	050		
5.0	0.20	13	4.8	24	26	62	6	4			71.91	050
5.7	0.20	13	5.5	19	21	57	6	4	65.19	057		
5.7	0.20	13	5.5	24	26	62	6	4			71.91	057
6.0	0.20	13	5.8	19	21	57	6	4	67.14	060		
6.0	0.20	13	5.8	24	26	62	6	4			74.06	060
6.7	0.20	16	6.5	25	27	63	8	4	77.31	067		
6.7	0.20	16	6.4	30	32	68	8	4			96.64	067
7.0	0.20	16	6.8	25	27	63	8	4	77.31	070		
7.0	0.20	16	6.7	30	32	68	8	4			96.64	070
7.7	0.20	19	7.5	25	27	63	8	4	77.31	077		
7.7	0.20	21	7.4	30	32	68	8	4			96.64	077
8.0	0.20	19	7.8	25	27	63	8	4	81.90	080		
8.0	0.20	21	7.7	30	32	68	8	4			100.88	080
8.7	0.32	19	8.5	30	32	72	10	4	108.11	087		
8.7	0.32	22	8.4	38	40	80	10	4			118.89	087
9.0	0.32	19	8.8	30	32	72	10	4	108.11	090		
9.0	0.32	22	8.7	38	40	80	10	4			118.89	090
9.7	0.32	22	9.5	30	32	72	10	4	108.11	097		
9.7	0.32	22	9.4	38	40	80	10	4			118.89	097
10.0	0.32	22	9.8	30	32	72	10	4	104.83	100		
10.0	0.32	22	9.7	38	40	80	10	4			114.30	100
11.7	0.32	26	11.5	36	38	83	12	4	140.19	117		
11.7	0.32	26	11.3	46	48	93	12	4			163.09	117
12.0	0.32	26	11.8	36	38	83	12	4	133.63	120		
12.0	0.32	26	11.6	46	48	93	12	4			156.54	120
13.7	0.32	26	13.5	36	38	83	14	4	167.03	137		
13.7	0.32	26	13.3	52	54	99	14	4			198.78	137
14.0	0.32	26	13.8	36	38	83	14	4	172.89	140		
14.0	0.32	26	13.6	52	54	99	14	4			194.28	140
15.5	0.32	32	15.3	42	44	92	16	4	224.67	155		
15.5	0.32	36	15.0	58	60	108	16	4			273.85	155
16.0	0.32	32	15.8	42	44	92	16	4	231.61	160		
16.0	0.32	36	15.5	58	60	108	16	4			267.99	160
17.5	0.32	32	17.3	42	44	92	18	4	261.31	175		
17.5	0.32	36	17.0	67	69	117	18	4			306.96	175
18.0	0.32	32	17.8	42	44	92	18	4	267.58	180		
18.0	0.32	36	17.5	67	69	117	18	4			306.27	180
19.5	0.50	38	19.3	52	54	104	20	4	350.14	195		
19.5	0.50	41	19.0	74	76	126	20	4			445.52	195
20.0	0.50	38	19.8	52	54	104	20	4	362.00	200		
20.0	0.50	41	19.5	74	76	126	20	4			437.88	200

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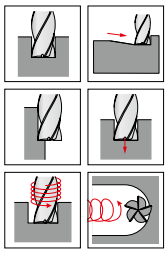
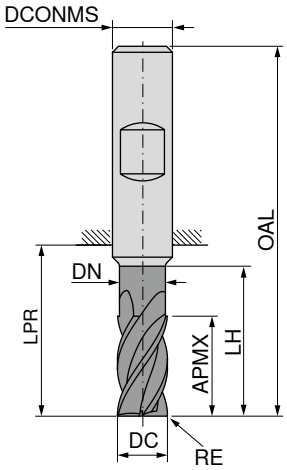
→ v_c/f_z Page 372+373

MonsterMill – Plunge milling cutter with corner radius

- suitable for trochoidal milling
- Chip breaker 0.9 x DC
- Cutting depth: 3 x DC

PCR ALU | λ_s=36° γ_s=13° | ZEFP | HPC





NEW

DLC

DRAGONSKIN





DIN 6527

HB 

52 618 ...

DC $_{f8}$ mm	RE $_{\pm 0,03}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ V1	
5	0.20	17	4.8	24	26	62	6	4	79.50	**05202**
6	0.20	18	5.8	25	26	62	6	4	79.50	**06202**
8	0.20	24	7.7	30	32	68	8	4	104.37	**08202**
10	0.32	30	9.7	35	40	80	10	4	121.55	**10203**
12	0.32	36	11.6	45	48	93	12	4	164.20	**12203**
14	0.32	42	13.6	50	54	99	14	4	208.69	**14203**
16	0.32	48	15.5	56	60	108	16	4	276.29	**16203**
18	0.32	54	17.5	67	69	117	18	4	345.32	**18203**
20	0.50	60	19.5	70	76	126	20	4	448.75	**20205**

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→ v_c/f_z Page 372–375

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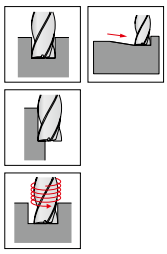
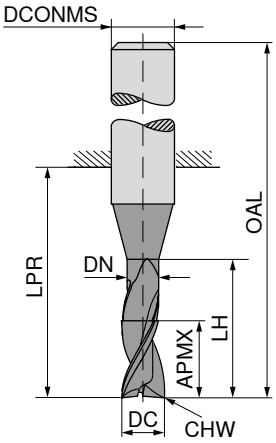
MonsterMill – Rough milling cutter

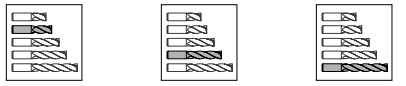
▲ Cutting edges with irregular pitch

MCR | λ_s=45° γ_s=15° | ZEFP | HPC









Factory standard | Factory standard | Factory standard

HB | HB | HB

DC $_{h11}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	52 752 ... £ V1		52 752 ... £ V1		52 752 ... £ V1	
1	1.5	0.9	3	10	38	3	0.09	3	174.02	010 [1]				
2	3.0	1.9	8	21	57	6	0.17	3	172.24	020				
3	5.0	2.9	14	21	57	6	0.17	3	185.83	030				
3	8.0	2.9	14	21	57	6	0.17	3			199.91	031		
3	5.0	2.9	19	26	62	6	0.17	3					189.90	032
4	8.0	3.8	18	21	57	6	0.17	3	183.73	040				
4	11.0	3.8	18	21	57	6	0.17	3			197.82	041		
4	8.0	3.8	23	26	62	6	0.17	3					187.78	042
5	9.0	4.8	19	21	57	6	0.17	3	179.70	050				
5	13.0	4.8	19	21	57	6	0.17	3			193.78	051		
5	9.0	4.8	24	26	62	6	0.17	3					183.73	052
6	10.0	5.8	20	21	57	6	0.17	4	175.68	060				
6	13.0	5.8	20	21	57	6	0.17	4			189.90	061		
6	10.0	5.8	25	26	62	6	0.17	4					179.70	062
8	12.0	7.7	25	27	63	8	0.28	4	195.58	080				
8	19.0	7.7	25	27	63	8	0.28	4			229.82	081		
8	12.0	7.7	30	32	68	8	0.28	4					199.46	082
10	15.0	9.5	30	32	72	10	0.28	4	218.75	100				
10	22.0	9.5	30	32	72	10	0.28	4			240.87	101		
10	15.0	9.5	35	40	80	10	0.28	4					226.84	102
12	18.0	11.5	35	38	83	12	0.28	4	268.88	120				
12	26.0	11.5	35	38	83	12	0.28	4			292.53	121		
12	18.0	11.5	45	48	93	12	0.28	4					282.48	122
14	21.0	13.5	35	38	83	14	0.28	4	313.78	140				
14	26.0	13.5	35	38	83	14	0.28	4			327.23	141		
14	21.0	13.5	50	54	99	14	0.28	4					338.74	142
16	24.0	15.5	40	44	92	16	0.43	4	439.59	160				
16	32.0	15.5	40	44	92	16	0.43	4			474.48	161		
16	24.0	15.5	55	60	108	16	0.43	4					472.66	162
20	30.0	19.5	50	54	104	20	0.43	4	584.42	200				
20	38.0	19.5	50	54	104	20	0.43	4			623.62	201		
20	30.0	19.5	70	76	126	20	0.43	4					643.07	202

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S	○	○	○
H	○	○	○

O

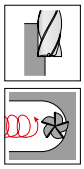
1) DIN 6535 HA Shank

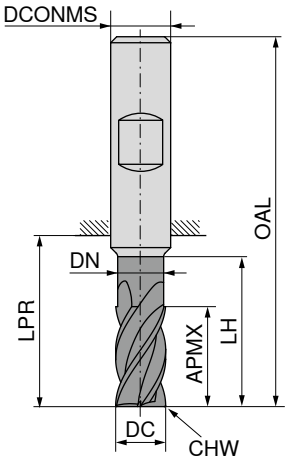
→ v_c/f_z Page 376–379

CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- 53 585 ... Cutting depth: 2 x DC
- 53 587 ... Cutting depth: 3 x DC

CCR UNI | λ_s=30° λ_s=31° γ_s= 8° | ZEFP | HPC





DPX72S DRAGONSKIN | DPX72S DRAGONSKIN









Factory standard | Factory standard

HB | HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 585 ... £ V1		53 587 ... £ V1	
6	13	5.8	19	21	57	6	0.2	6	56.35	060		
6	19	5.8	25	27	63	6	0.2	6			55.24	060
8	21	7.7	25	27	63	8	0.2	6	73.49	080		
8	25	7.7	33	35	71	8	0.2	6			71.68	080
10	22	9.7	30	32	72	10	0.2	6	94.42	100		
10	31	9.7	41	43	83	10	0.2	6			101.06	100
12	26	11.6	36	38	83	12	0.2	6	121.42	120		
12	37	11.6	47	49	94	12	0.2	6			118.69	120
14	26	13.6	36	38	83	14	0.2	6	159.85	14000		
14	43	13.6	55	59	104	14	0.2	6			208.48	14000
16	36	15.5	42	44	92	16	0.2	6	242.20	160		
16	49	15.5	61	63	111	16	0.2	6			245.61	160
18	36	17.5	42	44	92	18	0.2	6	318.90	18000		
18	55	17.5	69	73	121	18	0.2	6			336.45	18000
20	41	19.5	52	54	104	20	0.2	6	348.22	200		
20	61	19.5	75	77	127	20	0.2	6			344.32	200
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M										○		○
K										●		●
N												
S										○		○
H												
O												

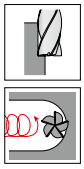
→ v_c/f_z Page 380+381

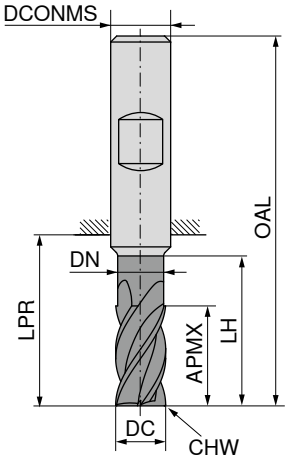
14

CircularLine – End milling cutter

- Chip breaker 0,9 x DC
- Cutting depth: 4 x DC

CCR UNI | λ_s=35° 36° γ_s= 8° | ZEFP | HPC





DPX72S

DRAGONSKIN





Factory standard

HB 

53 589 ...

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	£ V1	
6	25	5.8	29	31	67	6	0.2	5	57.58	**060**
8	33	7.7	38	40	76	8	0.2	5	74.05	**080**
10	41	9.7	47	49	89	10	0.2	5	102.24	**100**
12	49	11.6	55	57	102	12	0.2	5	124.56	**120**
14	57	13.6	64	68	113	14	0.2	5	218.30	**14000**
16	65	15.5	73	75	123	16	0.2	5	250.30	**160**
18	73	17.5	82	86	134	18	0.2	5	339.11	**18000**
20	82	19.5	91	93	143	20	0.2	5	352.54	**200**

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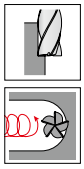
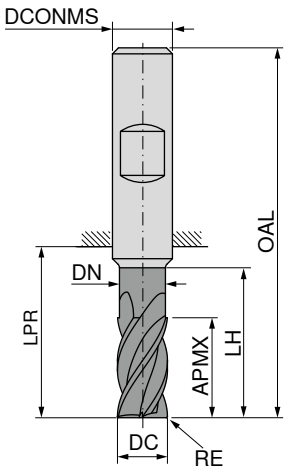
→ v_c/f_z Page 382+383

CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 2 x DC

CCR UNI | λ_s=30° γ_s= 8° | ZEFP | HPC





DPX72S

DRAGONSKIN





Factory standard

HB

53 586 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
6	0.2	13	5.8	19	21	57	6	6	56.35	06002
6	1.0	13	5.8	19	21	57	6	6	56.66	06010
6	1.5	13	5.8	19	21	57	6	6	56.66	06015
8	0.2	21	7.7	25	27	63	8	6	73.49	08002
8	1.0	21	7.7	25	27	63	8	6	75.24	08010
8	1.5	21	7.7	25	27	63	8	6	75.24	08015
8	2.0	21	7.7	25	27	63	8	6	75.24	08020
10	0.2	22	9.7	30	32	72	10	6	94.42	10002
10	1.0	22	9.7	30	32	72	10	6	97.01	10010
10	1.5	22	9.7	30	32	72	10	6	97.01	10015
10	1.6	22	9.7	30	32	72	10	6	97.01	10016
10	2.0	22	9.7	30	32	72	10	6	97.01	10020
12	0.2	26	11.6	36	38	83	12	6	121.42	12002
12	1.0	26	11.6	36	38	83	12	6	121.98	12010
12	1.5	26	11.6	36	38	83	12	6	121.98	12015
12	1.6	26	11.6	36	38	83	12	6	121.98	12016
12	2.0	26	11.6	36	38	83	12	6	121.98	12020
12	3.0	26	11.6	36	38	83	12	6	121.98	12030
14	0.2	30	13.6	36	38	83	14	6	138.14	14002
14	1.0	30	13.6	36	38	83	14	6	139.29	14010
14	1.5	30	13.6	36	38	83	14	6	139.29	14015
14	1.6	30	13.6	36	38	83	14	6	139.29	14016
14	2.0	30	13.6	36	38	83	14	6	139.29	14020
14	3.0	30	13.6	36	38	83	14	6	139.29	14030
16	0.2	36	15.5	42	44	92	16	6	242.20	16002
16	1.0	36	15.5	42	44	92	16	6	261.14	16010
16	1.5	36	15.5	42	44	92	16	6	252.39	16015
16	1.6	36	15.5	42	44	92	16	6	252.39	16016
16	2.0	36	15.5	42	44	92	16	6	252.39	16020
16	3.0	36	15.5	42	44	92	16	6	252.39	16030
16	4.0	36	15.5	42	44	92	16	6	252.39	16040
18	0.2	38	17.5	42	44	92	18	6	275.70	18002
18	1.0	38	17.5	42	44	92	18	6	278.01	18010
18	1.5	38	17.5	42	44	92	18	6	278.01	18015
18	1.6	38	17.5	42	44	92	18	6	278.01	18016
18	2.0	38	17.5	42	44	92	18	6	278.01	18020
18	3.0	38	17.5	42	44	92	18	6	278.01	18030

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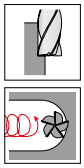
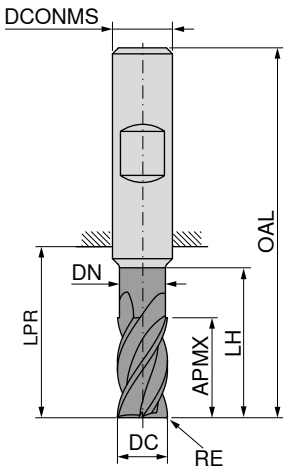
CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 2 x DC

CCR UNI | λ_s=30° γ_s= 8° | ZEFP | HPC





DPX72S

DRAGONSKIN





Factory standard

HB 

53 586 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ V1	
18	4.0	38	17.5	42	44	92	18	6	278.01	**18040**
20	0.2	41	19.5	52	54	104	20	6	348.22	**20002**
20	1.0	41	19.5	52	54	104	20	6	351.74	**20010**
20	1.5	41	19.5	52	54	104	20	6	351.74	**20015**
20	1.6	41	19.5	52	54	104	20	6	351.74	**20016**
20	2.0	41	19.5	52	54	104	20	6	351.74	**20020**
20	3.0	41	19.5	52	54	104	20	6	351.74	**20030**
20	4.0	41	19.5	52	54	104	20	6	351.74	**20040**

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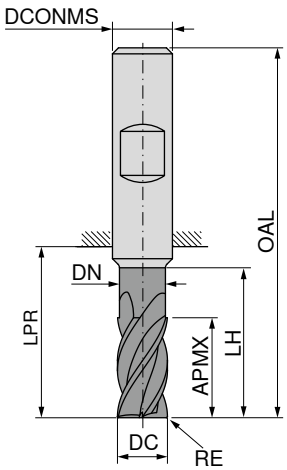
→ v_c/f_z Page 380+381

CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 3 x DC

CCR UNI | λ_s=30° γ_s= 8° | ZEFP | HPC



NEW

DPX72S

DRAGONSKIN



Factory standard

HB

53 642 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
6	0.2	19	5.8	25	27	63	6	6	55.24	06202
6	1.0	19	5.8	25	27	63	6	6	56.41	06210
6	1.5	19	5.8	25	27	63	6	6	56.41	06215
8	0.2	25	7.7	33	35	71	8	6	71.68	08202
8	1.0	25	7.7	33	35	71	8	6	74.05	08210
8	1.5	25	7.7	33	35	71	8	6	74.05	08215
8	2.0	25	7.7	33	35	71	8	6	74.05	08220
10	0.2	31	9.7	41	43	83	10	6	101.06	10202
10	1.0	31	9.7	41	43	83	10	6	103.40	10210
10	1.5	31	9.7	41	43	83	10	6	103.40	10215
10	1.6	31	9.7	41	43	83	10	6	103.40	10216
10	2.0	31	9.7	41	43	83	10	6	103.40	10220
12	0.2	37	11.6	47	49	94	12	6	118.69	12202
12	1.0	37	11.6	47	49	94	12	6	122.21	12210
12	1.5	37	11.6	47	49	94	12	6	122.21	12215
12	1.6	37	11.6	47	49	94	12	6	122.21	12216
12	2.0	37	11.6	47	49	94	12	6	122.21	12220
12	3.0	37	11.6	47	49	94	12	6	122.21	12230
14	0.2	43	13.6	55	59	104	14	6	188.50	14202
14	1.0	43	13.6	55	59	104	14	6	192.36	14210
14	1.5	43	13.6	55	59	104	14	6	192.36	14215
14	1.6	43	13.6	55	59	104	14	6	192.36	14216
14	2.0	43	13.6	55	59	104	14	6	192.36	14220
14	3.0	43	13.6	55	59	104	14	6	192.36	14230
16	0.2	49	15.5	61	63	111	16	6	245.61	16202
16	1.0	49	15.5	61	63	111	16	6	247.95	16210
16	1.5	49	15.5	61	63	111	16	6	247.95	16215
16	1.6	49	15.5	61	63	111	16	6	247.95	16216
16	2.0	49	15.5	61	63	111	16	6	247.95	16220
16	3.0	49	15.5	61	63	111	16	6	247.95	16230
16	4.0	49	15.5	61	63	111	16	6	247.95	16240
18	0.2	55	17.5	69	73	121	18	6	304.05	18202
18	1.0	55	17.5	69	73	121	18	6	307.19	18210
18	1.5	55	17.5	69	73	121	18	6	307.19	18215
18	1.6	55	17.5	69	73	121	18	6	307.19	18216
18	2.0	55	17.5	69	73	121	18	6	307.19	18220

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→ v_c/f_z Page 380+381

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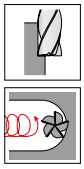
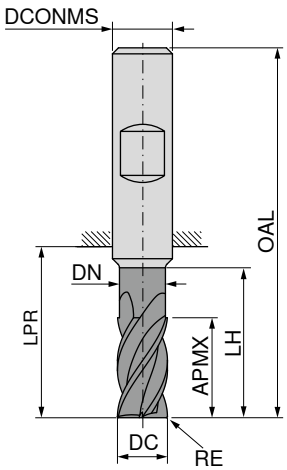
CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 3 x DC

CCR UNI | λ_s=30° γ_s= 8° | ZEFP | HPC





NEW

DPX72S

DRAGONSKIN



Factory standard

HB

53 642 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
18	3.0	55	17.5	69	73	121	18	6	307.19	**18230**
18	4.0	55	17.5	69	73	121	18	6	307.19	**18240**
20	0.2	61	19.5	75	77	127	20	6	344.32	**20202**
20	1.0	61	19.5	75	77	127	20	6	347.82	**20210**
20	1.5	61	19.5	75	77	127	20	6	347.82	**20215**
20	1.6	61	19.5	75	77	127	20	6	347.82	**20216**
20	2.0	61	19.5	75	77	127	20	6	347.82	**20220**
20	3.0	61	19.5	75	77	127	20	6	347.82	**20230**
20	4.0	61	19.5	75	77	127	20	6	347.82	**20240**

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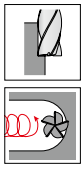
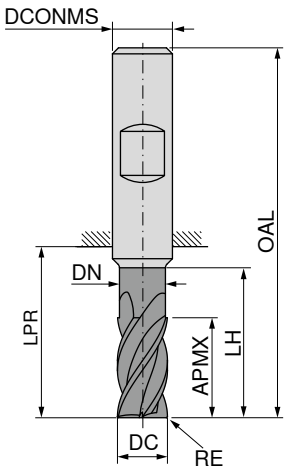
→ v_c/f_z Page 380+381

CircularLine – End milling cutter

- ▲ Chip breaker 0.9 x DC
- ▲ Cutting depth: 4 x DC

CCR UNI | λ_s=35° 36° γ_s= 9° | ZEFP | HPC





DPX72S

DRAGONSKIN





Factory standard

HB 

53 593 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ V1	
6	0.2	25	5.8	29	31	67	6	5	57.58	**06002**
6	1.0	25	5.8	29	31	67	6	5	58.75	**06010**
6	1.5	25	5.8	29	31	67	6	5	58.75	**06015**
8	0.2	33	7.7	38	40	76	8	5	74.05	**08002**
8	1.0	33	7.7	38	40	76	8	5	75.21	**08010**
8	1.5	33	7.7	38	40	76	8	5	75.21	**08015**
8	2.0	33	7.7	38	40	76	8	5	75.21	**08020**
10	0.2	41	9.7	47	49	89	10	5	102.24	**10002**
10	1.0	41	9.7	47	49	89	10	5	104.59	**10010**
10	1.5	41	9.7	47	49	89	10	5	104.59	**10015**
10	1.6	41	9.7	47	49	89	10	5	104.59	**10016**
10	2.0	41	9.7	47	49	89	10	5	104.59	**10020**
12	0.2	49	11.6	55	57	102	12	5	124.56	**12002**
12	1.0	49	11.6	55	57	102	12	5	128.09	**12010**
12	1.5	49	11.6	55	57	102	12	5	128.09	**12015**
12	1.6	49	11.6	55	57	102	12	5	128.09	**12016**
12	2.0	49	11.6	55	57	102	12	5	128.09	**12020**
12	3.0	49	11.6	55	57	102	12	5	128.09	**12030**
14	0.2	57	13.6	64	68	113	14	5	188.73	**14002**
14	1.0	57	13.6	64	68	113	14	5	192.65	**14010**
14	1.5	57	13.6	64	68	113	14	5	192.65	**14015**
14	1.6	57	13.6	64	68	113	14	5	192.65	**14016**
14	2.0	57	13.6	64	68	113	14	5	192.65	**14020**
14	3.0	57	13.6	64	68	113	14	5	192.65	**14030**
16	0.2	65	15.5	73	75	123	16	5	250.30	**16002**
16	1.0	65	15.5	73	75	123	16	5	255.00	**16010**
16	1.5	65	15.5	73	75	123	16	5	255.00	**16015**
16	1.6	65	15.5	73	75	123	16	5	255.00	**16016**
16	2.0	65	15.5	73	75	123	16	5	255.00	**16020**
16	3.0	65	15.5	73	75	123	16	5	255.00	**16030**
16	4.0	65	15.5	73	75	123	16	5	255.00	**16040**
18	0.2	73	17.5	82	86	134	18	5	293.14	**18002**
18	1.0	73	17.5	82	86	134	18	5	296.37	**18010**
18	1.5	73	17.5	82	86	134	18	5	296.37	**18015**
18	1.6	73	17.5	82	86	134	18	5	296.37	**18016**
18	2.0	73	17.5	82	86	134	18	5	296.37	**18020**
18	3.0	73	17.5	82	86	134	18	5	296.37	**18030**

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→ v_c/f_z Page 382+383

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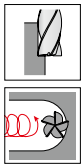
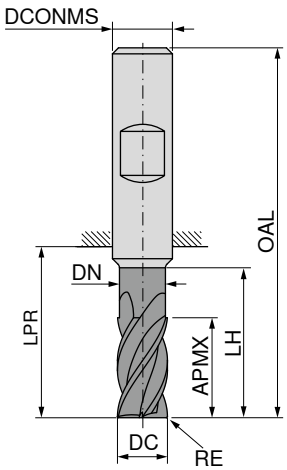
CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 4 x DC

CCR UNI | λ_s=35° γ_s= 9° | ZEFP | HPC





DPX72S

DRAGONSKIN





Factory standard

HB

53 593 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
18	4.0	73	17.5	82	86	134	18	5	296.37	**18040**
20	0.2	82	19.5	91	93	143	20	5	352.54	**20002**
20	1.0	82	19.5	91	93	143	20	5	358.41	**20010**
20	1.5	82	19.5	91	93	143	20	5	358.41	**20015**
20	1.6	82	19.5	91	93	143	20	5	358.41	**20016**
20	2.0	82	19.5	91	93	143	20	5	358.41	**20020**
20	3.0	82	19.5	91	93	143	20	5	358.41	**20030**
20	4.0	82	19.5	91	93	143	20	5	358.41	**20040**

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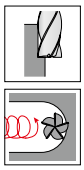
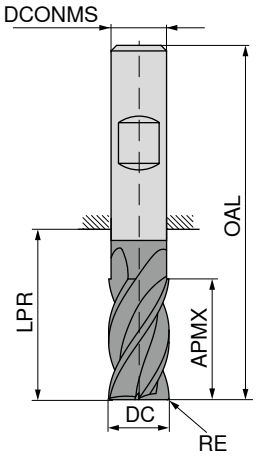
→ v_c/f_z Page 382+383

CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 5 x DC

CCR UNI | λ_s=35° 36° γ_s= 9° | ZEFP | HPC





NEW

DPX72S

DRAGONSKIN





Factory standard

HB

53 593 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ V1	
6.0	0.2	31	39	75	6	5	83.67	**06402**
6.0	1.0	31	39	75	6	5	83.67	**06410**
6.0	1.5	31	39	75	6	5	83.67	**06415**
8.0	0.2	41	49	85	8	5	96.45	**08402**
8.0	1.0	41	49	85	8	5	96.45	**08410**
8.0	1.5	41	49	85	8	5	96.45	**08415**
8.0	2.0	41	49	85	8	5	96.45	**08420**
10.0	0.2	51	60	100	10	5	133.17	**10402**
10.0	1.0	51	60	100	10	5	133.17	**10410**
10.0	1.5	51	60	100	10	5	133.17	**10415**
10.0	1.6	51	60	100	10	5	133.17	**10416**
10.0	2.0	51	60	100	10	5	133.17	**10420**
12.0	0.2	61	70	115	12	5	165.07	**12402**
12.0	1.0	61	70	115	12	5	165.07	**12410**
12.0	1.5	61	70	115	12	5	165.07	**12415**
12.0	1.6	61	70	115	12	5	165.07	**12416**
12.0	2.0	61	70	115	12	5	165.07	**12420**
12.0	3.0	61	70	115	12	5	165.07	**12430**
14.0	0.2	71	81	126	14	5	165.07	**14402**
14.0	1.0	71	81	126	14	5	339.07	**14410**
14.0	1.5	71	81	126	14	5	339.07	**14415**
14.0	1.6	71	81	126	14	5	339.07	**14416**
14.0	2.0	71	81	126	14	5	339.07	**14420**
14.0	3.0	71	81	126	14	5	339.07	**14430**
16.0	0.2	81	92	140	16	5	335.44	**16402**
16.0	1.0	81	92	140	16	5	335.44	**16410**
16.0	1.5	81	92	140	16	5	335.44	**16415**
16.0	1.6	81	92	140	16	5	335.44	**16416**
16.0	2.0	81	92	140	16	5	335.44	**16420**
16.0	3.0	81	92	140	16	5	335.44	**16430**
16.0	4.0	81	92	140	16	5	335.44	**16440**
18.0	0.2	91	102	150	18	5	383.62	**18402**
18.0	1.0	91	102	150	18	5	383.62	**18410**
18.0	1.5	91	102	150	18	5	383.62	**18415**
18.0	1.6	91	102	150	18	5	383.62	**18416**

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→ v_c/f_z Page 384+385

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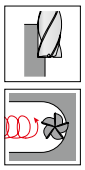
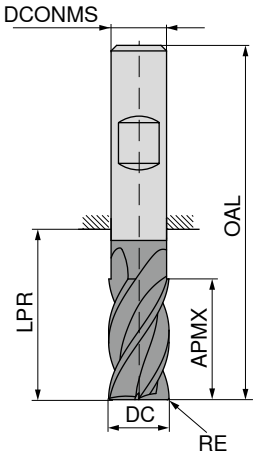
CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 5 x DC

CCR UNI | λ_s=35° 36° γ_s= 9° | ZEFP | HPC





NEW

DPX72S

DRAGONSKIN





Factory standard

HB

53 593 ...

DC e8 mm	RE ±0,05 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
18.0	2.0	91	102	150	18	5	383.62	**18420**
18.0	3.0	91	102	150	18	5	383.62	**18430**
18.0	4.0	91	102	150	18	5	383.62	**18440**
20.0	0.2	102	113	163	20	5	463.22	**20402**
20.0	1.0	102	113	163	20	5	463.22	**20410**
20.0	1.5	102	113	163	20	5	463.22	**20415**
20.0	1.6	102	113	163	20	5	463.22	**20416**
20.0	2.0	102	113	163	20	5	463.22	**20420**
20.0	3.0	102	113	163	20	5	463.22	**20430**
20.0	4.0	102	113	163	20	5	463.22	**20440**

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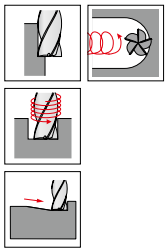
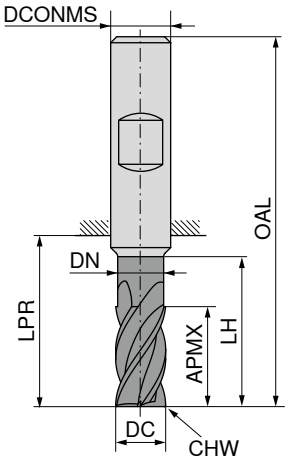
→ v_c/f_z Page 384+385

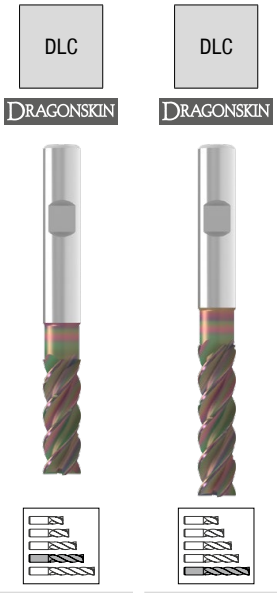
CircularLine – End milling cutter

- Chip breaker 1.8 x DC
- 53 590 ... Cutting depth: 3 x DC
- 53 591 ... Cutting depth: 4 x DC









Factory standard | Factory standard

HB | HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 590 ... £ V1		53 591 ... £ V1	
6	19	5.8	24	30	66	6	0.2	4	57.58	060		
6	25	5.8	30	35	71	6	0.2	4			59.93	060
8	25	7.7	32	37	73	8	0.2	4	75.21	080		
8	33	7.7	40	44	80	8	0.2	4			77.55	080
10	31	9.7	40	49	89	10	0.2	4	105.76	100		
10	41	9.7	50	55	95	10	0.2	4			106.94	100
12	37	11.6	48	56	101	12	0.2	4	126.90	120		
12	49	11.6	60	64	109	12	0.2	4			132.79	120
14	43	13.0	56	60	105	14	0.2	4	190.81	14000		
14	57	13.0	70	74	119	14	0.2	4			195.43	14000
16	49	15.5	64	72	120	16	0.2	4	259.70	160		
16	65	15.5	80	84	132	16	0.2	4			265.58	160
18	56	17.0	72	76	124	18	0.2	4	293.25	18000		
18	74	17.0	90	94	142	18	0.2	4			316.35	18000
20	62	19.5	80	84	134	20	0.2	4	364.29	200		
20	82	19.5	100	104	154	20	0.2	4			373.67	200
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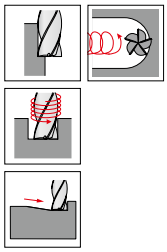
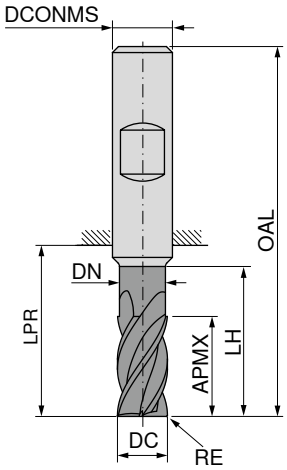
→ v_c/f_z Page 386

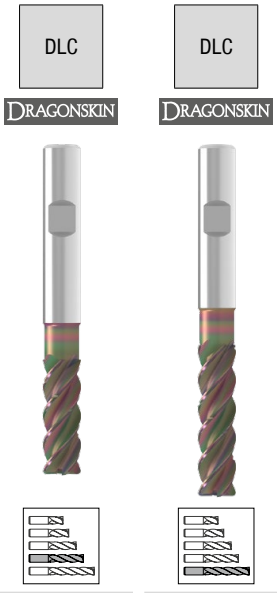
CircularLine – End milling cutter

- Chip breaker 1.8 x DC
- 53 594 ... Cutting depth: 3 x DC
- 53 595 ... Cutting depth: 4 x DC









Factory standard | Factory standard

HB | HB

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 594 ... £ V1		53 595 ... £ V1	
6	0.2	19	5.8	24	30	66	6	4	57.58	06002		
6	1.0	19	5.8	24	30	66	6	4	59.93	06010		
6	1.5	19	5.8	24	30	66	6	4	59.93	06015		
6	0.2	25	5.8	30	35	71	6	4			59.93	06002
6	1.0	25	5.8	30	35	71	6	4			61.10	06010
6	1.5	25	5.8	30	35	71	6	4			61.10	06015
8	0.2	25	7.7	32	37	73	8	4	75.21	08002		
8	1.0	25	7.7	32	37	73	8	4	77.55	08010		
8	1.5	25	7.7	32	37	73	8	4	77.55	08015		
8	2.0	25	7.7	32	37	73	8	4	77.55	08020		
8	0.2	33	7.7	40	44	80	8	4			77.55	08002
8	1.0	33	7.7	40	44	80	8	4			79.91	08010
8	1.5	33	7.7	40	44	80	8	4			79.91	08015
8	2.0	33	7.7	40	44	80	8	4			79.91	08020
10	0.2	31	9.7	40	49	89	10	4	105.76	10002		
10	1.0	31	9.7	40	49	89	10	4	106.94	10010		
10	1.5	31	9.7	40	49	89	10	4	106.94	10015		
10	1.6	31	9.7	40	49	89	10	4	106.94	10016		
10	2.0	31	9.7	40	49	89	10	4	106.94	10020		
10	0.2	41	9.7	50	55	95	10	4			106.94	10002
10	1.0	41	9.7	50	55	95	10	4			109.29	10010
10	1.5	41	9.7	50	55	95	10	4			109.29	10015
10	1.6	41	9.7	50	55	95	10	4			109.29	10016
10	2.0	41	9.7	50	55	95	10	4			109.29	10020
12	0.2	37	11.6	48	56	101	12	4	126.90	12002		
12	1.0	37	11.6	48	56	101	12	4	129.27	12010		
12	1.5	37	11.6	48	56	101	12	4	129.27	12015		
12	1.6	37	11.6	48	56	101	12	4	129.27	12016		
12	2.0	37	11.6	48	56	101	12	4	129.27	12020		
12	3.0	37	11.6	48	56	101	12	4	129.27	12030		
12	0.2	49	11.6	60	64	109	12	4			132.79	12002
12	1.0	49	11.6	60	64	109	12	4			136.31	12010
12	1.5	49	11.6	60	64	109	12	4			136.31	12015
12	1.6	49	11.6	60	64	109	12	4			136.31	12016
12	2.0	49	11.6	60	64	109	12	4			136.31	12020
12	3.0	49	11.6	60	64	109	12	4			136.31	12030

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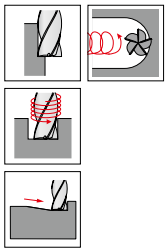
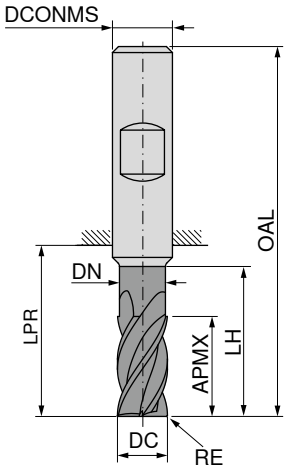
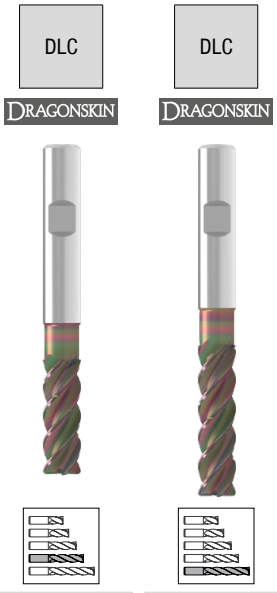
CircularLine – End milling cutter

- Chip breaker 1.8 x DC
- 53 594 ... Cutting depth: 3 x DC
- 53 595 ... Cutting depth: 4 x DC









Factory standard | Factory standard

HB | HB

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 594 ... £ V1		53 595 ... £ V1	
14	0.2	43	13.0	56	60	105	14	4	190.81	14002		
14	1.0	43	13.0	56	60	105	14	4	194.96	14010		
14	1.5	43	13.0	56	60	105	14	4	194.96	14015		
14	1.6	43	13.0	56	60	105	14	4	194.96	14016		
14	2.0	43	13.0	56	60	105	14	4	194.96	14020		
14	3.0	43	13.0	56	60	105	14	4	194.96	14030		
14	0.2	57	13.0	70	74	119	14	4			195.43	14002
14	1.0	57	13.0	70	74	119	14	4			197.51	14010
14	1.5	57	13.0	70	74	119	14	4			197.51	14015
14	1.6	57	13.0	70	74	119	14	4			197.51	14016
14	2.0	57	13.0	70	74	119	14	4			197.51	14020
14	3.0	57	13.0	70	74	119	14	4			197.51	14030
16	0.2	49	15.5	64	72	120	16	4	259.70	16002		
16	1.0	49	15.5	64	72	120	16	4	262.05	16010		
16	1.5	49	15.5	64	72	120	16	4	262.05	16015		
16	1.6	49	15.5	64	72	120	16	4	262.05	16016		
16	2.0	49	15.5	64	72	120	16	4	262.05	16020		
16	3.0	49	15.5	64	72	120	16	4	262.05	16030		
16	4.0	49	15.5	64	72	120	16	4	262.05	16040		
16	0.2	65	15.5	80	84	132	16	4			265.58	16002
16	1.0	65	15.5	80	84	132	16	4			269.10	16010
16	1.5	65	15.5	80	84	132	16	4			269.10	16015
16	1.6	65	15.5	80	84	132	16	4			269.10	16016
16	2.0	65	15.5	80	84	132	16	4			269.10	16020
16	3.0	65	15.5	80	84	132	16	4			269.10	16030
16	4.0	65	15.5	80	84	132	16	4			269.10	16040
18	0.2	56	17.0	72	76	124	18	4	293.25	18002		
18	1.0	56	17.0	72	76	124	18	4	296.03	18010		
18	1.5	56	17.0	72	76	124	18	4	296.03	18015		
18	1.6	56	17.0	72	76	124	18	4	296.03	18016		
18	2.0	56	17.0	72	76	124	18	4	296.03	18020		
18	3.0	56	17.0	72	76	124	18	4	296.03	18030		
18	4.0	56	17.0	72	76	124	18	4	296.03	18040		
18	0.2	74	17.0	90	94	142	18	4			316.35	18002
18	1.0	74	17.0	90	94	142	18	4			317.39	18010
18	1.5	74	17.0	90	94	142	18	4			317.39	18015

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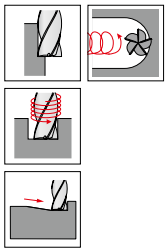
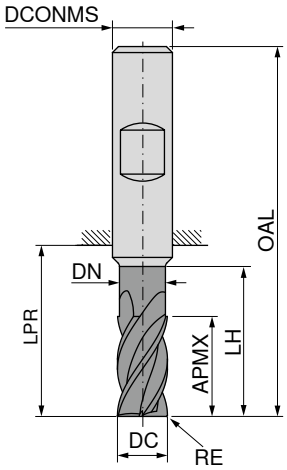
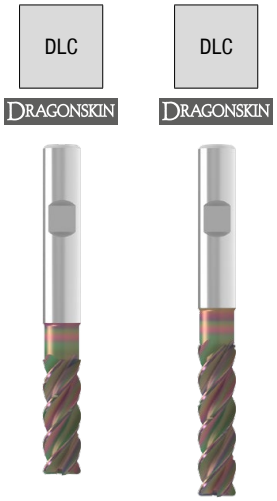
CircularLine – End milling cutter

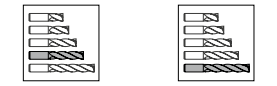
- Chip breaker 1.8 x DC
- 53 594 ... Cutting depth: 3 x DC
- 53 595 ... Cutting depth: 4 x DC











Factory standard | Factory standard

HB | HB

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 594 ... £ V1		53 595 ... £ V1	
18	1.6	74	17.0	90	94	142	18	4			317.39	**18016**
18	2.0	74	17.0	90	94	142	18	4			317.39	**18020**
18	3.0	74	17.0	90	94	142	18	4			317.39	**18030**
18	4.0	74	17.0	90	94	142	18	4			317.39	**18040**
20	0.2	62	19.5	80	84	134	20	4	364.29	**20002**		
20	1.0	62	19.5	80	84	134	20	4	368.98	**20010**		
20	1.5	62	19.5	80	84	134	20	4	368.98	**20015**		
20	1.6	62	19.5	80	84	134	20	4	368.98	**20016**		
20	2.0	62	19.5	80	84	134	20	4	368.98	**20020**		
20	3.0	62	19.5	80	84	134	20	4	368.98	**20030**		
20	4.0	62	19.5	80	84	134	20	4	368.98	**20040**		
20	0.2	82	19.5	100	104	154	20	4			373.67	**20002**
20	1.0	82	19.5	100	104	154	20	4			377.21	**20010**
20	1.5	82	19.5	100	104	154	20	4			377.21	**20015**
20	1.6	82	19.5	100	104	154	20	4			377.21	**20016**
20	2.0	82	19.5	100	104	154	20	4			377.21	**20020**
20	3.0	82	19.5	100	104	154	20	4			377.21	**20030**
20	4.0	82	19.5	100	104	154	20	4			377.21	**20040**

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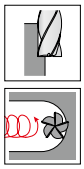
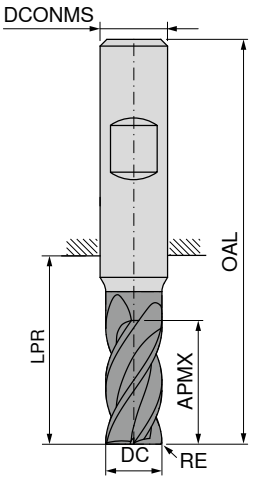
→ v_c/f_z Page 386

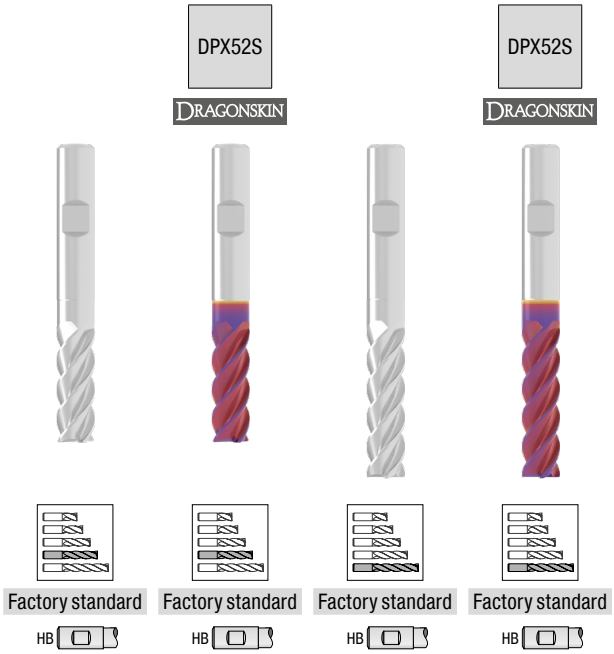
CircularLine – End milling cutter with corner radius

- Chip breaker 0.9 x DC
- 52 509 ... / 52 510 ... Long cutting depth version: 3 x DC
- 52 509 ... / 52 510 ... Extra-long cutting depth version: 4 x DC

CCR Ti | λ_s=40° γ_s=10° | ZEFP | HPC







Factory standard | Factory standard | Factory standard | Factory standard

HB | HB | HB | HB

DC e8 mm	RE ±0,01 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	52 509 ... £ V1		52 510 ... £ V1		52 509 ... £ V1		52 510 ... £ V1	
6	0.1	18	29	65	6	5	71.55	**06000**	79.58	**06000**				
6	0.1	24	31	67	6	5					77.75	**06100**	85.80	**06100**
8	0.2	24	34	70	8	5	93.81	**08000**	105.11	**08000**				
8	0.2	32	44	80	8	5					97.67	**08100**	108.96	**08100**
10	0.2	30	40	80	10	5	117.29	**10000**	131.20	**10000**				
10	0.2	40	50	90	10	5					124.16	**10100**	138.11	**10100**
12	0.2	36	50	95	12	5	150.23	**12000**	165.99	**12000**				
12	0.2	48	55	100	12	5					156.78	**12100**	172.55	**12100**
16	0.2	48	62	110	16	5	232.44	**16000**	251.72	**16000**				
16	0.3	64	72	120	16	5					247.23	**16100**	266.64	**16100**
20	0.3	60	75	125	20	5	306.64	**20000**	330.41	**20000**				
20	0.3	80	90	140	20	5					379.03	**20100**	402.80	**20100**

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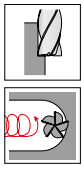
→ v_c/f_z Page 388+389

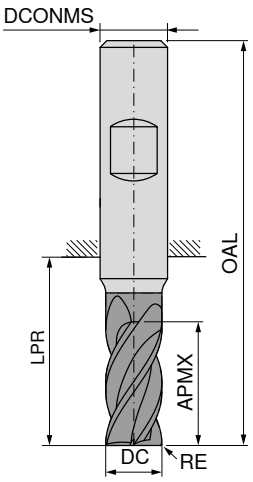
14

CircularLine – End milling cutter with corner radius

- Chip breaker 0.9 x DC
- Cutting depth: 3 x DC

CCR H | λ_s= 60° γ_s= -6° | ZEFP | 45–70 HRC





DPX62S

DRAGONSKIN





Factory standard

HB

53 596 ...

DC $_{e8}$ mm	RE $_{\pm 0,03}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ V1	
6	0.2	19	24	60	6	6	61.69	**06002**
6	1.0	19	24	60	6	6	61.69	**06010**
8	0.2	25	31	67	8	6	84.98	**08002**
8	1.0	25	31	67	8	6	84.98	**08010**
10	0.2	31	37	77	10	6	117.71	**10002**
10	1.0	31	37	77	10	6	117.71	**10010**
10	1.5	31	37	77	10	6	117.71	**10015**
12	0.2	37	43	88	12	6	139.82	**12002**
12	1.0	37	43	88	12	6	139.82	**12010**
12	1.5	37	43	88	12	6	139.82	**12015**
12	2.0	37	43	88	12	6	139.82	**12020**
12	3.0	37	43	88	12	6	139.82	**12030**
16	0.2	49	56	104	16	6	280.02	**16002**
16	1.0	49	56	104	16	6	280.02	**16010**
16	1.5	49	56	104	16	6	280.02	**16015**
16	2.0	49	56	104	16	6	280.02	**16020**
16	3.0	49	56	104	16	6	280.02	**16030**
20	0.2	61	68	118	20	6	403.83	**20002**
20	1.0	61	68	118	20	6	403.83	**20010**
20	1.5	61	68	118	20	6	403.83	**20015**
20	2.0	61	68	118	20	6	403.83	**20020**
20	3.0	61	68	118	20	6	403.83	**20030**

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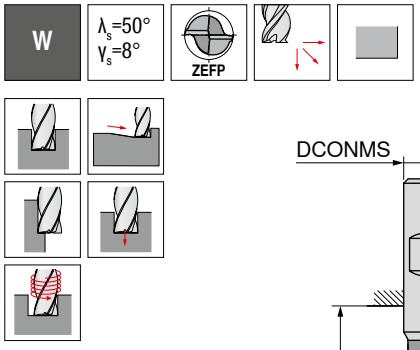
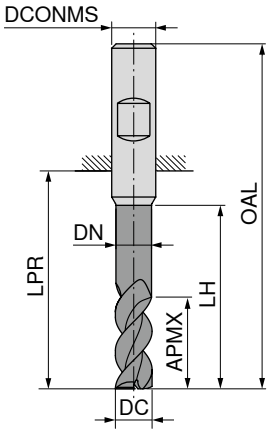
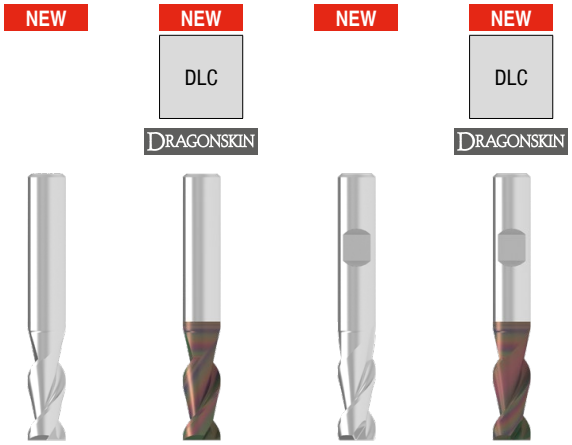
→ v_c/f_z Page 387

AluLine – End milling cutter

▲ With polished chip flutes









	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HB	HB
	53 623 ...	53 625 ...	53 624 ...	53 626 ...

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1		£ V1		£ V1		£ V1	
5.0	10.5	4.8	15	22	58	6	2	40.78	**05100**	51.81	**05100**	40.78	**05100**	51.81	**05100**
5.5	13.0	5.3	18	22	58	6	2	49.60	**05600**	60.63	**05600**	49.60	**05600**	60.63	**05600**
6.0	13.0	5.8	18	22	58	6	2	46.29	**06100**	58.42	**06100**	46.29	**06100**	58.42	**06100**
6.5	17.0	6.2	24	28	64	8	2	52.91	**06600**	65.04	**06600**	52.91	**06600**	65.04	**06600**
7.0	17.0	6.7	24	28	64	8	2	51.81	**07100**	63.93	**07100**	51.81	**07100**	63.93	**07100**
7.5	17.0	7.2	24	28	64	8	2	50.70	**07600**	62.83	**07600**	50.70	**07600**	62.83	**07600**
8.0	17.0	7.7	24	28	64	8	2	48.50	**08100**	61.73	**08100**	48.50	**08100**	61.73	**08100**
8.5	21.0	8.2	30	34	74	10	2	81.57	**08600**	95.90	**08600**	81.57	**08600**	95.90	**08600**
9.0	21.0	8.7	30	34	74	10	2	79.37	**09100**	93.69	**09100**	79.37	**09100**	93.69	**09100**
9.5	21.0	9.2	30	34	74	10	2	77.16	**09600**	91.49	**09600**	77.16	**09600**	91.49	**09600**
10.0	21.0	9.7	30	34	74	10	2	73.86	**10100**	89.28	**10100**	73.86	**10100**	89.28	**10100**
10.5	25.0	10.1	36	40	85	12	2	112.43	**10600**	127.87	**10600**	112.43	**10600**	127.87	**10600**
11.0	25.0	10.6	36	40	85	12	2	110.23	**11100**	125.66	**11100**	110.23	**11100**	125.66	**11100**
11.5	25.0	11.1	36	40	85	12	2	106.92	**11600**	122.36	**11600**	106.92	**11600**	122.36	**11600**
12.0	25.0	11.6	36	40	85	12	2	104.72	**12100**	125.66	**12100**	104.72	**12100**	125.66	**12100**
12.5	29.0	12.1	42	46	91	14	2					151.01	**12600**	171.96	**12600**
13.0	29.0	12.6	42	46	91	14	2					149.91	**13100**	170.86	**13100**
13.5	29.0	13.1	42	46	91	14	2					147.70	**13600**	169.75	**13600**
14.0	29.0	13.6	42	46	91	14	2					149.91	**14100**	178.57	**14100**
14.5	33.0	14.0	48	52	100	16	2					205.02	**14600**	233.69	**14600**
15.0	33.0	14.5	48	52	100	16	2					199.51	**15100**	229.28	**15100**
15.5	33.0	15.0	48	52	100	16	2					195.10	**15600**	223.77	**15600**
16.0	33.0	15.5	48	52	100	16	2					205.02	**16100**	239.20	**16100**
16.5	38.0	16.0	54	58	106	18	2					265.65	**16600**	299.83	**16600**
17.0	38.0	16.5	54	58	106	18	2					257.93	**17100**	292.11	**17100**
17.5	38.0	17.0	54	58	106	18	2					251.32	**17600**	284.39	**17600**
18.0	38.0	17.5	54	58	106	18	2					248.02	**18100**	284.39	**18100**
18.5	42.0	18.0	60	64	114	20	2					328.48	**18600**	364.85	**18600**
19.0	42.0	18.5	60	64	114	20	2					319.66	**19100**	356.04	**19100**
19.5	42.0	19.0	60	64	114	20	2					309.74	**19600**	347.22	**19600**
20.0	42.0	19.5	60	64	114	20	2					304.23	**20100**	350.53	**20100**

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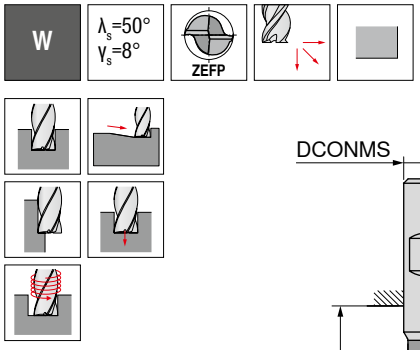
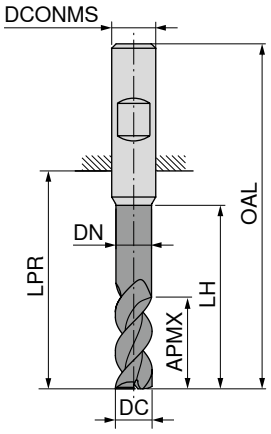
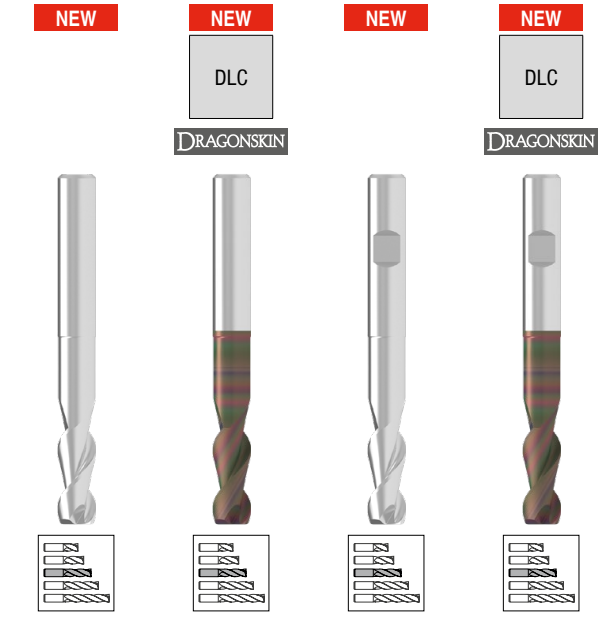
→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes







								Factory standard		Factory standard		Factory standard		Factory standard	
								HA		HA		HB		HB	
								53 633 ...		53 635 ...		53 634 ...		53 636 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1		£ V1		£ V1		£ V1	
2.0	5.5	1.8	10.0	19	55	6	2	40.12	02300	51.60	02300	40.12	02300	51.60	02300
2.5	6.5	2.3	12.5	22	58	6	2	51.36	02800	62.82	02800	51.36	02800	62.82	02800
3.0	8.0	2.8	15.0	22	58	6	2	52.69	03300	64.18	03300	52.69	03300	64.18	03300
3.5	10.5	3.3	20.0	26	62	6	2	49.65	03800	61.13	03800	49.65	03800	61.13	03800
4.0	10.5	3.8	20.0	26	62	6	2	50.73	04300	62.20	04300	50.73	04300	62.20	04300
4.5	13.0	4.3	25.0	34	70	6	2	52.43	04800	63.89	04800	52.43	04800	63.89	04800
5.0	13.0	4.8	25.0	34	70	6	2	53.69	05300	65.15	05300	53.69	05300	65.15	05300
5.5	16.0	5.3	30.0	34	70	6	2	65.47	05800	76.93	05800	65.47	05800	76.93	05800
6.0	16.0	5.8	30.0	34	70	6	2	60.27	06300	73.58	06300	60.27	06300	73.58	06300
6.5	21.0	6.2	40.0	44	80	8	2	72.14	06800	85.46	06800	72.14	06800	85.46	06800
7.0	21.0	6.7	40.0	44	80	8	2	70.35	07300	83.69	07300	70.35	07300	83.69	07300
7.5	21.0	7.2	40.0	44	80	8	2	68.47	07800	81.78	07800	68.47	07800	81.78	07800
8.0	21.0	7.7	40.0	44	80	8	2	65.30	08300	80.28	08300	65.30	08300	80.28	08300
8.5	26.0	8.2	50.0	54	94	10	2	111.18	08800	126.13	08800	111.18	08800	126.13	08800
9.0	26.0	8.7	50.0	54	94	10	2	103.97	09300	118.97	09300	103.97	09300	118.97	09300
9.5	26.0	9.2	50.0	54	94	10	2	101.06	09800	116.08	09800	101.06	09800	116.08	09800
10.0	26.0	9.7	50.0	54	94	10	2	96.41	10300	113.09	10300	96.41	10300	113.09	10300
10.5	31.0	10.1	60.0	64	109	12	2	147.61	10800	164.36	10800	147.61	10800	164.36	10800
11.0	31.0	10.6	60.0	64	109	12	2	149.57	11300	166.20	11300	149.57	11300	166.20	11300
11.5	31.0	11.1	60.0	64	109	12	2	139.29	11800	156.04	11800	139.29	11800	156.04	11800
12.0	31.0	11.6	60.0	64	109	12	2	136.87	12300	160.08	12300	136.87	12300	160.08	12300
12.5	36.0	12.1	70.0	74	119	14	2					213.44	12800	236.78	12800
13.0	36.0	12.6	70.0	74	119	14	2					211.48	13300	234.81	13300
13.5	36.0	13.1	70.0	74	119	14	2					209.86	13800	233.19	13800
14.0	36.0	13.6	70.0	74	119	14	2					211.83	14300	243.13	14300
14.5	41.0	14.0	80.0	84	132	16	2					289.79	14800	321.09	14800
15.0	41.0	14.5	80.0	84	132	16	2					283.32	15300	314.62	15300
15.5	41.0	15.0	80.0	84	132	16	2					276.51	15800	307.81	15800
16.0	41.0	15.5	80.0	84	132	16	2					291.06	16300	327.56	16300
16.5	47.0	16.0	90.0	94	142	18	2					376.30	16800	412.91	16800
17.0	47.0	16.5	90.0	94	142	18	2					366.02	17300	402.63	17300
17.5	47.0	17.0	90.0	94	142	18	2					355.28	17800	392.01	17800
18.0	47.0	17.5	90.0	94	142	18	2					351.00	18300	390.85	18300
18.5	52.0	18.0	100.0	104	154	20	2					465.35	18800	505.31	18800
19.0	52.0	18.5	100.0	104	154	20	2					452.64	19300	492.49	19300
19.5	52.0	19.0	100.0	104	154	20	2					439.36	19800	479.44	19800
20.0	52.0	19.5	100.0	104	154	20	2					431.62	20300	481.64	20300

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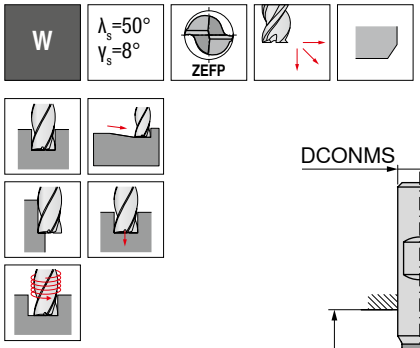
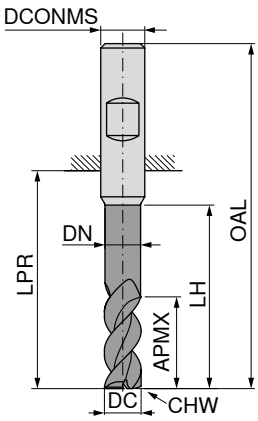
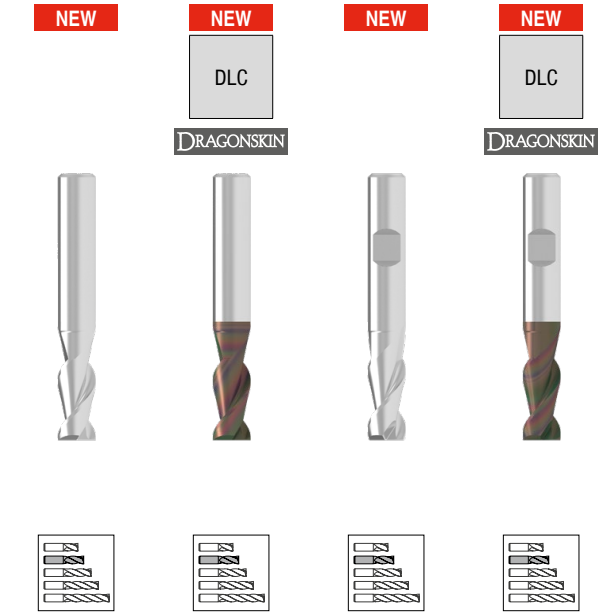
→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes







									Factory standard		Factory standard		Factory standard		Factory standard	
									HA		HA		HB		HB	
									53 619 ...		53 621 ...		53 620 ...		53 622 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1		£ V1		£ V1		£ V1	
5.0	10.5	4.8	15	22	58	6	0.1	2	40.78	05100	51.81	05100	40.78	05100	51.81	05100
5.5	13.0	5.3	18	22	58	6	0.1	2	49.60	05600	60.63	05600	49.60	05600	60.63	05600
6.0	13.0	5.8	18	22	58	6	0.1	2	46.29	06100	58.42	06100	46.29	06100	58.42	06100
6.5	17.0	6.2	24	28	64	8	0.1	2	52.91	06600	65.04	06600	52.91	06600	65.04	06600
7.0	17.0	6.7	24	28	64	8	0.1	2	51.81	07100	63.93	07100	51.81	07100	63.93	07100
7.5	17.0	7.2	24	28	64	8	0.1	2	50.70	07600	62.83	07600	50.70	07600	62.83	07600
8.0	17.0	7.7	24	28	64	8	0.1	2	48.50	08100	61.73	08100	48.50	08100	61.73	08100
8.5	21.0	8.2	30	34	74	10	0.1	2	81.57	08600	95.90	08600	81.57	08600	95.90	08600
9.0	21.0	8.7	30	34	74	10	0.1	2	79.37	09100	93.69	09100	79.37	09100	93.69	09100
9.5	21.0	9.2	30	34	74	10	0.1	2	77.16	09600	91.49	09600	77.16	09600	91.49	09600
10.0	21.0	9.7	30	34	74	10	0.1	2	73.86	10100	89.28	10100	73.86	10100	89.28	10100
10.5	25.0	10.1	36	40	85	12	0.1	2	112.43	10600	127.87	10600	112.43	10600	127.87	10600
11.0	25.0	10.6	36	40	85	12	0.1	2	110.23	11100	125.66	11100	110.23	11100	125.66	11100
11.5	25.0	11.1	36	40	85	12	0.1	2	106.92	11600	122.36	11600	106.92	11600	122.36	11600
12.0	25.0	11.6	36	40	85	12	0.1	2	104.72	12100	125.66	12100	104.72	12100	125.66	12100
12.5	29.0	12.1	42	46	91	14	0.1	2					151.01	12600	171.96	12600
13.0	29.0	12.6	42	46	91	14	0.1	2					149.91	13100	170.86	13100
13.5	29.0	13.1	42	46	91	14	0.1	2					147.70	13600	169.75	13600
14.0	29.0	13.6	42	46	91	14	0.1	2					149.91	14100	178.57	14100
14.5	33.0	14.0	48	52	100	16	0.1	2					205.02	14600	233.69	14600
15.0	33.0	14.5	48	52	100	16	0.1	2					199.51	15100	229.28	15100
15.5	33.0	15.0	48	52	100	16	0.1	2					195.10	15600	223.77	15600
16.0	33.0	15.5	48	52	100	16	0.1	2					205.02	16100	239.20	16100
16.5	38.0	16.0	54	58	106	18	0.1	2					265.65	16600	299.83	16600
17.0	38.0	16.5	54	58	106	18	0.1	2					257.93	17100	292.11	17100
17.5	38.0	17.0	54	58	106	18	0.1	2					251.32	17600	284.39	17600
18.0	38.0	17.5	54	58	106	18	0.1	2					248.02	18100	284.39	18100
18.5	42.0	18.0	60	64	114	20	0.1	2					328.48	18600	364.85	18600
19.0	42.0	18.5	60	64	114	20	0.1	2					319.66	19100	356.04	19100
19.5	42.0	19.0	60	64	114	20	0.1	2					309.74	19600	347.22	19600
20.0	42.0	19.5	60	64	114	20	0.1	2					304.23	20100	350.53	20100

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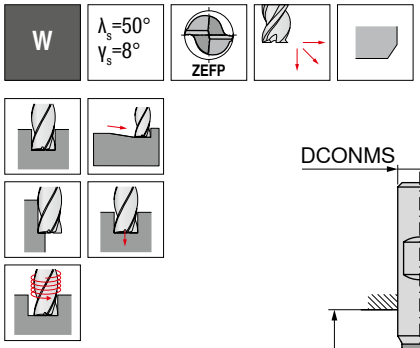
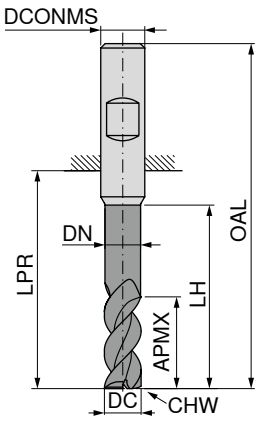
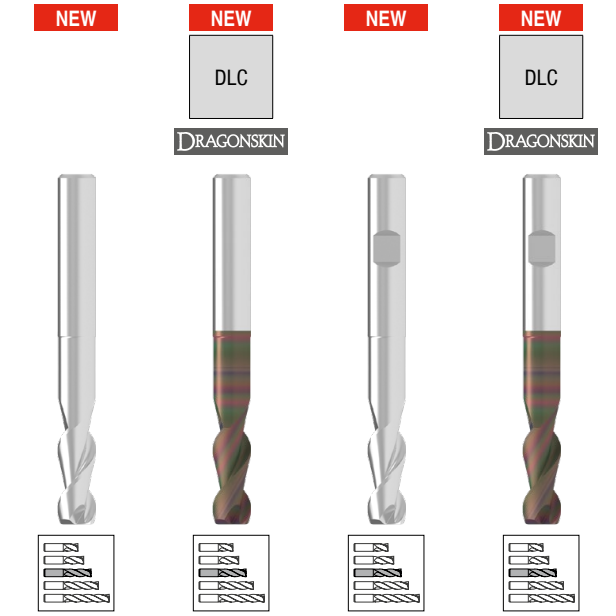
AluLine – End milling cutter

▲ With polished chip flutes







									Factory standard		Factory standard		Factory standard		Factory standard	
									HA		HA		HB		HB	
									53 629 ...		53 631 ...		53 630 ...		53 632 ...	
DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	£		£		£		£	
mm	mm	mm	mm	mm	mm	mm	mm		V1		V1		V1		V1	
2.0	5.5	1.8	10.0	19	55	6	0.05	2	40.12	02300	51.60	02300	40.12	02300	51.60	02300
2.5	6.5	2.3	12.5	22	58	6	0.05	2	51.36	02800	62.82	02800	51.36	02800	62.82	02800
3.0	8.0	2.8	15.0	22	58	6	0.10	2	52.69	03300	64.18	03300	52.69	03300	64.18	03300
3.5	10.5	3.3	20.0	26	62	6	0.10	2	49.65	03800	61.13	03800	49.65	03800	61.13	03800
4.0	10.5	3.8	20.0	26	62	6	0.10	2	50.73	04300	62.20	04300	50.73	04300	62.20	04300
4.5	13.0	4.3	25.0	34	70	6	0.10	2	52.43	04800	63.89	04800	52.43	04800	63.89	04800
5.0	13.0	4.8	25.0	34	70	6	0.10	2	53.69	05300	65.15	05300	53.69	05300	65.15	05300
5.5	16.0	5.3	30.0	34	70	6	0.10	2	65.47	05800	76.93	05800	65.47	05800	76.93	05800
6.0	16.0	5.8	30.0	34	70	6	0.10	2	53.69	06300	67.00	06300	53.69	06300	67.00	06300
6.5	21.0	6.2	40.0	44	80	8	0.10	2	72.14	06800	85.46	06800	72.14	06800	85.46	06800
7.0	21.0	6.7	40.0	44	80	8	0.10	2	70.35	07300	83.69	07300	70.35	07300	83.69	07300
7.5	21.0	7.2	40.0	44	80	8	0.10	2	68.47	07800	81.78	07800	68.47	07800	81.78	07800
8.0	21.0	7.7	40.0	44	80	8	0.10	2	65.30	08300	80.28	08300	65.30	08300	80.28	08300
8.5	26.0	8.2	50.0	54	94	10	0.10	2	111.18	08800	126.13	08800	111.18	08800	126.13	08800
9.0	26.0	8.7	50.0	54	94	10	0.10	2	103.97	09300	118.97	09300	103.97	09300	118.97	09300
9.5	26.0	9.2	50.0	54	94	10	0.10	2	101.06	09800	116.08	09800	101.06	09800	116.08	09800
10.0	26.0	9.7	50.0	54	94	10	0.10	2	96.41	10300	113.09	10300	96.41	10300	113.09	10300
10.5	31.0	10.1	60.0	64	109	12	0.10	2	147.61	10800	164.36	10800	147.61	10800	164.36	10800
11.0	31.0	10.6	60.0	64	109	12	0.10	2	149.57	11300	166.20	11300	149.57	11300	166.20	11300
11.5	31.0	11.1	60.0	64	109	12	0.10	2	139.29	11800	156.04	11800	139.29	11800	156.04	11800
12.0	31.0	11.6	60.0	64	109	12	0.10	2	136.87	12300	160.08	12300	136.87	12300	160.08	12300
12.5	36.0	12.1	70.0	74	119	14	0.10	2					213.44	12800	236.78	12800
13.0	36.0	12.6	70.0	74	119	14	0.10	2					211.48	13300	234.81	13300
13.5	36.0	13.1	70.0	74	119	14	0.10	2					209.86	13800	233.19	13800
14.0	36.0	13.6	70.0	74	119	14	0.10	2					211.83	14300	243.13	14300
14.5	41.0	14.0	80.0	84	132	16	0.10	2					289.79	14800	321.09	14800
15.0	41.0	14.5	80.0	84	132	16	0.10	2					283.32	15300	314.62	15300
15.5	41.0	15.0	80.0	84	132	16	0.10	2					276.51	15800	307.81	15800
16.0	41.0	15.5	80.0	84	132	16	0.10	2					291.06	16300	327.56	16300
16.5	47.0	16.0	90.0	94	142	18	0.10	2					376.30	16800	412.91	16800
17.0	47.0	16.5	90.0	94	142	18	0.10	2					366.02	17300	402.63	17300
17.5	47.0	17.0	90.0	94	142	18	0.10	2					355.28	17800	392.01	17800
18.0	47.0	17.5	90.0	94	142	18	0.10	2					351.00	18300	390.85	18300
18.5	52.0	18.0	100.0	104	154	20	0.10	2					465.35	18800	505.31	18800
19.0	52.0	18.5	100.0	104	154	20	0.10	2					452.64	19300	492.49	19300
19.5	52.0	19.0	100.0	104	154	20	0.10	2					439.36	19800	479.44	19800
20.0	52.0	19.5	100.0	104	154	20	0.10	2					431.62	20300	481.64	20300

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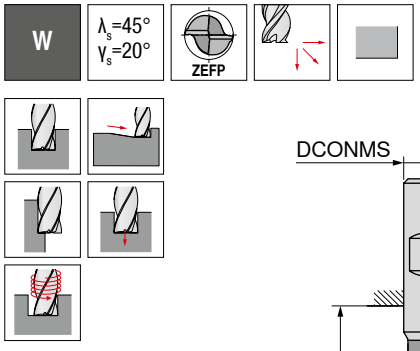
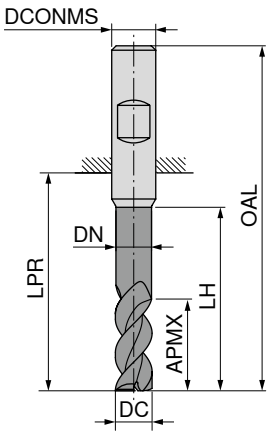
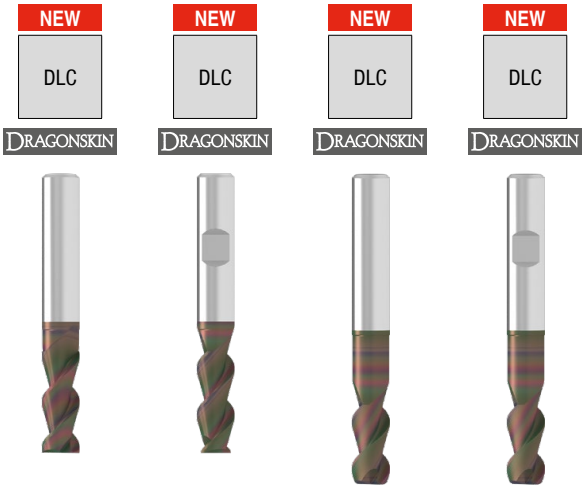
AluLine – End milling cutter









DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA 53 627 ... £ V1		Factory standard HB 53 628 ... £ V1		Factory standard HA 53 637 ... £ V1		Factory standard HB 53 638 ... £ V1	
2.0	5.5	1.8	10.0	19	55	6	2					54.19	02300	54.19	02300
2.5	6.5	2.3	12.5	22	58	6	2					65.44	02800	65.44	02800
3.0	8.0	2.8	15.0	22	58	6	2					66.76	03300	66.76	03300
3.5	10.5	3.3	20.0	26	62	6	2					63.77	03800	63.77	03800
4.0	10.5	3.8	20.0	26	62	6	2					64.80	04300	64.80	04300
4.5	13.0	4.3	25.0	34	70	6	2					66.49	04800	66.49	04800
5.0	10.5	4.8	15.0	22	58	6	2	61.73	05100	61.73	05100				
5.0	13.0	4.8	25.0	34	70	6	2					64.56	05300	64.56	05300
5.5	13.0	5.3	18.0	22	58	6	2	62.83	05600	62.83	05600				
5.5	16.0	5.3	30.0	34	70	6	2					65.50	05800	65.50	05800
6.0	13.0	5.8	18.0	22	58	6	2	59.52	06100	59.52	06100				
6.0	16.0	5.8	30.0	34	70	6	2					60.54	06300	60.54	06300
6.5	17.0	6.2	24.0	28	64	8	2	68.34	06600	68.34	06600				
6.5	21.0	6.2	40.0	44	80	8	2					91.89	06800	91.89	06800
7.0	17.0	6.7	24.0	28	64	8	2	67.24	07100	67.24	07100				
7.0	21.0	6.7	40.0	44	80	8	2					89.54	07300	89.54	07300
7.5	17.0	7.2	24.0	28	64	8	2	66.14	07600						
7.5	17.0	7.2	24.0	49	85	8	2			84.87	07600				
7.5	21.0	7.2	40.0	44	80	8	2					86.99	07800	86.99	07800
8.0	17.0	7.7	24.0	28	64	8	2	63.93	08100						
8.0	17.0	7.7	24.0	49	85	8	2			84.87	08100				
8.0	21.0	7.7	40.0	44	80	8	2					83.06	08300	83.06	08300
8.5	21.0	8.2	30.0	34	74	10	2	99.20	08600	99.20	08600				
8.5	26.0	8.2	50.0	54	94	10	2					127.63	08800	127.63	08800
9.0	21.0	8.7	30.0	34	74	10	2	98.10	09100	98.10	09100				
9.0	26.0	8.7	50.0	54	94	10	2					123.70	09300	123.70	09300
9.5	21.0	9.2	30.0	34	74	10	2	95.90	09600	95.90	09600				
9.5	26.0	9.2	50.0	54	94	10	2					119.66	09800	119.66	09800
10.0	21.0	9.7	30.0	34	74	10	2	91.49	10100	91.49	10100				
10.0	26.0	9.7	50.0	54	94	10	2					114.15	10300	114.15	10300
10.5	25.0	10.1	36.0	40	85	12	2	133.38	10600	133.38	10600				
10.5	31.0	10.1	60.0	64	109	12	2					173.71	10800	173.71	10800
11.0	25.0	10.6	36.0	40	85	12	2	130.07	11100	130.07	11100				
11.0	31.0	10.6	60.0	64	109	12	2					168.05	11300	168.05	11300
11.5	25.0	11.1	36.0	40	85	12	2	126.77	11600	126.77	11600				
11.5	31.0	11.1	60.0	64	109	12	2					162.16	11800	162.16	11800
12.0	25.0	11.6	36.0	40	85	12	2	125.66	12100	125.66	12100				
12.0	31.0	11.6	60.0	64	109	12	2					158.00	12300	158.00	12300

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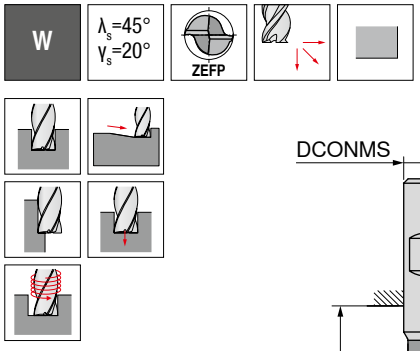
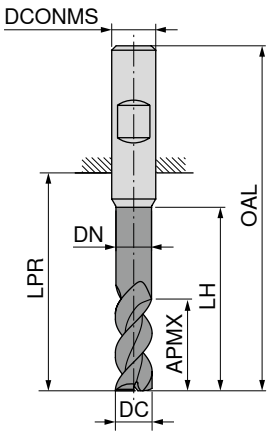
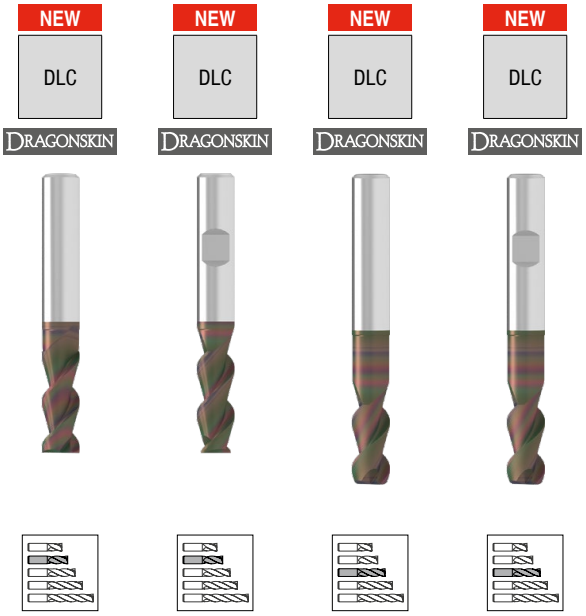
AluLine – End milling cutter







DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 627 ... £ V1		53 628 ... £ V1		53 637 ... £ V1		53 638 ... £ V1	
12.5	29.0	12.1	42.0	46	91	14	2			171.96	**12600**				
12.5	36.0	12.1	70.0	74	119	14	2							230.65	**12800**
13.0	29.0	12.6	42.0	46	91	14	2			168.65	**13100**				
13.0	36.0	12.6	70.0	74	119	14	2							222.80	**13300**
13.5	29.0	13.1	42.0	46	91	14	2			163.14	**13600**				
13.5	36.0	13.1	70.0	74	119	14	2							214.71	**13800**
14.0	29.0	13.6	42.0	46	91	14	2			163.14	**14100**				
14.0	36.0	13.6	70.0	74	119	14	2							210.90	**14300**
14.5	33.0	14.0	48.0	52	100	16	2			223.77	**14600**				
14.5	41.0	14.0	80.0	84	132	16	2							309.31	**14800**
15.0	33.0	14.5	48.0	52	100	16	2			218.25	**15100**				
15.0	41.0	14.5	80.0	84	132	16	2							299.03	**15300**
15.5	33.0	15.0	48.0	52	100	16	2			212.74	**15600**				
15.5	41.0	15.0	80.0	84	132	16	2							288.29	**15800**
16.0	33.0	15.5	48.0	52	100	16	2			218.25	**16100**				
16.0	41.0	15.5	80.0	84	132	16	2							292.79	**16300**
16.5	38.0	16.0	54.0	58	106	18	2			296.52	**16600**				
16.5	47.0	16.0	90.0	94	142	18	2							348.58	**16800**
17.0	38.0	16.5	54.0	58	106	18	2			289.91	**17100**				
17.0	47.0	16.5	90.0	94	142	18	2							335.53	**17300**
17.5	38.0	17.0	54.0	58	106	18	2			282.19	**17600**				
17.5	47.0	17.0	90.0	94	142	18	2							321.78	**17800**
18.0	38.0	17.5	54.0	58	106	18	2			278.88	**18100**				
18.0	47.0	17.5	90.0	94	142	18	2							313.24	**18300**
18.5	42.0	18.0	60.0	64	114	20	2			367.06	**18600**				
18.5	52.0	18.0	100.0	104	154	20	2							521.48	**18800**
19.0	42.0	18.5	60.0	64	114	20	2			358.25	**19100**				
19.0	52.0	18.5	100.0	104	154	20	2							504.97	**19300**
19.5	42.0	19.0	60.0	64	114	20	2			349.43	**19600**				
19.5	52.0	19.0	100.0	104	154	20	2							488.22	**19800**
20.0	42.0	19.5	60.0	64	114	20	2			343.92	**20100**				
20.0	52.0	19.5	100.0	104	154	20	2							476.09	**20300**
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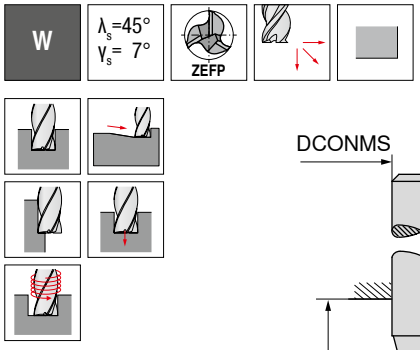
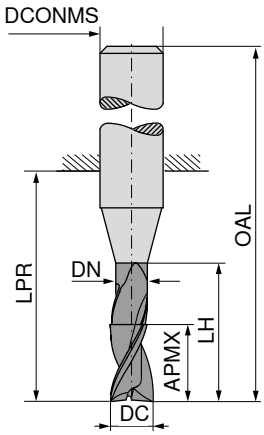
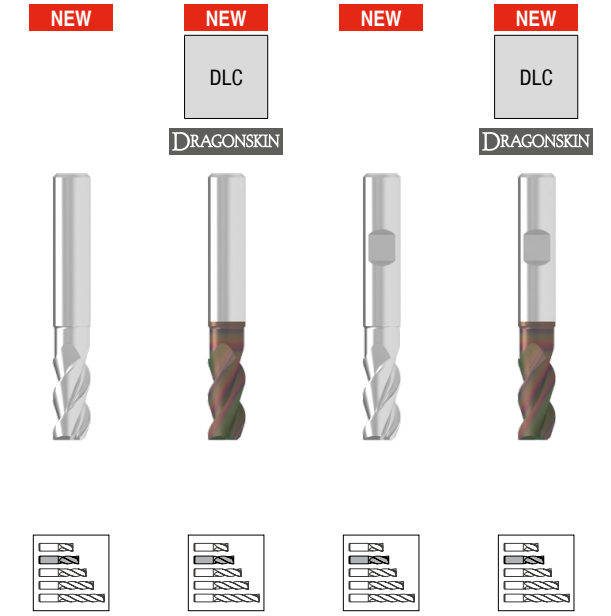
AluLine – End milling cutter

▲ With polished chip flutes







								Factory standard		Factory standard		Factory standard		Factory standard	
								HA		HA		HB		HB	
								53 615 ...		53 617 ...		53 616 ...		53 618 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1		£ V1		£ V1		£ V1	
2.0	4.5	1.8	6.0	14	50	6	3	37.47	02100	48.50	02100	37.47	02100	48.50	02100
2.5	5.5	2.3	7.5	19	55	6	3	37.47	02600	47.40	02600	37.47	02600	47.40	02600
3.0	6.5	2.8	9.0	19	55	6	3	37.47	03100	48.50	03100	37.47	03100	48.50	03100
3.5	8.5	3.3	12.0	19	55	6	3	39.68	03600	50.70	03600	39.68	03600	50.70	03600
4.0	8.5	3.8	12.0	19	55	6	3	40.78	04100	50.70	04100	40.78	04100	50.70	04100
4.5	10.5	4.3	15.0	22	58	6	3	51.81	04600	61.73	04600	51.81	04600	61.73	04600
5.0	10.5	4.8	15.0	22	58	6	3	45.19	05100	55.11	05100	45.19	05100	55.11	05100
5.5	13.0	5.3	18.0	22	58	6	3	52.91	05600	62.83	05600	52.91	05600	62.83	05600
6.0	13.0	5.8	18.0	22	58	6	3	46.29	06100	58.42	06100	46.29	06100	58.42	06100
6.5	17.0	6.2	24.0	28	64	8	3	55.11	06600	68.34	06600	55.11	06600	68.34	06600
7.0	17.0	6.7	24.0	28	64	8	3	54.01	07100	66.14	07100	54.01	07100	66.14	07100
7.5	17.0	7.2	24.0	28	64	8	3	52.91	07600	65.04	07600	52.91	07600	65.04	07600
8.0	17.0	7.7	24.0	28	64	8	3	50.70	08100	63.93	08100	50.70	08100	63.93	08100
8.5	21.0	8.2	30.0	34	74	10	3	85.97	08600	99.20	08600	85.97	08600	99.20	08600
9.0	21.0	8.7	30.0	34	74	10	3	83.77	09100	97.00	09100	83.77	09100	97.00	09100
9.5	21.0	9.2	30.0	34	74	10	3	81.57	09600	94.79	09600	81.57	09600	94.79	09600
10.0	21.0	9.7	30.0	34	74	10	3	77.16	10100	92.59	10100	77.16	10100	92.59	10100
10.5	25.0	10.1	36.0	40	85	12	3	119.05	10600	133.38	10600	119.05	10600	133.38	10600
11.0	25.0	10.6	36.0	40	85	12	3	115.74	11100	131.18	11100	115.74	11100	131.18	11100
11.5	25.0	11.1	36.0	40	85	12	3	112.43	11600	126.77	11600	112.43	11600	126.77	11600
12.0	25.0	11.6	36.0	40	85	12	3	110.23	12100	131.18	12100	110.23	12100	131.18	12100
12.5	29.0	12.1	42.0	46	91	14	3					151.01	12600	171.96	12600
13.0	29.0	12.6	42.0	46	91	14	3					149.91	13100	170.86	13100
13.5	29.0	13.1	42.0	46	91	14	3					147.70	13600	169.75	13600
14.0	29.0	13.6	42.0	46	91	14	3					149.91	14100	178.57	14100
14.5	33.0	14.0	48.0	52	100	16	3					205.02	14600	233.69	14600
15.0	33.0	14.5	48.0	52	100	16	3					199.51	15100	229.28	15100
15.5	33.0	15.0	48.0	52	100	16	3					195.10	15600	223.77	15600
16.0	33.0	15.5	48.0	52	100	16	3					205.02	16100	239.20	16100
16.5	38.0	16.0	54.0	58	106	18	3					265.65	16600	299.83	16600
17.0	38.0	16.5	54.0	58	106	18	3					257.93	17100	292.11	17100
17.5	38.0	17.0	54.0	58	106	18	3					251.32	17600	284.39	17600
18.0	38.0	17.5	54.0	58	106	18	3					248.02	18100	284.39	18100
18.5	42.0	18.0	60.0	64	114	20	3					328.48	18600	364.85	18600
19.0	42.0	18.5	60.0	64	114	20	3					319.66	19100	356.04	19100
19.5	42.0	19.0	60.0	64	114	20	3					309.74	19600	347.22	19600
20.0	42.0	19.5	60.0	64	114	20	3					304.23	20100	350.53	20100

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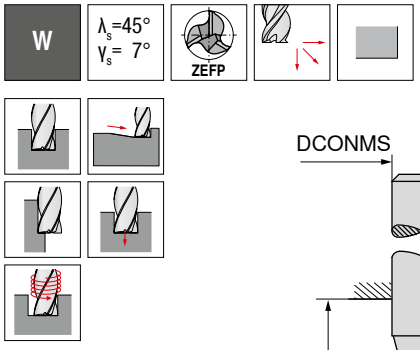
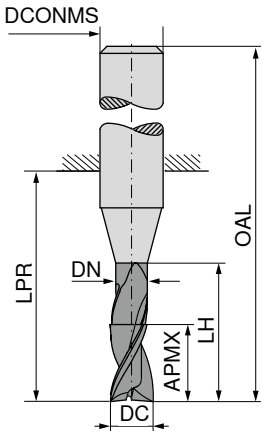
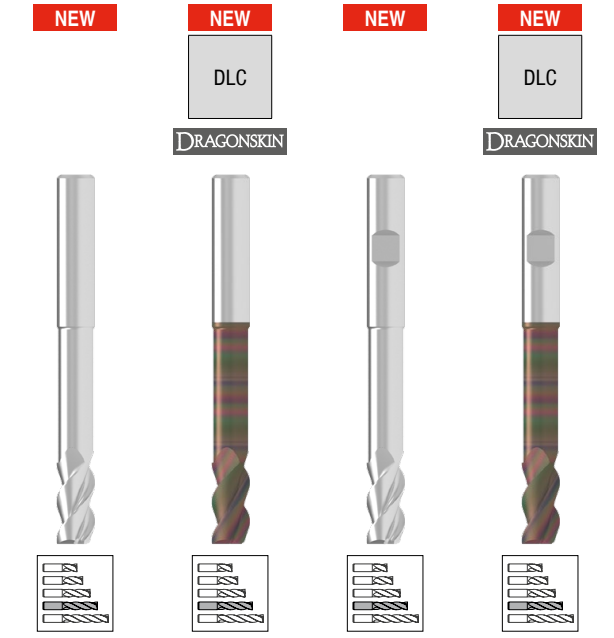
AluLine – End milling cutter

▲ With polished chip flutes







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 615 ... £ V1		53 617 ... £ V1		53 616 ... £ V1		53 618 ... £ V1	
2.0	5.5	1.8	10.0	19	55	6	3	45.19	02200	55.11	02200	45.19	02200	55.11	02200
2.5	6.5	2.3	12.5	22	58	6	3	44.09	02700	55.11	02700	44.09	02700	55.11	02700
3.0	8.0	2.8	15.0	22	58	6	3	45.19	03200	56.22	03200	45.19	03200	56.22	03200
3.5	10.5	3.3	20.0	26	62	6	3	47.40	03700	58.42	03700	47.40	03700	58.42	03700
4.0	10.5	3.8	20.0	26	62	6	3	48.50	04200	59.52	04200	48.50	04200	59.52	04200
4.5	13.0	4.3	25.0	34	70	6	3	61.73	04700	71.65	04700	61.73	04700	71.65	04700
5.0	13.0	4.8	25.0	34	70	6	3	54.01	05200	65.04	05200	54.01	05200	65.04	05200
5.5	16.0	5.3	30.0	34	70	6	3	62.83	05700	73.86	05700	62.83	05700	73.86	05700
6.0	16.0	5.8	30.0	34	70	6	3	55.11	06200	67.24	06200	55.11	06200	67.24	06200
6.5	21.0	6.2	40.0	44	80	8	3	67.24	06700	79.37	06700	67.24	06700	79.37	06700
7.0	21.0	6.7	40.0	44	80	8	3	65.04	07200	77.16	07200	65.04	07200	77.16	07200
7.5	21.0	7.2	40.0	44	80	8	3	62.83	07700	76.06	07700	62.83	07700	76.06	07700
8.0	21.0	7.7	40.0	44	80	8	3	60.63	08200	73.86	08200	60.63	08200	73.86	08200
8.5	26.0	8.2	50.0	54	94	10	3	102.51	08700	116.84	08700	102.51	08700	116.84	08700
9.0	26.0	8.7	50.0	54	94	10	3	100.31	09200	113.54	09200	100.31	09200	113.54	09200
9.5	26.0	9.2	50.0	54	94	10	3	97.00	09700	111.33	09700	97.00	09700	111.33	09700
10.0	26.0	9.7	50.0	54	94	10	3	92.59	10200	108.02	10200	92.59	10200	108.02	10200
10.5	31.0	10.1	60.0	64	109	12	3	142.19	10700	157.63	10700	142.19	10700	157.63	10700
11.0	31.0	10.6	60.0	64	109	12	3	138.88	11200	153.22	11200	138.88	11200	153.22	11200
11.5	31.0	11.1	60.0	64	109	12	3	134.48	11700	149.91	11700	134.48	11700	149.91	11700
12.0	31.0	11.6	60.0	64	109	12	3	132.28	12200	153.22	12200	132.28	12200	153.22	12200
12.5	36.0	12.1	70.0	74	119	14	3					180.78	12700	201.72	12700
13.0	36.0	12.6	70.0	74	119	14	3					179.68	13200	200.61	13200
13.5	36.0	13.1	70.0	74	119	14	3					177.47	13700	199.51	13700
14.0	36.0	13.6	70.0	74	119	14	3					179.68	14200	208.33	14200
14.5	41.0	14.0	80.0	84	132	16	3					245.82	14700	274.47	14700
15.0	41.0	14.5	80.0	84	132	16	3					240.30	15200	268.96	15200
15.5	41.0	15.0	80.0	84	132	16	3					234.79	15700	263.45	15700
16.0	41.0	15.5	80.0	84	132	16	3					246.92	16200	279.98	16200
16.5	47.0	16.0	90.0	94	142	18	3					318.56	16700	352.74	16700
17.0	47.0	16.5	90.0	94	142	18	3					309.74	17200	343.92	17200
17.5	47.0	17.0	90.0	94	142	18	3					300.93	17700	335.10	17700
18.0	47.0	17.5	90.0	94	142	18	3					297.62	18200	333.99	18200
18.5	52.0	18.0	100.0	104	154	20	3					426.58	18700	464.07	18700
19.0	52.0	18.5	100.0	104	154	20	3					415.56	19200	451.94	19200
19.5	52.0	19.0	100.0	104	154	20	3					403.44	19700	439.81	19700
20.0	52.0	19.5	100.0	104	154	20	3					395.72	20200	442.02	20200

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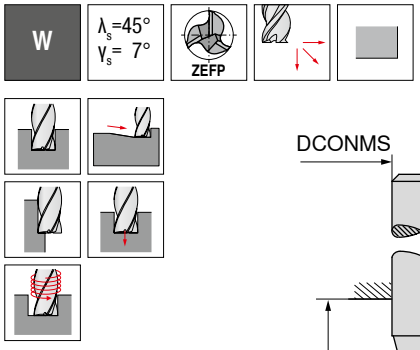
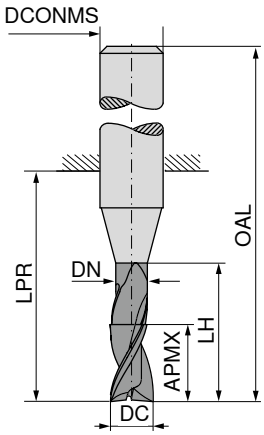
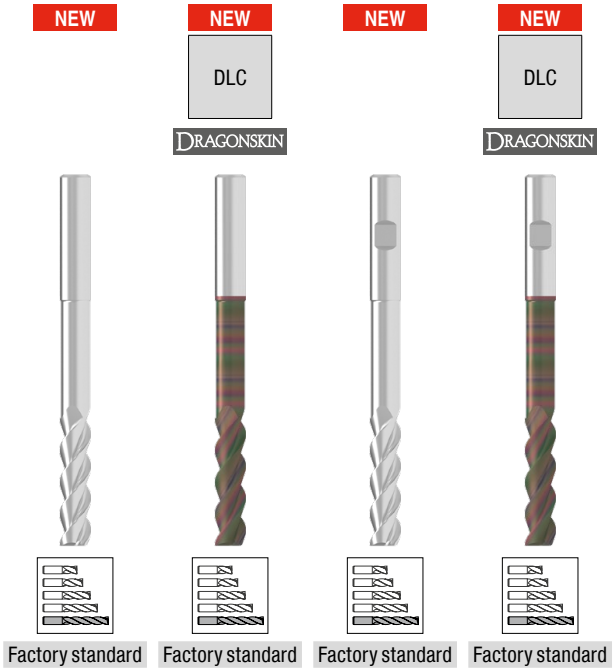
AluLine – End milling cutter

▲ With polished chip flutes







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 615 ... £ V1		53 617 ... £ V1		53 616 ... £ V1		53 618 ... £ V1	
2.0	8.5	1.8	16	26	62	6	3	59.52	02400	70.55	02400	59.52	02400	70.55	02400
2.5	10.5	2.3	20	31	67	6	3	59.52	02900	69.45	02900	59.52	02900	69.45	02900
3.0	12.5	2.8	24	31	67	6	3	60.63	03400	71.65	03400	60.63	03400	71.65	03400
3.5	16.5	3.3	32	38	74	6	3	63.93	03900	74.96	03900	63.93	03900	74.96	03900
4.0	16.5	3.8	32	38	74	6	3	65.04	04400	74.96	04400	65.04	04400	74.96	04400
4.5	20.5	4.3	40	52	88	6	3	81.57	04900	92.59	04900	81.57	04900	92.59	04900
5.0	20.5	4.8	40	52	88	6	3	71.65	05400	82.68	05400	71.65	05400	82.68	05400
5.5	25.0	5.3	48	52	88	6	3	83.77	05900	94.79	05900	83.77	05900	94.79	05900
6.0	25.0	5.8	48	52	88	6	3	73.86	06400	85.97	06400	73.86	06400	85.97	06400
6.5	33.0	6.2	64	68	104	8	3	89.28	06900	101.41	06900	89.28	06900	101.41	06900
7.0	33.0	6.7	64	68	104	8	3	87.08	07400	99.20	07400	87.08	07400	99.20	07400
7.5	33.0	7.2	64	68	104	8	3	84.87	07900	97.00	07900	84.87	07900	97.00	07900
8.0	33.0	7.7	64	68	104	8	3	80.47	08400	94.79	08400	80.47	08400	94.79	08400
8.5	41.0	8.2	80	84	124	10	3	136.69	08900	151.01	08900	136.69	08900	151.01	08900
9.0	41.0	8.7	80	84	124	10	3	133.38	09400	147.70	09400	133.38	09400	147.70	09400
9.5	41.0	9.2	80	84	124	10	3	130.07	09900	143.29	09900	130.07	09900	143.29	09900
10.0	41.0	9.7	80	84	124	10	3	123.46	10400	138.88	10400	123.46	10400	138.88	10400
10.5	49.0	10.1	96	100	145	12	3	189.60	10900	205.02	10900	189.60	10900	205.02	10900
11.0	49.0	10.6	96	100	145	12	3	184.09	11400	199.51	11400	184.09	11400	199.51	11400
11.5	49.0	11.1	96	100	145	12	3	178.57	11900	194.00	11900	178.57	11900	194.00	11900
12.0	49.0	11.6	96	100	145	12	3	175.27	12400	197.31	12400	175.27	12400	197.31	12400
12.5	57.0	12.1	112	116	161	14	3					286.60	12900	307.53	12900
13.0	57.0	12.6	112	116	161	14	3					283.29	13400	305.33	13400
13.5	57.0	13.1	112	116	161	14	3					281.09	13900	303.14	13900
14.0	57.0	13.6	112	116	161	14	3					284.39	14400	313.05	14400
14.5	65.0	14.0	128	132	180	16	3					389.11	14900	417.76	14900
15.0	65.0	14.5	128	132	180	16	3					380.29	15400	408.95	15400
15.5	65.0	15.0	128	132	180	16	3					370.37	15900	399.03	15900
16.0	65.0	15.5	128	132	180	16	3					390.21	16400	424.38	16400
16.5	74.0	16.0	144	148	196	18	3					504.85	16900	537.92	16900
17.0	74.0	16.5	144	148	196	18	3					490.52	17400	524.69	17400

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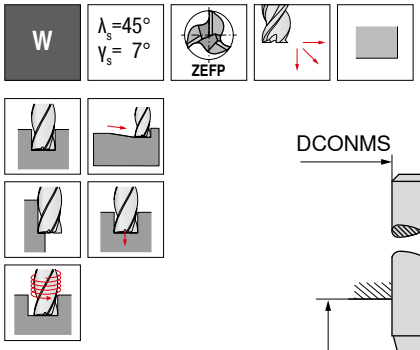
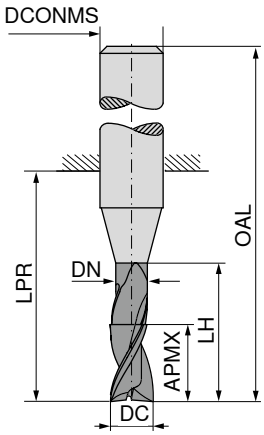
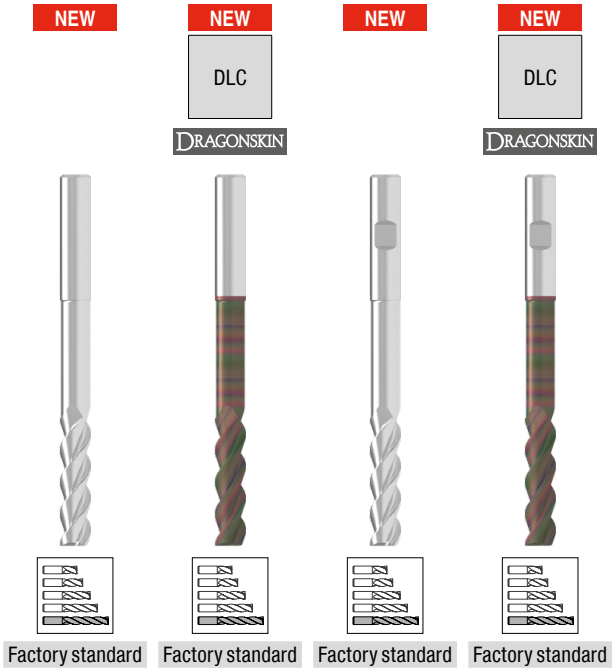
AluLine – End milling cutter

▲ With polished chip flutes







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 615 ... £ V1		53 617 ... £ V1		53 616 ... £ V1		53 618 ... £ V1	
17.5	74.0	17.0	144	148	196	18	3					476.19	**17900**	510.36	**17900**
18.0	74.0	17.5	144	148	196	18	3					470.67	**18400**	507.06	**18400**
18.5	82.0	18.0	160	164	214	20	3					623.90	**18900**	661.37	**18900**
19.0	82.0	18.5	160	164	214	20	3					607.36	**19400**	643.73	**19400**
19.5	82.0	19.0	160	164	214	20	3					589.72	**19900**	626.10	**19900**
20.0	82.0	19.5	160	164	214	20	3					578.71	**20400**	625.00	**20400**

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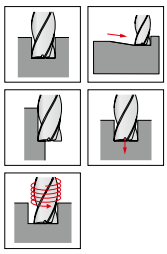
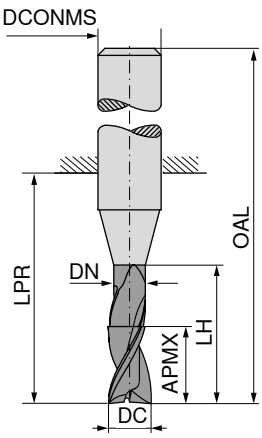
AluLine – End milling cutter

▲ With polished chip flutes











Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	53 517 ... £ V1		53 518 ... £ V1		53 519 ... £ V1		53 520 ... £ V1	
3	8	2.7	13	21	57	6	3							29.82	030
4	11	3.7	17	21	57	6	3							32.70	040
5	13	4.7	19	21	57	6	3					32.30	050		
6	13	5.7	19	21	57	6	3					30.20	060		
6	18	5.7	24	26	62	6	3							32.82	060
8	21	7.4	25	27	63	8	3			39.81	080				
8	24	7.4	30	32	68	8	3					48.38	080		
10	22	9.2	30	32	72	10	3			55.10	100				
10	30	9.2	38	40	80	10	3					63.81	100		
12	26	11.0	36	38	83	12	3			85.84	120				
12	36	11.0	46	48	93	12	3					99.26	120		
14	26	13.0	36	38	83	14	3	109.83	140						
16	36	15.0	42	44	92	16	3	152.45	160						
16	48	15.0	58	60	108	16	3					178.89	160		
18	36	17.0	42	44	92	18	3	185.02	180						
20	41	19.0	52	54	104	20	3	218.68	200						
20	60	19.0	74	76	126	20	3					335.40	200		

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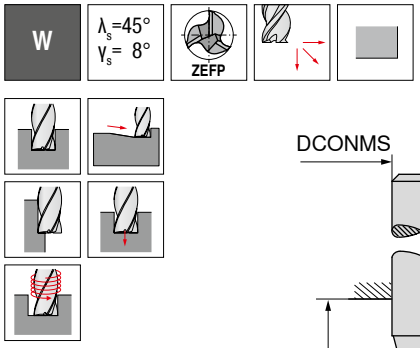
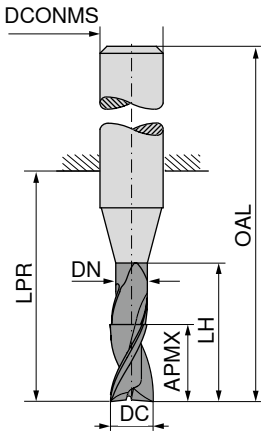
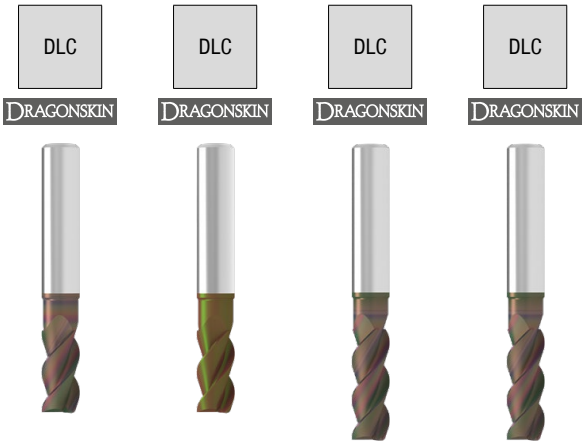
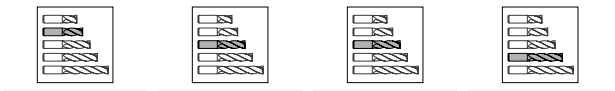
AluLine – End milling cutter











DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	53 521 ... £ V1		53 522 ... £ V1		53 523 ... £ V1		53 524 ... £ V1	
3	8	2.7	13	21	57	6	3							40.53	030
4	11	3.7	17	21	57	6	3							43.41	040
5	13	4.7	19	21	57	6	3					42.90	050		
6	13	5.7	19	21	57	6	3					40.93	060		
6	18	5.7	24	26	62	6	3							43.54	060
8	21	7.4	25	27	63	8	3			53.10	080				
8	24	7.4	30	32	68	8	3					58.84	080		
10	22	9.2	30	32	72	10	3			69.45	100				
10	30	9.2	38	40	80	10	3					74.54	100		
12	26	11.0	36	38	83	12	3			102.25	120				
12	36	11.0	46	48	93	12	3					109.84	120		
14	26	13.0	36	38	83	14	3	128.02	140						
16	36	15.0	42	44	92	16	3	173.92	160						
18	36	17.0	42	44	92	18	3	207.54	180						
20	41	19.0	52	54	104	20	3	244.80	200						

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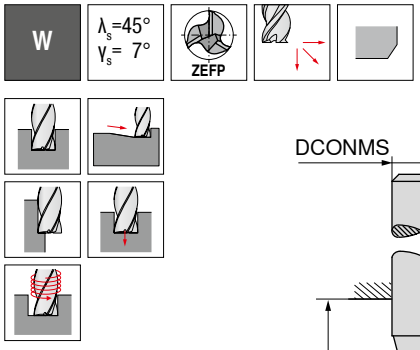
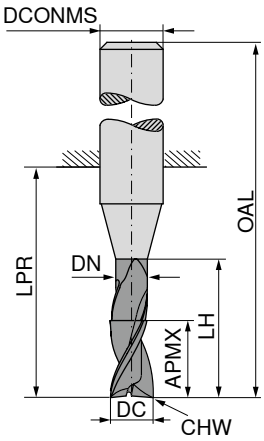
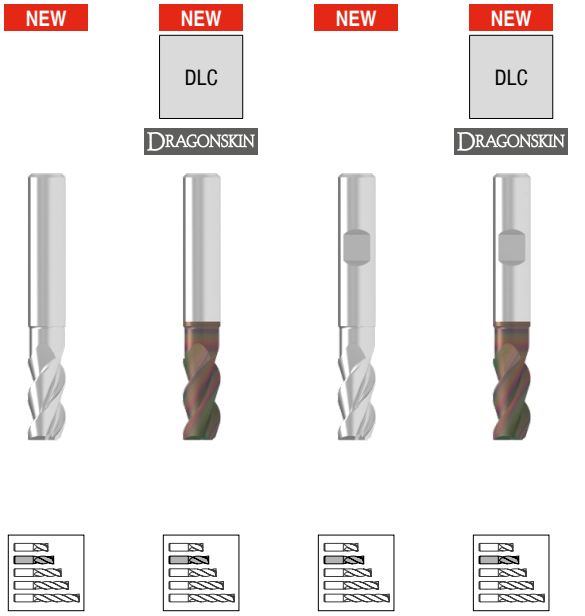
AluLine – End milling cutter

▲ With polished chip flutes







									Factory standard		Factory standard		Factory standard		Factory standard	
									HA		HA		HB		HB	
									53 611 ...		53 613 ...		53 612 ...		53 614 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1		£ V1		£ V1		£ V1	
2.0	4.5	1.8	6.0	14	50	6	0.05	3	37.47	02100	48.50	02100	37.47	02100	48.50	02100
2.5	5.5	2.3	7.5	19	55	6	0.05	3	37.47	02600	47.40	02600	37.47	02600	47.40	02600
3.0	6.5	2.8	9.0	19	55	6	0.10	3	37.47	03100	48.50	03100	37.47	03100	48.50	03100
3.5	8.5	3.3	12.0	19	55	6	0.10	3	39.68	03600	50.70	03600	39.68	03600	50.70	03600
4.0	8.5	3.8	12.0	19	55	6	0.10	3	40.78	04100	50.70	04100	40.78	04100	50.70	04100
4.5	10.5	4.3	15.0	22	58	6	0.10	3	51.81	04600	61.73	04600	51.81	04600	61.73	04600
5.0	10.5	4.8	15.0	22	58	6	0.10	3	45.19	05100	55.11	05100	45.19	05100	55.11	05100
5.5	13.0	5.3	18.0	22	58	6	0.10	3	52.91	05600	62.83	05600	52.91	05600	62.83	05600
6.0	13.0	5.8	18.0	22	58	6	0.20	3	46.29	06100	58.42	06100	46.29	06100	58.42	06100
6.5	17.0	6.2	24.0	28	64	8	0.20	3	55.11	06600	68.34	06600	55.11	06600	68.34	06600
7.0	17.0	6.7	24.0	28	64	8	0.20	3	54.01	07100	66.14	07100	54.01	07100	66.14	07100
7.5	17.0	7.2	24.0	28	64	8	0.20	3	52.91	07600	65.04	07600	52.91	07600	65.04	07600
8.0	17.0	7.7	24.0	28	64	8	0.20	3	50.70	08100	63.93	08100	50.70	08100	63.93	08100
8.5	21.0	8.2	30.0	34	74	10	0.20	3	85.97	08600	99.20	08600	85.97	08600	99.20	08600
9.0	21.0	8.7	30.0	34	74	10	0.20	3	83.77	09100	97.00	09100	83.77	09100	97.00	09100
9.5	21.0	9.2	30.0	34	74	10	0.20	3	81.57	09600	94.79	09600	81.57	09600	94.79	09600
10.0	21.0	9.7	30.0	34	74	10	0.20	3	77.16	10100	92.59	10100	77.16	10100	92.59	10100
10.5	25.0	10.1	36.0	40	85	12	0.20	3	119.05	10600	133.38	10600	119.05	10600	133.38	10600
11.0	25.0	10.6	36.0	40	85	12	0.20	3	115.74	11100	131.18	11100	115.74	11100	131.18	11100
11.5	25.0	11.1	36.0	40	85	12	0.20	3	112.43	11600	126.77	11600	112.43	11600	126.77	11600
12.0	25.0	11.6	36.0	40	85	12	0.20	3	110.23	12100	131.18	12100	110.23	12100	131.18	12100
12.5	29.0	12.1	42.0	46	91	14	0.20	3					151.01	12600	171.96	12600
13.0	29.0	12.6	42.0	46	91	14	0.20	3					149.91	13100	170.86	13100
13.5	29.0	13.1	42.0	46	91	14	0.20	3					147.70	13600	169.75	13600
14.0	29.0	13.6	42.0	46	91	14	0.20	3					149.91	14100	178.57	14100
14.5	33.0	14.0	48.0	52	100	16	0.20	3					205.02	14600	233.69	14600
15.0	33.0	14.5	48.0	52	100	16	0.20	3					199.51	15100	229.28	15100
15.5	33.0	15.0	48.0	52	100	16	0.20	3					195.10	15600	223.77	15600
16.0	33.0	15.5	48.0	52	100	16	0.20	3					205.02	16100	239.20	16100
16.5	38.0	16.0	54.0	58	106	18	0.20	3					265.65	16600	299.83	16600
17.0	38.0	16.5	54.0	58	106	18	0.20	3					257.93	17100	292.11	17100
17.5	38.0	17.0	54.0	58	106	18	0.20	3					251.32	17600	284.39	17600
18.0	38.0	17.5	54.0	58	106	18	0.20	3					248.02	18100	284.39	18100
18.5	42.0	18.0	60.0	64	114	20	0.20	3					328.48	18600	364.85	18600
19.0	42.0	18.5	60.0	64	114	20	0.20	3					319.66	19100	356.04	19100
19.5	42.0	19.0	60.0	64	114	20	0.20	3					309.74	19600	347.22	19600
20.0	42.0	19.5	60.0	64	114	20	0.20	3					304.23	20100	350.53	20100

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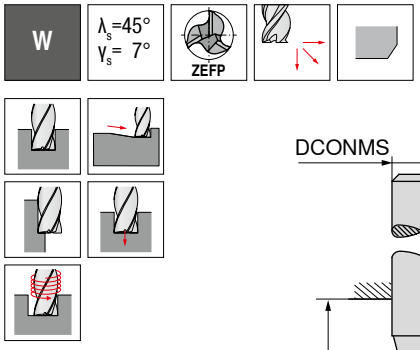
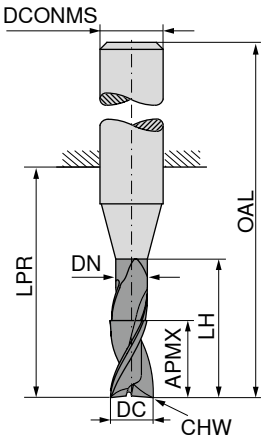
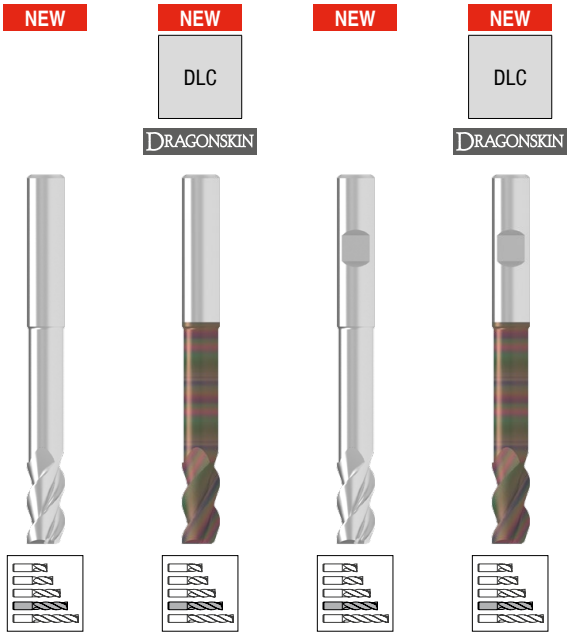
AluLine – End milling cutter

▲ With polished chip flutes







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 611 ... £ V1		53 613 ... £ V1		53 612 ... £ V1		53 614 ... £ V1	
2.0	5.5	1.8	10.0	19	55	6	0.05	3	45.19	02200	55.11	02200	45.19	02200	55.11	02200
2.5	6.5	2.3	12.5	22	58	6	0.05	3	44.09	02700	55.11	02700	44.09	02700	55.11	02700
3.0	8.0	2.8	15.0	22	58	6	0.10	3	45.19	03200	56.22	03200	45.19	03200	56.22	03200
3.5	10.5	3.3	20.0	26	62	6	0.10	3	47.40	03700	58.42	03700	47.40	03700	58.42	03700
4.0	10.5	3.8	20.0	26	62	6	0.10	3	48.50	04200	59.52	04200	48.50	04200	59.52	04200
4.5	13.0	4.3	25.0	34	70	6	0.10	3	61.73	04700	71.65	04700	61.73	04700	71.65	04700
5.0	13.0	4.8	25.0	34	70	6	0.10	3	54.01	05200	65.04	05200	54.01	05200	65.04	05200
5.5	16.0	5.3	30.0	34	70	6	0.10	3	62.83	05700	73.86	05700	62.83	05700	73.86	05700
6.0	16.0	5.8	30.0	34	70	6	0.20	3	55.11	06200	67.24	06200	55.11	06200	67.24	06200
6.5	21.0	6.2	40.0	44	80	8	0.20	3	67.24	06700	79.37	06700	67.24	06700	79.37	06700
7.0	21.0	6.7	40.0	44	80	8	0.20	3	65.04	07200	77.16	07200	65.04	07200	77.16	07200
7.5	21.0	7.2	40.0	44	80	8	0.20	3	62.83	07700	76.06	07700	62.83	07700	76.06	07700
8.0	21.0	7.7	40.0	44	80	8	0.20	3	60.63	08200	73.86	08200	60.63	08200	73.86	08200
8.5	26.0	8.2	50.0	54	94	10	0.20	3	102.51	08700	116.84	08700	102.51	08700	116.84	08700
9.0	26.0	8.7	50.0	54	94	10	0.20	3	100.31	09200	113.54	09200	100.31	09200	113.54	09200
9.5	26.0	9.2	50.0	54	94	10	0.20	3	97.00	09700	111.33	09700	97.00	09700	111.33	09700
10.0	26.0	9.7	50.0	54	94	10	0.20	3	92.59	10200	108.02	10200	92.59	10200	108.02	10200
10.5	31.0	10.1	60.0	64	109	12	0.20	3	142.19	10700	157.63	10700	142.19	10700	157.63	10700
11.0	31.0	10.6	60.0	64	109	12	0.20	3	138.88	11200	153.22	11200	138.88	11200	153.22	11200
11.5	31.0	11.1	60.0	64	109	12	0.20	3	134.48	11700	149.91	11700	134.48	11700	149.91	11700
12.0	31.0	11.6	60.0	64	109	12	0.20	3	132.28	12200	153.22	12200	132.28	12200	153.22	12200
12.5	36.0	12.1	70.0	74	119	14	0.20	3					210.54	12700	232.59	12700
13.0	36.0	12.6	70.0	74	119	14	0.20	3					209.43	13200	230.38	13200
13.5	36.0	13.1	70.0	74	119	14	0.20	3					207.23	13700	229.28	13700
14.0	36.0	13.6	70.0	74	119	14	0.20	3					209.43	14200	238.10	14200
14.5	41.0	14.0	80.0	84	132	16	0.20	3					286.60	14700	315.25	14700
15.0	41.0	14.5	80.0	84	132	16	0.20	3					279.98	15200	308.64	15200
15.5	41.0	15.0	80.0	84	132	16	0.20	3					273.37	15700	302.03	15700
16.0	41.0	15.5	80.0	84	132	16	0.20	3					287.70	16200	320.76	16200
16.5	47.0	16.0	90.0	94	142	18	0.20	3					371.47	16700	405.65	16700
17.0	47.0	16.5	90.0	94	142	18	0.20	3					361.55	17200	395.72	17200
17.5	47.0	17.0	90.0	94	142	18	0.20	3					351.63	17700	384.70	17700
18.0	47.0	17.5	90.0	94	142	18	0.20	3					347.22	18200	383.60	18200
18.5	52.0	18.0	100.0	104	154	20	0.20	3					459.66	18700	497.13	18700
19.0	52.0	18.5	100.0	104	154	20	0.20	3					447.53	19200	483.90	19200
19.5	52.0	19.0	100.0	104	154	20	0.20	3					434.30	19700	470.67	19700
20.0	52.0	19.5	100.0	104	154	20	0.20	3					426.58	20200	472.88	20200

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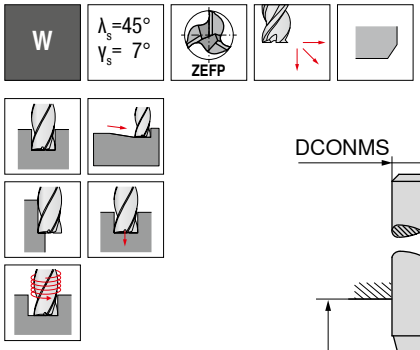
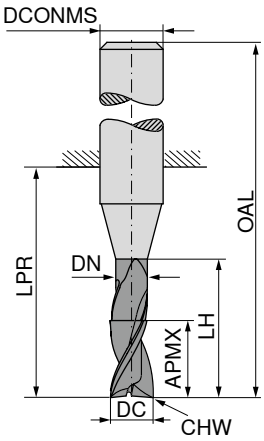
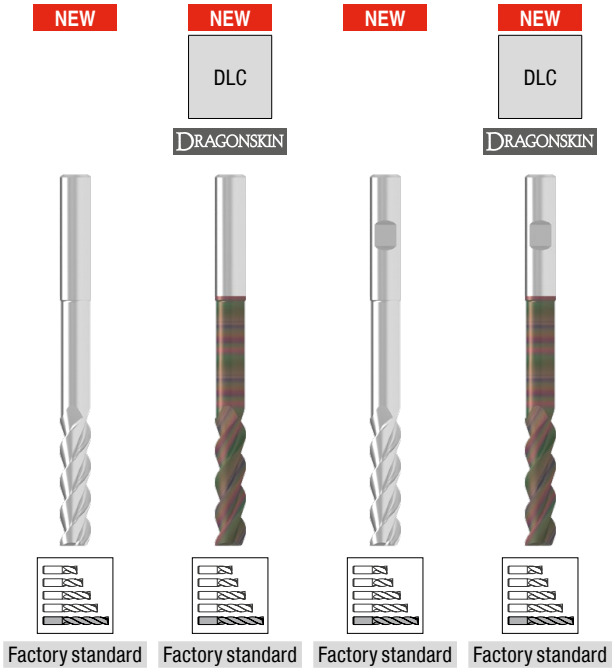
AluLine – End milling cutter

▲ With polished chip flutes







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 611 ... £ V1		53 613 ... £ V1		53 612 ... £ V1		53 614 ... £ V1	
2.0	8.5	1.8	16	26	62	6	0.05	3	59.52	02400	70.55	02400	59.52	02400	70.55	02400
2.5	10.5	2.3	20	31	67	6	0.05	3	59.52	02900	69.45	02900	59.52	02900	69.45	02900
3.0	12.5	2.8	24	31	67	6	0.10	3	60.63	03400	71.65	03400	60.63	03400	71.65	03400
3.5	16.5	3.3	32	38	74	6	0.10	3	63.93	03900	74.96	03900	63.93	03900	74.96	03900
4.0	16.5	3.8	32	38	74	6	0.10	3	65.04	04400	74.96	04400	65.04	04400	74.96	04400
4.5	20.5	4.3	40	52	88	6	0.10	3	81.57	04900	92.59	04900	81.57	04900	92.59	04900
5.0	20.5	4.8	40	52	88	6	0.10	3	71.65	05400	82.68	05400	71.65	05400	82.68	05400
5.5	25.0	5.3	48	52	88	6	0.10	3	83.77	05900	94.79	05900	83.77	05900	94.79	05900
6.0	25.0	5.8	48	52	88	6	0.20	3	73.86	06400	85.97	06400	73.86	06400	85.97	06400
6.5	33.0	6.2	64	68	104	8	0.20	3	89.28	06900	101.41	06900	89.28	06900	101.41	06900
7.0	33.0	6.7	64	68	104	8	0.20	3	87.08	07400	99.20	07400	87.08	07400	99.20	07400
7.5	33.0	7.2	64	68	104	8	0.20	3	84.87	07900	97.00	07900	84.87	07900	97.00	07900
8.0	33.0	7.7	64	68	104	8	0.20	3	80.47	08400	94.79	08400	80.47	08400	94.79	08400
8.5	41.0	8.2	80	84	124	10	0.20	3	136.69	08900	151.01	08900	136.69	08900	151.01	08900
9.0	41.0	8.7	80	84	124	10	0.20	3	133.38	09400	147.70	09400	133.38	09400	147.70	09400
9.5	41.0	9.2	80	84	124	10	0.20	3	130.07	09900	143.29	09900	130.07	09900	143.29	09900
10.0	41.0	9.7	80	84	124	10	0.20	3	123.46	10400	138.88	10400	123.46	10400	138.88	10400
10.5	49.0	10.1	96	100	145	12	0.20	3	189.60	10900	205.02	10900	189.60	10900	205.02	10900
11.0	49.0	10.6	96	100	145	12	0.20	3	184.09	11400	199.51	11400	184.09	11400	199.51	11400
11.5	49.0	11.1	96	100	145	12	0.20	3	178.57	11900	194.00	11900	178.57	11900	194.00	11900
12.0	49.0	11.6	96	100	145	12	0.20	3	175.27	12400	197.31	12400	175.27	12400	197.31	12400
12.5	57.0	12.1	112	116	161	14	0.20	3					286.60	12900	307.53	12900
13.0	57.0	12.6	112	116	161	14	0.20	3					283.29	13400	305.33	13400
13.5	57.0	13.1	112	116	161	14	0.20	3					281.09	13900	303.14	13900
14.0	57.0	13.6	112	116	161	14	0.20	3					284.39	14400	313.05	14400
14.5	65.0	14.0	128	132	180	16	0.20	3					389.11	14900	417.76	14900
15.0	65.0	14.5	128	132	180	16	0.20	3					380.29	15400	408.95	15400
15.5	65.0	15.0	128	132	180	16	0.20	3					370.37	15900	399.03	15900
16.0	65.0	15.5	128	132	180	16	0.20	3					390.21	16400	424.38	16400
16.5	74.0	16.0	144	148	196	18	0.20	3					504.85	16900	537.92	16900
17.0	74.0	16.5	144	148	196	18	0.20	3					490.52	17400	524.69	17400
17.5	74.0	17.0	144	148	196	18	0.20	3					476.19	17900	510.36	17900
18.0	74.0	17.5	144	148	196	18	0.20	3					470.67	18400	507.06	18400
18.5	82.0	18.0	160	164	214	20	0.20	3					623.90	18900	661.37	18900
19.0	82.0	18.5	160	164	214	20	0.20	3					607.36	19400	643.73	19400
19.5	82.0	19.0	160	164	214	20	0.20	3					589.72	19900	626.10	19900
20.0	82.0	19.5	160	164	214	20	0.20	3					578.71	20400	625.00	20400

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→ v_c/f_z Page 390+391

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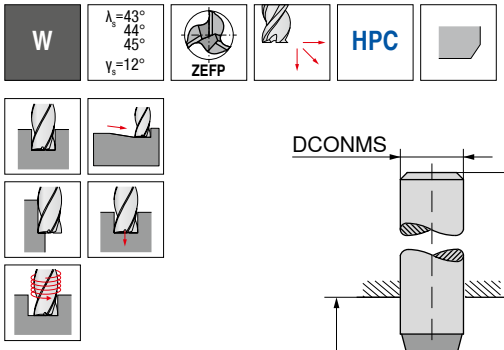
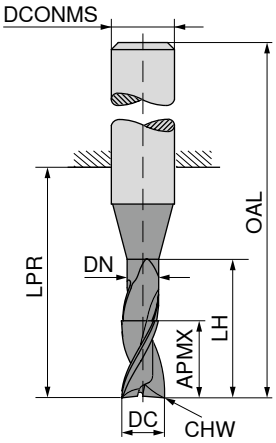
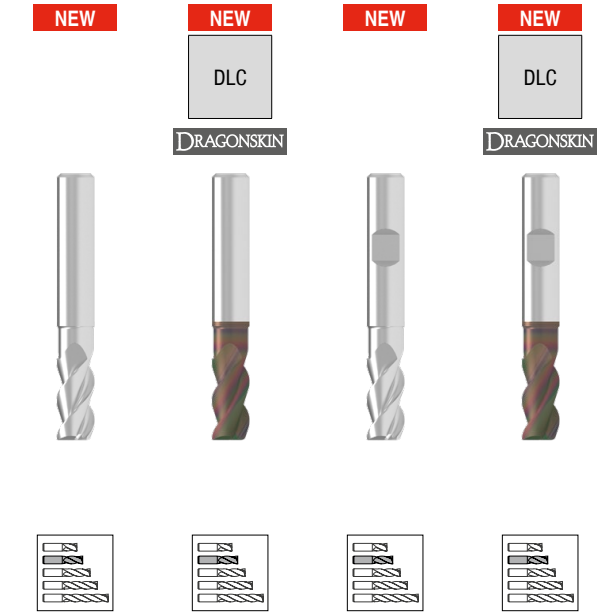
AluLine – End milling cutter

▲ With graduated flute depth







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 584 ... £ V1		53 598 ... £ V1		53 597 ... £ V1		53 599 ... £ V1	
3.0	8	2.7	12	21	57	6	0.1	3	46.29	03000	57.32	03000	46.29	03000	57.32	03000
3.5	8	3.2	12	21	57	6	0.1	3	47.40	03600	57.32	03600	47.40	03600	57.32	03600
4.0	11	3.7	18	21	57	6	0.1	3	46.29	04000	57.32	04000	46.29	04000	57.32	04000
4.5	11	4.2	18	21	57	6	0.1	3	46.29	04600	58.42	04600	46.29	04600	58.42	04600
5.0	13	4.7	18	21	57	6	0.1	3	46.29	05000	58.42	05000	46.29	05000	58.42	05000
5.5	13	5.2	18	21	57	6	0.1	3	46.29	05600	58.42	05600	46.29	05600	58.42	05600
6.0	13	5.7	18	21	57	6	0.2	3	47.40	06000	59.52	06000	47.40	06000	59.52	06000
6.5	21	6.1	25	27	63	8	0.2	3	55.11	06600	70.55	06600	55.11	06600	70.55	06600
7.0	21	6.6	25	27	63	8	0.2	3	54.01	07000	70.55	07000	54.01	07000	68.34	07000
7.5	21	7.1	25	27	63	8	0.2	3	55.11	07600	68.34	07600	55.11	07600	68.34	07600
8.0	21	7.4	25	27	63	8	0.2	3	55.11	08000	69.45	08000	55.11	08000	69.45	08000
8.5	22	7.9	30	33	73	10	0.2	3	100.31	08600	115.74	08600	100.31	08600	115.74	08600
9.0	22	8.4	30	33	73	10	0.2	3	100.31	09000	115.74	09000	100.31	09000	115.74	09000
9.5	22	8.9	30	33	73	10	0.2	3	100.31	09600	115.74	09600	100.31	09600	115.74	09600
10.0	22	9.2	30	33	73	10	0.2	3	100.31	10000	115.74	10000	100.31	10000	115.74	10000
10.5	26	9.7	36	38	83	12	0.2	3	139.99	10600	162.04	10600	139.99	10600	162.04	10600
11.0	26	10.0	36	38	83	12	0.2	3	139.99	11000	162.04	11000	139.99	11000	162.04	11000
11.5	26	10.5	36	38	83	12	0.2	3	139.99	11600	160.93	11600	139.99	11600	160.93	11600
12.0	26	11.0	36	38	83	12	0.2	3	139.99	12000	160.93	12000	139.99	12000	160.93	12000
12.5	26	11.5	36	38	83	14	0.2	3					173.06	12600	201.72	12600
13.0	26	12.0	36	38	83	14	0.2	3					173.06	13000	201.72	13000
13.5	26	12.5	36	38	83	14	0.2	3					173.06	13600	201.72	13600
14.0	26	13.0	36	38	83	14	0.2	3					173.06	14000	201.72	14000
14.5	36	13.5	42	44	92	16	0.2	3					271.16	14600	304.23	14600
15.0	36	14.0	42	44	92	16	0.2	3					271.16	15000	304.23	15000
15.5	36	14.5	42	44	92	16	0.2	3					271.16	15600	304.23	15600
16.0	36	15.0	42	44	92	16	0.2	3					271.16	16000	304.23	16000
16.5	36	15.5	42	44	92	18	0.2	3					354.94	16600	392.42	16600
17.0	36	16.0	42	44	92	18	0.2	3					354.94	17000	391.31	17000
17.5	36	16.5	42	44	92	18	0.2	3					354.94	17600	391.31	17600
18.0	36	17.0	42	44	92	18	0.2	3					354.94	18000	391.31	18000
18.5	41	17.5	52	54	104	20	0.2	3					410.06	18600	456.35	18600
19.0	41	18.0	52	54	104	20	0.2	3					410.06	19000	456.35	19000
19.5	41	18.5	52	54	104	20	0.2	3					410.06	19600	456.35	19600
20.0	41	19.0	52	54	104	20	0.2	3					410.06	20000	456.35	20000

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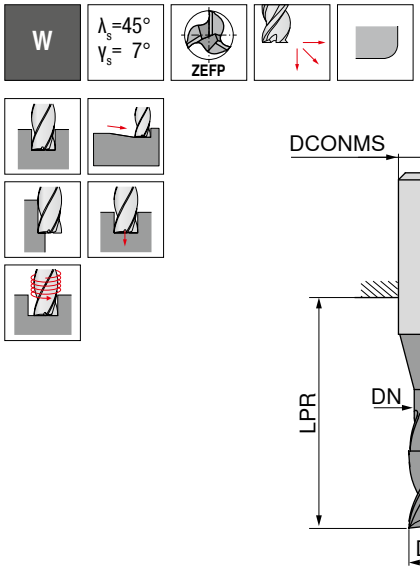
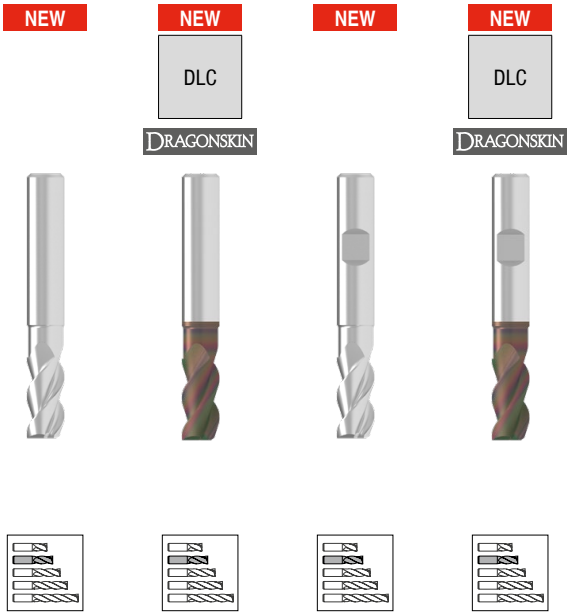
AluLine – End milling cutter with corner radius

▲ With polished chip flutes





Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 708 ... £ V1		53 710 ... £ V1		53 709 ... £ V1		53 711 ... £ V1	
2	0.3	4.5	1.8	6	14	50	6	3	39.68	02103	49.60	02103	39.68	02103	49.60	02103
2	0.5	4.5	1.8	6	14	50	6	3	39.68	02105	49.60	02105	39.68	02105	49.60	02105
3	0.3	6.5	2.7	9	19	55	6	3	40.78	03103	50.70	03103	40.78	03103	50.70	03103
3	0.5	6.5	2.7	9	19	55	6	3	40.78	03105	50.70	03105	40.78	03105	50.70	03105
3	1.0	6.5	2.7	9	19	55	6	3	40.78	03110	50.70	03110	40.78	03110	50.70	03110
4	0.3	8.5	3.7	12	19	55	6	3	42.99	04103	54.01	04103	42.99	04103	54.01	04103
4	0.5	8.5	3.7	12	19	55	6	3	42.99	04105	54.01	04105	42.99	04105	54.01	04105
4	1.0	8.5	3.7	12	19	55	6	3	42.99	04110	54.01	04110	42.99	04110	54.01	04110
5	0.3	10.5	4.7	15	22	58	6	3	48.50	05103	59.52	05103	48.50	05103	58.42	05103
5	0.5	10.5	4.7	15	22	58	6	3	48.50	05105	59.52	05105	48.50	05105	58.42	05105
5	1.0	10.5	4.7	15	22	58	6	3	48.50	05110	59.52	05110	48.50	05110	58.42	05110
6	0.3	13.0	5.7	18	22	58	6	3	48.50	06103	61.73	06103	48.50	06103	61.73	06103
6	0.5	13.0	5.7	18	22	58	6	3	48.50	06105	61.73	06105	48.50	06105	61.73	06105
6	1.0	13.0	5.7	18	22	58	6	3	48.50	06110	61.73	06110	48.50	06110	61.73	06110
6	1.5	13.0	5.7	18	22	58	6	3	48.50	06115	61.73	06115	48.50	06115	61.73	06115
8	0.3	17.0	7.4	24	28	64	8	3	54.01	08103	67.24	08103	54.01	08103	67.24	08103
8	0.5	17.0	7.4	24	28	64	8	3	54.01	08105	67.24	08105	54.01	08105	67.24	08105
8	1.0	17.0	7.4	24	28	64	8	3	54.01	08110	67.24	08110	54.01	08110	67.24	08110
8	1.5	17.0	7.4	24	28	64	8	3	54.01	08115	67.24	08115	54.01	08115	67.24	08115
8	2.0	17.0	7.4	24	28	64	8	3	54.01	08120	67.24	08120	54.01	08120	67.24	08120
10	0.3	21.0	9.2	30	34	74	10	3	82.68	10103	98.10	10103	82.68	10103	98.10	10103
10	0.5	21.0	9.2	30	34	74	10	3	82.68	10105	98.10	10105	82.68	10105	98.10	10105
10	1.0	21.0	9.2	30	34	74	10	3	82.68	10110	98.10	10110	82.68	10110	98.10	10110
10	1.5	21.0	9.2	30	34	74	10	3	82.68	10115	98.10	10115	82.68	10115	98.10	10115
10	2.0	21.0	9.2	30	34	74	10	3	82.68	10120	98.10	10120	82.68	10120	98.10	10120
10	3.0	21.0	9.2	30	34	74	10	3	82.68	10130	98.10	10130	82.68	10130	98.10	10130
12	0.3	25.0	11.0	36	40	85	12	3	116.84	12103	138.88	12103	116.84	12103	138.88	12103
12	0.5	25.0	11.0	36	40	85	12	3	116.84	12105	138.88	12105	116.84	12105	138.88	12105
12	1.0	25.0	11.0	36	40	85	12	3	116.84	12110	138.88	12110	116.84	12110	138.88	12110
12	1.5	25.0	11.0	36	40	85	12	3	116.84	12115	138.88	12115	116.84	12115	138.88	12115
12	2.0	25.0	11.0	36	40	85	12	3	116.84	12120	138.88	12120	116.84	12120	138.88	12120
12	3.0	25.0	11.0	36	40	85	12	3	116.84	12130	138.88	12130	116.84	12130	138.88	12130
12	4.0	25.0	11.0	36	40	85	12	3	116.84	12140	138.88	12140	116.84	12140	138.88	12140
16	0.3	33.0	15.0	48	52	100	16	3					188.50	16103	221.56	16103
16	0.5	33.0	15.0	48	52	100	16	3					188.50	16105	221.56	16105
16	1.0	33.0	15.0	48	52	100	16	3					188.50	16110	221.56	16110
16	1.5	33.0	15.0	48	52	100	16	3					188.50	16115	221.56	16115

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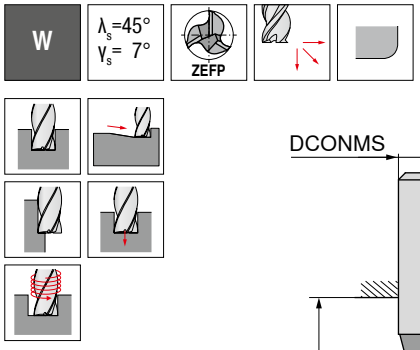
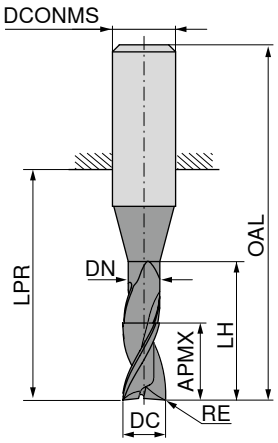
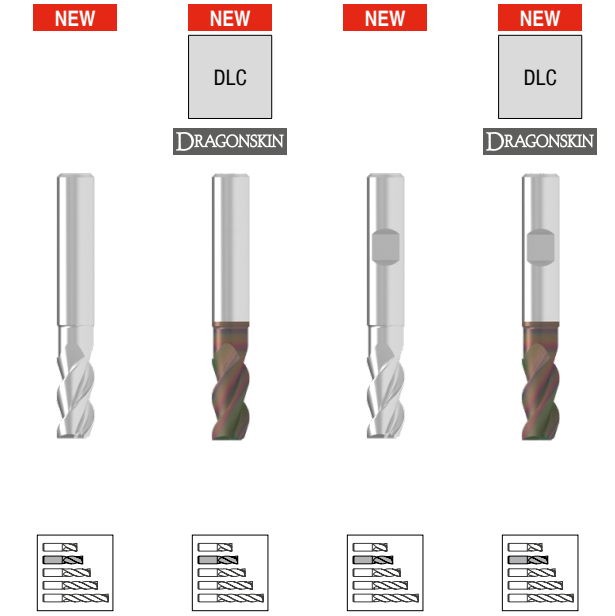
Continued on next page

AluLine – End milling cutter with corner radius

▲ With polished chip flutes







									Factory standard		Factory standard		Factory standard		Factory standard	
									HA		HA		HB		HB	
									53 708 ...		53 710 ...		53 709 ...		53 711 ...	
DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1		£ V1		£ V1		£ V1	
16	2.0	33.0	15.0	48	52	100	16	3					188.50	16120	221.56	16120
16	3.0	33.0	15.0	48	52	100	16	3					188.50	16130	221.56	16130
16	4.0	33.0	15.0	48	52	100	16	3					188.50	16140	221.56	16140
20	0.5	42.0	19.0	60	64	114	20	3					296.52	20105	342.81	20105
20	1.0	42.0	19.0	60	64	114	20	3					296.52	20110	342.81	20110
20	1.5	42.0	19.0	60	64	114	20	3					296.52	20115	342.81	20115
20	2.0	42.0	19.0	60	64	114	20	3					296.52	20120	342.81	20120
20	3.0	42.0	19.0	60	64	114	20	3					296.52	20130	342.81	20130
20	4.0	42.0	19.0	60	64	114	20	3					296.52	20140	342.81	20140

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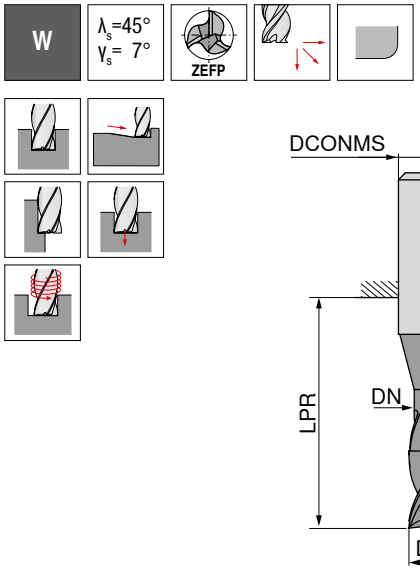
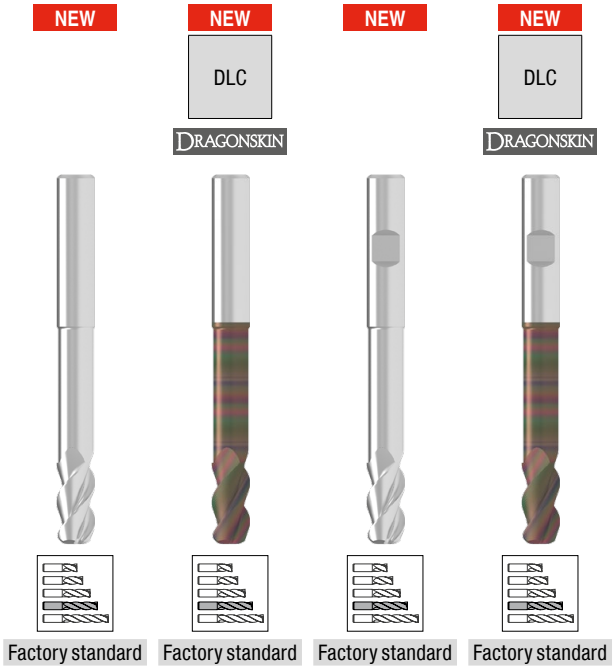
→ v_c/f_z Page 390+391

AluLine – End milling cutter with corner radius

▲ With polished chip flutes





									53 708 ...		53 710 ...		53 709 ...		53 711 ...	
DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1		£ V1		£ V1		£ V1	
2	0.3	5.5	1.8	10	19	55	6	3	47.40	02203	57.32	02203	47.40	02203	57.32	02203
2	0.5	5.5	1.8	10	19	55	6	3	47.40	02205	57.32	02205	47.40	02205	57.32	02205
3	0.3	8.0	2.7	15	22	58	6	3	49.60	03203	60.63	03203	48.50	03203	59.52	03203
3	0.5	8.0	2.7	15	22	58	6	3	49.60	03205	60.63	03205	48.50	03205	59.52	03205
3	1.0	8.0	2.7	15	22	58	6	3	49.60	03210	60.63	03210	48.50	03210	59.52	03210
4	0.3	10.5	3.7	20	26	62	6	3	51.81	04203	61.73	04203	51.81	04203	61.73	04203
4	0.5	10.5	3.7	20	26	62	6	3	51.81	04205	61.73	04205	51.81	04205	61.73	04205
4	1.0	10.5	3.7	20	26	62	6	3	51.81	04210	61.73	04210	51.81	04210	61.73	04210
5	0.3	13.0	4.7	25	34	70	6	3	57.32	05203	68.34	05203	57.32	05203	68.34	05203
5	0.5	13.0	4.7	25	34	70	6	3	57.32	05205	68.34	05205	57.32	05205	68.34	05205
5	1.0	13.0	4.7	25	34	70	6	3	57.32	05210	68.34	05210	57.32	05210	68.34	05210
6	0.3	16.0	5.7	30	34	70	6	3	58.42	06203	70.55	06203	58.42	06203	70.55	06203
6	0.5	16.0	5.7	30	34	70	6	3	58.42	06205	70.55	06205	58.42	06205	70.55	06205
6	1.0	16.0	5.7	30	34	70	6	3	58.42	06210	70.55	06210	58.42	06210	70.55	06210
6	1.5	16.0	5.7	30	34	70	6	3	58.42	06215	70.55	06215	58.42	06215	70.55	06215
8	0.3	21.0	7.4	40	44	80	8	3	63.93	08203	78.27	08203	63.93	08203	78.27	08203
8	0.5	21.0	7.4	40	44	80	8	3	63.93	08205	78.27	08205	63.93	08205	78.27	08205
8	1.0	21.0	7.4	40	44	80	8	3	63.93	08210	78.27	08210	63.93	08210	78.27	08210
8	1.5	21.0	7.4	40	44	80	8	3	63.93	08215	78.27	08215	63.93	08215	78.27	08215
8	2.0	21.0	7.4	40	44	80	8	3	63.93	08220	78.27	08220	63.93	08220	78.27	08220
10	0.3	26.0	9.2	50	54	94	10	3	99.20	10203	114.64	10203	99.20	10203	114.64	10203
10	0.5	26.0	9.2	50	54	94	10	3	99.20	10205	114.64	10205	99.20	10205	114.64	10205
10	1.0	26.0	9.2	50	54	94	10	3	99.20	10210	114.64	10210	99.20	10210	114.64	10210
10	1.5	26.0	9.2	50	54	94	10	3	99.20	10215	114.64	10215	99.20	10215	114.64	10215
10	2.0	26.0	9.2	50	54	94	10	3	99.20	10220	114.64	10220	99.20	10220	114.64	10220
10	3.0	26.0	9.2	50	54	94	10	3	99.20	10230	114.64	10230	99.20	10230	114.64	10230
12	0.3	31.0	11.0	60	64	109	12	3	139.99	12203	162.04	12203	139.99	12203	162.04	12203
12	0.5	31.0	11.0	60	64	109	12	3	139.99	12205	162.04	12205	139.99	12205	162.04	12205
12	1.0	31.0	11.0	60	64	109	12	3	139.99	12210	162.04	12210	139.99	12210	162.04	12210
12	1.5	31.0	11.0	60	64	109	12	3	139.99	12215	162.04	12215	139.99	12215	162.04	12215
12	2.0	31.0	11.0	60	64	109	12	3	139.99	12220	162.04	12220	139.99	12220	162.04	12220
12	3.0	31.0	11.0	60	64	109	12	3	139.99	12230	162.04	12230	139.99	12230	162.04	12230
12	4.0	31.0	11.0	60	64	109	12	3	139.99	12240	162.04	12240	139.99	12240	162.04	12240
16	0.3	41.0	15.0	80	84	132	16	3					300.93	16203	335.10	16203
16	0.5	41.0	15.0	80	84	132	16	3					300.93	16205	335.10	16205
16	1.0	41.0	15.0	80	84	132	16	3					300.93	16210	335.10	16210

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→ v_c/f_z Page 390+391

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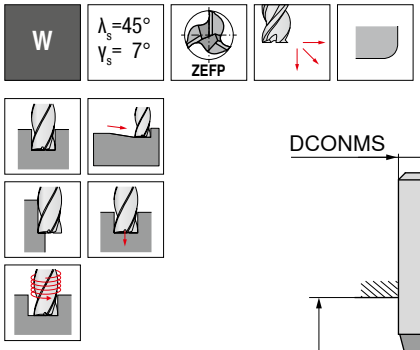
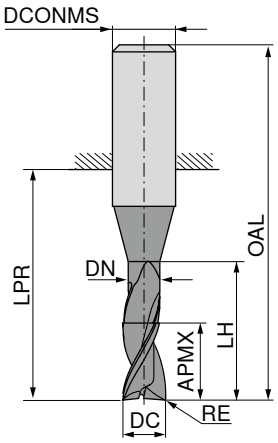
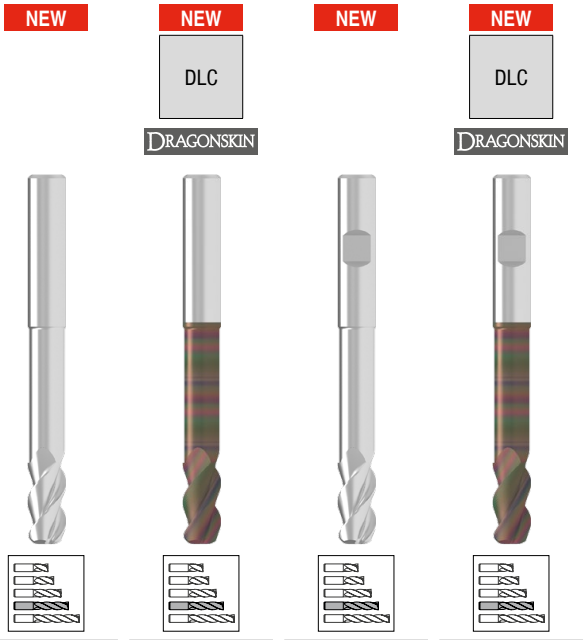
Continued on next page

AluLine – End milling cutter with corner radius

▲ With polished chip flutes







									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 708 ...	**53 710 ...**	**53 709 ...**	**53 711 ...**
DC $_{h6}$ **mm**	RE $_{\pm 0,05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ V1	£ V1	£ V1	£ V1
16	1.5	41.0	15.0	80	84	132	16	3			300.93 **16215**	335.10 **16215**
16	2.0	41.0	15.0	80	84	132	16	3			300.93 **16220**	335.10 **16220**
16	3.0	41.0	15.0	80	84	132	16	3			300.93 **16230**	335.10 **16230**
16	4.0	41.0	15.0	80	84	132	16	3			300.93 **16240**	335.10 **16240**
20	0.5	52.0	19.0	100	104	154	20	3			473.98 **20205**	520.29 **20205**
20	1.0	52.0	19.0	100	104	154	20	3			473.98 **20210**	520.29 **20210**
20	1.5	52.0	19.0	100	104	154	20	3			473.98 **20215**	520.29 **20215**
20	2.0	52.0	19.0	100	104	154	20	3			473.98 **20220**	520.29 **20220**
20	3.0	52.0	19.0	100	104	154	20	3			473.98 **20230**	520.29 **20230**
20	4.0	52.0	19.0	100	104	154	20	3			473.98 **20240**	520.29 **20240**

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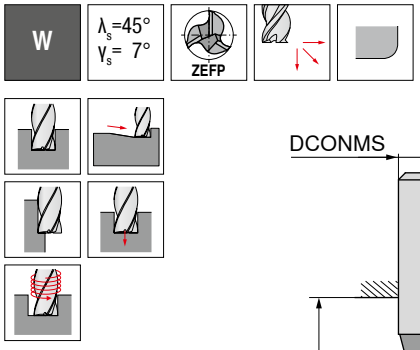
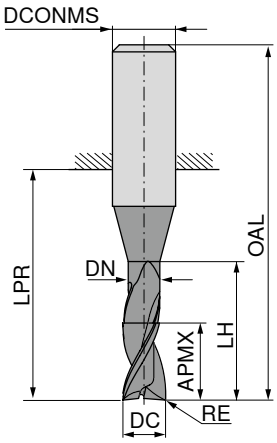
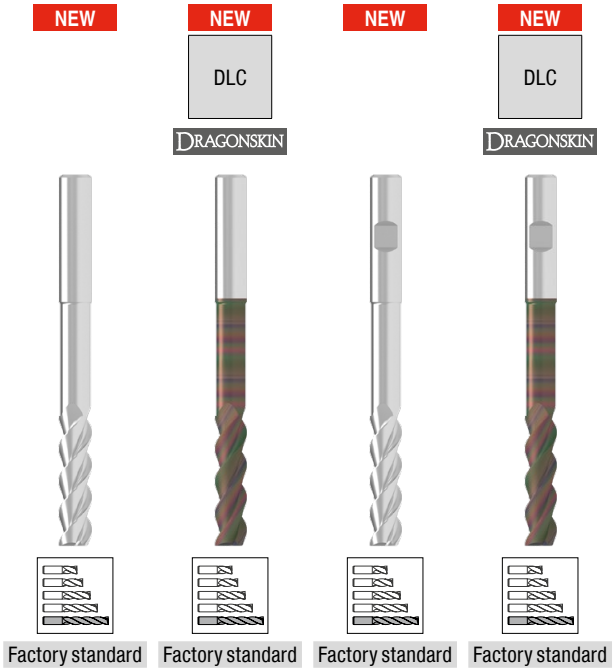
→ v_c/f_z Page 390+391

AluLine – End milling cutter with corner radius

▲ With polished chip flutes







DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA 53 708 ... £ V1		Factory standard HA 53 710 ... £ V1		Factory standard HB 53 709 ... £ V1		Factory standard HB 53 711 ... £ V1	
2	0.3	8.5	1.8	16	26	62	6	3	51.81	02403	61.73	02403	51.81	02403	61.73	02403
2	0.5	8.5	1.8	16	26	62	6	3	51.81	02405	61.73	02405	51.81	02405	61.73	02405
3	0.3	12.5	2.7	24	31	67	6	3	52.91	03403	62.83	03403	52.91	03403	62.83	03403
3	0.5	12.5	2.7	24	31	67	6	3	52.91	03405	62.83	03405	52.91	03405	62.83	03405
3	1.0	12.5	2.7	24	31	67	6	3	52.91	03410	62.83	03410	52.91	03410	62.83	03410
4	0.3	16.5	3.7	32	38	74	6	3	58.42	04403	68.34	04403	58.42	04403	68.34	04403
4	0.5	16.5	3.7	32	38	74	6	3	58.42	04405	68.34	04405	58.42	04405	68.34	04405
4	1.0	16.5	3.7	32	38	74	6	3	58.42	04410	68.34	04410	56.22	04410	66.14	04410
5	0.3	20.5	4.7	40	52	88	6	3	62.83	05403	72.75	05403	62.83	05403	72.75	05403
5	0.5	20.5	4.7	40	52	88	6	3	62.83	05405	72.75	05405	62.83	05405	72.75	05405
5	1.0	20.5	4.7	40	52	88	6	3	62.83	05410	72.75	05410	62.83	05410	72.75	05410
6	0.3	25.0	5.7	48	52	88	6	3	63.93	06403	76.06	06403	63.93	06403	76.06	06403
6	0.5	25.0	5.7	48	52	88	6	3	63.93	06405	76.06	06405	63.93	06405	76.06	06405
6	1.0	25.0	5.7	48	52	88	6	3	63.93	06410	76.06	06410	63.93	06410	76.06	06410
6	1.5	25.0	5.7	48	52	88	6	3	63.93	06415	76.06	06415	63.93	06415	76.06	06415
8	0.3	33.0	7.4	64	68	104	8	3	85.97	08403	99.20	08403	85.97	08403	99.20	08403
8	0.5	33.0	7.4	64	68	104	8	3	85.97	08405	99.20	08405	85.97	08405	99.20	08405
8	1.0	33.0	7.4	64	68	104	8	3	85.97	08410	99.20	08410	85.97	08410	99.20	08410
8	1.5	33.0	7.4	64	68	104	8	3	85.97	08415	99.20	08415	85.97	08415	99.20	08415
8	2.0	33.0	7.4	64	68	104	8	3	85.97	08420	99.20	08420	85.97	08420	99.20	08420
10	0.3	41.0	9.2	80	84	124	10	3	132.28	10403	147.70	10403	132.28	10403	147.70	10403
10	0.5	41.0	9.2	80	84	124	10	3	132.28	10405	147.70	10405	132.28	10405	147.70	10405
10	1.0	41.0	9.2	80	84	124	10	3	132.28	10410	147.70	10410	132.28	10410	147.70	10410
10	1.5	41.0	9.2	80	84	124	10	3	132.28	10415	147.70	10415	132.28	10415	147.70	10415
10	2.0	41.0	9.2	80	84	124	10	3	132.28	10420	147.70	10420	132.28	10420	147.70	10420
10	3.0	41.0	9.2	80	84	124	10	3	132.28	10430	147.70	10430	132.28	10430	147.70	10430
12	0.3	49.0	11.0	96	100	145	12	3	187.39	12403	208.33	12403	187.39	12403	208.33	12403
12	0.5	49.0	11.0	96	100	145	12	3	187.39	12405	208.33	12405	187.39	12405	208.33	12405
12	1.0	49.0	11.0	96	100	145	12	3	187.39	12410	208.33	12410	187.39	12410	208.33	12410
12	1.5	49.0	11.0	96	100	145	12	3	187.39	12415	208.33	12415	187.39	12415	208.33	12415
12	2.0	49.0	11.0	96	100	145	12	3	187.39	12420	208.33	12420	187.39	12420	208.33	12420
12	3.0	49.0	11.0	96	100	145	12	3	187.39	12430	208.33	12430	187.39	12430	208.33	12430
12	4.0	49.0	11.0	96	100	145	12	3	187.39	12440	208.33	12440	187.39	12440	208.33	12440
16	0.3	65.0	15.0	128	132	180	16	3					342.81	16403	376.98	16403
16	0.5	65.0	15.0	128	132	180	16	3					342.81	16405	376.98	16405
16	1.0	65.0	15.0	128	132	180	16	3					342.81	16410	376.98	16410

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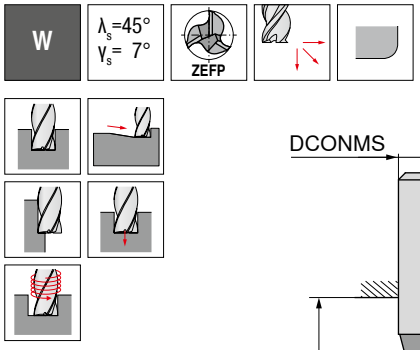
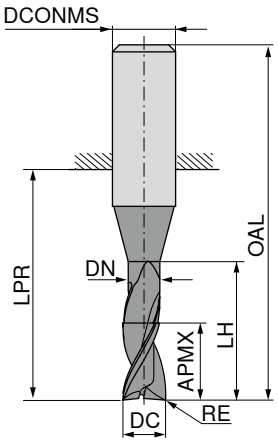
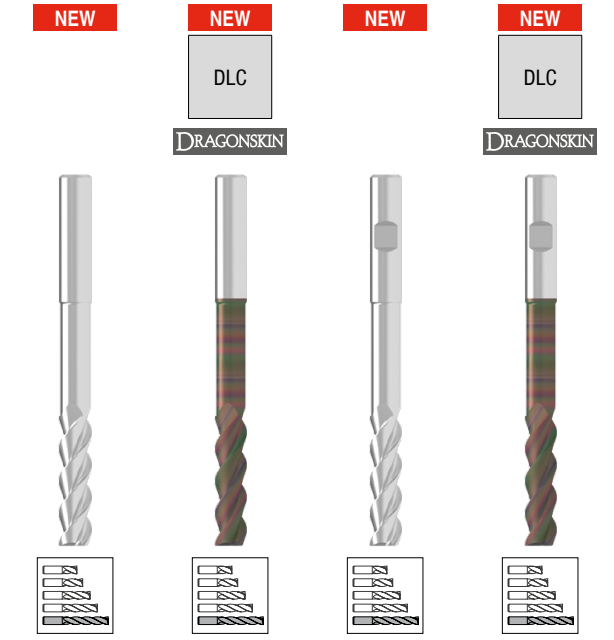
AluLine – End milling cutter with corner radius

▲ With polished chip flutes







									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 708 ...	**53 710 ...**	**53 709 ...**	**53 711 ...**
DC h6	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	£ V1	£ V1	£ V1	£ V1
mm	mm	mm	mm	mm	mm	mm	mm					
16	1.5	65.0	15.0	128	132	180	16	3			342.81 **16415**	376.98 **16415**
16	2.0	65.0	15.0	128	132	180	16	3			342.81 **16420**	376.98 **16420**
16	3.0	65.0	15.0	128	132	180	16	3			342.81 **16430**	376.98 **16430**
16	4.0	65.0	15.0	128	132	180	16	3			342.81 **16440**	376.98 **16440**
20	0.5	82.0	19.0	160	164	214	20	3			562.17 **20405**	608.46 **20405**
20	1.0	82.0	19.0	160	164	214	20	3			562.17 **20410**	608.46 **20410**
20	1.5	82.0	19.0	160	164	214	20	3			562.17 **20415**	608.46 **20415**
20	2.0	82.0	19.0	160	164	214	20	3			562.17 **20420**	608.46 **20420**
20	3.0	82.0	19.0	160	164	214	20	3			562.17 **20430**	608.46 **20430**
20	4.0	82.0	19.0	160	164	214	20	3			562.17 **20440**	608.46 **20440**
P												
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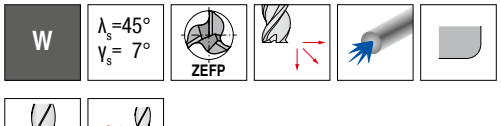
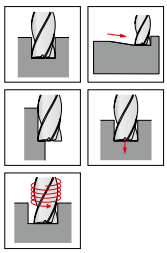
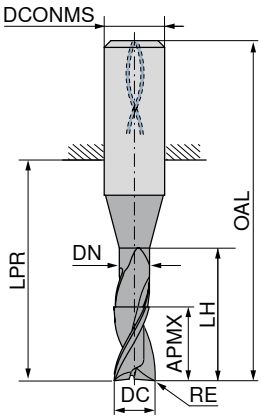
→ v_c/f_z Page 390+391

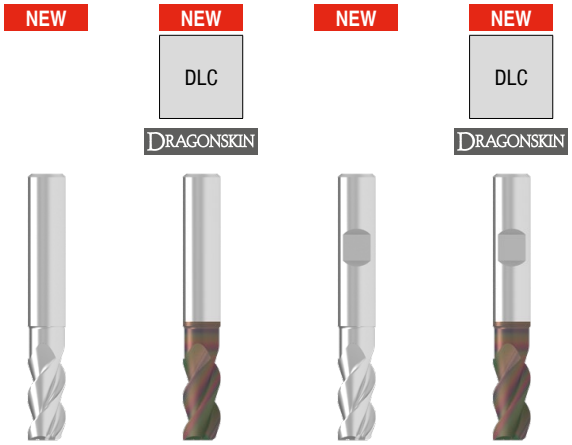
AluLine – End milling cutter with corner radius

▲ With polished chip flutes











Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 712 ... £ V1		53 714 ... £ V1		53 713 ... £ V1		53 715 ... £ V1	
6	0.3	13	5.7	18	22	58	6	3	56.22	06103	68.34	06103	56.22	06103	68.34	06103
6	0.5	13	5.7	18	22	58	6	3	56.22	06105	68.34	06105	56.22	06105	68.34	06105
6	1.0	13	5.7	18	22	58	6	3	56.22	06110	68.34	06110	56.22	06110	68.34	06110
6	1.5	13	5.7	18	22	58	6	3	56.22	06115	68.34	06115	56.22	06115	68.34	06115
8	0.3	17	7.4	24	28	64	8	3	74.96	08103	88.18	08103	74.96	08103	88.18	08103
8	0.5	17	7.4	24	28	64	8	3	74.96	08105	88.18	08105	74.96	08105	88.18	08105
8	1.0	17	7.4	24	28	64	8	3	74.96	08110	88.18	08110	74.96	08110	88.18	08110
8	1.5	17	7.4	24	28	64	8	3	74.96	08115	88.18	08115	74.96	08115	88.18	08115
8	2.0	17	7.4	24	28	64	8	3	74.96	08120	88.18	08120	74.96	08120	88.18	08120
10	0.3	21	9.2	30	34	74	10	3	114.64	10103	130.07	10103	114.64	10103	130.07	10103
10	0.5	21	9.2	30	34	74	10	3	114.64	10105	130.07	10105	114.64	10105	130.07	10105
10	1.0	21	9.2	30	34	74	10	3	114.64	10110	130.07	10110	114.64	10110	130.07	10110
10	1.5	21	9.2	30	34	74	10	3	114.64	10115	130.07	10115	114.64	10115	130.07	10115
10	2.0	21	9.2	30	34	74	10	3	114.64	10120	130.07	10120	114.64	10120	130.07	10120
10	3.0	21	9.2	30	34	74	10	3	114.64	10130	130.07	10130	114.64	10130	130.07	10130
12	0.3	25	11.0	36	40	85	12	3	163.14	12103	184.09	12103	163.14	12103	184.09	12103
12	0.5	25	11.0	36	40	85	12	3	163.14	12105	184.09	12105	163.14	12105	184.09	12105
12	1.0	25	11.0	36	40	85	12	3	163.14	12110	184.09	12110	163.14	12110	184.09	12110
12	1.5	25	11.0	36	40	85	12	3	163.14	12115	184.09	12115	163.14	12115	184.09	12115
12	2.0	25	11.0	36	40	85	12	3	163.14	12120	184.09	12120	163.14	12120	184.09	12120
12	3.0	25	11.0	36	40	85	12	3	163.14	12130	184.09	12130	163.14	12130	184.09	12130
12	4.0	25	11.0	36	40	85	12	3	163.14	12140	184.09	12140	163.14	12140	184.09	12140
16	0.3	33	15.0	48	52	100	16	3					244.71	16103	277.78	16103
16	0.5	33	15.0	48	52	100	16	3					244.71	16105	277.78	16105
16	1.0	33	15.0	48	52	100	16	3					244.71	16110	277.78	16110
16	1.5	33	15.0	48	52	100	16	3					244.71	16115	277.78	16115
16	2.0	33	15.0	48	52	100	16	3					244.71	16120	277.78	16120
16	3.0	33	15.0	48	52	100	16	3					244.71	16130	277.78	16130
16	4.0	33	15.0	48	52	100	16	3					244.71	16140	277.78	16140
20	0.5	42	19.0	60	64	114	20	3					498.24	20105	543.43	20105
20	1.0	42	19.0	60	64	114	20	3					498.24	20110	543.43	20110
20	1.5	42	19.0	60	64	114	20	3					498.24	20115	543.43	20115
20	2.0	42	19.0	60	64	114	20	3					498.24	20120	543.43	20120
20	3.0	42	19.0	60	64	114	20	3					498.24	20130	543.43	20130
20	4.0	42	19.0	60	64	114	20	3					498.24	20140	543.43	20140

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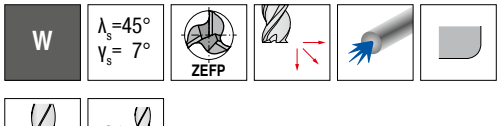
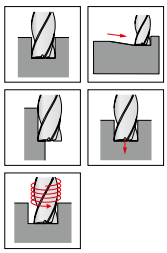
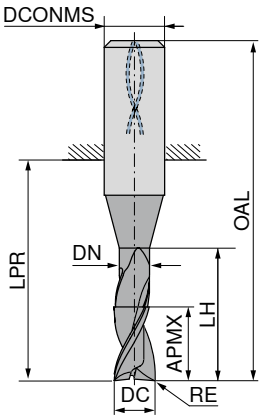
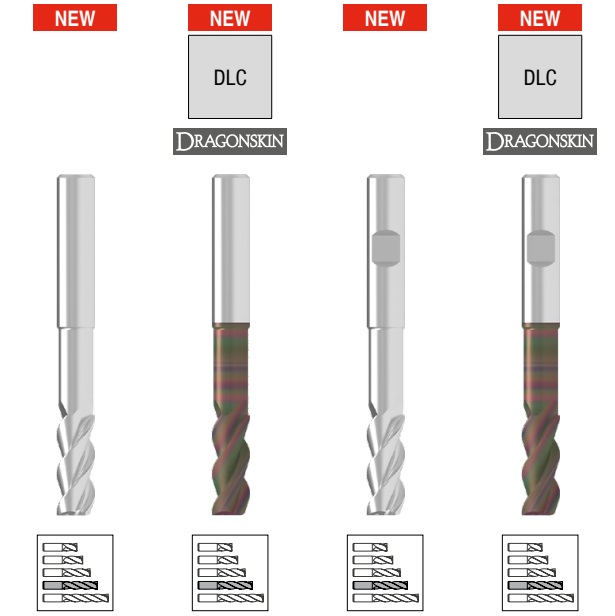
AluLine – End milling cutter with corner radius

▲ With polished chip flutes









Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	53 712 ... £ V1		53 714 ... £ V1		53 713 ... £ V1		53 715 ... £ V1	
6	0.3	16	5.7	30	34	70	6	3	67.24	06203	79.37	06203	67.24	06203	79.37	06203
6	0.5	16	5.7	30	34	70	6	3	67.24	06205	79.37	06205	67.24	06205	79.37	06205
6	1.0	16	5.7	30	34	70	6	3	67.24	06210	79.37	06210	67.24	06210	79.37	06210
6	1.5	16	5.7	30	34	70	6	3	67.24	06215	79.37	06215	67.24	06215	79.37	06215
8	0.3	21	7.4	40	44	80	8	3	89.28	08203	103.61	08203	89.28	08203	103.61	08203
8	0.5	21	7.4	40	44	80	8	3	89.28	08205	103.61	08205	89.28	08205	103.61	08205
8	1.0	21	7.4	40	44	80	8	3	89.28	08210	103.61	08210	89.28	08210	103.61	08210
8	1.5	21	7.4	40	44	80	8	3	89.28	08215	103.61	08215	89.28	08215	103.61	08215
8	2.0	21	7.4	40	44	80	8	3	89.28	08220	103.61	08220	89.28	08220	103.61	08220
10	0.3	26	9.2	50	54	94	10	3	137.79	10203	153.22	10203	137.79	10203	153.22	10203
10	0.5	26	9.2	50	54	94	10	3	137.79	10205	153.22	10205	137.79	10205	153.22	10205
10	1.0	26	9.2	50	54	94	10	3	137.79	10210	153.22	10210	137.79	10210	153.22	10210
10	1.5	26	9.2	50	54	94	10	3	137.79	10215	153.22	10215	137.79	10215	153.22	10215
10	2.0	26	9.2	50	54	94	10	3	137.79	10220	153.22	10220	137.79	10220	153.22	10220
10	3.0	26	9.2	50	54	94	10	3	137.79	10230	153.22	10230	137.79	10230	153.22	10230
12	0.3	31	11.0	60	64	109	12	3	195.10	12203	217.15	12203	195.10	12203	217.15	12203
12	0.5	31	11.0	60	64	109	12	3	195.10	12205	217.15	12205	195.10	12205	217.15	12205
12	1.0	31	11.0	60	64	109	12	3	195.10	12210	217.15	12210	195.10	12210	217.15	12210
12	1.5	31	11.0	60	64	109	12	3	195.10	12215	217.15	12215	195.10	12215	217.15	12215
12	2.0	31	11.0	60	64	109	12	3	195.10	12220	217.15	12220	195.10	12220	217.15	12220
12	3.0	31	11.0	60	64	109	12	3	195.10	12230	217.15	12230	195.10	12230	217.15	12230
12	4.0	31	11.0	60	64	109	12	3	195.10	12240	217.15	12240	195.10	12240	217.15	12240
16	0.3	41	15.0	80	84	132	16	3					338.40	16203	372.57	16203
16	0.5	41	15.0	80	84	132	16	3					338.40	16205	372.57	16205
16	1.0	41	15.0	80	84	132	16	3					338.40	16210	372.57	16210
16	1.5	41	15.0	80	84	132	16	3					338.40	16215	372.57	16215
16	2.0	41	15.0	80	84	132	16	3					338.40	16220	372.57	16220
16	3.0	41	15.0	80	84	132	16	3					338.40	16230	372.57	16230
16	4.0	41	15.0	80	84	132	16	3					338.40	16240	372.57	16240
20	0.5	52	19.0	100	104	154	20	3					533.51	20205	579.80	20205
20	1.0	52	19.0	100	104	154	20	3					533.51	20210	579.80	20210
20	1.5	52	19.0	100	104	154	20	3					533.51	20215	579.80	20215
20	2.0	52	19.0	100	104	154	20	3					533.51	20220	579.80	20220
20	3.0	52	19.0	100	104	154	20	3					533.51	20230	579.80	20230
20	4.0	52	19.0	100	104	154	20	3					533.51	20240	579.80	20240

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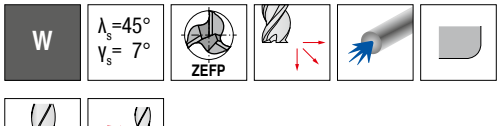
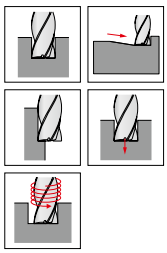
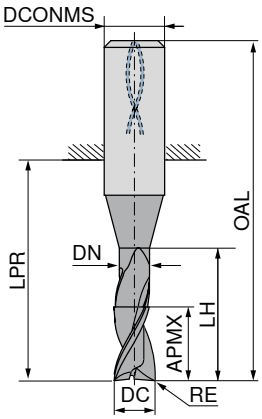
→ v_c/f_z Page 390+391

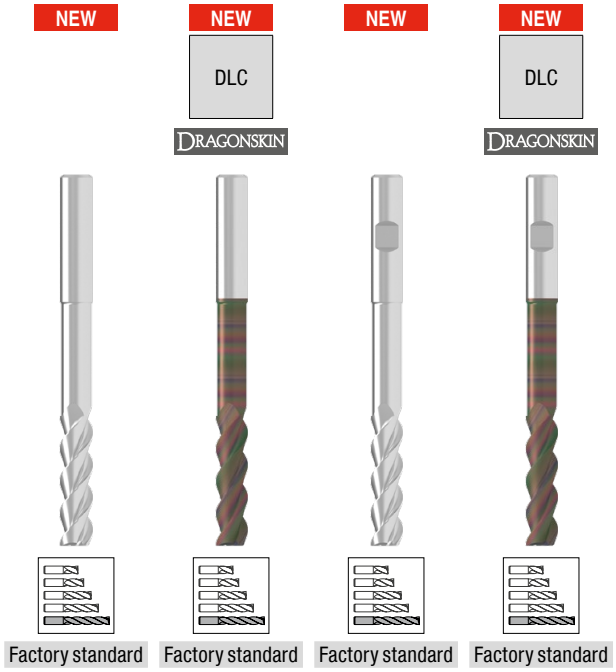
AluLine – End milling cutter with corner radius

▲ With polished chip flutes









Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	53 712 ... £ V1		53 714 ... £ V1		53 713 ... £ V1		53 715 ... £ V1	
6	0.3	25	5.7	48	52	88	6	3	84.87	06403	97.00	06403	90.38	06403	102.51	06403
6	0.5	25	5.7	48	52	88	6	3	84.87	06405	97.00	06405	90.38	06405	102.51	06405
6	1.0	25	5.7	48	52	88	6	3	84.87	06410	97.00	06410	90.38	06410	102.51	06410
6	1.5	25	5.7	48	52	88	6	3	84.87	06415	97.00	06415	90.38	06415	102.51	06415
8	0.3	33	7.4	64	68	104	8	3	112.43	08403	125.66	08403	119.05	08403	133.38	08403
8	0.5	33	7.4	64	68	104	8	3	112.43	08405	125.66	08405	119.05	08405	133.38	08405
8	1.0	33	7.4	64	68	104	8	3	112.43	08410	125.66	08410	119.05	08410	133.38	08410
8	1.5	33	7.4	64	68	104	8	3	112.43	08415	125.66	08415	119.05	08415	133.38	08415
8	2.0	33	7.4	64	68	104	8	3	112.43	08420	125.66	08420	119.05	08420	133.38	08420
10	0.3	41	9.2	80	84	124	10	3	171.96	10403	187.39	10403	184.09	10403	198.41	10403
10	0.5	41	9.2	80	84	124	10	3	171.96	10405	187.39	10405	184.09	10405	198.41	10405
10	1.0	41	9.2	80	84	124	10	3	171.96	10410	187.39	10410	184.09	10410	198.41	10410
10	1.5	41	9.2	80	84	124	10	3	171.96	10415	187.39	10415	184.09	10415	198.41	10415
10	2.0	41	9.2	80	84	124	10	3	171.96	10420	187.39	10420	184.09	10420	198.41	10420
10	3.0	41	9.2	80	84	124	10	3	171.96	10430	187.39	10430	184.09	10430	198.41	10430
12	0.3	49	11.0	96	100	145	12	3	243.61	12403	265.65	12403	260.14	12403	282.19	12403
12	0.5	49	11.0	96	100	145	12	3	243.61	12405	265.65	12405	260.14	12405	282.19	12405
12	1.0	49	11.0	96	100	145	12	3	243.61	12410	265.65	12410	260.14	12410	282.19	12410
12	1.5	49	11.0	96	100	145	12	3	243.61	12415	265.65	12415	260.14	12415	282.19	12415
12	2.0	49	11.0	96	100	145	12	3	243.61	12420	265.65	12420	260.14	12420	282.19	12420
12	3.0	49	11.0	96	100	145	12	3	243.61	12430	265.65	12430	260.14	12430	282.19	12430
12	4.0	49	11.0	96	100	145	12	3	243.61	12440	265.65	12440	260.14	12440	282.19	12440
16	0.3	65	15.0	128	132	180	16	3					630.51	16403	663.58	16403
16	0.5	65	15.0	128	132	180	16	3					630.51	16405	663.58	16405
16	1.0	65	15.0	128	132	180	16	3					630.51	16410	663.58	16410
16	1.5	65	15.0	128	132	180	16	3					630.51	16415	663.58	16415
16	2.0	65	15.0	128	132	180	16	3					630.51	16420	663.58	16420
16	3.0	65	15.0	128	132	180	16	3					630.51	16430	663.58	16430
16	4.0	65	15.0	128	132	180	16	3					630.51	16440	663.58	16440
20	0.5	82	19.0	160	164	214	20	3					957.89	20405	1,004.19	20405
20	1.0	82	19.0	160	164	214	20	3					957.89	20410	1,004.19	20410
20	1.5	82	19.0	160	164	214	20	3					957.89	20415	1,004.19	20415
20	2.0	82	19.0	160	164	214	20	3					957.89	20420	1,004.19	20420
20	3.0	82	19.0	160	164	214	20	3					957.89	20430	1,004.19	20430
20	4.0	82	19.0	160	164	214	20	3					957.89	20440	1,004.19	20440

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→ v_c/f_z Page 390+391

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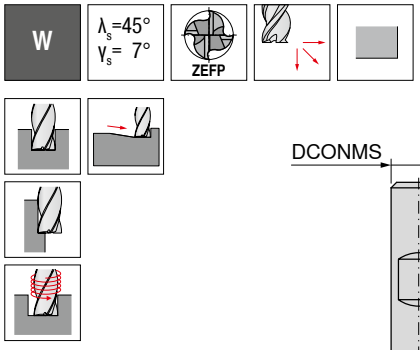
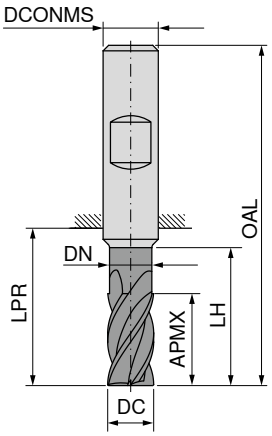
AluLine – End milling cutter

▲ With polished chip flutes







DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA 53 704 ... £ V1		Factory standard HA 53 706 ... £ V1		Factory standard HB 53 705 ... £ V1		Factory standard HB 53 707 ... £ V1	
5	10.5	4.8	15	22	58	6	4	48.50	05100	61.73	05100	48.50	05100	61.73	05100
6	13.0	5.8	18	22	58	6	4	49.60	06100	61.73	06100	49.60	06100	61.73	06100
8	17.0	7.7	24	28	64	8	4	70.55	08100	84.87	08100	70.55	08100	84.87	08100
10	21.0	9.7	30	34	74	10	4	93.69	10100	109.13	10100	93.69	10100	109.13	10100
12	25.0	11.6	36	40	85	12	4	144.40	12100	165.34	12100	144.40	12100	165.34	12100
14	29.0	13.6	42	46	91	14	4					166.45	14100	195.10	14100
16	33.0	15.5	48	52	100	16	4					263.45	16100	296.52	16100
18	38.0	17.5	54	58	106	18	4					283.29	18100	320.76	18100
20	42.0	19.5	60	64	114	20	4					483.90	20100	529.10	20100
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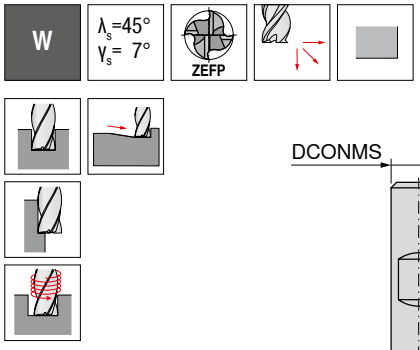
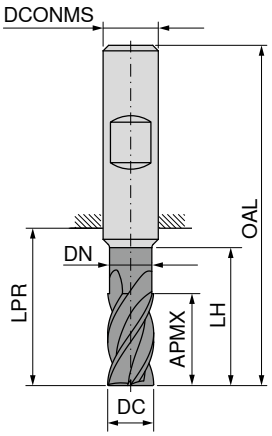
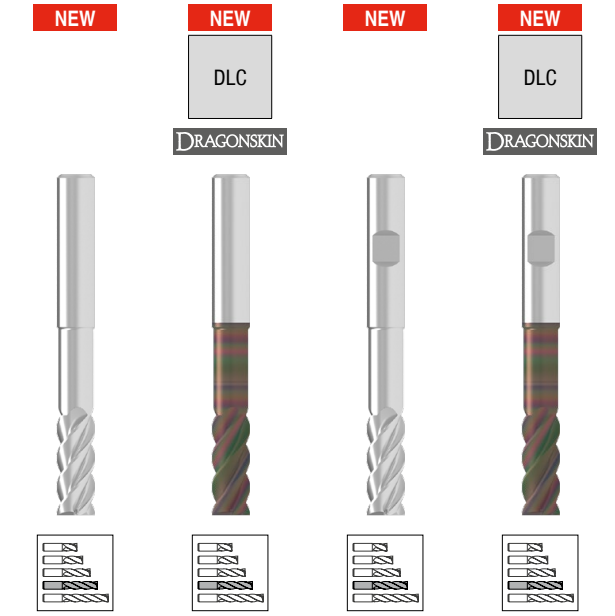
→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes







	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HB	HB
	53 704 ...	**53 706 ...**	**53 705 ...**	**53 707 ...**

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1		£ V1		£ V1		£ V1	
2	5.5	1.8	10	19	55	6	4	39.68	**02200**	50.70	**02200**	39.68	**02200**	49.60	**02200**
3	8.0	2.8	15	22	58	6	4	51.81	**03200**	62.83	**03200**	51.81	**03200**	61.73	**03200**
4	10.5	3.8	20	26	62	6	4	49.60	**04200**	60.63	**04200**	49.60	**04200**	59.52	**04200**
5	13.0	4.8	25	34	70	6	4	47.40	**05200**	59.52	**05200**	47.40	**05200**	59.52	**05200**
6	16.0	5.8	30	34	70	6	4	49.60	**06200**	61.73	**06200**	49.60	**06200**	61.73	**06200**
8	21.0	7.7	40	44	80	8	4	70.55	**08200**	84.87	**08200**	70.55	**08200**	84.87	**08200**
10	26.0	9.7	50	54	94	10	4	93.69	**10200**	109.13	**10200**	93.69	**10200**	109.13	**10200**
12	31.0	11.6	60	64	109	12	4	144.40	**12200**	165.34	**12200**	144.40	**12200**	165.34	**12200**
14	36.0	13.6	70	74	119	14	4					174.16	**14200**	202.82	**14200**
16	41.0	15.5	80	84	132	16	4					263.45	**16200**	296.52	**16200**
18	47.0	17.5	90	94	142	18	4					283.29	**18200**	320.76	**18200**
20	52.0	19.5	100	104	154	20	4					483.90	**20200**	529.10	**20200**

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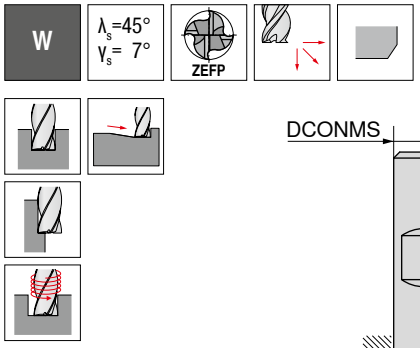
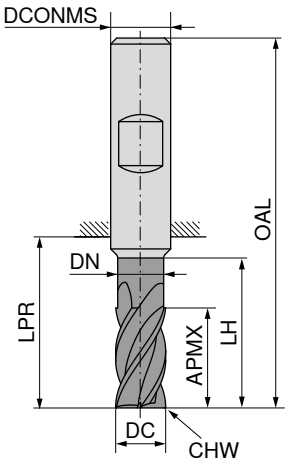
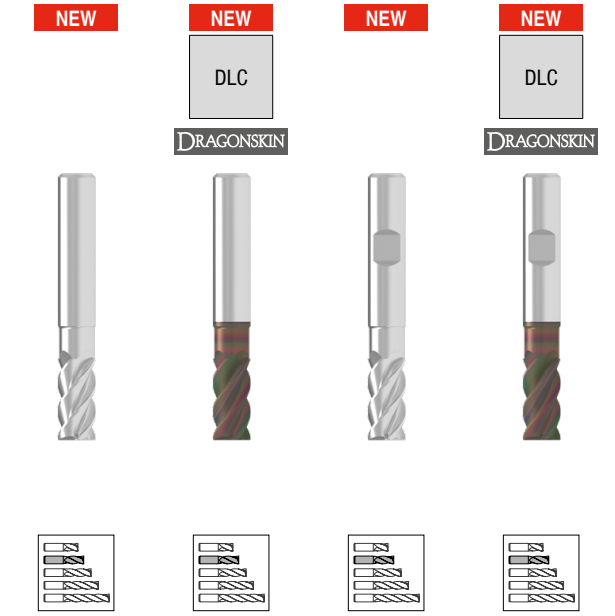
→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes







	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HB	HB
	53 700 ...	**53 702 ...**	**53 701 ...**	**53 703 ...**
DC h6 mm	£ V1	£ V1	£ V1	£ V1
5	48.50 **05100**	61.73 **05100**	48.50 **05100**	61.73 **05100**
6	49.60 **06100**	61.73 **06100**	49.60 **06100**	61.73 **06100**
8	70.55 **08100**	84.87 **08100**	70.55 **08100**	84.87 **08100**
10	93.69 **10100**	109.13 **10100**	93.69 **10100**	109.13 **10100**
12	144.40 **12100**	165.34 **12100**	144.40 **12100**	165.34 **12100**
14			166.45 **14100**	195.10 **14100**
16			263.45 **16100**	296.52 **16100**
18			283.29 **18100**	320.76 **18100**
20			483.90 **20100**	529.10 **20100**

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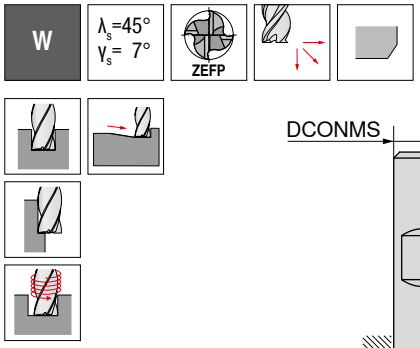
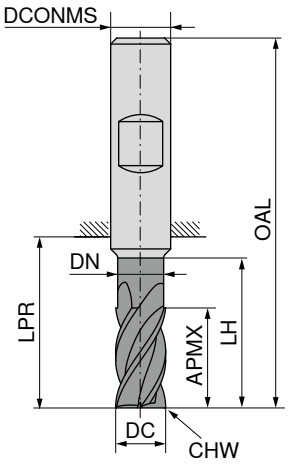
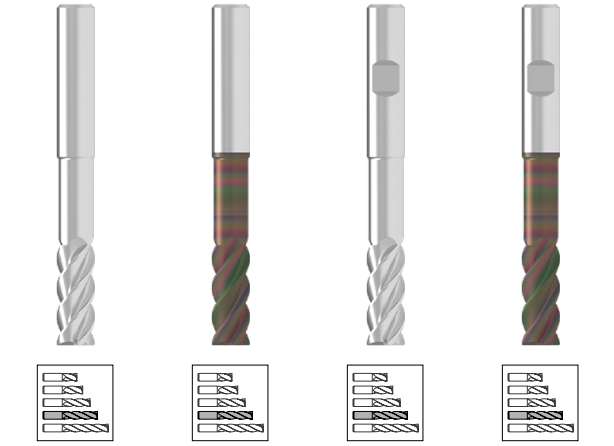
→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 700 ... £ V1		53 702 ... £ V1		53 701 ... £ V1		53 703 ... £ V1	
2	5.5	1.8	10	19	55	6	0.05	4	39.68	**02200**	49.60	**02200**	39.68	**02200**	49.60	**02200**
3	8.0	2.8	15	22	58	6	0.10	4	51.81	**03200**	61.73	**03200**	51.81	**03200**	61.73	**03200**
4	10.5	3.8	20	26	62	6	0.10	4	49.60	**04200**	59.52	**04200**	49.60	**04200**	59.52	**04200**
5	13.0	4.8	25	34	70	6	0.10	4	47.40	**05200**	59.52	**05200**	47.40	**05200**	59.52	**05200**
6	16.0	5.8	30	34	70	6	0.20	4	49.60	**06200**	61.73	**06200**	49.60	**06200**	61.73	**06200**
8	21.0	7.7	40	44	80	8	0.20	4	70.55	**08200**	84.87	**08200**	70.55	**08200**	84.87	**08200**
10	26.0	9.7	50	54	94	10	0.20	4	93.69	**10200**	109.13	**10200**	93.69	**10200**	109.13	**10200**
12	31.0	11.6	60	64	109	12	0.20	4	144.40	**12200**	165.34	**12200**	144.40	**12200**	165.34	**12200**
14	36.0	13.6	70	74	119	14	0.20	4					174.16	**14200**	202.82	**14200**
16	41.0	15.5	80	84	132	16	0.20	4					263.45	**16200**	296.52	**16200**
18	47.0	17.5	90	94	142	18	0.20	4					283.29	**18200**	320.76	**18200**
20	52.0	19.5	100	104	154	20	0.20	4					483.90	**20200**	529.10	**20200**

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→ v_c/f_z Page 390+391

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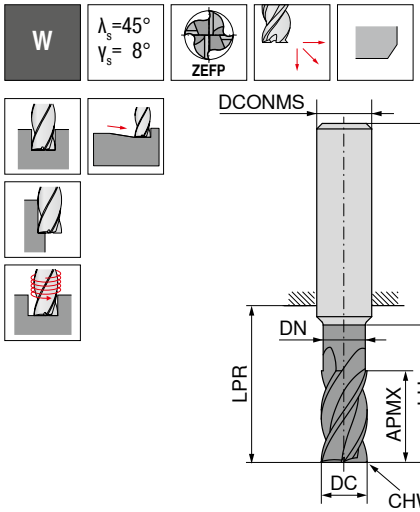
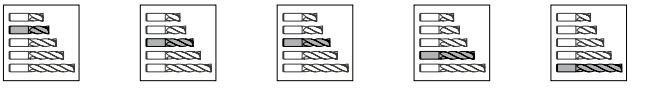
AluLine – End milling cutter

▲ With polished chip flutes







									Factory standard		Factory standard		Factory standard		Factory standard		Factory standard	
									HA		HA		HA		HA		HA	
									53 560 ...		53 561 ...		53 562 ...		53 563 ...		53 564 ...	
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1		£ V1		£ V1		£ V1		£ V1	
3.0	8	2.7	13	21	57	6	0.1	4							32.04	**030**		
3.5	11	3.2	17	21	57	6	0.1	4							35.84	**035**		
4.0	11	3.7	17	21	57	6	0.1	4							35.84	**040**		
4.5	13	4.2	19	21	57	6	0.1	4							37.79	**045**		
5.0	13	4.7	19	21	57	6	0.1	4					35.05	**050**				
5.5	13	5.2	19	21	57	6	0.1	4					34.52	**055**				
6.0	10	5.7	42	44	80	6	0.2	4									37.00	**060**
6.0	13	5.7	19	21	57	6	0.2	4					37.00	**060**				
6.0	18	5.7	24	26	62	6	0.2	4							37.00	**060**		
6.5	21	6.1	25	27	63	8	0.2	4					49.56	**065**				
8.0	13	7.4	62	64	100	8	0.2	4									52.70	**080**
8.0	21	7.4	25	27	63	8	0.2	4			52.70	**080**						
8.0	24	7.4	30	32	68	8	0.2	4					52.70	**080**				
8.5	22	7.9	30	32	72	10	0.2	4					66.18	**085**				
10.0	16	9.2	58	60	100	10	0.2	4							69.31	**100**		
10.0	22	9.2	30	32	72	10	0.2	4			69.31	**100**						
10.0	30	9.2	38	40	80	10	0.2	4					69.31	**100**				
12.0	19	11.0	73	75	120	12	0.2	4									106.71	**120**
12.0	26	11.0	36	38	83	12	0.2	4			106.71	**120**						
12.0	36	11.0	46	48	93	12	0.2	4					106.71	**120**				
14.0	26	13.0	36	38	83	14	0.2	4	123.70	**140**								
16.0	25	15.0	100	102	150	16	0.2	4									195.10	**160**
16.0	36	15.0	42	44	92	16	0.2	4	195.10	**160**								
16.0	48	15.0	58	60	108	16	0.2	4					195.10	**160**				
18.0	36	17.0	42	44	92	18	0.2	4	210.02	**180**								
20.0	32	19.0	98	100	150	20	0.2	4							359.07	**200**		
20.0	41	19.0	52	54	104	20	0.2	4	359.07	**200**								
20.0	60	19.0	74	76	126	20	0.2	4					359.07	**200**				
25.0	52	24.0	62	65	121	25	0.3	4	469.59	**250**								
P																		
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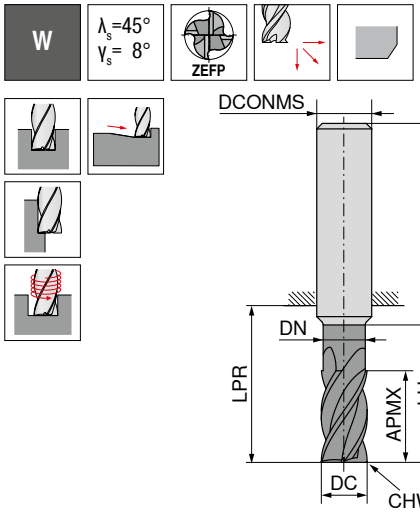
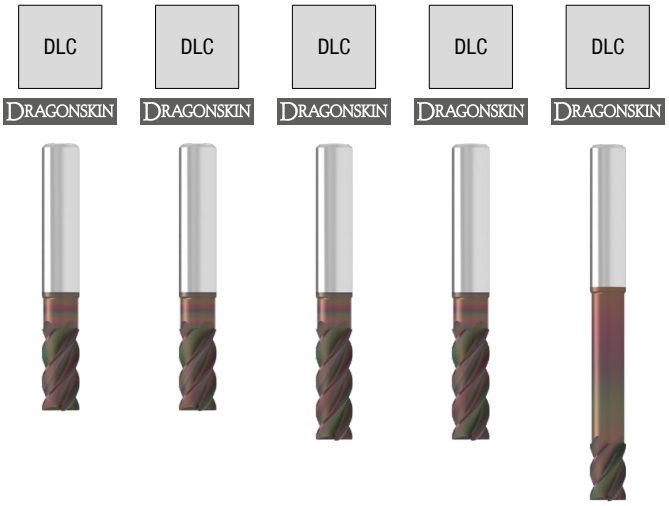
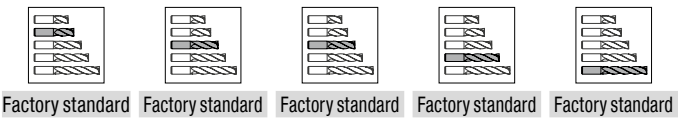
AluLine – End milling cutter







DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 565 ... £ V1		53 566 ... £ V1		53 567 ... £ V1		53 568 ... £ V1		53 569 ... £ V1	
3.0	8	2.7	13	21	57	6	0.1	4							42.76	030		
3.5	11	3.2	17	21	57	6	0.1	4							46.29	035		
4.0	11	3.7	17	21	57	6	0.1	4							46.29	040		
4.5	13	4.2	19	21	57	6	0.1	4							48.51	045		
5.0	13	4.7	19	21	57	6	0.1	4					45.78	050				
5.5	13	5.2	19	21	57	6	0.1	4					45.12	055				
6.0	10	5.7	42	44	80	6	0.2	4									47.61	060
6.0	13	5.7	19	21	57	6	0.2	4					47.61	060				
6.0	18	5.7	24	26	62	6	0.2	4							47.61	060		
6.5	21	6.1	25	27	63	8	0.2	4					60.15	065				
8.0	13	7.4	62	64	100	8	0.2	4									63.29	080
8.0	21	7.4	25	27	63	8	0.2	4			63.29	080						
8.0	24	7.2	30	32	68	8	0.2	4					63.29	080				
8.5	22	7.9	30	32	72	10	0.2	4					76.77	085				
10.0	16	9.2	58	60	100	10	0.2	4							79.91	100		
10.0	22	9.2	30	32	72	10	0.2	4			79.91	100						
10.0	30	9.2	38	40	80	10	0.2	4					79.91	100				
12.0	19	11.0	73	75	120	12	0.2	4									117.30	120
12.0	26	11.0	36	38	83	12	0.2	4			117.30	120						
12.0	36	11.0	46	48	93	12	0.2	4					117.30	120				
14.0	26	13.0	36	38	83	14	0.2	4	134.17	140								
16.0	25	15.0	100	102	150	16	0.2	4									206.22	160
16.0	36	15.0	42	44	92	16	0.2	4	206.22	160								
16.0	48	15.0	58	60	108	16	0.2	4					206.22	160				
18.0	36	17.0	42	44	92	18	0.2	4	221.13	180								
20.0	32	19.0	98	100	150	20	0.2	4							369.01	200		
20.0	41	19.0	52	54	104	20	0.2	4	369.01	200								
20.0	60	19.0	74	76	126	20	0.2	4					369.01	200				
25.0	52	24.0	62	65	121	25	0.3	4	480.83	250								
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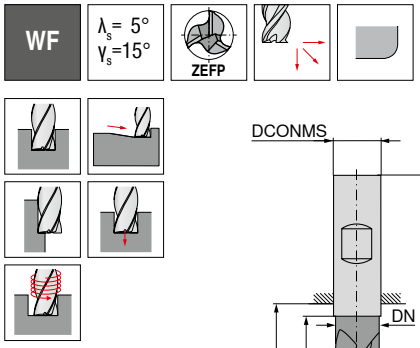
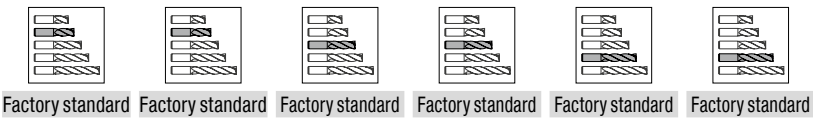
14

AluLine – Roughing-Finishing Cutter







DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 582 ... £ V1		53 583 ... £ V1		53 582 ... £ V1		53 583 ... £ V1		53 582 ... £ V1		53 583 ... £ V1	
3	0.10	5	2.7	18	44	80	6	3					66.14	03301	66.14	03301				
4	0.10	7	3.7	24	44	80	6	3					68.34	04301	68.34	04301				
5	0.15	8	4.7	16	18	54	6	3	57.32	05101	57.32	05101								
5	0.15	8	4.7	30	44	80	6	3					71.65	05301	71.65	05301				
5	0.15	13	4.7	18	21	57	6	3									57.32	05201	57.32	05201
6	0.20	10	5.7	17	18	54	6	3	57.32	06102	57.32	06102								
6	0.20	10	5.7	42	44	80	6	3					78.27	06302	78.27	06302				
6	0.20	13	5.7	18	21	57	6	3									57.32	06202	57.32	06202
8	0.25	13	7.4	20	22	58	8	3	67.24	08103	67.24	08103								
8	0.25	13	7.4	62	64	100	8	3					85.97	08303	85.97	08303				
8	0.25	21	7.4	25	27	63	8	3									70.55	08203	70.55	08203
10	0.30	16	9.2	24	26	66	10	3	91.49	10103	91.49	10103								
10	0.30	16	9.2	58	60	100	10	3					121.25	10303	121.25	10303				
10	0.30	22	9.2	30	32	72	10	3									97.00	10203	97.00	10203
12	0.35	19	11.0	26	28	73	12	3	126.77	12104	126.77	12104								
12	0.35	19	11.0	73	75	120	12	3					155.42	12304	155.42	12304				
12	0.35	26	11.0	36	38	83	12	3									131.18	12204	131.18	12204
16	0.50	25	15.0	32	34	82	16	3			212.74	16105								
16	0.50	25	15.0	100	102	150	16	3							261.24	16305				
16	0.50	36	15.0	42	44	92	16	3											222.66	16205
20	0.60	32	19.0	40	42	92	20	3			354.94	20106								
20	0.60	32	19.0	100	100	150	20	3							388.01	20306				
20	0.60	41	19.0	52	54	104	20	3											380.29	20206

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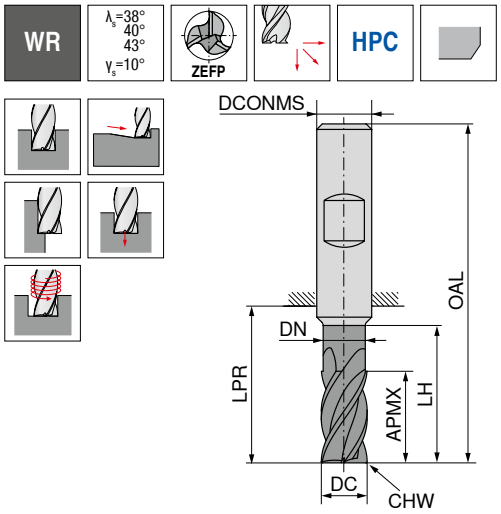
→ v_c/f_z Page 392

AluLine – Rough milling cutter

▲ With polished chip flutes







DC d11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 578 ... £ V1		53 579 ... £ V1		53 578 ... £ V1		53 579 ... £ V1		53 578 ... £ V1		53 579 ... £ V1	
6	13	5.8	18	22	58	6	0.4	3	54.01	06100	54.01	06100								
6	13	5.8	48	52	88	6	0.4	3									62.83	06400	62.83	06400
6	16	5.8	30	34	70	6	0.4	3					57.32	06200	57.32	06200				
8	17	7.7	24	28	64	8	0.4	3	66.14	08100	66.14	08100								
8	17	7.7	65	68	104	8	0.4	3									87.08	08400	87.08	08400
8	21	7.7	40	44	80	8	0.4	3					78.27	08200	78.27	08200				
10	21	9.7	30	34	74	10	0.4	3	83.77	10100	83.77	10100								
10	21	9.7	80	84	124	10	0.4	3									123.46	10400	123.46	10400
10	26	9.7	50	54	94	10	0.4	3					108.02	10200	108.02	10200				
12	25	11.6	36	40	85	12	0.4	3	108.02	12100	108.02	12100								
12	25	11.6	96	100	145	12	0.4	3									174.16	12400	174.16	12400
12	31	11.6	60	64	109	12	0.4	3					154.32	12200	154.32	12200				
16	33	15.5	48	52	100	16	0.4	3			168.65	16100								
16	33	15.5	128	132	180	16	0.4	3											354.94	16400
16	41	15.5	80	84	132	16	0.4	3							272.27	16200				
20	42	19.5	60	64	114	20	0.4	3			256.83	20100								
20	42	19.5	160	164	214	20	0.4	3											586.41	20400
20	52	19.5	100	104	154	20	0.4	3							442.02	20200				
P																				
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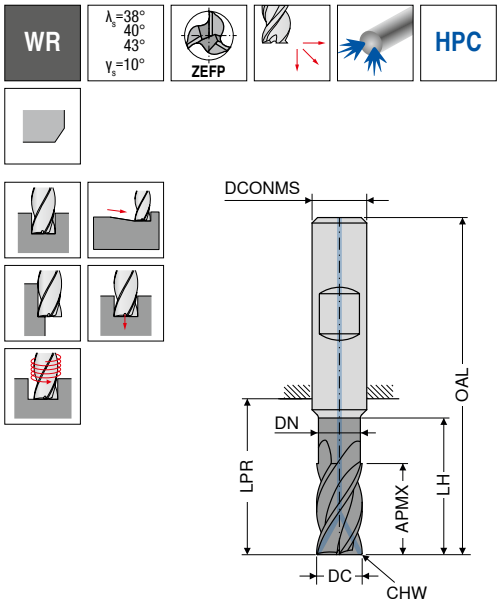
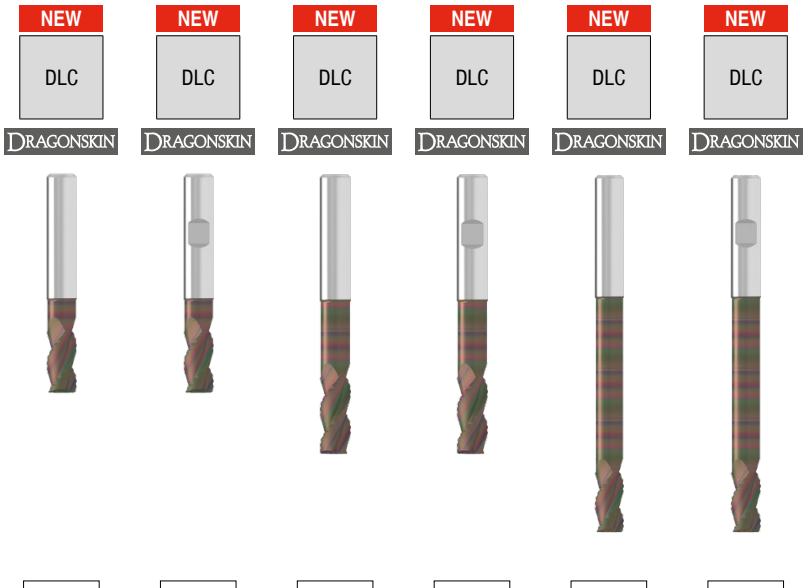
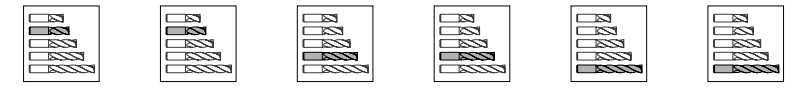
→ v_c/f_z Page 390+391

AluLine – Rough milling cutter

▲ With polished chip flutes







Factory standard

HA / HB

DC d11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 580 ... HA £ V1		53 581 ... HB £ V1		53 580 ... HA £ V1		53 581 ... HB £ V1		53 580 ... HA £ V1		53 581 ... HB £ V1	
6	13	5.8	18	22	58	6	0.4	3	68.34	**06100**	68.34	**06100**								
6	13	5.8	48	52	88	6	0.4	3									87.08	**06400**	87.08	**06400**
6	16	5.8	30	34	70	6	0.4	3					77.16	**06200**	77.16	**06200**				
8	17	7.7	24	28	64	8	0.4	3	87.08	**08100**	87.08	**08100**								
8	17	7.7	64	68	104	8	0.4	3									116.84	**08400**	116.84	**08400**
8	21	7.7	40	44	80	8	0.4	3					100.31	**08200**	100.31	**08200**				
10	21	9.7	30	34	74	10	0.4	3	119.05	**10100**	119.05	**10100**								
10	21	9.7	80	84	124	10	0.4	3									188.50	**10400**	188.50	**10400**
10	26	9.7	50	54	94	10	0.4	3					144.40	**10200**	144.40	**10200**				
12	25	11.6	36	40	85	12	0.4	3	176.37	**12100**	176.37	**12100**								
12	25	11.6	96	100	145	12	0.4	3									234.79	**12400**	234.79	**12400**
12	31	11.6	60	64	109	12	0.4	3					180.78	**12200**	180.78	**12200**				
16	33	15.5	48	52	100	16	0.4	3			273.37	**16100**								
16	33	15.5	128	132	180	16	0.4	3											652.55	**16400**
16	41	15.5	80	84	132	16	0.4	3							374.78	**16200**				
20	42	19.5	60	64	114	20	0.4	3			555.56	**20100**								
20	42	19.5	160	164	214	20	0.4	3											996.47	**20400**
20	52	19.5	100	104	154	20	0.4	3							564.38	**20200**				

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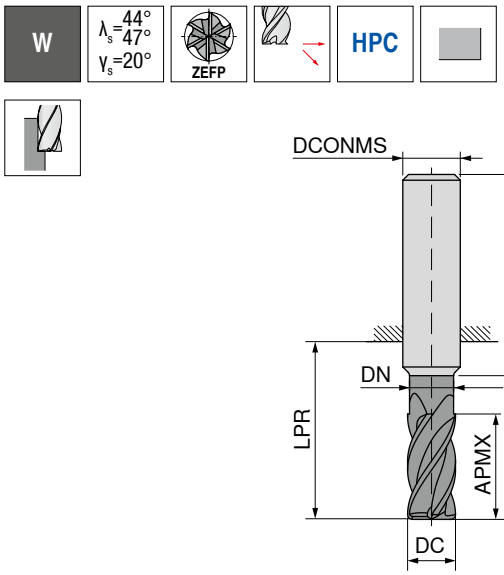
AluLine – High Accuracy Finish Milling Cutter

- ▲ max. taper of 0.003 mm for high precision and parallelism of vertical walls
- ▲ Tool with cutting edge correction





Factory standard | Factory standard | Factory standard

HA | HA | HA

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 639 ... £ V1		53 639 ... £ V1		53 639 ... £ V1	
6	16	5.7	20	22	58	6	6	88.18	**06100**				
6	16	5.7	42	44	80	6	6					102.51	**06400**
8	19	7.4	26	28	64	8	6	97.00	**08100**				
8	19	7.4	62	64	100	8	6					115.74	**08400**
10	25	9.2	32	34	74	10	6	126.77	**10100**				
10	25	9.2	58	60	100	10	6					181.88	**10400**
12	30	11.0	37	39	84	12	6	155.42	**12100**				
12	30	11.0	73	75	120	12	6					233.69	**12400**
12	45			75	120	12	6			147.70	**12200**		
16	40	15.0	44	45	93	16	6	313.05	**16100**				
16	40	15.0	100	102	150	16	6					477.29	**16400**
16	65			102	150	16	6			253.52	**16200**		
20	50	19.0	53	54	104	20	6	450.84	**20100**				
20	50	19.0	98	100	150	20	6					589.72	**20400**
20	75			100	150	20	6			543.43	**20200**		

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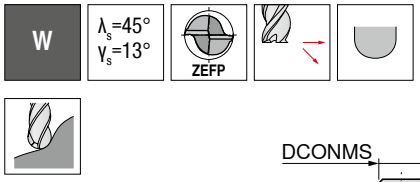
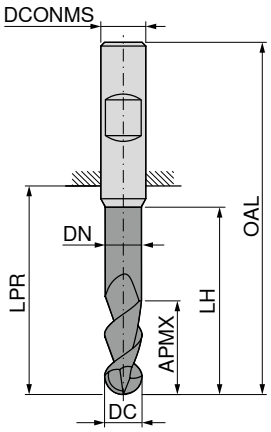
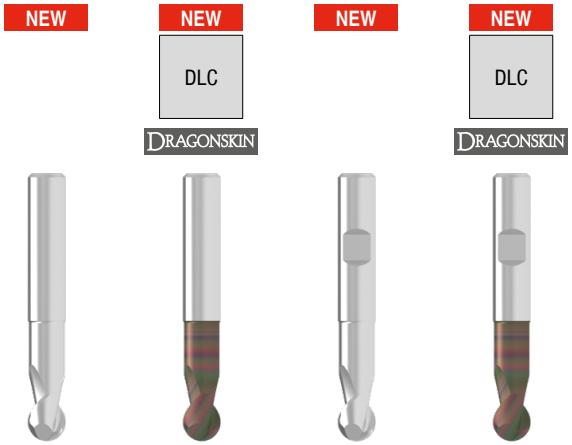
→ v_c/f_z Page 392+393

AluLine – Ball Nosed Cutter









Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 607 ... £ V1		53 608 ... £ V1		53 609 ... £ V1		53 610 ... £ V1	
3	6	2.7	16	22	50	3	2	39.68	03100	50.70	03100				
4	7	3.7	17	26	54	4	2	49.60	04100	59.52	04100				
5	8	4.6	18	26	54	5	2	56.22	05100	68.34	05100				
6	10	5.5	21	26	62	6	2	55.11	06100	67.24	06100	55.11	06100	67.24	06100
8	12	7.5	27	31	67	8	2	72.75	08100	87.08	08100	72.75	08100	87.08	08100
10	13	9.4	32	34	74	10	2	99.20	10100	114.64	10100	99.20	10100	114.64	10100
12	16	11.4	38	48	93	12	2	136.69	12100	158.73	12100	136.69	12100	158.73	12100
14	16	13.2	38	55	100	14	2	173.06	14100	201.72	14100	173.06	14100	201.72	14100
16	20	15.0	44	52	100	16	2	227.07	16100	261.24	16100	227.07	16100	261.24	16100
20	25	19.0	50	54	104	20	2	320.76	20100	367.06	20100	320.76	20100	367.06	20100

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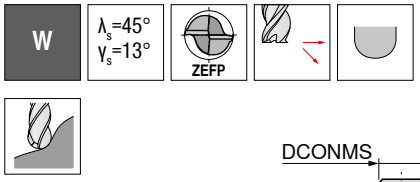
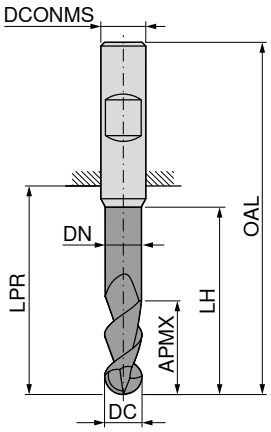
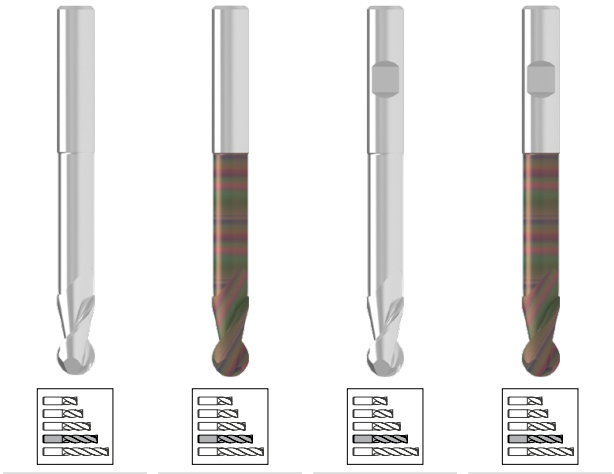
AluLine – Ball Nosed Cutter







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

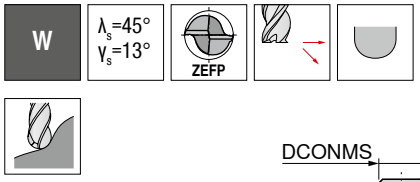
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 607 ... £ V1		53 608 ... £ V1		53 609 ... £ V1		53 610 ... £ V1	
3	10	2.7	32	47	75	3	2	47.40	**03200**	59.52	**03200**				
4	13	3.7	36	47	75	4	2	59.52	**04200**	71.65	**04200**				
5	15	4.6	40	47	75	5	2	68.34	**05200**	81.57	**05200**				
6	16	5.5	44	64	100	6	2	66.14	**06200**	79.37	**06200**	66.14	**06200**	78.27	**06200**
8	22	7.5	54	64	100	8	2	88.18	**08200**	101.41	**08200**	88.18	**08200**	100.31	**08200**
10	25	9.4	60	61	101	10	2	119.05	**10200**	134.48	**10200**	119.05	**10200**	134.48	**10200**
12	26	11.4	60	63	108	12	2	164.24	**12200**	186.29	**12200**	164.24	**12200**	198.41	**12200**
14	26	13.2	60	65	110	14	2	207.23	**14200**	235.89	**14200**	207.23	**14200**	253.52	**14200**
16	30	15.0	92	102	150	16	2	318.56	**16200**	351.63	**16200**	318.56	**16200**	351.63	**16200**
20	40	19.0	92	100	150	20	2	384.70	**20200**	430.99	**20200**	384.70	**20200**	399.03	**20200**

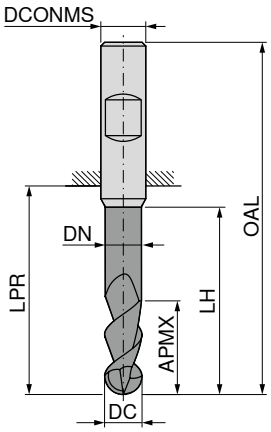
P				
M				
K				
N	●	●	●	●
S				
H				
O	○	○	○	○

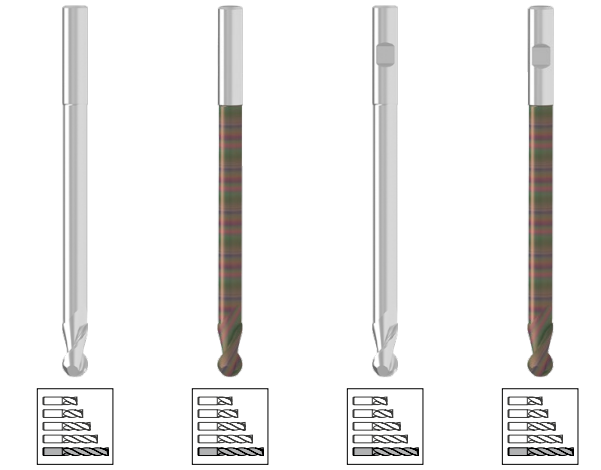
→ v_c/f_z Page 392+393

14

AluLine – Ball Nosed Cutter









DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 607 ... £ V1		53 608 ... £ V1		53 609 ... £ V1		53 610 ... £ V1	
3	10	2.7	82	97	125	3	2	63.93	**03400**	73.86	**03400**				
4	13	3.7	86	97	125	4	2	79.37	**04400**	89.28	**04400**				
6	16	5.5	94	114	150	6	2	90.38	**06400**	102.51	**06400**	90.38	**06400**	102.51	**06400**
8	22	7.5	104	114	150	8	2	88.18	**08400**	101.41	**08400**	88.18	**08400**	101.41	**08400**
10	25	9.4	110	111	151	10	2	158.73	**10400**	174.16	**10400**	158.73	**10400**	174.16	**10400**
12	26	11.4	105	106	151	12	2	219.36	**12400**	240.30	**12400**	219.36	**12400**	240.30	**12400**
16	30	15.0	192	202	250	16	2	455.25	**16400**	489.42	**16400**	455.25	**16400**	489.42	**16400**
P															
M															
K															
N								●		●		●		●	
S															
H															
O								○		○		○		○	

→ v_c/f_z Page 392+393

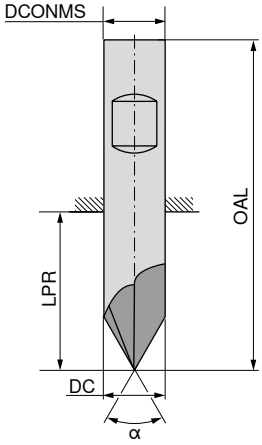
AluLine – NC deburring cutter

W

λ_s=0°
γ_s=8°







NEW



NEW



NEW
DLC
DRAGONSKIN



NEW
DLC
DRAGONSKIN



	α = 60° Factory standard HA		α = 60° Factory standard HB		α = 60° Factory standard HA		α = 60° Factory standard HB	
	53 666 ...		**53 667 ...**		**53 662 ...**		**53 663 ...**	
DC mm	£ V1		£ V1		£ V1		£ V1	
4	30.36	**04000**			35.55	**04000**		
6	33.87	**06000**	33.87	**06000**	39.08	**06000**	39.08	**06000**
8	39.59	**08000**	39.59	**08000**	45.45	**08000**	45.45	**08000**
10	55.90	**10000**	55.90	**10000**	62.95	**10000**	62.95	**10000**
12	62.95	**12000**	62.95	**12000**	71.00	**12000**	71.00	**12000**
16	104.84	**16000**	104.84	**16000**	115.71	**16000**	115.71	**16000**
OAL mm	50		58		70		80	
LPR mm	22		22		25		32	
DCONMS mm	4		8		12		16	
ZEFP	4		4		4		4	
P								
M								
K								
N	●		●		●		●	
S								
H								
O	●		●		●		●	

→ v_c/f_z Page 394

14

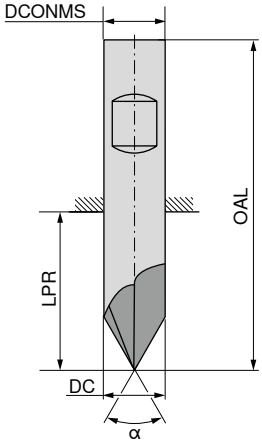
AluLine – NC deburring cutter

W

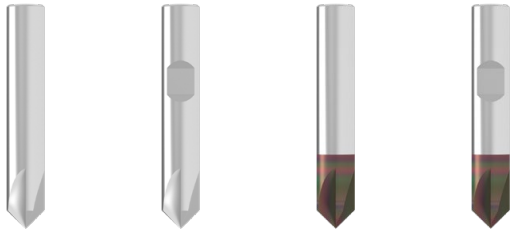
λ_s=0°
γ_s=8°







NEW NEW NEW DLC DRAGONSKIN NEW DLC DRAGONSKIN

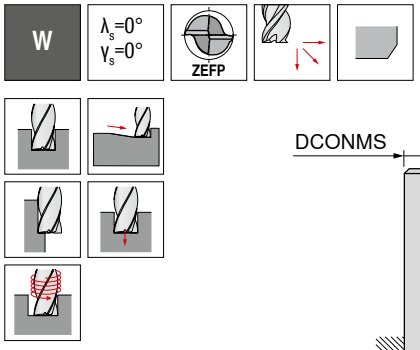


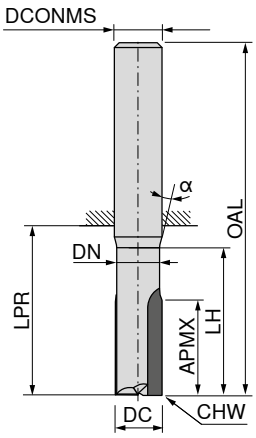
	α = 90° Factory standard HA	α = 90° Factory standard HB	α = 90° Factory standard HA	α = 90° Factory standard HB
	53 664 ...	**53 665 ...**	**53 660 ...**	**53 661 ...**
DC mm / OAL mm / LPR mm / DCONMS mm / ZEFP	£ V1	£ V1	£ V1	£ V1
4 / 50 / 22 / 4 / 4	30.36 **04000**		35.55 **04000**	
6 / 55 / 19 / 6 / 4	33.87 **06000**	33.87 **06000**	39.08 **06000**	39.08 **06000**
8 / 58 / 22 / 8 / 4	39.59 **08000**	39.59 **08000**	45.45 **08000**	45.45 **08000**
10 / 60 / 20 / 10 / 4	55.90 **10000**	55.90 **10000**	62.95 **10000**	62.95 **10000**
12 / 70 / 25 / 12 / 4	62.95 **12000**	62.95 **12000**	71.00 **12000**	71.00 **12000**
16 / 80 / 32 / 16 / 4	104.84 **16000**	104.84 **16000**	115.71 **16000**	115.71 **16000**
P				
M				
K				
N	●	●	●	●
S				
H				
O	●	●	●	●

→ v_c/f_z Page 394

PCD end mill

▲ Transition angle α = 45°





NEW NEW









HA HA

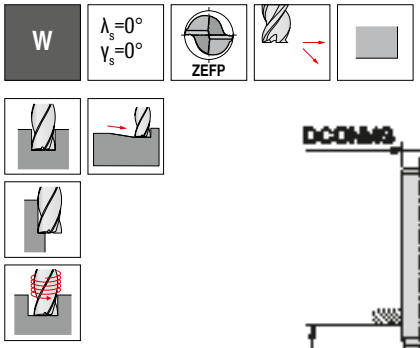
DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 010 ... £ V1		50 010 ... £ V1	
3	6	2.8	11	21	57	6	0.1	2	248.91	**03100**		
3	6	2.8	22	64	100	6	0.1	2			256.57	**03300**
4	8	3.5	13	21	57	6	0.1	2	275.99	**04100**		
4	8	3.5	26	64	100	6	0.1	2			283.78	**04300**
5	10	4.4	15	21	57	6	0.1	2	299.24	**05100**		
5	10	4.4	30	64	100	6	0.1	2			307.03	**05300**
6	12	5.4	19	21	57	6	0.1	2	330.28	**06100**		
6	12	5.4	38	64	100	6	0.1	2			337.93	**06300**
8	16	7.2	26	28	64	8	0.1	2	431.77	**08100**		
8	16	7.2	52	64	100	8	0.1	2			447.36	**08300**
10	20	9.0	31	34	74	10	0.1	2	513.14	**10100**		
10	20	9.0	60	60	100	10	0.1	2			520.94	**10300**

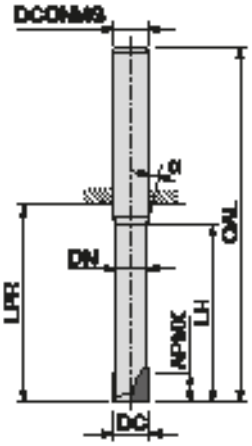
P		
M		
K		
N	●	●
S		
H		
O	●	●

→ v_c/f_z Page 408+409

PCD end mill

▲ Transition angle α = 15°





NEW





HA 

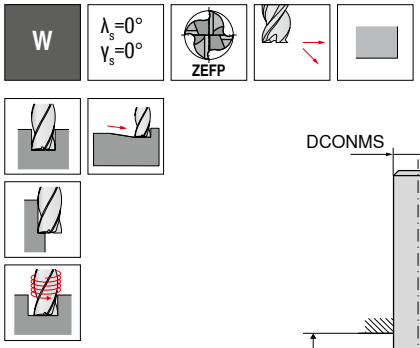
50 011 ...

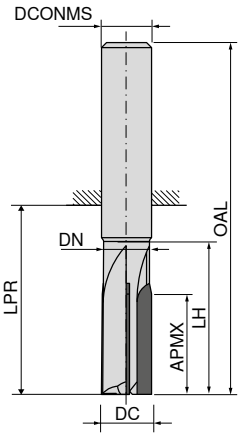
DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
2	2.0	1.7	6	39	75	6	1	186.83	**02100**
2	2.0	1.7	10	39	75	6	1	186.83	**02300**
2	2.0	1.7	14	39	75	6	1	186.83	**02200**
3	2.5	2.5	9	39	75	6	2	225.53	**03100**
3	2.5	2.5	15	39	75	6	2	225.53	**03300**
3	2.5	2.5	21	39	75	6	2	225.53	**03200**
4	2.5	3.5	12	39	75	6	2	233.32	**04100**
4	2.5	3.5	20	39	75	6	2	233.32	**04300**
4	2.5	3.5	28	39	75	6	2	233.32	**04200**
5	3.0	4.4	15	39	75	6	2	244.94	**05100**
5	3.0	4.4	25	39	75	6	2	244.94	**05300**
5	3.0	4.4	35	39	75	6	2	244.94	**05200**
6	6.0	5.4	18	64	100	6	2	287.62	**06100**
6	6.0	5.4	30	64	100	6	2	287.62	**06300**
6	6.0	5.4	42	64	100	6	2	287.62	**06200**
8	7.0	7.2	24	64	100	8	2	373.65	**08100**
8	7.0	7.2	40	64	100	8	2	373.65	**08300**
10	8.0	9.0	30	60	100	10	2	423.98	**10100**
10	8.0	9.0	50	60	100	10	2	423.98	**10300**
12	9.0	11.0	36	60	105	12	2	474.44	**12100**
12	9.0	11.0	58	60	105	12	2	474.44	**12300**

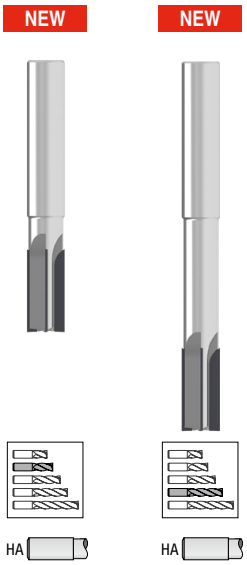
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 408+409

PCD end mill







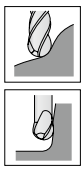
DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 013 ... £ V1		50 013 ... £ V1	
6	12	5.4	19.0	21	57	6	4	489.18	**06100**		
6	12	5.4	38.0	64	100	6	4			496.98	**06200**
8	16	7.2	26.0	28	64	8	4	648.80	**08100**		
8	16	7.2	52.0	64	100	8	4			660.42	**08200**
10	20	9.0	31.0	34	74	10	4	800.04	**10100**		
10	20	9.0	62.0	60	100	10	4			811.66	**10200**
12	24	11.0	36.5	39	84	12	4	916.27	**12100**		
12	24	11.0	73.0	70	115	12	4			935.70	**12200**
16	32	15.0	44.0	45	93	16	4	1,207.01	**16100**		
16	32	15.0	88.0	82	130	16	4			1,265.12	**16200**
20	38	19.0	52.5	54	104	20	4	1,478.45	**20100**		
20	38	19.0	105.0	110	160	20	4			1,572.01	**20200**
P											
M											
K											
N									●		●
S											
H											
O									●		●

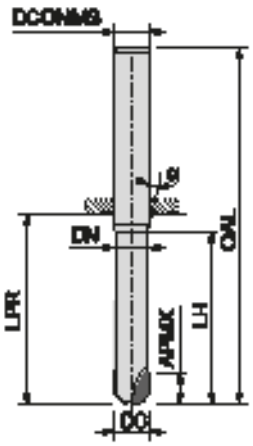
→ v_c/f_z Page 408+409

PCD radius cutter

▲ Transition angle α = 15°







NEW





HA

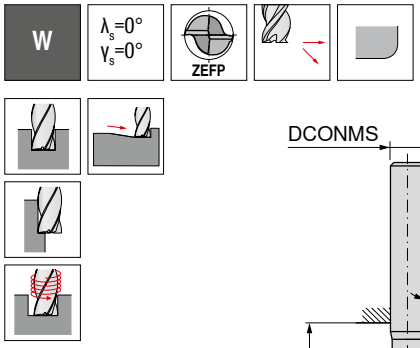
DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 014 ... £ V1	
2	2.0	1.7	6	39	75	6	1	190.66	02100
2	2.0	1.7	10	39	75	6	1	190.66	02200
2	2.0	1.7	14	39	75	6	1	190.66	02300
2	2.0	1.7	35	39	75	6	1	190.66	02400
3	2.5	2.5	9	39	75	6	2	225.53	03100
3	2.5	2.5	15	39	75	6	2	225.53	03200
3	2.5	2.5	21	39	75	6	2	225.53	03300
3	2.5	2.5	35	39	75	6	2	225.53	03400
4	2.5	3.5	12	39	75	6	2	233.32	04100
4	2.5	3.5	20	39	75	6	2	233.32	04200
4	2.5	3.5	28	39	75	6	2	233.32	04300
4	2.5	3.5	35	39	75	6	2	233.32	04400
5	3.0	4.4	15	39	75	6	2	244.94	05100
5	3.0	4.4	25	39	75	6	2	244.94	05200
5	3.0	4.4	35	39	75	6	2	244.94	05400
6	6.0	5.4	18	64	100	6	2	295.41	06100
6	6.0	5.4	30	64	100	6	2	295.41	06200
6	6.0	5.4	40	64	100	8	2	354.24	06300
6	6.0	5.4	42	64	100	6	2	295.41	06400
8	7.0	7.2	24	64	100	8	2	377.49	08100
8	7.0	7.2	40	64	100	8	2	377.49	08300
8	7.0	7.2	40	60	100	10	2	396.90	08900
10	8.0	9.0	30	60	100	10	2	408.52	10100
10	8.0	9.0	40	55	100	12	2	431.77	10200
10	8.0	9.0	50	60	100	10	2	408.52	10300
12	9.0	11.0	36	60	105	12	2	474.44	12100
12	9.0	11.0	40	55	100	16	2	528.73	12200
12	9.0	11.0	58	60	105	12	2	474.44	12400
16	11.0	15.0	45	82	130	16	2	637.17	16200
16	11.0	15.0	50	82	130	16	2	637.17	16300
20	13.0	19.0	60	110	160	20	2	803.87	20400

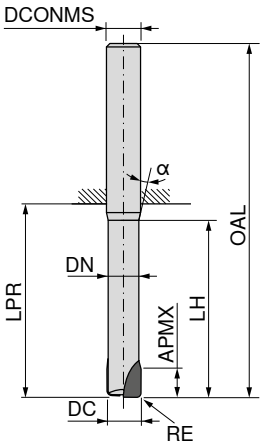
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 408+409

PCD torus cutter

▲ Transition angle α = 15°





NEW





HA

DC h7 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	50 012 ...
2	0.3	2.0	1.7	6	39	75	6	1	194.34	02103
2	0.3	2.0	1.7	10	39	75	6	1	194.34	02203
2	0.3	2.0	1.7	14	39	75	6	1	194.34	02303
2	0.3	2.0	1.7	35	39	75	6	1	194.34	02403
3	0.3	2.5	2.5	9	39	75	6	2	234.60	03103
3	0.3	2.5	2.5	15	39	75	6	2	234.60	03203
3	0.3	2.5	2.5	21	39	75	6	2	234.60	03303
3	0.3	2.5	2.5	35	39	75	6	2	234.60	03403
4	0.3	2.5	3.5	12	39	75	6	2	242.68	04103
4	0.3	2.5	3.5	20	39	75	6	2	242.68	04203
4	0.3	2.5	3.5	28	39	75	6	2	242.68	04303
4	0.3	2.5	3.5	35	39	75	6	2	242.68	04403
5	0.3	3.0	4.4	15	39	75	6	2	254.73	05103
5	0.3	3.0	4.4	25	39	75	6	2	254.73	05203
5	0.3	3.0	4.4	35	39	75	6	2	254.73	05303
6	0.3	6.0	5.4	18	64	100	6	2	299.09	06103
6	0.3	6.0	5.4	30	64	100	6	2	299.09	06203
6	0.3	6.0	5.4	42	64	100	6	2	299.09	06403
6	0.5	6.0	5.4	18	64	100	6	2	299.09	06105
6	0.5	6.0	5.4	30	64	100	6	2	299.09	06205
6	0.5	6.0	5.4	42	64	100	6	2	299.09	06405
6	1.0	6.0	5.4	18	64	100	6	2	299.09	06110
6	1.0	6.0	5.4	40	64	100	8	2	356.36	06310
6	1.0	6.0	5.4	42	64	100	6	2	299.09	06410
8	0.3	7.0	7.2	24	64	100	8	2	388.54	08103
8	0.3	7.0	7.2	40	64	100	8	2	388.54	08203
8	0.5	7.0	7.2	24	64	100	8	2	388.54	08105
8	0.5	7.0	7.2	40	64	100	8	2	388.54	08205
8	1.0	7.0	7.2	24	64	100	8	2	388.54	08110
8	1.0	7.0	7.2	40	64	100	8	2	388.54	08210
8	2.0	7.0	7.2	24	64	100	8	2	388.54	08120
8	2.0	7.0	7.2	40	60	100	10	2	408.81	08920
8	2.0	7.0	7.2	40	64	100	8	2	388.54	08220
10	0.5	8.0	9.0	30	60	100	10	2	440.99	10105
10	0.5	8.0	9.0	50	60	100	10	2	440.99	10305
10	1.0	8.0	9.0	30	60	100	10	2	440.99	10110
10	1.0	8.0	9.0	50	60	100	10	2	440.99	10310
10	1.5	8.0	9.0	30	60	100	10	2	440.99	10115
10	1.5	8.0	9.0	50	60	100	10	2	440.99	10315
10	2.0	8.0	9.0	30	60	100	10	2	440.99	10120

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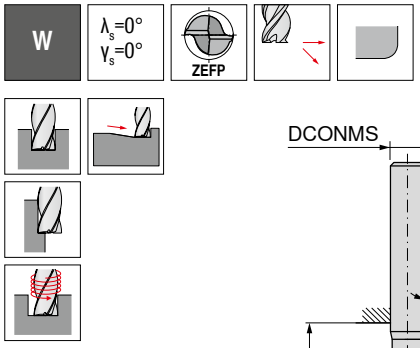
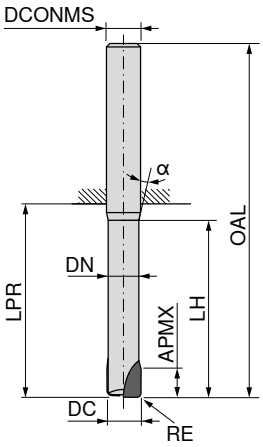
→ v_c/f_z Page 408+409

Continued on next page

PCD torus cutter

▲ Transition angle α = 15°





NEW





HA

50 012 ...

DC h7 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
10	2.0	8.0	9.0	50	60	100	10	2	440.99	**10320**
10	3.0	8.0	9.0	30	60	100	10	2	440.99	**10130**
10	3.0	8.0	9.0	40	55	100	12	2	465.22	**10230**
10	3.0	8.0	9.0	50	60	100	10	2	440.99	**10330**
12	0.5	9.0	11.0	36	60	105	12	2	493.44	**12105**
12	0.5	9.0	11.0	58	60	105	12	2	493.44	**12305**
12	1.0	9.0	11.0	36	60	105	12	2	493.44	**12110**
12	1.0	9.0	11.0	58	60	105	12	2	493.44	**12310**
12	1.5	9.0	11.0	36	60	105	12	2	493.44	**12115**
12	1.5	9.0	11.0	58	60	105	12	2	493.44	**12315**
12	4.0	9.0	11.0	40	52	100	16	2	553.82	**12240**
16	3.0	11.0	15.0	45	82	130	16	2	662.69	**16130**
16	5.0	11.0	15.0	50	82	130	16	2	662.69	**16250**
20	6.0	13.0	19.0	60	140	160	20	2	678.85	**20260**

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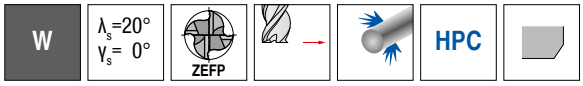
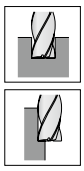
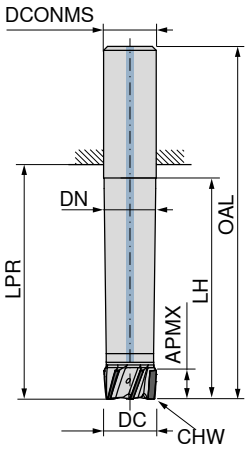
→ v_c/f_z Page 408+409

PCD end mill







NEW





HA

50 015 ...

DC mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS mm	CHW mm	ZEFP	KOMET no.	£ V8	
10	5	9.6	25.0	27	67	10	0.2	4	DS38320001001000	843.28	**10200**
12	5	11.6	30.0	33	78	12	0.2	4	38320001001200	843.28	**12200**
16	10	15.6	40.0	43	91	16	0.2	5	38320001001600	947.89	**16200**
20	10	19.6	50.0	54	104	20	0.2	6	38320001002000	1,057.04	**20200**
25	10	24.6	62.5	68	124	25	0.2	8	38320001002500	1,381.36	**25200**
32	10	31.6	80.0	87	147	32	0.2	10	38320001003200	1,766.21	**32200**

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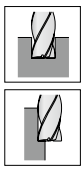
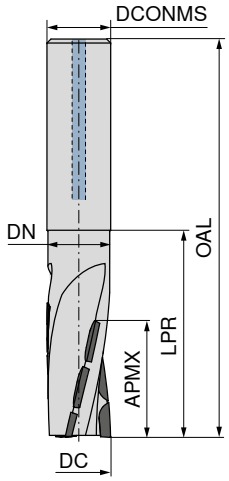
→ v_c/f_z Page 408+409

14

PCD face and shoulder mill

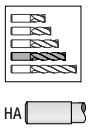






NEW





50 020 ...

DC h7 mm	APMX mm	DN mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	KOMET no.	£ V8	
16	30	15.5	45	93	16	3	38170099001600	1,223.44	**01600**
20	30	19.5	50	100	20	3	38170099002000	1,245.57	**02000**
25	30	24.5	54	110	25	3	38170099002500	1,264.14	**02500**

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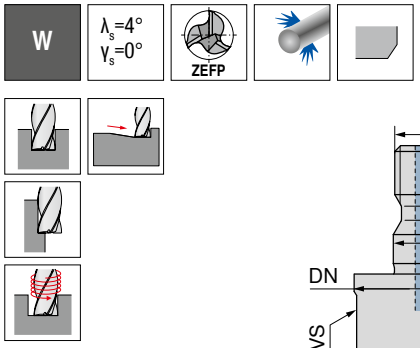
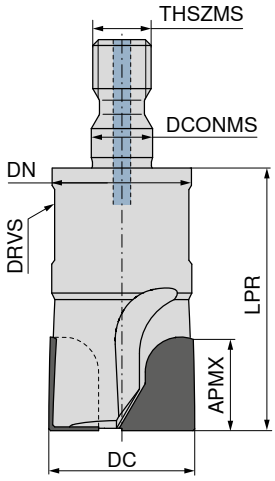
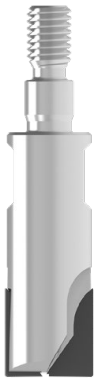
→ v_c/f_z Page 408+409

PCD drilling slot screw-in cutter





NEW



50 016 ...

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	£ V8	
10	10	9.6	28	5.5	0.2	8	2	M5	37340099001000	645.99	**01000**
12	12	9.6	28	5.5	0.2	8	2	M5	37340099001200	707.22	**01200**
16	16	13.8	32	8.5	0.2	13	3	M8	37340099001600	848.41	**01600**
20	20	18.0	45	10.5	0.2	16	3	M10	37340099002000	1,034.05	**02000**
25	20	21.0	45	12.6	0.2	18	3	M12	37340099002500	1,306.98	**02500**

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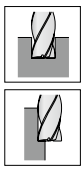
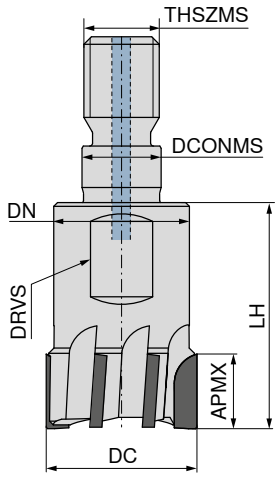
→ v_c/f_z Page 408+409

PCD face screw-in cutter







NEW



50 018 ...

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	£ V8	
10	5	9.6	22	5.5	0.2	8	2	M5	37341099001000	521.58	**01000**
12	5	9.6	28	5.5	0.2	8	2	M5	37341099001200	521.58	**01200**
16	10	13.8	28	8.5	0.2	13	3	M8	37341099001600	703.65	**01600**
20	10	18.0	30	10.5	0.2	16	4	M10	37341099002000	876.26	**02000**
25	10	21.0	35	12.5	0.2	21	5	M12	37341099002500	991.39	**02500**
32	10	29.0	35	17.0	0.2	27	6	M16	37341099003200	1,097.06	**03200**

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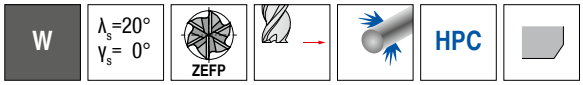
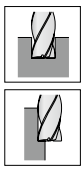
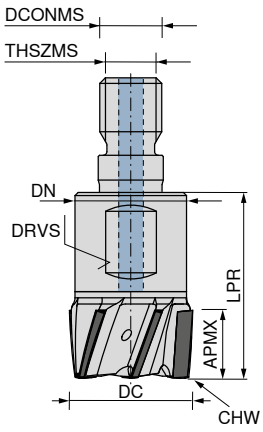
→ v_c/f_z Page 408+409

PCD screw-in cutter







NEW



50 015 ...

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	£ V8	
10	5	9.6	22	5.5	0.2	8	4	M5	37310001001000	828.53	**10100**
12	5	11.5	22	6.5	0.2	8	4	M6	37310099001200	839.87	**12100**
16	10	13.8	28	8.5	0.2	13	5	M8	37310001001600	931.73	**16100**
20	10	18.0	30	10.5	0.2	16	6	M10	DS37310001002000	1,042.29	**20100**
25	10	21.0	35	12.5	0.2	18	8	M12	37310001002500	1,259.02	**25100**
32	10	29.0	35	17.0	0.2	27	10	M16	DS37310001003200	1,481.29	**32100**

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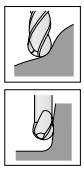
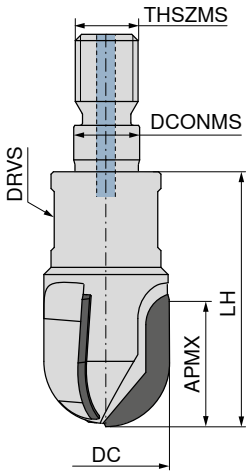
→ v_c/f_z Page 408+409

14

PCD radius screw-in cutter







NEW



50 017 ...

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	DRVS mm	ZEFP	THSZMS	KOMET no.	£ V8	
10	10	9.6	28	5.5	8	2	M5	37340098001000	645.99	**01000**
12	12	9.6	28	5.5	8	2	M5	37340098001200	707.22	**01200**
16	16	13.8	32	8.5	13	3	M8	37340098001600	848.41	**01600**

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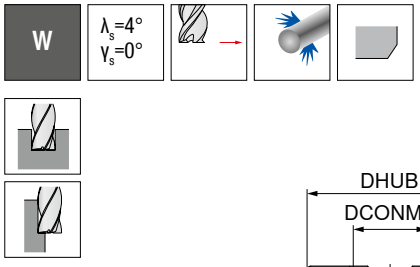
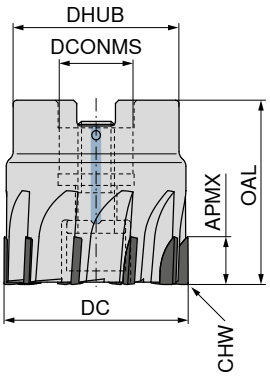
→ v_c/f_z Page 408+409

PCD face mill





NEW



50 019 ...

DC mm	OAL mm	DHUB mm	APMX mm	DCONMS H6 mm	CHW mm	ZNF	KOMET no.	£ V8	
40	40	36	10	16	0.2	10	37155099004000	2,623.95	**04000**
50	40	41	10	22	0.2	12	37155099005000	3,127.32	**05000**
63	40	48	10	22	0.2	14	37155099006300	3,625.34	**06300**
80	50	60	10	27	0.2	16	37155099008000	3,998.40	**08000**
100	50	78	10	32	0.2	18	37155099010000	4,489.28	**10000**
125	63	100	10	40	0.2	22	37155099012500	5,244.33	**12500**

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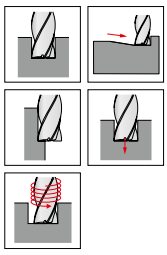
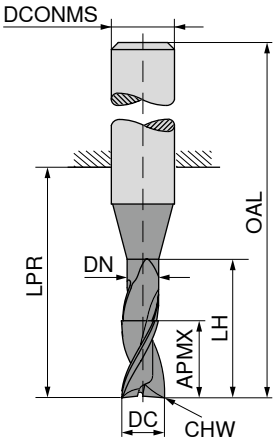
→ v_c/f_z Page 408+409

14

SilverLine – End milling cutter

N | λ_s=30° γ_s=14° | ZEFP | HPC





NEW

DPB72S

DRAGONSKIN





≈DIN 6527

HB

50 958 ...

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	£ V0	
3.0	8	2.8	15	21	57	6	0.1	2	52.00	**03200**
3.5	11	3.3	15	21	57	6	0.1	2	52.00	**03700**
4.0	11	3.8	15	21	57	6	0.1	2	52.00	**04200**
4.5	13	4.3	21	21	57	6	0.1	2	52.00	**04700**
5.0	13	4.8	21	21	57	6	0.1	2	52.00	**05200**
5.5	13	5.3	21	21	57	6	0.1	2	52.00	**05700**
6.0	13	5.8	21	21	57	6	0.1	2	52.00	**06200**
7.0	16	6.8	27	27	63	8	0.1	2	60.55	**07200**
8.0	19	7.8	27	27	63	8	0.1	2	60.55	**08200**
9.0	19	8.8	32	32	72	10	0.1	2	84.26	**09200**
10.0	22	9.8	32	32	72	10	0.1	2	84.26	**10200**
11.0	26	10.8	38	38	83	12	0.1	2	122.10	**11200**
12.0	26	11.8	38	38	83	12	0.1	2	122.10	**12200**
14.0	26	13.8	38	38	83	14	0.1	2	152.20	**14200**
15.0	32	14.7	44	44	92	16	0.1	2	197.38	**15200**
16.0	32	15.7	44	44	92	16	0.1	2	197.38	**16200**
17.0	32	16.7	44	44	92	18	0.1	2	239.69	**17200**
18.0	32	17.7	44	44	92	18	0.1	2	239.69	**18200**
19.0	38	18.7	54	54	104	20	0.1	2	296.61	**19200**
20.0	38	19.7	54	54	104	20	0.1	2	296.61	**20200**

P	●
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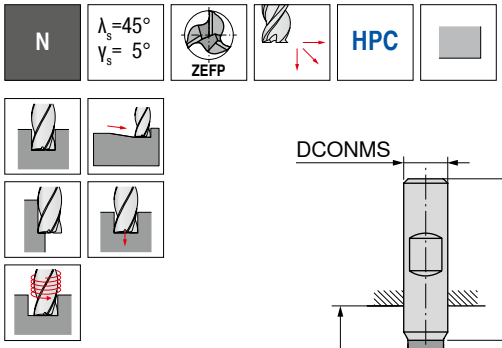
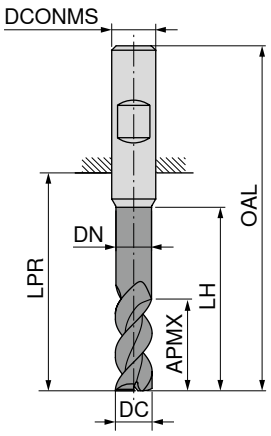
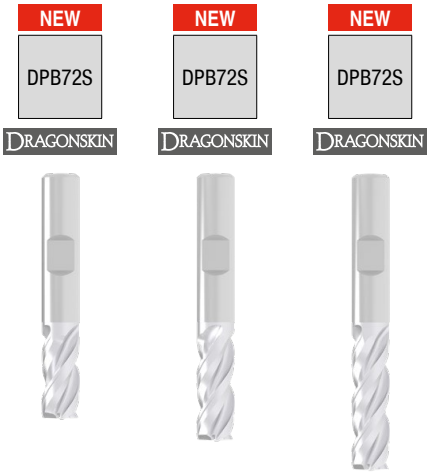
→ v_c/f_z Page 350+351

SilverLine – End milling cutter











Factory standard | Factory standard | Factory standard

HB | HB | HB

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 992 ... £ V0		50 992 ... £ V0		50 992 ... £ V0	
3.0	8	2.9	15	21	57	6	3			63.03	03200		
3.5	11	3.4	16	21	57	6	3			63.03	03700		
4.0	8	3.9	15	18	54	6	3	60.77	04100				
4.0	11	3.9	16	21	57	6	3			60.77	04200		
4.0	16			26	62	6	3					64.07	04400
4.5	13	4.4	19	21	57	6	3			63.03	04700		
5.0	9	4.9	16	18	54	6	3	60.77	05100				
5.0	13	4.9	19	21	57	6	3			60.77	05200		
5.0	17			26	62	6	3					64.07	05400
5.5	13	5.4	19	21	57	6	3			66.14	05700		
6.0	10	5.9	17	18	54	6	3	63.20	06100				
6.0	13	5.9	19	21	57	6	3			63.96	06200		
6.0	18			26	62	6	3					71.06	06400
6.5	19	6.3	25	27	63	8	3			76.89	06700		
7.0	19	6.8	25	27	63	8	3			76.89	07200		
7.5	19	7.3	25	27	63	8	3			76.89	07700		
8.0	12		20	22	58	8	3	71.81	08100				
8.0	19	7.8	25	27	63	8	3			74.67	08200		
8.0	24			32	68	8	3					79.82	08400
8.5	22	8.2	30	32	72	10	3			128.14	08700		
9.0	22	8.7	30	32	72	10	3			128.14	09200		
9.5	22	9.2	30	32	72	10	3			128.14	09700		
10.0	14	9.7	24	26	66	10	3	113.51	10100				
10.0	22	9.7	30	32	72	10	3			125.79	10200		
10.0	30			40	80	10	3					142.10	10400
12.0	16	11.7	26	28	73	12	3	159.16	12100				
12.0	26	11.7	36	38	83	12	3			170.35	12200		
12.0	36			48	93	12	3					192.87	12400
14.0	18	13.7	28	30	75	14	3	196.56	14100				
14.0	26	13.7	36	38	83	14	3			224.68	14200		
14.0	42			54	99	14	3					249.80	14400
16.0	22	15.5	32	34	82	16	3	237.92	16100				
16.0	32	15.5	42	44	92	16	3			381.24	16200		
16.0	48			60	108	16	3					385.48	16400
18.0	24	17.5	34	36	84	18	3	328.28	18100				
18.0	32	17.5	42	44	92	18	3			392.98	18200		
18.0	54			66	114	18	3					497.00	18400
20.0	26	19.5	40	42	92	20	3	402.27	20100				
20.0	38	19.5	52	54	104	20	3			458.50	20200		
20.0	60			76	126	20	3					573.85	20400

P	●	●	●
M	●	●	●
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→ v_c/f_z Page 352+353

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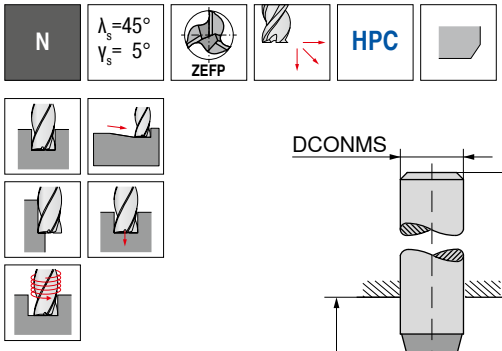
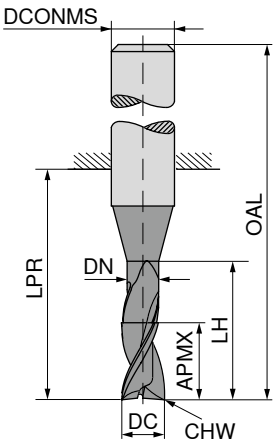
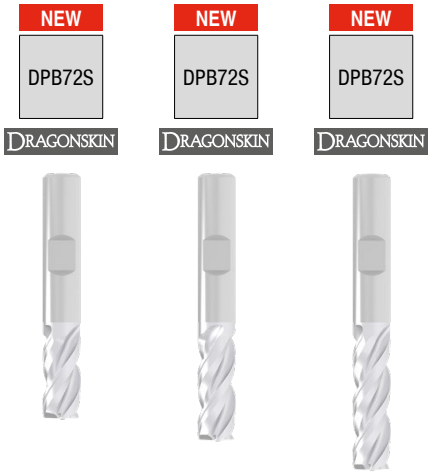
SilverLine – End milling cutter







DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	≈DIN 6527 HB 50 966 ... £ V0		≈DIN 6527 HB 50 966 ... £ V0		≈DIN 6527 HB 50 966 ... £ V0	
3.0	8	2.9	15	21	57	6	0.1	3			63.03	03200		
3.5	11	3.4	16	21	57	6	0.1	3			63.03	03700		
4.0	8	3.9	15	18	54	6	0.1	3	60.77	04100				
4.0	11	3.9	16	21	57	6	0.1	3			60.77	04200		
4.0	16			26	62	6	0.1	3					64.07	04400
4.5	13	4.4	19	21	57	6	0.1	3			63.03	04700		
5.0	9	4.9	16	18	54	6	0.1	3	60.77	05100				
5.0	13	4.9	19	21	57	6	0.1	3			60.77	05200		
5.0	17			26	62	6	0.1	3					64.07	05400
5.5	13	5.4	19	21	57	6	0.1	3			66.14	05700		
6.0	10	5.9	17	18	54	6	0.2	3	63.20	06100				
6.0	13	5.9	19	21	57	6	0.2	3			63.96	06200		
6.0	18			26	62	6	0.2	3					71.06	06400
6.5	19	6.3	25	27	63	8	0.2	3			76.89	06700		
7.0	19	6.8	25	27	63	8	0.2	3			76.89	07200		
7.5	19	7.3	25	27	63	8	0.2	3			76.89	07700		
8.0	12	7.8	20	22	58	8	0.2	3	71.81	08100				
8.0	19	7.8	25	27	63	8	0.2	3			74.67	08200		
8.0	24			32	68	8	0.2	3					79.82	08400
8.5	22	8.2	30	32	72	10	0.2	3			128.14	08700		
9.0	22	8.7	30	32	72	10	0.2	3			128.14	09200		
9.5	22	9.2	30	32	72	10	0.2	3			128.14	09700		
10.0	14	9.7	24	26	66	10	0.2	3	113.51	10100				
10.0	22	9.7	30	32	72	10	0.2	3			125.79	10200		
10.0	30			40	80	10	0.2	3					142.10	10400
12.0	16	11.7	26	28	73	12	0.2	3	159.16	12100				
12.0	26	11.7	36	38	83	12	0.2	3			170.35	12200		
12.0	36			48	93	12	0.2	3					192.87	12400
14.0	18	13.7	28	30	75	14	0.2	3	196.56	14100				
14.0	26	13.7	36	38	83	14	0.2	3			224.68	14200		
14.0	42			54	99	14	0.2	3					249.80	14400
16.0	22	15.5	32	34	82	16	0.2	3	237.92	16100				
16.0	32	15.5	42	44	92	16	0.2	3			381.24	16200		
16.0	48			60	108	16	0.2	3					385.48	16400
18.0	24	17.5	34	36	84	18	0.2	3	328.28	18100				
18.0	32	17.5	42	44	92	18	0.2	3			392.98	18200		
18.0	54			66	114	18	0.2	3					497.00	18400
20.0	26	19.5	40	42	92	20	0.2	3	402.27	20100				
20.0	38	19.5	52	54	104	20	0.2	3			458.50	20200		
20.0	60			76	126	20	0.2	3					573.85	20400
P									●		●		●	
M									●		●		●	
K									●		●		●	
N									○		○		○	
S									●		●		●	
H														
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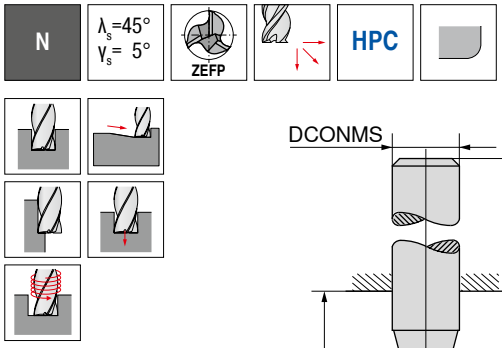
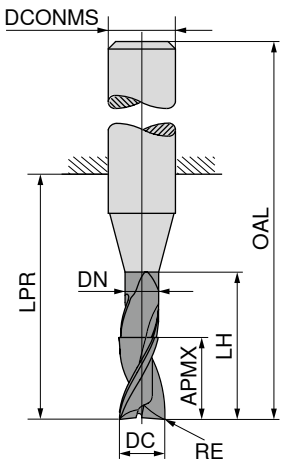
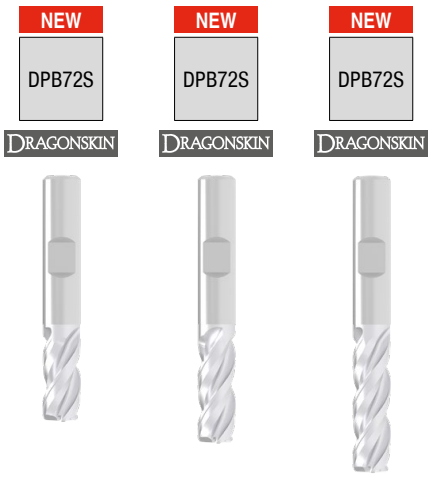
→ v_c/f_z Page 352+353

SilverLine – End milling cutter with corner radius







DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	≈DIN 6527 HB 50 967 ... £ V0		≈DIN 6527 HB 50 967 ... £ V0		≈DIN 6527 HB 50 967 ... £ V0	
4.0	0.5	8	3.9	15	18	54	6	3	74.12	**04105**				
4.0	0.5	11	3.9	16	21	57	6	3			76.36	**04205**		
4.0	0.5	16			26	62	6	3					81.07	**04405**
5.0	0.5	9	4.9	16	18	54	6	3	74.12	**05105**				
5.0	0.5	13	4.9	19	21	57	6	3			76.36	**05205**		
5.0	0.5	17			26	62	6	3					81.07	**05405**
6.0	0.5	10	5.9	17	18	54	6	3	76.11	**06105**				
6.0	0.5	13	5.9	19	21	57	6	3			88.89	**06205**		
6.0	0.5	18			26	62	6	3					89.92	**06405**
8.0	1.0	12	7.8	20	22	58	8	3	89.51	**08110**				
8.0	1.0	19	7.8	25	27	63	8	3			102.13	**08210**		
8.0	1.0	24			32	68	8	3					101.05	**08410**
10.0	1.0	14	9.7	24	26	66	10	3	161.34	**10110**				
10.0	1.0	22	9.7	30	32	72	10	3			174.86	**10210**		
10.0	1.0	30			40	80	10	3					179.77	**10410**
12.0	1.5	16	11.7	26	28	73	12	3	222.90	**12115**				
12.0	1.5	26	11.7	36	38	83	12	3			237.65	**12215**		
12.0	1.5	36			48	93	12	3					244.06	**12415**
16.0	2.0	22	15.5	32	34	82	16	3	451.82	**16120**				
16.0	2.0	32	15.5	42	44	92	16	3			459.32	**16220**		
16.0	2.0	48			60	108	16	3					487.71	**16420**
20.0	2.0	26	19.5	40	42	92	20	3	653.84	**20120**				
20.0	2.0	38	19.5	52	54	104	20	3			669.53	**20220**		
20.0	2.0	60			76	126	20	3					726.04	**20420**

P	●	●	●
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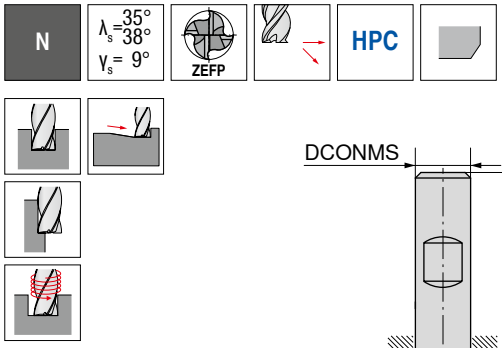
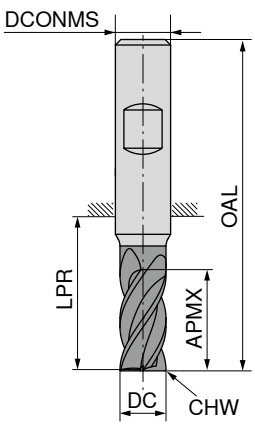
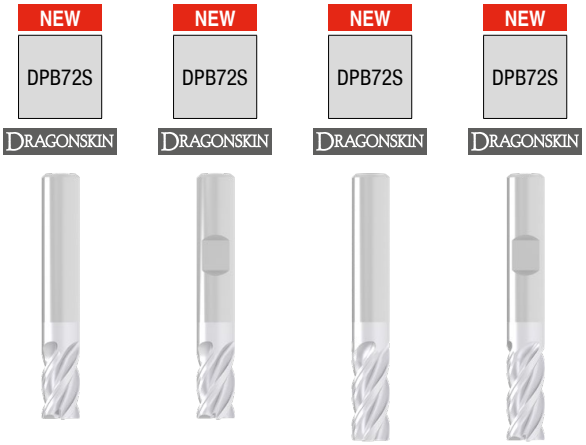
→ v_c/f_z Page 352+353

SilverLine – End milling cutter





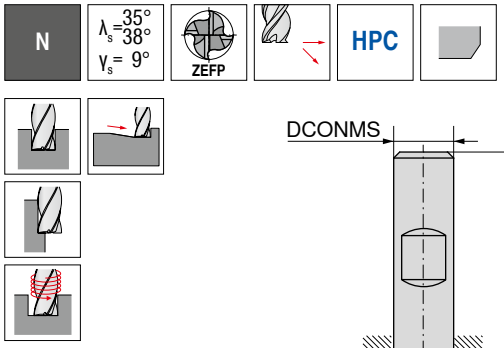


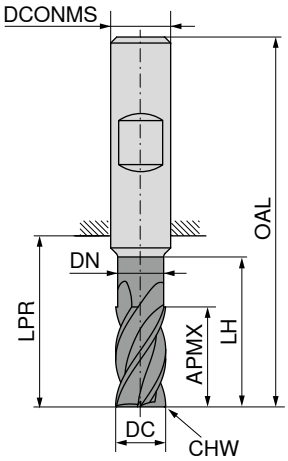


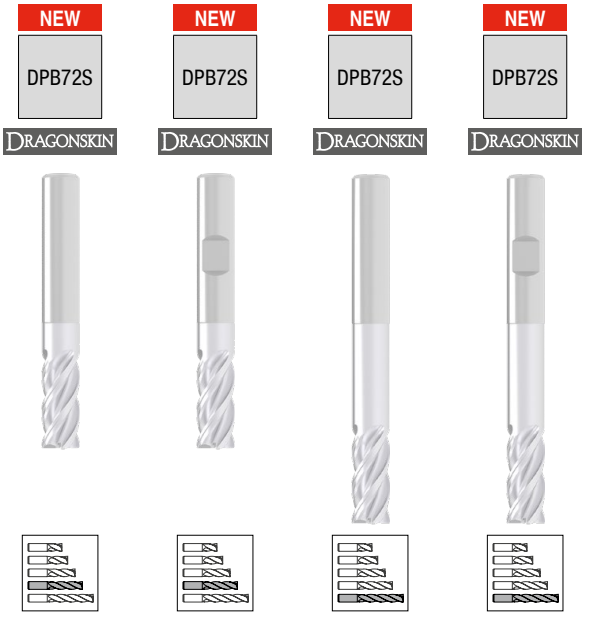
DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 972 ... £ V0	50 973 ... £ V0	50 972 ... £ V0	50 973 ... £ V0
3.0	5	14	50	6	0.1	4	52.15 03100	52.15 03100		
3.0	8	21	57	6	0.1	4			52.15 03200	52.15 03200
3.5	8	18	54	6	0.1	4	52.15 03600	52.15 03600		
3.5	11	21	57	6	0.1	4			52.15 03700	52.15 03700
4.0	8	18	54	6	0.1	4	52.15 04100	52.15 04100		
4.0	11	21	57	6	0.1	4			52.15 04200	52.15 04200
4.5	9	18	54	6	0.1	4	53.24 04600	53.24 04600		
4.5	13	21	57	6	0.1	4			53.24 04700	53.24 04700
5.0	9	18	54	6	0.1	4	53.24 05100	53.24 05100		
5.0	13	21	57	6	0.1	4			53.24 05200	53.24 05200
5.5	10	18	54	6	0.1	4	51.50 05600	51.50 05600		
5.5	13	21	57	6	0.1	4			51.50 05700	51.50 05700
6.0	10	18	54	6	0.1	4	51.50 06100	51.50 06100		
6.0	13	21	57	6	0.1	4			51.50 06200	51.50 06200
7.0	12	22	58	8	0.2	4	68.49 07100	68.49 07100		
7.0	21	27	63	8	0.2	4			68.49 07200	68.49 07200
8.0	12	22	58	8	0.2	4	68.49 08100	68.49 08100		
8.0	21	27	63	8	0.2	4			68.49 08200	68.49 08200
9.0	14	26	66	10	0.2	4	89.38 09100	89.38 09100		
9.0	22	32	72	10	0.2	4			89.38 09200	89.38 09200
10.0	14	26	66	10	0.2	4	89.38 10100	89.38 10100		
10.0	22	32	72	10	0.2	4			89.38 10200	89.38 10200
11.0	16	28	73	12	0.3	4	141.28 11100	141.28 11100		
11.0	26	38	83	12	0.3	4			141.28 11200	141.28 11200
12.0	16	28	73	12	0.3	4	141.28 12100	141.28 12100		
12.0	26	38	83	12	0.3	4			141.28 12200	141.28 12200
14.0	16	28	73	14	0.3	4	181.55 14100	181.55 14100		
14.0	26	38	83	14	0.3	4			181.55 14200	181.55 14200
15.0	22	34	82	16	0.3	4	224.27 15100	224.27 15100		
15.0	36	44	92	16	0.3	4			224.27 15200	224.27 15200
16.0	22	34	82	16	0.3	4	224.27 16100	224.27 16100		
16.0	36	44	92	16	0.3	4			224.27 16200	224.27 16200
17.0	22	34	82	18	0.3	4	304.94 17100	304.94 17100		
17.0	36	44	92	18	0.3	4			304.94 17200	304.94 17200
18.0	22	34	82	18	0.3	4	304.94 18100	304.94 18100		
18.0	36	44	92	18	0.3	4			304.94 18200	304.94 18200
19.0	26	42	92	20	0.3	4	346.03 19100	346.03 19100		
19.0	41	54	104	20	0.3	4			346.03 19200	346.03 19200
20.0	26	42	92	20	0.3	4	346.03 20100	346.03 20100		
20.0	41	54	104	20	0.3	4			346.03 20200	346.03 20200
P							●	●	●	●
M							●	●	●	●
K							●	●	●	●
N							○	○	○	○
S							●	●	●	●
H										
O										

→ v_c/f_z Page 358+359

SilverLine – End milling cutter







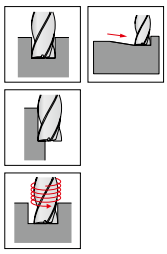
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	DIN 6527 HA 50 974 ... £ V0		DIN 6527 HB 50 975 ... £ V0		DIN 6527 HA 50 974 ... £ V0		DIN 6527 HB 50 975 ... £ V0	
3.0	6.5	2.8	9	19	55	6	0.1	4	48.45	03200	48.45	03200				
3.0	6.5	2.8	15	22	58	6	0.1	4					50.79	03400	50.79	03400
4.0	8.5	3.8	12	19	55	6	0.1	4	48.45	04200	48.45	04200				
4.0	8.5	3.8	20	26	62	6	0.1	4					50.79	04400	50.79	04400
5.0	10.5	4.8	15	22	58	6	0.1	4	48.45	05200	48.45	05200				
5.0	10.5	4.8	25	34	70	6	0.1	4					50.79	05400	50.79	05400
6.0	13.0	5.8	18	22	58	6	0.1	4	48.45	06200	48.45	06200				
6.0	13.0	5.8	30	34	70	6	0.1	4					50.79	06400	50.79	06400
8.0	17.0	7.7	24	28	64	8	0.2	4	66.06	08200	66.06	08200				
8.0	17.0	7.7	40	44	80	8	0.2	4					72.69	08400	72.69	08400
10.0	21.0	9.7	30	34	74	10	0.2	4	96.68	10200	96.68	10200				
10.0	21.0	9.7	50	54	94	10	0.2	4					106.88	10400	106.88	10400
12.0	25.0	11.6	36	40	85	12	0.3	4	121.83	12200	121.83	12200				
12.0	25.0	11.6	60	64	109	12	0.3	4					133.63	12400	133.63	12400
14.0	29.0	13.6	42	46	91	14	0.3	4	170.76	14200	170.76	14200				
14.0	29.0	13.6	70	74	119	14	0.3	4					187.82	14400	187.82	14400
16.0	33.0	15.5	48	52	100	16	0.3	4	273.41	16200	273.41	16200				
16.0	33.0	15.5	80	84	132	16	0.3	4					300.85	16400	300.85	16400
18.0	38.0	17.5	54	58	106	18	0.3	4	345.75	18200	345.75	18200				
18.0	38.0	17.5	90	94	142	18	0.3	4					380.43	18400	380.43	18400
20.0	42.0	19.5	60	64	114	20	0.3	4	374.01	20200	374.01	20200				
20.0	42.0	19.5	100	104	154	20	0.3	4					414.14	20400	414.14	20400
P									●		●		●		●	
M									●		●		●		●	
K									●		●		●		●	
N									○		○		○		○	
S									●		●		●		●	
H																
O																

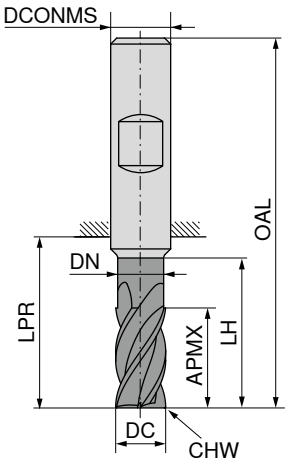
→ v_c/f_z Page 358–357

SilverLine – End milling cutter

▲ Especially for high-volume milling







NEW DPB72S DRAGONSKIN



NEW DPB72S DRAGONSKIN





DIN 6527

HA



50 976 ...



DIN 6527

HB



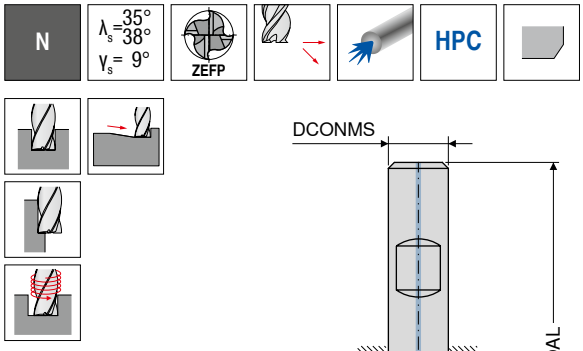
50 977 ...

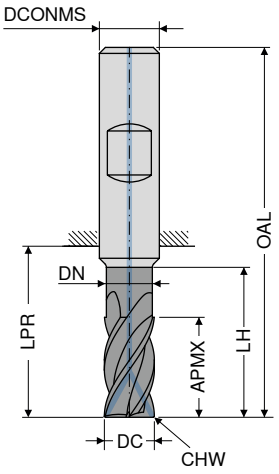
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V0		£ V0	
3.0	8	2.8	13	21	57	6	0.1	4	72.84	**03200**	72.84	**03200**
4.0	11	3.8	17	21	57	6	0.1	4	72.84	**04200**	72.84	**04200**
5.0	13	4.8	19	21	57	6	0.1	4	72.84	**05200**	72.84	**05200**
6.0	13	5.8	19	21	57	6	0.1	4	76.52	**06200**	76.52	**06200**
8.0	21	7.7	25	27	63	8	0.2	4	87.73	**08200**	87.73	**08200**
10.0	22	9.7	30	32	72	10	0.2	4	150.70	**10200**	150.70	**10200**
12.0	26	11.6	36	38	83	12	0.3	4	204.20	**12200**	204.20	**12200**
14.0	26	13.6	36	38	83	14	0.3	4	300.71	**14200**	300.71	**14200**
16.0	36	15.5	42	44	92	16	0.3	4	381.38	**16200**	381.38	**16200**
18.0	36	17.5	42	44	92	18	0.3	4	526.48	**18200**	526.48	**18200**
20.0	41	19.5	52	54	104	20	0.3	4	548.05	**20200**	548.05	**20200**

P	●	●
M	●	●
K	●	●
N	○	○
S		
H		
O		

→ v_c/f_z Page 354+355

SilverLine – End milling cutter





NEW

DPB72S

DRAGONSKIN





DIN 6527

HB 

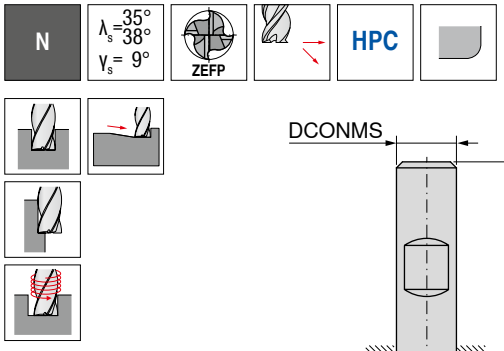
50 978 ...

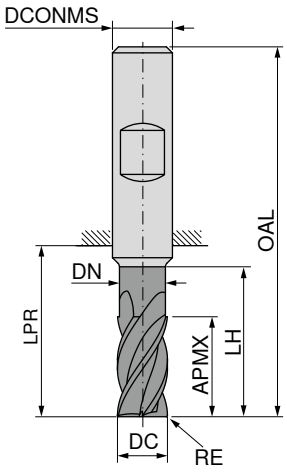
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V0	
6.0	13	5.8	19	21	57	6	0.1	4	144.83	**06200**
8.0	21	7.7	25	27	63	8	0.2	4	168.85	**08200**
10.0	22	9.7	30	32	72	10	0.2	4	190.83	**10200**
12.0	26	11.6	36	38	83	12	0.3	4	266.86	**12200**
14.0	26	13.6	36	38	83	14	0.3	4	409.36	**14200**
16.0	36	15.5	42	44	92	16	0.3	4	409.36	**16200**
18.0	36	17.5	42	44	92	18	0.3	4	544.91	**18200**
20.0	41	19.5	52	54	104	20	0.3	4	544.91	**20200**

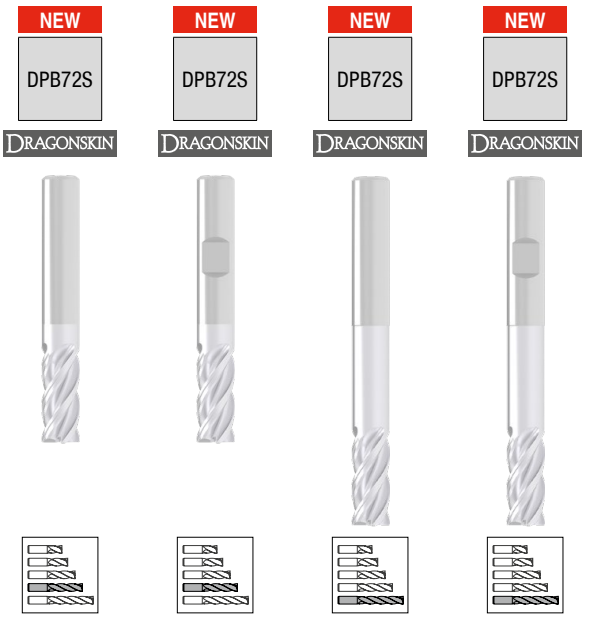
P	●
M	●
K	●
N	○
S	●
H	
O	

→ v_c/f_z Page 358+359

SilverLine – End milling cutter with corner radius







Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

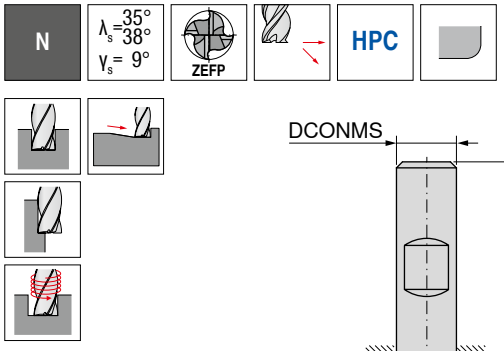
DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 970 ... £ V0		50 971 ... £ V0		50 970 ... £ V0		50 971 ... £ V0	
3.0	0.10	8.0	2.8	13	21	57	6	4	70.29	03201	70.29	03201				
3.0	0.40	8.0	2.8	13	21	57	6	4	70.29	03204	70.29	03204				
3.0	0.50	8.0	2.8	13	21	57	6	4	70.29	03205	70.29	03205				
3.0	1.00	8.0	2.8	13	21	57	6	4	70.29	03210	70.29	03210				
3.0	0.30	6.5	2.8	15	22	58	6	4					82.61	03403	82.61	03403
3.0	0.50	6.5	2.8	15	22	58	6	4					82.61	03405	82.61	03405
3.0	0.80	6.5	2.8	15	22	58	6	4					82.61	03408	82.61	03408
4.0	0.10	11.0	3.8	17	21	57	6	4	70.29	04201	70.29	04201				
4.0	0.40	11.0	3.8	17	21	57	6	4	70.29	04204	70.29	04204				
4.0	0.50	11.0	3.8	17	21	57	6	4	70.29	04205	70.29	04205				
4.0	1.00	11.0	3.8	17	21	57	6	4	70.29	04210	70.29	04210				
4.0	0.40	8.5	3.8	20	26	62	6	4					82.61	04404	82.61	04404
4.0	0.50	8.5	3.8	20	26	62	6	4					82.61	04405	82.61	04405
4.0	0.80	8.5	3.8	20	26	62	6	4					82.61	04408	82.61	04408
5.0	0.10	13.0	4.8	19	21	57	6	4	71.43	05201	71.43	05201				
5.0	0.50	13.0	4.8	19	21	57	6	4	71.43	05205	71.43	05205				
5.0	1.00	13.0	4.8	19	21	57	6	4	71.43	05210	71.43	05210				
5.0	0.50	10.5	4.8	25	34	70	6	4					83.91	05405	83.91	05405
5.0	0.80	10.5	4.8	25	34	70	6	4					83.91	05408	83.91	05408
6.0	0.10	13.0	5.8	19	21	57	6	4	69.70	06201	69.70	06201				
6.0	0.50	13.0	5.8	19	21	57	6	4	69.70	06205	69.70	06205				
6.0	1.00	13.0	5.8	19	21	57	6	4	69.70	06210	69.70	06210				
6.0	1.50	13.0	5.8	19	21	57	6	4	69.70	06215	69.70	06215				
6.0	0.60	13.0	5.8	30	34	70	6	4					83.91	06406	83.91	06406
6.0	0.80	13.0	5.8	30	34	70	6	4					83.91	06408	83.91	06408
6.0	1.00	13.0	5.8	30	34	70	6	4					83.91	06410	83.91	06410
8.0	0.15	21.0	7.7	25	27	63	8	4	87.39	08202	87.39	08202				
8.0	0.50	21.0	7.7	25	27	63	8	4	87.39	08205	87.39	08205				
8.0	1.00	21.0	7.7	25	27	63	8	4	87.39	08210	87.39	08210				
8.0	1.50	21.0	7.7	25	27	63	8	4	87.39	08215	87.39	08215				
8.0	2.00	21.0	7.7	25	27	63	8	4	87.39	08220	87.39	08220				
8.0	0.80	17.0	7.7	40	44	80	8	4					101.60	08408	101.60	08408
8.0	1.00	17.0	7.7	40	44	80	8	4					101.60	08410	101.60	08410
8.0	1.50	17.0	7.7	40	44	80	8	4					101.60	08415	101.60	08415
8.0	2.00	17.0	7.7	40	44	80	8	4					101.60	08420	101.60	08420
10.0	0.15	22.0	9.7	30	32	72	10	4	109.20	10202	109.20	10202				
10.0	0.50	22.0	9.7	30	32	72	10	4	109.20	10205	109.20	10205				
10.0	1.00	22.0	9.7	30	32	72	10	4	109.20	10210	109.20	10210				
10.0	1.50	22.0	9.7	30	32	72	10	4	109.20	10215	109.20	10215				
10.0	2.00	22.0	9.7	30	32	72	10	4	109.20	10220	109.20	10220				
10.0	0.50	21.0	9.7	50	54	94	10	4					125.67	10405	125.67	10405
10.0	1.00	21.0	9.7	50	54	94	10	4					125.67	10410	125.67	10410
10.0	1.50	21.0	9.7	50	54	94	10	4					125.67	10415	125.67	10415
10.0	2.00	21.0	9.7	50	54	94	10	4					125.67	10420	125.67	10420
12.0	0.20	26.0	11.6	36	38	83	12	4	168.58	12202	168.58	12202				
12.0	0.50	26.0	11.6	36	38	83	12	4	168.58	12205	168.58	12205				
12.0	1.00	26.0	11.6	36	38	83	12	4	168.58	12210	168.58	12210				

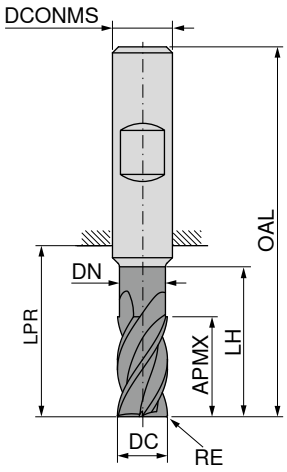
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	●	●	●	●
H				
O				

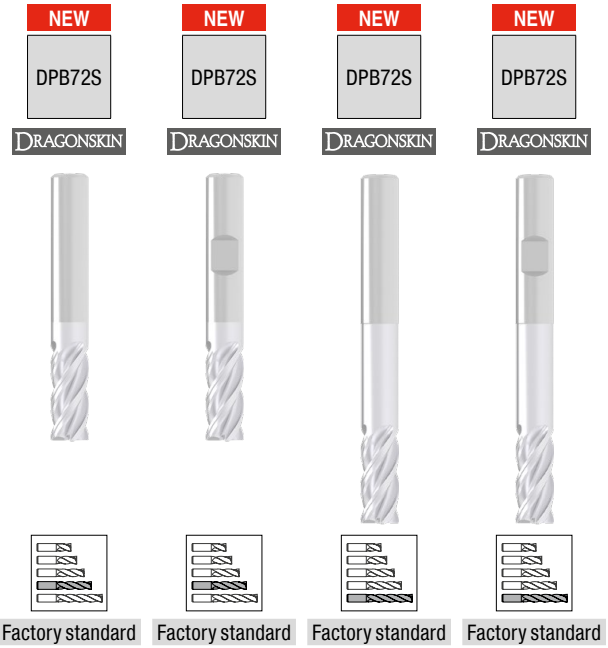
→ v_c/f_z Page 358–357

Continued on next page

SilverLine – End milling cutter with corner radius







Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 970 ... £ V0		50 971 ... £ V0		50 970 ... £ V0		50 971 ... £ V0	
12.0	1.50	26.0	11.6	36	38	83	12	4	168.58	12215	168.58	12215				
12.0	2.00	26.0	11.6	36	38	83	12	4	168.58	12220	168.58	12220				
12.0	3.00	26.0	11.6	36	38	83	12	4	168.58	12230	168.58	12230				
12.0	4.00	26.0	11.6	36	38	83	12	4	168.58	12240	168.58	12240				
12.0	0.50	25.0	11.6	60	64	109	12	4					190.83	12405	190.83	12405
12.0	1.00	25.0	11.6	60	64	109	12	4					190.83	12410	190.83	12410
12.0	1.50	25.0	11.6	60	64	109	12	4					190.83	12415	190.83	12415
12.0	2.00	25.0	11.6	60	64	109	12	4					190.83	12420	190.83	12420
12.0	3.00	25.0	11.6	60	64	109	12	4					190.83	12430	190.83	12430
12.0	4.00	25.0	11.6	60	64	109	12	4					190.83	12440	190.83	12440
14.0	0.30	26.0	13.6	36	38	83	14	4	254.98	14203	254.98	14203				
14.0	1.00	26.0	13.6	36	38	83	14	4	254.98	14210	254.98	14210				
14.0	2.00	26.0	13.6	36	38	83	14	4	254.98	14220	254.98	14220				
14.0	3.00	26.0	13.6	36	38	83	14	4	254.98	14230	254.98	14230				
14.0	4.00	26.0	13.6	36	38	83	14	4	254.98	14240	254.98	14240				
14.0	1.00	29.0	13.6	70	74	119	14	4					285.97	14410	285.97	14410
14.0	2.00	29.0	13.6	70	74	119	14	4					285.97	14420	285.97	14420
14.0	3.00	29.0	13.6	70	74	119	14	4					285.97	14430	285.97	14430
14.0	4.00	29.0	13.6	70	74	119	14	4					285.97	14440	285.97	14440
16.0	0.30	36.0	15.5	42	44	92	16	4	254.98	16203	254.98	16203				
16.0	1.00	36.0	15.5	42	44	92	16	4	254.98	16210	254.98	16210				
16.0	2.00	36.0	15.5	42	44	92	16	4	254.98	16220	254.98	16220				
16.0	3.00	36.0	15.5	42	44	92	16	4	254.98	16230	254.98	16230				
16.0	4.00	36.0	15.5	42	44	92	16	4	254.98	16240	254.98	16240				
16.0	1.00	33.0	15.5	80	84	132	16	4					313.68	16410	313.68	16410
16.0	2.00	33.0	15.5	80	84	132	16	4					313.68	16420	313.68	16420
16.0	3.00	33.0	15.5	80	84	132	16	4					313.68	16430	313.68	16430
16.0	4.00	33.0	15.5	80	84	132	16	4					313.68	16440	313.68	16440
18.0	1.00	36.0	17.5	42	44	92	18	4	339.20	18210	339.20	18210				
18.0	2.00	36.0	17.5	42	44	92	18	4	339.20	18220	339.20	18220				
18.0	3.00	36.0	17.5	42	44	92	18	4	339.20	18230	339.20	18230				
18.0	4.00	36.0	17.5	42	44	92	18	4	339.20	18240	339.20	18240				
18.0	1.00	38.0	17.5	90	94	142	18	4					378.38	18410	378.38	18410
18.0	2.00	38.0	17.5	90	94	142	18	4					378.38	18420	378.38	18420
18.0	3.00	38.0	17.5	90	94	142	18	4					378.38	18430	378.38	18430
18.0	4.00	38.0	17.5	90	94	142	18	4					378.38	18440	378.38	18440
20.0	0.30	41.0	19.5	52	54	104	20	4	381.93	20203	381.93	20203				
20.0	1.00	41.0	19.5	52	54	104	20	4	381.93	20210	381.93	20210				
20.0	2.00	41.0	19.5	52	54	104	20	4	381.93	20220	381.93	20220				
20.0	3.00	41.0	19.5	52	54	104	20	4	381.93	20230	381.93	20230				
20.0	4.00	41.0	19.5	52	54	104	20	4	381.93	20240	381.93	20240				
20.0	1.00	42.0	19.5	100	104	154	20	4					425.33	20410	425.33	20410
20.0	2.00	42.0	19.5	100	104	154	20	4					425.33	20420	425.33	20420
20.0	3.00	42.0	19.5	100	104	154	20	4					425.33	20430	425.33	20430
20.0	4.00	42.0	19.5	100	104	154	20	4					425.33	20440	425.33	20440

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

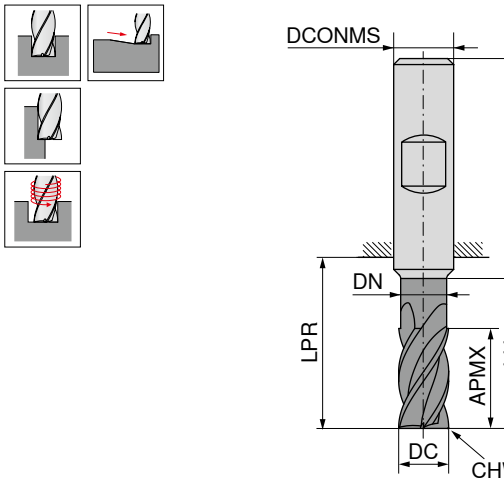
→ v_c/f_z Page 358–357

14

SilverLine – Roughing-Finishing Cutter

▲ With rough-finishing profile

NF | λ_s=35° 38° γ_s= 9° | ZEFP | HPC



NEW

DPB72S

DRAGONSKIN



DIN 6527

HB

50 969 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V0	
3.0	8	2.8	13	21	57	6	0.1	4	150.15	**03200**
3.5	11	3.3	17	21	57	6	0.1	4	150.15	**03700**
4.0	11	3.8	17	21	57	6	0.1	4	150.15	**04200**
4.5	13	4.3	19	21	57	6	0.1	4	150.15	**04700**
5.0	13	4.8	19	21	57	6	0.1	4	150.15	**05200**
5.5	13	5.3	19	21	57	6	0.1	4	150.15	**05700**
6.0	13	5.8	19	21	57	6	0.1	4	150.15	**06200**
7.0	21	6.7	25	27	63	8	0.2	4	161.75	**07200**
8.0	21	7.7	25	27	63	8	0.2	4	161.75	**08200**
9.0	22	8.7	30	32	72	10	0.2	4	169.94	**09200**
10.0	22	9.7	30	32	72	10	0.2	4	169.94	**10200**
11.0	26	10.6	36	38	83	12	0.3	4	237.24	**11200**
12.0	26	11.6	36	38	83	12	0.3	4	237.24	**12200**
14.0	26	13.6	36	38	83	14	0.3	4	339.61	**14200**
15.0	36	14.5	42	44	92	16	0.3	4	339.61	**15200**
16.0	36	15.5	42	44	92	16	0.3	4	339.61	**16200**
17.0	36	16.5	42	44	92	18	0.3	4	397.49	**17200**
18.0	36	17.5	42	44	92	18	0.3	4	397.49	**18200**
19.0	41	18.5	52	54	104	20	0.3	4	534.94	**19200**
20.0	41	19.5	52	54	104	20	0.3	4	534.94	**20200**

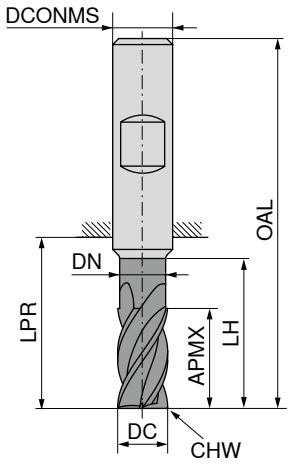
P	●
M	●
K	●
N	o
S	●
H	
O	

→ v_c/f_z Page 358+359

SilverLine – Rough milling cutter

▲ With roughing profile

NR | λ_s=35° γ_s= 9° | ZEFP | HPC



NEW

DPB72S

DRAGONSKIN



DIN 6527

HB

50 979 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V0	
3.0	8	2.8	13	21	57	6	0.1	4	150.15	**03200**
3.5	11	3.3	17	21	57	6	0.1	4	150.15	**03700**
4.0	11	3.8	17	21	57	6	0.1	4	150.15	**04200**
4.5	13	4.3	19	21	57	6	0.1	4	150.15	**04700**
5.0	13	4.8	19	21	57	6	0.1	4	150.15	**05200**
5.5	13	5.3	19	21	57	6	0.1	4	150.15	**05700**
6.0	13	5.8	19	21	57	6	0.1	4	150.15	**06200**
7.0	21	6.7	25	27	63	8	0.2	4	161.75	**07200**
8.0	21	7.7	25	27	63	8	0.2	4	161.75	**08200**
9.0	22	8.7	30	32	72	10	0.2	4	169.94	**09200**
10.0	22	9.7	30	32	72	10	0.2	4	169.94	**10200**
11.0	26	10.6	36	38	83	12	0.3	4	237.24	**11200**
12.0	26	11.6	36	38	83	12	0.3	4	237.24	**12200**
14.0	26	13.6	36	38	83	14	0.3	4	339.61	**14200**
15.0	36	14.5	42	44	92	16	0.3	4	339.61	**15200**
16.0	36	15.5	42	44	92	16	0.3	4	339.61	**16200**
17.0	36	16.5	42	44	92	18	0.3	4	397.49	**17200**
18.0	36	17.5	42	44	92	18	0.3	4	397.49	**18200**
19.0	41	18.5	52	54	104	20	0.3	4	534.94	**19200**
20.0	41	19.5	52	54	104	20	0.3	4	534.94	**20200**

P	●
M	●
K	●
N	○
S	●
H	
O	

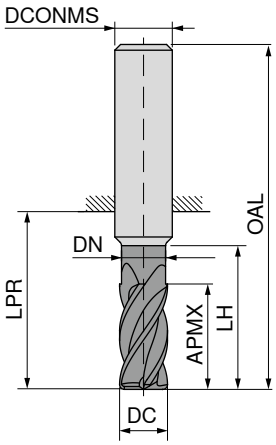
→ v_c/f_z Page 358+359

SilverLine – High Accuracy Finish Milling Cutter

▲ max. taper of 0.005 mm for high precision and parallelism of vertical walls
▲ Tool with cutting edge correction







NEW DPB72S DRAGONSKIN



NEW DPB72S DRAGONSKIN





≈DIN 6527

HA 



Factory standard

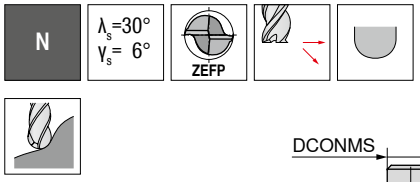
HA 

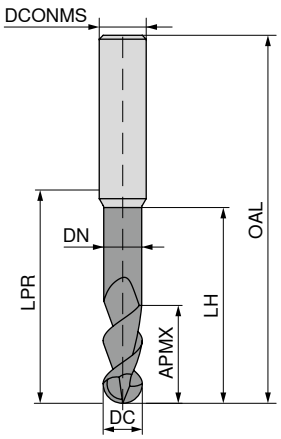
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 991 ... £ V0		50 991 ... £ V0	
6.0	10	5.8	18	22	58	6	6	77.61	**06200**		
6.0	13	5.6	19	21	57	6	6	77.56	**06700**		
6.0	13	5.8	27	31	67	6	6			105.23	**06400**
6.0	13	5.8	36	40	76	6	6			131.45	**06900**
6.0	15	5.6	42	44	80	6	6			105.19	**90000**
8.0	13	7.7	24	28	64	8	6	88.77	**08200**		
8.0	17	7.7	36	40	76	8	6			130.17	**08400**
8.0	17	7.7	48	53	89	8	6			162.71	**08900**
8.0	19	7.6	25	27	63	8	6	89.09	**08700**		
8.0	20	7.6	62	64	100	8	6			130.00	**90100**
10.0	16	9.7	30	34	74	10	6	153.02	**10200**		
10.0	21	9.7	45	49	89	10	6			195.06	**10400**
10.0	21	9.7	60	64	104	10	6			243.79	**90200**
10.0	22	9.6	30	32	72	10	6	152.61	**10700**		
10.0	25	9.6	58	60	100	10	6			194.51	**10900**
12.0	19	11.6	36	40	85	12	6	207.34	**12200**		
12.0	25	11.6	54	58	103	12	6			301.94	**12400**
12.0	25	11.6	72	76	121	12	6			377.29	**90300**
12.0	26	11.5	36	38	83	12	6	206.80	**12700**		
12.0	30	11.5	73	75	120	12	6			301.53	**12900**
16.0	25	15.5	48	52	100	16	6	385.75	**16200**		
16.0	32	15.0	42	44	92	16	6	385.61	**16700**		
16.0	33	15.5	72	76	124	16	6			531.39	**16400**
16.0	33	15.5	96	100	148	16	6			664.21	**16900**
16.0	40	15.0	100	102	150	16	6			530.85	**90400**
20.0	32	19.5	60	64	114	20	6	555.83	**20200**		
20.0	38	19.0	52	54	104	20	6	555.56	**20700**		
20.0	42	19.5	90	94	144	20	6			731.78	**20400**
20.0	42	19.5	120	124	174	20	6			914.69	**90500**
20.0	50	19.0	98	100	150	20	6			731.50	**20900**
25.0	40	24.5	75	80	136	25	6	696.15	**25200**		
25.0	52	24.5	113	118	174	25	6			915.64	**25400**
25.0	52	24.5	150	154	210	25	6			1,144.55	**25900**

P	●	●
M	●	●
K	○	○
N	○	○
S	●	●
H		
O		

→ v_c/f_z Page 362

SilverLine – Ball Nosed Cutter









Factory standard | Factory standard

HA | HA

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 963 ... £ V0		50 963 ... £ V0	
3.0	4	2.8	10.0	14	50	6	2	66.23	**03115**		
3.0	7	3.0	8.8	24	60	6	2			88.85	**03415**
4.0	8	3.8	12.0	18	54	6	2	66.23	**04120**		
4.0	10	4.0	12.5	39	75	6	2			88.85	**04420**
5.0	9	4.8	16.0	18	54	6	2	66.23	**05125**		
5.0	12	5.0	15.0	39	75	6	2			92.41	**05425**
6.0	10	5.7	16.0	18	54	6	2	66.23	**06130**		
6.0	12	6.0	15.0	64	100	6	2			107.01	**06430**
7.0	11	6.6	20.0	22	58	8	2	80.62	**07135**		
8.0	12	7.6	20.0	22	58	8	2	80.62	**08140**		
8.0	14	8.0	17.5	64	100	8	2			125.09	**08440**
10.0	14	9.6	24.0	26	66	10	2	100.81	**10150**		
10.0	18	10.0	22.5	60	100	10	2			170.08	**10450**
12.0	16	11.5	26.0	28	73	12	2	146.46	**12160**		
12.0	22	12.0	27.5	55	100	12	2			219.36	**12460**
14.0	18	13.3	28.0	30	75	14	2	170.08	**14170**		
14.0	26	14.0	32.5	75	120	14	2			349.85	**14470**
16.0	22	15.2	32.0	34	82	16	2	215.81	**16180**		
16.0	30	16.0	37.5	102	150	16	2			471.33	**16480**
18.0	24	17.1	34.0	36	84	18	2	355.58	**18190**		
20.0	26	19.0	40.0	42	92	20	2	355.58	**20110**		
20.0	38	20.0	47.5	100	150	20	2			624.62	**20410**

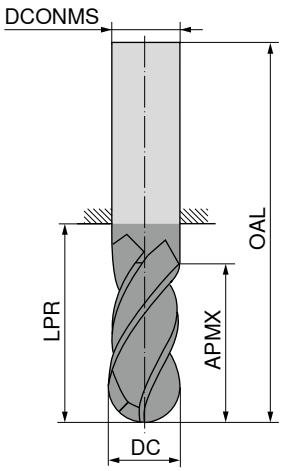
P	●	●
M		
K	●	●
N	○	○
S		
H	○	○
O		

→ v_c/f_z Page 360+361

SilverLine – Ball Nosed Cutter







NEW

DPB72S

DRAGONSKIN





Factory standard

HA 

50 990 ...

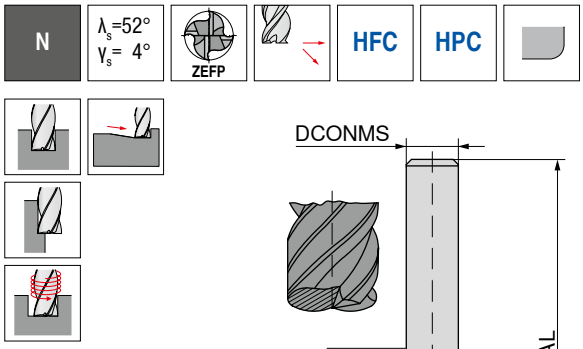
DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0	
4.0	11	21	57	6	4	64.48	**04220**
5.0	13	21	57	6	4	64.48	**05225**
6.0	13	21	57	6	4	75.44	**06230**
8.0	19	36	72	8	4	93.47	**08280**
10.0	22	32	72	10	4	118.01	**10250**
12.0	26	38	83	12	4	186.73	**12260**
16.0	32	44	92	16	4	275.59	**16280**
20.0	38	54	104	20	4	399.40	**20210**

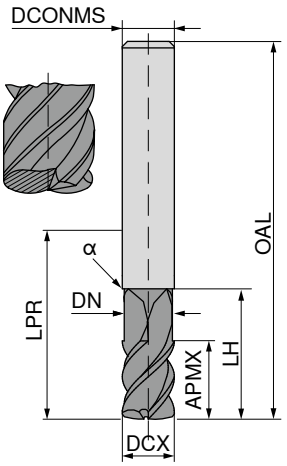
P	●
M	○
K	●
N	○
S	
H	
O	

→ v_c/f_z Page 363–365

SilverLine – Torus Face Milling Cutter

▲ APMX does not correspond to the maximum cutting depth
▲ r_{3D} = corner radius to be programmed







Factory standard | Factory standard

HA | HA

DCX f8 mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	50 989 ... £ V0		50 989 ... £ V0	
6.00	1.12	6	5.5	21	21	57	45	6	4	93.27	**06110**		
6.00	1.12	6	5.5	64	64	100	45	6	4			123.26	**06410**
8.00	1.23	8	7.4	27	27	63	45	8	4	105.68	**08110**		
8.00	1.23	8	7.4	64	64	100	45	8	4			160.80	**08410**
10.00	1.17	10	9.2	32	32	72	45	10	4	180.73	**10115**		
10.00	1.17	10	9.2	60	60	100	45	10	4			264.40	**10415**
12.00	1.86	12	11.0	32	38	83	45	12	4	236.83	**12115**		
12.00	1.86	12	11.0	65	65	110	45	12	4			291.70	**12415**
16.00	2.47	16	15.0	38	44	92	45	16	4	444.99	**16120**		
16.00	2.47	16	15.0	65	102	150	45	16	4			650.56	**16420**
20.00	2.61	20	18.5	40	42	92	45	20	4	640.19	**20120**		
20.00	2.61	20	18.5	65	100	150	45	20	4			962.46	**20420**

P	●	●
M	○	○
K	●	●
N	○	○
S		
H	○	○
O		

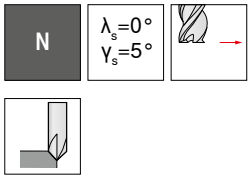
→ v_c/f_z Page 366+367

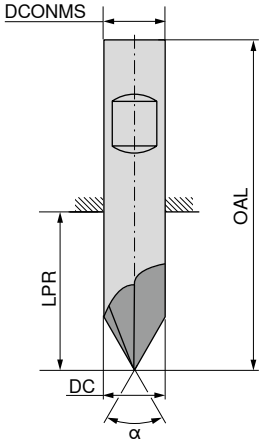
14

SilverLine – NC deburring cutter

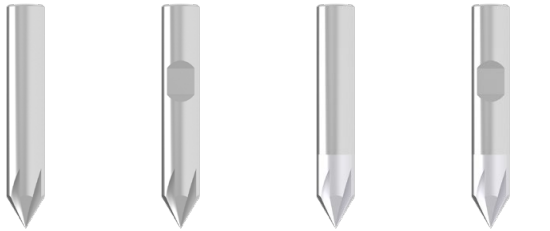
N

λ_s=0°
γ_s=5°





NEW | NEW | NEW DPB72S DRAGONSKIN | NEW DPB72S DRAGONSKIN



α = 60° Factory standard | α = 60° Factory standard | α = 60° Factory standard | α = 60° Factory standard

HA | HB | HA | HB

DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	50 566 ... £ V1	50 567 ... £ V1	50 562 ... £ V1	50 563 ... £ V1
4	50	22	4	5	30.36 **04000**		37.44 **04000**	
6	55	19	6	5	34.05 **06000**	34.05 **06000**	41.15 **06000**	41.15 **06000**
8	58	22	8	5	45.50 **08000**	45.50 **08000**	53.61 **08000**	53.61 **08000**
10	60	20	10	5	54.00 **10000**	54.00 **10000**	63.74 **10000**	63.74 **10000**
12	70	25	12	5	70.36 **12000**	70.36 **12000**	81.44 **12000**	81.44 **12000**
16	80	32	16	5	111.92 **16000**	111.92 **16000**	126.79 **16000**	126.79 **16000**
P					●	●	●	●
M					●	●	●	●
K					●	●	●	●
N								
S					●	●	●	●
H								
O								

→ v_c/f_z Page 349

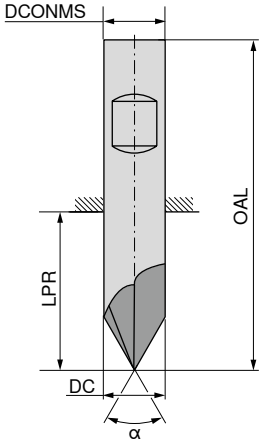
SilverLine – NC deburring cutter

N

λ_s=0°
γ_s=5°







NEW



NEW



NEW

DPB72S

DRAGONSKIN



NEW

DPB72S

DRAGONSKIN



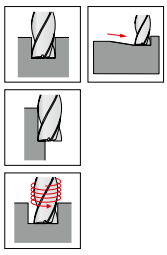
DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP		α = 90° Factory standard HA 50 564 ... £ V1		α = 90° Factory standard HB 50 565 ... £ V1		α = 90° Factory standard HA 50 560 ... £ V1		α = 90° Factory standard HB 50 561 ... £ V1	
4	50	22	4	5		30.36	**04000**			37.44	**04000**		
6	55	19	6	5		34.05	**06000**	34.05	**06000**	41.15	**06000**	41.15	**06000**
8	58	22	8	5		45.50	**08000**	45.50	**08000**	53.61	**08000**	53.61	**08000**
10	60	20	10	5		54.00	**10000**	54.00	**10000**	63.74	**10000**	63.74	**10000**
12	70	25	12	5		70.36	**12000**	70.36	**12000**	81.44	**12000**	81.44	**12000**
16	80	32	16	5		111.92	**16000**	111.92	**16000**	126.79	**16000**	126.79	**16000**
P						●		●		●		●	
M						●		●		●		●	
K						●		●		●		●	
N													
S						●		●		●		●	
H													
O													

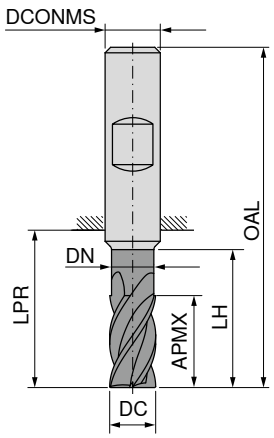
→ v_c/f_z Page 349

14

S-Cut – End milling cutter

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC





APX72S





≈DIN 6527

HB 

52 225 ...

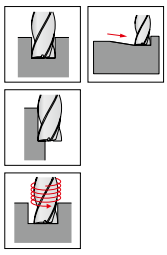
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/1#	
3	8	2.8	15.0	21	57	6	4	64.86	**030**
4	11	3.8	16.5	21	57	6	4	64.86	**040**
5	13	4.8	18.5	21	57	6	4	64.86	**050**
6	13	5.5	21.0	21	57	6	4	64.86	**060**
7	19	6.5	27.0	27	63	8	4	89.78	**070**
8	19	7.5	27.0	27	63	8	4	87.07	**080**
9	22	8.5	32.0	32	72	10	4	127.50	**090**
10	22	9.5	32.0	32	72	10	4	123.63	**100**
11	26	10.5	38.0	38	83	12	4	178.02	**110**
12	26	11.5	38.0	38	83	12	4	172.03	**120**
13	26	12.5	42.0	38	83	14	4	229.14	**130**
14	26	13.5	42.0	38	83	14	4	222.10	**140**
16	36	15.5	48.0	44	92	16	4	278.50	**160**
18	36	17.5	54.0	52	100	18	4	373.67	**180**
20	38	19.5	54.0	54	104	20	4	428.33	**200**
25	42	24.0	65.0	65	121	25	4	680.39	**250**

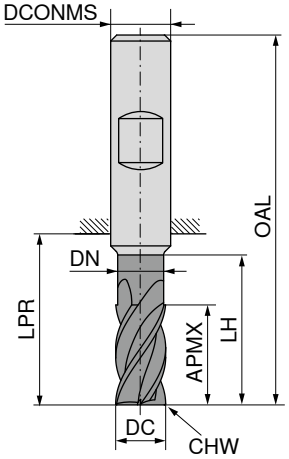
P	●
M	●
K	●
N	○
S	○
H	○
O	

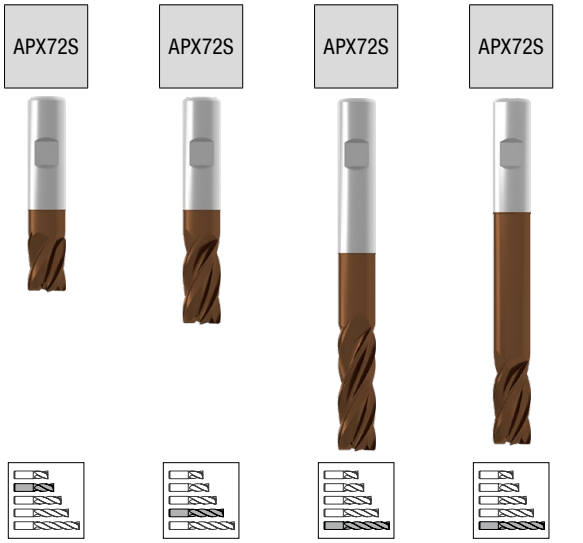
→ v_c/f_z Page 410+411

S-Cut – End milling cutter

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC







≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

HB | HB | HB | HB

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 223 ... £ V1/1#		52 224 ... £ V1/1#		52 226 ... £ V1/1#		52 227 ... £ V1/1#	
3	6	2.8	12.0	18	54	6	0.10	4	53.59	030						
3	8	2.8	15.0	21	57	6	0.10	4			64.86	030				
4	8	3.8	13.5	18	54	6	0.13	4	53.59	040						
4	11	3.8	16.5	21	57	6	0.13	4			64.86	040				
5	9	4.8	15.5	18	54	6	0.18	4	53.59	050						
5	13	4.8	18.5	21	57	6	0.18	4			64.86	050				
5	22	4.8	24.5	27	63	6	0.18	4					78.97	050		
6	10	5.5	18.0	18	54	6	0.20	4	53.59	060						
6	13	5.5	21.0	21	57	6	0.20	4			64.86	060				
6	13	5.5	42.0	44	80	6	0.20	4							99.30	060
6	22	5.5	27.0	27	63	6	0.20	4					78.97	060		
7	12	6.5	22.0	22	58	8	0.20	4	75.09	070						
7	19	6.5	27.0	27	63	8	0.20	4			89.78	070				
8	12	7.5	22.0	22	58	8	0.20	4	72.86	080						
8	19	7.5	27.0	27	63	8	0.20	4			87.07	080				
8	21	7.5	62.0	64	100	8	0.20	4							117.39	080
8	28	7.5	36.0	44	80	8	0.20	4					97.18	080		
9	14	8.5	26.0	26	66	10	0.30	4	102.47	090						
9	22	8.5	32.0	32	72	10	0.20	4			127.50	090				
10	14	9.5	26.0	26	66	10	0.30	4	99.30	100						
10	22	9.5	32.0	32	72	10	0.30	4			123.63	100				
10	22	9.5	58.0	60	100	10	0.30	4							145.82	100
10	33	9.5	54.0	60	100	10	0.30	4					125.51	100		
11	16	10.5	28.0	28	73	12	0.30	4	152.29	110						
11	26	10.5	38.0	38	83	12	0.30	4			178.02	110				
12	16	11.5	28.0	28	73	12	0.30	4	147.70	120						
12	26	11.5	38.0	38	83	12	0.30	4			172.03	120				
12	26	11.5	73.0	75	120	12	0.30	4							181.56	120
12	42	11.5	54.0	55	100	12	0.30	4					162.05	120		
13	18	12.5	30.0	30	75	14	0.30	4	193.89	130						
13	26	12.5	38.0	38	83	14	0.30	4			229.14	130				
14	18	13.5	30.0	30	75	14	0.30	4	188.60	140						
14	26	13.5	38.0	38	83	14	0.30	4			222.10	140				
14	48	13.5	54.0	55	100	14	0.30	4					181.56	140		
16	22	15.5	34.0	34	82	16	0.40	4	236.20	160						
16	36	15.5	44.0	44	92	16	0.40	4			278.50	160				
16	36	15.5	100.0	102	150	16	0.40	4							317.27	160
16	53	15.5	84.0	102	150	16	0.40	4					297.89	160		
18	24	17.5	34.0	36	84	18	0.40	4	317.27	180						
18	36	17.5	52.0	52	100	18	0.40	4			373.67	180				
20	26	19.5	42.0	42	92	20	0.50	4	368.38	200						
20	38	19.5	54.0	54	104	20	0.50	4			428.33	200				
20	38	19.5	100.0	100	150	20	0.50	4							449.48	200
20	68	19.5	84.0	100	150	20	0.50	4					428.33	200		
25	32	24.0	46.0	49	105	25	0.50	4	581.68	250						
25	42	24.0	65.0	65	121	25	0.50	4			680.39	250				
25	68	24.0	84.0	94	150	25	0.50	4					787.91	250		

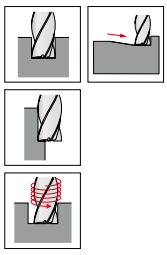
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O				

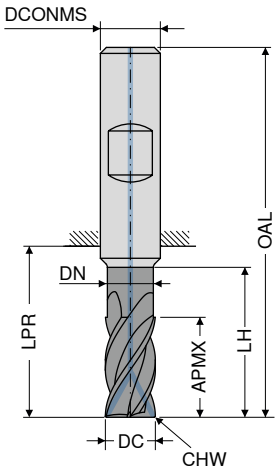
→ v_c/f_z Page 410–413

14

S-Cut – End milling cutter

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC





APX72S





≈DIN 6527

HB

52 229 ...

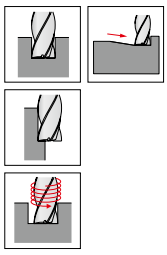
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1/1#	
6	13	5.5	21	21	57	6	0.2	4	137.72	**060**
8	19	7.5	27	27	63	8	0.2	4	186.85	**080**
10	22	9.5	32	32	72	10	0.3	4	264.41	**100**
12	26	11.5	38	38	83	12	0.3	4	356.07	**120**
14	26	13.5	42	42	83	14	0.3	4	465.34	**140**
16	36	15.5	46	46	92	16	0.4	4	646.89	**160**
20	38	19.5	54	54	104	20	0.5	4	927.16	**200**
25	42	24.0	65	65	121	25	0.5	4	1,209.18	**250**

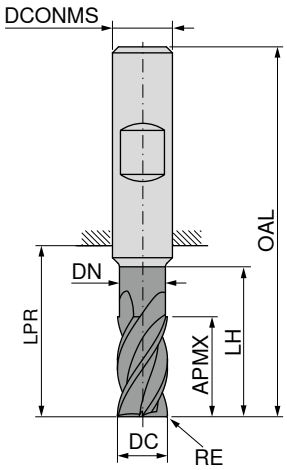
P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c/f_z Page 410+411

S-Cut – End milling cutter with corner radius

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC





APX72S



≈DIN 6527

HB

52 228 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/1#	
3	0.25	8	2.8	15.0	21	57	6	4	64.86	03003
3	0.50	8	2.8	15.0	21	57	6	4	64.86	03005
3	1.00	8	2.8	15.0	21	57	6	4	64.86	03010
4	0.25	11	3.8	16.5	21	57	6	4	64.86	04003
4	0.50	11	3.8	16.5	21	57	6	4	64.86	04005
4	1.00	11	3.8	16.5	21	57	6	4	64.86	04010
5	0.50	13	4.8	18.5	21	57	6	4	64.86	05005
5	1.00	13	4.8	18.5	21	57	6	4	64.86	05010
5	1.50	13	4.8	18.5	21	57	6	4	64.86	05015
6	0.50	13	5.5	21.0	21	57	6	4	64.86	06005
6	0.80	13	5.5	21.0	21	57	6	4	64.86	06008
6	1.00	13	5.5	21.0	21	57	6	4	64.86	06010
6	1.50	13	5.5	21.0	21	57	6	4	64.86	06015
6	2.00	13	5.5	21.0	21	57	6	4	64.86	06020
8	0.50	19	7.5	27.0	27	63	8	4	87.07	08005
8	0.80	19	7.5	27.0	27	63	8	4	87.07	08008
8	1.00	19	7.5	27.0	27	63	8	4	87.07	08010
8	1.50	19	7.5	27.0	27	63	8	4	87.07	08015
8	2.00	19	7.5	27.0	27	63	8	4	87.07	08020
10	0.50	22	9.5	32.0	32	72	10	4	123.63	10005
10	1.00	22	9.5	32.0	32	72	10	4	123.63	10010
10	1.50	22	9.5	32.0	32	72	10	4	123.63	10015
10	1.60	22	9.5	32.0	32	72	10	4	123.63	10016
10	2.00	22	9.5	32.0	32	72	10	4	123.63	10020
12	0.50	26	11.5	38.0	38	83	12	4	172.03	12005
12	1.00	26	11.5	38.0	38	83	12	4	172.03	12010
12	1.50	26	11.5	38.0	38	83	12	4	172.03	12015
12	1.60	26	11.5	38.0	38	83	12	4	172.03	12016
12	2.00	26	11.5	38.0	38	83	12	4	172.03	12020
12	3.00	26	11.5	38.0	38	83	12	4	172.03	12030
14	1.00	26	13.5	38.0	38	83	14	4	222.10	14010
14	2.00	26	13.5	38.0	38	83	14	4	222.10	14020
16	1.00	36	15.5	44.0	44	92	16	4	278.50	16010
16	1.50	36	15.5	44.0	44	92	16	4	278.50	16015
16	1.60	36	15.5	44.0	44	92	16	4	278.50	16016
16	2.00	36	15.5	44.0	44	92	16	4	278.50	16020
16	2.50	36	15.5	44.0	44	92	16	4	278.50	16025
16	3.00	36	15.5	44.0	44	92	16	4	278.50	16030
16	3.20	36	15.5	44.0	44	92	16	4	278.50	16032
18	1.50	36	17.5	44.0	44	92	18	4	373.67	18015
18	2.50	36	17.5	44.0	44	92	18	4	373.67	18025

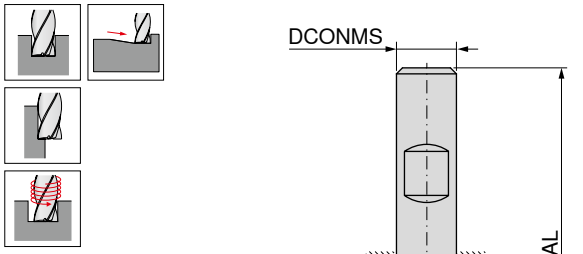
P	●
M	●
K	●
N	○
S	○
H	○
O	

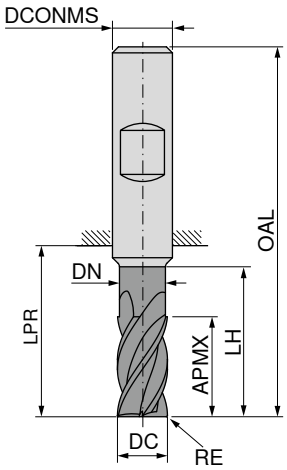
→ v_c/f_z Page 410+411

Continued on next page

S-Cut – End milling cutter with corner radius

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC





APX72S





≈DIN 6527

HB

52 228 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/1#	
20	1.00	38	19.5	54.0	54	104	20	4	428.33	**20010**
20	1.50	38	19.5	54.0	54	104	20	4	428.33	**20015**
20	2.00	38	19.5	54.0	54	104	20	4	428.33	**20020**
20	2.50	38	19.5	54.0	54	104	20	4	428.33	**20025**
20	3.00	38	19.5	54.0	54	104	20	4	428.33	**20030**
20	4.00	38	19.5	54.0	54	104	20	4	428.33	**20040**
25	1.00	42	24.0	65.0	65	121	25	4	680.39	**25010**
25	1.50	42	24.0	65.0	65	121	25	4	680.39	**25015**
25	2.00	42	24.0	65.0	65	121	25	4	680.39	**25020**
25	2.50	42	24.0	65.0	65	121	25	4	680.39	**25025**
25	3.00	42	24.0	65.0	65	121	25	4	680.39	**25030**
25	4.00	42	24.0	65.0	65	121	25	4	680.39	**25040**
25	5.00	42	24.0	65.0	65	121	25	4	680.39	**25050**

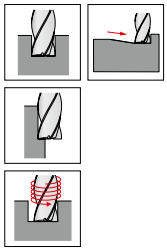
P	●
M	●
K	●
N	○
S	○
H	○
O	

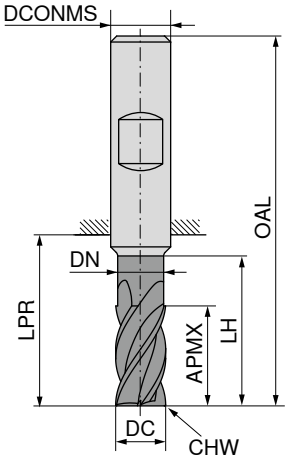
→ v_c/f_z Page 410+411

S-Cut – End milling cutter

- Suitable for trochoidal milling
- With chip breaker

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC





APX72S





≈DIN 6527

HB 

52 230 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1/1#	
6	18	5.5	25	26	62	6	0.12	5	96.24	**060**
8	24	7.5	30	32	68	8	0.16	5	127.50	**080**
10	30	9.5	35	40	80	10	0.20	5	162.05	**100**
12	36	11.5	45	48	93	12	0.24	5	213.29	**120**
16	48	15.5	55	60	108	16	0.32	5	364.86	**160**
20	60	19.5	70	76	126	20	0.40	5	574.62	**200**

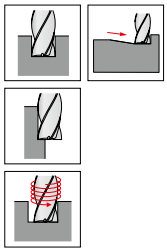
P	●
M	●
K	●
N	
S	○
H	
O	

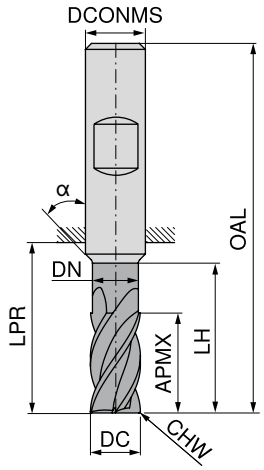
→ v_c/f_z Page 414+415

S-Cut – Rough milling cutter

▲ With roughing profile

SC NR | λ_s var. | λ_s=28°-36° γ_s=10° | ZEFP | HPC

















≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

HB | HB | HB

DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	α°	ZEFP	52 205 ... £ V1/1#		52 205 ... £ V1/1#		52 205 ... £ V1/1#	
3	6	2.8	12.0	18	54	6	0.18	15	4	65.42	**03100**				
3	8	2.8	14.0	21	57	6	0.18	15	4			77.47	**03200**		
3	8	2.8	19.0	26	62	6	0.18	15	4					88.56	**03400**
4	8	3.8	13.5	18	54	6	0.20	15	4	65.42	**04100**				
4	11	3.8	18.0	21	57	6	0.20	15	4			77.47	**04200**		
4	11	3.8	23.0	26	62	6	0.20	15	4					88.56	**04400**
5	9	4.8	15.5	18	54	6	0.25	15	4	65.42	**05100**				
5	13	4.8	19.0	21	57	6	0.25	15	4			77.47	**05200**		
5	13	4.8	24.0	26	62	6	0.25	15	4					88.56	**05400**
6	10	5.5	18.0	18	54	6	0.25		4	65.42	**06100**				
6	13	5.5	20.0	21	57	6	0.25		4			77.47	**06200**		
6	13	5.5	25.0	26	62	6	0.25		4					88.56	**06400**
8	12	7.5	22.0	22	58	8	0.30		4	83.22	**08100**				
8	19	7.5	25.0	27	63	8	0.30		4			98.54	**08200**		
8	19	7.5	30.0	32	68	8	0.30		4					112.72	**08400**
10	14	9.5	26.0	26	66	10	0.30		4	101.65	**10100**				
10	22	9.5	30.0	32	72	10	0.30		4			120.40	**10200**		
10	22	9.5	35.0	40	80	10	0.30		4					137.66	**10400**
12	16	11.5	28.0	28	73	12	0.45		4	115.31	**12100**				
12	26	11.5	35.0	38	83	12	0.45		4			136.56	**12200**		
12	26	11.5	45.0	48	93	12	0.45		4					156.11	**12400**
14	18	13.5	30.0	30	75	14	0.50		4	155.52	**14100**				
14	26	13.5	35.0	38	83	14	0.50		4			184.14	**14200**		
14	26	13.5	50.0	54	99	14	0.50		4					210.58	**14400**
16	22	15.5	34.0	34	82	16	0.60		4	210.18	**16100**				
16	32	15.5	40.0	44	92	16	0.60		4			248.88	**16200**		
16	32	15.5	55.0	60	108	16	0.60		4					284.59	**16400**
20	26	19.5	42.0	42	92	20	0.60		4	303.44	**20100**				
20	38	19.5	50.0	54	104	20	0.60		4			359.40	**20200**		
20	38	19.5	70.0	76	126	20	0.60		4					410.88	**20400**

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

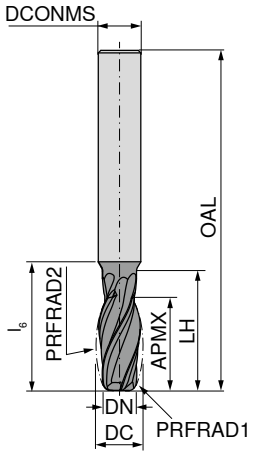
→ v_c/f_z Page 410–413

3D Finish – Barrel shape

▲ Geometrical tolerance ± 0.01 mm

N | λ_s=30° | ZEFP





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DIN 6527

HA

52 739 ...

DC mm	DCONMS $_{h6}$ mm	DN mm	PRFRAD1 mm	PRFRAD2 mm	LH mm	APMX mm	l_6 mm	OAL mm	ZEFP	£ V1	
10	10	8	2	50	28	21	30	80	4	187.91	**100**

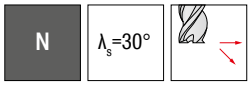
P	●
M	●
K	●
N	●
S	●
H	○
O	●

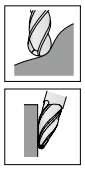
→ v_c/f_z Page 416

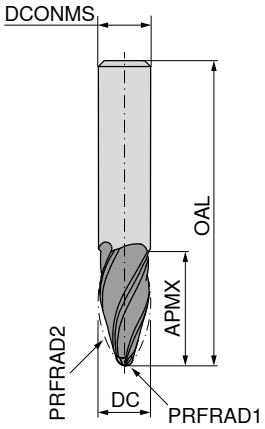
14

3D Finish – Oval shape

▲ Geometrical tolerance ± 0.01 mm







NEW

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DIN 6527

HA

52 745 ...

DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	APMX mm	OAL mm	ZEFP	£ V1	
6	6	1	95	22	62	3	126.14	**060**
8	8	1	90	25	68	3	166.45	**080**
10	10	2	85	26	72	4	187.91	**100**
12	12	2	80	28	83	4	281.91	**120**
16	16	3	75	31	92	4	340.95	**160**

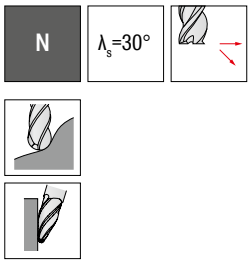
P	●
M	●
K	●
N	●
S	●
H	○
O	●

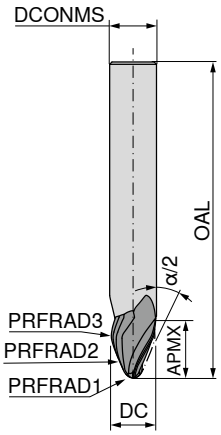
→ v_c/f_z Page 417

3D Finish – Taper shape

▲ Geometrical tolerance ± 0.01 mm

N | λ_s=30°





NEW

APB72S





DIN 6527

HA

52 753 ...

DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	PRFRAD3 mm	α°/2	APMX mm	OAL mm	ZEFP	£ V1	
6	6	1.0	250	3	17,5	9.5	62	3	128.87	**060**
8	8	1.5	250	4	20	10.5	68	3	179.96	**080**
10	10	2.0	250	5	20	12.5	80	3	209.48	**100**
12	12	1.0	200	1	42,5	8.0	93	3	268.52	**120**
12	12	3.0	250	6	20	13.5	93	3	268.52	**121**
16	16	2.0	1000	5	12,5	31.0	108	3	348.89	**160**
16	16	4.0	500	8	20	18.5	108	3	348.89	**161**
16	16	4.0	1000	5	12,5	24.0	108	3	348.89	**162**
16	16	4.0	1500	8	20	18.5	108	3	348.89	**163**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

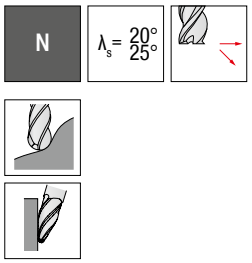
→ v_c/f_z Page 418

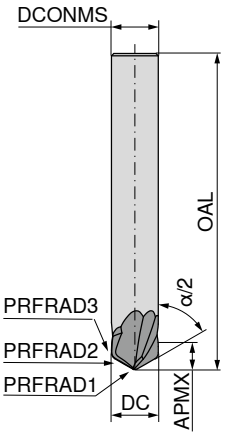
3D Finish – Taper shape

▲ Geometrical tolerance ± 0.01 mm

N

λ_s = 20° 25°





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DIN 6527

HA

52 755 ...

DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	PRFRAD3 mm	α°/2	APMX mm	OAL mm	ZEFP	£ V1	
10	10	1	200	1.5	60	6	80	2	174.50	**100**
10	10	1	200	2.0	70	6	80	2	174.50	**101**

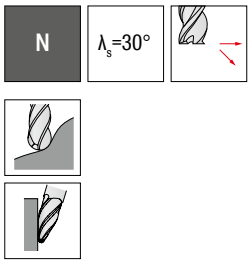
P	●
M	●
K	●
N	●
S	●
H	○
O	●

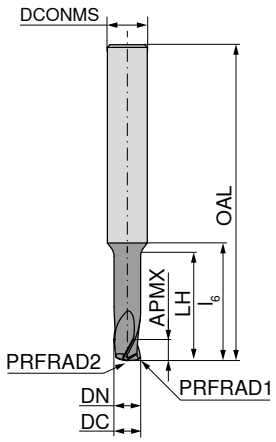
→ v_c/f_z Page 418

3D Finish – Lens shape

▲ Geometrical tolerance ± 0.01 mm

N | λ_s=30°





NEW

APB72S





DIN 6527

HA

52 756 ...

DC mm	DCONMS $_{h6}$ mm	DN mm	PRFRAD1 mm	PRFRAD2 mm	LH mm	APMX mm	l_6 mm	OAL mm	ZEFP	£ V1	
4	6	4	0.25	6	18	4	20	62	3	134.20	**040**
6	6		0.50	10		6		62	3	131.60	**060**
8	8		0.75	15		8		68	3	147.60	**080**
10	10		1.00	20		10		80	3	174.50	**100**
12	12		1.25	25		12		93	3	201.30	**120**

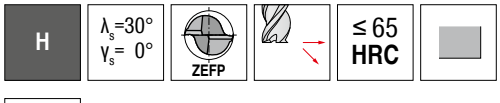
P	●
M	●
K	●
N	●
S	●
H	
O	

→ v_c/f_z Page 419

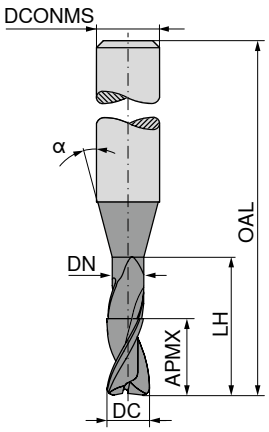
14

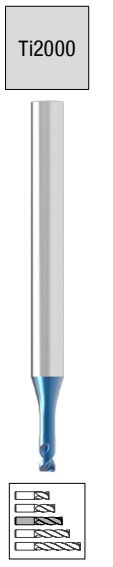
BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth













Factory standard

HA

Factory standard

HA

Factory standard

HA

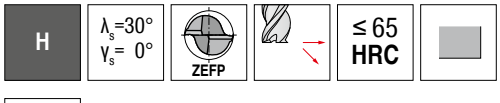
DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 345 ... £ V1		52 346 ... £ V1		52 347 ... £ V1	
0.2	0.3	0.18	0.5	45	16	4	2,5 x DC	2	74.97	**302**				
0.2	0.3	0.18	1.0	45	16	4	5 x DC	2	74.97	**402**				
0.2	0.3	0.18	1.5	45	16	4	7,5 x DC	2	74.97	**502**				
0.3	0.4	0.28	1.0	45	16	4	3,3 x DC	2	71.87	**303**				
0.3	0.4	0.28	2.0	45	16	4	6,6 x DC	2	71.87	**403**				
0.3	0.4	0.28	3.0	45	16	4	10 x DC	2			71.87	**303**		
0.3	0.4	0.28	6.0	45	16	4	20 x DC	2			71.87	**403**		
0.3	0.4	0.28	9.0	45	16	4	30 x DC	2					71.87	**303**
0.4	0.6	0.38	2.0	45	16	4	5 x DC	2	70.83	**304**				
0.4	0.6	0.38	3.0	45	16	4	7,5 x DC	2	70.83	**404**				
0.4	0.6	0.38	4.0	45	16	4	10 x DC	2			70.83	**304**		
0.4	0.6	0.38	5.0	45	16	4	12,5 x DC	2			70.83	**404**		
0.4	0.6	0.38	8.0	45	16	4	20 x DC	2					70.83	**304**
0.4	0.6	0.38	12.0	45	16	4	30 x DC	2					73.04	**404**
0.5	0.7	0.48	2.0	45	16	4	4 x DC	2	57.65	**305**				
0.5	0.7	0.48	4.0	45	16	4	8 x DC	2	57.65	**405**				
0.5	0.7	0.48	6.0	45	16	4	12 x DC	2			57.65	**305**		
0.5	0.7	0.48	8.0	45	16	4	16 x DC	2			59.34	**405**		
0.5	0.7	0.48	10.0	50	16	4	20 x DC	2					60.63	**305**
0.5	0.7	0.48	15.0	50	16	4	30 x DC	2					63.59	**405**
0.6	0.9	0.58	2.0	45	16	4	3,3 x DC	2	57.65	**306**				
0.6	0.9	0.58	4.0	45	16	4	6,6 x DC	2	57.65	**406**				
0.6	0.9	0.58	6.0	45	16	4	10 x DC	2			57.65	**306**		
0.6	0.9	0.58	8.0	45	16	4	13,3 x DC	2			59.34	**406**		
0.6	0.9	0.58	10.0	45	16	4	16,6 x DC	2			59.34	**506**		
0.6	0.9	0.58	12.0	50	16	4	20 x DC	2					59.72	**306**
0.6	0.9	0.58	18.0	50	16	4	30 x DC	2					63.99	**406**
0.7	1.0	0.68	2.0	45	16	4	2,8 x DC	2	60.75	**307**				
0.7	1.0	0.68	4.0	45	16	4	5,7 x DC	2	60.75	**407**				
0.7	1.0	0.68	6.0	45	16	4	8,5 x DC	2	60.75	**507**				
0.7	1.0	0.68	8.0	45	16	4	11,4 x DC	2			62.43	**307**		
0.7	1.0	0.68	10.0	50	16	4	14,2 x DC	2			62.43	**407**		
0.8	1.2	0.78	4.0	45	16	4	5 x DC	2	66.18	**308**				
0.8	1.2	0.78	6.0	45	16	4	7,5 x DC	2	66.18	**408**				
0.8	1.2	0.78	8.0	45	16	4	10 x DC	2			66.18	**308**		
0.8	1.2	0.78	10.0	50	16	4	12,5 x DC	2			69.42	**408**		
0.8	1.2	0.78	12.0	50	16	4	15 x DC	2			69.42	**508**		
0.8	1.2	0.78	16.0	50	16	4	20 x DC	2					72.90	**308**
0.8	1.2	0.78	24.0	60	16	4	30 x DC	2					76.00	**408**
0.9	1.3	0.88	4.0	45	16	4	4,4 x DC	2	55.19	**309**				
0.9	1.3	0.88	6.0	45	16	4	6,6 x DC	2	55.19	**409**				
0.9	1.3	0.88	8.0	45	16	4	8,8 x DC	2	56.74	**509**				
0.9	1.3	0.88	10.0	45	16	4	11 x DC	2			56.74	**309**		
0.9	1.3	0.88	15.0	50	16	4	16,6 x DC	2			63.08	**409**		
1.0	1.5	0.95	4.0	45	16	4	4 x DC	2	56.74	**310**				
1.0	1.5	0.95	6.0	45	16	4	6 x DC	2	56.74	**410**				
P										●		●		●
M														
K														
N														
S														
H										●		●		●
O														

→ v_c/f_z Page 396+397

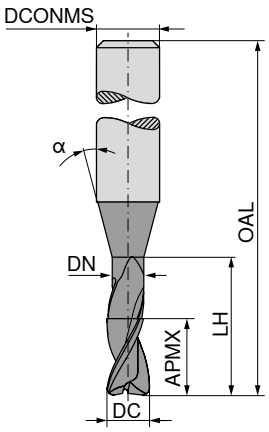
Continued on next page

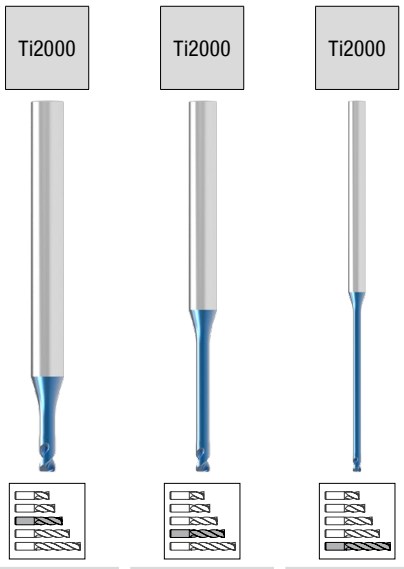
BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

HA | HA | HA

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 345 ... £ V1		52 346 ... £ V1		52 347 ... £ V1	
1.0	1.5	0.95	8.0	45	16	4	8 x DC	2	56.74	**510**				
1.0	1.5	0.95	10.0	45	16	4	10 x DC	2			56.74	**310**		
1.0	1.5	0.95	12.0	45	16	4	12 x DC	2			57.91	**410**		
1.0	1.5	0.95	14.0	45	16	4	14 x DC	2			57.91	**510**		
1.0	1.5	0.95	16.0	50	16	4	16 x DC	2			60.63	**610**		
1.0	1.5	0.95	20.0	54	16	4	20 x DC	2					67.22	**310**
1.0	1.5	0.95	25.0	70	16	4	25 x DC	2					72.90	**410**
1.0	1.5	0.95	30.0	70	16	4	30 x DC	2					73.93	**510**
1.2	1.8	1.14	6.0	45	16	4	5 x DC	2	61.39	**312**				
1.2	1.8	1.14	8.0	45	16	4	6,6 x DC	2	61.39	**412**				
1.2	1.8	1.14	10.0	45	16	4	8,3 x DC	2	63.08	**512**				
1.2	1.8	1.14	12.0	45	16	4	10 x DC	2			63.08	**312**		
1.2	1.8	1.14	16.0	50	16	4	13,3 x DC	2			69.42	**412**		
1.2	1.8	1.14	20.0	60	16	4	16,6 x DC	2			71.36	**512**		
1.4	2.1	1.34	6.0	45	16	4	4,2 x DC	2	61.39	**314**				
1.4	2.1	1.34	8.0	45	16	4	5,7 x DC	2	61.39	**414**				
1.4	2.1	1.34	10.0	45	16	4	7,1 x DC	2	63.08	**514**				
1.4	2.1	1.34	12.0	45	16	4	8,5 x DC	2	63.08	**614**				
1.4	2.1	1.34	14.0	45	16	4	10 x DC	2			63.08	**314**		
1.4	2.1	1.34	16.0	50	16	4	11,4 x DC	2			69.42	**414**		
1.4	2.1	1.34	22.0	54	16	4	15,7 x DC	2			71.36	**514**		
1.5	2.3	1.44	6.0	45	16	4	4 x DC	2	59.19	**315**				
1.5	2.3	1.44	8.0	45	16	4	5,3 x DC	2	59.19	**415**				
1.5	2.3	1.44	10.0	45	16	4	6,6 x DC	2	59.98	**515**				
1.5	2.3	1.44	12.0	45	16	4	8 x DC	2	59.98	**615**				
1.5	2.3	1.44	14.0	50	16	4	9,3 x DC	2	67.08	**715**				
1.5	2.3	1.44	16.0	50	16	4	10,6 x DC	2			67.08	**315**		
1.5	2.3	1.44	18.0	54	16	4	12 x DC	2			67.08	**415**		
1.5	2.3	1.44	20.0	54	16	4	13,3 x DC	2			67.08	**515**		
1.5	2.3	1.44	25.0	70	16	4	16,6 x DC	2			73.80	**615**		
1.5	2.3	1.44	30.0	70	16	4	20 x DC	2			73.80	**715**		
1.5	2.3	1.44	35.0	70	16	4	23,3 x DC	2					74.72	**315**
1.5	2.3	1.44	40.0	80	16	4	26,6 x DC	2					78.20	**415**
1.5	2.3	1.44	45.0	80	16	4	30 x DC	2					79.88	**515**
1.6	2.4	1.51	6.0	45	16	4	3,7 x DC	2	59.19	**316**				
1.6	2.4	1.51	8.0	45	16	4	5 x DC	2	59.19	**416**				
1.6	2.4	1.51	10.0	45	16	4	6,2 x DC	2	59.98	**516**				
1.6	2.4	1.51	12.0	45	16	4	7,5 x DC	2	59.98	**616**				
1.6	2.4	1.51	14.0	50	16	4	8,75 x DC	2	63.34	**716**				
1.6	2.4	1.51	16.0	50	16	4	10 x DC	2			63.34	**316**		
1.6	2.4	1.51	18.0	54	16	4	11,25 x DC	2			63.34	**416**		
1.6	2.4	1.51	20.0	54	16	4	12,5 x DC	2			63.34	**516**		
1.6	2.4	1.51	26.0	60	16	4	16,2 x DC	2			73.80	**616**		
1.8	2.7	1.71	6.0	45	16	4	3,3 x DC	2	59.19	**318**				
1.8	2.7	1.71	8.0	45	16	4	4,4 x DC	2	59.19	**418**				
1.8	2.7	1.71	10.0	45	16	4	5,5 x DC	2	59.72	**518**				

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

→ v_c/f_z Page 396+397

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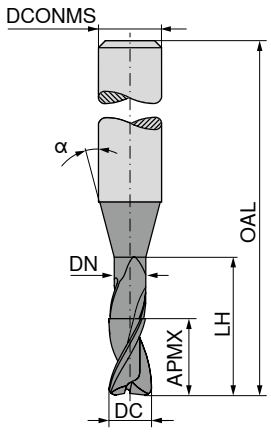
Continued on next page

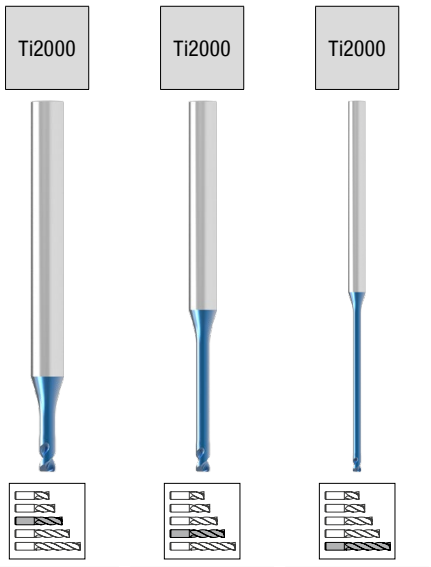
BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC







Factory standard | Factory standard | Factory standard

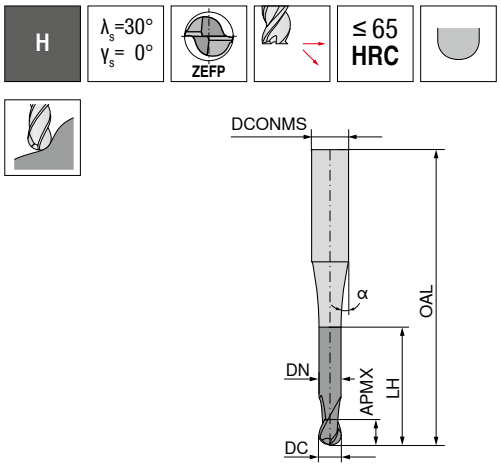
HA | HA | HA

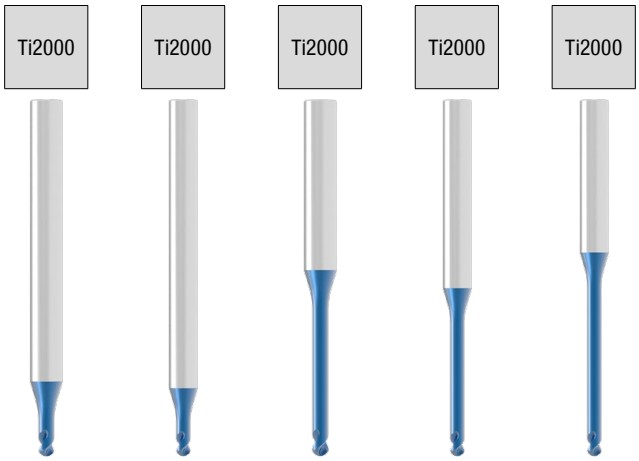
DC $_{-0,01}$ mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	T_x	ZEFP	52 345 ... £ V1		52 346 ... £ V1		52 347 ... £ V1	
1.8	2.7	1.71	12.0	45	16	4	6,6 x DC	2	59.98	**618**				
1.8	2.7	1.71	14.0	50	16	4	7,7 x DC	2	63.34	**718**				
1.8	2.7	1.71	16.0	50	16	4	8,8 x DC	2	63.34	**818**				
1.8	2.7	1.71	18.0	54	16	4	10 x DC	2			67.08	**318**		
1.8	2.7	1.71	20.0	54	16	4	11 x DC	2			67.08	**418**		
1.8	2.7	1.71	25.0	60	16	4	13,8 x DC	2			73.80	**518**		
2.0	3.0	1.91	6.0	45	16	4	3 x DC	2	59.19	**320**				
2.0	3.0	1.91	8.0	45	16	4	4 x DC	2	59.19	**420**				
2.0	3.0	1.91	10.0	45	16	4	5 x DC	2	59.98	**520**				
2.0	3.0	1.91	12.0	45	16	4	6 x DC	2	59.98	**620**				
2.0	3.0	1.91	14.0	50	16	4	7 x DC	2	63.34	**720**				
2.0	3.0	1.91	16.0	50	16	4	8 x DC	2	63.34	**820**				
2.0	3.0	1.91	18.0	54	16	4	9 x DC	2	63.34	**920**				
2.0	3.0	1.91	20.0	54	16	4	10 x DC	2			67.08	**320**		
2.0	3.0	1.91	25.0	60	16	4	12,5 x DC	2			73.80	**420**		
2.0	3.0	1.91	30.0	70	16	4	15 x DC	2			76.14	**520**		
2.0	3.0	1.91	35.0	80	16	4	17,5 x DC	2			78.72	**620**		
2.0	3.0	1.91	40.0	90	16	4	20 x DC	2					84.92	**320**
2.0	3.0	1.91	50.0	100	16	4	25 x DC	2					90.99	**420**
2.0	3.0	1.91	60.0	110	16	4	30 x DC	2					103.40	**520**
2.5	3.7	2.41	8.0	45	16	4	3,2 x DC	2	59.19	**325**				
2.5	3.7	2.41	10.0	45	16	4	4 x DC	2	59.98	**425**				
2.5	3.7	2.41	12.0	45	16	4	4,8 x DC	2	59.98	**525**				
2.5	3.7	2.41	14.0	50	16	4	5,6 x DC	2	63.34	**625**				
2.5	3.7	2.41	16.0	50	16	4	6,4 x DC	2	63.34	**725**				
2.5	3.7	2.41	18.0	54	16	4	7,2 x DC	2	67.08	**825**				
2.5	3.7	2.41	20.0	54	16	4	8 x DC	2	67.08	**925**				
2.5	3.7	2.41	25.0	60	16	4	10 x DC	2			73.29	**325**		
2.5	3.7	2.41	30.0	70	16	4	12 x DC	2			80.00	**425**		
2.5	3.7	2.41	40.0	90	16	4	16 x DC	2			103.67	**525**		
2.5	3.7	2.41	50.0	100	16	4	20 x DC	2					115.82	**325**
3.0	4.5	2.92	8.0	45	16	4	2,6 x DC	2	59.98	**330**				
3.0	4.5	2.92	12.0	45	16	4	4 x DC	2	59.98	**430**				
3.0	4.5	2.92	16.0	50	16	4	5,3 x DC	2	63.34	**530**				
3.0	4.5	2.92	20.0	54	16	4	6,6 x DC	2	67.08	**630**				
P										●		●		●
M														
K														
N														
S														
H										●		●		●
O														

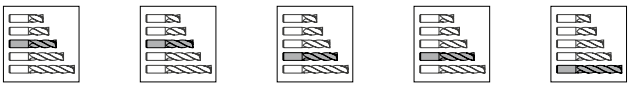
→ v_c/f_z Page 396+397

BlueLine – Micro-ball nosed cutter

▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA | HA

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 356 ... £ V1		52 358 ... £ V1		52 357 ... £ V1		52 359 ... £ V1		52 360 ... £ V1	
0.2	0.16	0.17	0.30	45	16	4	1,5 x DC	2	78.46	**302**								
0.2	0.16	0.17	0.50	45	16	4	2,5 x DC	2	78.46	**402**								
0.2	0.16	0.17	0.75	45	16	4	3,75 x DC	2	78.46	**502**								
0.2	0.16	0.17	1.00	45	16	4	5 x DC	2	78.46	**602**								
0.2	0.16	0.17	1.25	45	16	4	6,2 x DC	2	78.46	**702**								
0.2	0.16	0.17	1.50	45	16	4	7,5 x DC	2	78.46	**802**								
0.2	0.16	0.17	1.75	45	16	4	8,7 x DC	2	78.46	**902**								
0.2	0.16	0.17	2.00	45	16	4	10 x DC	2					78.46	**302**				
0.2	0.16	0.17	2.50	45	16	4	12,5 x DC	2					78.46	**402**				
0.2	0.16	0.17	3.00	45	16	4	15 x DC	2					78.46	**502**				
0.3	0.24	0.27	0.50	45	16	4	1,6 x DC	2	76.14	**303**								
0.3	0.24	0.27	0.75	45	16	4	2,5 x DC	2	76.14	**403**								
0.3	0.24	0.27	1.00	45	16	4	3,3 x DC	2	76.14	**503**								
0.3	0.24	0.27	1.25	45	16	4	4,1 x DC	2	76.14	**603**								
0.3	0.24	0.27	1.50	45	16	4	5 x DC	2	76.14	**703**								
0.3	0.24	0.27	1.75	50	16	4	5,8 x DC	2			76.14	**303**						
0.3	0.24	0.27	2.00	50	16	4	6,6 x DC	2			76.14	**403**						
0.3	0.24	0.27	2.25	50	16	4	7,5 x DC	2			76.14	**503**						
0.3	0.24	0.27	2.50	50	16	4	8,3 x DC	2			76.14	**603**						
0.3	0.24	0.27	2.75	50	16	4	9,1 x DC	2			76.14	**703**						
0.3	0.24	0.27	3.00	50	16	4	10 x DC	2							76.14	**303**		
0.3	0.24	0.27	3.50	50	16	4	11,6 x DC	2							76.14	**403**		
0.3	0.24	0.27	4.00	50	16	4	13,3 x DC	2							76.14	**503**		
0.3	0.24	0.27	4.50	50	16	4	15 x DC	2							76.14	**603**		
0.4	0.32	0.34	0.50	45	16	4	1,2 x DC	2	75.10	**304**								
0.4	0.32	0.34	1.00	45	16	4	2,5 x DC	2	75.10	**404**								
0.4	0.32	0.34	1.50	45	16	4	3,75 x DC	2	75.10	**504**								
0.4	0.32	0.34	2.00	45	16	4	5 x DC	2	75.10	**604**								
0.4	0.32	0.34	2.50	45	16	4	6,2 x DC	2	75.10	**704**								
0.4	0.32	0.34	3.00	45	16	4	7,5 x DC	2	75.10	**804**								
0.4	0.32	0.34	3.50	45	16	4	8,7 x DC	2	74.58	**904**								
0.4	0.32	0.34	4.00	45	16	4	10 x DC	2					74.58	**304**				
0.4	0.32	0.34	4.50	45	16	4	11,2 x DC	2					74.58	**404**				
0.4	0.32	0.34	5.00	45	16	4	12,5 x DC	2					74.58	**504**				
0.4	0.32	0.34	5.50	45	16	4	13,7 x DC	2					74.58	**604**				
0.4	0.32	0.34	6.00	45	16	4	15 x DC	2					74.58	**704**				
0.5	0.40	0.47	1.50	45	16	4	3 x DC	2	61.02	**305**								
0.5	0.40	0.47	2.00	45	16	4	4 x DC	2	61.02	**405**								
0.5	0.40	0.47	2.50	45	16	4	5 x DC	2	61.02	**505**								
0.5	0.40	0.47	3.00	45	16	4	6 x DC	2	61.02	**605**								
0.5	0.40	0.47	3.50	45	16	4	7 x DC	2	61.02	**705**								
0.5	0.40	0.47	4.00	45	16	4	8 x DC	2	61.02	**805**								

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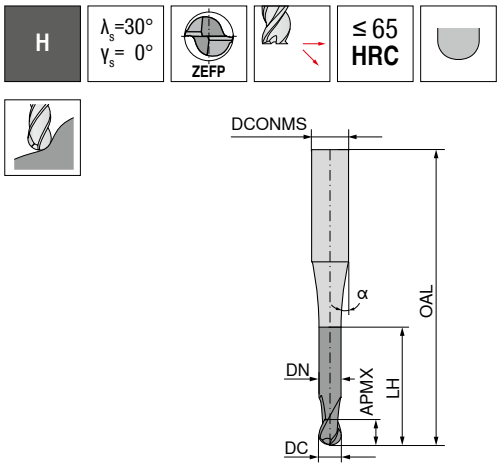
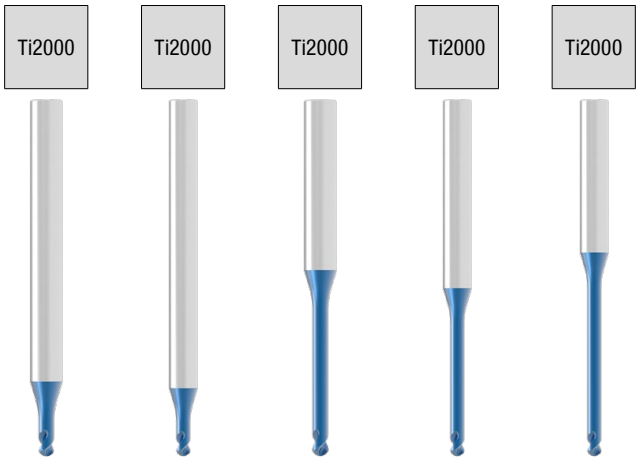
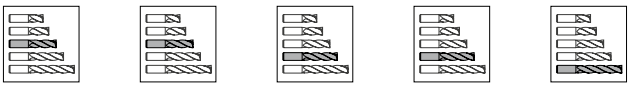
BlueLine – Micro-ball nosed cutter

▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA | HA

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 356 ... £ V1		52 358 ... £ V1		52 357 ... £ V1		52 359 ... £ V1		52 360 ... £ V1	
0.5	0.40	0.47	4.50	45	16	4	9 x DC	2	61.02	**905**								
0.5	0.40	0.47	5.00	45	16	4	10 x DC	2					61.02	**305**				
0.5	0.40	0.47	5.50	45	16	4	11 x DC	2					61.02	**405**				
0.5	0.40	0.47	6.00	45	16	4	12 x DC	2					61.02	**505**				
0.5	0.40	0.47	7.00	45	16	4	14 x DC	2					61.02	**605**				
0.5	0.40	0.47	8.00	45	16	4	16 x DC	2					61.78	**705**				
0.5	0.40	0.47	9.00	45	16	4	18 x DC	2					61.78	**805**				
0.5	0.40	0.47	10.00	50	16	4	20 x DC	2									61.78	**305**
0.6	0.40	0.57	12.00	50	16	4	20 x DC	2									64.88	**306**
0.6	0.48	0.57	1.00	45	16	4	1,6 x DC	2	61.02	**306**								
0.6	0.48	0.57	2.00	45	16	4	3,3 x DC	2	61.02	**406**								
0.6	0.48	0.57	3.00	45	16	4	5 x DC	2	61.02	**506**								
0.6	0.48	0.57	4.00	45	16	4	6,6 x DC	2	61.02	**606**								
0.6	0.48	0.57	5.00	45	16	4	8,3 x DC	2	61.02	**706**								
0.6	0.48	0.57	6.00	45	16	4	10 x DC	2					61.02	**306**				
0.6	0.48	0.57	8.00	45	16	4	13,3 x DC	2					61.02	**406**				
0.6	0.48	0.57	10.00	50	16	4	16,6 x DC	2							63.47	**306**		
0.8	0.64	0.77	2.00	45	16	4	2,5 x DC	2	68.78	**308**								
0.8	0.64	0.77	3.00	45	16	4	3,75 x DC	2	68.78	**408**								
0.8	0.64	0.77	4.00	45	16	4	5 x DC	2	68.78	**508**								
0.8	0.64	0.77	5.00	45	16	4	6,2 x DC	2	68.78	**608**								
0.8	0.64	0.77	6.00	45	16	4	7,5 x DC	2	68.78	**708**								
0.8	0.64	0.77	7.00	45	16	4	8,7 x DC	2	68.78	**808**								
0.8	0.64	0.77	8.00	45	16	4	10 x DC	2					69.42	**308**				
0.8	0.64	0.77	9.00	45	16	4	11,2 x DC	2					69.42	**408**				
0.8	0.64	0.77	10.00	50	16	4	12,5 x DC	2							69.42	**308**		
1.0	0.80	0.96	3.00	45	16	4	3 x DC	2	58.42	**310**								
1.0	0.80	0.96	4.00	45	16	4	4 x DC	2	58.42	**410**								
1.0	0.80	0.96	5.00	45	16	4	5 x DC	2	58.42	**510**								
1.0	0.80	0.96	6.00	45	16	4	6 x DC	2	58.42	**610**								
1.0	0.80	0.96	7.00	45	16	4	7 x DC	2	63.08	**710**								
1.0	0.80	0.96	8.00	45	16	4	8 x DC	2	63.08	**810**								
1.0	0.80	0.96	9.00	45	16	4	9 x DC	2	63.08	**910**								
1.0	0.80	0.96	10.00	45	16	4	10 x DC	2					63.08	**310**				
1.0	0.80	0.96	12.00	45	16	4	12 x DC	2					63.08	**410**				
1.0	0.80	0.96	14.00	50	16	4	14 x DC	2							64.88	**310**		
1.0	0.80	0.96	16.00	50	16	4	16 x DC	2							67.47	**410**		
1.2	0.96	1.16	6.00	45	16	4	5 x DC	2	65.14	**312**								
1.2	0.96	1.16	8.00	45	16	4	6,6 x DC	2	65.14	**412**								
1.2	0.96	1.16	10.00	45	16	4	8,3 x DC	2	67.35	**512**								
1.2	0.96	1.16	12.00	45	16	4	10 x DC	2					67.35	**312**				
1.2	0.96	1.16	14.00	50	16	4	11,6 x DC	2							68.12	**312**		

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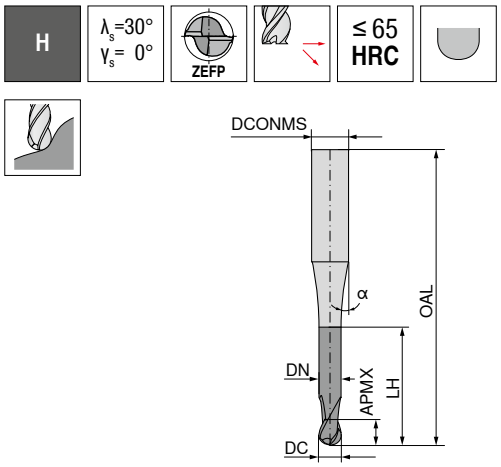
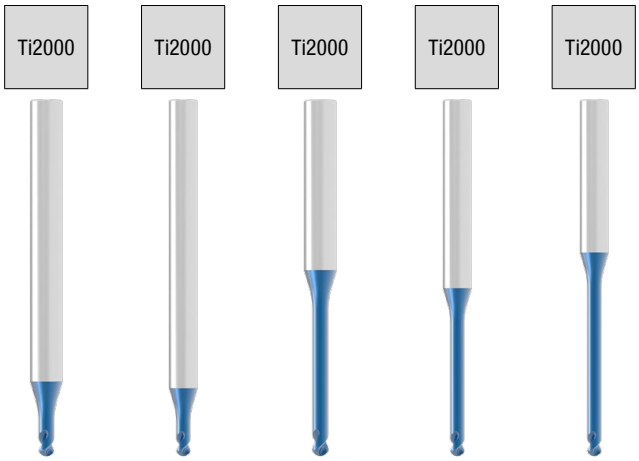
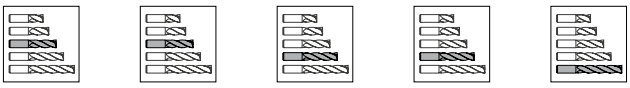
BlueLine – Micro-ball nosed cutter

▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA | HA

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 356 ... £ V1		52 358 ... £ V1		52 357 ... £ V1		52 359 ... £ V1		52 360 ... £ V1	
1.2	0.96	1.16	16.00	50	16	4	13,3 x DC	2							68.12	**412**		
1.4	1.12	1.34	8.00	45	16	4	5,7 x DC	2	62.70	**314**								
1.4	1.12	1.34	12.00	45	16	4	8,5 x DC	2	65.14	**414**								
1.4	1.12	1.34	16.00	50	16	4	11,4 x DC	2							67.60	**314**		
1.5	1.20	1.44	3.00	45	16	4	2 x DC	2	61.27	**315**								
1.5	1.20	1.44	4.00	45	16	4	2,6 x DC	2	61.27	**415**								
1.5	1.20	1.44	6.00	45	16	4	4 x DC	2	61.27	**515**								
1.5	1.20	1.44	8.00	45	16	4	5,3 x DC	2	61.27	**615**								
1.5	1.20	1.44	10.00	45	16	4	6,6 x DC	2	61.27	**715**								
1.5	1.20	1.44	12.00	45	16	4	8 x DC	2	64.88	**815**								
1.5	1.20	1.44	14.00	50	16	4	9,3 x DC	2			64.88	**315**						
1.5	1.20	1.44	16.00	50	16	4	10,6 x DC	2							64.88	**315**		
1.6	1.28	1.54	8.00	45	16	4	5 x DC	2	64.88	**316**								
1.6	1.28	1.54	12.00	45	16	4	7,5 x DC	2	64.88	**416**								
1.6	1.28	1.54	16.00	50	16	4	10 x DC	2							67.35	**316**		
1.8	1.44	1.74	8.00	45	16	4	4,4 x DC	2	64.88	**318**								
1.8	1.44	1.74	12.00	45	16	4	6,6 x DC	2	64.88	**418**								
1.8	1.44	1.74	16.00	50	16	4	8,8 x DC	2			67.35	**318**						
2.0	1.60	1.94	3.00	45	16	4	1,5 x DC	2	60.88	**320**								
2.0	1.60	1.94	4.00	45	16	4	2 x DC	2	60.88	**420**								
2.0	1.60	1.94	6.00	45	16	4	3 x DC	2	60.88	**520**								
2.0	1.60	1.94	8.00	45	16	4	4 x DC	2	64.88	**620**								
2.0	1.60	1.94	10.00	45	16	4	5 x DC	2	64.88	**720**								
2.0	1.60	1.94	12.00	45	16	4	6 x DC	2	64.88	**820**								
2.0	1.60	1.94	14.00	50	16	4	7 x DC	2			64.88	**320**						
2.0	1.60	1.94	16.00	50	16	4	8 x DC	2			64.88	**420**						
2.5	2.00	2.41	10.00	45	16	4	4 x DC	2	67.60	**325**								
2.5	2.00	2.41	15.00	50	16	4	6 x DC	2			69.54	**325**						
3.0	3.50	2.92	8.00	45	16	4	2,6 x DC	2	65.14	**330**								
3.0	3.50	2.92	10.00	45	16	4	3,3 x DC	2	65.14	**430**								
3.0	3.50	2.92	12.00	45	16	4	4 x DC	2	65.14	**530**								
3.0	3.50	2.92	16.00	45	16	4	5,3 x DC	2	68.39	**630**								
3.0	3.50	2.92	16.00	50	16	4	5,3 x DC	2			68.78	**330**						

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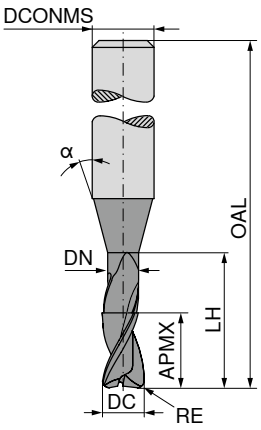
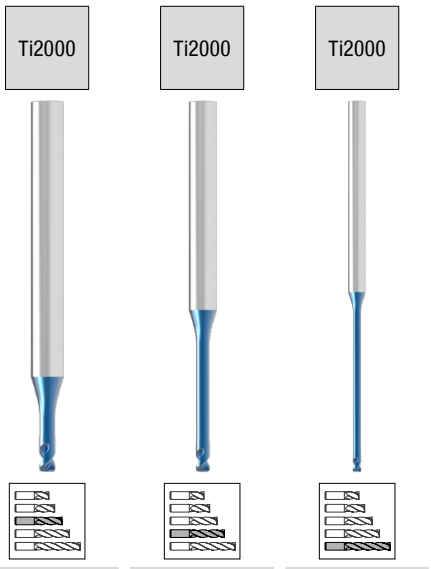
BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC







Factory standard | Factory standard | Factory standard

HA | HA | HA

DC -0,012 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 349 ... £ V1		52 350 ... £ V1		52 351 ... £ V1	
0.4	0.1	0.4	0.38	1.0	50	16	4	2,5 x DC	2	75.10	**30401**				
0.4	0.1	0.4	0.38	1.5	50	16	4	3,75 x DC	2	75.10	**40401**				
0.4	0.1	0.4	0.38	2.0	50	16	4	5 x DC	2	75.10	**50401**				
0.4	0.1	0.4	0.38	3.0	50	16	4	7,5 x DC	2	75.10	**60401**				
0.4	0.1	0.4	0.38	4.0	50	16	4	10 x DC	2			75.10	**30401**		
0.5	0.1	0.5	0.48	1.0	50	16	4	2 x DC	2	61.02	**30501**				
0.5	0.1	0.5	0.48	2.0	50	16	4	4 x DC	2	61.02	**40501**				
0.5	0.1	0.5	0.48	3.0	50	16	4	6 x DC	2	61.02	**50501**				
0.5	0.1	0.5	0.48	4.0	50	16	4	8 x DC	2	61.02	**60501**				
0.5	0.1	0.5	0.48	5.0	50	16	4	10 x DC	2			61.02	**30501**		
0.5	0.1	0.5	0.48	6.0	50	16	4	12 x DC	2			61.02	**40501**		
0.6	0.1	0.6	0.58	2.0	50	16	4	3,3 x DC	2	61.02	**30601**				
0.6	0.1	0.6	0.58	3.0	50	16	4	5 x DC	2	61.02	**40601**				
0.6	0.1	0.6	0.58	4.0	50	16	4	6,6 x DC	2	61.02	**50601**				
0.6	0.1	0.6	0.58	6.0	50	16	4	10 x DC	2			61.02	**30601**		
0.6	0.1	0.6	0.58	8.0	50	16	4	13,3 x DC	2			61.02	**40601**		
0.7	0.1	0.7	0.68	4.0	50	16	4	5,7 x DC	2	64.38	**30701**				
0.7	0.1	0.7	0.68	6.0	50	16	4	8,5 x DC	2	64.38	**40701**				
0.8	0.1	0.8	0.78	4.0	50	16	4	5 x DC	2	68.63	**30801**				
0.8	0.1	0.8	0.78	6.0	50	16	4	7,5 x DC	2	68.63	**40801**				
0.8	0.2	0.8	0.78	4.0	50	16	4	5 x DC	2	68.78	**30802**				
0.8	0.2	0.8	0.78	6.0	50	16	4	7,5 x DC	2	68.78	**40802**				
1.0	0.1	1.0	0.95	2.0	50	16	4	2 x DC	2	57.91	**31001**				
1.0	0.1	1.0	0.95	4.0	50	16	4	4 x DC	2	57.91	**41001**				
1.0	0.1	1.0	0.95	6.0	50	16	4	6 x DC	2	63.08	**51001**				
1.0	0.1	1.0	0.95	8.0	50	16	4	8 x DC	2	63.08	**61001**				
1.0	0.1	1.0	0.95	10.0	50	16	4	10 x DC	2			63.08	**31001**		
1.0	0.1	1.0	0.95	12.0	54	16	4	12 x DC	2			63.08	**41001**		
1.0	0.1	1.0	0.95	16.0	60	16	4	16 x DC	2			82.86	**51001**		
1.0	0.1	1.0	0.95	20.0	60	16	4	20 x DC	2					92.68	**31001**
1.0	0.2	1.0	0.95	2.0	50	16	4	2 x DC	2	58.42	**31002**				
1.0	0.2	1.0	0.95	4.0	50	16	4	4 x DC	2	58.42	**41002**				
1.0	0.2	1.0	0.95	6.0	50	16	4	6 x DC	2	63.08	**51002**				
1.0	0.2	1.0	0.95	8.0	50	16	4	8 x DC	2	63.08	**61002**				
1.0	0.2	1.0	0.95	10.0	50	16	4	10 x DC	2			63.08	**31002**		
1.0	0.2	1.0	0.95	12.0	54	16	4	12 x DC	2			63.08	**41002**		
1.0	0.2	1.0	0.95	16.0	60	16	4	16 x DC	2			82.86	**51002**		
1.0	0.2	1.0	0.95	20.0	60	16	4	20 x DC	2					92.68	**31002**
1.0	0.3	1.0	0.95	2.0	50	16	4	2 x DC	2	58.42	**31003**				
1.0	0.3	1.0	0.95	4.0	50	16	4	4 x DC	2	58.42	**41003**				
1.0	0.3	1.0	0.95	6.0	50	16	4	6 x DC	2	62.94	**51003**				
1.0	0.3	1.0	0.95	8.0	50	16	4	8 x DC	2	62.94	**61003**				
1.0	0.3	1.0	0.95	10.0	50	16	4	10 x DC	2			62.94	**31003**		
1.0	0.3	1.0	0.95	12.0	54	16	4	12 x DC	2			62.94	**41003**		
1.0	0.3	1.0	0.95	16.0	60	16	4	16 x DC	2			82.86	**51003**		
1.0	0.3	1.0	0.95	20.0	60	16	4	20 x DC	2					92.68	**31003**

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→ v_c/f_z Page 396+397

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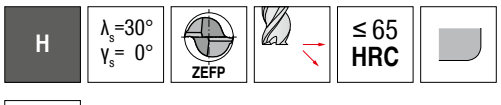
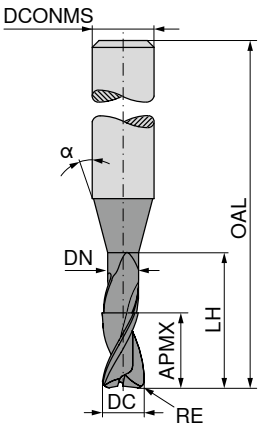
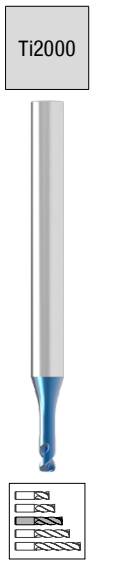
BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth













Factory standard | Factory standard | Factory standard

HA | HA | HA

DC -0,012 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 349 ... £ V1		52 350 ... £ V1		52 351 ... £ V1	
1.2	0.2	1.2	1.14	6.0	50	16	4	5 x DC	2	65.14	31202				
1.2	0.2	1.2	1.14	12.0	54	16	4	10 x DC	2			65.14	31202		
1.2	0.2	1.2	1.14	20.0	60	16	4	16,6 x DC	2			97.60	41202		
1.2	0.3	1.2	1.14	6.0	50	16	4	5 x DC	2	65.14	31203				
1.2	0.3	1.2	1.14	12.0	54	16	4	10 x DC	2			65.14	31203		
1.2	0.3	1.2	1.14	20.0	60	16	4	16,6 x DC	2			97.60	41203		
1.5	0.2	1.5	1.44	4.0	50	16	4	2,6 x DC	2	61.27	31502				
1.5	0.2	1.5	1.44	6.0	50	16	4	4 x DC	2	61.27	41502				
1.5	0.2	1.5	1.44	8.0	50	16	4	5,3 x DC	2	64.88	51502				
1.5	0.2	1.5	1.44	10.0	50	16	4	6,6 x DC	2	64.88	61502				
1.5	0.2	1.5	1.44	12.0	54	16	4	8 x DC	2	64.88	71502				
1.5	0.2	1.5	1.44	16.0	54	16	4	10,6 x DC	2			64.88	31502		
1.5	0.2	1.5	1.44	20.0	60	16	4	13,3 x DC	2			64.88	41502		
1.5	0.3	1.5	1.44	4.0	50	16	4	2,6 x DC	2	61.27	31503				
1.5	0.3	1.5	1.44	6.0	50	16	4	4 x DC	2	61.27	41503				
1.5	0.3	1.5	1.44	8.0	50	16	4	5,3 x DC	2	64.88	51503				
1.5	0.3	1.5	1.44	10.0	50	16	4	6,6 x DC	2	64.88	61503				
1.5	0.3	1.5	1.44	12.0	54	16	4	8 x DC	2	64.88	71503				
1.5	0.3	1.5	1.44	16.0	54	16	4	10,6 x DC	2			64.88	31503		
1.5	0.3	1.5	1.44	20.0	60	16	4	13,3 x DC	2			64.88	41503		
1.5	0.5	1.5	1.44	4.0	50	16	4	2,6 x DC	2	61.27	31505				
1.5	0.5	1.5	1.44	6.0	50	16	4	4 x DC	2	61.27	41505				
1.5	0.5	1.5	1.44	8.0	50	16	4	5,3 x DC	2	61.27	51505				
1.5	0.5	1.5	1.44	10.0	50	16	4	6,6 x DC	2	61.27	61505				
1.5	0.5	1.5	1.44	12.0	54	16	4	8 x DC	2	61.27	71505				
1.5	0.5	1.5	1.44	16.0	54	16	4	10,6 x DC	2			61.27	31505		
1.5	0.5	1.5	1.44	20.0	60	16	4	13,3 x DC	2			61.27	41505		
2.0	0.1	2.0	1.91	4.0	50	16	4	2 x DC	2	60.88	32001				
2.0	0.1	2.0	1.91	6.0	50	16	4	3 x DC	2	60.88	42001				
2.0	0.1	2.0	1.91	8.0	50	16	4	4 x DC	2	64.88	52001				
2.0	0.1	2.0	1.91	10.0	50	16	4	5 x DC	2	64.88	62001				
2.0	0.1	2.0	1.91	12.0	54	16	4	6 x DC	2	64.88	72001				
2.0	0.1	2.0	1.91	16.0	54	16	4	8 x DC	2	64.88	82001				
2.0	0.1	2.0	1.91	20.0	60	16	4	10 x DC	2			64.88	32001		
2.0	0.1	2.0	1.91	26.0	70	16	4	13 x DC	2			64.88	42001		
2.0	0.2	2.0	1.91	4.0	50	16	4	2 x DC	2	60.88	32002				
2.0	0.2	2.0	1.91	6.0	50	16	4	3 x DC	2	60.88	42002				
2.0	0.2	2.0	1.91	8.0	50	16	4	4 x DC	2	64.88	52002				
2.0	0.2	2.0	1.91	10.0	50	16	4	5 x DC	2	64.88	62002				
2.0	0.2	2.0	1.91	12.0	54	16	4	6 x DC	2	64.88	72002				
2.0	0.2	2.0	1.91	16.0	54	16	4	8 x DC	2	64.88	82002				
2.0	0.2	2.0	1.91	20.0	60	16	4	10 x DC	2			64.88	32002		
2.0	0.2	2.0	1.91	26.0	70	16	4	13 x DC	2			64.88	42002		
2.0	0.3	2.0	1.91	4.0	50	16	4	2 x DC	2	60.88	32003				
2.0	0.3	2.0	1.91	6.0	50	16	4	3 x DC	2	60.88	42003				
2.0	0.3	2.0	1.91	8.0	50	16	4	4 x DC	2	60.88	52003				

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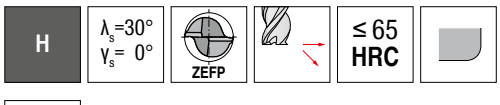
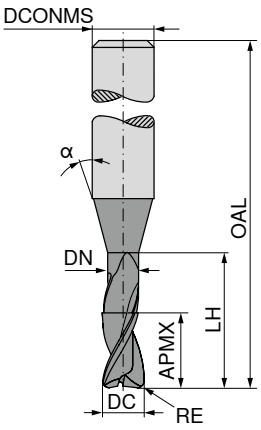
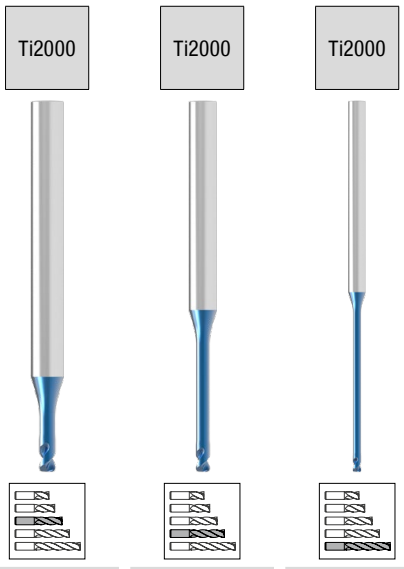
BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

HA | HA | HA

DC -0,012 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 349 ... £ V1		52 350 ... £ V1		52 351 ... £ V1	
2.0	0.3	2.0	1.91	10.0	50	16	4	5 x DC	2	64.88	**62003**				
2.0	0.3	2.0	1.91	12.0	54	16	4	6 x DC	2	64.88	**72003**				
2.0	0.3	2.0	1.91	16.0	54	16	4	8 x DC	2	64.88	**82003**				
2.0	0.3	2.0	1.91	20.0	60	16	4	10 x DC	2			64.88	**32003**		
2.0	0.3	2.0	1.91	26.0	70	16	4	13 x DC	2			64.88	**42003**		
2.0	0.5	2.0	1.91	4.0	50	16	4	2 x DC	2	60.88	**32005**				
2.0	0.5	2.0	1.91	6.0	50	16	4	3 x DC	2	60.88	**42005**				
2.0	0.5	2.0	1.91	8.0	50	16	4	4 x DC	2	64.88	**52005**				
2.0	0.5	2.0	1.91	10.0	50	16	4	5 x DC	2	64.88	**62005**				
2.0	0.5	2.0	1.91	12.0	54	16	4	6 x DC	2	64.88	**72005**				
2.0	0.5	2.0	1.91	16.0	54	16	4	8 x DC	2	64.88	**82005**				
2.0	0.5	2.0	1.91	20.0	60	16	4	10 x DC	2			64.88	**32005**		
2.0	0.5	2.0	1.91	26.0	70	16	4	13 x DC	2			64.88	**42005**		
2.5	0.3	2.5	2.41	10.0	50	16	4	4 x DC	2	67.60	**32503**				
2.5	0.3	2.5	2.41	12.0	60	16	4	4,8 x DC	2	69.54	**42503**				
2.5	0.3	2.5	2.41	30.0	70	16	4	12 x DC	2			71.75	**32503**		
2.5	0.5	2.5	2.41	10.0	50	16	4	4 x DC	2	67.60	**32505**				
2.5	0.5	2.5	2.41	12.0	60	16	4	4,8 x DC	2	67.60	**42505**				
2.5	0.5	2.5	2.41	30.0	70	16	4	12 x DC	2			71.75	**32505**		
3.0	0.3	3.0	2.92	10.0	50	16	4	3,3 x DC	2	64.11	**33003**				
3.0	0.3	3.0	2.92	12.0	50	16	4	4 x DC	2	65.03	**43003**				
3.0	0.3	3.0	2.92	30.0	70	16	4	10 x DC	2			87.12	**33003**		
3.0	0.5	3.0	2.92	10.0	50	16	4	3,3 x DC	2	64.11	**33005**				
3.0	0.5	3.0	2.92	12.0	50	16	4	4 x DC	2	64.88	**43005**				
3.0	0.5	3.0	2.92	30.0	70	16	4	10 x DC	2			87.12	**33005**		

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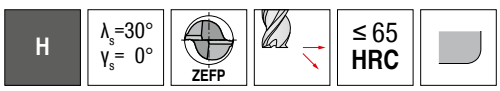
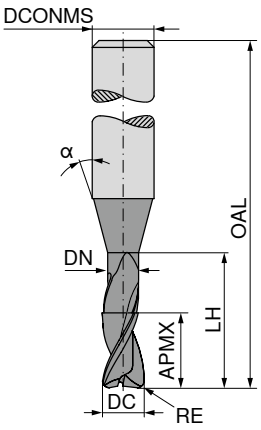
BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth













Factory standard

HA 

52 362 ...

DC -0,008 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_X	ZEFP	£ V1	
0.6	0.1	0.6	0.58	2	50	16	4	3,3 x DC	2	61.02	**30601**
0.6	0.1	0.6	0.58	3	50	16	4	5 x DC	2	61.02	**40601**
0.6	0.1	0.6	0.58	4	50	16	4	6,6 x DC	2	61.02	**50601**
1.0	0.1	1.0	0.95	2	50	16	4	2 x DC	2	58.42	**31001**
1.0	0.1	1.0	0.95	4	50	16	4	4 x DC	2	58.42	**41001**
1.0	0.1	1.0	0.95	6	50	16	4	6 x DC	2	63.08	**51001**
1.0	0.2	1.0	0.95	2	50	16	4	2 x DC	2	58.42	**31002**
1.0	0.2	1.0	0.95	4	50	16	4	4 x DC	2	58.42	**41002**
1.0	0.2	1.0	0.95	6	50	16	4	6 x DC	2	62.94	**51002**
1.0	0.3	1.0	0.95	2	50	16	4	2 x DC	2	58.42	**31003**
1.0	0.3	1.0	0.95	4	50	16	4	4 x DC	2	58.42	**41003**
1.0	0.3	1.0	0.95	6	50	16	4	6 x DC	2	63.08	**51003**
2.0	0.1	2.0	1.91	4	50	16	4	2 x DC	2	60.88	**32001**
2.0	0.1	2.0	1.91	6	50	16	4	3 x DC	2	60.88	**42001**
2.0	0.1	2.0	1.91	8	50	16	4	4 x DC	2	64.88	**52001**
2.0	0.1	2.0	1.91	10	50	16	4	5 x DC	2	64.88	**62001**
2.0	0.1	2.0	1.91	12	54	16	4	6 x DC	2	64.88	**72001**
2.0	0.2	2.0	1.91	4	50	16	4	2 x DC	2	60.88	**32002**
2.0	0.2	2.0	1.91	6	50	16	4	3 x DC	2	60.88	**42002**
2.0	0.2	2.0	1.91	8	50	16	4	4 x DC	2	64.88	**52002**
2.0	0.2	2.0	1.91	10	50	16	4	5 x DC	2	64.88	**62002**
2.0	0.2	2.0	1.91	12	54	16	4	6 x DC	2	64.88	**72002**
2.0	0.3	2.0	1.91	4	50	16	4	2 x DC	2	60.88	**32003**
2.0	0.3	2.0	1.91	6	50	16	4	3 x DC	2	60.88	**42003**
2.0	0.3	2.0	1.91	8	50	16	4	4 x DC	2	64.88	**52003**
2.0	0.3	2.0	1.91	10	50	16	4	5 x DC	2	64.88	**62003**
2.0	0.3	2.0	1.91	12	54	16	4	6 x DC	2	64.88	**72003**
2.0	0.5	2.0	1.91	4	50	16	4	2 x DC	2	60.88	**32005**
2.0	0.5	2.0	1.91	6	50	16	4	3 x DC	2	60.88	**42005**
2.0	0.5	2.0	1.91	8	50	16	4	4 x DC	2	64.88	**52005**
2.0	0.5	2.0	1.91	10	50	16	4	5 x DC	2	64.88	**62005**
2.0	0.5	2.0	1.91	12	54	16	4	6 x DC	2	64.88	**72005**

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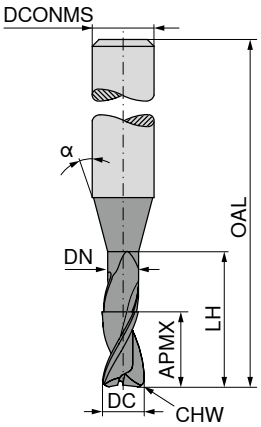
BlueLine – End milling cutter













Factory standard

HA 

52 344 ...

DC e8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	CHW mm	ZEFP	£ V1	
0.5	1.5			58	12	6	0.02	2	48.08	**905**
1.0	3.0			58	12	6	0.02	2	48.08	**010**
1.5	4.0			58	12	6	0.03	2	48.08	**015**
2.0	5.0	1.8	12	58	20	6	0.03	2	48.08	**020**
2.5	6.0	2.3	13	58	20	6	0.04	2	48.08	**025**
3.0	8.0	2.8	15	58	20	6	0.04	2	48.08	**030**
3.5	8.0	3.3	15	58	20	6	0.05	2	48.08	**035**
4.0	11.0	3.8	15	58	20	6	0.05	2	48.08	**040**
5.0	13.0	4.8	21	58	20	6	0.06	2	48.08	**050**
6.0	16.0	5.8	24	58		6	0.07	2	48.08	**060**
8.0	19.0	7.8	27	64		8	0.08	2	63.08	**080**
10.0	22.0	9.8	32	73		10	0.10	2	96.16	**100**
12.0	26.0	11.8	38	84		12	0.13	2	126.02	**120**
16.0	32.0	15.7	44	93		16	0.18	2	215.86	**160**
20.0	38.0	19.7	54	104		20	0.20	2	330.91	**200**

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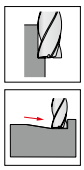
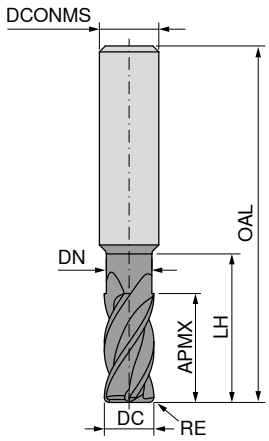
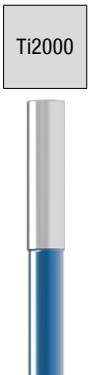
BlueLine – End milling cutter with corner radius

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC













Factory standard | HA

Factory standard | HA

DC e8 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	52 353 ... £ V1		52 354 ... £ V1	
1	0.10	1.5	0.85	10	50	3	4	57.78	31001		
1	0.10	1.5	0.85	20	75	3	4			82.98	31001
1	0.20	1.5	0.85	10	50	3	4	58.17	31002		
1	0.20	1.5	0.85	20	75	3	4			82.98	31002
2	0.20	2.5	1.80	12	50	3	4	57.27	32002		
2	0.20	2.5	1.80	25	75	3	4			81.69	32002
2	0.30	2.5	1.80	12	50	3	4	57.27	32003		
2	0.30	2.5	1.80	25	75	3	4			81.69	32003
2	0.50	2.5	1.80	12	50	3	4	57.27	32005		
2	0.50	2.5	1.80	25	75	3	4			81.69	32005
3	0.25	4.0	2.70	14	50	3	4	54.42	33002		
3	0.25	4.0	2.70	32	75	3	4			77.44	33002
3	0.30	4.0	2.70	14	50	3	4	54.42	33003		
3	0.30	4.0	2.70	32	75	3	4			77.44	33003
3	0.50	4.0	2.70	14	50	3	4	54.42	33005		
3	0.50	4.0	2.70	32	75	3	4			77.44	33005
3	1.00	4.0	2.70	14	50	3	4	54.42	33010		
3	1.00	4.0	2.70	32	75	3	4			77.44	33010
4	0.20	5.0	3.70	16	50	4	4	58.42	44002		
4	0.20	5.0	3.70	36	75	4	4			83.90	44002
4	0.25	5.0	3.70	16	50	4	4	58.42	44003		
4	0.25	5.0	3.70	36	75	4	4			83.90	44003
4	0.40	5.0	3.70	16	50	4	4	58.42	44004		
4	0.40	5.0	3.70	36	75	4	4			83.90	44004
4	0.50	5.0	3.70	16	50	4	4	58.42	44005		
4	0.50	5.0	3.70	36	75	4	4			83.90	44005
4	1.00	5.0	3.70	16	50	4	4	58.42	44010		
4	1.00	5.0	3.70	36	75	4	4			83.90	44010
5	0.25	6.0	4.60	18	54	5	4	63.34	55002		
5	0.25	6.0	4.60	40	75	5	4			93.59	55002
5	0.50	6.0	4.60	18	54	5	4	63.34	55005		
5	0.50	6.0	4.60	40	75	5	4			93.59	55005
5	1.00	6.0	4.60	18	54	5	4	63.34	55010		
5	1.00	6.0	4.60	40	75	5	4			93.59	55010
6	0.25	7.0	5.50	21	58	6	4	71.75	06002		
6	0.25	7.0	5.50	44	80	6	4			101.35	06002
6	0.50	7.0	5.50	21	58	6	4	71.75	06005		
6	0.50	7.0	5.50	44	80	6	4			101.35	06005
6	0.80	7.0	5.50	21	58	6	4	71.75	06008		
6	1.00	7.0	5.50	21	58	6	4	71.75	06010		
6	1.00	7.0	5.50	44	80	6	4			101.35	06010
6	1.50	7.0	5.50	21	58	6	4	71.75	06015		
6	1.50	7.0	5.50	44	80	6	4			101.35	06015
6	2.00	7.0	5.50	21	58	6	4	71.75	06020		
8	0.25	9.0	7.40	27	64	8	4	94.49	08002		

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→ v_c/f_z Page 402+403

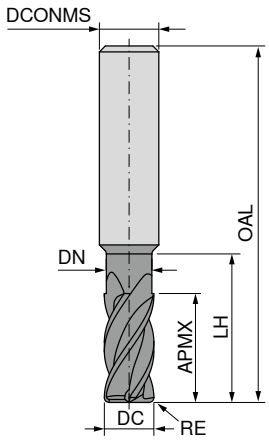
Continued on next page

BlueLine – End milling cutter with corner radius

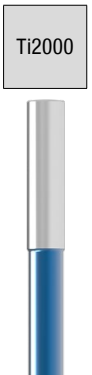
H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC















Factory standard | Factory standard

HA | HA

DC e8 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	52 353 ... £ V1		52 354 ... £ V1	
8	0.25	9.0	7.40	54	100	8	4			138.31	08002
8	0.50	9.0	7.40	27	64	8	4	94.49	08005		
8	0.50	9.0	7.40	54	100	8	4			138.31	08005
8	0.80	9.0	7.40	27	64	8	4	94.49	08008		
8	0.80	9.0	7.40	54	100	8	4			138.31	08008
8	1.00	9.0	7.40	27	64	8	4	94.49	08010		
8	1.00	9.0	7.40	54	100	8	4			138.31	08010
8	1.50	9.0	7.40	27	64	8	4	94.49	08015		
8	1.50	9.0	7.40	54	100	8	4			138.31	08015
8	2.00	9.0	7.40	27	64	8	4	94.49	08020		
8	2.00	9.0	7.40	54	100	8	4			138.31	08020
8	2.50	9.0	7.40	27	64	8	4	94.49	08025		
8	3.00	9.0	7.40	27	64	8	4	94.49	08030		
8	3.00	9.0	7.40	54	100	8	4			138.31	08030
10	0.25	11.0	9.20	32	73	10	4	123.31	10002		
10	0.25	11.0	9.20	60	100	10	4			188.73	10002
10	0.50	11.0	9.20	32	73	10	4	123.31	10005		
10	0.50	11.0	9.20	60	100	10	4			188.73	10005
10	0.80	11.0	9.20	32	73	10	4	123.31	10008		
10	0.80	11.0	9.20	60	100	10	4			188.73	10008
10	1.00	11.0	9.20	32	73	10	4	123.31	10010		
10	1.00	11.0	9.20	60	100	10	4			188.73	10010
10	1.50	11.0	9.20	32	73	10	4	123.31	10015		
10	1.50	11.0	9.20	60	100	10	4			188.73	10015
10	2.00	11.0	9.20	32	73	10	4	123.31	10020		
10	2.00	11.0	9.20	60	100	10	4			188.73	10020
10	3.00	11.0	9.20	32	73	10	4	123.31	10030		
10	3.00	11.0	9.20	60	100	10	4			188.73	10030
10	3.50	11.0	9.20	32	73	10	4	123.31	10035		
12	0.50	12.0	11.00	38	84	12	4	166.75	12005		
12	0.50	12.0	11.00	75	120	12	4			249.47	12005
12	1.00	12.0	11.00	38	84	12	4	166.75	12010		
12	1.00	12.0	11.00	75	120	12	4			249.47	12010
12	1.50	12.0	11.00	38	84	12	4	166.75	12015		
12	1.50	12.0	11.00	75	120	12	4			249.47	12015
12	2.00	12.0	11.00	38	84	12	4	166.75	12020		
12	2.00	12.0	11.00	75	120	12	4			249.47	12020
12	3.00	12.0	11.00	38	84	12	4	166.75	12030		
12	3.00	12.0	11.00	75	120	12	4			249.47	12030
16	2.00	16.0	15.00	44	93	16	4	281.79	16020		
16	2.00	16.0	15.00	92	150	16	4			422.69	16020
16	3.00	16.0	15.00	44	93	16	4	281.79	16030		
16	3.00	16.0	15.00	92	150	16	4			422.69	16030

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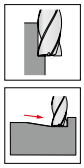
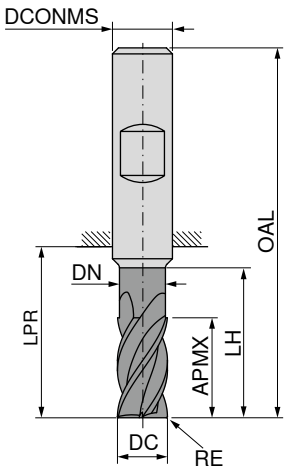
→ v_c/f_z Page 402+403

BlueLine – End milling cutter with corner radius

▲ With decreasing helix angle for reduced machining noise & vibration

H | λ_s=30°/45° γ_s=10° | ZEFP | 54–70 HRC











Factory standard

HA 



Factory standard

HB 

DC e8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 140 ... £ V1		52 141 ... £ V1	
3	0.3	4	2.7	14	22	50	3	4	68.52	031		
3	0.5	4	2.7	14	22	50	3	4	68.52	033		
3	1.0	4	2.7	14	22	50	3	4	68.52	034		
4	0.4	5	3.7	16	22	50	4	4	72.66	042		
4	0.5	5	3.7	16	22	50	4	4	72.66	043		
4	1.0	5	3.7	16	22	50	4	4	72.66	044		
5	0.5	6	4.6	18	26	54	5	4	77.95	053		
5	1.0	6	4.6	18	26	54	5	4	77.95	054		
6	0.5	7	5.5	21	21	57	6	6	96.81	063	96.81	063
6	1.0	7	5.5	21	21	57	6	6	96.81	064	96.81	064
6	1.5	7	5.5	21	21	57	6	6	96.81	065	96.81	065
8	0.5	9	7.4	27	27	63	8	6	127.79	083	127.79	083
8	1.0	9	7.4	27	27	63	8	6	127.79	084	127.79	084
8	1.5	9	7.4	27	27	63	8	6	127.79	085	127.79	085
8	2.0	9	7.4	27	27	63	8	6	127.79	086	127.79	086
10	0.5	11	9.2	32	32	72	10	6	164.16	103	164.16	103
10	1.0	11	9.2	32	32	72	10	6	164.16	104	164.16	104
10	1.5	11	9.2	32	32	72	10	6	164.16	105	164.16	105
10	2.0	11	9.2	32	32	72	10	6	164.16	106	164.16	106
12	0.5	12	11.0	38	38	83	12	6	221.74	123	221.74	123
12	1.0	12	11.0	38	38	83	12	6	221.74	124	221.74	124
12	1.5	12	11.0	38	38	83	12	6	221.74	125	221.74	125
12	2.0	12	11.0	38	38	83	12	6	221.74	126	221.74	126
16	1.0	16	15.0	44	45	93	16	6	374.23	161	374.23	161
16	2.0	16	15.0	44	45	93	16	6	374.23	163	374.23	163
20	1.0	20	18.5	50	54	104	20	6	530.87	201	530.87	201
20	2.5	20	18.5	50	54	104	20	6	530.87	204	530.87	204
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→ v_c/f_z Page 400+401

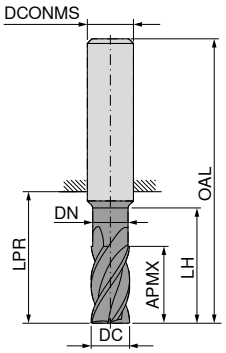
14

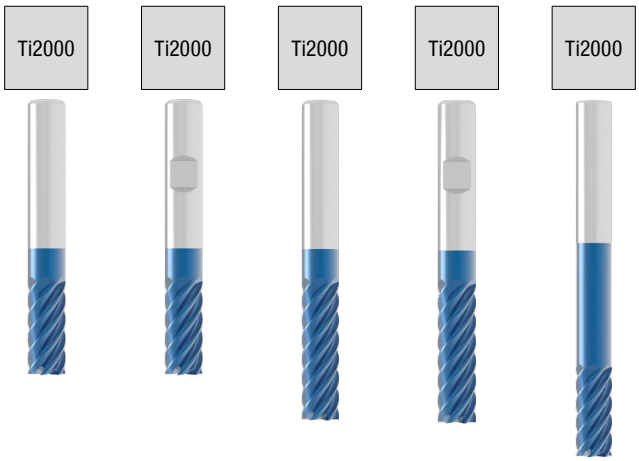
BlueLine – Finish milling cutter

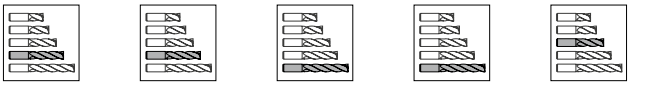
▲ With decreasing helix angle for reduced machining noise & vibration

H | λ_s=30°/45° γ_s= 0° | ZEFP | 54–70 HRC









Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB | HA

DC e8 mm	APMX mm	LPR mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	52 133 ... £ V1		52 134 ... £ V1		52 135 ... £ V1		52 136 ... £ V1		52 348 ... £ V1	
2	8	22			58	6	4	55.38	020	55.38	020						
3	12	22			58	6	4	55.38	030	55.38	030						
4	13	22			58	6	4	63.84	040	63.84	040						
5	15	22			58	6	6	66.36	050	66.36	050						
6	16	22			58	6	6	95.48	060	95.48	060						
6	16	44	5.8	40	80	6	6									73.68	060
6	21	29			65	6	6					127.26	060	127.26	060		
8	19	64	7.7	50	100	8	6									91.77	080
8	22	34			70	8	6	115.03	080	115.03	080						
8	28	39			75	8	6					148.48	080	148.48	080		
10	25	33			73	10	6	181.97	100	181.97	100						
10	25	60	9.7	60	100	10	6									135.72	100
10	35	45			85	10	6					245.67	100	245.67	100		
12	28	39			84	12	6	263.06	120	263.06	120						
12	30	75	11.6	60	120	12	6									178.37	120
12	45	55			100	12	6					344.41	120	344.41	120		
14	30	39			84	14	6	275.58	140	275.58	140						
14	45	55			100	14	6					390.29	140	390.29	140		
16	35	45			93	16	8	434.33	160	434.33	160						
16	40	102	15.6	100	150	16	8									368.38	160
16	50	62			110	16	8					561.46	160	561.46	160		
16	65	77			125	16	8					473.09	161	591.21	161		
18	35	45			93	18	10	455.57	180	455.57	180						
18	54	66			114	18	10					607.16	180	607.16	180		
20	40	54			104	20	10	628.43	200	628.43	200						
20	50	100	19.6	100	150	20	10									493.78	200
20	55	76			126	20	10					790.86	200	783.60	200		
20	70	85			135	20	10					946.19	201	946.19	201		

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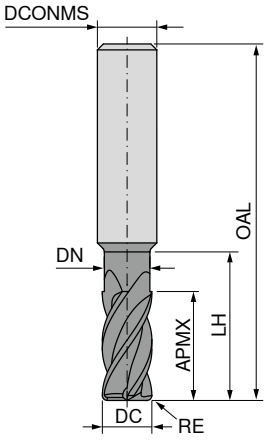
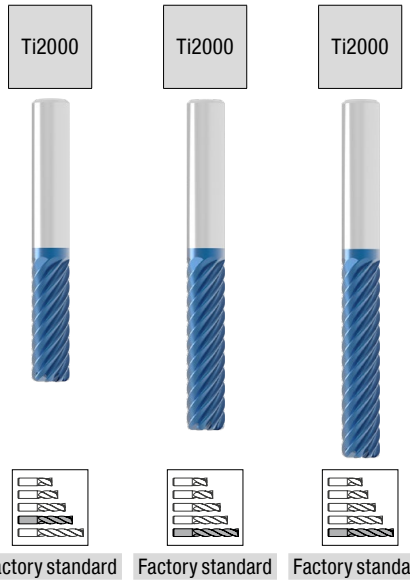
→ v_c/f_z Page 400–402

BlueLine – Finish milling cutter with corner radius

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC





Factory standard | Factory standard | Factory standard

HA | HA | HA

DC e8 mm	RE +/-0,005 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	52 324 ... £ V1		52 325 ... £ V1		52 326 ... £ V1	
5	0.5	15	4.8	19	58	6	6	96.15	052				
5	1.0	15	4.8	19	58	6	6	96.15	053				
6	0.5	16	5.8	20	58	6	6	97.82	062				
6	0.5	21	5.8	29	65	6	6			115.68	062		
6	1.0	16	5.8	20	58	6	6	97.82	063				
6	1.0	21	5.8	29	65	6	6			115.68	063		
8	0.5	22	7.8	26	70	8	6	114.83	082				
8	0.5	28	7.8	39	75	8	6			131.86	082		
8	1.0	22	7.8	26	70	8	6	114.83	083				
8	1.0	28	7.8	39	75	8	6			131.86	083		
10	0.5	25	9.8	31	73	10	6	184.29	102				
10	0.5	35	9.8	45	85	10	6			202.97	102		
10	1.0	25	9.8	31	73	10	6	184.29	103				
10	1.0	35	9.8	45	85	10	6			208.09	103		
10	1.5	25	9.8	31	73	10	6	184.29	104				
10	1.5	35	9.8	45	85	10	6			202.97	104		
12	0.5	28	11.8	37	84	12	6	248.06	122				
12	0.5	45	11.8	55	100	12	6			297.87	122		
12	1.0	28	11.8	37	84	12	6	248.06	123				
12	1.0	45	11.8	55	100	12	6			297.87	123		
12	1.5	28	11.8	37	84	12	6	248.06	124				
12	1.5	45	11.8	55	100	12	6			297.87	124		
14	1.0	30	13.8	37	84	14	6	268.54	143				
14	1.0	45	13.8	55	100	14	6			333.97	143		
16	1.0	35	15.8	43	93	16	8	385.42	163				
16	1.0	50	15.8	62	110	16	8			487.54	163		
16	1.0	65	15.8	77	125	16	8					520.87	163
16	2.0	35	15.8	43	93	16	8	385.42	165				
16	2.0	50	15.8	62	110	16	8			487.54	165		
16	2.0	65	15.8	77	125	16	8					520.87	165
18	1.0	35	17.8	43	93	18	10	414.23	183				
18	1.0	54	17.8	66	114	18	10			538.17	183		
20	1.0	40	19.8	52	104	20	10	548.42	203				
20	1.0	55	19.8	76	126	20	10			717.87	203		
20	1.0	70	19.8	85	135	20	10					853.74	203
20	2.0	40	19.8	52	104	20	10	548.42	205				
20	2.0	55	19.8	76	126	20	10			717.87	205		
20	2.0	70	19.8	85	135	20	10					853.74	205
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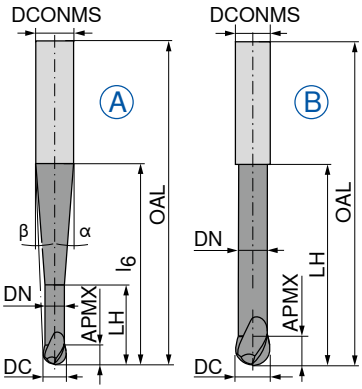
→ v_c/f_z Page 400+401

14

BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC | Ti2000





Factory standard

HA

52 302 ...

DC mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	£ V1	
1.0	1.00	0.95	10	16.5	57	15	9	6	2	A	185.93	**010**
1.5	1.25	1.40	12	18.0	57	15	7,5	6	2	A	170.30	**015**
2.0	1.50	1.90	16	20.0	57	15	6	6	2	A	136.40	**020**
3.0	2.00	2.90	20	34.5	80	15	2,5	6	2	A	164.22	**030**
4.0	2.50	3.90	22	35.0	80	15	2	6	2	A	154.41	**040**
5.0	3.00	4.90	25	35.0	80	15	1	6	2	A	150.96	**050**
6.0	3.50	5.90	29		80	15		6	2	B	144.86	**060**

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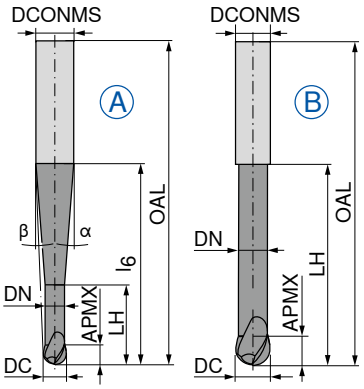
→ v_c/f_z Page 404+405

BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0.005 mm for Ø ≤ 6.0 mm / ± 0.01 mm for Ø > 6,0 mm
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC





Ti2000





Factory standard

HA

52 303 ...

DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	£ V1	
0.5	±0,01	1.0	0.45	2.0	20	57	10	8,5	6	2	A	227.03	**005**
1.0	±0,01	2.0	0.95	4.0	20	57	10	8	6	2	A	223.41	**010**
1.5	±0,01	2.5	1.40	7.5	20	57	12,5	7	6	2	A	220.25	**015**
2.0	±0,01	3.0	1.80	8.0	20	57	12	6,5	6	2	A	165.88	**020**
3.0	±0,01	3.5	2.80	10.0	20	57	11,5	5	6	2	A	162.56	**030**
4.0	±0,01	4.0	3.80	12.0	20	57	11	3,5	6	2	A	157.32	**040**
5.0	±0,01	5.0	4.70	14.0	20	57	10	2	6	2	A	163.39	**050**
6.0	±0,01	6.0	5.60	20.0		57			6	2	B	158.54	**060**
8.0	±0,02	7.0	7.60	25.0		63			8	2	B	206.55	**080**
10.0	±0,02	8.0	9.60	30.0		72			10	2	B	288.04	**100**
12.0	±0,02	10.0	11.50	35.0		83			12	2	B	359.29	**120**
12.0	±0,02	10.0	11.50	35.0	40	92	35	3,5	16	2	A	529.45	**121**
16.0	±0,02	12.0	15.50	40.0		92			16	2	B	517.82	**160**

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→ v_c/f_z Page 404+405

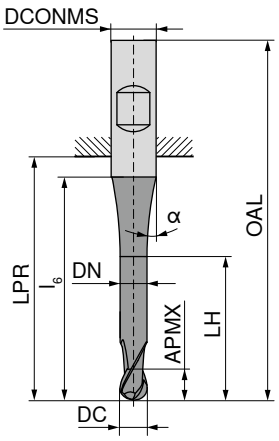
14

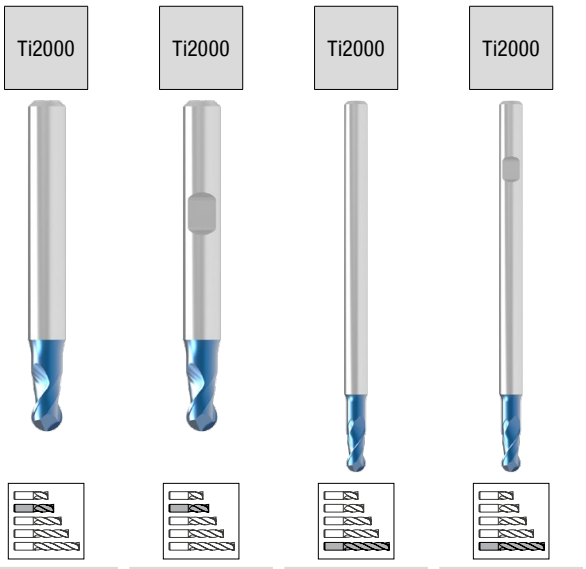
BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC







Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

										52 256 ...		52 257 ...		52 258 ...		52 259 ...	
DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	α° ±0,5	ZEFP	£ V1		£ V1		£ V1		£ V1	
0.10	0.2			11	10	38	3	8	2	120.92	910						
0.15	0.3			12	10	38	3	7,5	2	111.17	915						
0.20	0.4			12	10	38	3	7	2	104.43	920						
0.25	0.5	0.20	0.8	12	10	38	3	7	2	116.56	925						
0.30	1.0	0.25	1.3	12	10	38	3	7	2	109.73	930						
0.35	1.0	0.30	1.3	12	10	38	3	7	2	97.18	935						
0.40	1.0	0.35	1.3	12	10	38	3	7	2	72.56	940						
0.50	1.5	0.40	2.0	12	10	38	3	7,5	2	60.28	950						
0.50	1.5	0.40	2.0	17	18	54	6	10,5	2	60.48	005	60.48	005				
0.50	1.5	0.40	2.0	13	47	75	3	7	2					87.24	950		
0.50	1.5	0.40	2.0	17	44	80	6	10,5	2					100.25	005	104.33	005
0.60	1.5	0.50	2.0	12	10	38	3	7	2	65.43	960						
0.70	2.0	0.60	2.5	12	10	38	3	7,5	2	60.28	970						
0.80	2.0	0.70	2.5	13	10	38	3	7,5	2	60.28	980						
0.90	2.5	0.80	3.5	13	10	38	3	7	2	60.28	990						
1.00	2.0	0.90	3.0	13	22	50	3	6	2	63.30	011						
1.00	2.0	0.90	3.0	18	18	54	6	9,5	2	70.82	106	70.82	010				
1.00	3.0	0.90	4.0	14	47	75	3	6	2					87.24	011		
1.00	3.0	0.90	4.0	19	44	80	6	9,5	2					94.68	010	104.33	010
1.10	3.0	1.00	4.0	13	22	50	3	7	2	60.28	911						
1.20	3.0	1.10	4.0	13	22	50	3	7	2	60.28	012						
1.40	3.0	1.30	4.0	14	22	50	3	5	2	60.28	014						
1.50	3.0	1.40	4.0	13	22	50	3	5,5	2	63.30	016						
1.50	3.0	1.40	4.0	18	18	54	6	9	2	70.82	156	70.82	015				
1.50	4.0	1.40	6.0	13	47	75	3	7	2					85.44	016		
1.50	4.0	1.40	6.0	19	44	80	6	10	2					94.88	015	104.33	015
1.60	4.0	1.50	5.0	13	22	50	3	5	2	60.28	916						
1.80	4.0	1.70	5.0	13	22	50	3	5	2	60.28	018						
2.00	4.0	1.90	5.5	12	22	50	3	5	2	67.03	021						
2.00	4.0	1.90	5.5	18	18	54	6	9	2	70.82	206	70.82	020				
2.00	6.0	1.90	8.0	12	47	75	3	8	2					79.98	021		
2.00	6.0	1.90	8.0	20	44	80	6	11	2					89.19	020	102.62	020
2.50	5.0	2.30	6.5	10	22	50	3	7	2	60.28	025						
2.50	5.0	2.30	6.5	17	18	54	6	10	2	63.30	026	63.30	026				
2.50	8.0	2.30	10.0	14	47	75	3	5,5	2					79.91	026		
2.50	8.0	2.30	10.0	20	44	80	6	10	2					87.24	025	102.62	025
3.00	6.0	2.80	8.0		22	50	3		2	67.03	031						
3.00	6.0	2.80	8.0	18	18	54	6	9	2	70.82	306	70.82	030				
3.00	10.0	2.80	13.0		47	75	3		2					76.61	031		
P											○		○		○		○
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H											●		●		●		●
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→ v_c/f_z Page 404+405

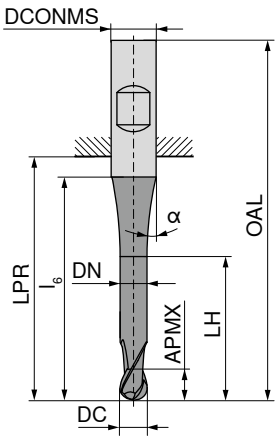
Continued on next page

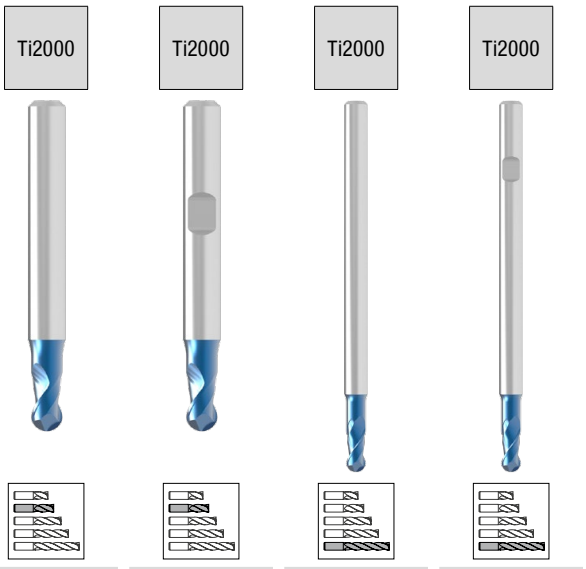
BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC







Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

									52 256 ...		52 257 ...		52 258 ...		52 259 ...	
DC $_{f8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	α° $_{\pm 0,5}$	ZEFP	£ V1		£ V1		£ V1		£ V1	
3.00	10.0	2.80	15.0	23	44	80	6	11	2					87.24	**030**	100.76	**030**
4.00	7.0	3.80	10.0	18	18	54	6	11	2	70.82	**406**	70.82	**040**				
4.00	7.0	3.80	10.0		26	54	4		2	69.12	**041**						
4.00	13.0	3.80	20.0		47	75	4		2					74.72	**041**		
4.00	13.0	3.80	18.0	23	44	80	6	12,5	2					82.06	**040**	100.76	**040**
5.00	8.0	4.80	11.0	15	18	54	6	8	2	70.82	**506**	70.82	**050**				
5.00	8.0	4.80	11.0		26	54	5		2	70.82	**051**						
5.00	14.0	4.80	19.0		47	75	5		2					85.44	**051**		
5.00	14.0	4.80	19.0	21	64	100	6	13	2					94.88	**050**	100.76	**050**
6.00	10.0	5.80	15.0		18	54	6		2	70.82	**061**	70.82	**060**				
6.00	16.0	5.80	25.0		64	100	6		2					106.18	**060**	106.18	**060**
8.00	12.0	7.80	17.0		23	59	8		2	86.64	**081**	86.64	**080**				
8.00	22.0	7.80	35.0		64	100	8		2					127.26	**080**	127.26	**080**
10.00	13.0	9.80	18.0		27	67	10		2	113.14	**101**	113.14	**100**				
10.00	25.0	9.80	40.0		60	100	10		2					166.01	**100**	166.01	**100**
12.00	16.0	11.90	21.0		28	73	12		2	160.73	**121**	160.73	**120**				
12.00	26.0	11.80	40.0		55	100	12		2					219.16	**120**	219.16	**120**
14.00	16.0	13.80	21.0		30	75	14		2	203.20	**141**	203.20	**140**				
14.00	26.0	13.80	40.0		55	100	14		2					296.82	**140**	296.82	**140**
16.00	20.0	15.80	25.0		35	83	16		2	233.00	**161**	233.00	**160**				
16.00	30.0	15.80	50.0		102	150	16		2					481.79	**160**	481.79	**160**
20.00	25.0	19.80	30.0		43	93	20		2	381.34	**201**	381.34	**200**				
20.00	40.0	19.80	60.0		100	150	20		2					587.96	**200**	587.96	**200**
P											○		○		○		○
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H											●		●		●		●
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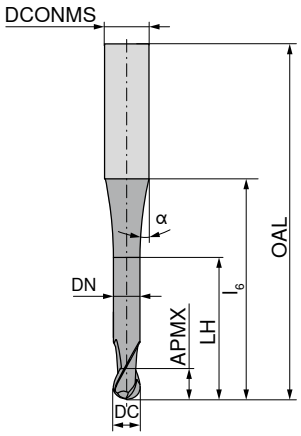
→ v_c/f_z Page 404+405

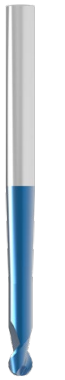
BlueLine – Ball Nosed Cutter

- Radius accuracy: ± 0,005 mm
- for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC

Ti2000





Factory standard

HA

52 352 ...

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	DCONMS h6 mm	ZEFP	£ V1	
0.6	0.8	0.55	1.4	27	75	1,5	3	2	83.13	**906**
0.8	1.0	0.75	1.6	27	75	1,5	3	2	80.27	**908**
1.0	1.2	0.95	2.0	27	75	1,5	3	2	78.72	**310**
1.2	1.4	1.15	2.4	27	75	1,5	3	2	77.94	**312**
1.5	1.8	1.45	3.0	27	75	1,5	3	2	75.75	**315**
2.0	2.4	1.95	4.0	27	75	1,5	3	2	75.10	**320**
3.0	4.0	2.80	12.0	40	80	1,5	6	2	120.21	**030**
4.0	5.0	3.80	16.0	40	80	1,5	6	2	119.06	**040**
5.0	6.0	4.80	20.0	40	80	1,5	6	2	118.52	**050**
6.0	6.0	5.80	25.0	50	100	1,5	8	2	162.87	**060**
8.0	7.0	7.80	32.0	60	120	1,5	10	2	221.04	**080**
10.0	9.0	9.80	40.0	80	160	1,5	12	2	345.12	**100**
12.0	11.0	11.80	50.0	100	200	1,5	16	2	590.72	**120**

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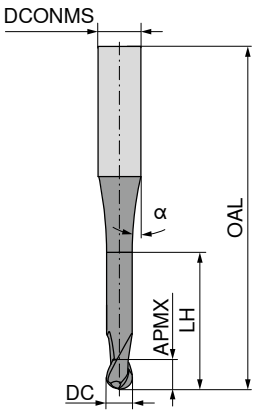
→ v_c/f_z Page 404

BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC

Ti2000





Factory standard

HA

52 355 ...

DC f8 mm	APMX mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	£ V1	
3	8	11	65	12	6	3	71.87	**030**
4	8	11	75	12	6	3	73.93	**040**
5	10	13	75	12	6	3	73.93	**050**
6	12		100		6	3	76.40	**060**
8	14		100		8	3	104.06	**080**
10	18		100		10	3	131.85	**100**
12	22		120		12	3	171.92	**120**

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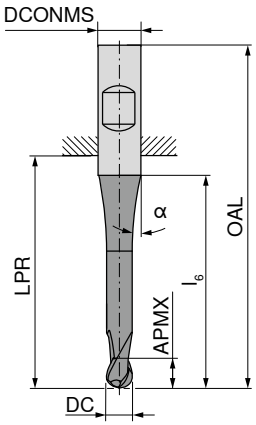
→ v_c/f_z Page 404

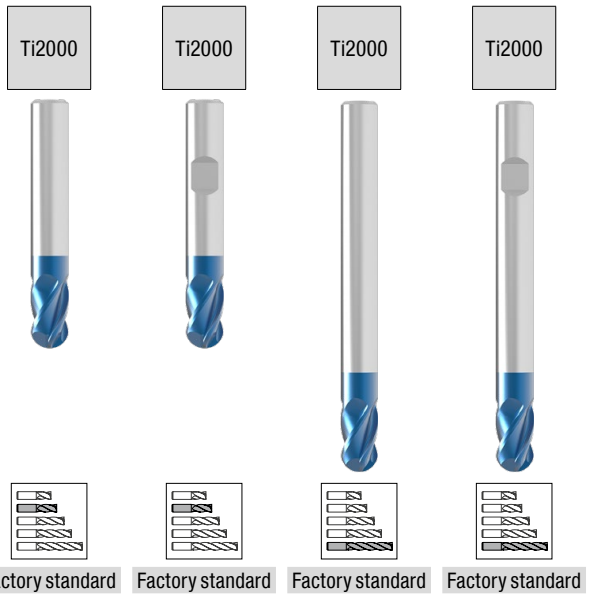
BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC







Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

DC f8 mm	APMX mm	l_6 mm	LPR mm	OAL mm	α° ±1	DCONMS h6 mm	ZEFP	52 404 ... £ V1		52 405 ... £ V1		52 404 ... £ V1		52 405 ... £ V1	
2.0	4	10.0	22	50	8	3	4	57.54	**020**						
2.0	4	16.0	18	54	12	6	4	69.43	**021**	69.43	**021**				
2.0	4	10.0	47	75	8	3	4					75.61	**022**		
2.0	4	16.0	44	80	12	6	4					99.10	**023**	99.10	**023**
2.5	5	16.0	18	54	12	6	4	69.43	**025**	69.43	**025**				
2.5	5	16.0	44	80	12	6	4					93.21	**026**	93.21	**026**
3.0	5		22	50		3	4	62.40	**030**						
3.0	5	14.0	18	54	12	6	4	66.79	**031**	66.79	**031**				
3.0	5		47	75		3	4					78.41	**032**		
3.0	5	14.0	44	80	12	6	4					98.18	**033**	98.18	**033**
4.0	8	15.0	18	54	12	6	4	66.79	**041**	66.79	**041**				
4.0	8		26	54		4	4	63.43	**040**						
4.0	8		47	75		4	4					87.93	**042**		
4.0	8	15.0	44	80	12	6	4					97.26	**043**	97.26	**043**
5.0	9	13.5	18	54	12	6	4	65.91	**051**	65.91	**051**				
5.0	9		26	54		5	4	64.35	**050**						
5.0	9		47	75		5	4					88.82	**052**		
5.0	9	13.5	64	100	12	6	4					95.45	**053**	95.45	**053**
6.0	10		18	54		6	4	67.03	**060**	67.03	**060**				
6.0	10		64	100		6	4					93.67	**062**	93.67	**062**
7.0	12	15.0	23	59	12	8	4	90.97	**070**	90.97	**070**				
8.0	12		23	59		8	4	83.51	**080**	83.51	**080**				
8.0	12		64	100		8	4					119.55	**082**	119.55	**082**
9.0	14	17.0	27	67	12	10	4	121.51	**090**	121.51	**090**				
10.0	14	16.0	27	67		10	4	113.12	**100**	113.12	**100**				
10.0	14		60	100		10	4					154.27	**102**	154.27	**102**
12.0	16		29	74		12	4	152.16	**120**	152.16	**120**				
12.0	16		55	100		12	4					198.10	**122**	198.10	**122**
14.0	18		30	75		14	4	190.34	**140**	190.34	**140**				
14.0	18	20.0	55	100		14	4					249.86	**142**	249.86	**142**
16.0	22	24.0	35	83		16	4	237.46	**160**	237.46	**160**				
16.0	22	24.0	102	150		16	4					386.03	**162**	386.03	**162**
20.0	26	28.0	43	93		20	4	365.68	**200**	365.68	**200**				
20.0	26	28.0	100	150		20	4					533.12	**202**	533.12	**202**
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H									●		●		●		●
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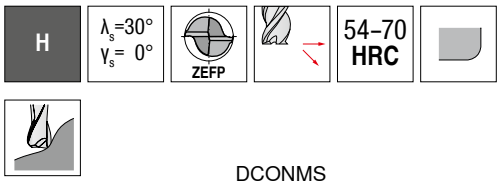
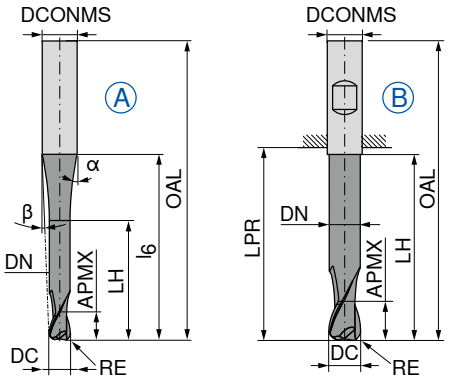
→ v_c/f_z Page 404+405

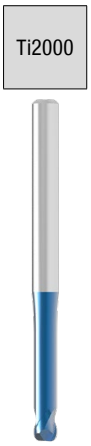
BlueLine – Torus Cutter

▲ Radius accuracy: ± 0,005 mm for Ø ≤ 6,0 mm / ± 0,01 mm for Ø > 6,0 mm
▲ or Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °





LPR with Shank DIN 6535 HB









Factory standard

Factory standard

HA



HB



DC ±0,01 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	l_6 mm	OAL mm	α° ±0,5	β°	DCONMS h5 mm	ZEFP	Fig.	52 305 ... £ V1		52 305 ... £ V1	
1.0	0.2	1.00	0.95	10	21	16.5	57	23	9	6	2	A	206.55	**010**		
1.5	0.3	1.25	1.40	12	21	18.0	57	21	7,5	6	2	A	185.51	**015**		
2.0	0.4	1.50	1.90	16	21	20.0	57	25	6	6	2	A	151.89	**020**		
3.0	0.5	2.00	2.90	20	44	34.5	80	6	2,5	6	2	A	180.41	**030**		
4.0	0.6	2.50	3.90	22	44	35.0	80	4,5	2	6	2	A	170.86	**040**		
5.0	0.8	3.00	4.90	25	44	35.0	80	3,5	1	6	2	A	168.24	**050**		
6.0	1.0	3.50	5.90	29	44		80			6	2	B			157.87	**060**
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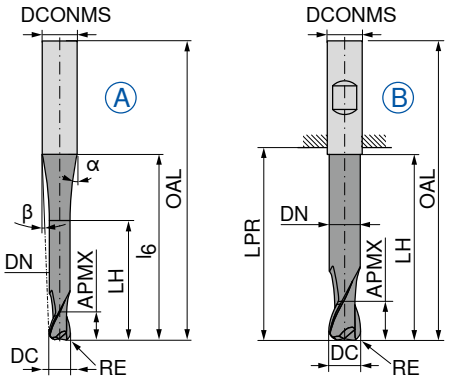
→ v_c/f_z Page 406+407

14

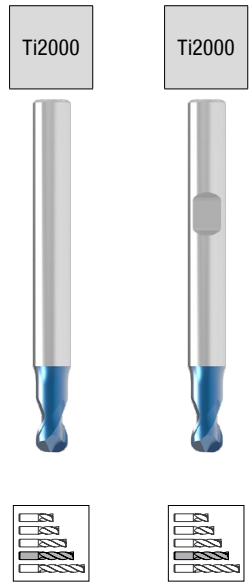
BlueLine – Torus Cutter

▲ Radius accuracy: ± 0,005 mm for Ø ≤ 6,0 mm / ± 0,01 mm for Ø > 6,0 mm
▲ or Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC



LPR with Shank DIN 6535 HB



														Factory standard HA		Factory standard HB	
														52 304 ...		52 304 ...	
DC mm	Tol.	RE mm	APMX mm	DN mm	LH mm	LPR mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	£ V1		£ V1	
0.5	±0,01	0.10	1.0	0.45	2.0	21	20	57	10	8,5	6	2	A	213.60	005		
1.0	±0,01	0.25	2.0	0.95	4.0	21	20	57	10	8	6	2	A	209.19	010		
1.5	±0,01	0.30	2.5	1.40	7.5	21	20	57	12,5	7	6	2	A	192.59	015		
2.0	±0,01	0.50	3.0	1.80	8.0	21	20	57	12	6,5	6	2	A	155.22	020		
3.0	±0,01	0.50	3.5	2.80	10.0	21	20	57	11,5	5	6	2	A	152.17	030		
4.0	±0,01	1.00	4.0	3.80	12.0	21	20	57	11	3,5	6	2	A	147.90	040		
5.0	±0,01	1.50	5.0	4.70	14.0	21	20	57	10	2	6	2	A	153.99	050		
6.0	±0,01	2.00	6.0	5.60	20.0	21		57			6	2	B			153.42	060
8.0	±0,02	2.00	7.0	7.60	25.0	27		63			8	2	B			197.57	080
10.0	±0,02	3.00	8.0	9.60	30.0	32		72			10	2	B			264.24	100
12.0	±0,02	4.00	10.0	11.50	35.0	38		83			12	2	B			351.95	120
12.0	±0,02	4.00	10.0	11.50	35.0	44	40	92	37	3,5	16	2	A	510.37	121		
16.0	±0,02	5.00	12.0	15.50	40.0	44		92			16	2	B			498.88	160

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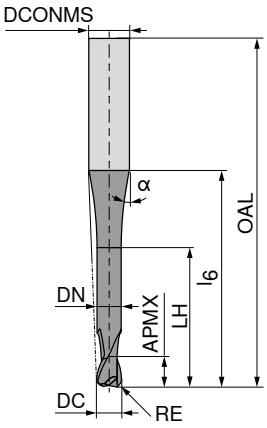
→ v_c/f_z Page 406+407

BlueLine – Torus Cutter

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC

Ti2000







Factory standard

HA

52 361 ...

DC $_{e8}$ mm	RE $_{\pm 0,01}$ mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	DCONMS $_{h5}$ mm	ZEFP	£ V1	
0.8	0.08	1.0	0.75	1.6	27	75	1,5	3	2	77.18	**90801**
1.0	0.10	1.2	0.95	2.0	27	75	1,5	3	2	78.84	**31001**
1.0	0.25	2.0	0.85	4.0	40	80	1,5	6	2	124.22	**01002**
1.2	0.12	1.4	1.15	2.4	27	75	1,5	3	2	77.94	**31201**
1.5	0.15	1.8	1.45	3.0	27	75	1,5	3	2	75.75	**31501**
2.0	0.20	2.4	1.95	4.0	27	75	1,5	3	2	75.10	**32002**
2.0	0.50	2.0	1.80	8.0	40	80	1,5	6	2	120.21	**02005**
3.0	0.30	3.6	2.95	6.0	27	75	1,5	4	2	80.27	**43003**
3.0	0.50	2.0	2.80	12.0	40	80	1,5	6	2	120.21	**03005**
3.0	1.00	2.0	2.80	12.0	40	80	1,5	6	2	120.21	**03010**
4.0	1.00	3.0	3.80	16.0	40	80	1,5	6	2	120.21	**04010**
6.0	1.00	4.0	5.80	25.0	50	100	1,5	8	2	162.87	**06010**
6.0	2.00	4.0	5.80	25.0	50	100	1,5	8	2	162.87	**06020**
8.0	1.00	4.0	7.80	32.0	60	120	1,5	10	2	221.04	**08010**
8.0	2.00	4.0	7.80	32.0	60	120	1,5	10	2	221.04	**08020**
10.0	1.50	6.0	9.80	40.0	80	160	1,5	12	2	345.12	**10015**
12.0	1.50	8.0	11.80	50.0	100	200	1,5	16	2	595.90	**12015**

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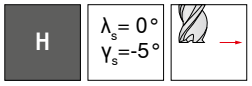
→ v_c/f_z Page 406+407

14

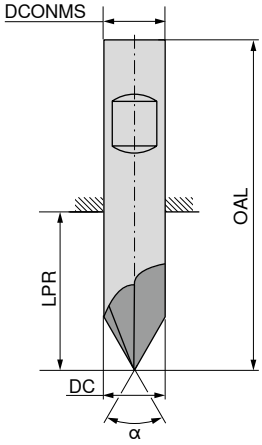
BlueLine – NC deburring cutter

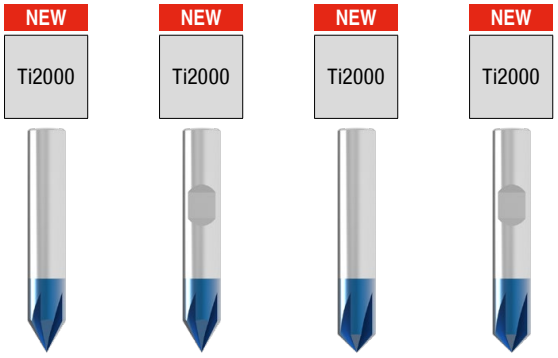
H

$\lambda_s = 0°$
$\gamma_s = -5°$









DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	α = 60° Factory standard HA 52 562 ... £ V1		α = 60° Factory standard HB 52 563 ... £ V1		α = 90° Factory standard HA 52 560 ... £ V1		α = 90° Factory standard HB 52 561 ... £ V1	
4	50	22	4	5	41.15	**04000**			41.15	**04000**		
6	57	21	6	6	51.87	**06000**	51.87	**06000**	51.87	**06000**	51.87	**06000**
8	63	27	8	6	62.74	**08000**	62.74	**08000**	62.74	**08000**	62.74	**08000**
10	72	32	10	6	84.04	**10000**	84.04	**10000**	84.04	**10000**	84.04	**10000**
12	83	38	12	6	108.43	**12000**	108.43	**12000**	108.43	**12000**	108.43	**12000**
16	92	44	16	8	168.28	**16000**	168.28	**16000**	168.28	**16000**	168.28	**16000**
P						●		●		●		●
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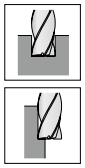
K												
N												
S												
H						●		●		●		●
O												

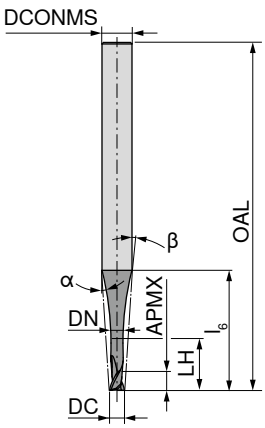
→ v_c/f_z Page 395

Micro-end milling cutter

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s=11° | ZEFP | ≤ 62 HRC







Factory standard | Factory standard

HA | HA

DC mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	T_x	ZEFP	52 802 ... £ V1		52 802 ... £ V1	
0.2	0.12	0.16	0.44	5.7	38	15	14	3	2,2 x DC	2	68.97	021		
0.2	0.20	0.16	1.00	6.4	38	15	13	3	5 x DC	2	68.97	023		
0.2	0.20	0.16	2.00	9.2	38	15	9	3	10 x DC	2	68.97	025		
0.2	0.20	0.16	0.44	5.7	43	15	14	3	2,2 x DC	2			68.97	022
0.2	0.20	0.16	1.00	6.4	43	15	13	3	5 x DC	2			68.97	024
0.2	0.20	0.16	2.00	9.2	43	15	9	3	10 x DC	2			68.97	026
0.5	0.30	0.40	1.10	5.8	38	15	13	3	2,2 x DC	2	53.03	051		
0.5	0.50	0.40	2.50	7.8	38	15	10	3	5 x DC	2	53.03	053		
0.5	0.50	0.40	5.00	10.7	38	13	7	3	10 x DC	2	53.03	055		
0.5	0.50	0.40	1.10	5.8	43	15	13	3	2,2 x DC	2			53.03	052
0.5	0.50	0.40	2.50	7.8	43	15	10	3	5 x DC	2			53.03	054
0.5	0.50	0.40	5.00	14.5	43	13	5	3	10 x DC	2			53.03	056
0.8	0.48	0.64	1.76	5.9	38	15	11	3	2,2 x DC	2	60.86	081		
0.8	0.80	0.64	4.00	9.0	38	15	7	3	5 x DC	2	60.86	083		
0.8	0.80	0.64	8.00	13.5	38	12	5	3	10 x DC	2	60.86	085		
0.8	0.80	0.64	1.76	5.9	43	15	11	3	2,2 x DC	2			60.86	082
0.8	0.80	0.64	4.00	9.0	43	15	7	3	5 x DC	2			60.86	084
0.8	0.80	0.64	8.00	15.5	43	9,8	5	3	10 x DC	2			60.86	086
1.0	0.60	0.80	2.20	5.9	38	15	10	3	2,2 x DC	2	50.74	101		
1.0	1.00	0.80	2.20	5.9	43	15	10	3	2,2 x DC	2			50.74	102
1.0	1.00	0.80	5.00	9.7	43	15	6	3	5 x DC	2	50.74	103		
1.0	1.00	0.80	10.00	15.3	43	11	4	3	10 x DC	2	52.29	105		
1.0	1.00	0.80	5.00	9.7	50	15	6	3	5 x DC	2			50.74	104
1.0	1.00	0.80	10.00	20.6	50	8,5	3	3	10 x DC	2			52.29	106
1.5	0.90	1.20	3.30	6.1	38	15	8	3	2,2 x DC	2	54.59	151		
1.5	1.50	1.20	3.30	6.1	43	15	8	3	2,2 x DC	2			54.59	152
1.5	1.50	1.20	7.50	11.8	43	14	4	3	5 x DC	2	54.59	153		
1.5	1.50	1.20	15.00	18.1	43	14,6	3	3	10 x DC	2	58.30	155		
1.5	1.50	1.20	7.50	11.8	50	14	4	3	5 x DC	2			54.59	154
1.5	1.50	1.20	15.00	22.0	50	6,2	2	3	10 x DC	2			58.30	156
1.8	1.08	1.44	3.96	6.2	38	15	6	3	2,2 x DC	2	54.59	181		
1.8	1.80	1.44	3.96	6.2	43	15	6	3	2,2 x DC	2			54.59	182
1.8	1.80	1.44	9.00	12.9	43	12	3	3	5 x DC	2	55.30	183		
1.8	1.80	1.44	18.00	20.0	43	19,8	2	3	10 x DC	2	61.83	185		
1.8	1.80	1.44	9.00	12.9	50	12	3	3	5 x DC	2			55.30	184
1.8	1.80	1.44	18.00	22.0	50	5,3	2	3	10 x DC	2			61.83	186
2.0	1.20	1.60	4.40	11.9	50	15	10	6	2,2 x DC	2	54.59	201		
2.0	2.00	1.60	10.00	19.7	50	15	6	6	5 x DC	2	55.30	203		
2.0	2.00	1.60	20.00	25.0	50	22,1	5	6	10 x DC	2	61.83	205		
2.0	2.00	1.60	4.40	11.9	57	15	10	6	2,2 x DC	2			54.59	202
2.0	2.00	1.60	10.00	19.7	57	15	6	6	5 x DC	2			55.30	204
2.0	2.00	1.60	20.00	29.0	57	7,8	4	6	10 x DC	2			61.83	206

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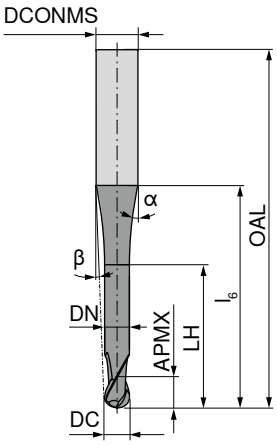
→ v_c/f_z Page 420–427

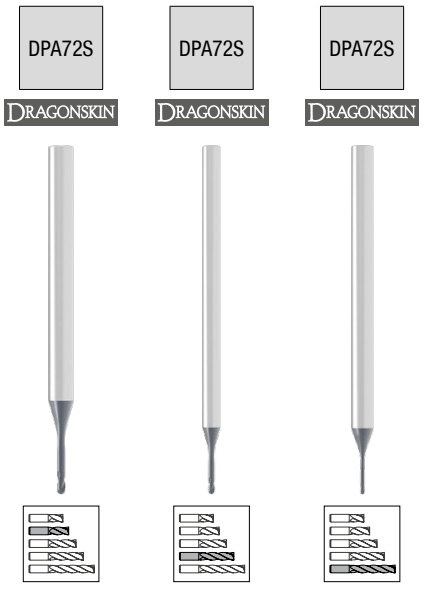
14

Micro-ball nosed cutter

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s= 6° | ZEFP | ≤ 62 HRC





Factory standard | Factory standard | Factory standard

HA | HA | HA

DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 804 ... £ V1		52 804 ... £ V1		52 804 ... £ V1	
0.2	0.12	0.16	0.44	5.7	38	15	14	3	2,2 x DC	2	77.09	021				
0.2	0.20	0.16	1.00	6.4	38	15	13	3	5 x DC	2	77.09	024				
0.2	0.20	0.16	2.00	9.2	38	15	9	3	10 x DC	2	77.09	027				
0.2	0.12	0.16	0.44	5.7	50	15	14	3	2,2 x DC	2			77.09	022		
0.2	0.20	0.16	1.00	6.4	50	15	13	3	5 x DC	2			77.09	025		
0.2	0.20	0.16	2.00	9.2	50	15	9	3	10 x DC	2			77.09	028		
0.2	0.12	0.16	0.44	11.3	80	15	15	6	2,2 x DC	2					77.09	023
0.2	0.20	0.16	1.00	12.0	80	15	14	6	5 x DC	2					77.09	026
0.2	0.20	0.16	2.00	14.8	80	15	12	6	10 x DC	2					77.09	029
0.5	0.30	0.40	1.10	5.8	38	15	13	3	2,2 x DC	2	60.14	051				
0.5	0.50	0.40	2.50	7.8	38	15	10	3	5 x DC	2	60.14	054				
0.5	0.50	0.40	5.00	10.7	38	13	7	3	10 x DC	2	60.14	057				
0.5	0.30	0.40	1.10	5.8	50	15	13	3	2,2 x DC	2			60.14	052		
0.5	0.50	0.40	2.50	7.8	50	15	10	3	5 x DC	2			60.14	055		
0.5	0.50	0.40	5.00	14.5	50	13	5	3	10 x DC	2			60.14	058		
0.5	0.30	0.40	1.10	11.4	80	15	14	6	2,2 x DC	2					60.14	053
0.5	0.50	0.40	2.50	13.4	80	15	12	6	5 x DC	2					60.14	056
0.5	0.50	0.40	5.00	20.2	80	15	8	6	10 x DC	2					60.14	059
0.8	0.48	0.64	1.76	5.9	38	15	11	3	2,2 x DC	2	67.70	081				
0.8	0.80	0.64	4.00	9.0	38	15	7	3	5 x DC	2	67.70	084				
0.8	0.80	0.64	8.00	10.5	38	8,2	6	3	10 x DC	2	68.54	087				
0.8	0.48	0.64	1.76	5.9	50	15	11	3	2,2 x DC	2			67.70	082		
0.8	0.80	0.64	4.00	9.0	50	15	7	3	5 x DC	2			67.70	085		
0.8	0.80	0.64	8.00	18.7	50	9,8	4	3	10 x DC	2			68.54	088		
0.8	0.48	0.64	1.76	11.5	80	15	13	6	2,2 x DC	2					67.70	083
0.8	0.80	0.64	4.00	14.6	80	15	11	6	5 x DC	2					67.70	086
0.8	0.80	0.64	8.00	25.9	80	14,8	6	6	10 x DC	2					68.54	089
1.0	0.60	0.80	2.20	7.8	43	15	11	4	2,2 x DC	2	57.56	101				
1.0	1.00	0.80	5.00	11.6	43	15	8	4	5 x DC	2	57.56	104				
1.0	1.00	0.80	10.00	18.3	43	8	5	4	10 x DC	2	62.00	107				
1.0	0.60	0.80	2.20	7.8	60	15	11	4	2,2 x DC	2			57.56	102		
1.0	1.00	0.80	5.00	11.6	60	15	8	4	5 x DC	2			57.56	105		
1.0	1.00	0.80	10.00	23.7	60	10,2	4	4	10 x DC	2			62.00	108		
1.0	0.60	0.80	2.20	11.5	80	15	13	6	2,2 x DC	2					57.56	103
1.0	1.00	0.80	5.00	15.3	80	15	10	6	5 x DC	2					57.56	106
1.0	1.00	0.80	10.00	28.7	80	13	5	6	10 x DC	2					62.00	109
1.2	0.72	0.96	2.64	7.9	43	15	11	4	2,2 x DC	2	64.13	121				
1.2	1.20	0.96	6.00	12.4	43	15	7	4	5 x DC	2	64.13	124				
1.2	1.20	0.96	12.00	18.2	43	9,3	5	4	10 x DC	2	66.40	127				
1.2	0.72	0.96	2.64	7.9	60	15	11	4	2,2 x DC	2			64.13	122		
1.2	1.20	0.96	6.00	12.4	60	15	7	4	5 x DC	2			64.13	125		
1.2	1.20	0.96	12.00	26.1	60	9,1	4	4	10 x DC	2			66.40	128		
1.2	0.72	0.96	2.64	11.6	80	15	12	6	2,2 x DC	2					64.13	123
1.2	1.20	0.96	6.00	16.2	80	15	9	6	5 x DC	2					64.13	126
1.2	1.20	0.96	12.00	31.8	80	11,7	5	6	10 x DC	2					66.40	129

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→ v_c/f_z Page 420–427

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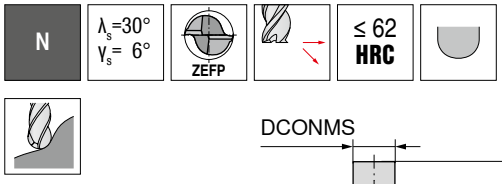
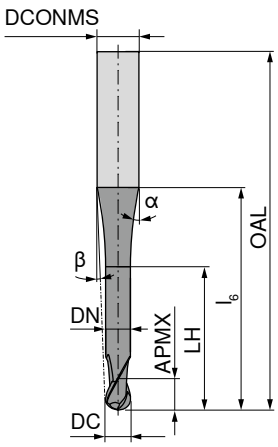
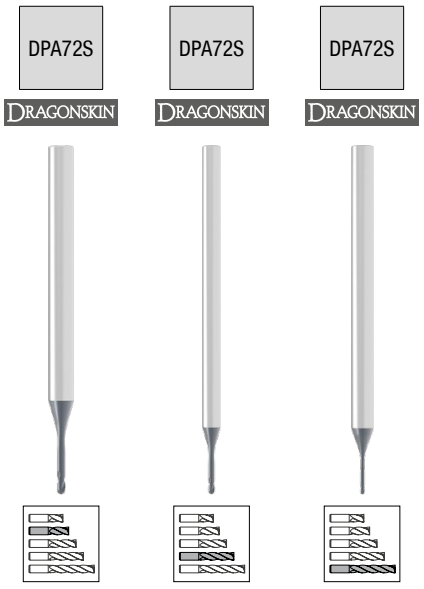
Micro-ball nosed cutter

▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard

HA | HA | HA

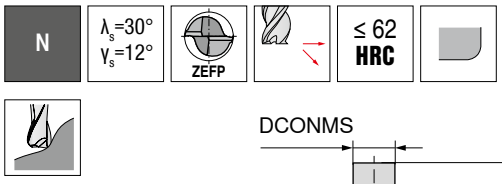
DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 804 ... £ V1		52 804 ... £ V1		52 804 ... £ V1	
1.5	0.90	1.20	3.30	8.0	43	15	9	4	2,2 x DC	2	60.43	**151**				
1.5	1.50	1.20	7.50	13.7	43	15	6	4	5 x DC	2	63.83	**154**				
1.5	1.50	1.20	15.00	18.1	43	13,5	4	4	10 x DC	2	63.83	**157**				
1.5	0.90	1.20	3.30	8.0	60	15	9	4	2,2 x DC	2			60.43	**152**		
1.5	1.50	1.20	7.50	13.7	60	15	6	4	5 x DC	2			63.83	**155**		
1.5	1.50	1.20	15.00	28.0	60	7,8	3	4	10 x DC	2			63.83	**158**		
1.5	0.90	1.20	3.30	11.7	80	15	11	6	2,2 x DC	2					60.43	**153**
1.5	1.50	1.20	7.50	17.4	80	15	8	6	5 x DC	2					63.83	**156**
1.5	1.50	1.20	15.00	35.8	80	10,2	4	6	10 x DC	2					63.83	**159**
1.8	1.08	1.44	3.96	8.1	43	15	8	4	2,2 x DC	2	63.83	**181**				
1.8	1.80	1.44	9.00	15.0	43	15	5	4	5 x DC	2	63.83	**184**				
1.8	1.80	1.44	18.00	19.5	43	31,1	4	4	10 x DC	2	66.40	**187**				
1.8	1.08	1.44	3.96	8.1	60	15	8	4	2,2 x DC	2			63.83	**182**		
1.8	1.80	1.44	9.00	15.0	60	15	5	4	5 x DC	2			63.83	**185**		
1.8	1.80	1.44	18.00	31.9	60	6,8	2	4	10 x DC	2			66.40	**188**		
1.8	1.08	1.44	3.96	11.8	80	15	11	6	2,2 x DC	2					63.83	**183**
1.8	1.80	1.44	9.00	18.7	80	15	7	6	5 x DC	2					63.83	**186**
1.8	1.80	1.44	18.00	39.3	80	9,1	4	6	10 x DC	2					66.40	**189**
2.0	1.20	1.60	4.40	11.9	57	15	10	6	2,2 x DC	2	60.01	**201**				
2.0	2.00	1.60	10.00	19.7	57	15	6	6	5 x DC	2	63.83	**204**				
2.0	2.00	1.60	20.00	32.0	57	9,5	4	6	10 x DC	2	63.83	**207**				
2.0	1.20	1.60	4.40	11.9	70	15	10	6	2,2 x DC	2			60.01	**202**		
2.0	2.00	1.60	10.00	19.7	70	15	6	6	5 x DC	2			63.83	**205**		
2.0	2.00	1.60	20.00	41.4	70	8,5	3	6	10 x DC	2			63.83	**208**		
2.0	1.20	1.60	4.40	11.9	80	15	10	6	2,2 x DC	2					60.01	**203**
2.0	2.00	1.60	10.00	19.7	80	15	6	6	5 x DC	2					63.83	**206**
2.0	2.00	1.60	20.00	41.4	80	8,5	3	6	10 x DC	2					63.83	**209**

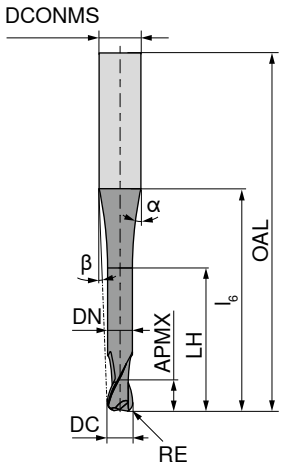
P	●	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S	●	●	●
H	○	○	○
O	○	○	○

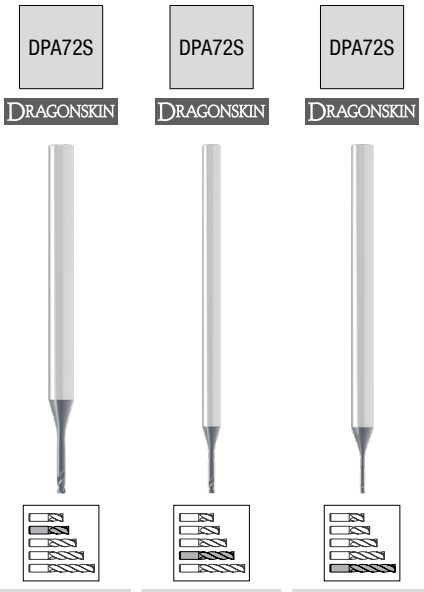
→ v_c/f_z Page 420–427

Micro-torus cutter

▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard

HA | HA | HA

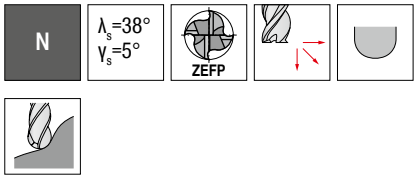
DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 806 ... £ V1		52 806 ... £ V1		52 806 ... £ V1	
0.5	0.1	0.3	0.4	1.1	5.8	38	15	13	3	2,2 x DC	2	61.29	051				
0.5	0.1	0.5	0.4	2.5	7.8	38	15	10	3	5 x DC	2	61.29	054				
0.5	0.1	0.5	0.4	5.0	10.7	38	13	7	3	10 x DC	2	61.29	057				
0.5	0.1	0.3	0.4	1.1	5.8	50	15	13	3	2,2 x DC	2			61.29	052		
0.5	0.1	0.5	0.4	2.5	7.8	50	15	10	3	5 x DC	2			61.29	055		
0.5	0.1	0.5	0.4	5.0	14.5	50	13	5	3	10 x DC	2			61.29	058		
0.5	0.1	0.3	0.4	1.1	11.4	80	15	14	6	2,2 x DC	2					61.29	053
0.5	0.1	0.5	0.4	2.5	13.4	80	15	12	6	5 x DC	2					61.29	056
0.5	0.1	0.5	0.4	5.0	20.2	80	15	8	6	10 x DC	2					61.29	059
1.0	0.2	0.6	0.8	2.2	7.8	43	15	11	4	2,2 x DC	2	58.57	101				
1.0	0.2	1.0	0.8	5.0	11.6	43	15	8	4	5 x DC	2	63.27	104				
1.0	0.2	1.0	0.8	10.0	18.3	43	8	5	4	10 x DC	2	63.27	107				
1.0	0.2	0.6	0.8	2.2	7.8	60	15	11	4	2,2 x DC	2			58.57	102		
1.0	0.2	1.0	0.8	5.0	11.6	60	15	8	4	5 x DC	2			63.27	105		
1.0	0.2	1.0	0.8	10.0	23.7	60	10,2	4	4	10 x DC	2			63.27	108		
1.0	0.2	0.6	0.8	2.2	11.5	80	15	13	6	2,2 x DC	2					58.57	103
1.0	0.2	1.0	0.8	5.0	15.3	80	15	10	6	5 x DC	2					63.27	106
1.0	0.2	1.0	0.8	10.0	28.7	80	13	5	6	10 x DC	2					63.27	109
1.5	0.3	0.9	1.2	3.3	8.0	43	15	9	4	2,2 x DC	2	61.41	151				
1.5	0.3	1.5	1.2	7.5	13.7	43	15	6	4	5 x DC	2	65.11	154				
1.5	0.3	1.5	1.2	15.0	18.1	43	13,5	4	4	10 x DC	2	65.11	157				
1.5	0.3	0.9	1.2	3.3	8.0	60	15	9	4	2,2 x DC	2			61.41	152		
1.5	0.3	1.5	1.2	7.5	13.7	60	15	6	4	5 x DC	2			65.11	155		
1.5	0.3	1.5	1.2	15.0	29.2	60	7,8	3	4	10 x DC	2			65.11	158		
1.5	0.3	0.9	1.2	3.3	11.7	80	15	11	6	2,2 x DC	2					61.41	153
1.5	0.3	1.5	1.2	7.5	17.4	80	15	8	6	5 x DC	2					65.11	156
1.5	0.3	1.5	1.2	15.0	35.8	80	10,2	4	6	10 x DC	2					65.11	159
2.0	0.5	1.2	1.6	4.4	11.9	57	15	10	6	2,2 x DC	2	61.14	201				
2.0	0.5	2.0	1.6	10.0	19.7	57	15	6	6	5 x DC	2	65.11	204				
2.0	0.5	2.0	1.6	20.0	32.0	57	9,5	4	6	10 x DC	2	65.11	207				
2.0	0.5	1.2	1.6	4.4	11.9	70	15	10	6	2,2 x DC	2			61.14	202		
2.0	0.5	2.0	1.6	10.0	19.7	70	15	6	6	5 x DC	2			65.11	205		
2.0	0.5	2.0	1.6	20.0	41.4	70	8,5	3	6	10 x DC	2			65.11	208		
2.0	0.5	1.2	1.6	4.4	11.9	80	15	10	6	2,2 x DC	2					61.14	203
2.0	0.5	2.0	1.6	10.0	19.7	80	15	6	6	5 x DC	2					65.11	206
2.0	0.5	2.0	1.6	20.0	41.4	80	8,5	3	6	10 x DC	2					65.11	209

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

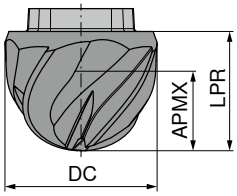
→ v_c/f_z Page 420–427

MultiLock – Ball Nosed Cutter

▲ KLG = Coupling Size





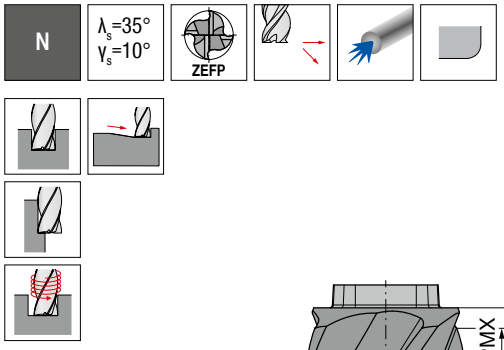


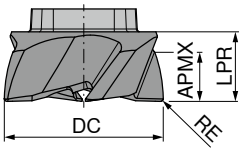
					Factory standard		Factory standard	
					53 803 ...		**53 804 ...**	
DC mm	KLG	APMX mm	LPR mm	ZEFP	£ W2		£ W2	
12	EL12	7.0	9	4	47.63	**01200**	42.86	**01200**
16	EL16	9.5	12	4	61.95	**01600**	57.17	**01600**
20	EL20	12.0	15	4	76.27	**02000**	71.49	**02000**
25	EL25	16.0	19	4	85.82	**02500**	81.04	**02500**
P							●	
M							○	
K							●	
N							○	
S					●			
H								
O								

→ v_c/f_z Page 428

MultiLock – Torus Cutter

▲ KLG = Coupling Size





NEW CTC5240 DRAGONSKIN



NEW CTPX225 DRAGONSKIN



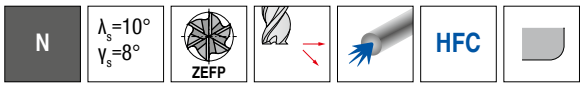
DC mm	RE mm	KLG	APMX mm	LPR mm	ZEFP	Factory standard 53 805 ... £ W2		Factory standard 53 806 ... £ W2	
12	0.2	EL12	3.0	5	4	42.86	**01205**	38.08	**01205**
16	0.3	EL16	4.5	7	4	57.17	**01607**	52.41	**01607**
20	0.3	EL20	6.0	8	5	71.49	**02008**	66.73	**02008**
25	0.5	EL25	8.0	10	6	81.04	**02510**	76.27	**02510**

P		●
M		○
K		●
N		○
S	●	
H		
O		

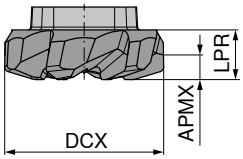
→ v_c/f_z Page 429

MultiLock – High Feed Cutter

▲ KLG = Coupling Size
▲ r_{3D} = corner radius to be programmed







NEW
CTC5240
DRAGONSKIN



NEW
CTPX225
DRAGONSKIN



DCX mm	KLG	r_{3D} mm	APMX mm	LPR mm	ZEFP	Factory standard 53 801 ... £ W2		Factory standard 53 802 ... £ W2	
12	EL12	0.7	3.18	4	5	47.63	**01202**	42.86	**01202**
16	EL16	1.2	3.73	5	6	61.95	**01605**	57.17	**01605**
20	EL20	1.2	4.31	6	6	71.49	**02005**	66.73	**02005**
25	EL25	1.2	5.32	7	6	85.82	**02505**	81.04	**02505**

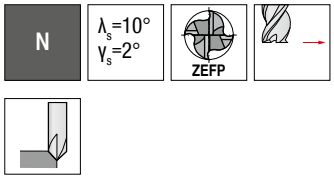
P		●
M		○
K		●
N		
S	●	
H		
O		

→ v_c/f_z Page 430

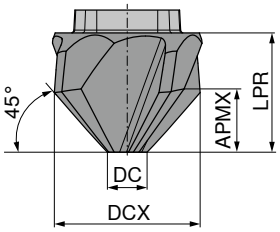
14

MultiLock – Deburring Cutter

▲ KLG = Coupling Size







Factory standard

53 800 ...

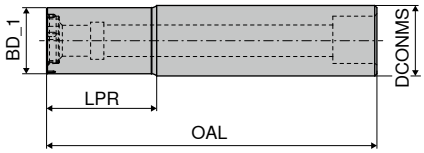
DCX mm	KLG	APMX mm	DC mm	LPR mm	ZEFP	£ W2	
12	EL12	4	4	8	4	43.82	**01200**
16	EL16	6	4	12	4	58.13	**01600**

P	●
M	○
K	●
N	○
S	
H	
O	

→ v_c/f_z Page 431

MultiLock – Holders

▲ KLG = Coupling Size





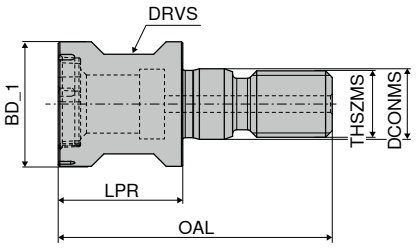
KLG	BD_1 mm	DCONMS mm	OAL mm	LPR mm	NEW A 84 050 ... £ W1		NEW B 84 051 ... £ W1	
EL12	11	12	66	20	93.54	**01200**	93.54	**01200**
EL16	15	16	75	25	102.13	**01600**	102.13	**01600**
EL20	19	20	77	25	111.68	**02000**	111.68	**02000**
EL25	24	25	87	30	123.13	**02500**	123.13	**02500**

Spare parts for Article no.	 Cylindrical screw 70 950 ... £ 2A/28		TORX® blade 80 950 ... £ Y7		 Key D 80 950 ... £ Y7		 Molykote 70 950 ... £ 2A/28		 Clamping screw 70 950 ... £ 2A/28		 Threaded bush 70 950 ... £ 2A/28		 Torque screwdriver 80 950 ... £ Y7		Bit 80 398 ... £ Y7	
84 051 01200 / 84 050 01200	1.06	**42000**	7.02	**054**	12.65	**120**	4.18	**303**	3.63	**41900**	5.41	**42100**	192.38	**193**	6.49	**03500**
84 051 01600 / 84 050 01600	1.28	**42300**	7.02	**055**	13.55	**121**	4.18	**303**	4.33	**42200**	6.48	**42400**	192.38	**193**	6.49	**04500**
84 051 02000 / 84 050 02000	1.28	**42300**	7.02	**055**	13.55	**121**	4.18	**303**	4.33	**42200**	6.48	**42400**	192.38	**193**	6.49	**04500**
84 051 02500 / 84 050 02500	1.58	**42600**	7.02	**055**	13.55	**121**	4.18	**303**	8.24	**42500**	6.00	**42700**	192.38	**193**	4.79	**06000**

14

MultiLock – Screw-in adapter, type A

- KLG = Coupling size
- For high-feed and torus cutters





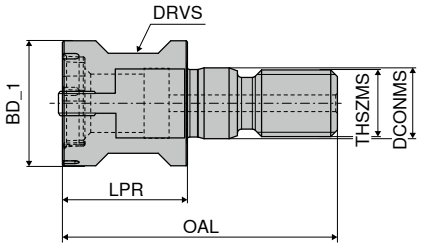
NEW

KLG	BD_1 mm	THSZMS	OAL mm	LPR mm	DCONMS mm	DRVS mm	84 052 ... £ W1	
EL12	11	M6	28	13	6.5	9	98.32	**01200**
EL16	15	M8	33	14	8.5	12	106.91	**01600**
EL20	19	M10	37	18	10.5	15	116.46	**02000**
EL25	24	M12	42	20	12.5	17	136.50	**02500**

Spare parts for Article no.	TORX® blade 80 950 ... £ Y7		Key D 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Threaded bush 70 950 ... £ 2A/28		Torque screwdriver 80 950 ... £ Y7		Bit 80 398 ... £ Y7	
84 052 01200	7.02	**054**	12.65	**120**	4.18	**303**	3.63	**41900**	5.41	**42100**	192.38	**193**	6.49	**03500**
84 052 01600	7.02	**055**	13.55	**121**	4.18	**303**	4.33	**42200**	6.48	**42400**	192.38	**193**	6.49	**04500**
84 052 02000	7.02	**055**	13.55	**121**	4.18	**303**	4.33	**42200**	6.48	**42400**	192.38	**193**	6.49	**04500**
84 052 02500	7.02	**055**	13.55	**121**	4.18	**303**	8.24	**42500**	6.00	**42700**	192.38	**193**	4.79	**06000**

MultiLock – Screw-in adapter, type B

- KLG = Coupling size
- For radius milling and deburring cutters





NEW

KLG	BD_1 mm	THSZMS	OAL mm	LPR mm	DCONMS mm	DRVS mm	84 053 ... £ W1	
EL12	11	M6	28	13	6.5	9	109.78	**01200**
EL16	15	M8	33	14	8.5	12	119.32	**01600**
EL20	20	M10	37	18	10.5	15	128.87	**02000**
EL25	25	M12	42	20	12.5	17	151.78	**02500**

Spare parts for Article no.	TORX® blade 80 950 ... £ Y7		 Clamping screw 84 950 ... £ W1		 Key D 80 950 ... £ Y7		 Molykote 70 950 ... £ 2A/28		 Torque screwdriver 80 950 ... £ Y7		 Mounting bush 84 950 ... £ W1	
84 053 01200	7.02	**054**	38.18	**18600**	12.65	**120**	4.18	**303**	192.38	**193**	82.09	**18000**
84 053 01600	7.02	**055**	41.53	**18800**	13.55	**121**	4.18	**303**	192.38	**193**	89.25	**18100**
84 053 02000	7.02	**055**	44.87	**18700**	13.55	**121**	4.18	**303**	192.38	**193**	96.41	**18200**
84 053 02500	7.02	**055**	52.50	**18900**	13.55	**121**	4.18	**303**	192.38	**193**	113.59	**18300**

MultiChange – Programme Overview

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

Solid carbide drilling



▲ Solid Carbide NC Spot Drill
◁ 90°, 120°, 142° / Ø 8, 10, 12, 16, 20 mm / ZEFP* 2

→ **Chapter 2, Solid carbide drilling**

*ZEFP = Number of teeth

Reaming and Countersinking





▲ Through hole reamers
Ø 8–30.2 mm incl. special diameters / ZEFP 4-6

▲ Blind hold reamers
Ø 12.2–30.2 mm incl. special diameters / ZEFP 6

→ **Chapter 4, Reaming and countersinking**

*ZEFP = Number of teeth

Tool holder



▲ Steel Holder Extra Short
Cylindrical / Tapered 87°
Length 60–90 mm
for SZID 8, 10, 12, 16, 20 mm



▲ Short Holder Steel / Solid Carbide
cylindrical
Length 85–120 mm
for SZID 8, 10, 12, 16, 20 mm



▲ Holder Steel / Solid Carbide, Short
87° taper
Length 85–120 mm
for SZID 8, 10, 12, 16, 20 mm



▲ Solid Carbide Holder Medium
Cylindrical / Tapered 87°
Length 110–150 mm
for SZID 8, 10, 12, 16, 20 mm



▲ Holder Steel/Solid Carbide, Long
cylindrical
Length 150–200 mm
for SZID 8, 10, 12, 16, 20 mm



▲ Holder Steel/Solid Carbide, Long
87° taper
Length 150–200 mm
for SZID 8, 10, 12, 16, 20 mm

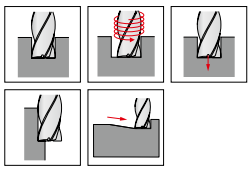


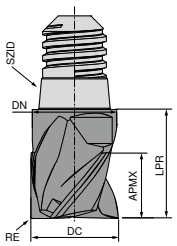
▲ Steel / Solid Carbide Holder Extra Long
cylindrical
Length 200–250 mm
For Ø 16 and 20 mm

→ **Chapter 16 Adapters and accessories**

MultiChange – End Mill

PCR UNI | λ_s=36° γ_s=10° | ZEFP | HPC | APA72S







Factory standard **52 871 ...**

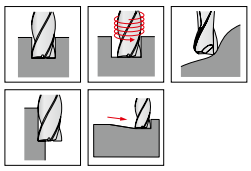
DC mm	RE mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	£ V1	
9.7	0.32	08	7.5	9.8	13	4	101.44	**09700**
10.0	0.32	08	7.5	9.8	13	4	101.44	**10000**
11.7	0.32	10	9.0	11.8	16	4	116.95	**11700**
12.0	0.32	10	9.0	11.8	16	4	116.95	**12000**
15.7	0.32	12	12.0	15.8	20	4	152.67	**15700**
16.0	0.32	12	12.0	15.8	20	4	152.67	**16000**
19.7	0.50	16	15.0	19.8	25	4	200.34	**19700**
20.0	0.50	16	15.0	19.8	25	4	200.34	**20000**

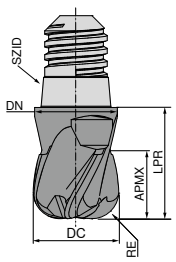
P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 432+433

MultiChange – Torus Cutter

W | λ_s=43° γ_s=24° | ZEFP | DLC | DRAGONSKIN







Factory standard **52 870 ...**

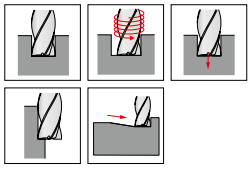
DC mm	RE mm	SZID	APMX mm	DN mm	LPR mm	ZEFP	£ V1	
10	0.5	08	7.5	9.8	13	3	89.70	**10005**
10	1.0	08	7.5	9.8	13	3	89.70	**10010**
12	0.5	10	9.0	11.8	16	3	105.12	**12005**
12	1.0	10	9.0	11.8	16	3	105.12	**12010**
12	2.0	10	9.0	11.8	16	3	105.12	**12020**
16	2.0	12	12.0	15.8	20	3	145.92	**16020**
16	4.0	12	12.0	15.8	20	3	145.92	**16040**
20	2.0	16	15.0	19.8	25	3	206.41	**20020**
20	3.0	16	15.0	19.8	25	3	206.41	**20030**
20	4.0	16	15.0	19.8	25	3	206.41	**20040**

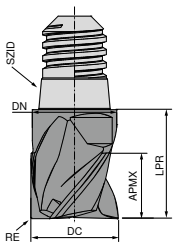
P	
M	
K	
N	●
S	
H	
O	

→ v_c/f_z Page 440

MultiChange – End Mill

PCR ALU | λ_s=41° γ_s=15° | ZEFP | HPC | DLC | DRAGONSKIN







Factory standard **52 872 ...**

DC mm	RE mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	£ V1	
9.7	0.32	08	7.5	9.8	13	4	105.24	**09700**
10.0	0.32	08	7.5	9.8	13	4	105.24	**10000**
11.7	0.32	10	9.0	11.8	16	4	126.24	**11700**
12.0	0.32	10	9.0	11.8	16	4	126.24	**12000**
15.7	0.32	12	12.0	15.8	20	4	166.87	**15700**
16.0	0.32	12	12.0	15.8	20	4	166.87	**16000**
19.7	0.50	16	15.0	19.8	25	4	225.56	**19700**
20.0	0.50	16	15.0	19.8	25	4	225.56	**20000**

P	
M	
K	
N	●
S	
H	
O	

→ v_c/f_z Page 432+433

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

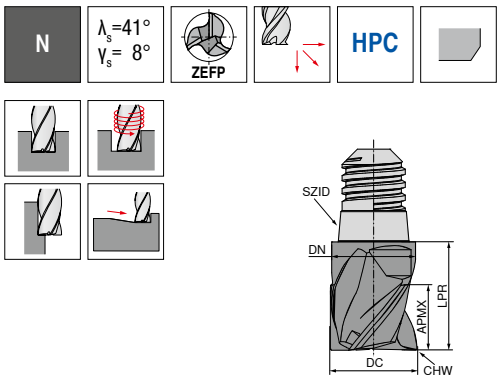
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

APMX does not correspond to the maximum cutting depth

14

MultiChange – End Mill



Factory standard

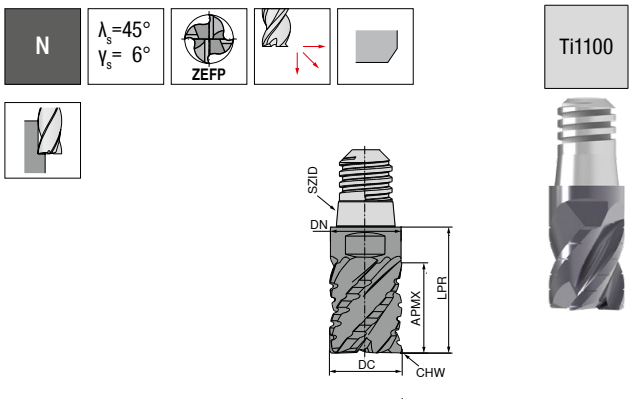
52 861 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	£ V1	
8	06	6.0	7.8	11	0.16	3	60.77	080
10	08	7.5	9.8	13	0.20	3	69.05	100
12	10	9.0	11.8	16	0.24	3	86.51	120
16	12	12.0	15.8	20	0.32	3	120.67	160
20	16	15.0	19.8	25	0.40	3	154.12	200

P	●
M	
K	●
N	
S	
H	
O	

→ v_c/f_z Page 434

MultiChange – Roughing-Finishing Cutter



Factory standard

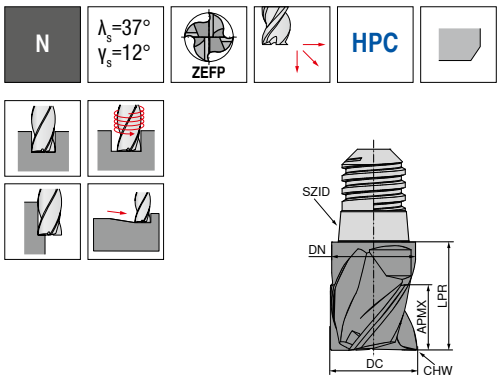
52 862 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	£ V1	
8	06	10.0	7.8	15	0.16	4	75.62	080
10	08	12.5	9.8	18	0.20	4	78.88	100
12	10	15.0	11.8	22	0.24	4	107.01	120
16	12	20.0	15.8	28	0.32	5	161.81	160
20	16	25.0	19.8	35	0.40	6	220.95	200

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 435

MultiChange – End Mill



Factory standard

52 860 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	£ V1	
8	06	6.0	7.8	11	0.16	4	66.01	080
10	08	7.5	9.8	13	0.20	4	74.06	100
12	10	9.0	11.8	16	0.24	4	94.07	120
16	12	12.0	15.8	20	0.32	4	135.04	160
20	16	15.0	19.8	25	0.40	4	174.65	200

P	●
M	
K	●
N	
S	
H	
O	

→ v_c/f_z Page 434

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

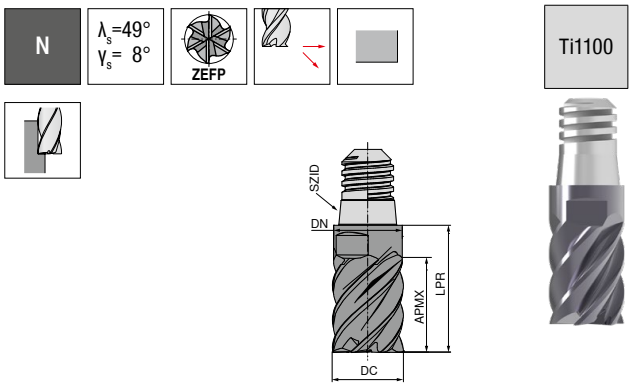
- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange – Finish milling cutter



Factory standard

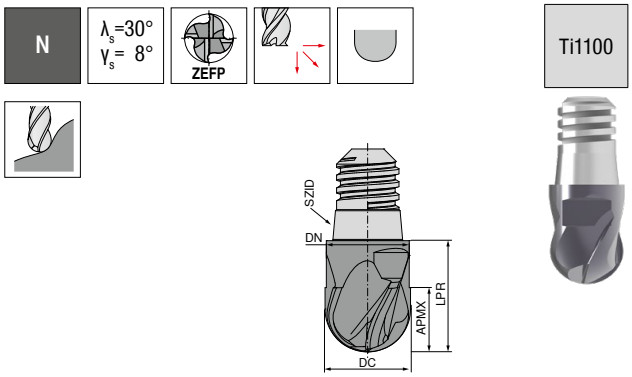
52 863 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	£ V1	
8	06	10.0	7.8	15	6	67.50	080
10	08	12.5	9.8	18	6	76.36	100
12	10	15.0	11.8	22	6	95.57	120
16	12	20.0	15.8	28	6	148.97	160
20	16	25.0	19.8	35	6	205.95	200

P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 437

MultiChange – Ball Nosed Cutter



Factory standard

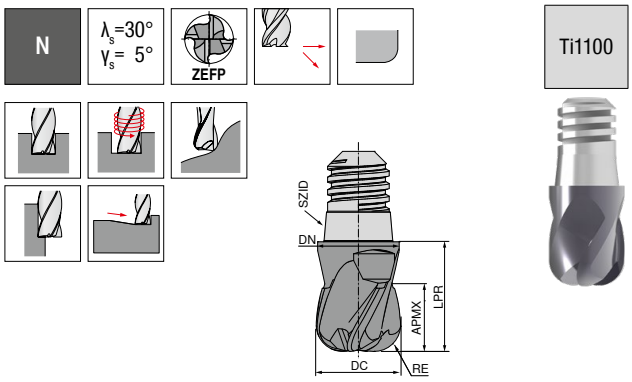
52 866 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	£ V1	
10	08	7.5	9.8	13	4	76.77	100
12	10	9.0	11.8	16	4	95.82	120
16	12	12.0	15.8	20	4	144.00	160
20	16	15.0	19.8	25	4	177.58	200

P	●
M	○
K	●
N	●
S	
H	
O	○

→ v_c/f_z Page 438+439

MultiChange – Torus Cutter



Factory standard

52 865 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	RE mm	ZEFP	£ V1	
8	06	6.0	7.8	11	1.0	4	60.77	081
8	06	6.0	7.8	11	2.0	4	60.77	082
10	08	7.5	9.8	13	1.5	4	69.05	101
10	08	7.5	9.8	13	3.0	4	69.05	103
12	10	9.0	11.8	16	1.5	4	86.51	121
12	10	9.0	11.8	16	4.0	4	86.51	124
16	12	12.0	15.8	20	2.0	4	128.30	162
16	12	12.0	15.8	20	5.0	4	128.30	165
20	16	15.0	19.8	25	2.0	4	174.33	202
20	16	15.0	19.8	25	6.0	4	174.33	206

P	●
M	○
K	●
N	●
S	
H	
O	○

→ v_c/f_z Page 438+439

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

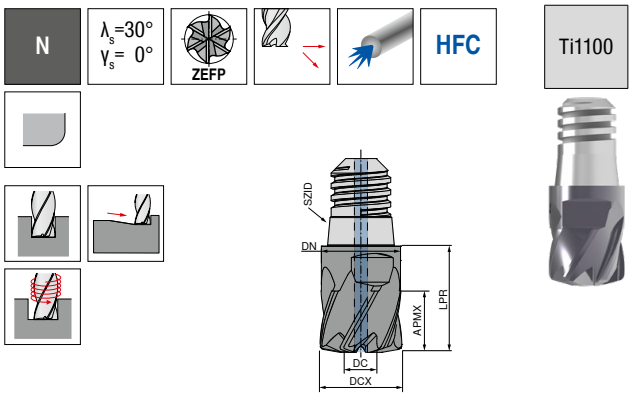
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

APMX does not correspond to the maximum cutting depth

14

MultiChange – High Feed Cutter



Factory standard

52 864 ...

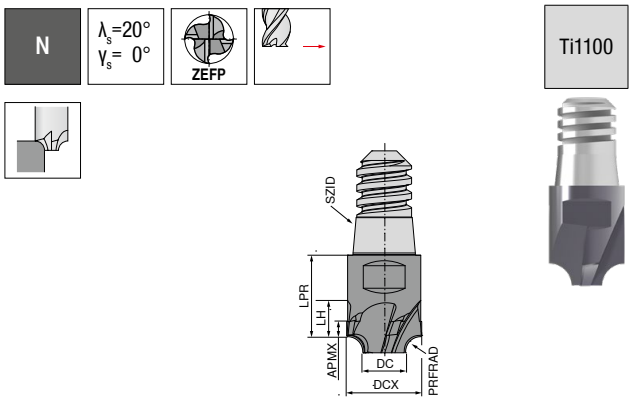
DCX mm	SZID	r_{3D} mm	APMX mm	LPR ±0,02 mm	ZEFP	£ V1	
8	06	0.7	6.0	11	6	66.01	080
10	08	0.9	7.5	13	6	74.06	100
12	10	1.0	9.0	16	6	94.07	120
16	12	1.4	12.0	20	6	135.04	160
20	16	1.7	15.0	25	6	174.65	200

P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 436

- ▲ r_{3D} = corner radius to be programmed
- ▲ Ø DCX tapered by 0.2 mm, resulting in Ø DN
- ▲ Ø DCX halved, resulting in Ø DC

MultiChange – Quarter-round milling cutter



Factory standard

52 869 ...

DCX mm	SZID	PRFRAD ±0,03 mm	APMX mm	DC mm	LPR ±0,02 mm	LH mm	ZEFP	£ V1	
8	06	0.5	2.0	6.63	11	4.5	4	85.39	080
8	06	1.0	3.0	5.69	11	5.0	4	85.39	081
10	08	1.5	4.0	6.63	13	6.5	4	91.68	100
10	08	2.0	4.5	5.69	13	7.0	4	91.68	101
12	10	2.5	5.5	6.65	16	8.5	4	110.60	120
12	10	3.0	6.0	5.70	16	9.0	4	110.60	121
12	10	3.5	6.5	4.76	16	9.5	4	110.60	122
16	12	4.0	8.0	7.60	20	12.0	4	156.65	160
16	12	4.5	8.5	6.68	20	12.5	4	156.65	161
16	12	5.0	9.0	5.74	20	13.0	4	156.65	162
20	16	5.0	10.0	9.53	25	15.0	4	211.76	200
20	16	6.0	11.0	7.64	25	16.0	4	211.76	201

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 441

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

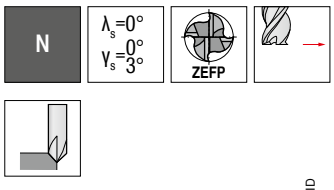
- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

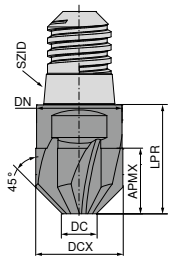
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange – Deburring Cutter





Ti1050



Factory standard

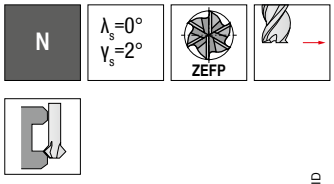
52 867 ...

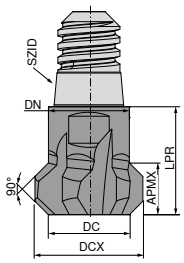
DCX mm	SZID	APMX mm	DC mm	DN mm	LPR ±0,02 mm	ZEFP	£ V1	
10	08	7.5	0.02	9.8	13	4	62.30	**100**
12	10	9.0	0.02	11.8	16	4	80.78	**120**
16	12	12.0	6.40	15.8	20	6	107.42	**160**
20	16	15.0	8.00	19.8	25	6	141.69	**200**

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 442

MultiChange – Deburring Cutter





Ti1100



Factory standard

52 868 ...

DCX mm	SZID	APMX mm	DC mm	DN mm	LPR ±0,02 mm	ZEFP	£ V1	
10	06	4.8	7.5	8	11	6	69.05	**100**
12	08	5.5	9.0	10	13	6	86.51	**120**
16	10	8.0	12.0	12	16	6	120.67	**160**
20	12	9.5	15.0	16	20	6	154.12	**200**

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 442

Assembly instructions

- SZID = Coupling Size
- SW = Across Flats Size
- M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

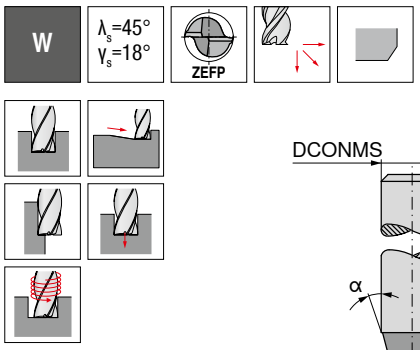
- A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- In unstable applications, the cutting data should be reduced.

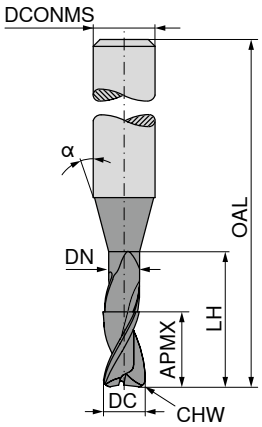
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

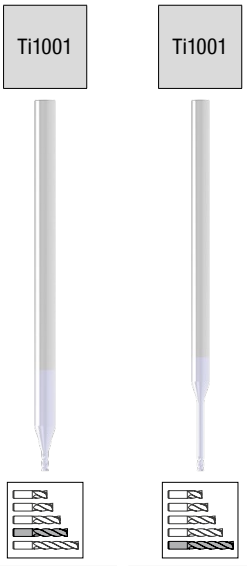
Application Tips

APMX does not correspond to the maximum cutting depth

End milling cutter







Factory standard | Factory standard

HA | HA

DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	CHW mm	ZEFP	50 900 ... £ V0		50 900 ... £ V0	
0.2	0.2	0.18	0.6	55	15	3	0.02	2	85.74	**021**		
0.2	0.2	0.18	1.0	55	15	3	0.02	2	86.95	**022**		
0.2	0.2	0.18	1.6	55	15	3	0.02	2	87.84	**023**		
0.2	0.2	0.18	2.0	55	15	3	0.02	2	88.88	**024**		
0.3	0.3	0.28	0.9	55	15	3	0.03	2	85.74	**031**		
0.3	0.3	0.28	1.5	55	15	3	0.03	2	86.95	**032**		
0.3	0.3	0.28	2.4	55	15	3	0.03	2	87.84	**033**		
0.3	0.3	0.28	3.0	55	15	3	0.03	2	88.88	**034**		
0.4	0.4	0.37	1.2	55	15	3	0.04	2	85.74	**041**		
0.4	0.4	0.37	2.0	55	15	3	0.04	2	86.95	**042**		
0.4	0.4	0.37	3.2	55	15	3	0.04	2	87.84	**043**		
0.4	0.4	0.37	4.0	55	15	3	0.04	2	88.88	**044**		
0.5	0.5	0.45	1.5	55	15	3	0.05	2	83.96	**051**		
0.5	0.5	0.45	2.5	55	15	3	0.05	2	84.85	**052**		
0.5	0.5	0.45	4.0	55	15	3	0.05	2	85.74	**053**		
0.5	0.5	0.45	5.0	55	15	3	0.05	2	86.95	**054**		
0.6	0.6	0.58	2.0	55	15	3	0.06	2	70.76	**061**		
0.6	0.6	0.58	3.0	55	15	3	0.06	2	70.49	**062**		
0.6	0.6	0.58	5.0	65	15	3	0.06	2			76.78	**063**
0.6	0.6	0.58	6.0	65	15	3	0.06	2			81.26	**064**
0.8	0.8	0.77	2.5	55	15	3	0.08	2	70.49	**081**		
0.8	0.8	0.77	4.0	55	15	3	0.08	2	70.49	**082**		
0.8	0.8	0.77	6.5	65	15	3	0.08	2			78.41	**083**
0.8	0.8	0.77	8.0	65	15	3	0.08	2			81.26	**084**
1.0	1.0	0.95	3.0	55	15	3	0.10	2	70.49	**101**		
1.0	1.0	0.95	5.0	55	15	3	0.10	2	70.49	**102**		
1.0	1.0	0.95	8.0	65	15	3	0.10	2			74.53	**103**
1.0	1.0	0.95	10.0	65	15	3	0.10	2			81.26	**104**
1.0	1.0	0.95	12.0	65	15	3	0.10	2			83.33	**105**
1.2	1.2	1.15	3.0	55	15	3	0.12	2	70.49	**121**		
1.2	1.2	1.15	6.0	55	15	3	0.12	2	70.49	**122**		
1.2	1.2	1.15	10.0	65	15	3	0.12	2			78.41	**123**
1.2	1.2	1.15	12.0	65	15	3	0.12	2			81.26	**124**
1.3	1.3	1.25	4.0	55	15	3	0.12	2	70.49	**131**		
1.3	1.3	1.25	7.0	55	15	3	0.12	2	70.76	**132**		
1.3	1.3	1.25	11.0	65	15	3	0.12	2			78.41	**133**
1.3	1.3	1.25	13.0	65	15	3	0.12	2			83.33	**134**
1.5	1.5	1.44	5.0	55	15	3	0.12	2	70.76	**151**		
1.5	1.5	1.44	7.5	55	15	3	0.12	2	70.49	**152**		
1.5	1.5	1.44	12.0	65	15	3	0.12	2			83.33	**153**

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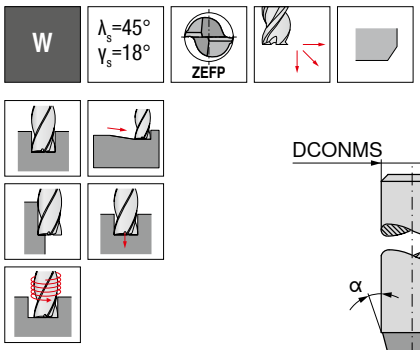
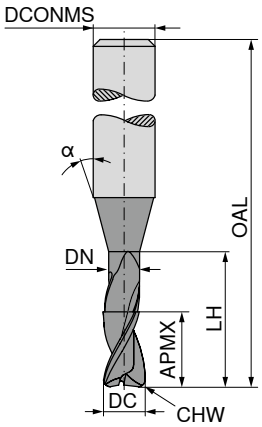
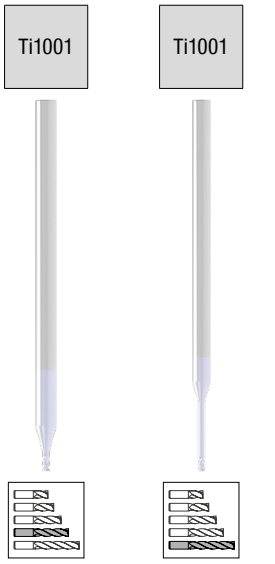
End milling cutter







									Factory standard		Factory standard		
									HA		HA		
									50 900 ...		50 900 ...		
DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	CHW mm	ZEFP	£ V0		£ V0		
1.5	1.5	1.44	15.0	65	15	3	0.12	2			81.26		154
1.6	1.6	1.52	5.0	55	15	3	0.12	2	70.76	161			
1.6	1.6	1.52	8.0	55	15	3	0.12	2	70.76	162			
1.6	1.6	1.52	13.0	65	15	3	0.12	2			78.41		163
1.6	1.6	1.52	16.0	65	15	3	0.12	2			83.33		164
1.8	1.8	1.72	5.5	55	15	3	0.12	2	70.49	181			
1.8	1.8	1.72	9.0	55	15	3	0.12	2	70.76	182			
1.8	1.8	1.72	14.5	65	15	3	0.12	2			78.41		183
1.8	1.8	1.72	18.0	65	15	3	0.12	2			83.33		184
2.0	2.0	1.92	6.0	55	15	3	0.13	2	70.49	201			
2.0	2.0	1.92	10.0	55	15	3	0.13	2	70.49	202			
2.0	2.0	1.92	14.0	55	15	3	0.13	2	74.53	203			
2.0	2.0	1.92	16.0	65	15	3	0.13	2			83.33		204
2.0	2.0	1.92	20.0	65	15	3	0.13	2			81.26		205
2.3	2.3	2.22	7.0	55	15	3	0.13	2	70.49	231			
2.3	2.3	2.22	11.5	55	15	3	0.13	2	70.76	232			
2.3	2.3	2.22	18.5	65	15	3	0.13	2			74.53		233
2.3	2.3	2.22	20.0	65	15	3	0.13	2			83.33		234
2.3	2.3	2.22	23.0	65	15	3	0.13	2			83.33		235
3.0	3.0	2.90	9.0	65	15	6	0.15	2	74.53	301			
3.0	3.0	2.90	15.0	65	15	6	0.15	2	83.33	302			
3.0	3.0	2.90	24.0	100	15	6	0.15	2			90.37		303
3.0	3.0	2.90	30.0	100	15	6	0.15	2			93.98		304
4.0	4.0	3.90	12.0	65	15	6	0.15	2	83.33	401			
4.0	4.0	3.90	20.0	65	15	6	0.15	2	83.33	402			
4.0	4.0	3.90	32.0	100	15	6	0.15	2			93.98		403
4.0	4.0	3.90	40.0	100	15	6	0.15	2			97.11		404
5.0	5.0	4.90	15.0	65	15	6	0.15	2	83.33	501			
5.0	5.0	4.90	25.0	65	15	6	0.15	2	83.33	502			
5.0	5.0	4.90	40.0	100	15	6	0.15	2			97.11		503
5.0	5.0	4.90	50.0	100	15	6	0.15	2			100.11		504
6.0	6.0	5.90	18.0	65	15	6	0.15	2	83.33	601			
6.0	6.0	5.90	30.0	100	15	6	0.15	2			93.98		602
6.0	6.0	5.90	48.0	100	15	6	0.15	2			100.11		603
6.0	6.0	5.90	60.0	100	15	6	0.15	2			103.05		604
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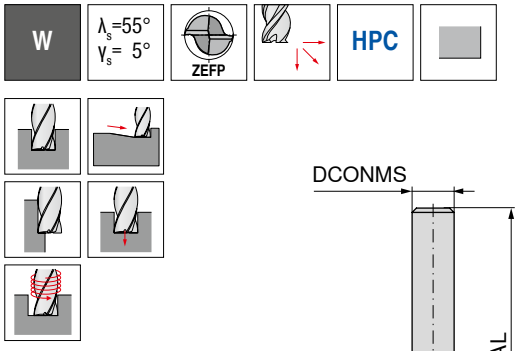
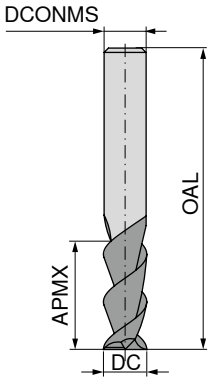
End milling cutter









≈DIN 6527

HA 

50 960 ...

DC h6 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0	
3	12	50	3	2	27.37	**030**
4	15	50	4	2	27.37	**040**
5	20	50	5	2	27.37	**050**
6	20	57	6	2	27.37	**060**
8	20	63	8	2	40.90	**080**
10	25	73	10	2	56.07	**100**
12	25	83	12	2	77.07	**120**
14	30	83	14	2	121.35	**140**
16	30	92	16	2	135.72	**160**
20	38	104	20	2	169.38	**200**

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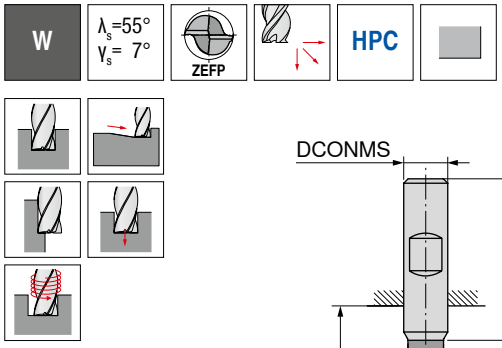
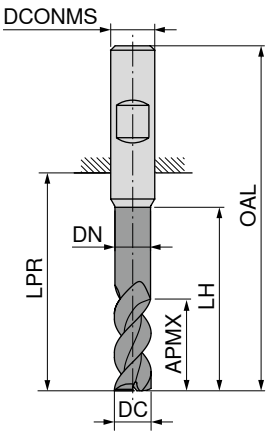
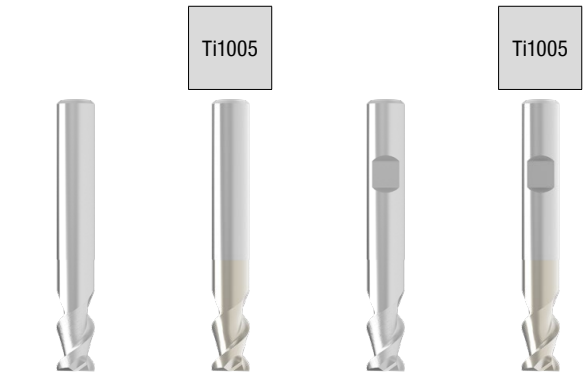
End milling cutter









Factory standard		Factory standard		Factory standard		Factory standard	
HA		HA		HB		HB	
54 590 ...		**54 592 ...**		**54 591 ...**		**54 593 ...**	
£		£		£		£	
V0		V0		V0		V0	

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP								
2.7	5.0	2.5	12	19	55	6	2	25.00	027	35.96	027	25.00	027	35.96	027
3.0	3.5	2.8	12	19	55	6	2	25.40	033	37.40	033				
3.0	5.0	2.8	12	19	55	6	2	25.00	031	35.96	031	25.00	031	35.96	031
3.7	6.5	3.5	12	19	55	6	2	25.00	037	35.96	037	25.00	037	35.96	037
4.0	4.5	3.8	12	19	55	6	2	25.40	043	37.40	043				
4.0	6.5	3.8	12	19	55	6	2	25.00	041	35.96	041	25.00	041	35.96	041
4.7	8.0	4.5	15	22	58	6	2	25.00	047	35.96	047	25.00	047	35.96	047
5.0	5.5	4.8	15	22	58	6	2	25.40	053	37.40	053				
5.0	8.0	4.8	15	22	58	6	2	25.00	051	35.96	051	25.00	051	35.96	051
5.7	10.0	5.5	18	22	58	6	2	25.00	057	35.96	057	25.00	057	35.96	057
6.0	7.0	5.8	18	22	58	6	2	25.40	063	37.40	063				
6.0	10.0	5.8	18	22	58	6	2	25.00	061	35.96	061	25.00	061	35.96	061
6.7	13.0	6.4	24	28	64	8	2	35.96	067	49.97	067	35.96	067	49.97	067
7.0	13.0	6.7	24	28	64	8	2	35.96	071	49.97	071	35.96	071	49.97	071
7.7	13.0	7.4	24	28	64	8	2	35.96	077	49.97	077	35.96	077	49.97	077
8.0	9.0	7.7	24	28	64	8	2	35.96	083	49.97	083				
8.0	13.0	7.7	24	28	64	8	2	35.96	081	49.97	081	35.96	081	49.97	081
8.7	16.0	8.4	30	34	74	10	2	58.04	087	71.79	087	58.04	087	71.79	087
9.0	16.0	8.7	30	34	74	10	2	58.04	091	71.79	091	58.04	091	71.79	091
9.7	16.0	9.4	30	34	74	10	2	58.04	097	71.79	097	58.04	097	71.79	097
10.0	11.0	9.7	30	34	74	10	2	58.04	103	71.79	103				
10.0	16.0	9.7	30	34	74	10	2	58.04	101	71.79	101	58.04	101	71.79	101
10.7	19.0	10.3	36	40	85	12	2	75.61	107	90.30	107	75.61	107	90.30	107
11.0	19.0	10.6	36	40	85	12	2	75.61	111	90.30	111	75.61	111	90.30	111
11.7	19.0	11.3	36	40	85	12	2	75.61	117	90.30	117	75.61	117	90.30	117
12.0	13.0	11.6	36	40	85	12	2	75.61	123	90.30	123				
12.0	19.0	11.6	36	40	85	12	2	75.61	121	90.30	121	75.61	121	90.30	121
13.0	22.0	12.6	42	46	91	14	2	112.38	131	129.13	131	112.38	131	129.13	131
13.7	22.0	13.3	42	46	91	14	2	112.38	137	129.13	137	112.38	137	129.13	137
14.0	15.0	13.6	42	46	91	14	2	112.38	143	129.13	143				
14.0	22.0	13.6	42	46	91	14	2	112.38	141	129.13	141	112.38	141	129.13	141
15.0	25.0	14.5	48	52	100	16	2	182.26	151	205.87	151	182.26	151	205.87	151
15.7	25.0	15.2	48	52	100	16	2	182.26	157	205.87	157	182.26	157	205.87	157
16.0	17.0	15.5	48	52	100	16	2	182.26	163	205.87	163				
16.0	25.0	15.5	48	52	100	16	2	182.26	161	205.87	161	182.26	161	205.87	161
18.0	20.0	17.5	54	58	106	18	2	231.02	183	270.23	183				
18.0	29.0	17.5	54	58	106	18	2	232.53	181	256.16	181	232.53	181	256.16	181
19.7	32.0	19.2	60	64	114	20	2	254.52	197	273.37	197	254.52	197	281.30	197
20.0	22.0	19.5	60	64	114	20	2	245.09	203	268.73	203				
20.0	32.0	19.5	60	64	114	20	2	254.52	201	273.37	201	254.52	201	273.37	201
24.7	40.0	24.2	75	80	136	25	2	391.28	247	413.26	247	391.28	247	413.26	247
25.0	27.0	24.5	75	80	136	25	2	370.77	253	392.76	253				
25.0	40.0	24.5	75	80	136	25	2	391.28	251	413.26	251	391.28	251	413.26	251

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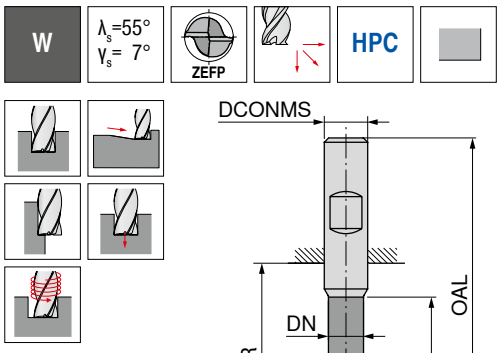
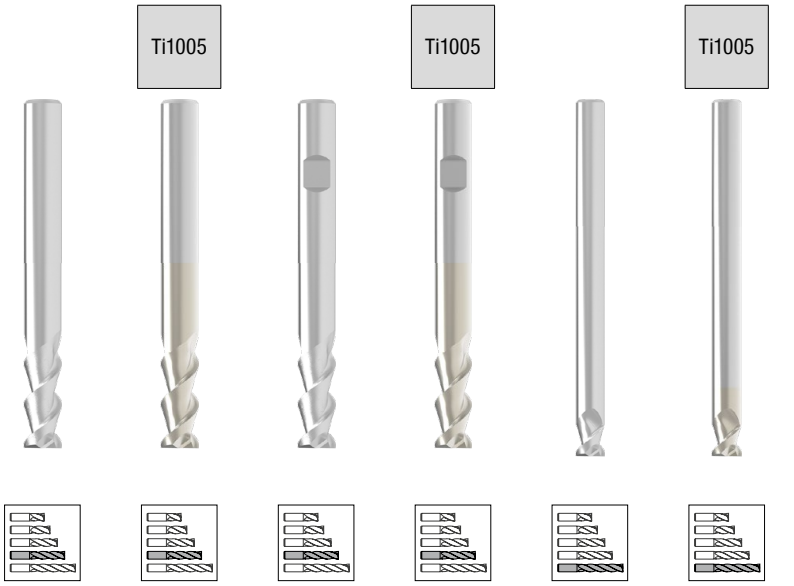
End milling cutter



LPR with Shank DIN 6535 HB



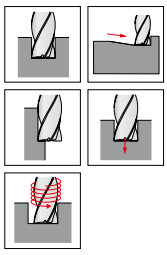
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	Factory standard HA 54 590 ... £ V0		Factory standard HA 54 592 ... £ V0		Factory standard HB 54 591 ... £ V0		Factory standard HB 54 593 ... £ V0		Factory standard HA 54 590 ... £ V0		Factory standard HA 54 592 ... £ V0	
2.7	8.0	2.5	15	22	58	6	2	28.62	**028**	39.93	**028**	28.62	**028**	39.93	**028**				
3.0	3.5	2.8	15	22	58	6	2	27.56	**034**	38.48	**034**								
3.0	8.0	2.8	15	22	58	6	2	28.62	**032**	39.93	**032**	28.62	**032**	39.93	**032**				
3.0	3.5	2.8	24	31	67	6	2									22.62	**035**	46.08	**035**
3.7	10.5	3.5	20	26	62	6	2	28.62	**038**	39.93	**038**	28.62	**038**	39.93	**038**				
4.0	4.5	3.8	20	26	62	6	2	27.56	**044**	38.48	**044**								
4.0	10.5	3.8	20	26	62	6	2	28.62	**042**	39.93	**042**	28.62	**042**	39.93	**042**				
4.0	4.5	3.8	32	38	74	6	2									33.62	**045**	46.08	**045**
4.7	13.0	4.5	25	34	70	6	2	28.62	**048**	39.93	**048**	28.62	**048**	39.93	**048**				
5.0	5.5	4.8	25	34	70	6	2	27.56	**054**	38.48	**054**								
5.0	13.0	4.8	25	34	70	6	2	28.62	**052**	39.93	**052**	28.62	**052**	39.93	**052**				
5.0	5.5	4.8	40	52	88	6	2									34.65	**055**	46.86	**055**
5.7	16.0	5.5	30	34	70	6	2	28.62	**058**	39.93	**058**	28.62	**058**	39.93	**058**				
6.0	7.0	5.8	30	34	70	6	2	27.56	**064**	38.48	**064**								
6.0	16.0	5.8	30	34	70	6	2	28.62	**062**	39.93	**062**	28.62	**062**	39.93	**062**				
6.0	7.0	5.8	48	52	88	6	2									34.65	**065**	46.86	**065**
6.7	21.0	6.4	40	44	80	8	2	40.95	**068**	53.59	**068**	40.95	**068**	53.59	**068**				
7.0	21.0	6.7	40	44	80	8	2	40.95	**072**	53.59	**072**	40.95	**072**	53.59	**072**				
7.7	21.0	7.4	40	44	80	8	2	40.95	**078**	53.59	**078**	40.95	**078**	53.59	**078**				
8.0	9.0	7.7	40	44	80	8	2	40.40	**084**	52.70	**084**								
8.0	21.0	7.7	40	44	80	8	2	40.95	**082**	53.59	**082**	40.95	**082**	53.59	**082**				
8.0	9.0	7.7	64	68	104	8	2									52.08	**085**	65.42	**085**
8.7	26.0	8.4	50	54	94	10	2	65.53	**088**	80.50	**088**	65.53	**088**	80.50	**088**				
9.0	26.0	8.7	50	54	94	10	2	65.53	**092**	80.50	**092**	65.53	**092**	80.50	**092**				
9.7	26.0	9.4	50	54	94	10	2	65.53	**098**	80.50	**098**	65.53	**098**	80.50	**098**				
10.0	11.0	9.7	50	54	94	10	2	63.91	**104**	78.87	**104**								
10.0	26.0	9.7	50	54	94	10	2	65.53	**102**	80.50	**102**	65.53	**102**	80.50	**102**				
10.0	11.0	9.7	80	84	124	10	2									106.24	**105**	123.90	**105**
10.7	31.0	10.3	60	64	109	12	2	108.19	**108**	126.88	**108**	108.19	**108**	126.88	**108**				
11.0	31.0	10.6	60	64	109	12	2	108.19	**112**	126.88	**112**	108.19	**112**	126.88	**112**				
11.7	31.0	11.3	60	64	109	12	2	108.19	**118**	126.88	**118**	108.19	**118**	126.88	**118**				
12.0	13.0	11.6	60	64	109	12	2	106.08	**124**	124.80	**124**								
12.0	31.0	11.6	60	64	109	12	2	108.19	**122**	126.88	**122**	108.19	**122**	126.88	**122**				
12.0	13.0	11.6	96	100	145	12	2									137.25	**125**	156.50	**125**
13.0	36.0	12.6	70	74	119	14	2	156.50	**132**	177.60	**132**	156.50	**132**	177.60	**132**				
13.7	36.0	13.3	70	74	119	14	2	156.50	**138**	182.26	**138**	156.50	**138**	177.60	**138**				
14.0	15.0	13.6	70	74	119	14	2	154.56	**144**	175.96	**144**								
14.0	36.0	13.6	70	74	119	14	2	156.50	**142**	177.60	**142**	156.50	**142**	177.60	**142**				
14.0	15.0	13.6	112	116	161	14	2									205.87	**145**	226.22	**145**
15.0	41.0	14.5	80	84	132	16	2	202.74	**152**	226.22	**152**	202.74	**152**	226.22	**152**				
P																			
M																			
K																			
N								●		●		●		●		●		●	
S																			
H																			
O																			

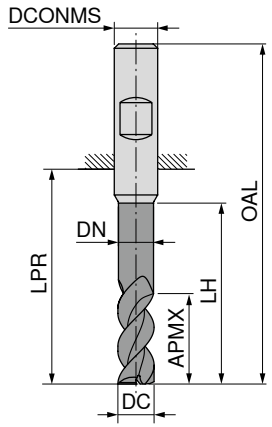
→ v_c/f_z Page 448+449

Continued on next page

End milling cutter

W | λ_s=55° γ_s= 7° | ZEFP | HPC

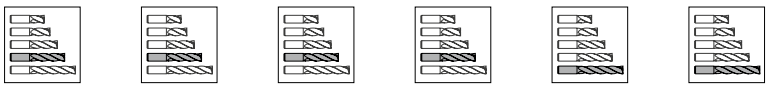




LPR with Shank DIN 6535 HB

Ti1005 | Ti1005 | Ti1005





Factory standard | Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

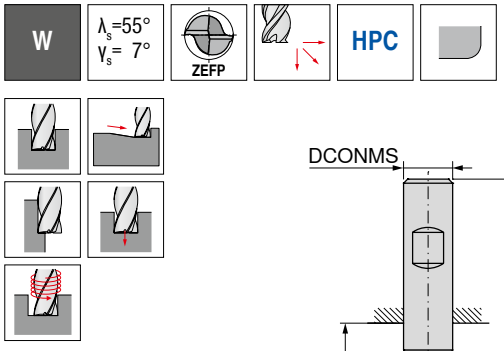
HA | HA | HB | HB | HA | HA

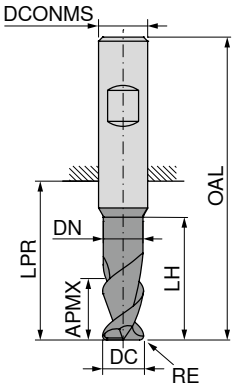
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 590 ... £ V0		54 592 ... £ V0		54 591 ... £ V0		54 593 ... £ V0		54 590 ... £ V0		54 592 ... £ V0	
15.7	41.0	15.2	80	84	132	16	2	202.74	**158**	226.22	**158**	202.74	**158**	226.22	**158**				
16.0	17.0	15.5	80	84	132	16	2	201.08	**164**	224.73	**164**								
16.0	41.0	15.5	80	84	132	16	2	202.74	**162**	226.22	**162**	202.74	**162**	226.22	**162**				
16.0	17.0	15.5	128	132	180	16	2									268.73	**165**	292.20	**165**
18.0	20.0	17.5	90	94	142	18	2	253.03	**184**	276.52	**184**								
18.0	47.0	17.5	90	94	142	18	2	265.59	**182**	289.10	**182**	265.59	**182**	289.10	**182**				
18.0	20.0	17.5	144	148	196	18	2									341.02	**185**	364.49	**185**
19.7	52.0	19.2	100	104	154	20	2	290.71	**198**	319.00	**198**	290.71	**198**	319.00	**198**				
20.0	22.0	19.5	100	104	154	20	2	270.23	**204**	298.50	**204**								
20.0	52.0	19.5	100	104	154	20	2	290.71	**202**	319.00	**202**	290.71	**202**	319.00	**202**				
20.0	22.0	19.5	160	164	214	20	2									373.92	**205**	402.20	**205**
24.7	65.0	24.2	125	130	186	25	2	542.07	**248**	564.10	**248**	542.07	**248**	564.10	**248**				
25.0	27.0	24.5	125	130	186	25	2	521.59	**254**	543.57	**254**								
25.0	65.0	24.5	125	130	186	25	2	542.07	**252**	564.10	**252**	542.07	**252**	564.10	**252**				
25.0	27.0	24.5	200	204	260	25	2									738.39	**255**	762.05	**255**
P																			
M																			
K																			
N									●		●		●		●		●		●
S																			
H																			
O																			

→ v_c/f_z Page 448+449

14

End milling cutter with corner radius





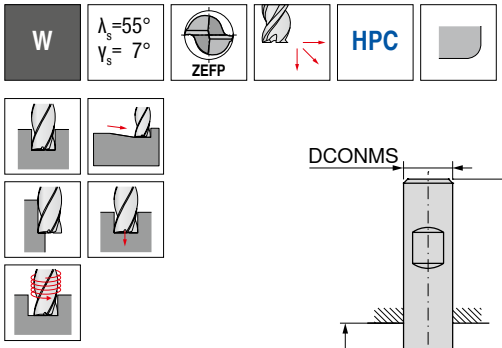


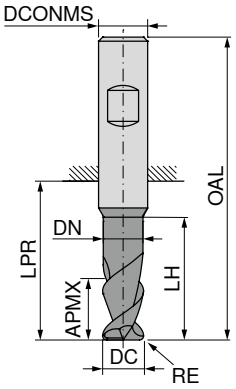


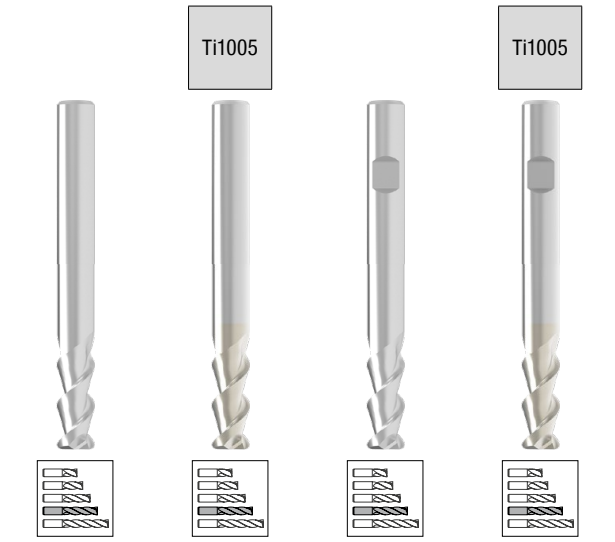
									Factory standard HA		Factory standard HA		Factory standard HB		Factory standard HB	
									54 594 ...		54 596 ...		54 595 ...		54 597 ...	
DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V0		£ V0		£ V0		£ V0	
3	0.2	5.0	2.8	12	19	55	6	2	27.74	031	39.96	031	27.74	031	39.96	031
3	0.3	5.0	2.8	12	19	55	6	2	27.74	033	39.96	033	27.74	033	39.96	033
3	0.5	5.0	2.8	12	19	55	6	2	27.74	035	39.96	035	27.74	035	39.96	035
4	0.3	6.5	3.8	12	19	55	6	2	27.74	041	39.96	041	27.74	041	39.96	041
4	0.5	6.5	3.8	12	19	55	6	2	27.74	043	39.96	043	27.74	043	39.96	043
4	1.0	6.5	3.8	12	19	55	6	2	27.74	045	39.96	045	27.74	045	39.96	045
5	0.3	8.0	4.8	15	22	58	6	2	28.62	051	39.93	051	28.62	051	39.93	051
5	0.5	8.0	4.8	15	22	58	6	2	28.62	053	39.93	053	28.62	053	39.93	053
5	1.0	8.0	4.8	15	22	58	6	2	28.62	055	39.93	055	28.62	055	39.93	055
6	0.3	10.0	5.8	18	22	58	6	2	29.62	061	40.52	061	29.62	061	40.52	061
6	0.5	10.0	5.8	18	22	58	6	2	29.62	063	40.52	063	29.62	063	40.52	063
6	1.0	10.0	5.8	18	22	58	6	2	29.62	065	40.52	065	29.62	065	40.52	065
8	0.3	13.0	7.7	24	28	64	8	2	39.93	081	53.13	081	39.93	081	53.13	081
8	0.5	13.0	7.7	24	28	64	8	2	39.93	083	53.13	083	39.93	083	53.13	083
8	1.0	13.0	7.7	24	28	64	8	2	39.93	085	53.13	085	39.93	085	53.13	085
10	0.3	16.0	9.7	30	34	74	10	2	61.80	101	76.92	101	61.80	101	76.92	101
10	1.0	16.0	9.7	30	34	74	10	2	61.80	103	76.92	103	61.80	103	76.92	103
10	1.5	16.0	9.7	30	34	74	10	2	61.80	105	76.92	105	61.80	105	76.92	105
12	1.0	19.0	11.6	36	40	85	12	2	79.55	121	94.24	121	79.55	121	94.24	121
12	1.5	19.0	11.6	36	40	85	12	2	79.55	123	94.24	123	79.55	123	94.24	123
12	2.0	19.0	11.6	36	40	85	12	2	79.55	125	94.24	125	79.55	125	94.24	125
16	2.0	25.0	15.5	48	52	100	16	2	188.53	161	210.53	161	188.53	161	210.53	161
16	2.5	25.0	15.5	48	52	100	16	2	190.16	163	212.18	163	190.16	163	212.18	163
16	3.0	25.0	15.5	48	52	100	16	2	190.16	165	212.18	165	190.16	165	212.18	165
20	2.0	32.0	19.5	60	64	114	20	2	257.65	201	285.95	201	249.86	201	285.95	201
20	2.5	32.0	19.5	60	64	114	20	2	257.65	203	285.95	203	257.65	203	285.95	203
20	3.0	32.0	19.5	60	64	114	20	2	257.65	205	285.95	205	257.65	205	285.95	205
20	4.0	32.0	19.5	60	64	114	20	2	257.65	206	285.95	206	257.65	206	285.95	206
25	2.0	40.0	24.5	75	80	136	25	2	394.41	251	417.90	251	394.41	251	417.90	251
25	4.0	40.0	24.5	75	80	136	25	2	395.90	253	417.90	253	395.90	253	417.90	253
P																
M																
K																
N										●		●		●		●
S																
H																
O																

→ v_c/f_z Page 448+449

End milling cutter with corner radius



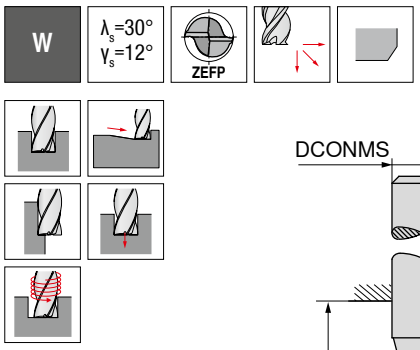


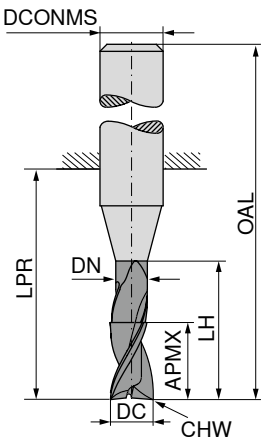


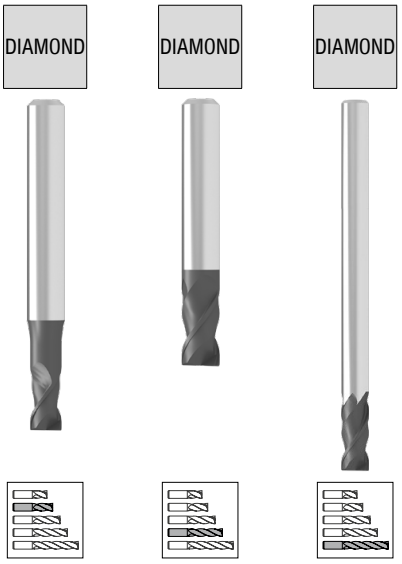
									54 594 ...		54 596 ...		54 595 ...		54 597 ...	
									Factory standard		Factory standard		Factory standard		Factory standard	
									HA		HA		HB		HB	
DC h6	RE ±0,01	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	£		£		£		£	
mm	mm	mm	mm	mm	mm	mm	mm		V0		V0		V0		V0	
3	0.2	8.0	2.8	15	22	58	6	2	27.74	032	39.96	032	27.74	032	39.96	032
3	0.3	8.0	2.8	15	22	58	6	2	27.74	034	39.96	034	27.74	034	39.96	034
3	0.5	8.0	2.8	15	22	58	6	2	27.74	036	39.96	036	27.74	036	39.96	036
4	0.3	10.5	3.8	20	26	62	6	2	30.09	042	40.95	042	30.09	042	40.95	042
4	0.5	10.5	3.8	20	26	62	6	2	30.09	044	40.95	044	30.09	044	40.95	044
4	1.0	10.5	3.8	20	26	62	6	2	30.09	046	40.95	046	30.09	046	40.95	046
5	0.3	13.0	4.8	25	34	70	6	2	32.48	052	43.44	052	32.48	052	43.44	052
5	0.5	13.0	4.8	25	34	70	6	2	32.48	054	43.44	054	32.48	054	43.44	054
5	1.0	13.0	4.8	25	34	70	6	2	32.48	056	43.44	056	32.48	056	43.44	056
6	0.3	16.0	5.8	30	34	70	6	2	32.48	062	43.44	062	32.48	062	43.44	062
6	0.5	16.0	5.8	30	34	70	6	2	32.48	064	43.44	064	32.48	064	43.44	064
6	1.0	16.0	5.8	30	34	70	6	2	32.48	066	43.44	066	32.48	066	43.44	066
8	0.3	21.0	7.7	40	44	80	8	2	45.36	082	57.54	082	45.36	082	57.54	082
8	0.5	21.0	7.7	40	44	80	8	2	45.36	084	57.54	084	45.36	084	57.54	084
8	1.0	21.0	7.7	40	44	80	8	2	45.36	086	57.54	086	45.36	086	57.54	086
10	0.5	26.0	9.7	50	54	94	10	2	69.43	102	84.25	102	69.43	102	84.25	102
10	1.0	26.0	9.7	50	54	94	10	2	69.43	104	84.25	104	69.43	104	84.25	104
10	1.5	26.0	9.7	50	54	94	10	2	69.43	106	84.25	106	69.43	106	84.25	106
12	1.0	31.0	11.6	60	64	109	12	2	113.12	122	131.84	122	113.12	122	131.84	122
12	1.5	31.0	11.6	60	64	109	12	2	113.12	124	131.84	124	113.12	124	131.84	124
12	2.0	31.0	11.6	60	64	109	12	2	113.12	126	131.84	126	113.12	126	131.84	126
16	2.0	41.0	15.5	80	84	132	16	2	213.65	162	237.30	162	213.65	162	237.30	162
16	2.5	41.0	15.5	80	84	132	16	2	215.31	164	238.79	164	215.31	164	238.79	164
16	4.0	41.0	15.5	80	84	132	16	2	215.31	166	238.79	166	215.31	166	238.79	166
20	2.0	52.0	19.5	100	104	154	20	2	295.35	202	323.63	202	295.35	202	323.63	202
20	2.5	52.0	19.5	100	104	154	20	2	297.02	204	325.30	204	297.02	204	325.30	204
20	4.0	52.0	19.5	100	104	154	20	2	297.02	207	325.30	207	297.02	207	325.30	207
25	2.0	65.0	24.5	125	130	186	25	2	551.52	252	573.49	252	551.52	252	573.49	252
25	4.0	65.0	24.5	125	130	186	25	2	551.52	254	573.49	254	551.52	254	573.49	254
P																
M																
K																
N										●		●		●		●
S																
H																
O																

→ v_c/f_z Page 448+449

Slot milling cutter





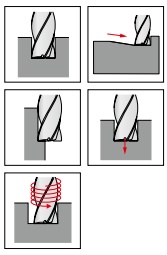


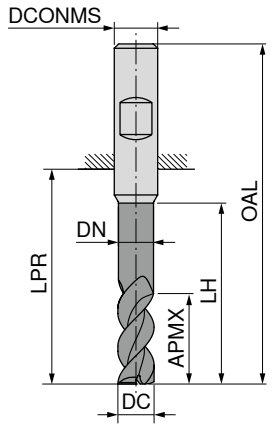
										DIN 6527		DIN 6527		Factory standard	
										HA		HA		HA	
										52 760 ...		52 761 ...		52 762 ...	
DC mm	Tol.	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	£ V1		£ V1		£ V1	
2	e8	3			14	50	6	0.04	2	232.53	020				
2	h10	8	1.8	31	32	60	2	0.04	2					173.27	020
3	e8	4			14	50	6	0.07	2	232.53	030				
3	h10	12	2.8	41	42	70	3	0.07	2					188.83	030
4	e8	5			18	54	6	0.07	2	232.53	040				
4	h10	15	3.8	51	52	80	4	0.07	2					233.42	040
5	e8	6			18	54	6	0.12	2	232.53	050				
5	h10	20	4.8	71	72	100	5	0.12	2					272.49	050
6	e8	10			21	57	6	0.12	2			226.09	060		
6	h10	20	5.8	63	64	100	6	0.12	2					305.38	060
8	e8	16			27	63	8	0.12	2			317.81	080		
8	h10	20	7.8	83	84	120	8	0.12	2					420.59	080
10	e8	19			32	72	10	0.20	2			416.12	100		
10	h10	25	9.8	99	100	140	10	0.20	2					542.07	100
12	e8	22			38	83	12	0.20	2			520.99	120		
12	h10	25	11.8	104	105	150	12	0.20	2					708.90	120
P															
M															
K															
N											●		●		●
S															
H															
O											●		●		●

→ v_c/f_z Page 458

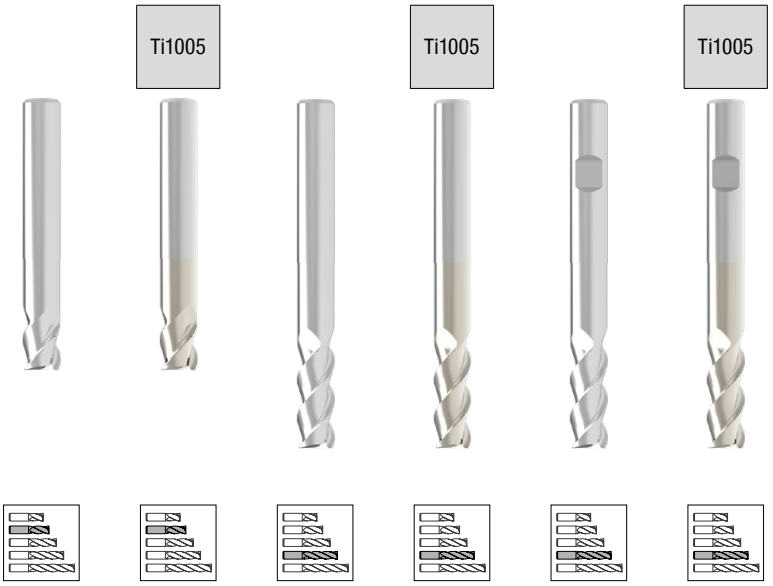
End milling cutter

W | λ_s=45° γ_s= 7° | ZEFP | HPC





LPR with Shank DIN 6535 HB



								Factory standard		Factory standard		Factory standard		Factory standard		Factory standard		Factory standard	
								HA		HA		HA		HA		HB		HB	
								54 610 ...		54 612 ...		54 610 ...		54 612 ...		54 611 ...		54 613 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V0		£ V0		£ V0		£ V0		£ V0		£ V0	
3	3.5	2.8	12	19	55	6	3	27.10	033	38.01	033								
3	3.5	2.8	15	22	58	6	3					29.62	034	40.52	034				
3	8.0	2.8	15	22	58	6	3					29.62	032	40.52	032	29.62	032	40.52	032
4	4.5	3.8	12	19	55	6	3	27.10	043	38.01	043								
4	4.5	3.8	20	26	62	6	3					29.62	044	40.52	044				
4	10.5	3.8	20	26	62	6	3					30.69	042	42.43	042	30.69	042	42.43	042
5	5.5	4.8	15	22	58	6	3	27.10	053	38.01	053								
5	5.5	4.8	25	34	70	6	3					29.62	054	40.52	054				
5	13.0	4.8	25	34	70	6	3					30.69	052	42.43	052	30.69	052	42.43	052
6	7.0	5.8	18	22	58	6	3	27.10	063	38.01	063								
6	7.0	5.8	30	34	70	6	3					29.62	064	40.52	064				
6	16.0	5.8	30	34	70	6	3					30.69	062	42.43	062	30.69	062	42.43	062
7	21.0	6.7	40	44	80	8	3					44.59	072	57.99	072	44.59	072	57.99	072
8	9.0	7.7	24	28	64	8	3	38.01	083	52.08	083								
8	9.0	7.7	40	44	80	8	3					42.49	084	55.84	084				
8	21.0	7.7	40	44	80	8	3					44.59	082	57.99	082	44.59	082	57.99	082
9	26.0	8.7	50	54	94	10	3					70.32	092	86.77	092	70.32	092	86.77	092
10	11.0	9.7	30	34	74	10	3	60.30	103	73.69	103								
10	11.0	9.7	50	54	94	10	3					65.86	104	80.97	104				
10	26.0	9.7	50	54	94	10	3					70.32	102	86.77	102	70.32	102	86.77	102
11	31.0	10.6	60	64	109	12	3					116.72	112	137.36	112	116.72	112	137.36	112
12	13.0	11.6	36	40	85	12	3	77.64	123	93.98	123								
12	13.0	11.6	60	64	109	12	3					121.64	124	142.76	124				
12	31.0	11.6	60	64	109	12	3					116.72	122	137.36	122	116.72	122	137.36	122
13	36.0	12.6	70	74	119	14	3					169.68	132	193.32	132	169.68	132	193.32	132
14	15.0	13.6	42	46	91	14	3	112.28	143	131.07	143								
14	15.0	13.6	70	74	119	14	3					175.96	144	199.61	144				
14	36.0	13.6	70	74	119	14	3					169.68	142	193.32	142	169.68	142	193.32	142
15	17.0	14.5	48	52	100	16	3	148.60	153	166.54	153								
15	17.0	14.5	80	84	132	16	3					227.89	154	254.52	154				
15	41.0	14.5	80	84	132	16	3					221.61	152	246.74	152	221.61	152	246.74	152
16	17.0	15.5	48	52	100	16	3	148.60	163	166.54	163								
16	17.0	15.5	80	84	132	16	3					227.89	164	254.52	164				
16	41.0	15.5	80	84	132	16	3					221.61	162	246.74	162	221.61	162	246.74	162
18	20.0	17.5	54	58	106	18	3	187.04	183	205.87	183								
18	20.0	17.5	90	94	142	18	3					285.95	184	312.71	184				
18	47.0	17.5	90	94	142	18	3					278.16	182	304.80	182	278.16	182	304.80	182
20	22.0	19.5	60	64	114	20	3	278.16	203	304.80	203								
20	22.0	19.5	100	104	154	20	3					304.80	204	337.85	204				
20	52.0	19.5	100	104	154	20	3					297.02	202	328.43	202	297.02	202	328.43	202
25	27.0	24.5	75	80	136	25	3	507.52	253	529.52	253								
25	27.0	24.5	125	130	186	25	3					593.86	254	617.51	254				

P							
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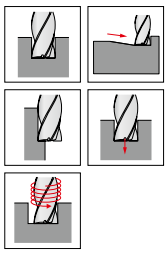
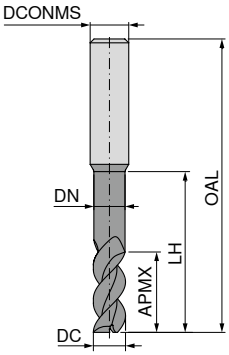
→ v_c/f_z Page 448+449

14

End milling cutter

W | λ_s=45° γ_s= 7° | ZEFP | HPC | Ti1005







Factory standard | Factory standard

HA | HA

DC h6 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	54 610 ... £ V0		54 612 ... £ V0	
3	3.5	2.8	24	67	6	3	36.51	035	47.28	035
4	4.5	3.8	32	74	6	3	36.51	045	47.28	045
5	5.5	4.8	40	88	6	3	36.51	055	47.28	055
6	7.0	5.8	48	88	6	3	36.51	065	47.28	065
8	9.0	7.7	64	104	8	3	52.26	085	65.33	085
10	11.0	9.7	80	124	10	3	120.61	105	138.72	105
12	13.0	11.6	96	145	12	3	160.24	125	177.60	125
14	15.0	13.6	112	161	14	3	234.17	145	256.16	145
16	17.0	15.5	128	180	16	3	303.27	165	329.95	165
18	20.0	17.5	144	196	18	3	384.99	185	410.13	185
20	22.0	19.5	160	214	20	3	422.69	205	454.13	205

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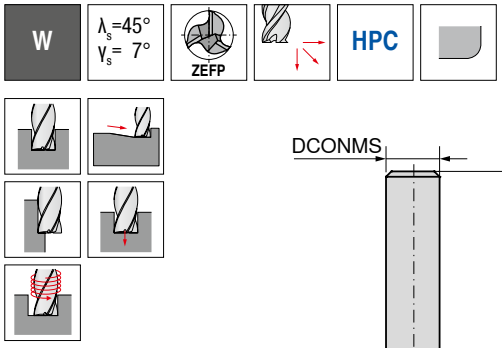
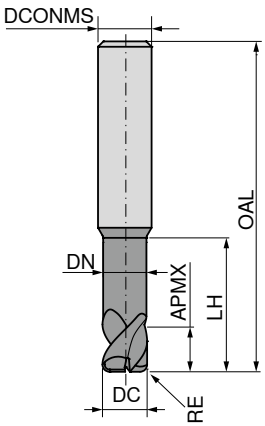
→ v_c/f_z Page 448+449

End milling cutter with corner radius













Factory standard

HA

Factory standard

HA

DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	54 620 ... £ V0		54 622 ... £ V0	
3	0.4	3.5	2.8	12	55	6	3	30.37	034	42.05	034
3	0.6	3.5	2.8	12	55	6	3	30.37	035	42.05	035
4	0.4	4.5	3.8	12	55	6	3	30.37	044	42.05	044
4	0.6	4.5	3.8	12	55	6	3	30.37	046	42.05	046
5	0.4	5.5	4.8	15	58	6	3	30.37	054	42.05	054
5	0.6	5.5	4.8	15	58	6	3	30.37	056	42.05	056
6	0.4	7.0	5.8	18	58	6	3	30.37	064	42.05	064
6	0.6	7.0	5.8	18	58	6	3	30.37	066	42.05	066
8	0.4	9.0	7.7	24	64	8	3	42.05	084	55.38	084
8	0.6	9.0	7.7	24	64	8	3	42.05	086	55.38	086
8	0.8	9.0	7.7	24	64	8	3	42.05	087	55.38	087
10	1.6	11.0	9.7	30	74	10	3	62.39	103	78.41	103
12	2.0	13.0	11.6	36	85	12	3	82.47	124	97.26	124
14	0.6	15.0	13.6	42	91	14	3	117.77	146	134.37	146
14	0.8	15.0	13.6	42	91	14	3	117.77	147	134.37	147
16	1.6	17.0	15.5	48	100	16	3	151.87	163	168.18	163
16	3.2	17.0	15.5	48	100	16	3	153.08	167	169.68	167
18	1.6	20.0	17.5	54	106	18	3	190.16	183	209.03	183
20	3.2	22.0	19.5	60	114	20	3	284.46	207	315.86	207
20	5.0	22.0	19.5	60	114	20	3	284.46	209	315.86	209

P		
M		
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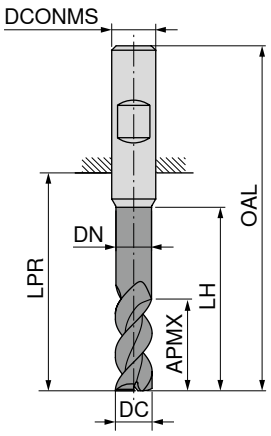
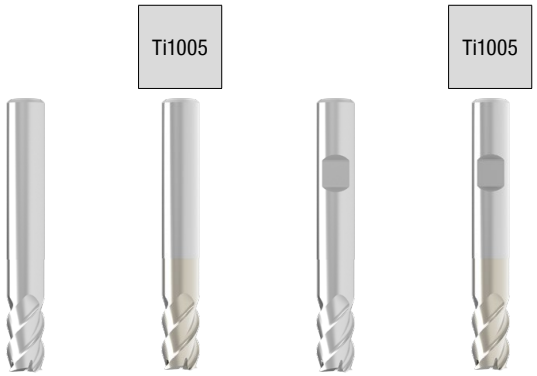
→ v_c/f_z Page 448+449

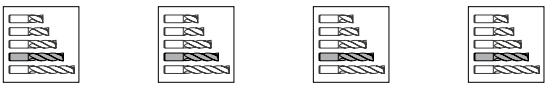
14

End milling cutter

W | λ_s=45° γ_s= 7° | ZEFP | HPC





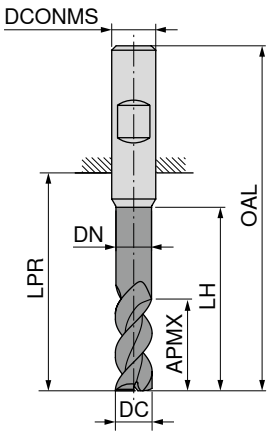


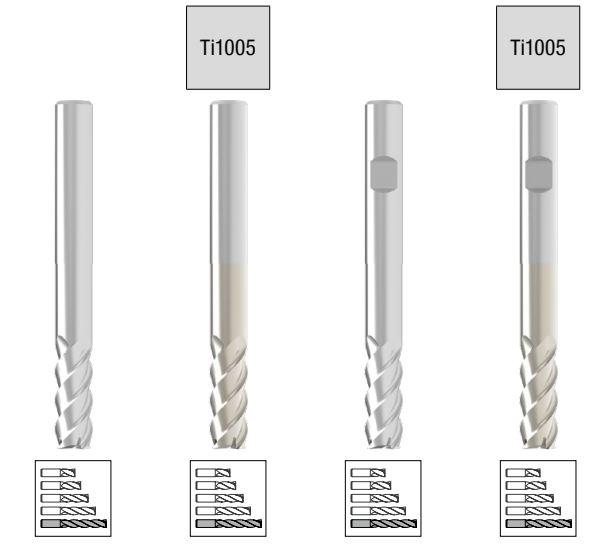
								Factory standard		Factory standard		Factory standard		Factory standard	
								HA		HA		HB		HB	
								54 630 ...		54 632 ...		54 631 ...		54 633 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V0		£ V0		£ V0		£ V0	
6	10	5.8	18	22	58	6	4	27.74	061	39.96	061	27.74	061	39.96	061
7	13	6.7	24	28	64	8	4	40.40	071	53.13	071	40.40	071	53.13	071
8	13	7.7	24	28	64	8	4	40.40	081	53.13	081	40.40	081	53.13	081
9	16	8.7	30	34	74	10	4	62.84	091	77.95	091	62.84	091	77.95	091
10	16	9.7	30	34	74	10	4	62.84	101	77.95	101	62.84	101	77.95	101
11	19	10.6	36	40	85	12	4	82.47	111	97.86	111	82.47	111	97.86	111
12	19	11.6	36	40	85	12	4	82.47	121	97.86	121	82.47	121	97.86	121
13	22	12.6	42	46	91	14	4	118.38	131	135.54	131	118.38	131	135.54	131
14	22	13.6	42	46	91	14	4	118.38	141	135.54	141	118.38	141	135.54	141
15	25	14.5	48	52	100	16	4	153.98	151	171.34	151	153.98	151	171.34	151
16	25	15.5	48	52	100	16	4	153.98	161	171.34	161	153.98	161	171.34	161
18	29	17.5	54	58	106	18	4	193.32	181	213.65	181	193.32	181	213.65	181
20	32	19.5	60	64	114	20	4	221.61	201	246.74	201	221.61	201	246.74	201
P															
M															
K															
N									●		●		●		●
S															
H															
O															

→ v_c/f_z Page 448+449

End milling cutter

W | λ_s=45° γ_s= 7° | ZEFP | HPC





								Factory standard		Factory standard		Factory standard		Factory standard	
								HA		HA		HB		HB	
								54 630 ...		54 632 ...		54 631 ...		54 633 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V0		£ V0		£ V0		£ V0	
6	16	5.8	30	34	70	6	4	29.65	062	43.11	062	29.65	062	43.11	062
7	21	6.7	40	44	80	8	4	44.59	072	57.99	072	44.59	072	57.99	072
8	21	7.7	40	44	80	8	4	44.59	082	57.99	082	44.59	082	57.99	082
9	26	8.7	50	54	94	10	4	70.32	092	86.77	092	70.32	092	86.77	092
10	26	9.7	50	54	94	10	4	70.32	102	86.77	102	70.32	102	86.77	102
11	31	10.6	60	64	109	12	4	116.72	112	137.36	112	116.72	112	137.36	112
12	31	11.6	60	64	109	12	4	116.72	122	137.36	122	116.72	122	137.36	122
13	36	12.6	70	74	119	14	4	169.68	132	193.32	132	169.68	132	193.32	132
14	36	13.6	70	74	119	14	4	169.68	142	193.32	142	169.68	142	193.32	142
15	41	14.5	80	84	132	16	4	221.61	152	246.74	152	221.61	152	246.74	152
16	41	15.5	80	84	132	16	4	221.61	162	246.74	162	221.61	162	246.74	162
18	47	17.5	90	94	142	18	4	278.16	182	304.80	182	278.16	182	304.80	182
20	52	19.5	100	104	154	20	4	297.02	202	328.43	202	297.02	202	328.43	202

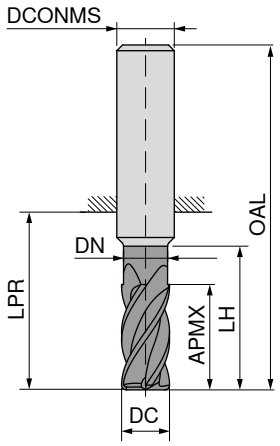
P				
M				
K				
N	●	●	●	●
S				
H				
O				

→ v_c/f_z Page 448+449

14

End milling cutter

W | λ_s=38° γ_s=17° | ZEFP | HPC | Ti1005





Factory standard | Factory standard

HA | HA

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 650 ... £ V0		54 652 ... £ V0	
6	19	5.8	30	34	70	6	5	68.99	**062**	82.47	**062**
8	25	7.7	40	44	80	8	5	88.73	**082**	100.11	**082**
10	31	9.7	50	54	94	10	5	137.36	**102**	152.31	**102**
12	37	11.6	60	64	109	12	5	221.61	**122**	235.67	**122**
14	43	13.6	70	74	119	14	5	358.19	**142**	373.92	**142**
16	49	15.5	80	84	132	16	7	397.55	**162**	414.76	**162**
18	56	17.5	90	94	142	18	7	496.46	**182**	515.32	**182**
20	62	19.5	100	104	154	20	7	549.87	**202**	571.86	**202**

P		
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N	●	●
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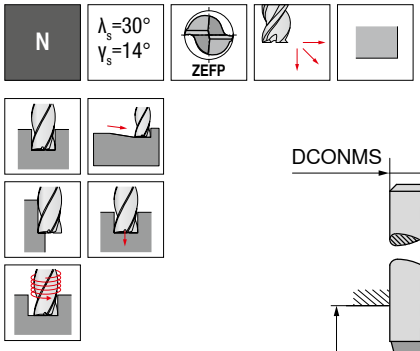
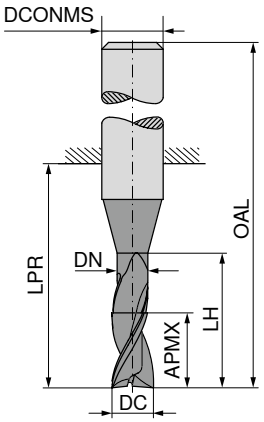
H		
O		

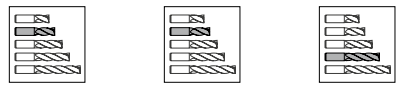
→ v_c/f_z Page 448+449

End milling cutter









								52 942 ...		52 941 ...		52 948 ...	
								Factory standard		Factory standard		Factory standard	
								HA		HB		HB	
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1		£ V1		£ V1	
0.20	0.4			10	38	3	2	51.57	92000				
0.25	0.5			10	38	3	2	45.74	92500				
0.30	1.0			10	38	3	2	29.58	93000				
0.35	1.0			10	38	3	2	29.58	93500				
0.40	1.0			10	38	3	2	23.85	94000				
0.50	1.5			10	38	3	2	21.44	95000				
0.60	1.5			10	38	3	2	21.44	96000				
0.70	2.0			10	38	3	2	21.44	97000				
0.80	2.0			10	38	3	2	21.44	98000				
0.90	2.5			10	38	3	2	21.44	99000				
1.00	3.0			10	38	3	2	21.44	31000				
1.00	4.0	0.90	6	22	58	6	2					31.44	01000
1.10	3.0			10	38	3	2	21.44	31100				
1.20	4.0			10	38	3	2	21.44	31200				
1.30	4.0			10	38	3	2	22.54	31300				
1.40	4.0			10	38	3	2	22.54	31400				
1.50	3.0	1.40	6	18	54	6	2	29.58	01500	29.58	01500		
1.50	4.0			10	38	3	2	22.54	31500				
1.50	6.0	1.40	8	22	58	6	2					31.44	01500
1.60	4.0			10	38	3	2	23.96	31600				
1.80	5.0			10	38	3	2	23.96	31800				
2.00	4.0	1.90	8	18	54	6	2	28.36	02000	28.36	02000		
2.00	7.0	1.90	10	22	58	6	2					31.44	02000
2.50	4.0	2.40	8	18	54	6	2			28.36	02500		
2.50	6.0			10	38	3	2	22.54	32500				
2.80	4.0	2.70	9	18	54	6	2	32.64	02800	32.64	02800		
2.80	7.0	2.70	12	22	58	6	2					33.87	02800
3.00	6.0	2.90	9	18	54	6	2	28.36	03000	28.36	03000		
3.00	10.0	2.90	14	22	58	6	2					31.44	03000
3.50	6.0	3.30	9	18	54	6	2			28.36	03500		
3.80	7.0	3.60	12	18	54	6	2	32.64	03800	32.64	03800		
3.80	10.0	3.60	18	22	58	6	2					33.87	03800
4.00	7.0	3.80	12	18	54	6	2	28.15	04000	28.15	04000		
4.00	13.0	3.80	18	22	58	6	2					31.44	04000
4.50	7.0	4.30	12	18	54	6	2			28.36	04500		
4.80	8.0	4.60	16	18	54	6	2	32.64	04800	32.64	04800		
4.80	13.0	4.60	18	22	58	6	2					33.87	04800
5.00	8.0	4.80	16	18	54	6	2	28.15	05000	28.15	05000		
5.00	15.0	4.80	18	22	58	6	2					31.44	05000
5.50	8.0	5.30	16	18	54	6	2			28.36	05500		
5.75	10.0	5.55	16	18	54	6	2	32.64	05700	32.64	05700		

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

→ v_c/f_z Page 460–463

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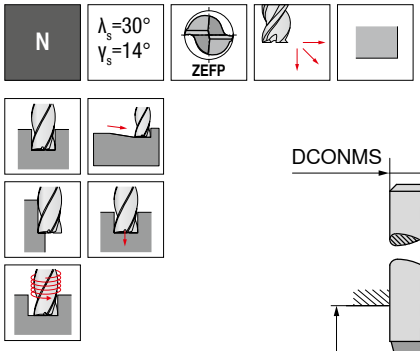
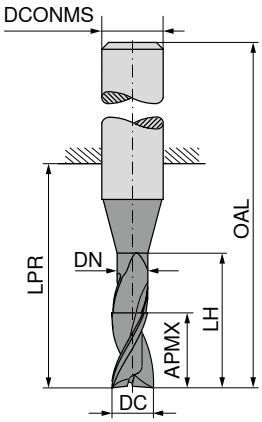
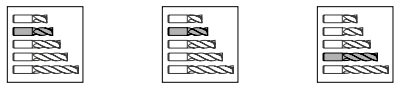
Continued on next page

End milling cutter









								52 942 ...		52 941 ...		52 948 ...	
								Factory standard		Factory standard		Factory standard	
								HA		HB		HB	
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1		£ V1		£ V1	
5.75	15.0	5.55	18	22	58	6	2					34.74	05700
6.00	10.0	5.80	16	18	54	6	2	28.15	06000	28.15	06000		
6.00	16.0	5.80	20	22	58	6	2					31.44	06000
6.75	10.0	6.45	16	23	59	8	2	37.71	06700	37.71	06700		
6.75	16.0	6.45	23	34	70	8	2					42.22	06700
7.00	12.0	6.70	18	23	59	8	2			36.50	07000		
7.00	16.0	6.70	23	34	70	8	2					37.04	07000
7.75	12.0	7.45	18	23	59	8	2	36.39	07700	36.39	07700		
7.75	16.0	7.45	23	34	70	8	2					39.59	07700
8.00	12.0	7.70	20	23	59	8	2	31.44	08000	31.44	08000		
8.00	22.0	7.70	25	34	70	8	2					36.29	08000
8.70	12.0	8.40	12	27	67	10	2	60.47	08700	60.47	08700		
9.70	13.0	9.40	13	27	67	10	2	58.50	09700	58.50	09700		
9.70	22.0	9.40	22	33	73	10	2					67.27	09700
10.00	13.0	9.70	13	27	67	10	2	49.58	10000	49.58	10000		
10.00	25.0	9.70	25	33	73	10	2					63.55	10000
11.00	25.0	10.60	25	39	84	12	2					89.60	11000
12.00	16.0	11.60	16	28	73	12	2	69.15	12000	69.15	12000		
12.00	26.0	11.60	26	39	84	12	2					85.30	12000
13.70	16.0	13.30	26	30	75	14	2	113.32	13700	113.32	13700		
13.70	26.0	13.30	35	39	84	14	2					119.81	13700
14.00	16.0	13.60	28	30	75	14	2	95.53	14000	95.53	14000		
14.00	26.0	13.60	35	39	84	14	2					111.03	14000
16.00	20.0	15.50	32	35	83	16	2	103.94	16000	103.94	16000		
16.00	30.0	15.50	40	45	93	16	2					132.97	16000
20.00	25.0	19.50	40	43	93	20	2	175.86	20000	175.86	20000		
20.00	40.0	19.50	50	54	104	20	2					216.56	20000
P								●		●		●	
M								○		○		○	
K								●		●		●	
N								○		○		○	
S								○		○		○	
H													
O								○		○		○	

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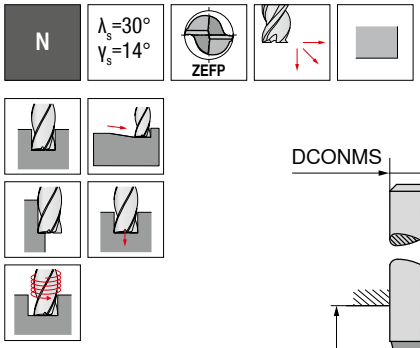
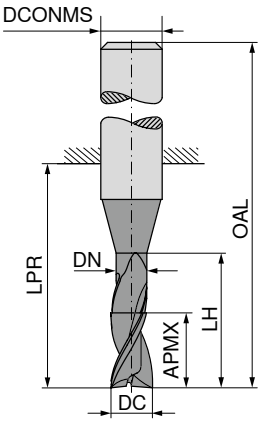
End milling cutter









DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA 52 943 ... £ V1		Factory standard HB 52 944 ... £ V1		Factory standard HA 52 947 ... £ V1		Factory standard HB 52 949 ... £ V1	
0.20	0.4			10	38	3	2	57.61	92000						
0.25	0.5			10	38	3	2	57.61	92500						
0.30	1.0			10	38	3	2	39.14	93000						
0.35	1.0			10	38	3	2	39.14	93500						
0.40	1.0			10	38	3	2	32.54	94000						
0.50	1.5			10	38	3	2	29.90	95000						
0.60	1.5			10	38	3	2	29.90	96000						
0.70	2.0			10	38	3	2	29.90	97000						
0.80	2.0			10	38	3	2	29.90	98000						
0.90	2.5			10	38	3	2	29.90	99000						
1.00	3.0			10	38	3	2	29.90	31000						
1.00	4.0	0.90	6	22	58	6	2					43.98	01000	43.98	01000
1.10	3.0			10	38	3	2	29.90	31100						
1.20	4.0			10	38	3	2	29.90	31200						
1.30	4.0			10	38	3	2	29.90	31300						
1.40	4.0			10	38	3	2	31.02	31400						
1.50	4.0			10	38	3	2	31.02	31500						
1.50	3.0	1.40	6	18	54	6	2	36.06	01500	36.06	01500				
1.50	6.0	1.40	8	22	58	6	2					43.98	01500	43.98	01500
1.60	4.0			10	38	3	2	32.64	31600						
1.80	5.0			10	38	3	2	32.64	31800						
2.00	4.0	1.90	8	18	54	6	2	39.91	02000	39.91	02000				
2.00	5.0			10	38	3	2	32.64	32000						
2.00	7.0	1.90	10	22	58	6	2					43.98	02000	43.98	02000
2.50	4.0	2.40	8	18	54	6	2	39.91	02500	39.91	02500				
2.50	6.0			10	38	3	2	34.52	32500						
2.80	4.0	2.70	9	18	54	6	2	45.19	02800	45.19	02800				
2.80	7.0	2.70	12	22	58	6	2					45.84	02800	45.84	02800
3.00	6.0	2.90	9	18	54	6	2	39.91	03000	39.91	03000				
3.00	6.0			10	38	3	2	34.52	33000						
3.00	10.0	2.90	14	22	58	6	2					43.98	03000	43.98	03000
3.50	6.0	3.30	9	18	54	6	2	42.99	03500	42.99	03500				
3.80	7.0	3.60	12	18	54	6	2	45.19	03800	45.19	03800				
3.80	10.0	3.60	18	22	58	6	2					45.84	03800	45.84	03800
4.00	7.0	3.80	12	18	54	6	2	39.91	04000	39.91	04000				
4.00	13.0	3.80	18	22	58	6	2					43.98	04000	43.98	04000
4.50	7.0	4.30	12	18	54	6	2	42.99	04500	42.99	04500				
4.80	8.0	4.60	16	18	54	6	2	45.19	04800	45.19	04800				

P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
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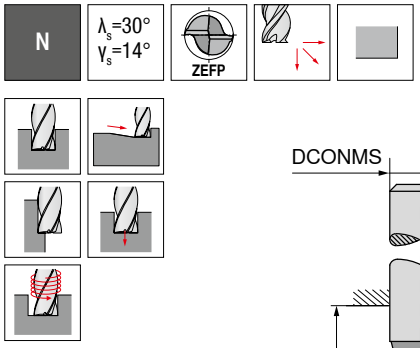
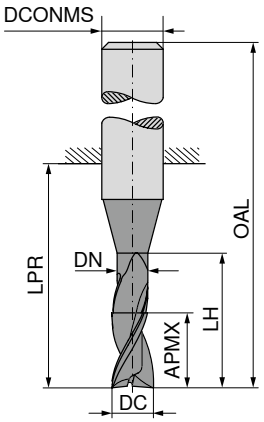
End milling cutter









DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 943 ... £ V1		52 944 ... £ V1		52 947 ... £ V1		52 949 ... £ V1	
4.80	13.0	4.60	18	22	58	6	2					45.84	**04800**	45.84	**04800**
5.00	8.0	4.80	16	18	54	6	2	39.91	**05000**	39.91	**05000**				
5.00	15.0	4.80	18	22	58	6	2					43.98	**05000**	43.98	**05000**
5.50	8.0	5.30	16	18	54	6	2	42.99	**05500**	42.99	**05500**				
5.75	10.0	5.55	16	18	54	6	2	45.19	**05700**	45.19	**05700**				
5.75	15.0	5.55	18	22	58	6	2					46.84	**05700**	46.84	**05700**
6.00	16.0	5.80	20	22	58	6	2					43.98	**06000**	43.98	**06000**
6.00	10.0	5.80	16	18	54	6	2	39.91	**06000**	39.91	**06000**				
6.75	10.0	6.45	16	23	59	8	2			54.31	**06700**				
6.75	16.0	6.45	23	34	70	8	2					59.81	**06700**	59.81	**06700**
7.00	16.0	6.70	23	34	70	8	2					53.97	**07000**	53.97	**07000**
7.00	12.0	6.70	18	23	59	8	2	56.29	**07000**	56.29	**07000**				
7.75	12.0	7.45	18	23	59	8	2	52.33	**07700**	52.33	**07700**				
7.75	16.0	7.45	23	34	70	8	2					56.62	**07700**	56.62	**07700**
8.00	22.0	7.70	25	34	70	8	2					53.11	**08000**	53.11	**08000**
8.00	12.0	7.70	20	23	59	8	2	48.16	**08000**	48.16	**08000**				
8.70	12.0	8.40	12	27	67	10	2			83.88	**08700**				
9.00	13.0	8.70	13	27	67	10	2	79.92	**09000**	79.92	**09000**				
9.00	22.0	8.70	22	33	73	10	2					90.92	**09000**	90.92	**09000**
9.70	13.0	9.40	13	27	67	10	2	81.91	**09700**	81.91	**09700**				
9.70	22.0	9.40	22	33	73	10	2					92.67	**09700**	92.67	**09700**
10.00	25.0	9.70	25	33	73	10	2					89.60	**10000**	89.60	**10000**
10.00	13.0	9.70	13	27	67	10	2	71.02	**10000**	71.02	**10000**				
11.00	25.0	10.60	25	39	84	12	2					123.20	**11000**	123.20	**11000**
11.70	16.0	11.30	16	28	73	12	2	117.61	**11700**	117.61	**11700**				
12.00	16.0	11.60	16	28	73	12	2	98.62	**12000**	98.62	**12000**				
12.00	26.0	11.60	26	39	84	12	2					121.00	**12000**	121.00	**12000**
13.70	16.0	13.30	26	30	75	14	2			155.12	**13700**				
14.00	16.0	13.60	28	30	75	14	2	131.97	**14000**	131.97	**14000**				
16.00	20.0	15.50	32	35	83	16	2	149.53	**16000**	149.53	**16000**				
16.00	30.0	15.50	40	45	93	16	2					195.81	**16000**	195.81	**16000**
18.00	20.0	17.50	34	37	85	18	2	191.32	**18000**	191.32	**18000**				
20.00	25.0	19.50	40	43	93	20	2	239.60	**20000**	239.60	**20000**				
20.00	40.0	19.50	50	54	104	20	2					295.76	**20000**	295.76	**20000**
P								●		●		●		●	
M								○		○		○		○	
K								●		●		●		●	
N								○		○		○		○	
S								○		○		○		○	
H								○		○		○		○	
O								○		○		○		○	

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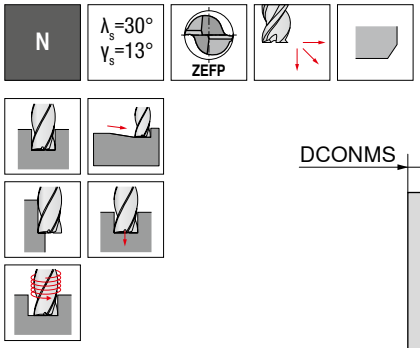
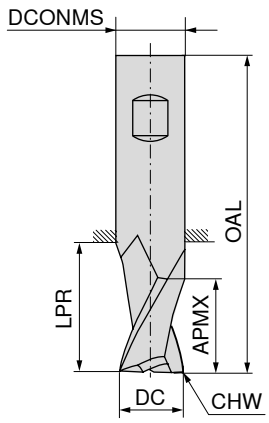
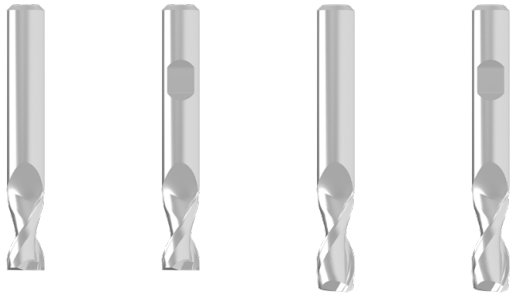
End milling cutter







	Factory standard	Factory standard	≈DIN 6527	≈DIN 6527
	HA	HB	HA	HB
	50 593 ...	50 593 ...	50 594 ...	50 594 ...

DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	£ V0		£ V0		£ V0		£ V0	
0.25	0.5	10	38	3.0		2					31.14	925		
0.30	1.0	10	38	3.0		2					28.62	930		
0.35	1.0	10	38	3.0		2					28.62	935		
0.40	1.0	10	38	3.0		2					28.62	940		
0.50	1.5	10	38	3.0		2					28.62	950		
0.60	1.5	10	38	3.0		2					28.62	960		
0.70	2.0	10	38	3.0		2					28.62	970		
0.80	2.0	10	38	3.0		2					28.62	980		
0.90	2.5	10	38	3.0		2					28.62	990		
1.00	3.0	22	50	3.0		2					30.09	010		
1.10	3.0	22	50	3.0		2					30.09	011		
1.20	4.0	22	50	3.0		2					30.09	012		
1.40	4.0	22	50	3.0		2					30.09	014		
1.50	4.0	22	50	3.0		2					30.09	015		
1.60	4.0	22	50	3.0		2					30.09	016		
1.80	5.0	22	50	3.0		2					30.09	018		
2.00	5.0	22	50	3.0	0.07	2					27.69	020		
2.00	8.0	8	32	2.0	0.07	2	14.11	020						
2.50	6.0	22	50	3.0	0.07	2					30.09	025		
2.50	8.0	8	32	2.5	0.07	2	14.11	025						
2.80	8.0	21	57	6.0	0.07	2							25.15	028
3.00	8.0	21	57	6.0	0.15	2							25.15	030
3.00	12.0	12	32	3.0	0.15	2	14.11	030						
3.50	12.0	12	32	3.5	0.15	2	14.11	035						
3.80	11.0	21	57	6.0	0.15	2							25.15	038
4.00	11.0	21	57	6.0	0.15	2							25.15	040
4.00	12.0	12	40	4.0	0.15	2	14.55	040						
4.50	14.0	22	50	4.5	0.15	2	17.76	045						
4.80	13.0	21	57	6.0	0.15	2							25.15	048
5.00	13.0	21	57	6.0	0.15	2							25.15	050
5.00	14.0	22	50	5.0	0.15	2	17.76	050						
5.50	16.0	22	50	5.5	0.15	2	20.95	055						
5.80	13.0	21	57	6.0	0.15	2							25.15	058
6.00	13.0	21	57	6.0	0.15	2							25.15	060
6.00	16.0	14	50	6.0	0.15	2			20.95	060				
6.50	16.0	16	50	6.5	0.15	2	27.17	065						
6.80	16.0	27	63	8.0	0.15	2							29.03	068
7.00	16.0	27	63	8.0	0.15	2							29.03	070
7.00	20.0	24	60	7.0	0.15	2	27.17	070						
7.50	20.0	24	60	7.5	0.15	2	27.30	075						

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

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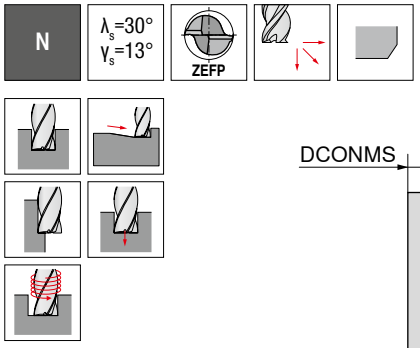
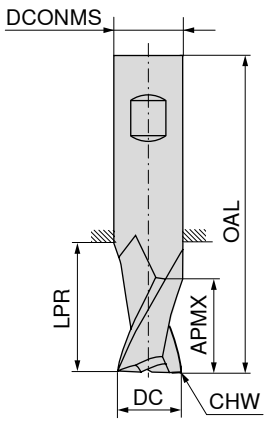
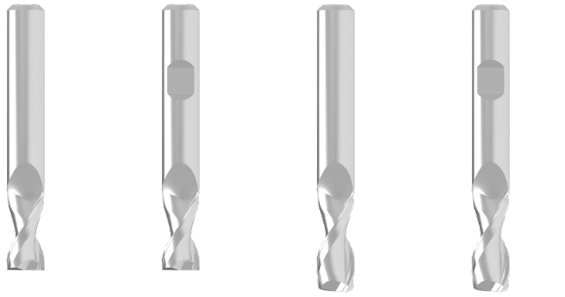
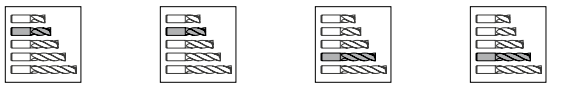
End milling cutter





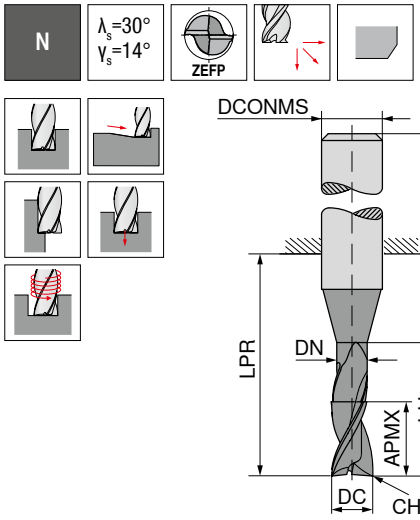




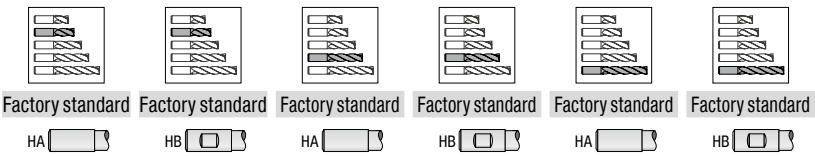
							Factory standard HA		Factory standard HB		≈DIN 6527 HA		≈DIN 6527 HB	
							50 593 ...		50 593 ...		50 594 ...		50 594 ...	
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	£ V0		£ V0		£ V0		£ V0	
7.80	19.0	27	63	8.0	0.15	2							29.03	078
8.00	18.0	24	60	8.0	0.15	2			27.30	080				
8.00	19.0	27	63	8.0	0.15	2							29.03	080
8.50	20.0	24	60	8.5	0.15	2	36.55	085						
8.70	19.0	32	72	10.0	0.15	2							44.91	087
9.00	19.0	32	72	10.0	0.15	2							44.91	090
9.00	20.0	24	60	9.0	0.15	2	36.55	090						
9.50	22.0	34	70	9.5	0.15	2	43.44	095						
9.70	22.0	32	72	10.0	0.15	2							44.91	097
10.00	20.0	30	70	10.0	0.15	2			43.44	100				
10.00	22.0	32	72	10.0	0.15	2							44.91	100
10.70	26.0	38	83	12.0	0.15	2							69.89	107
11.00	22.0	30	70	11.0	0.15	2	57.54	110						
11.00	26.0	38	83	12.0	0.15	2							69.89	110
11.70	26.0	38	83	12.0	0.15	2							69.89	117
12.00	20.0	25	70	12.0	0.15	2			57.54	120				
12.00	26.0	38	83	12.0	0.15	2							66.73	120
13.00	25.0	30	75	13.0	0.15	2	83.79	130						
13.70	26.0	38	83	14.0	0.15	2							85.44	137
14.00	22.0	30	75	14.0	0.15	2			79.31	140				
14.00	26.0	38	83	14.0	0.15	2							85.44	140
15.00	25.0	30	75	15.0	0.15	2	110.73	150						
15.70	32.0	44	92	16.0	0.15	2							112.68	157
16.00	22.0	27	75	16.0	0.15	2			104.32	160				
16.00	32.0	44	92	16.0	0.15	2							100.25	160
17.70	32.0	44	92	18.0	0.15	2							186.73	177
18.00	30.0	52	100	18.0	0.15	2			145.74	180				
18.00	32.0	44	92	18.0	0.15	2							132.73	180
19.70	38.0	54	104	20.0	0.15	2							246.12	197
20.00	30.0	50	100	20.0	0.15	2			154.42	200				
20.00	38.0	54	104	20.0	0.15	2							168.18	200
P							●		●		●		●	
M							○		○		○		○	
K							●		●		●		●	
N							○		○		○		○	
S							○		○		○		○	
H														
O							○		○		○		○	

→ v_c/f_z Page 460–463

End milling cutter







DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 939 ... £ V1		52 940 ... £ V1		52 945 ... £ V1		52 946 ... £ V1		52 950 ... £ V1		52 951 ... £ V1	
2.00	4	1.90	8	18	54	6	0.04	2	34.97	**02000**	34.97	**02000**								
2.00	5			10	38	3	0.04	2	30.23	**32000**										
2.00	6			10	38	2	0.04	2					43.98	**22000**						
2.00	7	1.90	10	22	58	6	0.04	2							38.26	**02000**				
2.50	4	2.40	8	18	54	6	0.07	2	34.97	**02500**	34.97	**02500**								
2.50	6			10	38	3	0.07	2	34.97	**32500**										
2.80	4	2.70	9	18	54	6	0.07	2	39.69	**02800**	39.69	**02800**								
2.80	7			10	38	3	0.07	2					48.49	**32800**						
2.80	7	2.70	12	22	58	6	0.07	2							39.91	**02800**				
3.00	6	2.90	9	18	54	6	0.07	2	34.97	**03000**	34.97	**03000**								
3.00	6			10	38	3	0.07	2	34.97	**33000**										
3.00	7			10	38	3	0.07	2					43.98	**33000**						
3.00	10	2.90	14	22	58	6	0.07	2							38.26	**03000**				
3.00	20	2.90	24	32	60	3	0.07	2									55.07	**33000**		
3.50	6	3.30	9	18	54	6	0.07	2	37.71	**03500**	37.71	**03500**								
3.80	7	3.60	12	18	54	6	0.07	2	39.69	**03800**	39.69	**03800**								
3.80	8	3.60	20	22	50	4	0.07	2					48.49	**43800**						
3.80	10	3.60	18	22	58	6	0.07	2							39.91	**03800**				
4.00	7	3.80	12	18	54	6	0.07	2	34.97	**04000**	34.97	**04000**								
4.00	8	3.80	20	22	50	4	0.07	2					43.98	**44000**						
4.00	13	3.80	18	22	58	6	0.07	2							38.26	**04000**				
4.00	30	3.80	35	47	75	4	0.07	2									60.69	**44000**		
4.50	7	4.30	12	18	54	6	0.12	2	37.71	**04500**	37.71	**04500**								
4.80	8	4.60	16	18	54	6	0.12	2	39.69	**04800**	39.69	**04800**								
4.80	10	4.60	20	22	50	5	0.12	2					48.49	**54800**						
4.80	13	4.60	18	22	58	6	0.12	2							39.91	**04800**				
5.00	8	4.80	16	18	54	6	0.12	2	34.97	**05000**	34.97	**05000**								
5.00	10	4.80	20	22	50	5	0.12	2					43.98	**55000**						
5.00	15	4.80	18	22	58	6	0.12	2							38.26	**05000**				
5.00	30	4.80	35	47	75	5	0.12	2									64.97	**55000**		
5.50	8	5.30	16	18	54	6	0.12	2	37.71	**05500**	37.71	**05500**								
5.75	10	5.55	16	18	54	6	0.12	2	44.08	**05700**	44.08	**05700**								
5.75	15	5.55	18	22	58	6	0.12	2					49.48	**05700**	49.48	**05700**				
6.00	10	5.80	16	18	54	6	0.12	2	34.97	**06000**	34.97	**06000**								
6.00	16	5.80	20	22	58	6	0.12	2					43.98	**06000**	43.98	**06000**				
6.00	40	5.80	60	64	100	6	0.12	2									75.20	**06000**	75.20	**06000**

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

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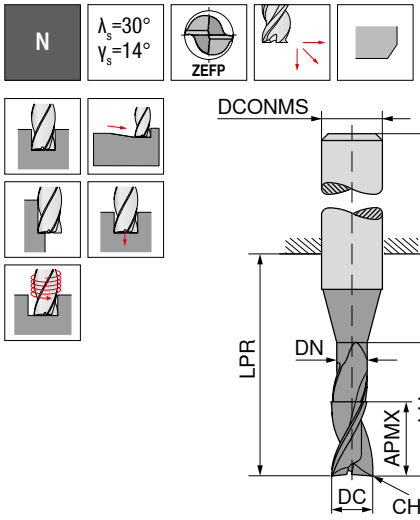
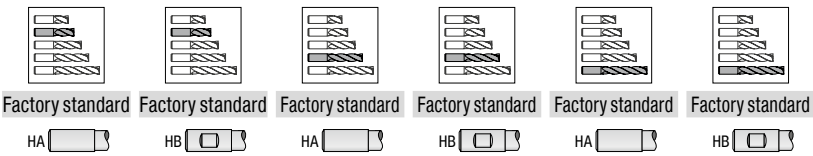
Continued on next page

End milling cutter







DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 939 ... £ V1		52 940 ... £ V1		52 945 ... £ V1		52 946 ... £ V1		52 950 ... £ V1		52 951 ... £ V1	
6.75	16	6.45	23	34	70	8	0.12	2					70.36	**06700**	70.36	**06700**				
7.00	12	6.70	18	23	59	8	0.12	2	49.58	**07000**	49.58	**07000**								
7.00	16	6.70	23	34	70	8	0.12	2					63.33	**07000**	63.33	**07000**				
7.75	12	7.45	18	23	59	8	0.12	2	49.70	**07700**	49.70	**07700**								
7.75	16	7.45	23	34	70	8	0.12	2					60.78	**07700**	60.78	**07700**				
8.00	12	7.70	20	23	59	8	0.12	2	42.99	**08000**	42.99	**08000**								
8.00	22	7.70	25	34	70	8	0.12	2					53.11	**08000**	53.11	**08000**				
8.00	40	7.70	60	64	100	8	0.12	2									86.95	**08000**	86.95	**08000**
9.00	13	8.70	22	27	67	10	0.20	2	70.36	**09000**	70.36	**09000**								
9.00	22	8.70	28	33	73	10	0.20	2					101.15	**09000**	101.15	**09000**				
9.70	13	9.40	22	27	67	10	0.20	2	76.85	**09700**	76.85	**09700**								
9.70	22	9.40	28	33	73	10	0.20	2					103.34	**09700**	103.34	**09700**				
10.00	13	9.70	24	27	67	10	0.20	2	66.08	**10000**	66.08	**10000**								
10.00	25	9.70	30	33	73	10	0.20	2					89.60	**10000**	89.60	**10000**				
10.00	40	9.70	55	60	100	10	0.20	2									121.00	**10000**	121.00	**10000**
11.00	25	10.60	32	39	84	12	0.20	2					137.46	**11000**	137.46	**11000**				
12.00	16	11.60	26	28	73	12	0.20	2	91.14	**12000**	91.14	**12000**								
12.00	26	11.60	35	39	84	12	0.20	2					121.00	**12000**	121.00	**12000**				
12.00	45	11.60	50	55	100	12	0.20	2									160.60	**12000**	160.60	**12000**
13.70	26	13.30	35	39	84	14	0.20	2					177.06	**13700**	177.06	**13700**				
14.00	16	13.60	28	30	75	14	0.20	2	123.20	**14000**	123.20	**14000**								
14.00	26	13.60	35	39	84	14	0.20	2					155.12	**14000**	155.12	**14000**				
16.00	20	15.50	32	35	83	16	0.20	2	130.98	**16000**	130.98	**16000**								
16.00	30	15.50	40	45	93	16	0.20	2					195.81	**16000**	195.81	**16000**				
16.00	65	15.50	90	102	150	16	0.20	2									369.38	**16000**	369.38	**16000**
20.00	25	19.50	40	43	93	20	0.30	2	220.95	**20000**	220.95	**20000**								
20.00	40	19.50	50	54	104	20	0.30	2					295.76	**20000**	295.76	**20000**				
20.00	65	19.50	90	100	150	20	0.30	2									456.26	**20000**	456.26	**20000**

P	●	●	●	●	●	●
M	○	○	○	○	○	○
K	●	●	●	●	●	●
N	○	○	○	○	○	○
S	○	○	○	○	○	○
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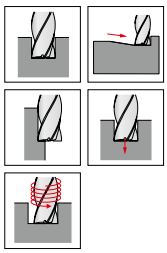
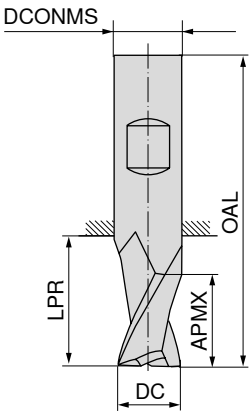
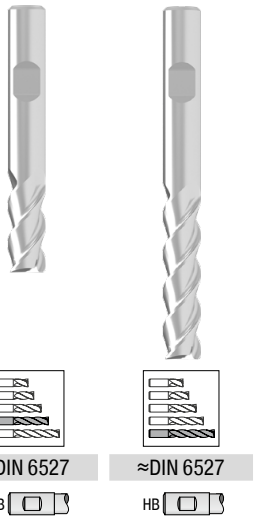
→ v_c/f_z Page 460–465

End milling cutter





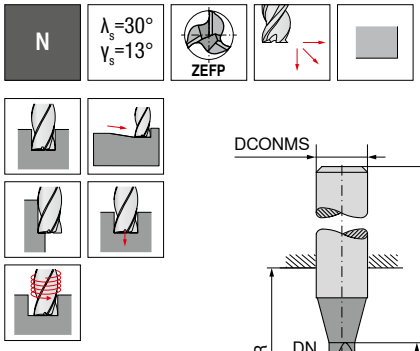




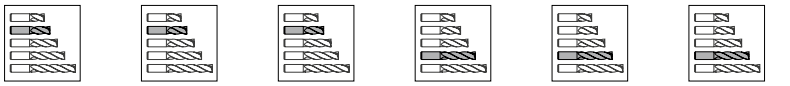
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP		≈DIN 6527 HB 50 614 ... £ V0		≈DIN 6527 HB 50 614 ... £ V0	
3.0	8	21	57	6	3		26.74	030		
3.5	11	21	57	6	3		29.48	035		
3.5	15	23	59	6	3				45.48	036
4.0	11	21	57	6	3		26.74	040		
4.0	19	27	63	6	3				45.48	041
4.5	13	21	57	6	3		29.48	045		
4.5	19	27	63	6	3				45.48	046
5.0	13	21	57	6	3		26.28	050		
5.0	24	32	68	6	3				49.36	051
5.5	13	21	57	6	3		29.48	055		
5.5	24	32	68	6	3				49.36	056
6.0	13	21	57	6	3		26.74	060		
6.0	24	32	68	6	3				47.89	061
6.5	16	27	63	8	3		34.65	065		
6.5	30	44	80	8	3				67.95	066
7.0	16	27	63	8	3		33.62	070		
7.0	30	44	80	8	3				67.95	071
7.5	19	27	63	8	3		31.70	075		
7.5	30	44	80	8	3				67.95	076
8.0	19	27	63	8	3		31.14	080		
8.0	38	52	88	8	3				62.55	081
8.5	19	32	72	10	3		47.86	085		
8.5	38	48	88	10	3				107.14	086
9.0	19	32	72	10	3		47.86	090		
9.0	38	48	88	10	3				107.14	091
9.5	22	32	72	10	3		55.84	095		
9.5	38	48	88	10	3				107.14	096
10.0	22	32	72	10	3		49.97	100		
10.0	45	55	95	10	3				104.32	101
11.0	26	38	83	12	3		79.31	110		
11.0	45	57	102	12	3				150.10	111
12.0	26	38	83	12	3		71.82	120		
12.0	53	65	110	12	3				150.10	121
14.0	26	38	83	14	3		92.18	140		
14.0	53	65	110	14	3				190.62	141
16.0	32	44	92	16	3		126.29	160		
16.0	63	75	123	16	3				262.14	161
18.0	32	44	92	18	3		153.08	180		
18.0	63	75	123	18	3				316.46	181
20.0	38	54	104	20	3		198.71	200		
20.0	75	91	141	20	3				422.55	201
P							○		○	
M							●		●	
K							○		○	
N							○		○	
S							●		●	
H										
O							○		○	

→ v_c/f_z Page 460–465

End milling cutter



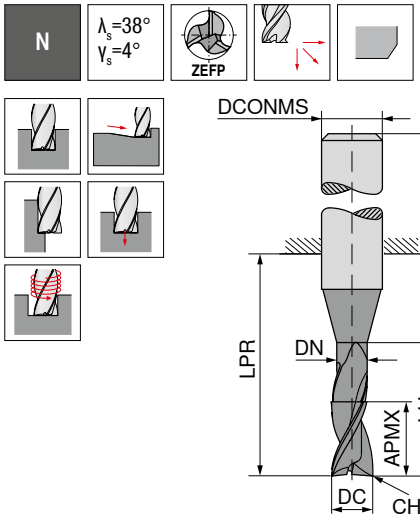




								Factory standard HB		Factory standard HA		Factory standard HB		Factory standard HB		Factory standard HA		Factory standard HB	
								52 923 ...		52 921 ...		52 922 ...		52 928 ...		52 926 ...		52 927 ...	
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1		£ V1		£ V1		£ V1		£ V1		£ V1	
1.00	4			22	58	6	3							31.44	01000	43.87	01000	43.87	01000
1.50	3	1.40	6	18	54	6	3	27.59	01500	39.81	01500	39.81	01500						
1.50	3	1.40	6	10	38	3	3			33.87	31500								
1.50	6			22	58	6	3							31.44	01500	43.87	01500	43.87	01500
2.00	4	1.90	8	18	54	6	3	28.15	02000	39.81	02000	39.81	02000						
2.00	4	1.90	8	10	38	3	3			33.87	32000								
2.00	7			22	58	6	3							31.44	02000	43.87	02000	43.87	02000
2.50	4	2.40	8	18	54	6	3	28.15	02500	39.14	02500	39.14	02500						
2.50	4	2.40	8	10	38	3	3			33.87	32500								
2.80	6	2.70	9	18	54	6	3	32.98	02800	42.56	02800	42.56	02800						
3.00	6	2.90	9	18	54	6	3	28.15	03000	39.81	03000	39.81	03000						
3.00	6	2.90	9	10	38	3	3			33.87	33000								
3.00	10	2.90	14	22	58	6	3							31.44	03000	43.87	03000	43.87	03000
3.50	6	3.30	9	18	54	6	3	28.15	03500	39.14	03500	39.14	03500						
3.80	6	3.60	12	18	54	6	3	32.98	03800	42.56	03800	42.56	03800						
4.00	7	3.80	12	18	54	6	3	28.15	04000	39.81	04000	39.81	04000						
4.00	13	3.80	17	22	58	6	3							31.44	04000	43.87	04000	43.87	04000
4.50	7	4.30	12	18	54	6	3	28.15	04500	39.14	04500	39.14	04500						
4.80	8	4.60	16	18	54	6	3	32.98	04800	42.56	04800	42.56	04800						
5.00	8	4.80	16	18	54	6	3	28.15	05000	39.81	05000	39.81	05000						
5.00	15	4.80	19	22	58	6	3							31.44	05000	43.87	05000	43.87	05000
5.50	8	5.30	16	18	54	6	3	28.15	05500	39.14	05500	39.14	05500						
5.75	8	5.55	16	18	54	6	3	33.10	05700	47.04	05700	47.04	05700						
6.00	10	5.80	16	18	54	6	3	28.15	06000	39.81	06000	39.81	06000						
6.00	16	5.80	20	22	58	6	3							31.44	06000	43.87	06000	43.87	06000
7.00	19	6.70	23	28	64	8	3							40.24	07000	56.39	07000	56.39	07000
7.75	10	7.45	18	22	58	8	3	36.94	07700	53.11	07700	53.11	07700						
8.00	12	7.70	20	23	59	8	3	31.44	08000	46.49	08000	46.49	08000						
8.00	22	7.70	26	34	70	8	3							36.06	08000	53.76	08000	53.76	08000
9.00	23	8.70	28	32	72	10	3							69.36	09000	96.98	09000	96.98	09000
9.70	12	9.40	18	19	59	10	3	58.50	09700	81.78	09700	81.78	09700						
10.00	13	9.70	24	27	67	10	3	49.70	10000	71.57	10000	71.57	10000						
10.00	25	9.70	31	33	73	10	3							63.87	10000	89.82	10000	89.82	10000
11.00	25	10.60	34	38	83	12	3							93.67	11000	129.68	11000	129.68	11000
11.70	16	11.30	20	22	67	12	3	81.24	11700	115.51	11700	115.51	11700						
12.00	16	11.60	26	28	73	12	3	69.15	12000	98.50	12000	98.50	12000						
12.00	26	11.60	37	39	84	12	3							85.21	12000	121.00	12000	121.00	12000
14.00	16	13.60	28	30	75	14	3	95.53	14000	131.97	14000	131.97	14000						
14.00	26	13.60	37	39	84	14	3							111.03	14000	153.92	14000	153.92	14000
16.00	20	15.50	32	35	83	16	3	103.94	16000	150.62	16000	150.62	16000						
16.00	32	15.50	43	45	93	16	3							134.17	16000	193.52	16000	193.52	16000
20.00	25	19.50	40	43	93	20	3	174.76	20000	239.60	20000	239.60	20000						
20.00	40	19.50	52	54	104	20	3							215.46	20000	296.76	20000	296.76	20000
P								●		●		●		●		●		●	
M								○		○		○		○		○		○	
K								●		●		●		●		●		●	
N								○		○		○		○		○		○	
S								○		○		○		○		○		○	
H										○		○				○		○	
O								○		○		○		○		○		○	

→ v_c/f_z Page 460–463

End milling cutter



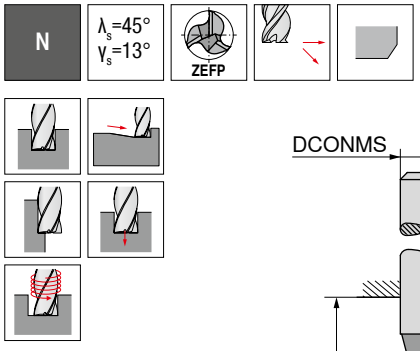


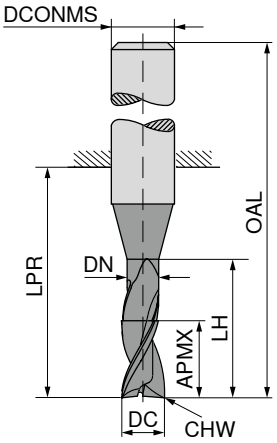


									Factory standard HB		Factory standard HA		Factory standard HB		Factory standard HB		Factory standard HA		Factory standard HB	
									52 931 ...		52 929 ...		52 930 ...		52 934 ...		52 932 ...		52 933 ...	
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	CHW mm	DCONMS h6 mm	ZEFP	£ V1		£ V1		£ V1		£ V1		£ V1		£ V1	
2.0	4	1.9	8	18	54	0.04	6	3	28.15	02000	39.91	02000	39.91	02000						
2.0	7	1.9	10	22	58	0.04	6	3							31.44	02000	44.86	02000	44.86	02000
2.5	5	2.4	8	18	54	0.07	6	3	28.15	02500	39.59	02500	39.59	02500						
3.0	6	2.9	9	18	54	0.07	6	3	28.15	03000	39.91	03000	39.91	03000						
3.0	10	2.9	14	22	58	0.07	6	3							31.44	03000	44.86	03000	44.86	03000
4.0	7	3.8	12	18	54	0.07	6	3	28.15	04000	39.91	04000	39.91	04000						
4.0	13	3.8	17	22	58	0.07	6	3							31.44	04000	44.86	04000	44.86	04000
5.0	8	4.8	16	18	54	0.12	6	3	28.15	05000	39.91	05000	39.91	05000						
5.0	15	4.8	19	22	58	0.07	6	3							31.44	05000	44.86	05000	44.86	05000
6.0	10	5.8	16	18	54	0.12	6	3	28.15	06000	39.91	06000	39.91	06000						
6.0	16	5.8	20	22	58	0.12	6	3							31.44	06000	44.86	06000	44.86	06000
7.0	11	6.7	18	23	59	0.12	8	3	34.84	07000	51.45	07000	51.45	07000						
7.0	19	6.7	23	34	70	0.12	8	3							38.81	07000	56.39	07000	56.39	07000
8.0	12	7.7	20	23	59	0.12	8	3	31.44	08000	47.04	08000	47.04	08000						
8.0	22	7.7	26	34	70	0.12	8	3							36.06	08000	54.10	08000	54.10	08000
9.0	13	8.7	22	27	67	0.20	10	3	54.86	09000	79.60	09000	79.60	09000						
9.0	23	8.7	28	33	73	0.12	10	3							69.36	09000	96.98	09000	96.98	09000
10.0	14	9.7	24	27	67	0.20	10	3	49.70	10000	71.57	10000	71.57	10000						
10.0	25	9.7	31	33	73	0.20	10	3							63.87	10000	90.48	10000	90.48	10000
12.0	16	11.6	26	28	73	0.20	12	3	69.15	12000	99.28	12000	99.28	12000						
12.0	28	11.6	37	39	84	0.20	12	3							85.21	12000	122.00	12000	122.00	12000
14.0	18	13.6	28	30	75	0.20	14	3	95.53	14000	132.97	14000	132.97	14000						
14.0	30	13.6	37	39	84	0.20	14	3							111.03	14000	155.12	14000	155.12	14000
16.0	20	16.0	32	35	83	0.20	16	3	103.94	16000	149.53	16000	149.53	16000						
16.0	35	16.0	43	45	93	0.20	16	3							134.17	16000	196.81	16000	196.81	16000
20.0	25	20.0	40	43	93	0.30	20	3	174.76	20000	241.90	20000	241.90	20000						
20.0	40	20.0	52	54	104	0.20	20	3							215.46	20000	295.76	20000	295.76	20000
P									○		○		○		○		○		○	
M									●		●		●		●		●		●	
K									○		○		○		○		○		○	
N									●		●		●		●		●		●	
S									●		●		●		●		●		●	
H																				
O									●		●		●		●		●		●	

→ v_c/f_z Page 460–463

End milling cutter







Factory standard

Factory standard

HA

HB

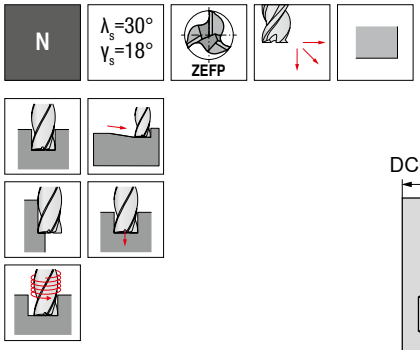
DC e8 mm	DN mm	APMX mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 935 ... £ V1		52 936 ... £ V1	
3	3.0	20	20	24	60	6	0.07	3	87.50	**03000**	87.50	**03000**
4	3.8	30	35	39	75	6	0.07	3	87.50	**04000**	87.50	**04000**
5	4.8	30	35	39	75	6	0.12	3	87.50	**05000**	87.50	**05000**
6	5.8	40	60	64	100	6	0.12	3	84.54	**06000**	84.54	**06000**
8	7.7	40	60	64	100	8	0.12	3	96.42	**08000**	96.42	**08000**
10	9.7	40	55	60	100	10	0.20	3	127.48	**10000**	127.48	**10000**
12	11.6	45	50	55	100	12	0.20	3	174.76	**12000**	174.76	**12000**
14	13.6	45	50	55	100	14	0.20	3	267.13	**14000**	267.13	**14000**
16	15.5	65	90	102	150	16	0.20	3	393.61	**16000**	393.61	**16000**
20	19.5	65	90	100	150	20	0.30	3	456.26	**20000**	456.26	**20000**

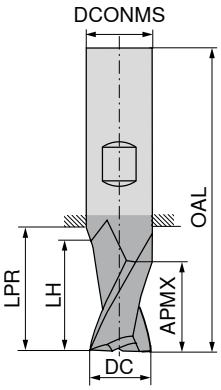
P	○	○
M	●	●
K	○	○
N	●	●
S	●	●
H		
O	●	●

→ v_c/f_z Page 460–465

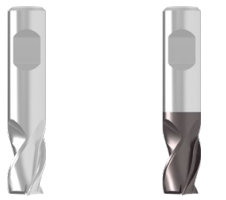
Mini milling cutter

▲ Shank similar to DIN 6535











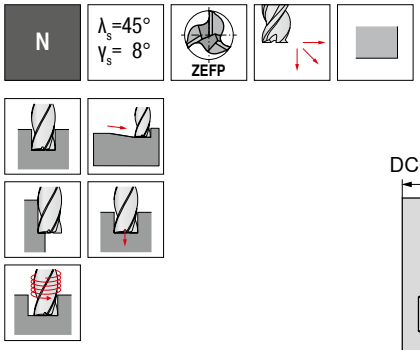


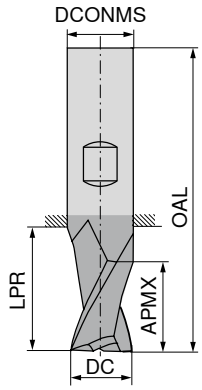
							Factory standard HB		Factory standard HB	
							50 598 ...		**50 599 ...**	
DC e8 **mm**	APMX mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V0		£ V0	
2.00	4	4.0	10	35	6	3	17.51	**020**	24.37	**020**
2.50	4	4.0	10	35	6	3	18.38	**025**	25.15	**025**
3.00	5	5.0	10	36	6	3	17.51	**030**	24.37	**030**
3.50	5	5.0	10	36	6	3	18.38	**035**	25.15	**035**
4.00	7	7.0	12	38	6	3	17.48	**040**	23.06	**040**
4.50	7	7.0	12	38	6	3	18.38	**045**	25.15	**045**
5.00	8	8.0	13	39	6	3	17.48	**050**	23.19	**050**
5.50	8	8.0	13	39	6	3	18.38	**055**	25.40	**055**
5.75	8	8.0	13	39	6	3	18.38	**057**	25.40	**057**
6.00	8	8.5	13	39	6	3	17.48	**060**	23.19	**060**
6.75	11	11.5	16	43	8	3	24.55	**067**	31.14	**067**
7.00	11	11.5	16	43	8	3	23.50	**070**	29.48	**070**
7.75	11	11.5	16	43	8	3	25.00	**077**	31.88	**077**
8.00	11	11.5	16	43	8	3	27.10	**080**	31.44	**080**
8.70	13	13.5	18	50	10	3	38.48	**087**	46.86	**087**
9.00	13	13.5	18	50	10	3	34.51	**090**	42.43	**090**
9.70	13	13.5	18	50	10	3	38.48	**097**	46.86	**097**
10.00	13	13.5	18	50	10	3	37.58	**100**	45.06	**100**
12.00	15	15.5	24	55	12	3	49.84	**120**	58.37	**120**
14.00	15	15.5	26	58	14	3	85.29	**140**	92.18	**140**
16.00	18	18.5	28	62	16	3	95.33	**160**	105.19	**160**
18.00	20	20.5	35	70	18	3	120.17	**180**	131.67	**180**
20.00	22	22.5	40	75	20	3	153.37	**200**	162.95	**200**
P							○		●	
M							○		○	
K							○		●	
N							●		○	
S							○		○	
H									○	
O							●		○	

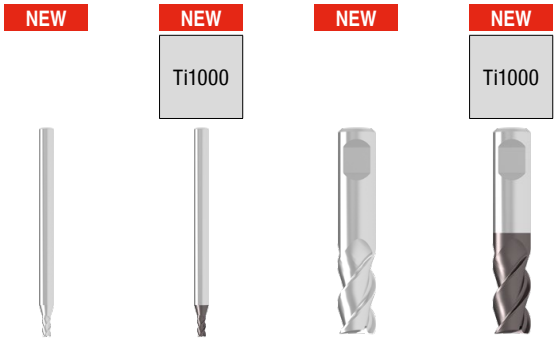
→ v_c/f_z Page 460–463

Mini milling cutter

▲ Shank similar to DIN 6535









Factory standard | Factory standard | Factory standard | Factory standard

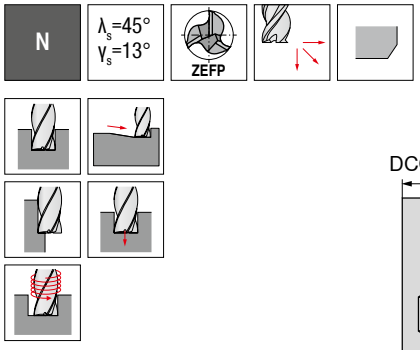
~HA | ~HA | HB | HB

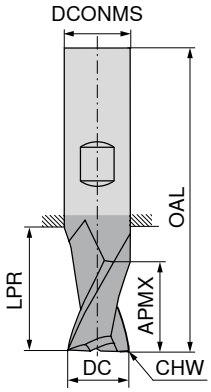
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 664 ... £ V0		50 691 ... £ V0		50 664 ... £ V0		50 691 ... £ V0	
0.50	1.5	17	45	3	3	18.80	30500	22.61	30500				
1.00	2.0	12	45	6	3					18.24	01000	19.56	01000
1.00	2.0	17	45	3	3	18.80	31000	22.61	31000				
1.20	2.0	12	45	6	3					18.24	01200	19.56	01200
1.20	3.0	17	45	3	3	18.24	31200	22.61	31200				
1.50	3.0	12	45	6	3					18.24	01500	19.56	01500
1.50	3.0	17	45	3	3	18.80	31500	22.61	31500				
1.80	3.0	12	45	6	3					18.24	01800	19.56	01800
1.80	3.0	17	45	3	3	18.24	31800	22.61	31800				
2.00	4.0	13	45	6	3					18.72	02000	23.08	02000
2.50	6.0	13	45	6	3					18.72	02500	23.08	02500
2.80	6.0	13	45	6	3					18.72	02800	23.08	02800
3.00	6.0	13	45	6	3					18.72	03000	23.08	03000
3.50	7.0	13	45	6	3					19.56	03500	23.08	03500
3.80	7.0	13	45	6	3					19.56	03800	23.08	03800
4.00	7.0	12	45	6	3					19.56	04000	23.08	04000
4.50	8.0	11	45	6	3					20.01	04500	23.08	04500
4.80	8.0	11	45	6	3					20.01	04800	23.08	04800
5.00	8.0	11	45	6	3					20.01	05000	23.08	05000
5.50	8.0	9	45	6	3					20.01	05500	23.08	05500
5.75	8.0	9	45	6	3					20.01	05700	23.08	05700
6.00	8.0	9	45	6	3					20.01	06000	23.08	06000
6.70	10.0	19	55	8	3					29.04	06700	23.08	06700
7.00	12.0	19	55	8	3					29.04	07000	23.08	07000
7.70	12.0	19	55	8	3					29.04	07700	32.81	07700
8.00	13.0	19	55	8	3					29.04	08000	32.81	08000
8.70	14.0	17	55	10	3					41.06	08700	39.88	08700
9.00	16.0	17	55	10	3					41.06	09000	39.88	09000
9.70	16.0	17	55	10	3					41.06	09700	39.88	09700
10.00	16.0	17	55	10	3					41.06	10000	39.88	10000
P								●				●	
M								●				●	
K								●				●	
N						●		○		●		○	
S						○		●		○		●	
H													
O													

→ v_c/f_z Page 444–447

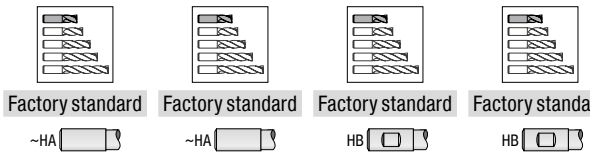
Mini milling cutter

▲ Shank similar to DIN 6535









Factory standard | Factory standard | Factory standard | Factory standard

~HA | ~HA | HB | HB

DC e8 mm	CHW mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 608 ... £ V0		50 609 ... £ V0		50 608 ... £ V0		50 609 ... £ V0	
0.50	0.05	1.5	17	45	3	3	18.36	30500	22.61	30500				
1.00	0.05	2.0	12	45	6	3					18.51	01000	23.81	01000
1.00	0.05	2.0	17	45	3	3	18.36	31000	22.61	31000				
1.20	0.05	2.0	12	45	6	3					18.51	01200	23.81	01200
1.20	0.05	3.0	17	45	3	3	18.36	31200	22.61	31200				
1.50	0.05	3.0	12	45	6	3					18.51	01500	23.81	01500
1.50	0.05	3.0	17	45	3	3	18.36	31500	22.61	31500				
1.80	0.05	3.0	12	45	6	3					18.51	01800	23.81	01800
1.80	0.05	3.0	17	45	3	3	18.36	31800	22.61	31800				
2.00	0.05	4.0	13	45	6	3					19.83	020	23.81	02000
2.50	0.05	6.0	13	45	6	3					19.83	025	23.81	02500
2.80	0.05	6.0	13	45	6	3					19.29	02800	23.81	02800
3.00	0.10	6.0	13	45	6	3					19.83	030	23.81	03000
3.50	0.10	7.0	13	45	6	3					20.17	03500	23.81	03500
3.80	0.10	7.0	13	45	6	3					20.17	03800	23.81	03800
4.00	0.10	7.0	12	45	6	3					21.11	040	23.81	04000
4.50	0.10	8.0	11	45	6	3					20.65	04500	23.81	04500
4.80	0.10	8.0	11	45	6	3					20.65	04800	23.81	04800
5.00	0.10	8.0	11	45	6	3					21.55	050	23.81	05000
5.50	0.10	8.0	9	45	6	3					20.65	05500	23.81	05500
5.75	0.10	8.0	9	45	6	3					20.65	05700	23.81	05700
6.00	0.10	8.0	9	45	6	3					21.55	060	23.81	06000
6.70	0.10	10.0	19	55	8	3					29.95	06700	23.81	06700
7.00	0.10	12.0	19	55	8	3					30.69	070	23.81	07000
7.70	0.10	12.0	19	55	8	3					29.95	07700	33.82	07700
8.00	0.10	13.0	19	55	8	3					30.69	080	33.82	08000
8.70	0.10	14.0	17	55	10	3					39.55	08700	41.12	08700
9.00	0.10	16.0	17	55	10	3					39.55	09000	41.12	09000
9.70	0.10	16.0	17	55	10	3					42.32	09700	41.12	09700
10.00	0.10	16.0	17	55	10	3					43.44	100	41.12	10000

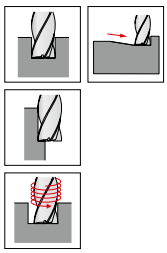
P		●		●
M		●		●
K		●		●
N	●	○	●	○
S	○	●	○	●
H				
O				

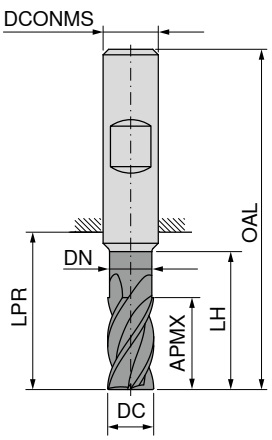
→ v_c/f_z Page 444–447

14

End milling cutter







NEW



NEW





Factory standard

HB



Factory standard

HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 209 ... £ V1		52 213 ... £ V1	
2	4	1.9	8	18	54	6	4	28.04	02000		
2	7			22	58	6	4			31.33	02000
3	6	2.9	9	18	54	6	4	28.04	03000		
3	10	2.8	14	22	58	6	4			31.33	03000
4	7	3.8	12	18	54	6	4	28.04	04000		
4	13	3.8	17	22	58	6	4			31.33	04000
5	8	4.8	16	18	54	6	4	28.04	05000		
5	15	4.8	19	22	58	6	4			31.33	05000
6	10	5.8	16	18	54	6	4	28.04	06000		
6	16	5.7	20	22	58	6	4			31.33	06000
7	19	6.7	23	27	63	8	4			38.91	07000
8	12	7.7	20	22	58	8	4	31.33	08000		
8	22	7.7	26	34	70	8	4			35.95	08000
9	23	8.7	28	33	73	10	4			68.05	09000
10	14	9.7	24	26	66	10	4	49.36	10000		
10	25	9.6	31	33	73	10	4			63.55	10000
11	26	10.6	34	39	84	12	4			89.82	11000
12	16	11.6	26	28	73	12	4	68.72	12000		
12	28	11.6	37	39	84	12	4			84.88	12000
14	18	13.6	28	30	75	14	4	95.21	14000		
14	30	13.6	37	39	84	14	4			109.92	14000
16	22	15.5	32	34	82	16	4	103.34	16000		
16	35	15.6	43	45	93	16	4			134.17	16000
18	20	17.5	34	32	80	18	4	135.17	18000		
18	35	17.6	43	45	93	18	4			164.99	18000
20	25	19.5	40	42	92	20	4	173.67	20000		
20	40	19.6	52	54	104	20	4			214.46	20000

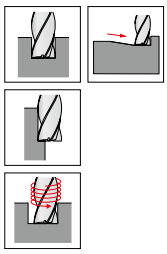
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		
O	○	○

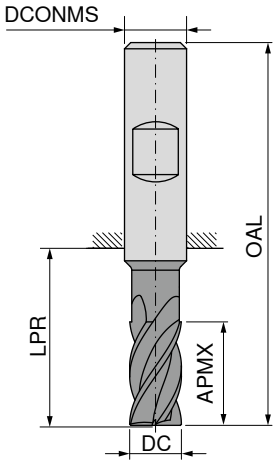
→ v_c/f_z Page 460–463

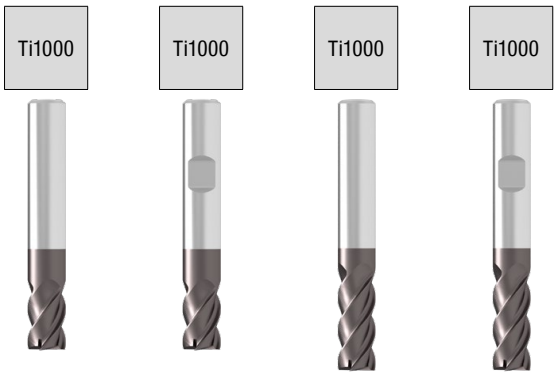
End milling cutter

▲ Cutting edges with irregular pitch









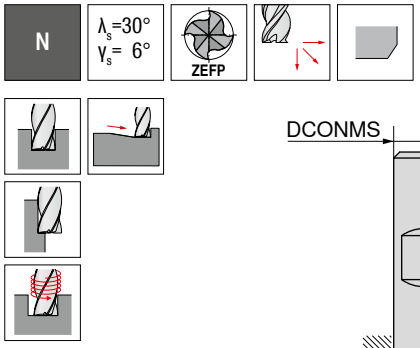


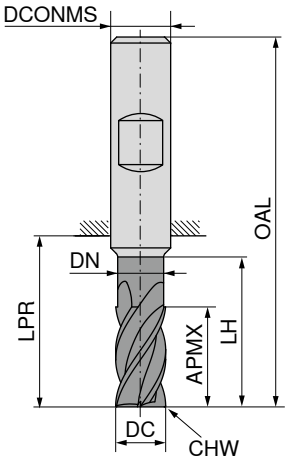
						52 121 ...		52 131 ...		52 126 ...		52 132 ...	
						DIN 6527		DIN 6527		DIN 6527		≈DIN 6527	
						HA		HB		HA		HB	
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1		£ V1		£ V1		£ V1	
3.0	6	18	54	6	4	67.50	030	59.84	030				
3.0	10	22	58	6	4					72.23	030	65.42	030
3.5	7	18	54	6	4	67.50	035	59.84	035				
3.5	13	22	58	6	4					72.23	035	65.42	035
4.0	7	18	54	6	4	67.50	040	59.84	040				
4.0	13	22	58	6	4					72.23	040	65.42	040
4.5	8	18	54	6	4	67.50	045	59.84	045				
4.5	15	22	58	6	4					72.23	045	65.42	045
5.0	8	18	54	6	4	67.50	050	59.84	050				
5.0	15	22	58	6	4					72.23	050	65.42	050
6.0	10	18	54	6	4	98.20	060	59.84	060				
6.0	16	22	58	6	4					117.58	060	65.42	060
8.0	12	23	59	8	4	115.98	080	69.29	080				
8.0	22	34	70	8	4					135.93	080	79.47	080
10.0	14	27	67	10	4	148.93	100	103.49	100				
10.0	25	33	73	10	4					178.85	100	130.02	100
12.0	16	28	73	12	4	212.31	120	143.93	120				
12.0	28	39	84	12	4					260.34	120	168.77	120
14.0	16	30	75	14	4	279.87	140	193.46	140				
14.0	30	39	84	14	4					331.01	140	209.49	140
16.0	20	35	83	16	4	306.52	160	214.86	160				
16.0	35	45	93	16	4					408.12	160	259.16	160
18.0	20	32	80	18	4	403.99	180	253.92	180				
18.0	35	45	93	18	4					481.22	180	306.88	180
20.0	25	43	93	20	4	480.09	200	318.57	200				
20.0	40	54	104	20	4					574.26	200	394.85	200

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

→ v_c/f_z Page 460–463

End milling cutter







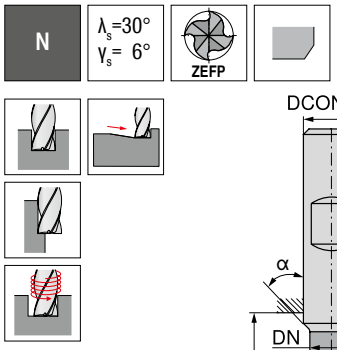


DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 206 ... £ V1		52 207 ... £ V1		52 210 ... £ V1		52 211 ... £ V1	
1.5	3	1.4	6	10	38	3	0.02	4	34.42	**31500**						
2.0	4	1.9	8	10	38	3	0.03	4	29.90	**32000**						
2.0	4	1.9	8	18	54	6	0.03	4	34.63	**02000**	34.63	**02000**				
2.0	7			10	38	2	0.03	4					43.53	**22000**		
2.5	4	2.4	8	10	38	3	0.04	4	29.90	**32500**						
3.0	6	2.9	9	10	38	3	0.04	4	29.90	**33000**						
3.0	6	2.9	9	18	54	6	0.04	4	34.63	**03000**	34.63	**03000**				
3.0	10	2.8	14	14	38	3	0.03	4					43.53	**33000**		
4.0	7	3.8	12	18	54	6	0.05	4	34.63	**04000**	34.63	**04000**				
4.0	13	3.8	17	22	50	4	0.04	4					43.53	**44000**		
5.0	8	4.8	16	18	54	6	0.06	4	34.63	**05000**	34.63	**05000**				
5.0	15	4.8	19	22	50	5	0.04	4					43.53	**55000**		
6.0	10	5.8	16	18	54	6	0.07	4	34.63	**06000**	34.63	**06000**				
6.0	16	5.7	20	22	58	6	0.04	4					43.53	**06000**	43.53	**06000**
7.0	19	6.7	23	27	63	8	0.05	4					56.07	**07000**	56.07	**07000**
8.0	12	7.7	20	22	58	8	0.08	4	42.43	**08000**	42.43	**08000**				
8.0	22	7.7	26	34	70	8	0.06	4					53.33	**08000**	53.33	**08000**
9.0	23	8.7	28	33	73	10	0.07	4					96.53	**09000**	96.53	**09000**
10.0	14	9.7	24	26	66	10	0.10	4	65.63	**10000**	65.63	**10000**				
10.0	25	9.6	31	33	73	10	0.08	4					89.49	**10000**	89.49	**10000**
11.0	26	10.6	34	39	84	12	0.10	4					129.68	**11000**	129.68	**11000**
12.0	16	11.6	26	28	73	12	0.13	4	89.82	**12000**	89.82	**12000**				
12.0	28	11.6	37	39	84	12	0.13	4					121.00	**12000**	121.00	**12000**
14.0	18	13.6	28	30	75	14	0.15	4	122.00	**14000**	122.00	**14000**				
14.0	30	13.6	37	39	84	14	0.15	4					152.82	**14000**	152.82	**14000**
16.0	22	15.5	32	34	82	16	0.18	4	130.98	**16000**	130.98	**16000**				
16.0	35	15.6	43	45	93	16	0.18	4					193.52	**16000**	193.52	**16000**
20.0	25	19.5	40	42	92	20	0.20	4	219.95	**20000**	219.95	**20000**				
20.0	40	19.6	52	54	104	20	0.20	4					294.66	**20000**	294.66	**20000**
P									●		●		●		●	
M									○		○		○		○	
K									●		●		●		●	
N									○		○		○		○	
S									○		○		○		○	
H									○		○		○		○	
O									○		○		○		○	

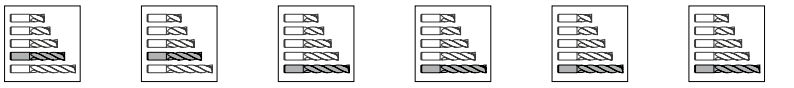
→ v_c/f_z Page 460–463

End milling cutter

▲ Transition angle α = 30°







Factory standard | Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HB | HB | HA | HB | HA | HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 221 ... £ V1		52 219 ... £ V1		52 215 ... £ V1		52 220 ... £ V1		52 214 ... £ V1		52 222 ... £ V1	
3	16	2.8	32	47	75	3	0.04	4					37.81	**33000**			45.19	**33000**		
4	16	3.8	32	47	75	4	0.05	4					38.91	**44000**			47.27	**44000**		
4	20	3.8	48	72	100	4	0.05	4					43.42	**44100**			50.57	**44100**		
5	20	4.8	35	47	75	5	0.06	4					43.53	**55000**			52.88	**55000**		
5	25	4.8	55	72	100	5	0.06	4					46.18	**55100**			59.04	**55100**		
6	24	5.8	42	44	80	6	0.07	4	59.69	**06000**	68.05	**06000**								
6	30	5.8	62	64	100	6	0.07	4							68.05	**06000**			79.15	**06000**
8	32	7.8	60	64	100	8	0.08	4	71.68	**08000**	83.88	**08000**								
8	40	7.8	75	84	120	8	0.08	4							84.22	**08000**			101.15	**08000**
10	40	9.8	58	60	100	10	0.10	4	96.85	**10000**	114.31	**10000**								
10	50	9.8	78	80	120	10	0.10	4							112.12	**10000**			137.46	**10000**
12	48	11.8	60	75	120	12	0.13	4	139.65	**12000**	166.09	**12000**								
12	60	11.8	90	105	150	12	0.13	4							170.48	**12000**			199.01	**12000**
14	45	13.8	50	55	100	14	0.15	4	189.13	**14000**	216.56	**14000**								
14	56	13.8	95	105	150	14	0.15	4							206.79	**14000**			242.99	**14000**
16	50	15.8	70	77	125	16	0.18	4	215.46	**16000**	250.68	**16000**								
16	65	15.8	95	102	150	16	0.18	4							248.48	**16000**			283.59	**16000**
18	72	17.8	95	102	150	18	0.18	4							350.72	**18000**			412.27	**18000**
20	60	19.8	80	85	135	20	0.20	4	369.38	**20000**	439.80	**20000**								
20	80	19.8	95	100	150	20	0.20	4							401.30	**20000**			477.20	**20000**
25	75	24.5	90	94	150	25	0.25	4	500.35	**25000**	581.65	**25000**								

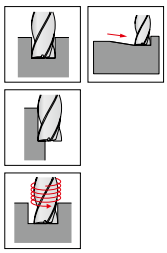
P	●	●	●	●	●	●
M	○	○	○	○	○	○
K	●	●	●	●	●	●
N	○	○	○	○	○	○
S	○	○	○	○	○	○
H		○			○	○
O	○	○	○	○	○	○

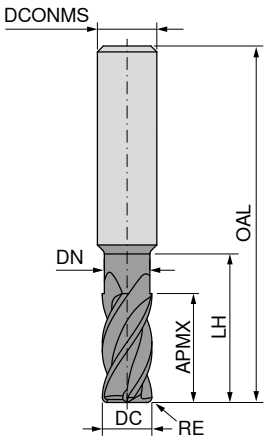
→ v_c/f_z Page 460–465

End milling cutter with corner radius

▲ optimal quiet running with irregular helix













Factory standard

HA 

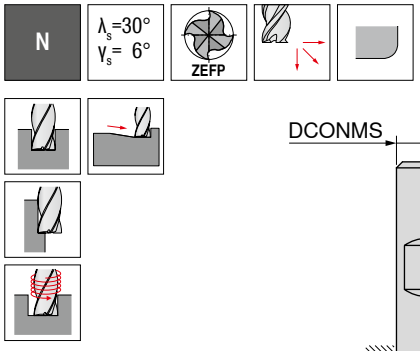
52 102 ...

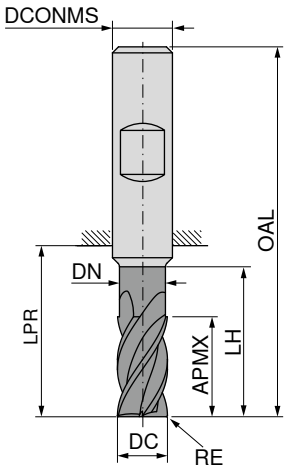
DC e8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
2	0.2	7	1.8	11	58	6	4	93.38	**022**
3	0.3	8	2.8	13	58	6	4	89.48	**033**
4	0.4	11	3.8	16	58	6	4	85.74	**044**
5	0.5	13	4.8	18	58	6	4	85.74	**055**
6	0.5	16	5.8	26	58	6	4	89.19	**065**
6	1.0	16	5.8	26	58	6	4	89.19	**066**
8	0.5	22	7.8	32	64	8	4	127.20	**085**
8	1.0	22	7.8	32	64	8	4	127.20	**086**
8	1.5	22	7.8	32	64	8	4	127.20	**087**
10	0.5	25	9.8	35	73	10	4	161.58	**105**
10	1.0	25	9.8	35	73	10	4	161.58	**106**
10	1.5	25	9.8	35	73	10	4	161.58	**107**
12	0.5	28	11.8	38	84	12	4	216.21	**125**
12	1.0	28	11.8	38	84	12	4	216.21	**126**
12	1.5	28	11.8	38	84	12	4	216.21	**127**

P	○
M	●
K	○
N	●
S	●
H	
O	●

→ v_c/f_z Page 460–463

End milling cutter with corner radius







Factory standard

Factory standard

HA

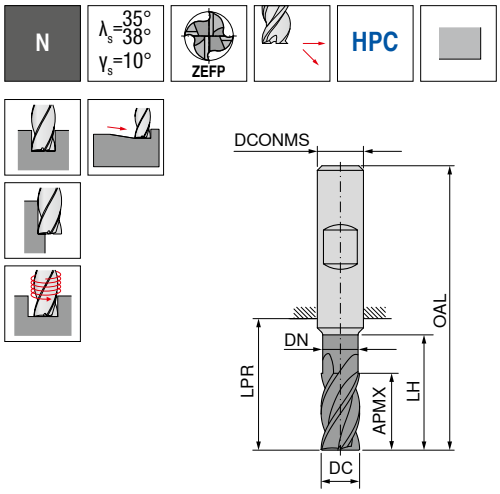
HB

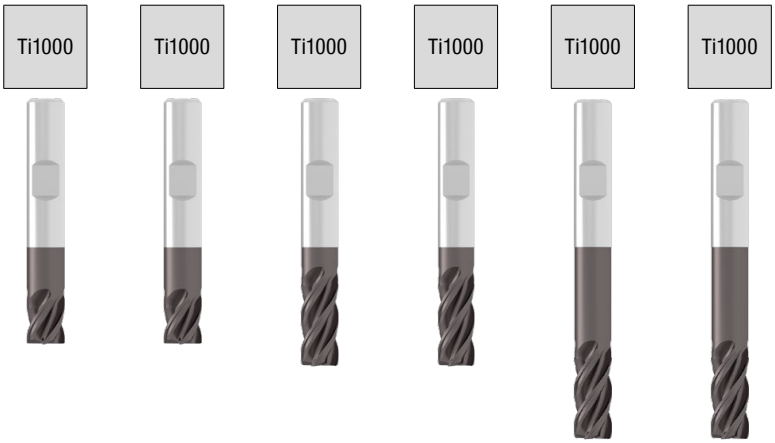
DC e8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 231 ... £ V1		52 232 ... £ V1	
3	0.3	8	2.8	13	21	57	6	4	68.93	**03003**	68.93	**03003**
3	0.5	8	2.8	13	21	57	6	4	68.93	**03005**	68.93	**03005**
4	0.3	11	3.8	16	21	57	6	4	67.50	**04003**	66.95	**04003**
4	0.5	11	3.8	16	21	57	6	4	67.50	**04005**	67.50	**04005**
5	0.3	13	4.8	18	21	57	6	4	67.50	**05003**	67.50	**05003**
5	0.5	13	4.8	18	21	57	6	4	67.50	**05005**	67.50	**05005**
6	0.5	13	5.8	26	21	57	6	4	58.93	**06005**	58.93	**06005**
6	1.0	13	5.8	26	21	57	6	4	58.93	**06010**	58.93	**06010**
6	1.5	13	5.8	26	21	57	6	4	60.35	**06015**	60.35	**06015**
8	0.5	19	7.8	32	27	63	8	4	89.71	**08005**	89.71	**08005**
8	1.0	19	7.8	32	27	63	8	4	89.71	**08010**	89.71	**08010**
8	1.5	19	7.8	32	27	63	8	4	94.33	**08015**	94.33	**08015**
8	2.0	19	7.8	32	27	63	8	4	94.33	**08020**	94.33	**08020**
10	1.0	22	9.8	35	32	72	10	4	112.12	**10010**	112.12	**10010**
10	1.5	22	9.8	35	32	72	10	4	117.61	**10015**	117.61	**10015**
10	2.0	22	9.8	35	32	72	10	4	117.61	**10020**	117.61	**10020**
12	1.0	26	11.8	38	38	83	12	4	149.53	**12010**	149.53	**12010**
12	1.5	26	11.8	38	38	83	12	4	153.92	**12015**	153.92	**12015**
12	2.0	26	11.8	38	38	83	12	4	153.92	**12020**	153.92	**12020**
12	3.0	26	11.8	38	38	83	12	4	155.12	**12030**	155.12	**12030**
16	1.0	32	15.8	44	44	92	16	4	248.48	**16010**	248.48	**16010**
16	1.5	32	15.8	44	44	92	16	4	253.96	**16015**	253.96	**16015**
16	2.0	32	15.8	44	44	92	16	4	253.96	**16020**	253.96	**16020**
16	3.0	32	15.8	44	44	92	16	4	256.16	**16030**	256.16	**16030**
20	1.5	38	19.8	52	54	104	20	4	380.45	**20015**	380.45	**20015**
20	2.0	38	19.8	52	54	104	20	4	380.45	**20020**	380.45	**20020**
20	3.0	38	19.8	52	54	104	20	4	382.64	**20030**	382.64	**20030**
P									●		●	
M									○		○	
K									●		●	
N									○		○	
S									○		○	
H									○		○	
O									○		○	

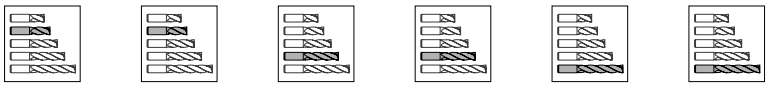
→ v_c/f_z Page 460–463

End milling cutter

- ▲ irregular helix angle
- ▲ 54 050 ... / 54 051 ... / 54 052 ...: special cutting edge preperation for the machining of steel
- ▲ 54 060 ... / 54 061 ... / 54 062 ...: special cutting edge preperation for the machining of stainless steel





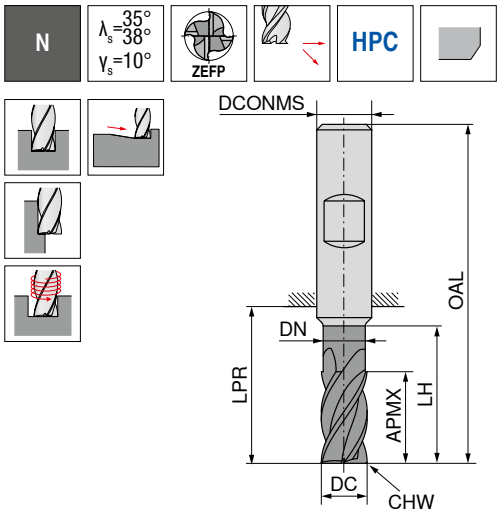


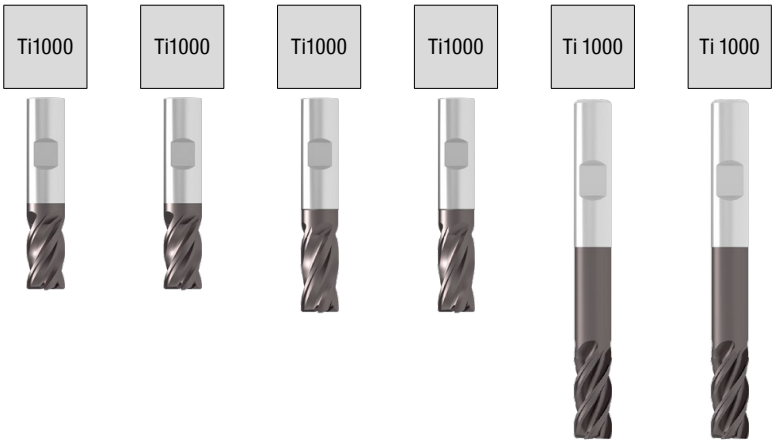
								≈DIN 6527 HB		≈DIN 6527 HB		≈DIN 6527 HB		≈DIN 6527 HB		≈DIN 6527 HB	
								54 050 ...		54 060 ...		54 051 ...		54 061 ...		54 052 ...		54 062 ...	
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V3		£ V3		£ V3		£ V3		£ V3		£ V3	
3	5			14	50	6	4	15.28	030	16.57	030								
3	8	2.8	12	21	57	6	4					15.28	030	16.57	030				
3	8	2.8	15	34	70	6	4									21.62	030	23.39	030
4	8			18	54	6	4	15.28	040	16.57	040								
4	11	3.8	15	21	57	6	4					15.28	040	16.57	040				
4	11	3.8	20	34	70	6	4									21.62	040	23.39	040
5	9			18	54	6	4	15.28	050	16.57	050								
5	13	4.8	17	21	57	6	4					15.28	050	16.57	050				
5	13	4.8	25	34	70	6	4									24.32	050	26.32	050
6	10			18	54	6	4	15.28	060	16.57	060								
6	13	5.8	21	21	57	6	4					17.99	060	19.39	060				
6	13	5.8	30	34	70	6	4									27.26	060	29.39	060
8	12			22	58	8	4	21.62	080	23.26	080								
8	19	7.7	27	27	63	8	4					23.04	080	25.03	080				
8	19	7.7	40	44	80	8	4									34.55	080	37.24	080
10	14			26	66	10	4	27.96	100	30.20	100								
10	22	9.7	32	32	72	10	4					30.31	100	32.91	100				
10	22	9.7	50	54	94	10	4									47.95	100	51.94	100
12	16			28	73	12	4	40.19	120	43.48	120								
12	26	11.6	38	38	83	12	4					48.30	120	52.29	120				
12	26	11.6	64	64	109	12	4									59.10	120	64.04	120
16	22			34	82	16	4	70.39	160	76.15	160								
16	32	15.5	44	44	92	16	4					74.39	160	80.50	160				
16	32	15.5	80	84	132	16	4									112.22	160	120.68	160
20	26			42	92	20	4	104.59	200	113.27	200								
20	38	19.5	54	54	104	20	4					112.22	200	121.75	200				
20	38	19.5	100	104	154	20	4									152.76	200	165.56	200
P								●		●		●		●		●		●	
M										●				●				●	
K								●		○		●		○		●		○	
N										○				○				○	
S										●				●				●	
H																			
O																			

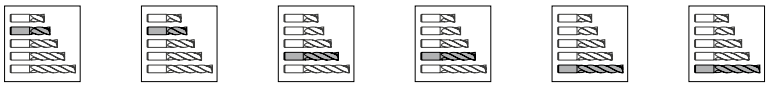
→ v_c/f_z Page 450–453

End milling cutter

- ▲ irregular helix angle
- ▲ 54 001 ... / 54 002 ... / 54 003 ...: special cutting edge preperation for the machining of steel
- ▲ 54 004 ... / 54 005 ... / 54 006 ...: special cutting edge preperation for the machining of stainless steel







	≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527
	HB	HB	HB	HB	HB	HB
	54 001 ...	54 005 ...	54 002 ...	54 006 ...	54 003 ...	54 004 ...

DC h10/ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V3		£ V3		£ V3		£ V3		£ V3	
3.0	5			14	50	6	0.15	4	15.31	030	16.54	030						
3.0	8	2.8	12.0	21	57	6	0.15	4					15.31	030	16.54	030		
3.0	8	2.8	15.0	34	70	6	0.15	4									21.62	030	23.39	030
4.0	8			18	54	6	0.15	4	15.31	040	16.54	040								
4.0	11	3.8	15.0	21	57	6	0.15	4					15.31	040	16.54	040				
4.0	11	3.8	20.0	34	70	6	0.15	4									21.62	040	23.39	040
5.0	9			18	54	6	0.15	4	15.31	050	16.54	050								
5.0	13	4.8	17.0	21	57	6	0.15	4					15.31	050	16.54	050				
5.0	13	4.8	25.0	34	70	6	0.15	4									24.32	050	26.32	050
6.0	10			18	54	6	0.15	4	15.31	060	16.54	060								
6.0	13	5.8	21.0	21	57	6	0.15	4					17.87	060	19.34	060				
6.0	13	5.8	30.0	34	70	6	0.15	4									27.26	060	29.39	060
8.0	12			22	58	8	0.25	4	21.44	080	23.26	080								
8.0	19	7.7	27.0	27	63	8	0.25	4					23.03	080	24.98	080				
8.0	19	7.7	40.0	44	80	8	0.25	4									34.55	080	37.24	080
10.0	14			26	66	10	0.25	4	27.92	100	30.25	100								
10.0	22	9.7	32.0	32	72	10	0.25	4					30.25	100	32.82	100				
10.0	22	9.7	50.0	54	94	10	0.25	4									47.95	100	51.94	100
12.0	16			28	73	12	0.35	4	40.16	120	43.46	120								
12.0	26	11.6	38.0	38	83	12	0.35	4					46.90	120	52.16	120				
12.0	26	11.6	64.0	64	109	12	0.35	4									59.10	120	64.04	120
16.0	22			34	82	16	0.35	4	70.29	160	76.04	160								
16.0	32	15.5	44.0	44	92	16	0.35	4					74.20	160	80.45	160				
16.0	32	15.5	80.0	84	132	16	0.35	4									112.22	160	120.68	160
20.0	26			42	92	20	0.35	4	104.33	200	113.03	200								
20.0	38	19.5	54.0	54	104	20	0.35	4					112.41	200	121.71	200				
20.0	38	19.5	100.0	104	154	20	0.35	4									152.76	200	165.56	200

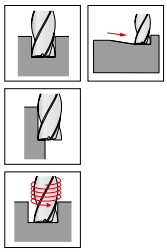
P	●	●	●	●	●	●
M		●		●		●
K	●	○	●	○	●	○
N		○		○		○
S		●		●		●
H						
O						

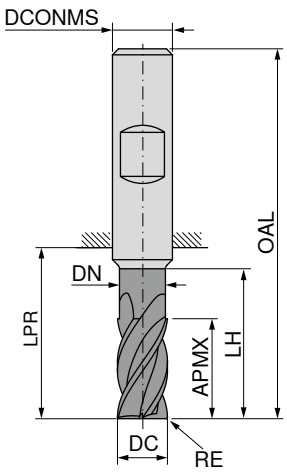
→ v_c/f_z Page 450–453

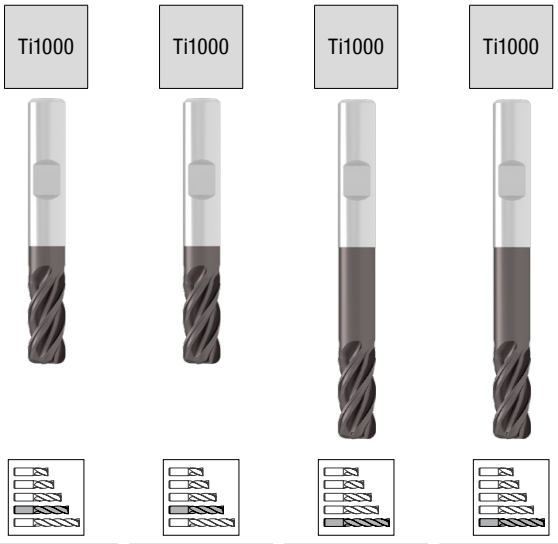
End milling cutter with corner radius

- irregular helix angle
- 54 053 ... / 54 054 ...: special cutting edge preperation for the machining of steel
- 54 063 ... / 54 064 ...: special cutting edge preperation for the machining of stainless steel









≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

HB | HB | HB | HB

DC h10 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 053 ... £ V3		54 063 ... £ V3		54 054 ... £ V3		54 064 ... £ V3	
3	0.1	8	2.8	12	21	57	6	4	19.98	03001	21.74	03001				
3	0.1	8	2.8	15	34	70	6	4					26.44	03001	28.55	03001
3	0.3	8	2.8	12	21	57	6	4	19.98	03003	21.74	03003				
3	0.3	8	2.8	15	34	70	6	4					26.44	03003	28.55	03003
3	0.5	8	2.8	12	21	57	6	4	19.98	03005	21.74	03005				
3	0.5	8	2.8	15	34	70	6	4					26.44	03005	28.55	03005
3	1.0	8	2.8	12	21	57	6	4	19.98	03010	21.74	03010				
3	1.0	8	2.8	15	34	70	6	4					26.44	03010	28.55	03010
4	0.1	11	3.8	15	21	57	6	4	19.98	04001	21.74	04001				
4	0.1	11	3.8	20	34	70	6	4					26.44	04001	28.55	04001
4	0.3	11	3.8	15	21	57	6	4	19.98	04003	21.74	04003				
4	0.3	11	3.8	20	34	70	6	4					26.44	04003	28.55	04003
4	0.5	11	3.8	15	21	57	6	4	19.98	04005	21.74	04005				
4	0.5	11	3.8	20	34	70	6	4					26.44	04005	28.55	04005
4	1.0	11	3.8	15	21	57	6	4	19.98	04010	21.74	04010				
4	1.0	11	3.8	20	34	70	6	4					26.44	04010	28.55	04010
5	0.1	13	4.8	17	21	57	6	4	19.98	05001	21.74	05001				
5	0.1	13	4.8	25	34	70	6	4					29.02	05001	31.37	05001
5	0.3	13	4.8	17	21	57	6	4	19.98	05003	21.74	05003				
5	0.3	13	4.8	25	34	70	6	4					29.02	05003	31.37	05003
5	0.5	13	4.8	17	21	57	6	4	19.98	05005	21.74	05005				
5	0.5	13	4.8	25	34	70	6	4					29.02	05005	31.37	05005
5	1.0	13	4.8	17	21	57	6	4	19.98	05010	21.74	05010				
5	1.0	13	4.8	25	34	70	6	4					29.02	05010	31.37	05010
6	0.1	13	5.8	21	21	57	6	4	22.09	06001	23.96	06001				
6	0.1	13	5.8	30	34	70	6	4					32.67	06001	35.36	06001
6	0.3	13	5.8	21	21	57	6	4	22.09	06003	23.96	06003				
6	0.3	13	5.8	30	34	70	6	4					32.67	06003	35.36	06003
6	0.5	13	5.8	21	21	57	6	4	22.09	06005	23.96	06005				
6	0.5	13	5.8	30	34	70	6	4					32.67	06005	35.36	06005
6	1.0	13	5.8	21	21	57	6	4	22.09	06010	23.96	06010				
6	1.0	13	5.8	30	34	70	6	4					32.67	06010	35.36	06010
6	1.5	13	5.8	21	21	57	6	4	22.09	06015	23.96	06015				
6	1.5	13	5.8	30	34	70	6	4					32.67	06015	35.36	06015
6	2.0	13	5.8	21	21	57	6	4	22.09	06020	23.96	06020				
6	2.0	13	5.8	30	34	70	6	4					32.67	06020	35.36	06020
8	0.1	19	7.7	27	27	63	8	4	28.91	08001	31.37	08001				
8	0.1	19	7.7	40	44	80	8	4					43.60	08001	47.24	08001
8	0.3	19	7.7	27	27	63	8	4	28.91	08003	31.37	08003				
8	0.3	19	7.7	40	44	80	8	4					43.60	08003	47.24	08003
8	0.5	19	7.7	27	27	63	8	4	28.91	08005	31.37	08005				

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

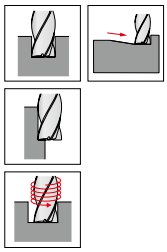
→ v_c/f_z Page 450–453

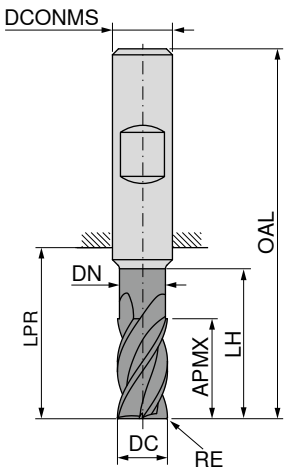
Continued on next page

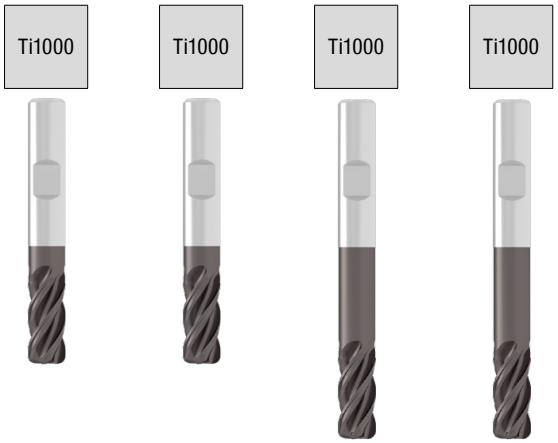
End milling cutter with corner radius

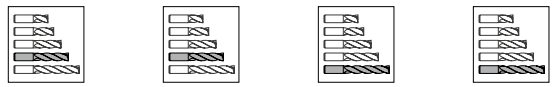
- ▲ irregular helix angle
- ▲ 54 053 ... / 54 054 ...: special cutting edge preperation for the machining of steel
- ▲ 54 063 ... / 54 064 ...: special cutting edge preperation for the machining of stainless steel











≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527



HB | HB | HB | HB

DC h10 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 053 ... £ V3		54 063 ... £ V3		54 054 ... £ V3		54 064 ... £ V3	
8	0.5	19	7.7	40	44	80	8	4					43.60	08005	47.24	08005
8	1.0	19	7.7	27	27	63	8	4	28.91	08010	31.37	08010				
8	1.0	19	7.7	40	44	80	8	4					43.60	08010	47.24	08010
8	1.5	19	7.7	27	27	63	8	4	28.91	08015	31.37	08015				
8	1.5	19	7.7	40	44	80	8	4					43.60	08015	47.24	08015
8	1.6	19	7.7	27	27	63	8	4	28.91	08016	31.37	08016				
8	1.6	19	7.7	40	44	80	8	4					43.60	08016	47.24	08016
8	2.0	19	7.7	27	27	63	8	4	28.91	08020	31.37	08020				
8	2.0	19	7.7	40	44	80	8	4					43.60	08020	47.24	08020
10	0.1	22	9.7	32	32	72	10	4	36.67	10001	39.61	10001				
10	0.1	22	9.7	50	54	94	10	4					58.17	10001	62.99	10001
10	0.3	22	9.7	32	32	72	10	4	36.67	10003	39.61	10003				
10	0.3	22	9.7	50	54	94	10	4					58.17	10003	62.99	10003
10	0.5	22	9.7	32	32	72	10	4	36.67	10005	39.61	10005				
10	0.5	22	9.7	50	54	94	10	4					58.17	10005	62.99	10005
10	1.0	22	9.7	32	32	72	10	4	36.67	10010	39.61	10010				
10	1.0	22	9.7	50	54	94	10	4					58.17	10010	62.99	10010
10	1.5	22	9.7	32	32	72	10	4	36.67	10015	39.61	10015				
10	1.5	22	9.7	50	54	94	10	4					58.17	10015	62.99	10015
10	1.6	22	9.7	32	32	72	10	4	36.67	10016	39.61	10016				
10	1.6	22	9.7	50	54	94	10	4					58.17	10016	62.99	10016
10	2.0	22	9.7	32	32	72	10	4	36.67	10020	39.61	10020				
10	2.0	22	9.7	50	54	94	10	4					58.17	10020	62.99	10020
12	0.1	26	11.6	38	38	83	12	4	56.65	12001	61.34	12001				
12	0.1	26	11.6	64	64	109	12	4					85.20	12001	92.25	12001
12	0.3	26	11.6	38	38	83	12	4	56.65	12003	61.34	12003				
12	0.3	26	11.6	64	64	109	12	4					85.20	12003	92.25	12003
12	0.5	26	11.6	38	38	83	12	4	56.65	12005	61.34	12005				
12	0.5	26	11.6	64	64	109	12	4					85.20	12005	92.25	12005
12	1.0	26	11.6	38	38	83	12	4	56.65	12010	61.34	12010				
12	1.0	26	11.6	64	64	109	12	4					85.20	12010	92.25	12010
12	1.5	26	11.6	38	38	83	12	4	56.65	12015	61.34	12015				
12	1.5	26	11.6	64	64	109	12	4					85.20	12015	92.25	12015
12	1.6	26	11.6	38	38	83	12	4	56.65	12016	61.34	12016				
12	1.6	26	11.6	64	64	109	12	4					85.20	12016	92.25	12016
12	2.0	26	11.6	38	38	83	12	4	56.65	12020	61.34	12020				
12	2.0	26	11.6	64	64	109	12	4					85.20	12020	92.25	12020
12	3.0	26	11.6	38	38	83	12	4	56.65	12030	61.34	12030				
12	3.0	26	11.6	64	64	109	12	4					85.20	12030	92.25	12030
16	0.1	32	15.5	44	44	92	16	4	85.54	16001	92.60	16001				
16	0.1	32	15.5	80	84	132	16	4					132.43	16001	143.13	16001

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

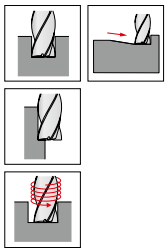
→ v_c/f_z Page 450–453

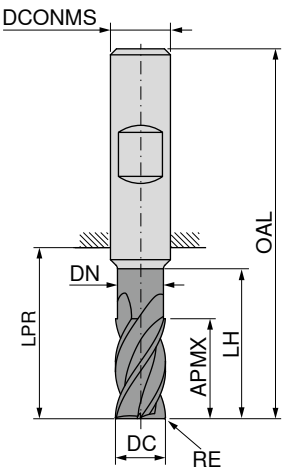
Continued on next page

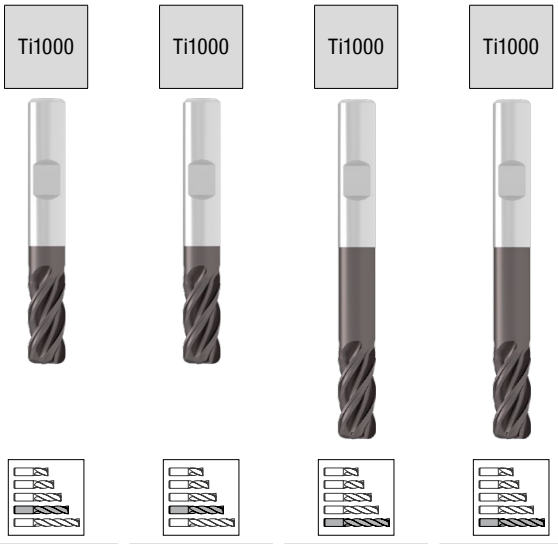
End milling cutter with corner radius

- irregular helix angle
- 54 053 ... / 54 054 ...: special cutting edge preperation for the machining of steel
- 54 063 ... / 54 064 ...: special cutting edge preperation for the machining of stainless steel









≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

HB | HB | HB | HB

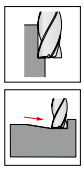
DC h10 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 053 ... £ V3		54 063 ... £ V3		54 054 ... £ V3		54 064 ... £ V3	
16	0.3	32	15.5	44	44	92	16	4	85.54	16003	92.60	16003				
16	0.3	32	15.5	80	84	132	16	4					132.43	16003	143.13	16003
16	0.5	32	15.5	44	44	92	16	4	85.54	16005	92.60	16005				
16	0.5	32	15.5	80	84	132	16	4					132.43	16005	143.13	16005
16	1.0	32	15.5	44	44	92	16	4	85.54	16010	92.60	16010				
16	1.0	32	15.5	80	84	132	16	4					132.43	16010	143.13	16010
16	1.5	32	15.5	44	44	92	16	4	85.54	16015	92.60	16015				
16	1.5	32	15.5	80	84	132	16	4					132.43	16015	143.13	16015
16	1.6	32	15.5	44	44	92	16	4	85.54	16016	92.60	16016				
16	1.6	32	15.5	80	84	132	16	4					132.43	16016	143.13	16016
16	2.0	32	15.5	44	44	92	16	4	85.54	16020	92.60	16020				
16	2.0	32	15.5	80	84	132	16	4					132.43	16020	143.13	16020
16	3.0	32	15.5	44	44	92	16	4	85.54	16030	92.60	16030				
16	3.0	32	15.5	80	84	132	16	4					132.43	16030	143.13	16030
16	4.0	32	15.5	44	44	92	16	4	85.54	16040	92.60	16040				
16	4.0	32	15.5	80	84	132	16	4					132.43	16040	143.13	16040
20	0.1	38	19.5	54	54	104	20	4	123.97	20001	134.56	20001				
20	0.1	38	19.5	100	104	154	20	4					194.48	20001	210.46	20001
20	0.3	38	19.5	54	54	104	20	4	123.97	20103	134.56	20003				
20	0.3	38	19.5	100	104	154	20	4					194.48	20003	210.46	20003
20	0.5	38	19.5	54	54	104	20	4	123.97	20205	134.56	20005				
20	0.5	38	19.5	100	104	154	20	4					194.48	20005	210.46	20005
20	1.0	38	19.5	54	54	104	20	4	123.97	20310	134.56	20010				
20	1.0	38	19.5	100	104	154	20	4					194.48	20010	210.46	20010
20	1.5	38	19.5	54	54	104	20	4	123.97	20415	134.56	20015				
20	1.5	38	19.5	100	104	154	20	4					194.48	20015	210.46	20015
20	1.6	38	19.5	54	54	104	20	4	123.97	20516	134.56	20016				
20	1.6	38	19.5	100	104	154	20	4					194.48	20016	210.46	20016
20	2.0	38	19.5	54	54	104	20	4	123.97	20620	134.56	20020				
20	2.0	38	19.5	100	104	154	20	4					194.48	20020	210.46	20020
20	3.0	38	19.5	54	54	104	20	4	123.97	20730	134.56	20030				
20	3.0	38	19.5	100	104	154	20	4					194.48	20030	210.46	20030
20	4.0	38	19.5	54	54	104	20	4	123.97	20840	134.56	20040				
20	4.0	38	19.5	100	104	154	20	4					194.48	20040	210.46	20040

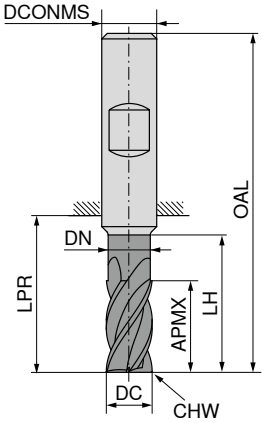
P	●	●	●	●
M		●		●
K	●	○	●	○
N		○		○
S		●		●
H				
O				

→ v_c/f_z Page 450–453

Finish milling cutter







LPR with Shank DIN 6535 HB



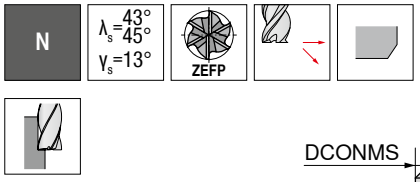


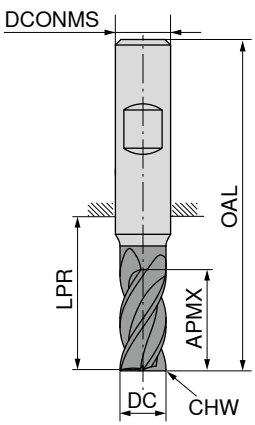
									52 010 ...		52 011 ...		52 015 ...		52 016 ...		52 018 ...		52 019 ...	
									Factory standard		Factory standard		Factory standard		Factory standard		Factory standard		Factory standard	
									HA		HB		HA		HB		HA		HB	
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1		£ V1		£ V1		£ V1		£ V1		£ V1	
5	8	4.8	13	18	54	6	0.02	6	35.07	05000	35.07	05000								
5	13	4.8	18	22	58	6	0.02	6					35.95	05000	35.95	05000				
6	10	5.8	15	18	54	6	0.03	6	34.29	06000	34.29	06000								
6	16	5.8	20	22	58	6	0.03	6					34.84	06000	34.84	06000				
6	21			29	65	6	0.03	6									49.80	06000	49.80	06000
7	12	6.8	17	23	59	8	0.04	6	41.33	07000	41.33	07000								
7	22	6.8	30	34	70	8	0.04	6					42.22	07000	42.22	07000				
7	25			39	75	8	0.04	6									63.76	07000	63.76	07000
8	12	7.8	17	23	59	8	0.04	6	40.68	08000	40.68	08000								
8	22	7.8	32	34	70	8	0.04	6					43.42	08000	43.42	08000				
8	28			39	75	8	0.04	6									57.61	08000	57.61	08000
9	14	8.8	19	20	60	10	0.04	6	62.23	09000	62.23	09000								
9	25	8.8	33	33	73	10	0.04	6					69.04	09000	69.04	09000				
9	30			45	85	10	0.04	6									121.00	09000	121.00	09000
10	14	9.8	19	20	60	10	0.05	6	61.69	10000	61.69	10000								
10	25	9.8	33	33	73	10	0.05	6					69.58	10000	69.58	10000				
10	35			45	85	10	0.05	6									112.12	10000	112.12	10000
12	16	11.8	21	25	70	12	0.05	6	89.49	12000	89.49	12000								
12	28	11.8	38	39	84	12	0.05	6					97.07	12000	97.07	12000				
12	45			55	100	12	0.05	6									157.21	12000	157.21	12000
14	18	13.8	23	25	70	14	0.06	6	117.61	14000	117.61	14000								
14	30	13.8	38	39	84	14	0.06	6					130.98	14000	130.98	14000				
16	20	15.8	28	32	80	16	0.06	8	141.95	16000	141.95	16000								
16	35	15.8	43	45	93	16	0.06	8					160.60	16000	160.60	16000				
16	50			62	110	16	0.06	8									226.43	16000	226.43	16000
16	65			77	125	16	0.06	8									253.96	16100	253.96	16100
20	25	19.8	33	35	85	20	0.07	8	219.95	20000	219.95	20000								
20	40	19.8	45	50	100	20	0.07	8					250.68	20000	250.68	20000				
20	55			65	115	20	0.07	8									337.46	20000	337.46	20000
20	70			80	130	20	0.07	8									403.59	20100	403.59	20100
25	55	24.8	63	69	125	25	0.08	8					422.25	25000	422.25	25000				
25	75			94	150	25	0.08	8									754.53	25000	682.69	25000
P									○		○		○		○		○		○	
M									●		●		●		●		●		●	
K									○		○		○		○		○		○	
N									●		●		●		●		●		●	
S									●		●		●		●		●		●	
H																				
O									●		●		●		●		●		●	

→ v_c/f_z Page 460–465

14

Finish milling cutter













	≈DIN 6527		Factory standard	
	HB		HB	
	50 633 ...		50 633 ...	

DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	£ V0		£ V0	
4	11	21	57	6	0.15	6	42.35	040		
4	16	26	62	6	0.15	6			58.57	041
5	13	21	57	6	0.15	6	42.35	050		
5	18	26	62	6	0.15	6			58.57	051
6	13	21	57	6	0.15	6	42.35	060		
6	18	26	62	6	0.15	6			58.57	061
7	16	27	63	8	0.15	6	50.65	070		
7	21	32	68	8	0.15	6			78.27	071
8	19	27	63	8	0.15	6	49.36	080		
8	24	32	68	8	0.15	6			68.99	081
9	19	32	72	10	0.15	6	81.40	090		
9	27	40	80	10	0.15	6			124.18	091
10	22	32	72	10	0.15	6	79.31	100		
10	30	40	80	10	0.15	6			120.92	101
12	26	38	83	12	0.15	6	103.05	120		
12	36	48	93	12	0.15	6			165.78	121
14	26	38	83	14	0.15	6	142.59	140		
14	42	54	99	14	0.15	6			222.65	141
16	32	44	92	16	0.15	6	188.39	160		
16	48	60	108	16	0.15	6			286.68	161
16	65	77	125	16	0.15	6			359.98	162
16	75	102	150	16	0.15	6			402.45	163
16	95	102	150	16	0.15	6			465.48	164
18	32	44	92	18	0.15	8	218.46	180		
18	54	66	114	18	0.15	8			351.04	181
20	38	54	104	20	0.15	8	268.12	200		
20	60	76	126	20	0.15	8			446.92	201
20	75	85	135	20	0.15	8			475.38	202
20	95	100	150	20	0.15	8			491.82	203
25	75	94	150	25	0.15	8			587.58	250
25	95	104	160	25	0.15	8			857.69	251
32	75	90	150	32	0.15	8	1,174.69	320		
32	95	100	160	32	0.15	8			1,145.97	321

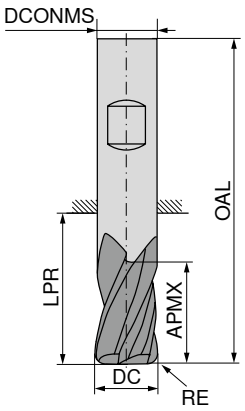
P	○	○
M	●	●
K	○	○
N	○	○
S	●	●
H	●	●
O	○	○

→ v_c/f_z Page 460–465

Finish milling cutter with corner radius













Factory standard



50 634 ...

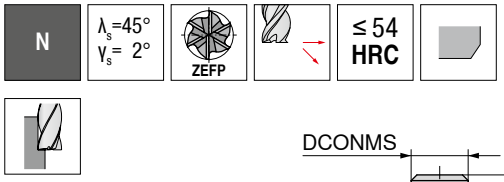
DC f8 mm	RE ±0,01 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V0	
6	1.0	18	26	62	6	6	56.86	**061**
6	0.5	18	26	62	6	6	56.86	**060**
8	2.0	24	32	68	8	6	56.56	**082**
8	1.0	24	32	68	8	6	56.56	**081**
8	0.5	24	32	68	8	6	56.56	**080**
10	0.5	30	40	80	10	6	115.37	**100**
10	2.0	30	40	80	10	6	115.37	**102**
10	1.0	30	40	80	10	6	115.37	**101**
12	2.0	36	48	93	12	6	150.82	**122**
12	1.0	36	48	93	12	6	150.82	**121**
12	3.0	36	48	93	12	6	150.82	**123**
12	0.5	36	48	93	12	6	150.82	**120**
16	2.0	48	60	108	16	6	271.41	**162**
16	1.0	48	60	108	16	6	271.41	**161**
16	3.0	48	60	108	16	6	271.41	**163**
16	0.5	48	60	108	16	6	271.41	**160**
20	0.5	60	76	126	20	8	405.32	**200**
20	2.0	60	76	126	20	8	405.32	**202**
20	3.0	60	76	126	20	8	405.32	**203**
20	1.0	60	76	126	20	8	405.32	**201**

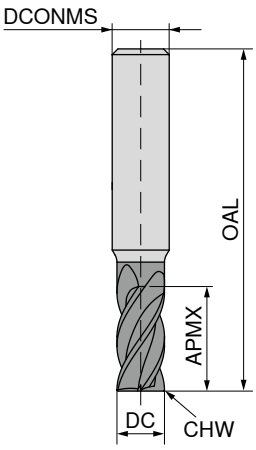
P	○
M	●
K	○
N	○
S	●
H	●
O	○

→ v_c/f_z Page 460–465

14

Finish milling cutter











Factory standard



50 631 ...

DC h10 mm	APMX mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	£ V0	
4	14	40	4	0.05	5	36.99	**040**
5	18	50	5	0.05	5	40.95	**050**
6	18	50	6	0.05	7	46.39	**060**
8	25	63	8	0.05	7	67.35	**080**
10	30	72	10	0.08	9	95.92	**100**
12	32	83	12	0.08	9	124.18	**120**
14	32	83	14	0.08	9	181.94	**140**
16	36	92	16	0.08	11	264.23	**160**
18	40	92	18	0.08	11	300.29	**180**
20	45	104	20	0.08	13	351.92	**200**
25	45	120	25	0.08	13	636.95	**250**

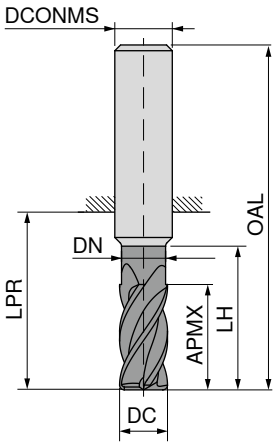
P	○
M	●
K	○
N	○
S	●
H	
O	○

→ v_c/f_z Page 460–463

Finish milling cutter







Ti1000





Factory standard

HA

52 109 ...

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
6	16	5.8	26	26	58	6	8	77.22	**060**
8	22	7.8	32	32	64	8	10	86.92	**080**
10	25	9.8	35	35	73	10	12	152.03	**100**
12	28	11.8	38	39	84	12	12	206.17	**120**
16	35	15.8	43	45	93	16	16	441.99	**160**
20	40	19.8	50	54	104	20	16	523.69	**200**

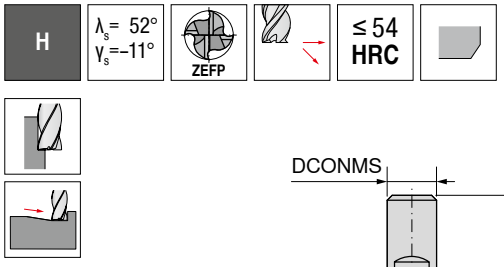
P	○
M	●
K	○
N	●
S	●
H	
O	●

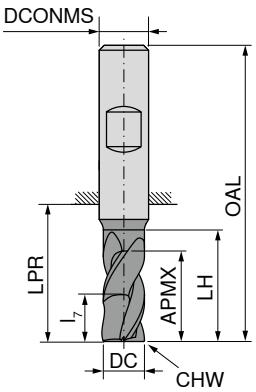
→ v_c/f_z Page 460–463

14

End milling cutter

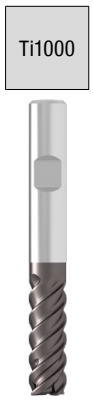
▲ With graduated flute depth

















DIN 6527 | DIN 6527 | DIN 6527

HB | HB | HB

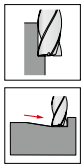
DC f8 mm	APMX mm	LH mm	l_7 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	50 907 ... £ V0		50 907 ... £ V0		50 907 ... £ V0	
4	8	15	4.4	18	54	6	0.15	4	61.94	040				
4	11	18	4.4	21	57	6	0.15	4			61.94	041		
4	16	19	6.4	26	62	6	0.15	4					68.52	042
5	9	16	4.8	18	54	6	0.15	4	61.94	050				
5	13	19	4.8	21	57	6	0.15	4			61.94	051		
5	17	20	6.8	26	62	6	0.15	4					68.52	052
6	10	17	5.2	18	54	6	0.15	4	65.42	060				
6	13	19	5.2	21	57	6	0.15	4			66.29	061		
6	18	21	7.2	26	62	6	0.15	4					71.79	062
8	12	20	7.6	22	58	8	0.15	4	74.39	080				
8	19	25	7.6	27	63	8	0.15	4			75.86	081		
8	24	27	9.6	32	68	8	0.15	4					82.47	082
10	14	24	8.8	26	66	10	0.15	4	117.31	100				
10	22	30	8.8	32	72	10	0.15	4			129.87	101		
10	30	33	12.0	40	80	10	0.15	4					146.48	102
12	16	26	10.4	28	73	12	0.15	4	155.62	120				
12	26	36	10.4	38	83	12	0.15	4			176.40	121		
12	36	39	14.4	48	93	12	0.15	4					200.18	122
14	18	28	10.4	30	75	14	0.15	4	187.34	140				
14	26	36	10.4	38	83	14	0.15	4			230.11	141		
14	42	45	16.8	54	99	14	0.15	4					276.20	142
16	22	32	12.8	34	82	16	0.15	4	230.11	160				
16	32	42	12.8	44	92	16	0.15	4			311.67	161		
16	48	51	19.2	60	108	16	0.15	4					378.25	162
18	24	34	12.8	36	84	18	0.15	4	289.37	180				
18	32	42	12.8	44	92	18	0.15	4			346.69	181		
18	54	57	21.6	66	114	18	0.15	4					437.65	182
20	26	42	15.2	42	92	20	0.15	4	394.85	200				
20	38	52	15.2	54	104	20	0.15	4			448.57	201		
20	60	63	24.0	76	126	20	0.15	4					561.69	202
P										●		●		●
M														
K														
N														
S														
H										●		●		●
O														

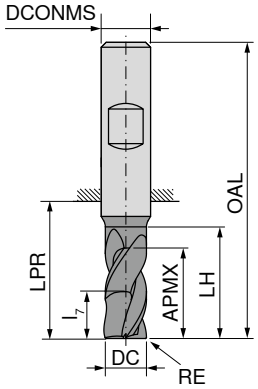
→ v_c/f_z Page 460–465

End milling cutter with corner radius

▲ With graduated flute depth

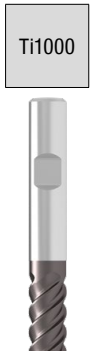
H | λ_s = 52° γ_s = –11° | ZEFP | ≤ 54 HRC

















Factory standard | Factory standard | Factory standard

HB | HB | HB

DC f8 mm	RE ±0,01 mm	APMX mm	LH mm	l_7 mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 908 ... £ V0		50 908 ... £ V0		50 908 ... £ V0	
4	0.5	8	15	4.4	18	54	6	4	67.38	040				
4	0.5	11	18	4.4	21	57	6	4			69.29	041		
4	0.5	16	19	6.4	26	62	6	4					80.81	042
5	0.5	9	16	4.8	18	54	6	4	67.38	050				
5	0.5	13	19	4.8	21	57	6	4			69.29	051		
5	0.5	17	20	6.8	26	62	6	4					80.81	052
6	0.5	10	17	5.2	18	54	6	4	70.49	060				
6	0.5	13	19	5.2	21	57	6	4			82.47	061		
6	0.5	18	21	7.2	26	62	6	4					85.44	062
8	1.0	12	20	7.6	22	58	8	4	79.31	080				
8	1.0	19	25	7.6	27	63	8	4			90.37	081		
8	1.0	24	27	9.6	32	68	8	4					92.64	082
10	1.0	14	24	8.8	26	66	10	4	131.84	100				
10	1.0	22	30	8.8	32	72	10	4			140.18	101		
10	1.0	30	33	12.0	40	80	10	4					155.32	102
12	1.5	16	26	10.4	28	73	12	4	177.47	120				
12	1.5	26	36	10.4	38	83	12	4			189.27	121		
12	1.5	36	39	14.4	48	93	12	4					202.30	122
14	1.5	18	28	10.4	30	75	14	4	242.99	140				
14	1.5	26	36	10.4	38	83	14	4			255.87	141		
14	1.5	42	45	16.8	54	99	14	4					296.73	142
16	2.0	22	32	12.8	34	82	16	4	337.41	160				
16	2.0	32	42	12.8	44	92	16	4			346.69	161		
16	2.0	48	51	19.2	60	108	16	4					374.51	162
18	2.0	24	34	12.8	36	84	18	4	348.48	180				
18	2.0	32	42	12.8	44	92	18	4			359.54	181		
18	2.0	54	57	21.6	66	114	18	4					435.56	182
20	2.0	26	40	15.2	42	92	20	4	496.90	200				
20	2.0	38	52	15.2	54	104	20	4			507.96	201		
20	2.0	60	63	24.0	76	126	20	4					593.11	202

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

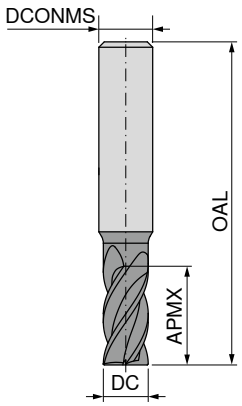
14

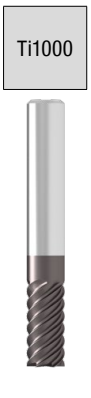
→ v_c/f_z Page 460–465

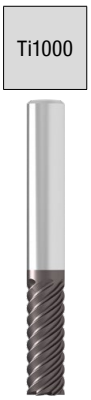
Finish milling cutter











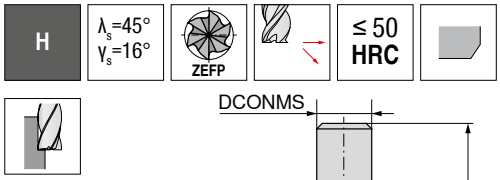


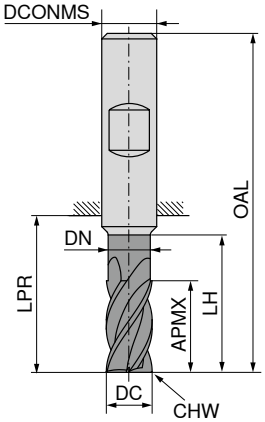


					DIN 6527		Factory standard	
					HA		HA	
					50 635 ...		**50 635 ...**	
DC f8 **mm**	APMX mm	OAL mm	DCONMS h5 mm	ZEFP	£ V0		£ V0	
4	11	57	6	6	38.91	**040**		
4	16	62	6	6			43.89	**041**
5	13	57	6	6	36.11	**050**		
5	18	62	6	6			41.99	**051**
6	13	57	6	6	40.95	**060**		
6	18	62	6	6			46.85	**061**
8	19	63	8	6	46.85	**080**		
8	24	68	8	6			54.17	**081**
10	22	72	10	6	79.55	**100**		
10	30	80	10	6			93.38	**101**
12	26	83	12	6	110.27	**120**		
12	36	93	12	6			128.67	**121**
14	26	83	14	6	143.80	**140**		
14	42	99	14	6			176.26	**141**
16	32	92	16	8	194.81	**160**		
16	48	108	16	8			240.87	**161**
16	90	150	16	8			256.91	**162**
18	32	92	18	8	216.83	**180**		
18	54	114	18	8			278.30	**181**
20	38	104	20	8	279.96	**200**		
20	60	126	20	8			357.62	**201**
20	75	135	20	8			318.70	**202**
20	95	150	20	8			373.44	**203**
25	75	150	25	8	885.76	**250**		
25	95	160	25	8			916.15	**251**
32	75	150	32	8	1,061.88	**320**		
32	95	160	32	8			1,090.14	**321**
P					○		○	
M					●		●	
K					○		○	
N					○		○	
S					●		●	
H					●		●	
O					○		○	

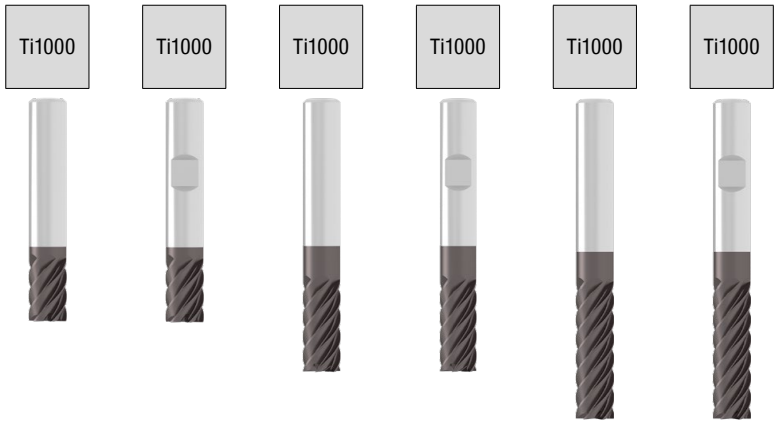
→ v_c/f_z Page 460–465

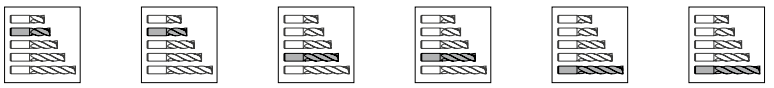
Finish milling cutter





LPR with Shank DIN 6535 HB

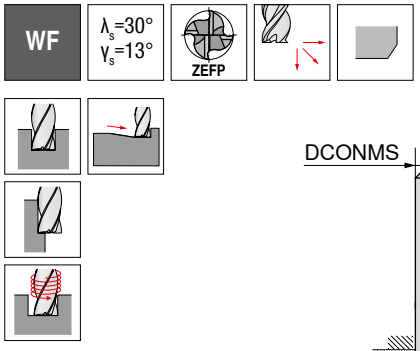


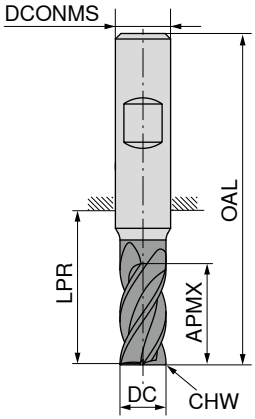


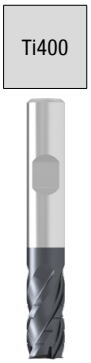
									Factory standard		Factory standard		Factory standard		Factory standard		Factory standard		Factory standard	
									HA		HB		HA		HB		HA		HB	
									52 112 ...		52 112 ...		52 122 ...		52 122 ...		52 123 ...		52 123 ...	
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1		£ V1		£ V1		£ V1		£ V1		£ V1	
5	8	4.8	13	18	54	6	0.02	6	68.84	051	68.84	050								
5	13	4.8	18	22	58	6	0.02	6					72.67	051	72.67	050				
6	10	5.8	15	18	54	6	0.03	6	64.42	061	64.42	060								
6	16	5.8	20	22	58	6	0.03	6					71.12	061	71.12	060				
6	21			29	65	6	0.03	6									96.76	061	96.76	060
7	12	6.8	17	23	59	8	0.04	6	86.07	071	86.07	070								
7	22	6.8	30	34	70	8	0.04	6					90.50	071	90.50	070				
7	25			39	75	8	0.04	6									118.58	071	118.58	070
8	12	7.8	17	23	59	8	0.04	6	80.37	081	80.37	080								
8	22	7.8	32	34	70	8	0.04	6					88.79	081	88.79	080				
8	28			39	75	8	0.04	6									119.98	081	119.98	080
9	14	8.8	19	20	60	10	0.04	6	125.69	091	125.69	090								
9	25	8.8	33	33	73	10	0.04	6					141.37	091	141.37	090				
9	30			45	85	10	0.04	6									214.75	091	214.75	090
10	14	9.8	19	20	60	10	0.05	6	119.27	101	119.27	100								
10	25	9.8	33	33	73	10	0.05	6					140.65	101	140.65	100				
10	35			45	85	10	0.05	6									218.31	101	218.31	100
12	16	11.8	21	25	70	12	0.05	6	179.27	121	179.27	120								
12	28	11.8	38	39	84	12	0.05	6					207.90	121	207.90	120				
12	45			55	100	12	0.05	6									300.83	121	300.83	120
14	18	13.8	23	25	70	14	0.06	6	222.45	141	222.45	140								
14	30	13.8	38	39	84	14	0.06	6					261.06	141	261.06	140				
16	20	15.8	28	32	80	16	0.06	6	289.67	161	289.67	160								
16	35	15.8	43	45	93	16	0.06	6					317.77	161	317.77	160				
16	50			62	110	16	0.06	6									452.28	162	443.16	160
16	65			77	125	16	0.06	6									512.28	163	465.34	161
18	20	17.8	28	32	80	18	0.07	8	332.44	181	332.44	180								
18	35	17.8	43	45	93	18	0.07	8					389.58	181	389.58	180				
20	25	19.8	33	35	85	20	0.07	8	422.23	201	414.67	200								
20	40	19.8	45	50	100	20	0.07	8					478.37	201	478.37	200				
20	55			65	115	20	0.07	8									645.51	202	632.55	200
20	70			80	130	20	0.07	8									789.56	203	664.18	201
25	55	24.8	63	69	125	25	0.08	8					798.55	251	798.55	250				
25	75			94	150	25	0.08	8									1,237.46	251	964.32	250
P										○		○		○		○		○		○
M										●		●		●		●		●		●
K										○		○		○		○		○		○
N										●		●		●		●		●		●
S										●		●		●		●		●		●
H																				
O										●		●		●		●		●		●

→ v_c/f_z Page 460–465

Roughing-Finishing Cutter









DIN 6527

HB

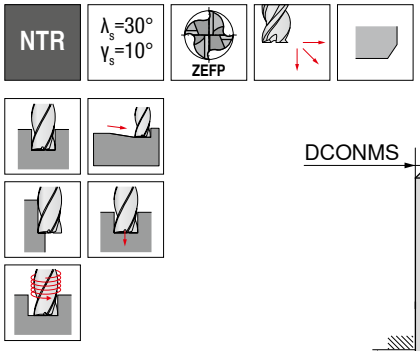
50 628 ...

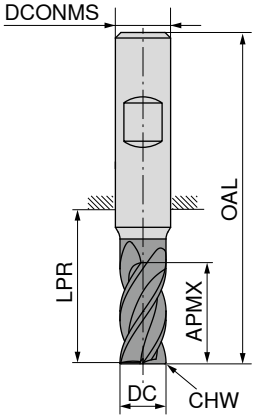
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	£ V0	
5	15	21	57	6	0.25	4	85.00	**050**
6	16	21	57	6	0.25	4	80.81	**060**
8	22	27	63	8	0.25	4	100.40	**080**
10	25	32	72	10	0.25	4	108.19	**100**
12	28	38	83	12	0.25	4	131.39	**120**
16	35	44	92	16	0.25	4	208.56	**160**
20	40	54	104	20	0.25	4	313.61	**200**

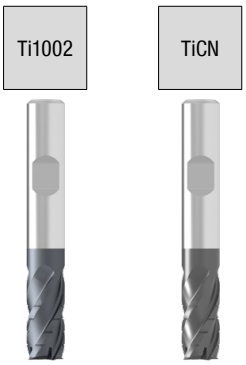
P	
M	
K	
N	●
S	○
H	
O	●

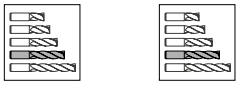
→ v_c/f_z Page 460–463

Roughing-Finishing Cutter







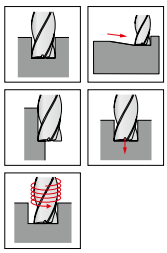


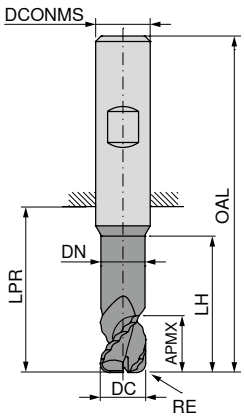
DC h10 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	DIN 6527 HB £ V1		DIN 6527 HB £ V1	
							52 301 ...		52 300 ...	
6	13	21	57	6		3	91.74	**060**	91.74	**060**
8	19	27	63	8	0.08	3	117.18	**080**	117.18	**080**
10	22	32	72	10	0.12	4	128.84	**100**	128.84	**100**
12	26	38	83	12	0.15	4	158.31	**120**	158.31	**120**
14	26	38	83	14	0.17	4	222.73	**140**	222.73	**140**
16	32	44	92	16	0.20	4	240.87	**160**	240.87	**160**
18	32	48	92	18	0.22	4	348.17	**180**	348.17	**180**
20	38	54	104	20	0.25	4	351.92	**200**	351.92	**200**
P							●		●	
M							○		○	
K							●		●	
N							○		○	
S							○		○	
H							○			
O							○		○	

→ v_c/f_z Page 460–463

Rough milling cutter with corner radius

WR | λ_s=45° γ_s= 9° | ZEFP | HPC













Factory standard | Factory standard

HA | HB

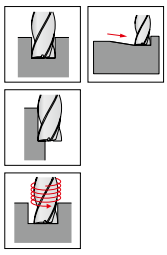
DC h6 mm	RE +/-0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 625 ... £ V0		54 627 ... £ V0	
3		4.5	2.8	15	22	58	6	3	55.38	030	55.38	030
3		8.0	2.8	15	22	58	6	3	60.91	031	60.91	031
4		5.5	3.8	20	26	62	6	3	55.38	040	55.38	040
4		10.5	3.8	20	26	62	6	3	60.91	041	60.91	041
5		7.0	4.8	25	34	70	6	3	59.55	050	59.55	050
5		13.0	4.8	25	34	70	6	3	65.42	051	65.42	051
6	1	8.5	5.8	30	34	70	6	3	60.45	061	60.45	061
6	1	16.0	5.8	30	34	70	6	3	65.33	062	65.33	062
7	1	11.0	6.7	40	44	80	8	3	79.77	071	79.77	071
7	1	21.0	6.7	40	44	80	8	3	87.70	072	87.70	072
8	1	11.0	7.7	40	44	80	8	3	79.77	081	79.77	081
8	1	21.0	7.7	40	44	80	8	3	87.70	082	87.70	082
9	1	14.0	8.7	50	54	94	10	3	110.40	091	110.40	091
9	1	26.0	8.7	50	54	94	10	3	123.90	092	123.90	092
10	2	14.0	9.7	50	54	94	10	3	110.40	101	110.40	101
10	2	26.0	9.7	50	54	94	10	3	123.90	102	123.90	102
11	2	16.0	10.6	60	64	109	12	3	181.21	111	181.21	111
11	2	31.0	10.6	60	64	109	12	3	199.31	112	199.31	112
12	2	16.0	11.6	60	64	109	12	3	181.21	121	181.21	121
12	2	31.0	11.6	60	64	109	12	3	199.31	122	199.31	122
14	2	19.0	13.6	70	74	119	14	3	250.47	141	250.47	141
14	2	36.0	13.6	70	74	119	14	3	268.73	142	268.73	142
16	2	22.0	15.5	80	84	132	16	3	318.57	161	318.57	161
16	2	41.0	15.5	80	84	132	16	3	350.71	162	350.71	162
18	2	25.0	17.5	90	94	142	18	3	390.08	181	390.08	181
18	2	47.0	17.5	90	94	142	18	3	448.57	182	448.57	182
20	2	27.0	19.5	100	104	154	20	3	420.01	201	420.01	201
20	2	52.0	19.5	100	104	154	20	3	482.99	202	482.99	202

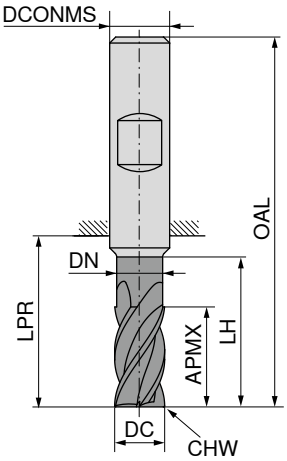
P		
M		
K		
N	●	●
S		
H		
O		

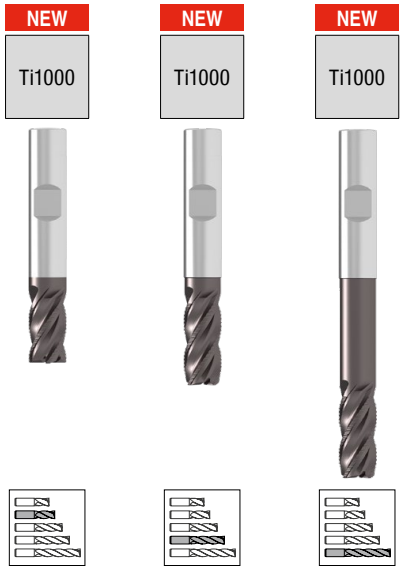
→ v_c/f_z Page 448+449

Rough milling cutter







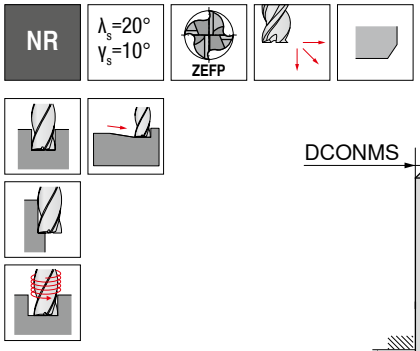


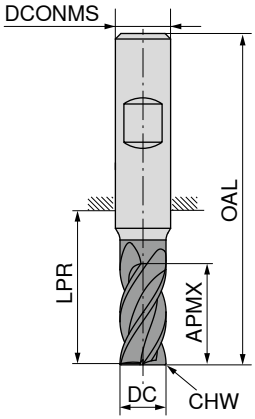
DIN 6527	Factory standard	Factory standard
HB	HB	HB
54 000 ...	**54 015 ...**	**54 015 ...**

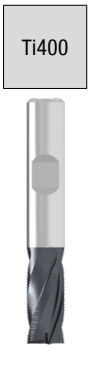
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V3		£ V3		£ V3	
3	5			14	50	6	0.15	4	21.29	**03100**				
3	8	2.8	12	21	57	6	0.15	4			21.34	**03200**		
3	8	2.8	15	34	70	6	0.15	4					31.10	**03400**
4	8			18	54	6	0.15	4	21.27	**04100**				
4	11	3.8	15	21	57	6	0.15	4			21.34	**04200**		
4	11	3.8	20	34	70	6	0.15	4					31.10	**04400**
5	9			18	54	6	0.15	4	21.27	**05100**				
5	13	4.8	17	21	57	6	0.15	4			21.34	**05200**		
5	13	4.8	25	34	70	6	0.15	4					35.57	**05400**
6	10			18	54	6	0.15	4	21.27	**06100**				
6	13	5.8	21	21	57	6	0.15	4			25.60	**06200**		
6	13	5.8	30	34	70	6	0.15	4					40.28	**06400**
8	12			22	58	8	0.25	4	29.38	**08100**				
8	19	7.7	27	27	63	8	0.25	4			31.94	**08200**		
8	19	7.7	40	44	80	8	0.25	4					49.25	**08400**
10	14			26	66	10	0.25	4	36.54	**10100**				
10	22	9.7	32	32	72	10	0.25	4			40.72	**10200**		
10	22	9.7	50	54	94	10	0.25	4					67.26	**10400**
12	16			28	73	12	0.35	4	54.08	**12100**				
12	26	11.6	38	38	83	12	0.35	4			66.07	**12200**		
12	26	11.6	64	65	109	12	0.35	4					80.39	**12400**
16	22			34	82	16	0.35	4	92.76	**16100**				
16	32	15.5	44	44	92	16	0.35	4			99.46	**16200**		
16	32	15.5	80	84	132	16	0.35	4					151.58	**16400**
20	26			42	92	20	0.35	4	135.56	**20100**				
20	38	19.5	54	54	104	20	0.35	4			147.44	**20200**		
20	38	19.5	100	104	154	20	0.35	4					198.03	**20400**
P									●		●		●	
M									●		●		●	
K									●		●		●	
N									○		○		○	
S									○		○		○	
H														
O														

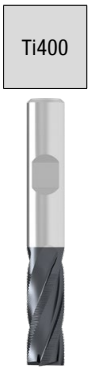
→ v_c/f_z Page 452+453

Rough milling cutter













DIN 6527 | DIN 6527

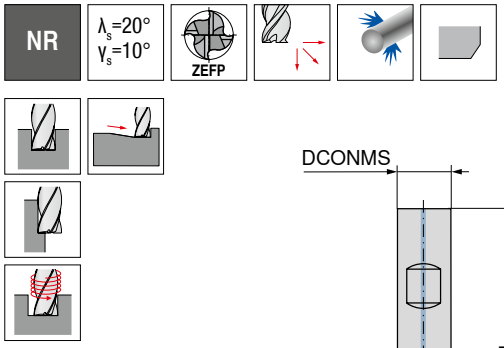
HB | HB

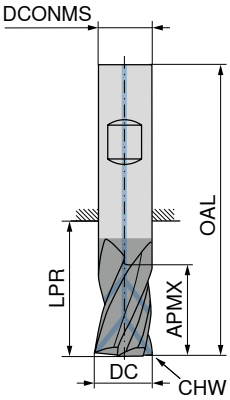
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	50 618 ... £ V0		50 624 ... £ V0	
4	8	21	57	6	0.6	4			82.29	040
5	8	18	54	6	0.6	4	76.17	050		
5	13	21	57	6	0.6	4			82.29	050
6	8	18	54	6	0.6	4	68.52	060		
6	13	21	57	6	0.6	4			76.78	060
7	11	22	58	8	0.6	4	93.22	070		
7	19	27	63	8	0.6	4			102.21	070
8	11	22	58	8	0.6	4	84.68	080		
8	19	27	63	8	0.6	4			90.97	080
9	13	26	66	10	0.6	4	105.95	090		
9	22	32	72	10	0.6	4			111.92	090
10	13	26	66	10	0.6	4	105.95	100		
10	22	32	72	10	0.6	4			105.63	100
11	26	38	83	12	0.6	4			132.73	110
12	16	28	73	12	0.6	4	113.77	120		
12	26	38	83	12	0.6	4			125.25	120
13	26	38	83	14	0.6	4			185.52	130
14	16	31	76	14	0.6	4	161.58	140		
14	26	38	83	14	0.6	4			174.91	140
16	19	34	82	16	0.6	4	198.56	160		
16	32	44	92	16	0.6	4			199.15	160
18	19	36	84	18	0.6	4	238.36	180		
18	32	44	92	18	0.6	4			264.68	180
20	19	42	92	20	0.6	4	285.17	200		
20	38	54	104	20	0.6	4			296.85	200
25	45	65	121	25	0.6	5			385.31	250

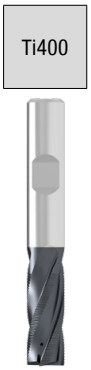
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		
O	○	○

→ v_c/f_z Page 460–463

Rough milling cutter









DIN 6527



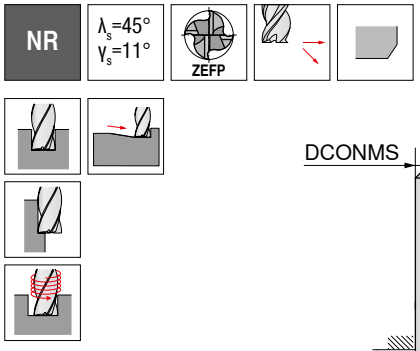
50 625 ...

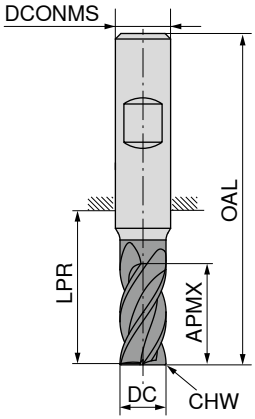
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	£ V0	
6	13	21	57	6	0.6	4	136.03	**060**
8	19	27	63	8	0.6	4	136.03	**080**
10	22	32	72	10	0.6	4	155.17	**100**
12	26	38	83	12	0.6	4	178.05	**120**
14	26	38	83	14	0.6	4	285.04	**140**
16	32	44	92	16	0.6	4	285.04	**160**
18	32	44	92	18	0.6	4	464.81	**180**
20	38	54	104	20	0.6	4	423.73	**200**

P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c/f_z Page 460–463

Rough milling cutter











DIN 6527

HB

50 637 ...

DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	£ V0	
6	13	21	57	6	0.5	4	93.38	**060**
8	19	27	63	8	0.5	4	107.14	**080**
10	22	32	72	10	0.5	4	114.80	**100**
12	26	38	83	12	0.5	4	138.85	**120**
14	26	38	83	14	0.5	4	194.68	**140**
16	32	44	92	16	0.5	5	220.70	**160**
18	32	44	92	18	0.5	5	294.91	**180**
20	38	54	104	20	0.5	6	329.95	**200**
25	45	65	121	25	0.5	6	404.13	**250**

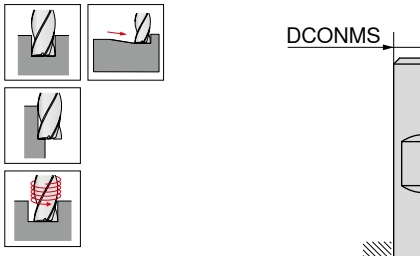
P	○
M	●
K	○
N	○
S	●
H	
O	○

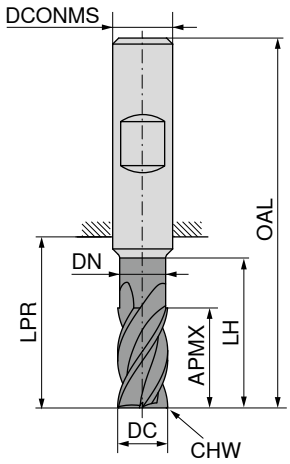
→ v_c/f_z Page 460–463

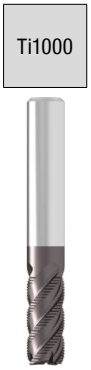
Rough milling cutter

▲ with integrated chip breakers in the flutes

HR | λ_s=55° γ_s= 5° | ZEFP













Factory standard

HA

Factory standard

HB

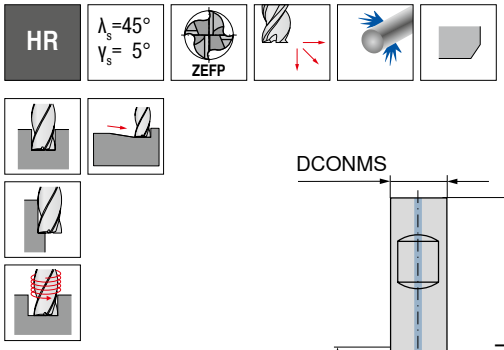
DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 340 ... £ V1		52 341 ... £ V1	
6	16	5.8	21	22	58	6	0.15	4	113.74	**060**	113.74	**060**
8	22	7.7	27	34	70	8	0.20	4	130.33	**080**	130.33	**080**
10	25	9.7	30	33	73	10	0.20	4	141.24	**100**	141.24	**100**
12	28	11.6	38	39	84	12	0.25	4	166.98	**120**	166.98	**120**
14	30	13.6	40	39	84	14	0.30	4	223.56	**140**	223.56	**140**
16	35	15.5	45	45	93	16	0.35	5	285.47	**160**	285.47	**160**
18	35	17.5	45	45	93	18	0.40	5	354.62	**180**	354.62	**180**
20	40	19.5	55	54	104	20	0.40	5	428.23	**200**	428.23	**200**
25	50	24.0	65	69	125	25	0.50	5	721.04	**250**	721.04	**250**

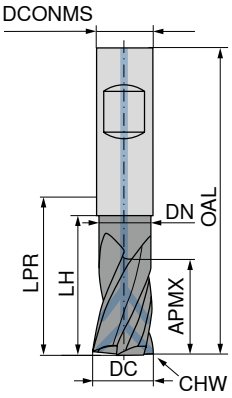
P	○	○
M	●	●
K	○	○
N		
S		
H		
O		

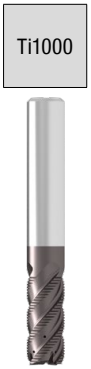
→ v_c/f_z Page 454+455

Rough milling cutter

▲ with integrated chip breakers in the flutes













Factory standard

HA

Factory standard

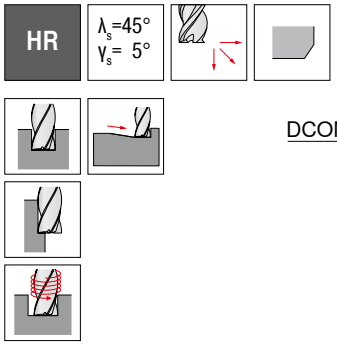
HB

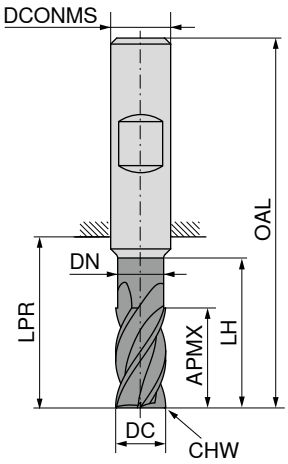
DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 338 ... £ V1		52 339 ... £ V1	
6	16	5.8	21	22	58	6	0.15	4	141.24	**060**	141.24	**060**
8	22	7.7	27	34	70	8	0.20	4	158.17	**080**	158.17	**080**
10	25	9.7	30	33	73	10	0.20	4	185.52	**100**	185.52	**100**
12	28	11.6	38	39	84	12	0.25	4	232.82	**120**	232.82	**120**
14	30	13.6	40	39	84	14	0.25	4	307.63	**140**	307.63	**140**
16	35	15.5	45	45	93	16	0.35	5	396.07	**160**	396.07	**160**
18	35	17.5	45	45	93	18	0.35	5	466.23	**180**	466.23	**180**
20	40	19.5	55	54	104	20	0.40	5	585.04	**200**	585.04	**200**
P										●		●
M										●		●
K										●		●
N												
S												
H												
O												

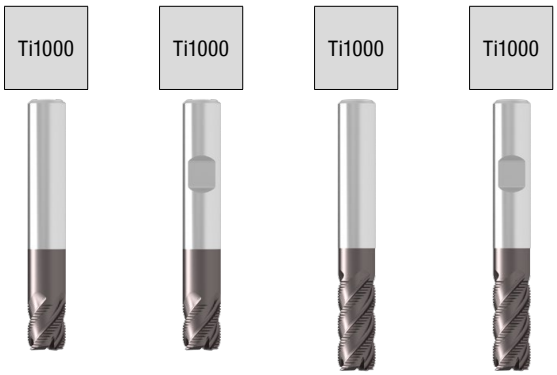
→ v_c/f_z Page 454+455

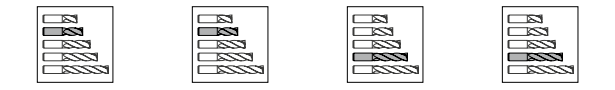
Rough milling cutter

▲ with integrated chip breakers in the flutes











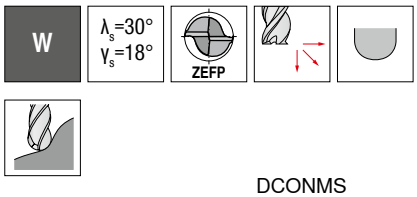
DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 342 ... £ V1		52 343 ... £ V1		52 342 ... £ V1		52 343 ... £ V1	
6	8	6.0		18	54	6	0.15	4	98.66	**060**	98.66	**060**				
6	16	5.8	21	22	58	6	0.15	4					126.57	**061**	126.57	**061**
8	11	8.0		23	59	8	0.20	4	115.37	**080**	115.37	**080**				
8	22	7.7	27	34	70	8	0.20	4					144.99	**081**	144.99	**081**
10	13	10.0		27	67	10	0.20	4	121.10	**100**	121.10	**100**				
10	25	9.7	30	33	73	10	0.20	4					156.94	**101**	156.94	**101**
12	16	12.0		29	74	12	0.25	4	142.01	**120**	142.01	**120**				
12	28	11.6	38	39	84	12	0.25	4					185.39	**121**	185.39	**121**
14	16	14.0		30	75	14	0.25	4	197.82	**140**	197.82	**140**				
14	30	13.5	40	39	84	14	0.25	4					248.22	**141**	248.22	**141**
16	19	16.0		36	84	16	0.35	5	246.87	**160**	246.87	**160**				
16	35	15.5	45	45	93	16	0.35	5					316.90	**161**	316.90	**161**
18	19	18.0		32	80	18	0.35	5	318.27	**180**	318.27	**180**				
18	35	17.5	45	45	93	18	0.35	5					393.95	**181**	393.95	**181**
20	19	20.0		43	93	20	0.40	5	376.30	**200**	376.30	**200**				
20	40	19.5	55	54	104	20	0.40	5					475.49	**201**	475.49	**201**
25	50	24.0	65	69	125	25	0.50	5					709.53	**251**	709.53	**251**
P									●		●		●		●	
M									○		○		○		○	
K									●		●		●		●	
N																
S																
H																
O																

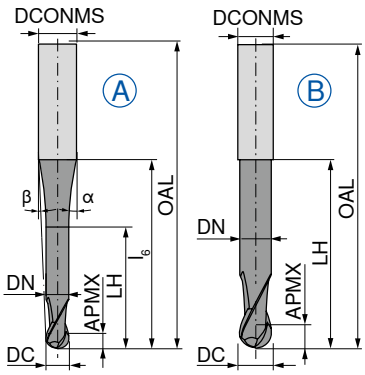
→ v_c/f_z Page 454+455

14

Ball Nosed Cutter

▲ Radius accuracy: ± 0.005 mm
▲ For Ø DC ≤ 5.0 mm, angle tolerance α and β: ± 0.5°













Factory standard
HA

Factory standard
HA

DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 718 ... £ V1		52 720 ... £ V1	
0.5	1.0	0.45	2.0	9	38	10	8	3	2	A	185.24	**005**		
1.0	2.0	0.95	4.0	9	38	12,5	6,5	3	2	A	162.66	**010**		
1.5	2.5	1.40	7.5	9	38	32	5	3	2	A	143.48	**015**		
2.0	3.0	1.80	8.0	9	38	31	3,5	3	2	A	111.92	**020**		
3.0	3.5	2.80	10.0	20	57	11,5	5	6	2	A	127.68	**030**		
3.0	3.5	2.80	12.0	40	80	3,5	2,5	6	2	A			118.82	**030**
4.0	4.0	3.80	12.0	20	57	11	3,5	6	2	A	121.68	**040**		
4.0	4.0	3.80	20.0	40	80	4	1,5	6	2	A			123.13	**040**
5.0	5.0	4.70	10.0	40	100	1,5	1	6	2	A			159.45	**050**
5.0	5.0	4.70	14.0	20	57	10	2	6	2	A	131.53	**050**		
6.0	6.0	5.60	20.0		57			6	2	B	171.57	**060**		
6.0	6.0	5.60	40.0		100			6	2	B			161.16	**060**
8.0	7.0	7.60	25.0		63			8	2	B	187.24	**080**		
8.0	7.0	7.60	60.0		120			8	2	B			173.57	**080**
10.0	8.0	9.60	30.0		72			10	2	B	203.19	**100**		
10.0	8.0	9.60	60.0		120			10	2	B			195.27	**100**
12.0	8.0	11.50	40.0		83			12	2	B	338.45	**120**		
12.0	10.0	11.50	70.0		160			12	2	B			329.04	**120**

P		
M		
K		
N	●	●
S	○	○
H		
O	●	●

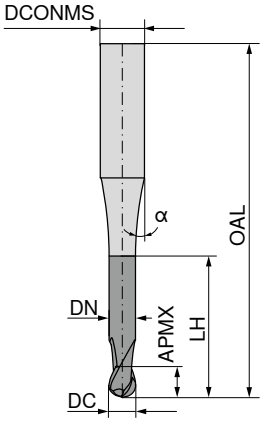
→ v_c/f_z Page 460–466

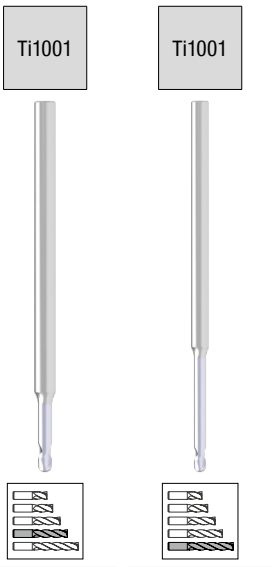
Ball Nosed Cutter

▲ Radius accuracy: ± 0.01 mm









Factory standard | Factory standard

HA | HA

DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 903 ... £ V0		50 903 ... £ V0	
0.2	0.2	0.18	0.6	55	15	3	2	85.74	**021**		
0.2	0.2	0.18	1.0	55	15	3	2	86.95	**022**		
0.2	0.2	0.18	1.6	55	15	3	2	87.84	**023**		
0.2	0.2	0.18	2.0	55	15	3	2	88.88	**024**		
0.3	0.3	0.28	0.9	55	15	3	2	85.74	**031**		
0.3	0.3	0.28	1.5	55	15	3	2	86.95	**032**		
0.3	0.3	0.28	2.4	55	15	3	2	87.84	**033**		
0.3	0.3	0.28	3.0	55	15	3	2	88.88	**034**		
0.4	0.4	0.37	1.2	55	15	3	2	85.74	**041**		
0.4	0.4	0.37	2.0	55	15	3	2	86.95	**042**		
0.4	0.4	0.37	3.2	55	15	3	2	87.84	**043**		
0.4	0.4	0.37	4.0	55	15	3	2	88.88	**044**		
0.5	0.5	0.45	1.5	55	15	3	2	83.96	**051**		
0.5	0.5	0.45	2.5	55	15	3	2	84.85	**052**		
0.5	0.5	0.45	4.0	55	15	3	2	85.74	**053**		
0.5	0.5	0.45	5.0	55	15	3	2	86.95	**054**		
0.6	0.6	0.58	2.0	55	15	3	2	70.76	**061**		
0.6	0.6	0.58	3.0	55	15	3	2	70.49	**062**		
0.6	0.6	0.58	5.0	65	15	3	2			76.78	**063**
0.6	0.6	0.58	6.0	65	15	3	2			81.26	**064**
0.8	0.8	0.77	2.5	55	15	3	2	70.49	**081**		
0.8	0.8	0.77	4.0	55	15	3	2	70.49	**082**		
0.8	0.8	0.77	6.5	65	15	3	2			78.41	**083**
0.8	0.8	0.77	8.0	65	15	3	2			81.26	**084**
1.0	1.0	0.95	3.0	55	15	3	2	70.49	**101**		
1.0	1.0	0.95	5.0	55	15	3	2	70.49	**102**		
1.0	1.0	0.95	8.0	65	15	3	2			74.53	**103**
1.0	1.0	0.95	10.0	65	15	3	2			81.26	**104**
1.0	1.0	0.95	12.0	65	15	3	2			83.33	**105**
1.2	1.2	1.15	3.0	55	15	3	2	70.49	**121**		
1.2	1.2	1.15	6.0	55	15	3	2	70.49	**122**		
1.2	1.2	1.15	10.0	65	15	3	2			78.41	**123**
1.2	1.2	1.15	12.0	65	15	3	2			81.26	**124**
1.3	1.3	1.25	4.0	55	15	3	2	70.49	**131**		
1.3	1.3	1.25	7.0	55	15	3	2	70.49	**132**		
1.3	1.3	1.25	11.0	65	15	3	2			78.41	**133**
1.3	1.3	1.25	13.0	65	15	3	2			81.26	**134**
1.5	1.5	1.44	5.0	55	15	3	2	70.76	**151**		
1.5	1.5	1.44	7.5	55	15	3	2	70.49	**152**		

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→ v_c/f_z Page 460–466

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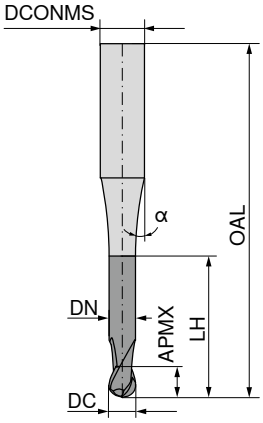
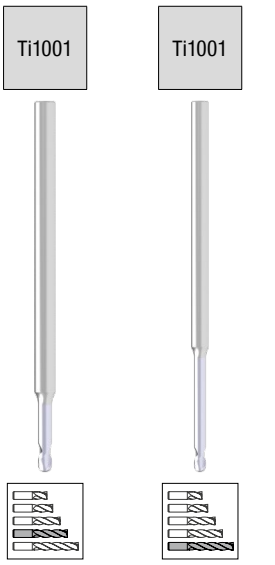
Continued on next page

Ball Nosed Cutter

▲ Radius accuracy: ± 0.01 mm







Factory standard | Factory standard

HA | HA

DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 903 ... £ V0		50 903 ... £ V0	
1.5	1.5	1.44	12.0	65	15	3	2			81.26	**154**
1.5	1.5	1.44	15.0	65	15	3	2			83.33	**153**
1.6	1.6	1.52	5.0	55	15	3	2	70.76	**161**		
1.6	1.6	1.52	8.0	55	15	3	2	70.76	**162**		
1.6	1.6	1.52	13.0	65	15	3	2			78.41	**163**
1.6	1.6	1.52	16.0	65	15	3	2			83.33	**164**
1.8	1.8	1.72	5.5	55	15	3	2	70.49	**181**		
1.8	1.8	1.72	9.0	55	15	3	2	70.76	**182**		
1.8	1.8	1.72	14.5	65	15	3	2			78.41	**183**
1.8	1.8	1.72	18.0	65	15	3	2			83.33	**184**
2.0	2.0	1.92	6.0	55	15	3	2	70.49	**201**		
2.0	2.0	1.92	10.0	55	15	3	2	70.49	**202**		
2.0	2.0	1.92	14.0	55	15	3	2	74.53	**203**		
2.0	2.0	1.92	16.0	65	15	3	2			83.33	**204**
2.0	2.0	1.92	20.0	65	15	3	2			81.26	**205**
2.3	2.3	2.22	7.0	55	15	3	2	70.49	**231**		
2.3	2.3	2.22	11.5	55	15	3	2	70.49	**232**		
2.3	2.3	2.22	18.5	65	15	3	2			74.53	**233**
2.3	2.3	2.22	20.0	65	15	3	2			81.26	**234**
2.3	2.3	2.22	23.0	65	15	3	2			83.33	**235**
3.0	3.0	2.90	9.0	65	15	6	2	74.53	**301**		
3.0	3.0	2.90	15.0	65	15	6	2	83.33	**302**		
3.0	3.0	2.90	24.0	100	15	6	2			90.37	**303**
3.0	3.0	2.90	30.0	100	15	6	2			93.98	**304**
4.0	4.0	3.90	12.0	65	15	6	2	83.33	**401**		
4.0	4.0	3.90	20.0	65	15	6	2	83.33	**402**		
4.0	4.0	3.90	32.0	100	15	6	2			93.98	**403**
4.0	4.0	3.90	40.0	100	15	6	2			97.11	**404**
5.0	5.0	4.90	15.0	65	15	6	2	83.33	**501**		
5.0	5.0	4.90	25.0	65	15	6	2	83.33	**502**		
5.0	5.0	4.90	40.0	100	15	6	2			97.11	**503**
5.0	5.0	4.90	50.0	100	15	6	2			100.11	**504**
6.0	6.0	5.90	18.0	65	15	6	2	83.33	**601**		
6.0	6.0	5.90	30.0	100	15	6	2			93.98	**602**
6.0	6.0	5.90	48.0	100	15	6	2			100.11	**603**
6.0	6.0	5.90	60.0	100	15	6	2			103.05	**604**

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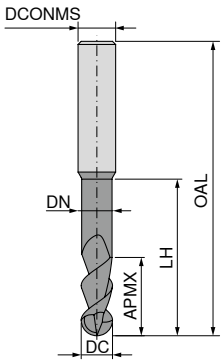
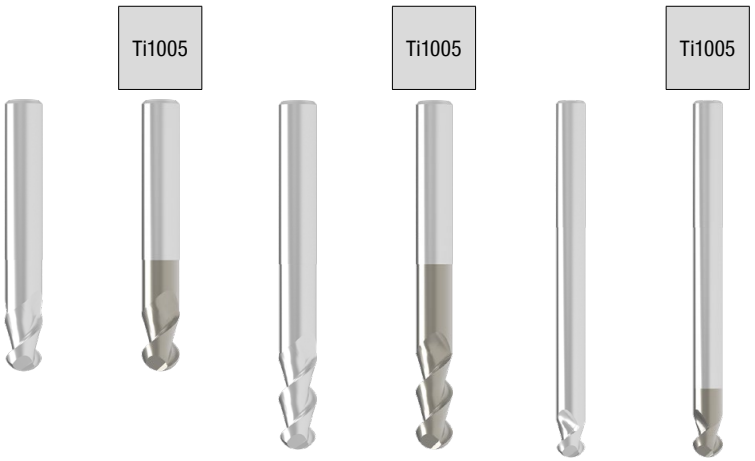
→ v_c/f_z Page 460–466

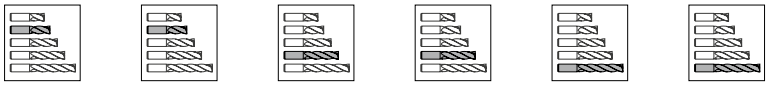
Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

W | λ_s=55° γ_s= 7° | ZEFP | HPC







Factory standard | Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA | HA | HA

DC $_{h6}$ mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	54 640 ... £ V0		54 642 ... £ V0		54 640 ... £ V0		54 642 ... £ V0		54 640 ... £ V0		54 642 ... £ V0	
3	5.0	2.8	12	55	6	2	64.49	031	77.83	031								
3	3.5	2.8	15	58	6	2					70.32	034	84.85	034				
3	8.0	2.8	15	58	6	2					73.76	032	89.19	032				
3	3.5	2.8	24	67	6	2									85.89	035	101.90	035
4	6.5	3.8	12	55	6	2	64.49	041	77.83	041								
4	10.5	3.8	20	62	6	2					73.76	042	100.25	042				
4	4.5	3.8	20	62	6	2					70.32	044	84.85	044				
4	4.5	3.8	32	74	6	2									85.89	045	101.90	045
5	8.0	4.8	15	58	6	2	64.49	051	77.83	051								
5	13.0	4.8	25	70	6	2					73.76	052	89.19	052				
5	5.5	4.8	25	70	6	2					70.32	054	84.85	054				
5	5.5	4.8	40	88	6	2									85.89	055	101.90	055
6	10.0	5.8	18	58	6	2	64.49	061	77.83	061								
6	16.0	5.8	30	70	6	2					73.76	062	89.19	062				
6	7.0	5.8	30	70	6	2					70.32	064	84.85	064				
6	7.0	5.8	48	88	6	2									84.25	065	101.90	065
8	13.0	7.7	24	64	8	2	82.51	081	97.62	081								
8	21.0	7.7	40	80	8	2					96.37	082	111.85	082				
8	9.0	7.7	40	80	8	2					91.88	084	106.42	084				
8	9.0	7.7	64	104	8	2									110.27	085	130.33	085
10	16.0	9.7	30	74	10	2	110.83	101	130.33	101								
10	26.0	9.7	50	94	10	2					126.96	102	153.37	102				
10	11.0	9.7	50	94	10	2					123.30	104	142.14	104				
10	11.0	9.7	80	124	10	2									147.68	105	169.68	105
12	19.0	11.6	36	85	12	2	157.12	121	174.46	121								
12	31.0	11.6	60	109	12	2					215.31	122	240.44	122				
12	13.0	11.6	60	109	12	2					205.87	124	227.89	124				
12	13.0	11.6	96	145	12	2									284.46	125	315.86	125
14	22.0	13.6	42	91	14	2	196.48	141	216.83	141								
14	36.0	13.6	70	119	14	2					270.23	142	297.02	142				
14	15.0	13.6	70	119	14	2					257.65	144	282.79	144				
14	15.0	13.6	112	161	14	2									370.77	145	406.98	145
16	25.0	15.5	48	100	16	2	259.30	161	279.65	161								
16	41.0	15.5	80	132	16	2					355.08	162	384.99	162				
16	17.0	15.5	80	132	16	2					337.85	164	366.16	164				
16	17.0	15.5	128	180	16	2									507.52	165	549.87	165
18	29.0	17.5	54	106	18	2	359.86	181	381.83	181								
18	47.0	17.5	90	142	18	2					494.95	182	524.75	182				
18	20.0	17.5	90	142	18	2					471.30	184	499.60	184				
18	20.0	17.5	144	196	18	2									708.62	185	749.47	185
20	32.0	19.5	60	114	20	2	362.97	201	389.60	201								
20	52.0	19.5	100	154	20	2					499.60	202	535.82	202				
20	22.0	19.5	100	154	20	2					476.10	204	510.67	204				
20	22.0	19.5	160	214	20	2									713.27	205	765.18	205

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→ v_c/f_z Page 448+449

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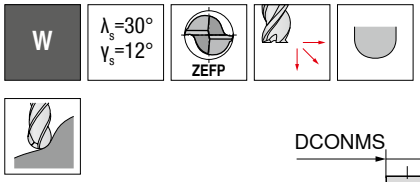
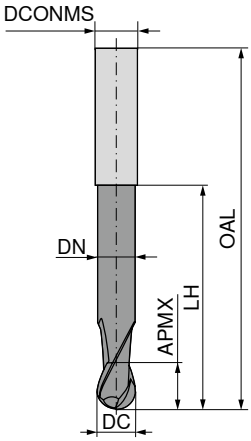
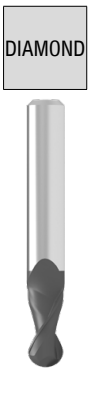
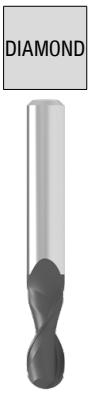
Ball Nosed Cutter













Factory standard

HA

Factory standard

HA

DC h10 mm	APMX mm	LH mm	DN mm	OAL mm	DCONMS h6 mm	ZEFP	52 766 ... £ V1		52 768 ... £ V1	
0.5	1.5			38	3	2	168.04	**005**		
1.0	2.0			38	3	2	163.39	**010**		
2.0	3.0			38	3	2	163.39	**020**		
2.0	3.0			50	6	2	250.64	**021**		
2.0	8.0	31	1.8	60	2	2			197.82	**020**
3.0	5.0			38	3	2	163.39	**030**		
3.0	5.0			50	6	2	250.64	**031**		
3.0	12.0	41	2.8	70	3	2			185.39	**030**
4.0	8.0			54	6	2	250.64	**040**		
4.0	15.0	51	3.8	80	4	2			262.00	**040**
5.0	9.0			54	6	2	250.64	**050**		
5.0	20.0	71	4.8	100	5	2			303.73	**050**
6.0	10.0			54	6	2	246.30	**060**		
6.0	20.0	63	5.8	100	6	2			336.48	**060**
8.0	12.0			58	8	2	337.85	**080**		
8.0	20.0	83	7.8	120	8	2			447.36	**080**
10.0	14.0			66	10	2	429.57	**100**		
10.0	25.0	99	9.8	140	10	2			574.40	**100**
12.0	25.0	104	11.8	150	12	2			754.38	**120**

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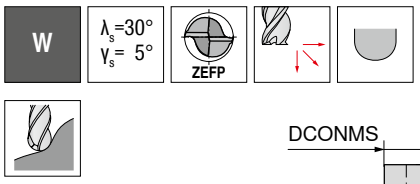
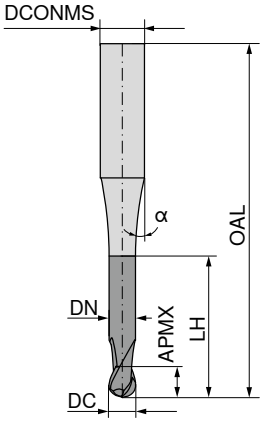
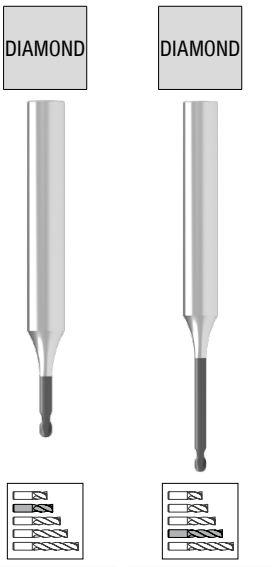
→ v_c/f_z Page 458

Micro-ball nosed cutter

▲ Radius accuracy: ± 0.01 mm







Factory standard | Factory standard

HA | HA

DC f8 mm	APMX mm	LH mm	DN mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 912 ... £ V0		50 912 ... £ V0	
0.6	1.2	3.0	0.58	55	15	6	2	154.42	**906**		
0.6	1.2	6.0	0.58	65	15	6	2			169.08	**006**
0.8	1.2	4.0	0.77	55	15	6	2	154.42	**908**		
0.8	1.2	8.0	0.77	65	15	6	2			169.08	**008**
1.0	1.5	5.0	0.95	55	15	6	2	154.42	**910**		
1.0	1.5	12.0	0.95	65	15	6	2			169.08	**010**
1.2	1.6	6.0	1.15	55	15	6	2	154.42	**912**		
1.2	1.6	12.0	1.15	65	15	6	2			169.08	**012**
1.5	1.8	7.5	1.44	55	15	6	2	154.42	**915**		
1.5	1.8	15.0	1.44	65	15	6	2			169.08	**015**
2.0	2.0	10.0	1.92	55	15	6	2	154.42	**920**		
2.0	2.0	20.0	1.92	65	15	6	2			169.08	**020**
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→ v_c/f_z Page 458

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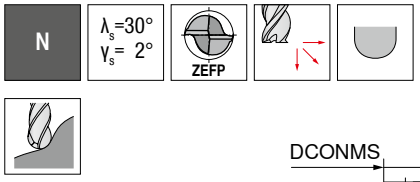
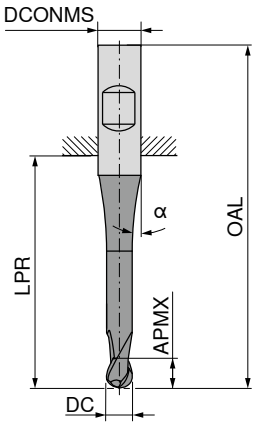
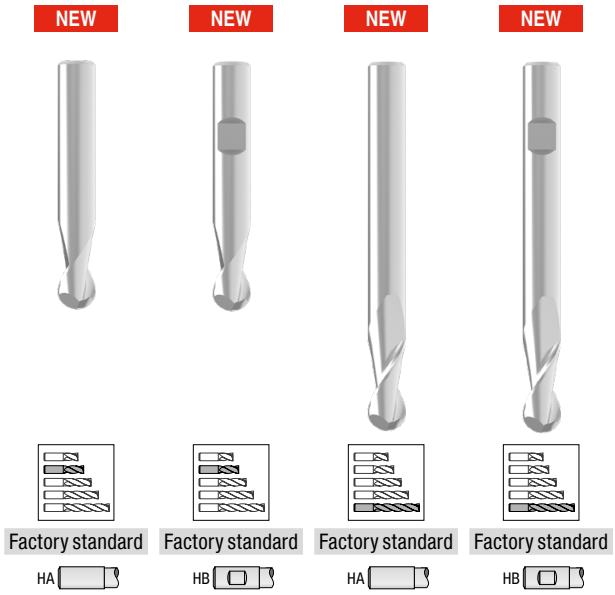
Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm







DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 050 ... £ V1		52 052 ... £ V1		52 051 ... £ V1		52 053 ... £ V1	
0.10	0.2	12.5	38	8	3	2	81.69	**91000**						
0.15	0.3	11.5	38	8	3	2	70.92	**91500**						
0.20	0.4	12.0	38	8	3	2	65.19	**92000**						
0.25	0.5	12.5	38	8	3	2	62.88	**92500**						
0.30	1.0	11.3	38	8	3	2	58.28	**93000**						
0.35	1.0	11.1	38	8	3	2	51.57	**93500**						
0.40	1.0	10.9	38	8	3	2	37.50	**94000**						
0.50	1.5	11.7	38	7	3	2	29.90	**95000**						
0.50	1.5	18.0	54	11	6	2	35.84	**95100**						
0.50	1.5	47.0	75	7	3	2					41.33	**95000**		
0.50	1.5	44.0	80	11	6	2					47.82	**95100**		
0.60	1.5	11.3	38	7	3	2	32.88	**96000**						
0.70	2.0	11.4	38	7	3	2	29.90	**97000**						
0.80	2.0	11.7	38	7	3	2	29.90	**98000**						
0.90	2.5	11.7	38	7	3	2	29.90	**99000**						
1.00	2.0	22.0	50	7	3	2	30.89	**31000**						
1.00	2.0	18.0	54	10	6	2	34.29	**01000**	33.10	**01000**				
1.00	3.0	47.0	75	7	3	2					45.53	**31000**		
1.00	3.0	44.0	80	10	6	2					51.67	**01000**	51.67	**01000**
1.10	3.0	22.0	50	6	3	2	29.90	**31100**						
1.20	3.0	22.0	50	5	3	2	29.90	**31200**						
1.40	3.0	22.0	50	5	3	2	29.90	**31400**						
1.50	3.0	22.0	50	6	3	2	29.90	**31500**						
1.50	3.0	18.0	54	10	6	2	34.29	**01500**	33.10	**01500**				
1.50	4.0	47.0	75	5	3	2					45.08	**31500**		
1.50	4.0	44.0	80	10	6	2					51.67	**01500**	51.67	**01500**
1.60	4.0	22.0	50	6	3	2	29.90	**31600**						
1.80	4.0	22.0	50	6	3	2	29.90	**31800**						
2.00	4.0	22.0	50	5	3	2	30.89	**32000**						
2.00	4.0	18.0	54	9	6	2	34.29	**02000**	33.10	**02000**				
2.00	6.0	47.0	75	5	3	2					42.22	**32000**		
2.00	6.0	44.0	80	10	6	2					50.46	**02000**	50.46	**02000**
2.50	5.0	22.0	50	3	3	2	29.90	**32500**						
2.50	5.0	18.0	54	9	6	2	33.10	**02500**	33.10	**02500**				
2.50	8.0	47.0	75	3	3	2					41.22	**32500**		
2.50	8.0	44.0	80	10	6	2					50.79	**02500**	50.79	**02500**
3.00	6.0	22.0	50		3	2	30.89	**33000**						
3.00	6.0	18.0	54	9	6	2	34.29	**03000**	33.10	**03000**				
3.00	10.0	47.0	75		3	2					40.56	**33000**		
3.00	10.0	44.0	80	9	6	2					49.36	**03000**	49.36	**03000**

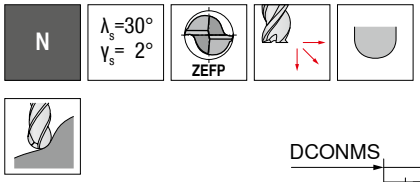
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

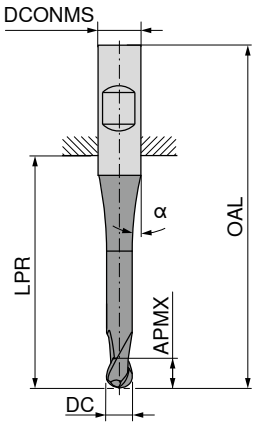
→ v_c/f_z Page 460–466

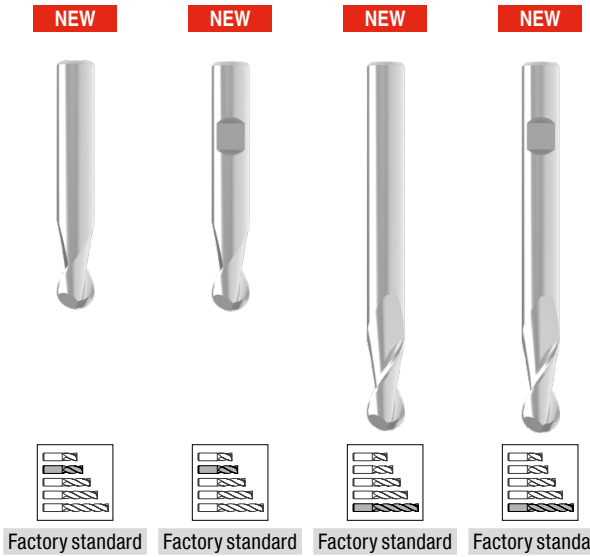
Continued on next page

Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm







Factory standard | Factory standard | Factory standard | Factory standard



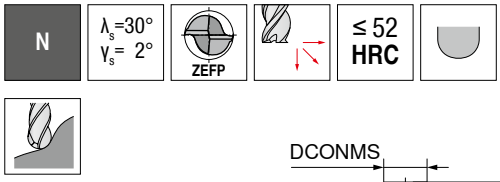
DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 050 ... £ V1		52 052 ... £ V1		52 051 ... £ V1		52 053 ... £ V1	
4.00	7.0	18.0	54	7	6	2	34.29	**04000**	33.10	**04000**				
4.00	7.0	26.0	54		4	2	31.44	**44000**						
4.00	13.0	47.0	75		4	2					38.37	**44000**		
4.00	13.0	44.0	80	8	6	2					49.36	**04000**	49.36	**04000**
5.00	8.0	18.0	54	6	6	2	34.29	**05000**	33.10	**05000**				
5.00	8.0	26.0	54		5	2	33.10	**55000**						
5.00	14.0	47.0	75		5	2					43.09	**55000**		
5.00	14.0	64.0	100	5	6	2					49.36	**05000**	49.36	**05000**
6.00	10.0	18.0	54		6	2	33.10	**06000**	33.10	**06000**				
6.00	16.0	64.0	100		6	2					46.73	**06000**	46.73	**06000**
8.00	12.0	23.0	59		8	2	38.37	**08000**	38.37	**08000**				
8.00	22.0	64.0	100		8	2					54.64	**08000**	54.64	**08000**
10.00	13.0	27.0	67		10	2	49.58	**10000**	49.58	**10000**				
10.00	25.0	60.0	100		10	2					73.33	**10000**	73.33	**10000**
12.00	16.0	28.0	73		12	2	71.47	**12000**	71.47	**12000**				
12.00	26.0	55.0	100		12	2					97.73	**12000**	97.73	**12000**
14.00	16.0	30.0	75		14	2	92.57	**14000**	92.57	**14000**				
14.00	26.0	55.0	100		14	2					138.45	**14000**	138.45	**14000**
16.00	20.0	35.0	83		16	2	103.14	**16000**	103.14	**16000**				
16.00	30.0	102.0	150		16	2					224.34	**16000**	224.34	**16000**
20.00	25.0	43.0	93		20	2	179.15	**20000**	179.15	**20000**				
20.00	40.0	100.0	150		20	2					270.43	**20000**	270.43	**20000**

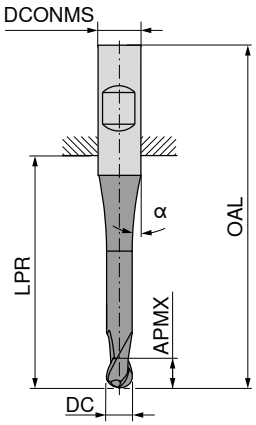
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

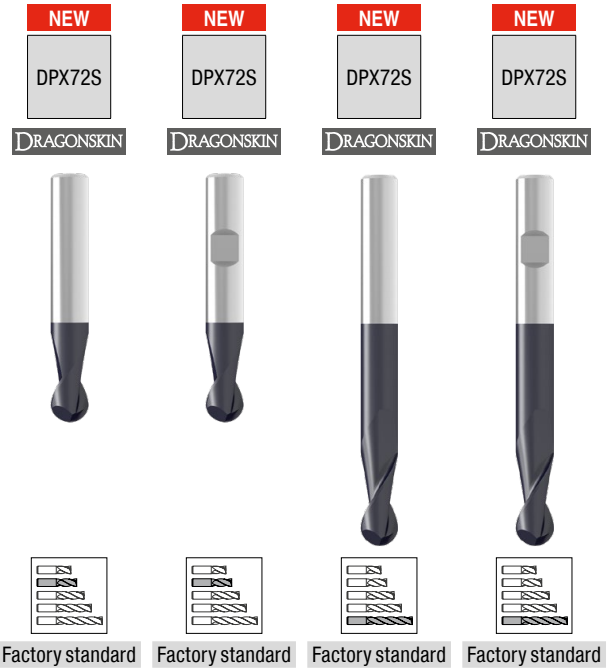
→ v_c/f_z Page 460–466

Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm







Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 054 ... £ V1		52 056 ... £ V1		52 055 ... £ V1		52 057 ... £ V1	
0.10	0.2	12.5	38	8	3	2	85.86	91000						
0.15	0.3	11.5	38	8	3	2	75.31	91500						
0.20	0.4	12.0	38	8	3	2	71.47	92000						
0.25	0.5	12.5	38	8	3	2	82.90	92500						
0.30	1.0	11.3	38	8	3	2	77.18	93000						
0.35	1.0	11.1	38	8	3	2	69.04	93500						
0.40	1.0	10.9	38	8	3	2	51.45	94000						
0.50	1.5	11.7	38	7	3	2	42.43	95000						
0.50	1.5	44.0	80	11	6	2					72.24	95100		
0.50	1.5	18.0	54	11	6	2	44.42	95100						
0.50	1.5	47.0	75	7	3	2					48.16	95000		
0.60	1.5	11.3	38	7	3	2	45.62	96000						
0.70	2.0	11.4	38	7	3	2	42.43	97000						
0.80	2.0	11.7	38	7	3	2	42.43	98000						
0.90	2.5	11.7	38	7	3	2	42.43	99000						
1.00	2.0	22.0	50	7	3	2	45.19	31000						
1.00	2.0	18.0	54	10	6	2	49.70	01000	49.70	01000				
1.00	3.0	47.0	75	7	3	2					64.21	31000		
1.00	3.0	44.0	80	10	6	2					76.95	01000	76.95	01000
1.10	3.0	22.0	50	6	3	2	42.43	31100						
1.20	3.0	22.0	50	5	3	2	42.43	31200						
1.40	3.0	22.0	50	5	3	2	42.43	31400						
1.50	3.0	22.0	50	6	3	2	45.19	31500						
1.50	3.0	18.0	54	10	6	2	45.19	01500	49.70	01500				
1.50	4.0	47.0	75	5	3	2					63.76	31500		
1.50	4.0	44.0	80	10	6	2					76.95	01500	76.95	01500
1.60	4.0	22.0	50	6	3	2	42.43	31600						
1.80	4.0	22.0	50	6	3	2	42.43	31800						
2.00	4.0	18.0	54	9	6	2	49.70	02000	49.70	02000				
2.00	4.0	22.0	50	5	3	2	45.19	32000						
2.00	6.0	47.0	75	5	3	2					59.92	32000		
2.00	6.0	44.0	80	10	6	2					75.20	02000	75.20	02000
2.50	5.0	18.0	54	9	6	2	52.22	02500	52.22	02500				
2.50	5.0	22.0	50	3	3	2	42.43	32500						
2.50	8.0	47.0	75	3	3	2					58.82	32500		
2.50	8.0	44.0	80	10	6	2					75.97	02500	75.97	02500

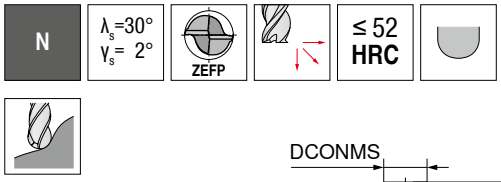
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

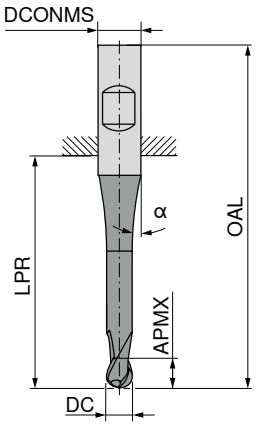
→ v_c/f_z Page 460–466

Continued on next page

Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm







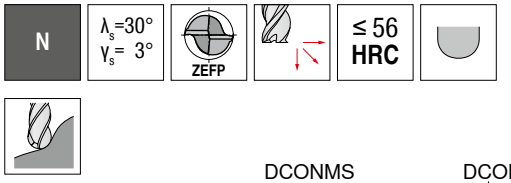
							Factory standard		Factory standard		Factory standard		Factory standard	
							HA		HB		HA		HB	
							52 054 ...		52 056 ...		52 055 ...		52 057 ...	
DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	£ V1		£ V1		£ V1		£ V1	
3.00	6.0	18.0	54	9	6	2	49.70	03000	49.70	03000				
3.00	6.0	22.0	50		3	2	45.19	33000						
3.00	10.0	47.0	75		3	2					57.94	33000		
3.00	10.0	44.0	80	9	6	2					73.98	03000	73.98	03000
4.00	7.0	18.0	54	10	6	2	49.70	04000	49.70	04000				
4.00	7.0	26.0	54		4	2	47.71	44000						
4.00	13.0	47.0	75		4	2					55.52	44000		
4.00	13.0	44.0	80	8	6	2					73.98	04000	73.98	04000
5.00	8.0	18.0	54	6	6	2	49.70	05000	49.70	05000				
5.00	8.0	26.0	54		5	2	49.70	55000						
5.00	14.0	47.0	75		5	2					63.11	55000		
5.00	14.0	64.0	100	5	6	2					73.98	05000	73.98	05000
6.00	10.0	18.0	54		6	2	49.70	06000	49.70	06000				
6.00	16.0	64.0	100		6	2					74.32	06000	74.32	06000
8.00	12.0	23.0	59		8	2	60.47	08000	60.47	08000				
8.00	22.0	64.0	100		8	2					89.38	08000	89.38	08000
10.00	13.0	27.0	67		10	2	79.60	10000	79.60	10000				
10.00	25.0	60.0	100		10	2					117.61	10000	117.61	10000
12.00	16.0	28.0	73		12	2	113.32	12000	113.32	12000				
12.00	26.0	55.0	100		12	2					155.12	12000	155.12	12000
14.00	16.0	30.0	75		14	2	144.04	14000	144.04	14000				
14.00	26.0	55.0	100		14	2					207.78	14000	207.78	14000
16.00	20.0	35.0	83		16	2	164.99	16000	164.99	16000				
16.00	30.0	102.0	150		16	2					341.94	16000	341.94	16000
18.00	22.0	45.0	93		18	2	224.34	18000	224.34	18000				
20.00	25.0	43.0	93		20	2	270.43	20000	270.43	20000				
20.00	40.0	100.0	150		20	2					417.75	20000	417.75	20000
P							●		●		●		●	
M							○		○		○		○	
K							●		●		●		●	
N							○		○		○		○	
S							○		○		○		○	
H							○		○		○		○	
O							○		○		○		○	

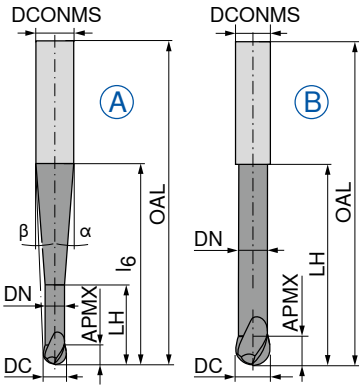
14

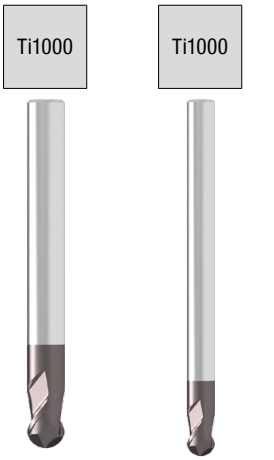
→ v_c/f_z Page 460–466

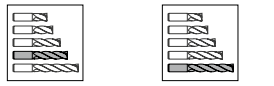
Ball Nosed Cutter

▲ Radius accuracy: ± 0.005 mm
▲ For Ø DC ≤ 5.0 mm, angle tolerance α and β: ± 0.5°









Factory standard | Factory standard

HA | HA

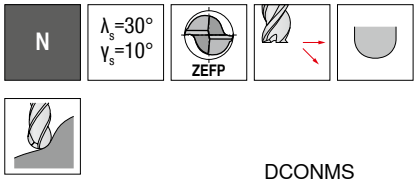
DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 714 ... £ V1		52 717 ... £ V1	
0.5	1.0	0.45	2.0	20	57	10	8,5	6	2	A	196.48	**005**		
1.0	2.0	0.95	4.0	20	57	10	8	6	2	A	172.83	**010**		
1.0	2.0	0.95	4.0	40	80	4,5	4	6	2	A			150.21	**010**
1.5	2.5	1.40	7.5	20	57	12,5	7	6	2	A	164.75	**015**		
1.5	2.5	1.40	7.5	40	80	4,5	3,5	6	2	A			143.48	**015**
2.0	3.0	1.80	8.0	20	57	12	6,5	6	2	A	139.37	**020**		
2.0	3.0	1.80	8.0	40	80	4	3	6	2	A			127.47	**020**
3.0	3.5	2.80	10.0	20	57	11,5	5	6	2	A	132.95	**030**		
3.0	3.5	2.80	12.0	40	80	3,5	2,5	6	2	A			120.31	**030**
4.0	4.0	3.80	12.0	20	57	11	3,5	6	2	A	124.83	**040**		
4.0	4.0	3.80	20.0	40	80	4	1,5	6	2	A			115.08	**040**
5.0	5.0	4.70	14.0	20	57	10	2	6	2	A	160.04	**050**		
5.0	5.0	4.70	25.0	40	80	3	1	6	2	A			116.88	**050**
6.0	6.0	5.60	20.0		57			6	2	B	164.61	**060**		
6.0	6.0	5.60	40.0		80			6	2	B			144.78	**060**
6.0	6.0	5.60	25.0	60	100	2	1	8	2	A			166.10	**061**
8.0	7.0	7.60	25.0		63			8	2	B	177.43	**080**		
8.0	7.0	7.60	60.0		100			8	2	B			168.77	**080**
8.0	7.0	7.60	30.0	75	120	2	1	10	2	A			222.04	**081**
10.0	8.0	9.60	30.0		72			10	2	B	203.49	**100**		
10.0	8.0	9.60	50.0		100			10	2	B			195.71	**102**
10.0	8.0	9.60	75.0		120			10	2	B			190.92	**100**
10.0	8.0	9.60	40.0	110	160	1	1	12	2	A			295.06	**101**
12.0	10.0	11.50	35.0		83			12	2	B	291.76	**120**		
12.0	10.0	11.50	35.0	40	92	35	3,5	16	2	A	374.96	**121**		
12.0	10.0	11.50	70.0		120			12	2	B			312.88	**122**
12.0	10.0	11.50	70.0		160			12	2	B			325.89	**120**
12.0	10.0	11.50	50.0	150	200	1,5	1	16	2	A			598.34	**121**
16.0	12.0	15.50	40.0		92			16	2	B	369.42	**160**		
16.0	12.0	15.50	80.0		200			16	2	B			585.77	**160**

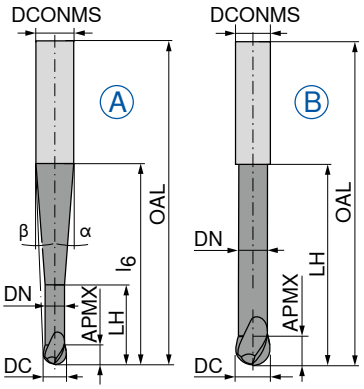
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

→ v_c/f_z Page 460–466

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °









Factory standard

HA 

52 320 ...

DC e8 mm	APMX mm	DN mm	LH mm	l6 mm	OAL mm	α°	β°	DCONMS h6 mm	ZEFP	Fig.	£ V1	
2	3	1.8	8	40	100	3,6	3	6	2	A	102.21	**020**
3	4	2.8	12	40	100	3,1	2,1	6	2	A	102.21	**030**
4	5	3.8	16	40	100	2,4	1,2	6	2	A	98.66	**040**
5	6	4.7	20	40	100	1,4	0,7	6	2	A	99.21	**050**
6	6	5.7	25	50	100	2,3	1,2	8	2	A	136.63	**061**
6	6	5.7	25		100			6	2	B	83.54	**060**
8	7	7.7	32		100			8	2	B	126.77	**080**
8	7	7.7	32	60	120	2	1	10	2	A	190.46	**081**
10	9	9.6	40		120			10	2	B	180.76	**100**
10	9	9.6	40	81	160	1,4	0,7	12	2	A	306.75	**101**
12	11	11.6	50		160			12	2	B	279.96	**120**
12	11	11.6	50	101	200	2,3	1,2	16	2	A	528.47	**121**
16	14	15.6	60		200			16	2	B	477.16	**160**

P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c/f_z Page 460–466

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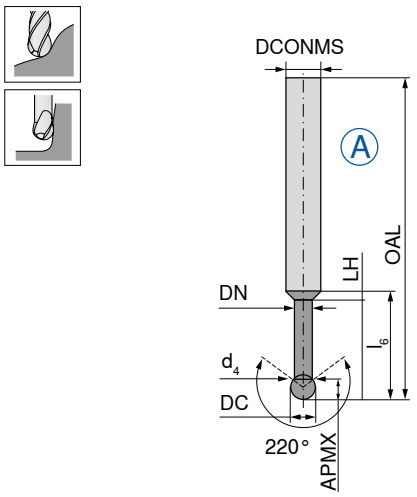
Ball Nosed Cutter 220°

▲ Radius accuracy: ± 0,005 mm

N | λ_s=30° γ_s= 3° | ZEFP



Ti1000



Factory standard

HA

52 323 ...

DC f8 mm	APMX mm	DN mm	d_4 mm	LH mm	l_6 mm	OAL mm	DCONMS h6 mm	ZEFP	Fig.	£ V1	
1.0	0.7	0.85	0.8	5	17	58	6	2	A	150.82	**010**
1.5	1.2	1.25	1.2	8	20	58	6	2	A	150.82	**015**
2.0	1.5	1.70	1.4	10	21	58	6	2	A	150.82	**020**
3.0	2.3	2.70	2.4	15	22	65	6	2	A	152.31	**030**
4.0	3.0	3.70	3.3	20	25	70	6	2	A	155.78	**040**
5.0	3.5	4.70	4.3	25	28	80	6	2	A	162.19	**050**
6.0	4.0	5.90	5.3		30	100	6	2	B	187.64	**060**
8.0	5.4	7.90	6.2		40	100	8	2	B	248.69	**080**
10.0	6.7	9.90	7.6		50	100	10	2	B	326.77	**100**
12.0	9.0	11.90	9.2		110	160	12	2	B	479.50	**121**
12.0	9.0	11.90	9.2		70	120	12	2	B	450.62	**120**

P	●
M	○
K	●
N	○
S	○
H	○
O	○

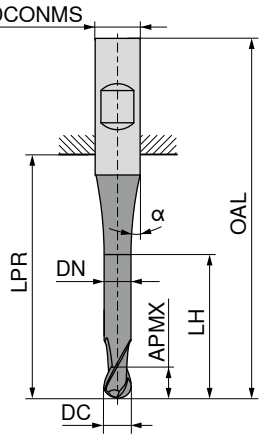
→ v_c/f_z Page 460–466

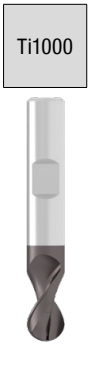
Ball Nosed Cutter

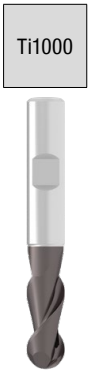
▲ Radius accuracy: ± 0,01 mm















≈DIN 6527 | ≈DIN 6527

HB | HB

DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	α°	ZEFP	54 055 ... £ V3		54 056 ... £ V3	
3	5			14	50	6	15	2	19.98	030		
3	8	2.8	12	21	57	6	15	2			19.98	030
4	8			18	54	6	15	2	19.98	040		
4	11	3.8	15	21	57	6	15	2			19.98	040
5	9			18	54	6	15	2	19.98	050		
5	13	4.8	17	21	57	6	15	2			19.98	050
6	10			18	54	6	30	2	20.80	060		
6	13	5.8	21	21	57	6	30	2			23.39	060
8	12			22	58	8	30	2	27.38	080		
8	19	7.7	27	27	63	8	30	2			28.91	080
10	14			26	66	10	30	2	34.19	100		
10	22	9.7	32	32	72	10	30	2			36.67	100
12	16			28	73	12	30	2	49.95	120		
12	26	11.6	38	38	83	12	30	2			57.94	120
16	22			34	82	16	30	2	81.54	160		
16	32	15.5	44	44	92	16	30	2			85.54	160
20	26			42	92	20	30	2	116.46	200		
20	38	19.5	54	54	104	20	30	2			123.97	200

P	●	●
M	●	●
K	○	○
N	○	○
S	●	●
H		
O		

→ v_c/f_z Page 460–466

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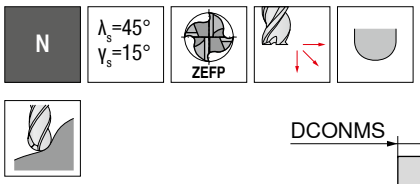
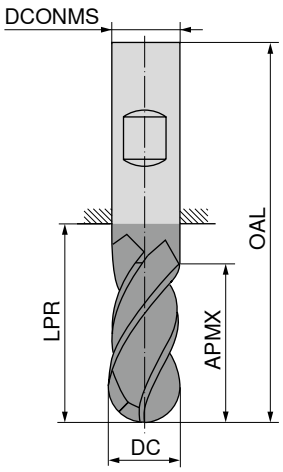
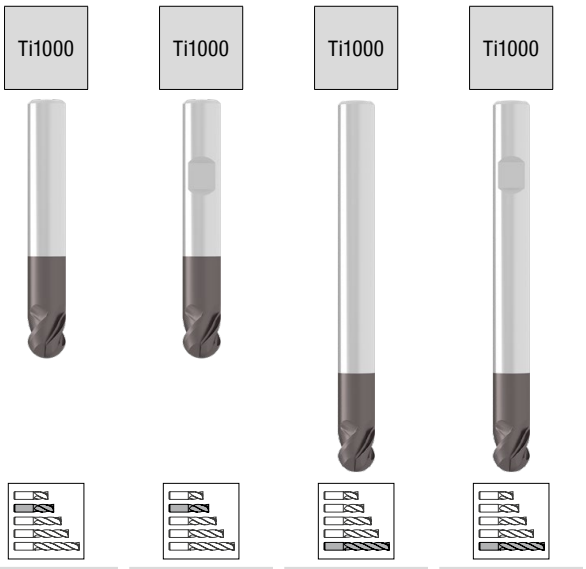
Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm







Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

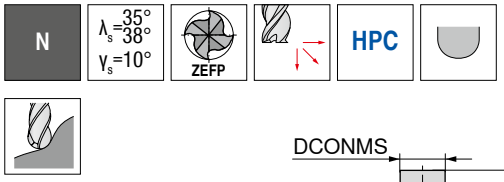
DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 400 ... £ V1		52 401 ... £ V1		52 402 ... £ V1		52 403 ... £ V1	
3	5	22	50	3	4	60.30	030						
3	5	47	75	3	4					72.87	030		
4	8	26	54	4	4	60.48	040						
4	8	47	75	4	4					81.03	040		
5	9	26	54	5	4	63.30	050						
5	9	47	75	5	4					84.25	050		
6	10	18	54	6	4	66.73	060	66.73	060				
6	10	64	100	6	4					86.51	060	86.51	060
8	12	23	59	8	4	82.47	080	82.47	080				
8	12	64	100	8	4					109.38	080	109.38	080
10	14	27	67	10	4	109.36	100	109.36	100				
10	14	60	100	10	4					139.30	100	139.30	100
12	16	29	74	12	4	140.23	120	140.23	120				
12	16	55	100	12	4					179.85	120	179.85	120
14	18	30	75	14	4	175.34	140	175.34	140				
14	18	55	100	14	4					221.30	140	221.30	140
16	22	35	83	16	4	230.11	160	230.11	160				
16	22	102	150	16	4					330.51	160	330.51	160
20	26	43	93	20	4	352.81	200	352.81	200				
20	26	100	150	20	4					487.92	200	487.92	200

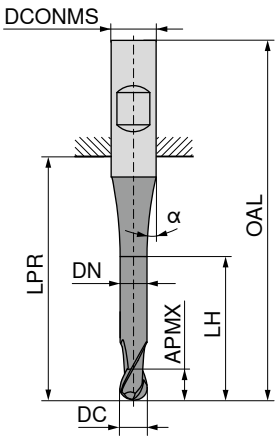
P	○	○	○	○
M	●	●	●	●
K	○	○	○	○
N	●	●	●	●
S	●	●	●	●
H				
O	●	●	●	●

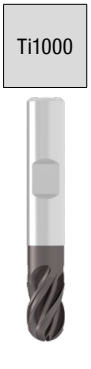
→ v_c/f_z Page 460–466

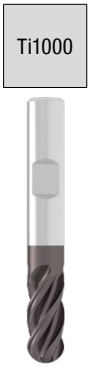
Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm













≈DIN 6527 | ≈DIN 6527

HB | HB

DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	α°	ZEFP	54 057 ... £ V3		54 058 ... £ V3	
3	5			14	50	6	15	4	19.98	030		
3	8	2.8	12	21	57	6	15	4			19.98	030
4	8			18	54	6	15	4	19.98	040		
4	11	3.8	15	21	57	6	15	4			19.98	040
5	9			18	54	6	15	4	19.98	050		
5	13	4.8	17	21	57	6	15	4			19.98	050
6	10			18	54	6	30	4	20.80	060		
6	13	5.8	21	21	57	6	30	4			23.39	060
8	12			22	58	8	30	4	27.38	080		
8	19	7.7	27	27	63	8	30	4			28.91	080
10	14			26	66	10	30	4	34.19	100		
10	22	9.7	32	32	72	10	30	4			36.67	100
12	16			28	73	12	30	4	49.95	120		
12	26	11.6	38	38	83	12	30	4			57.94	120
16	22			34	82	16	30	4	81.54	160		
16	32	15.5	44	44	92	16	30	4			85.54	160
20	26			42	92	20	30	4	116.46	200		
20	38	19.5	54	54	104	20	30	4			123.97	200

P	●	●
M	●	●
K	○	○
N	○	○
S	●	●
H		
O		

→ v_c/f_z Page 460–466

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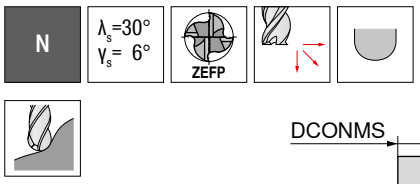
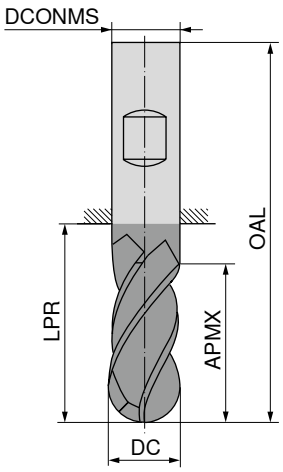
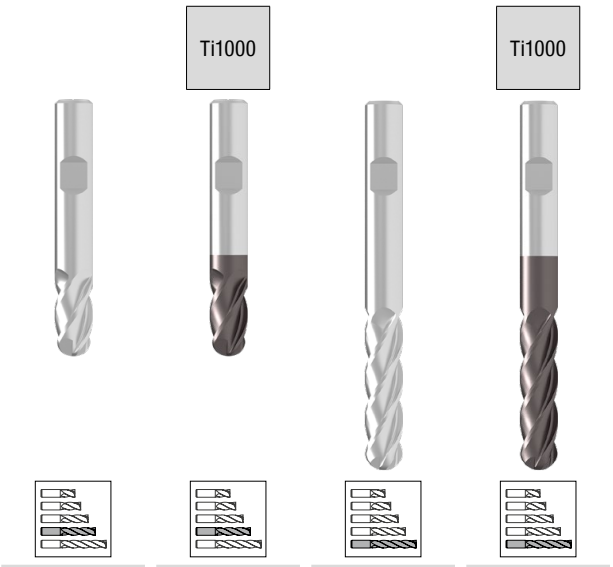
Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm







DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	DIN 6527 HB 50 642 ... £ V0		DIN 6527 HB 50 643 ... £ V0		Factory standard HB 50 642 ... £ V0		DIN 6527 HB 50 643 ... £ V0	
3	8	21	57	6	4	43.56	030	49.97	030				
4	11	21	57	6	4	43.56	040	49.97	040				
6	13	21	57	6	4	43.56	060	49.97	060				
6	40	64	100	6	4					53.73	061	64.49	061
8	19	27	63	8	4	49.97	080	54.61	080				
8	40	64	100	8	4					61.80	081	71.53	081
10	22	32	72	10	4	85.29	100	87.36	100				
10	40	60	100	10	4					109.38	101	119.41	101
12	26	38	83	12	4	114.33	120	116.11	120				
12	45	55	100	12	4					148.43	121	158.48	121
12	75	105	150	12	4					230.28	122	239.99	122
14	26	38	83	14	4	144.55	140	141.65	140				
14	45	55	100	14	4					205.75	141	215.47	141
16	32	44	92	16	4	203.65	160	199.91	160				
16	75	102	150	16	4					281.90	161	291.76	161
20	38	54	104	20	4	282.19	200	257.37	200				
20	75	100	150	20	4					447.25	201	457.10	201
P						●		●		●		●	
M						○		○		○		○	
K						●		●		●		●	
N						○		○		○		○	
S						○		○		○		○	
H								○				○	
O						○		○		○		○	

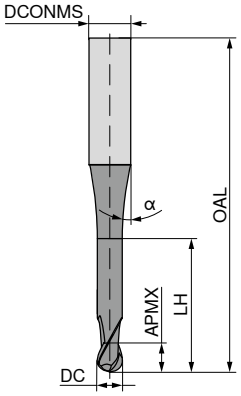
→ v_c/f_z Page 460–466

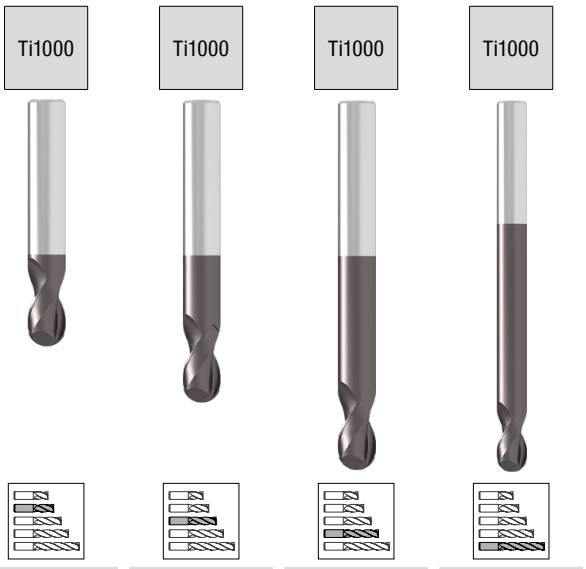
Ball Nosed Cutter

▲ Radius accuracy: ± 0.01 mm

H | λ_s=30° γ_s= 4° | ZEFP | ≤ 68 HRC







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA

DC mm	Tol.	APMX mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	ZEFP	50 906 ... £ V0		50 906 ... £ V0		50 906 ... £ V0		50 906 ... £ V0	
0.20	0/-0,015	0.3	0.6	40	15	4	2	87.64	**002**						
0.25	0/-0,015	0.3	0.6	40	15	4	2	87.64	**925**						
0.30	0/-0,015	0.3	0.6	40	15	4	2	87.64	**003**						
0.35	0/-0,015	0.4	0.7	40	15	4	2	87.64	**935**						
0.40	0/-0,015	0.4	0.7	40	15	4	2	87.64	**004**						
0.50	0/-0,015	0.5	0.8	40	15	4	2	87.64	**005**						
0.50	0/-0,015	0.5	0.8	54	15	6	2	100.76	**951**						
0.60	0/-0,015	0.6	0.9	40	15	4	2	87.64	**006**						
0.70	0/-0,015	0.8	1.1	40	15	4	2	87.64	**007**						
0.80	0/-0,015	0.8	1.1	40	15	4	2	87.64	**008**						
0.90	0/-0,015	0.9	1.2	40	15	4	2	87.64	**009**						
1.00	0/-0,015	1.0	1.3	54		4	2					87.64	**010**		
1.00	0/-0,015	1.0	1.3	54	15	6	2	100.76	**011**						
1.00	0/-0,015	1.0	1.3	64		6	2					105.46	**012**		
1.00	0/-0,015	1.0	1.3	80		6	2							109.86	**013**
1.00	0/-0,015	1.0	1.3	100		6	2							114.42	**014**
1.20	0/-0,015	1.2	1.5	54		4	2					87.64	**112**		
1.40	0/-0,015	1.4	1.8	54		4	2					87.64	**114**		
1.50	0/-0,015	1.5	1.9	54		4	2					87.64	**115**		
1.50	0/-0,015	1.5	1.9	54	15	6	2	100.76	**215**						
1.50	0/-0,015	1.5	1.9	80		6	2							109.86	**315**
1.60	0/-0,015	1.8	2.3	54		4	2					87.64	**116**		
1.80	0/-0,015	1.8	2.3	54		4	2					87.64	**118**		
2.00	0/-0,015	2.0	2.5	54		4	2					93.48	**206**		
2.00	0/-0,015	4.0	5.0	54		6	2					100.76	**202**		
2.00	0/-0,015	4.0	5.0	64		6	2					112.44	**207**		
2.00	0/-0,015	4.0	5.0	82		6	2							109.86	**204**
2.00	0/-0,015	4.0	5.0	100		6	2							114.42	**205**
2.50	0/-0,02	5.0	6.6	54		4	2					87.64	**251**		
2.50	0/-0,02	5.0	6.3	54	15	6	2	100.76	**252**						
2.50	0/-0,02	5.0	6.3	64		6	2					105.46	**253**		
2.50	0/-0,02	5.0	6.3	82		6	2							109.86	**254**
2.50	0/-0,02	5.0	6.3	100		6	2							114.42	**255**
3.00	0/-0,02	5.0	6.3	54		4	2					87.64	**030**		
3.00	0/-0,02	5.0	6.3	82		4	2							87.64	**032**
3.00	0/-0,02	5.0	6.3	100		4	2							87.64	**033**
3.00	0/-0,02	5.0	6.3	54	15	6	2	100.76	**035**						
3.00	0/-0,02	5.0	6.3	64		6	2					105.46	**036**		
3.00	0/-0,02	5.0	6.3	82		6	2							109.86	**037**
3.00	0/-0,02	8.0	10.0	100		6	2							114.42	**038**
4.00	0/-0,02	8.0		54	15	4	2					87.64	**040**		
4.00	0/-0,02	8.0		82	15	4	2							103.89	**042**
4.00	0/-0,02	8.0		100	15	4	2							110.58	**043**

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

→ v_c/f_z Page 460–466

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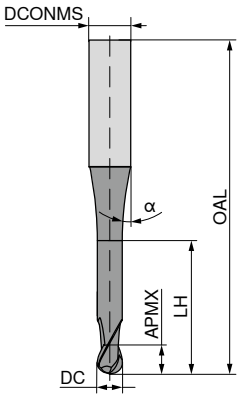
Continued on next page

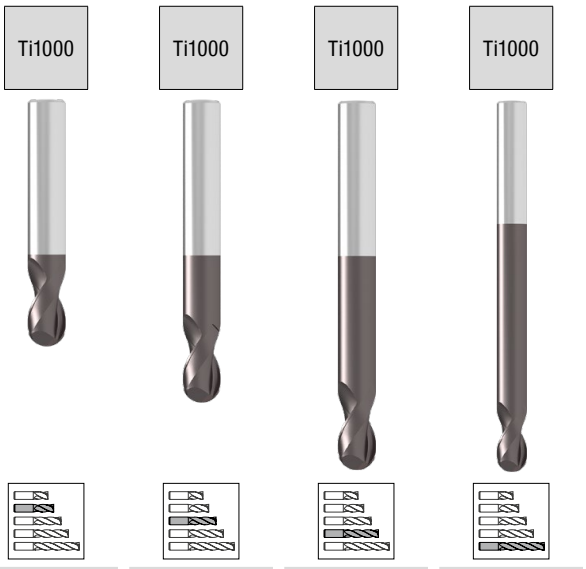
Ball Nosed Cutter

▲ Radius accuracy: ± 0.01 mm

H | λ_s=30° γ_s= 4° | ZEFP | ≤ 68 HRC







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA

DC mm	Tol.	APMX mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	ZEFP	50 906 ... £ V0		50 906 ... £ V0		50 906 ... £ V0		50 906 ... £ V0	
4.00	0/-0,02	8.0	10.0	54	15	6	2	87.64	**045**						
4.00	0/-0,02	8.0	10.0	64		6	2					105.46	**046**		
4.00	0/-0,02	8.0	10.0	82		6	2							109.86	**047**
4.00	0/-0,02	8.0	10.0	100		6	2							114.42	**048**
5.00	0/-0,02	9.0		54	15	5	2					87.64	**050**		
5.00	0/-0,02	9.0		64	15	5	2					105.46	**051**		
5.00	0/-0,02	9.0		82	15	5	2							109.86	**052**
5.00	0/-0,02	9.0		100	15	5	2							114.42	**053**
5.00	0/-0,02	9.0	11.3	54	15	6	2	87.64	**055**						
5.00	0/-0,02	9.0	11.3	64		6	2					105.46	**056**		
5.00	0/-0,02	9.0	11.3	82		6	2							109.86	**057**
5.00	0/-0,02	9.0	11.3	100		6	2							114.42	**058**
6.00	0/-0,02	10.0		54	15	6	2	87.64	**060**						
6.00	0/-0,02	10.0		64	15	6	2					105.46	**061**		
6.00	0/-0,02	10.0		82	15	6	2							109.86	**062**
6.00	0/-0,02	10.0		100	15	6	2							114.42	**063**
6.00	0/-0,02	10.0		120	15	6	2							119.44	**064**
8.00	0/-0,025	12.0		64	15	8	2					95.76	**081**		
8.00	0/-0,025	12.0		82	15	8	2			122.42	**082**				
8.00	0/-0,025	12.0		100	15	8	2							148.76	**083**
8.00	0/-0,025	12.0		120	15	8	2							174.98	**084**
10.00	0/-0,025	14.0		67	15	10	2	119.55	**101**						
10.00	0/-0,025	14.0		82	15	10	2			161.02	**102**				
10.00	0/-0,025	14.0		100	15	10	2							203.20	**103**
10.00	0/-0,025	14.0		127	15	10	2							243.68	**104**
12.00	0/-0,025	16.0		75	15	12	2	174.00	**121**						
12.00	0/-0,025	16.0		100	15	12	2			261.49	**122**				
12.00	0/-0,025	16.0		150	15	12	2							345.99	**123**
14.00	0/-0,025	18.0		80	15	14	2	217.18	**141**						
14.00	0/-0,025	18.0		100	15	14	2			316.05	**142**				
14.00	0/-0,025	18.0		150	15	14	2							416.83	**143**
16.00	0/-0,025	22.0		85	15	16	2	257.93	**161**						
16.00	0/-0,025	22.0		150	15	16	2							561.46	**163**
20.00	0/-0,025	26.0		90	15	20	2	423.64	**201**						
20.00	0/-0,025	26.0		150	15	20	2							743.13	**203**

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

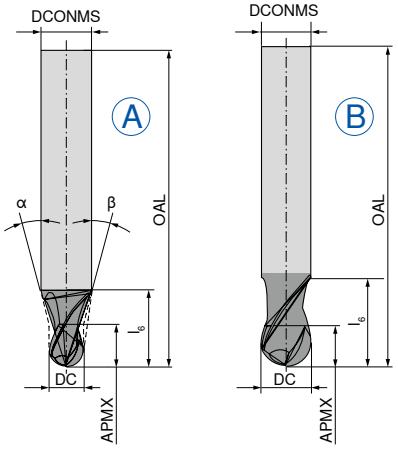
→ v_c/f_z Page 460–466

Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s=–3° | ZEFP | 45–66 HRC | Ti1000









Factory standard

HA

52 741 ...

DC ±0,01 mm	APMX mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	£ V1	
2	1.5	3.3	38	15	9	3	2	A	130.79	**020**
3	2.0	7.5	57	15	12	6	2	A	113.77	**030**
4	2.5	6.0	57	15	9	6	2	A	111.17	**040**
5	3.0	5.0	57	15	6	6	2	A	111.17	**050**
6	3.5		57	15		6	2	B	137.66	**060**
8	4.5		63	15		8	2	B	175.96	**080**
10	5.5		72	15		10	2	B	219.51	**100**
12	6.5		83	15		12	2	B	277.71	**120**

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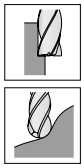
→ v_c/f_z Page 460–466

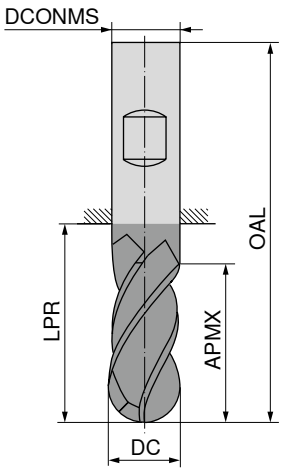
14

Ball nose cutter for rough milling

▲ Radius accuracy: ± 0,01 mm

NR | λ_s=20° γ_s=10° | ZEFP





Ti400





DIN 6527

HB 

50 641 ...

DC $_{d11}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	£ V0	
6	13	21	57	6	4	108.33	**060**
8	19	27	63	8	4	119.63	**080**
10	22	32	72	10	4	128.09	**100**
12	26	38	83	12	4	165.78	**120**
14	26	38	83	14	4	234.62	**140**
16	32	44	92	16	4	240.17	**160**
18	32	44	92	18	4	346.83	**180**
20	38	54	104	20	4	356.11	**200**

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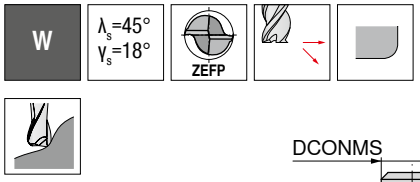
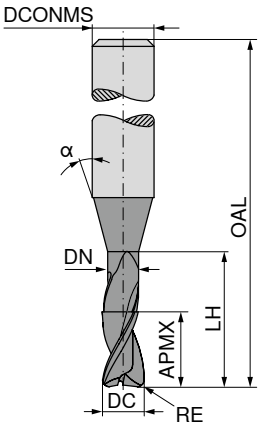
→ v_c/f_z Page 460–466

Torus Cutter









Factory standard | Factory standard

HA | HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 901 ... £ V0		50 901 ... £ V0	
0.2	0.02	0.2	0.18	0.6	55	15	3	2	85.74	021		
0.2	0.02	0.2	0.18	1.0	55	15	3	2	86.95	022		
0.2	0.02	0.2	0.18	1.6	55	15	3	2	87.84	023		
0.2	0.02	0.2	0.18	2.0	55	15	3	2	88.88	024		
0.3	0.03	0.3	0.28	0.9	55	15	3	2	85.74	031		
0.3	0.03	0.3	0.28	1.5	55	15	3	2	86.95	032		
0.3	0.03	0.3	0.28	2.4	55	15	3	2	87.84	033		
0.3	0.03	0.3	0.28	3.0	55	15	3	2	88.88	034		
0.4	0.04	0.4	0.37	1.2	55	15	3	2	85.74	041		
0.4	0.04	0.4	0.37	2.0	55	15	3	2	86.95	042		
0.4	0.04	0.4	0.37	3.2	55	15	3	2	87.84	043		
0.4	0.04	0.4	0.37	4.0	55	15	3	2	88.88	044		
0.5	0.05	0.5	0.45	1.5	55	15	3	2	83.96	051		
0.5	0.05	0.5	0.45	2.5	55	15	3	2	84.85	052		
0.5	0.05	0.5	0.45	4.0	55	15	3	2	85.74	053		
0.5	0.05	0.5	0.45	5.0	55	15	3	2	86.95	054		
0.6	0.06	0.6	0.58	2.0	55	15	3	2	70.76	061		
0.6	0.06	0.6	0.58	3.0	55	15	3	2	70.76	062		
0.6	0.06	0.6	0.58	4.2	55	15	3	2	70.49	063		
0.6	0.06	0.6	0.58	5.0	65	15	3	2			83.33	064
0.6	0.06	0.6	0.58	6.0	65	15	3	2			81.26	065
0.8	0.08	0.8	0.77	2.5	55	15	3	2	70.49	081		
0.8	0.08	0.8	0.77	4.0	55	15	3	2	70.49	082		
0.8	0.08	0.8	0.77	6.5	65	15	3	2			78.41	083
0.8	0.08	0.8	0.77	8.0	65	15	3	2			81.26	084
1.0	0.10	1.0	0.95	3.0	55	15	3	2	70.49	101		
1.0	0.10	1.0	0.95	5.0	55	15	3	2	70.49	102		
1.0	0.10	1.0	0.95	8.0	65	15	3	2			74.53	103
1.0	0.10	1.0	0.95	10.0	65	15	3	2			81.26	104
1.0	0.10	1.0	0.95	12.0	65	15	3	2			83.33	105
1.2	0.12	1.2	1.15	3.0	55	15	3	2	70.49	121		
1.2	0.12	1.2	1.15	6.0	55	15	3	2	70.49	122		
1.2	0.12	1.2	1.15	10.0	65	15	3	2			78.41	123
1.2	0.12	1.2	1.15	12.0	65	15	3	2			81.26	124
1.3	0.13	1.3	1.25	4.0	55	15	3	2	70.49	131		
1.3	0.13	1.3	1.25	7.0	55	15	3	2	70.76	132		
1.3	0.13	1.3	1.25	11.0	65	15	3	2			78.41	133
1.3	0.13	1.3	1.25	13.0	65	15	3	2			83.33	134
1.5	0.15	1.5	1.44	5.0	55	15	3	2	70.76	151		
1.5	0.15	1.5	1.44	7.5	55	15	3	2	70.49	152		
1.5	0.15	1.5	1.44	12.0	65	15	3	2			83.33	153
1.5	0.15	1.5	1.44	15.0	65	15	3	2			81.26	154
1.6	0.16	1.6	1.52	5.0	55	15	3	2	70.76	161		
1.6	0.16	1.6	1.52	8.0	55	15	3	2	70.76	162		
1.6	0.16	1.6	1.52	13.0	65	15	3	2			78.41	163

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→ v_c/f_z Page 460–466

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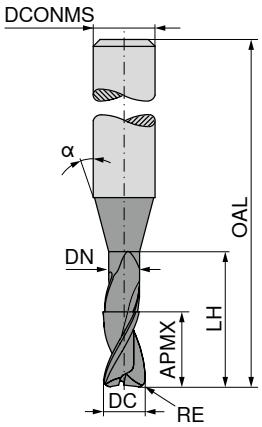
Torus Cutter











Factory standard

Factory standard

HA

HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 901 ... £ V0		50 901 ... £ V0	
1.6	0.16	1.6	1.52	16.0	65	15	3	2			83.33	164
1.8	0.18	1.8	1.72	5.5	55	15	3	2	70.49	181		
1.8	0.18	1.8	1.72	9.0	55	15	3	2	70.76	182		
1.8	0.18	1.8	1.72	14.5	65	15	3	2			78.41	183
1.8	0.18	1.8	1.72	18.0	65	15	3	2			83.33	184
2.0	0.20	2.0	1.92	6.0	55	15	3	2	70.49	201		
2.0	0.20	2.0	1.92	10.0	55	15	3	2	70.76	202		
2.0	0.20	2.0	1.92	14.0	55	15	3	2	70.49	203		
2.0	0.20	2.0	1.92	16.0	65	15	3	2			83.33	204
2.0	0.20	2.0	1.92	20.0	65	15	3	2			81.26	205
2.3	0.23	2.3	2.22	7.0	55	15	3	2	70.49	231		
2.3	0.23	2.3	2.22	11.5	55	15	3	2	70.76	232		
2.3	0.23	2.3	2.22	14.0	55	15	3	2	74.53	233		
2.3	0.23	2.3	2.22	18.5	65	15	3	2			83.33	234
2.3	0.23	2.3	2.22	20.0	65	15	3	2			83.33	235
2.3	0.23	2.3	2.22	23.0	65	15	3	2			83.33	236
3.0	0.30	3.0	2.90	9.0	65	15	6	2	74.53	301		
3.0	0.30	3.0	2.90	15.0	65	15	6	2	83.33	302		
3.0	0.30	3.0	2.90	24.0	100	15	6	2			90.37	303
3.0	0.30	3.0	2.90	30.0	100	15	6	2			93.98	304
4.0	0.40	4.0	3.90	12.0	65	15	6	2	83.33	401		
4.0	0.40	4.0	3.90	20.0	65	15	6	2	83.33	402		
4.0	0.40	4.0	3.90	32.0	100	15	6	2			93.98	403
4.0	0.40	4.0	3.90	40.0	100	15	6	2			97.11	404
5.0	0.50	5.0	4.90	15.0	65	15	6	2	83.33	501		
5.0	0.50	5.0	4.90	25.0	65	15	6	2	83.33	502		
5.0	0.50	5.0	4.90	40.0	100	15	6	2			97.11	503
5.0	0.50	5.0	4.90	50.0	100	15	6	2			100.11	504
6.0	0.60	6.0	5.90	18.0	65	15	6	2	83.33	601		
6.0	0.60	6.0	5.90	30.0	100	15	6	2			93.98	602
6.0	0.60	6.0	5.90	48.0	100	15	6	2			100.11	603
6.0	0.60	6.0	5.90	60.0	100	15	6	2			103.05	604

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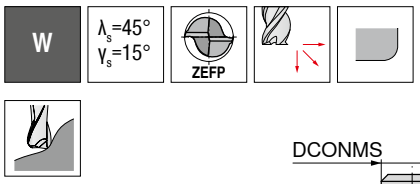
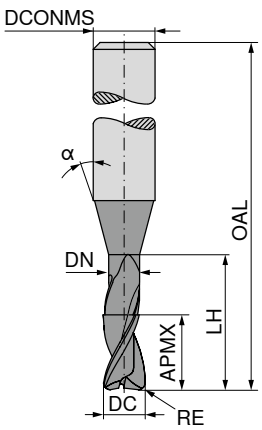
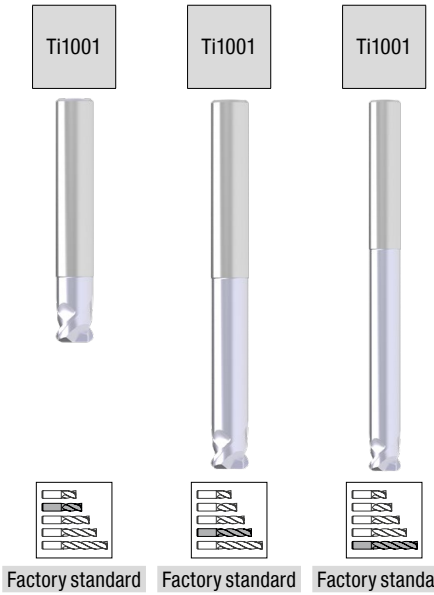
→ v_c/f_z Page 460–466

Torus Cutter







Factory standard | Factory standard | Factory standard

HA | HA | HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 902 ... £ V0		50 902 ... £ V0		50 902 ... £ V0	
2	0.3	2	1.8	12	50	45	6	2	75.26	020				
2	0.5	2	1.8	12	50	45	6	2	75.26	023				
2	0.3	2	1.8	22	60	45	6	2			75.26	021		
2	0.5	2	1.8	22	60	45	6	2			75.26	024		
2	0.3	2	1.8	47	85	45	6	2					109.38	022
2	0.5	2	1.8	47	85	45	6	2					109.38	025
3	0.3	2	2.8	12	50	45	6	2	75.26	030				
3	0.5	2	2.8	12	50	45	6	2	75.26	033				
3	0.3	2	2.8	22	60	45	6	2			75.26	031		
3	0.5	2	2.8	22	60	45	6	2			75.26	034		
3	0.3	2	2.8	47	85	45	6	2					109.38	032
3	0.5	2	2.8	47	85	45	6	2					109.38	035
4	0.3	3	3.8	16	54	45	6	2	75.26	040				
4	0.5	3	3.8	16	54	45	6	2	75.26	043				
4	1.0	3	3.8	16	54	45	6	2	75.26	046				
4	0.3	3	3.8	37	75	45	6	2			103.05	041		
4	0.5	3	3.8	37	75	45	6	2			103.05	044		
4	1.0	3	3.8	37	75	45	6	2			103.05	047		
4	0.3	3	3.8	47	85	45	6	2					109.38	042
4	0.5	3	3.8	47	85	45	6	2					109.38	045
4	1.0	3	3.8	47	85	45	6	2					109.38	048
5	0.5	3	4.6	16	54	45	6	2	75.26	050				
5	1.0	3	4.6	16	54	45	6	2	75.26	052				
5	1.5	3	4.6	16	54	45	6	2	75.26	054				
5	0.5	3	4.6	37	75	45	6	2			103.05	051		
5	1.0	2	4.6	37	75	45	6	2			103.05	053		
5	1.5	3	4.6	37	75	45	6	2			103.05	055		
6	0.5	4	5.6	16	54	45	6	2	75.26	060				
6	1.0	4	5.6	16	54	45	6	2	75.26	063				
6	2.0	4	5.6	16	54	45	6	2	75.26	066				
6	0.5	4	5.6	47	85	45	6	2			103.05	061		
6	1.0	4	5.6	47	85	45	6	2			103.05	064		
6	2.0	4	5.6	47	85	45	6	2			103.05	067		
6	0.5	4	5.6	47	85	45	8	2			141.69	069		
6	1.0	4	5.6	47	85	45	8	2			141.69	070		
6	2.0	4	5.6	47	85	45	8	2			141.69	071		
6	0.5	4	5.6	62	100	45	6	2					121.64	062
6	1.0	4	5.6	62	100	45	6	2					121.64	065
6	2.0	4	5.6	62	100	45	6	2					121.64	068
8	0.5	4	7.6	20	58	45	8	2	91.88	080				

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→ v_c/f_z Page 460–466

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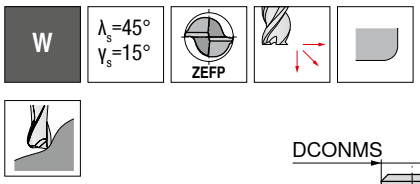
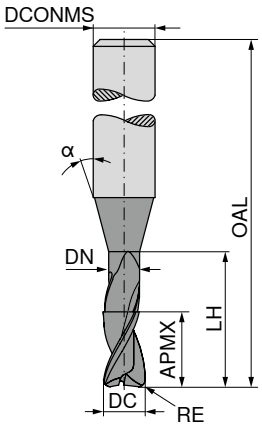
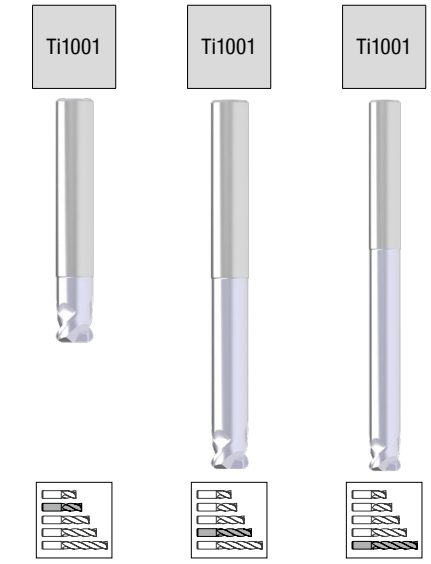
Torus Cutter







Factory standard | Factory standard | Factory standard

HA | HA | HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 902 ... £ V0		50 902 ... £ V0		50 902 ... £ V0	
8	1.0	4	7.6	20	58	45	8	2	91.88	082				
8	2.0	4	7.6	20	58	45	8	2	91.88	084				
8	0.5	4	7.6	62	100	45	8	2					142.32	081
8	1.0	4	7.6	62	100	45	8	2					142.32	083
8	2.0	4	7.6	62	100	45	8	2					142.32	085
8	2.0	4	7.6	62	100	45	10	2					196.76	086
10	1.0	6	9.6	18	66	45	10	2	112.28	100				
10	2.0	6	9.6	18	66	45	10	2	112.28	103				
10	3.0	6	9.6	18	66	45	10	2	112.28	106				
10	1.0	6	9.6	58	100	45	10	2			194.68	101		
10	2.0	6	9.6	58	100	45	10	2			194.68	104		
10	3.0	6	9.6	58	100	45	10	2			194.68	107		
10	1.0	6	9.6	78	120	45	10	2					233.73	102
10	2.0	6	9.6	78	120	45	10	2					233.73	105
10	3.0	6	9.6	78	120	45	10	2					233.73	108
10	1.0	6	9.6	78	120	45	12	2					300.46	109
10	2.0	6	9.6	78	120	45	12	2					300.46	110
10	3.0	6	9.6	78	120	45	12	2					300.46	111
12	1.0	8	11.5	26	73	45	12	2	166.54	120				
12	2.0	8	11.5	26	73	45	12	2	166.54	123				
12	3.0	8	11.5	26	73	45	12	2	166.54	126				
12	4.0	8	11.5	26	73	45	12	2	166.54	129				
12	1.0	8	11.5	53	100	45	12	2			250.33	121		
12	2.0	8	11.5	53	100	45	12	2			250.33	124		
12	3.0	8	11.5	53	100	45	12	2			250.33	127		
12	4.0	8	11.5	53	100	45	12	2			250.33	130		
12	1.0	8	11.5	73	120	45	12	2					300.46	122
12	2.0	8	11.5	73	120	45	12	2					300.46	125
12	3.0	8	11.5	73	120	45	12	2					300.46	128
12	4.0	8	11.5	73	120	45	12	2					300.46	131
12	1.0	8	11.5	103	150	45	16	2					609.85	132
12	2.0	8	11.5	103	150	45	16	2					609.85	133
12	3.0	8	11.5	103	150	45	16	2					609.85	134
12	4.0	8	11.5	103	150	45	16	2					609.85	135

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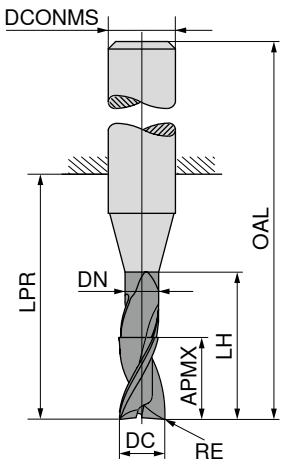
→ v_c/f_z Page 460–466

Torus Cutter













Factory standard

HA 

DC h10 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 765 ... £ V1	
2	0.3	8	1.8	31	32	60	2	2	211.56	**021**
3	0.5	12	2.8	41	42	70	3	2	224.73	**032**
4	0.5	15	3.8	51	52	80	4	2	275.31	**042**
5	0.5	20	4.8	71	72	100	5	2	319.31	**052**
6	0.8	20	5.8	63	64	100	6	2	351.92	**063**
8	1.0	20	7.8	83	84	120	8	2	462.95	**084**
10	1.0	25	9.8	99	100	140	10	2	592.04	**104**
12	1.5	25	11.8	104	105	150	12	2	782.82	**125**

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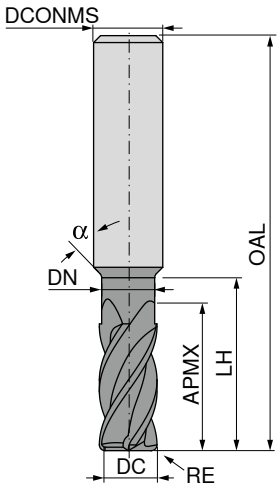
→ v_c/f_z Page 458

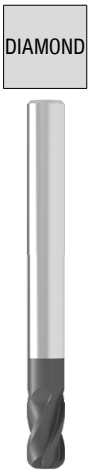
Torus Cutter















Factory standard

HA

Factory standard

HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 911 ... £ V0		50 911 ... £ V0	
4	0.5	8	3.8	12	54	45	6	4	150.21	040		
4	1.0	8	3.8	12	54	45	6	4	150.21	041		
4	0.5	10	3.8	37	75	45	6	4			180.31	042
4	1.0	10	3.8	37	75	45	6	4			180.31	043
5	0.5	9	4.8	16	54	45	6	4	150.21	050		
5	1.0	9	4.8	16	54	45	6	4	150.21	051		
5	1.5	9	4.8	16	54	45	6	4	150.21	052		
5	0.5	12	4.8	37	75	45	6	4			180.31	053
5	1.0	12	4.8	37	75	45	6	4			180.31	054
5	1.5	12	4.8	37	75	45	6	4			180.31	055
6	0.5	10	5.6	16	54	45	6	4	150.21	060		
6	1.0	10	5.6	16	54	45	6	4	150.21	061		
6	1.5	10	5.6	16	54	45	6	4	150.21	062		
6	2.0	10	5.6	16	54	45	6	4	150.21	063		
6	0.5	12	5.6	62	100	45	6	4			196.76	064
6	1.0	12	5.6	62	100	45	6	4			196.76	065
6	1.5	12	5.6	62	100	45	6	4			196.76	066
6	2.0	12	5.6	62	100	45	6	4			196.76	067
7	0.5	11	6.6	20	58	45	8	4	196.76	070		
7	1.0	11	6.6	20	58	45	8	4	196.76	071		
7	1.5	11	6.6	20	58	45	8	4	196.76	072		
7	2.0	11	6.6	20	58	45	8	4	196.76	073		
7	0.5	14	6.6	62	100	45	8	4			246.74	074
7	1.0	14	6.6	62	100	45	8	4			246.74	075
7	1.5	14	6.6	62	100	45	8	4			246.74	076
7	2.0	14	6.6	62	100	45	8	4			246.74	077
8	0.5	12	7.6	20	58	45	8	4	196.76	080		
8	1.0	12	7.6	20	58	45	8	4	196.76	081		
8	1.5	12	7.6	20	58	45	8	4	196.76	086		
8	2.0	12	7.6	20	58	45	8	4	196.76	083		
8	0.5	14	7.6	62	100	45	8	4			246.74	084
8	1.0	14	7.6	62	100	45	8	4			246.74	085
8	1.5	14	7.6	62	100	45	8	4			246.74	082
8	2.0	14	7.6	62	100	45	8	4			246.74	087
10	0.5	14	9.6	24	66	45	10	4	248.52	100		
10	1.0	14	9.6	24	66	45	10	4	248.52	101		
10	1.5	14	9.6	24	66	45	10	4	248.52	107		
10	2.0	14	9.6	24	66	45	10	4	248.52	103		
10	3.0	14	9.6	24	66	45	10	4	248.52	104		
10	0.5	18	9.6	58	100	45	10	4			326.19	105
10	1.0	18	9.6	58	100	45	10	4			326.19	106

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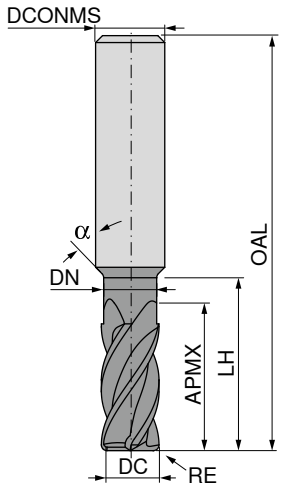
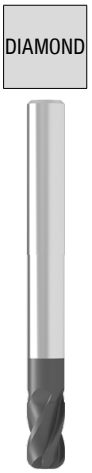
Torus Cutter















Factory standard

HA

Factory standard

HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 911 ... £ V0		50 911 ... £ V0	
10	1.5	18	9.6	58	100	45	10	4			326.19	**102**
10	2.0	18	9.6	58	100	45	10	4			326.19	**108**
10	3.0	18	9.6	58	100	45	10	4			326.19	**109**
12	0.5	16	11.5	26	73	45	12	4	329.95	**120**		
12	1.0	16	11.5	26	73	45	12	4	329.95	**121**		
12	1.5	16	11.5	26	73	45	12	4	329.95	**127**		
12	2.0	16	11.5	26	73	45	12	4	329.95	**123**		
12	4.0	16	11.5	26	73	45	12	4	329.95	**124**		
12	0.5	22	11.5	53	100	45	12	4			413.41	**125**
12	1.0	22	11.5	53	100	45	12	4			413.41	**126**
12	1.5	22	11.5	53	100	45	12	4			413.41	**122**
12	2.0	22	11.5	53	100	45	12	4			413.41	**128**
12	4.0	22	11.5	53	100	45	12	4			413.41	**129**

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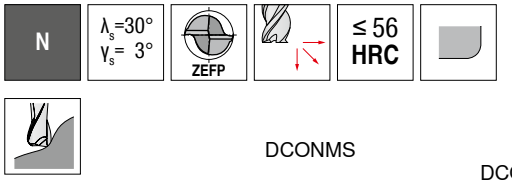
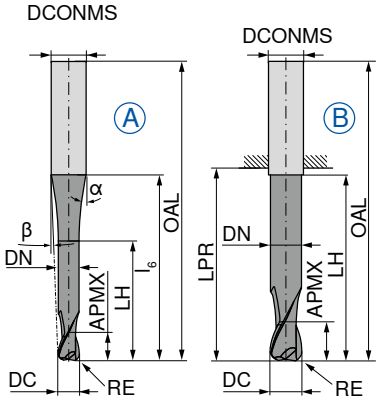
→ v_c/f_z Page 458

Torus Cutter

▲ Radius accuracy: ± 0,005 mm
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °







Factory standard | Factory standard

HA | HA

DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 730 ... £ V1		52 734 ... £ V1	
0.5	0.10	1.0	0.45	2.0	20	57	10	8,5	6	2	A	215.94	005		
1.0	0.25	2.0	0.95	4.0	20	57	10	8	6	2	A	172.83	010		
1.0	0.25	2.0	0.95	4.0	40	80	4,5	4	6	2	A			164.75	010
1.5	0.30	2.5	1.40	7.5	20	57	12,5	7	6	2	A	164.75	015		
1.5	0.30	2.5	1.40	7.5	40	80	4,5	3,5	6	2	A			155.78	015
2.0	0.50	3.0	1.80	8.0	20	57	12	6,5	6	2	A	146.34	020		
2.0	0.50	3.0	1.80	8.0	40	80	4	3	6	2	A			136.32	020
3.0	0.50	3.5	2.80	10.0	20	57	11,5	5	6	2	A	139.61	030		
3.0	0.50	3.5	2.80	12.0	40	80	3,5	2,5	6	2	A			129.29	030
4.0	0.50	4.0	3.80	12.0	20	57	11	3,5	6	2	A	128.55	041		
4.0	0.50	4.0	3.80	20.0	40	80	4	1,5	6	2	A			152.78	041
4.0	1.00	4.0	3.80	12.0	20	57	11	3,5	6	2	A	131.07	040		
4.0	1.00	4.0	3.80	20.0	40	80	4	1,5	6	2	A			145.30	040
5.0	1.00	5.0	4.70	14.0	20	57	10	2	6	2	A	126.15	051		
5.0	1.00	5.0	4.70	25.0	40	80	3	1	6	2	A			150.21	051
5.0	1.50	5.0	4.70	14.0	20	57	10	2	6	2	A	160.04	050		
5.0	1.50	5.0	4.70	25.0	40	80	3	1	6	2	A			162.05	050
6.0	1.00	6.0	5.60	20.0		57			6	2	B	117.61	961		
6.0	1.00	6.0	5.60	40.0		80			6	2	B			143.04	961
6.0	2.00	6.0	5.60	20.0		57			6	2	B	164.61	060		
6.0	2.00	6.0	5.60	40.0		80			6	2	B			156.89	060
6.0	2.00	6.0	5.60	25.0	60	100	2	1	8	2	A			178.34	061
8.0	1.00	7.0	7.60	25.0		63			8	2	B	162.49	082		
8.0	1.00	7.0	7.60	60.0		100			8	2	B			189.13	082
8.0	2.00	7.0	7.60	25.0		63			8	2	B	177.43	080		
8.0	2.00	7.0	7.60	60.0		100			8	2	B			181.81	080
8.0	2.00	7.0	7.60	30.0	75	120	2	1	10	2	A			239.99	081
8.0	2.50	7.0	7.60	60.0		100			8	2	B			193.78	083
10.0	1.50	8.0	9.60	30.0		72			10	2	B	240.30	102		
10.0	1.50	8.0	9.60	75.0		120			10	2	B			259.62	102
10.0	2.50	8.0	9.60	75.0		120			10	2	B			266.02	104
10.0	3.00	8.0	9.60	30.0		72			10	2	B	203.49	100		
10.0	3.00	8.0	9.60	50.0		100			10	2	B			244.95	103
10.0	3.00	8.0	9.60	75.0		120			10	2	B			246.87	100
10.0	3.00	8.0	9.60	40.0	110	160	1	0,5	12	2	A			377.04	101
12.0	1.50	10.0	11.50	35.0		83			12	2	B	293.25	122		
12.0	1.50	10.0	11.50	70.0		160			12	2	B			379.74	122
12.0	4.00	10.0	11.50	35.0		83			12	2	B	291.76	120		
12.0	4.00	10.0	11.50	35.0	40	92	37	3,5	16	2	A	374.96	121		
12.0	4.00	10.0	11.50	70.0		160			12	2	B			338.02	120
12.0	4.00	10.0	11.50	50.0	150	200	1,5	1	16	2	A			625.13	121
16.0	5.00	12.0	15.50	40.0		92			16	2	B	369.42	160		
16.0	5.00	12.0	15.50	80.0		200			16	2	B			612.71	160
P												●		●	
M												○		○	
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H												○		○	
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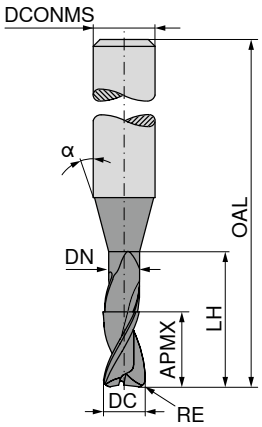
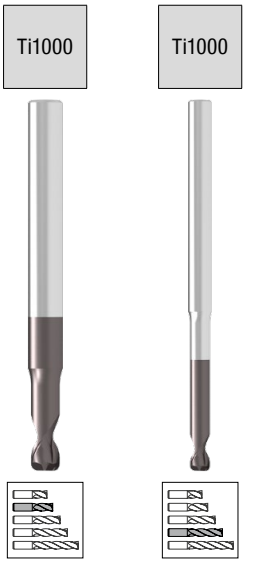
→ v_c/f_z Page 460–466

Torus Cutter

H | λ_s=30° γ_s= 3° | ZEFP | ≤ 54 HRC





Factory standard | Factory standard

HA | HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 649 ... £ V0		50 649 ... £ V0	
0.2	0.02	0.2	0.18	0.6	55	15	6	2	86.18	921		
0.2	0.02	0.2	0.18	1.0	55	15	6	2	86.95	022		
0.2	0.02	0.2	0.18	1.6	55	15	6	2	87.84	023		
0.2	0.02	0.2	0.18	2.0	55	15	6	2	88.88	024		
0.3	0.03	0.3	0.28	0.9	55	15	6	2	86.18	031		
0.3	0.03	0.3	0.28	1.5	55	15	6	2	86.95	032		
0.3	0.03	0.3	0.28	2.4	55	15	6	2	87.84	033		
0.3	0.03	0.3	0.28	3.0	55	15	6	2	88.88	034		
0.4	0.04	0.4	0.37	1.2	55	15	6	2	86.18	041		
0.4	0.04	0.4	0.37	2.0	55	15	6	2	86.95	042		
0.4	0.04	0.4	0.37	3.2	55	15	6	2	87.84	043		
0.4	0.04	0.4	0.45	4.0	55	15	6	2	88.88	044		
0.5	0.05	0.5	0.45	1.5	55	15	6	2	83.96	051		
0.5	0.05	0.5	0.45	2.5	55	15	6	2	84.85	052		
0.5	0.05	0.5	0.45	4.0	55	15	6	2	86.18	053		
0.5	0.05	0.5	0.45	5.0	55	15	6	2	86.95	054		
0.6	0.06	0.6	0.58	2.0	55	15	6	2	70.76	061		
0.6	0.06	0.6	0.58	3.0	55	15	6	2	63.84	960		
0.6	0.06	0.6	0.58	5.0	65	15	6	2			76.78	063
0.6	0.06	0.6	0.58	6.0	65	15	6	2	73.69	961		
0.8	0.08	0.8	0.77	2.5	55	15	6	2	70.49	081		
0.8	0.08	0.8	0.77	4.0	55	15	6	2	63.84	980		
0.8	0.08	0.8	0.77	6.5	65	15	6	2			78.41	083
0.8	0.08	0.8	0.77	8.0	65	15	6	2	73.69	981		
1.0	0.10	1.0	0.95	3.0	55	15	6	2	70.49	101		
1.0	0.10	1.0	0.95	5.0	55	15	6	2	63.84	010		
1.0	0.10	1.0	0.95	8.0	65	15	6	2			74.53	103
1.0	0.10	1.0	0.95	10.0	65	15	6	2			73.69	011
1.0	0.10	1.0	0.95	12.0	65	15	6	2			83.33	105
1.2	0.12	1.2	1.15	3.0	55	15	6	2	70.49	121		
1.2	0.12	1.2	1.15	6.0	55	15	6	2	63.84	012		
1.2	0.12	1.2	1.15	10.0	65	15	6	2	78.41	123		
1.2	0.12	1.2	1.15	12.0	65	15	6	2			73.69	013
1.3	0.13	1.3	1.25	4.0	55	15	6	2	70.49	131		
1.3	0.13	1.3	1.25	7.0	55	15	6	2	70.76	132		
1.3	0.13	1.3	1.25	11.0	65	15	6	2			78.41	133
1.3	0.13	1.3	1.25	13.0	65	15	6	2			83.33	134
1.5	0.15	1.5	1.44	5.0	55	15	6	2	70.76	151		
1.5	0.15	1.5	1.44	7.5	55	15	6	2	63.84	015		
1.5	0.15	1.5	1.44	12.0	65	15	6	2			83.33	153

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S	○	○
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O	○	○

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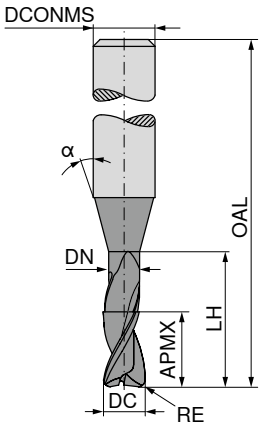
Torus Cutter

H | λ_s=30° γ_s= 3° | ZEFP | ≤ 54 HRC











Factory standard | Factory standard

HA | HA

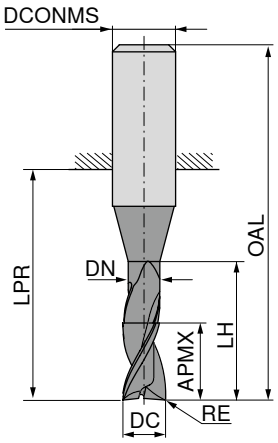
DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 649 ... £ V0		50 649 ... £ V0	
1.5	0.15	1.5	1.44	15.0	65	15	6	2			73.69	016
1.6	0.16	1.6	1.52	5.0	55	15	6	2	70.76	161		
1.6	0.16	1.6	1.52	8.0	55	15	6	2	70.76	162		
1.6	0.16	1.6	1.52	13.0	65	15	6	2			78.41	163
1.6	0.16	1.6	1.52	16.0	65	15	6	2			83.33	164
1.8	0.18	1.8	1.72	5.5	55	15	6	2	70.49	181		
1.8	0.18	1.8	1.72	9.0	55	15	6	2	70.76	182		
1.8	0.18	1.8	1.72	14.5	65	15	6	2			78.41	183
1.8	0.18	1.8	1.72	18.0	65	15	6	2			83.33	184
2.0	0.20	2.0	1.92	6.0	55	15	6	2	70.49	201		
2.0	0.20	2.0	1.92	10.0	55	15	6	2	70.76	202		
2.0	0.20	2.0	1.92	14.0	55	15	6	2	63.84	020		
2.0	0.20	2.0	1.92	16.0	65	15	6	2			83.33	204
2.0	0.20	2.0	1.92	20.0	65	15	6	2			73.69	021
2.3	0.23	2.3	2.22	7.0	55	15	6	2	70.76	231		
2.3	0.23	2.3	2.22	11.5	55	15	6	2	74.53	232		
2.3	0.23	2.3	2.22	18.5	65	15	6	2			83.33	233
2.3	0.23	2.3	2.22	23.0	65	15	6	2			83.33	234
3.0	0.30	3.0	2.90	9.0	65	15	6	2	74.53	301		
3.0	0.30	3.0	2.90	15.0	65	15	6	2	83.33	302		
3.0	0.30	3.0	2.90	24.0	100	15	6	2			90.37	303
3.0	0.30	3.0	2.90	30.0	100	15	6	2			93.98	304
4.0	0.40	4.0	3.90	12.0	65	15	6	2	83.33	401		
4.0	0.40	4.0	3.90	20.0	65	15	6	2	83.33	402		
4.0	0.40	4.0	3.90	32.0	100	15	6	2			93.98	403
4.0	0.40	4.0	3.90	40.0	100	15	6	2			97.11	404
5.0	0.50	5.0	4.90	15.0	65	15	6	2	83.33	501		
5.0	0.50	5.0	4.90	25.0	65	15	6	2	83.33	502		
5.0	0.50	5.0	4.90	40.0	100	15	6	2			97.11	503
5.0	0.50	5.0	4.90	50.0	100	15	6	2			100.11	504
6.0	0.60	6.0	5.90	18.0	65	15	6	2	83.33	601		
6.0	0.60	6.0	5.90	30.0	100	15	6	2			93.98	602
6.0	0.60	6.0	5.90	48.0	100	15	6	2			100.11	603
6.0	0.60	6.0	5.90	60.0	100	15	6	2			103.05	604

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

→ v_c/f_z Page 460–466

Torus Cutter

H | λ_s=30° γ_s= 3° | ZEFP | ≤ 68 HRC





Factory standard | Factory standard | Factory standard

HA | HA | HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 651 ... £ V0		50 651 ... £ V0		50 651 ... £ V0	
2	0.3	2	1.8	7	14	50	6	2	55.07	020				
2	0.5	2	1.8	7	14	50	6	2	55.07	021				
2	0.3	2	1.8	7	24	60	6	2			55.07	022		
2	0.5	2	1.8	7	24	60	6	2			55.07	023		
2	0.3	2	1.8	7	49	85	6	2					79.91	024
2	0.5	2	1.8	7	49	85	6	2					79.91	025
3	0.3	2	2.8	7	14	50	6	2	55.07	030				
3	0.5	2	2.8	7	14	50	6	2	55.07	031				
3	0.3	2	2.8	12	24	60	6	2			55.07	032		
3	0.5	2	2.8	12	24	60	6	2			55.07	033		
3	0.3	2	2.8	12	49	85	6	2					79.91	034
3	0.5	2	2.8	12	49	85	6	2					79.91	035
4	0.3	3	3.8	13	18	54	6	2	55.07	040				
4	0.5	3	3.8	13	18	54	6	2	55.07	041				
4	1.0	3	3.8	13	18	54	6	2	55.07	042				
4	0.3	3	3.8	20	39	75	6	2			76.78	043		
4	0.5	3	3.8	20	39	75	6	2			76.78	044		
4	1.0	3	3.8	20	39	75	6	2			76.78	045		
4	0.3	3	3.8	20	49	85	6	2					79.91	046
4	0.5	3	3.8	20	49	85	6	2					79.91	047
4	1.0	3	3.8	20	49	85	6	2					79.91	048
5	0.5	3	4.6	13	18	54	6	2	55.07	050				
5	1.0	3	4.6	13	18	54	6	2	55.07	051				
5	1.5	3	4.6	13	18	54	6	2	55.07	052				
5	1.0	3	4.6	20	39	75	6	2			76.78	053		
5	1.5	3	4.6	20	39	75	6	2			76.78	054		
6	0.5	4	5.6	14	18	54	6	2	55.07	060				
6	1.0	4	5.6	14	18	54	6	2	55.07	061				
6	2.0	4	5.6	14	18	54	6	2	55.07	062				
6	0.5	4	5.6	45	49	85	6	2			76.78	066		
6	1.0	4	5.6	45	49	85	6	2			103.10	067		
6	2.0	4	5.6	45	49	85	6	2			76.78	068		
6	0.5	4	5.6	25	64	100	6	2					88.88	069
6	1.0	4	5.6	25	64	100	6	2					88.88	070
6	2.0	4	5.6	25	64	100	6	2					88.88	071
6	0.5	4	5.6	25	49	85	8	2			103.10	063		
6	1.0	4	5.6	25	49	85	8	2			76.78	064		
6	2.0	4	5.6	25	49	85	8	2			103.10	065		
8	0.5	4	7.6	16	22	58	8	2	67.03	080				
8	1.0	4	7.6	16	22	58	8	2	67.03	081				

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

→ v_c/f_z Page 460–466

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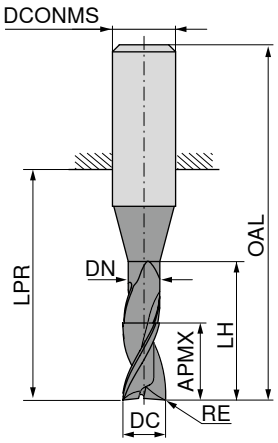
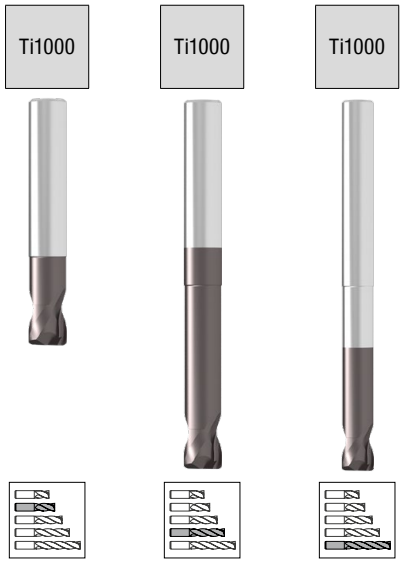
Continued on next page

Torus Cutter

H | λ_s=30° γ_s= 3° | ZEFP | ≤ 68 HRC





Factory standard | Factory standard | Factory standard

HA | HA | HA

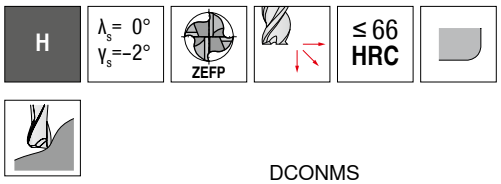
DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 651 ... £ V0		50 651 ... £ V0		50 651 ... £ V0	
8	2.0	4	7.6	16	22	58	8	2	67.03	082				
8	0.5	4	7.6	50	64	100	8	2					143.04	083
8	2.0	4	7.6	50	64	100	8	2					102.04	084
8	1.0	4	7.6	30	60	100	10	2					143.04	085
8	2.0	4	7.6	30	60	100	10	2					140.23	086
10	1.0	6	9.6	18	26	66	10	2	83.19	100				
10	3.0	6	9.6	18	26	66	10	2	83.19	101				
10	1.0	6	9.6	50	60	100	10	2			141.10	102		
10	2.0	6	9.6	50	60	100	10	2			83.19	103		
10	3.0	6	9.6	50	60	100	10	2			141.10	104		
10	1.0	6	9.6	60	80	120	10	2					169.38	105
10	2.0	6	9.6	60	80	120	10	2					141.10	106
10	3.0	6	9.6	60	80	120	10	2					169.38	107
10	1.0	6	9.6	30	75	120	12	2					218.31	108
10	2.0	6	9.6	30	75	120	12	2					218.31	109
10	3.0	6	9.6	30	75	120	12	2					218.31	110
12	1.0	8	11.5	18	28	73	12	2	121.64	120				
12	2.0	8	11.5	18	28	73	12	2	121.64	121				
12	3.0	8	11.5	18	28	73	12	2	121.64	122				
12	4.0	8	11.5	18	28	73	12	2	121.64	123				
12	1.0	8	11.5	45	55	100	12	2			181.94	124		
12	2.0	8	11.5	45	55	100	12	2			181.94	125		
12	3.0	8	11.5	45	55	100	12	2			181.94	126		
12	4.0	8	11.5	45	55	100	12	2			181.94	127		
12	1.0	8	11.5	70	75	120	12	2					218.46	128
12	2.0	8	11.5	70	75	120	12	2					218.46	129
12	3.0	8	11.5	70	75	120	12	2					218.46	130
12	4.0	8	11.5	70	75	120	12	2					218.46	131
12	1.0	8	11.5	35	102	150	16	2					444.54	132
12	2.0	8	11.5	35	102	150	16	2					444.54	133
12	3.0	8	11.5	35	102	150	16	2					444.54	134
12	4.0	8	11.5	35	102	150	16	2					444.54	135

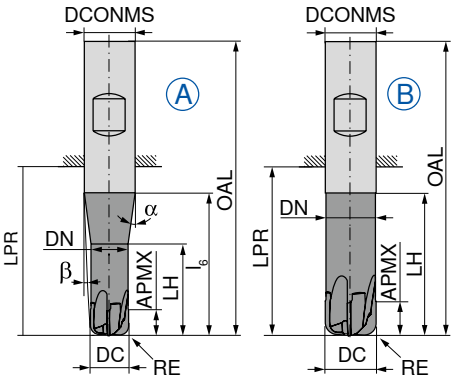
P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H	○	○	○
O	○	○	○

→ v_c/f_z Page 460–466

Torus Cutter

- Radius accuracy: ± 0,005 mm
- High-performance tool for clearing
- for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °





LPR with Shank DIN 6535 HB



Factory standard | Factory standard | Factory standard

HA | HB | HA

DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 732 ... £ V1		52 733 ... £ V1		52 732 ... £ V1	
3	0.75	2.0	2.8	10	20	21	57	11,5	5	6	4	A	140.23	033	140.23	033		
4	1.00	2.5	3.8	12	20	21	57	11	3,5	6	4	A	140.23	044	140.23	044		
5	1.25	3.0	4.7	14	20	21	57	10	2	6	4	A	144.25	055	144.25	055		
6	1.50	4.0	5.6	20		21	57			6	4	B	146.18	065	146.18	065		
6	1.50	4.0	5.6	30		44	80			6	4	B					145.13	066
8	1.00	5.0	7.6	25		27	63			8	4	B	206.78	084				
8	1.00	5.0	7.6	35		44	80			8	4	B					196.91	085
8	2.00	5.0	7.6	25		27	63			8	4	B	201.99	086	201.99	086		
8	2.00	5.0	7.6	35		44	80			8	4	B					196.91	087
10	1.00	6.0	9.6	30		32	72			10	4	B	236.26	104				
10	1.00	6.0	9.6	30		32	72			10	6	B	248.69	105				
10	1.00	6.0	9.6	45		60	100			10	4	B					248.69	106
10	1.00	6.0	9.6	45		60	100			10	6	B					281.60	110
10	2.50	6.0	9.6	30		32	72			10	4	B	230.73	107	230.73	107		
10	2.50	6.0	9.6	30		32	72			10	6	B	248.69	108				
10	2.50	6.0	9.6	45		60	100			10	4	B					250.47	109
10	2.50	6.0	9.6	45		60	100			10	6	B					281.60	111
12	1.00	7.0	11.5	35		38	83			12	4	B	303.73	124				
12	1.00	7.0	11.5	35		38	83			12	8	B	350.58	125				
12	1.00	7.0	11.5	50		55	100			12	4	B					316.16	130
12	1.00	7.0	11.5	50		55	100			12	8	B					392.18	132
12	3.00	7.0	11.5	35		38	83			12	4	B	296.55	128	296.55	128		
12	3.00	7.0	11.5	35		38	83			12	8	B	350.58	129				
12	3.00	7.0	11.5	50		55	100			12	4	B					316.16	131
12	3.00	7.0	11.5	50		55	100			12	8	B					392.18	133
16	4.00	8.0	15.5	40		44	92			16	4	B	444.97	169	444.97	169		
16	4.00	8.0	15.5	60		72	120			16	4	B					459.35	170
16	4.00	8.0	15.5	60		72	120			16	8	B					549.26	171

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

→ v_c/f_z Page 460–466

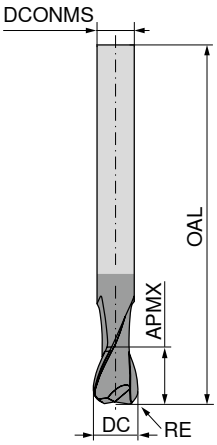
14

Intermediate Size Torus Cutter

▲ Reduced shank Ø for flexible application in various overhang lengths!

H | λ_s=45° γ_s=12° | ZEFP | ≤ 56 HRC | Ti1000









Factory standard

HA

52 107 ...

DC e8 mm	RE ±0,01 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
7	0.5	9	120	6	4	165.33	**075**
7	1.0	9	120	6	4	165.33	**076**
7	1.5	9	120	6	4	165.33	**077**
9	0.5	12	135	8	4	214.42	**095**
9	1.0	12	135	8	4	214.42	**096**
9	1.5	12	135	8	4	214.42	**097**
11	1.0	15	150	10	4	278.75	**115**
11	1.5	15	150	10	4	278.75	**116**
11	2.0	15	150	10	4	278.75	**117**
13	1.0	18	160	12	4	355.50	**135**
13	1.5	18	160	12	4	355.50	**136**
13	2.0	18	160	12	4	355.50	**137**
15	1.0	21	160	14	4	403.23	**156**
15	1.5	21	160	14	4	403.23	**157**
15	2.0	21	160	14	4	403.23	**158**
17	1.0	24	180	16	4	485.23	**176**
17	1.5	24	180	16	4	485.23	**177**
17	2.0	24	180	16	4	485.23	**178**
17	3.0	24	180	16	4	485.23	**179**

P	○
M	●
K	○
N	●
S	●
H	
O	●

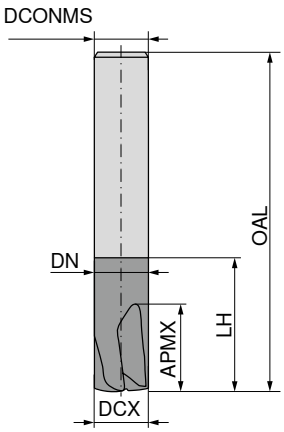
→ v_c/f_z Page 460–466

High Feed Cutter

- ▲ APMX does not correspond to the maximum cutting depth
- ▲ For feed per tooth (f_z) up to 1 mm
- ▲ Roughing in large depths
- ▲ Extremely quiet running
- ▲ r_{3D} = corner radius to be programmed













Factory standard

HA

56 900 ...

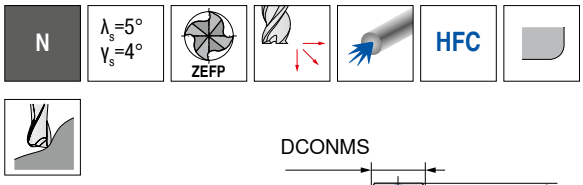
DCX h6 mm	r_{3D} mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
6	0.50	6	5.8	21	57	6	4	129.87	**060**
8	0.70	8	7.8	27	63	8	4	185.39	**080**
10	0.85	10	9.8	32	72	10	4	203.94	**100**
12	1.00	12	11.8	38	83	12	4	241.05	**120**
16	1.40	16	15.8	50	92	16	4	370.62	**160**

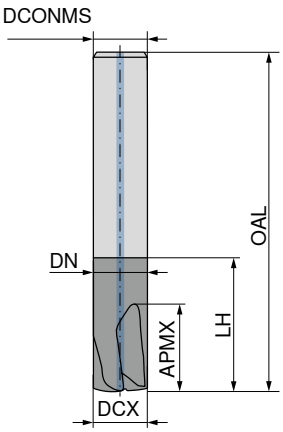
P	●
M	○
K	○
N	○
S	○
H	●
O	

→ v_c/f_z Page 456+457

High Feed Cutter

- ▲ APMX does not correspond to the maximum cutting depth
- ▲ For feed per tooth (f_z) up to 1 mm
- ▲ Roughing in large depths
- ▲ Extremely quiet running
- ▲ r_{3D} = corner radius to be programmed

















Factory standard

HA

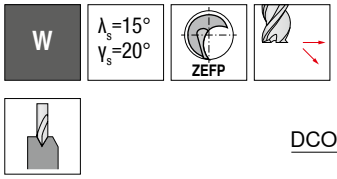
Factory standard

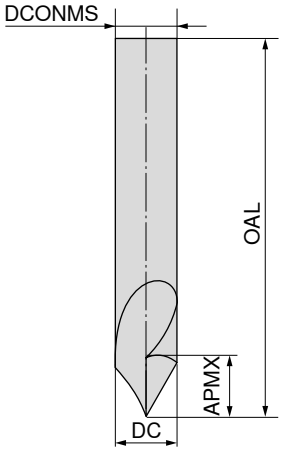
HA

DCX h6 mm	r_{3D} mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	56 902 ... £ V1		56 904 ... £ V1	
6	0.50	6	5.8	21	57	6	4	166.98	**060**		
6	0.50	6	5.8	64	100	6	4			207.35	**060**
8	0.70	8	7.8	27	63	8	4	229.41	**080**		
8	0.70	8	7.8	64	100	8	4			263.33	**080**
10	0.85	10	9.8	32	72	10	4	294.83	**100**		
10	0.85	10	9.8	60	100	10	4			324.03	**100**
12	1.00	12	11.8	38	83	12	4	373.64	**120**		
12	1.00	12	11.8	65	110	12	4			423.22	**120**
16	1.40	16	15.8	50	92	16	4	692.67	**160**		
16	1.40	16	15.8	65	150	16	4			739.12	**160**
P									●		●
M									○		○
K									○		○
N									○		○
S									○		○
H									●		●
O											

→ v_c/f_z Page 456+457

Engraving cutter 60°







Factory standard

HA 

52 195 ...

DC h6 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
3	15	50	3	1	53.40	**030**
4	18	50	4	1	56.07	**040**
6	20	54	6	1	61.05	**060**

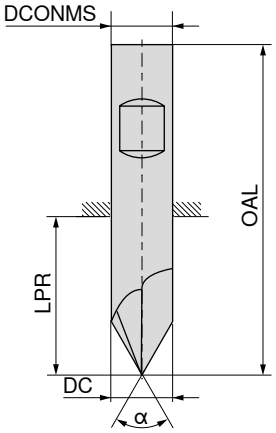
P	○
M	○
K	○
N	●
S	○
H	
O	●

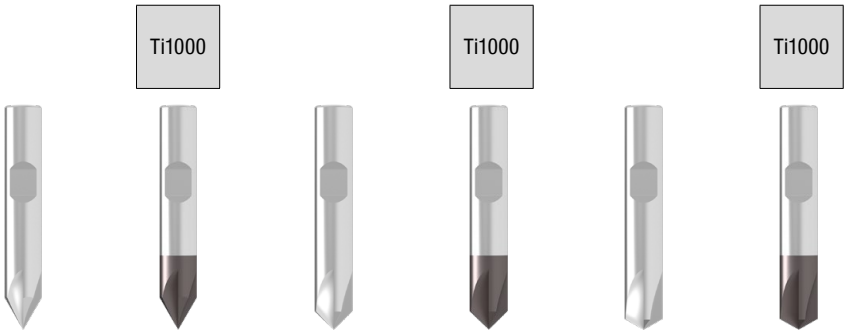
→ v_c/f_z Page 460–463

14

NC deburring cutter

N | λ_s=0° γ_s=0°





DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	α = 60° Factory standard HB 52 150 ... £ V1		α = 60° Factory standard HB 52 153 ... £ V1		α = 90° Factory standard HB 52 151 ... £ V1		α = 90° Factory standard HB 52 154 ... £ V1		α = 120° Factory standard HB 52 152 ... £ V1		α = 120° Factory standard HB 52 155 ... £ V1	
4	50	22	4	4	36.21	040 1)	46.61	040 1)	36.21	040 1)	46.61	040 1)	34.93	040 1)	46.61	040 1)
6	54	18	6	4	46.46	060 2)	62.29	060	46.46	060 2)	62.29	060	46.46	060 2)	62.29	060
8	59	23	8	4	57.94	080 2)	76.10	080	55.15	080 2)	76.10	080	55.15	080 2)	76.10	080
10	60	20	10	4	69.73	100 2)	92.48	100	67.70	100 2)	92.48	100	67.70	100 2)	92.48	100
12	70	25	12	4	95.20	120 2)	125.97	120	95.20	120 2)	125.97	120	95.20	120 2)	125.97	120
P					●		●		●		●		●		●	
M					○		○		○		○		○		○	
K					●		●		●		●		●		●	
N					○		○		○		○		○		○	
S					○		○		○		○		○		○	
H							○				○				○	
O					●		●		●		●		●		●	

1) DIN 6535 HA Shank
2) Included in the set

→ v_c/f_z Page 460–463

Solid carbide NC deburring cutter set, factory standard

▲ Sets contain Ø 6, Ø 8, Ø 10 and Ø 12 mm

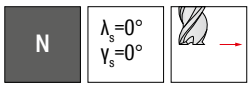


	α = 60° HB 52 150 ... £ V1		α = 90° HB 52 151 ... £ V1		α = 120° HB 52 152 ... £ V1	
Set	276.78	999	276.78	999	276.78	999

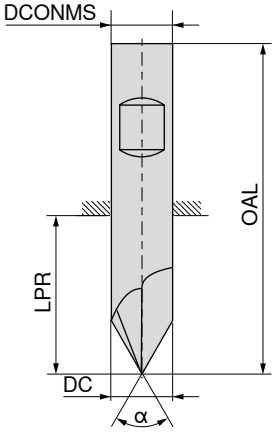
NC deburring cutter

N

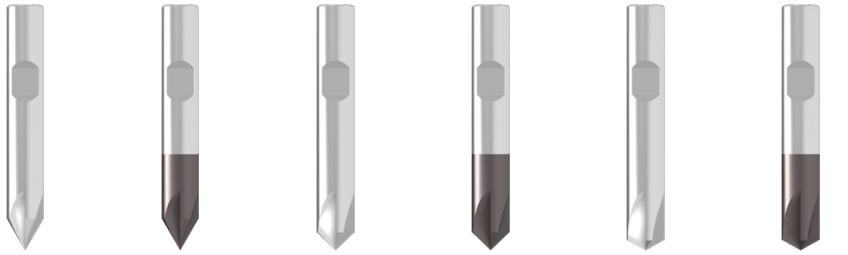
λ_s=0°
γ_s=0°







Ti1000 Ti1000 Ti1000



	α = 60°	α = 60°	α = 90°	α = 90°	α = 120°	α = 120°
	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
	HB	HB	HB	HB	HB	HB
	50 940 ...	50 943 ...	50 941 ...	50 944 ...	50 942 ...	50 945 ...
	£ V0	£ V0	£ V0	£ V0	£ V0	£ V0

DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP												
4	54	26	4	4	27.30	040 1)	37.12	040 1)	27.30	040 1)	37.12	040 1)	27.30	040 1)	37.12	040 1)
6	54	18	6	4	35.07	060	49.54	060	35.07	060	49.54	060	35.07	060	49.54	060
8	58	22	8	4	42.35	080	60.30	080	42.35	080	60.30	080	42.35	080	60.30	080
10	66	26	10	4	52.08	100	73.30	100	52.08	100	73.30	100	52.08	100	73.30	100
12	73	28	12	4	73.05	120	99.96	120	73.05	120	99.96	120	73.05	120	99.96	120

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

1) DIN 6535 HA Shank

→ v_c/f_z Page 460–463

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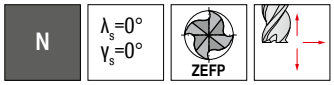
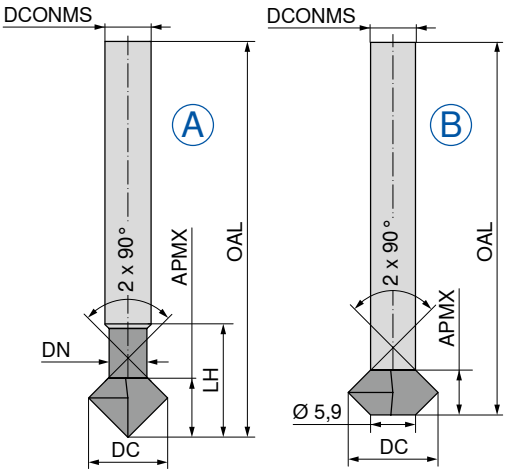
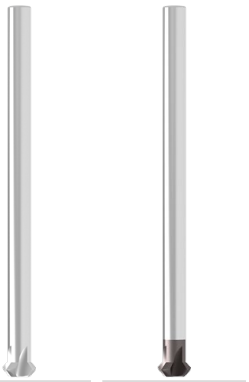
NC front and rear chamfer milling cutter







Ti1000



Factory standard | Factory standard

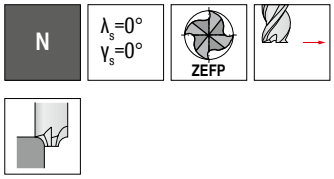
HA | HA

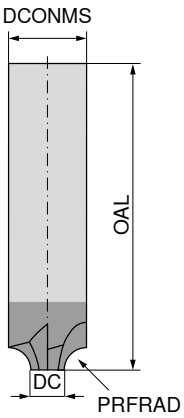
DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	Fig.	52 158 ... £ V1		52 159 ... £ V1	
3	2.0	2.2	12.0	75	4	4	A	87.70	**030**	99.66	**030**
4	2.7	2.9	17.7	75	4	4	A	87.70	**040**	99.10	**040**
5	3.0	3.9	18.0	75	5	4	A	89.93	**050**	102.95	**050**
6	4.0	3.9	19.0	100	6	4	A	93.38	**060**	103.05	**060**
8	2.0			100	6	4	B	121.35	**080**	136.47	**080**
10	4.0			100	6	4	B	151.60	**100**	168.48	**100**
12	6.0			100	6	4	B	181.81	**120**	200.81	**120**

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

→ v_c/f_z Page 460–463

Quarter-round profile milling cutter, concave







Factory standard

HA

52 249 ...

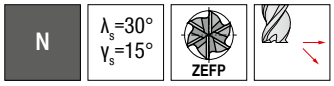
PRFRAD +/-0,02 mm	DC mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
0.50	7.0	70	8	4	162.95	**005**
1.00	6.0	70	8	4	162.78	**010**
1.25	7.5	75	10	4	166.01	**012**
1.50	7.0	75	10	4	173.27	**015**
2.00	6.0	75	10	4	173.27	**020**
2.50	7.0	73	12	4	194.51	**025**
3.00	6.0	73	12	4	194.51	**030**
3.50	9.0	80	16	4	244.95	**035**
4.00	8.0	80	16	4	244.95	**040**
4.50	7.0	80	16	4	244.95	**045**
5.00	10.0	80	20	4	347.73	**050**
6.00	8.0	80	20	4	347.73	**060**

P	●
M	○
K	●
N	○
S	○
H	○
O	●

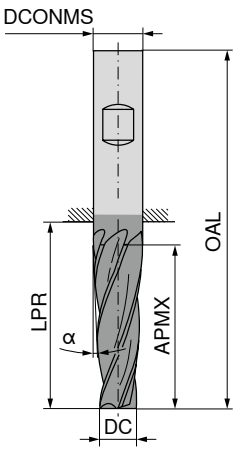
→ v_c/f_z Page 460–463

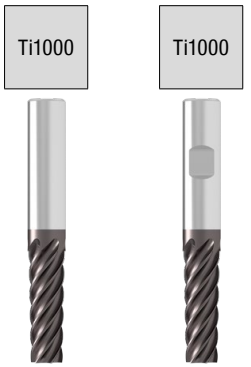
14

Die milling cutter









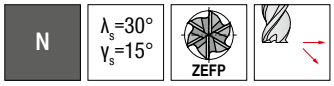
DC ±0,1 mm	α°	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA 52 291 ... £ V1		Factory standard HB 52 291 ... £ V1	
2.0	0,5	10	22	50	3	4	98.45	000		
2.5	0,5	10	22	50	3	4	94.88	001		
2.5	0,5	20	32	60	4	4	125.10	002		
3.0	0,5	20	32	60	4	4	128.24	003		
4.0	0,5	20	32	60	5	4	131.67	004		
5.0	0,5	30	34	75	6	6			147.55	005
6.0	0,5	30	35	75	8	6			149.93	006
8.0	0,5	30	35	80	10	6			158.77	007
10.0	0,5	30	36	85	12	6			182.71	008
12.0	0,5	30	36	85	14	6			231.20	009
12.0	0,5	50	57	110	14	6			247.04	010
16.0	0,5	60	72	120	18	6			360.43	011
2.0	1	10	22	50	3	4	98.45	100		
2.5	1	10	22	50	3	4	94.88	101		
2.5	1	20	32	60	4	4	125.10	102		
3.0	1	20	32	60	4	4	128.24	103		
3.5	1	20	32	60	5	4	131.67	104		
4.0	1	20	32	60	5	4	131.67	105		
4.5	1	20	29	65	6	6			131.39	106
5.0	1	25	29	70	6	6			147.55	107
6.0	1	30	36	75	8	6			147.55	108
8.0	1	30	36	80	10	6			158.77	109
10.0	1	30	36	85	12	6			182.71	110
12.0	1	30	36	85	14	6			231.20	111
12.0	1	50	55	110	14	6			247.04	112
16.0	1	55	61	115	18	6			360.43	113
2.0	1,5	10	22	50	3	4	98.45	200		
2.5	1,5	10	22	50	4	4	108.33	201		
2.5	1,5	20	32	60	4	4	125.10	202		
3.0	1,5	20	32	60	4	4	128.24	203		
3.5	1,5	20	32	60	5	4	131.67	204		
4.0	1,5	20	32	60	5	4	131.67	205		
4.5	1,5	20	25	65	6	4			131.39	206
5.0	1,5	30	36	75	8	6			147.55	207
6.0	1,5	30	36	75	8	6			147.55	208
8.0	1,5	30	36	80	10	6			158.77	209
10.0	1,5	30	36	85	12	6			182.71	210
12.0	1,5	30	36	85	14	6			231.20	211
12.0	1,5	50	56	110	16	6			266.93	212
16.0	1,5	60	68	125	20	6			407.73	213
2.0	2	10	22	50	3	4	98.45	301		

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

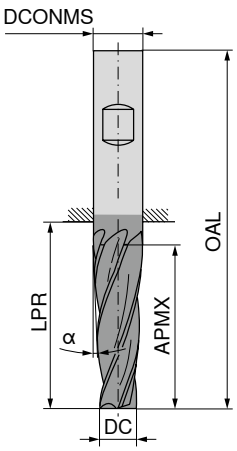
→ v_c/f_z Page 460–463

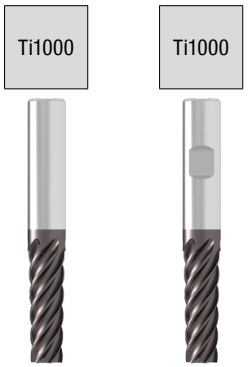
Continued on next page

Die milling cutter









DC ±0,1 mm	α°	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA 52 291 ... £ V1		Factory standard HB 52 291 ... £ V1	
2.5	2	10	22	50	4	4	108.33	302		
2.5	2	20	32	60	4	4	125.10	303		
3.0	2	20	32	60	5	4	131.67	304		
3.5	2	20	32	60	5	4	131.67	305		
4.0	2	20	27	65	6	4			131.39	306
4.5	2	30	37	75	8	4			147.55	307
5.0	2	30	37	75	8	6			147.55	308
6.0	2	28	32	75	8	6			147.55	309
8.0	2	28	33	75	10	6			158.77	310
10.0	2	28	33	85	12	6			182.71	311
12.0	2	28	33	85	14	6			231.20	312
12.0	2	50	56	110	16	6			257.50	313
16.0	2	55	62	115	20	6			397.40	314
2.0	2,5	15	22	50	4	4	110.13	401		
2.5	2,5	20	32	60	5	4	126.77	402		
3.0	2,5	20	32	60	5	4	131.67	403		
4.0	2,5	20	26	65	6	4			131.39	404
5.0	2,5	30	35	75	8	6			147.55	405
6.0	2,5	30	36	80	10	6			147.55	406
8.0	2,5	30	36	85	12	6			182.54	407
10.0	2,5	40	46	100	14	6			231.20	408
2.0	3	10	22	50	4	4	110.13	500		
2.5	3	10	22	50	4	4	112.38	501		
2.5	3	20	27	65	6	4			132.12	502
3.0	3	25	32	70	6	4			131.39	503
3.0	3	30	38	75	8	4			147.55	504
3.0	3	40	47	85	8	4			159.06	505
4.0	3	25	30	70	8	6			140.96	506
4.0	3	30	35	75	8	6			146.48	507
5.0	3	40	46	90	10	6			183.73	508
6.0	3	30	36	80	10	6			159.96	509
8.0	3	30	36	85	12	6			182.54	510
8.0	3	50	57	110	14	6			239.27	511
10.0	3	30	36	85	14	6			231.20	512
10.0	3	50	57	110	16	6			277.86	513
12.0	3	30	38	90	16	6			255.12	514
12.0	3	50	57	110	18	6			351.49	515
2.5	4	25	30	65	6	4			141.69	601
3.0	4	20	26	65	6	4			141.69	602
3.5	4	25	32	70	8	4			155.02	603
4.0	4	28	33	70	8	6			170.26	604

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

→ v_c/f_z Page 460–463

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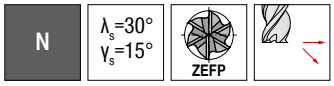
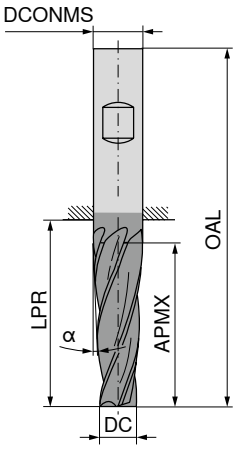
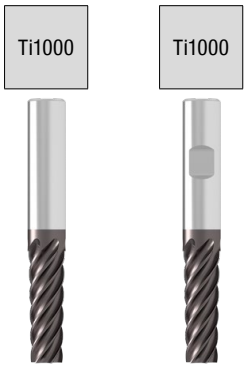
Die milling cutter









DC ±0,1 mm	α°	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA 52 291 ... £ V1		Factory standard HB 52 291 ... £ V1	
5.0	4	30	36	85	10	6			174.79	**605**
5.0	4	45	51	100	12	6			200.36	**606**
6.0	4	30	38	84	12	6			197.82	**607**
6.0	4	50	58	110	14	6			253.62	**608**
8.0	4	30	38	84	14	6			245.09	**609**
8.0	4	50	58	110	16	6			294.45	**610**
10.0	4	30	39	93	16	6			270.35	**611**
10.0	4	50	58	114	18	6			372.55	**612**
2.5	5	20	25	65	6	4			141.69	**701**
3.0	5	28	34	70	8	4			155.02	**702**
3.5	5	30	38	80	10	4			172.36	**703**
4.0	5	30	36	80	10	6			172.36	**704**
4.5	5	30	36	80	10	6			172.36	**705**
5.0	5	30	38	84	12	6			200.36	**706**
5.0	5	40	46	100	12	6			204.70	**707**
6.0	5	30	36	93	12	6			200.63	**708**
6.0	5	55	62	110	16	6			294.45	**709**
8.0	5	30	38	90	14	6			248.52	**710**
8.0	5	50	58	114	18	6			372.55	**711**
10.0	5	30	38	93	16	6			270.35	**712**
10.0	5	55	63	115	20	6			408.33	**713**
12.0	5	30	38	93	18	6			286.99	**714**
12.0	5	45	52	100	20	6			397.55	**715**

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

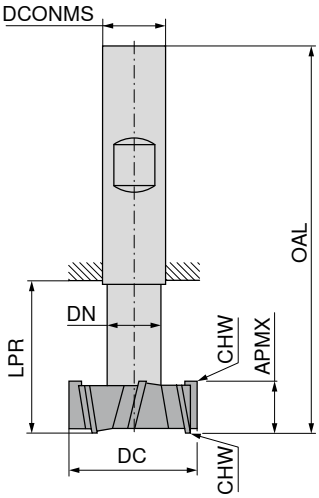
→ v_c/f_z Page 460–463

T-slot milling cutters

- Solid carbide cutting head with soldered steel shank
- For slots according to DIN 650







NEW

Ti1000



DIN 851 A

HB 

54 065 ...

DC e9 mm	APMX d11 mm	DN mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V3	
11.0	4	4	13.5	53.5	10	0.10	6	176.98	**11000**
12.5	6	5	17.0	57.0	10	0.10	6	185.27	**12500**
16.0	8	7	22.0	62.0	10	0.20	6	221.46	**16000**
18.0	8	8	25.0	70.0	12	0.20	6	231.67	**18000**
19.0	9	8	26.0	71.0	12	0.20	6	238.35	**19000**
21.0	9	10	29.0	74.0	12	0.25	6	246.17	**21000**
22.0	10	10	30.0	75.0	12	0.25	6	265.84	**22000**
25.0	11	12	34.0	82.0	16	0.30	8	291.13	**25000**
28.0	12	13	37.0	85.0	16	0.30	8	327.79	**28000**
32.0	14	15	42.0	90.0	16	0.35	8	362.34	**32000**
36.0	16	17	47.0	103.0	25	0.40	8	417.32	**36000**
40.0	18	19	52.0	108.0	25	0.40	10	481.48	**40000**

P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 443

14

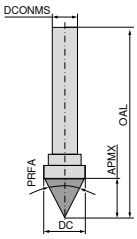
Carbide burrs, similar to DIN 8033

Teeth **Z3**: Application "medium"

Teeth **Z6**: Application "medium"

v_c in min = 300–600

KSJ



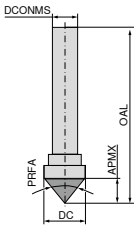

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 928 ... £ U9		50 928 ... £ U9	
6	5	52	6	60°	18.24	606	19.82	706
12	10	60	6	60°	24.32	612 1)	26.69	712 1)

1) Steel shank / carbide head – shank tolerance h9

KSK



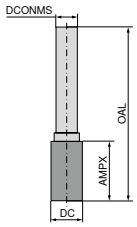

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 927 ... £ U9		50 927 ... £ U9	
6	3	52	6	90°	17.47	606	19.04	706
12	6	56	6	90°	20.99	612 1)	23.14	712 1)

1) Steel shank / carbide head – shank tolerance h9

ZYA



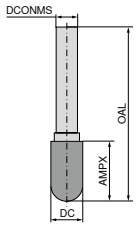

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 921 ... £ U9		50 921 ... £ U9	
3	13	40	3	8.82	303	9.62	403
6	13	48	3	15.69	306 1)	17.47	406 1)
6	16	55	6	17.84	606	19.62	706
8	20	65	6	22.75	608 1)	24.73	708 1)
10	20	65	6	25.69	610 1)	28.07	710 1)
12	25	70	6	32.94	612 1)	36.08	712 2)

1) Steel shank / carbide head – shank tolerance h9
2) Steel shank / carbide head – shank tolerance h7

WRC



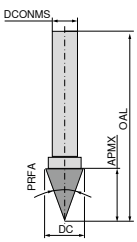

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 922 ... £ U9		50 922 ... £ U9	
3	13	40	3	11.20	303	12.17	403
6	13	48	3	17.84	306 1)	19.44	406 1)
6	16	50	6	19.82	606	21.97	706
8	18	63	6	25.49	608 1)	28.07	708 1)
10	20	65	6	29.43	610 1)	32.17	710 1)
12	25	70	6	39.63	612 1)	43.55	712 1)
16	25	70	6	52.55	616 1)	57.65	716 1)

1) Steel shank / carbide head – shank tolerance h9

SKM



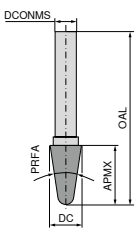

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 926 ... £ U9		50 926 ... £ U9	
3	11	40	3	14°	10.58	303	11.77	403
6	13	48	3	23°	14.89	306 1)	16.08	406 1)
6	18	50	6	16°	18.64	606	20.40	706
8	20	65	6	20°	17.84	608 1)	19.44	708 1)
10	20	65	6	25°	20.99	610 1)	23.14	710 1)
12	25	70	6	25°	28.47	612 1)	31.38	712 1)

1) Steel shank / carbide head – shank tolerance h9

KEL




Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 923 ... £ U9		50 923 ... £ U9	
3	14	40	3	6°	10.58	303	11.77	403
6	20	55	3	12°	18.24	306 1)	19.82	406 1)
6	20	50	6	10°	19.82	606	21.97	706
8	20	65	6	14°	28.07	608 1)	30.80	708 1)
10	20	65	6	14°	34.91	610 1)	38.44	710 1)
12	30	75	6	14°	41.59	612 1)	45.72	712 1)

1) Steel shank / carbide head – shank tolerance h9

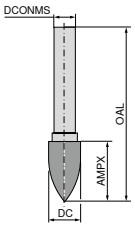
Carbide burrs, similar to DIN 8033


Teeth **Z3**: Application "medium"


Teeth **Z6**: Application "medium"

v_c in min = 300–600

SPG



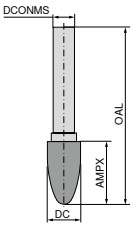

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 925 ... £ U9		50 925 ... £ U9	
3	13	40	3	10.42	303	11.37	403
6	13	48	3	15.29	306 1)	17.08	406 1)
6	18	50	6	22.58	606	24.32	706
8	20	65	6	22.75	608 1)	25.10	708 1)
10	20	65	6	28.07	610 1)	30.80	710 1)
12	25	70	6	33.34	612 2)	36.29	712 1)

1) Steel shank / carbide head – shank tolerance h9
2) Steel shank / carbide head – shank tolerance h7

RBF



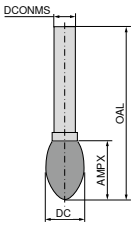

Z3

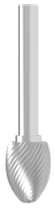

Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 924 ... £ U9		50 924 ... £ U9	
3	13	40	3	10.58	303	11.77	403
6	13	48	3	17.08	306 1)	18.64	406 1)
6	18	50	6	23.14	606	25.69	706
8	20	65	6	24.73	608 1)	27.28	708 1)
10	20	65	6	28.63	610 1)	31.38	710 1)
12	25	70	6	34.52	612 1)	38.06	712 1)
16	30	75	6	49.23	616 1)	54.33	716 1)

1) Steel shank / carbide head – shank tolerance h9

TRE



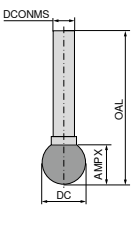

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 929 ... £ U9		50 929 ... £ U9	
3	7	40	3	10.58	303	11.77	403
6	10	45	3	15.69	306 1)	17.26	406 1)
6	10	50	6	21.19	606	23.36	706
8	13	58	6	23.53	608 1)	25.89	708 1)
10	16	61	6	26.69	610 1)	29.62	710 1)
12	20	65	6	33.73	612 1)	36.89	712 1)

1) Steel shank / carbide head – shank tolerance h9

KUD



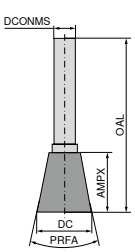

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 930 ... £ U9		50 930 ... £ U9	
3	2.7	40.0	3	10.58	303	11.77	403
6	5.4	40.4	3	14.33	306 1)	15.69	406 1)
6	5.0	50.0	6	20.40	606	22.75	706
8	7.2	52.2	6	19.44	608 1)	21.40	708 1)
10	9.0	54.0	6	22.96	610 1)	25.10	710 1)
12	10.8	55.8	6	27.47	612 1)	30.22	712 1)
16	14.4	59.4	6	38.84	616 1)	42.58	716 1)

1) Steel shank / carbide head – shank tolerance h9

WKN




Z3


Z6

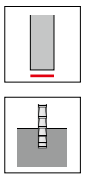
DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 931 ... £ U9		50 931 ... £ U9	
3	7	40	3	10°	10.58	303	11.77	403
6	7	50	6	10°	19.44	606	21.40	706
12	13	58	6	20°	26.10	612 1)	28.47	712 1)

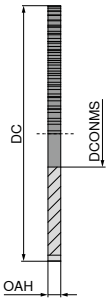
1) Steel shank / carbide head – shank tolerance h9

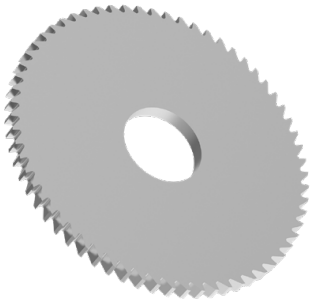
14

Solid carbide circular saw blades

▲ straight cut







DIN 1837 A

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 700 ... £ V6	
15	0.20	5	64	18.17	102
15	0.25	5	64	18.17	103
15	0.30	5	64	18.17	104
15	0.35	5	64	18.17	105
15	0.40	5	64	18.17	106
15	0.50	5	48	18.17	107
15	0.60	5	48	18.17	108
15	0.70	5	48	21.57	109
15	0.80	5	40	21.57	110
15	0.90	5	40	22.71	111
15	1.00	5	40	22.71	112
15	1.10	5	40	23.85	113
15	1.20	5	40	23.85	114
15	1.30	5	40	23.85	115
15	1.40	5	40	23.85	116
15	1.50	5	40	26.11	117
15	1.60	5	40	28.38	118
15	1.70	5	40	30.65	119
15	1.80	5	40	30.65	120
15	1.90	5	40	31.79	121
15	2.00	5	40	31.79	122
15	2.50	5	40	44.28	123
15	3.00	5	40	49.96	124
15	3.50	5	40	55.63	125
15	4.00	5	40	69.26	126
15	4.50	5	40	80.61	127
15	5.00	5	40	84.02	128
15	5.50	5	40	99.91	129
15	6.00	5	40	103.32	130
20	0.20	5	80	20.43	152
20	0.25	5	64	20.43	153
20	0.30	5	64	20.43	154
20	0.35	5	64	20.43	155
20	0.40	5	64	20.43	156
20	0.50	5	48	20.43	157
20	0.60	5	48	20.43	158
20	0.70	5	48	22.71	159
20	0.80	5	48	22.71	160
20	0.90	5	40	23.85	161
20	1.00	5	40	26.11	162
20	1.10	5	40	28.38	163
20	1.20	5	40	28.38	164
20	1.30	5	40	29.52	165
20	1.40	5	40	31.79	166
20	1.50	5	40	31.79	167
20	1.60	5	40	34.06	168
20	1.70	5	40	35.20	169
20	1.80	5	32	35.20	170
20	1.90	5	32	37.46	171
20	2.00	5	32	37.46	172
20	2.50	5	32	46.55	173
20	3.00	5	32	53.36	174
20	3.50	5	24	59.04	175
20	4.00	5	24	70.39	176
20	4.50	5	24	84.02	177
20	5.00	5	24	87.42	178
20	5.50	5	24	102.19	179
20	6.00	5	24	105.59	180
25	0.20	8	80	19.30	202
25	0.25	8	80	19.30	203
25	0.30	8	80	19.30	204
25	0.35	8	64	19.30	205
25	0.40	8	64	19.30	206
25	0.50	8	64	22.71	207
25	0.60	8	64	22.71	208
25	0.70	8	48	24.98	209
25	0.80	8	48	28.38	210
25	0.90	8	48	30.65	211
25	1.00	8	48	30.65	212
25	1.10	8	48	35.20	213
25	1.20	8	48	35.20	214
25	1.30	8	40	36.33	215
25	1.40	8	40	37.46	216
25	1.50	8	40	37.46	217
25	1.60	8	40	42.01	218
25	1.70	8	40	42.01	219
25	1.80	8	40	43.14	220
25	1.90	8	40	46.55	221
25	2.00	8	40	47.68	222
25	2.50	8	40	57.91	223
25	3.00	8	32	74.94	224
25	3.50	8	32	82.88	225
25	4.00	8	32	93.10	226
25	4.50	8	32	106.72	227
25	5.00	8	32	112.40	228
25	5.50	8	24	128.30	229
25	6.00	8	24	133.97	230
30	0.20	8	100	24.98	252
30	0.25	8	100	24.98	253
30	0.30	8	80	24.98	254
30	0.35	8	80	24.98	255
30	0.40	8	80	24.98	256
30	0.50	8	80	26.11	257
30	0.60	8	64	26.11	258
30	0.70	8	64	31.79	259
30	0.80	8	64	35.20	260
30	0.90	8	64	37.46	261
30	1.00	8	64	37.46	262
30	1.10	8	64	42.01	263
30	1.20	8	48	42.01	264
30	1.30	8	48	43.14	265
30	1.40	8	48	46.55	266
30	1.50	8	48	46.55	267
30	1.60	8	48	49.96	268
30	1.70	8	48	49.96	269
30	1.80	8	48	51.09	270
30	1.90	8	48	53.36	271
30	2.00	8	48	55.63	272
30	2.50	8	40	65.86	273
30	3.00	8	40	78.34	274
30	3.50	8	40	88.56	275
30	4.00	8	40	99.91	276
30	4.50	8	32	114.67	277
30	5.00	8	32	120.35	278
30	5.50	8	32	136.25	279
30	6.00	8	32	141.92	280

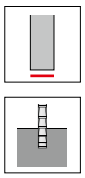
P	●
M	●
K	●
N	●
S	●
H	
O	●

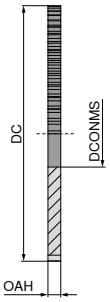
→ v_c/fz Page 459

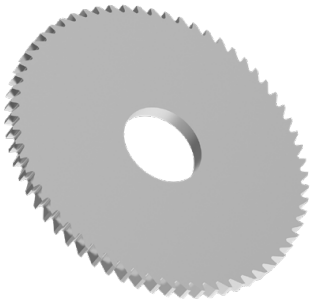
Diameters 80–200 mm, and the coarse toothed variant according to DIN 1838 B can be found in our online shop.

Solid carbide circular saw blades

▲ straight cut







DIN 1837 A

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 700 ... £ V6	
40	0.20	10	128	30.65	302
40	0.25	10	100	30.65	303
40	0.30	10	100	30.65	304
40	0.35	10	100	30.65	305
40	0.40	10	100	32.93	306
40	0.50	10	80	35.20	307
40	0.60	10	80	35.20	308
40	0.70	10	80	40.88	309
40	0.80	10	80	42.01	310
40	0.90	10	64	42.01	311
40	1.00	10	64	43.14	312
40	1.10	10	64	44.28	313
40	1.20	10	64	46.55	314
40	1.30	10	64	47.68	315
40	1.40	10	64	49.96	316
40	1.50	10	64	52.23	317
40	1.60	10	64	53.36	318
40	1.70	10	48	55.63	319
40	1.80	10	48	57.91	320
40	1.90	10	48	59.04	321
40	2.00	10	48	59.04	322
40	2.50	10	48	76.07	323
40	3.00	10	48	87.42	324
40	3.50	10	48	97.64	325
40	4.00	10	40	108.99	326
40	4.50	10	40	122.62	327
40	5.00	10	40	130.57	328
40	5.50	10	40	146.46	329
40	6.00	10	40	154.41	330
50	0.20	13	128	49.96	352
50	0.25	13	128	48.83	353
50	0.30	13	128	40.88	354
50	0.35	13	100	40.88	355
50	0.40	13	100	40.88	356
50	0.50	13	100	43.14	357
50	0.60	13	100	43.14	358
50	0.70	13	80	44.28	359
50	0.80	13	80	48.83	360
50	0.90	13	80	49.96	361
50	1.00	13	80	52.23	362
50	1.10	13	80	53.36	363
50	1.20	13	80	54.50	364
50	1.30	13	64	61.31	365
50	1.40	13	64	62.44	366
50	1.50	13	64	65.86	367
50	1.60	13	64	66.99	368
50	1.70	13	64	68.12	369
50	1.80	13	64	72.66	370
50	1.90	13	64	72.66	371
50	2.00	13	64	74.94	372
50	2.50	13	64	90.83	373
50	3.00	13	48	105.59	374
50	3.50	13	48	120.35	375
50	4.00	13	48	127.16	376
50	4.50	13	48	147.60	377
50	5.00	13	48	155.55	378
50	5.50	13	40	173.71	379
50	6.00	13	40	180.53	380
63	0.20	16	160	73.79	402

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 700 ... £ V6	
63	0.25	16	160	70.39	403
63	0.30	16	128	65.86	404
63	0.35	16	128	62.44	405
63	0.40	16	128	56.76	406
63	0.50	16	128	55.63	407
63	0.60	16	100	56.76	408
63	0.70	16	100	63.58	409
63	0.80	16	100	70.39	410
63	0.90	16	100	70.39	411
63	1.00	16	100	72.66	412
63	1.10	16	80	74.94	413
63	1.20	16	80	77.21	414
63	1.30	16	80	79.47	415
63	1.40	16	80	80.61	416
63	1.50	16	80	81.74	417
63	1.60	16	80	86.29	418
63	1.70	16	80	90.83	419
63	1.80	16	80	91.96	420
63	1.90	16	80	96.51	421
63	2.00	16	80	98.77	422
63	2.50	16	64	119.22	423
63	3.00	16	64	135.10	424
63	3.50	16	64	154.41	425
63	4.00	16	64	169.17	426
63	4.50	16	64	194.15	427
63	5.00	16	48	202.09	428
63	5.50	16	48	227.07	429
63	6.00	16	48	235.02	430

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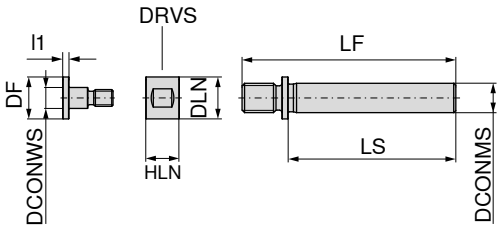
→ v_c/fz Page 459

Diameters 80–200 mm, and the coarse toothed variant according to DIN 1838 B can be found in our online shop.

14

Cylindrical shank adapter for circular saw blades

▲ DCONWS = circular saw blade bore diameter





DCONWS $_{H7}$ mm	DCONMS $_{h7}$ mm	DLN mm	DF mm	LF mm	LS mm	HLN mm	l_1 mm	DRVS mm	72 900 ... £ X1	
5	7	10	10	51	40	8	3	9	190.34	**005**
5	10	10	10	61	50	8	3	9	190.34	**105**
8	7	15	15	51	40	8	3	14	190.34	**008**
8	10	15	15	61	50	8	3	14	206.64	**108**
10	7	17	17	53	40	10	3	16	190.34	**010**
10	10	17	17	63	50	10	3	16	206.64	**110**
10	16	17	17	74	55	10	3	16	220.54	**210**
13	10	20	20	66	50	10	3	18	206.64	**113**
13	16	20	20	77	55	10	3	18	220.54	**213**
16	10	24	24	66	50	14	3	22	206.64	**116**
16	16	24	24	79	55	14	3	22	220.54	**216**



Screw - SR



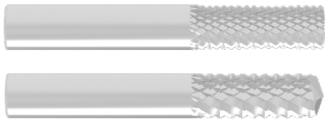
Lock nut - KM

Spare parts for Article no.	72 945 ... £ X1		72 945 ... £ X1	
72 900 005	36.16	**000**	56.83	**005**
72 900 105	36.16	**000**	56.83	**005**
72 900 008	36.16	**001**	56.83	**006**
72 900 108	36.16	**001**	56.83	**006**
72 900 010	38.55	**002**	59.02	**007**
72 900 110	38.55	**002**	59.02	**007**
72 900 210	38.55	**010**	59.02	**012**
72 900 113	40.34	**003**	61.01	**008**
72 900 213	40.34	**003**	61.01	**008**
72 900 116	42.33	**004**	62.79	**009**
72 900 216	42.33	**011**	62.79	**013**

Application data for plastics cutters

Material	Strength N/mm² – HB	50 981 ... - 50 988 ...	50 932 ...	50 937 ...	50 936 ...	50 938 ...	50 610 ... 50 611 ...	50 946 ...	50 948 ...	50 947 ...
Aluminium (non alloyed, low alloyed)	< 350 N/mm²						●			
Aluminium	< 500 N/mm²						●			
Aluminium alloy 0,5–10% Si	< 400 N/mm²						●			
Aluminium alloy 10–15% Si	< 400 N/mm²					●		●	●	●
Aluminium	< 400 N/mm²					●		●	●	
Copper (non alloyed, low alloyed)	< 350 N/mm²						●			
Copper wrought alloys	< 700 N/mm²					●		●	●	●
Special copper alloys	< 200 HB					●		●	●	●
Special copper alloys	< 300 HB					●		●	●	●
Special copper alloys	< 300 HB					●		●	●	●
Short-chipping brass, bronze, red bronze	< 600 N/mm²						●			
Long-chipping brass	< 600 N/mm²						●			
Magnesium and Magnesium Alloys	< 850 N/mm²					●		●	●	●
Tungsten and tungsten alloys									●	●
Molybdenum and molybdenum alloys									●	●
Thermoplastics							●			
Duroplastics		●	●	●			●			
Fibre-reinforced plastics		●	●	●	●	●		●	●	●
Graphite		●	●	●	●	●		●		●
Machining direction		↘ 1	↘ 2	↘ 3	↘ 4	↘ 5	↘ 6	↘ 7	↘ 8	↘ 9

Tips

1


▲ Very sharp cutting edges for GFK and CFK and to prevent delamination of the component.

2


▲ For excellent tool life when machining AFK, CFK and Graphite.

3


4


▲ Specialist for machining honeycomb materials; Milling of pockets not fully through the workpiece.

5


▲ Specialist for machining honeycomb materials.

▲ Milling of recesses that pass through the material, the lower deck is pushed and upper deck pulled therefore the workpiece material is stabilized.

6


▲ For machining non fibre-reinforced plastics and non-ferrous metals with low silicon content. (PE, PA, PVC, acrylic glass)

7


8

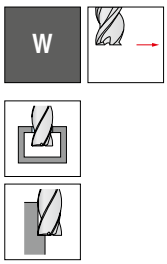

▲ For machining fibre-reinforced plastics and non-ferrous metals with high silicon content.

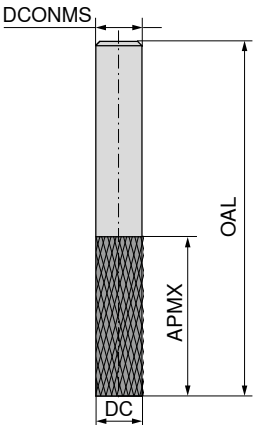
9

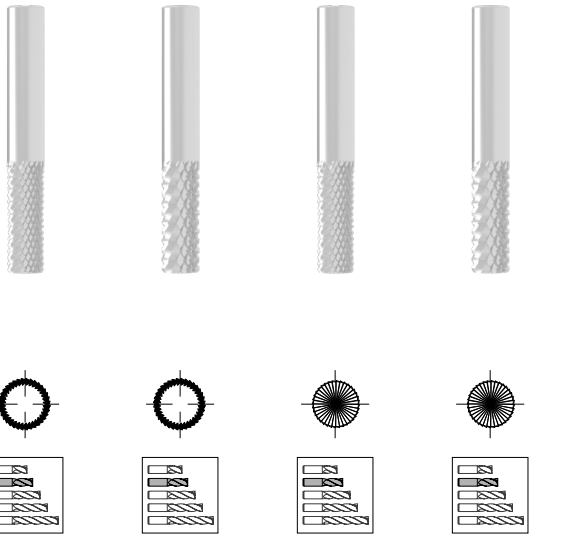

14

Cutter for plastics

- right hand cutting
- cross-pitched
- Downward chip evacuation
- 50 981 ... and 50 983 ... = fine pitch
- 50 982 ... and 50 984 ... = medium pitch







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA

DC mm	APMX mm	OAL mm	DCONMS mm	50 981 ... £ V0		50 982 ... £ V0		50 983 ... £ V0		50 984 ... £ V0	
2.0	7	40	2.0	12.65	**020**	13.97	**020**	14.71	**020**	16.68	**020**
2.0	7	50	6.0	27.37	**021**	27.37	**021**	29.23	**021**	29.23	**021**
3.0	10	40	3.0	12.65	**030**	13.97	**030**	14.71	**030**	16.68	**030**
3.0	12	50	6.0	27.37	**031**	27.37	**031**	29.23	**031**	29.23	**031**
3.5	12	40	3.5	14.63	**035**	16.25	**035**	16.57	**035**	18.40	**035**
4.0	15	40	4.0	16.93	**040**	18.54	**040**	18.17	**040**	20.10	**040**
4.0	20	50	6.0	27.37	**041**	27.37	**041**	29.23	**041**	29.23	**041**
4.5	15	50	4.5	19.44	**045**	21.53	**045**	21.03	**045**	23.24	**045**
5.0	16	50	5.0	22.10	**050**	24.37	**050**	23.71	**050**	26.38	**050**
5.0	25	75	6.0	41.75	**051**	41.75	**051**	43.62	**051**	43.62	**051**
6.0	18	50	6.0	27.37	**060**	24.77	**060**	29.23	**060**	26.54	**060**
6.0	35	75	6.0	41.75	**061**	41.75	**061**	43.62	**061**	43.62	**061**
7.0	22	60	7.0	37.79	**070**	34.04	**070**	40.20	**070**	36.17	**070**
8.0	25	63	8.0	43.46	**080**	39.02	**080**	46.32	**080**	41.67	**080**
8.0	40	100	8.0	57.86	**081**	57.86	**081**	60.57	**081**	60.57	**081**
9.0	25	63	9.0	55.15	**090**	49.72	**090**	57.86	**090**	51.84	**090**
10.0	30	72	10.0	58.72	**100**	52.72	**100**	61.14	**100**	54.87	**100**
12.0	32	83	12.0	83.09	**120**	74.46	**120**	86.34	**120**	77.31	**120**
14.0	32	83	14.0	130.97	**140**	117.39	**140**	141.50	**140**	126.47	**140**
16.0	36	92	16.0	179.39	**160**	160.14	**160**	193.66	**160**	173.16	**160**
18.0	40	92	18.0	242.54	**180**	216.59	**180**	261.90	**180**	234.06	**180**
20.0	45	104	20.0	291.11	**200**	260.07	**200**	314.35	**200**	280.91	**200**

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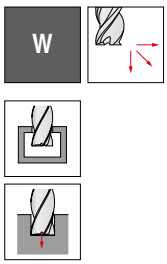
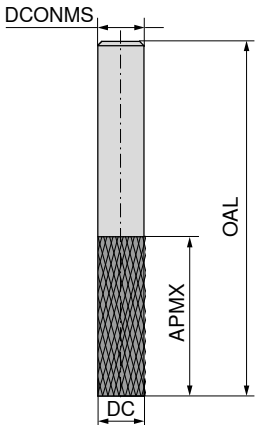
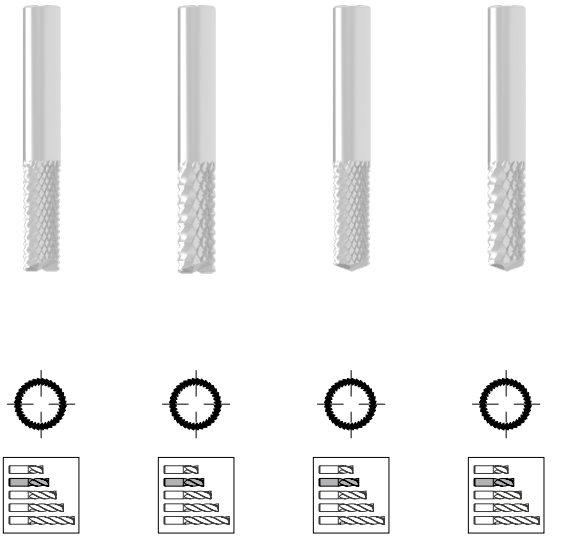
→ v_c/f_z Page 458

Cutter for plastics

- right hand cutting
- cross-pitched
- Downward chip evacuation
- 50 985 ... and 50 987 ... = fine pitch
- 50 986 ... and 50 988 ... = medium pitch







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA

DC mm	APMX mm	OAL mm	DCONMS mm	50 985 ... £ V0		50 986 ... £ V0		50 987 ... £ V0		50 988 ... £ V0	
2.0	7	40	2.0	16.03	**020**	17.54	**020**	16.03	**020**	17.54	**020**
2.0	7	50	6.0	31.07	**021**	31.07	**021**	31.07	**021**	31.07	**021**
3.0	10	40	3.0	16.03	**030**	17.54	**030**	16.03	**030**	17.54	**030**
3.0	12	50	6.0	31.07	**031**	31.07	**031**	31.07	**031**	31.07	**031**
3.5	12	40	3.5	17.66	**035**	19.52	**035**	17.66	**035**	19.52	**035**
4.0	15	40	4.0	19.25	**040**	21.38	**040**	19.25	**040**	21.38	**040**
4.0	20	50	6.0	31.07	**041**	31.07	**041**	31.07	**041**	31.07	**041**
4.5	15	50	4.5	22.27	**045**	24.65	**045**	22.27	**045**	24.65	**045**
5.0	16	50	5.0	25.28	**050**	28.08	**050**	25.28	**050**	28.08	**050**
5.0	25	75	6.0	45.45	**051**	45.45	**051**	45.45	**051**	45.45	**051**
6.0	18	50	6.0	31.07	**060**	27.98	**060**	31.07	**060**	27.98	**060**
6.0	35	75	6.0	45.45	**061**	45.45	**061**	45.45	**061**	45.45	**061**
7.0	22	60	7.0	42.76	**070**	38.29	**070**	42.76	**070**	38.29	**070**
8.0	25	63	8.0	48.89	**080**	43.81	**080**	48.89	**080**	43.81	**080**
8.0	40	100	8.0	63.27	**081**	63.27	**081**	63.27	**081**	63.27	**081**
9.0	25	63	9.0	60.57	**090**	54.33	**090**	60.57	**090**	54.33	**090**
10.0	30	72	10.0	63.83	**100**	57.17	**100**	63.83	**100**	57.17	**100**
12.0	32	83	12.0	89.64	**120**	80.17	**120**	89.64	**120**	80.17	**120**
14.0	32	83	14.0	144.23	**140**	128.97	**140**	144.23	**140**	128.97	**140**
16.0	36	92	16.0	197.20	**160**	176.34	**160**	197.20	**160**	176.34	**160**
18.0	40	92	18.0	266.77	**180**	238.14	**180**	266.77	**180**	238.14	**180**
20.0	45	104	20.0	320.33	**200**	286.06	**200**	320.33	**200**	286.06	**200**

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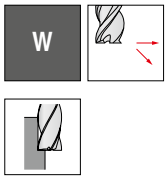
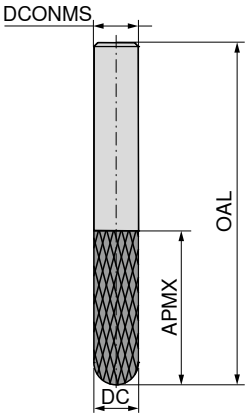
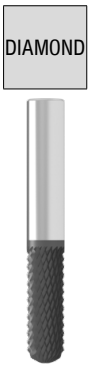
14

Ball nosed cutter for plastics

▲ right hand cutting
▲ cross-pitched









Factory standard



50 932 ...

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	£ V0	
2	7	40	2	53.14	**020**
2	7	50	6	121.14	**022**
3	10	40	3	53.14	**030**
3	12	50	6	121.14	**032**
4	15	40	4	77.09	**040**
4	20	50	6	121.14	**042**
5	16	50	5	98.32	**050**
5	25	75	6	138.52	**052**
6	18	50	6	101.76	**060**
6	35	75	6	132.67	**062**
8	25	63	8	128.82	**080**
8	40	100	8	187.97	**082**
10	30	72	10	205.62	**100**
12	32	83	12	261.20	**120**
16	36	92	16	527.38	**160**
20	40	104	20	619.29	**200**

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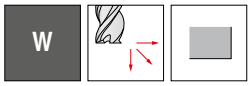
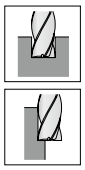
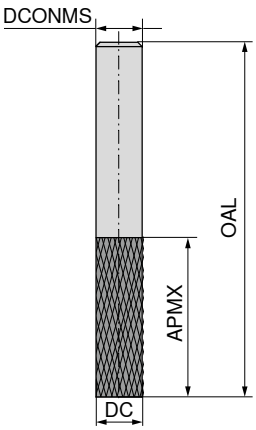
→ v_c/f_z Page 458

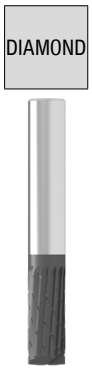
Cutter for plastics

▲ right hand cutting
▲ cross-pitched











Factory standard



50 937 ...

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	£ V0	
5	16	60	6	121.42	**050**
5	28	75	6	102.72	**052**
6	20	60	6	121.42	**060**
6	35	75	6	107.75	**062**
8	22	63	8	126.83	**080**
8	40	100	8	131.09	**082**
10	25	72	10	156.04	**100**
10	50	100	10	219.03	**102**
12	30	83	12	274.89	**120**
12	50	100	12	322.34	**122**
16	35	92	16	484.62	**160**
16	60	125	16	588.82	**162**

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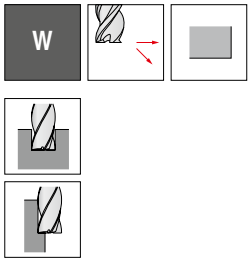
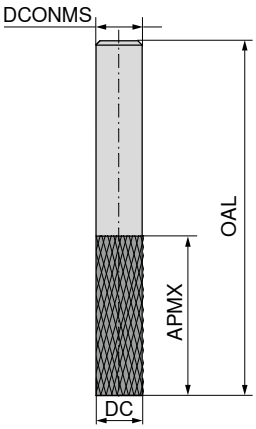
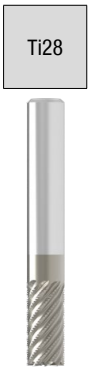
→ v_c/f_z Page 458

Cutter for honeycomb materials









Factory standard



50 936 ...

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	£ V0	
6	16	50	6	70.26	**006**
8	19	63	8	103.33	**008**
10	22	72	10	129.68	**010**
12	26	83	12	178.13	**012**
14	17	100	12	210.19	**014**
16	17	100	12	321.48	**016**
20	17	100	12	441.45	**020**
24	10	100	12	523.69	**024**
24	17	100	12	563.16	**025**
44	17	100	12	1,036.80	**044** 1)

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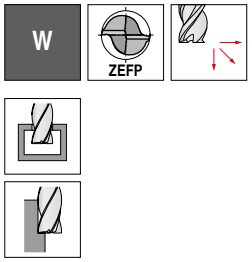
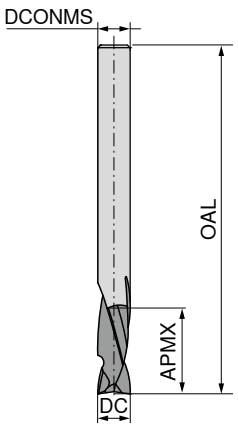
1) vertical plunging not possible

→ v_c/f_z Page 458

Right and left hand helix cutter for fibre re-inforced plastics









Factory standard

HA

50 938 ...

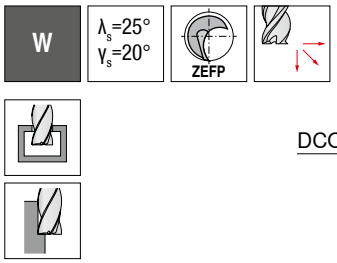
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0	
2	6	40	6	2	117.41	**020**
3	12	40	3	2	57.30	**030**
3	12	50	6	2	117.41	**032**
4	14	40	4	2	65.01	**040**
5	16	50	5	2	81.51	**050**
6	18	50	6	2	99.47	**060**
8	20	63	8	2	120.28	**080**
10	25	72	10	2	144.07	**100**
12	30	83	12	2	209.04	**120**

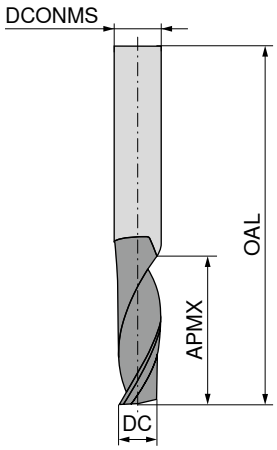
P	
M	
K	
N	●
S	
H	
O	●

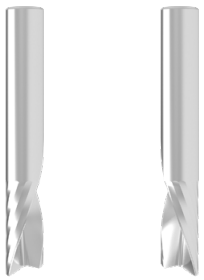
→ v_c/f_z Page 458

Single flute cutter

▲ With polished chip flutes









Right-hand helix
right-hand cutting



Left-hand helix
right-hand cutting

Factory standard

HA



Factory standard

HA



DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	50 610 ... £ V0		50 611 ... £ V0	
1.5	6	40	3.0	1	24.80	015	24.80	015
2.0	6	40	3.0	1	24.80	019	24.80	019
2.0	10	40	2.0	1	20.10	020	20.10	020
2.0	10	60	6.0	1	36.65	022	36.65	022
2.0	12	60	6.0	1	37.79	024	37.79	024
2.5	6	40	2.5	1	24.80	025	24.80	025
3.0	12	40	3.0	1	19.95	030	19.95	030
3.0	10	40	6.0	1	36.06	032	36.06	032
3.0	12	60	6.0	1	36.65	034	36.65	034
3.0	15	60	6.0	1	36.65	036	36.65	036
4.0	15	40	4.0	1	24.37	040	24.37	040
4.0	15	60	6.0	1	36.65	042	36.65	042
4.0	20	75	6.0	1	59.42	044	59.42	044
5.0	16	50	5.0	1	31.14	050	31.14	050
5.0	16	60	6.0	1	36.65	052	36.65	052
5.0	28	75	6.0	1	66.55	054	66.55	054
6.0	20	60	6.0	1	36.37	060	36.37	060
6.0	30	60	6.0	1	36.06	062	36.06	062
6.0	35	75	6.0	1	54.01	064	54.01	064
8.0	22	63	8.0	1	58.95	080	58.95	080
8.0	40	100	8.0	1	86.34	084	86.34	084
10.0	25	72	10.0	1	86.92	100	86.92	100
10.0	55	100	10.0	1	143.79	105	143.79	105
12.0	30	83	12.0	1	117.31	120	117.31	120
14.0	30	83	14.0	1	175.53	140	175.53	140
16.0	35	92	16.0	1	248.85	160	248.85	160
18.0	35	92	18.0	1	297.75	180	297.75	180
20.0	40	104	20.0	1	334.87	200	334.87	200
P								
M								
K								
N						●		●
S								
H								
O						●		●

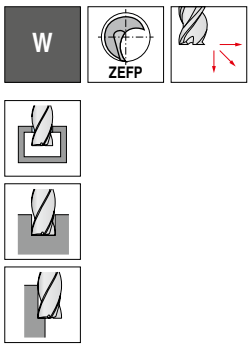
→ v_c/f_z Page 458

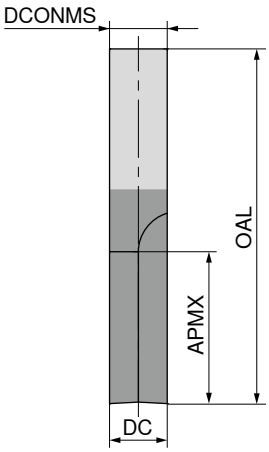
Cutter for plastics

▲ With polished flutes

W

ZEFP





Ti40





Factory standard

HA

50 946 ...

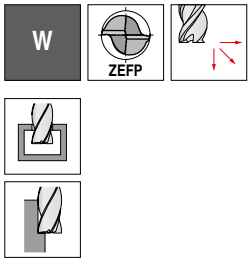
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0	
1.5	6	40	3	1	30.64	**015**
2.0	6	40	3	1	30.64	**020**
2.0	10	40	2	1	21.95	**022**
2.0	10	60	6	1	44.61	**024**
2.0	12	60	6	1	45.75	**026**
3.0	12	40	3	1	23.09	**030**
3.0	12	60	6	1	44.61	**032**
3.0	15	60	6	1	44.61	**034**
4.0	15	60	6	1	44.61	**040**
4.0	20	75	6	1	67.41	**042**
5.0	16	60	6	1	44.61	**050**
5.0	28	75	6	1	74.54	**052**
6.0	20	60	6	1	38.78	**060**
6.0	30	60	6	1	44.04	**062**
6.0	35	75	6	1	62.00	**064**
8.0	22	63	8	1	60.14	**080**
8.0	40	100	8	1	96.60	**082**
10.0	25	72	10	1	89.34	**100**
10.0	55	100	10	1	158.32	**102**
12.0	30	83	12	1	115.72	**120**

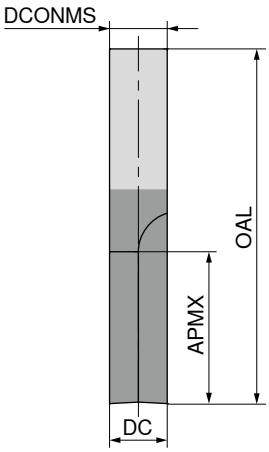
P	
M	
K	
N	●
S	
H	
O	●

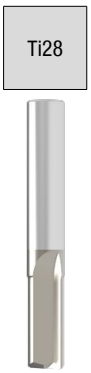
→ v_c/f_z Page 458

Cutter for plastics

▲ with polished flutes









Factory standard

HA

50 948 ...

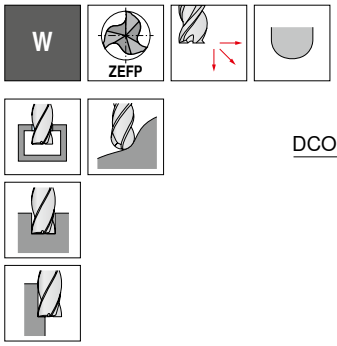
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0	
2	6	40	6	2	46.46	**020**
3	12	40	3	2	26.80	**030**
3	12	50	6	2	46.46	**031**
4	14	40	6	2	46.46	**040**
5	16	50	5	2	35.05	**050**
6	18	50	6	2	42.19	**060**
8	20	63	8	2	60.86	**080**
10	25	72	10	2	79.52	**100**
12	30	83	12	2	105.46	**120**

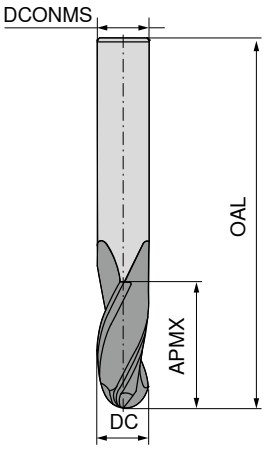
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 458

Ball nosed cutter for plastics

▲ with polished flutes
▲ irregular pitch





Ti40





DIN 6527 L

HA 

50 947 ...

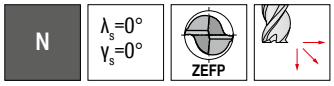
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0	
3	10	57	6	3	63.71	**030**
4	13	57	6	3	63.71	**040**
5	15	57	6	3	63.71	**050**
6	18	57	6	3	54.45	**060**
7	20	63	8	3	84.21	**070**
8	20	63	8	3	74.66	**080**
9	22	72	10	3	113.74	**090**
10	25	72	10	3	100.76	**100**
12	30	83	12	3	129.81	**120**
14	30	83	14	3	198.23	**140**
16	35	92	16	3	266.47	**160**
18	35	92	18	3	318.20	**180**
20	45	104	20	3	376.64	**200**

P	
M	
K	
N	●
S	
H	
O	●

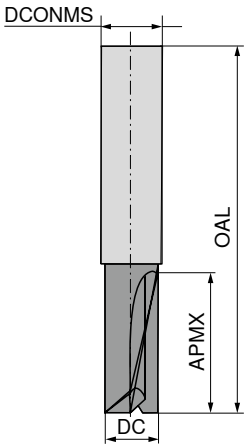
→ v_c/f_z Page 458

14

Slot milling cutter











Factory standard

HA

52 168 ...

DC e8 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
2	8	50	3	2	25.45	**020**
3	12	50	3	2	24.37	**030**
4	13	60	4	2	26.05	**040**
5	14	60	5	2	31.56	**050**
6	16	58	6	2	35.96	**060**
7	20	65	8	2	48.35	**070**
8	20	65	8	2	48.93	**080**
9	22	70	10	2	63.84	**090**
10	22	70	10	2	78.41	**100**
12	25	70	12	2	103.25	**120**

P	●
M	○
K	●
N	○
S	○
H	
O	●

→ v_c/f_z Page 460–463

Material examples for cutting data tables

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

*** Tensile strength**

14

Cutting data standard values – MonsterMill – SCR – End mill, short – long

					52 600 ... / 52 601 ... / 52 602 ... / 52 603 ... / 52 604 ... / 52 606 ... / 52 607 ... / 52 608 ... / 52 611 ... / 52 612 ...																	
					Ø DC = 3,0–3,5 mm									Ø DC = 4,0–4,5 mm								
	Emulsion	Compressed air	MMS	short	long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	short	long	Ø DC = 5,0–5,5 mm			Ø DC = 6,0–7,5 mm			Ø DC = 8,0–9,5 mm		
														a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min			$a_{p\,max.}$ x DC		f_z mm			f_z mm			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm		
P.1.1	90	160		1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
P.1.2	90	150		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.3	90	150		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.4	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.5	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.1	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.2	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.3	80	120		1,0	1,0	0,025	0,019	0,014	0,035	0,027	0,020	1,0	1,0*	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.2.4	80	120		1,0	1,0	0,025	0,019	0,014	0,035	0,027	0,020	1,0	1,0*	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.3.1	90	140		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.2	80	130		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.3	80	110		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.4.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
P.4.2	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.1.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.2.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.3.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
K.1.1		200		1,0	1,0	0,040	0,031	0,022	0,055	0,043	0,031	1,0	1,0*	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.1.2		180		1,0	1,0	0,040	0,031	0,022	0,055	0,043	0,031	1,0	1,0*	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.2.1		200		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.2.2		180		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.3.1		140		1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
K.3.2		140		1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
N.1.1																						
N.1.2																						
N.2.1																						
N.2.2																						
N.2.3																						
N.3.1	150	280		1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
N.3.2	140	230		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.3.3	140	230		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.4.1																						
S.1.1	45			0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.1.2	45			0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.1	30			0,5	0,5	0,018	0,014	0,010	0,025	0,019	0,014	0,5	0,5	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
S.2.2	30			0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.3	30			0,5	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.3.1	80			0,5	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,5	0,5	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
S.3.2	60			0,5	0,5	0,025	0,019	0,014	0,035	0,027	0,019	0,5	0,5	0,050	0,037	0,025	0,066	0,049	0,033	0,09	0,07	0,04
S.3.3	60			0,5	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,5	0,5	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
H.1.1		80		0,3	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,3	0,3	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
H.1.2		60		0,15	0,15	0,016	0,012	0,009	0,022	0,017	0,012	0,15	0,15	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
H.1.3																						
H.1.4																						
H.2.1		120		0,5	0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,5	0,5	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
H.3.1		80		0,3	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,3	0,3	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
O.1.1	180	300		1,0	1,0	0,067	0,052	0,038	0,094	0,073	0,053	1,0	1,0*	0,135	0,101	0,068	0,180	0,134	0,090	0,24	0,18	0,12
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

*= With an a_p of 1.5xD, the feed rate per tooth f_z should be multiplied by 0.8

SCR ball nosed cutters at full slot, reduce f_z by 25 %!

Plunging angle for ramping and helical milling:
No. of teeth 4 = 4°/No. of teeth 6 = 1°

	52 600 ... / 52 601 ... / 52 602 ... / 52 603 ... / 52 604 ... / 52 606 ... / 52 607 ... / 52 608 ... / 52 611 ... / 52 612 ...																		● 1st choice ○ suitable		
	Ø DC = 10,0–11,5 mm			Ø DC = 12,0 mm			Ø DC = 14,0–15,5 mm			Ø DC = 16,0–17,0 mm			Ø DC = 18,0–19,5 mm			Ø DC = 20,0 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
P.1.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.3	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.2.4	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.3.1	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.2	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.4.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
P.4.2	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.1.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.2.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.3.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
K.1.1	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,21	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16		●	
K.1.2	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,21	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16		●	
K.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
K.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
K.3.1	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
K.3.2	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
N.3.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.3.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.4.1																					
S.1.1	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07	●		
S.2.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.3	0,07	0,05	0,04	0,08	0,03	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.3.1	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
S.3.2	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,11	0,09	0,16	0,13	0,10	●		
S.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
H.1.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
H.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06		●	
H.1.3																					
H.1.4																					
H.2.1	0,09	0,07	0,05	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08		●	
H.3.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
O.1.1	0,30	0,22	0,15	0,33	0,25	0,17	0,33	0,26	0,18	0,36	0,27	0,21	0,38	0,31	0,24	0,43	0,35	0,27	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

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Cutting data standard values – MonsterMill – SCR – End mill, extra long

					52 605 ... / 52 608 ...														
					Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
	Emulsion	Compressed air	MMS	extra long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min			$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	80	110		1,0* 0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
P.1.2	80	110		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.3	80	110		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.4	80	110		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.5	80	110		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.1	80	90		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.2	80	90		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.3	70	80		1,0* 0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.2.4	70	80		1,0* 0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.3.1	70	80		1,0* 0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.2	70	80		1,0* 0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.3	70	80		1,0* 0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.4.1	70			1,0* 0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
P.4.2	70			1,0* 0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.1.1	70			1,0* 0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.2.1	70			1,0* 0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.3.1	70			1,0* 0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
K.1.1		160		1,0* 0,5	0,040	0,031	0,022	0,055	0,043	0,031	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.1.2		120		1,0* 0,5	0,040	0,031	0,022	0,055	0,043	0,031	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.2.1		160		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.2.2		120		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.3.1		100		1,0* 0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
K.3.2		100		1,0* 0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	120	240		1,0* 0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
N.3.2	100	200		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.3.3	100	200		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.4.1																			
S.1.1	40			0,5* 0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.1.2	40			0,5* 0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.1	25			0,5* 0,25	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
S.2.2	25			0,5* 0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.3	25			0,5* 0,25	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.3.1	60			0,5* 0,25	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
S.3.2	50			0,5* 0,25	0,025	0,019	0,014	0,035	0,027	0,019	0,050	0,037	0,025	0,066	0,049	0,033	0,09	0,07	0,04
S.3.3	50			0,5* 0,25	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
H.1.1		60		0,5* 0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
H.1.2		50		0,5* 0,15	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
H.1.3																			
H.1.4																			
H.2.1		80		0,5* 0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
H.3.1		60		0,5* 0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
O.1.1	120	240		1,0* 0,5	0,067	0,052	0,038	0,094	0,073	0,053	0,135	0,101	0,068	0,180	0,134	0,090	0,24	0,18	0,12
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

* = Trimming and trochoidal slot milling

Plunging angle for ramping and helical milling: No. of teeth 4 = 4 °/No. of teeth 6 = 1°

	52 605 ... / 52 608 ...																					● 1st choice ○ suitable		
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm								
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm																							
P.1.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
P.1.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.3	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.2.4	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.3.1	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.2	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.4.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
P.4.2	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.1.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.2.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.3.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
K.1.1	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,20	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16	○	●	○
K.1.2	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,20	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16	○	●	○
K.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
K.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
K.3.1	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
K.3.2	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
N.3.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.3.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.4.1																					
S.1.1	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07	●		
S.2.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.3	0,07	0,05	0,04	0,08	0,03	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.3.1	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
S.3.2	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,09	0,07	0,12	0,10	0,08	0,14	0,11	0,09	0,16	0,13	0,10	●		
S.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
H.1.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
H.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06		●	
H.1.3																					
H.1.4																					
H.2.1	0,09	0,07	0,05	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08		●	
H.3.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
O.1.1	0,30	0,22	0,15	0,33	0,25	0,17	0,33	0,26	0,18	0,33	0,27	0,21	0,38	0,31	0,24	0,43	0,35	0,27	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

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Cutting data standard values – MonsterMill – SCR – Torus face cutter, long

			52 609 ...															
			Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
		long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	150	1,0	0,019	0,017	0,012	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
P.1.2	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.1.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.1.4	140	1,0	0,019	0,017	0,012	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.1.5	140	1,0	0,019	0,017	0,012	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.2.1	150	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
P.2.2	150	1,0	0,019	0,017	0,012	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
P.2.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.2.4	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.3.1	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.3.2	150	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
P.3.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.4.1																	
P.4.2																	
M.1.1																	
M.2.1																	
M.3.1																	
K.1.1	170	1,0	0,028	0,025	0,018	0,043	0,033	0,024	0,056	0,042	0,028	0,072	0,054	0,036	0,10	0,07	0,05
K.1.2	170	1,0	0,028	0,025	0,018	0,043	0,033	0,024	0,056	0,042	0,028	0,072	0,054	0,036	0,10	0,07	0,05
K.2.1	150	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,046	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
K.2.2	150	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,046	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
K.3.1	80	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
K.3.2	80	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1																	
S.3.2																	
S.3.3																	
H.1.1	80	0,3	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
H.1.2	60	0,15	0,009	0,008	0,006	0,014	0,011	0,008	0,020	0,015	0,010	0,024	0,018	0,012	0,03	0,02	0,02
H.1.3																	
H.1.4																	
H.2.1	100	0,5	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
H.3.1	80	0,3	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

	52 609 ...											
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			● 1st choice		
										○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm					
P.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.1.2	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.4	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.5	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.2.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.2.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.2.4	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.3.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.3.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
K.1.2	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
K.2.1	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
K.2.2	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
K.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
K.3.2	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
H.1.2	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03		●	
H.1.3												
H.1.4												
H.2.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
H.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – MonsterMill – SCR – Torus face cutter, extra long

				52 610 ...																
				Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			● 1st choice				
		extra long														○ suitable				
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC					
Index	v_c m/min	$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS		
P.1.1	100	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●			
P.1.2	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●			
P.1.3	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●			
P.1.4	100	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●			
P.1.5	100	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●			
P.2.1	100	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●			
P.2.2	100	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●			
P.2.3	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●			
P.2.4	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●			
P.3.1	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●			
P.3.2	100	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●			
P.3.3	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●			
P.4.1																				
P.4.2																				
M.1.1																				
M.2.1																				
M.3.1																				
K.1.1	120	1,0*	0,5	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●			
K.1.2	120	1,0*	0,5	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●			
K.2.1	100	1,0*	0,5	0,08	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●			
K.2.2	100	1,0*	0,5	0,08	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●			
K.3.1	60	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●			
K.3.2	60	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●			
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1																				
N.3.2																				
N.3.3																				
N.4.1																				
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1																				
S.3.2																				
S.3.3																				
H.1.1	60	0,5*	0,3	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●			
H.1.2	50	0,5*	0,15	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03		●			
H.1.3																				
H.1.4																				
H.2.1	70	0,5*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●			
H.3.1	60	0,5*	0,3	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●			
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

* = Trimming and trochoidal slot milling

Cutting data standard values – MonsterMill – SCR – Torus face cutter, HSC machining

				52 609 ... / 52 610 ...								● 1st choice		
				Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	○ suitable		
Index	v_c m/min	a_p x DC	a_e x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.1.2	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.1.3	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.1.4	190	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
P.1.5	190	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
P.2.1	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.2.2	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.2.3	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.2.4	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.3.1	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.3.2	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.3.3	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.4.1														
P.4.2														
M.1.1														
M.2.1														
M.3.1														
K.1.1	230	0,05	0,6	0,120	0,160	0,200	0,240	0,32	0,40	0,48	0,64	○	●	
K.1.2	230	0,05	0,6	0,120	0,160	0,200	0,240	0,32	0,40	0,48	0,64	○	●	
K.2.1	200	0,04	0,5	0,096	0,130	0,160	0,192	0,26	0,32	0,38	0,51	○	●	
K.2.2	200	0,04	0,5	0,096	0,130	0,160	0,192	0,26	0,32	0,38	0,51	○	●	
K.3.1	100	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
K.3.2	100	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
N.1.1														
N.1.2														
N.2.1														
N.2.2														
N.2.3														
N.3.1														
N.3.2														
N.3.3														
N.4.1														
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1	100	0,03	0,3	0,060	0,080	0,100	0,120	0,16	0,20	0,24	0,32		●	
H.1.2	90	0,02	0,3	0,048	0,064	0,080	0,096	0,13	0,16	0,19	0,26		●	
H.1.3	80	0,02	0,2	0,024	0,056	0,070	0,084	0,11	0,14	0,17	0,22		●	
H.1.4	60	0,02	0,2	0,036	0,048	0,060	0,072	0,10	0,12	0,14	0,19		●	
H.2.1	130	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38		●	
H.3.1	100	0,03	0,3	0,060	0,080	0,100	0,120	0,16	0,20	0,24	0,32		●	
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

Cutting data standard values – MonsterMill – ICR – End mill, short

				52 784 ...													
				Ø DC = 1,5 mm			Ø DC = 2 mm			Ø DC = 2,5 mm			● 1st choice		
													○ suitable		
	Emulsion	Compressed air	MMS	short	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	v_c m/min			$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm					
P.1.1	140	130		0,25	0,014	0,013	0,010	0,020	0,019	0,014	0,029	0,024	0,018	○	●	○
P.1.2	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.3	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.4	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.5	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.1	120			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.2	120	110		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.3	80	90		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	○	●	○
P.2.4	80	90		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	○	●	○
P.3.1	80	90		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.3.2	80	90		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.3.3	100	110		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.4.1	100			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
P.4.2	100			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.1.1	**100**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.2.1	**80**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.3.1	**100**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
K.1.1		180		0,25	0,020	0,019	0,014	0,025	0,024	0,018	0,036	0,030	0,022		●	
K.1.2		160		0,25	0,020	0,019	0,014	0,025	0,024	0,018	0,036	0,030	0,022		●	
K.2.1		180		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019		●	
K.2.2		160		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019		●	
K.3.1		120		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●	
K.3.2		120		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●	
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1	280	280		0,25	0,007	0,007	0,005	0,020	0,019	0,014	0,029	0,024	0,018	●		○
N.3.2	220	220		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
N.3.3	220	220		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
N.4.1																
S.1.1	45			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.1.2	45			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.2.1	25			0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
S.2.2	30			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.2.3	25			0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
S.3.1	80			0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	●		
S.3.2	60			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●		
S.3.3	60			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●		
H.1.1		80		0,20	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013		●	
H.1.2		60		0,15	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012		●	
H.1.3																
H.1.4																
H.2.1		80		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015		●	
H.3.1		80		0,20	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013		●	
O.1.1	300	300		0,25	0,029	0,027	0,020	0,043	0,040	0,030	0,051	0,043	0,032	●		○
O.1.2																
O.2.1																
O.2.2																
O.3.1																

Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

Cutting data standard values – MonsterMill – ICR – End mill, short – long

	52 784 ... / 52 786 ...																						
						Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			● 1st choice					
																		○ suitable					
	Emulsion	Compressed air	MMS	short	long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS			
Index	v_c m/min			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm								
P.1.1	140	130		1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	○	●	○			
P.1.2	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
P.1.3	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
P.1.4	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
P.1.5	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
P.2.1	120	110		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
P.2.2	120	110		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
P.2.3	80	90		1,0	1,0*	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	○	●	○			
P.2.4	80	90		1,0	1,0*	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	○	●	○			
P.3.1	80	90		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○			
P.3.2	80	90		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○			
P.3.3	100	110		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○			
P.4.1	100			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
P.4.2	100			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
M.1.1	**100**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
M.2.1	**80**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
M.3.1	**100**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
K.1.1		180		1,0	1,0*	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053		●				
K.1.2		160		1,0	1,0*	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053		●				
K.2.1		180		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045		●				
K.2.2		160		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045		●				
K.3.1		120		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●				
K.3.2		120		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●				
N.1.1																							
N.1.2																							
N.2.1																							
N.2.2																							
N.2.3																							
N.3.1	280	280		1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,741	0,572	0,413	●		○			
N.3.2	220	220		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○			
N.3.3	220	220		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○			
N.4.1																							
S.1.1	45			0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
S.1.2	45			0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
S.2.1	25			0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●					
S.2.2	30			0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
S.2.3	25			0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●					
S.3.1	80			0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	●					
S.3.2	60			0,5	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●					
S.3.3	60			0,5	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●					
H.1.1		80		0,3	0,3	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030		●				
H.1.2		60		0,15	0,15	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026		●				
H.1.3																							
H.1.4																							
H.2.1		80		0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034		●				
H.3.1		80		0,3	0,3	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030		●				
O.1.1	300	300		1,0	1,0*	0,058	0,045	0,033	0,108	0,083	0,060	0,135	0,104	0,075	0,162	0,125	0,090	●		○			
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

* = with an a_p of 1.5 x D the f_z should be multiplied by 0.8

Continued on the next page

Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

Cutting data standard values – MonsterMill – ICR – End mill, short – long

						52 784 ... / 52 786 ...											
						Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm		
	Emulsion	Compressed air	MMS	short	long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	140	130		1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10
P.1.2	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.3	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.4	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.5	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.1	120	110		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.2	120	110		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.3	80	90		1,0	1,0*	0,08	0,06	0,05	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08
P.2.4	80	90		1,0	1,0*	0,08	0,06	0,05	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08
P.3.1	80	90		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.3.2	80	90		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.3.3	100	110		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.4.1	100			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06
P.4.2	100			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06
M.1.1	**100**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
M.2.1	**80**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
M.3.1	**100**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
K.1.1		180		1,0	1,0*	0,13	0,10	0,07	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12
K.1.2		160		1,0	1,0*	0,13	0,10	0,07	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12
K.2.1		180		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,14	0,11	0,08	0,19	0,15	0,11
K.2.2		160		1,0	1,0*	0,11	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,19	0,15	0,11
K.3.1		120		1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
K.3.2		120		1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1	280	280		1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10
N.3.2	220	220		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
N.3.3	220	220		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
N.4.1																	
S.1.1	45			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.1.2	45			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.2.1	25			0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
S.2.2	30			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.2.3	25			0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,05	0,06	0,13	0,10	0,07
S.3.1	80			0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08
S.3.2	60			0,5	0,5	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
S.3.3	60			0,5	0,5	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
H.1.1		80		0,3	0,3	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
H.1.2		60		0,15	0,15	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
H.1.3																	
H.1.4																	
H.2.1		80		0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08
H.3.1		80		0,3	0,3	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
O.1.1	300	300		1,0	1,0*	0,22	0,17	0,12	0,27	0,21	0,15	0,32	0,25	0,18	0,38	0,29	0,21
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

* = with an a_p of 1.5 x D the f_z should be multiplied by 0.8

Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

	52 784 ... / 52 786 ...											
	Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		
										○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
P.1.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.3	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.4	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.5	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.1	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.3	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.2.4	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.3.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.2	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.3	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.4.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
P.4.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.1.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.2.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.3.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
K.1.1	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.1.2	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.2.1	0,19	0,16	0,12	0,20	0,17	0,13	0,25	0,22	0,18		●	
K.2.2	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15		●	
K.3.1	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
K.3.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
N.3.2	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.3.3	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.4.1												
S.1.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.1.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.2.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.3	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.3.1	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
S.3.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
S.3.3	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
H.1.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10		●	
H.1.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09		●	
H.1.3												
H.1.4												
H.2.1	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11		●	
H.3.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10		●	
O.1.1	0,38	0,31	0,24	0,41	0,35	0,27	0,43	0,38	0,30	●		○
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – MonsterMill – ICR – End mill, extra long

					52 784 ...																
					Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
	Emulsion	Compressed air	MMS	extra long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min			$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	120	110		1,0	0,5	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	0,10	0,08	0,06
P.1.2	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.3	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.4	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.5	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.1	100	90		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.2	100	90		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.3	70	70		1,0	0,5	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
P.2.4	70	70		1,0	0,5	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
P.3.1	70	70		1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.3.2	70	70		1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.3.3	85	90		1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.4.1	85			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
P.4.2	85			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.1.1	**85**			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.2.1	**70**			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.3.1	**85**			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
K.1.1		150		1,0	0,5	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053	0,13	0,10	0,07
K.1.2		140		1,0	0,5	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053	0,13	0,10	0,07
K.2.1		150		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
K.2.2		140		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
K.3.1		105		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
K.3.2		105		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	240	240		1,0	0,5	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,741	0,572	0,413	0,10	0,08	0,06
N.3.2	190	190		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
N.3.3	190	190		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
N.4.1																				
S.1.1	38			0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.1.2	38			0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.2.1	23			0,5	0,25	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
S.2.2	27			0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.2.3	23			0,5	0,25	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
S.3.1	70			0,5	0,25	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
S.3.2	50			0,5	0,25	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
S.3.3	50			0,5	0,25	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
H.1.1		70		0,5*		0,027	0,021		0,036	0,028		0,045	0,035		0,054	0,042		0,07	0,06	
H.1.2		50		0,5*		0,025	0,019		0,031	0,024		0,040	0,031		0,047	0,036		0,06	0,05	
H.1.3																				
H.1.4																				
H.2.1		70		0,5*		0,031	0,024		0,040	0,031		0,052	0,040		0,061	0,047		0,08	0,06	
H.3.1		70		0,5*		0,027	0,021		0,036	0,028		0,045	0,035		0,054	0,042		0,07	0,06	
O.1.1	250	250		1,0	0,5	0,058	0,045	0,033	0,108	0,083	0,060	0,135	0,104	0,075	0,162	0,125	0,090	0,22	0,17	0,12
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

*= Edge Milling and Trochoidal Milling

Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

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	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	○ suitable		
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
P.1.2	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.3	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.4	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.5	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.1	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.2	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.3	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.2.4	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.3.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.2	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.3	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.4.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
P.4.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.1.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.2.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.3.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
K.1.1	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.1.2	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.2.1	0,14	0,10	0,08	0,14	0,11	0,08	0,19	0,15	0,11	0,19	0,16	0,12	0,20	0,17	0,13	0,25	0,22	0,18		●	
K.2.2	0,12	0,09	0,07	0,14	0,11	0,08	0,19	0,15	0,11	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15		●	
K.3.1	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
K.3.2	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
N.3.2	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.3.3	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.4.1																					
S.1.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.1.2	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.2.2	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.3	0,09	0,07	0,05	0,11	0,05	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.3.1	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
S.3.2	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
S.3.3	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
H.1.1	0,09	0,07		0,11	0,08		0,13	0,10		0,13	0,10		0,14	0,12		0,14	0,13			●	
H.1.2	0,08	0,06		0,09	0,07		0,11	0,09		0,11	0,09		0,12	0,10		0,13	0,11			●	
H.1.3																					
H.1.4																					
H.2.1	0,10	0,08		0,12	0,09		0,14	0,11		0,14	0,12		0,16	0,13		0,16	0,14			●	
H.3.1	0,09	0,07		0,11	0,08		0,13	0,10		0,13	0,10		0,14	0,12		0,14	0,13			●	
O.1.1	0,27	0,21	0,15	0,32	0,25	0,18	0,38	0,29	0,21	0,38	0,31	0,24	0,41	0,35	0,27	0,43	0,38	0,30	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

14

Cutting data standard values – MonsterMill – TCR – End mill

					52 503 ... / 52 504 ... / 52 507 ... / 52 508 ...											
					Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
	long	extra long	long	extra long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.4.1	110	88	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
P.4.2	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.1.1	110	88	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.2.1	80	64	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.3.1	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1	**80**	**96**	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
S.3.2	**70**	**80**	1,0	0,5	0,02	0,015	0,01	0,03	0,022	0,014	0,04	0,029	0,019	0,048	0,035	0,022
S.3.3	**60**	**64**	1,0	0,5	0,15	0,01	0,008	0,025	0,018	0,01	0,035	0,25	0,015	0,04	0,03	0,018

Cutting data standard values – MonsterMill – TCR – End mill

			52 505 ... / 52 506 ...													
			Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12mm		Ø DC = 16 mm	
	long	long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.4.1	110	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
P.4.2	100	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
M.1.1	110	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
M.2.1	80	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
M.3.1	100	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1	**80**	**1,0**	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
S.3.2	**70**	**1,0**	0,02	0,015	0,03	0,022	0,04	0,029	0,048	0,035	0,062	0,046	0,078	0,058	0,083	0,063
S.3.3	**60**	**1,0**	0,15	0,01	0,025	0,018	0,035	0,25	0,04	0,03	0,055	0,035	0,07	0,05	0,075	0,055

	52 503 ... / 52 504 ... / 52 507 ... / 52 508 ...														
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.4.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
P.4.2	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.1.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.2.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.3.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●		
S.3.2	0,062	0,046	0,03	0,078	0,058	0,038	0,083	0,063	0,043	0,109	0,088	0,068	●		
S.3.3	0,055	0,035	0,025	0,07	0,05	0,03	0,075	0,055	0,035	0,1	0,08	0,06	●		

	Ø DC = 20 mm		● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC			
Index	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.4.1	0,111	0,09	●	○	
P.4.2	0,111	0,09	●	○	
M.1.1	0,111	0,09	●	○	
M.2.1	0,111	0,09	●	○	
M.3.1	0,111	0,09	●	○	
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1	0,111	0,09	●		
S.3.2	0,109	0,088	●		
S.3.3	0,1	0,08	●		

Cutting data standard values – MonsterMill – TCR – Ball-nosed end mill

				52 513 ... / 52 514 ...											
				Ø DC = 2 mm		Ø DC = 3 mm		Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm	
	long	extra long		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.4.1	110	65	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
P.4.2	100	60	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.1.1	110	65	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.2.1	80	55	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.3.1	100	60	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	**80**	**60**	0,1 – 0,2	0,017	0,013	0,02	0,014	0,022	0,017	0,022	0,017	0,034	0,025	0,053	0,042
S.3.2	**70**	**50**	0,1 – 0,2	0,014	0,011	0,017	0,012	0,019	0,014	0,019	0,014	0,029	0,022	0,046	0,036
S.3.3	**60**	**40**	0,1 – 0,2	0,012	0,009	0,014	0,01	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,03

Cutting data standard values – MonsterMill – TCR – Torus face cutter

				52 511 ... / 52 512 ...									● 1st choice		
				Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	○ suitable		
	long	extra long		a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	Emulsion	Compressed air	MMS
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
P.4.1	120	110	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
P.4.2	110	100	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.1.1	120	110	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.2.1	100	90	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.3.1	110	100	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	**130**	**120**	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●		
S.3.2	**110**	**100**	0,06	0,02	0,035	0,055	0,065	0,085	0,1	0,12	0,16	0,2	●		
S.3.3	**90**	**80**	0,06	0,015	0,03	0,05	0,06	0,08	0,09	0,11	0,15	0,18	●		

	52 513 ... / 52 514 ...								
	Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		● 1st choice		
							○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC			
Index	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.4.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
P.4.2	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.1.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.2.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.3.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1	0,059	0,046	0,066	0,056	0,073	0,063	●		
S.3.2	0,05	0,04	0,056	0,048	0,062	0,054	●		
S.3.3	0,042	0,033	0,047	0,04	0,052	0,045	●		

Cutting data standard values – MonsterMill – NCR – End mill, long

					53 030 ...											
	ZEFP = 4				Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
M.1.1	120	100	70	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
M.2.1	100	80	60	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
M.3.1	120	100	70	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.1.1	**50**	**40**	**30**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.1.2	**50**	**40**	**30**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.1	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.2	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.3	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.3.1	**120**	**100**	**80**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04
S.3.2	**100**	**80**	**60**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04
S.3.3	**80**	**70**	**60**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04

Plunging angle for ramping and helical milling: 3°

Cutting data standard values – MonsterMill – NCR– End mill, extra long

				53 030 ...											
	ZEFP = 4			Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12mm	
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
M.1.1	100	80	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
M.2.1	90	70	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
M.3.1	100	80	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.1.1	**50**	**40**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.1.2	**50**	**40**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.1	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.2	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.3	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.3.1	**100**	**80**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08
S.3.2	**80**	**70**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08
S.3.3	**70**	**60**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08

Plunging angle for ramping and helical milling: 3°

	53 030 ...												● 1st choice ○ suitable		
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
M.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
M.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
M.3.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
S.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.1.2	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.2	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.3	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.3.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		
S.3.2	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		
S.3.3	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		

	53 030 ...				● 1st choice ○ suitable		
	Ø DC = 16 mm		Ø DC = 20 mm				
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC			
Index	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
M.1.1	0,12	0,09	0,14	0,10	●		○
M.2.1	0,12	0,09	0,14	0,10	●		○
M.3.1	0,12	0,09	0,14	0,10	●		○
S.1.1	0,12	0,09	0,14	0,10	●		
S.1.2	0,12	0,09	0,14	0,10	●		
S.2.1	0,12	0,09	0,14	0,10	●		
S.2.2	0,12	0,09	0,14	0,10	●		
S.2.3	0,12	0,09	0,14	0,10	●		
S.3.1	0,13	0,10	0,16	0,12	●		
S.3.2	0,13	0,10	0,16	0,12	●		
S.3.3	0,13	0,10	0,16	0,12	●		

Cutting data standard values – MonsterMill – NCR – End mill, long

			53 031 ...														
			Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		● 1st choice		
															○ suitable		
	ZEFP = 5		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	Emulsion	Compressed air	MMS
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
M.1.1	100	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
M.2.1	80	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
M.3.1	100	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
S.1.1	**40**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.1.2	**40**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.1	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.2	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.3	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.3.1	**100**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		
S.3.2	**80**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		
S.3.3	**70**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		

Plunging angle for ramping and helical milling = 1°

Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq 2 \times DC$			53 605 ...								● 1st choice		
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	○ suitable		
Peripheral milling			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
P.2.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
P.3.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
H.1.1	160	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
H.1.2	130	2,0	0,014	0,022	0,030	0,041	0,060	0,074	0,096	0,108	○	●	●
H.1.3	120	2,0	0,012	0,018	0,025	0,034	0,050	0,062	0,080	0,090	○	●	●
H.1.4	110	2,0	0,010	0,014	0,020	0,027	0,040	0,050	0,064	0,072	○	●	●

$T_x \leq 2 \times DC$			53 605 ...								● 1st choice		
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	○ suitable		
Face milling			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	110	0,05	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	90	0,05	0,012	0,017	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	75	0,03	0,010	0,014	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	60	0,03	0,008	0,011	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq 3 \times DC$			53 606 ...								● 1st choice		
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	○ suitable		
Peripheral milling			a_e 0,04 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
P.2.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
P.3.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
H.1.1	119	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
H.1.2	112	2,0	0,011	0,019	0,026	0,036	0,053	0,066	0,084	0,096	○	●	●
H.1.3	105	2,0	0,009	0,016	0,022	0,030	0,044	0,055	0,070	0,080	○	●	●
H.1.4	77	2,0	0,007	0,013	0,018	0,024	0,035	0,044	0,056	0,064	○	●	●

$T_x \leq 3 \times DC$			53 606 ...								● 1st choice		
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	○ suitable		
Face milling			a_e 0,04 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
P.2.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
P.3.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
H.1.1	84	0,05	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
H.1.2	77	0,05	0,007	0,011	0,018	0,029	0,043	0,058	0,072	0,084	○	●	●
H.1.3	63	0,03	0,006	0,009	0,015	0,024	0,036	0,048	0,060	0,070	○	●	●
H.1.4	42	0,03	0,005	0,007	0,012	0,019	0,029	0,038	0,048	0,056	○	●	●

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq 2,5 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
Peripheral milling			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
P.2.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
P.3.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
H.1.1	**170**	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
H.1.2	**160**	1,0	0,005	0,005	0,010	0,010	0,014	0,014	0,019	0,024	0,029	0,034
H.1.3	**150**	1,0	0,004	0,004	0,008	0,008	0,012	0,012	0,016	0,020	0,024	0,028
H.1.4	**110**	1,0	0,003	0,003	0,006	0,006	0,010	0,010	0,013	0,016	0,019	0,022

$T_x \leq 2,5 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
Z-layer milling / face milling			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.2.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.3.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.1	**110**	0,05	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.2	**100**	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017
H.1.3	**80**	0,03	0,002	0,002	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,014
H.1.4	**60**	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

$T_x \leq 2,5 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
Full slot			a_e 1,0 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.2.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.3.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.1	**55**	0,05	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.2	**45**	0,05	0,001	0,001	0,003	0,003	0,004	0,005	0,006	0,007	0,008	0,010
H.1.3												
H.1.4												

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

$T_x \leq 2,5 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	1st choice	
Peripheral milling										○	suitable	
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
P.2.3	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
P.3.3	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
H.1.1	170	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
H.1.2	160	1,0	0,043	0,048	0,067	0,101	0,134	0,168	0,192	○	●	●
H.1.3	150	1,0	0,036	0,040	0,056	0,084	0,112	0,140	0,160	○	●	●
H.1.4	110	1,0	0,029	0,032	0,045	0,067	0,090	0,112	0,128	○	●	●

$T_x \leq 2,5 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	1st choice	
Z-layer milling / face milling										○	suitable	
			a_e 0,3x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	110	0,05	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	100	0,05	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	80	0,03	0,018	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	60	0,03	0,014	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

$T_x \leq 2,5 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	1st choice	
Full slot										○	suitable	
			a_e 1,0 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
P.2.3	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
P.3.3	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
H.1.1	55	0,05	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
H.1.2	45	0,05	0,012	0,015	0,020	0,030	0,033	0,035	0,040	○	●	●
H.1.3												
H.1.4												

Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq 2,6–5,0 \times DC$			53 603 ... / 53 604 ...									
Peripheral milling			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
P.2.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
P.3.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
H.1.1	119	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
H.1.2	112	1,0	0,004	0,004	0,007	0,007	0,011	0,011	0,014	0,018	0,022	0,025
H.1.3	105	1,0	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.4	77	1,0	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017

$T_x \leq 2,6–5,0 \times DC$			53 603 ... / 53 604 ...									
Z-layer milling / face milling			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
P.2.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
P.3.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
H.1.1	77	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
H.1.2	70	0,05	0,002	0,002	0,004	0,004	0,005	0,005	0,007	0,009	0,011	0,013
H.1.3	56	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.4	60	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

$T_x \leq 2,6–5,0 \times DC$			53 603 ... / 53 604 ...									
Full slot			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 1,0 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.2.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.3.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.1	39	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.2	32	0,05	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,005	0,006	0,007
H.1.3												
H.1.4												

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

$T_x \leq 2,6–5,0 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	1st choice	
Peripheral milling										○	suitable	
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
P.2.3	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
P.3.3	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
H.1.1	119	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
H.1.2	112	1,0	0,032	0,036	0,050	0,076	0,101	0,126	0,144	○	●	●
H.1.3	105	1,0	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.4	77	1,0	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●

$T_x \leq 2,6–5,0 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	1st choice	
Z-layer milling / face milling										○	suitable	
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
P.2.3	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
P.3.3	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
H.1.1	77	0,05	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
H.1.2	70	0,05	0,016	0,018	0,025	0,038	0,050	0,063	0,072	○	●	●
H.1.3	56	0,03	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.4	60	0,03	0,011	0,012	0,017	0,025	0,034	0,042	0,048	○	●	●

$T_x \leq 2,6–5,0 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	1st choice	
Full slot										○	suitable	
			a_e 1,0 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.2.3	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.3.3	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.1	39	0,05	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.2	32	0,05	0,009	0,010	0,014	0,021	0,028	0,035	0,040	○	●	●
H.1.3												
H.1.4												

Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq 5{,}1–10{,}0 \times DC$			53 603 ... / 53 604 ...									
Peripheral milling			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.2.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.3.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.1	94	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.2	88	0,75	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017
H.1.3	83	0,75	0,002	0,002	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,014
H.1.4	61	0,75	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

$T_x \leq 5{,}1–10{,}0 \times DC$			53 603 ... / 53 604 ...									
Z-layer milling / face milling			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.2.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.3.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.1	61	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.2	55	0,05	0,001	0,001	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008
H.1.3	44	0,03	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,005	0,006	0,007
H.1.4	33	0,03	0,001	0,001	0,002	0,002	0,002	0,002	0,003	0,004	0,005	0,006

$T_x \leq 10{,}1–15{,}0 \times DC$			53 603 ... / 53 604 ...									
Peripheral milling			Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm	Ø DC = 2,5 mm	Ø DC = 3 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
P.2.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
P.3.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
H.1.1	77	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
H.1.2	72	0,5	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,013	0,017	0,019
H.1.3	68	0,5	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011	0,014	0,016
H.1.4	50	0,5	0,003	0,003	0,004	0,004	0,005	0,006	0,008	0,009	0,012	0,013

$T_x \leq 10{,}1–15{,}0 \times DC$			53 603 ... / 53 604 ...									
Z-layer milling / face milling			Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm	Ø DC = 2,5 mm	Ø DC = 3 mm
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
P.2.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
P.3.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
H.1.1	77	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
H.1.2	72	0,5	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,013	0,017	0,019
H.1.3	68	0,5	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011	0,014	0,016
H.1.4	50	0,5	0,003	0,003	0,004	0,004	0,005	0,006	0,008	0,009	0,012	0,013

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

$T_x \leq 5{,}1–10{,}0 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		
Peripheral milling										○ suitable		
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	94	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	88	0,75	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	83	0,75	0,018	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	61	0,75	0,014	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

$T_x \leq 5{,}1–10{,}0 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		
Z-layer milling / face milling										○ suitable		
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	66	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.2.3	66	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.3.3	66	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.1	61	0,05	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.2	55	0,05	0,011	0,012	0,017	0,025	0,034	0,042	0,048	○	●	●
H.1.3	44	0,03	0,009	0,010	0,014	0,021	0,028	0,035	0,040	○	●	●
H.1.4	33	0,03	0,007	0,008	0,011	0,017	0,022	0,028	0,032	○	●	●

$T_x \leq 10{,}1–15{,}0 \times DC$			53 603 ... / 53 604 ...			
			Ø DC = 4 mm	● 1st choice		
Peripheral milling				○ suitable		
			a_e 0,05 x DC			
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	Emulsion	Compressed air	MMS
P.1.3	90	0,5	0,034	○	●	●
P.2.3	90	0,5	0,034	○	●	●
P.3.3	90	0,5	0,034	○	●	●
H.1.1	77	0,5	0,034	○	●	●
H.1.2	72	0,5	0,027	○	●	●
H.1.3	68	0,5	0,022	○	●	●
H.1.4	50	0,5	0,018	○	●	●

$T_x \leq 10{,}1–15{,}0 \times DC$			53 603 ... / 53 604 ...			
			Ø DC = 4 mm	● 1st choice		
Z-layer milling / face milling				○ suitable		
			a_e 0,3 x DC			
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	Emulsion	Compressed air	MMS
P.1.3	90	0,5	0,034	○	●	●
P.2.3	90	0,5	0,034	○	●	●
P.3.3	90	0,5	0,034	○	●	●
H.1.1	77	0,5	0,034	○	●	●
H.1.2	72	0,5	0,027	○	●	●
H.1.3	68	0,5	0,022	○	●	●
H.1.4	50	0,5	0,018	○	●	●

Cutting data standard values – MonsterMill – HCR – Ball-nosed end mill

$T_x \leq 2{,}5 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
P.2.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
P.3.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
H.1.1	180	0,05	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
H.1.2	160	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.3	150	0,03	0,002	0,004	0,005	0,007	0,010	0,012	0,014	0,018	0,022	0,024
H.1.4	130	0,03	0,002	0,003	0,004	0,006	0,008	0,010	0,011	0,014	0,018	0,019

$T_x = 2{,}6–5 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
P.2.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
P.3.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.1	108	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.2	96	0,05	0,002	0,004	0,005	0,007	0,010	0,011	0,014	0,017	0,020	0,023
H.1.3	90	0,03	0,002	0,003	0,004	0,006	0,008	0,010	0,012	0,015	0,017	0,019
H.1.4	78	0,03	0,001	0,002	0,003	0,004	0,006	0,008	0,009	0,012	0,014	0,015

$T_x = 5{,}1–10 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
P.2.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
P.3.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
H.1.1	81	0,04	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
H.1.2	72	0,04	0,001	0,002	0,004	0,005	0,007	0,008	0,011	0,013	0,014	0,017
H.1.3	68	0,02	0,001	0,002	0,003	0,004	0,006	0,007	0,009	0,011	0,012	0,014
H.1.4	59	0,02	0,001	0,002	0,002	0,003	0,005	0,006	0,007	0,009	0,010	0,011

$T_x = 10{,}1–15 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,04 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.2.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.3.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.1	63	0,03	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.2	56	0,03	0,001	0,001	0,002	0,004	0,005	0,006	0,007	0,008	0,010	0,012
H.1.3	53	0,01	0,001	0,001	0,002	0,003	0,004	0,005	0,006	0,007	0,008	0,010
H.1.4	46	0,01	0,001	0,001	0,002	0,002	0,003	0,004	0,005	0,006	0,006	0,008

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

$T_x \leq 2,5 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		
										○ suitable		
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
P.2.3	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
P.3.3	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
H.1.1	180	0,05	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
H.1.2	160	0,05	0,036	0,043	0,058	0,086	0,115	0,144	0,173	○	●	●
H.1.3	150	0,03	0,030	0,036	0,048	0,072	0,096	0,120	0,144	○	●	●
H.1.4	130	0,03	0,024	0,029	0,038	0,058	0,077	0,096	0,115	○	●	●

$T_x = 2,6–5 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		
										○ suitable		
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
P.2.3	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
P.3.3	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
H.1.1	108	0,05	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
H.1.2	96	0,05	0,029	0,035	0,046	0,060	0,084	0,107	0,130	○	●	●
H.1.3	90	0,03	0,024	0,029	0,039	0,050	0,070	0,089	0,108	○	●	●
H.1.4	78	0,03	0,019	0,023	0,031	0,040	0,056	0,071	0,086	○	●	●

$T_x = 5,1–10 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		
										○ suitable		
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
P.2.3	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
P.3.3	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
H.1.1	81	0,04	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
H.1.2	72	0,04	0,022	0,026	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.3	68	0,02	0,018	0,022	0,029	0,029	0,043	0,058	0,072	○	●	●
H.1.4	59	0,02	0,014	0,018	0,023	0,023	0,035	0,046	0,058	○	●	●

$T_x = 10,1–15 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		
										○ suitable		
			a_e 0,04 x DC		a_e 0,05 x DC							
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
P.2.3	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
P.3.3	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.1	63	0,03	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.2	56	0,03	0,017	0,022	0,028	0,028	0,041	0,055	0,069	○	●	●
H.1.3	53	0,01	0,014	0,018	0,023	0,023	0,035	0,046	0,058	○	●	●
H.1.4	46	0,01	0,011	0,014	0,019	0,018	0,028	0,037	0,046	○	●	●

Cutting data standard values – MonsterMill – HCR – Ball-nosed end mill

$T_x \leq 2,5 \times DC$			53 602 ...						● 1st choice		
			Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	○ suitable		
			a_e 0,05 x DC								
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.2.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.3.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.1	180	0,05	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.2	160	0,05	0,030	0,040	0,060	0,081	0,101	0,121	○	●	●
H.1.3	150	0,03	0,025	0,034	0,050	0,067	0,084	0,101	○	●	●
H.1.4	130	0,03	0,020	0,027	0,040	0,054	0,067	0,081	○	●	●

$T_x \leq 2,6–5,0 \times DC$			53 602 ...						● 1st choice		
			Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	○ suitable		
			a_e 0,05 x DC								
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.2.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.3.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.1	180	0,05	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.2	160	0,05	0,030	0,040	0,060	0,081	0,101	0,121	○	●	●
H.1.3	150	0,03	0,025	0,034	0,050	0,067	0,084	0,101	○	●	●
H.1.4	130	0,03	0,020	0,027	0,040	0,054	0,067	0,081	○	●	●

$T_x \leq 5,1–10 \times DC$			53 602 ...						● 1st choice		
			Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	○ suitable		
			a_e 0,04 x DC								
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
P.2.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
P.3.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
H.1.1	81	0,04	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
H.1.2	72	0,04	0,018	0,024	0,024	0,036	0,048	0,060	○	●	●
H.1.3	68	0,02	0,015	0,020	0,020	0,030	0,040	0,050	○	●	●
H.1.4	59	0,02	0,012	0,016	0,016	0,024	0,032	0,040	○	●	●

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Cutting data standard values – SilverLine – NC deburring cutter

		50 560 ... / 50 561 ... / 50 562 ... / 50 563 ...						50 564 ... / 50 565 ... / 50 566 ... / 50 567 ...								
		DPB72S						uncoated								
		Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Emulsion	Compressed air	MMS
Index	v_c m/min	f_z mm						v_c m/min	f_z mm							
P.1.1	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.2	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.3	120	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.4	120	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.5	90	0,025	0,03	0,04	0,055	0,075	0,085	50	0,015	0,02	0,03	0,045	0,065	0,075	●	○	○
P.2.1	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.2.2	100	0,03	0,035	0,045	0,06	0,08	0,09	60	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.2.3	90	0,025	0,03	0,04	0,055	0,075	0,085	50	0,015	0,02	0,03	0,045	0,065	0,075	●	○	○
P.2.4	80	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.3.1	120	0,03	0,035	0,04	0,055	0,075	0,085	65	0,02	0,025	0,03	0,045	0,065	0,075	●	○	○
P.3.2	70	0,02	0,02	0,025	0,03	0,04	0,05	40	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.3.3	70	0,02	0,02	0,025	0,03	0,04	0,05	40	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.4.1	100	0,03	0,035	0,04	0,055	0,075	0,085	60	0,02	0,025	0,03	0,045	0,065	0,075	●		
P.4.2	95	0,025	0,03	0,04	0,055	0,075	0,085	55	0,015	0,02	0,03	0,045	0,065	0,075	●		
M.1.1	100	0,025	0,03	0,04	0,055	0,075	0,085	65	0,025	0,03	0,04	0,055	0,075	0,085	●		
M.2.1	80	0,02	0,02	0,025	0,03	0,04	0,05	50	0,02	0,02	0,025	0,03	0,04	0,05	●		
M.3.1	100	0,025	0,03	0,04	0,055	0,075	0,085	65	0,025	0,03	0,04	0,055	0,075	0,085	●		
K.1.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.1.2	100	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.2.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.2.2	120	0,03	0,035	0,045	0,06	0,08	0,09	80	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.3.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.3.2	120	0,03	0,035	0,045	0,06	0,08	0,09	80	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	80	0,02	0,02	0,025	0,03	0,04	0,05	50	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.1.2	45	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.1	50	0,015	0,015	0,02	0,025	0,035	0,045	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.2	40	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.3	45	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.1	60	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.2	65	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.3	50	0,015	0,015	0,02	0,025	0,035	0,045	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Cutting data standard values – SilverLine – End mill

			50 958 ...																		
	Type long		Ø DC = 3,0			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 7,0–8,0 mm			Ø DC = 9,0–10,0mm		
			a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	110	1,0*	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043
P.1.2	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.3	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.4	80	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.5	80	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.1	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.2	70	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.3	70	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.4	55	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
P.4.2	40	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.1.1	40	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.2.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.3.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
K.1.1	130	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.1.2	120	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.2.1	130	1,0*	0,040	0,032	0,020	0,048	0,038	0,024	0,056	0,045	0,028	0,064	0,051	0,032	0,079	0,063	0,040	0,095	0,076	0,048
K.2.2	120	1,0*	0,040	0,032	0,020	0,048	0,038	0,024	0,056	0,045	0,028	0,064	0,051	0,032	0,079	0,063	0,040	0,095	0,076	0,048
K.3.1	130	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.3.2	120	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	200	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.3.2	200	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.3.3	140	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.4.1																				
S.1.1	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.1.2	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.1	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.2	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.3	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.3.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
S.3.2	20	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

Plunging angle for ramping and helical milling: 3°

	50 958 ...																	
	Ø DC = 11,0–12,0 mm			Ø DC = 14,0 mm			Ø DC = 15,0–16,0 mm			Ø DC = 17,0–18,0 mm			Ø DC = 19,0–20,0 mm			○ 1st choice		
																● suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm																	
P.1.1	0,102	0,082	0,051	0,116	0,093	0,058	0,124	0,099	0,062	0,131	0,105	0,066	0,139	0,111	0,070	●	○	○
P.1.2	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.3	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.4	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.5	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.1	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.2	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.3	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.4	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.3.1																●	○	○
P.3.2																		
P.3.3																		
P.4.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
P.4.2	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.1.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.2.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.3.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
K.1.1	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.1.2	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.2.1	0,110	0,088	0,055	0,126	0,101	0,063	0,134	0,107	0,067	0,142	0,114	0,071	0,150	0,120	0,075	●	○	○
K.2.2	0,110	0,088	0,055	0,126	0,101	0,063	0,134	0,107	0,067	0,142	0,114	0,071	0,150	0,120	0,075	●	○	○
K.3.1	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.3.2	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.3.2	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.3.3	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.4.1																		
S.1.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
S.3.2	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

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Cutting data standard values – SilverLine – End mill

							50 966 ... / 50 967 ... / 50 992 ...														
	Type short		Type long		Type extra long		Ø DC = 3,0 mm			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 6,5–8,0 mm		
							a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	v_c m/min	$a_{p\,max}$ x DC	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	252	1,0	210	1,0*	105	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.2	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.3	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.4	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.5	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.1	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.2	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.3	216	1,0	180	1,0*	90	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.4	204	1,0	170	1,0*	85	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.3.1																					
P.3.2																					
P.3.3																					
P.4.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
P.4.2	96	1,0	80	1,0*	50	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.1.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.2.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.3.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
K.1.1	240	1,0	200	1,0*	100	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
K.1.2	216	1,0	180	1,0*	90	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
K.2.1	228	1,0	190	1,0*	60	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.2.2	204	1,0	170	1,0*	85	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.3.1	216	1,0	180	1,0*	90	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.3.2	192	1,0	160	1,0*	80	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	420	1,0	350	1,0*	175	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.3.2	420	1,0	350	1,0*	175	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.3.3	336	1,0	280	1,0*	140	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.4.1																					
S.1.1	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.1.2	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.1	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.2	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.3	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.3.1	108	1,0	90	1,0*	45	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
S.3.2	60	1,0	50	1,0*	25	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

"Extra-long" version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

	50 966 ... / 50 967 ... / 50 992 ...																		● 1st choice		
	Ø DC = 8,5–10,0mm			Ø DC = 12,0 mm			Ø DC = 14,0mm			Ø DC = 16,0mm			Ø DC = 18,0 mm			Ø DC = 20,0 mm			○ suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.3	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.4	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.5	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.3	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.4	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.3.1																			●	○	○
P.3.2																					
P.3.3																					
P.4.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
P.4.2	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.1.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.2.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.3.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
K.1.1	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.1.2	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.2.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.3.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.3.2	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.3.3	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.4.1																					
S.1.1	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●		
S.3.2	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

Plunging angle for ramping and helical milling: 3°

14

Cutting data standard values – SilverLine – End mill

			50 976 ... / 50 977 ...																	
	Type long		Ø DC = 3,0 mm		Ø DC = 4,0 mm		Ø DC = 5,0 mm		Ø DC = 6,0 mm		Ø DC = 8,0 mm		Ø DC = 10,0 mm		Ø DC = 12,0 mm		Ø DC = 14,0 mm		Ø DC = 16,0 mm	
			a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm																	
P.1.1	210	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.1.2	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.1.3	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.1.4	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.1.5	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.2.1	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.2.2	190	2,0	0,020	0,014	0,027	0,019	0,034	0,025	0,042	0,030	0,056	0,040	0,070	0,050	0,084	0,060	0,098	0,070	0,105	0,075
P.2.3	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.2.4	170	2,0	0,020	0,014	0,027	0,019	0,034	0,025	0,042	0,030	0,056	0,040	0,070	0,050	0,084	0,060	0,098	0,070	0,105	0,075
P.3.1	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.3.2	170	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.3.3	140	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.4.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
P.4.2	100	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
M.1.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
M.2.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
M.3.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
K.1.1	200	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
K.1.2	180	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
K.2.1	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
K.2.2	170	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
K.3.1	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
K.3.2	160	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	350	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
N.3.2	350	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
N.3.3	280	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
N.4.1																				
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1																				
S.3.2																				
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

Profiling with an a_e < 0.3xDC only possible under certain conditions!

Plunging angle for ramping and helical milling: 3°

	50 976 ... / 50 977 ...						
	Ø DC = 18,0 mm		Ø DC = 20,0 mm		● 1st choice		
					○ suitable		
	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm		f_z mm				
P.1.1	0,129	0,092	0,137	0,098	●	○	○
P.1.2	0,129	0,092	0,137	0,098	●	○	○
P.1.3	0,129	0,092	0,137	0,098	●	○	○
P.1.4	0,129	0,092	0,137	0,098	●	○	○
P.1.5	0,129	0,092	0,137	0,098	●	○	○
P.2.1	0,129	0,092	0,137	0,098	●	○	○
P.2.2	0,112	0,080	0,119	0,085	●	○	○
P.2.3	0,129	0,092	0,137	0,098	●	○	○
P.2.4	0,112	0,080	0,119	0,085	●	○	○
P.3.1	0,129	0,092	0,137	0,098	●	○	○
P.3.2	0,129	0,092	0,137	0,098	●	○	○
P.3.3	0,129	0,092	0,137	0,098	●	○	○
P.4.1	0,076	0,054	0,081	0,058	●		
P.4.2	0,076	0,054	0,081	0,058	●		
M.1.1	0,076	0,054	0,081	0,058	●		
M.2.1	0,076	0,054	0,081	0,058	●		
M.3.1	0,076	0,054	0,081	0,058	●		
K.1.1	0,143	0,102	0,151	0,108	●	●	●
K.1.2	0,143	0,102	0,151	0,108	●	●	●
K.2.1	0,129	0,092	0,137	0,098	●	●	●
K.2.2	0,129	0,092	0,137	0,098	●	●	●
K.3.1	0,129	0,092	0,137	0,098	●	●	●
K.3.2	0,129	0,092	0,137	0,098	●	●	●
N.1.1							
N.1.2							
N.2.1							
N.2.2							
N.2.3							
N.3.1	0,143	0,102	0,151	0,108	●	○	○
N.3.2	0,143	0,102	0,151	0,108	●	○	○
N.3.3	0,143	0,102	0,151	0,108	●	○	○
N.4.1							
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1							
S.3.2							
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1							
O.1.2							
O.2.1							
O.2.2							
O.3.1							

Cutting data standard values – SilverLine – End mill

			50 970 ... / 50 971 ... / 50 974 ... / 50 975 ...																	
	Type extra long		Ø DC = 3,0 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC = 6,0 mm			Ø DC = 8,0 mm			Ø DC = 10,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm																	
P.1.1	160	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.3	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.4	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.5	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.1	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.3	120	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.4	120	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.1	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.2	80	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.3	80	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.4.1	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
P.4.2	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.1.1	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.2.1	70	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.3.1	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
K.1.1	150	1,0	0,040	0,031	0,022	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,110	0,082	0,055
K.1.2	140	1,0	0,040	0,031	0,022	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,110	0,082	0,055
K.2.1	150	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.2.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.3.1	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.3.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	220	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.3.2	180	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.3.3	180	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.4.1																				
S.1.1	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.1.2	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.1	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.2	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.3	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.3.1	80	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,072	0,055	0,040	0,090	0,069	0,050
S.3.2	70	0,5	0,020	0,015	0,011	0,027	0,021	0,015	0,032	0,025	0,018	0,040	0,031	0,022	0,054	0,042	0,030	0,072	0,055	0,040
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

Plunging angle for ramping and helical milling: 3°

	50 970 ... / 50 971 ... / 50 974 ... / 50 975 ...															● 1st choice		
	Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16,0 mm			Ø DC = 18,0 mm			Ø DC = 20 mm			○ suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.4	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.5	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.4	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.4.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
P.4.2	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.1.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.2.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.3.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
K.1.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	●	●
K.1.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	●	●
K.2.1	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.2.2	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.3.1	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.3.2	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.3.2	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.3.3	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.4.1																		
S.1.1	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.1.2	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.1	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.2	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.3	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.3.1	0,108	0,083	0,060	0,126	0,097	0,070	0,144	0,111	0,080	0,162	0,125	0,090	0,180	0,139	0,100	●		
S.3.2	0,090	0,069	0,050	0,099	0,076	0,055	0,108	0,083	0,060	0,126	0,097	0,070	0,144	0,111	0,080	●		
S.3.3																●		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – SilverLine – End mill, roughing-finishing and

				50 969 ... / 50 970... / 50 971 ... / 50 972 ... / 50 973 ... / 50 974 ... / 50 975 ... / 50 978 ... / 50 979 ...																			
				Ø DC = 3,0 mm			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 7,0–8,0 mm			Ø DC = 9,0–10,0 mm		
	Type short	Type long		a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	253	230	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.2	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.3	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.4	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.5	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.1	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.2	230	210	1,0*	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
P.2.3	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.4	210	190	1,0*	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
P.3.1	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.3.2	210	190	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.3.3	176	160	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.4.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
P.4.2	100	90	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.1.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.2.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.3.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
K.1.1	242	220	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
K.1.2	220	200	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
K.2.1	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.2.2	210	190	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.3.1	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.3.2	200	180	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	385	350	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.3.2	308	350	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.3.3	308	280	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.4.1																					
S.1.1	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.1.2	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.1	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.2	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.3	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.3.1	110	90	0,5	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
S.3.2	70	50	0,5	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

Plunging angle for ramping and helical milling: 3°

rough milling cutter

Index	50 969 ... / 50 970... / 50 971 ... / 50 972 ... / 50 973 ... / 50 974 ... / 50 975 ... / 50 978 ... / 50 979 ...															● 1st choice ○ suitable		
	Ø DC = 11,0–12,0 mm			Ø DC = 14 mm			Ø DC = 15,0–16,0 mm			Ø DC = 17,0–18,0 mm			Ø DC = 19,0–20,0 mm					
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.4	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.5	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.2	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.4	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.3.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.3.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.3.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.4.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
P.4.2	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.1.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.2.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.3.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
K.1.1	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●	●	●
K.1.2	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●	●	●
K.2.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.2.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.3.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.3.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.3.2	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.3.3	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.4.1																		
S.1.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●		
S.3.2	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

14

Cutting data standard values – SilverLine – Ball-nosed end mill

					50 963 ...																	
	Type short		Type long		Ø DC = 3,0 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC = 6,0 mm			Ø DC = 7,0 mm			Ø DC = 8,0 mm		
					a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	300	0,08	180	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.2	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.3	225	0,08	135	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.4	225	0,08	135	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.5	245	0,08	145	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.1	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.2	215	0,08	130	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
P.2.3	190	0,08	115	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.4	210	0,08	125	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.3.1	210	0,08	125	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.3.2	175	0,08	105	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
P.3.3	130	0,08	80	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
P.4.1																						
P.4.2																						
M.1.1																						
M.2.1																						
M.3.1																						
K.1.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.1.2	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.2.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.2.2	280	0,08	170	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
K.3.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.3.2	280	0,08	170	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
N.1.1																						
N.1.2																						
N.2.1																						
N.2.2																						
N.2.3																						
N.3.1																						
N.3.2																						
N.3.3	455	0,08	275	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1	100	0,08	60	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.2	60	0,08	35	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.3	55	0,08	35	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.4																						
H.2.1	70	0,08	40	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.3.1	100	0,08	60	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

Plunging angle for ramping and helical milling: 3°

	50 963 ...																				
	Ø DC = 10,0 mm			Ø DC = 12,0 mm			Ø DC = 14,0 mm			Ø DC = 16,0 mm			Ø DC = 18,0 mm			Ø DC = 20,0 mm			● 1st choice		
																			○ suitable		
	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	Emulsion	Compressed air	MMS
Index	f_z mm																				
P.1.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.2	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.3	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.4	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.5	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.2.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.2.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
P.2.3	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.2.4	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.3.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.3.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
P.3.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,180	0,144	0,090	0,210	0,168	0,105	0,240	0,192	0,120	●	○	○
P.4.1																					
P.4.2																					
M.1.1																					
M.2.1																					
M.3.1																					
K.1.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.1.2	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.2.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.2.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
K.3.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.3.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1																					
N.3.2																					
N.3.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,180	0,144	0,090	0,210	0,168	0,105	0,240	0,192	0,120	●		
N.4.1																					
S.1.1																					
S.1.2																					
S.2.1																					
S.2.2																					
S.2.3																					
S.3.1																					
S.3.2																					
S.3.3																					
H.1.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.2	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.4																					
H.2.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.3.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

Cutting data standard values – SilverLine – High-precision finish milling cutter

				50 991 ...										
				Ø DC = 6,0 mm	Ø DC = 8,0 mm	Ø DC = 10,0 mm	Ø DC = 12,0 mm	Ø DC = 16,0 mm	Ø DC = 20,0 mm	Ø DC = 25,0 mm	● 1st choice			
											○ suitable			
	Type long	Type extra long		a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC				
Index	v_c m/min	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS	
P.1.1	**260**	**180**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.1.2	**250**	**175**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.1.3	**250**	**175**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.1.4	**230**	**160**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.1.5	**230**	**160**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.2.1	**250**	**175**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.2.2	**230**	**160**	2,0	0,023	0,031	0,039	0,047	0,059	0,067	0,077	●			
P.2.3	**220**	**155**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.2.4	**210**	**145**	2,0	0,023	0,031	0,039	0,047	0,059	0,067	0,077	●			
P.3.1	**220**	**155**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.3.2	**210**	**145**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.3.3	**175**	**120**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.4.1	**120**	**80**	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●			
P.4.2	**100**	**70**	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●			
M.1.1	**120**	**80**	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●			
M.2.1	**120**	**80**	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●			
M.3.1	**120**	**80**	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●			
K.1.1	250	175	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●			
K.1.2	220	155	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●			
K.2.1	230	160	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
K.2.2	210	145	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
K.3.1	220	155	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
K.3.2	200	140	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
N.1.1														
N.1.2														
N.2.1														
N.2.2														
N.2.3														
N.3.1	430	300	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●			
N.3.2	430	300	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●			
N.3.3	350	245	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●			
N.4.1														
S.1.1	**40**	**30**	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●			
S.1.2	**40**	**30**	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●			
S.2.1	**40**	**30**	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●			
S.2.2	**40**	**30**	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●			
S.2.3	**40**	**30**	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●			
S.3.1	**200**	**140**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
S.3.2	**125**	**85**	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●			
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

Plunging angle for ramping and helical milling = 1°

Cutting data standard values – SilverLine – Radius milling cutters – 50 990 ... – Finish machining

			50 990 ...										
			Ø DC = 4,0 mm	Ø DC = 5,0 mm	Ø DC = 6,0 mm	Ø DC = 8,0 mm	Ø DC = 10,0 mm	Ø DC = 12,0 mm	Ø DC = 16,0 mm	Ø DC = 20,0 mm	● 1st choice		
											○ suitable		
	Type long		a_p 0,05 x DC	a_p 0,05 x DC	a_p 0,05 x DC	a_p 0,05 x DC	a_p 0,05 x DC	a_p 0,05 x DC	a_p 0,05 x DC	a_p 0,05 x DC	Emulsion	Compressed air	MMS
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
P.1.1	195	0,08	0,019	0,025	0,030	0,040	0,050	0,060	0,075	0,085	●	○	○
P.1.2	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.3	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.4	145	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.5	145	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.1	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.2	130	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.3	130	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.4	100	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.3.1													
P.3.2													
P.3.3													
P.4.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
P.4.2	75	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.1.1	75	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.2.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.3.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
K.1.1	235	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.1.2	220	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.2.1	235	0,08	0,028	0,033	0,039	0,050	0,061	0,072	0,089	0,100	●		○
K.2.2	220	0,08	0,028	0,033	0,039	0,050	0,061	0,072	0,089	0,100	●		○
K.3.1	235	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.3.2	220	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	360	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.3.2	360	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.3.3	255	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.4.1													
S.1.1													
S.1.2													
S.2.1													
S.2.2													
S.2.3													
S.3.1													
S.3.2													
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Plunging angle for ramping and helical milling: 3°

Cutting data standard values – SilverLine – Radius milling cutters – 50 990 ... –

			50 990 ...																		
	Type long		Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC = 6,0 mm			Ø DC = 8,0 mm			Ø DC = 10,0 mm			Ø DC = 12,0 mm		
			a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	130	1,0	0,026	0,022	0,017	0,031	0,027	0,021	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045
P.1.2	110	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.1.3	110	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.1.4	95	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.1.5	95	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.2.1	110	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.2.2	85	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.2.3	85	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.2.4	65	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1	60	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
P.4.2	50	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
M.1.1	50	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
M.2.1	60	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
M.3.1	60	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
K.1.1	155	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072
K.1.2	145	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072
K.2.1	155	1,0	0,032	0,027	0,021	0,038	0,033	0,025	0,044	0,038	0,029	0,054	0,047	0,036	0,065	0,056	0,043	0,077	0,066	0,051
K.2.2	145	1,0	0,032	0,027	0,021	0,038	0,033	0,025	0,044	0,038	0,029	0,054	0,047	0,036	0,065	0,056	0,043	0,077	0,066	0,051
K.3.1	155	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072
K.3.2	145	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	240	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066
N.3.2	240	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066
N.3.3	170	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066
N.4.1																				
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1																				
S.3.2																				
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

Plunging angle for ramping and helical milling: 3°

Rough machining

	50 990 ...								
	Ø DC = 16 mm			Ø DC = 20 mm			○ 1st choice		
							● suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm					
P.1.1	0,083	0,072	0,055	0,092	0,080	0,062	●	○	○
P.1.2	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.3	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.4	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.5	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.1	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.2	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.3	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.4	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.3.1									
P.3.2									
P.3.3									
P.4.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
P.4.2	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.1.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.2.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.3.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
K.1.1	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.1.2	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.2.1	0,093	0,081	0,062	0,104	0,090	0,070	●	○	○
K.2.2	0,093	0,081	0,062	0,104	0,090	0,070	●	○	○
K.3.1	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.3.2	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.3.2	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.3.3	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – SilverLine – Torus face cutter

				50 989 ...															
				Ø DC = 6,0 mm			Ø DC = 8,0 mm			Ø DC = 10,0 mm			Ø DC = 12,0 mm			Ø DC = 16,0 mm		
	Type long	Type extra long		a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC
Index	v_c m/min		$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	240	190	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.2	210	170	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.3	210	170	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.4	190	150	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.5	190	150	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.1	220	175	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.2	200	160	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.3	180	145	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.4	170	135	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.1	170	135	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.2	150	120	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.3	120	95	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.4.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.4.2	70	55	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.1.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.2.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.3.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.1.1	250	200	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.1.2	230	185	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.2.1	200	160	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.2.2	180	145	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.3.1	220	175	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.3.2	210	170	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3	250	200	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.1.2	80	65	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.1.3																		
H.1.4																		
H.2.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.3.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

	50 989 ...					
	Ø DC = 20,0 mm			● 1st choice		
				○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	Emulsion	Compressed air	MMS
Index	f_z mm					
P.1.1	0,912	0,730	0,456	●	○	○
P.1.2	0,912	0,730	0,456	●	○	○
P.1.3	0,912	0,730	0,456	●	○	○
P.1.4	0,912	0,730	0,456	●	○	○
P.1.5	0,912	0,730	0,456	●	○	○
P.2.1	0,912	0,730	0,456	●	○	○
P.2.2	0,912	0,730	0,456	●	○	○
P.2.3	0,912	0,730	0,456	●	○	○
P.2.4	0,912	0,730	0,456	●	○	○
P.3.1	0,912	0,730	0,456	●	○	○
P.3.2	0,912	0,730	0,456	●	○	○
P.3.3	0,912	0,730	0,456	●	○	○
P.4.1	0,912	0,730	0,456	●		
P.4.2	0,912	0,730	0,456	●		
M.1.1	0,912	0,730	0,456	●		
M.2.1	0,912	0,730	0,456	●		
M.3.1	0,912	0,730	0,456	●		
K.1.1	0,912	0,730	0,456	●	○	○
K.1.2	0,912	0,730	0,456	●	○	○
K.2.1	0,912	0,730	0,456	●	○	○
K.2.2	0,912	0,730	0,456	●	○	○
K.3.1	0,912	0,730	0,456	●	○	○
K.3.2	0,912	0,730	0,456	●	○	○
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3	0,912	0,730	0,456	●	○	○
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1	0,736	0,589	0,368		●	●
H.1.2	0,736	0,589	0,368		●	●
H.1.3						
H.1.4						
H.2.1	0,736	0,589	0,368		●	●
H.3.1	0,736	0,589	0,368		●	●
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – MonsterMill – PCR – End mill, UNI version

			52 613 ... / 52 614 ... / 52 615 ... / 52 619 ...																				
			Ø DC = 5,0 mm			Ø DC = 5,7–6,0 mm			Ø DC = 6,7–7,0 mm			Ø DC = 7,7–8,0 mm			Ø DC = 8,7–9,0 mm			Ø DC = 9,7–10,0 mm			Ø DC = 11,7–12,0 mm		
	Short / long / extra long		a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	240	1,0	0,096	0,068	0,043	0,107	0,075	0,048	0,122	0,086	0,054	0,136	0,096	0,061	0,150	0,106	0,067	0,163	0,115	0,073	0,188	0,133	0,084
P.1.2	230	1,0	0,092	0,065	0,041	0,102	0,072	0,046	0,116	0,082	0,052	0,130	0,092	0,058	0,143	0,101	0,064	0,156	0,110	0,070	0,179	0,127	0,080
P.1.3	220	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
P.1.4	205	1,0	0,083	0,059	0,037	0,092	0,065	0,041	0,105	0,074	0,047	0,118	0,083	0,053	0,130	0,092	0,058	0,141	0,100	0,063	0,162	0,115	0,072
P.1.5	195	1,0	0,079	0,056	0,035	0,087	0,062	0,039	0,100	0,070	0,045	0,111	0,079	0,050	0,123	0,087	0,055	0,134	0,094	0,060	0,153	0,109	0,069
P.2.1	220	1,0	0,096	0,068	0,043	0,107	0,075	0,048	0,122	0,086	0,054	0,136	0,096	0,061	0,150	0,106	0,067	0,163	0,115	0,073	0,188	0,133	0,084
P.2.2	200	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
P.2.3	180	1,0	0,079	0,056	0,035	0,087	0,062	0,039	0,100	0,070	0,045	0,111	0,079	0,050	0,123	0,087	0,055	0,134	0,094	0,060	0,153	0,109	0,069
P.2.4	140	1,0	0,073	0,051	0,033	0,081	0,057	0,036	0,092	0,065	0,041	0,103	0,073	0,046	0,114	0,080	0,051	0,124	0,087	0,055	0,142	0,100	0,064
P.3.1	130	1,0	0,084	0,060	0,038	0,094	0,066	0,042	0,107	0,076	0,048	0,120	0,085	0,054	0,132	0,093	0,059	0,143	0,101	0,064	0,165	0,117	0,074
P.3.2	120	1,0	0,080	0,057	0,036	0,089	0,063	0,040	0,101	0,072	0,045	0,114	0,080	0,051	0,125	0,088	0,056	0,136	0,096	0,061	0,156	0,111	0,070
P.3.3	110	1,0	0,076	0,053	0,034	0,084	0,059	0,038	0,096	0,068	0,043	0,107	0,076	0,048	0,118	0,084	0,053	0,129	0,091	0,058	0,148	0,104	0,066
P.4.1	90	1,0	0,058	0,041	0,026	0,065	0,046	0,029	0,074	0,052	0,033	0,083	0,058	0,037	0,091	0,064	0,041	0,099	0,070	0,044	0,114	0,080	0,051
P.4.2	90	1,0	0,058	0,041	0,026	0,065	0,046	0,029	0,074	0,052	0,033	0,083	0,058	0,037	0,091	0,064	0,041	0,099	0,070	0,044	0,114	0,080	0,051
M.1.1	60	1,0	0,051	0,036	0,023	0,057	0,040	0,025	0,065	0,046	0,029	0,072	0,051	0,032	0,080	0,056	0,036	0,087	0,061	0,039	0,099	0,070	0,044
M.2.1	55	1,0	0,042	0,030	0,019	0,047	0,033	0,021	0,054	0,038	0,024	0,060	0,042	0,027	0,066	0,047	0,029	0,072	0,051	0,032	0,082	0,058	0,037
M.3.1	60	1,0	0,044	0,031	0,020	0,048	0,034	0,022	0,055	0,039	0,025	0,062	0,044	0,028	0,068	0,048	0,031	0,074	0,052	0,033	0,085	0,060	0,038
K.1.1	240	1,0	0,145	0,103	0,065	0,162	0,114	0,072	0,185	0,130	0,083	0,206	0,146	0,092	0,227	0,161	0,102	0,247	0,175	0,111	0,284	0,201	0,127
K.1.2	180	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.2.1	220	1,0	0,124	0,087	0,055	0,137	0,097	0,061	0,157	0,111	0,070	0,175	0,124	0,078	0,193	0,137	0,086	0,210	0,149	0,094	0,242	0,171	0,108
K.2.2	180	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.3.1	160	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.3.2	150	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
N.1.1																							
N.1.2																							
N.2.1																							
N.2.2																							
N.2.3																							
N.3.1																							
N.3.2																							
N.3.3																							
N.4.1																							
S.1.1																							
S.1.2																							
S.2.1																							
S.2.2																							
S.2.3																							
S.3.1																							
S.3.2																							
S.3.3																							
H.1.1																							
H.1.2																							
H.1.3																							
H.1.4																							
H.2.1																							
H.3.1																							
O.1.1																							
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

52 613 ... / 52 614 ... / 52 615 ... / 52 619 ...

Index	Ø DC = 13,7–14,0 mm			Ø DC = 15,5–16,0 mm			Ø DC = 17,5–20,0 mm			Ramping	Helical milling			Drilling	● 1st choice		
															○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	1,0 x DC		Hole diameter		1,0 x DC			
	f_z mm			f_z mm			f_z mm			Max. plunging angle	$\alpha_{R\,max.}$*	$D_{min.}$ DC x 1,5	$D_{max.}$ DC x 1,8	f_z Factor	Emulsion	Compressed air	MMS
P.1.1	0,209	0,148	0,094	0,229	0,162	0,102	0,262	0,185	0,117	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.2	0,200	0,141	0,089	0,219	0,155	0,098	0,250	0,177	0,112	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.3	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.4	0,181	0,128	0,081	0,198	0,140	0,088	0,226	0,160	0,101	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.5	0,171	0,121	0,077	0,187	0,133	0,084	0,214	0,152	0,096	45	0,75 x DC	25°	16°	0,9	○	●	○
P.2.1	0,209	0,148	0,094	0,229	0,162	0,102	0,262	0,185	0,117	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.2	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.3	0,171	0,121	0,077	0,187	0,133	0,084	0,214	0,152	0,096	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.4	0,159	0,112	0,071	0,174	0,123	0,078	0,198	0,140	0,089	45	0,75 x DC	25°	16°	0,7	○	●	○
P.3.1	0,184	0,130	0,082	0,201	0,142	0,090	0,230	0,163	0,103	30	0,5 x DC	18°	11°	0,8	●		○
P.3.2	0,175	0,123	0,078	0,191	0,135	0,085	0,218	0,154	0,098	30	0,5 x DC	18°	11°	0,7	●		○
P.3.3	0,165	0,117	0,074	0,181	0,128	0,081	0,206	0,146	0,092	30	0,5 x DC	18°	11°	0,7	●		○
P.4.1	0,127	0,090	0,057	0,139	0,098	0,062	0,159	0,112	0,071	15	0,5 x DC	18°	11°		●		○
P.4.2	0,127	0,090	0,057	0,139	0,098	0,062	0,159	0,112	0,071	15	0,5 x DC	18°	11°		●		○
M.1.1	0,111	0,079	0,050	0,122	0,086	0,054	0,139	0,098	0,062	15	0,5 x DC	18°	11°		●		
M.2.1	0,092	0,065	0,041	0,101	0,071	0,045	0,115	0,081	0,051	15	0,5 x DC	18°	11°		●		
M.3.1	0,095	0,067	0,043	0,104	0,074	0,047	0,119	0,084	0,053	15	0,5 x DC	18°	11°		●		
K.1.1	0,317	0,224	0,142	0,347	0,245	0,155	0,397	0,281	0,178	45	0,75 x DC	25°	16°	0,8		●	
K.1.2	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.2.1	0,270	0,191	0,121	0,295	0,209	0,132	0,337	0,239	0,151	45	0,75 x DC	25°	16°	0,8		●	
K.2.2	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.3.1	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.3.2	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,8		●	
N.1.1																	
N.1.2																	
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O.2.2																	
O.3.1																	

14

* Width of cut per helical revolution

Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values – MonsterMill – PCR – End mill, UNI version – trochoidal milling

			52 619 ...																			
	Type long	max. angle of engagement	Ø DC = 5 mm				Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm			
			a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
Index	v_c m/min		f_z mm				f_z mm				f_z mm				f_z mm				f_z mm			
P.1.1	505	46°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,038	0,19	0,14	0,11	0,043
P.1.2	480	46°	0,09	0,06	0,05	0,020	0,11	0,07	0,06	0,024	0,13	0,10	0,08	0,030	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,041
P.1.3	460	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
P.1.4	435	46°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,021	0,12	0,09	0,07	0,027	0,15	0,10	0,08	0,033	0,17	0,12	0,10	0,038
P.1.5	415	46°	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,020	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.2.1	460	46°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,038	0,19	0,14	0,11	0,043
P.2.2	415	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
P.2.3	375	46°	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,020	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.2.4	290	46°	0,07	0,05	0,04	0,016	0,08	0,06	0,05	0,019	0,11	0,08	0,06	0,024	0,13	0,09	0,07	0,029	0,15	0,10	0,08	0,033
P.3.1	270	46°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,12	0,09	0,07	0,028	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,038
P.3.2	250	46°	0,08	0,06	0,05	0,018	0,09	0,07	0,05	0,021	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.3.3	230	46°	0,07	0,05	0,04	0,017	0,09	0,06	0,05	0,019	0,11	0,08	0,06	0,025	0,13	0,09	0,08	0,030	0,15	0,11	0,09	0,034
P.4.1	190	46°	0,06	0,04	0,03	0,013	0,07	0,05	0,04	0,015	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026
P.4.2	190	46°	0,06	0,04	0,03	0,013	0,07	0,05	0,04	0,015	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026
M.1.1	220	35°	0,05	0,03		0,011	0,06	0,04		0,013	0,08	0,05		0,018	0,10	0,06		0,022	0,12	0,07		0,027
M.2.1	200	35°	0,06	0,04		0,013	0,07	0,05		0,016	0,10	0,06		0,021	0,12	0,08		0,027	0,14	0,10		0,032
M.3.1	200	35°	0,06	0,04		0,013	0,07	0,05		0,016	0,10	0,06		0,021	0,12	0,08		0,027	0,14	0,10		0,032
K.1.1	500	46°	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,037	0,21	0,15	0,12	0,048	0,26	0,18	0,15	0,057	0,29	0,21	0,17	0,066
K.1.2	375	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.2.1	460	46°	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,041	0,22	0,15	0,13	0,049	0,25	0,18	0,14	0,056
K.2.2	375	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.3.1	335	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.3.2	315	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
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Cutting depth corresponding to the cutting length

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● 1st choice
○ suitable

Index	Ø DC = 14 mm				Ø DC = 16 mm				Ø DC = 18 mm				Ø DC = 20 mm				Emulsion	Compressed air	MMS
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m			
	f_z mm				f_z mm				f_z mm				f_z mm						
P.1.1	0,22	0,15	0,13	0,049	0,24	0,17	0,14	0,053	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,061	○	●	○
P.1.2	0,21	0,15	0,12	0,046	0,23	0,16	0,13	0,051	0,24	0,17	0,14	0,054	0,26	0,18	0,15	0,058	○	●	○
P.1.3	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055	○	●	○
P.1.4	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,046	0,22	0,16	0,13	0,049	0,23	0,17	0,14	0,052	○	●	○
P.1.5	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	○	●	○
P.2.1	0,22	0,15	0,13	0,049	0,24	0,17	0,14	0,053	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,061	○	●	○
P.2.2	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055	○	●	○
P.2.3	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	○	●	○
P.2.4	0,16	0,12	0,09	0,037	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,046	○	●	○
P.3.1	0,19	0,13	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	0,24	0,17	0,14	0,053	●		○
P.3.2	0,18	0,13	0,10	0,040	0,20	0,14	0,11	0,044	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,051	●		○
P.3.3	0,17	0,12	0,10	0,038	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,048	●		○
P.4.1	0,13	0,09	0,08	0,029	0,14	0,10	0,08	0,032	0,15	0,11	0,09	0,035	0,16	0,12	0,09	0,037	●		○
P.4.2	0,13	0,09	0,08	0,029	0,14	0,10	0,08	0,032	0,15	0,11	0,09	0,035	0,16	0,12	0,09	0,037	●		○
M.1.1	0,14	0,08		0,031	0,16	0,10		0,036	0,18	0,11		0,040	0,20	0,12		0,045	●		
M.2.1	0,17	0,11		0,038	0,19	0,13		0,043	0,22	0,14		0,048	0,24	0,16		0,054	●		
M.3.1	0,17	0,11		0,038	0,19	0,13		0,043	0,22	0,14		0,048	0,24	0,16		0,054	●		
K.1.1	0,33	0,23	0,19	0,073	0,36	0,25	0,21	0,080	0,39	0,27	0,22	0,086	0,41	0,29	0,24	0,092		●	
K.1.2	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.2.1	0,28	0,20	0,16	0,062	0,31	0,22	0,18	0,068	0,33	0,23	0,19	0,074	0,35	0,25	0,20	0,078		●	
K.2.2	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.3.1	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.3.2	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055		●	
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Cutting data standard values – MonsterMill – PCR – End mill, AL version

			52 616 ... / 52 617 ... / 52 618 ...																				
			Ø DC = 5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–8,0 mm			Ø DC = 8,7–10,0 mm			Ø DC =11,7–12,0 mm			Ø DC = 13,7–14,0 mm			Ø DC = 15,5–16,0 mm		
	Type long / extra long		a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1																							
P.1.2																							
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K.3.1																							
K.3.2																							
N.1.1	630	1,0	0,111	0,078	0,050	0,149	0,105	0,067	0,167	0,118	0,075	0,200	0,141	0,089	0,229	0,162	0,103	0,256	0,181	0,115	0,280	0,198	0,125
N.1.2	575	1,0	0,101	0,071	0,045	0,135	0,096	0,061	0,151	0,107	0,068	0,181	0,128	0,081	0,208	0,147	0,093	0,233	0,165	0,104	0,255	0,180	0,114
N.2.1	380	1,0	0,106	0,075	0,047	0,142	0,101	0,064	0,159	0,112	0,071	0,190	0,135	0,085	0,219	0,155	0,098	0,244	0,173	0,109	0,267	0,189	0,120
N.2.2	305	1,0	0,111	0,078	0,050	0,149	0,105	0,067	0,167	0,118	0,075	0,200	0,141	0,089	0,229	0,162	0,103	0,256	0,181	0,115	0,280	0,198	0,125
N.2.3	220	1,0	0,121	0,086	0,054	0,162	0,115	0,073	0,182	0,129	0,081	0,218	0,154	0,097	0,250	0,177	0,112	0,279	0,198	0,125	0,306	0,216	0,137
N.3.1	275	1,0	0,050	0,036	0,023	0,068	0,048	0,030	0,076	0,054	0,034	0,091	0,064	0,041	0,104	0,074	0,047	0,116	0,082	0,052	0,127	0,090	0,057
N.3.2	165	1,0	0,081	0,057	0,036	0,108	0,077	0,048	0,121	0,086	0,054	0,145	0,103	0,065	0,167	0,118	0,075	0,186	0,132	0,083	0,204	0,144	0,091
N.3.3	220	1,0	0,081	0,057	0,036	0,108	0,077	0,048	0,121	0,086	0,054	0,145	0,103	0,065	0,167	0,118	0,075	0,186	0,132	0,083	0,204	0,144	0,091
N.4.1																							
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O.2.2																							
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With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

52 616 ... / 52 617 ... / 52 618 ...

● 1st choice
○ suitable

Index	Ø DC = 17,5–18,0 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 17,5–18,0 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 17,5–18,0 mm a_e 0,6–1,0 x DC f_z mm	Ø DC = 19,5–20,0 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 19,5–20,0 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 19,5–20,0 mm a_e 0,6–1,0 x DC f_z mm	Ramping 1,0 x DC Max. plunging angle	Helical milling $\alpha_{R\,max.}$*	Helical milling Hole diameter $D_{min.}$ DC x 1,5	Helical milling Hole diameter $D_{max.}$ DC x 1,8	Drilling 1,0 x DC f_z Factor	Emulsion	Compressed air	MMS
P.1.1														
P.1.2														
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K.1.1														
K.1.2														
K.2.1														
K.2.2														
K.3.1														
K.3.2														
N.1.1	0,301	0,213	0,135	0,320	0,226	0,143	45°	0,75 x DC	25°	16°	0,8	●		
N.1.2	0,274	0,194	0,123	0,291	0,206	0,130	45°	0,75 x DC	25°	16°	0,8	●		
N.2.1	0,288	0,203	0,129	0,306	0,216	0,137	45°	0,75 x DC	25°	16°	0,8	●		
N.2.2	0,301	0,213	0,135	0,320	0,226	0,143	45°	0,75 x DC	25°	16°	0,8	●		
N.2.3	0,329	0,233	0,147	0,349	0,247	0,156	45°	0,75 x DC	25°	16°	0,8	●		
N.3.1	0,137	0,097	0,061	0,146	0,103	0,065	45°	0,75 x DC	25°	16°	0,8	●		
N.3.2	0,219	0,155	0,098	0,233	0,165	0,104	45°	0,75 x DC	25°	16°	0,8	●		
N.3.3	0,219	0,155	0,098	0,233	0,165	0,104	45°	0,75 x DC	25°	16°	0,8	●		
N.4.1														
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

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* Width of cut per helical revolution

Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values – MonsterMill – PCR – End mill, AL version – trochoidal milling

			52 618 ...																			
	long	max. angle of engagement	Ø DC = 5 mm				Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm			
			a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m
Index	v_c m/min		f_z mm				f_z mm				f_z mm				f_z mm				f_z mm			
P.1.1																						
P.1.2																						
P.1.3																						
P.1.4																						
P.1.5																						
P.2.1																						
P.2.2																						
P.2.3																						
P.2.4																						
P.3.1																						
P.3.2																						
P.3.3																						
P.4.1																						
P.4.2																						
M.1.1																						
M.2.1																						
M.3.1																						
K.1.1																						
K.1.2																						
K.2.1																						
K.2.2																						
K.3.1																						
K.3.2																						
N.1.1	800	66°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,024	0,14	0,10	0,08	0,031	0,17	0,12	0,10	0,037	0,19	0,13	0,11	0,043
N.1.2	725	66°	0,08	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028	0,15	0,11	0,09	0,034	0,17	0,12	0,10	0,039
N.2.1	485	66°	0,09	0,06	0,05	0,020	0,10	0,07	0,06	0,023	0,13	0,09	0,08	0,030	0,16	0,11	0,09	0,035	0,18	0,13	0,11	0,041
N.2.2	385	66°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,024	0,14	0,10	0,08	0,031	0,17	0,12	0,10	0,037	0,19	0,13	0,11	0,043
N.2.3	280	66°	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,034	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,047
N.3.1	350	66°	0,04	0,03	0,02	0,009	0,05	0,03	0,03	0,011	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,019
N.3.2	210	66°	0,07	0,05	0,04	0,015	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,031
N.3.3	280	66°	0,07	0,05	0,04	0,015	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,031
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1																						
H.1.2																						
H.1.3																						
H.1.4																						
H.2.1																						
H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

Cutting depth corresponding to the cutting length

	52 618 ...																● 1st choice ○ suitable		
	Ø DC = 14 mm				Ø DC = 16 mm				Ø DC = 18 mm				Ø DC = 20 mm						
	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m			
Index	f_z mm				f_z mm				f_z mm				f_z mm				Emulsion	Compressed air	MMS
P.1.1																			
P.1.2																			
P.1.3																			
P.1.4																			
P.1.5																			
P.2.1																			
P.2.2																			
P.2.3																			
P.2.4																			
P.3.1																			
P.3.2																			
P.3.3																			
P.4.1																			
P.4.2																			
M.1.1																			
M.2.1																			
M.3.1																			
K.1.1																			
K.1.2																			
K.2.1																			
K.2.2																			
K.3.1																			
K.3.2																			
N.1.1	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,056	0,27	0,19	0,15	0,060	●		
N.1.2	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,23	0,16	0,13	0,051	0,24	0,17	0,14	0,054	●		
N.2.1	0,20	0,14	0,12	0,045	0,22	0,16	0,13	0,050	0,24	0,17	0,14	0,054	0,25	0,18	0,15	0,057	●		
N.2.2	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,056	0,27	0,19	0,15	0,060	●		
N.2.3	0,23	0,16	0,13	0,052	0,25	0,18	0,15	0,057	0,27	0,19	0,16	0,061	0,29	0,21	0,17	0,065	●		
N.3.1	0,10	0,07	0,06	0,022	0,11	0,07	0,06	0,024	0,11	0,08	0,07	0,025	0,12	0,09	0,07	0,027	●		
N.3.2	0,15	0,11	0,09	0,035	0,17	0,12	0,10	0,038	0,18	0,13	0,11	0,041	0,19	0,14	0,11	0,043	●		
N.3.3	0,15	0,11	0,09	0,035	0,17	0,12	0,10	0,038	0,18	0,13	0,11	0,041	0,19	0,14	0,11	0,043	●		
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1																			
S.3.2																			
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

Cutting data standard values – MonsterMill – MCR – End mill, short – long

			52 752 ...									52 752 ...								
			Ø DC = 1 mm			Ø DC = 2 mm						Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm		
		Type short	a_e 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Type short	Type long	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm		
P.1.1	160	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.1.2	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.1.3	120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.1.4	120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.1.5	100	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.2.1	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.2.2	120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.2.3	100	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.2.4	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.3.1	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.3.2	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.3.3	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.4.1	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
P.4.2	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
M.1.1	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
M.2.1																			
M.3.1	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
K.1.1	160	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
K.1.2	160	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
K.2.1	140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
K.2.2	140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
K.3.1	100	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
K.3.2	100	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
N.3.2	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
N.3.3	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
S.3.2	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
S.3.3	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1	80	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

* = with an a_p of 1.5 x d_1 the f_z should be multiplied by 0.8

Plunging angle for ramping and helical milling: Diameter 3–5 = 3° / Diameter 6–9 = 5° / Diameter 10–20 = 8°

52 752 ...

● 1st choice
○ suitable

Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm			Emulsion	Compressed air	MMS
a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC			
f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
0,077	0,057	0,036	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
0,077	0,057	0,036	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
0,051	0,038	0,024	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
0,051	0,038	0,024	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
0,051	0,038	0,024	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	

Cutting data standard values – MonsterMill – MCR – End mill, extra long

				52 752 ...															
		Type extra long		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
				a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.2	100	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.3	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.4	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.5	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.1	100	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.2	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.3	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.4	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.1	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.2	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.3	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.4.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
P.4.2	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
M.1.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
M.2.1																		
M.3.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
K.1.1	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.1.2	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.2.1	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.2.2	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.3.1	100	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
K.3.2	100	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.3.2	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.3.3	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
S.3.2	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
S.3.3	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1	80	0,5*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

* = Trimming and trochoidal slot milling

Plunging angle for ramping and helical milling: Diameter 3–5 = 3° / Diameter 6–9 = 5° / Diameter 10–20 = 8°

	52 752 ...																	
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		
																○ suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.4	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.5	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.4	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.4.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
P.4.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
M.1.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
M.2.1																		
M.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
K.1.1	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.1.2	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.2.1	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.2.2	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.3.1	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
K.3.2	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.3.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.3.3	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
S.3.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
S.3.3	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

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Cutting data – CircularLine – End Mills – CCR UNI, short – long

			53 585... / 53 587... / 53 586 ... / 53 642 ...															
			Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm			
	Type short / long	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	
Index	v_c m/min		f_z mm			h_m	f_z mm			h_m	f_z mm			h_m	f_z mm			h_m
P.1.1	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.1.2	280	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.3	280	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.4	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.5	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.2.1	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.2.2	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.2.3	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.2.4	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.1	220	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.2	220	45°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.3	200	45°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.4.1	180	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
P.4.2	160	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.1.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.2.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.3.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
K.1.1	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.1.2	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.2.1	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.2.2	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
K.3.1	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
K.3.2	200	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	80	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.1.2	80	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.1	60	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.2	60	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.3																		
S.3.1	140	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.2	100	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Depth of cut corresponds to the flute length

	53 585... / 53 587... / 53 586 ... / 53 642 ...																		
	Ø DC = 14 mm				Ø DC = 16 mm				Ø DC = 18 mm				Ø DC = 20 mm				● 1st choice ○ suitable		
Index	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
	f_z mm				f_z mm				f_z mm				f_z mm						
P.1.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.1.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.4	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.5	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.2.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.2.2	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.2.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.2.4	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.1	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.4.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
P.4.2	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.1.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.2.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.3.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
K.1.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.1.2	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.2.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.2.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
K.3.1	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
K.3.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1																			
N.3.2																			
N.3.3																			
N.4.1																			
S.1.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.1.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.3																			
S.3.1	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.2	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

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Cutting data standard values – CircularLine – End mill – CCR UNI, extra long 4xDC

			53 589 ... / 53 593 ...															
	Type extra long	max. angle of engagement	Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm		
			a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC	
Index	v_c m/min		f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m
P.1.1	250	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.1.2	250	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.3	250	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.4	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.5	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.1	250	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.2	250	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.3	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.4	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.1	200	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.2	200	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.3	180	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.4.1	150	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
P.4.2	130	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.1.1	110	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.2.1	110	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.3.1	110	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
K.1.1	260	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.1.2	260	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.1	260	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.2	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.3.1	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
K.3.2	180	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	70	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.1.2	70	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.1	50	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.2	50	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.3																	
S.3.1	120	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.2	90	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Depth of cut corresponds to the flute length

	53 589 ... / 53 593 ...									● 1st choice		
	Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			○ suitable		
	a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC				
Index	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	Emulsion	Compressed air	MMS
P.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.1.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.5	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.4.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
P.4.2	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.1.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.2.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.3.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
K.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.1.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
K.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.1.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.3												
S.3.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – CircularLine – End mill – CCR UNI, extra long 5xDC

			53 593 ...															
	Type extra long	max. angle of engagement	Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm		
			a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC	
Index	v_c m/min		f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m
P.1.1	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.1.2	220	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.3	220	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.4	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.5	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.1	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.2	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.3	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.4	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.1	180	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.2	180	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.3	160	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.4.1	130	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
P.4.2	110	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.1.1	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.2.1	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.3.1	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
K.1.1	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.1.2	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.1	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.2	210	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.3.1	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
K.3.2	170	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	60	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.1.2	60	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.1	40	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.2	40	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.3																	
S.3.1	100	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.2	80	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Depth of cut corresponds to the flute length

	53 593 ...											
	Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		
										○ suitable		
	a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC				
Index	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	Emulsion	Compressed air	MMS
P.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.1.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.5	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.4.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
P.4.2	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.1.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.2.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.3.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
K.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.1.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
K.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.1.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.3												
S.3.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data – CircularLine – End Mills – CCR AL, long – extra long

53 590 ... / 53 591 ... / 53 594 ... / 53 595 ...

Index	v_c m/min Type long	v_c m/min Type extra long	max. angle of engagement	Ø DC = 6 mm a_e 0,1 x DC	Ø DC = 6 mm a_e 0,2 x DC	Ø DC = 6 mm a_e 0,3 x DC	Ø DC = 6 mm h_m	Ø DC = 8 mm a_e 0,1 x DC	Ø DC = 8 mm a_e 0,2 x DC	Ø DC = 8 mm a_e 0,3 x DC	Ø DC = 8 mm h_m	Ø DC = 10 mm a_e 0,1 x DC	Ø DC = 10 mm a_e 0,2 x DC	Ø DC = 10 mm a_e 0,3 x DC	Ø DC = 10 mm h_m	● 1st choice ○ suitable Emulsion	Compressed air	MMS
				f_z mm				f_z mm				f_z mm						
N.1.1	**500**	**400**	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.1.2	**500**	**400**	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.2.1	**500**	**400**	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.2.2	**500**	**400**	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.2.3	**400**	**350**	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.3.1	**400**	**350**	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.3.2	**400**	**350**	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.3.3	**300**	**250**	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.4.1																		

53 590 ... / 53 591 ... / 53 594 ... / 53 595 ...

Index	v_c m/min Type long	v_c m/min Type extra long	max. angle of engagement	Ø DC = 12 mm a_e 0,1 x DC	Ø DC = 12 mm a_e 0,2 x DC	Ø DC = 12 mm a_e 0,3 x DC	Ø DC = 12 mm h_m	Ø DC = 14 mm a_e 0,1 x DC	Ø DC = 14 mm a_e 0,2 x DC	Ø DC = 14 mm a_e 0,3 x DC	Ø DC = 14 mm h_m	Ø DC = 16 mm a_e 0,1 x DC	Ø DC = 16 mm a_e 0,2 x DC	Ø DC = 16 mm a_e 0,3 x DC	Ø DC = 16 mm h_m	● 1st choice ○ suitable Emulsion	Compressed air	MMS
				f_z mm				f_z mm				f_z mm						
N.1.1	**500**	**400**	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.1.2	**500**	**400**	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.2.1	**500**	**400**	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.2.2	**500**	**400**	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.2.3	**400**	**350**	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.3.1	**400**	**350**	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.3.2	**400**	**350**	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.3.3	**300**	**250**	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.4.1																		

53 590 ... / 53 591 ... / 53 594 ... / 53 595 ...

Index	v_c m/min Type long	v_c m/min Type extra long	max. angle of engagement	Ø DC = 18 mm a_e 0,1 x DC	Ø DC = 18 mm a_e 0,2 x DC	Ø DC = 18 mm a_e 0,3 x DC	Ø DC = 18 mm h_m	Ø DC = 20 mm a_e 0,1 x DC	Ø DC = 20 mm a_e 0,2 x DC	Ø DC = 20 mm a_e 0,3 x DC	Ø DC = 20 mm h_m	● 1st choice ○ suitable Emulsion	Compressed air	MMS
				f_z mm				f_z mm						
N.1.1	**500**	**400**	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.1.2	**500**	**400**	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.1	**500**	**400**	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.2	**500**	**400**	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.3	**400**	**350**	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.1	**400**	**350**	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.2	**400**	**350**	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.3	**300**	**250**	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.4.1														

Depth of cut corresponds to the flute length

Plunging angle for ramping and helical milling: 4°

Cutting data standard values – CircularLine – End mill – CCR H

			53 596 ...												● 1st choice		
	Type long	max. angle of engagement	Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				○ suitable		
			a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC		a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC		a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC				
Index	v_c m/min		f_z mm			h_m	f_z mm			h_m	f_z mm			h_m	Emulsion	Compressed air	MMS
H.1.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023		●	○
H.1.2	120	30°	0,06	0,04	0,03	0,008	0,07	0,05	0,03	0,010	0,09	0,06	0,04	0,012		●	○
H.1.3	115	30°	0,04	0,03		0,006	0,05	0,03		0,007	0,06	0,04		0,009		●	○
H.1.4	110	30°	0,02			0,003	0,03				0,04			0,006		●	○
H.2.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023		●	○
H.3.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023			

			53 596 ...												● 1st choice		
	Type long	max. angle of engagement	Ø DC = 12 mm				Ø DC = 16 mm				Ø DC = 20 mm				○ suitable		
			a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC		a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC		a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC				
Index	v_c m/min		f_z mm			h_m	f_z mm			h_m	f_z mm			h_m	Emulsion	Compressed air	MMS
H.1.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14	0,10	0,031	0,24	0,15	0,11	0,034		●	○
H.1.2	120	30°	0,10	0,07	0,05	0,015	0,13	0,08		0,018	0,14	0,09		0,020		●	○
H.1.3	115	30°	0,07	0,05		0,010	0,09	0,06		0,012	0,09	0,06		0,013		●	○
H.1.4	110	30°	0,05			0,006	0,06			0,008	0,08			0,011		●	○
H.2.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14		0,031	0,24	0,15		0,034		●	○
H.3.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14	0,10	0,031	0,24	0,15	0,11	0,034		●	○

Depth of cut corresponds to the flute length

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Cutting data standard values – CircularLine – CCR Ti, long

			52 509 ... / 52 510 ...											
			Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm			
	Type long	max. angle of engagement	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m
Index	v_c m/min		f_z mm	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm	
P.4.1	200	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
P.4.2	180	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.1.1	200	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.2.1	160	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.3.1	180	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	**140**	25°	0,060	0,042	0,034	0,020	0,070	0,049	0,040	0,030	0,089	0,063	0,052	0,040
S.3.2	**120**	25°	0,060	0,042	0,034	0,020	0,070	0,049	0,040	0,030	0,089	0,063	0,052	0,040
S.3.3	**100**	25°	0,045	0,032	0,026	0,018	0,052	0,037	0,030	0,028	0,067	0,047	0,039	0,038

Cutting data standard values – CircularLine – CCR Ti, extra-long

			52 509 ... / 52 510 ...											
			Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm		
	Type extra long	max. angle of engagement	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m
Index	v_c m/min		f_z mm	f_z mm		f_z mm	f_z mm		f_z mm	f_z mm		f_z mm	f_z mm	
P.4.1	170	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
P.4.2	150	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.1.1	170	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.2.1	130	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.3.1	150	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	**120**	25°	0,031	0,022	0,015	0,036	0,025	0,020	0,045	0,032	0,030	0,054	0,038	0,040
S.3.2	**100**	25°	0,031	0,022	0,015	0,036	0,025	0,020	0,045	0,032	0,030	0,054	0,038	0,040
S.3.3	**90**	25°	0,022	0,016	0,013	0,027	0,019	0,015	0,036	0,025	0,025	0,045	0,032	0,035

Depth of cut corresponds to the flute length

	52 509 ... / 52 510 ...														
	Ø DC = 12 mm				Ø DC = 16 mm				Ø DC = 20 mm				● 1st choice		
													○ suitable		
	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m			
Index	f_z mm	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm		Emulsion	Compressed air	MMS
P.4.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
P.4.2	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.1.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.2.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.3.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	0,113	0,080	0,065	0,050	0,157	0,111	0,090	0,060	0,217	0,153	0,125	0,075	●		
S.3.2	0,113	0,080	0,065	0,050	0,157	0,111	0,090	0,060	0,217	0,153	0,125	0,075	●		
S.3.3	0,085	0,060	0,049	0,048	0,117	0,083	0,068	0,058	0,163	0,115	0,094	0,070	●		

	52 509 ... / 52 510 ...								
	Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		
							○ suitable		
	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m			
Index	f_z mm	f_z mm		f_z mm	f_z mm		Emulsion	Compressed air	MMS
P.4.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
P.4.2	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.1.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.2.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.3.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1	0,076	0,054	0,050	0,107	0,076	0,060	●		
S.3.2	0,076	0,054	0,050	0,107	0,076	0,060	●		
S.3.3	0,058	0,041	0,045	0,080	0,057	0,055	●		

Cutting data standard values – AluLine – End mills – ZEFP = 2

	53 623... / 53 624... / 53 625... / 53 626... / 53 633... / 53 634... / 53 635... / 53636... / 53619... / 53 620... / 53 621... /																						
	Type short		Medium-length version		Ø DC = 2 mm			Ø DC = 2,5–3,0 mm			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 6,5–8,0 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	600	1,0	360	0,7	0,032	0,027	0,021	0,045	0,039	0,030	0,057	0,049	0,038	0,071	0,061	0,047	0,084	0,073	0,056	0,110	0,095	0,073
N.1.2	600	1,0	360	0,7	0,032	0,027	0,021	0,045	0,039	0,030	0,057	0,049	0,038	0,071	0,061	0,047	0,084	0,073	0,056	0,110	0,095	0,073
N.2.1	360	1,0	215	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.2	360	1,0	215	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.3	240	1,0	145	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.3.1	240	1,0	145	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.3.2	240	1,0	145	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.3.3	170	1,0	100	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.4.1	220	1,0	130	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063

Cutting data standard values – AluLine – End mill – ZEFP = 3

	53 615... / 53 616... / 53 617... / 53 618... / 53 611... / 53 612... / 53 613... / 53 614... / 53 712... / 53 713... / 53 714... / 53 715... / 53 708... / 53 709... / 53 710... / 53 711... / 53 584... / 53 597.../																				
	Type short / medium length		Type long		Type extra long		Ø DC = 2,0 mm			Ø DC = 2,5–3,0 mm			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC =5,5–6,0 mm		
							a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	600	1,0	480	0,8	240	0,6	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047
N.1.2	600	1,0	480	0,8	240	0,6	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047
N.2.1	360	1,0	290	0,8	145	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.2.2	360	1,0	290	0,8	145	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.2.3	240	1,0	190	0,8	95	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.3.1	240	1,0	190	0,8	95	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.3.2	240	1,0	190	0,8	95	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.3.3	170	1,0	135	0,8	70	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.4.1	220	1,0	175	0,8	90	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044

Cutting data standard values – AluLine – End mill – ZEFP = 4

	53 700... / 53 701... / 53 702... / 53 703... / 53 704... / 53 705... / 53 706... / 53 707... / 53 560... / 53 561... / 53 562... / 53 563... / 53 564... / 53 565... / 53 566... / 53 567... / 53 568... / 53 569...																				
	Type short / medium length		Type long		Type extra long		Ø DC = 2,0 mm			Ø DC = 3,0 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC =6,0 mm		
							a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	600	1,0	480	0,8	240	0,6	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039
N.1.2	600	1,0	480	0,8	240	0,6	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039
N.2.1	360	1,0	290	0,8	145	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.2.2	480	1,0	385	0,8	145	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.2.3	240	1,0	190	0,8	95	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.3.1	240	1,0	190	0,8	95	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.3.2	240	1,0	190	0,8	95	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.3.3	170	1,0	135	0,8	70	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.4.1	220	1,0	175	0,8	90	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035

53 622... / 53 629... / 53 630... / 53 631... / 53 632... / 52 627... / 53628... / 53637... / 53 638...

● 1st choice
○ suitable

Index	Ø DC = 8,5-10,0 mm			Ø DC = 10,5–12 mm			Ø DC = 12,5–14 mm			Ø DC = 14,5–16 mm			Ø DC = 16,5–18 mm			Ø DC = 18,5–20,0 mm			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,137	0,118	0,091	0,162	0,140	0,108	0,189	0,164	0,126	0,203	0,176	0,135	0,216	0,187	0,144	0,230	0,199	0,153	●	○*	○
N.1.2	0,137	0,118	0,091	0,162	0,140	0,108	0,189	0,164	0,126	0,203	0,176	0,135	0,216	0,187	0,144	0,230	0,199	0,153	●	○*	○
N.2.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.2	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.3	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.3.1	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.3.2	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.3.3	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.4.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○

53 598... / 53 599... / 53 578... / 53 579... / 53 580.../ 53 581... / 53 517... / 53 518... / 53 519... / 53 520... / 53 521... / 53 522... / 53 523... / 53 524...

● 1st choice
○ suitable

Index	Ø DC = 6,5–8,0 mm			Ø DC = 8,5–10,0 mm			Ø DC = 10,5–12,0 mm			Ø DC = 12,5–14,0 mm			Ø DC = 14,5–16 mm			Ø DC = 16,5–18,0 mm			Ø DC = 18,5–20,0 mm			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,095	0,082	0,063	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.1.2	0,095	0,082	0,063	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.1	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.2.2	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.2.3	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.3.1	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.3.2	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.3.3	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.4.1	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○

53 700... / 53 701... / 53 702... / 53 703... / 53 704... / 53 705... / 53 706... / 53 707... / 53 560... / 53 561... / 53 562... / 53 563... / 53 564... / 53 565... / 53 566... / 53 567... / 53 568... / 53 569...

● 1st choice
○ suitable

Index	Ø DC = 8,0 mm			Ø DC = 10,0 mm			Ø DC = 12,0 mm			Ø DC = 14,0 mm			Ø DC = 16 mm			Ø DC = 18,0 mm			Ø DC = 20,0 mm			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,078	0,068	0,052	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.1.2	0,078	0,068	0,052	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.2.1	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.2.2	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.2.3	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.3.1	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.3.2	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.3.3	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.4.1	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○

* = only suitable for DLC-coated cutters

Cutting data standard values – AluLine – Roughing-finishing milling cutter

					53 582 ... / 53 583 ...														
	Type short / long		Medium-length version		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	600	1,0	480	0,8	0,114	0,099	0,076	0,131	0,113	0,087	0,147	0,127	0,098	0,162	0,140	0,108	0,195	0,169	0,130
N.1.2	600	1,0	480	0,8	0,114	0,099	0,076	0,131	0,113	0,087	0,147	0,127	0,098	0,162	0,140	0,108	0,195	0,169	0,130
N.2.1	360	1,0	290	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.2.2	360	1,0	290	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.2.3	240	1,0	190	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.3.1	240	1,0	190	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.3.2	240	1,0	190	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.3.3	170	1,0	135	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.4.1	220	1,0	175	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108

Cutting data – AluLine – Ball Nosed End Mills

							53 607 ... / 53 608 ... / 53 609 ... / 53 610 ...												
	Type short		Type long		Type extra long		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
							a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	750	0,03	450	0,02	225	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.1.2	750	0,03	450	0,02	225	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.1	600	0,03	360	0,02	180	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.2.2	600	0,03	360	0,02	180	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.2.3	400	0,03	240	0,02	120	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.3.1	180	0,03	110	0,02	55	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.3.2	180	0,03	110	0,02	55	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.3.3	230	0,03	140	0,02	70	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.4.1	350	0,03	210	0,02	105	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
O.1.1	65	0,03	40	0,03	40	0,03				0,135	0,104	0,075	0,200	0,149	0,100	0,240	0,179	0,120	0,300	0,224	0,150
O.1.2	240	0,03	145	0,03	145	0,03				0,135	0,104	0,075	0,200	0,149	0,100	0,240	0,179	0,120	0,300	0,224	0,150

Cutting data – AluLine – High Accuracy Finishing Cutters

					53 639 ...														
	Type short	Type long	Type extra long		Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm		
					a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC
Index	v_c m/min	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	500	400	300	2,0	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045	0,083	0,072	0,055
N.1.2	500	400	300	2,0	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045	0,083	0,072	0,055
N.2.1	300	240	180	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.2.2	300	240	180	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.2.3	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.1	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.2	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.3	150	120	90	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.4.1	200	160	120	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045

53 582 ... / 53 583 ...

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,225	0,195	0,150	0,258	0,224	0,172	0,305	0,264	0,203	0,336	0,291	0,224	●		
N.1.2	0,225	0,195	0,150	0,258	0,224	0,172	0,305	0,264	0,203	0,336	0,291	0,224	●		
N.2.1	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.2.2	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.2.3	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.3.1	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.3.2	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.3.3	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.4.1	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		

● 1st choice
○ suitable

53 607 ... / 53 608 ... / 53 609 ... / 53 610 ...

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,206	0,178	0,137	●		○
N.1.2	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,206	0,178	0,137	●		○
N.2.1	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●		○
N.2.2	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●		○
N.2.3	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●		○
N.3.1	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●		○
N.3.2	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●		○
N.3.3	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●		○
N.4.1	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●		○
O.1.1	0,400	0,298	0,200	0,500	0,373	0,250	0,548	0,424	0,300	0,592	0,452	0,350	0,712	0,581	0,450	●		○
O.1.2	0,400	0,298	0,200	0,500	0,373	0,250	0,548	0,424	0,300	0,592	0,452	0,350	0,712	0,581	0,450	●		○

● 1st choice
○ suitable

53 639 ...

Index	Ø DC = 20 mm			Emulsion	Compressed air	MMS
	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC			
	f_z mm					
N.1.1	0,092	0,080	0,062	●		○
N.1.2	0,092	0,080	0,062	●		○
N.2.1	0,077	0,066	0,051	●		○
N.2.2	0,077	0,066	0,051	●		○
N.2.3	0,077	0,066	0,051	●		○
N.3.1	0,077	0,066	0,051	●		○
N.3.2	0,077	0,066	0,051	●		○
N.3.3	0,077	0,066	0,051	●		○
N.4.1	0,077	0,066	0,051	●		○

● 1st choice
○ suitable

Cutting data standard values – AluLine – NC deburring cutter

		53 660 ... / 53 661 ... / 53 662 ... / 53 663 ...						53 664 ... / 53 665 ... / 53 666 ... / 53 667 ...									
		DLC						uncoated									
		Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 6 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 6 mm	Emulsion	Compressed air	MMS
Index	v_c m/min	f_z mm						v_c m/min	f_z mm								
P.1.1																	
P.1.2																	
P.1.3																	
P.1.4																	
P.1.5																	
P.2.1																	
P.2.2																	
P.2.3																	
P.2.4																	
P.3.1																	
P.3.2																	
P.3.3																	
P.4.1																	
P.4.2																	
M.1.1																	
M.2.1																	
M.3.1																	
K.1.1																	
K.1.2																	
K.2.1																	
K.2.2																	
K.3.1																	
K.3.2																	
N.1.1	300	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.1.2	300	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.1	260	0,03	0,04	0,05	0,06	0,07	0,08	170	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.2	280	0,03	0,04	0,05	0,06	0,07	0,08	180	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.3	250	0,03	0,04	0,05	0,06	0,07	0,08	165	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.1	110	0,03	0,04	0,05	0,06	0,07	0,08	75	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.2	140	0,03	0,04	0,05	0,06	0,07	0,08	90	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.3	120	0,03	0,04	0,05	0,06	0,07	0,08	80	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1																	
S.3.2																	
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1	320	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○	○
O.1.2	320	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○	○
O.2.1																	
O.2.2																	
O.3.1																	

* = only suitable for DLC-coated cutters

Cutting data standard values – BlueLine – NC deburring cutter

		52 560 ... / 52 561 ... / 52 562 ... / 52 563 ...								
		Ti2000								
		Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 6 mm	Emulsion	Compressed air	MMS
Index	v_c m/min	f_z mm								
P.3.2	**80**	0,02	0,02	0,025	0,03	0,04	0,05		●	
P.3.3	**70**	0,02	0,02	0,025	0,03	0,04	0,05		●	
H.1.1	120	0,045	0,055	0,06	0,065	0,065	0,07		●	
H.1.2	90	0,04	0,05	0,055	0,06	0,06	0,065		●	
H.1.3	70	0,035	0,045	0,05	0,055	0,055	0,06		●	
H.1.4	50	0,025	0,03	0,04	0,045	0,045	0,05		●	
H.2.1										
H.3.1										

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Cutting data standard values – BlueLine – Micro-end mill / micro-torus cutter

$T_x \leq 2,5 \times DC$		52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...											
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	190	0,5	0,0038	0,0045	0,005	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,021	0,0225	0,024	●
P.3.3	190	0,5	0,0038	0,0045	0,005	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,021	0,0225	0,024	●
H.1.1	120	0,5	0,0038	0,0045	0,005	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,021	0,0225	0,024	●
H.1.2	70	0,5	0,003	0,036	0,0045	0,0062	0,0074	0,0104	0,0132	0,0144	0,0156	0,0168	0,018	0,0192	●
H.1.3	50	0,5	0,0025	0,003	0,004	0,0052	0,0062	0,0087	0,011	0,012	0,013	0,014	0,015	0,016	●
H.1.4															
H.2.1	190	0,5	0,0038	0,0045	0,005	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,021	0,0225	0,024	●
H.3.1	70	0,5	0,003	0,036	0,0045	0,0062	0,0074	0,0104	0,0132	0,0144	0,0156	0,0168	0,018	0,0192	●

$T_x \leq 2,6–5,0 \times DC$		52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...											
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
P.3.3	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.1.1	108	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.1.2	63	0,5	0,003	0,0032	0,0036	0,005	0,006	0,0082	0,0107	0,0121	0,0126	0,014	0,0156	0,0156	●
H.1.3	45	0,5	0,0025	0,0027	0,003	0,0042	0,005	0,0068	0,0089	0,0101	0,0105	0,0117	0,013	0,013	●
H.1.4															
H.2.1	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.3.1	63	0,5	0,003	0,0032	0,0036	0,005	0,006	0,0082	0,0107	0,0121	0,0126	0,014	0,0156	0,0156	●

$T_x \leq 5,1–10,0 \times DC$		52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...											
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	150	0,5	0,003	0,0038	0,0045	0,006	0,0068	0,0075	0,0083	0,009	0,0105	0,0113	0,012	0,0128	●
P.3.3	150	0,5	0,003	0,0038	0,0045	0,006	0,0068	0,0075	0,0083	0,009	0,0105	0,0113	0,012	0,0128	●
H.1.1	96	0,5	0,003	0,0038	0,0045	0,006	0,,0068	0,0075	0,0083	0,009	0,0105	0,0113	0,012	0,0128	●
H.1.2	56	0,5	0,0024	0,003	0,0036	0,0048	0,0054	0,006	0,0066	0,0072	0,0084	0,009	0,0096	0,0102	●
H.1.3	40	0,5	0,002	0,0025	0,003	0,004	0,0045	0,005	0,0055	0,006	0,007	0,0075	0,008	0,0085	●
H.1.4															
H.2.1	150	0,5	0,003	0,0038	0,0045	0,006	0,,0068	0,0075	0,0083	0,009	0,0105	0,0113	0,012	0,0128	●
H.3.1	56	0,5	0,0024	0,003	0,0036	0,0048	0,0054	0,006	0,0066	0,0072	0,0084	0,009	0,0096	0,0102	●

$T_x \leq 10{,}1–15{,}0 \times DC$		52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...											
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	114	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	0,0066	●
P.3.3	114	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	0,0066	●
H.1.1	72	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	0,0066	●
H.1.2	42	0,5	0,0012	0,0018	0,0024	0,003	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,005	0,0053	●
H.1.3	30	0,5	0,001	0,0015	0,002	0,0025	0,003	0,0032	0,0034	0,0036	0,0038	0,004	0,0042	0,0044	●
H.1.4															
H.2.1	114	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	0,0066	●
H.3.1	42	0,5	0,0012	0,0018	0,0024	0,003	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,005	0,0053	●

$T_x \leq 15{,}1–20{,}0 \times DC$		52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...											
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	75	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	●
P.3.3	75	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	●
H.1.1	48	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	●
H.1.2	28	0,5	0,0012	0,0012	0,0018	0,0024	0,003	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,005	●
H.1.3	20	0,5	0,001	0,001	0,0015	0,002	0,0025	0,003	0,0032	0,0034	0,0036	0,0038	0,004	0,0042	●
H.1.4															
H.2.1	75	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	●
H.3.1	28	0,5	0,0012	0,0012	0,0018	0,0024	0,003	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,005	●

$T_x \leq 20{,}1–30{,}0 \times DC$		52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...											
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	57	0,5	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005	●
P.3.3	57	0,5	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005	●
H.1.1	36	0,5	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005	●
H.1.2	21	0,5	0,001	0,001	0,002	0,002	0,002	0,003	0,003	0,003	0,003	0,004	0,004	0,004	●
H.1.3	15	0,5	0,0008	0,001	0,0013	0,0017	0,0019	0,0022	0,0025	0,0027	0,0029	0,003	0,0031	0,0032	●
H.1.4															
H.2.1	57	0,5	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005	●
H.3.1	21	0,5	0,001	0,001	0,002	0,002	0,002	0,003	0,003	0,003	0,003	0,004	0,004	0,004	●

Cutting data standard values – BlueLine – Micro-ball-nosed end mill

$T_x \leq 2,5 \times DC$		52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	190	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0053	0,006	0,0063	0,0066	0,0069	0,0072	0,0075	●
P.3.3	190	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0053	0,006	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.1.1	120	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0053	0,006	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.1.2	70	0,5	0,0012	0,0018	0,0024	0,003	0,0036	0,0042	0,0048	0,005	0,0053	0,0055	0,0058	0,006	●
H.1.3	50	0,5	0,001	0,0015	0,002	0,0025	0,003	0,0035	0,004	0,0042	0,0044	0,0046	0,0048	0,005	●
H.1.4															
H.2.1	190	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0053	0,006	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.3.1	70	0,5	0,0012	0,0018	0,0024	0,003	0,0036	0,0042	0,0048	0,005	0,0053	0,0055	0,0058	0,006	●

$T_x \leq 2,6–5,0 \times DC$		52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
P.3.3	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.1.1	108	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.1.2	63	0,5	0,0008	0,0011	0,0014	0,0018	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	0,0038	●
H.1.3	45	0,5	0,0007	0,0009	0,0012	0,0015	0,0017	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	●
H.1.4															
H.2.1	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.3.1	63	0,5	0,0008	0,0011	0,0014	0,0018	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	0,0038	●

$T_x \leq 5,1–10,0 \times DC$		52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	0,0039	●
P.3.3	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	0,0039	●
H.1.1	96	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	0,0039	●
H.1.2	56	0,5	0,0005	0,0007	0,001	0,0012	0,0014	0,0017	0,0019	0,0022	0,0024	0,0026	0,0029	0,0031	●
H.1.3	40	0,5	0,0004	0,0006	0,0008	0,001	0,0012	0,0014	0,0016	0,0018	0,002	0,0022	0,0024	0,0026	●
H.1.4															
H.2.1	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	0,0039	●
H.3.1	56	0,5	0,0005	0,0007	0,001	0,0012	0,0014	0,0017	0,0019	0,0022	0,0024	0,0026	0,0029	0,0031	●

$T_x \leq 10{,}1–15{,}0 \times DC$		52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	114	0,5	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	●
P.3.3	114	0,5	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	●
H.1.1	72	0,5	0,0003	0,0006	0,0008	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	●
H.1.2	42	0,5	0,0002	0,0005	0,0007	0,001	0,0012	0,0014	0,0017	0,0019	0,0022	0,0022	0,0026	0,0029	●
H.1.3	30	0,5	0,0002	0,0004	0,0006	0,0008	0,001	0,0012	0,0014	0,0016	0,0018	0,002	0,0022	0,0024	●
H.1.4															
H.2.1	114	0,5	0,0003	0,0006	0,0008	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	●
H.3.1	42	0,5	0,0002	0,0005	0,0007	0,001	0,0012	0,0014	0,0017	0,0019	0,0022	0,0022	0,0026	0,0029	●

$T_x \leq 15{,}1–20{,}0 \times DC$		52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	114	0,5	0,0002	0,0004	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
P.3.3	114	0,5	0,0002	0,0004	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.1.1	72	0,5	0,0002	0,0004	0,0005	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.1.2	42	0,5	0,0001	0,0003	0,0004	0,0007	0,0009	0,0011	0,0014	0,0016	0,0019	0,0019	0,0023	0,0026	●
H.1.3	30	0,5	0,0001	0,0002	0,0003	0,0005	0,0007	0,0009	0,0011	0,0013	0,0015	0,0017	0,0019	0,0021	●
H.1.4															
H.2.1	114	0,5	0,0002	0,0004	0,0005	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.3.1	42	0,5	0,0001	0,0003	0,0004	0,0007	0,0009	0,0011	0,0014	0,0016	0,0019	0,0021	0,0023	0,0026	●

Cutting data standard values – BlueLine – End mill



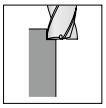
Index	52 140 ... 52 141 ... v_c m/min	52 133 ... 52 134 ... 52 324 ... v_c m/min	$a_{p\,max.}$ x DC	52 133 ... / 52 134 ... / 52 140 ... / 52 141 ... / 52 324 ...									
				Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
				a_e 0,05 x DC									
				f_z mm									
P.3.2	190	160	1,0	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
P.3.3	190	160	1,0	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
H.1.1	160	140	1,0	0,013	0,013	0,016	0,018	0,02	0,023	0,025	0,029	0,032	●
H.1.2	**140**	**130**	1,0	0,011	0,011	0,014	0,016	0,018	0,02	0,022	0,025	0,027	●
H.1.3	**100**	**90**	1,0	0,01	0,01	0,012	0,014	0,016	0,018	0,02	0,023	0,025	●
H.1.4													
H.2.1	**190**	**160**	1,0	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
H.3.1	**140**	**130**	1,0	0,011	0,011	0,014	0,016	0,018	0,02	0,022	0,025	0,027	●



Index	v_c m/min	$a_{p\,max.}$ x DC	52 135 ... / 52 136 ... / 52 325 ... / 52 326 ...									
			Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
			a_e 0,05 x DC									
			f_z mm									
P.3.2	140	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
P.3.3	140	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.1.1	125	1,0	0,008	0,009	0,011	0,014	0,016	0,02	0,023	0,026	0,028	●
H.1.2	**115**	1,0	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●
H.1.3	**80**	1,0	0,005	0,006	0,007	0,01	0,012	0,015	0,017	0,019	0,02	●
H.1.4												
H.2.1	**140**	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.3.1	**115**	1,0	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●

Index	v_c m/min	$a_{p\,max.}$ x DC	52 344 ...															
			Ø DC = 0,5 mm			Ø DC = 1,0–1,5 mm			Ø DC = 2,0–2,5 mm			Ø DC = 3,0–3,5 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z mm															
P.3.2	**120**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,02	0,014
P.3.3	**120**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,02	0,014
H.1.1	**80**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,02	0,014
H.1.2	**60**	0,5	0,004	0,004	0,003	0,006	0,005	0,004	0,009	0,007	0,005	0,013	0,01	0,007	0,017	0,013	0,01	0,022	0,016	0,011
H.1.3	**50**	0,5	0,004	0,003	0,002	0,005	0,004	0,003	0,007	0,006	0,004	0,011	0,008	0,006	0,014	0,011	0,008	0,018	0,013	0,009
H.1.4																				
H.2.1	**120**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,02	0,014
H.3.1	**60**	0,5	0,004	0,004	0,003	0,006	0,005	0,004	0,009	0,007	0,005	0,013	0,01	0,007	0,017	0,013	0,01	0,022	0,016	0,011

				52 133 ... / 52 134 ... / 52 140 ... / 52 141 ... / 52 324 ...									
	52 140 ... 52 141 ...	52 133 ... 52 134 ... 52 324 ...		Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
				a_e 0,6–1,0 x DC									
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm									
P.3.2	190	160	0,05	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
P.3.3	190	160	0,05	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
H.1.1	160	140	0,05	0,013	0,013	0,016	0,018	0,02	0,023	0,025	0,029	0,032	●
H.1.2	**140**	**130**	0,05	0,011	0,011	0,014	0,016	0,018	0,02	0,022	0,025	0,027	●
H.1.3	**100**	**90**	0,05	0,01	0,01	0,012	0,014	0,016	0,018	0,02	0,023	0,025	●
H.1.4													
H.2.1	**190**	**160**	0,05	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
H.3.1	**140**	**130**	0,05	0,011	0,011	0,014	0,016	0,018	0,02	0,022	0,025	0,027	●

			52 135 ... / 52 136 ... / 52 325 ... / 52 326 ...									
			Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
			a_e 0,6–1,0 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm									
P.3.2	140	0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
P.3.3	140	0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.1.1	125	0,05	0,008	0,009	0,011	0,014	0,016	0,02	0,023	0,026	0,028	●
H.1.2	**115**	0,05	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●
H.1.3	**80**	0,05	0,005	0,006	0,007	0,01	0,012	0,015	0,017	0,019	0,02	●
H.1.4												
H.2.1	**140**	0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.3.1	**115**	0,05	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●

	52 344 ...																		
	Ø DC = 6,0 mm			Ø DC = 8,0 mm			Ø DC = 10,0 mm			Ø DC = 12,0 mm			Ø DC = 16,0 mm			Ø DC = 20,0 mm			Compressed air
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			
P.3.2	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,04	0,027	0,06	0,045	0,03	0,076	0,058	0,045	0,095	0,077	0,06	●
P.3.3	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,04	0,027	0,06	0,045	0,03	0,076	0,058	0,045	0,095	0,077	0,06	●
H.1.1	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,04	0,027	0,06	0,045	0,03	0,076	0,058	0,045	0,095	0,077	0,06	●
H.1.2	0,029	0,021	0,014	0,038	0,029	0,019	0,043	0,032	0,022	0,048	0,036	0,024	0,061	0,046	0,036	0,076	0,062	0,048	●
H.1.3	0,024	0,018	0,012	0,032	0,024	0,016	0,036	0,027	0,018	0,04	0,03	0,02	0,051	0,039	0,03	0,063	0,052	0,04	●
H.1.4																			
H.2.1	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,04	0,027	0,06	0,045	0,03	0,076	0,058	0,045	0,095	0,077	0,06	●
H.3.1	0,029	0,021	0,014	0,038	0,029	0,019	0,043	0,032	0,022	0,048	0,036	0,024	0,061	0,046	0,036	0,076	0,062	0,048	●

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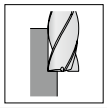
Cutting data standard values – BlueLine – End mill

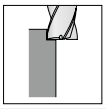
			52 348 ...												
			Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		Compressed air
			a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm												
P.3.2	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
P.3.3	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.1.1	100	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.1.2	90	2,0	0,021	0,017	0,024	0,019	0,027	0,022	0,03	0,025	0,035	0,03	0,041	0,036	●
H.1.3	60	2,0	0,014	0,011	0,016	0,013	0,018	0,015	0,021	0,018	0,025	0,022	0,03	0,027	●
H.1.4															
H.2.1	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.3.1	90	2,0	0,021	0,017	0,024	0,019	0,027	0,022	0,03	0,025	0,035	0,03	0,041	0,036	●



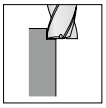
			52 353 ...										
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm										
P.3.2	200	0,5	0,008	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
P.3.3	200	0,5	0,008	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.1.1	170	0,5	0,008	0,15	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.1.2	150	0,5	0,006	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	0,108	●
H.1.3	110	0,5	0,005	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,08	0,09	●
H.1.4													
H.2.1	200	0,5	0,008	0,15	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.3.1	150	0,5	0,006	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	0,108	●



			52 354 ...										
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm										
P.3.2	200	0,5	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
P.3.3	200	0,5	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.1.1	170	0,5	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.1.2	150	0,5	0,004	0,006	0,012	0,018	0,024	0,03	0,036	0,042	0,048	0,054	●
H.1.3	110	0,5	0,003	0,005	0,01	0,015	0,02	0,025	0,03	0,035	0,04	0,045	●
H.1.4													
H.2.1	200	0,5	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.3.1	150	0,5	0,004	0,006	0,012	0,018	0,024	0,03	0,036	0,042	0,048	0,054	●



Index	v_c m/min	$a_{p\,max.}$ x DC	52 353 ... Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,6–1,0 x DC										
			f_z mm										
P.3.2	200	0,05	0,008	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
P.3.3	200	0,05	0,008	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.1.1	170	0,05	0,008	0,15	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.1.2	150	0,05	0,006	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	0,108	●
H.1.3	110	0,05	0,005	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,08	0,09	●
H.1.4													
H.2.1	200	0,05	0,008	0,15	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.3.1	150	0,05	0,006	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	0,108	●



Index	v_c m/min	$a_{p\,max.}$ x DC	52 354 ... Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,6–1,0 x DC										
			f_z mm										
P.3.2	200	0,05	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
P.3.3	200	0,05	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.1.1	170	0,05	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.1.2	150	0,05	0,004	0,006	0,012	0,018	0,024	0,03	0,036	0,042	0,048	0,054	●
H.1.3	110	0,05	0,003	0,005	0,01	0,015	0,02	0,025	0,03	0,035	0,04	0,045	●
H.1.4													
H.2.1	200	0,05	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.3.1	150	0,05	0,004	0,006	0,012	0,018	0,024	0,03	0,036	0,042	0,048	0,054	●

Cutting data standard values – BlueLine – Ball-nosed end mill



			52 258 ... / 52 259 ...										
			Ø DC = 0,1–0,5 mm	Ø DC = 0,6–1,0 mm	Ø DC = 1,5–2,0 mm	Ø DC = 2,5 mm	Ø DC = 3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Compressed air
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm										
P.3.2	190	0,05	0,008	0,01	0,012	0,016	0,02	0,025	0,03	0,04	0,05	0,06	●
P.3.3	190	0,05	0,008	0,01	0,012	0,016	0,02	0,025	0,03	0,04	0,05	0,06	●
H.1.1	165	0,05	0,004	0,005	0,006	0,008	0,01	0,014	0,017	0,028	0,038	0,048	●
H.1.2	**145**	**0,05**	0,004	0,004	0,005	0,006	0,008	0,012	0,015	0,025	0,035	0,045	●
H.1.3	**105**	**0,05**	0,003	0,004	0,005	0,005	0,006	0,01	0,014	0,022	0,03	0,04	●
H.1.4													
H.2.1	**190**	**0,05**	0,008	0,01	0,012	0,016	0,02	0,025	0,03	0,04	0,05	0,06	●
H.3.1	**145**	**0,05**	0,004	0,004	0,005	0,006	0,008	0,012	0,015	0,025	0,035	0,045	●



			52 256 ... / 52 257 ... / 52 302 ... / 52 303 ... / 52 404 ... / 52 405 ...										
			Ø DC = 0,1–0,5 mm	Ø DC = 0,6–1,0 mm	Ø DC = 1,1–1,5 mm	Ø DC = 1,6–2,0 mm	Ø DC = 2,5 mm	Ø DC = 3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 7 mm	Compressed air
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm										
P.3.2	200	0,05	0,01	0,012	0,015	0,019	0,025	0,03	0,033	0,036	0,04	0,04	●
P.3.3	200	0,05	0,01	0,012	0,015	0,019	0,025	0,03	0,033	0,036	0,04	0,04	●
H.1.1	170	0,05	0,005	0,006	0,006	0,008	0,011	0,015	0,02	0,024	0,027	0,035	●
H.1.2	**150**	0,05	0,005	0,006	0,006	0,008	0,01	0,013	0,018	0,022	0,025	0,032	●
H.1.3	**110**	0,05	0,004	0,005	0,005	0,007	0,009	0,013	0,016	0,021	0,025	0,03	●
H.1.4													
H.2.1	**200**	0,05	0,01	0,012	0,015	0,019	0,025	0,03	0,033	0,036	0,04	0,04	●
H.3.1	**150**	0,05	0,005	0,006	0,006	0,008	0,01	0,013	0,018	0,022	0,025	0,032	●



			52 352 ... / 52 355 ...											
			Ø DC = 0,6–0,8 mm	Ø DC = 1 mm	Ø DC = 1,2–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Compressed air
			a_e 0,05 x DC											
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	**200**	0,05	0,006	0,008	0,01	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	●
P.3.3	**200**	0,05	0,006	0,008	0,01	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	●
H.1.1	**170**	0,05	0,006	0,008	0,01	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	●
H.1.2	**150**	0,05	0,004	0,006	0,008	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	●
H.1.3	**110**	0,05	0,004	0,005	0,007	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,08	●
H.1.4														
H.2.1	**200**	0,05	0,006	0,008	0,01	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	●
H.3.1	**150**	0,05	0,004	0,006	0,008	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	●

	52 258 ... / 52 259 ...			
	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
	a_e 0,05 x DC			
Index	f_z mm			
P.3.2	0,07	0,09	0,1	●
P.3.3	0,07	0,09	0,1	●
H.1.1	0,058	0,078	0,09	●
H.1.2	0,055	0,075	0,08	●
H.1.3	0,05	0,07	0,07	●
H.1.4				
H.2.1	0,07	0,09	0,1	●
H.3.1	0,055	0,075	0,08	●

	52 256 ... / 52 257 ... / 52 302 ... / 52 303 ... / 52 404 ... / 52 405 ...							
	Ø DC = 8 mm	Ø DC = 9 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 14 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
	a_e 0,05 x DC							
Index	f_z mm							
P.3.2	0,05	0,06	0,07	0,08	0,09	0,1	0,12	●
P.3.3	0,05	0,06	0,07	0,08	0,09	0,1	0,12	●
H.1.1	0,042	0,048	0,058	0,068	0,078	0,088	0,105	●
H.1.2	0,039	0,045	0,055	0,065	0,075	0,085	0,1	●
H.1.3	0,035	0,04	0,05	0,06	0,07	0,08	0,09	●
H.1.4								
H.2.1	0,05	0,06	0,07	0,08	0,09	0,1	0,12	●
H.3.1	0,039	0,045	0,055	0,065	0,075	0,085	0,1	●

Cutting data standard values – BlueLine – Torus cutter



			52 304...									
			Ø DC = 0,5–1,5 mm	Ø DC = 2,0–3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm									
P.3.2	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,09	0,1	0,12	●
P.3.3	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,09	0,1	0,12	●
H.1.1	160	1,0	0,007	0,023	0,04	0,04	0,055	0,07	0,082	0,09	0,11	●
H.1.2	**140**	1,0	0,006	0,02	0,038	0,038	0,052	0,065	0,08	0,085	0,105	●
H.1.3	**100**	1,0	0,005	0,018	0,035	0,035	0,05	0,06	0,075	0,08	0,1	●
H.1.4												
H.2.1	**190**	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,09	0,1	0,12	●
H.3.1	**140**	1,0	0,006	0,02	0,038	0,038	0,052	0,065	0,08	0,085	0,105	●



			52 305...						
			Ø DC = 1,0–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Compressed air
			a_e 0,05 x DC						
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm						
P.3.2	190	1,0	0,01	0,025	0,025	0,05	0,05	0,06	●
P.3.3	190	1,0	0,01	0,025	0,025	0,05	0,05	0,06	●
H.1.1	160	1,0	0,005	0,02	0,02	0,035	0,035	0,05	●
H.1.2	**140**	1,0	0,004	0,017	0,017	0,033	0,033	0,053	●
H.1.3	**100**	1,0	0,003	0,015	0,015	0,03	0,03	0,005	●
H.1.4									
H.2.1	**190**	1,0	0,01	0,025	0,025	0,05	0,05	0,06	●
H.3.1	**140**	1,0	0,004	0,017	0,017	0,033	0,033	0,053	●



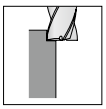
			52 361...									
			Ø DC = 0,8–1,0 mm	Ø DC = 1,2–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Compressed air
			a_e 0,1 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm									
P.3.2	200	0,5	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
P.3.3	200	0,5	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.1.1	170	0,5	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.1.2	**150**	0,5	0,006	0,008	0,012	0,024	0,036	0,06	0,072	0,084	0,096	●
H.1.3	**110**	0,5	0,005	0,007	0,01	0,02	0,03	0,05	0,06	0,07	0,08	●
H.1.4												
H.2.1	**200**	0,5	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.3.1	**150**	0,5	0,006	0,008	0,012	0,024	0,036	0,06	0,072	0,084	0,096	●



Index	v_c m/min	$a_{p\,max.}$ x DC	52 304... Ø DC = 0,5–1,5 mm	Ø DC = 2,0–3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,05 x DC									
			f_z mm									
P.3.2	**190**	**0,05**	0,016	0,032	0,06	0,06	0,08	0,09	0,1	0,12	0,14	●
P.3.3	**190**	**0,05**	0,016	0,032	0,06	0,06	0,08	0,09	0,1	0,12	0,14	●
H.1.1	**160**	**0,05**	0,011	0,028	0,05	0,05	0,07	0,08	0,09	0,1	0,13	●
H.1.2	**140**	**0,05**	0,01	0,025	0,044	0,044	0,07	0,075	0,088	0,085	0,125	●
H.1.3	**100**	**0,05**	0,009	0,021	0,04	0,04	0,065	0,07	0,085	0,08	0,12	●
H.1.4												
H.2.1	**190**	**0,05**	0,016	0,032	0,06	0,06	0,08	0,09	0,1	0,12	0,14	●
H.3.1	**140**	**0,05**	0,01	0,025	0,044	0,044	0,07	0,075	0,088	0,085	0,125	●



Index	v_c m/min	$a_{p\,max.}$ x DC	52 305... Ø DC = 1,0–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Compressed air
			a_e 0,05 x DC						
			f_z mm						
P.3.2	190	0,05	0,014	0,03	0,03	0,055	0,055	0,07	●
P.3.3	190	0,05	0,014	0,03	0,03	0,055	0,055	0,07	●
H.1.1	160	0,05	0,009	0,025	0,025	0,045	0,045	0,06	●
H.1.2	**140**	0,05	0,008	0,022	0,022	0,04	0,04	0,058	●
H.1.3	**100**	0,05	0,007	0,018	0,018	0,035	0,035	0,05	●
H.1.4									
H.2.1	**190**	0,05	0,014	0,03	0,03	0,055	0,055	0,07	●
H.3.1	**140**	0,05	0,008	0,022	0,022	0,04	0,04	0,058	●



Index	v_c m/min	$a_{p\,max.}$ x DC	52 361... Ø DC = 0,8–1,0 mm	Ø DC = 1,2–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Compressed air
			a_e 0,1 x DC									
			f_z mm									
P.3.2	200	0,05	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
P.3.3	200	0,05	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.1.1	170	0,05	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.1.2	**150**	0,05	0,006	0,008	0,012	0,024	0,036	0,06	0,072	0,084	0,096	●
H.1.3	**110**	0,05	0,005	0,007	0,01	0,02	0,03	0,05	0,06	0,07	0,08	●
H.1.4												
H.2.1	**200**	0,05	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.3.1	**150**	0,05	0,006	0,008	0,012	0,024	0,036	0,06	0,072	0,084	0,096	●

Cutting data standard values – PCD milling cutter

		50 011 ... / 50 012 ...		50 010 ... / 50 013 ...		50 014 ...		50 015 ...			
Index	v_c m/min	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e
N.1.1	900	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.1.2	900	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.1	700	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.2	600	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.3	400	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.3.1	500							0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.3.2											
N.3.3											
N.4.1	900							0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.1.1	120	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.1.2	250	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.2.1											
O.2.2	200-300	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.3.1	650	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC

		50 016 ... / 50 017 ...				50 018 ...				50 020 ...			
Index	v_c m/min	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e
N.1.1	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.1.2	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.1	700	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.2	600	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.3	400	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.3.1	500	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.3.2													
N.3.3													
N.4.1	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.1.1	120	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.1.2	250	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.2.1													
O.2.2	200–300	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.3.1	650	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC

		50 019 ...				Ø DC = 40 mm	Ø DC = 50 mm	Ø DC = 63 mm	Ø DC = 80 mm	Ø DC = 100 mm	Ø DC = 125 mm	● 1st choice ○ suitable		
Index	v_c m/min	a_p max.	a_e	a_p max.	a_e							Emulsion	Compressed air	MMS
N.1.1	2200	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.1.2	2100	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.1	1850	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.2	1850	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.3	1750	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.3.1	1000–1500	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.3.2														
N.3.3														
N.4.1	2200	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
O.1.1														
O.1.2														
O.2.1														
O.2.2	500–600	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,230	0,230	0,230	0,230	0,230	0,230	●		○
O.3.1														

Index	Ø DC = 2 mm	Ø DC = 3mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Ø DC = 25 mm	Ø DC = 32 mm	● 1st choice ○ suitable Emulsion	Compressed air	MMS
N.1.1	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.1.2	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.1	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.2	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.3	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.2															
N.3.3															
N.4.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
O.1.1	0,025	0,038	0,050	0,071	0,100	0,150	0,200	0,250	0,300	0,400	0,440	0,460	●		○
O.1.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.2.1															
O.2.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,20	0,220	0,260	●		○
O.3.1	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,20	0,220	0,260	●		○

Index	Ø DC = 2 mm	Ø DC = 3mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Ø DC = 25 mm	Ø DC = 32 mm	● 1st choice ○ suitable Emulsion	Compressed air	MMS
N.1.1	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.1.2	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.1	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.2	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.3	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.2															
N.3.3															
N.4.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
O.1.1	0,025	0,038	0,050	0,0705	0,100	0,150	0,200	0,250	0,300	0,400	0,440	0,460	●		○
O.1.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.2.1															
O.2.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.3.1	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○

Cutting data standard values – S-Cut – End mill, short – long

			52 205 ... / 52 223 ... / 52 224 ... / 52 225 ... / 52 228 ... / 52 229 ...														
			Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
	Type short / long		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	150	1,0	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
P.1.2	150	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.3	130	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.4	140	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.5	120	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.1	140	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.2	120	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.3	140	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.4	120	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.3.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.3.2	120	1,0	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.3.3	100	1,0	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.4.1	130	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.4.2	110	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.1.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.2.1	50	1,0	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
M.3.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
K.1.1	200	1,0	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.1.2	200	1,0	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.2.1	220	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.2.2	200	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.1	180	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.2	160	1,0	0,032	0,025	0,018	0,046	0,036	0,025	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1	250	1,0	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.2	250	1,0	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.3	250	1,0	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.4.1		1,0															
S.1.1	50	0,5	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.1.2	50	0,5	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.2.1	30	0,5	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.2	30	0,5	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.3	30	0,5	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.3.1	120	0,5	0,029	0,022	0,016	0,04	0,031	0,023	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058
S.3.2	110	0,5	0,029	0,022	0,016	0,04	0,031	0,022	0,058	0,043	0,029	0,076	0,056	0,038	0,104	0,081	0,058
S.3.3	75	0,5	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
H.1.1	120	0,5	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.2	120	0,3	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.3	120	0,2	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.
With an a_p of 2.0 x DC the f_z should be multiplied by 0.5.

Plunging angle for ramping and helical milling: 3°

	52 205 ... / 52 223 ... / 52 224 ... / 52 225 ... / 52 228 ... / 52 229 ...															● 1st choice ○ suitable		
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			Ø DC = 25 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,161	0,115	0,081	0,173	0,127	0,029	0,184	0,15	0,115	0,23	0,184	0,138	0,292	0,234	0,175	●	○	○
P.1.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.5	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
P.3.2	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
P.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
P.4.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
P.4.2	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
M.1.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
M.2.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
M.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
K.1.1	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,365	0,292	0,234	○	●	○
K.1.2	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,365	0,292	0,234	○	●	○
K.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.3.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.3.2	0,15	0,104	0,069	0,161	0,115	0,081	0,173	0,127	0,104	0,207	0,173	0,127	0,263	0,219	0,161	○	●	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,292	0,234	0,175	●		○
N.3.2	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,292	0,234	0,175	●		○
N.3.3	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,115	0,23	0,184	0,138	0,292	0,234	0,175	●		○
N.4.1																		
S.1.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
S.1.2	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
S.2.1	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.2.2	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.2.3	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.3.1	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,234	0,19	0,146	●		
S.3.2	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,234	0,19	0,146	●		
S.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●		
H.1.1	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,19	0,161	0,117		●	
H.1.2	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,19	0,161	0,117		●	
H.1.3	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,19	0,161	0,117		●	
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – S-Cut – End mill, extra long

				52 205 ... / 52 226 ... / 52 227 ...														
	Type extra long			Ø DC = 3,0 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC = 6,0 mm			Ø DC = 8,0 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	130	1,0	0,5	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
P.1.2	120	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.3	100	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.4	120	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.5	100	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.1	110	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.2	100	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.3	100	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.4	90	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.3.1	70	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.3.2	100	1,0	0,5	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.3.3	90	1,0	0,5	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.4.1	70	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.4.2	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.1.1	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.2.1	40	1,0	0,5	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
M.3.1	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
K.1.1	180	1,0	0,5	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.1.2	140	1,0	0,5	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.2.1	180	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.2.2	140	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.1	140	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.2	120	1,0	0,5	0,032	0,025	0,018	0,046	0,036	0,025	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	250	1,0	0,5	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.2	250	1,0	0,5	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.3	250	1,0	0,5	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.4.1																		
S.1.1	40	0,5	0,25	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.1.2	40	0,5	0,25	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.2.1	25	0,5	0,25	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.2	25	0,5	0,25	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.3	25	0,5	0,25	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.3.1	50	0,5	0,25	0,029	0,022	0,016	0,04	0,031	0,023	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058
S.3.2	40	0,5	0,25	0,029	0,022	0,016	0,04	0,031	0,022	0,058	0,043	0,029	0,076	0,056	0,038	0,104	0,081	0,058
S.3.3	40	0,5	0,25	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
H.1.1	100	0,5	0,5	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.2	100	0,5	0,3	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.3	100	0,5	0,15	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

	52 205 ... / 52 226 ... / 52 227 ...															● 1st choice ○ suitable		
	Ø DC = 10,0 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20,0 mm			Ø DC = 25,0 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,161	0,115	0,081	0,173	0,127	0,029	0,184	0,15	0,115	0,23	0,184	0,138	0,276	0,23	0,184	●	○	○
P.1.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.5	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
P.3.2	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
P.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
P.4.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
P.4.2	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
M.1.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
M.2.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
M.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
K.1.1	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,345	0,288	0,23	○	●	○
K.1.2	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,345	0,288	0,23	○	●	○
K.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.3.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.3.2	0,15	0,104	0,069	0,161	0,115	0,081	0,173	0,127	0,104	0,207	0,173	0,127	0,242	0,207	0,173	○	●	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,276	0,23	0,184	●		○
N.3.2	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,276	0,23	0,184	●		○
N.3.3	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,115	0,23	0,184	0,138	0,276	0,23	0,184	●		○
N.4.1																		
S.1.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
S.1.2	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
S.2.1	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.2.2	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.2.3	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.3.1	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,219	0,184	0,15	●		
S.3.2	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,219	0,184	0,15	●		
S.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●		
H.1.1	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,173	0,15	0,127		●	
H.1.2	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,173	0,15	0,127		●	
H.1.3	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,173	0,15	0,127		●	
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – S-Cut – End mills – SC-UNI, ZEFP = 5, long

			52 230 ...															
			Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm			
	Type long	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
Index	v_c m/min		f_z mm				f_z mm				f_z mm				f_z mm			
P.1.1	280	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
P.1.2	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.1.3	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.1.4	260	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.1.5	260	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.2.1	280	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
P.2.2	280	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
P.2.3	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.2.4	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.3.1	160	50°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
P.3.2	220	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.3.3	220	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.4.1	180	50°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
P.4.2	180	50°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.1.1	140	45°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.2.1	140	45°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.3.1	140	45°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
K.1.1	300	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
K.1.2	300	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
K.2.1	300	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
K.2.2	260	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
K.3.1	260	50°	0,112	0,079	0,065	0,025	0,157	0,111	0,09	0,035	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
K.3.2	200	50°	0,112	0,079	0,065	0,025	0,157	0,111	0,09	0,035	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	140	40°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
S.1.2	140	40°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
S.2.1	60	40°	0,045	0,032	0,026	0,01	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,06	0,049	0,019
S.2.2	60	40°	0,045	0,032	0,026	0,01	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,06	0,049	0,019
S.2.3	60	40°	0,045	0,032	0,026	0,01	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,06	0,049	0,019
S.3.1	140	40°	0,045	0,032	0,026	0,01	0,072	0,051	0,041	0,016	0,089	0,063	0,052	0,02	0,112	0,079	0,065	0,025
S.3.2	120	40°	0,045	0,032	0,026	0,01	0,072	0,051	0,041	0,016	0,089	0,063	0,052	0,02	0,112	0,079	0,065	0,025
S.3.3	100	40°	0,045	0,032	0,026	0,01	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,06	0,049	0,019
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting depth corresponding to the cutting length

	52 230 ...										
	Ø DC = 16 mm				Ø DC = 20 mm				● 1st choice		
									○ suitable		
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
Index	f_z mm				f_z mm						
P.1.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.1.2	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.1.3	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.1.4	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.1.5	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.2.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.2.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.2.3	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.2.4	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.3.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
P.3.2	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.3.3	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.4.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
P.4.2	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
M.1.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
M.2.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
M.3.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
K.1.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.1.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.2.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.2.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.3.1	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
K.3.2	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
S.1.2	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
S.2.1	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.2.2	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.2.3	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.3.1	0,157	0,111	0,09	0,035	0,219	0,155	0,127	0,049	●		
S.3.2	0,157	0,111	0,09	0,035	0,219	0,155	0,127	0,049	●		
S.3.3	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

Cutting data standard values – 3D Finish – barrel shape

		52 739 ...				
		Ø DC = 10 mm		● 1st choice ○ suitable		
		a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	Emulsion	Compressed air	MMS
Index	v_c m/min	f_z mm				
P.1.1	280	0,07	0,06	●	●	○
P.1.2	250	0,07	0,05	●	●	○
P.1.3	250	0,07	0,05	●	●	○
P.1.4	250	0,07	0,05	●	●	○
P.1.5	250	0,07	0,05	●	●	○
P.2.1	250	0,07	0,05	●	●	○
P.2.2	250	0,07	0,05	●	●	○
P.2.3	210	0,06	0,04	●	●	○
P.2.4	210	0,06	0,04	●	●	○
P.3.1	210	0,06	0,04	●	●	○
P.3.2	200	0,05	0,03		●	
P.3.3	200	0,05	0,03		●	
P.4.1	80	0,05	0,03	●		○
P.4.2	80	0,05	0,03	●		○
M.1.1	60	0,04	0,02	●		○
M.2.1	60	0,04	0,02	●		○
M.3.1	60	0,04	0,02	●		○
K.1.1	280	0,08	0,06		●	
K.1.2	280	0,08	0,06		●	
K.2.1	250	0,07	0,05		●	
K.2.2	250	0,07	0,05		●	
K.3.1	140	0,04	0,03		●	
K.3.2	140	0,04	0,03		●	
N.1.1	600	0,07	0,05	●		○
N.1.2	600	0,06	0,04	●		○
N.2.1	410	0,07	0,05	●		○
N.2.2						
N.2.3						
N.3.1	180	0,08	0,06	●	○	○
N.3.2	180	0,08	0,06	●		○
N.3.3	180	0,08	0,06	●		○
N.4.1	410	0,1	0,08	●		○
S.1.1	30	0,04	0,02	●		
S.1.2	30	0,04	0,02	●		
S.2.1	30	0,04	0,02	●		
S.2.2	30	0,04	0,02	●		
S.2.3	30	0,04	0,02	●		
S.3.1	100	0,04	0,02	●		
S.3.2	80	0,04	0,02	●		
S.3.3	60	0,04	0,02	●		
H.1.1	100	0,05	0,03		●	
H.1.2						
H.1.3						
H.1.4						
H.2.1	130	0,05	0,03		●	
H.3.1	100	0,05	0,03		●	
O.1.1	410	0,1	0,08	●	○	○
O.1.2	600	0,1	0,08	●		○
O.2.1						
O.2.2						
O.3.1						

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – 3D Finish – oval shape

		52 745 ...																		
		Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			● 1st choice		
																	○ suitable		
		a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm	Emulsion	Compressed air	MMS
Index	v_c m/min	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	280	0,04	0,04	0,04	0,06	0,06	0,05	0,07	0,07	0,06	0,08	0,08	0,07	0,11	0,11	0,1	●	●	○
P.1.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.1.3	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.1.4	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.1.5	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.2.1	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.2.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.2.3	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●	●	○
P.2.4	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●	●	○
P.3.1	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●	●	○
P.3.2	200	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
P.3.3	200	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
P.4.1	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		○
P.4.2	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		○
M.1.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
M.2.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
M.3.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
K.1.1	280	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1		●	
K.1.2	280	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1		●	
K.2.1	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08		●	
K.2.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08		●	
K.3.1	140	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03		●	
K.3.2	140	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03		●	
N.1.1	600	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●		○
N.1.2	600	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●		○
N.2.1	410	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●		○
N.2.2																			
N.2.3																			
N.3.1	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1	●	○	○
N.3.2	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1	●		○
N.3.3	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1	●		○
N.4.1	410	0,06	0,05	0,05	0,08	0,06	0,06	0,1	0,08	0,08	0,12	0,1	0,1	0,16	0,13	0,13	●		○
S.1.1	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.1.2	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.1	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.2	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.3	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.3.1	100	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●		
S.3.2	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		
S.3.3	60	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		
H.1.1	100	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1	130	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
H.3.1	100	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
O.1.1	410	0,06	0,05	0,05	0,08	0,06	0,06	0,1	0,08	0,08	0,12	0,1	0,1	0,16	0,13	0,13	●	○	○
O.1.2	600	0,06	0,05	0,05	0,08	0,06	0,06	0,1	0,08	0,08	0,12	0,1	0,1	0,16	0,13	0,13	●		○
O.2.1																			
O.2.2																			
O.3.1																			

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – 3D Finish – taper shape

		52 753 ... / 52 755 ...													
		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		● 1st choice		
												○ suitable		
		a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm			
Index	v_c m/min	f_z mm										Emulsion	Compressed air	MMS
P.1.1	280	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.1.2	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.1.3	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.1.4	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.1.5	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.2.1	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.2.2	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.2.3	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.2.4	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.3.1	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.3.2	200	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
P.3.3	200	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
P.4.1	80	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	●		○
P.4.2	80	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	●		○
M.1.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
M.2.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
M.3.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
K.1.1	280	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,11	0,08		●	
K.1.2	280	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,11	0,08		●	
K.2.1	250	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08		●	
K.2.2	250	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08		●	
K.3.1	140	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03		●	
K.3.2	140	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03		●	
N.1.1	600	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●		○
N.1.2	600	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	●		○
N.2.1	410	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●		○
N.2.2														
N.2.3														
N.3.1	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08	●	○	○
N.3.2	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08	●		○
N.3.3	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08	●		○
N.4.1	410	0,06	0,05	0,08	0,06	0,1	0,08	0,12	0,1	0,16	0,13	●		○
S.1.1	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.1.2	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.1	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.2	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.3	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.1	100	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.2	80	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.3	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
H.1.1	100	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
H.1.2														
H.1.3														
H.1.4														
H.2.1	130	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
H.3.1	100	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
O.1.1	410	0,06	0,05	0,08	0,06	0,1	0,08	0,12	0,1	0,16	0,13	●	○	○
O.1.2	600	0,06	0,05	0,08	0,06	0,1	0,08	0,12	0,1	0,16	0,13	●		○
O.2.1														
O.2.2														
O.3.1														

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – 3D Finish – lens shape

		52 756 ...												
		Ø DC = 4 mm		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		● 1st choice		
												○ suitable		
		a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm			
Index	v_c m/min	f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		Emulsion	Compressed air	MMS
P.1.1	280	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.2	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.3	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.4	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.5	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.1	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.2	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.3	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.2.4	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.3.1	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.3.2	180	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04		●	
P.3.3	180	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04		●	
P.4.1	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		○
P.4.2	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		○
M.1.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
M.2.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
M.3.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
K.1.1	300	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07		●	
K.1.2	300	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07		●	
K.2.1	270	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
K.2.2	270	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
K.3.1	150	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04		●	
K.3.2	150	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04		●	
N.1.1	900	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●		○
N.1.2	900	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●		○
N.2.1	600	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●		○
N.2.2														
N.2.3														
N.3.1	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07	●	○	○
N.3.2	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07	●		○
N.3.3	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07	●		○
N.4.1	600	0,04	0,03	0,06	0,05	0,08	0,06	0,1	0,08	0,12	0,1	●		○
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	150	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●		
S.3.2	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		
S.3.3	90	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

14

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – Micro cutter – 2.2xDC

		52 802 ... / 52 804 ... / 52 806 ...															
		Ø DC = 0,2–0,4 mm					Ø DC = 0,5–0,7 mm					Ø DC = 0,8–0,9 mm					
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC
	$a_{p\,max.}$	0,02	0,02	0,02	0,01	0,01	$a_{p\,max.}$	0,1	0,1	0,1	0,1	0,05	$a_{p\,max.}$	0,2	0,2	0,2	0,2	0,12
	$n_{min.}$	30.000					$n_{min.}$	12.000					$n_{min.}$	8.000				
Index	n	v_f mm/min.					n	v_f mm/min.					n	v_f mm/min.				
P.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.1.3	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.1.4	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.1.5	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.2.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.2.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.2.3	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.2.4	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.3.1	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.3.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.3.3	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.4.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.4.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
M.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
M.2.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
M.3.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.2.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.2.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.3.1	50.000	141	123	106	88	71	50.000	175	152	131	109	88	32.000	285	248	213	176	142
K.3.2	50.000	141	123	106	88	71	50.000	175	152	131	109	88	32.000	285	248	213	176	142
N.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	44.000	485	422	364	301	242
N.3.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.3.3	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.4.1	50.000	212	185	159	132	106	50.000	250	218	188	155	125	50.000	531	462	398	329	266
S.1.1	50.000	46	40	35	29	23	30.000	55	48	41	34	27	19.000	69	60	51	43	34
S.1.2	50.000	46	40	35	29	23	30.000	55	48	41	34	27	19.000	69	60	51	43	34
S.2.1	50.000	72	62	54	44	36	50.000	89	77	66	55	44	25.000	91	79	68	56	45
S.2.2	50.000	46	40	35	29	23	30.000	55	48	41	34	27	19.000	69	60	51	43	34
S.2.3	50.000	54	47	41	34	27	30000	66	57	49	41	33	12.000	78	68	59	49	39
S.3.1	50.000	114	99	85	71	57	50.000	164	143	123	102	82	44.000	114	99	85	71	57
S.3.2	50.000	114	99	85	71	57	50.000	164	143	123	102	82	44.000	164	143	123	102	82
S.3.3	50.000	70	61	53	43	35	50.000	85	74	64	53	42	38.000	101	88	76	63	51
H.1.1	50.000	219	191	164	136	110	50.000	232	202	174	144	116	50.000	388	338	291	241	194
H.1.2	50.000	201	175	151	125	101	50.000	285	248	213	176	142	38.000	336	292	252	208	168
H.1.3	50.000	114	99	85	71	57	50.000	134	117	101	83	67	25.000	156	136	117	97	78
H.1.4	50.000	107	93	80	67	54	50.000	126	110	95	78	63	25.000	141	123	106	88	71
H.2.1	50.000	219	191	164	136	110	50.000	232	202	174	144	116	50.000	388	338	291	241	194
H.3.1	50.000	201	175	151	125	101	50.000	285	248	213	176	142	38.000	336	292	252	208	168
O.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
O.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
O.2.1	50.000	212	185	159	132	106	50.000	200	174	150	124	100	38.000	316	275	237	196	158
O.2.2	50.000	212	185	159	132	106	50.000	200	174	150	124	100	38.000	316	275	237	196	158
O.3.1																		

52 802 ... / 52 804 ... / 52 806 ...

● 1st choice
○ suitable

		Ø DC = 1,0–1,4 mm						Ø DC = 1,5–1,7 mm								
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6 –1,0 x DC		a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2		$a_{p\,max.}$	0,45	0,45	0,45	0,45	0,3			
	$n_{min.}$	6.500						$n_{min.}$	6.500							
Index	n	v_f mm/min.						n	v_f mm/min.					Emulsion	Compressed air	MMS
P.1.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	●	○	○
P.1.2	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	●	○	○
P.1.3	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	●	○	○
P.1.4	50.000	671	584	503	416	335		33.000	1039	904	779	644	520	●	○	○
P.1.5	50.000	671	584	503	416	335		33.000	1039	904	779	644	520	●	○	○
P.2.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600		●	○
P.2.2	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600		●	○
P.2.3	50.000	671	584	503	416	335		33.000	1039	904	779	644	520		●	○
P.2.4	50.000	671	584	503	416	335		33.000	1039	904	779	644	520		●	○
P.3.1	50.000	671	584	503	416	335		33.000	1039	904	779	644	520		●	○
P.3.2	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600		●	○
P.3.3	50.000	671	584	503	416	335		33.000	1039	904	779	644	520		●	○
P.4.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600		●	○
P.4.2	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600		●	○
M.1.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	●		○
M.2.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	●		○
M.3.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	●		○
K.1.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	○	●	
K.1.2	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	○	●	
K.2.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	○	●	
K.2.2	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	○	●	
K.3.1	50.000	389	338	292	241	194		21.000	548	477	411	340	274		●	
K.3.2	25000	389	338	292	241	194		21.000	548	477	411	340	274		●	
N.1.1	50.000	930	809	697	576	465		50.000	1500	1305	1125	930	750	●		○
N.1.2	50.000	930	809	697	576	465		50.000	1500	1305	1125	930	750	●		○
N.2.1																
N.2.2																
N.2.3																
N.3.1	44.000	775	674	581	480	387		29.000	1160	1009	870	719	580	●		○
N.3.2	50.000	930	809	697	576	465		38.000	1400	1218	1050	868	700	●		○
N.3.3	50.000	930	809	697	576	465		38.000	1400	1218	1050	868	700	●		○
N.4.1	50.000	849	738	636	526	424		38.000	1388	1207	1041	860	694	●		○
S.1.1	15.000	99	86	74	61	49		12.000	170	148	127	105	85	●		○
S.1.2	15.000	99	86	74	61	49		12.000	170	148	127	105	85	●		○
S.2.1	25.000	152	132	114	94	76		16.000	294	256	220	182	147	●		○
S.2.2	15.000	99	86	74	61	49		12.000	170	148	127	105	85	●		○
S.2.3	12.000	131	114	99	82	66		8.000	255	221	191	158	127	●		○
S.3.1	44.000	170	148	127	105	85		29.000	329	286	246	204	164	●		○
S.3.2	44.000	247	215	186	153	124		29.000	365	318	274	226	183	●		○
S.3.3	38.000	170	148	127	105	85		25.000	329	286	246	204	164	●		○
H.1.1	50.000	620	539	465	384	310		33.000	850	740	638	527	425		●	
H.1.2	38.000	537	467	402	333	268		25.000	779	678	585	483	390		●	
H.1.3	25.000	235	204	176	146	117		16.000	346	301	260	215	173		●	
H.1.4	25.000	221	193	166	137	111		16.000	327	284	245	202	163		●	
H.2.1	50.000	620	539	465	384	310		33.000	850	740	638	527	425		●	
H.3.1	38.000	537	467	402	333	268		25.000	779	678	585	483	390		●	
O.1.1	50.000	930	809	697	576	465		38.000	1520	1322	1140	942	760	●	○	○
O.1.2	50.000	930	809	697	576	465		33.000	1320	1148	990	818	660	●	○	○
O.2.1	38.000	495	431	371	307	247		25.000	685	596	513	424	342	●	○	○
O.2.2	38.000	495	431	371	307	247		25.000	685	596	513	424	342	●	○	○
O.3.1																

Continued on the next page

Cutting data standard values – Micro cutter – 2.2xDC

		52 802 ... / 52 804 ... / 52 806 ...												● 1st choice		
		Ø DC = 1,8–1,9 mm						Ø DC = 2,0 mm						○ suitable		
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC				
	$a_{p\,max.}$	0,54	0,54	0,54	0,54	0,36	$a_{p\,max.}$	0,6	0,6	0,6	0,6	0,4				
	$n_{min.}$	5.500					$n_{min.}$	5.000								
Index	n	v_f mm/min.					n	v_f mm/min.						Emulsion	Compressed air	MMS
P.1.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○	○
P.1.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○	○
P.1.3	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○	○
P.1.4	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○	○
P.1.5	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○	○
P.2.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.2.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.2.3	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.2.4	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.3.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.3.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.3.3	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.4.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.4.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
M.1.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●		○
M.2.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●		○
M.3.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●		○
K.1.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		○	●	
K.1.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		○	●	
K.2.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		○	●	
K.2.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		○	●	
K.3.1	18.000	630	548	473	391	315	12.000	750	650	550	450	350			●	
K.3.2	18.000	630	548	473	391	315	12.000	750	650	550	450	350			●	
N.1.1	44.000	1800	1566	1350	1116	900	25.000	1500	1300	1125	930	750		●		○
N.1.2	44.000	1800	1566	1350	1116	900	25.000	1500	1300	1125	930	750		●		○
N.2.1																
N.2.2																
N.2.3																
N.3.1	25.000	1250	1088	938	775	625	19.000	1140	990	855	700	570		●		○
N.3.2	32.000	1520	1322	1140	942	760	25.000	1500	1300	1125	930	750		●		○
N.3.3	32.000	1520	1322	1140	942	760	25.000	1500	1300	1125	930	750		●		○
N.4.1	33.000	1560	1357	1170	967	780	25.000	1500	1300	1125	930	750		●		○
S.1.1	10.000	280	244	210	174	140	7.500	300	260	230	200	160		●		○
S.1.2	10.000	280	244	210	174	140	7.500	300	260	230	200	160		●		○
S.2.1	14.000	420	365	315	260	210	12.500	500	400	350	300	250		●		○
S.2.2	10.000	280	244	210	174	140	7.500	300	260	230	200	160		●		○
S.2.3	7.000	370	322	278	229	185	6.000	300	260	230	200	160		●		○
S.3.1	25.000	400	348	300	248	200	25.000	1500	1300	1125	930	750		●		○
S.3.2	25.000	480	418	360	298	240	25.000	1500	1300	1125	930	750		●		○
S.3.3	22.000	380	331	285	236	190	25.000	1500	1300	1125	930	750		●		○
H.1.1	29.000	1200	1044	900	744	600	25.000	1500	1300	1125	930	750			●	
H.1.2	22.000	1000	870	750	620	500	19.000	1140	990	855	700	570			●	
H.1.3	14.000	420	365	315	260	210	19.000	1140	990	855	700	570			●	
H.1.4	14.000	420	365	315	260	210	19.000	1140	990	855	700	570			●	
H.2.1	29.000	1200	1044	900	744	600	25.000	1500	1300	1125	930	750			●	
H.3.1	22.000	1000	870	750	620	500	19.000	1140	990	855	700	570			●	
O.1.1	33.000	1560	1357	1170	967	780	19.000	1140	990	855	700	570		●	○	○
O.1.2	28.000	1400	1218	1050	868	700	19.000	1140	990	855	700	570		●	○	○
O.2.1	22.000	800	696	600	496	400	12.000	720	630	540	450	360		●	○	○
O.2.2	22.000	800	696	600	496	400	12.000	720	630	540	450	360		●	○	○
O.3.1																

Cutting data standard values – Micro cutter – 5xDC

	52 802 ... / 52 804 ... / 52 806 ...															● 1st choice ○ suitable		
	Ø DC = 0,2–0,4 mm					Ø DC = 0,5–0,7 mm					Ø DC = 0,8–0,9 mm							
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\,max.}$	0,012	0,012	0,012	0,012	$a_{p\,max.}$	0,06	0,06	0,06	0,06	$a_{p\,max.}$	0,12	0,12	0,12	0,12	0,064			
	$n_{min.}$	30.000				$n_{min.}$	12.000				$n_{min.}$	8.000							
Index	n	v_f mm/min.				n	v_f mm/min.				n	v_f mm/min.					Emulsion	Compressed air	MMS
P.1.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.3	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.4	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165	●	○	○
P.1.5	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165	●	○	○
P.2.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.2.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.2.3	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.2.4	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.3.1	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.3.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.3.3	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.4.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.4.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
M.1.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
M.2.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
M.3.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
K.1.1	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.1.2	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.2.1	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.2.2	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.3.1	50.000	141	123	106	88	50.000	175	152	131	109	25.000	240	209	180	149	120		●	
K.3.2	50.000	141	123	106	88	50.000	175	152	131	109	25.000	240	209	180	149	120		●	
N.1.1	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.1.2	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	50.000	232	202	174	144	50.000	274	238	205	170	38.000	485	422	364	301	242	●		○
N.3.2	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.3.3	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.4.1	50.000	212	185	159	132	50.000	250	218	188	155	50.000	506	440	379	314	253	●		○
S.1.1	50.000	55	48	41	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.1.2	50.000	55	48	41	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.2.1	50.000	63	54	47	39	44.000	76	66	57	47	22.000	91	79	68	56	45	●		○
S.2.2	50.000	55	47	40	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.2.3	50.000	46	40	35	29	25.000	55	48	41	34	12.000	78	68	59	49	39	●		○
S.3.1	50.000	60	61	48	41	50.000	71	62	53	44	38.000	114	99	85	71	57	●		○
S.3.2	50.000	60	61	48	41	50.000	71	62	53	44	38.000	126	110	95	78	63	●		○
S.3.3	50.000	60	52	45	37	50.000	71	62	49	39	31.000	89	77	66	55	44	●		○
H.1.1	50.000	95	83	71	59	50.000	134	117	101	83	31.000	180	157	135	112	90		●	
H.1.2	50.000	95	83	71	59	44.000	134	117	101	83	22.000	180	157	135	112	90		●	
H.1.3	50.000	89	78	67	55	44.000	126	110	95	78	22.000	170	148	127	105	85		●	
H.1.4																			
H.2.1	50.000	155	135	116	96	50.000	164	143	123	102	44.000	346	301	260	215	173		●	
H.3.1	50.000	95	83	71	59	50.000	134	117	101	83	31.000	180	157	135	112	90		●	
O.1.1	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●	○	○
O.1.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	554	482	416	344	277	●	○	○
O.2.1	50.000	141	123	106	88	50.000	200	174	150	124	31.000	316	275	237	196	158	●	○	○
O.2.2	50.000	141	123	106	88	50.000	200	174	150	124	31.000	316	275	237	196	158	●	○	○
O.3.1																			

Continued on the next page

a_e = 0.6–1.0 x DC: If values are missing, only trochoidal slot milling and profiling are permitted. Otherwise, there is the risk of tool breakage.

Cutting data standard values – Micro cutter – 5xDC

		52 802 ... / 52 804 ... / 52 806 ...															
		Ø DC = 1,0–1,4 mm					Ø DC = 1,5–1,7 mm					Ø DC = 1,8–1,9 mm					
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC
	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\,max.}$	0,54	0,54	0,54	0,54	0,36
	$n_{min.}$	6.500					$n_{min.}$	6.500					$n_{min.}$	5.500				
Index	n	v_f mm/min.					n	v_f mm/min.					n	v_f mm/min.				
P.1.1	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.1.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.1.3	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.1.4	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.1.5	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.2.1	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.2.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.2.3	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.2.4	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.3.1	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.3.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.3.3	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.4.1	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.4.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
M.1.1	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
M.2.1	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
M.3.1	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
K.1.1	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.1.2	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.2.1	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.2.2	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.3.1	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
K.3.2	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
N.1.1	50.000	775	674	581	480	387	42.000	1200	1044	900	744	600	36.000	1500	1305	1125	930	750
N.1.2	50.000	775	674	581	480	387	42.000	1200	1044	900	744	600	36.000	1500	1305	1125	930	750
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	38.000	697	607	523	432	349	25.000	1000	870	750	620	500	22.000	1100	957	825	682	550
N.3.2	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
N.3.3	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
N.4.1	50.000	849	738	636	526	424	33.000	1205	1048	904	747	602	28.000	1400	1218	1050	868	700
S.1.1	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
S.1.2	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
S.2.1	22.000	114	99	85	71	57	14.000	196	170	147	121	98	12.000	300	261	225	186	150
S.2.2	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
S.2.3	12.000	131	114	99	82	66	8.000	170	148	127	105	85	7.000	240	209	180	149	120
S.3.1	38.000	156	135	117	96	78	25.000	274	238	205	170	137	22.000	380	331	285	236	190
S.3.2	38.000	212	185	159	132	106	25.000	365	318	274	226	183	22.000	450	392	338	279	225
S.3.3	31.000	127	111	95	79	64	21.000	201	175	151	125	100	18.000	300	261	225	186	150
H.1.1	31.000	201	175	151	125	101	21.000	346	301	260	215	173	16.000	500	435	375	310	250
H.1.2	22.000	235	204	176	146	117	14.000	346	301	260	215	173	12.000	450	392	338	279	225
H.1.3	22.000	221	193	166	137	111	14.000	327	284	245	202	163	12.000	450	392	338	279	225
H.1.4																		
H.2.1	44.000	426	371	320	264	213	29.000	600	522	450	372	300	25.000	800	696	600	496	400
H.3.1	31.000	201	175	151	125	101	21.000	346	301	260	215	173	16.000	500	435	375	310	250
O.1.1	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
O.1.2	44.000	813	708	610	504	407	29.000	1160	1009	870	719	580	25.000	1200	1044	900	744	600
O.2.1	31.000	438	381	329	272	219	21.000	575	500	431	357	288	18.000	650	566	488	403	325
O.2.2	31.000	438	381	329	272	219	21.000	575	500	431	357	288	18.000	650	566	488	403	325
O.3.1																		

		52 802 ... / 52 804 ... / 52 806 ...							
		Ø DC = 2,0 mm					● 1st choice		
							○ suitable		
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\,max.}$	0,6	0,6	0,6	0,6	0,4			
	$n_{min.}$	5.000							
Index	n	v_f mm/min.					Emulsion	Compressed air	MMS
P.1.1	22.000	1320	1148	990	818	660	●	○	○
P.1.2	22.000	1320	1148	990	818	660	●	○	○
P.1.3	22.000	1320	1148	990	818	660	●	○	○
P.1.4	15.000	900	783	675	558	450	●	○	○
P.1.5	15.000	900	783	675	558	450	●	○	○
P.2.1	22.000	1320	1148	990	818	660		●	○
P.2.2	22.000	1320	1148	990	818	660		●	○
P.2.3	15.000	900	783	675	558	450		●	○
P.2.4	15.000	900	783	675	558	450		●	○
P.3.1	15.000	900	783	675	558	450		●	○
P.3.2	22.000	1320	1148	990	818	660		●	○
P.3.3	15.000	900	783	675	558	450		●	○
P.4.1	22.000	1320	1148	990	818	660		●	○
P.4.2	22.000	1320	1148	990	818	660		●	○
M.1.1	15.000	900	783	675	558	450	●		○
M.2.1	15.000	900	783	675	558	450	●		○
M.3.1	15.000	900	783	675	558	450	●		○
K.1.1	25.000	1500	1305	1125	930	750	○	●	
K.1.2	25.000	1500	1305	1125	930	750	○	●	
K.2.1	25.000	1500	1305	1125	930	750	○	●	
K.2.2	25.000	1500	1305	1125	930	750	○	●	
K.3.1	12.000	520	452	390	322	260		●	
K.3.2	12.000	520	452	390	322	260		●	
N.1.1	31.000	1860	1618	1395	1153	930	●		○
N.1.2	31.000	1860	1618	1395	1153	930	●		○
N.2.1									
N.2.2									
N.2.3									
N.3.1	19.000	1140	992	855	707	570	●		○
N.3.2	25.000	1500	1305	1125	930	750	●		○
N.3.3	25.000	1500	1305	1125	930	750	●		○
N.4.1	25.000	1500	1305	1125	930	750	●		○
S.1.1	7.000	300	261	225	186	150	●		○
S.1.2	7.000	300	261	225	186	150	●		○
S.2.1	11.000	400	348	300	248	200	●		○
S.2.2	7.000	300	261	225	186	150	●		○
S.2.3	6.000	260	226	195	161	130	●		○
S.3.1	19.000	420	365	315	260	210	●		○
S.3.2	19.000	500	435	375	310	250	●		○
S.3.3	15.000	400	348	300	248	200	●		○
H.1.1	15.000	500	435	375	310	250		●	
H.1.2	11.000	480	418	360	298	240		●	
H.1.3	11.000	480	418	360	298	240		●	
H.1.4									
H.2.1	22.000	1000	870	750	620	500		●	
H.3.1	15.000	500	435	375	310	250		●	
O.1.1	25.000	1500	1305	1125	930	750	●	○	○
O.1.2	22.000	1320	1148	990	818	660	●	○	○
O.2.1	15.000	660	574	495	409	330	●	○	○
O.2.2	15.000	660	574	495	409	330	●	○	○
O.3.1									

Cutting data standard values – Micro cutter – 10xDC

		52 802 ... / 52 804 ... / 52 806 ...															
		Ø DC = 0,2–0,4 mm				Ø DC = 0,5–0,7 mm					Ø DC = 0,8–0,9 mm				Ø DC = 1,0–1,4 mm			
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC
	$a_{p\,max.}$	0,006	0,006	0,006	0,006	0,015	0,015	0,015	0,015	$a_{p\,max.}$	0,024	0,024	0,024	0,024	0,03	0,03	0,03	0,03
	$n_{min.}$	30.000				12.000				$n_{min.}$	8.000				6.500			
Index	n	v_f mm/min.				v_f mm/min.				n	v_f mm/min.				v_f mm/min.			
P.1.1	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
P.1.2	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
P.1.3	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
P.1.4	**50.000**	201	175	151	125	190	165	142	118	**25.000**	300	261	225	186	335	292	252	208
P.1.5	**50.000**	201	175	151	125	190	165	142	118	**25.000**	300	261	225	186	335	292	252	208
P.2.1	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
P.2.2	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
P.2.3	**50.000**	201	175	151	125	190	165	142	118	**25.000**	300	261	225	186	335	292	252	208
P.2.4	**50.000**	201	175	151	125	190	165	142	118	**25.000**	300	261	225	186	335	292	252	208
P.3.1	**50.000**	201	175	151	125	190	165	142	118	**25.000**	300	261	225	186	335	292	252	208
P.3.2	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
P.3.3	**50.000**	201	175	151	125	190	165	142	118	**25.000**	300	261	225	186	335	292	252	208
P.4.1	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
P.4.2	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
M.1.1	**50.000**	155	135	116	96	219	191	164	136	**25.000**	312	271	234	193	387	337	290	240
M.2.1	**50.000**	155	135	116	96	219	191	164	136	**25.000**	312	271	234	193	387	337	290	240
M.3.1	**50.000**	155	135	116	96	219	191	164	136	**25.000**	312	271	234	193	387	337	290	240
K.1.1	**50.000**	232	202	174	144	274	238	205	170	**44.000**	485	422	364	301	682	593	511	423
K.1.2	**50.000**	232	202	174	144	274	238	205	170	**44.000**	485	422	364	301	682	593	511	423
K.2.1	**50.000**	232	202	174	144	274	238	205	170	**44.000**	485	422	364	301	682	593	511	423
K.2.2	**50.000**	232	202	174	144	274	238	205	170	**44.000**	485	422	364	301	682	593	511	423
K.3.1	**50.000**	141	123	106	88	150	131	113	93	**19.000**	215	187	161	133	269	234	202	167
K.3.2	**50.000**	141	123	106	88	150	131	113	93	**19.000**	215	187	161	133	269	234	202	167
N.1.1	**50.000**	232	202	174	144	438	381	329	272	**50.000**	693	603	520	430	930	809	697	576
N.1.2	**50.000**	232	202	174	144	438	381	329	272	**50.000**	693	603	520	430	930	809	697	576
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	**50.000**	232	202	174	144	274	238	205	170	**31.000**	402	350	301	249	480	418	360	298
N.3.2	**50.000**	232	202	174	144	274	238	205	170	**44.000**	416	362	312	258	542	472	407	336
N.3.3	**50.000**	232	202	174	144	274	238	205	170	**44.000**	416	362	312	258	542	472	407	336
N.4.1	**50.000**	212	185	159	132	300	261	225	186	**44.000**	506	440	379	314	742	646	557	460
S.1.1	**50.000**	46	40	35	29	55	48	41	34	**12.000**	69	60	51	43	88	76	66	54
S.1.2	**50.000**	46	40	35	29	55	48	41	34	**12.000**	69	60	51	43	88	76	66	54
S.2.1	**50.000**	54	47	40	33	63	55	47	39	**19.000**	102	89	76	63	126	110	95	78
S.2.2	**50.000**	46	40	35	29	55	48	41	34	**12.000**	69	60	51	43	88	76	66	54
S.2.3	**50.000**	46	40	35	29	55	48	41	34	**12.000**	59	51	44	36	82	71	62	51
S.3.1	**50.000**	60	52	45	37	71	62	53	44	**31.000**	101	88	76	63	141	123	106	88
S.3.2	**50.000**	60	52	45	37	71	62	53	44	**31.000**	101	88	76	63	177	154	133	110
S.3.3	**50.000**	60	52	45	37	71	62	53	44	**25.000**	89	77	66	55	141	123	106	88
H.1.1	50.000	47	41	36	29	67	58	50	42	25.000	90	78	68	56	101	88	75	62
H.1.2	50.000	47	41	36	29	67	58	50	42	19.000	90	78	68	56	101	88	75	62
H.1.3	50.000	45	39	34	28	63	55	47	39	19.000	85	74	64	53	95	83	71	59
H.1.4																		
H.2.1	50.000	77	67	58	48	82	71	62	51	38.000	173	151	130	107	194	168	145	120
H.3.1	50.000	47	41	36	29	67	58	50	42	25.000	90	78	68	56	101	88	75	62
O.1.1	50.000	232	202	174	144	329	286	246	204	44.000	554	482	416	344	813	708	610	504
O.1.2	50.000	232	202	174	144	329	286	246	204	38.000	554	482	416	344	705	613	529	437
O.2.1	50.000	141	123	106	88	200	174	150	124	25.000	285	248	213	176	339	295	255	210
O.2.2	50.000	141	123	106	88	200	174	150	124	25.000	285	248	213	176	339	295	255	210
O.3.1																		

a_e= 0,6–1,0 x DC: Missing values only trochodial slotting and milling is recommended. Otherwise there is the risk of tool breakage.

52 802 ... / 52 804 ... / 52 806 ...

● 1st choice
○ suitable

Index		Ø DC = 1,5–1,7 mm				Ø DC = 1,8–1,9 mm				Ø DC = 2,0 mm				Emulsion	Compressed air	MMS
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC			
	$a_{p\,max.}$	0,06	0,06	0,06	0,06	0,072	0,072	0,072	0,072	0,08	0,08	0,08	0,08			
	$n_{min.}$	6.500				5.500				5.000						
	n	v_f mm/min.				n	v_f mm/min.			n	v_f mm/min.					
P.1.1	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707	●	○	○
P.1.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707	●	○	○
P.1.3	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707	●	○	○
P.1.4	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446	●	○	○
P.1.5	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446	●	○	○
P.2.1	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.2.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.2.3	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.2.4	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.3.1	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.3.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.3.3	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.4.1	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.4.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
M.1.1	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446	●		○
M.2.1	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446	●		○
M.3.1	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446	●		○
K.1.1	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.1.2	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.2.1	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.2.2	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.3.1	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	
K.3.2	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	
N.1.1	38.000	1520	1322	1140	942	33.000	1600	1392	1200	992	28.000	1680	1462	1260	1042	●		○
N.1.2	38.000	1520	1322	1140	942	33.000	1600	1392	1200	992	28.000	1680	1462	1260	1042	●		○
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	21.000	800	696	600	496	18.000	850	740	638	527	15.000	900	783	675	558	●		○
N.3.2	29.000	900	783	675	558	25.000	1000	870	750	620	22.000	1140	992	855	707	●		○
N.3.3	29.000	900	783	675	558	25.000	1000	870	750	620	22.000	1140	992	855	707	●		○
N.4.1	29.000	1059	921	794	657	25.000	1200	1044	900	744	22.000	1320	1148	990	818	●		○
S.1.1	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155	●		○
S.1.2	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155	●		○
S.2.1	12.000	204	178	153	127	10.000	300	261	225	186	9.000	350	305	263	217	●		○
S.2.2	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155	●		○
S.2.3	8.000	106	92	80	66	7.000	200	174	150	124	6.000	220	191	165	136	●		○
S.3.1	21.000	228	199	171	141	18.000	300	261	225	186	15.000	380	331	285	236	●		○
S.3.2	21.000	274	238	205	170	18.000	400	348	300	248	15.000	450	392	338	279	●		○
S.3.3	16.000	237	206	178	147	14.000	300	261	225	186	12.000	380	331	285	236	●		○
H.1.1	16.000	173	151	130	107	14.000	200	174	150	124	12.000	240	209	180	149		●	
H.1.2	12.000	173	151	130	107	10.000	200	174	150	124	9.000	240	209	180	149		●	
H.1.3	12.000	163	142	122	101	10.000	200	174	150	124	9.000	240	209	180	149		●	
H.1.4																		
H.2.1	25.000	300	261	225	186	21.000	400	348	300	248	19.000	500	435	375	310		●	
H.3.1	16.000	173	151	130	107	14.000	200	174	150	124	12.000	240	209	180	149		●	
O.1.1	29.000	1160	1009	870	719	25.000	1200	1044	900	744	22.000	1320	1148	990	818	●	○	○
O.1.2	25.000	1000	870	750	620	18.000	1000	870	750	620	19.000	1140	992	855	707	●	○	○
O.2.1	16.000	438	381	329	272	14.000	500	435	375	310	12.000	520	452	390	322	●	○	○
O.2.2	16.000	438	381	329	272	14.000	500	435	375	310	12.000	520	452	390	322	●	○	○
O.3.1																		

Cutting data standard values – MultiLock – Radius milling cutter

	53 803 ... CTC5240	53 804 ... CTPX225	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Ø DC = 25 mm	● 1st choice ○ suitable		
			a_e / a_p = 0,05 x DC	a_e / a_p = 0,05 x DC	a_e / a_p = 0,05 x DC	a_e / a_p = 0,05 x DC	Emulsion	Compressed air	MMS
Index	v_c m/min	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm			
P.1.1		180	0,12	0,15	0,18	0,20	●	○	○
P.1.2		160	0,13	0,16	0,19	0,21	●	○	○
P.1.3		160	0,13	0,16	0,19	0,21	●	○	○
P.1.4		140	0,10	0,13	0,16	0,18	●	○	○
P.1.5		140	0,10	0,13	0,16	0,18	●	○	○
P.2.1		150	0,10	0,13	0,16	0,18	●	○	○
P.2.2		150	0,10	0,13	0,16	0,18	●	○	○
P.2.3		90	0,09	0,10	0,13	0,14	●	○	○
P.2.4		90	0,09	0,10	0,13	0,14	●	○	○
P.3.1		80	0,07	0,09	0,11	0,12	●	○	○
P.3.2		80	0,07	0,09	0,11	0,12	●	○	○
P.3.3		80	0,07	0,09	0,11	0,12	●	○	○
P.4.1		60	0,09	0,10	0,13	0,14	●		○
P.4.2		50	0,09	0,10	0,13	0,14	●		○
M.1.1		50	0,07	0,09	0,11	0,12	●		○
M.2.1		40	0,06	0,08	0,10	0,11	●		○
M.3.1		50	0,07	0,09	0,11	0,12	●		○
K.1.1		150	0,13	0,17	0,21	0,23	●	○	○
K.1.2		120	0,12	0,15	0,18	0,20	●	○	○
K.2.1		140	0,13	0,16	0,19	0,21	●	○	○
K.2.2		120	0,10	0,13	0,16	0,18	●	○	○
K.3.1		120	0,13	0,16	0,19	0,21	●	○	○
K.3.2		100	0,12	0,15	0,18	0,20	●	○	○
N.1.1		500	0,20	0,25	0,30	0,33	●		○
N.1.2		450	0,20	0,25	0,30	0,33	●		○
N.2.1									
N.2.2		380	0,19	0,24	0,28	0,31	●		○
N.2.3		150	0,16	0,20	0,24	0,26	●		○
N.3.1		220	0,13	0,17	0,21	0,23	●		○
N.3.2		190	0,13	0,17	0,21	0,23	●		○
N.3.3		250	0,13	0,16	0,19	0,21	●		○
N.4.1									
S.1.1	60		0,08	0,11	0,16	0,17	●		
S.1.2									
S.2.1	60		0,08	0,11	0,16	0,17	●		
S.2.2	60		0,08	0,11	0,16	0,17	●		
S.2.3									
S.3.1	140		0,11	0,16	0,21	0,22	●		
S.3.2	100		0,08	0,11	0,16	0,17	●		
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – MultiLock – Torus cutter

	53 805 ... CTC5240	53 806 ... CTPX225	Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		Ø DC = 25 mm		● 1st choice ○ suitable		
			a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC			
			$a_{p\,max.}$ = 3 mm		$a_{p\,max.}$ = 4,5 mm		$a_{p\,max.}$ = 6 mm		$a_{p\,max.}$ = 8 mm				
Index	v_c m/min	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1		180	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
P.1.2		160	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
P.1.3		160	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
P.1.4		140	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.1.5		140	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.1		150	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.2		150	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.3		90	0,06	0,03	0,08	0,05	0,10	0,06	0,11	0,06	●	○	○
P.2.4		90	0,06	0,03	0,08	0,05	0,10	0,06	0,11	0,06	●	○	○
P.3.1		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.3.2		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.3.3		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.4.1		60	0,06	0,05	0,08	0,07	0,10	0,09	0,11	0,09	●		○
P.4.2		50	0,06	0,05	0,08	0,07	0,10	0,09	0,11	0,09	●		○
M.1.1		50	0,05	0,04	0,07	0,06	0,09	0,08	0,10	0,08	●		○
M.2.1		40	0,04	0,03	0,06	0,05	0,08	0,07	0,09	0,07	●		○
M.3.1		50	0,05	0,04	0,07	0,06	0,09	0,08	0,10	0,08	●		○
K.1.1		150	0,09	0,06	0,13	0,08	0,16	0,10	0,18	0,10	●	○	○
K.1.2		120	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
K.2.1		140	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
K.2.2		120	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
K.3.1		120	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
K.3.2		100	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1													
N.3.2		220	0,09	0,06	0,13	0,08	0,16	0,10	0,18	0,10	●		○
N.3.3													
N.4.1													
S.1.1	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.1.2	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.1	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.2	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.3	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.3.1	140		0,10	0,05	0,15	0,08	0,2	0,11	0,22	0,13	●		
S.3.2	100		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Plunging angle for ramping milling = 1.9°
Plunging angle for helical milling = 1.5°
Bore diameter with helical milling = D_{min} 1.7xDC / D_{max} 1.95xDC
With ramping and helical milling, multiply the f_z by 0.5

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Cutting data standard values – MultiLock – HFC milling cutter

	53 801 ... CTC5240	53 802 ... CTPX225	Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			Ø DC = 25 mm			● 1st choice ○ suitable		
			a_e = 0,1–0,2 x DC	a_e = 0,3–0,4 x DC	a_e = 0,6–1,0 x DC	a_e = 0,1–0,2 x DC	a_e = 0,3–0,4 x DC	a_e = 0,6–1,0 x DC	a_e = 0,1–0,2 x DC	a_e = 0,3–0,4 x DC	a_e = 0,6–1,0 x DC	a_e = 0,1–0,2 x DC	a_e = 0,3–0,4 x DC	a_e = 0,6–1,0 x DC			
			$a_{p\,max.}$ = 0,5 mm			$a_{p\,max.}$ = 0,8 mm			$a_{p\,max.}$ = 0,8 mm			$a_{p\,max.}$ = 0,8 mm					
Index	v_c m/min	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1		**200**	0,45	0,36	0,26	0,63	0,47	0,30	0,81	0,60	0,38	0,89	0,63	0,38	●	○	○
P.1.2		**180**	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
P.1.3		**180**	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
P.1.4		**150**	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.1.5		**150**	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.1		**170**	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.2		**170**	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.3		**100**	0,33	0,26	0,20	0,46	0,34	0,22	0,59	0,44	0,28	0,65	0,47	0,28	●	○	○
P.2.4		**100**	0,33	0,26	0,20	0,46	0,34	0,22	0,59	0,44	0,28	0,65	0,47	0,28	●	○	○
P.3.1		**90**	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.3.2		**90**	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.3.3		**90**	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.4.1		**70**	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●		○
P.4.2		**60**	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●		○
M.1.1		55	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,24	0,57	0,40	0,24	●		○
M.2.1		40	0,25	0,20	0,15	0,35	0,26	0,17	0,44	0,33	0,21	0,49	0,35	0,21	●		○
M.3.1		60	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,24	0,57	0,40	0,24	●		○
K.1.1		**170**	0,53	0,42	0,32	0,74	0,55	0,35	0,96	0,71	0,45	1,06	0,75	0,45	●	○	○
K.1.2		**130**	0,45	0,36	0,26	0,63	0,47	0,3	0,81	0,59	0,38	0,89	0,63	0,38	●	○	○
K.2.1		**150**	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
K.2.2		**130**	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
K.3.1		**130**	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
K.3.2		**110**	0,45	0,36	0,26	0,63	0,47	0,30	0,81	0,59	0,38	0,89	0,63	0,38	●	○	○
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	**60**		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.1.2	**60**		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.1	**60**		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.2	**60**		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.3	**60**		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.3.1	**140**		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.3.2	**100**		0,25	0,19	0,14	0,26	0,19	0,12	0,28	0,22	0,17	0,29	0,24	0,18	●		
S.3.3	**140**		0,18	0,15	0,11	0,20	0,15	0,11	0,22	0,18	0,14	0,23	0,20	0,16	●		
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Plunging angle for ramping and helical milling = 1.9°
Bore diameter with helical milling = D_{min} 1.6xDC / D_{max} 1.95xDC
With ramping and helical milling, multiply the f_z by 0.5

Cutting data standard values – MultiLock – Deburring cutter

	53 800 ... CTPX225	Ø DC = 12 mm	Ø DC = 16 mm	● 1st choice ○ suitable		
		a_e = 0,1–0,2 x DC	a_e = 0,1–0,3 x DC			
		$a_{p\,max.}$ = 4 mm	$a_{p\,max.}$ = 6 mm			
Index	v_c m/min	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	200	0,09	0,12	●	○	○
P.1.2	180	0,10	0,13	●	○	○
P.1.3	180	0,10	0,13	●	○	○
P.1.4	150	0,08	0,11	●	○	○
P.1.5	150	0,08	0,11	●	○	○
P.2.1	170	0,08	0,11	●	○	○
P.2.2	170	0,08	0,11	●	○	○
P.2.3	100	0,07	0,09	●	○	○
P.2.4	100	0,07	0,09	●	○	○
P.3.1	90	0,06	0,08	●	○	○
P.3.2	90	0,06	0,08	●	○	○
P.3.3	90	0,06	0,08	●	○	○
P.4.1	70	0,07	0,09	●		○
P.4.2	60	0,07	0,09	●		○
M.1.1	60	0,06	0,08	●		○
M.2.1	40	0,05	0,07	●		○
M.3.1	60	0,06	0,08	●		○
K.1.1	170	0,11	0,14	●	○	○
K.1.2	130	0,09	0,12	●	○	○
K.2.1	150	0,10	0,13	●	○	○
K.2.2	130	0,08	0,11	●	○	○
K.3.1	130	0,10	0,13	●	○	○
K.3.2	110	0,09	0,12	●	○	○
N.1.1	550	0,16	0,21	●		
N.1.2	500	0,16	0,21	●		
N.2.1						
N.2.2	420	0,15	0,20	●		
N.2.3	170	0,13	0,17	●		
N.3.1	240	0,11	0,14	●		
N.3.2	210	0,11	0,14	●		
N.3.3	280	0,10	0,13	●		
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – MultiChange – PCR-UNI

	52 871 ...													
					Feedrates for extra short and short holder									
					Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0	Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0
						a_e 0,25xDC					a_e 1xDC			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	a_p max.	v_c m/min	f_z mm				v_c m/min	f_z mm			
P.1.1	0,9	0,7*	0,6*	0,56	490	0,057	0,065	0,080	0,091	240	0,028	0,033	0,040	0,046
P.1.2	0,9	0,7*	0,6*	0,56	470	0,054	0,062	0,076	0,087	230	0,027	0,031	0,038	0,044
P.1.3	0,9	0,7*	0,6*	0,56	445	0,052	0,059	0,073	0,083	220	0,026	0,030	0,036	0,041
P.1.4	0,9	0,7*	0,6*	0,56	425	0,049	0,056	0,069	0,079	205	0,025	0,028	0,034	0,039
P.1.5	0,9	0,7*	0,6*	0,56	400	0,047	0,053	0,065	0,075	195	0,023	0,027	0,033	0,037
P.2.1	0,9	0,7*	0,6*	0,56	445	0,057	0,065	0,080	0,091	220	0,028	0,033	0,040	0,046
P.2.2	0,9	0,7*	0,6*	0,56	405	0,052	0,059	0,073	0,083	200	0,026	0,030	0,036	0,041
P.2.3	0,9	0,7*	0,6*	0,56	365	0,047	0,053	0,065	0,075	180	0,023	0,027	0,033	0,037
P.2.4	0,9	0,7*	0,6*	0,56	285	0,043	0,050	0,060	0,069	140	0,022	0,025	0,030	0,035
P.3.1	0,9	0,7*	0,6*	0,56	265	0,050	0,057	0,070	0,080	130	0,025	0,029	0,035	0,040
P.3.2	0,9	0,7*	0,6*	0,56	245	0,047	0,054	0,067	0,076	120	0,024	0,027	0,033	0,038
P.3.3	0,9	0,7*	0,6*	0,56	225	0,045	0,051	0,063	0,072	110	0,022	0,026	0,031	0,036
P.4.1	0,9	0,7*	0,6*	0,56	180	0,034	0,040	0,048	0,055	90	0,017	0,020	0,024	0,028
P.4.2	0,9	0,7*	0,6*	0,56	180	0,034	0,040	0,048	0,055	90	0,017	0,020	0,024	0,028
M.1.1	0,9	0,7*	0,6*	0,56	120	0,030	0,035	0,042	0,048	60	0,015	0,017	0,021	0,024
M.2.1	0,9	0,7*	0,6*	0,56	115	0,025	0,029	0,035	0,040	55	0,012	0,014	0,018	0,020
M.3.1	0,9	0,7*	0,6*	0,56	120	0,026	0,030	0,036	0,041	60	0,013	0,015	0,018	0,021
K.1.1	0,9	0,7*	0,6*	0,56	485	0,086	0,099	0,121	0,138	240	0,043	0,050	0,060	0,069
K.1.2	0,9	0,7*	0,6*	0,56	365	0,060	0,069	0,085	0,097	180	0,030	0,035	0,042	0,048
K.2.1	0,9	0,7*	0,6*	0,56	445	0,073	0,084	0,103	0,118	220	0,037	0,042	0,051	0,059
K.2.2	0,9	0,7*	0,6*	0,56	365	0,060	0,069	0,085	0,097	180	0,030	0,035	0,042	0,048
K.3.1	0,9	0,7*	0,6*	0,56	325	0,060	0,069	0,085	0,097	160	0,030	0,035	0,042	0,048
K.3.2	0,9	0,7*	0,6*	0,56	305	0,052	0,059	0,073	0,083	150	0,026	0,030	0,036	0,041

* = Trimming and trochoidal slot milling

Cutting data standard values – MultiChange – PCR-ALU

	52 872 ...													
					Feedrates for extra short and short holder									
					Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0	Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0
						a_e 0,25xDC					a_e 1xDC			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	a_p max.	v_c m/min	f_z mm				v_c m/min	f_z mm			
N.1.1	0,9	0,7*	0,6*	0,56	1035	0,169	0,194	0,237	0,271	675	0,084	0,097	0,119	0,136
N.1.2	0,9	0,7*	0,6*	0,56	945	0,154	0,177	0,216	0,247	610	0,077	0,088	0,108	0,123
N.2.1	0,9	0,7*	0,6*	0,56	625	0,161	0,185	0,226	0,259	405	0,081	0,093	0,113	0,129
N.2.2	0,9	0,7*	0,6*	0,56	500	0,169	0,194	0,237	0,271	325	0,084	0,097	0,119	0,136
N.2.3	0,9	0,7*	0,6*	0,56	360	0,184	0,212	0,259	0,296	235	0,092	0,106	0,129	0,148
N.3.1	0,9	0,7*	0,6*	0,56	450	0,077	0,088	0,108	0,123	295	0,038	0,044	0,054	0,062
N.3.2	0,9	0,7*	0,6*	0,56	270	0,123	0,141	0,173	0,197	175	0,061	0,071	0,086	0,099
N.3.3	0,9	0,7*	0,6*	0,56	360	0,123	0,141	0,173	0,197	235	0,061	0,071	0,086	0,099
N.4.1														

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

52 871 ...

		Ramping	Drilling	Helical milling			● 1st choice		
							○ suitable		
					Max. plunging angle				
	v_c m/min	Max. angle	f_z factor	$a_{R\,max.}$ **	$D_{min.}$ 1,5 x DC	$D_{max.}$ 1,8 x DC	Emulsion	Compressed air	MMS
	P.1.1	45°	0,9	0,56xDC	20°	13°	○	●	○
	P.1.2	45°	0,9	0,56xDC	20°	13°	○	●	○
	P.1.3	45°	0,9	0,56xDC	20°	13°	○	●	○
	P.1.4	45°	0,9	0,56xDC	20°	13°	○	●	○
	P.1.5	45°	0,9	0,56xDC	20°	13°	○	●	○
	P.2.1	45°	0,8	0,56xDC	20°	13°	○	●	○
	P.2.2	45°	0,8	0,56xDC	20°	13°	○	●	○
	P.2.3	45°	0,8	0,56xDC	20°	13°	○	●	○
	P.2.4	45°	0,7	0,56xDC	20°	13°	○	●	○
	P.3.1	30°	0,8	0,56xDC	20°	13°	●		○
	P.3.2	30°	0,7	0,56xDC	20°	13°	●		○
	P.3.3	30°	0,7	0,56xDC	20°	13°	●		○
	P.4.1	15°		0,56xDC	20°	13°	●		○
	P.4.2	15°		0,56xDC	20°	13°	●		○
	M.1.1	15°		0,4xDC	14°	9°	●		
	M.2.1	15°		0,4xDC	14°	9°	●		
	M.3.1	15°		0,4xDC	14°	9°	●		
	K.1.1	45°	0,8	0,56xDC	20	13		●	
	K.1.2	45°	0,8	0,56xDC	20	13		●	
	K.2.1	45°	0,8	0,56xDC	20	13		●	
	K.2.2	45°	0,8	0,56xDC	20	13		●	
	K.3.1	45°	0,8	0,56xDC	20	13		●	
	K.3.2	45°	0,8	0,56xDC	20	13		●	

52 872 ...

		Ramping	Drilling	Helical milling			● 1st choice		
							○ suitable		
					Max. plunging angle				
	v_c m/min	Max. angle	f_z factor	$a_{R\,max.}$ **	$D_{min.}$ 1,5 x DC	$D_{max.}$ 1,8 x DC	Emulsion	Compressed air	MMS
	N.1.1	45°	0,9	0,56xDC	20°	13°	●		○
	N.1.2	45°	0,9	0,56xDC	20°	13°	●		○
	N.2.1	45°	0,9	0,56xDC	20°	13°	●		○
	N.2.2	45°	0,9	0,56xDC	20°	13°	●		○
	N.2.3	45°	0,9	0,56xDC	20°	13°	●		○
	N.3.1	45°	0,9	0,56xDC	20°	13°	●		○
	N.3.2	45°	0,9	0,56xDC	20°	13°	●		○
	N.3.3	45°	0,9	0,56xDC	20°	13°	●		○
	N.4.1								

** Width of cut per helical revolution

Cutting data standard values – MultiChange – Shoulder milling heads

				52 860 ... / 52 861 ...																				
				Feedrates for extra short and short holder																				
				Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		
				$a_{p\,max.}$	5,2 mm	4,4 mm	3,6 mm	6,5 mm	5,5 mm	4,5 mm	7,8 mm	6,6 mm	5,4 mm	10,4 mm	8,8 mm	7,2 mm	13 mm	11 mm	9 mm	○ suitable		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	175	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,05	○	●	○
P.1.2	0,9	0,7*	0,6*	165	0,05	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,04	○	●	○
P.1.3	0,9	0,7*	0,6*	160	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	○	●	○
P.1.4	0,9	0,7*	0,6*	150	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.1.5	0,9	0,7*	0,6*	145	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.2.1	0,9	0,7*	0,6*	160	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,05	○	●	○
P.2.2	0,9	0,7*	0,6*	145	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	○	●	○
P.2.3	0,9	0,7*	0,6*	130	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.2.4	0,9	0,7*	0,6*	100	0,04	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	○	●	○
P.3.1	0,9	0,7*	0,6*	95	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	●		○
P.3.2	0,9	0,7*	0,6*	85	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	●		○
P.3.3	0,9	0,7*	0,6*	80	0,04	0,03	0,02	0,05	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	●		○
P.4.1	0,9	0,7*	0,6*	65	0,03	0,02	0,01	0,03	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	●		○
P.4.2	0,9	0,7*	0,6*	65	0,03	0,02	0,01	0,03	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	●		○
M.1.1																						
M.2.1																						
M.3.1																						
K.1.1	0,9	0,7*	0,6*	175	0,07	0,05	0,04	0,09	0,07	0,04	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,10	0,07		●	
K.1.2	0,9	0,7*	0,6*	130	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.2.1	0,9	0,7*	0,6*	160	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06		●	
K.2.2	0,9	0,7*	0,6*	130	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.3.1	0,9	0,7*	0,6*	115	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.3.2	0,9	0,7*	0,6*	110	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04		●	
N.1.1																						
N.1.2																						
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H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Rough-finishing milling heads

	52 862 ...																
				Feedrates for extra short and short holder													
				Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		● 1st choice		
				$a_{p\,max.}$ 7,5 mm		9,4 mm		11,3 mm		15,0 mm		18,8 mm		○ suitable		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	225	0,04	0,03	0,05	0,04	0,06	0,04	0,08	0,05	0,09	0,06	○	●	○
P.1.2	0,9	0,7*	0,6*	215	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.1.3	0,9	0,7*	0,6*	205	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.1.4	0,9	0,7*	0,6*	195	0,04	0,03	0,05	0,03	0,05	0,04	0,06	0,05	0,07	0,05	○	●	○
P.1.5	0,9	0,7*	0,6*	185	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	○	●	○
P.2.1	0,9	0,7*	0,6*	205	0,04	0,03	0,05	0,04	0,06	0,04	0,08	0,05	0,09	0,06	○	●	○
P.2.2	0,9	0,7*	0,6*	185	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.2.3	0,9	0,7*	0,6*	170	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	○	●	○
P.2.4	0,9	0,7*	0,6*	130	0,03	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,06	0,05	○	●	○
P.3.1	0,9	0,7*	0,6*	120	0,04	0,03	0,05	0,03	0,05	0,04	0,07	0,05	0,08	0,05	●		○
P.3.2	0,9	0,7*	0,6*	110	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	●		○
P.3.3	0,9	0,7*	0,6*	105	0,04	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	●		○
P.4.1	0,9	0,7*	0,6*	85	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	0,05	0,04	●		○
P.4.2	0,9	0,7*	0,6*	85	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	0,05	0,04	●		○
M.1.1	0,9	0,7*	0,6*	55	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	●		
M.2.1	0,9	0,7*	0,6*	50	0,02	0,01	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	●		
M.3.1	0,9	0,7*	0,6*	55	0,02	0,01	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	●		
K.1.1	0,9	0,7*	0,6*	225	0,07	0,05	0,08	0,06	0,09	0,07	0,11	0,08	0,13	0,09		●	
K.1.2	0,9	0,7*	0,6*	170	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.2.1	0,9	0,7*	0,6*	205	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,11	0,08		●	
K.2.2	0,9	0,7*	0,6*	170	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.3.1	0,9	0,7*	0,6*	150	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.3.2	0,9	0,7*	0,6*	140	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
N.1.1	0,9	0,7*	0,6*	785	0,08	0,05	0,09	0,06	0,10	0,07	0,13	0,09	0,15	0,10	●		○
N.1.2	0,9	0,7*	0,6*	715	0,07	0,05	0,08	0,06	0,09	0,07	0,12	0,08	0,13	0,09	●		○
N.2.1	0,9	0,7*	0,6*	475	0,07	0,05	0,09	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		○
N.2.2	0,9	0,7*	0,6*	380	0,08	0,05	0,09	0,06	0,10	0,07	0,13	0,09	0,15	0,10	●		○
N.2.3	0,9	0,7*	0,6*	275	0,08	0,06	0,10	0,07	0,11	0,08	0,14	0,10	0,16	0,11	●		○
N.3.1	0,9	0,7*	0,6*	340	0,03	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	●		○
N.3.2	0,9	0,7*	0,6*	205	0,06	0,04	0,07	0,05	0,08	0,05	0,09	0,07	0,11	0,07	●		○
N.3.3	0,9	0,7*	0,6*	275	0,06	0,04	0,07	0,05	0,08	0,05	0,09	0,07	0,11	0,07	●		○
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
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S.3.2																	
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H.1.1																	
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H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

14

Cutting data standard values – MultiChange – HFC milling heads

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	$a_{p\,max.}$ x DCX	52 864 ... Feedrates for extra short and short holder: Ø DCX = 8 mm, a_e 0,1–0,2 x DCX, f_z mm	Ø DCX = 8 mm, a_e 0,3–0,4 x DCX, f_z mm	Ø DCX = 8 mm, a_e 0,6–1,0 x DCX, f_z mm	Ø DCX = 10 mm, a_e 0,1–0,2 x DCX, f_z mm	Ø DCX = 10 mm, a_e 0,3–0,4 x DCX, f_z mm	Ø DCX = 10 mm, a_e 0,6–1,0 x DCX, f_z mm	Ø DCX = 12 mm, a_e 0,1–0,2 x DCX, f_z mm	Ø DCX = 12 mm, a_e 0,3–0,4 x DCX, f_z mm	Ø DCX = 12 mm, a_e 0,6–1,0 x DCX, f_z mm	Ø DCX = 16 mm, a_e 0,1–0,2 x DCX, f_z mm	Ø DCX = 16 mm, a_e 0,3–0,4 x DCX, f_z mm	Ø DCX = 16 mm, a_e 0,6–1,0 x DCX, f_z mm	Ø DCX = 20 mm, a_e 0,1–0,2 x DCX, f_z mm	Ø DCX = 20 mm, a_e 0,3–0,4 x DCX, f_z mm	Ø DCX = 20 mm, a_e 0,6–1,0 x DCX, f_z mm	Emulsion	Compressed air	MMS
																					● 1st choice		
																					○ suitable		
P.1.1	0,9	0,7*	0,6*	175	0,05	0,44	0,31	0,20	0,53	0,37	0,24	0,61	0,43	0,27	0,74	0,52	0,33	0,85	0,60	0,38	○	●	○
P.1.2	0,9	0,7*	0,6*	165	0,05	0,42	0,30	0,19	0,50	0,36	0,22	0,58	0,41	0,26	0,71	0,50	0,32	0,81	0,57	0,36	○	●	○
P.1.3	0,9	0,7*	0,6*	160	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34	○	●	○
P.1.4	0,9	0,7*	0,6*	150	0,05	0,38	0,27	0,17	0,45	0,32	0,20	0,52	0,37	0,23	0,64	0,45	0,29	0,73	0,52	0,33	○	●	○
P.1.5	0,9	0,7*	0,6*	145	0,05	0,36	0,25	0,16	0,43	0,30	0,19	0,50	0,35	0,22	0,60	0,43	0,27	0,69	0,49	0,31	○	●	○
P.2.1	0,9	0,7*	0,6*	160	0,05	0,44	0,31	0,20	0,53	0,37	0,24	0,61	0,43	0,27	0,74	0,52	0,33	0,85	0,60	0,38	○	●	○
P.2.2	0,9	0,7*	0,6*	145	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34	○	●	○
P.2.3	0,9	0,7*	0,6*	130	0,05	0,36	0,25	0,16	0,43	0,30	0,19	0,50	0,35	0,22	0,60	0,43	0,27	0,69	0,49	0,31	○	●	○
P.2.4	0,9	0,7*	0,6*	100	0,05	0,33	0,24	0,15	0,40	0,28	0,18	0,46	0,32	0,21	0,56	0,40	0,25	0,64	0,45	0,29	○	●	○
P.3.1	0,9	0,7*	0,6*	95	0,05	0,39	0,27	0,17	0,46	0,33	0,21	0,53	0,38	0,24	0,65	0,46	0,29	0,74	0,53	0,33	●		○
P.3.2	0,9	0,7*	0,6*	85	0,05	0,37	0,26	0,16	0,44	0,31	0,20	0,50	0,36	0,23	0,62	0,44	0,28	0,70	0,50	0,32	●		○
P.3.3	0,9	0,7*	0,6*	80	0,05	0,35	0,24	0,15	0,41	0,29	0,19	0,48	0,34	0,21	0,58	0,41	0,26	0,67	0,47	0,30	●		○
P.4.1	0,9	0,7*	0,6*	65	0,05	0,27	0,19	0,12	0,32	0,23	0,14	0,37	0,26	0,16	0,45	0,32	0,20	0,51	0,36	0,23	●		○
P.4.2	0,9	0,7*	0,6*	65	0,05	0,27	0,19	0,12	0,32	0,23	0,14	0,37	0,26	0,16	0,45	0,32	0,20	0,51	0,36	0,23	●		○
M.1.1	0,9	0,7*	0,6*	45	0,05	0,23	0,16	0,10	0,28	0,20	0,12	0,32	0,23	0,14	0,39	0,28	0,18	0,45	0,32	0,20	●		
M.2.1	0,9	0,7*	0,6*	40	0,05	0,19	0,14	0,09	0,23	0,16	0,10	0,27	0,19	0,12	0,32	0,23	0,15	0,37	0,26	0,17	●		
M.3.1	0,9	0,7*	0,6*	45	0,05	0,20	0,14	0,09	0,24	0,17	0,11	0,28	0,19	0,12	0,34	0,24	0,15	0,38	0,27	0,17	●		
K.1.1	0,9	0,7*	0,6*	175	0,05	0,67	0,47	0,30	0,80	0,56	0,36	0,92	0,65	0,41	1,12	0,79	0,50	1,28	0,91	0,57		●	
K.1.2	0,9	0,7*	0,6*	130	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40		●	
K.2.1	0,9	0,7*	0,6*	160	0,05	0,57	0,40	0,25	0,68	0,48	0,30	0,78	0,55	0,35	0,95	0,67	0,43	1,09	0,77	0,49		●	
K.2.2	0,9	0,7*	0,6*	130	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40		●	
K.3.1	0,9	0,7*	0,6*	115	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40		●	
K.3.2	0,9	0,7*	0,6*	110	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34		●	
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* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Finishing milling heads

				52 863 ...								
				Feedrates for extra short and short holder								
				Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	●	1st choice		
				$a_{p\,max.}$ 7,5 mm	9,4 mm	11,3 mm	15,0 mm	18,8 mm	○	suitable		
				a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC				
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	405	0,04	0,05	0,06	0,08	0,09	○	●	○
P.1.2	0,9	0,7*	0,6*	385	0,04	0,05	0,06	0,07	0,08	○	●	○
P.1.3	0,9	0,7*	0,6*	365	0,04	0,05	0,06	0,07	0,08	○	●	○
P.1.4	0,9	0,7*	0,6*	350	0,04	0,05	0,05	0,06	0,07	○	●	○
P.1.5	0,9	0,7*	0,6*	330	0,04	0,04	0,05	0,06	0,07	○	●	○
P.2.1	0,9	0,7*	0,6*	365	0,04	0,05	0,06	0,08	0,09	○	●	○
P.2.2	0,9	0,7*	0,6*	335	0,04	0,05	0,06	0,07	0,08	○	●	○
P.2.3	0,9	0,7*	0,6*	300	0,04	0,04	0,05	0,06	0,07	○	●	○
P.2.4	0,9	0,7*	0,6*	235	0,03	0,04	0,05	0,06	0,06	○	●	○
P.3.1	0,9	0,7*	0,6*	215	0,04	0,05	0,05	0,07	0,08	●		○
P.3.2	0,9	0,7*	0,6*	200	0,04	0,04	0,05	0,06	0,07	●		○
P.3.3	0,9	0,7*	0,6*	185	0,04	0,04	0,05	0,06	0,07	●		○
P.4.1	0,9	0,7*	0,6*	150	0,03	0,03	0,04	0,05	0,05	●		○
P.4.2	0,9	0,7*	0,6*	150	0,03	0,03	0,04	0,05	0,05	●		○
M.1.1	0,9	0,7*	0,6*	100	0,02	0,03	0,03	0,04	0,05	●		
M.2.1	0,9	0,7*	0,6*	95	0,02	0,02	0,03	0,03	0,04	●		
M.3.1	0,9	0,7*	0,6*	100	0,02	0,02	0,03	0,03	0,04	●		
K.1.1	0,9	0,7*	0,6*	400	0,07	0,08	0,09	0,11	0,13		●	
K.1.2	0,9	0,7*	0,6*	300	0,05	0,06	0,07	0,08	0,09		●	
K.2.1	0,9	0,7*	0,6*	365	0,06	0,07	0,08	0,10	0,11		●	
K.2.2	0,9	0,7*	0,6*	300	0,05	0,06	0,07	0,08	0,09		●	
K.3.1	0,9	0,7*	0,6*	265	0,05	0,06	0,07	0,08	0,09		●	
K.3.2	0,9	0,7*	0,6*	250	0,04	0,05	0,06	0,07	0,08		●	
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* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Radius torus cutters

				52 865 ... / 52 866 ...																				
					Feedrates for extra short and short holder																			
					Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			●	1st choice		
				$a_{p\,max.}$	4,8 mm	1,6 mm	0,8 mm	5,6 mm	2,0 mm	1,0 mm	6,8 mm	2,4 mm	1,2 mm	9,0 mm	3,2 mm	1,6 mm	11,3 mm	4,0 mm	2,0 mm	○	suitable		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm						
P.1.1	0,9	0,7*	0,6*	110	0,027	0,025	0,018	0,032	0,030	0,022	0,037	0,034	0,025	0,045	0,042	0,031	0,051	0,048	0,035	○	●	○
P.1.2	0,9	0,7*	0,6*	105	0,025	0,024	0,017	0,030	0,028	0,021	0,035	0,032	0,024	0,043	0,040	0,029	0,049	0,045	0,033	○	●	○
P.1.3	0,9	0,7*	0,6*	100	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032	○	●	○
P.1.4	0,9	0,7*	0,6*	95	0,023	0,021	0,016	0,027	0,026	0,019	0,032	0,029	0,022	0,039	0,036	0,026	0,044	0,041	0,030	○	●	○
P.1.5	0,9	0,7*	0,6*	90	0,022	0,020	0,015	0,026	0,024	0,018	0,030	0,028	0,020	0,037	0,034	0,025	0,042	0,039	0,029	○	●	○
P.2.1	0,9	0,7*	0,6*	100	0,027	0,025	0,018	0,032	0,030	0,022	0,037	0,034	0,025	0,045	0,042	0,031	0,051	0,048	0,035	○	●	○
P.2.2	0,9	0,7*	0,6*	90	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032	○	●	○
P.2.3	0,9	0,7*	0,6*	80	0,022	0,020	0,015	0,026	0,024	0,018	0,030	0,028	0,020	0,037	0,034	0,025	0,042	0,039	0,029	○	●	○
P.2.4	0,9	0,7*	0,6*	65	0,020	0,019	0,014	0,024	0,022	0,016	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,026	○	●	○
P.3.1	0,9	0,7*	0,6*	60	0,023	0,022	0,016	0,028	0,026	0,019	0,032	0,030	0,022	0,039	0,037	0,027	0,045	0,042	0,031	●		○
P.3.2	0,9	0,7*	0,6*	55	0,022	0,021	0,015	0,026	0,025	0,018	0,030	0,028	0,021	0,037	0,035	0,025	0,043	0,040	0,029	●		○
P.3.3	0,9	0,7*	0,6*	50	0,021	0,019	0,014	0,025	0,023	0,017	0,029	0,027	0,020	0,035	0,033	0,024	0,040	0,037	0,028	●		○
P.4.1	0,9	0,7*	0,6*	40	0,016	0,015	0,011	0,019	0,018	0,013	0,022	0,021	0,015	0,027	0,025	0,019	0,031	0,029	0,021	●		○
P.4.2	0,9	0,7*	0,6*	40	0,016	0,015	0,011	0,019	0,018	0,013	0,022	0,021	0,015	0,027	0,025	0,019	0,031	0,029	0,021	●		○
M.1.1	0,9	0,7*	0,6*	27	0,014	0,013	0,010	0,017	0,016	0,012	0,019	0,018	0,013	0,024	0,022	0,016	0,027	0,025	0,019	●		
M.2.1	0,9	0,7*	0,6*	25	0,012	0,011	0,008	0,014	0,013	0,010	0,016	0,015	0,011	0,020	0,018	0,013	0,022	0,021	0,015	●		
M.3.1	0,9	0,7*	0,6*	27	0,012	0,011	0,008	0,014	0,013	0,010	0,017	0,015	0,011	0,020	0,019	0,014	0,023	0,022	0,016	●		
K.1.1	0,9	0,7*	0,6*	110	0,040	0,037	0,028	0,048	0,045	0,033	0,055	0,052	0,038	0,068	0,063	0,046	0,077	0,072	0,053		●	
K.1.2	0,9	0,7*	0,6*	80	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.2.1	0,9	0,7*	0,6*	100	0,034	0,032	0,023	0,041	0,038	0,028	0,047	0,044	0,032	0,057	0,054	0,039	0,066	0,061	0,045		●	
K.2.2	0,9	0,7*	0,6*	80	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.3.1	0,9	0,7*	0,6*	70	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.3.2	0,9	0,7*	0,6*	70	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032		●	
N.1.1	0,9	0,7*	0,6*	420	0,045	0,042	0,031	0,054	0,050	0,037	0,062	0,058	0,042	0,076	0,071	0,052	0,087	0,081	0,059	●		○
N.1.2	0,9	0,7*	0,6*	380	0,041	0,038	0,028	0,049	0,046	0,034	0,056	0,053	0,039	0,069	0,064	0,047	0,079	0,073	0,054	●		○
N.2.1	0,9	0,7*	0,6*	255	0,043	0,040	0,029	0,052	0,048	0,035	0,059	0,055	0,041	0,072	0,067	0,050	0,083	0,077	0,057	●		○
N.2.2	0,9	0,7*	0,6*	205	0,045	0,042	0,031	0,054	0,050	0,037	0,062	0,058	0,042	0,076	0,071	0,052	0,087	0,081	0,059	●		○
N.2.3	0,9	0,7*	0,6*	145	0,049	0,046	0,034	0,059	0,055	0,040	0,068	0,063	0,046	0,083	0,077	0,057	0,095	0,088	0,065	●		○
N.3.1	0,9	0,7*	0,6*	185	0,020	0,019	0,014	0,025	0,023	0,017	0,028	0,026	0,019	0,034	0,032	0,024	0,039	0,037	0,027	●		○
N.3.2	0,9	0,7*	0,6*	110	0,033	0,031	0,022	0,039	0,037	0,027	0,045	0,042	0,031	0,055	0,051	0,038	0,063	0,059	0,043	●		○
N.3.3	0,9	0,7*	0,6*	145	0,033	0,031	0,022	0,039	0,037	0,027	0,045	0,042	0,031	0,055	0,051	0,038	0,063	0,059	0,043	●		○
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* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Radius torus cutters – HSC machining

				52 865 ... / 52 866 ...								
				Feedrates for extra short and short holder								
				Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	● 1st choice		
									○ suitable		
				a_e/a_p = 0,04	a_e/a_p = 0,05	a_e/a_p = 0,06	a_e/a_p = 0,08	a_e/a_p = 0,10			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	385	0,11	0,11	0,11	0,11	0,11	○	●	○
P.1.2	0,9	0,7*	0,6*	365	0,10	0,11	0,11	0,11	0,11	○	●	○
P.1.3	0,9	0,7*	0,6*	350	0,10	0,10	0,10	0,10	0,10	○	●	○
P.1.4	0,9	0,7*	0,6*	330	0,09	0,10	0,10	0,10	0,10	○	●	○
P.1.5	0,9	0,7*	0,6*	315	0,09	0,09	0,09	0,09	0,09	○	●	○
P.2.1	0,9	0,7*	0,6*	350	0,11	0,11	0,11	0,11	0,11	○	●	○
P.2.2	0,9	0,7*	0,6*	315	0,10	0,10	0,10	0,10	0,10	○	●	○
P.2.3	0,9	0,7*	0,6*	285	0,09	0,09	0,09	0,09	0,09	○	●	○
P.2.4	0,9	0,7*	0,6*	220	0,08	0,08	0,09	0,09	0,08	○	●	○
P.3.1	0,9	0,7*	0,6*	205	0,09	0,10	0,10	0,10	0,10	●		○
P.3.2	0,9	0,7*	0,6*	190	0,09	0,09	0,09	0,09	0,09	●		○
P.3.3	0,9	0,7*	0,6*	175	0,08	0,09	0,09	0,09	0,09	●		○
P.4.1	0,9	0,7*	0,6*	140	0,07	0,07	0,07	0,07	0,07	●		○
P.4.2	0,9	0,7*	0,6*	140	0,07	0,07	0,07	0,07	0,07	●		○
M.1.1	0,9	0,7*	0,6*	95	0,06	0,06	0,06	0,06	0,06	●		
M.2.1	0,9	0,7*	0,6*	90	0,05	0,05	0,05	0,05	0,05	●		
M.3.1	0,9	0,7*	0,6*	95	0,05	0,05	0,05	0,05	0,05	●		
K.1.1	0,9	0,7*	0,6*	380	0,16	0,17	0,17	0,17	0,17		●	
K.1.2	0,9	0,7*	0,6*	285	0,11	0,12	0,12	0,12	0,12		●	
K.2.1	0,9	0,7*	0,6*	350	0,14	0,14	0,14	0,15	0,14		●	
K.2.2	0,9	0,7*	0,6*	285	0,11	0,12	0,12	0,12	0,12		●	
K.3.1	0,9	0,7*	0,6*	255	0,11	0,12	0,12	0,12	0,12		●	
K.3.2	0,9	0,7*	0,6*	235	0,10	0,10	0,10	0,10	0,10		●	
N.1.1	0,9	0,7*	0,6*	840	0,18	0,19	0,19	0,19	0,19	●		○
N.1.2	0,9	0,7*	0,6*	765	0,17	0,17	0,17	0,17	0,17	●		○
N.2.1	0,9	0,7*	0,6*	510	0,17	0,18	0,18	0,18	0,18	●		○
N.2.2	0,9	0,7*	0,6*	405	0,18	0,19	0,19	0,19	0,19	●		○
N.2.3	0,9	0,7*	0,6*	290	0,20	0,21	0,21	0,21	0,20	●		○
N.3.1	0,9	0,7*	0,6*	365	0,08	0,09	0,09	0,09	0,09	●		○
N.3.2	0,9	0,7*	0,6*	220	0,13	0,14	0,14	0,14	0,14	●		○
N.3.3	0,9	0,7*	0,6*	290	0,13	0,14	0,14	0,14	0,14	●		○
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1				150	0,083	0,086	0,087	0,087	0,085	●		
O.1.2				100	0,083	0,086	0,087	0,087	0,085	●		
O.2.1												
O.2.2												
O.3.1												

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

14

Cutting data standard values – MultiChange – Torus cutter heads

				52 870 ...											
				Feedrates for extra short and short holder											
				Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		● 1st choice			
				$a_{p\,max.}$	5,0 mm	3,0 mm	6,0 mm	3,6 mm	8,0 mm	4,8 mm	10,0 mm	6,0 mm	○ suitable		
					a_e = DC		a_e = DC		a_e = DC		a_e = DC				
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm		f_z mm		f_z mm		f_z mm		Emulsion	Compressed air	MMS
P.1.1															
P.1.2															
P.1.3															
P.1.4															
P.1.5															
P.2.1															
P.2.2															
P.2.3															
P.2.4															
P.3.1															
P.3.2															
P.3.3															
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1															
K.1.2															
K.2.1															
K.2.2															
K.3.1															
K.3.2															
N.1.1	**0,9**	**0,7**	**0,6**	**840**	0,187	0,216	0,215	0,248	0,263	0,303	0,301	0,346	●		
N.1.2	**0,9**	**0,7**	**0,6**	**765**	0,170	0,196	0,196	0,225	0,239	0,275	0,273	0,315	●		
N.2.1	**0,9**	**0,7**	**0,6**	**510**	0,179	0,206	0,206	0,237	0,251	0,289	0,287	0,331	●		
N.2.2	**0,9**	**0,7**	**0,6**	**405**	0,187	0,216	0,215	0,248	0,263	0,303	0,301	0,346	●		
N.2.3	**0,9**	**0,7**	**0,6**	**295**	0,204	0,235	0,235	0,271	0,287	0,331	0,328	0,378	●		
N.3.1															
N.3.2															
N.3.3															
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Quarter-round cutter heads

		52 869 ...														
		Ø DCX = 8 mm		Ø DCX = 10 mm		Ø DCX = 12 mm			Ø DCX = 16 mm			Ø DCX = 20 mm		● 1st choice		
														○ suitable		
		PRFRAD = 0,5	PRFRAD = 1,0	PRFRAD = 1,5	PRFRAD = 2,0	PRFRAD = 2,5	PRFRAD = 3,0	PRFRAD = 3,5	PRFRAD = 4,0	PRFRAD = 4,5	PRFRAD = 5,0	PRFRAD = 5,0	PRFRAD = 6,0			
Index	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	150	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08	○	●	○
P.1.2	170	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	○	●	○
P.1.3	130	0,03	0,04	0,03	0,05	0,05	0,04	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.1.4	120	0,03	0,04	0,03	0,05	0,05	0,04	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.1.5	170	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	○	●	○
P.2.1	130	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07	○	●	○
P.2.2	130	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07	○	●	○
P.2.3	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.2.4	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.3.1	80	0,02	0,02	0,03	0,02	0,03	0,03	0,03	0,05	0,05	0,04	0,06	0,06	○	●	○
P.3.2	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.3.3	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.4.1	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.4.2	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
M.1.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
M.2.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
M.3.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
K.1.1	130	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09		●	
K.1.2	100	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08		●	
K.2.1	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08		●	
K.2.2	100	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07		●	
K.3.1	100	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08		●	
K.3.2	90	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07		●	
N.1.1	430	0,05	0,04	0,06	0,05	0,09	0,08	0,07	0,12	0,11	0,1	0,14	0,13	●		○
N.1.2	380	0,05	0,04	0,06	0,05	0,09	0,08	0,07	0,12	0,11	0,1	0,14	0,13	●		○
N.2.1	260	0,05	0,04	0,05	0,05	0,08	0,07	0,06	0,11	0,1	0,09	0,12	0,12	●		○
N.2.2	320	0,05	0,04	0,06	0,05	0,08	0,07	0,07	0,11	0,11	0,1	0,13	0,12	●		○
N.2.3	130	0,04	0,03	0,05	0,04	0,07	0,06	0,05	0,1	0,09	0,08	0,11	0,1	●		○
N.3.1	190	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	●		○
N.3.2	170	0,02	0,02	0,02	0,02	0,03	0,03	0,03	0,04	0,04	0,04	0,05	0,05	●		○
N.3.3	140	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		○
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Deburring milling heads

52 867 ... / 52 868 ...

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	Feedrates for extra short and short holder: Ø DCX = 10 mm	Ø DCX = 12 mm	Ø DCX = 16 mm	Ø DCX = 20 mm
					$a_{p\,max.}$ 52 867 ...	5,0 mm	6,0 mm	4,8 mm	6,0 mm
					$a_{p\,max.}$ 52 868 ...	1,25 mm	1,5 mm	2,0 mm	2,5 mm
						a_e 0,1–0,2 x DCX	a_e 0,1–0,2 x DCX	a_e 0,1–0,2 x DCX	a_e 0,1–0,2 x DCX
						f_z mm	f_z mm	f_z mm	f_z mm
P.1.1	**0,9**	**0,7**	**0,6**	**200**	0,06	0,07	0,08	0,09
P.1.2	**0,9**	**0,7**	**0,6**	**190**	0,06	0,06	0,08	0,09
P.1.3	**0,9**	**0,7**	**0,6**	**185**	0,05	0,06	0,07	0,08
P.1.4	**0,9**	**0,7**	**0,6**	**175**	0,05	0,06	0,07	0,08
P.1.5	**0,9**	**0,7**	**0,6**	**165**	0,05	0,05	0,07	0,08
P.2.1	**0,9**	**0,7**	**0,6**	**185**	0,06	0,07	0,08	0,09
P.2.2	**0,9**	**0,7**	**0,6**	**165**	0,05	0,06	0,07	0,08
P.2.3	**0,9**	**0,7**	**0,6**	**150**	0,05	0,05	0,07	0,08
P.2.4	**0,9**	**0,7**	**0,6**	**115**	0,04	0,05	0,06	0,07
P.3.1	**0,9**	**0,7**	**0,6**	**110**	0,05	0,06	0,07	0,08
P.3.2	**0,9**	**0,7**	**0,6**	**100**	0,05	0,06	0,07	0,08
P.3.3	**0,9**	**0,7**	**0,6**	**90**	0,05	0,05	0,06	0,07
P.4.1	**0,9**	**0,7**	**0,6**	**75**	0,04	0,04	0,05	0,06
P.4.2	**0,9**	**0,7**	**0,6**	**75**	0,04	0,04	0,05	0,06
M.1.1	0,9	0,7	0,6	50	0,03	0,04	0,04	0,05
M.2.1	0,9	0,7	0,6	45	0,03	0,03	0,04	0,04
M.3.1	0,9	0,7	0,6	50	0,03	0,03	0,04	0,04
K.1.1	**0,9**	**0,7**	**0,6**	**200**	0,09	0,10	0,12	0,14
K.1.2	**0,9**	**0,7**	**0,6**	**150**	0,06	0,07	0,09	0,10
K.2.1	**0,9**	**0,7**	**0,6**	**185**	0,07	0,09	0,11	0,12
K.2.2	**0,9**	**0,7**	**0,6**	**150**	0,06	0,07	0,09	0,10
K.3.1	**0,9**	**0,7**	**0,6**	**135**	0,06	0,07	0,09	0,10
K.3.2	**0,9**	**0,7**	**0,6**	**125**	0,05	0,06	0,07	0,08
N.1.1	**0,9**	**0,7**	**0,6**	**550**	0,10	0,11	0,14	0,16
N.1.2	**0,9**	**0,7**	**0,6**	**500**	0,09	0,10	0,13	0,14
N.2.1	**0,9**	**0,7**	**0,6**	**330**	0,09	0,11	0,13	0,15
N.2.2	**0,9**	**0,7**	**0,6**	**265**	0,10	0,11	0,14	0,16
N.2.3	**0,9**	**0,7**	**0,6**	**190**	0,11	0,12	0,15	0,17
N.3.1	**0,9**	**0,7**	**0,6**	**240**	0,04	0,05	0,06	0,07
N.3.2	**0,9**	**0,7**	**0,6**	**145**	0,07	0,08	0,10	0,12
N.3.3	**0,9**	**0,7**	**0,6**	**190**	0,07	0,08	0,10	0,12
N.4.1								
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

● 1st choice	○ suitable	Emulsion	Compressed air	MMS
		○	●	○
		○	●	○
		○	●	○
		○	●	○
		○	●	○
		○	●	○
		○	●	○
		○	●	○
		○	●	○
		○	●	○
		○	●	○
		○	●	○
		●		○
		●		○
		●

Cutting data standard values – T-slot milling cutter

		54 065 ...														
		Ø DC = 11,0 mm	Ø DC = 12,5 mm	Ø DC = 16,0 mm	Ø DC = 18,0 mm	Ø DC = 19,0 mm	Ø DC = 21,0 mm	Ø DC = 22,0 mm	Ø DC = 25,0 mm	Ø DC = 28,0 mm	Ø DC = 32,0 mm	Ø DC = 36,0 mm	Ø DC = 40,0 mm	● 1st choice		
														○ suitable		
Index	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	72	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.2	68	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.3	68	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.4	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.5	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.1	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.2	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.3	56	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.4	56	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.1	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.2	60	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.3	52	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.4.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
P.4.2	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.1.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.2.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.3.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
K.1.1	68	0,040	0,048	0,056	0,067	0,075	0,080	0,080	0,080	0,093	0,093	0,105	0,117	●		
K.1.2	56	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.2.1	64	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.2.2	52	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.3.1	56	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.3.2	54	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
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O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

Cutting data standard values – mini milling cutter, uncoated

			50 608 ... / 50 664 ...																
		Extra-short type	Ø DC = 0,5 mm			Ø DC = 1,0 mm			Ø DC = 1,2 mm			Ø DC = 1,5 mm			Ø DC = 1,8–2,0 mm			Ø DC = 2,5–3,0 mm		
			a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1																				
P.1.2																				
P.1.3																				
P.1.4																				
P.1.5																				
P.2.1																				
P.2.2																				
P.2.3																				
P.2.4																				
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1																				
P.4.2																				
M.1.1																				
M.2.1																				
M.3.1																				
K.1.1																				
K.1.2																				
K.2.1																				
K.2.2																				
K.3.1																				
K.3.2																				
N.1.1	250	1,0	0,007	0,006		0,011	0,009		0,014	0,011		0,018	0,014		0,024	0,019		0,038	0,030	0,019
N.1.2	250	1,0	0,007	0,006		0,011	0,009		0,014	0,011		0,018	0,014		0,024	0,019		0,038	0,030	0,019
N.2.1	180	1,0	0,009	0,007		0,013	0,010		0,016	0,013		0,020	0,016		0,026	0,021		0,037	0,030	0,019
N.2.2	180	1,0	0,009	0,007		0,013	0,010		0,016	0,013		0,020	0,016		0,026	0,021		0,037	0,030	0,019
N.2.3	150	1,0	0,009	0,007		0,013	0,010		0,016	0,013		0,020	0,016		0,026	0,021		0,037	0,030	0,019
N.3.1	200	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.3.2	200	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.3.3	140	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.4.1	180	1,0	0,009	0,007		0,013	0,010		0,016	0,013		0,020	0,016		0,026	0,021		0,037	0,030	0,019
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1	50	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.2	20	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

	50 608 ... / 50 664 ...															● 1st choice		
	Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 6,7–8,0 mm			Ø DC = 8,7–10,0 mm			○ suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1																		
P.1.2																		
P.1.3																		
P.1.4																		
P.1.5																		
P.2.1																		
P.2.2																		
P.2.3																		
P.2.4																		
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1																		
P.4.2																		
M.1.1																		
M.2.1																		
M.3.1																		
K.1.1																		
K.1.2																		
K.2.1																		
K.2.2																		
K.3.1																		
K.3.2																		
N.1.1	0,050	0,040	0,025	0,064	0,051	0,032	0,077	0,062	0,039	0,104	0,083	0,052	0,130	0,104	0,065	●		○
N.1.2	0,050	0,040	0,025	0,064	0,051	0,032	0,077	0,062	0,039	0,104	0,083	0,052	0,130	0,104	0,065	●		○
N.2.1	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.2.2	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.2.3	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.3.1	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.2	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.3	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.4.1	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

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Cutting data standard values – mini milling cutter, coated

			50 609 ... / 50 691 ...																	
		Extra-short type	Ø DC = 0,5 mm			Ø DC = 1,0 mm			Ø DC = 1,2 mm			Ø DC = 1,5 mm			Ø DC = 1,8–2,0 mm			Ø DC = 2,5–3,0 mm		
			a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	110	1,0	0,011	0,009		0,014	0,011		0,015	0,012		0,017	0,014		0,020	0,016		0,027	0,022	0,014
P.1.2	90	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.1.3	90	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.1.4	80	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.1.5	80	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.2.1	90	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.2.2	70	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.2.3	70	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.2.4	55	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1	50	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
P.4.2	40	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
M.1.1	40	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
M.2.1	50	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
M.3.1	50	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
K.1.1	130	1,0	0,018	0,014		0,022	0,018		0,024	0,019		0,028	0,022		0,034	0,027		0,044	0,035	0,022
K.1.2	120	1,0	0,018	0,014		0,022	0,018		0,024	0,019		0,028	0,022		0,034	0,027		0,044	0,035	0,022
K.2.1	130	1,0	0,017	0,014		0,020	0,016		0,022	0,018		0,024	0,019		0,028	0,022		0,035	0,028	0,018
K.2.2	120	1,0	0,017	0,014		0,020	0,016		0,022	0,018		0,024	0,019		0,028	0,022		0,035	0,028	0,018
K.3.1	130	1,0	0,018	0,014		0,022	0,018		0,024	0,019		0,028	0,022		0,034	0,027		0,044	0,035	0,022
K.3.2	120	1,0	0,018	0,014		0,022	0,018		0,024	0,019		0,028	0,022		0,034	0,027		0,044	0,035	0,022
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	200	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.3.2	200	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.3.3	140	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.4.1																				
S.1.1	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.1.2	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.2.1	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.2.2	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.2.3	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.1	50	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.2	20	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

	50 609 ... / 50 691 ...															● 1st choice		
	Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 6,7–8,0 mm			Ø DC = 8,7–10,0 mm			○ suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038	○	●	○
P.1.2	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.3	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.4	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.5	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.1	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.2	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.3	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.4	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
P.4.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.1.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.2.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.3.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
K.1.1	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.1.2	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.2.1	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043	○	●	○
K.2.2	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043	○	●	○
K.3.1	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.3.2	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.2	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.3	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.4.1																		
S.1.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.1.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.3	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

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Cutting data standard values – End mill – W version, short

			54 590... / 54 592... / 54 591... / 54 593... / 54 594... / 54 595... / 54 596... / 54 597... / 54 610... / 54 611... / 54 612... / 54 613... / 54 640... / 54 642...																	
	HPC		Ø DC = 2,7–3,0 mm			Ø DC = 3,7–4,0 mm			Ø DC = 4,7–5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–9,0 mm			Ø DC = 9,7–11,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm																	
N.1.1	560	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.1.2	560	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.1	336	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.2	336	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.3	224	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.3.1	224	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.3.2	160	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.3.3	160	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.4.1																				

* = use a_p 1.5 x DC only in a_e range 0.1–0.4 x DC

Cutting data standard values – End mill – W version, long

			50 960 ... / 54 590 ... / 54 592 ... / 54 591 ... / 54 593 ... / 54 594 ... / 54 595 ... / 54 596 ... / 54 597 ... / 54 610 ... / 54 611 ... / 54 612 ... / 54 613 ... / 54 620 ... / 54 622 ... / 54 630 ... / 54 631 ... / 54 632... / 54 633... / 54 640 ... / 54 642 ...																	
	HPC		Ø DC = 2,7–3,0 mm			Ø DC = 3,7–4,0 mm			Ø DC = 4,7–5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–9,0 mm			Ø DC = 9,7–11,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm																	
N.1.1	320	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.1.2	320	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.1	192	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.2	192	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.3	128	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.3.1	128	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.3.2	92	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.3.3	92	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.4.1																				

* = use a_p 1.5 x DC only in a_e range 0.1–0.4 x DC

Cutting data standard values – End mill – W and WR version, extra long

			54 590 ... / 54 592 ... / 54 610 ... / 54 612 ... / 54 630 ... / 54 631 ... / 54 632 ... / 54 633 ... / 54 650 ... / 54 652 ... / 54 640 ... / 54 642 ...																	
	HPC		Ø DC = 2,7–3,0 mm			Ø DC = 3,7–4,0 mm			Ø DC = 4,7–5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–9,0 mm			Ø DC = 9,7–11,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm																	
N.1.1	240	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.1.2	240	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.1	144	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.2	144	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.3	100	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.3.1	100	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.3.2	72	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.3.3	72	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.4.1																				

* = use a_p 1.25 x DC only in a_e range 0.1–0.4 x DC

Cooling lubrication with emulsion

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

	54 590... / 54 592... / 54 591... / 54 593... / 54 594... / 54 595... / 54 596... / 54 597... / 54 610... / 54 611... / 54 612... / 54 613... / 54 640... / 54 642...																			
	Ø DC = 11,7–13,0 mm			Ø DC = 13,7–15,0 mm			Ø DC = 15,7–16,0 mm			Ø DC = 18,0 mm			Ø DC = 19,7–20,0 mm			Ø DC = 24,7–25,0 mm			Emulsion	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
Index	f_z mm																			
N.1.1	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.1.2	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.1	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.2	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.3	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.3.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.3.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.3.3	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.4.1																				

	50 960 ... / 54 590 ... / 54 592 ... / 54 591 ... / 54 593 ... / 54 594 ... / 54 595 ... / 54 596 ... / 54 597 ... / 54 610 ... / 54 611 ... / 54 612 ... / 54 613 ... / 54 620 ... / 54 622 ... / 54 630 ... / 54 631 ... / 54 632... / 54 633... / 54 640 ... / 54 642 ...																			
	Ø DC = 11,7–13,0 mm			Ø DC = 13,7–15,0 mm			Ø DC = 15,7–16,0 mm			Ø DC = 18,0 mm			Ø DC = 19,7–20,0 mm			Ø DC = 24,7–25,0 mm			Emulsion	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
Index	f_z mm																			
N.1.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.1.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.3	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.3.1	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.3.2	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.3.3	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.4.1																				

	54 590 ... / 54 592 ... / 54 610 ... / 54 612 ... / 54 630 ... / 54 631 ... / 54 632 ... / 54 633 ... / 54 650 ... / 54 652 ... / 54 640 ... / 54 642 ...																			
	Ø DC = 11,7–13,0 mm			Ø DC = 13,7–15,0 mm			Ø DC = 15,7–16,0 mm			Ø DC = 18,0 mm			Ø DC = 19,7–20,0 mm			Ø DC = 24,7–25,0 mm			Emulsion	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
Index	f_z mm																			
N.1.1	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.1.2	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.1	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.2	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.3	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.3.1	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.3.2	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.3.3	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.4.1																				

Cutting data standard values – End mill

					54 001 ... / 54 002 ... / 54 003 ... / 54 050 ... / 54 051 ... / 54 052 ... / 54 053 ... / 54 054 ...														
	Type short / long	Type extra long	Type short / long	Type extra long	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max.}$ x DC	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	**190**	**150**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.1.2	**180**	**145**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.1.3	**180**	**145**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.1.4	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.1.5	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.2.1	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.2.2	**170**	**140**	1,0	0,5	0,014	0,011	0,008	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.2.3	**150**	**125**	1,0	0,5	0,014	0,011	0,008	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.2.4	**150**	**125**	1,0	0,5	0,014	0,011	0,008	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.3.1	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.3.2	**160**	**130**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.3.3	**140**	**110**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.4.1																			
P.4.2																			
M.1.1																			
M.2.1																			
M.3.1																			
K.1.1	**180**	**145**	1,0	0,5	0,027	0,021	0,015	0,040	0,031	0,023	0,058	0,043	0,029	0,068	0,051	0,034	0,080	0,060	0,040
K.1.2	**160**	**130**	1,0	0,5	0,021	0,016	0,011	0,040	0,031	0,023	0,058	0,043	0,029	0,068	0,051	0,034	0,080	0,060	0,040
K.2.1	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
K.2.2	**155**	**125**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
K.3.1	**150**	**120**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
K.3.2	**145**	**120**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
N.1.1																			
N.1.2																			
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N.3.1																			
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H.1.1																			
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H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

"Extra-long" version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

Plunging angle for ramping and helical milling: 3°

	54 001 ... / 54 002 ... / 54 003 ... / 54 050 ... / 54 051 ... / 54 052 ... / 54 053 ... / 54 054 ...														
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.1.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.1.3	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.1.4	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.1.5	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.2.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.2.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.2.3	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.2.4	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.3.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.3.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	○
P.3.3	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	○
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1	0,100	0,080	0,050	0,130	0,090	0,060	0,150	0,120	0,090	0,170	0,140	0,110	●	●	●
K.1.2	0,100	0,080	0,050	0,130	0,090	0,060	0,150	0,120	0,090	0,170	0,140	0,110	●	●	●
K.2.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	●
K.2.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	●
K.3.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	●
K.3.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	●
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
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N.4.1															
S.1.1															
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S.2.2															
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S.3.1															
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S.3.3															
H.1.1															
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H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

Cutting data standard values – End mill

					54 000 ... / 54 004 ... / 54 005 ... / 54 006 ... / 54 015 ... / 54 060 ... / 54 061 ... / 54 062 ... / 54 063 ... / 54 064 ...														
	Type short / long	Type extra long	Type short / long	Type extra long	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max.}$ x DC	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	**180**	**140**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.1.2	**170**	**135**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.1.3	**170**	**135**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.1.4	**160**	**130**	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.1.5	**160**	**130**	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.2.1	**160**	**130**	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.2.2	**160**	**130**	1,0	0,5	0,012	0,009	0,007	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.2.3	**140**	**115**	1,0	0,5	0,012	0,009	0,007	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.2.4	**140**	**115**	1,0	0,5	0,012	0,009	0,007	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.3.1	**160**	**130**	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.3.2	**150**	**120**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.3.3	**130**	**100**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.4.1	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
P.4.2	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
M.1.1	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
M.2.1	**85**	**70**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
M.3.1	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
K.1.1	170	135	1,0	0,5	0,024	0,019	0,014	0,036	0,028	0,020	0,051	0,038	0,026	0,061	0,045	0,030	0,070	0,050	0,040
K.1.2	140	110	1,0	0,5	0,018	0,014	0,010	0,036	0,028	0,020	0,051	0,038	0,026	0,061	0,045	0,030	0,070	0,050	0,040
K.2.1	160	130	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
K.2.2	130	100	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
K.3.1	140	110	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
K.3.2	135	110	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	300	240	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,080	0,060	0,040
N.3.2	240	190	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,080	0,060	0,040
N.3.3	240	190	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,080	0,060	0,040
N.4.1																			
S.1.1	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.1.2	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.2.1	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.2.2	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.2.3	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.3.1	**100**	**70**	0,5	0,3	0,021	0,017	0,012	0,031	0,024	0,017	0,046	0,034	0,023	0,056	0,042	0,028	0,070	0,050	0,030
S.3.2	**80**	**60**	0,5	0,3	0,015	0,012	0,009	0,023	0,018	0,013	0,034	0,025	0,017	0,043	0,032	0,021	0,050	0,040	0,030
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

"Extra-long" version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

Plunging angle for ramping and helical milling: 3°

	54 000 ... / 54 004 ... / 54 005 ... / 54 006 ... / 54 015 ... / 54 060 ... / 54 061 ... / 54 062 ... / 54 063 ... / 54 064 ...												● 1st choice		○ suitable
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm					
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.1.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.1.3	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.1.4	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.1.5	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.2.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.2.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.2.3	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.2.4	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.3.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.3.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.3.3	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.4.1	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
P.4.2	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
M.1.1	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
M.2.1	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
M.3.1	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
K.1.1	0,090	0,070	0,050	0,110	0,080	0,060	0,140	0,100	0,080	0,150	0,120	0,100	●	●	●
K.1.2	0,090	0,070	0,050	0,110	0,080	0,060	0,140	0,100	0,080	0,150	0,120	0,100	●	●	●
K.2.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	●	●
K.2.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	●	●
K.3.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	●	●
K.3.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	●	●
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1	0,100	0,070	0,050	0,140	0,110	0,070	0,160	0,120	0,090	0,160	0,130	0,100	●		
N.3.2	0,100	0,070	0,050	0,140	0,110	0,070	0,160	0,120	0,090	0,190	0,150	0,120	●		
N.3.3	0,100	0,070	0,050	0,140	0,110	0,070	0,160	0,120	0,090	0,190	0,150	0,120	●		
N.4.1															
S.1.1	0,040	0,030	0,020	0,060	0,040	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.1.2	0,040	0,030	0,020	0,060	0,040	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.2.1	0,040	0,030	0,020	0,060	0,040	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.2.2	0,040	0,030	0,020	0,060	0,040	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.2.3	0,040	0,030	0,020	0,060	0,020	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.3.1	0,090	0,060	0,040	0,120	0,090	0,060	0,130	0,100	0,080	0,150	0,120	0,090	●		
S.3.2	0,070	0,050	0,030	0,090	0,070	0,050	0,100	0,080	0,060	0,120	0,100	0,080	●		
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

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Feed rate guide values for ball nosed and torus cutters on → **Page 466**

Cutting data standard values – Rough milling cutter

	52 338 ... / 52 339 ... / 52 340 ... / 52 341 ... / 52 342 ... / 52 343 ...											
			Ti1000									
	Full slot milling	Contour milling	Ø DC = 6 mm f_z in mm		Ø DC = 8 mm f_z in mm		Ø DC = 10 mm f_z in mm		Ø DC = 12 mm f_z in mm		Ø DC = 14 mm f_z in mm	
Index	v_c m/min	v_c m/min										
P.1.1	170	190	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.2	160	180	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.3	150	170	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.4	150	170	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.5	130	150	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.1	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.2	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.3	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.4	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.1	160	180	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.2	90	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.3	90	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.4.1	55	65	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
P.4.2	35	45	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.1.1	60	70	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.2.1	45	55	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.3.1	50	60	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
K.1.1	120	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.1.2	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.2.1	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.2.2	90	100	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.3.1	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.3.2	100	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

For **Full slot milling** the values indicated in the table are based on:
a_e = 1,0 x DC / a_p = 1,0 x DC

For **Contour milling** the values indicated in the table are based on:
a_e = 0,4 x DC / a_p = 1,0 x DC

52 338 ... / 52 339 ... / 52 340 ... / 52 341 ... / 52 342 ... / 52 343 ...

Ti1000

● 1st choice
○ suitable

Index	Ø DC = 16 mm f_z in mm		Ø DC = 18 mm f_z in mm		Ø DC = 20 mm f_z in mm		Ø DC = 25 mm f_z in mm		Emulsion	Compressed air	MMS
P.1.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.4	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.5	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.4	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.4.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
P.4.2	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.1.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.2.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.3.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
K.1.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.1.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.2.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.2.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.3.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.3.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

With tools with internal cooling (52 338.../52 339...) the cutting speed (v_c) can be increased by 20–30 %!

Cutting data standard values – High-feed milling cutter

		56 900 ... / 56 902 ... / 56 904 ...							
		Medium machining					● 1st choice		
							○ suitable		
		Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10mm	Ø DC = 12 mm	Ø DC = 16 mm			
		a_p = 0,1–0,2	a_p = 0,1–0,2	a_p = 0,1–0,2	a_p = 0,1–0,2	a_p = 0,1–0,25			
Index	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	275	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45		○	●
P.1.2	235	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.1.3	235	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.1.4	235	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.1.5	235	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.2.1	180	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.2.2	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.2.3	170	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.2.4	170	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.3.1	180	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.3.2	160	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.3.3	160	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.4.1	130	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
P.4.2	130	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
M.1.1	95	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
M.2.1	130	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
M.3.1	130	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
K.1.1	325	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45		●	○
K.1.2	215	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45		●	○
K.2.1	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
K.2.2	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
K.3.1	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
K.3.2	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
N.1.1	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.1.2	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.2.1	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.2.2	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.2.3	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.3.1	400	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.3.2	400	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.3.3	400	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.4.1									
S.1.1	65	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	○		●
S.1.2	65	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	○		●
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2	65	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	○		●
S.3.3	60	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	○		●
H.1.1	165	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
H.1.2	135	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
H.1.3	95	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
H.1.4									
H.2.1	175	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45		●	○
H.3.1	165	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

The width of cut (a_e) in steel should be 60–95% of the cutter diameter (Ø DC), with high-grade steels and for sticking materials 40 % of Ø DC maximum!

		56 900 ... / 56 902 ... / 56 904 ...							
		Rough machining					● 1st choice		
							○ suitable		
		Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10mm	Ø DC = 12 mm	Ø DC = 16 mm			
		a_p = 0,2–0,3	a_p = 0,2–0,3	a_p = 0,2–0,3	a_p = 0,2–0,3	a_p = 0,2–0,4			
Index	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	200	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8		○	●
P.1.2	210	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.1.3	210	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.1.4	210	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.1.5	210	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.2.1	180	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.2.2	190	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.2.3	170	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.2.4	170	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.3.1	180	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.3.2	160	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.3.3	160	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.4.1	90	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6	●		○
P.4.2	90	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6	●		○
M.1.1	75	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6	●		○
M.2.1	90	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6	●		○
M.3.1	90	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6	●		○
K.1.1	275	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8		●	○
K.1.2	215	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8		●	○
K.2.1	175	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		●	○
K.2.2	175	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		●	○
K.3.1	175	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		●	○
K.3.2	175	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		●	○
N.1.1	500	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.1.2	500	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.2.1	500	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.2.2	500	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.2.3	500	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.3.1	400	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.3.2	400	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.3.3	400	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.4.1									
S.1.1	40	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	○		●
S.1.2	40	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	○		●
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2	70	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	○		●
S.3.3	60	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	○		●
H.1.1	100	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		●	○
H.1.2	90	0,2–0,3	0,2–0,3	0,25–0,35	0,3–0,4	0,35–0,45		●	○
H.1.3	75	0,2–0,3	0,2–0,3	0,25–0,35	0,3–0,4	0,35–0,45		●	○
H.1.4									
H.2.1	175	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8		●	○
H.3.1	100	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		●	○
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data – Cutters for plastic machining

Suitable for:		Strength N/mm² – HB	50 981 ...	50 982 ...	50 983 ...	50 984 ...	50 985 ...	50 986 ...	50 987 ...	50 988 ...	50 932 ...	50 937 ...	50 936 ...	50 938 ...	50 610 ...	50 611 ...	52 76. ...	50 91. ...	50 946 ...	50 948 ...	50 947 ...
N.1.1	non hardenable	60 HB													400–450			400–450			
N.1.2	hardenable	340 N/mm² / 100 HB													400–450			400–450			
N.2.1	≤ 12% Si, non-hardenable	250 N/mm² / 75 HB													350–400			350–400			
N.2.2	≤ 12% Si, hardenable	300 N/mm² / 90 HB												300–400					300–400	300–400	300–400
N.2.3	> 12% Si, non-hardenable	440 N/mm² / 130 HB												300–400					250–300	250–300	250–300
N.3.1	Free-machining alloys, PB > 1%	375 N/mm² / 110 HB													350–400			350–400			
N.3.2	CuZn, CuSnZn	300 N/mm² / 90 HB													400–450			400–450			
N.3.3	CuSn, lead-free copper and electrolytic copper	340 N/mm² / 100 HB													400–450			400–450			
N.4.1	Magnesium and magnesium alloys	70 HB												250					250	250	250
O.1.1	Plastics, duroplastic	≤ 150 N/mm²				300–350						300–350			500–550			500–550			
O.1.2	Plastics, thermoplastic	≤ 100 N/mm²													500–550			500–550			
O.2.1	Aramid fibre-reinforced	≤ 1000 N/mm²				150–200						150–200	500–600	150–200					150–200	150–200	150–200
O.2.2	Glass/carbon-fibre reinforced	≤ 1000 N/mm²				150–200						150–200	500–600	150–200					150–200	150–200	150–200
O.3.1	Graphite					300–400						500–600	500–600	300–400				300	300–400		300–400

	Plastics, Thermoset, Hardwood, Pressed Cardboard					Plastic, Thermoplast, Polycarbonate, Non-ferrous metal, Hard rubber				
	End milling cutter Type W			Ball nosed cutter Type W		End milling cutter Type W			Ball nosed cutter Type W	
	Shoulder milling, trimming		Slot milling	Copy milling – Line milling		Shoulder milling, trimming		Slot milling	Copy milling – Line milling	
	Roughing	Finishing		Roughing	Finishing	Roughing	Finishing		Roughing	Finishing
	a_p = 1,0 x DC	a_p = 1,0 x DC		a_p = 0,5 x DC	a_p = 0,03 x DC	a_p = 1,5 x DC	a_p = 1,0 x DC		a_p = 0,5 x DC	a_p = 0,03 x DC
	a_e = 0,4 x DC	a_e = 0,1 x DC		a_e = 0,5 x DC	a_e = 0,02 x DC	a_e = 0,8 x DC	a_e = 0,1 x DC		a_e = 0,5 x DC	a_e = 0,02 x DC
DC in mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
2	0,024	0,018	0,016	0,028	0,024	0,024	0,022	0,017	0,037	0,030
3	0,036	0,027	0,024	0,042	0,036	0,036	0,033	0,026	0,056	0,045
4	0,048	0,036	0,032	0,056	0,048	0,048	0,044	0,034	0,074	0,060
5	0,060	0,045	0,040	0,070	0,060	0,060	0,055	0,043	0,093	0,075
6	0,072	0,054	0,048	0,084	0,072	0,072	0,066	0,051	0,111	0,090
8	0,100	0,070	0,060	0,110	0,100	0,100	0,090	0,070	0,150	0,120
10	0,120	0,090	0,080	0,140	0,120	0,120	0,110	0,090	0,190	0,150
12	0,140	0,110	0,100	0,170	0,140	0,140	0,130	0,100	0,220	0,180
14	0,170	0,130	0,110	0,200	0,170	0,170	0,150	0,120	0,260	0,210
16	0,190	0,140	0,130	0,220	0,190	0,190	0,180	0,140	0,300	0,240
18	0,220	0,160	0,140	0,250	0,220	0,220	0,200	0,150	0,330	0,270
20	0,240	0,180	0,160	0,280	0,240	0,240	0,220	0,170	0,370	0,300

	Fiber reinforced plastics AFK, CFK, GFK			
	End mill staggered teeth			
	Shoulder milling, trimming		Copy milling – Line milling	
	a_p = 1,0 x DC	a_p = 1,0 x DC	a_p = 0,35 x DC	a_p = 0,35 x DC
	a_e = 0,05 x DC	a_e = 0,05 x DC		
	fine	Medium	fine	Medium
DC in mm	f	f	f	f
2	0,16	0,14	0,14	0,12
3	0,24	0,21	0,21	0,18
4	0,32	0,28	0,28	0,24
5	0,40	0,35	0,35	0,30
6	0,48	0,42	0,42	0,36
8	0,64	0,56	0,56	0,48
10	0,80	0,70	0,70	0,60
12	0,96	0,84	0,84	0,72
16	1,28	1,12	1,12	0,96
20	1,60	1,40	1,40	1,20

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

Cutting data standard values – Circular saw blades

	54 700 ... Circular saws Solid carbide Fine	
Index	v_c m/min	f_z mm
P.1.1	80 – 140	0,002 – 0,012
P.1.2	50 – 80	0,001 – 0,012
P.1.3	50 – 80	0,001 – 0,012
P.1.4	50 – 80	0,001 – 0,012
P.1.5	50 – 80	0,001 – 0,012
P.2.1	50 – 80	0,001 – 0,012
P.2.2	50 – 80	0,001 – 0,012
P.2.3	50 – 80	0,001 – 0,012
P.2.4	50 – 80	0,001 – 0,012
P.3.1	50 – 80	0,001 – 0,012
P.3.2	50 – 80	0,001 – 0,012
P.3.3	50 – 80	0,001 – 0,012
P.4.1	80 – 120	0,001 – 0,012
P.4.2	50 – 80	0,001 – 0,012
M.1.1	50 – 80	0,001 – 0,012
M.2.1	50 – 80	0,001 – 0,012
M.3.1	50 – 80	0,001 – 0,012
K.1.1	80 – 140	0,002 – 0,012
K.1.2	50 – 80	0,001 – 0,01
K.2.1	50 – 80	0,001 – 0,01
K.2.2	50 – 80	0,001 – 0,01
K.3.1	50 – 80	0,001 – 0,01
K.3.2	50 – 80	0,001 – 0,01
N.1.1	200 – 500	0,003 – 0,012
N.1.2	200 – 500	0,003 – 0,012
N.2.1	200 – 450	0,003 – 0,012
N.2.2	200 – 450	0,003 – 0,012
N.2.3	200 – 450	0,003 – 0,012
N.3.1	200 – 450	0,003 – 0,012
N.3.2	200 – 450	0,003 – 0,012
N.3.3	200 – 450	0,003 – 0,012
N.4.1		
S.1.1	20 – 30	0,001 – 0,012
S.1.2	20 – 30	0,001 – 0,012
S.2.1	20 – 30	0,001 – 0,012
S.2.2	20 – 30	0,001 – 0,012
S.2.3	20 – 30	0,001 – 0,012
S.3.1	30 – 70	0,001 – 0,012
S.3.2	30 – 70	0,001 – 0,012
S.3.3	30 – 70	0,001 – 0,012
H.1.1		
H.1.2		
H.1.3		
H.1.4		
H.2.1		
H.3.1		
O.1.1	130 – 200	0,003 – 0,015
O.1.2	130 – 200	0,003 – 0,015
O.2.1		
O.2.2		
O.3.1		

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

Cutting Speeds – Depending upon Coating

			TiCN		Ti400		● 1st choice ○ suitable			Ti1000 / Ti1002 / DPX72S		● 1st choice ○ suitable		
							Emulsion	Compressed air	MMS			Emulsion	Compressed air	MMS
Index	v_c m/min		v_c m/min		v_c m/min					v_c m/min				
P.1.1	90–110	130–160	110–130	160–200	90–130	140–200	●	○	○	150–170	220–240	○	●	○
P.1.2	80–100	120–140	100–120	150–170	90–110	100–160	●	○	○	130–150	180–220	○	●	○
P.1.3	80–100	120–140	100–120	150–170	90–110	100–160	●	○	○	130–150	180–220	○	●	○
P.1.4	50–60	70–90	60–80	80–110	60–70	80–110	●	○	○	70–100	100–140	○	●	○
P.1.5	50–60	70–90	60–80	80–110	60–70	80–110	●	○	○	70–100	100–140	○	●	○
P.2.1	70–90	100–130	90–110	120–160	80–100	140–160	●	○	○	120–140	170–200	○	●	○
P.2.2	70–90	100–130	90–110	120–160	80–100	100–150	●	○	○	120–140	170–200	○	●	○
P.2.3	40–60	60–80	50–70	70–100	50–70	70–100	●	○	○	60–80	90–120	○	●	○
P.2.4	40–60	60–80	50–70	70–100	50–70	70–100	●	○	○	60–80	90–120	○	●	○
P.3.1	50–60	70–90	60–80	80–110	60–80	70–110	●	○	○	70–100	100–140	○	●	○
P.3.2	30–50	40–70	30–60	50–80	40–60	70–100	●	○	○	60–80	80–120	○	●	○
P.3.3	25–40	40–60	30–50	50–70	40–60	70–100	●	○	○	50–80	70–110	○	●	○
P.4.1	40–50	60–70	50–60	70–80	40–50	60–80	●	○	○	60–80	90–120	●		○
P.4.2	40–50	60–70	50–60	70–80	40–50	60–80	●	○	○	60–80	90–120	●		○
M.1.1	40–50	60–70	50–60	70–80	50–60	80–110	●	○	○	70–80	100–120	●		○
M.2.1	20–30	30–40	25–35	40–50	25–35	40–70	●	○	○	40–60	60–80	●		○
M.3.1	30–40	40–50	30–40	50–60	40–50	70–100	●	○	○	50–70	80–100	●		○
K.1.1	60–80	90–120	70–100	110–140	70–90	100–130	●	○	○	100–110	140–160	○	●	○
K.1.2	60–70	80–100	70–90	100–120	60–80	90–120	●	○	○	80–100	120–140	○	●	○
K.2.1	60–70	80–100	70–90	100–120	70–90	100–130	●	○	○	80–100	120–140	○	●	○
K.2.2	50–60	70–90	60–80	80–110	60–80	90–120	●	○	○	70–80	100–120	○	●	○
K.3.1	60–80	90–120	80–100	110–150	60–80	90–120	●	○	○	100–110	140–160	○	●	○
K.3.2	50–60	70–90	60–80	90–110	60–80	90–120	●	○	○	70–80	100–120	○	●	○
N.1.1	<300	<400	<300	<450	280–320	250–350	●	○	○	180–350	250–500	●		○
N.1.2	<300	<400	<300	<450	280–320	220–320	●	○	○	180–350	250–500	●		○
N.2.1	130–180	200–250	170–210	240–300	220–270	200–300	●	○	○	140–200	200–300	●		○
N.2.2	100–120	140–170	120–140	170–200	170–200	200–250	●	○	○	110–130	160–180	●		○
N.2.3	40–60	60–80	50–70	70–90	120–180	150–200	●	○	○	50–70	80–100	●		○
N.3.1	160–200	230–280	180–210	280–330	100–130	120–200	●	○	○	180–210	250–300	●	○	○
N.3.2	150–180	210–260	180–210	250–310	100–130	120–180	●	○	○	180–210	250–300	●		○
N.3.3	150–180	210–260	180–210	250–310	100–130	120–180	●	○	○	180–210	250–300	●		○
N.4.1	150–180	220–260	180–210	270–310	170–200	170–250		●	○	180–210	250–300		●	○
S.1.1			20–30	40–50	25–35	30–50	●	○	○	30–40	40–60	●	○	○
S.1.2			20–30	40–50	25–35	30–50	●	○	○	30–40	40–60	●	○	○
S.2.1	15–25	20–35	30–40	40–60	40–60	50–80	●	○	○	35–50	50–70	●	○	○
S.2.2			20–30	40–50	30–40	40–60	●	○	○	30–40	40–60	●	○	○
S.2.3														
S.3.1	30–50	40–70	50–60	60–80	40–50	70–100	●	○	○	50–70	80–100	●	○	○
S.3.2	30–40	40–50	40–50	60–70	50–60	80–120	●	○	○	50–60	70–90	●	○	○
S.3.3			15–20	30–40	30–40	40–60	●	○	○	20–30	30–40	●	○	○
H.1.1										60–70	80–100		●	○
H.1.2										40–60	60–80		●	○
H.1.3										30–40	40–60		●	○
H.1.4										20–30	30–40		●	○
H.2.1										70–80	100–120		●	○
H.3.1										60–70	80–100		●	○
O.1.1	50–70	70–100	60–80	80–120	120–180	150–220	●	○	○	60–80	80–120	○	●	○
O.1.2	40–60	60–90	40–70	70–100	70–90	90–120	●	○	○	40–70	60–100	○	●	○
O.2.1	30–50	40–70	40–60	50–80	50–70	70–110	●	○	○	40–60	60–80	○	●	○
O.2.2	30–50	40–70	40–60	50–80	50–70	70–110	●	○	○	40–60	60–80	○	●	○
O.3.1	70–100	100–140	80–120	120–170	100–120	130–180		●	○	80–120	120–180		●	○

Index	Ti1001 v_c m/min		● 1st choice ○ suitable Emulsion	Compressed air	MMS	Ti10 / Ti20 v_c m/min		● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1										
P.1.2										
P.1.3										
P.1.4										
P.1.5										
P.2.1										
P.2.2										
P.2.3										
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1										
K.1.2										
K.2.1										
K.2.2										
K.3.1										
K.3.2										
N.1.1	300–400	300–500	●		○	150–350	250–500	●		○
N.1.2	300–400	300–500	●		○	120–220	150–300	●		○
N.2.1	250–300	300–450	●		○	150–180	220–250	●		○
N.2.2	200–250	250–350	●		○	100–130	150–180	●		○
N.2.3	150–200	200–250	●		○					○
N.3.1						170–180	240–260	●		○
N.3.2	220–280	250–330	●		○	120–150	170–220	●		○
N.3.3	220–280	250–330	●		○	120–150	170–220	●		○
N.4.1						140–170	200–250		●	
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1							80–100	●		○
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1						220–280	300–400	●		○
O.1.2						140–170	200–240	●		○
O.2.1						70–100	100–140	●		○
O.2.2						70–100	100–140	●		○
O.3.1										

14

Depths of Cut Reference Values – Milling Cutters – extra short – long

			Ø DC = 2,5 mm			Ø DC = 3 mm					Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	$a_{p\,max.}$ x DC		f_z mm			f_z mm			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm		
P.1.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,041	0,027	0,020	0,054	0,035	0,026
P.1.2	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.3	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.4	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.5	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.2.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.2.2	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.2.3	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.2.4	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.3.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.3.2	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.3.3	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.4.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
P.4.2	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.1.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.2.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.3.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
K.1.1	1,0	0,5	0,020	0,013	0,010	0,029	0,019	0,014	1,5	1,0	0,039	0,026	0,019	0,052	0,034	0,025	0,064	0,042	0,031
K.1.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.2.1	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.2.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.3.1	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.3.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
N.1.1	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.1.2	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.1	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.2	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.3	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.3.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.3.2	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.3.3	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.4.1	1,0	0,5	0,026	0,017	0,012	0,038	0,025	0,018	1,5	1,0	0,051	0,033	0,025	0,067	0,044	0,033	0,083	0,054	0,040
S.1.1	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.1.2	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.2.1	0,7	0,3	0,015	0,010	0,007	0,022	0,014	0,011	1,0	1,0	0,030	0,020	0,014	0,039	0,026	0,019	0,049	0,032	0,024
S.2.2	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.2.3	0,7	0,3	0,015	0,010	0,007	0,022	0,014	0,011	1,0	1,0	0,030	0,020	0,014	0,039	0,026	0,019	0,049	0,032	0,024
S.3.1	0,7	0,3	0,017	0,011	0,008	0,024	0,016	0,012	1,0	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
S.3.2	0,7	0,3	0,018	0,012	0,009	0,026	0,017	0,013	1,0	1,0	0,035	0,023	0,017	0,046	0,030	0,023	0,058	0,038	0,028
S.3.3	0,7	0,3	0,018	0,012	0,009	0,026	0,017	0,013	1,0	1,0	0,035	0,023	0,017	0,046	0,030	0,023	0,058	0,038	0,028
H.1.1	0,5*		0,019**			0,027**			1,0		0,037**			0,049**			0,061**		
H.1.2	0,5*		0,017**			0,025**			1,0		0,034**			0,045**			0,056**		
H.1.3	0,5*		0,015**			0,022**			1,0		0,030**			0,040**			0,050**		
H.1.4	0,5*		0,013**			0,020**			1,0		0,026**			0,035**			0,043**		
H.2.1	0,5*		0,021**			0,030**			1,0		0,041**			0,054**			0,067**		
H.3.1	0,5*		0,019**			0,027**			1,0		0,037**			0,049**			0,061**		
O.1.1	1,0	0,5	0,044	0,029	0,021	0,064	0,042	0,031	1,5	1,0	0,086	0,057	0,042	0,114	0,074	0,055	0,141	0,092	0,068
O.1.2	1,0	0,5	0,040	0,026	0,019	0,058	0,038	0,028	1,5	1,1	0,078	0,051	0,038	0,103	0,068	0,050	0,128	0,084	0,062
O.2.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,2	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
O.2.2	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,3	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
O.3.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,4	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030

* = Trimming and trochoidal slot milling

** = With an a_e = 0.1xDC

Depths of cut reference values – Finish milling, extra short – long

	Ø DC = 2,5 mm		Ø DC = 3 mm				Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm	
							a_e : 0,2–0,3 mm		a_e : 0,2–0,3 mm		a_e : 0,2–0,3 mm	
$a_{p\,max.}$ x DC						$a_{p\,max.}$ x DC	f_z mm		f_z mm		f_z mm	
0,7						1,5	0,080***		0,090***		0,100***	

*** = To improve the surface quality reduce the f_z

Cutting data for Micro-Mini cutters for milling with diameter < 2.5 mm → v_c/f_z Page 420–427

Index	Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20–25 mm		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.3	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.4	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.5	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.2.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.2.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.2.3	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.2.4	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.3.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.3.3	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.4.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
P.4.2	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.1.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.2.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.3.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
K.1.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,060	0,140	0,080	0,060	0,160	0,100	0,070	0,170	0,110	0,080	0,200	0,130	0,08
K.1.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.2.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.2.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.3.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
N.1.1	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.1.2	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.1	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.2	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.3	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.3.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.3.2	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.3.3	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.4.1	0,110	0,070	0,050	0,130	0,090	0,070	0,150	0,100	0,070	0,180	0,110	0,080	0,210	0,130	0,090	0,230	0,150	0,100	0,250	0,170	0,11
S.1.1	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.1.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.2.1	0,060	0,040	0,030	0,080	0,050	0,040	0,090	0,060	0,040	0,110	0,060	0,050	0,120	0,080	0,050	0,130	0,090	0,060	0,150	0,100	0,06
S.2.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.2.3	0,060	0,040	0,030	0,080	0,050	0,040	0,090	0,060	0,040	0,110	0,060	0,050	0,120	0,080	0,050	0,130	0,090	0,060	0,150	0,100	0,06
S.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
S.3.2	0,070	0,050	0,040	0,090	0,060	0,050	0,100	0,070	0,050	0,130	0,070	0,050	0,140	0,090	0,060	0,160	0,100	0,070	0,180	0,120	0,08
S.3.3	0,070	0,050	0,040	0,090	0,060	0,050	0,100	0,070	0,050	0,130	0,070	0,050	0,140	0,090	0,060	0,160	0,100	0,070	0,180	0,120	0,08
H.1.1	0,080**			0,100**			0,110**			0,120**			0,130**			0,150**			0,170**		
H.1.2	0,070**			0,090**			0,100**			0,110**			0,120**			0,140**			0,150**		
H.1.3	0,060**			0,080**			0,090**			0,100**			0,110**			0,120**			0,130**		
H.1.4	0,060**			0,070**			0,080**			0,080**			0,100**			0,110**			0,120**		
H.2.1	0,090**			0,110**			0,120**			0,130**			0,150**			0,160**			0,180**		
H.3.1	0,080**			0,100**			0,110**			0,120**			0,130**			0,150**			0,170**		
O.1.1	0,180	0,120	0,090	0,230	0,150	0,110	0,250	0,160	0,120	0,310	0,180	0,130	0,350	0,230	0,150	0,380	0,250	0,170	0,430	0,280	0,19
O.1.2	0,170	0,110	0,080	0,210	0,140	0,100	0,230	0,150	0,110	0,280	0,160	0,120	0,320	0,210	0,140	0,350	0,230	0,150	0,390	0,260	0,17
O.2.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
O.2.2	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
O.3.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08

Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 14 mm	Ø DC = 16 mm	Ø DC = 18 mm	Ø DC = 20–25 mm
a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm
f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
0,110***	0,130***	0,150***	0,170***	0,190***	0,210***	0,230***

Plunging angle for ramping and helical milling: 3°

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

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Depths of Cut Reference Values – Milling Cutters – extra long

		Ø DC = 2,5 mm		Ø DC = 3 mm			Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm	
		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
Index	$a_{p\,max.}$ x DC	f_z mm		f_z mm		$a_{p\,max.}$ x DC	f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		f_z mm	
P.1.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,052	0,034	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.2	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.3	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.4	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.5	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.2.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.2.2	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.2.3	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.2.4	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.3.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.3.2	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.3.3	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.4.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
P.4.2	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.1.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.2.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.3.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
K.1.1	0,6	0,015	0,010	0,029	0,019	1,0	0,039	0,025	0,048	0,032	0,058	0,038	0,080	0,050	0,100	0,060	0,110	0,070
K.1.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.2.1	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.2.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.3.1	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.3.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
N.1.1	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.1.2	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.1	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.2	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.3	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.3.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.3.2	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.3.3	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.4.1	0,6	0,020	0,013	0,038	0,025	1,0	0,050	0,033	0,063	0,041	0,076	0,049	0,100	0,070	0,130	0,080	0,140	0,090
S.1.1	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.1.2	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.2.1	0,3	0,012	0,008	0,022	0,014	0,5	0,029	0,019	0,037	0,024	0,044	0,029	0,060	0,040	0,070	0,050	0,080	0,050
S.2.2	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.2.3	0,3	0,012	0,008	0,022	0,014	0,5	0,029	0,019	0,037	0,024	0,044	0,029	0,060	0,040	0,070	0,050	0,080	0,050
S.3.1	0,3	0,013	0,009	0,024	0,016	0,5	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
S.3.2	0,3	0,014	0,009	0,026	0,017	0,5	0,035	0,023	0,044	0,029	0,052	0,034	0,070	0,050	0,090	0,060	0,100	0,060
S.3.3	0,3	0,014	0,009	0,026	0,017	0,5	0,035	0,023	0,044	0,029	0,052	0,034	0,070	0,050	0,090	0,060	0,100	0,060
H.1.1	0,3*	0,012**		0,022**		0,5*	0,029**		0,037**		0,044**		0,060**		0,070**		0,080**	
H.1.2	0,3*	0,011**		0,020**		0,5*	0,027**		0,034**		0,041**		0,050**		0,070**		0,080**	
H.1.3	0,3*	0,010**		0,018**		0,5*	0,024**		0,030**		0,036**		0,050**		0,060**		0,070**	
H.1.4	0,3*	0,008**		0,016**		0,5*	0,021**		0,026**		0,031**		0,040**		0,050**		0,060**	
H.2.1	0,3*	0,013**		0,024**		0,5*	0,033**		0,041**		0,049**		0,070**		0,080**		0,090**	
H.3.1	0,3*	0,012**		0,022**		0,5*	0,029**		0,037**		0,044**		0,060**		0,070**		0,080**	
O.1.1	0,6	0,034	0,022	0,064	0,042	1,0	0,085	0,056	0,107	0,070	0,128	0,084	0,170	0,110	0,210	0,140	0,230	0,150
O.1.2	0,6	0,031	0,020	0,058	0,038	1,0	0,077	0,051	0,097	0,063	0,116	0,076	0,160	0,100	0,190	0,130	0,210	0,140
O.2.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
O.2.2	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
O.3.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070

* = Trimming and trochoidal slot milling

** = With an a_e = 0.1xDC

Depths of cut reference values – Finish milling, extra long

	Ø DC = 2,5 mm	Ø DC = 3 mm		Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm
	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm		a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm
$a_{p\,max.}$ x DC	f_z mm	f_z mm	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
0,7			0,7	0,080***	0,090***	0,100***	0,110***	0,130***	0,150***

*** = With an a_p of 1.5 x DC multiply the f_z by 0.75

Cutting data for Micro-Mini cutters for milling with diameter < 2.5 mm → v_c/f_z Page 420–427

	Ø DC = 14 mm		Ø DC = 16 mm		Ø DC = 18 mm		Ø DC = 20–25 mm	
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
Index	f_z mm		f_z mm		f_z mm		f_z mm	
P.1.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.2	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.3	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.4	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.5	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.2.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.2.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.2.3	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.2.4	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.3.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.3.2	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.3.3	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.4.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
P.4.2	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.1.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.2.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.3.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
K.1.1	0,120	0,080	0,130	0,090	0,150	0,100	0,160	0,110
K.1.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.2.1	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.2.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.3.1	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.3.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
N.1.1	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.1.2	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.1	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.2	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.3	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.3.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.3.2	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.3.3	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.4.1	0,150	0,100	0,170	0,110	0,190	0,120	0,210	0,140
S.1.1	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.1.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.2.1	0,090	0,060	0,100	0,070	0,110	0,070	0,120	0,080
S.2.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.2.3	0,090	0,060	0,100	0,070	0,110	0,070	0,120	0,080
S.3.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
S.3.2	0,110	0,070	0,120	0,080	0,130	0,090	0,150	0,100
S.3.3	0,110	0,070	0,120	0,080	0,130	0,090	0,150	0,100
H.1.1	0,090**		0,100**		0,110**		0,120**	
H.1.2	0,080**		0,090**		0,100**		0,110**	
H.1.3	0,070**		0,080**		0,090**		0,100**	
H.1.4	0,060**		0,070**		0,080**		0,090**	
H.2.1	0,100**		0,110**		0,120**		0,140**	
H.3.1	0,090**		0,100**		0,110**		0,120**	
O.1.1	0,260	0,170	0,290	0,190	0,320	0,210	0,360	0,230
O.1.2	0,230	0,150	0,260	0,170	0,290	0,190	0,330	0,210
O.2.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
O.2.2	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
O.3.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100

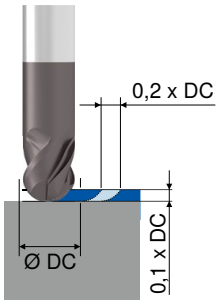
Ø DC = 14 mm	Ø DC = 16 mm	Ø DC = 18 mm	Ø DC = 20–25 mm
a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm
f_z mm	f_z mm	f_z mm	f_z mm
0,170***	0,190***	0,210***	0,230***

Plunging angle for ramping and helical milling: 3°

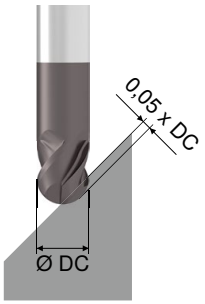
Feedrate values for ball nosed and torus cutters on → **page 466**

Feedrate for machining in steel, iron and non-ferrous materials with torus and ball nosed end mills

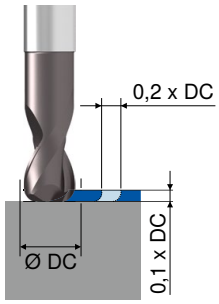
Ball nose end milling cutters



Ball Nosed and Torus Cutters



Torus end milling cutters



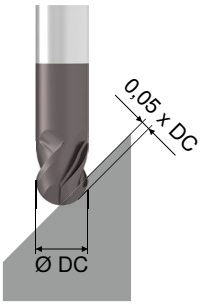
Ø DC mm	f_z mm	f_z mm	f_z mm
2	0,015	0,010	0,010
3	0,030	0,020	0,015
4	0,040	0,030	0,020
5	0,060	0,050	0,030
6	0,070	0,060	0,050
8	0,100	0,080	0,070
10	0,120	0,100	0,080
12	0,150	0,120	0,100
16	0,180	0,150	0,120
18	0,200	0,180	0,140
20	0,220	0,200	0,150

The feed should be reduced by 10–20% for uncoated tools.

Feedrates for the machining of hardened materials with Ti1000 coated torus and ball nosed cutters

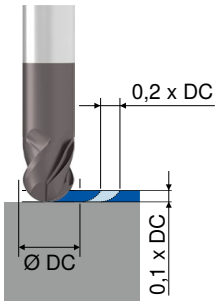
Ball Nosed and Torus Cutters

Hardness = 40–60 HRC
v_c = 80 -120 m/min



Ball Nosed and Torus Cutters

Hardness = 40–60 HRC
v_c = 80 -120 m/min



Ø DC mm	f_z mm	f_z mm
2	0,005	0,005
3	0,015	0,010
4	0,030	0,015
5	0,050	0,020
6	0,060	0,030
8	0,070	0,035
10	0,080	0,040
12	0,080	0,050
16	0,100	0,080

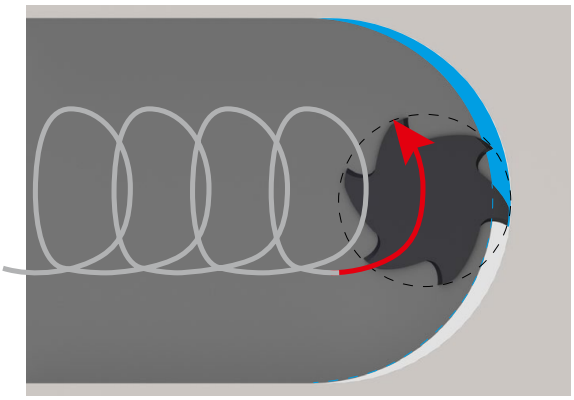
Trochoidal Milling

The trochoidal milling process means that large depths of cut with unstable or lower powered machines are possible.

Depending on the strength of the material, radial step over of between 5–20% of the cutting diameter should be used. Since the trochoidal milling is only peripheral milling, the cutting forces are far less.

Advantages/Benefits

- Reduced tool wear
- Reduced cycle time
- Protection of the machine tool components
- Exploiting the full length of the cutting edge
- Reduced cutting pressure



Most CAM providers offer an application for trochoidal milling. Our recommendations for this application are as follows:

Material	Depth of Cut	Radial Infeed	Feed rate Correction Factor	v_c Correction Factor
Steel	2xDC	0,05xD	3,5	1,6
	2xDC	0,10xD	2,5	1,3
Stainless steel	2xDC	0,05xD	3,5	1,4
	2xDC	0,10xD	2,5	1,2
Cast iron	2xDC	0,05xD	3,5	1,6
	2xDC	0,10xD	2,5	1,3
Non ferrous metals	2xDC	0,05xD	3,5	1,8
	2xDC	0,10xD	2,5	1,4
	2xDC	0,20xD	1,5	1,2

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Please note that the indicated values may require reducing due to the component design, machine rigidity and machine dynamics. In optimal conditions, the values can also be increased.

Technical references

Feedrate Adjustment

If the rpm indicated in the tables cannot be obtained by the machine spindle, the feed rate is to be reduced proportionally to the max rpm.

Example:
according to table = n 50000 1/min. and v_f 1000 mm/min.,
maximum machine rpm = 40000 1/min.

Calculation of feed rate which can be applied:
40000 = 80 % of 50000 1/min. accordingly 80 % of 1000 = 800 mm/min.

Feed rate which can be applied = **800 mm/min.**

Cutting data for tapered milling cutters

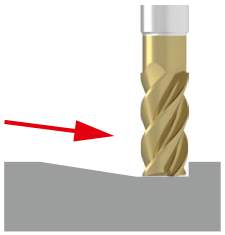
Using tapered milling cutters in various positions of the cutting edge different effective diameters cut into the material, the following has to be observed when calculating the cutting parameters:

- To determine the rpm, the largest diameter must be used in line with the cutting data table
- To determine the feedrate, the smallest diameter must be used in line with the cutting data table



Angled ramping with solid carbide cutters

Angled ramping with solid carbide cutters is possible at an angle of 3° to 6° depending on the cutter type.
A protective edge chamfer or corner radius is an advantage.

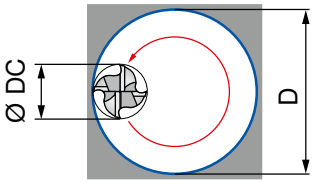
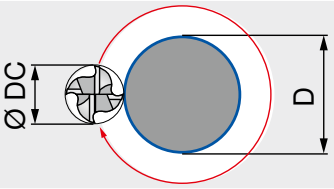
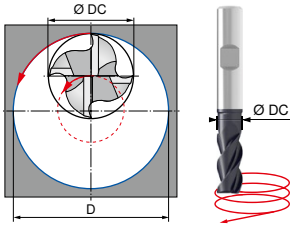


General formula for calculating the cutting parameters

Designation	Abbreviation	Unit	Formula	Example	
Number of revolutions	**n**	**min^{-1}**	$n = \frac{v_c \times 1000}{DC \times \pi}$	v_c = 25 m/min DC = 20 mm	$n = \frac{25 \times 1000}{20 \times \pi}$ = 398 min^{-1}
Cutting speed	**v_c**	**m/min**	$v_c = \frac{DC \times \pi \times n}{1000}$	n = 400 min^{-1} DC = 20 mm	$v_c = \frac{20 \times \pi \times 400}{1000}$ = 25 m/min
Feed per tooth	**f_z**	**mm**	$f_z = \frac{v_f}{ZEFP \times n}$	v_f = 320 mm/min. n = 400 min^{-1} ZEFP = 4	$f_z = \frac{320}{4 \times 400}$ = 0,2 mm
Feed per revolution	**f**	**mm**	$f = f_z \times ZEFP$	f_z = 0,2 mm ZEFP = 4	f = 0,2 x 4 = 0,8 mm
Feed rate	**v_f**	**mm/min.**	$v_f = f_z \times ZEFP \times n$	f_z = 0,2 mm ZEFP = 4 n = 400 min^{-1}	v_f = 0,2 x 4 x 400 = 320 mm/min
Average chip thickness	**h_m**	**mm**	$h_m = f_z \times \sqrt{\frac{a_e}{DC}}$	f_z = 0,2 mm a_e = 0,3 mm DC = 20 mm	h_m = 0,2 x $\sqrt{\frac{0,3}{20}}$ = 0,024 mm

ZEFP = Number of flutes
a_e = cutting width

Calculation of the feed rate on the midpoint path of the milling cutter (v_{fM})

Designation	Abbreviation	Unit	Formula	Example
Internal contour	**v_{fM}**	**mm/min.**	$V_{fM} = \frac{v_f \times (D - DC)}{D}$	
Outside profile	**v_{fM}**	**mm/min.**	$V_{fM} = \frac{v_f \times (D + DC)}{D}$	
Helical ramping	**v_{fM}**	**mm/min.**	$V_{fM} = \frac{n \times f_z \times ZEFP \times (D - D_C)}{D}$	

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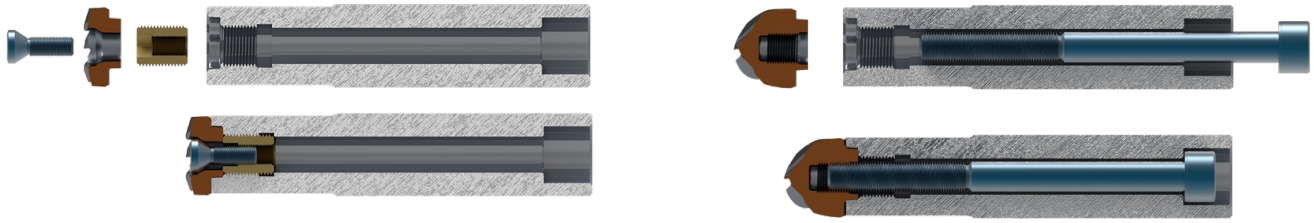
Assembly instructions

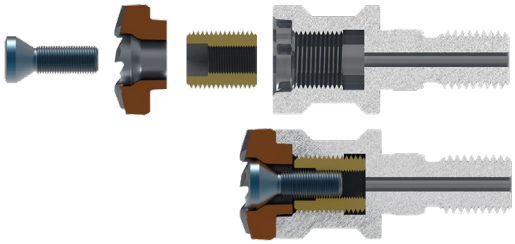
Image of MultiLock cylindrical shank adapter assembly



▲ The cylindrical shank adapter can be used universally. In this case, the MultiLock high-feed and torus cutters are clamped from the front using a threaded bush and clamping screw. The MultiLock radius milling and deburring cutters are clamped via the shank using a cylindrical screw.

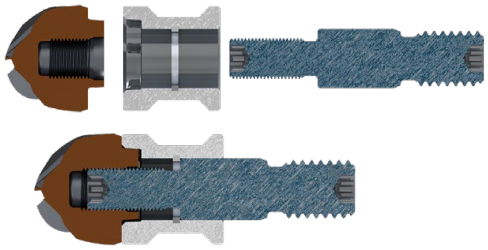
Image of MultiLock screw-in adapter assembly

Type A



▲ The type A screw-in adapter must be used for MultiLock high-feed and torus cutters. These are clamped from the front using a threaded bush and clamping screw.

Type B



▲ The type B screw-in adapter has two parts and must be used for MultiLock radius milling and deburring cutters. These are tensioned from the rear using a clamping screw. The clamping screw is simultaneously used for screwing in the adapter.

Detailed assembly instructions are enclosed with the respective holders. You can also find this in our online shop.

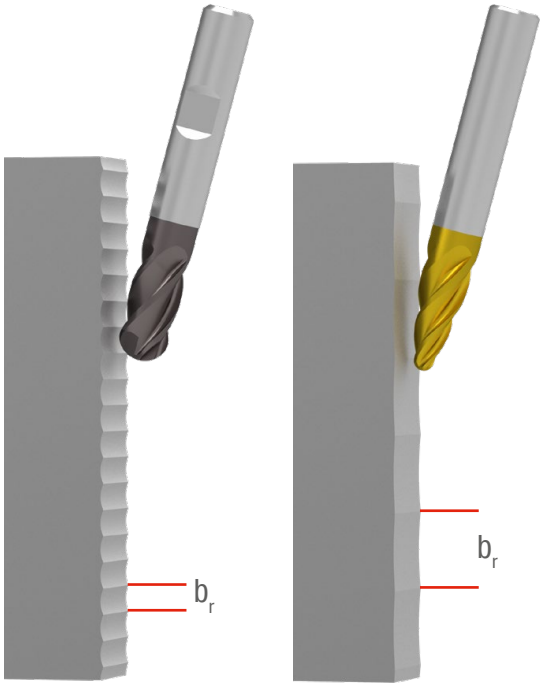
Comparison – ball nose end milling cutters vs. 3D Finish

3D Finish

- Radius does not depend on the tool diameter
- High depths of cut possible owing to the large radius
- Tools with a large radius and small shank diameter are more economical as the carbide content is lower, e.g. diameter 16 mm, radius 1500 mm

Ball nose end milling cutters

- Radius depends on the tool diameter
- Only low widths of cut are possible; linked to the small radius
- Tools with a large diameter/radius are expensive due to the high carbide content, e.g. diameter 16 mm radius 8 mm



Formulae for calculations:

$$b_r = 2 \times \sqrt{R_{th} \times (RE \times 2 - R_{th})}$$

$$R_{th} = RE - \sqrt{\frac{(RE \times 2)^2 - b_r^2}{4}}$$

$$R_a \simeq 0{,}1 \times R_{th}$$

$$R_{th} \simeq R_a / 0{,}1$$

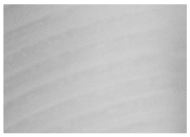
Result

Required surface quality = R_a 0,4
$R_{th} \simeq 0{,}4 / 0{,}1 \simeq 4\ \mu m = 0{,}004$ mm

Ball nose end milling cutters
Diameter 16 mm, radius 8 mm
$b_r = 2 \times \sqrt{0{,}004 \times (8 \times 2 - 0{,}004)}$
b_r = 0,51 mm



3D Finish
Diameter 16 mm, radius 1500 mm
$b_r = 2 \times \sqrt{0{,}004 \times (1500 \times 2 - 0{,}004)}$
b_r = 6,93 mm



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Application information



3D Finish – barrel shape

- Suitable for easily accessible areas

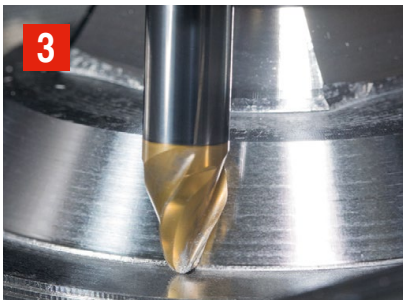




3D Finish – oval shape

- Suitable for easily accessible flanks
- Not suitable for deep areas

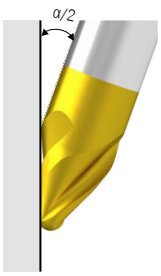




3D Finish – taper shape

- Suitable for steep walls and deep cavities
- α/2 is the angle to the surface to be used
- If the surface exhibits a tilt angle of α/2, the surface can also be machined on three axes



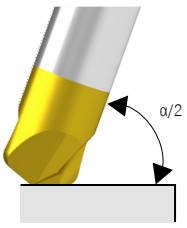


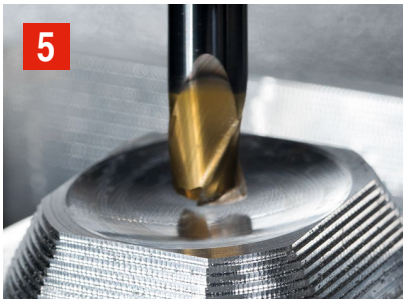


3D Finish – taper shape

- Suitable for flat areas
- α/2 is the angle to the surface to be used
- If the surface exhibits a tilt angle of α/2, the surface can also be machined on three axes



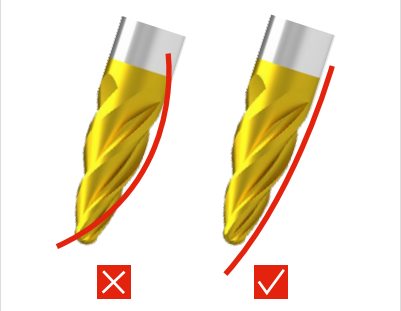




3D Finish – lens shape

- Suitable for flat areas





Please note:

Note that the curvature of the component should be greater than the curvature of the tool.

Check whether your programming system supports the tool geometry of the 3D Finish and can work with it.

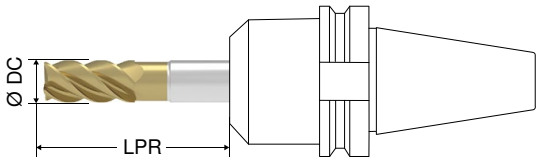
Tips for Tool Selection

Rake and helix angles combined with the coating are decisive factors for the operational area.

Characteristics	Benefits
Helix angle with slow spiral	
▲ For materials with high tensile strength	▲ High edge stability
▲ For high material removal rates	▲ Low tendency to edge chipping
▲ For slot milling, pocket milling, rough milling	
Helix angle with quick spiral	
▲ For soft steels, non ferrous metals, etc.	▲ Soft cut
▲ For low material removal rates	▲ Low cutting forces
▲ Typical for finishing processes	
Small rake angles are applied	
▲ For hard, brittle materials	▲ High edge stability
▲ For high material removal rates	▲ Low tendency to edge chipping
▲ For rough machining	
Large rake angles are applied	
▲ For soft materials	▲ Soft cut
▲ For low material removal rates	▲ Low cutting forces
▲ For finishing	▲ Favorable chip flow
	▲ Low tendency to stick

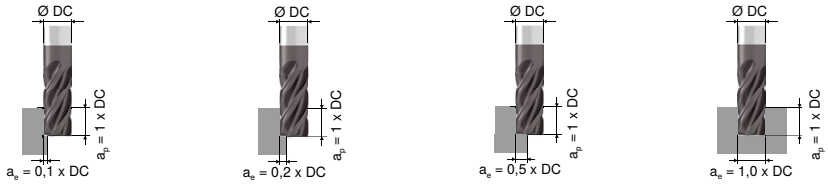
Correction factor for solid carbide milling cutters

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the overhang length (LPR)



Length					
Overhang length (LPR)	1,5 x DC	4 x DC	8 x DC	12 x DC	> 12 x DC
Factor for v_c (Kf v_c)	1,0	1,0	0,9	0,85	0,7
Factor for f_z (Kf f_z)	1,2	1,0	0,8	0,7	0,5

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the cutting depth (a_p) and cutting width (a_e)



Factor for v_c (Kf v_c)	1,3	1,1	1,0	0,85
Factor for f_z (Kf f_z)	1,5	1,3	1,0	0,8

Calculation aid for copy milling

Theoretical surface roughness (R_{th}) and step over (b_r)

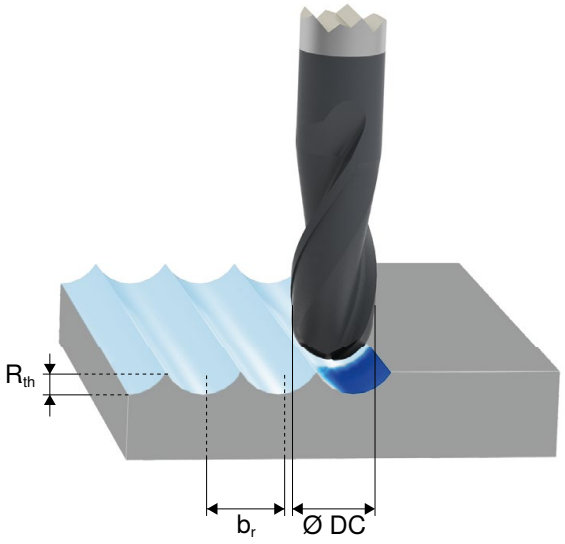
$$R_{th} = r - \sqrt{\frac{(r \times 2)^2 - b_r^2}{4}}$$

$$b_r = 2 \times \sqrt{R_{th} \times (r \times 2 - R_{th})}$$

$$R_{th} \simeq R_a / 0{,}1$$

$$R_a \simeq 0{,}1 \times R_{th}$$

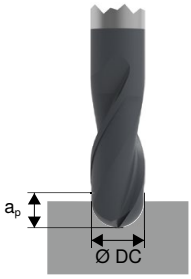
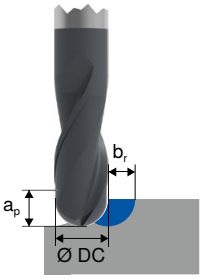
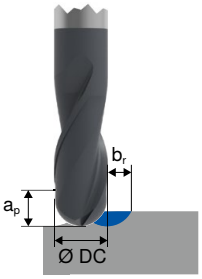
When copy milling, in order to achieve as smooth a surface as possible, the step over b_r should be adapted to the cutter diameter DC. The smaller the cutter diameter DC is, the smaller the step over b_r must be.



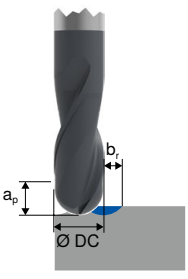
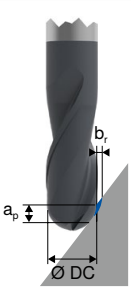
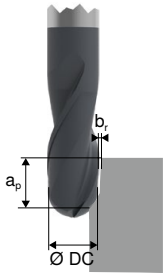
RPM correction factor (Kf n) for copy milling

$$n = \frac{v_c \times 1000}{DC \times \pi} \times Kf\ n$$

Rough machining

	Peripheral and ball nose copy milling	Ball nose copy milling	
			
Axial milling depth a_p	0,5 x DC	> 0,5 x DC	0,2 x DC – 0,5 x DC
Step over b_r	1 x DC	0,2 x DC – 0,5 x DC	0,2 x DC – 0,5 x DC
Correction factor (Kf n)	1	1	1,1

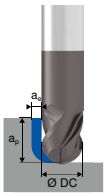
Finish milling

	Ball nose copy milling		
			
Axial milling depth a_p	< 0,2 x DC	0,2 x DC – 0,5 x DC	> 0,5 x DC
Step over b_r	< 0,2 x DC	< 0,2 x DC	< 0,2 x DC
Correction factor (Kf n)	2	1,3	1

Calculation aid for copy milling

For peripheral milling or ball nosed copy milling at cutting depths of $\mathbf{a_p} \geq 0.5 \times DC$ and $\mathbf{a_e}$ = **0.2 to 0.5 x DC** the rpm can be calculated with the following fomula:

$$n = \frac{v_c \times 1000}{DC \times \pi}$$

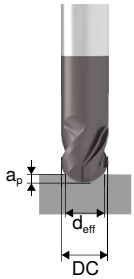


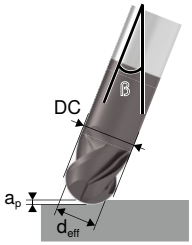
When ball milling the effective milling diameter $\mathbf{d}_{eff.}$ must be determined using the following formula:

Ball nose milling cutters

$$d_{eff.} = 2 \times \sqrt{a_p \times (DC - a_p)}$$

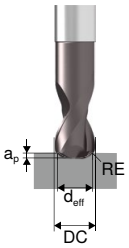
$$d_{eff.} = DC \times \sin\left(\beta \pm \arccos\left(\frac{DC - 2a_p}{DC}\right)\right)$$





Torus end milling cutters

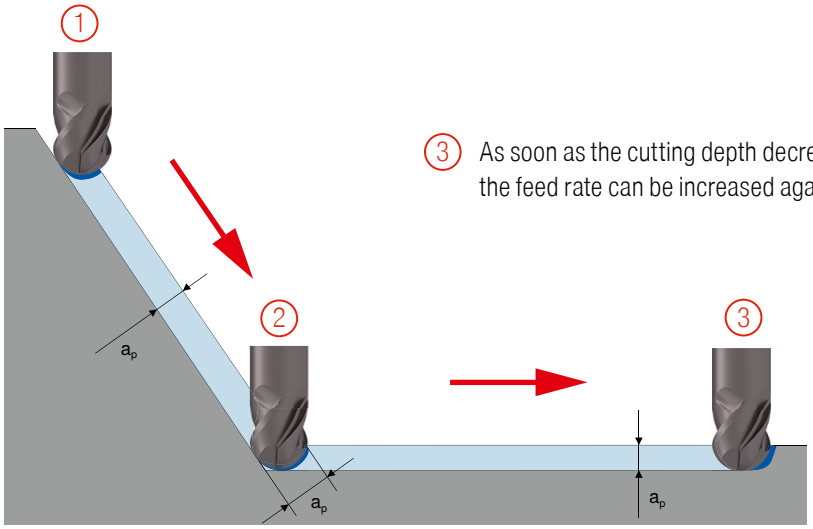
$$d_{eff.} = (DC - 2RE) + 2 \times \sqrt{a_p \times (2RE - a_p)}$$



Information concerning plunge and draw milling

1. When machining the profile flanks relatively high feed rates are possible as the cutting depth is relatively low (area highlighted in blue).

2. A large increase in cutting depth occurs when the base of the profile is reached. Here the feed rate must be reduced as othwerwise tool breakage can occur due to vibrations, misalignment or chattering.



3. As soon as the cutting depth decreases during the machining of the profile base, the feed rate can be increased again.

Rule:
The steeper the angle, the lower the feed rate.
The shallower the angle, the larger the feed rate.

When plunge or draw milling dies, the feed rate has to be adapted to the various milling positions. Otherwise the cutting edge can be damaged due to overload (vibrations, misalignment or chattering).

Version description

CCR AL	Circular Cutter – Non-ferrous metals
CCR H	Circular Cutter – Tempered steel
CCR Ti	Circular Cutter – Heat-resistant alloys
CCR UNI	Circular Cutter – Universal
H	For high-strength steels and tempered materials
HR	For high-strength steels and tempered materials – with roughing profile
N	For machining steel and cast materials, as well as stainless steels
NF	For machining steel and cast materials, as well as stainless steels – with roughing-finishing profile
NR	For machining steel and cast materials, as well as stainless steels – with roughing profile
NTR	For machining steel and cast materials, as well as stainless steels – with trapezoidal chip breakers
SC UNI	Soft Cut – Universal
SC NR	Soft Cut – with round cord profile
W	For soft materials and non-ferrous metals (aluminium, copper, brass)
WF	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing-finishing profile
WR	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing profile

MonsterMill

HCR	Hard Cutter
ICR	Inox Cutter
MCR	Multi Cutter
NCR	Nickel Alloy Cutter
PCR ALU	Plunging Cutter – Non-ferrous metals
PCR UNI	Plunging Cutter – Universal
SCR	Steel Cutter
TCR	Titanium Cutter

Deburring cutters

KEL	Round cone (shape L)
KSJ	Conical 60° (shape J)
KSK	Conical 90° (shape K)
KUD	Spherical (shape D)
RBF	Round arch (shape F)
SKM	Tapered cone (shape M)
SPG	Ogival (shape G)
TRE	Droplet (shape E)
WKN	Angular without spur gearing (shape N)
WRC	Round roller (shape C)
ZYA	Cylindrical without spur gearing (shape A)

Coatings

APA72S
- AlCrN multilayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1100 °C

APB72S
- Special nanolayer coating
- HV0.05 = 3300
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 900 °C

APX72S
- Special nanolayer coating
- HV0.05 = 3800
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 1100 °C

CTC5240
- TiB2-based coating
- HIT 43 GPa ~ 4300 HV0.05
- Friction value against steel 0.3
- Maximum application temperature 1000 °C

CTPX225
- AlTiN-based coating
- HIT 35 GPa ~ 3500 HV0.05
- Friction value against steel 0.5
- Maximum application temperature 1000 °C

DIAMOND
- Diamond monolayer coating
- HV0.025 = 10,000
- Coefficient of friction (against steel) = 0.2
- Maximum application temperature: 700 °C

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

DPA52S
- Special nanolayer coating
- HV0.05 = 3400
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 1100 °C

DPA72S
- Special nanolayer coating
- HV0.05 = 3200
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 1000 °C

DPB72S
- TiAlCrN multilayer coating
- HV0.05 = 3200
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1000 °C

DPX52S
- TiSiN multilayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 1000 °C

DPX62S
- TiAlN multilayer coating
- HV0.05 = 3800
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 800 °C

DPX62U
- Special TiAlN coating
- HV0.05 = 4000
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 1150 °C

DPX72S
- Special multilayer coating
- HV0.05 = 3400
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 900 °C

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

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

Ti28
- Ti multilayer coating
- HV0.05 = 2800
- Coefficient of friction (against steel) = 0.1
- Maximum application temperature: 500 °C

Ti40
- Ti monolayer coating
- HV0.05 = 4000
- Maximum application temperature: 900 °C

Ti400
- Ti multilayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 400 °C

Ti1000
- Ti monolayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.3
- Maximum application temperature: 800 °C

Ti1001
- Ti monolayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 800 °C

Ti1002
- Ti monolayer coating
- HV0.05 = 3300
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 900 °C

Ti1005
- Ti multilayer coating
- HV0.05 = 2800
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 600 °C

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

Ti1100
- Ti multilayer coating
- HV0.05 = 3200
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1100 °C

Ti1200
- Ti nanolayer coating
- Maximum application temperature: 1100–1200 °C

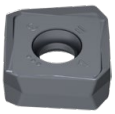
Ti1500
- Ti nanolayer coating
- HV0.05 = 3400
- Coefficient of friction (against steel) = 0.7
- Maximum application temperature: 900 °C

Ti2000
- Ti multilayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 900 °C

New products for machining technicians

NEW

MaxiMill 271-12



→ Page 24+25

New system size for more economy

NEW

MaxiMill 211-11KN / 211-15KN

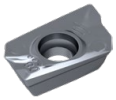


→ Page 65+71

Porcupine cutter update

NEW

MaxiMill 211-20



→ Page 76

Indexable insert product extension

NEW

CTCM245



New high-performance grade for machining high-alloy steels



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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CERATIZIT \ Performance

Premium quality tools for high performance.

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

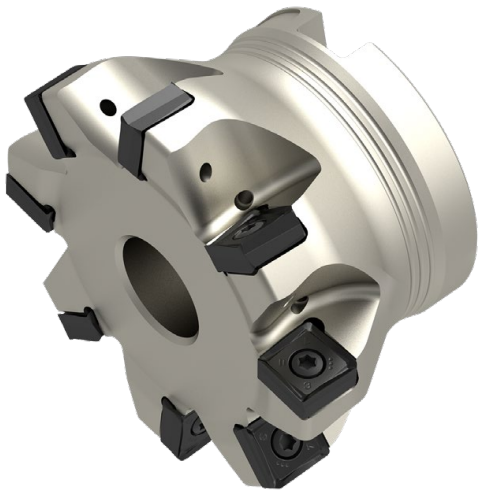
Symbol explanation


central internal coolant


lateral internal coolant



Cutting edge angle



ZNF = Number of flutes

● = **Main Application**

○ = Extended application

Application symbols


Face milling


Angled ramping


Circular drill milling


plunge milling


Slot milling


Shoulder milling


Slot milling (45°)


Chamfer milling

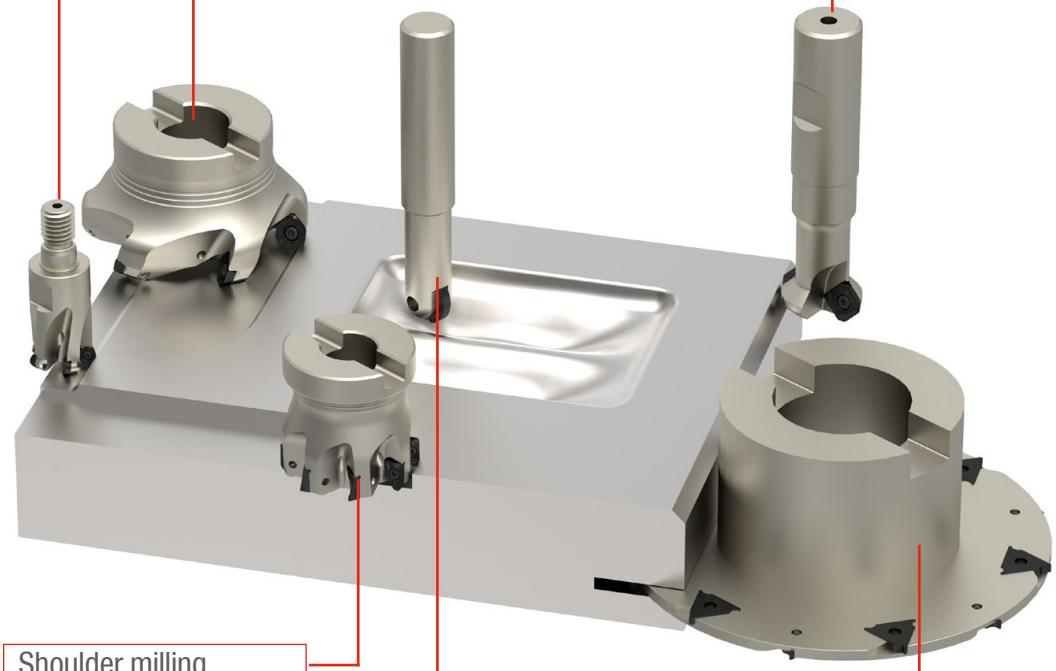

Free form milling

Toolfinder – Application Selection Guide

Form milling
→ System Selection:
8+9

Face milling
→ System Selection:
4+5

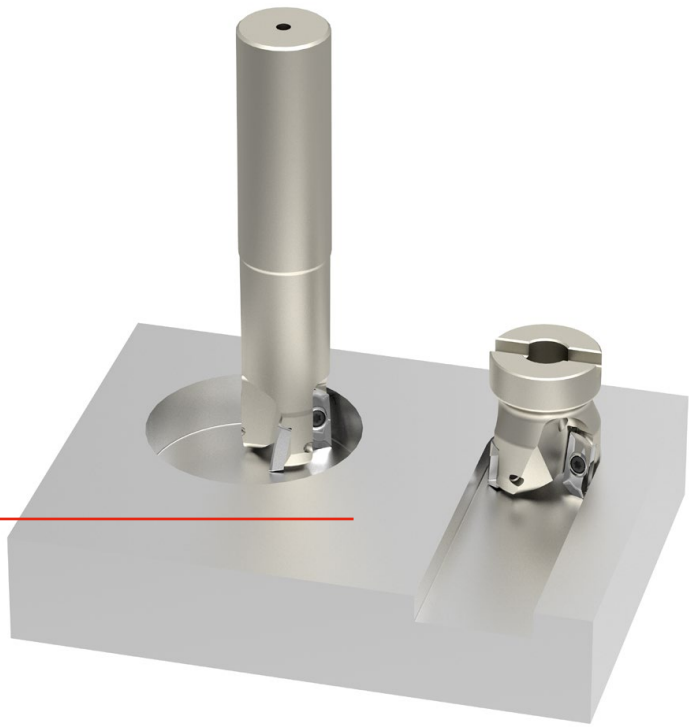
Chamfer/Angle milling cutters
→ System Selection:
10



Shoulder milling
→ System Selection:
6+7

Slot milling and saws
→ System Selection:
10

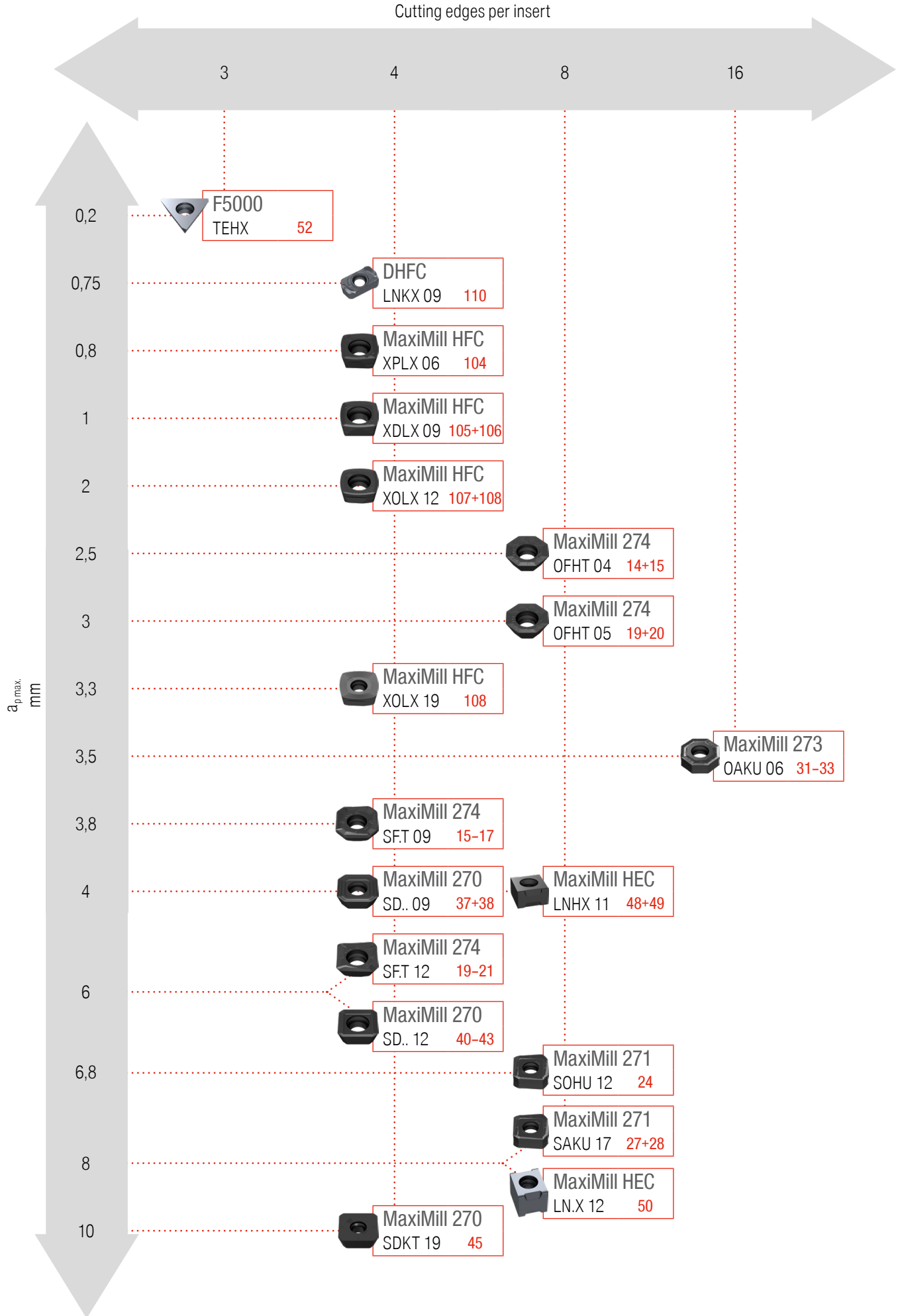
Form milling
→ System Selection:
8+9



HSC-/HPC-milling
→ System Selection:
6+7

15

Toolfinder – Face Milling Cutters



Overview – Face Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
MaxiMill 274	**OFH.** 04.. / 05.. | **SF.T** 09.. / 12..	8 | 4	2,5–6	Ø 20–32	Ø 20–32	Ø 32–160	●	●	●	●	●			12–21
MaxiMill 271	**SOHU** 1204.. | **SAKU** 1706..	8	6,8 | 8,4		Ø 32–40	Ø 40–250	●	●	●		●			22–28
MaxiMill 273	**OAKU** 0605..	16	3,5		Ø 32–40	Ø 40–250	●	●	●		●			29–33
MaxiMill 270	**SD..** 0903.. / 1204.. / 19..	4	4–10	Ø 16–32	Ø 6–32	Ø 32–315	●	●	●	●	●			34–45
MaxiMill HEC	**LNHX** 1106.. | **LN.X** 1210..	8	4–8			Ø 50–160	●	○	●					46–50
F 5000	**TEHX** 16T3..	3	0,2			Ø 42–100	●	○	●	○		●		51+52
MaxiMill HFC	**X..X** 06.. / 09.. / 12.. / 19..	4	0,8–3,3	Ø 16–42	Ø 16–35	Ø 32–160	●	●	●		●			102–108
DHFC	**LNKX** 09..	4	0,75	Ø 16–42	Ø 16–20		●	●	●		●	●		109+110

Additional diameters are available upon request.

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

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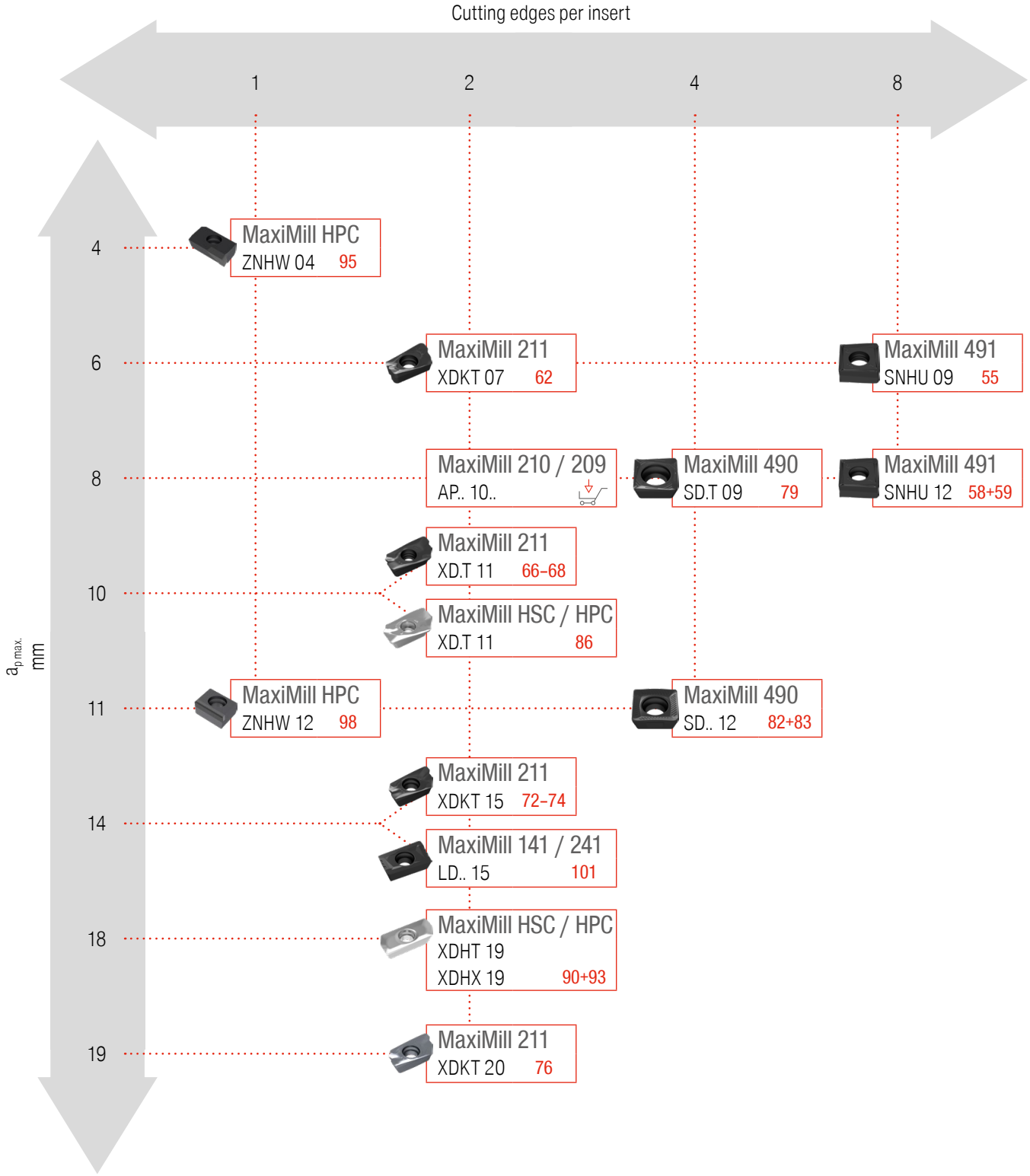
Toolfinder – shoulder milling



Overview – Shoulder Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm				Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
MaxiMill 491	**SNHU** 09T3.. / 1204..	8	6–8	Ø 25–32	Ø 25–32	Ø 40–160		●	●	●	●	●			53–59
MaxiMill 211	**XD.T** 0703.. / 11T3.. / 1505.. / 2007..	2	6–19	Ø 16–40	Ø 10–40	Ø 32–160		●	●	●	●	●	○		60–76
MaxiMill 211KN	**XD.T** 11T3.. / 1505.. / 2007..	2	27–75,5		Ø 25–50	Ø 40–50		●	●	●	●	●			65+71
MaxiMill 490	**SD..** 09T3.. / 1205..	4	8–11	Ø 25–40	Ø 25–32	Ø 40–160		●	●	●	●	●			77–83
MaxiMill 490K	**SD..** 09T3..	4	41			Ø 40–63		●	●	●	●	●			78
MaxiMill HSC / HPC	**XD..** 11T3.. / 1904..	2	10–18	Ø 16–40	Ø 16–32	Ø 40–125	Ø 25–50			○	●				84
MaxiMill HPC	**ZNHW** 04T3.. / 1205..	1	4–11	Ø 20–40	Ø 20–40	Ø 40–315	Ø 40–160			●	●		○		94–98
MaxiMill 141 / 241	**LD..** 1504..	2	14	Ø 25–40	Ø 20–32	Ø 40–100		●	●	●	●				99–101
MaxiMill 209 / 210	**AP..** 1003..	2	8	Ø 16,0–31,7	Ø 9,7–32	Ø 40–125		●	●	●	●	●	●		

Additional diameters are available upon request.

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

This article can be found in our online shop at cuttingtools.ceratizit.com

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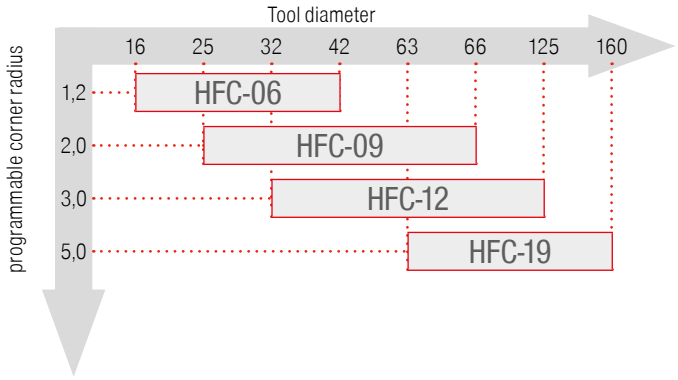
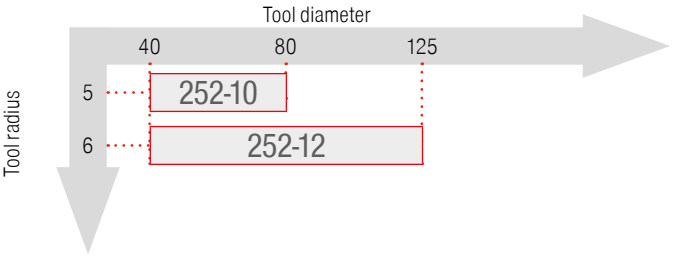
Toolfinder – form milling

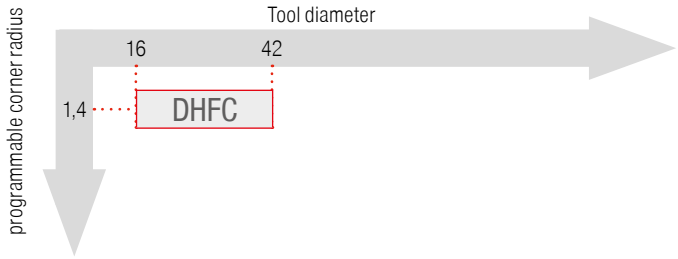
MaxiMill HFC 102–108



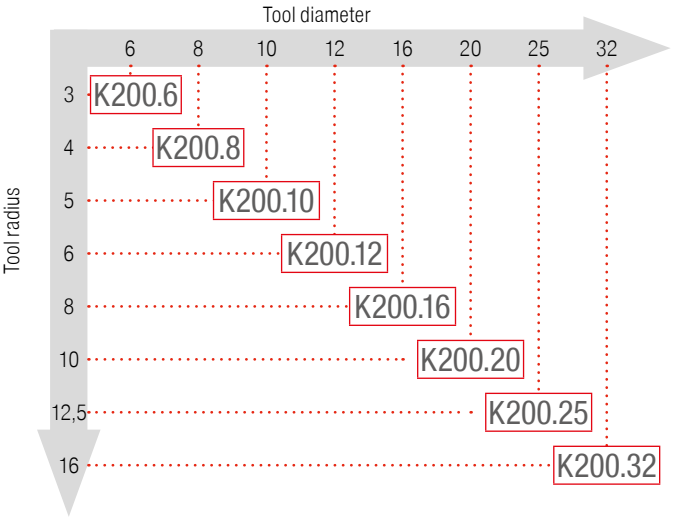
MaxiMill 252 125+126



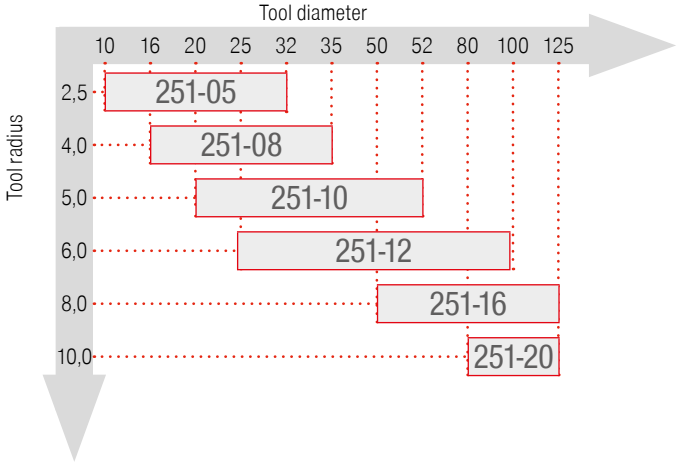
DHFC 109+110



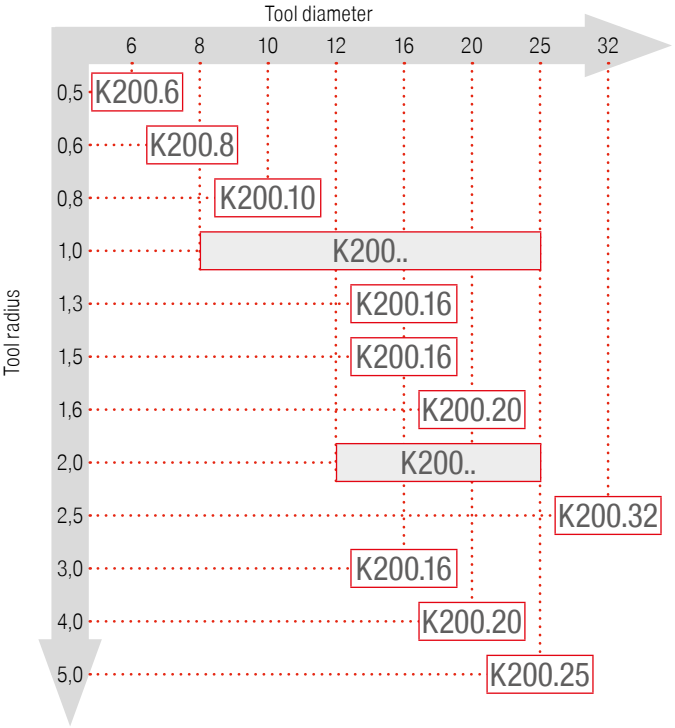
K200. Ball Nosed 127–131



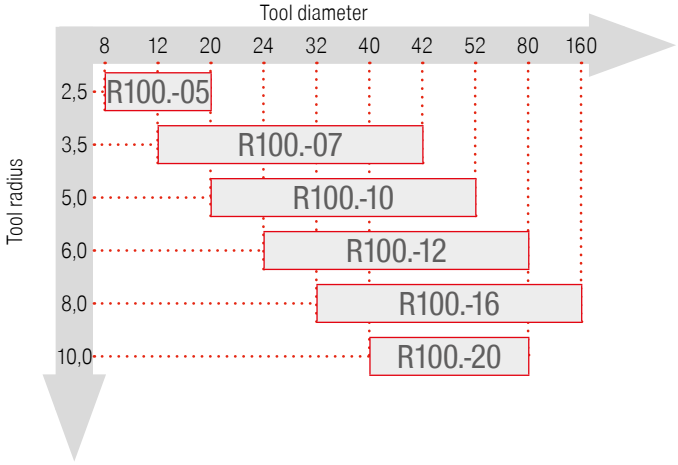
MaxiMill 251 / 251 RS 111–119



K200. Torus 132–135



R100. 120–124



Application range

Tool diameter

Overview – form milling

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
MaxiMill HFC	**X.LX** 06.. / 09.. / 12.. / 19..	4	0,8–3,3	Ø 16–42	Ø 16–35	Ø 32–160	●	●	●		●			102–108
DHFC	**LNKX** 09..	4	0,75	Ø 16–42	Ø 16–20		●	●	●		○	○		109+110
MaxiMill 251/ 251 RS	**R..X** 05.. / 08.. / 10.. / 12.. / 16.. / 20..	8	2,5–10	Ø 10–42	Ø 10–32	Ø 40–125	●	●	●	●	●			111–119
R100.	**RD.X** 05.. / 07.. / 10.. / 12.. / 16.. / 20..	8	5	Ø 12–42	Ø 8–20	Ø 42–160	●	●	●	●	○	●		120–124
MaxiMill 252	**RNHU** 10.. / 12..	8	3			Ø 40–125	●	●	○		●			125+126
K200. Ball Nosed	**RO.X** .... / **XOHX**	1	0,4–8	Ø 8–32	Ø 6–32		●	●	●	●	●	●		127–131
K200. Torus	**XO.X**	1	0,5–8	Ø 8–32	Ø 8–32		●	●	●	●	●	●		132–135

Additional diameters are available upon request.

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

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Overview – Chamfer / Angle Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\ max.}$ mm	Ø-range mm		Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
													
MaxiMill 272	**SD..** 0903..	4	4	Ø 6–25		●	●	○	●	●			36–38
													
MaxiMill 242	**LD..** 1504..	2			Ø 50–92	○	●			●			100+101

Additional diameters are available upon request.

Overview – Saw cutters

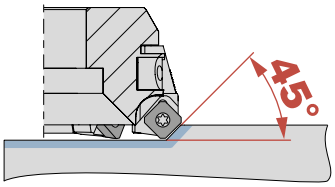
System	Inserts	Cutting edges per insert	$a_{p\ max.}$ mm	Ø-range mm		Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
													
TX	**TX..** R/L	3	64	Ø 80–160	Ø 100–200	●	●	●	●	●			136–138

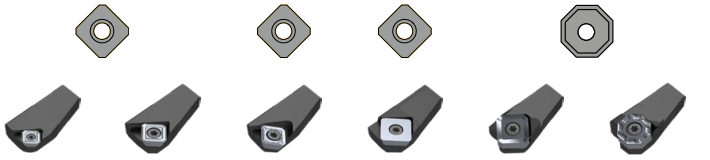
Additional diameters are available upon request.

Overview – Combi Milling Cutters

System	Cutting edges per insert	a_p max. mm	Ø-range mm	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
MaxiMill 260	2–16	0,8–33	Ø 80–400	●	●	●	●	●	●		139

Cartridge no. 041 | 031 | 029 | 032 | 058 | 057

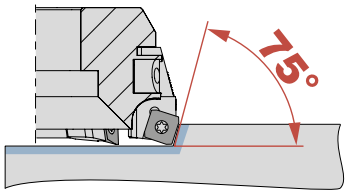




SD.. 0903.. | **SD..** 1204.. **XD..** 1204.. | **SE..** 1204.. | **SD..** 1504.. | **SA..** 1706.. | **OA..** 0605.. **XA..** 0605..

140

Cartridge no. 018

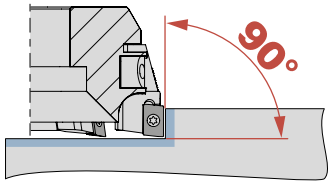


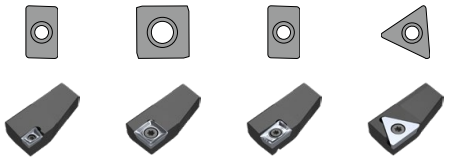


SP.. 1204..

140

Cartridge no. 042 | 039 | 051 | 025

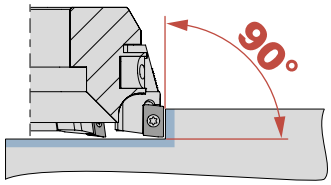




AP.. 1003.. | **SD..** 1205.. | **LD..** 1504.. | **TP..** 2204..

140

Cartridge no. 055 | 054 | 056

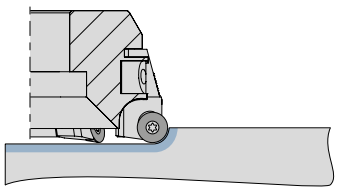


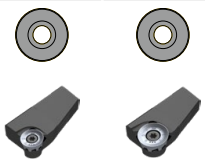


SD.. 09T3 | **XD..** 11T3 | **XD..** 1505

140

Cartridge no. 052 | 053



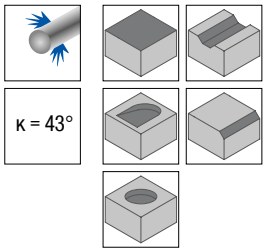


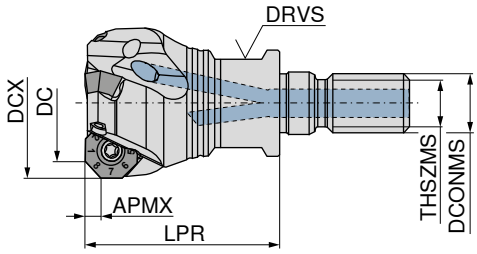
RP.X 1204.. | **RP.X** 1604..

140

15

MaxiMill – Screw in cutter G 274-04/-09

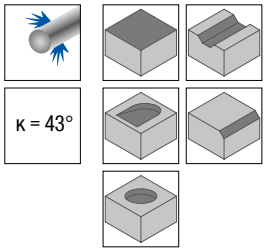


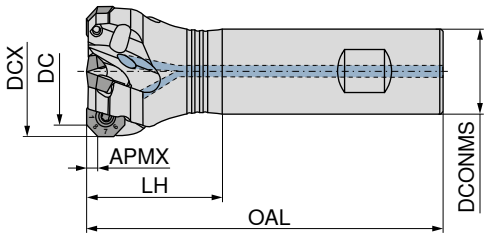




Designation	DC mm	DCX mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 742 ... £ 2B/40	
G274.20.R.03-09	20	25.5	3	3.8	35	M12	12.5	17	1,2	OF.. 0403 / SF.. 0903	255.92	020
G274.25.R.04-09	25	30.6	4	3.8	35	M12	12.5	17	1,2	OF.. 0403 / SF.. 0903	291.43	025
G274.32.R.05-09	32	37.6	5	3.8	35	M16	17.0	24	1,2	OF.. 0403 / SF.. 0903	327.13	032

MaxiMill – End milling cutter C 274-04/-09

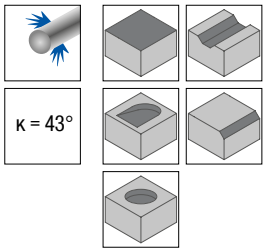


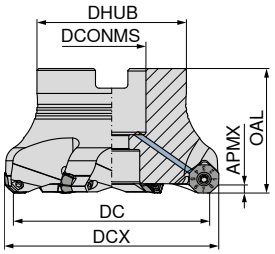


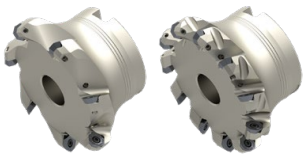


ISO designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	A 50 743 ... £ 2B/40		B 50 743 ... £ 2B/40	
C274.20.R.03-09-A20-25	20	25.5	3	3.8	77	25	20	1,2	OF.. 0403 / SF.. 0903	255.92	020		
C274.20.R.03-09-B20-25	20	25.5	3	3.8	77	25	20	1,2	OF.. 0403 / SF.. 0903			255.92	120
C274.25.R.04-09-A20-32	25	30.6	4	3.8	84	32	20	1,2	OF.. 0403 / SF.. 0903	291.43	025		
C274.25.R.04-09-B20-32	25	30.6	4	3.8	84	32	20	1,2	OF.. 0403 / SF.. 0903			291.43	125
C274.32.R.05-09-A25-40	32	37.6	5	3.8	98	40	25	1,2	OF.. 0403 / SF.. 0903	327.13	032		
C274.32.R.05-09-B25-40	32	37.6	5	3.8	98	40	25	1,2	OF.. 0403 / SF.. 0903			327.13	132

MaxiMill – Shell mill A 274-04/-09







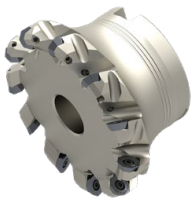
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	torque moment Nm	Insert	50 744 ... £ 2B/40		50 744 ... £ 2B/40	
A274.32.R.05-09	32	37.7	5	3.8	40	38	16	1,2	OF.. 0403 / SF.. 0903			327.13	**032**
A274.40.R.04-09	40	45.7	4	3.8	40	38	16	1,2	OF.. 0403 / SF.. 0903	327.13	**040**		
A274.40.R.06-09	40	45.7	6	3.8	40	38	16	1,2	OF.. 0403 / SF.. 0903			362.63	**140**
A274.50.R.05-09	50	55.7	5	3.8	40	48	22	1,2	OF.. 0403 / SF.. 0903	380.48	**050**		
A274.50.R.07-09	50	55.7	7	3.8	40	48	22	1,2	OF.. 0403 / SF.. 0903			398.42	**150**
A274.63.R.06-09	63	68.7	6	3.8	40	48	22	1,2	OF.. 0403 / SF.. 0903	434.03	**063**		
A274.63.R.09-09	63	68.7	9	3.8	40	48	22	1,2	OF.. 0403 / SF.. 0903			487.48	**163**
A274.80.R.07-09	80	85.7	7	3.8	50	58	27	1,2	OF.. 0403 / SF.. 0903	487.48	**080**		
A274.80.R.11-09	80	85.7	11	3.8	50	58	27	1,2	OF.. 0403 / SF.. 0903			558.69	**180**
A274.100.R.09-09	100	105.7	9	3.8	50	78	32	1,2	OF.. 0403 / SF.. 0903	601.18	**100**		
A274.100.R.13-09	100	105.7	13	3.8	50	78	32	1,2	OF.. 0403 / SF.. 0903			672.47	**200**
A274.125.R.12-09	125	130.7	12	3.8	63	88	40	1,2	OF.. 0403 / SF.. 0903	732.52	**125**		

	TORX® blade		 Clamping key - T		 Key D		 Power Screw		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		Y7		Y7		2A/28		2A/28		2A/28		Y7	
20 - 32	7.02	**043**			14.16	**125**			4.18	**303**	3.91	**133**	171.76	**191**
32 - 40	7.02	**043**	5.02	**040**	14.16	**125**	11.92	**151**	4.18	**303**	3.91	**133**	171.76	**191**
50 - 125	7.02	**043**			14.16	**125**			4.18	**303**	3.91	**133**	171.76	**191**

Two insert types – ONE Cutter





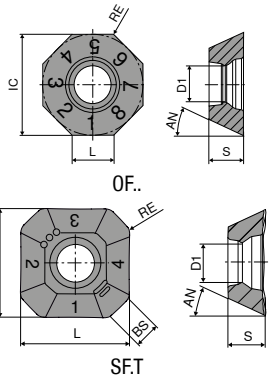




15

OFHT / OFHW / SFHT / SFKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
OFH. 0403..	9.52	3.35	3.94	-	3.18	25
SF.T 0903..	9.80	3.35	9.00	2.25	3.50	25

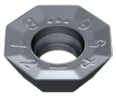


OF..
SF.T

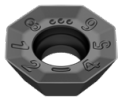
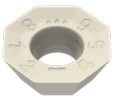
OFHT

		-F50 CTCP220	-F50 CTPP225	-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		OFHT	OFHT	OFHT	OFHT	OFHT	OFHT
		51 002 ...	**51 002 ...**	**51 002 ...**	**51 003 ...**	**51 002 ...**	**51 003 ...**
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
040305SN	0.5	15.05 **255**	15.05 **055**	15.05 **005**	15.05 **005**	15.05 **105**	15.05 **105**
P		●	●	●	●	●	●
M						○	○
K				○	○	○	○
N							
S							
H							
O							

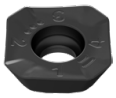
OFHT / OFHW

		-F50 CTPM225	-F50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245	CTPM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		OFHT	OFHT	OFHT	OFHT	OFHT	OFHW
		51 002 ...	**51 002 ...**	**51 002 ...**	**51 003 ...**	**51 002 ...**	**51 105 ...**
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
040302EN	0.2						16.58 **452**
040305SN	0.5	15.05 **205**	15.05 **305**	15.05 **405**	15.05 **405**	16.58 **455**	
P		●	●	○	○	●	●
M		●	●	●	●	●	●
K							
N							
S							
H							
O							

OFHT / OFHW

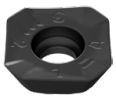
		NEW	NEW					
		-F50 CTCM245 DRAGONSKIN	CTCM245 DRAGONSKIN	-M50 CTCK215 DRAGONSKIN	-F10 CTWN215	-F50 CTC5240 DRAGONSKIN	CTC5240 DRAGONSKIN	-F50 CTCS245 DRAGONSKIN
								
		OFHT	OFHW	OFHT	OFHT	OFHT	OFHW	OFHT
		51 002 ...	51 105 ...	51 003 ...	50 459 ...	51 002 ...	50 457 ...	51 002 ...
ISO	RE mm	£ 1H/17	£ 1H/17	£ 1B/61	£ 1B/61	£ 17	£ 17	£ 17
040302EN	0.2		16.58 90201				16.58 504	
040305FN	0.5				15.95 505			
040305SN	0.5	16.58 90501		15.05 505		16.58 15500		16.58 555
P		●	●					
M		●	●					
K				●	○			
N					●			
S		○	○			●	●	●
H								
O					○			

SFHT / SFKT

		-F50 CTCP220 DRAGONSKIN	-M50 CTCP220 DRAGONSKIN	-F50 CTPP225 DRAGONSKIN	-M50 CTPP225 DRAGONSKIN
					
		SFHT	SFKT	SFHT	SFKT
		51 012 ...	51 013 ...	51 012 ...	51 013 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
0903AFSR	1	15.05 270	11.08 270	15.05 070	11.08 070
P		●	●	●	●
M					
K					
N					
S					
H					
O					

15

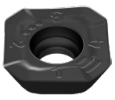
SFHT / SFKT

		-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SFHT	SFKT	SFHT	SFKT
		51 012 ...	51 013 ...	51 012 ...	51 013 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
0903AFSR	1	15.05 020	11.08 020	15.05 120	11.08 120
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

SFHT / SFKT

		NEW						
		-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		SFHT	SFKT	SFHT	SFHT	SFKT	SFHT	SFHT
		51 012 ...	51 013 ...	51 012 ...	51 012 ...	51 013 ...	51 012 ...	51 012 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
0903AFSR	1	15.05 220	11.08 220	15.05 320	15.05 420	11.08 42000	18.71 470	18.71 92001
P		●	●	●	○	○	●	●
M		●	●	●	●	●	●	●
K								
N								
S								○
H								
O								

SFKT / SFHT

		-R50 CTCK215		-R50 CTPK220		-F10 CTWN215		-F40 CTC5240	
		DRAGONSKIN		DRAGONSKIN				DRAGONSKIN	
									
		SFKT		SFKT		SFHT		SFHT	
		51 065 ...		51 065 ...		50 514 ...		50 514 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 17	
0903AFFR	1					18.04	505		
0903AFSR	1	11.08	520	11.08	620			18.71	504
P									
M									
K		●		●		○			
N						●			
S								●	
H									
O						○			

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 145
Starting Parameter	→ 146	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

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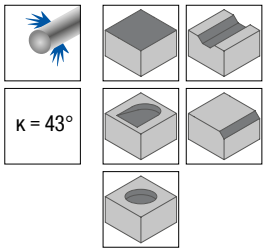
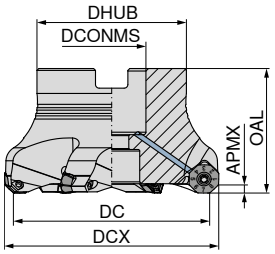
MaxiMill – Shell mill A 274-05/-12





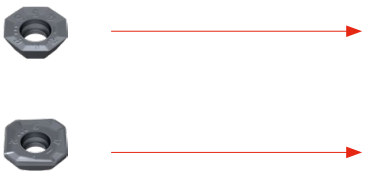


Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	torque moment Nm	Insert	50 772 ... £ 2B/40		50 772 ... £ 2B/40	
A274.40.R.03-12	40	48.0	3	6	40	38	16	3,2	OFHT 0504 / SFKT 1204	246.28	**24000**		
A274.40.R.04-12	40	48.0	4	6	40	38	16	3,2	OFHT 0504 / SFKT 1204			323.12	**04000**
A274.50.R.05-12	50	58.0	5	6	40	43	22	3,2	OFHT 0504 / SFKT 1204			410.36	**050**
A274.50.R.04-12	50	58.1	4	6	40	43	22	3,2	OFHT 0504 / SFKT 1204	328.27	**25000**		
A274.63.R.06-12	63	71.0	6	6	40	48	22	3,2	OFHT 0504 / SFKT 1204			492.45	**063**
A274.63.R.05-12	63	71.1	5	6	40	48	22	3,2	OFHT 0504 / SFKT 1204	420.38	**26300**		
A274.80.R.06-12	80	88.0	6	6	50	58	27	3,2	OFHT 0504 / SFKT 1204	512.87	**28000**		
A274.80.R.08-12	80	88.0	8	6	50	58	27	3,2	OFHT 0504 / SFKT 1204			656.63	**080**
A274.100.R.10-12	100	107.9	10	6	50	78	32	3,2	OFHT 0504 / SFKT 1204			810.41	**100**
A274.100.R.08-12	100	108.0	8	6	50	78	32	3,2	OFHT 0504 / SFKT 1204	677.16	**30000**		
A274.125.R.12-12	125	132.9	12	6	63	88	40	3,2	OFHT 0504 / SFKT 1204			989.87	**125**
A274.125.R.09-12	125	133.0	9	6	63	88	40	3,2	OFHT 0504 / SFKT 1204	848.78	**32500**		
A274.160.R.14-12	160	167.9	14	6	63	98	40	3,2	OFHT 0504 / SFKT 1204			1,313.46	**16000** [1]
A274.160.R.11-12	160	168.0	11	6	63	98	40	3,2	OFHT 0504 / SFKT 1204	1,031.87	**36000** [1]		

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

Spare parts DC	TORX® blade 80 950 ... £ Y7		Key D 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Torque screwdriver 80 950 ... £ Y7	
40 - 160	7.02	**054**	16.56	**128**	4.18	**303**	4.40	**340**	192.38	**193**

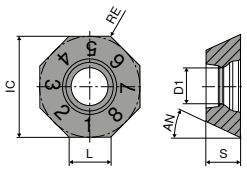
Two insert types – ONE Cutter



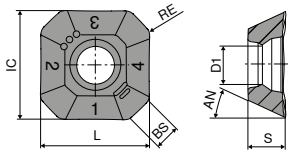


OFHT / SFHT / SFKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
OFHT 0504..	12.7	4.8	4.5	-	4.76	25
SF.T 1204..	12.7	4.8	12.7	1.42	4.76	25

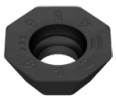


OF..



SF.T

OFHT

	-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	OFHT	OFHT	OFHT	OFHT
	51 002 ...	**51 003 ...**	**51 002 ...**	**51 003 ...**
ISO RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
050410SN 1	16.54 **010**	16.54 **01000**	16.54 **110**	16.54 **11000**
P	●	●	●	●
M			○	○
K	○	○	○	○
N				
S				
H				
O				

OFHT

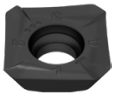
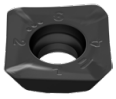
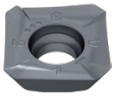
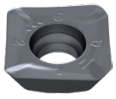
	-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	OFHT	OFHT	OFHT	OFHT	OFHT	OFHT
	51 002 ...	**51 003 ...**	**51 002 ...**	**51 002 ...**	**51 003 ...**	**51 002 ...**
ISO RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17
050410SN 1	16.54 **210**	16.54 **210**	16.54 **310**	16.54 **410**	16.54 **41000**	18.23 **460**
P	●	●	●	○	○	●
M	●	●	●	●	●	●
K						
N						
S						
H						
O						

15

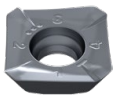
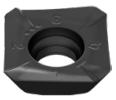
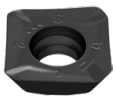
OFHT

		NEW		
		-F50 CTCM245	-F10 CTWN215	-F50 CTC5240
		DRAGONSKIN		DRAGONSKIN
				
		OFHT	OFHT	OFHT
		51 002 ...	51 122 ...	51 002 ...
ISO	RE mm	£ 1H/17	£ 1B/61	£ 17
050410FN	1		19.85 36000	
050410SN	1	18.23 91001		18.23 16000
P		●		
M		●		
K			○	
N			●	
S		○		●
H				
O			○	

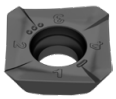
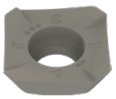
SFHT / SFKT

		-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SFHT	SFKT	SFHT	SFKT
		51 012 ...	51 013 ...	51 012 ...	51 013 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
1204AFSR	1	16.54 02500	12.19 025	16.54 12500	12.19 125
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

SFHT / SFKT

		-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-M50 CTCM235	-F50 CTPM240	-M50 CTPM240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SFHT	SFKT	SFHT	SFKT	SFHT	SFKT
		51 012 ...	51 013 ...	51 012 ...	51 013 ...	51 012 ...	51 013 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
1204AFSR	1	16.54 225	12.19 225	16.54 325	12.19 325	16.54 42500	12.19 425
P		●	●	●	●	○	○
M		●	●	●	●	●	●
K							
N							
S							
H							
O							

SFHT

			NEW			
		-F50 CTPM245	-F50 CTCM245	-F10 CTWN215	-F40 CTC5240	
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	
						
		SFHT	SFHT	SFHT	SFHT	
		51 012 ...	51 012 ...	51 123 ...	50 514 ...	
ISO	RE mm	£ 1H/17	£ 1H/17	£ 1B/61	£ 17	
1204AFER	1				20.60 50900	
1204AFFR	1			19.85 37000		
1204AFSR	1	20.19 47500	20.19 92501			
P		●	●			
M		●	●			
K				○		
N				●		
S			○		●	
H						
O				○		

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 147
Starting Parameter	→ 148	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

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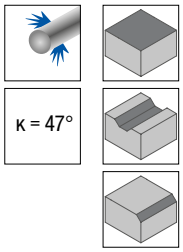
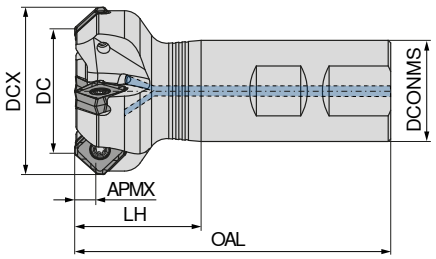
MaxiMill – End milling cutter C 271-12







NEW

B

50 786 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
C271.32.R.03-12-B-40	32	45	3	6.8	100	40	32	18400	3,2	SOHU 1204.. / XOHU 1204..	311.27	**03203**
C271.40.R.04-12-B32-40	40	53	4	6.8	100	40	32	16800	3,2	SOHU 1204.. / XOHU 1204..	389.08	**04004**

TORX® blade

80 950 ...


Key D

80 950 ...


Molykote

70 950 ...


Clamping screw

70 950 ...

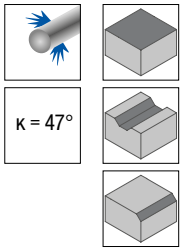

Torque screwdriver

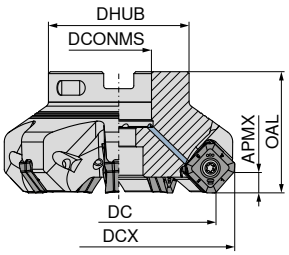
80 950 ...

Spare parts DC	£ Y7		£ Y7		£ 2A/28		£ 2A/28		£ Y7	
32 - 40	7.02	**054**	12.65	**120**	4.18	**303**	2.99	**859**	192.38	**193**

MaxiMill – A 271-12 Face mill

▲ 8 cutting edges per insert





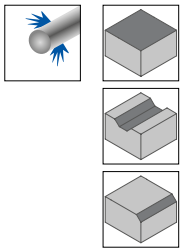


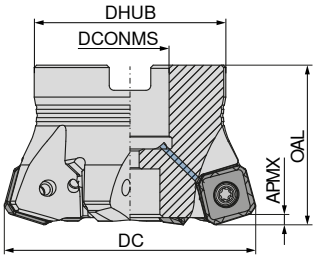
NEW NEW

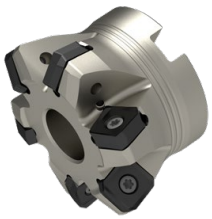
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	50 787 ... £ 2B/40		50 787 ... £ 2B/40	
A271.40.R.04-12	40	53	4	6.8	40	38	16	17900	3,2	SOHU 1204.. / XOHU 1204..			389.08	**04004**
A271.50.R.05-12	50	63	5	6.8	40	43	22	15200	3,2	SOHU 1204.. / XOHU 1204..			398.81	**05005**
A271.63.R.07-12	63	76	7	6.8	40	48	22	13100	3,2	SOHU 1204.. / XOHU 1204..			505.82	**06307**
A271.80.R.06-12	80	93	6	6.8	50	58	27	11300	3,2	SOHU 1204.. / XOHU 1204..	505.82	**08006**		
A271.80.R.08-12	80	93	8	6.8	50	58	27	11300	3,2	SOHU 1204.. / XOHU 1204..			583.61	**08008**
A271.100.R.07-12	100	113	7	6.8	63	78	32	9900	3,2	SOHU 1204.. / XOHU 1204..	641.93	**10007**		
A271.100.R.10-12	100	113	10	6.8	63	78	32	9900	3,2	SOHU 1204.. / XOHU 1204..			729.56	**10010**
A271.125.R.08-12	125	138	8	6.8	63	88	40	8700	3,2	SOHU 1204.. / XOHU 1204..	778.14	**12508**		
A271.125.R.12-12	125	138	12	6.8	63	88	40	8700	3,2	SOHU 1204.. / XOHU 1204..			894.88	**12512**
A271.160.R.09-12	160	173	9	6.8	63	98	40	7600	3,2	SOHU 1204.. / XOHU 1204..	904.63	**16009** [1]		
A271.160.R.14-12	160	173	14	6.8	63	98	40	7600	3,2	SOHU 1204.. / XOHU 1204..			1,050.96	**16014** [1]
A271.200.R.11-12	200	213	11	6.8	63	132	60	6700	3,2	SOHU 1204.. / XOHU 1204..	1,134.00	**20011** [1]		
A271.200.R.17-12	200	213	17	6.8	63	132	60	6700	3,2	SOHU 1204.. / XOHU 1204..			1,281.96	**20017** [1]
A271.250.R.13-12	250	263	13	6.8	63	132	60	6000	3,2	SOHU 1204.. / XOHU 1204..	1,365.00	**25013** [1]		
A271.250.R.21-12	250	263	21	6.8	63	132	60	6000	3,2	SOHU 1204.. / XOHU 1204..			1,603.63	**25021** [1]

1) Without Through Coolant

MaxiMill – A 271-12 HFC Face mill







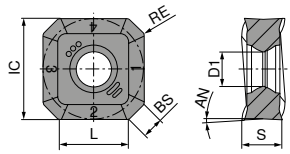
NEW

Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	50 788 ... £ 2B/40	
A271.50.R.04-12-HFC	50	4	2.6	40	43	22	14600	3,2	SOHU 1204..	398.81	**05004**
A271.63.R.06-12-HFC	63	6	2.6	40	48	22	12500	3,2	SOHU 1204..	505.82	**06306**
A271.80.R.07-12-HFC	80	7	2.6	50	58	27	10800	3,2	SOHU 1204..	583.61	**08007**

Spare parts DC	TORX® blade 80 950 ... £ Y7		Clamping key - T 80 397 ... £ Y7		Key D 80 950 ... £ Y7		Power Screw 70 950 ... £ 2A/28		Molykote 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Torque screwdriver 80 950 ... £ Y7	
40 (5078704004)	7.02	**054**	5.02	**040**	12.65	**120**	11.92	**151**	4.18	**303**	2.99	**859**	192.38	**193**
50 - 250	7.02	**054**			12.65	**120**			4.18	**303**	2.99	**859**	192.38	**193**
50 (5078805004)	7.02	**054**	6.39	**050**	12.65	**120**	16.36	**154**	4.18	**303**	2.99	**859**	192.38	**193**

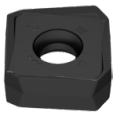
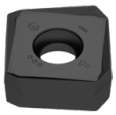
SOHU

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
SOHU 1204..	13.36	4.4	8.8	1.7	5.00	7.4

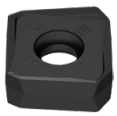
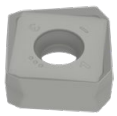


SOHU

SOHU

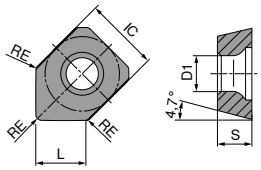
		NEW	NEW	NEW	NEW	NEW	NEW
		-M50 CTCP230	-M50 CTPP235	-M50 CTCM235	-M50 CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SOHU	SOHU	SOHU	SOHU	SOHU	SOHU
		51 138 ...	51 138 ...	51 138 ...	51 138 ...	51 140 ...	51 140 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
1204ABSR	0.8	24.61 02000	24.61 12000	24.61 32000	24.61 42000	30.26 47000	30.26 92001
P		●	●	●	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

SOHU

		NEW	NEW	NEW	NEW
		-R50 CTCK215	-R50 CTPK220	-F40 CTC5240	-F50 CTC5240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SOHU	SOHU	SOHU	SOHU
		51 139 ...	51 139 ...	51 148 ...	51 140 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1H/17	£ 17
1204ABSR	0.8	24.61 52000	24.61 62000	30.26 12001	30.26 17000
P					
M					
K		●	●		
N					
S				●	●
H					
O					

XOHU

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XOHU 1204..	13.36	4.4	8.8	1.83	5.00



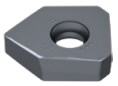
XOHU

XOHU

NEW

-M50
CTPP235

DRAGONSKIN


XOHU

51 141 ...

ISO	RE mm	£ 1B/61	
1204ABSR	0.8	30.46	**12000**

P	●
M	○
K	○
N	
S	
H	
O	

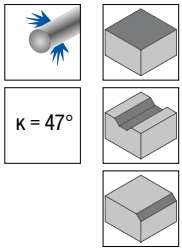
Milling guide

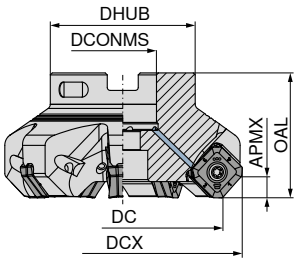
Cutting data standard values	→ 141–144	Starting Parameter	→ 149
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

15

MaxiMill – A 271 Face mill

▲ 8 cutting edges per insert







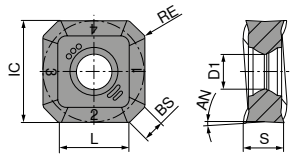
ISO designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	£ 2B/40	50 767 ...
A271.50.R.04-17	50	66.1	4	8.4	40	22	43	5	SAKU 1706	379.63	**050**
A271.63.R.06-17	63	79.1	6	8.4	40	22	48	5	SAKU 1706	533.49	**063**
A271.80.R.07-17	80	96.1	7	8.4	50	27	58	5	SAKU 1706	610.43	**080**
A271.100.R.08-17	100	116.1	8	6.8	50	32	78	5	SAKU 1706	702.83	**100**
A271.125.R.10-17	125	141.1	10	8.4	63	40	88	5	SAKU 1706	810.41	**125**
A271.160.R.12-17	160	176.1	12	8.4	63	40	104	5	SAKU 1706	954.17	**16000**[1]
A271.200.R.13-17	200	216.1	13	8.4	63	60	134	5	SAKU 1706	1,179.82	**20000**[2]
A271.250.R.15-17	250	266.1	15	8.4	63	60	134	5	SAKU 1706	1,426.09	**25000**[2]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant

	TORX® blade		Key D		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		**80 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£	
DC	Y7		Y7		2A/28		2A/28		Y7	
50 - 250	7.02	**037**	13.77	**114**	4.18	**303**	3.91	**302**	192.38	**193**

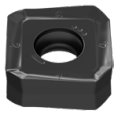
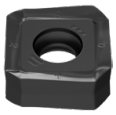
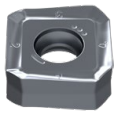
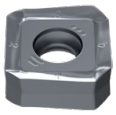
SAKU

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
SAKU 1706..	17	5.8	11.85	3.7	6.35	3



SAKU

SAKU

		-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
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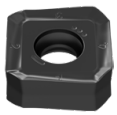
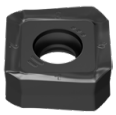
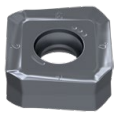
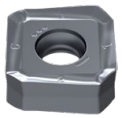
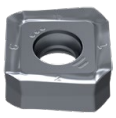
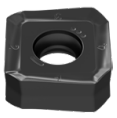
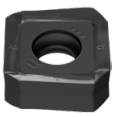
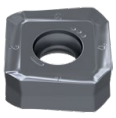
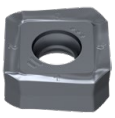
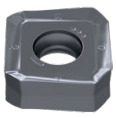
		51 004 ...	51 005 ...	51 004 ...	51 005 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
1706ABSR	0.8	27.80 270	27.80 270	27.80 070	27.80 070
P		●	●	●	●
M					
K					
N					
S					
H					
O					

SAKU

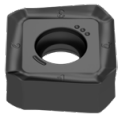
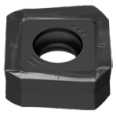
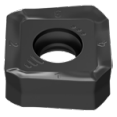
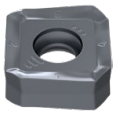
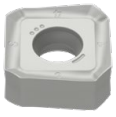
		-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SAKU	SAKU	SAKU	SAKU
		51 004 ...	51 005 ...	51 004 ...	51 005 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
1706ABSR	0.8	27.80 020	27.80 020	27.80 120	27.80 120
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

15

SAKU

		-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-M50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		SAKU	SAKU	SAKU	SAKU	SAKU	SAKU	SAKU
		51 004 ...	51 005 ...	51 004 ...	51 005 ...	51 004 ...	51 005 ...	51 004 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17
1706ABSR	0.8	27.80 220	27.80 220	27.80 320	27.80 320	27.80 420	27.80 420	34.21 470
P		●	●	●	●	○	○	●
M		●	●	●	●	●	●	●
K								
N								
S								
H								
O								

SAKU

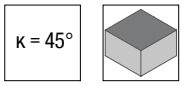
		NEW						
		-F50 CTCM245	-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-R50 CTPK220	-F50 CTC5240	-F50 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		SAKU	SAKU	SAKU	SAKU	SAKU	SAKU	SAKU
		51 004 ...	51 005 ...	51 058 ...	51 005 ...	51 058 ...	50 306 ...	51 004 ...
ISO	RE mm	£ 1H/17	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 17	£ 17
1706ABSR	0.8	34.21 92001	27.80 520	27.80 520	27.80 620	27.80 620	34.21 520	34.21 570
Steel		●	○	○	○	○		
Stainless steel		●						
Cast iron			●	●	●	●		
Non ferrous metals								
Heat resistant alloys		●					●	●
Hardened materials								

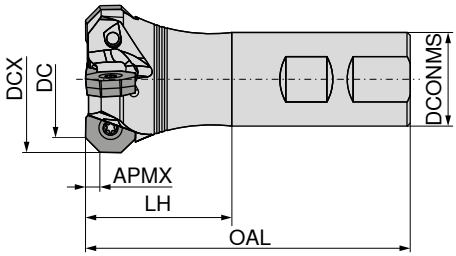
Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 149
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

MaxiMill – End milling cutter C 273

▲ 16 cutting edges per insert





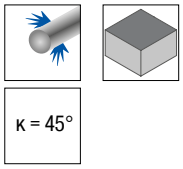


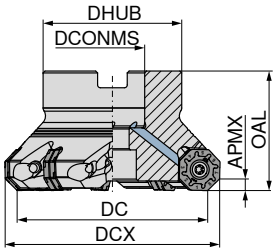
B

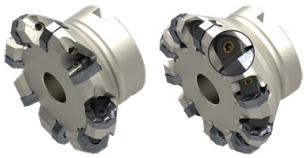
Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS h6 mm	LH mm	OAL mm	torque moment Nm	Insert	50 762 ... £ 2B/40	
C273.32.R.03-06-B-40	32	42.1	3	3.5	32	40	101	5	OAKU / XAHT 0605	369.51	032
C273.40.R.04-06-B32-50	40	50.1	4	3.5	32	50	111	5	OAKU / XAHT 0605	381.82	040

MaxiMill – Shell mill A 273

▲ 16 cutting edges per insert







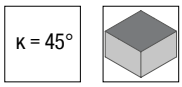
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	50 741 ... £ 2B/40		50 741 ... £ 2B/40	
A273.40.R.04-06	40	50.2	3	3.5	40	16	38	5	OAKU / XAHT 0605	364.07	040		
A273.40.R.04-06	40	50.2	4	3.5	40	16	38	5	OAKU / XAHT 0605	381.82	140 5)		
A273.50.R.05-06	50	60.2	5	3.5	40	22	43	5	OAKU / XAHT 0605	428.12	050		
A273.63.R.07-06	63	73.2	7	3.5	40	22	48	5	OAKU / XAHT 0605	513.92	063		
A273.80.R.08-06	80	90.2	8	3.5	50	27	58	5	OAKU / XAHT 0605	599.55	080		
A273.80.R.10-06	80	90.2	10	3.5	50	27	58	5	OAKU / XAHT 0605			913.59	180 1)
A273.100.R.10-06	100	110.2	10	3.5	50	32	78	5	OAKU / XAHT 0605	706.65	100		
A273.100.R.14-06	100	110.2	14	3.5	50	32	78	5	OAKU / XAHT 0605			1,167.41	200 1)
A273.125.R.12-06	125	135.2	12	3.5	63	40	88	5	OAKU / XAHT 0605	792.28	125		
A273.125.R.17-06	125	135.2	17	3.5	63	40	88	5	OAKU / XAHT 0605			1,354.50	225 1)
A273.160.R.14-06	160	170.2	14	3.5	63	40	104	5	OAKU / XAHT 0605	939.17	160 4)		
A273.160.R.20-06	160	170.2	20	3.5	63	40	104	5	OAKU / XAHT 0605			1,602.68	260 2)
A273.200.R.25-06	200	210.2	25	3.5	63	60	153	5	OAKU / XAHT 0605			2,003.59	300 3)
A273.250.R.31-06	250	260.2	31	3.5	63	60	153	5	OAKU / XAHT 0605			2,450.32	25031 3)

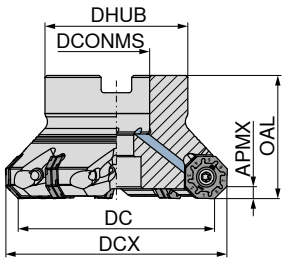
1) Version with Wedge, without internal coolant supply
2) Version with Wedge, without internal coolant supply / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
3) Version with Wedge, without internal coolant supply / With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant
4) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
5) Without Through Coolant

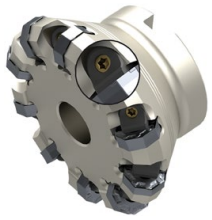
	TORX® blade	 Clamping key - T	 Clamping wedge screw	 Clamping wedge Face mill	 Key D	 Power Screw	 Clamping screw	 Torque screwdriver
	80 950 ...	80 397 ...	70 950 ...	70 950 ...	80 950 ...	70 950 ...	70 950 ...	80 950 ...
Spare parts	£	£	£	£	£	£	£	£
DC	Y7	Y7	2A/28	2A/28	Y7	2A/28	2A/28	Y7
40	7.02 037	5.02 040			13.77 114	11.92 151	3.91 302	192.38 193
50	7.02 037	6.39 050			13.77 114	16.36 154	3.91 302	192.38 193
63 - 80	7.02 037				13.77 114		3.91 302	192.38 193
80 - 100	7.02 036		5.63 844	22.48 845	12.87 113			192.38 193
100 - 125	7.02 037				13.77 114		3.91 302	192.38 193
125	7.02 036		5.63 844	22.48 845	12.87 113			192.38 193
160	7.02 037				13.77 114		3.91 302	192.38 193
160 - 250	7.02 036		5.63 844	22.48 845	12.87 113			192.38 193

MaxiMill – Shell mill A 273

- 16 cutting edges per indexable insert
- Axially adjustable







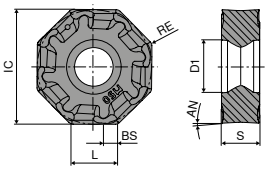
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	torque moment Nm	Insert	50 777 ... £ 2B/40	
A273.80.R.10A10-06	80	90.2	10	3.5	50	27	58	5	OAKU / XAHT 0605	1,200.82	**08010**[1]
A273.100.R.14A14-06	100	110.2	14	3.5	50	32	78	5	OAKU / XAHT 0605	1,635.13	**10014**[1]
A273.125.R.17A17-06	125	135.2	17	3.5	63	40	88	5	OAKU / XAHT 0605	1,922.46	**12517**[1]
A273.160.R.20A20-06	160	170.2	20	3.5	63	40	104	5	OAKU / XAHT 0605	2,269.91	**16020**[2]
A273.200.R.25A25-06	200	210.2	25	3.5	63	60	153	5	OAKU / XAHT 0605	2,838.82	**20025**[3]
A273.250.R.31A31-06	250	260.2	31	3.5	63	60	153	5	OAKU / XAHT 0605	3,486.00	**25031**[3]

1) Carbide version
2) Carbide version / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm
3) Carbide version / With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm

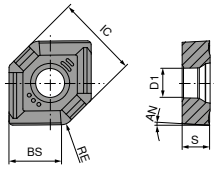
	TORX® blade		 Clamping wedge screw		 Clamping wedge Face mill		 Key D		 Molykote		 Wedge		 Torque screwdriver	
	80 950 ...		70 950 ...		70 950 ...		80 950 ...		70 950 ...		70 950 ...		80 950 ...	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		2A/28		2A/28		Y7		2A/28		2A/28		Y7	
80 - 250	7.02	**036**	5.63	**844**	22.48	**845**	12.87	**113**	4.18	**303**	35.12	**199**	192.38	**193**

OAKU / XAHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
XAHT 0605..	17.08	6.0	-	11.95	5.56	3
OAKU 0605..	17.10	5.8	6	2.00	5.66	3

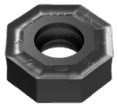
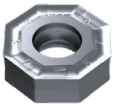


OAKU

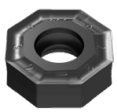
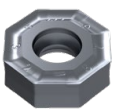


XAHT

OAKU

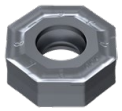
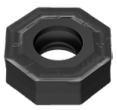
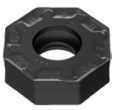
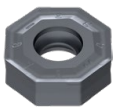
	-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	OAKU	OAKU	OAKU	OAKU
	51 000 ...	51 001 ...	51 000 ...	51 001 ...
	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
ISO RE mm				
060508SR 0.8	23.45 **258**	23.45 **258**	23.45 **058**	23.45 **058**
P	●	●	●	●
M				
K				
N				
S				
H				
O				

OAKU

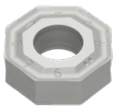
	-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	OAKU	OAKU	OAKU	OAKU
	51 000 ...	51 001 ...	51 000 ...	51 001 ...
	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
ISO RE mm				
060508SR 0.8	23.45 **008**	23.45 **008**	23.45 **108**	23.45 **108**
P	●	●	●	●
M			○	○
K	○	○	○	○
N				
S				
H				
O				

15

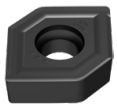
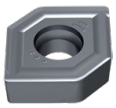
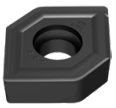
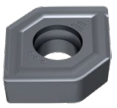
OAKU

		-F50 CTPM225		-M50 CTPM225		-F50 CTCM235		-M50 CTCM235		-F50 CTPM240		-M50 CTPM240		-F40 CTPM245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		OAKU		OAKU		OAKU		OAKU		OAKU		OAKU		OAKU	
		51 000 ...		51 001 ...		51 000 ...		51 001 ...		51 000 ...		51 001 ...		51 104 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1H/17	
060508ER	0.8													29.32	458
060508SR	0.8	23.45	208	23.45	208	23.45	308	23.45	308	23.45	408	23.45	408		
P		●		●		●		●		○		○		●	
M		●		●		●		●		●		●		●	
K															
N															
S															
H															
O															

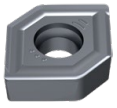
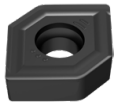
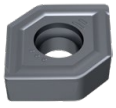
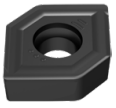
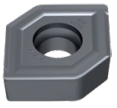
OAKU

		NEW -F40 CTCM245		-M50 CTCK215		-R50 CTCK215		-M50 CTPK220		-R50 CTPK220		-F40 CTC5240		-F40 CTCS245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		OAKU		OAKU		OAKU		OAKU		OAKU		OAKU		OAKU	
		51 104 ...		51 001 ...		51 027 ...		51 001 ...		51 027 ...		50 446 ...		51 104 ...	
ISO	RE mm	£ 1H/17		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 17		£ 1H/17	
060508ER	0.8	29.32	90801									29.32	550	29.32	50801
060508SR	0.8			23.45	508	23.45	508	23.45	608	23.45	608				
P		●													
M		●													
K				●		●		●		●					
N															
S		○										●		●	
H															
O															

XAHT

		-M50 CTCP220	-M50 CTPP225	-M50 CTCP230	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XAHT	XAHT	XAHT	XAHT
		51 014 ...	51 014 ...	51 014 ...	51 014 ...
		£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
ISO	RE mm	29.03	29.03	29.03	29.03
060525SR	2.5	275	075	025	125
P		●	●	●	●
M					○
K				○	○
N					
S					
H					
O					

XAHT

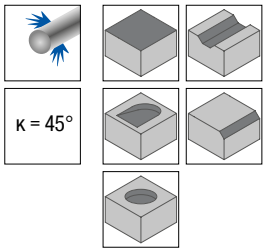
		-M50 CTPM225	-M50 CTCM235	-M50 CTPM240	-M50 CTCK215	-M50 CTPK220
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XAHT	XAHT	XAHT	XAHT	XAHT
		51 014 ...	51 014 ...	51 014 ...	51 014 ...	51 014 ...
		£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
ISO	RE mm	29.03	29.03	29.03	29.03	29.03
060525SR	2.5	225	325	425	525	625
P		●	●	○		
M		●	●	●		
K					●	●
N						
S						
H						
O						

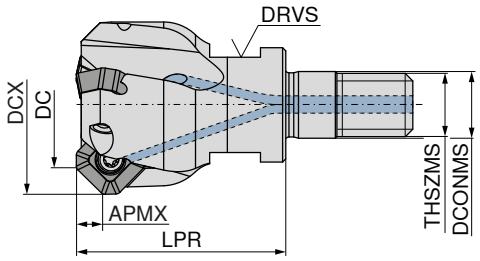
Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 150
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

15

MaxiMill – Screw in cutter 45° G 270-09



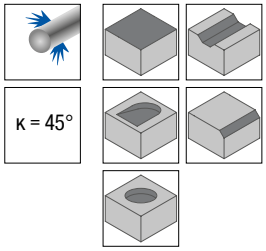


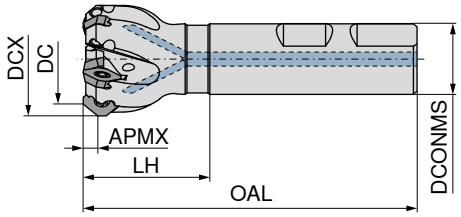


55 202 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	£ 2B	
G270.ESF.16.R.02-09	16	24.4	2	4	27	M8	8.5	10	1,8	SD.. 0903..	150.15	016
G270.ESF.20.R.03-09	20	28.4	3	4	33	M10	10.5	15	1,8	SD.. 0903..	176.12	020
G270.ESF.25.R.04-09	25	33.4	4	4	35	M12	12.5	17	1,8	SD.. 0903..	198.26	025
G270.ESF.32.R.05-09	32	40.4	5	4	35	M16	17.0	17	1,8	SD.. 0903..	218.12	032

MaxiMill – End milling cutter 45° C 270-09





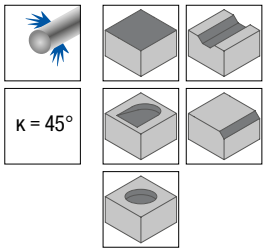


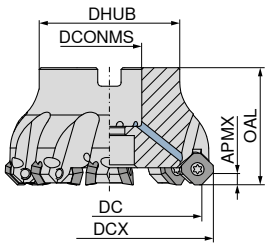
B

50 666 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	£ 2B/40	
C270.06.R.01-09	6	14.4	1	4	80	32	16	1,2	SD.. 0903..	129.62	006
C270.12.R.01-09	12	20.4	1	4	80	32	16	1,2	SD.. 0903..	143.18	012
C270.16.R.02-09	16	24.4	2	4	90	40	20	1,8	SD.. 0903..	163.03	016
C270.20.R.03-09	20	28.4	3	4	90	40	20	1,8	SD.. 0903..	207.43	020
C270.25.R.04-09	25	33.4	4	4	100	44	25	1,8	SD.. 0903..	293.91	025
C270.32.R.05-09	32	40.4	5	4	95	36	25	1,8	SD.. 0903..	345.73	032

MaxiMill – Shell mill 45° A 270-09







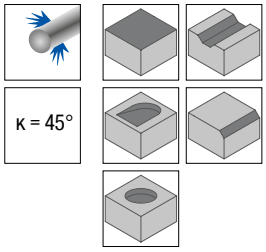
									right		right		right		left	
									50 704 ...		**50 705 ...**		**50 706 ...**		**50 707 ...**	
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	torque moment Nm	£ 2B/40		£ 2B/40		£ 2B/40		£ 2B	
A270.32.R.05-09	32	40.4	5	4	40	34	16	1,8					330.84	**532**		
A270.40.R.04-09	40	48.4	4	4	40	38	16	1,8			339.53	**540**				
A270.40.R.06-09	40	48.4	6	4	40	38	16	1,8					382.87	**540**		
A270.42.R.06-09	42	50.4	6	4	40	38	16	1,8					396.32	**542**		
A270.50.R.06-09	50	58.4	6	4	40	43	22	1,8			393.94	**550**				
A270.50.R.08-09	50	58.4	8	4	40	43	22	1,8					471.73	**550**		
A270.50.L.08-09	50	58.4	8	4	40	43	22	1,8							488.44	**550**
A270.52.R.08-09	52	60.4	8	4	40	43	22	1,8					488.44	**552**		
A270.63.R.05-09	63	71.4	5	4	40	48	22	1,8	382.87	**563**						
A270.63.R.08-09	63	71.4	8	4	40	48	22	1,8			477.84	**563**				
A270.63.R.10-09	63	71.4	10	4	40	48	22	1,8					595.16	**563**		
A270.63.L.10-09	63	71.4	10	4	40	48	22	1,8							615.58	**563**
A270.66.R.10-09	66	74.4	10	4	40	48	22	1,8					615.58	**566**		
A270.80.R.06-09	80	88.4	6	4	50	58	27	1,8	433.37	**580**						
A270.80.R.10-09	80	88.4	10	4	50	58	27	1,8			603.75	**580**				
A270.80.R.12-09	80	88.4	12	4	50	58	27	1,8					716.01	**580**		
A270.80.L.12-09	80	88.4	12	4	50	58	27	1,8							740.72	**580**
A270.100.R.07-09	100	108.4	7	4	50	78	32	1,8	559.46	**600**						
A270.100.R.12-09	100	108.4	12	4	50	78	32	1,8			728.51	**600**				
A270.100.R.14-09	100	108.4	14	4	50	78	32	1,8					845.92	**600**		
A270.125.R.12-09	125	133.4	12	4	63	88	40	1,8			852.02	**625**				
A270.160.R.12-09	160	168.4	12	4	63	93	40	1,8	1,095.82	**660** [1)]						

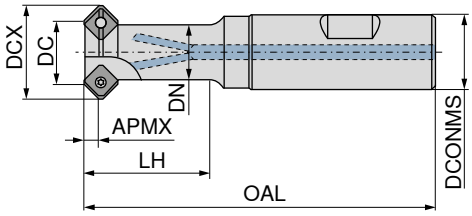
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

- ▲ 50 704 ... Open pitch for use on aluminum alloys, non-ferrous metals and plastics
- ▲ 50 705 ... Normal pitch for a broad spectrum of use on aluminum alloys, non-ferrous metals, and soft steel materials
- ▲ 50 706 ... Fine pitch for highest feed rates, predominantly used on steel and cast materials
- ▲ 50 707 ... As 50 706 ..., but **left hand** version

MaxiMill – Chamfer milling cutter C 272-09

▲ Usable on front and rear cutting edges







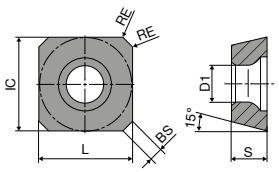
B

Designation	DC mm	DCX mm	ZNF	APMX mm	DN mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	50 669 ... £ 2B	
C272.06.R.01-09	6	14.4	1	4	10	91	24.0	16	1,2	SD.. 0903..	154.16	**006**
C272.08.R.01-09	8	16.4	1	4	10	91	25.5	16	1,2	SD.. 0903..	171.82	**008**
C272.12.R.01-09	12	20.4	1	4	12	91	26.0	16	1,2	SD.. 0903..	176.59	**012**
C272.16.R.02-09	16	24.4	2	4	15	97	30.0	20	1,8	SD.. 0903..	217.35	**016**
C272.18.R.02-09	18	26.4	2	4	16	97	30.0	20	1,8	SD.. 0903..	217.35	**018**
C272.25.R.03-09	25	33.4	3	4	21	109	35.0	25	1,8	SD.. 0903..	254.29	**025**

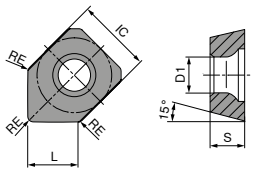
Spare parts	TORX® blade		Key D		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		**80 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
DC	£ Y7		£ Y7		£ 2A/28		£ 2A/28		£ Y7	
6 - 12	7.02	**033**	10.82	**110**	4.18	**303**	2.99	**365**	171.76	**191**
16 - 25	7.02	**033**	10.82	**110**	4.18	**303**	2.46	**115**	171.76	**191**

SDHW / SDNT / SDHT / XDHW

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDHW 0903..	9.52	3.4	5.50	1.68	3.18
SD.. 0903..	9.52	3.4	9.52	1.68	3.18



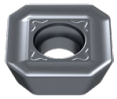
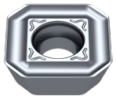
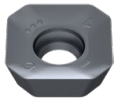
SD..



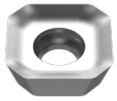
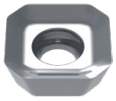
XDHW

SDHW / SDNT / SDHT

NEW

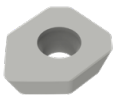
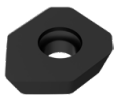
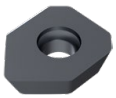
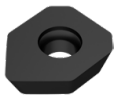
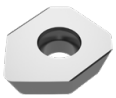
	TCM10	-29 CTCP230	-29 CTPP235	-33 CTPM240	-33P CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	CERMET SDHW	SDNT	SDNT	SDHT	SDHT	SDHT	SDHT
	50 428 ...	51 011 ...	51 011 ...	51 028 ...	51 086 ...	51 109 ...	51 109 ...
ISO / RE mm	£ 1B/79	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
0903AESN 1	15.25 898	13.17 020	13.17 120	15.05 420	15.83 420	18.71 470	18.71 92001
P	●	●	●	○	○	●	●
M			○	●	●	●	●
K	○	○	○				
N							
S							○
H							
O							

SDNT / SDHT

	-31 CTCK215	-27P H216T	-27P AMZ	-M31 CTC5240	-F50 CTCS245
	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN
					
	SDNT	SDHT	SDHT	SDHT	SDHT
	51 029 ...	50 426 ...	50 426 ...	50 421 ...	51 109 ...
ISO / RE mm	£ 1B/61	£ 1A/90	£ 1A/90	£ 17	£ 17
0903AEFN 1		15.05 548	18.04 848		
0903AESN 1	12.60 520			18.71 509	18.71 57100
P					
M					
K	●	○	○		
N		●	●		
S				●	●
H					
O		○	○		

15

XDHW

		TCM10	CTCP230	CTPP235	CTCK215	H216T
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
						
		CERMET				
		XDHW	XDHW	XDHW	XDHW	XDHW
		50 449 ...	51 015 ...	51 015 ...	51 015 ...	50 449 ...
ISO	RE mm	£ 1B/79	£ 1B/61	£ 1B/61	£ 1B/18	£ 1B/61
0903AEEN	1				17.90 **520**	
0903AEFN	1					15.83 **548**
0903AESN	1	16.53 **898**	18.51 **020**	18.51 **120**		
P		●	●	●		
M				○		
K		○	○	○	●	○
N						●
S						
H						
O						○

Milling guide

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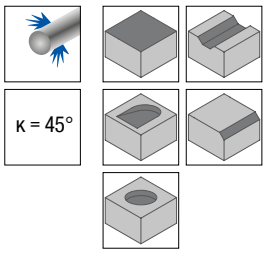
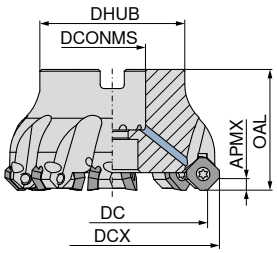
MaxiMill – Shell mill 45° A 270-12

- ▲ 50 705 ... Normal pitch for a broad spectrum of use on aluminum alloys, non-ferrous metals, up to soft steel materials
- ▲ 50 706 ... Predominantly fine pitch for highest feed rates, use on steel and cast materials







										50 705 ...		50 706 ...	
Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	OAL mm	DHUB mm	torque moment Nm	Insert	£ 2B/40		£ 2B/40	
A270.32.R.03-12	32	46	3	6	16	40	32	5	SD../XD.. 1204..	379.05	**032**		
A270.40.R.03-12	40	54	3	6	16	40	38	5	SD../XD.. 1204..	387.73	**040**		
A270.40.R.04-12	40	54	4	6	16	40	38	5	SD../XD.. 1204..			387.73	**040**
A270.50.R.04-12	50	64	4	6	22	40	43	5	SD../XD.. 1204..	438.32	**050**		
A270.50.R.05-12	50	64	5	6	22	40	43	5	SD../XD.. 1204..			438.32	**050**
A270.63.R.04-12	63	77	4	6	22	40	48	5	SD../XD.. 1204..	501.32	**063**		
A270.63.R.06-12	63	77	6	6	22	40	48	5	SD../XD.. 1204..			574.16	**063**
A270.80.R.05-12	80	94	5	6	27	50	58	5	SD../XD.. 1204..	581.61	**080**		
A270.80.R.08-12	80	94	8	6	27	50	58	5	SD../XD.. 1204..			716.01	**080**
A270.100.R.06-12	100	114	6	6	32	50	78	5	SD../XD.. 1204..	685.18	**100**		
A270.100.R.10-12	100	114	10	6	32	50	78	5	SD../XD.. 1204..			838.37	**100**
A270.125.R.07-12	125	139	7	6	40	63	88	5	SD../XD.. 1204..	837.13	**125**		
A270.125.R.12-12	125	139	12	6	40	63	88	5	SD../XD.. 1204..			1,132.09	**125**
A270.160.R.08-12	160	174	8	6	40	63	94	5	SD../XD.. 1204..	1,069.09	**160** [1]		

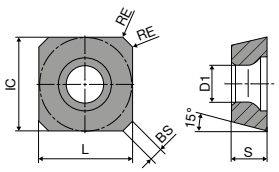
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

	TORX® blade		 Clamping key - T		 Key D		 Power Screw		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		Y7		Y7		2A/28		2A/28		2A/28		Y7	
32 - 40	7.02	**037**	5.02	**040**	13.77	**114**	11.92	**151**	4.18	**303**	2.99	**01200**	192.38	**193**
50 - 160	7.02	**037**			13.77	**114**			4.18	**303**	2.99	**01200**	192.38	**193**

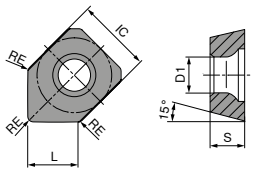
15

SDHT / SDHW / SDMT / XDHW

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDHW 1204..	12.7	5.5	7.5	1.74	4.76
SD.. 1204..	12.7	5.5	12.7	1.74	4.76



SD..

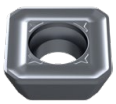


XDHW

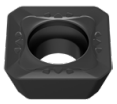
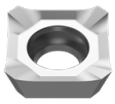
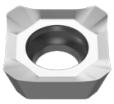
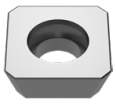
SDHT / SDHW / SDMT

	TCM10	-R TCM10	-29R CTCP230	-R CTCP230	CTCP230
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	CERMET SDHT	CERMET SDHW	SDMT	SDHT	SDHW
	50 426 ...	50 428 ...	51 010 ...	51 006 ...	51 008 ...
ISO / RE mm	£ 1B/79	£ 1B/79	£ 1B/61	£ 1B/61	£ 1B/61
1204AESN 0.2	16.41 900				
1204AESN 1.0		17.09 899	13.99 020	15.95 020	16.41 020
P	●	●	●	●	●
M					
K	○	○	○	○	○
N					
S					
H					
O					

SDMT / SDHT / SDHW

						NEW
	-29R CTPP235	-R CTPP235	-R CTPP235	-33 CTPM240	-F50 CTPM245	-F50 CTCM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	SDMT	SDHT	SDHW	SDHT	SDHT	SDHT
	51 010 ...	51 006 ...	51 008 ...	51 028 ...	51 109 ...	51 109 ...
ISO / RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
1204AESN 1	13.99 120	15.95 120	16.41 120	16.41 425	21.55 475	21.55 92501
P	●	●	●	○	●	●
M	○	○	○	●	●	●
K	○	○	○			
N						
S						○
H						
O						

SDMT / SDHW / SDHT

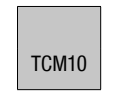
		-31 CTCK215 DRAGONSKIN		-R CTCK215 DRAGONSKIN		-27 H216T		-27P H216T		H216T	
											
		SDMT		SDHW		SDHT		SDHT		SDHW	
		51 059 ...		51 008 ...		50 426 ...		50 426 ...		50 428 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1A/90		£ 1A/90		£ 1B/61	
1204AEEN	1.0	13.63	520	16.41	520						
1204AEFN	0.2					16.41	504				
1204AEFN	1.0							16.41	554		
1204AESN	0.2									13.63	600
P											
M											
K		●		●		○		○		○	
N						●		●		●	
S											
H											
O						○		○		○	

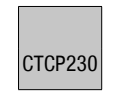
SDHT

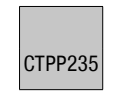
		-M31 CTC5240 DRAGONSKIN		-F50 CTCS245 DRAGONSKIN	
					
		SDHT		SDHT	
		50 421 ...		51 109 ...	
ISO	RE mm	£ 17		£ 17	
1204AESN	1	21.55	512	21.55	57600
P					
M					
K					
N					
S		●		●	
H					
O					

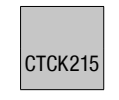
15

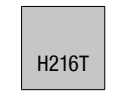
XDHW



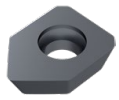
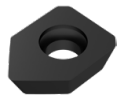
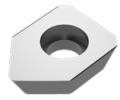








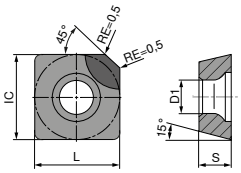


ISO	RE mm	CERMET XDHW 50 449 ... £ 1B/79		XDHW 51 015 ... £ 1B/61		XDHW 51 015 ... £ 1B/61		XDHW 51 015 ... £ 1B/61		XDHW 50 449 ... £ 1B/61	
1204AEEN	1							21.61	**525**		
1204AEFN	1									20.44	**600**
1204AESN	1	21.61	**900**	22.66	**025**	22.66	**125**				
P		●		●		●					
M						○					
K		○		○		○		●		○	
N										●	
S											
H											
O										○	

SDHW

Designation	IC mm	D1 mm	L mm	S mm
SDHW 1204..	12.7	5.5	12.7	4.76



SDHW

SDHW





ISO		DIAMOND SDHW 51 900 ... £ V9		CBN SDHW 51 900 ... £ V9	
1204AEFN-2		106.94	100 [1]		
1204AEFN-3		105.50	102 [2]		
1204AETN-2				82.29	300 [1]
P					
M					
K					●
N			●		
S					
H					○
O					

1) $a_{p\,max.}$ = 2.0 mm
2) $a_{p\,max.}$ = 3,5 mm

Milling guide

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Grade description and overview	→ 198–201		

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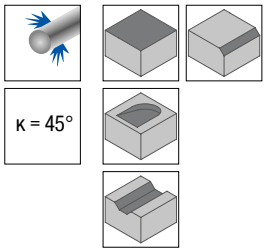
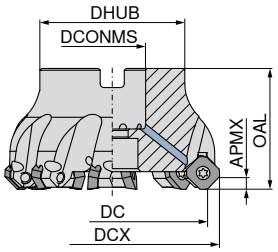
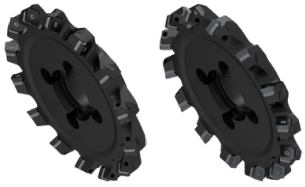
MaxiMill – Shell mill 45° A 270-19







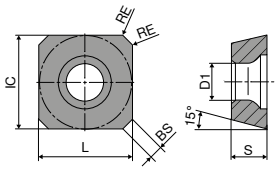
										Left-hand		Right-hand	
										50 698 ...		**50 698 ...**	
Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	OAL mm	DHUB mm	torque moment Nm	Insert	£ 2B/40		£ 2B/40	
A270.125.R.07-19	125	146.4	7	10	40	63	88	5	SD.. 1907..			750.75	**12507**
A270.160.R.09-19	160	181.4	9	10	40	63	104	5	SD.. 1907..			950.92	**16009** [1]
A270.200.R.11-19	200	221.1	11	10	60	63	134	5	SD.. 1907..			1,151.18	**20011** [2]
A270.250.L.14-19	250	271.4	14	10	60	63	134	5	SD.. 1907..	2,151.54	**75014** [2]		
A270.250.R.14-19	250	271.4	14	10	60	63	134	5	SD.. 1907..			2,151.54	**25014** [2]
A270.315.L.17-19	315	336.4	17	10	60	63	226	5	SD.. 1907..	2,548.63	**81517** [4]		
A270.315.R.17-19	315	336.4	17	10	60	63	226	5	SD.. 1907..			2,548.63	**31517** [3]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant
3) With 4 threaded holes M16 on the front face, pitch circle diameter = 101.6 mm and with 4 threaded holes M20 on the front face, pitch circle diameter = 177.8 mm / Without Through Coolant
4) With 4 threaded holes M16 on the front face, pitch circle diameter = 101.6 mm and with 4 threaded holes M20 on the front face, pitch circle diameter = 177.8 mm

	TORX® blade		 Key D		 Molykote		 Clamping screw		 Solid Carbide support S		 Threaded sleeve		 Torque screwdriver	
	80 950 ...		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		Y7		2A/28		2A/28		2A/28		2A/28		Y7	
125 - 315	7.02	**037**	13.77	**114**	4.18	**303**	3.91	**302**	12.21	**01500**	13.81	**01400**	192.38	**193**

SDKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
SDKT 1907..	19.15	6	19.15	1.5	7.35	15
SDKT 1907..	19.15	6	19.15	1.5	7.16	15



SD..

SDKT

		-M50 CTCP220	-R50 CTPP225	-R50 CTCP230	-M50 CTPP235	-R50 CTPP235	-R50 CTPM225	-R50 CTCK215
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		SDKT	SDKT	SDKT	SDKT	SDKT	SDKT	SDKT
		51 131 ...	**51 132 ...**	**51 132 ...**	**51 131 ...**	**51 132 ...**	**51 132 ...**	**51 132 ...**
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
1907AESN	1.6	29.62 **22001**	29.62 **07000**	29.62 **02100**	29.62 **12000**	29.62 **12300**	29.62 **22200**	29.62 **52000**
P		●	●	●	●	●	●	
M					○	○	●	
K				○	○	○		●
N								
S								
H								
O								

Milling guide

Cutting data standard values	→ 141–144	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

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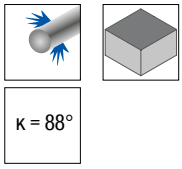
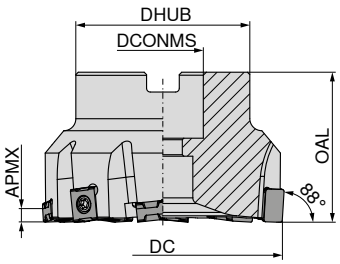
MaxiMill – Shell mill HEC 11

▲ not adjustable







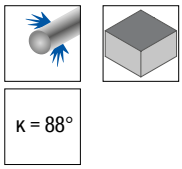
50 725 ...

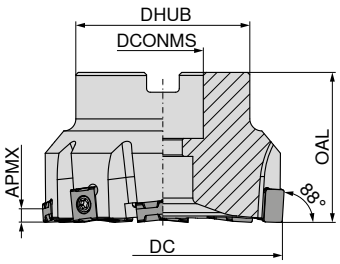
ISO designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
AHEC.50.R.06-11	50	6	6	40	48	22	12700	3,2	LNHX 1106	518.12	**050**
AHEC.63.R.08-11	63	8	6	40	48	22	10100	3,2	LNHX 1106	621.98	**063**
AHEC.80.R.10-11	80	10	6	50	58	27	8000	3,2	LNHX 1106	760.39	**080**
AHEC.100.R.12-11	100	12	6	50	78	32	6400	3,2	LNHX 1106	887.34	**100**
AHEC.125.R.12-11	125	12	6	63	88	40	5100	3,2	LNHX 1106	1,013.72	**125**
AHEC.125.R.16-11	125	16	6	63	88	40	5100	3,2	LNHX 1106	1,021.37	**12516**
AHEC.160.R.20-11	160	20	6	63	100	40	4000	3,2	LNHX 1106	1,488.13	**160** [1]

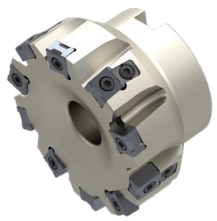
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

MaxiMill – Shell mill HEC 11

▲ Axially adjustable with same tooth pitch







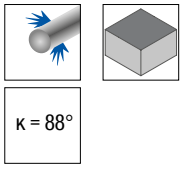
50 733 ...

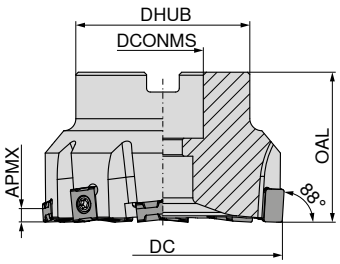
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
AHEC.50.R.06A03-11	50	6	6	40	48	22	12700	3,2	LNHX 1106	785.12	**050**
AHEC.63.R.08A04-11	63	8	6	40	48	22	10100	3,2	LNHX 1106	977.46	**063**
AHEC.80.R.10A05-11	80	10	6	50	58	27	8000	3,2	LNHX 1106	1,205.59	**080**
AHEC.100.R.12A06-11	100	12	6	50	78	32	6400	3,2	LNHX 1106	1,422.28	**100**
AHEC.125.R.16A08-11	125	16	6	63	88	40	5100	3,2	LNHX 1106	1,924.37	**125**
AHEC.160.R.20A10-11	160	20	6	63	100	40	4000	3,2	LNHX 1106	2,377.78	**160** [1]

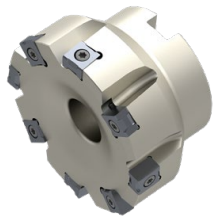
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

MaxiMill – Shell mill HEC 11

▲ with irregular pitch, non adjustable







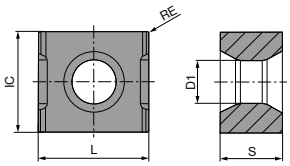
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 733 ... £ 2B/40	
AHEC.50.R.04B-11	50	4	6	40	48	22	12700	3,2	LNHX 1106	404.16	**550**
AHEC.63.R.06B-11	63	6	6	40	48	22	10100	3,2	LNHX 1106	502.28	**563**
AHEC.80.R.08B-11	80	8	6	50	58	27	8000	3,2	LNHX 1106	643.74	**580**
AHEC.100.R.10B-11	100	10	6	50	78	32	6400	3,2	LNHX 1106	827.40	**600**
AHEC.125.R.12B-11	125	12	6	63	88	40	5100	3,2	LNHX 1106	1,011.82	**625**
AHEC.160.R.14B-11	160	14	6	63	100	40	4000	3,2	LNHX 1106	1,256.18	**660** [1]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

	TORX® blade		Molykote		Coolant Disc		Clamping screw		Wedge		Torque screwdriver	
	80 950 ...		70 950 ...		70 950 ...		70 950 ...		70 950 ...		80 950 ...	
Spare parts	£		£		£		£		£		£	
DC	Y7		2A/28		2A/28		2A/28		2A/28		Y7	
50 - 63	7.02	**036**	4.18	**303**	24.03	**852**	2.99	**113**			192.38	**193**
80	7.02	**036**	4.18	**303**	24.56	**853**	2.99	**113**	35.12	**199**	192.38	**193**
100	7.02	**036**	4.18	**303**	27.04	**854**	2.99	**113**			192.38	**193**
125	7.02	**036**	4.18	**303**	35.64	**855**	2.99	**113**			192.38	**193**
160	7.02	**036**	4.18	**303**			2.99	**113**			192.38	**193**

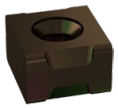
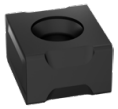
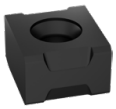
LNHX

Designation	IC mm	D1 mm	L mm	S mm
LNHX 1106..	10	4.27	11	6.35



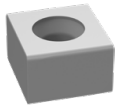
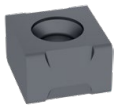
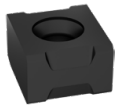
LNHX

LNHX

		CTEP210 DRAGONSKIN		CTCK215 DRAGONSKIN		-R50 CTCK215 DRAGONSKIN		-Q CTCK215 DRAGONSKIN	
									
		CERMET LNHX		LNHX		LNHX		LNHX	
		51 046 ...		51 046 ...		51 024 ...		51 045 ...	
ISO	RE mm	£ 1B/79		£ 1B/61		£ 1B/61		£ 1B/61	
1106PNER	0.5			24.73	520	24.73	520		
1106ZZER	0.5							24.73	520 1)
1106PNER	0.8	28.68	820						
110616EN	1.6			24.73	51600				
P		●							
M									
K		●		●		●		●	
N									
S									
H									
O									

1) -Q = Wiper insert

LNHX

		CTPK220		-R50 CTPK220		CTN3105		CTL3215		-Q CTL3215	
		DRAGONSKIN		DRAGONSKIN							
											
		LNHX		LNHX		CERAMIC LNHX		CBN LNHX		CBN LNHX	
		51 046 ...		51 024 ...		50 500 ...		51 046 ...		51 045 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1G/55		£ 1G/21		£ 1G/21	
110608EN	0.8			24.73	608						
1106PNER	0.5	24.73	620	24.73	620						
1106PNSR	0.5					23.31	904				
1106PNSR								136.22	87200		
1106ZZER										136.22	87000 [1]
P											
M											
K		●		●		●		●		●	
N											
S											
H								○		○	
O											

1) -Q = Wiper insert

Milling guide

Cutting data standard values	→ 141–144	Assembly instructions	→ 152
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

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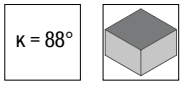
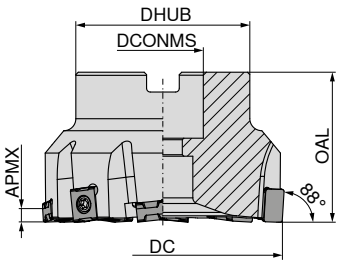
MaxiMill – Shell mill HEC 12

▲ not adjustable







Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 725 ... £ 2B/40	
AHEC.125.R.12-1210	125	12	8	63	88	40	5000	3,2	LN.. 1210..	1,013.72	**32512**
AHEC.160.R.16-1210	160	16	8	63	88	40	3900	3,2	LN.. 1210..	1,190.32	**36016** [1)]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant


Key D

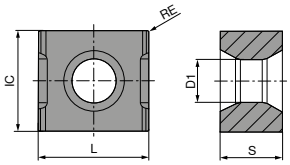

Coolant Disc


Clamping screw

Spare parts	Key D 80 950 ... £ Y7		Coolant Disc 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28	
DC						
125 - 160	9.83	**105**	35.64	**855**	3.91	**10800**

LNHX / LNEX

Designation	IC mm	D1 mm	L mm	S mm
LN.X 1210..	10	4.4	12.7	10.00



LNHX

LNHX / LNEX


CTCK215
LNHX


CTPK220
LNEX


-R50
CTPK220
LNHX

ISO	RE mm	51 135 ... £ 1B/61		51 133 ... £ 1B/61		51 134 ... £ 1B/61	
121008EN	0.8					30.91	**60800**
121008SN	0.8	30.91	**50900**				
121020EN	2.0			28.43	**62000**		
121020SN	2.0	30.91	**52100**				
P							
M							
K		●		●		●	
N							
S							
H							
O							

Milling guide

Cutting data standard values	→ 141–144	Assembly instructions	→ 152
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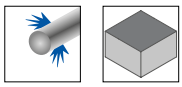
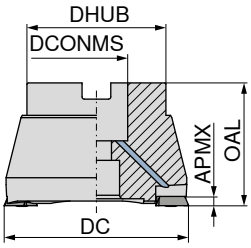
Grade description and overview	→ 198–201		

Finishing cutter F 5000 A

- With µm-adjustable inserts
- Adjust with screw (56 950 017) and set with Torx 20 key (80 950 114)







ISO designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	56 511 ... £ WA	
F5000A.42.2.43.IK	42	2	0.2	43	16	35	3,2	TEHX 16T3..	502.44	**421**
F5000A.52.2.43.IK	52	2	0.2	43	22	48	3,2	TEHX 16T3..	605.05	**521**
F5000A.66.2.53.IK	66	2	0.2	53	27	60	3,2	TEHX 16T3..	707.64	**661**
F5000A.80.2.53.IK	80	2	0.2	53	27	60	3,2	TEHX 16T3..	810.10	**801**
F5000A.100.2.53	100	2	0.2	53	32	70	3,2	TEHX 16T3..	912.66	**910** 1)

1) Without Through Coolant

	TORX® blade		 Key-T		 Key D		 Power Screw		 Axial runout adjustment screw		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		**80 950 ...**		**80 950 ...**		**56 950 ...**		**56 950 ...**		**70 950 ...**		**56 950 ...**		**80 950 ...**	
Spare parts DC	£ Y7		£ Y7		£ Y7		£ WA		£ WA		£ 2A/28		£ WA		£ Y7	
42	7.02	**036**	7.34	**088**	13.77	**114**	45.32	**121**	5.82	**017**	4.18	**303**	6.07	**028**	192.38	**193**
52	7.02	**036**	7.34	**088**	12.87	**113**			5.82	**017**	4.18	**303**	6.07	**028**	192.38	**193**
66	7.02	**036**	7.34	**088**	12.87	**113**			5.82	**017**	4.18	**303**	6.07	**028**	192.38	**193**
80	7.02	**036**	7.34	**088**	12.87	**113**			5.82	**017**	4.18	**303**	6.07	**028**	192.38	**193**
100	7.02	**036**	7.34	**088**	12.87	**113**	45.32	**121**	5.82	**017**	4.18	**303**	6.07	**028**	192.38	**193**

Description of article

- Tightening torque of the indexable insert clamping screw 56 950 028 is 3.2 Nm.
- This tool produces surfaces with excellent surface quality Rz ≤ 2.5 µm with high axial run-out precision.
- The two precision adjustment screws make adjustment to µm accuracy possible.
- Additional grinding is therefore avoided, so machining time and costs are reduced.
- The tool is also well-suited for unstable workpieces and low power machines.

The screws for the adjustment of the axial run-out are mounted on every milling cutter and have to be tightened to a preset value. Otherwise there is the danger that the screws loosen during the machining operation. This can result in damage of the workpiece or tool and also cause danger for the machine operator. Should the screws for fine adjustment not be needed we recommend to remove them from the tool.

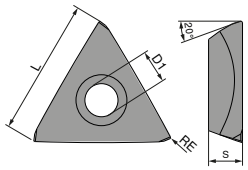
Material	v_c m/min	f_z mm	a_p mm
Steel	150–250*)	0,5–2	0,05–0,2
Cast iron	150–250*)	0,5–2	0,05–0,2
Hardened materials ≤ 56 HRC	35–200*)	0,2–1	0,05–0,1

*) Depending on the machining and structural state of the processed workpiece.

15

TEHX

Designation	L mm	S mm	D1 mm
TEHX 16T3..	14.32	4.00	3.9



TEHX





TEHX

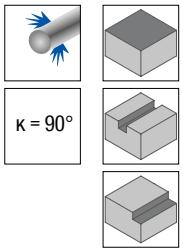
56 327 ...

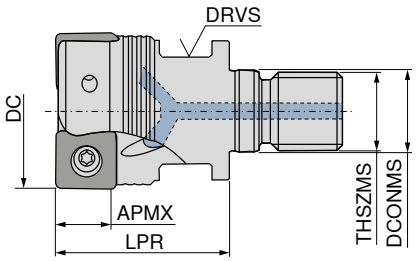
ISO	RE mm	£ WB	
16T3ZF	0.2	30.22	**151**
P			●
M			●
K			●
N			
S			
H			●
O			

Milling guide

Cutting data standard values	→ 141–144	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Screw in cutter G 491

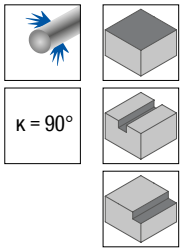


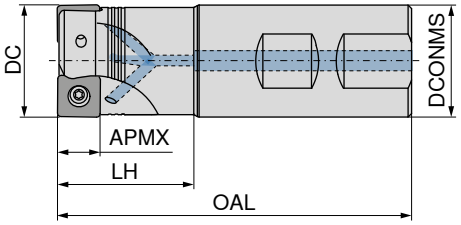




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 773 ... £ 2B/40	
G491.25.R.03-09	25	3	6	35	M12	12.5	17	2	SNHU 09T3	335.33	125
G491.32.R.03-09	32	3	6	35	M16	17.0	24	2	SNHU 09T3	340.39	132
G491.32.R.04-09	32	4	6	35	M16	17.0	24	2	SNHU 09T3	380.29	232

MaxiMill – End milling cutter C 491







Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	torque moment Nm	Insert	A 50 774 ... £ 2B/40		B 50 774 ... £ 2B/40	
C491.25.R.03-09-B-32	25	3	6	89	32	25	23500	2	SNHU 09T3			340.39	425
C491.25.R.03-09-A-50-225	25	3	6	225	50	25	23500	2	SNHU 09T3	340.39	325		
C491.32.R.03-09-B-40	32	3	6	101	40	32	19600	2	SNHU 09T3			350.32	632
C491.32.R.04-09-B-40	32	4	6	101	40	32	19600	2	SNHU 09T3			380.29	432
C491.32.R.03-09-A-63-250	32	3	6	250	63	32	19600	2	SNHU 09T3	350.32	532		
C491.32.R.04-09-A-63-250	32	4	6	250	63	32	19600	2	SNHU 09T3	380.29	332		

TORX® blade


Key D


Molykote

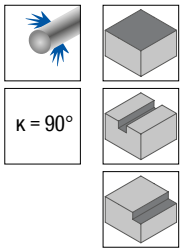

Clamping screw

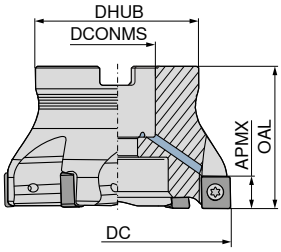

Torque screwdriver

Spare parts DC	80 950 ... £ Y7		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		80 950 ... £ Y7	
25 - 32	7.02	053	12.32	119	4.18	303	2.95	710	192.38	193
32	7.02	054	16.56	128	4.18	303	2.99	859	192.38	193

15

MaxiMill – Shell mill A 491





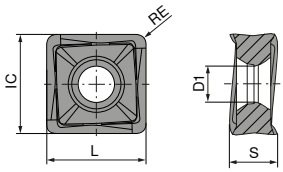


Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 776 ... £ 2B/40		50 775 ... £ 2B/40	
A491.40.R.03-09	40	3	6	40	38	16	16800	2	SNHU 09T3			370.27	240
A491.40.R.05-09	40	5	6	40	38	16	16800	2	SNHU 09T3	430.41	240		
A491.50.R.04-09	50	4	6	40	43	22	14600	2	SNHU 09T3			410.36	250
A491.50.R.06-09	50	6	6	40	43	22	14600	2	SNHU 09T3	470.40	250		
A491.63.R.05-09	63	5	6	40	48	22	12700	2	SNHU 09T3			490.44	263
A491.63.R.08-09	63	8	6	40	48	22	12700	2	SNHU 09T3	580.46	263		
A491.80.R.06-09	80	6	6	50	58	27	11100	2	SNHU 09T3			520.52	280
A491.80.R.10-09	80	10	6	50	58	27	11100	2	SNHU 09T3	640.59	280		
A491.100.R.07-09	100	7	6	50	78	32	9800	2	SNHU 09T3			660.54	300
A491.100.R.12-09	100	12	6	50	78	32	9800	2	SNHU 09T3	810.69	300		
A491.125.R.08-09	125	8	6	63	88	40	8700	2	SNHU 09T3			800.68	325
A491.125.R.15-09	125	15	6	63	88	40	8700	2	SNHU 09T3	981.28	325		

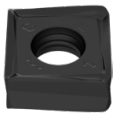
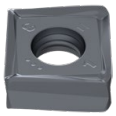
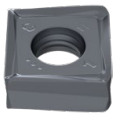
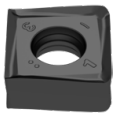
	TORX® blade		 Clamping key - T		 Key D		 Power Screw		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		80 397 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...		80 950 ...	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		Y7		Y7		2A/28		2A/28		2A/28		Y7	
40	7.02	053	5.02	040	12.32	119	11.92	151	4.18	303	2.95	710	192.38	193
50 - 125	7.02	053			12.32	119			4.18	303	2.95	710	192.38	193

SNHU

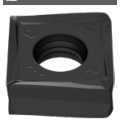
Designation	IC mm	L mm	S mm	D1 mm
SNHU 09T3..	9.15	9.15	3.70	3.85



SNHU

		-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245	NEW -F40 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SNHU	SNHU	SNHU	SNHU	SNHU	SNHU
		51 120 ...	51 120 ...	51 119 ...	51 120 ...	51 126 ...	51 126 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
09T308ER	0.8					26.21 45800	26.21 90801
09T308SR	0.8	20.95 008	20.95 108	20.95 408	20.95 408		
09T312SR	1.2	20.95 01200	20.95 11200	20.95 41200	20.95 41200		
09T316SR	1.6	20.95 01600	20.95 11600	20.95 41600	20.95 41600		
P		●	●	○	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

SNHU

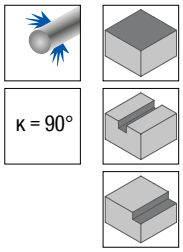
		-R50 CTCK215	NEW -R50 CTPK220	-F10 CTWN215	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN			DRAGONSKIN	DRAGONSKIN
						
		SNHU	SNHU	SNHU	SNHU	SNHU
		51 121 ...	51 121 ...	51 118 ...	51 126 ...	51 126 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 17	£ 17
09T308ER	0.8				26.21 15800	26.21 55800
09T308FR	0.8			20.95 358		
09T308SR	0.8	20.95 508	20.95 60800			
09T312FR	1.2			20.95 36200		
09T312SR	1.2	20.95 51200				
09T316FR	1.6			20.95 36600		
09T316SR	1.6	20.95 51600				
P						
M						
K		●	●	○		
N				●		
S					●	●
H						
O				○		

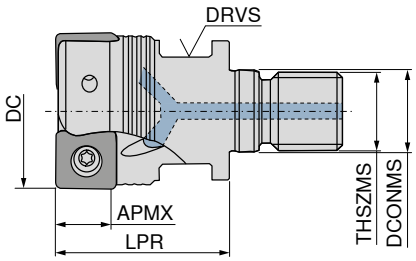
Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 154
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

15

MaxiMill – Screw in cutter G 491

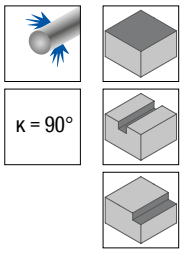


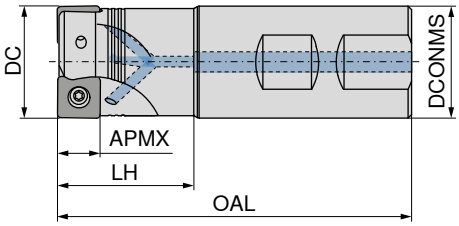




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 773 ... £ 2B/40	
G491.32.R.02-12	32	2	8	35	M16	17	24	3,2	SNHU 1204	320.34	032

MaxiMill – End milling cutter C 491









Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	torque moment Nm	Insert	A 50 774 ... £ 2B/40		B 50 774 ... £ 2B/40	
C491.32.R.02-12-B-40	32	2	8	102	40	32	13600	3,2	SNHU 1204			320.34	032
C491.32.R.02-12-A-63-250	32	2	8	250	63	32	10200	3,2	SNHU 1204	320.34	232		

TORX® blade


Key D

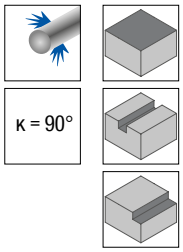

Molykote

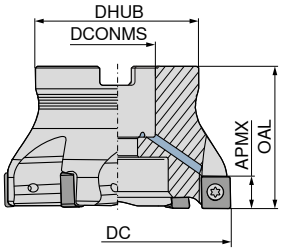

Clamping screw


Torque screwdriver

Spare parts DC	TORX® blade 80 950 ... £ Y7		Key D 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Torque screwdriver 80 950 ... £ Y7	
25 - 32	7.02	053	12.32	119	4.18	303	2.95	710	192.38	193
32	7.02	054	16.56	128	4.18	303	2.99	859	192.38	193

MaxiMill – Shell mill A 491







Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	50 776 ... £ 2B/40		50 775 ... £ 2B/40	
A491.40.R.03-12	40	3	8	40	38	16	11500	3,2	SNHU 1204			370.27	**040**
A491.40.R.04-12	40	4	8	40	38	16	11500	3,2	SNHU 1204	400.33	**040**		
A491.50.R.04-12	50	4	8	40	43	22	9800	3,2	SNHU 1204			410.36	**050**
A491.50.R.05-12	50	5	8	40	43	22	9800	3,2	SNHU 1204	440.42	**050**		
A491.63.R.05-12	63	5	8	40	48	22	8500	3,2	SNHU 1204			490.44	**063**
A491.63.R.06-12	63	6	8	40	48	22	8500	3,2	SNHU 1204	520.52	**063**		
A491.80.R.06-12	80	6	8	50	58	27	7400	3,2	SNHU 1204			520.52	**080**
A491.80.R.08-12	80	8	8	50	58	27	7400	3,2	SNHU 1204	600.51	**080**		
A491.100.R.07-12	100	7	8	50	78	32	6500	3,2	SNHU 1204			660.54	**100**
A491.100.R.10-12	100	10	8	50	78	32	6500	3,2	SNHU 1204	750.75	**100**		
A491.125.R.08-12	125	8	8	63	88	40	5700	3,2	SNHU 1204			800.68	**125**
A491.125.R.12-12	125	12	8	63	88	40	5700	3,2	SNHU 1204	920.85	**125**		
A491.160.R.09-12	160	9	8	63	98	40	5000	3,2	SNHU 1204			930.88	**160** 1)
A491.160.R.14-12	160	14	8	63	98	40	5000	3,2	SNHU 1204	1,081.50	**160** 1)		

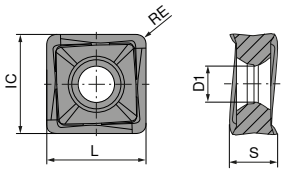
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

Spare parts	TORX® blade 80 950 ... £ Y7		 Clamping key - T 80 397 ... £ Y7		 Key D 80 950 ... £ Y7		 Power Screw 70 950 ... £ 2A/28		 Molykote 70 950 ... £ 2A/28		 Clamping screw 70 950 ... £ 2A/28		 Torque screwdriver 80 950 ... £ Y7	
DC														
40	7.02	**054**	5.02	**040**	16.56	**128**	11.92	**151**	4.18	**303**	2.99	**859**	192.38	**193**
50 - 160	7.02	**054**			16.56	**128**			4.18	**303**	2.99	**859**	192.38	**193**

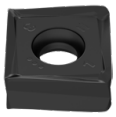
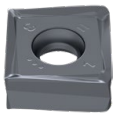
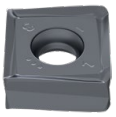
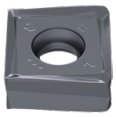
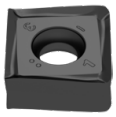
15

SNHU

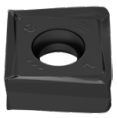
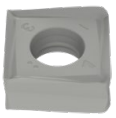
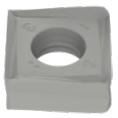
Designation	IC mm	L mm	S mm	D1 mm
SNHU 1204..	12.2	12.2	5.00	4.4



SNHU

		-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245	NEW -F40 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SNHU	SNHU	SNHU	SNHU	SNHU	SNHU
		51 100 ...	51 100 ...	51 102 ...	51 100 ...	51 128 ...	51 128 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
120408ER	0.8					31.47 45800	31.47 90801
120408SR	0.8	25.59 008	25.59 108	25.59 408	25.59 408		
120412SR	1.2		25.59 112	25.59 412			
120416SR	1.6		25.59 116	25.59 416			
120420SR	2.0		25.59 120	25.59 420			
P		●	●	○	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

SNHU

		-R50 CTCK215		-R50 CTPK220		-F10 CTWN215		-F40 CTC5240		-F40 CTCS245	
		DRAGONSKIN		DRAGONSKIN				DRAGONSKIN		DRAGONSKIN	
											
		SNHU		SNHU		SNHU		SNHU		SNHU	
		51 103 ...		51 103 ...		51 101 ...		51 128 ...		51 128 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 17		£ 17	
120408ER	0.8							31.47	15800	31.47	55800
120408FR	0.8					25.59	358				
120408SR	0.8	25.59	508	25.59	608						
120412FR	1.2					25.59	362				
120412SR	1.2	25.59	512								
120416FR	1.6					25.59	366				
120416SR	1.6	25.59	516								
120420FR	2.0					25.59	370				
120420SR	2.0	25.59	520								
P											
M											
K		●		●		○					
N						●					
S								●		●	
H											
O						○					

Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 154
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

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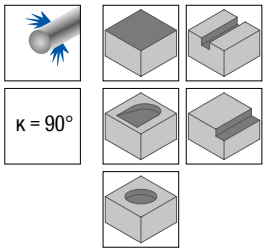
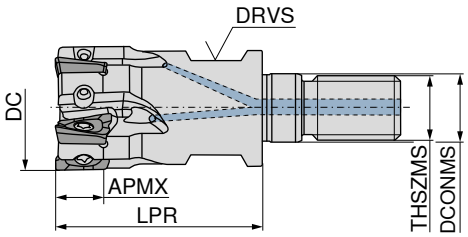
MaxiMill – Screw in cutter G 211-07

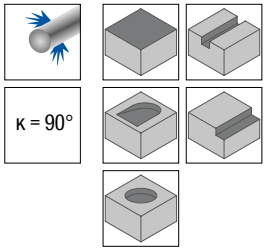


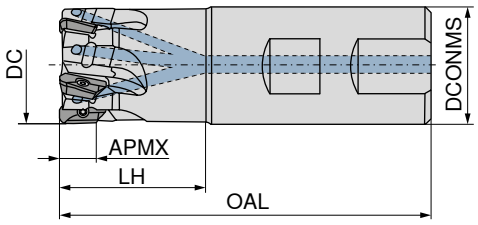




Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 751 ... £ 2B/40	
G211.16.R.04-07	16	4	6	27	8.5	M8	10	50400	1	XD.T 0703	255.82	016
G211.20.R.05-07	20	5	6	33	10.5	M10	15	44280	1	XD.T 0703	285.41	020
G211.25.R.06-07	25	6	6	35	12.5	M12	17	39480	1	XD.T 0703	332.94	025
G211.32.R.08-07	32	8	6	35	17.0	M16	24	36240	1	XD.T 0703	362.53	032

MaxiMill – End milling cutter C 211-07

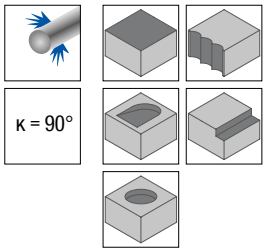


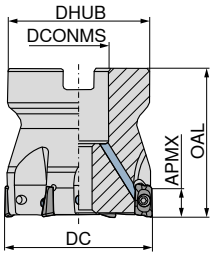


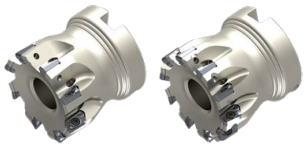


Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	RPMX 1/min.	torque moment Nm	Insert	A 50 752 ... £ 2B/40		B 50 752 ... £ 2B/40	
C211.10.R.01-07-A-20	10	1	6	61.0	20	10	72000	1	XD.T 0703	202.37	010		
C211.12.R.02-07-A-20	12	2	6	66.5	20	12	66600	1	XD.T 0703	231.96	012		
C211.16.R.04-07-A/B-25	16	4	6	74.5	25	16	50400	1	XD.T 0703	255.82	016	255.82	216
C211.16.R.03-07-A-32-165	16	3	6	165.0	32	16	17760	1	XD.T 0703	237.88	116		
C211.20.R.05-07-A/B-25	20	5	6	77.0	25	20	44280	1	XD.T 0703	285.41	020	285.41	220
C211.20.R.04-07-A-40-200	20	4	6	200.0	40	20	12600	1	XD.T 0703	267.56	120		
C211.25.R.06-07-A/B20-32	25	6	6	84.0	32	20	39840	1	XD.T 0703	332.94	025	332.94	225
C211.25.R.05-07-A20-50-225	25	5	6	225.0	50	20	11280	1	XD.T 0703	297.34	125		
C211.32.R.08-07-A/B25-40	32	8	6	98.0	40	25	36240	1	XD.T 0703	362.53	032	362.53	232

MaxiMill – Shell mill A 211-07







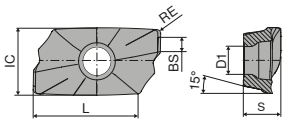
										50 753 ...		50 754 ...	
Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40		£ 2B/40	
A211.32.R.06-07	32	6	6	40	16	38	36240	1	XD.T 0703	303.45	**032**		
A211.32.R.08-07	32	8	6	40	16	38	36240	1	XD.T 0703			338.96	**032**
A211.40.R.08-07	40	8	6	40	16	38	33240	1	XD.T 0703	374.66	**040**		
A211.40.R.10-07	40	10	6	40	16	38	33240	1	XD.T 0703			410.36	**040**
A211.50.R.10-07	50	10	6	40	22	43	30480	1	XD.T 0703	445.97	**050**		
A211.50.R.12-07	50	12	6	40	22	43	30480	1	XD.T 0703			481.57	**050**

	TORX® blade		 Clamping key - T		 Key D		 Power Screw		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts DC	£ Y7		£ Y7		£ Y7		£ 2A/28		£ 2A/28		£ 2A/28		£ Y7	
10 - 32	7.02	**051**			14.16	**124**			4.18	**303**	3.03	**137**	171.76	**191**
32	7.02	**051**	5.02	**040**	14.16	**124**	11.92	**151**	4.18	**303**	3.03	**137**	171.76	**191**
40 - 50	7.02	**051**			14.16	**124**			4.18	**303**	3.03	**137**	171.76	**191**

15

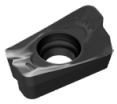
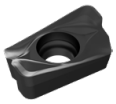
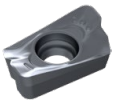
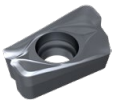
XDKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDKT 0703..	4.9	2.5	7.8	1.2	3.18



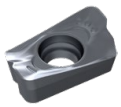
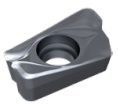
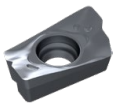
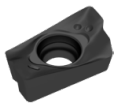
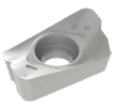
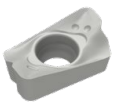
XDKT

XDKT

ISO	RE mm	-F50 CTCP230 DRAGONSKIN		-M50 CTCP230 DRAGONSKIN		-F50 CTPP235 DRAGONSKIN		-M50 CTPP235 DRAGONSKIN	
		 XDKT		 XDKT		 XDKT		 XDKT	
		51 033 ...		51 036 ...		51 033 ...		51 036 ...	
		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61	
070304SR	0.4	11.04	004	11.04	004	11.04	104	11.04	104
070308SR	0.8	11.04	008	11.04	008	11.04	108	11.04	108
P		●		●		●		●	
M						○		○	
K		○		○		○		○	
N									
S									
H									
O									

XDKT

NEW

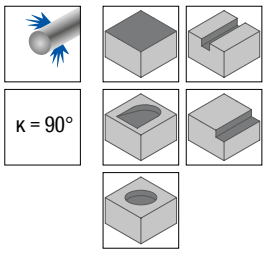
ISO	RE mm	-F50 CTPM240 DRAGONSKIN		-M50 CTPM240 DRAGONSKIN		-F40 CTPM245 DRAGONSKIN		-F40 CTCM245 DRAGONSKIN		-F20 CTWN215		-F40 CTC5240 DRAGONSKIN		-F40 CTCS245 DRAGONSKIN	
		 XDKT		 XDKT		 XDKT		 XDKT		 XDKT		 XDKT		 XDKT	
		51 033 ...		51 036 ...		51 112 ...		51 112 ...		50 507 ...		50 498 ...		51 112 ...	
		£ 1B/61		£ 1B/61		£ 1H/17		£ 1H/17		£ 1A/90		£ 17		£ 17	
070304ER	0.4					13.18	454	13.18	90401			13.18	544		
070304FR	0.4									12.71	504				
070304SR	0.4	11.04	404	11.04	404										
070308ER	0.8					13.18	458	13.18	90801			13.18	548	13.18	558
070308FR	0.8									12.71	508				
070308SR	0.8	11.04	408	11.04	408										
P		○		○		●		●							
M		●		●		●		●							
K										○					
N										●					
S								○				●		●	
H															
O										○					

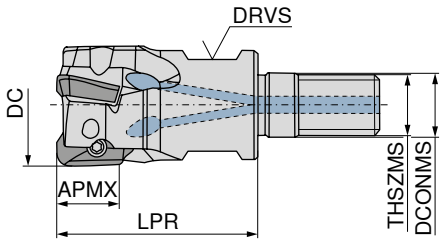
Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 155
Starting Parameter	→ 155	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Screw in cutter G 211-11

▲ Insert radius >1,6 mm: Modify cutter body



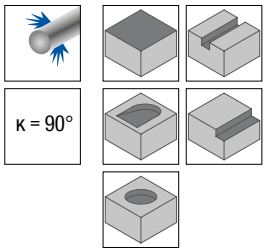


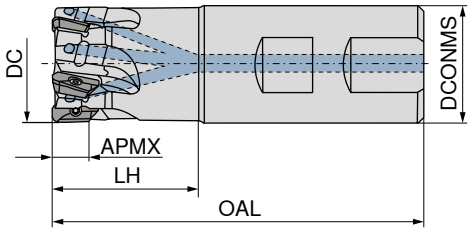


Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 736 ... £ 2B/40	
G211.16.R.02-11	16	2	10	27	8.5	M8	10	42000	1,6	XD.T 11T3	220.03	016
G211.20.R.03-11	20	3	10	33	10.5	M10	15	36900	1,6	XD.T 11T3	249.81	020
G211.25.R.03-11	25	3	10	35	12.5	M12	17	33200	1,6	XD.T 11T3	261.64	12500
G211.25.R.04-11	25	4	10	35	12.5	M12	17	33200	1,6	XD.T 11T3	279.58	025
G211.32.R.04-11	32	4	10	35	17.0	M16	24	30200	1,6	XD.T 11T3	291.43	13200
G211.32.R.05-11	32	5	10	35	17.0	M16	24	30200	1,6	XD.T 11T3	309.37	032
G211.40.R.06-11	40	6	10	35	17.0	M16	27	27700	1,6	XD.T 11T3	338.96	040

MaxiMill – End milling cutter C 211-11

▲ Insert radius >1,6 mm: Modify cutter body



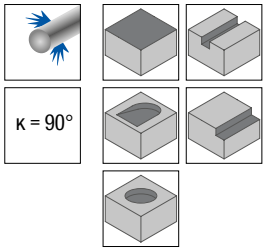


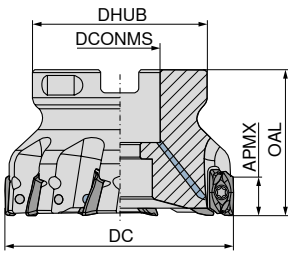


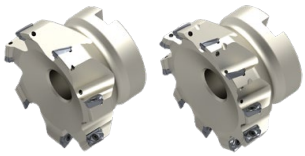
Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	torque moment Nm	Insert	A 50 737 ... £ 2B/40		B 50 737 ... £ 2B/40	
C211.12.R.01-11-B-20	12	1	10	75	20	16	55000	1,6	XD.T 11T3			196.26	012
C211.16.R.02-11-A/B-25	16	2	10	75	25	16	42000	1,6	XD.T 11T3	220.03	116	220.03	016
C211.16.R.02-11-A15-32-165	16	2	10	165	32	15	14800	1,6	XD.T 11T3	220.03	316		
C211.16.R.02-11-A-32-165	16	2	10	165	32	16	14800	1,6	XD.T 11T3	220.03	216		
C211.20.R.03-11-A-25	20	3	10	77	25	20	36900	1,6	XD.T 11T3	249.81	120		
C211.20.R.02-11-B-25	20	2	10	77	25	20	36900	1,6	XD.T 11T3			231.96	02002
C211.20.R.02-11-A-25	20	2	10	77	25	20	36900	1,6	XD.T 11T3	231.96	12002		
C211.20.R.03-11-B-25	20	3	10	77	25	20	36900	1,6	XD.T 11T3			249.81	020
C211.20.R.03-11-A-32-165	20	3	10	165	32	20	15800	1,6	XD.T 11T3	249.81	320		
C211.20.R.02-11-A-40-200	20	2	10	200	40	20	10500	1,6	XD.T 11T3	231.96	420		
C211.20.R.02-11-A19-40-200	20	2	10	200	40	19	10500	1,6	XD.T 11T3	231.96	620		
C211.25.R.03-11-A/B-32	25	3	10	90	32	25	33200	1,6	XD.T 11T3	261.73	625	261.73	725
C211.25.R.04-11-A/B-32	25	4	10	90	32	25	33200	1,6	XD.T 11T3	279.58	125	279.58	025
C211.25.R.04-11-A-40-165	25	4	10	165	40	25	19900	1,6	XD.T 11T3	279.58	325		
C211.25.R.03-11-A-50-225	25	3	10	225	50	25	9400	1,6	XD.T 11T3	261.73	425		
C211.25.R.02-11-A-50-225	25	2	10	225	50	25	9400	1,6	XD.T 11T3	243.98	02502		
C211.25.R.03-11-A24-50-225	25	3	10	225	50	24	9400	1,6	XD.T 11T3	261.73	825		
C211.32.R.04-11-A-40	32	4	10	102	40	32	30200	1,6	XD.T 11T3	291.43	13204		
C211.32.R.05-11-B25-40	32	5	10	102	40	25	30200	1,6	XD.T 11T3			309.37	73200
C211.32.R.04-11-B-25	32	4	10	102	40	32	30200	1,6	XD.T 11T3			291.43	83200
C211.32.R.04-11-A25-40	32	4	10	102	40	25	30200	1,6	XD.T 11T3	291.43	53204		
C211.32.R.05-11-A/B-40	32	5	10	102	40	32	30200	1,6	XD.T 11T3	309.37	132	309.37	032
C211.32.R.05-11-A-50-165	32	5	10	165	50	32	20900	1,6	XD.T 11T3	309.37	332		
C211.32.R.04-11-A-64-250	32	4	10	250	64	32	8500	1,6	XD.T 11T3	291.43	432		
C211.40.R.06-11-B32-50	40	6	10	110	50	32	27700	1,6	XD.T 11T3			338.96	04000
C211.40.R.06-11-B-50	40	6	10	122	50	40	27700	1,6	XD.T 11T3			338.96	14000

MaxiMill – Shell mill A 211-11

▲ Insert radius >1,6 mm: Modify cutter body





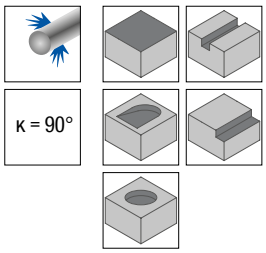


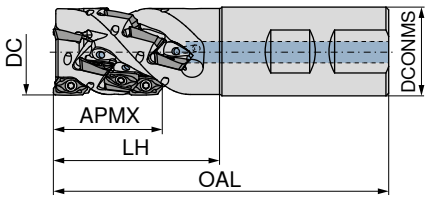
Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 738 ... £ 2B/40		50 739 ... £ 2B/40	
A211.40.R.04-11	40	4	10	40	16	38	27700	1,6	XD.T 11T3	303.45	**040**		
A211.40.R.06-11	40	6	10	40	16	38	27700	1,6	XD.T 11T3			338.96	**040**
A211.50.R.08-11	50	8	10	40	22	43	25400	1,6	XD.T 11T3			410.46	**050**
A211.50.R.05-11	50	5	10	40	22	43	25400	1,6	XD.T 11T3	356.81	**050**		
A211.63.R.10-11	63	10	10	40	22	48	23300	1,6	XD.T 11T3			481.76	**063**
A211.63.R.06-11	63	6	10	40	22	48	23300	1,6	XD.T 11T3	410.46	**063**		
A211.80.R.10-11	80	10	10	50	27	58	21300	1,6	XD.T 11T3			517.46	**180**
A211.80.R.07-11	80	7	10	50	27	58	21300	1,6	XD.T 11T3	464.01	**080**		
A211.80.R.12-11	80	12	10	50	27	58	21300	1,6	XD.T 11T3			553.16	**08012**
A211.100.R.08-11	100	8	10	50	32	78	19600	1,6	XD.T 11T3	517.46	**10000**		
A211.100.R.14-11	100	14	10	50	32	78	19600	1,6	XD.T 11T3			624.56	**10014**
A211.125.R.10-11	125	10	10	63	40	88	17900	1,6	XD.T 11T3	564.99	**12500**		

	TORX® blade		Clamping key - T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		Y7		Y7		2A/28		2A/28		2A/28		Y7	
12	7.02	**043**			14.16	**125**			4.18	**303**	2.46	**116**	171.76	**191**
16 - 32	7.02	**043**			14.16	**125**			4.18	**303**	3.91	**128**	171.76	**191**
40	7.02	**043**	5.02	**040**	14.16	**125**	11.92	**151**	4.18	**303**	3.91	**131**	171.76	**191**
50	7.02	**043**	6.39	**050**	14.16	**125**	16.36	**154**	4.18	**303**	3.91	**131**	171.76	**191**
63 - 125	7.02	**043**			14.16	**125**			4.18	**303**	3.91	**131**	171.76	**191**

MaxiMill – Shell end mill C 211-11KN

▲ ZEFP = Number of inserts
▲ ZNP = Number of teeth







NEW

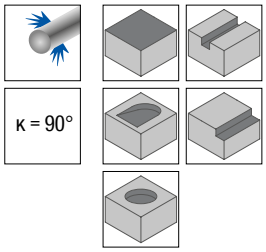
B

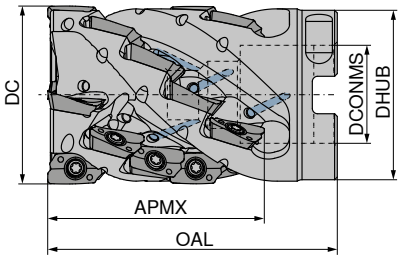
50 784 ...

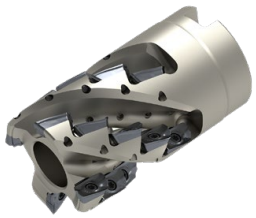
ISO designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	ZEFP	ZNP	torque moment Nm	Insert	£ 2B/40	
C211.25.R.02KN3-11-B-40	25	2	28	97	40	25	6	3	1,6	XD.T 11T3	606.43	02523
C211.25.R.02KN4-11-B-50	25	2	37	107	50	25	8	4	1,6	XD.T 11T3	642.02	02524
C211.25.R.02KN5-11-B-60	25	2	46	117	60	25	10	5	1,6	XD.T 11T3	684.79	02525
C211.32.R.02KN4-11-B-50	32	2	37	111	50	32	8	4	1,6	XD.T 11T3	665.12	03224
C211.32.R.03KN5-11-B-60	32	3	46	121	60	32	15	5	1,6	XD.T 11T3	802.48	03235
C211.40.R.03KN4-11-B32-50	40	3	37	111	50	32	12	4	1,6	XD.T 11T3	763.26	04034
C211.40.R.04KN5-11-B32-60	40	4	46	121	60	32	20	5	1,6	XD.T 11T3	920.18	04045

MaxiMill – Shell end mill A 211-11KN

▲ ZEFP = Number of inserts
▲ ZNP = Number of teeth







NEW

50 794 ...

ISO designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	£ 2B/40	
A211.40.R.03KN4-11	40	3	37	12	4	65	22	38	1,6	XD.T 11T3	763.26	04034
A211.40.R.04KN4-11	40	4	37	16	4	65	22	38	1,6	XD.T 11T3	834.47	04044
A211.40.R.04KN5-11	40	4	46	20	5	74	22	38	1,6	XD.T 11T3	920.18	04045
A211.50.R.04KN5-11	50	4	46	20	5	75	27	48	1,6	XD.T 11T3	1,006.09	05045
A211.50.R.05KN5-11	50	5	46	25	5	75	27	48	1,6	XD.T 11T3	1,095.82	05055
A211.50.R.05KN6-11	50	5	55	30	6	85	27	48	1,6	XD.T 11T3	1,200.82	05056


Cylindrical screw
70 950 ...

TORX® blade
80 950 ...

Key D
80 950 ...


Molykote
70 950 ...


Clamping screw
70 950 ...

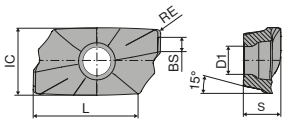

Socket head screw
70 950 ...

Torque screwdriver
80 950 ...

Spare parts Designation	£ 2A/28		£ Y7		£ Y7		£ 2A/28		£ 2A/28		£ 2A/28		£ Y7	
A211.40. KN4			7.02	043	14.16	125	4.18	303	6.77	20400	10.97	20900	171.76	191
A211.40. KN5			7.02	043	14.16	125	4.18	303	6.77	20400	10.97	21000	171.76	191
A211.50. KN5	10.97	002	7.02	043	14.16	125	4.18	303	6.77	20400	10.97	20600	171.76	191
A211.50. KN6	10.97	002	7.02	043	14.16	125	4.18	303	6.77	20400	10.97	20600	171.76	191
C211.25			7.02	043	14.16	125	4.18	303	6.77	20700			171.76	191
C211.32			7.02	043	14.16	125	4.18	303	6.77	20700			171.76	191
C211.40			7.02	043	14.16	125	4.18	303	6.77	20400			171.76	191

XDKT / XDHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XD.T 11T302..	6.8	2.8	10.6	2	3.80
XD.T 11T304..	6.8	2.8	10.6	1.8	3.80
XD.T 11T308..	6.8	2.8	10.6	1.4	3.80
XD.T 11T312..	6.8	2.8	10.6	1.4	3.80
XD.T 11T316..	6.8	2.8	10.6	1.4	3.80
XD.T 11T320..	6.8	2.8	10.6	1.4	3.80
XD.T 11T325..	6.8	2.8	10.6	1.4	3.80
XD.T 11T332..	6.8	2.8	10.6	0.8	3.80
XD.T 11T340..	6.8	2.8	10.6	-	3.80
XDHT 11T350..	6.8	2.8	10.6	-	3.80
XDKT 11T332..	6.8	2.8	10.6	1.4	3.80
XDKT 11T332..	6.8	2.8	10.6	-	3.80



XDKT

XDKT

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		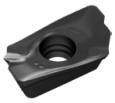	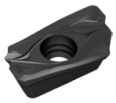	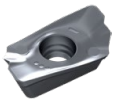	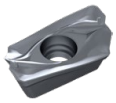
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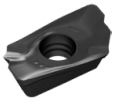
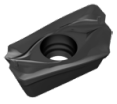
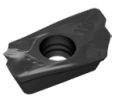
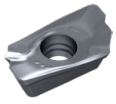
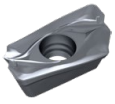
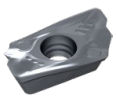
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
11T308SR	0.8	13.42 258	13.42 258	13.42 058	13.42 058
P		●	●	●	●
M					
K					
N					
S					
H					
O					

XDKT

		-F50 CTCP230	-M50 CTCP230	-R50 CTCP230	-F50 CTPP235	-M50 CTPP235	-R50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
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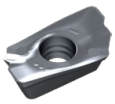
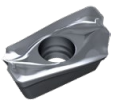
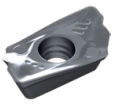
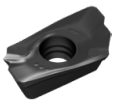
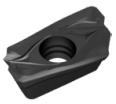
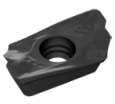
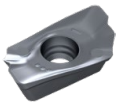
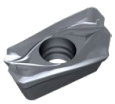
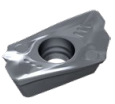
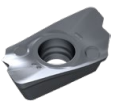
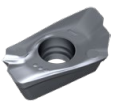
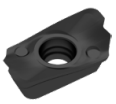
		51 034 ...	51 037 ...	51 039 ...	51 034 ...	51 037 ...	51 039 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
11T304SR	0.4	13.42 004	13.42 004	13.42 004	13.42 104	13.42 104	13.42 104
11T308SR	0.8	13.42 008	13.42 008	13.42 008	13.42 108	13.42 108	13.42 108
11T312SR	1.2		13.42 012			13.42 112	
11T320SR	2.0	13.42 020 1)	13.42 020 1)	13.42 020 1)	13.42 120 1)	13.42 120 1)	13.42 120 1)
11T325SR	2.5	13.42 025 1)	13.42 025 1)	13.42 025 1)	13.42 125 1)	13.42 125 1)	13.42 125 1)
11T332SR	3.2				13.42 13200 1)		
11T340SR	4.0				13.42 14000 1)		
P		●	●	●	●	●	●
M					○	○	○
K		○	○	○	○	○	○
N							
S							
H							
O							

1) Insert radius >1.6 mm: Modify cutter body

XDKT

		-F50 CTPM225	-M50 CTPM225	-R50 CTPM225	-F50 CTCM235	-M50 CTCM235	-R50 CTCM235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
		51 034 ...	51 037 ...	51 039 ...	51 034 ...	51 037 ...	51 039 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
11T308SR	0.8	13.42 208	13.42 208	13.42 208	13.42 308	13.42 308	13.42 308
P		●	●	●	●	●	●
M		●	●	●	●	●	●
K							
N							
S							
H							
O							

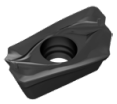
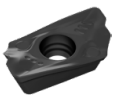
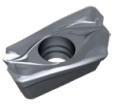
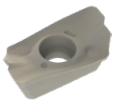
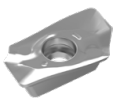
XDKT

		-F50 CTPM240	-M50 CTPM240	-R50 CTPM240	-F40 CTPM245	-F50 CTPM245	NEW -F40 CTCM245	NEW -F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
		51 034 ...	51 037 ...	51 039 ...	51 113 ...	51 034 ...	51 113 ...	51 034 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17	£ 1H/17	£ 1H/17
11T304ER	0.4				17.27 454		17.27 90401	
11T304SR	0.4		13.42 404					
11T308ER	0.8				17.27 458		17.27 90801	
11T308SR	0.8	13.42 408	13.42 408	13.42 408		17.27 458		17.27 90801
11T312ER	1.2				17.27 462		17.27 91201	
11T312SR	1.2	13.42 412	13.42 412	13.42 412				
11T316ER	1.6				17.27 466		17.27 91601	
11T320ER	2.0				17.27 470 1)		17.27 92001 1)	
11T320SR	2.0	13.42 420 1)	13.42 420 1)	13.42 420 1)				
11T325ER	2.5				17.27 475 1)		17.27 92501 1)	
11T332ER	3.2				17.27 482 1)		17.27 93201 1)	
11T332SR	3.2	13.42 432 1)	13.42 432 1)	13.42 432 1)				
11T340ER	4.0				17.27 490 1)		17.27 94001 1)	
P		○	○	○	●	●	●	●
M		●	●	●	●	●	●	●
K								
N								
S							○	○
H								
O								

1) Insert radius >1.6 mm: Modify cutter body

15

XDKT / XDHT

		-M50 CTCK215 DRAGONSKIN		-R50 CTCK215 DRAGONSKIN		-M50 CTPK220 DRAGONSKIN		-F20 CTWN215		-27P H216T	
											
		XDKT		XDKT		XDKT		XDKT		XDHT	
		51 037 ...		51 039 ...		51 037 ...		50 478 ...		50 477 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1A/90		£ 1A/90	
11T302FR	0.2							16.86	502	25.42	502
11T304FR	0.4							16.86	504	25.42	504
11T304SR	0.4	13.42	504								
11T308FR	0.8							16.86	508	25.42	508
11T308SR	0.8	13.42	508	13.42	508	13.42	608				
11T312FR	1.2									25.42	512
11T316FR	1.6									25.42	516
11T320FR	2.0							16.86	520 1)	25.42	520 1)
11T325FR	2.5							16.86	525 1)	25.42	525 1)
11T332FR	3.2									25.42	532 1)
11T340FR	4.0									25.42	540 1)
11T350FR	5.0									25.42	550 1)
P											
M											
K		●		●		●		○		○	
N								●		●	
S											
H											
O								○		○	

1) Insert radius >1.6 mm: Modify cutter body

XDKT

		-F40 CTC5240 DRAGONSKIN		-F40 CTCS245 DRAGONSKIN		-R60 CTP6215	
							
		XDKT		XDKT		XDKT	
		50 463 ...		51 113 ...		50 464 ...	
ISO	RE mm	£ 17		£ 17		£ 1B/61	
11T304ER	0.4	17.27	504				
11T308ER	0.8	17.27	500	17.27	558		
11T308SR	0.8					17.35	300
11T312ER	1.2	17.27	512	17.27	562		
11T316ER	1.6	17.27	516	17.27	566		
11T320ER	2.0	17.27	520 1)	17.27	570 1)		
11T325ER	2.5	17.27	525 1)	17.27	57500 1)		
11T332ER	3.2	17.27	532 1)	17.27	582 1)		
11T340ER	4.0	17.27	540 1)	17.27	59000 1)		
P							
M							
K						●	
N							
S		●		●			
H						●	
O							

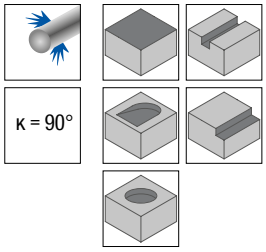
1) Insert radius >1.6 mm: Modify cutter body

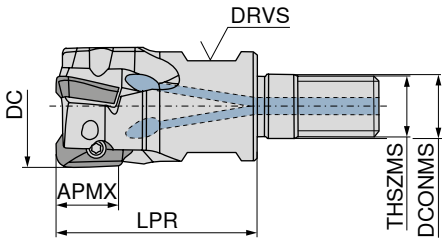
Milling guide

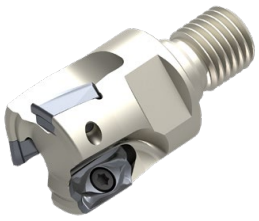
Cutting data standard values	→ 141–144	Machining strategy	→ 156
Starting Parameter	→ 156	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Screw in cutter G 211-15

▲ Insert radius >2,5 mm: Modify cutter body



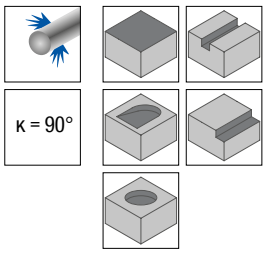


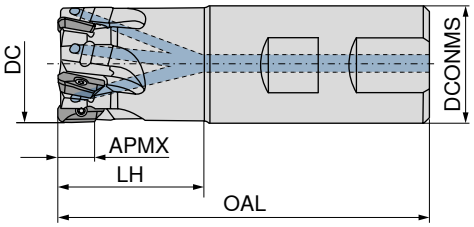


Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 746 ... £ 2B/40	
G211.25.R.02-15	25	2	14	35	12.5	M12	17	26560	3,2	XD.T 1505	252.67	025
G211.32.R.03-15	32	3	14	35	17.0	M16	24	30200	3,2	XD.T 1505	281.31	032
G211.40.R.04-15	40	4	14	40	17.0	M16	27	27700	3,2	XD.T 1505	310.22	040

MaxiMill – End milling cutter C 211-15

▲ Insert radius >2,5 mm: Modify cutter body





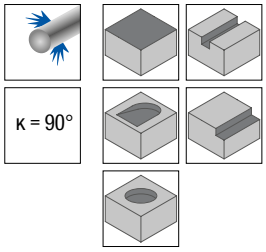


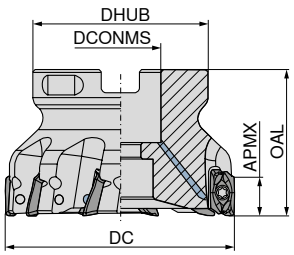
Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	RPMX 1/min.	torque moment Nm	Insert	A 50 747 ... £ 2B/40		B 50 747 ... £ 2B/40	
C211.25.R.02-15-B20-32	25	2	14	83	32	20	26560	3,2	XD.T 1505			252.67	125
C211.25.R.02-15-B/A-32	25	2	14	90	32	25	26560	3,2	XD.T 1505	252.67	225	252.67	025
C211.25.R.02-15-A-50-225	25	2	14	225	50	25	7520	3,2	XD.T 1505	235.48	325		
C211.32.R.03-15-B25-40	32	3	14	96	40	25	22160	3,2	XD.T 1505			281.31	132
C211.32.R.03-15-A-40	32	3	14	103	40	32	24160	3,2	XD.T 1505	281.31	232		
C211.32.R.03-15-B-40	32	3	14	103	40	32	24160	3,2	XD.T 1505			281.31	032
C211.32.R.03-15-A-63-250	32	3	14	250	63	32	6800	3,2	XD.T 1505	264.22	332		
C211.40.R.04-15-A-50	40	4	14	110	50	32	22160	3,2	XD.T 1505	310.22	240		
C211.40.R.04-15-B32-50	40	4	14	110	50	32	22160	3,2	XD.T 1505			310.22	040
C211.40.R.03-15-A-50-275	40	3	14	275	50	32	6120	3,2	XD.T 1505	292.76	340		

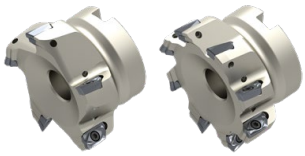
15

MaxiMill – Shell mill A 211-15

▲ Insert radius >2,5 mm: Modify cutter body







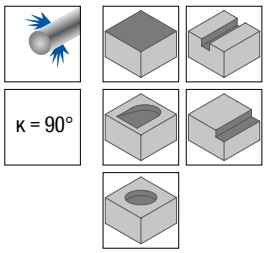
										50 748 ...		50 749 ...	
Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40		£ 2B/40	
A211.40.R.03-15	40	3	14	40	16	38	22160	3,2	XD.T 1505	275.68	**040**		
A211.40.R.04-15	40	4	14	40	16	38	22160	3,2	XD.T 1505			310.22	**040**
A211.50.R.03-15	50	3	14	40	22	43	20320	3,2	XD.T 1505	327.32	**050**		
A211.50.R.05-15	50	5	14	40	22	43	20320	3,2	XD.T 1505			361.78	**050**
A211.63.R.04-15	63	4	14	45	22	48	18640	3,2	XD.T 1505	396.13	**063**		
A211.63.R.06-15	63	6	14	45	22	48	18640	3,2	XD.T 1505			430.97	**063**
A211.80.R.05-15	80	5	14	50	27	58	17040	3,2	XD.T 1505	447.88	**080**		
A211.80.R.08-15	80	8	14	50	27	58	17040	3,2	XD.T 1505			482.23	**080**
A211.100.R.06-15	100	6	14	50	32	78	15680	3,2	XD.T 1505	499.71	**100**		
A211.100.R.10-15	100	10	14	50	32	78	15680	3,2	XD.T 1505			534.07	**100**
A211.125.R.07-15	125	7	14	63	40	88	14320	3,2	XD.T 1505	528.24	**125**		
A211.125.R.11-15	125	11	14	63	40	88	14320	3,2	XD.T 1505			562.71	**125**
A211.160.R.08-15	160	8	14	63	40	93	13200	3,2	XD.T 1505	740.06	**160** 1)		
A211.160.R.12-15	160	12	14	63	40	93	13200	3,2	XD.T 1505			774.52	**160** 1)

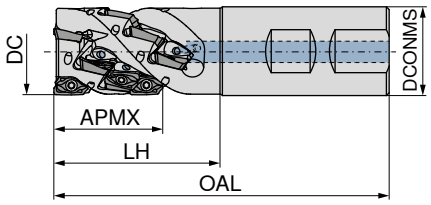
1) Without Through Coolant

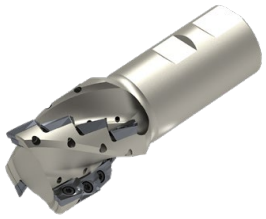
	TORX® blade		 Clamping key - T		 Key D		 Power Screw		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts DC	£ Y7		£ Y7		£ Y7		£ 2A/28		£ 2A/28		£ 2A/28		£ Y7	
25 - 32	7.02	**054**			16.56	**128**			4.18	**303**	3.03	**839**	192.38	**193**
40	7.02	**054**	5.02	**040**	16.56	**128**	11.92	**151**	4.18	**303**	3.03	**839**	192.38	**193**
50	7.02	**054**	6.39	**050**	16.56	**128**	16.36	**154**	4.18	**303**	3.03	**839**	192.38	**193**
63 - 160	7.02	**054**			16.56	**128**			4.18	**303**	3.03	**839**	192.38	**193**

MaxiMill – Shell end mill C 211-15KN

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows







NEW

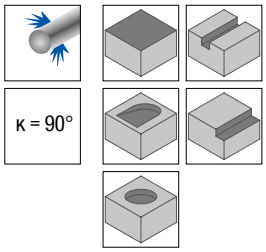
B

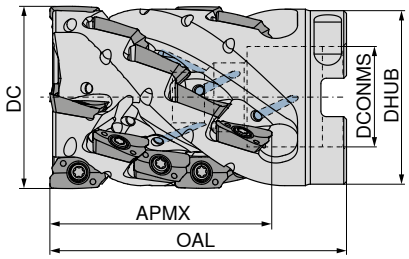
50 783 ...

ISO designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	ZEFP	ZNP	torque moment Nm	Insert	£ 2B/40	
C211.40.R.03KN3-15-B32-60	40	3	39.6	121	60	32	9	3	3,2	XD.T 1505	709.80	**04033**
C211.50.R.03KN4-15-B40-68	50	3	52.6	138	67	40	12	4	3,2	XD.T 1505	863.29	**05034**

MaxiMill – Shell end mill A 211-15KN

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows







NEW

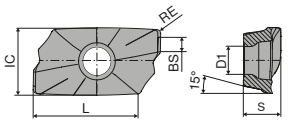
50 781 ...

ISO designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	£ 2B/40	
A211.50.R.03KN4-15	50	3	52.6	12	4	87	27	48	3,2	XD.T 1505	863.29	**05034**
A211.50.R.03KN5-15	50	3	65.8	15	5	100	27	48	3,2	XD.T 1505	916.74	**05035**
A211.50.R.04KN5-15	50	4	65.8	20	5	100	27	48	3,2	XD.T 1505	1,021.37	**05045**
A211.63.R.03KN4-15	63	3	52.6	12	4	76	27	58	3,2	XD.T 1505	941.18	**06334**
A211.63.R.03KN5-15	63	3	65.8	15	5	90	27	58	3,2	XD.T 1505	994.63	**06335**
A211.63.R.04KN6-15	63	4	78.5	24	6	102	27	58	3,2	XD.T 1505	1,155.00	**06346**
A211.63.R.05KN5-15	63	5	65.8	25	5	90	27	58	3,2	XD.T 1505	1,195.09	**06355**
A211.80.R.04KN5-15	80	4	65.8	20	5	90	32	78	3,2	XD.T 1505	1,160.72	**08045**
A211.80.R.05KN6-15	80	5	78.5	30	6	102	32	78	3,2	XD.T 1505	1,340.18	**08056**

Spare parts Designation	Cylindrical screw **70 950 ...** £ 2A/28		TORX® blade **80 950 ...** £ Y7		Key D **80 950 ...** £ Y7		Molykote **70 950 ...** £ 2A/28		Clamping screw **70 950 ...** £ 2A/28		Socket head screw **70 950 ...** £ 2A/28		Torque screwdriver **80 950 ...** £ Y7	
A211.50	10.97	**002**	7.02	**054**	16.56	**128**	4.18	**303**	8.56	**20800**	10.97	**20600**	192.38	**193**
A211.63	10.97	**002**	7.02	**054**	16.56	**128**	4.18	**303**	8.56	**20500**	10.97	**20600**	192.38	**193**
A211.80	24.56	**004**	7.02	**054**	16.56	**128**	4.18	**303**	8.56	**20500**	10.97	**234**	192.38	**193**
C211.40			7.02	**054**	16.56	**128**	4.18	**303**	8.56	**20800**			192.38	**193**
C211.50			7.02	**054**	16.56	**128**	4.18	**303**	8.56	**20800**			192.38	**193**

XDKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDKT 150508..	9.3	4.4	14.8	1.6	5.56
XDKT 150512..	9.3	4.4	14.8	1.6	5.56
XDKT 150516..	9.3	4.4	14.8	1.6	5.56
XDKT 150520..	9.3	4.4	14.8	1.6	5.56
XDKT 150525..	9.3	4.4	14.8	1.6	5.56
XDKT 150530..	9.3	4.4	14.8	1.6	5.56
XDKT 150532..	9.3	4.4	14.8	1.9	5.56
XDKT 150540..	9.3	4.4	14.8	1.2	5.56
XDKT 150560..	9.3	4.4	14.8	-	5.56



XDKT

XDKT

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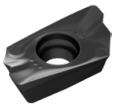
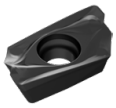
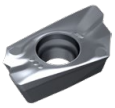
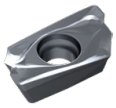
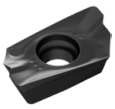
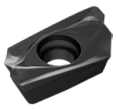
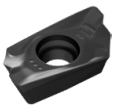
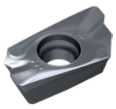
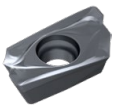
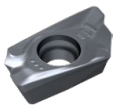
					
		XDKT	XDKT	XDKT	XDKT
		51 035 ...	51 038 ...	51 035 ...	51 038 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
150508SR	0.8	17.90 258	17.90 258	17.90 058	17.90 058
P		●	●	●	●
M					
K					
N					
S					
H					
O					

XDKT

		-F50 CTCP230	-M50 CTCP230	-R50 CTCP230	-F50 CTPP235	-M50 CTPP235	-R50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
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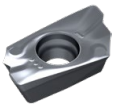
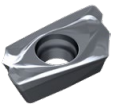
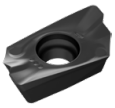
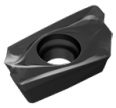
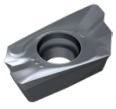
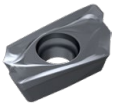
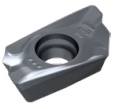
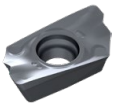
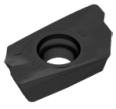
		51 035 ...	51 038 ...	51 040 ...	51 035 ...	51 038 ...	51 040 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
150508SR	0.8	17.90 008	17.90 008	17.90 008	17.90 108	17.90 108	17.90 108
150512SR	1.2		17.90 012			17.90 112	
150516SR	1.6		17.90 016			17.90 116	
150520SR	2.0			17.90 020		17.90 120	17.90 120
150530SR	3.0		17.90 030			17.90 130	
150540SR	4.0		17.90 040			17.90 140	
P		●	●	●	●	●	●
M					○	○	○
K		○	○	○	○	○	○
N							
S							
H							
O							

XDKT

		-F50 CTPM225 DRAGONSKIN		-M50 CTPM225 DRAGONSKIN		-F50 CTCM235 DRAGONSKIN		-M50 CTCM235 DRAGONSKIN	
									
		XDKT		XDKT		XDKT		XDKT	
		51 035 ...		51 038 ...		51 035 ...		51 038 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61	
150508SR	0.8	17.90	208	17.90	208	17.90	308	17.90	308
P			●		●		●		●
M			●		●		●		●
K									
N									
S									
H									
O									

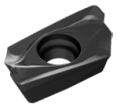
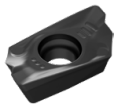
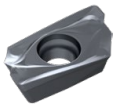
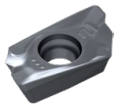
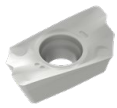
XDKT

								NEW	
		-F50 CTPM240 DRAGONSKIN		-M50 CTPM240 DRAGONSKIN		-R50 CTPM240 DRAGONSKIN		-F40 CTPM245 DRAGONSKIN		-F40 CTCM245 DRAGONSKIN	
											
		XDKT		XDKT		XDKT		XDKT		XDKT	
		51 035 ...		51 038 ...		51 040 ...		51 114 ...		51 114 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1H/17		£ 1H/17	
150508ER	0.8							21.55	458	21.55	90801
150508SR	0.8	17.90	408	17.90	408	17.90	408				
150512ER	1.2									21.55	91201
150512SR	1.2			17.90	412						
150516ER	1.6									21.55	91601
150516SR	1.6			17.90	416						
150520ER	2.0									21.55	92001
150525ER	2.5									21.55	92501
150530SR	3.0			17.90	430 [1)]						
150532ER	3.2							21.55	482 [1)]	21.55	93201 [1)]
150540ER	4.0							21.55	490 [1)]	21.55	94001 [1)]
150540SR	4.0			17.90	440 [1)]						
150560ER	6.0									21.55	96001 [1)]
P			○		○		○		●		●
M			●		●		●		●		●
K											
N											
S											○
H											
O											

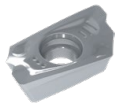
1) Insert radius >2.5 mm: Modify cutter body

15

XDKT

		-M50 CTCK215 DRAGONSKIN		-R50 CTCK215 DRAGONSKIN		-M50 CTPK220 DRAGONSKIN		-R50 CTPK220 DRAGONSKIN		-F20 CTWN215	
											
		XDKT		XDKT		XDKT		XDKT		XDKT	
		51 038 ...		51 040 ...		51 038 ...		51 040 ...		50 479 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1A/90	
150508FR	0.8									21.16	508
150508SR	0.8	17.90	508	17.90	508	17.90	608	17.90	608		
P											
M											
K		●		●		●		●		○	
N										●	
S											
H											
O										○	

XDKT

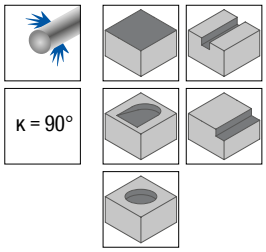
		-F40 CTC5240 DRAGONSKIN		-F40 CTCS245 DRAGONSKIN		-R60 CTP6215	
							
		XDKT		XDKT		XDKT	
		50 473 ...		51 114 ...		50 469 ...	
ISO	RE mm	£ 17		£ 17		£ 1B/61	
150508ER	0.8	21.55	508	21.55	558		
150508SR	0.8					17.90	300
150532ER	3.2	21.55	532 [1)]				
150540ER	4.0	21.55	540 [1)]	21.55	59000 [1)]		
P							
M							
K						●	
N							
S		●		●			
H						●	
O							

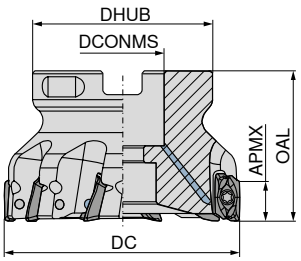
1) Insert radius >2.5 mm: Modify cutter body

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 157
Starting Parameter	→ 157	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Shell mill A 211-20



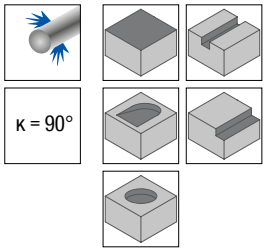


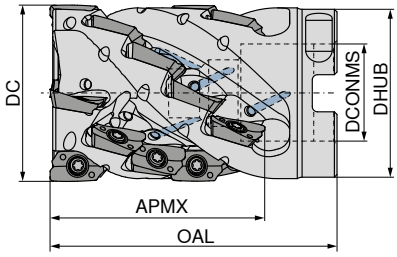


Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 778 ... £ 2B/40	
A211.63.R.05-20	63	5	19	45	22	48	14400	5	XD.. 2007..	414.37	**06305**
A211.80.R.06-20	80	6	19	50	27	58	12400	5	XD.. 2007..	443.19	**08006**
A211.100.R.07-20	100	7	19	50	32	78	10900	5	XD.. 2007..	475.56	**10007**

MaxiMill – Extended flute cutter A 211-20K

- ZEFP = Number of Inserts
- ZNP = Number of rows







NEW

Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	50 780 ... £ 2B/40	
A211.63.R.04K4-20	63	4	68	16	4	92	27	58	5	XD.. 2007..	917.70	**06304**
A211.80.R.05K4-20	80	5	68	20	4	92	32	76	5	XD.. 2007..	1,029.00	**08005**


Cylindrical screw

TORX® blade

Key D


Molykote


Clamping screw

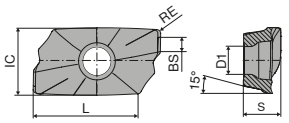

Socket head screw

Torque screw-driver

Spare parts DC	Cylindrical screw 70 950 ... £ 2A/28		TORX® blade 80 950 ... £ Y7		Key D 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A		Socket head screw 70 950 ... £ 2A/28		Torque screw-driver 80 950 ... £ Y7	
63			7.02	**037**	10.09	**106**	4.18	**303**	2.40	**280**	5.20	**180**	192.38	**193**
80			7.02	**037**	10.09	**106**	4.18	**303**	2.40	**280**	8.06	**181**	192.38	**193**
63	15.23	**003**	7.02	**037**	10.09	**106**	4.18	**303**	2.40	**280**	8.06	**181**	192.38	**193**
80	24.56	**004**	7.02	**037**	10.09	**106**	4.18	**303**	2.40	**280**	10.97	**234**	192.38	**193**
100			7.02	**037**	10.09	**106**	4.18	**303**	2.40	**280**			192.38	**193**

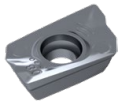
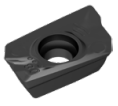
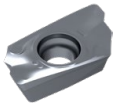
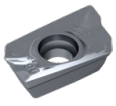
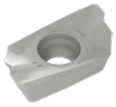
XDKT

Designation	IC mm	D1 mm	L mm	S mm
XDKT 200708..	12.5	5.5	18.8	6.93
XDKT 200716..	12.5	5.5	18.8	6.89
XDKT 200732..	12.5	5.5	18.8	6.82
XDKT 200740..	12.5	5.5	18.8	6.80
XDKT 200760..	12.5	5.5	18.8	6.80



XDKT

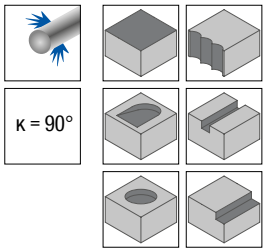
XDKT

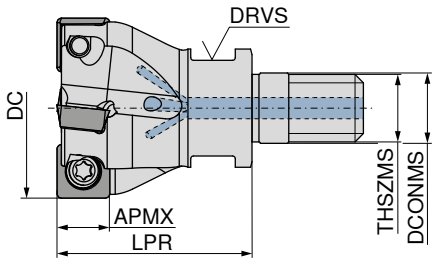
		NEW		NEW			NEW	NEW			
		-M50 CTPP235		-M50 CTCP230		-F40 CTPM245	-F40 CTCM245	-M50 CTPK220	-F40 CTC5240	-F40 CTCS245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
											
		XDKT		XDKT		XDKT	XDKT	XDKT	XDKT	XDKT	
		51 145 ...		51 145 ...		51 127 ...	51 127 ...	51 145 ...	51 127 ...	51 127 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1H/17	£ 1H/17	£ 1B/61	£ 17	£ 17	
200708ER	0.8	20.54	**10800**	20.54	**00800**	25.47 **45800**	25.47 **90801**	20.54 **60800**	25.47 **15800**	25.47 **55800**	
200716ER	1.6	20.54	**11600**	20.54	**01600**	25.47 **46600**	25.47 **91601**	20.54 **61600**	25.47 **16600**	25.47 **56600**	
200732ER	3.2					25.47 **48200**	25.47 **93201**		25.47 **18200**	25.47 **58200**	
200740ER	4.0						25.47 **94001**		25.47 **19000**		
200760ER	6.0						25.47 **96001**		25.47 **19200**		
P		●		●		●	●				
M		○				●	●				
K		○		○				●			
N											
S							○		●	●	
H											
O											

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 158
Starting Parameter	→ 158	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Screw in cutter G 490-09

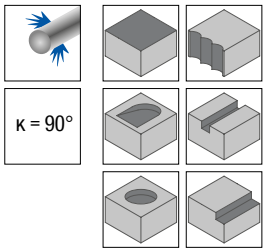


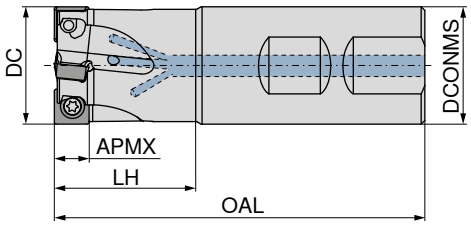




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 726 ... £ 2B/40	
G490.25.R.03-09	25	3	8	35	M12	12.5	17	3,2	SD.. 09T3..	290.38	025
G490.32.R.04-09	32	4	8	35	M16	17.0	24	3,2	SD.. 09T3..	314.91	032

MaxiMill – End milling cutter C 490-09

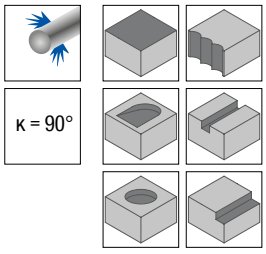


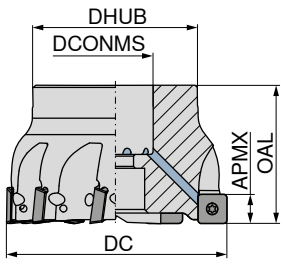


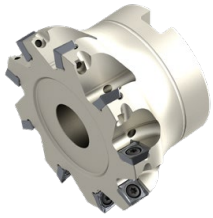


Designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	torque moment Nm	Insert	A 50 727 ... £ 2B/40		B 50 727 ... £ 2B/40	
C490.25.R.03-09-B-32	25	3	8	25	88	32	3,2	SD.. 09T3..			290.38	025
C490.25.R.02-09-A-20	25	2	8	20	165	40	3,2	SD.. 09T3..	267.75	225		
C490.25.R.02-09-A-40-165	25	2	8	25	165	40	3,2	SD.. 09T3..	277.78	125		
C490.32.R.04-09-B-25	32	4	8	25	100	40	3,2	SD.. 09T3..			303.45	132
C490.32.R.04-09-B-40	32	4	8	32	100	40	3,2	SD.. 09T3..			314.91	032

MaxiMill – Shell mill A 490-09





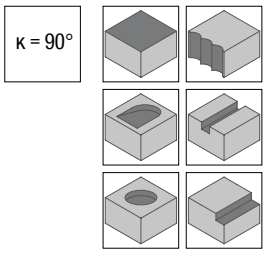


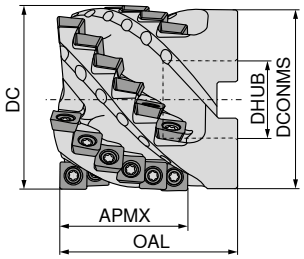
Designation	DC mm	ZNF	APMX mm	DHUB mm	DCONMS H6 mm	OAL mm	torque moment Nm	Insert	50 728 ... £ 2B/40	
A490.40.R.05-09	40	5	8	38	16	40	3,2	SD.. 09T3..	352.03	040
A490.42.R.06-09	42	6	8	38	16	40	3,2	SD.. 09T3..	376.57	042
A490.50.R.06-09	50	6	8	43	22	40	3,2	SD.. 09T3..	388.97	050
A490.52.R.07-09	52	7	8	43	22	40	3,2	SD.. 09T3..	413.61	052
A490.63.R.07-09	63	7	8	48	22	40	3,2	SD.. 09T3..	426.02	063
A490.66.R.08-09	66	8	8	48	22	40	3,2	SD.. 09T3..	450.64	066
A490.80.R.09-09	80	9	8	58	27	50	3,2	SD.. 09T3..	598.88	080
A490.100.R.10-09	100	10	8	78	32	50	3,2	SD.. 09T3..	654.43	100
A490.160.R.14-09	160	14	8	88	40	62	3,2	SD.. 09T3..	966.96	160 [1]

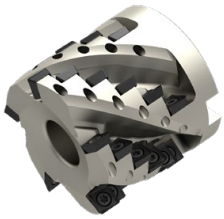
1) Without Through Coolant

MaxiMill – Extended flute cutter A 490K

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows





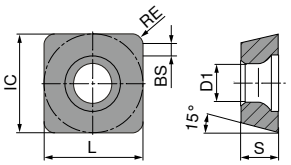


Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	50 761 ... £ 2B/40	
A490.40.R.03K6-09	40	3	41	18	6	55	16	38	3,2	SD.. 09T3..	975.54	**040**
A490.50.R.04K6-09	50	4	41	24	6	55	22	48	3,2	SD.. 09T3..	1,180.78	**050**
A490.63.R.05K6-09	63	5	41	30	6	60	27	61	3,2	SD.. 09T3..	1,334.46	**063**

	TORX® blade		Clamping key - T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		Y7		Y7		2A/28		2A/28		2A/28		Y7	
25 - 32	7.02	**036**			12.87	**113**			4.18	**303**	2.99	**110**	162.00	**192**
40 - 42	7.02	**036**	5.02	**040**	12.87	**113**	11.92	**151**	4.18	**303**	2.99	**110**	162.00	**192**
50 - 160	7.02	**036**			12.87	**113**			4.18	**303**	2.99	**110**	162.00	**192**

SDHT / SDNT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
SD.T 09T3..	9.52	4.4	9.52	2.5	3.97



SDHT / SDNT

NEW

	TCM10	-29 CTCP230	CTPP235	-29 CTPP235	-33 CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	CERMET SDHT	SDNT	SDNT	SDNT	SDNT	SDNT	SDNT
	50 424 ...	51 011 ...	51 082 ...	51 011 ...	51 030 ...	51 111 ...	51 111 ...
ISO / RE mm	£ 1B/79	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
09T308ER 0.8			11.08 108			12.41 458	12.41 90801
09T308SR 0.8	15.05 900	11.08 008		11.08 108	11.08 408		
P	●	●	●	●	○	●	●
M			○	○	●	●	●
K	○	○	○	○			
N							
S							○
H							
O							

SDNT / SDHT

	-31 CTCK215	-27P H216T	-27P AMZ	-27 CTC5240	-M31 CTC5240	-F10 CTCS245
	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	SDNT	SDHT	SDHT	SDHT	SDNT	SDHT
	51 029 ...	50 424 ...	50 424 ...	50 496 ...	50 425 ...	51 125 ...
ISO / RE mm	£ 1B/61	£ 1A/90	£ 1A/90	£ 17	£ 17	£ 17
09T308ER 0.8				20.74 508	12.41 508	20.74 55800
09T308FR 0.8		15.05 550	18.04 650			
09T308SR 0.8	11.08 508					
P						
M						
K	●	○	○			
N		●	●			
S				●	●	●
H						
O		○	○			

Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 159
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

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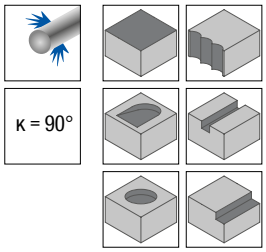
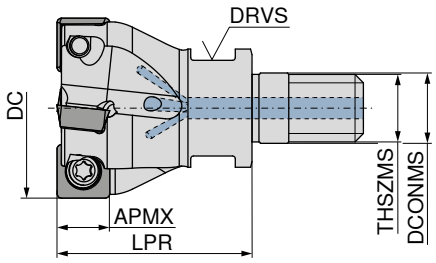
MaxiMill – Screw in cutter G 490-12

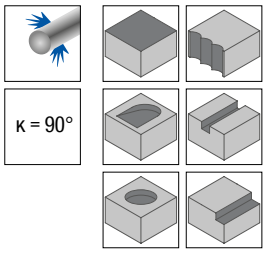


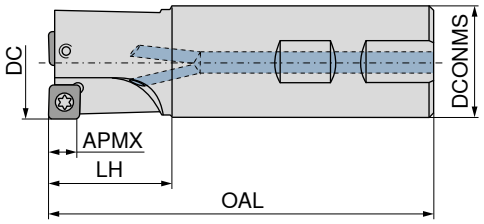




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 726 ... £ 2B/40	
G490.32.R.03-12	32	3	10.7	35	M16	17	24	3,2	SD.. 1205..	303.36	13200
G490.40.R.04-12	40	4	10.7	40	M16	17	24	3,2	SD.. 1205..	335.14	14000

MaxiMill – End milling cutter C 490-12





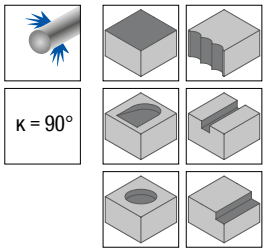


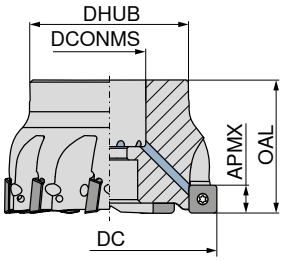
B

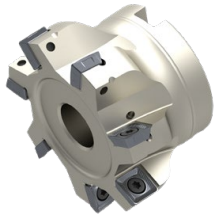
ISO designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	torque moment Nm	Insert	50 703 ... £ 2B	
C490.32.R.02	32	2	11	32	110	40	5	SD.. 1205..	201.13	032
C490.32.R.03-12-B-40	32	3	11	32	101	40	5	SD.. 1205..	303.36	13200
C490.40.R.03	40	3	11	32	115	45	5	SD.. 1205..	237.21	040
C490.40.R.04-12-B32-50	40	4	11	32	112	50	5	SD.. 1205..	335.14	14000

Spare parts DC	TORX® blade 80 950 ... £ Y7		Key D 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Torque screw-driver 80 950 ... £ Y7	
32	7.02	037	13.77	114	4.18	303	2.99	01200	192.38	193
32	7.02	037					2.99	01200	192.38	193
40	7.02	037	13.77	114	4.18	303	2.99	01200	192.38	193
40	7.02	037					2.99	01200	192.38	193

MaxiMill – Shell mill A 490-12





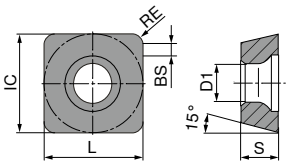


Designation	DC mm	ZNF	APMX mm	DHUB mm	DCONMS mm	OAL mm	torque moment Nm	Insert	50 703 ... £ 2B/40	
A490.40.R.04-12	40	4	11	38	16	40	5	SD.. 1205..	335.14	**54000**
A490.50.R.05-12	50	5	11	43	22	40	5	SD.. 1205..	372.17	**550**
A490.63.R.06-12	63	6	11	48	22	40	5	SD.. 1205..	409.41	**563**
A490.80.R.07-12	80	7	11	58	27	50	5	SD.. 1205..	565.37	**580**
A490.100.R.08-12	100	8	11	75	32	50	5	SD.. 1205..	621.02	**600**
A490.125.R.10-12	125	10	11	88	40	63	5	SD.. 1205..	665.61	**625**

	TORX® blade		 Clamping key - T		 Key D		 Power Screw		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		Y7		Y7		2A/28		2A/28		2A/28		Y7	
40	7.02	**037**	5.02	**040**	13.77	**114**	11.92	**151**	4.18	**303**	2.99	**01200**	192.38	**193**
50	7.02	**037**	5.02	**040**	13.77	**114**	16.36	**154**	4.18	**303**	2.99	**01200**	192.38	**193**
63 - 125	7.02	**037**	5.02	**040**	13.77	**114**			4.18	**303**	2.99	**01200**	192.38	**193**

SDHW / SDMT / SDHT

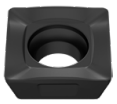
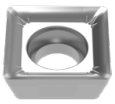
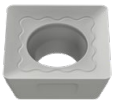
Designation	IC mm	D1 mm	L mm	BS mm	S mm
SDH. 120508..	12.7	5.5	12.7	2.2	5.00
SDHT 120512..	12.7	5.5	12.7	1.8	5.00
SDHT 120520..	12.7	5.5	12.7	1.0	5.00
SDHT 120525..	12.7	5.5	12.7	1.5	5.00
SDMT 120508..	12.7	5.5	12.7	3.0	5.00
SDMT 1205ZZ..	12.7	5.5	12.7	0.9	5.00



SDHW / SDMT / SDHT

		TCM10	-29 CTCP230	-29 CTPP235	-29 CTPM240	-33 CTPM240	-F50 CTPM245	NEW -F50 CTCM245
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		CERMET SDHW	SDMT	SDMT	SDMT	SDHT	SDMT	SDMT
		50 428 ...	51 081 ...	51 081 ...	51 081 ...	51 028 ...	51 110 ...	51 110 ...
ISO	RE mm	£ 1B/79	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
120508ER	0.8						17.59 458	17.59 90801
120508SR	0.8	17.90 901						
120512SR	1.2					17.44 412		
120520SR	2.0					17.44 421		
1205ZZSN	0.8		15.05 020	15.05 120	14.56 420			
P		●	●	●	○	○	●	●
M				○	●	●	●	●
K		○	○	○				
N								
S								○
H								
O								

SDMT / SDHT

		-31 CTCK215		-27P H216T		-27P AMZ		-M31 CTC5240		-F50 CTCS245	
		DRAGONSKIN						DRAGONSKIN		DRAGONSKIN	
											
		SDMT		SDHT		SDHT		SDMT		SDMT	
		51 059 ...		50 426 ...		50 426 ...		50 580 ...		51 110 ...	
ISO	RE mm	£ 1B/61		£ 1A/90		£ 1A/90		£ 17		£ 17	
120508ER	0.8							17.59	508	17.59	55800
120508FR	0.8			17.44	555	21.61	655				
1205ZZSN	0.8	14.56	521	17.44	559						
P											
M											
K		●		○		○					
N				●		●					
S								●		●	
H											
O				○		○					

Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 160
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

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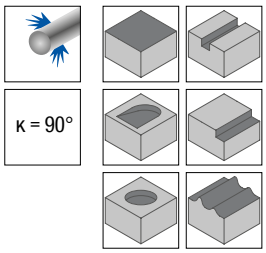
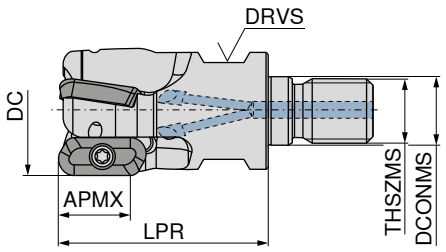
MaxiMill – Screw in cutter 90° G HSC-11

▲ Insert radius >3.2 mm: Modify cutter body





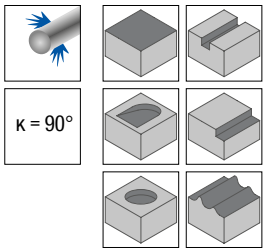


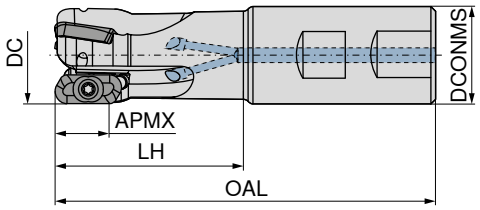
55 107 ...

Designation	DC mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	RPMX 1/min.	DRVS mm	torque moment Nm	Insert	£ 2B/40	
GHSC.16.R.02-11	16	2	10	8.5	27	M8	56000	10	1,8	XDHT 11T3..	255.73	**016**
GHSC.18.R.02-11	18	2	10	8.5	27	M8	53100	10	1,8	XDHT 11T3..	261.83	**018**
GHSC.20.R.02-11	20	2	10	10.5	33	M10	50100	15	1,8	XDHT 11T3..	275.29	**020**
GHSC.25.R.03-11	25	3	10	12.5	35	M12	45000	17	1,8	XDHT 11T3..	310.13	**025**
GHSC.32.R.03-11	32	3	10	17.0	35	M16	39800	24	1,8	XDHT 11T3..	322.35	**032**
GHSC.40.R.03-11	40	3	10	17.0	35	M16	35500	24	1,8	XDHT 11T3..	338.38	**040**

MaxiMill – End milling cutter 90° C HSC-11

▲ Insert radius >3.2 mm: Modify cutter body



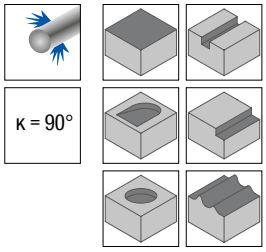


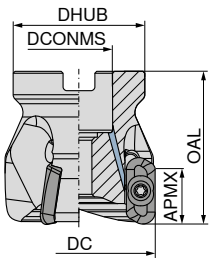


Designation	DC mm	ZNF	APMX mm	DCONMS $_{h6}$ mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	A **50 675 ...** £ 2B/40		B **50 675 ...** £ 2B/40	
CHSC.16.R.02-11-B/A-25	16	2	10	16	75	25	56200	1,8	XDHT 11T3..	255.73	**016**	255.73	**416**
CHSC.16.R.02-11-A-32	16	2	10	16	165	32	18800	1,8	XDHT 11T3..	255.73	**116**		
CHSC.18.R.02-11-A-25	18	2	10	20	78	25	56100	1,8	XDHT 11T3..	261.83	**018**		
CHSC.18.R.02-11-A-32	18	2	10	20	165	32	23900	1,8	XDHT 11T3..	261.83	**118**		
CHSC.19.R.02-11-A-25	19	2	10	20	78	25	51700	1,8	XDHT 11T3..	267.94	**019**		
CHSC.19.R.02-11-A-32	19	2	10	20	165	32	25400	1,8	XDHT 11T3..	267.94	**119**		
CHSC.20.R.02-11-A-32	20	2	10	20	84	32	50100	1,8	XDHT 11T3..	275.29	**020**		
CHSC.20.R.03-11-B-32	20	3	10	20	84	32	50100	1,8	XDHT 11T3..			312.32	**420**
CHSC.20.R.02-11-A-40	20	2	10	20	165	40	26700	1,8	XDHT 11T3..	275.29	**120**		
CHSC.22.R.02-11-A-32	22	2	10	25	91	32	47800	1,8	XDHT 11T3..	282.92	**022**		
CHSC.22.R.02-11-A-40	22	2	10	25	165	40	30200	1,8	XDHT 11T3..	282.92	**122**		
CHSC.25.R.02-11-A-40	25	2	10	25	98	40	45000	1,8	XDHT 11T3..	296.29	**025**		
CHSC.25.R.03-11-A-40	25	3	10	25	98	40	45000	1,8	XDHT 11T3..	310.13	**225**		
CHSC.25.R.04-11-B-40	25	4	10	25	98	40	45000	1,8	XDHT 11T3..			340.87	**425**
CHSC.25.R.02-11-A-50	25	2	10	25	165	50	31700	1,8	XDHT 11T3..	296.29	**125**		
CHSC.25.R.03-11-A-50	25	3	10	25	165	50	31700	1,8	XDHT 11T3..	310.13	**325**		
CHSC.32.R.03-11-A-50	32	3	10	32	112	50	39800	1,8	XDHT 11T3..	322.35	**032**		
CHSC.32.R.05-11-B-50	32	5	10	25	112	50	39800	1,8	XDHT 11T3..			407.49	**432**
CHSC.32.R.03-11-A-63	32	3	10	32	165	63	33400	1,8	XDHT 11T3..	322.35	**132**		

MaxiMill – Shell mill 90° A HSC-11

▲ Insert radius >3.2 mm: Modify cutter body







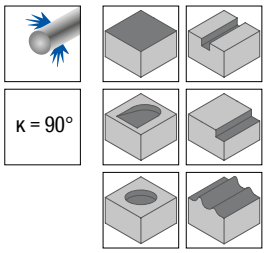
50 718 ...

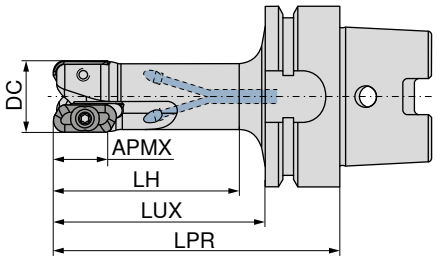
Designation	DC mm	ZNF	APMX mm	DCONMS H6 mm	DHUB mm	OAL mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
AHSC.40.R.04-11	40	4	10	16	38	50	35500	1,8	XDHT 11T3..	430.88	**040**
AHSC.50.R.04-11	50	4	10	22	43	50	31800	1,8	XDHT 11T3..	521.18	**050**
AHSC.63.R.05-11	63	5	10	22	43	50	28300	1,8	XDHT 11T3..	580.37	**063**
AHSC.80.R.05-11	80	5	10	27	58	50	25100	1,8	XDHT 11T3..	603.75	**080**
AHSC.100.R.05-11	100	5	10	32	78	50	22400	1,8	XDHT 11T3..	647.08	**100**

MaxiMill – Milling cutter 90° M HSC-11 with HSK 63-A

▲ balanced to G 6,3

▲ Insert radius >3.2 mm: Modify cutter body







50 722 ...

Designation	DC mm	ZNF	APMX mm	LPR mm	LH mm	LUX mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
MHSC.25.R.03-11-H63A-50	25	3	10	90	50	64	45000	1,8	XDHT 11T3..	739.67	**025**
MHSC.25.R.03-11-H63A-63	25	3	10	100	63	74	42000	1,8	XDHT 11T3..	739.67	**125**
MHSC.32.R.03-11-H63A-63	32	3	10	100	63	74	39800	1,8	XDHT 11T3..	751.99	**032**
MHSC.32.R.03-11-H63A-80	32	3	10	120	80	94	37200	1,8	XDHT 11T3..	751.99	**132**
MHSC.40.R.04-11-H63A-63	40	4	10	100	63	74	35500	1,8	XDHT 11T3..	780.43	**040**
MHSC.40.R.04-11-H63A-80	40	4	10	120	80	94	35500	1,8	XDHT 11T3..	780.43	**140**
MHSC.50.R.04-11-H63A-63	50	4	10	100	63	74	31800	1,8	XDHT 11T3..	793.89	**050**
MHSC.50.R.04-11-H63A-100	50	4	10	140	100	114	31800	1,8	XDHT 11T3..	793.89	**150**

TORX® blade

80 950 ...


Clamping key - T

80 397 ...


Key D

80 950 ...


Power Screw

70 950 ...


Molykote

70 950 ...


Clamping screw

70 950 ...


Torque screwdriver

80 950 ...

Spare parts DC	£ Y7		£ Y7		£ Y7		£ 2A/28		£ 2A/28		£ 2A/28		£ Y7	
16 - 25	7.02	**043**			14.16	**125**			4.18	**303**	3.91	**128**	162.00	**192**
32	7.02	**043**			14.16	**125**			4.18	**303**	3.91	**131**	162.00	**192**
40	7.02	**043**	5.02	**040**	14.16	**125**	11.92	**151**	4.18	**303**	3.91	**131**	162.00	**192**
50 - 63	7.02	**043**	6.39	**050**	14.16	**125**	16.36	**154**	4.18	**303**	3.91	**131**	162.00	**192**
80 - 100	7.02	**043**			14.16	**125**			4.18	**303**	3.91	**131**	162.00	**192**

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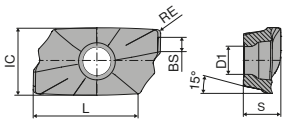
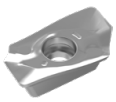
XDKT / XDHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XD.T 11T302FR	6.8	2.8	10.6	2	3.80
XD.T 11T304FR	6.8	2.8	10.6	1.8	3.80
XD.T 11T308FR	6.8	2.8	10.6	1.4	3.80
XD.T 11T320FR	6.8	2.8	10.6	1.4	3.80
XD.T 11T325FR	6.8	2.8	10.6	1.4	3.80
XDHT 11T312FR	6.8	2.8	10.6	1.4	3.80
XDHT 11T316FR	6.8	2.8	10.6	1.4	3.80
XDHT 11T332FR	6.8	2.8	10.6	0.8	3.80
XDHT 11T340FR	6.8	2.8	10.6	-	3.80
XDHT 11T350FR	6.8	2.8	10.6	-	3.80



XDKT

XDKT / XDHT

	-F20 CTWN215		-27P H216T	
				
	XDKT		XDHT	
	50 478 ...		50 477 ...	
ISO / RE mm	£ 1A/90		£ 1A/90	
11T302FR 0.2	16.86	502	25.42	502
11T304FR 0.4	16.86	504	25.42	504
11T308FR 0.8	16.86	508	25.42	508
11T312FR 1.2			25.42	512
11T316FR 1.6			25.42	516
11T320FR 2.0	16.86	520 1)	25.42	520 1)
11T325FR 2.5	16.86	525 1)	25.42	525 1)
11T332FR 3.2			25.42	532 1)
11T340FR 4.0			25.42	540 1)
11T350FR 5.0			25.42	550 1)
P				
M				
K		○		○
N		●		●
S				
H				
O		○		○

1) Insert radius >1.6 mm: Modify cutter body

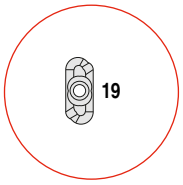
Milling guide

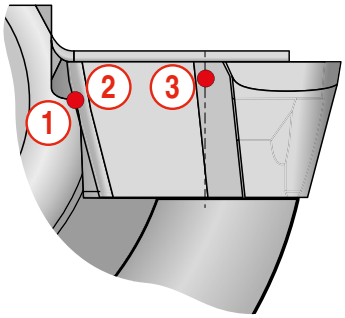
Safety advice	→ 161	Cutting data standard values	→ 162
Machining strategy	→ 163+164	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

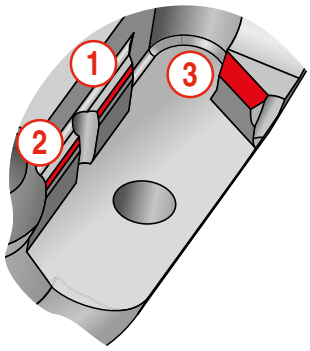
HSC-19

For medium – high number of revolutions

n_{max} = 34400 min^{-1}
$a_{p\,max}$ = 18 mm







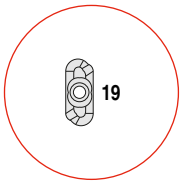
(1) (2) Radial contact points
- ▲ Guaranteed 90° corner angles and exact radial run-out

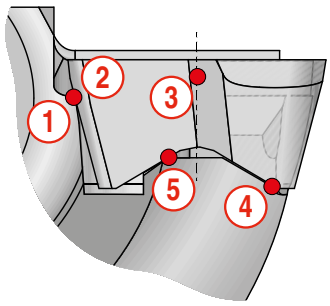
(3) Axial contact point
- ▲ guarantees precise axial run-out

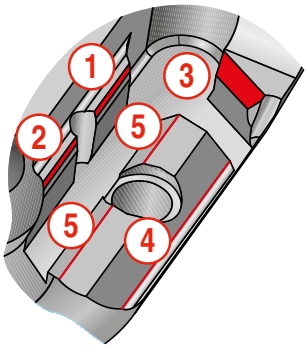
HPC-19

For maximum number of revolutions

n_{max} = 45200 min^{-1}
$a_{p\,max}$ = 18 mm







Roof-shaped surface, included angle 140 °
- ▲ greater stability, higher security
- ▲ guaranteed positive connection between insert and tool

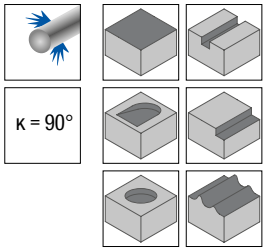
(1) (2) Radial contact points
- ▲ Guaranteed 90° corner angles and exact radial run-out

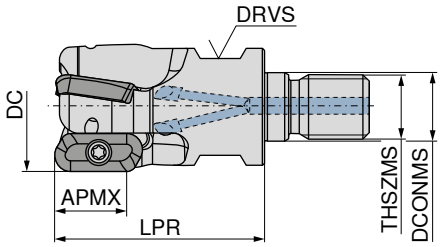
(3) Axial contact point
- ▲ guarantees precise axial run-out

(4) (5) Contact Point
- ▲ resist machining and centrifugal forces

MaxiMill – Screw-in cutter 90° G HSC-19

▲ Insert radius >4.0 mm: Modify cutter body



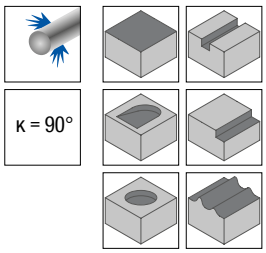


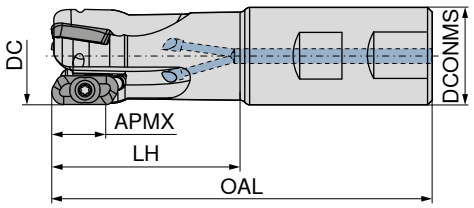


Designation	DC mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	55 108 ... £ 2B/40	
GHSC.25.R.02-19	25	2	18	12.5	45	M12	17	34400	5	XDHT 1904..	301.26	**025**
GHSC.32.R.03-19	32	3	18	17.0	52	M16	24	29100	5	XDHT 1904..	390.22	**032**
GHSC.40.R.03-19	40	3	18	17.0	52	M16	24	24900	5	XDHT 1904..	414.94	**040**

MaxiMill – End milling cutter 90° C HSC-19

▲ Insert radius >4.0 mm: Modify cutter body



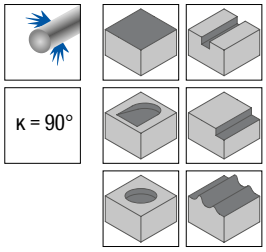


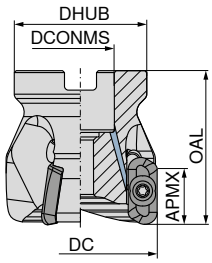


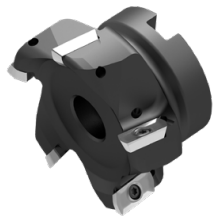
Designation	DC mm	ZNF	APMX mm	DCONMS $_{h5}$ mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	A 50 679 ... £ 2B/40		B 50 679 ... £ 2B/40	
CHSC.25.R.02-19-A-50	25	2	18	25	121	50	32400	5	XDHT 1904..	301.26	**225**		
CHSC.25.R.02-19	25	2	18	25	121	65	32400	5	XDHT 1904..			310.13	**025**
CHSC.25.R.02-19-A-63	25	2	18	25	165	63	24700	5	XDHT 1904..	301.26	**325**		
CHSC.32.R.02-19-A-63	32	2	18	32	125	63	28900	5	XDHT 1904..	316.14	**232**		
CHSC.32.R.03-19-A-63	32	3	18	32	125	63	28900	5	XDHT 1904..	390.22	**432**		
CHSC.32.R.03-19	32	3	18	32	125	65	28900	5	XDHT 1904..			397.57	**033**
CHSC.32.R.02-19	32	2	18	32	125	65	28900	5	XDHT 1904..			323.49	**032**
CHSC.32.R.02-19-A-80	32	2	18	32	165	80	24400	5	XDHT 1904..	316.14	**332**		
CHSC.32.R.03-19-A-80	32	3	18	32	165	80	24400	5	XDHT 1904..	390.22	**532**		

MaxiMill – Shell mill 90° A HSC-19

▲ Insert radius >4.0 mm: Modify cutter body







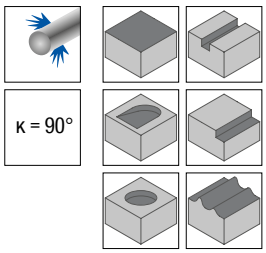
50 716 ...

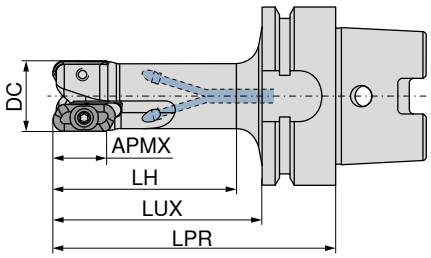
Designation	DC mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
AHSC.40.R.03-19	40	3	18	16	38	50	24900	5	XDHT 1904..	403.78	**040**
AHSC.50.R.04-19	50	4	18	22	43	50	21600	5	XDHT 1904..	507.43	**050**
AHSC.63.R.04-19	63	4	18	22	48	50	18800	5	XDHT 1904..	568.05	**163**
AHSC.63.R.05-19	63	5	18	22	48	50	18800	5	XDHT 1904..	580.37	**063**
AHSC.80.R.04-19	80	4	18	27	58	50	16400	5	XDHT 1904..	590.19	**180**
AHSC.80.R.05-19	80	5	18	27	58	50	16400	5	XDHT 1904..	603.75	**080**
AHSC.100.R.04-19	100	4	18	32	78	50	14500	5	XDHT 1904..	633.53	**200**
AHSC.100.R.05-19	100	5	18	32	78	50	14500	5	XDHT 1904..	647.08	**100**
AHSC.125.R.05-19	125	5	18	40	88	63	12800	5	XDHT 1904..	748.18	**125**
AHSC.125.R.06-19	125	6	18	40	88	63	12800	5	XDHT 1904..	760.58	**225**

MaxiMill – Milling cutter 90° M HSC-19 with HSK 63-A

▲ balanced to G 6,3

▲ Insert radius >4.0 mm: Modify cutter body







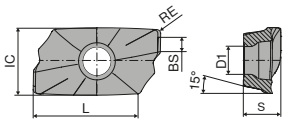
50 720 ...

Designation	DC mm	ZNF	APMX mm	LPR mm	LH mm	LUX mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
MHSC.25.R.02-19-H63A-50	25	2	18	90	50	64	35000	5	XDHT 1904..	728.51	**525**
MHSC.25.R.02-19-H63A-63	25	2	18	100	63	74	32700	5	XDHT 1904..	728.51	**625**
MHSC.32.R.02-19-H63A-63	32	2	18	100	63	74	29100	5	XDHT 1904..	743.49	**532**
MHSC.32.R.02-19-H63A-80	32	2	18	120	80	94	27200	5	XDHT 1904..	743.49	**632**
MHSC.32.R.03-19-H63A-63	32	3	18	100	63	74	29100	5	XDHT 1904..	755.81	**732**
MHSC.32.R.03-19-H63A-80	32	3	18	120	80	94	27200	5	XDHT 1904..	755.81	**832**
MHSC.40.R.03-19-H63A-63	40	3	18	100	63	74	24900	5	XDHT 1904..	770.61	**540**
MHSC.40.R.03-19-H63A-80	40	3	18	120	80	94	24900	5	XDHT 1904..	770.61	**640**
MHSC.50.R.03-19-H63A-100	50	3	18	140	100	114	21600	5	XDHT 1904..	770.61	**550**

	TORX® blade	Clamping key - T	Key D	Power Screw	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts	£	£	£	£	£	£	£
DC	Y7	Y7	Y7	2A/28	2A/28	2A/28	Y7
25	7.02 **036**		12.87 **113**		4.18 **303**	2.73 **172**	192.38 **193**
32	7.02 **036**		12.87 **113**		4.18 **303**	3.24 **173**	192.38 **193**
40	7.02 **036**	5.02 **040**	12.87 **113**	11.92 **151**	4.18 **303**	3.24 **173**	192.38 **193**
50 - 63	7.02 **036**	6.39 **050**	12.87 **113**	16.36 **154**	4.18 **303**	3.24 **174**	192.38 **193**
80 - 125	7.02 **036**		12.87 **113**		4.18 **303**	3.24 **174**	192.38 **193**

XDHT

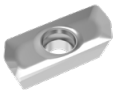
Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDHT 190402..	9.52	4.65	19	2	4.76
XDHT 190404..	9.52	4.65	19	2	4.76
XDHT 190408..	9.52	4.65	19	2	4.76
XDHT 190412..	9.52	4.65	19	2	4.76
XDHT 190416..	9.52	4.65	19	2	4.76
XDHT 190420..	9.52	4.65	19	2	4.76
XDHT 190425..	9.52	4.65	19	1.4	4.76
XDHT 190432..	9.52	4.65	19	1	4.76
XDHT 190440..	9.52	4.65	19	1	4.76
XDHT 190450..	9.52	4.65	19	-	4.76



XDKT

XDHT

-27P
H216T


XDHT

50 487 ...

ISO	RE mm	£ 1A/90	
190402FR	0.2	26.11	**552**
190404FR	0.4	26.11	**554**
190408FR	0.8	26.11	**556**
190412FR	1.2	26.11	**557**
190416FR	1.6	26.11	**558**
190420FR	2.0	26.11	**560**
190425FR	2.5	26.11	**562**
190432FR	3.2	26.11	**564**
190440FR	4.0	26.11	**566**
190450FR	5.0	26.11	**568** 1)

P	
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N	●
S	
H	
O	○

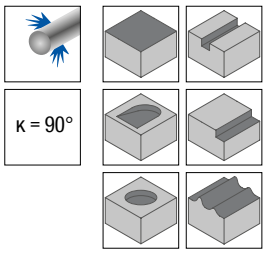
1) Insert radius > 4.0 mm: Modify cutter body

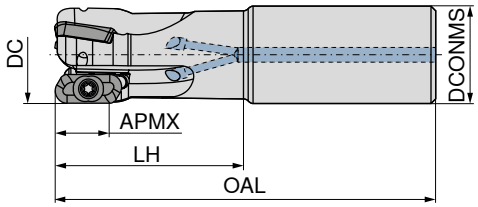
Milling guide

Cutting data standard values	→ 141–144	Safety advice	→ 161
Machining strategy	→ 165–167	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – End milling cutter 90° C HPC-19

- Shank type to DIN 1835-A
- Insert radius >4.0 mm: Modify cutter body







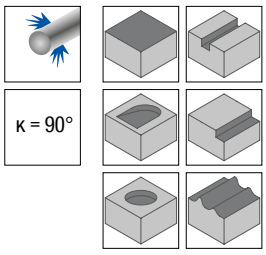
A

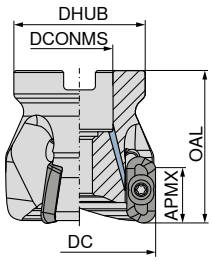
50 680 ...

ISO designation	DC mm	ZNF	APMX mm	DCONMS $_{h5}$ mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
CHPC.22.R.02-19-A-40	22	2	18	22	165	40	31900	5	XDHX 1904..	362.92	**122**
CHPC.25.R.02-19-A-50	25	2	18	25	121	50	41800	5	XDHX 1904..	375.43	**125**
CHPC.25.R.02-19-A-63	25	2	18	25	165	63	31900	5	XDHX 1904..	375.43	**225**
CHPC.32.R.02-19-A-63	32	2	18	32	125	63	39800	5	XDHX 1904..	390.22	**132**
CHPC.32.R.02-19-A-80	32	2	18	32	165	80	33500	5	XDHX 1904..	390.22	**232**
CHPC.32.R.03-19-A-63	32	3	18	32	125	63	39800	5	XDHX 1904..	463.05	**332**
CHPC.32.R.03-19-A-80	32	3	18	32	165	80	33500	5	XDHX 1904..	463.05	**432**

MaxiMill – Shell mill 90° A HPC-19

- Insert radius >4.0 mm: Modify cutter body







50 717 ...

Designation	DC mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
AHPC.40.R.03-19	40	3	18	16	38	50	35700	5	XDHX 1904..	471.73	**040**
AHPC.50.R.03-19	50	3	18	22	43	50	31900	5	XDHX 1904..	491.40	**050**
AHPC.63.R.03-19	63	3	18	22	48	50	28500	5	XDHX 1904..	514.97	**063**
AHPC.63.R.04-19	63	4	18	22	48	50	28500	5	XDHX 1904..	528.53	**163**

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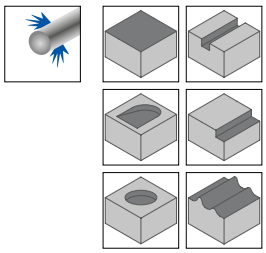
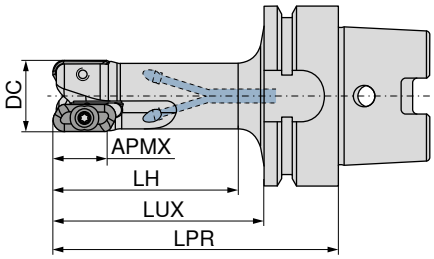
MaxiMill – Milling cutter 90° M HPC-19 with HSK 63-A

- balanced to G 6,3
- Insert radius >4.0 mm: Modify cutter body







Designation	DC mm	ZNF	APMX mm	LPR mm	LH mm	LUX mm	RPMX 1/min.	torque moment Nm	Insert	50 721 ... £ 2B/40	
MHPC.25.R.02-19-H63A-50	25	2	18	90	50	64	45200	5	XDHX 1904..	939.66	**025**
MHPC.25.R.02-19-H63A-63	25	2	18	100	63	74	42300	5	XDHX 1904..	939.66	**125**
MHPC.25.R.02-19-H63A-80	25	2	18	120	80	94	38400	5	XDHX 1904..	939.66	**225**
MHPC.25.R.02-19-H63A-100	25	2	18	140	100	114	33900	5	XDHX 1904..	939.66	**325**
MHPC.32.R.02-19-H63A-63	32	2	18	100	63	74	40000	5	XDHX 1904..	955.50	**032**
MHPC.32.R.03-19-H63A-63	32	3	18	100	63	74	40000	5	XDHX 1904..	1,054.78	**532**
MHPC.32.R.02-19-H63A-80	32	2	18	120	80	94	37500	5	XDHX 1904..	955.50	**132**
MHPC.32.R.03-19-H63A-80	32	3	18	120	80	94	37500	5	XDHX 1904..	1,054.78	**632**
MHPC.32.R.02-19-H63A-100	32	2	18	140	100	114	34300	5	XDHX 1904..	955.50	**232**
MHPC.40.R.03-19-H63A-63	40	3	18	100	63	74	35700	5	XDHX 1904..	1,084.37	**040**
MHPC.40.R.03-19-H63A-80	40	3	18	120	80	94	35700	5	XDHX 1904..	1,084.37	**140**
MHPC.40.R.03-19-H63A-100	40	3	18	140	100	114	33500	5	XDHX 1904..	1,084.37	**240**
MHPC.50.R.03-19-H63A-63	50	3	18	100	63	74	31900	5	XDHX 1904..	1,102.50	**050**
MHPC.50.R.03-19-H63A-80	50	3	18	120	80	94	31900	5	XDHX 1904..	1,102.50	**150**
MHPC.50.R.03-19-H63A-100	50	3	18	140	100	114	31900	5	XDHX 1904..	1,102.50	**250**

TORX® blade


Clamping key - T


Key D


Power Screw


Molykote

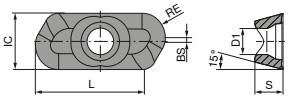

Clamping screw


Torque screw-driver

Spare parts DC	80 950 ... £ Y7		80 397 ... £ Y7		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		80 950 ... £ Y7	
22 - 25	7.02	**036**			12.87	**113**			4.18	**303**	2.73	**172**	192.38	**193**
32	7.02	**036**			12.87	**113**			4.18	**303**	3.24	**173**	192.38	**193**
40	7.02	**036**	5.02	**040**	12.87	**113**	11.92	**151**	4.18	**303**	3.24	**173**	192.38	**193**
50 - 63	7.02	**036**	6.39	**050**	12.87	**113**	16.36	**154**	4.18	**303**	3.24	**174**	192.38	**193**

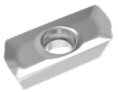
XDHX

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDHX 190402..	9.52	4.65	19	2	4.76
XDHX 190404..	9.52	4.65	19	2	4.76
XDHX 190408..	9.52	4.65	19	2	4.76
XDHX 190412..	9.52	4.65	19	2	4.76
XDHX 190416..	9.52	4.65	19	2	4.76
XDHX 190420..	9.52	4.65	19	2	4.76
XDHX 190425..	9.52	4.65	19	1.4	4.76
XDHX 190432..	9.52	4.65	19	1	4.76
XDHX 190440..	9.52	4.65	19	1	4.76
XDHX 190450..	9.52	4.65	19	-	4.76



XDHX

-27P
H216T



XDHX
50 488 ...

ISO	RE mm	£ 1H/D4	
190402FR	0.2	34.09	**552**
190404FR	0.4	34.09	**554**
190408FR	0.8	34.09	**556**
190412FR	1.2	34.09	**557**
190416FR	1.6	34.09	**558**
190420FR	2.0	34.09	**560**
190425FR	2.5	34.09	**562**
190432FR	3.2	34.09	**564**
190440FR	4.0	34.09	**566**
190450FR	5.0	34.09	**568** 1)

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H	
O	○

1) Insert radius > 4.0 mm: Modify cutter body

Milling guide

Cutting data standard values	→ 141–144	Safety advice	→ 161
Machining strategy	→ 165–167	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

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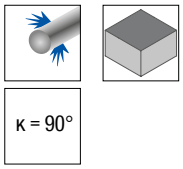
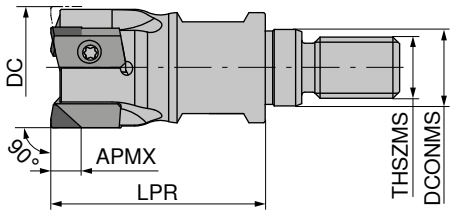
MaxiMill – Screw-in cutter G HPC 04

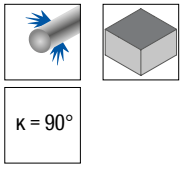


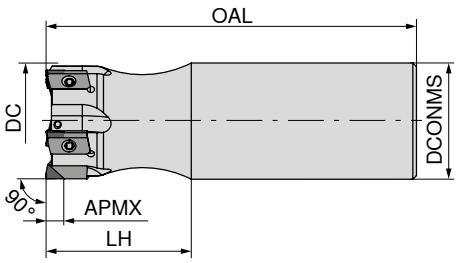




Designation	DC mm	ZNF	APMX mm	THSZMS	DCONMS mm	LPR mm	RPMX 1/min.	torque moment Nm	Insert	50 785 ... £ 2B/40	
GHPC.20.R.03-04	20	3	4	M10	10.5	35	52000	1,6	ZNHW 04T3..	249.81	**20003**
GHPC.25.R.04-04	25	4	4	M12	12.5	35	45000	1,6	ZNHW 04T3..	279.58	**25004**
GHPC.32.R.05-04	32	5	4	M16	17.0	35	38000	1,6	ZNHW 04T3..	309.37	**32005**
GHPC.40.R.06-04	40	6	4	M16	17.0	35	34000	1,6	ZNHW 04T3..	338.96	**40006**

MaxiMill – End Mill C HPC 04







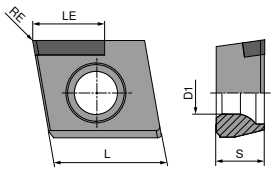
A

Designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	50 680 ... £ 2B/40	
CHPC.20.R.03-04-A-25	20	3	4	20	77	25	52000	1,6	ZNHW 04T3..	249.81	**02003**
CHPC.25.R.04-04-A-32	25	4	4	25	90	32	45000	1,6	ZNHW 04T3..	279.58	**02504**
CHPC.32.R.05-04-A-40	32	5	4	32	102	40	38000	1,6	ZNHW 04T3..	309.37	**03205**
CHPC.40.R.06-04-A-50	40	6	4	32	112	50	34000	1,6	ZNHW 04T3..	338.96	**04006**

Spare parts DC	TORX® blade 80 950 ... £ Y7		 Key D 80 950 ... £ Y7		 Molykote 70 950 ... £ 2A/28		 Clamping screw 70 950 ... £ 2A/28		 Torque screwdriver 80 950 ... £ Y7	
20 - 40	7.02	**043**	14.16	**125**	4.18	**303**	3.91	**131**	171.76	**191**

ZNHW

Designation	LE mm	D1 mm	L mm	S mm
ZNHW 04T3..	4	2.8	11	3.97



ZNHW



ISO	RE mm	DIAMOND ZNHW 51 137 ... £ 1G/22		CBN ZNHW 51 137 ... £ 1G/21	
04T304ER	0.4	100.22	75400		
04T305ER	0.5			121.03	85500
04T308ER	0.8	100.22	75800		
04T3POER		100.22	77000		

P		
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K		●
N	●	
S		
H		○
O	○	

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 168
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

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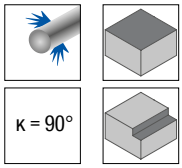
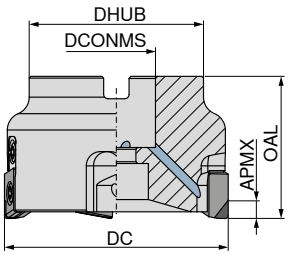
MaxiMill – Shell mill HPC 12

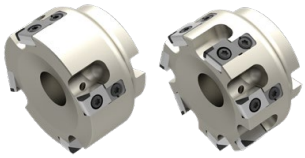
- ▲ 50 723 ... normal pitch
- ▲ 50 724 ... fine pitch

Scope of supply:

Tool, adjustment wedges and setting key; incl. wooden box







Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 723 ... £ 2B/40		50 724 ... £ 2B/40	
AHPC.40.R.04-12	40	4	11	40	34	16	32000	5	ZNHW 1205..	623.23	**040**		
AHPC.50.R.04-12	50	4	11	40	49	22	32000	5	ZNHW 1205..	637.54	**050**		
AHPC.50.R.05-12	50	5	11	40	49	22	32000	5	ZNHW 1205..			713.91	**050**
AHPC.63.R.04-12	63	4	11	40	49	22	29000	5	ZNHW 1205..	656.72	**063**		
AHPC.63.R.07-12	63	7	11	40	49	22	29000	5	ZNHW 1205..			885.06	**063**
AHPC.80.R.09-12	80	9	11	50	60	27	26000	5	ZNHW 1205..			1,231.37	**080**
AHPC.80.R.05-12	80	5	11	50	60	27	26000	5	ZNHW 1205..	928.01	**080**		
AHPC.100.R.06-12	100	6	11	50	70	32	24000	5	ZNHW 1205..	1,047.13	**100**		
AHPC.100.R.12-12	100	12	11	50	70	32	24000	5	ZNHW 1205..			1,502.46	**100**
AHPC.125.R.08-12	125	8	11	63	72	40	22000	5	ZNHW 1205..	1,241.87	**125**		
AHPC.125.R.14-12	125	14	11	63	72	40	22000	5	ZNHW 1205..			1,698.13	**12514**
AHPC.160.R.10-12	160	10	11	63	118	40	18000	5	ZNHW 1205..	1,546.37	**16010** [1]		
AHPC.160.R.16-12	160	16	11	63	118	40	18000	5	ZNHW 1205..			4,452.96	**16016** [1]
AHPC.200.R.12-12	200	12	11	63	153	60	16000	5	ZNHW 1205..	4,612.37	**20000** [1]		
AHPC.250.R.14-12	250	14	11	63	200	60	14000	5	ZNHW 1205..	5,208.96	**25014** [1]		
AHPC.315.R.18-12	315	18	11	80	265	60	12000	5	ZNHW 1205..	6,561.54	**31518** [1]		

1) Without Through Coolant

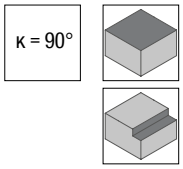
Spare parts DC	TORX® blade 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Wedge 70 950 ... £ 2A/28		Torque screwdriver 80 950 ... £ Y7	
40 - 315	7.02	**036**	4.18	**303**	3.24	**174**	35.12	**199**	192.38	**193**

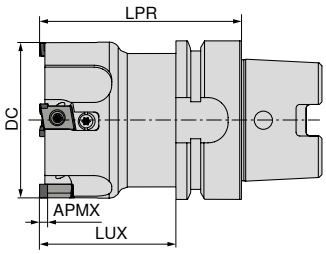
MaxiMill – Monoblock HPC 12

▲ balanced to G 6,3

Scope of supply:

Tool, adjustment wedges and setting key; incl. wooden box







Designation	DC mm	ZNF	APMX mm	LPR mm	LUX mm	RPMX 1/min.	torque moment Nm	Insert	50 721 ... £ 2B/40		50 721 ... £ 2B/40	
MHPC.40.R.04-12-H63A-70	40	4	11	70	44	32000	5	ZNHW 1205..			928.01	**04004**
MHPC.50.R.04-12-H63A-80	50	4	11	80	54	32000	5	ZNHW 1205..			928.01	**05004**
MHPC.50.R.05-12-H63A-80	50	5	11	80	54	32000	5	ZNHW 1205..	1,004.18	**05005**		
MHPC.63.R.04-12-H63A-80	63	4	11	80	54	29000	5	ZNHW 1205..			928.01	**06304**
MHPC.63.R.07-12-H63A-80	63	7	11	80	54	29000	5	ZNHW 1205..	1,155.96	**06307**		
MHPC.80.R.05-12-H63A-90	80	5	11	90	64	26000	5	ZNHW 1205..			1,137.82	**08005**
MHPC.80.R.09-12-H63A-90	80	9	11	90	64	26000	5	ZNHW 1205..	1,443.28	**08009**		
MHPC.100.R.06-12-H63A-90	100	6	11	90	64	24000	5	ZNHW 1205..			1,355.46	**10006**
MHPC.100.R.12-12-H63A-90	100	12	11	90	64	24000	5	ZNHW 1205..	1,813.63	**10012**		
MHPC.125.R.08-12-H63A-123	125	8	11	123	97	22000	5	ZNHW 1205..			3,202.50	**12508**
MHPC.160.R.10-12-H63A-123	160	10	11	123	97	18000	5	ZNHW 1205..			4,330.78	**16010** [1]

1) Without Through Coolant

TORX® blade



Molykote



Clamping screw



Wedge



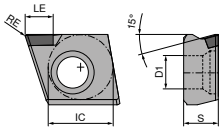
Torque screwdriver

Spare parts DC	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		80 950 ... £ Y7	
40 - 160	7.02	**036**	4.18	**303**	3.24	**174**	35.12	**199**	192.38	**193**

15

ZNHW

Designation	LE mm	D1 mm	IC mm	S mm
ZNHW 120504ER-1503	3	4.85	10	5.40
ZNHW 120504FR-0007	7	4.85	10	5.40
ZNHW 120508ER-1503	3	4.85	10	5.40
ZNHW 120508SR-0003	3	4.85	10	5.40
ZNHW 1205EOER-1002	2	4.85	10	5.40
ZNHW 1205POER-1511	11	4.85	10	5.40
ZNHW 1205POFR-1003	3	4.85	10	5.40
ZNHW 1205POSR-1503	3	4.85	10	5.40
ZNHW 1205POSR-1506	6	4.85	10	5.40
ZNHW 1205POSR-3003	3	4.85	10	5.40
ZNHW 1205ZZSR-5003	3	4.85	10	5.40



ZNHW

		CTL3215		CTD4205		-R CTD4205		CTD4205		-Q CTD4205	
		CBN ZNHW		DIAMOND ZNHW		DIAMOND ZNHW		DIAMOND ZNHW		DIAMOND ZNHW	
		50 515 ...		50 467 ...		50 517 ...		50 468 ...		50 466 ...	
ISO	RE mm	£ 1G/21		£ 1G/22		£ 1G/22		£ 1G/22		£ 1G/22	
120504ER-1503	0.4							110.83	906		
120504FR-0007	0.4							134.98	904		
120508ER-1503	0.8							110.83	910		
120508SR-0003	0.8							110.25	908		
1205EOER-1002		127.82	952								
1205POER-1511				159.69	902						
1205POFR-1003				110.83	90600						
1205POSR-1503				100.22	900						
1205POSR-1506				130.01	90800	130.01	90800				
1205POSR-3003				110.25	904						
1205ZZSR-5003										141.08	900 [1]
P											
M											
K		●									
N				●		●		●		●	
S											
H		○									
O				○		○		○		○	

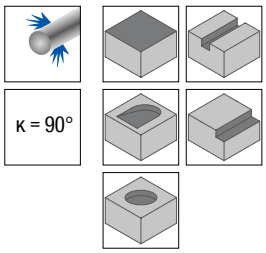
1) -Q = Wiper insert

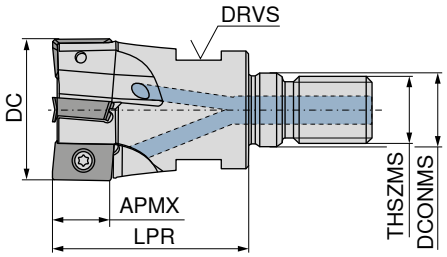
Milling guide

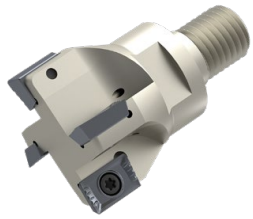
Cutting data standard values	→ 141–144	Machining strategy	→ 168
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

MaxiMill – Screw in cutter G 141

▲ Insert radius >3.2 mm: Modify cutter body





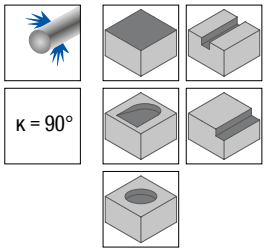


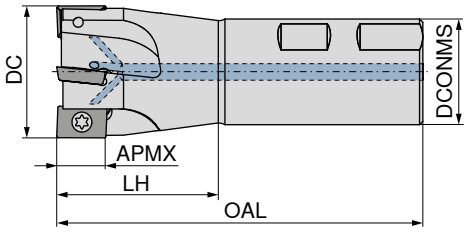
50 770 ...

ISO designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	£ 2B	
G141.25.R.02.IK	25	2	14	35	M12	12.5	17	3,2	LD.. 1504..	159.13	**025**
G141.32.R.03.IK	32	3	14	40	M16	17.0	24	3,2	LD.. 1504..	191.10	**032**
G141.40.R.04.IK	40	4	14	40	M16	17.0	24	3,2	LD.. 1504..	220.22	**040**

MaxiMill – End milling cutter C 141

▲ Insert radius >3.2 mm: Modify cutter body







B

50 771 ...

ISO designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	torque moment Nm	Insert	£ 2B	
C141.20.R.01	20	1	14	25	95	39	3,2	LD.. 1504..	163.13	**020**
C141.25.R.02	25	2	14	25	100	44	3,2	LD.. 1504..	217.16	**025**
C141.32.R.03	32	3	14	32	108	48	3,2	LD.. 1504..	252.28	**032**

TORX® blade

80 950 ...


Key D

80 950 ...


Molykote

70 950 ...


Clamping screw

70 950 ...


Torque screwdriver

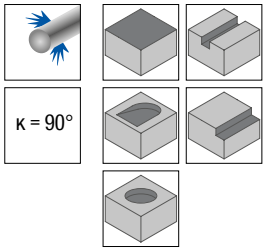
80 950 ...

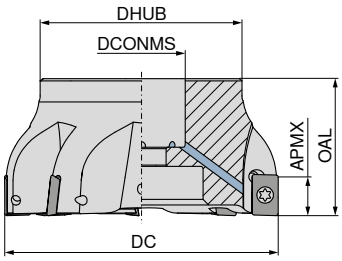
Spare parts DC	£ Y7		£ Y7		£ 2A/28		£ 2A/28		£ Y7	
20 - 40	7.02	**036**	12.87	**113**	4.18	**303**	2.73	**01100**	162.00	**192**

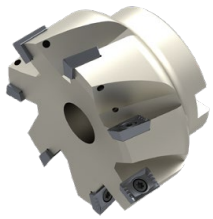
15

MaxiMill – Shell mill A 241

▲ Insert radius >3.2 mm: Modify cutter body







ISO designation	DC mm	ZNF	APMX mm	DHUB mm	DCONMS mm	OAL mm	torque moment Nm	Insert	50 769 ... £ 2B	
A241.40.R.04	40	4	14	33	16	40	3,2	LD.. 1504..	262.22	**040**
A241.50.R.05	50	5	14	43	22	40	3,2	LD.. 1504..	321.30	**050**
A241.52.R.05	52	5	14	43	22	40	3,2	LD.. 1504..	314.33	**052**
A241.63.R.06	63	6	14	48	22	40	3,2	LD.. 1504..	387.36	**063**
A241.66.R.06	66	6	14	58	27	50	3,2	LD.. 1504..	380.29	**066**
A241.80.R.07	80	7	14	58	27	50	3,2	LD.. 1504..	455.51	**080**
A241.100.R.08	100	8	14	75	32	50	3,2	LD.. 1504..	529.48	**100**

TORX® blade


Key D


Molykote

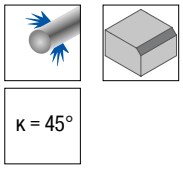

Clamping screw

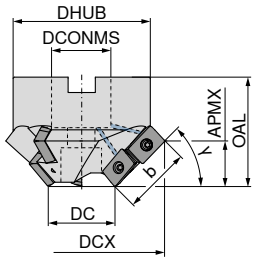

Torque screwdriver

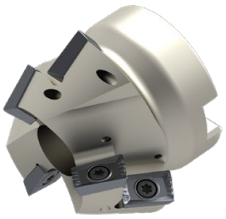
Spare parts DC	80 950 ... £ Y7		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		80 950 ... £ Y7	
40	7.02	**036**	12.87	**113**	4.18	**303**	2.99	**110**	162.00	**192**
50 - 100	7.02	**036**	12.87	**113**	4.18	**303**	2.99	**304**	162.00	**192**

MaxiMill – Chamfer Cutter A 242

▲ Caution: Use only inserts with a corner radius of less than 1.6 mm
▲ ZEFP = number of inserts
▲ ZNP = tooth rows







KAPR °	DC mm	DCX ±0,3 mm	ZNF	APMX ±0,3 mm	ZEFP	b ±0,3 mm	OAL mm	DCONMS mm	DHUB mm	ZNP	torque moment Nm	Insert	50 768 ... £ 2B	
15	35	92.2	3	7.6	6	29.6	50	27	62.5	2	3,2	LD.. 1504..	359.29	**015**
30	35	86.3	3	14.8	6	29.6	50	27	62.5	2	3,2	LD.. 1504..	359.29	**030**
45	35	76.9	3	20.9	6	29.6	50	27	62.5	2	3,2	LD.. 1504..	359.29	**045**
60	35	64.6	3	25.6	6	29.6	50	22	62.5	2	3,2	LD.. 1504..	359.29	**060** 1)
75	35	50.3	3	28.5	6	29.6	60	22	49.0	2	3,2	LD.. 1504..	359.29	**075** 1)

1) Version with Powerscrew

TORX® blade


Clamping key - T


Key D


Power Screw


Molykote


Clamping screw

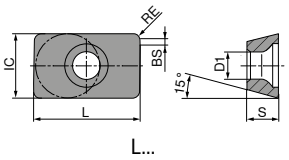

Torque screwdriver


clamping screw

Spare parts KAPR	80 950 ... £ Y7		80 397 ... £ Y7		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		80 950 ... £ Y7		83 950 ... £ Y8	
15 - 45	7.02	**036**			12.87	**113**			4.18	**303**	2.99	**304**	162.00	**192**	7.40	**125**
60 - 75	7.02	**036**	6.39	**050**	12.87	**113**	16.36	**154**	4.18	**303**	2.99	**304**	162.00	**192**		

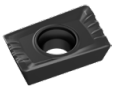
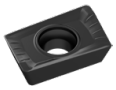
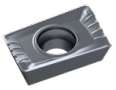
LDFW / LDFT / LDMT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
LD.. 1504PD..	9.52	4.4	15	1.2	4.76
LDFT 150408..	9.52	4.4	15	1.2	4.76
LDFT 150416..	9.52	4.4	15	0.9	4.76
LDFT 150432..	9.52	4.4	15	1.0	4.76
LDFT 1504PD..	9.52	4.4	15	0.8	4.76

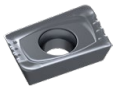
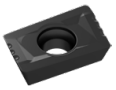
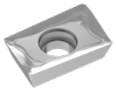


L...

LDFW / LDFT / LDMT

	CTCP230	-29 CTCP230	-29 CTCP230	-29 CTPP235	-29 CTPP235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	LDFW	LDFT	LDMT	LDFT	LDMT
	51 043 ...	51 079 ...	51 080 ...	51 079 ...	51 080 ...
ISO / RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
1504PDSR 0.8	15.25 020	18.26 020	9.32 020	18.26 120	9.32 120
P	●	●	●	●	●
M				○	○
K	○	○	○	○	○
N					
S					
H					
O					

LDFT / LDFW

	-33 CTPM240	CTCK215	-27P H216T
	DRAGONSKIN	DRAGONSKIN	
			
	LDFT	LDFW	LDFT
	51 042 ...	51 043 ...	50 409 ...
ISO / RE mm	£ 1B/61	£ 1B/61	£ 1A/90
150408FR 0.8			18.95 550
150416SR 1.6	17.44 41600		
150432SR 3.2	17.44 43200		
1504PDSR 1.2	17.44 420		
1504PDSR 0.8		15.25 520	
P	○		
M	●		
K		●	○
N			●
S			
H			
O			○

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Milling guide

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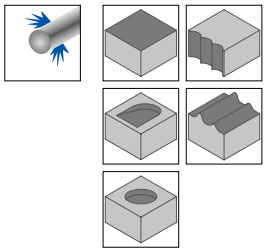
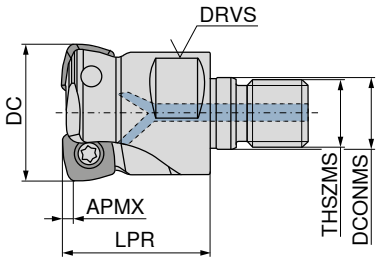
MaxiMill – Screw in cutter G HFC

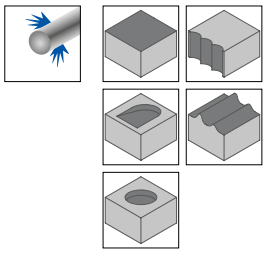


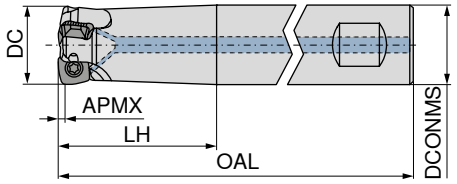




Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 682 ... £ 2B/40	
GHFC.16.R.02-06	16	2	0.8	27	8.5	M8	10	20800	1,2	XPLX 0603..	220.03	616
GHFC.20.R.03-06	20	3	0.8	33	10.5	M10	15	19800	1,2	XPLX 0603..	249.81	620
GHFC.25.R.04-06	25	4	0.8	35	12.5	M12	17	18700	1,2	XPLX 0603..	279.58	625
GHFC.32.R.05-06	32	5	0.8	35	17.0	M16	24	22000	1,2	XPLX 0603..	309.37	632
GHFC.42.R.07-06	42	7	0.8	35	17.0	M16	24	15000	1,2	XPLX 0603..	340.39	04207
GHFC.25.R.02-09	25	2	1.0	35	12.5	M12	17	30000	3,2	XDLX 09T3..	263.46	025
GHFC.25.R.03-09	25	3	1.0	35	12.5	M12	17	30000	3,2	XDLX 09T3..	282.83	125
GHFC.32.R.03-09	32	3	1.0	35	17.0	M16	24	27000	3,2	XDLX 09T3..	295.43	032
GHFC.42.R.05-09	42	5	1.0	35	17.0	M16	24	26100	3,2	XDLX 09T3..	330.94	04205
GHFC.32.R.02-12	32	2	2.0	35	17.0	M16	24	21600	5	XOLX 1204..	276.34	132
GHFC.35.R.03-12	35	3	2.0	35	17.0	M16	24	21360	5	XOLX 1204..	295.43	035
GHFC.42.R.04-12	42	4	2.0	35	17.0	M16	24	20800	5	XOLX 1204..	319.11	04204

MaxiMill – End milling cutter C HFC

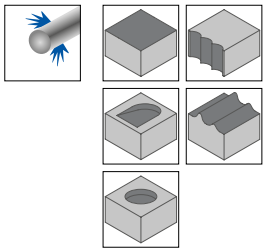


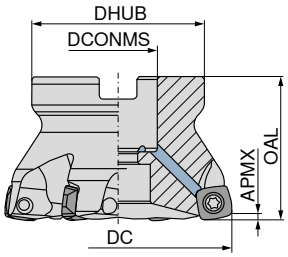


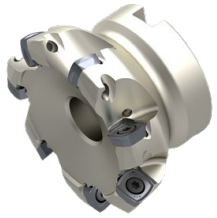


Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	torque moment Nm	Insert	A 50 681 ... £ 2B/40		B 50 681 ... £ 2B/40	
CHFC.16.R.02-06-A-40-200	16	2	0.8	200	40	16	4600	1,2	XPLX 0603..	220.03	716		
CHFC.16.R.02-06-B-40	16	2	0.8	89	40	16	17300	1,2	XPLX 0603..			220.03	616
CHFC.20.R.03-06-B-50	20	3	0.8	101	50	20	14500	1,2	XPLX 0603..			249.81	620
CHFC.20.R.03-06-A-50-225	20	3	0.8	225	50	20	4200	1,2	XPLX 0603..	249.81	720		
CHFC.25.R.04-06-B-50	25	4	0.8	107	50	25	15600	1,2	XPLX 0603..			279.58	625
CHFC.25.R.04-06-A-50-225	25	4	0.8	225	50	25	4600	1,2	XPLX 0603..	279.58	725		
CHFC.32.R.05-06-B-25-60	32	5	0.8	117	60	25	11000	1,2	XPLX 0603..			309.37	632
CHFC.32.R.05-06-A-25-60-225	32	5	0.8	225	60	25	3900	1,2	XPLX 0603..	309.37	732		
CHFC.25.R.02-09-A-50-225	25	2	1.0	225	50	25	9000	3,2	XDLX 09T3..	263.46	025		
CHFC.25.R.03-09-A-50-225	25	3	1.0	225	50	25	9000	3,2	XDLX 09T3..	282.83	125		
CHFC.32.R.03-09-A-63-250	32	3	1.0	250	63	32	8100	3,2	XDLX 09T3..	295.43	032		
CHFC.32.R.02-12-A-63-250	32	2	2.0	250	63	32	6480	5	XOLX 1204..	276.34	132		
CHFC.35.R.03-12-A-63-250	35	3	2.0	250	63	32	6480	5	XOLX 1204..	295.43	035		

MaxiMill – Shell mill A HFC







Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 683 ... £ 2B/40	
AHFC.32.R.03-09	32	3	1.0	40	16	38	27700	3,2	XDLX 09T3..	295.43	032
AHFC.35.R.04-09	35	4	1.0	40	16	38	26700	3,2	XDLX 09T3..	314.72	035
AHFC.40.R.04-09	40	4	1.0	40	16	38	26400	3,2	XDLX 09T3..	327.60	140
AHFC.42.R.05-09	42	5	1.0	40	16	38	26100	3,2	XDLX 09T3..	346.78	142
AHFC.50.R.05-09	50	5	1.0	40	22	43	23500	3,2	XDLX 09T3..	385.44	150
AHFC.52.R.06-09	52	6	1.0	40	22	43	23000	3,2	XDLX 09T3..	404.72	152
AHFC.63.R.06-09	63	6	1.0	40	22	48	20500	3,2	XDLX 09T3..	443.19	163
AHFC.66.R.07-09	66	7	1.0	40	22	48	20000	3,2	XDLX 09T3..	462.47	16600
AHFC.40.R.03-12	40	3	2.0	40	16	38	21120	5	XOLX 1204..	308.42	040
AHFC.42.R.04-12	42	4	2.0	40	16	38	20880	5	XOLX 1204..	327.60	042
AHFC.50.R.04-12	50	4	2.0	40	22	43	18800	5	XOLX 1204..	366.07	050
AHFC.52.R.05-12	52	5	2.0	40	22	43	18400	5	XOLX 1204..	385.44	052
AHFC.63.R.05-12	63	5	2.0	40	22	48	16400	5	XOLX 1204..	423.82	063
AHFC.66.R.06-12	66	6	2.0	40	22	48	16000	5	XOLX 1204..	443.19	066
AHFC.80.R.07-12	80	7	2.0	50	27	58	14000	5	XOLX 1204..	501.04	080
AHFC.100.R.08-12	100	8	2.0	50	32	78	12000	5	XOLX 1204..	558.98	100
AHFC.63.R.05-19	63	5	3.3	40	22	48	5500	5	XOLX 1906..	443.77	263
AHFC.80.R.06-19	80	6	3.3	50	27	58	4700	5	XOLX 1906..	539.23	280
AHFC.100.R.08-19	100	8	3.3	52	32	78	4100	5	XOLX 1906..	641.83	300
AHFC.125.R.10-19	125	10	3.3	63	40	88	3600	5	XOLX 1906..	806.21	325
AHFC.160.R.11-19	160	11	3.3	63	40	98	3100	5	XOLX 1906..	974.59	360 [1]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

Spare parts	TORX® blade 80 950 ... £ Y7		Clamping key - T 80 397 ... £ Y7		Key D 80 950 ... £ Y7		Power Screw 70 950 ... £ 2A/28		Molykote 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Torque screwdriver 80 950 ... £ Y7	
XDLX 09T3..	7.02	036			12.87	113			4.18	303	2.99	110	162.00	192
XDLX 09T3.. (Ø32 – Ø42)	7.02	036	5.02	040	12.87	113	11.92	151	4.18	303	2.99	110	162.00	192
XOLX 1204..	7.02	037			13.77	114			4.18	303	2.99	01200	192.38	193
XOLX 1204.. (Ø40 – Ø42)	7.02	037	5.02	040	13.77	114	11.92	151	4.18	303	2.99	01200	192.38	193
XOLX 1906..	7.02	037			13.77	114			4.18	303	3.91	302	192.38	193
XPLX 0603..	7.02	033			10.82	110			4.18	303	2.46	116	162.00	192

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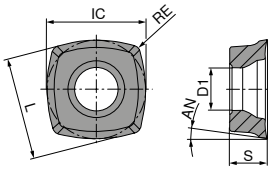
XPLX / XDLX / XOLX / XOHX

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
XPLX 0603..	6.35	2.8	6	1	2.75	11
XDLX 09T3..	9.52	4.4	9	1.9	3.97	15
XO.X 1204..	12.70	5.5	12	1.3	4.76	10
XOLX 1906..	19.14	6.0	19	-	6.35	10



XPLX

NEW

	-M50 CTCP220	-M50 CTPP225	-M50 CTPP235	-M50 CTPM225	-M50 CTPM240	-F40 CTPM245	-F40 CTCM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	XPLX	XPLX	XPLX	XPLX	XPLX	XPLX	XPLX
	51 019 ...	51 019 ...	51 019 ...	51 019 ...	51 019 ...	51 116 ...	51 116 ...
ISO / RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
060305ER 0.5						14.37 455	14.37 90501
060305SR 0.5	11.78 255	11.78 055	11.78 105	11.78 205	11.78 405		
P	●	●	●	●	○	●	●
M			○	●	●	●	●
K			○				
N							
S							○
H							
O							

XPLX

	-M50 CTCK215	-F40 CTC5240	-F40 CTCS245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
			
	XPLX	XPLX	XPLX
	51 019 ...	50 518 ...	51 116 ...
ISO / RE mm	£ 1B/61	£ 17	£ 17
060305ER 0.5		14.37 558	14.37 55500
060305SR 0.5	11.78 505		
P			
M			
K	●		
N			
S		●	●
H			
O			

XDLX

		-M50 CTCP220	-M50 CTPP225	-M50 CTCP230	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XDLX	XDLX	XDLX	XDLX
		51 016 ...	51 016 ...	51 016 ...	51 016 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
09T308SR	0.8	12.14 258	12.14 058	12.14 008	12.14 108
P		●	●	●	●
M					○
K				○	○
N					
S					
H					
O					

XDLX

		NEW					
		-M50 CTPM225	-M50 CTCM235	-M50 CTPM240	-F40 CTPM245	-M50 CTPM245	-M50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		XDLX	XDLX	XDLX	XDLX	XDLX	XDLX
		51 016 ...	51 016 ...	51 016 ...	51 115 ...	51 016 ...	51 016 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17	£ 1H/17
09T308ER	0.8				14.66 458		
09T308SR	0.8	12.14 208	12.14 308	12.14 408		14.66 458	14.66 90801
P		●	●	○	●	●	●
M		●	●	●	●	●	●
K							
N							
S							○
H							
O							

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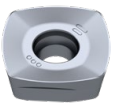
XDLX / XOLX

		-M50 CTCK215		NEW -M50 CTPK220		-F40 CTC5240		-F40 CTCS245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
									
		XDLX		XOLX		XDLX		XDLX	
		51 016 ...		51 017 ...		50 503 ...		51 115 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 17		£ 17	
09T308ER	0.8					14.66	558	14.66	558
09T308SR	0.8	12.14	508						
190615SR	1.5			21.16	61500				
P									
M									
K		●		●					
N									
S						●		●	
H									
O									

XOLX

		-M50 CTCP220		-M50 CTPP225		-M50 CTCP230		-M50 CTPP235		-R50 CTPP235	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
											
		XOLX		XOLX		XOLX		XOLX		XOLX	
		51 017 ...		51 017 ...		51 017 ...		51 017 ...		51 018 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61	
120410SR	1.0	14.56	260	14.56	060	14.56	010	14.56	110	14.56	110
P		●		●		●		●		●	
M								○		○	
K						○		○		○	
N											
S											
H											
O											

XOLX

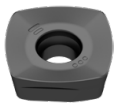
		-M50 CTPM225	-M50 CTCM235	-M50 CTPM240	-F40 CTPM245	-M50 CTPM245	NEW -F40 CTCM245	NEW -M50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		XOLX	XOLX	XOLX	XOLX	XOLX	XOLX	XOLX
		51 017 ...	51 017 ...	51 017 ...	51 022 ...	51 017 ...	51 022 ...	51 017 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17	£ 1H/17	£ 1H/17
120410ER	1.0				17.15 460		17.15 91001	
120410SR	1.0	14.56 210	14.56 310	14.56 410		17.15 460		17.15 91001
P		●	●	○	●	●	●	●
M		●	●	●	●	●	●	●
K								
N								
S							○	○
H								
O								

XOLX / XOHX

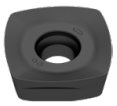
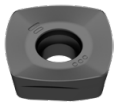
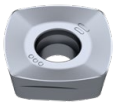
		-M50 CTCK215	-F40 CTC5240	-F50 CTC5240	-F40 CTCS245	-F50 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XOLX	XOLX	XOHX	XOLX	XOHX
		51 017 ...	50 504 ...	51 124 ...	51 022 ...	51 124 ...
ISO	RE mm	£ 1B/61	£ 17	£ 17	£ 17	£ 17
120410ER	1.0		17.15 558		17.15 560	
120410SR	1.0	14.56 510		22.29 16000		22.29 56000
P						
M						
K		●				
N						
S			●	●	●	●
H						
O						

15

XOLX

		-M50 CTCP230	-M50 CTPP235	-M50 CTPM240	-F40 CTPM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XOLX	XOLX	XOLX	XOLX
		51 017 ...	51 017 ...	51 017 ...	51 022 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17
190615ER	1.5				26.02 465
190615SR	1.5	21.16 015	21.16 115	21.16 415	
P		●	●	○	●
M			○	●	●
K		○	○		
N					
S					
H					
O					

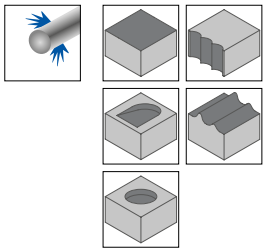
XOLX

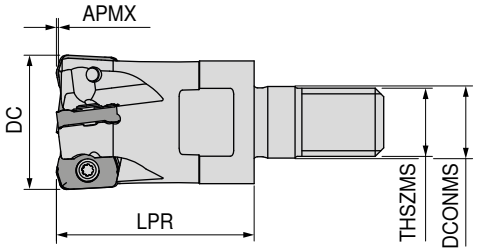
		NEW -F40 CTCM245	-M50 CTCK215	NEW -M50 CTPK220	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XOLX	XOLX	XOLX	XOLX	XOLX
		51 022 ...	51 017 ...	51 017 ...	50 504 ...	51 022 ...
ISO	RE mm	£ 1H/17	£ 1B/61	£ 1B/61	£ 17	£ 17
190615ER	1.5	26.02 91501			26.02 515	26.02 56500
190615SR	1.5		21.16 515	21.16 61500		
P		●				
M		●				
K			●	●		
N						
S		○			●	●
H						
O						

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 172–175
Starting Parameter	→ 172–175	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Screw in cutter G DHFC

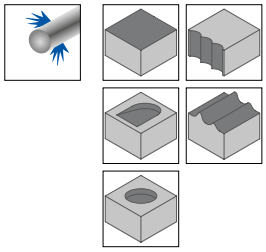


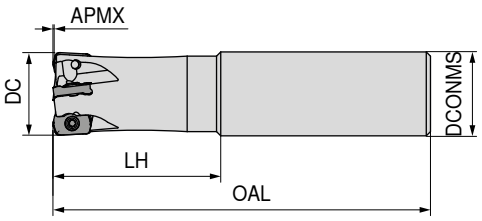




Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	torque moment Nm	Insert	56 411 ... £ WA	
GDHFC.16.R.02-09	16	2	0.75	29	8.5	M8	0,65	LNKX 0925..	212.34	01602
GDHFC.16.R.03-09	16	3	0.75	29	8.5	M8	0,65	LNKX 0925..	231.53	01603
GDHFC.20.R.04-09	20	4	0.75	29	10.5	M10	0,65	LNKX 0925..	265.68	02004
GDHFC.25.R.05-09	25	5	0.75	33	12.5	M12	0,65	LNKX 0925..	308.35	02505
GDHFC.32.R.05-09	32	5	0.75	42	17.0	M16	0,65	LNKX 0925..	329.70	03205
GDHFC.35.R.06-09	35	6	0.75	42	17.0	M16	0,65	LNKX 0925..	348.87	03506
GDHFC.42.R.06-09	42	6	0.75	42	17.0	M16	0,65	LNKX 0925..	363.85	04206

MaxiMill – End milling cutter C DHFC







A

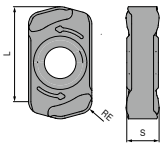
Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	torque moment Nm	Insert	56 417 ... £ WA	
CDHFC.16.R.05-09-A-32	16	3	0.75	80	32	16	0,65	LNKX 0925..	231.53	01603
CDHFC.20.R.04-09-A-40	20	4	0.75	90	40	20	0,65	LNKX 0925..	265.68	02004

Spare parts DC	TORX® blade 80 950 ... £ Y7		Key D 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Clamping screw 56 950 ... £ WA		Torque screwdriver 80 950 ... £ Y7	
16 - 42	7.02	051	10.99	117	4.18	303	3.31	15000	171.76	191

15

LNKX

Designation	L mm	S mm
LNKX 0925..	9	2.50



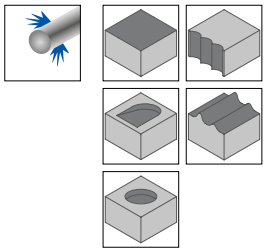
LNKX

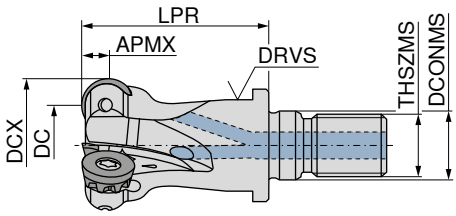
ISO	RE mm	-R50 CTPP231	-M50 CTPP236	-R50 CTPP236	-M50 CTPM241	-R50 CTPK221
						
		LNKX	LNKX	LNKX	LNKX	LNKX
		56 353 ...	56 355 ...	56 353 ...	56 355 ...	56 353 ...
		£ WB	£ WB	£ WB	£ WB	£ WB
0925ZSR	1	17.44 12000	17.44 02500	17.44 02000	17.44 42500	17.44 27000
P		●	●	●	○	○
M		○	○	○	●	
K		○	○	○		●
N						
S					○	
H						
O						

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 176
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

MaxiMill – Screw in cutter G 251



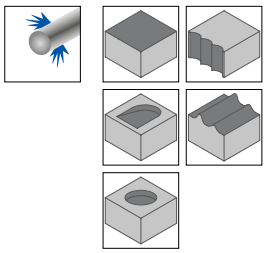


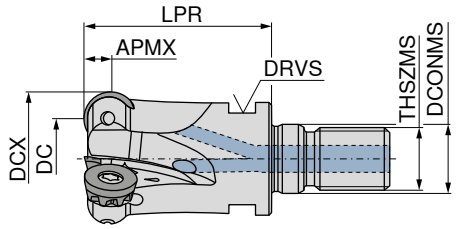


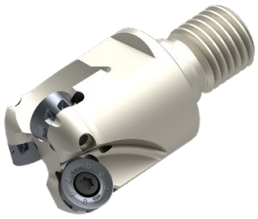
55 112 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	DRVS mm	torque moment Nm	Insert	£ 2B	
G251.10.R.02-05	5	10	2	2.5	M8	20	8.5	10	0,7	RDHX 0501..	144.13	110
G251.12.R.03-05	7	12	3	2.5	M8	20	8.5	10	0,7	RDHX 0501..	194.16	112
G251.15.R.04-05	10	15	4	2.5	M8	20	8.5	10	0,7	RDHX 0501..	227.18	115
G251.16.R.04-05	11	16	4	2.5	M8	20	8.5	10	0,7	RDHX 0501..	227.18	216
G251.20.R.05-05	15	20	5	2.5	M10	25	10.5	15	0,7	RDHX 0501..	268.22	320
G251.20.R.03-08	12	20	3	4.0	M10	28	10.5	15	1,2	RDHX 0802..	194.16	420
G251.25.R.04-08	17	25	4	4.0	M12	28	12.5	17	1,2	RDHX 0802..	243.22	425
G251.32.R.06-08	24	32	6	4.0	M16	28	17.0	24	1,2	RDHX 0802..	321.30	432
G251.35.R.06-08	27	35	6	4.0	M16	28	17.0	24	1,2	RDHX 0802..	321.30	435
G251.20.R.02-10	10	20	2	5.0	M10	33	10.5	15	2	RP.X 10T3..	206.18	220
G251.32.R.04-10	22	32	4	5.0	M16	35	17.0	24	2	RP.X 10T3..	301.26	232
G251.35.R.05-10	25	35	5	5.0	M16	35	17.0	24	2	RP.X 10T3..	337.33	235
G251.25.R.02-12.IK	13	25	2	6.0	M12	35	12.5	17	3,2	RP.X 1204..	203.23	525
G251.32.R.03-12.IK	20	32	3	6.0	M16	35	17.0	24	3,2	RP.X 1204..	247.22	532
G251.35.R.03-12.IK	23	35	3	6.0	M16	35	17.0	24	3,2	RP.X 1204..	247.22	535
G251.42.R.04-12.IK	30	42	4	6.0	M16	42	17.0	24	3,2	RP.X 1204..	294.28	542

MaxiMill – Screw in cutter G 251 RS



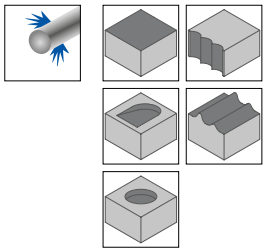


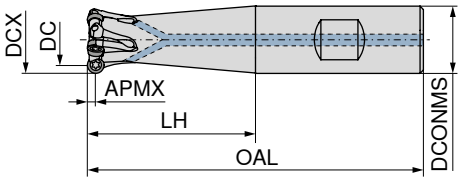


50 684 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
G251.20.R.05-05-RS	15	20	5	2.5	10.5	33	M10	15	31800	0,7	RDHX 0501..	266.12	220
G251.25.R.06-05-RS	20	25	6	2.5	12.5	35	M12	17	24450	0,7	RDHX 0501..	306.41	225
G251.32.R.07-05-RS	27	32	7	2.5	17.0	35	M16	24	19850	0,7	RDHX 0501..	367.59	232
G251.20.R.03-08-RS	12	20	3	4.0	10.5	33	M10	15	25000	1,2	RDHX 0802..	249.81	120
G251.25.R.04-08-RS	17	25	4	4.0	12.5	35	M12	17	19000	1,2	RDHX 0802..	279.58	125
G251.32.R.05-08-35-RS	24	32	5	4.0	17.0	35	M16	24	19000	1,2	RDHX 0802..	339.92	132
G251.20.R.02-10-RS	10	20	2	5.0	10.5	33	M10	15	30000	2	RP.X 10T3..	202.07	020
G251.25.R.03-10-RS	15	25	3	5.0	12.5	35	M12	17	30000	2	RP.X 10T3..	271.67	025
G251.32.R.04-10-RS	22	32	4	5.0	17.0	35	M16	24	25000	2	RP.X 10T3..	316.14	032
G251.25.R.02-12-35-RS	13	25	2	6.0	12.5	35	M12	17	25000	3,2	RP.X 1204..	195.97	525
G251.32.R.03-12-35-RS	20	32	3	6.0	17.0	35	M16	24	19850	3,2	RP.X 1204..	239.12	532
G251.35.R.03-12-35-RS	23	35	3	6.0	17.0	35	M16	24	15900	3,2	RP.X 1204..	239.12	535
G251.42.R.04-12-42-RS	30	42	4	6.0	17.0	42	M16	24	15000	3,2	RP.X 1204..	284.17	542

MaxiMill – End milling cutter C 251 RS







Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	RPMX 1/min.	Insert	A 50 685 ... £ 2B/40		B 50 685 ... £ 2B/40	
C251.10.R-02-05-B-12-20-RS	5	10	2	2.5	67	21.5	12	40000	RDHX 0501..			184.03	010
C251.10.R-02-05-A-25-165-RS	5	10	2	2.5	165	25.0	10	12000	RDHX 0501..	177.73	110		
C251.12.R-03-05-B-16-25-RS	7	12	3	2.5	75	25.0	16	40000	RDHX 0501..			232.14	012
C251.12.R-03-05-A-32-165-RS	7	12	3	2.5	165	32.0	12	16000	RDHX 0501..	223.56	112		
C251.16.R-04-05-B-32-RS	11	16	4	2.5	81	32.0	16	40000	RDHX 0501..			271.67	316
C251.16.R-04-05-A-40-165-RS	11	16	4	2.5	165	40.0	16	18000	RDHX 0501..	265.46	016		
C251.20.R-05-05-B-40-RS	15	20	5	2.5	91	40.0	20	31800	RDHX 0501..			316.14	620
C251.20.R-05-05-A-50-165-RS	15	20	5	2.5	165	50.0	20	18000	RDHX 0501..	310.13	120		
C251.16.R-02-08-B-32-RS	8	16	2	4.0	81	32.0	16	40000	RDHX 0802..			191.48	116
C251.16.R-02-08-A-40-165-RS	8	16	2	4.0	165	40.0	16	18000	RDHX 0802..	184.03	216		
C251.20.R-03-08-B-40-RS	12	20	3	4.0	91	40.0	20	31800	RDHX 0802..			243.32	220
C251.20.R-03-08-A-60-RS	12	20	3	4.0	110	50.0	20	30000	RDHX 0802..	249.81	020		
C251.20.R-03-08-A-50-200-RS	12	20	3	4.0	200	50.0	20	25000	RDHX 0802..	235.87	320		
C251.25.R-04-08-B-50-RS	17	25	4	4.0	107	50.0	25	25500	RDHX 0802..			287.70	625
C251.25.R-04-08-A-60-RS	17	25	4	4.0	116	60.0	25	19000	RDHX 0802..	279.58	125		
C251.25.R-04-08-A-60-225-RS	17	25	4	4.0	225	60.0	25	18000	RDHX 0802..	280.26	225		
C251.20.R-02-10-A-50-RS	10	20	2	5.0	102	50.0	20	25000	RP.X 10T3..	203.79	420		
C251.20.R-02-10-A-50-200-RS	10	20	2	5.0	200	50.0	20	25000	RP.X 10T3..	203.79	520		
C251.25.R.03-10-A-60-RS	15	25	3	5.0	116	60.0	25	25000	RP.X 10T3..	275.38	025		
C251.25.R-03-10-B-60-RS	15	25	3	5.0	116	60.0	25	20000	RP.X 10T3..			275.38	325
C251.25.R-03-10-A-60-225-RS	15	25	3	5.0	225	60.0	25	18000	RP.X 10T3..	275.38	425		
C251.32.R.04-10-A-70-RS	22	32	4	5.0	130	70.0	32	25000	RP.X 10T3..	310.13	032		
C251.25.R-02-12-B-30-RS	13	25	2	6.0	86	30.0	25	25000	RP.X 1204..			251.14	525
C251.32.R-03-12-A-RS	20	32	3	6.0	100	40.0	32	19000	RP.X 1204..	290.47	232		
C251.32.R-03-12-B-40-RS	20	32	3	6.0	100	40.0	32	19000	RP.X 1204..			290.47	132

TORX® blade


Key D

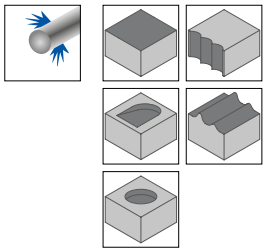

Molykote

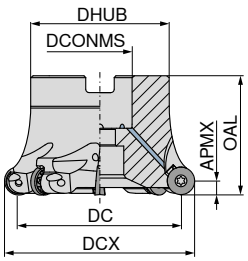

Clamping screw

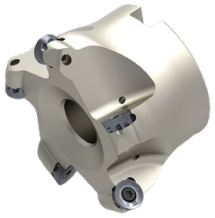

Torque screwdriver

Spare parts Insert	TORX® blade 80 950 ... £ Y7		Key D 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Torque screwdriver 80 950 ... £ Y7	
RDHX 0501..	7.02	031	11.71	108	4.18	303	2.46	149	171.76	191
RDHX 0802..	7.02	033	10.82	110	4.18	303	2.46	116	171.76	191
RP.X 10T3..	7.02	035	12.65	112	4.18	303	2.46	840	162.00	192
RP.X 1204..	7.02	036	12.87	113	4.18	303	2.99	304	162.00	192

MaxiMill – Shell mill A 251 RS







50 686 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
A251.40.R.03-10-RS	30	40	3	5	40	38	16	15900	2	RP.X 10T3..	301.26	**240**
A251.40.R.05-10-RS	30	40	5	5	40	38	16	16000	2	RP.X 10T3..	339.53	**140**
A251.42.R.06-10-RS	32	42	6	5	40	38	16	16000	2	RP.X 10T3..	390.22	**142**
A251.50.R.04-10-RS	40	50	4	5	40	43	22	12700	2	RP.X 10T3..	330.84	**350**
A251.50.R.06-10-RS	40	50	6	5	40	43	22	12500	2	RP.X 10T3..	403.78	**150**
A251.52.R.06-10-RS	42	52	6	5	40	43	22	12500	2	RP.X 10T3..	403.78	**152**
A251.40.R.04-12-RS	28	40	4	6	40	38	16	15900	3,2	RP.X 1204..	312.32	**340**
A251.50.R.04-12-RS	38	50	4	6	40	43	22	12700	3,2	RP.X 1204..	322.35	**250**
A251.50.R.05-12-RS	38	50	5	6	40	43	22	12500	3,2	RP.X 1204..	379.05	**050**
A251.52.R.05-12-RS	40	52	5	6	40	43	22	12500	3,2	RP.X 1204..	397.57	**052**
A251.63.R.06-12-RS	51	63	6	6	40	48	22	10000	3,2	RP.X 1204..	468.02	**063**
A251.66.R.07-12-RS	54	66	7	6	40	48	22	9000	3,2	RP.X 1204..	493.41	**166**
A251.80.R.05-12-RS	68	80	5	6	50	58	27	7950	3,2	RP.X 1204..	427.16	**180**
A251.80.R.07-12-RS	68	80	7	6	50	58	27	8000	3,2	RP.X 1204..	527.96	**080**
A251.100.R.06-12-RS	88	100	6	6	50	78	32	6350	3,2	RP.X 1204..	476.70	**100**
A251.100.R.10-12-RS	88	100	10	6	50	78	32	6350	3,2	RP.X 1204..	696.43	**200**
A251.50.R.04-16-RS	34	50	4	8	40	48	22	12700	5	RP.X 1605..	379.05	**450**
A251.52.R.04-16-RS	36	52	4	8	40	48	22	10100	5	RP.X 1605..	379.05	**452**
A251.63.R.05-16-RS	47	63	5	8	40	48	22	10100	5	RP.X 1605..	477.84	**163**
A251.66.R.05-16-RS	50	66	5	8	40	48	22	7950	5	RP.X 1605..	481.37	**466**
A251.80.R.06-16-RS	64	80	6	8	50	58	27	7950	5	RP.X 1605..	580.37	**280**
A251.100.R.07-16-RS	84	100	7	8	50	78	32	6350	5	RP.X 1605..	678.02	**300**
A251.125.R.08-16-RS	109	125	8	8	63	88	40	5050	5	RP.X 1605..	717.62	**225**
A251.80.R.05-20-RS	60	80	5	10	50	58	27	7950	5	RP.X 2006..	491.40	**380**
A251.100.R.06-20-RS	80	100	6	10	50	78	32	6350	5	RP.X 2006..	587.81	**400**
A251.125.R.06-20-RS	105	125	6	10	63	88	40	5050	5	RP.X 2006..	595.16	**125**

TORX® blade


Clamping key - T


Key D


Power Screw


Molykote


Clamping screw


Torque screwdriver

	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£		£		£	
Insert	Y7		Y7		Y7		2A/28		2A/28		2A/28		Y7	
RP.X 10T3..	7.02	**035**	5.02	**040**	12.65	**112**	11.92	**151**	4.18	**303**	2.46	**840**	162.00	**192**
RP.X 1204..	7.02	**036**	5.02	**040**	12.87	**113**	11.92	**151**	4.18	**303**	2.99	**304**	162.00	**192**
RP.X 1605..	7.02	**037**	6.39	**050**	13.77	**114**	16.36	**154**	4.18	**303**	2.99	**01200**	192.38	**193**
RP.X 2006..	7.02	**037**			13.77	**114**			4.18	**303**	3.91	**302**	192.38	**193**

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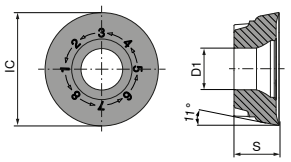
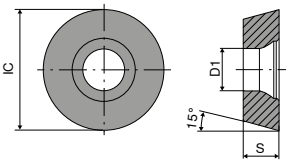
RDHX / RPHX / RPNX

Designation	IC mm	D1 mm	S mm
RDHX 0501..	5	2.5	1.59
RDHX 0802..	8	2.8	2.38
RP.X 10T3..	10	3.4	3.97
RP.X 1204..	12	4.4	4.76
RP.X 1605..	16	5.5	5.56
RP.X 2006..	20	6.0	6.35



RP.X 10T3.. / RP.X 1204.. / RP.X 1605.. / RPNX 2006..



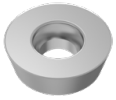
RDHX 0501.. / RDHX0802..

RDHX

NEW

	-SN CTCP230	-SN CTPP235	-F50 CTPM240	-F50 CTPM245	-F50 CTCM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	RDHX	RDHX	RDHX	RDHX	RDHX
	51 048 ...	51 048 ...	51 083 ...	51 083 ...	51 083 ...
ISO	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
0501M0SN	11.56 020	11.56 120		10.62 465	
0802M0SN	11.80 025	11.80 125	11.80 420	13.98 470	13.98 92001
0802M4SN				13.98 471	13.98 92101
P	●	●	○	●	●
M		○	●	●	●
K	○	○			
N					
S					○
H					
O					

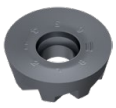
RDHX

	-EN CTCK215	-FN H216T	-M31 CTC5240	-F50 CTCS245
	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
				
	RDHX	RDHX	RDHX	RDHX
	51 048 ...	50 481 ...	50 481 ...	51 083 ...
ISO	£ 1B/61	£ 1B/61	£ 17	£ 17
0501M0FN		9.18 600		
0802M0EN			13.98 500	
0802M0FN		9.46 602		
0802M0SN				13.98 570
0802M4EN	11.80 520		13.98 50100	
P				
M				
K	●	○		
N		●		
S			●	●
H				
O		○		

RPHX / RPNX

	-SN TCM10	-F50 CTCP230 DRAGONSKIN	-M50 CTCP230 DRAGONSKIN	-SN CTCP230 DRAGONSKIN	-SN CTCP230 DRAGONSKIN
					
	CERMET				
	RPHX	RPNX	RPNX	RPHX	RPNX
	50 483 ...	51 055 ...	51 054 ...	51 052 ...	51 057 ...
ISO	£ 1B/79	£ 1B/18	£ 1B/61	£ 1B/61	£ 1B/61
10T3M0SN	12.24 900				
10T3M8SN		12.24 020	9.32 020	12.24 020	
1204M0SN	13.42 902				
1204M8SN		10.71 025	10.71 025	13.42 025	10.71 025
1605M8SN			14.56 030	18.26 030	14.56 030
2006M8SN					18.95 035
P	●	●	●	●	●
M					
K	○	○	○	○	○
N					
S					
H					
O					

RPHX / RPNX

	-F50 CTPP235 DRAGONSKIN	-F50 CTPP235 DRAGONSKIN	-M30 CTPP235 DRAGONSKIN	-M30 CTPP235 DRAGONSKIN
				
	RPHX	RPNX	RPHX	RPNX
	51 051 ...	51 055 ...	51 049 ...	51 053 ...
ISO	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
10T3M8EN			12.24 120	
10T3M8SN	12.24 12000	9.32 120		
1204M8SN	13.42 125	10.71 125		
1605M0SN		14.56 130		
2006M8EN				18.95 120
P	●	●	●	●
M	○	○	○	○
K	○	○	○	○
N				
S				
H				
O				

15

RPNX / RPHX

	-M50 CTPP235 DRAGONSKIN		-M50 CTPP235 DRAGONSKIN		-SN CTPP235 DRAGONSKIN		-SN CTPP235 DRAGONSKIN	
								
	RPNX		RPHX		RPHX		RPNX	
	51 054 ...		51 050 ...		51 052 ...		51 057 ...	
ISO	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/18	
10T3M8SN	9.32	12000	12.24	12000	12.24	120		
1204M8SN	10.71	125			13.42	125	10.71	125
1605M8SN	14.56	130			18.26	130	14.56	130
2006M8SN							18.95	135
P	●		●		●		●	
M	○		○		○		○	
K	○		○		○		○	
N								
S								
H								
O								

RPHX

	-F50 CTPM225 DRAGONSKIN		-M30 CTPM225 DRAGONSKIN		-SN CTPM225 DRAGONSKIN		-F50 CTCM235 DRAGONSKIN		-M30 CTCM235 DRAGONSKIN	
										
	RPHX		RPHX		RPHX		RPHX		RPHX	
	51 051 ...		51 049 ...		51 052 ...		51 051 ...		51 049 ...	
ISO	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61	
1204M8EN			13.42	225					13.42	325
1204M8SN	13.42	225			13.42	225	13.42	325		
P	●		●		●		●		●	
M	●		●		●		●		●	
K										
N										
S										
H										
O										

RPHX / RPNX

ISO	-F50 CTPM240 DRAGONSKIN RPHX 51 051 ... £ 1B/61		-F50 CTPM240 DRAGONSKIN RPNX 51 055 ... £ 1B/61		-M30 CTPM240 DRAGONSKIN RPHX 51 049 ... £ 1B/61		-M30 CTPM240 DRAGONSKIN RPNX 51 053 ... £ 1B/61		-M50 CTPM240 DRAGONSKIN RPHX 51 050 ... £ 1B/61	
10T3M8EN					12.24	420				
10T3M8SN	12.24	420							12.24	420
1204M8EN					13.42	425				
1204M8SN	13.42	425							13.42	425
1605M8EN					18.26	430				
1605M8SN	18.26	430								
2006M8EN							18.95	420		
2006M8SN			18.95	435						
P	○		○		○		○		○	
M	●		●		●		●		●	
K										
N										
S										
H										
O										

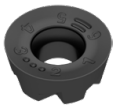
RPHX / RPNX

ISO	CTPM245 DRAGONSKIN RPHX 51 052 ... £ 1H/17		-F50 CTPM245 DRAGONSKIN RPHX 51 051 ... £ 1H/17		-F50 CTPM245 DRAGONSKIN RPNX 51 055 ... £ 1H/17		-M32 CTPM245 DRAGONSKIN RPHX 51 108 ... £ 1H/17		-M50 CTPM245 DRAGONSKIN RPHX 51 050 ... £ 1H/17	
10T3M4SN			15.46	470 [1]	12.85	470 [1]			15.46	470 [1]
10T3M8SN			15.46	471	12.85	471			15.46	471
1204M4EN	17.03	475 [1]					17.03	475 [1]		
1204M4SN			17.03	475 [1]	15.12	475 [1]			17.03	475 [1]
1204M6SN			17.03	476					17.03	476
1204M8SN			17.03	477	15.12	476			17.03	477
1605M8SN			23.24	480						
2006M4SN			29.43	485 [1]						
2006M8SN					23.24	485				
P	●		●		●		●		●	
M	●		●		●		●		●	
K										
N										
S										
H										
O										

1) Insert with 4 indexes

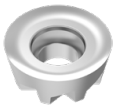
15

RPNX / RPHX

	NEW -F50 CTCM245 DRAGONSKIN		NEW -M50 CTCM245 DRAGONSKIN		NEW -F50 CTCM245 DRAGONSKIN		NEW -M50 CTCM245 DRAGONSKIN	
								
	RPNX		RPNX		RPHX		RPHX	
	51 055 ...		51 054 ...		51 051 ...		51 050 ...	
ISO	£ 1H/17		£ 1H/17		£ 1H/17		£ 1H/17	
10T3M4SN	15.46	92001 [1]			15.46	92001 [1]	15.46	92001 [1]
10T3M8SN	15.46	92101			15.46	92101		
1204M4SN	15.12	92501 [1]			17.03	92501 [1]	17.03	92501 [1]
1204M6SN			15.12	92601	17.03	92601	17.03	92601
1204M8SN	15.12	92601					17.03	92701
1605M8SN	17.03	93001			23.24	93001		
2006M8SN	23.24	93501	23.24	93501				
P	●		●		●		●	
M	●		●		●		●	
K								
N								
S	○		○		○		○	
H								
O								

1) Insert with 4 indexes

RPNX / RPHX

	-R30 CTCK215 DRAGONSKIN		-SN CTCK215 DRAGONSKIN		-SN CTCK215 DRAGONSKIN		-SN CTPK220 DRAGONSKIN		-27P H216T	
										
	RPNX		RPHX		RPNX		RPNX		RPHX	
	51 056 ...		51 052 ...		51 057 ...		51 057 ...		50 483 ...	
ISO	£ 1B/18		£ 1B/61		£ 1B/18		£ 1B/61		£ 1A/90	
10T3M8EN	9.32	520								
10T3M8FN									13.99	600
10T3M8SN			12.24	520			9.32	620		
1204M8EN	10.71	525								
1204M8FN									15.50	602
1204M8SN			13.42	525	10.71	525	10.71	625		
1605M8FN									21.16	604
1605M8SN			18.26	530	14.56	530	14.56	630		
2006M8SN					18.95	535	18.95	635		
P										
M										
K	●		●		●		●		○	
N									●	
S										
H										
O									○	

RPNX / RPHX

		NEW				
		-M31 CTC5240 DRAGONSKIN	-M31 CTC5240 DRAGONSKIN	-F50 CTCS245 DRAGONSKIN	-F50 CTCS245 DRAGONSKIN	-R60 CTP6215
						
		RPNX	RPHX	RPHX	RPNX	RPNX
		51 149 ...	50 493 ...	51 051 ...	51 055 ...	50 508 ...
ISO		£ 1H/17	£ 17	£ 17	£ 17	£ 1B/61
10T3M4EN			15.46 550 [1]			
10T3M4SN				15.46 570 [1]		
10T3M8EN			15.46 551			
10T3M8SN				15.46 571		
1204M4EN			17.03 552 [1]			
1204M4SN				17.03 575		
1204M6EN			17.03 56200	17.03 57800		
1204M8EN			17.03 582			11.56 300
1204M8SN				17.03 577		
1605M8EN			23.24 555	23.24 58100		
2006M8EN		23.24 12001				
2006M8SN					23.24 585	
P						
M						
K						●
N						
S		●	●	●	●	
H						●
O						

1) Insert with 4 indexes

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 177
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

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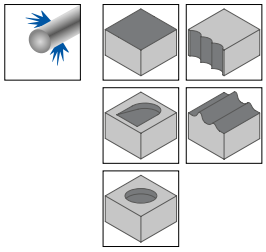
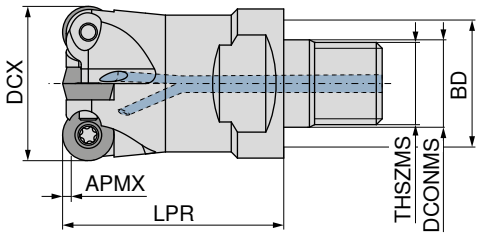
Button insert milling cutter R 1000 G

▲ Insert angle 0°





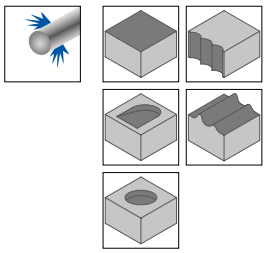


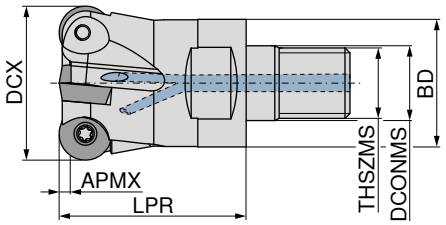
Designation	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	BD mm	torque moment Nm	Insert	56 403 ... £ WA	
R1000G.15.4.M8-05.IK	15	4	1.3	M8	20.5	8.5	13.8	0,43	RDHX 0501..	265.13	151
R1000G.20.5.M10-05.IK	20	5	1.3	M10	25.5	10.5	18.0	0,43	RDHX 0501..	315.51	201
R1000G.12.2.M8-07.IK	12	2	1.5	M8	28.5	8.5	11.8	0,75	RD.X 07T1..	172.22	123
R1000G.15.3.M8-07.IK	15	3	1.5	M8	28.5	8.5	13.8	0,75	RD.X 07T1..	206.02	152
R1000G.20.4.M10-07.IK	20	4	1.5	M10	28.5	10.5	18.0	0,75	RD.X 07T1..	266.25	202
R1000G.25.5.M12-07.IK	25	5	1.5	M12	28.5	10.5	21.0	0,75	RD.X 07T1..	305.66	251
R1000G.15.2.M8-07.IK	15	2	1.5	M8	28.5	8.5	13.8	0,9	RD.X 0702..	173.19	153
R1000G.16.3.M8-07.IK	16	3	1.5	M8	28.5	8.5	13.8	0,9	RD.X 0702..	212.58	161
R1000G.20.4.M10-07.IK	20	4	1.5	M10	28.5	10.5	18.0	0,9	RD.X 0702..	266.25	203
R1000G.25.5.M12-07.IK	25	5	1.5	M12	28.5	12.5	21.0	0,9	RD.X 0702..	305.66	252
R1000G.30.5.M16-07.IK	30	5	1.5	M16	28.5	17.0	29.0	0,9	RD.X 0702..	326.32	301
R1000G.35.6.M16-07.IK	35	6	1.5	M16	28.5	17.0	29.0	0,9	RD.X 0702..	348.34	351
R1000G.42.7.M16-07.IK	42	7	1.5	M16	42.5	17.0	29.0	0,9	RD.X 0702..	414.15	421
R1000G.20.2.M10-10.IK	20	2	2.8	M10	29.0	10.5	18.0	2,4	RD.X 1003..	185.01	204
R1000G.25.2.M12-10.IK	25	2	2.8	M12	33.0	12.5	21.0	2,4	RD.X 1003..	185.98	253
R1000G.25.3.M12-10.IK	25	3	2.8	M12	33.0	12.5	21.0	2,4	RD.X 1003..	194.05	254
R1000G.30.4.M12-10.IK	30	4	2.3	M12	33.0	12.5	21.0	2,4	RD.X 1003..	268.39	302
R1000G.30.4.M16-10.IK	30	4	2.8	M16	43.0	17.0	23.0	2,4	RD.X 1003..	268.39	303
R1000G.35.5.M16-10.IK	35	5	2.8	M16	43.0	17.0	29.0	2,4	RD.X 1003..	327.65	352
R1000G.42.5.M16-10.IK	42	5	2.8	M16	43.0	17.0	29.0	2,4	RD.X 1003..	347.51	422
R1000G.42.6.M16-10.IK	42	6	2.8	M16	43.0	17.0	29.0	2,4	RD.X 1003..	369.19	423
R1000G.24.2.M12-12.IK	24	2	3.0	M12	33.0	12.5	21.0	2,4	RD.X 12T3..	192.56	241
R1000G.35.3.M16-12.IK	35	3	3.0	M16	43.0	17.0	29.0	2,4	RD.X 12T3..	216.99	353
R1000G.35.4.M16-12.IK	35	4	3.0	M16	43.0	17.0	29.0	2,4	RD.X 12T3..	280.20	354
R1000G.42.4.M16-12.IK	42	4	3.0	M16	43.0	17.0	29.0	2,4	RD.X 12T3..	306.61	424
R1000G.42.5.M16-12.IK	42	5	3.0	M16	43.0	17.0	29.0	2,4	RD.X 12T3..	339.62	425
R1000G.32.2.M16-16.IK	32	2	4.0	M16	43.5	17.0	29.0	4,3	RD.X 1604..	223.59	321
R1000G.35.3.M16-16.IK	35	3	4.0	M16	43.5	17.0	29.0	4,3	RD.X 1604..	275.11	355
R1000G.40.2.M16-20.IK	40	2	7.0	M16	53.5	17.0	29.0	4,3	RD.X 2006..	315.51	401

	TORX® blade		 Clamping Screw		 over clamp		 Key D		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		56 950 ...		56 950 ...		80 950 ...		70 950 ...		56 950 ...		80 950 ...	
Spare parts Insert	£ Y7		£ WA		£ WA		£ Y7		£ 2A/28		£ WA		£ Y7	
RD.X 0702..	7.02	032					10.82	109	4.18	303	4.33	006	171.76	191
RD.X 07T1..	7.02	032					10.82	109	4.18	303	4.33	004	171.76	191
RD.X 1003..	7.02	036					12.87	113	4.18	303	5.84	010	162.00	192
RD.X 12T3..	7.02	036	3.78	022			12.87	113	4.18	303	5.84	010	162.00	192
RD.X 1604..	7.02	037			2.64	210	13.77	114	4.18	303	6.23	012	162.00	192
RD.X 2006..	7.02	037			2.64	210	13.77	114	4.18	303	6.23	012	162.00	192
RDHX 0501..							11.71	108	4.18	303	4.94	002	171.76	191

Button insert milling cutter R 1007 G

- Insert angle 7°
- for Steel < 10 % Cr



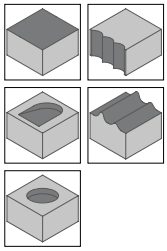


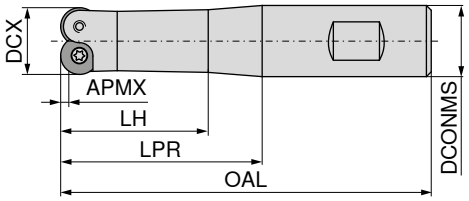


Designation	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	BD mm	torque moment Nm	Insert	56 405 ... £ WA	
R1007G.25.3.M12-10.IK	25	3	2.5	M12	32.5	12.5	21	2,4	RD.X 1003..	194.05	**251**
R1007G.42.6.M16-10.IK	42	6	2.5	M16	42.5	17.0	29	2,4	RD.X 1003..	369.19	**421**
R1007G.35.3.M16-12.IK	35	3	3.0	M16	42.5	17.0	29	2,4	RD.X 12T3..	246.57	**351**
R1007G.35.4.M16-12.IK	35	4	3.0	M16	42.5	17.0	29	2,4	RD.X 12T3..	280.20	**352**

Button insert milling cutter R 1000 C

- Insert angle 0°







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Designation	DCX mm	ZNF	APMX mm	OAL mm	LPR mm	LH mm	DCONMS mm	torque moment Nm	Insert	56 441 ... £ WA	
R1000C.8.1.30-05	8	1	1.3	75	30	18	10	0,43	RDHX 0501..	189.61	**081**
R1000C.10.2.30-05	10	2	1.3	75	30	23	10	0,43	RDHX 0501..	212.58	**101**
R1000C.12.3.30-05	12	3	1.3	81	30	23	12	0,43	RDHX 0501..	236.54	**121**
R1000C.12.2.30-07	12	2	1.5	76	30	23	12	0,75	RD.X 07T1..	151.18	**122**

Spare parts	TORX® blade 80 950 ... £		Key D 80 950 ... £		 Molykote 70 950 ... £		 Clamping screw 56 950 ... £		 Torque screwdriver 80 950 ... £	
Insert	Y7		Y7		2A/28		WA		Y7	
RD.X 07T1..	7.02	**032**	10.82	**109**	4.18	**303**	4.33	**004**	171.76	**191**
RDHX 0501..			11.71	**108**	4.18	**303**	4.94	**002**	171.76	**191**

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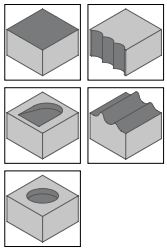
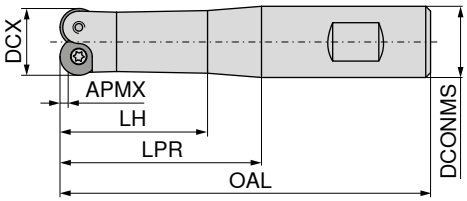
Button insert milling cutter R 1002 C

▲ Insert angle 0°







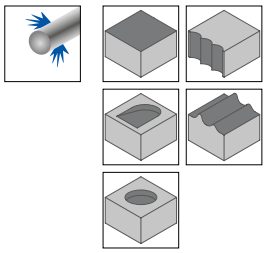
B

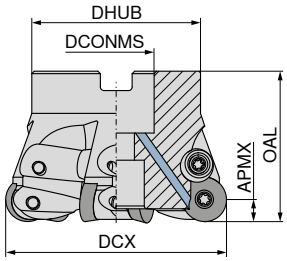
56 443 ...

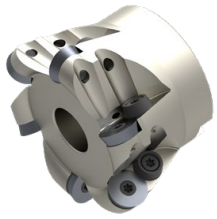
Designation	DCX mm	ZNF	APMX mm	OAL mm	LPR mm	LH mm	DCONMS mm	Insert	£ WA	
R1002C.12.2.40-07	12	2	1.5	89	40	19.5	16	RD.X 07T1..	154.47	**121**
R1002C.12.2.60-07	12	2	1.5	110	60	19.5	16	RD.X 07T1..	165.64	**122**
R1002C.12.2.80-07	12	2	1.5	129	80	19.5	16	RD.X 07T1..	176.14	**123**
R1002C.15.2.40-07	15	2	2.6	89	40	23.0	16	RD.X 0702..	154.47	**151**
R1002C.15.2.60-07	15	2	2.6	109	60	23.0	16	RD.X 0702..	164.33	**152**
R1002C.15.2.80-07	15	2	2.6	131	80	22.0	20	RD.X 0702..	176.14	**153**
R1002C.15.2.100-07	15	2	2.6	151	100	22.0	20	RD.X 0702..	187.30	**154**
R1002C.20.2.40-10	20	2	4.0	91	40	23.0	20	RD.X 1003..	173.19	**201**
R1002C.20.2.60-10	20	2	4.0	111	60	23.0	20	RD.X 1003..	177.46	**202**
R1002C.20.2.80-10	20	2	4.0	137	80	23.0	25	RD.X 1003..	186.31	**203**
R1002C.20.2.100-10	20	2	4.0	157	100	23.0	25	RD.X 1003..	197.15	**204**
R1002C.20.2.120-10	20	2	4.0	177	125	23.0	25	RD.X 1003..	209.30	**205**

Button insert milling cutter R 1000 A

▲ Insert angle 0°







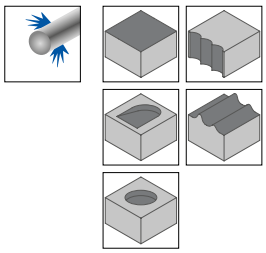
56 407 ...

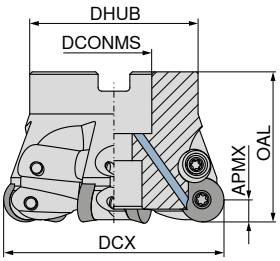
Designation	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	£ WA	
R1000A.42.6.43-10.IK	42	6	2.8	43.0	16	35	2,4	RD.X 1003..	369.19	**420**
R1000A.42.4.43-12.IK	42	4	3.0	43.0	16	35	2,4	RD.X 12T3..	296.78	**421**
R1000A.42.5.43-12.IK	42	5	3.0	43.0	16	35	2,4	RD.X 12T3..	339.62	**422**
R1000A.52.5.53-12.IK	52	5	3.5	53.0	22	40	2,4	RD.X 12T3..	368.18	**521**
R1000A.52.4.53,5-16.IK	52	4	4.7	53.5	22	40	4,3	RD.X 1604..	361.63	**522**
R1000A.66.5.53,5-16.IK	66	5	5.1	53.5	27	48	4,3	RD.X 1604..	426.28	**661**
R1000A.80.6.53,5-16.IK	80	6	5.8	53.5	27	60	4,3	RD.X 1604..	546.60	**801**

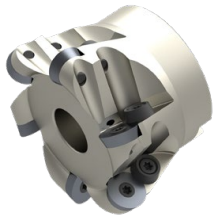
	TORX® blade	 Clamping Screw	 over clamp	 Key D	 Molykote	 Clamping screw	 Torque screwdriver									
	80 950 ...		**56 950 ...**		**56 950 ...**		**80 950 ...**		**70 950 ...**		**56 950 ...**		**80 950 ...**				
Spare parts	£		£		£		£		£		£		£				
Insert	Y7		WA		WA		Y7		2A/28		WA		Y7				
RD.X 1003..	7.02	**036**					12.87	**113**	4.18	**303**	5.84	**010**	162.00	**192**			
RD.X 12T3..	7.02	**036**	3.78	**022**			12.87	**113**	4.18	**303**	5.84	**010**	162.00	**192**			
RD.X 1604..	7.02	**037**			2.64	**210**	13.77	**114**	4.18	**303**	6.23	**012**	162.00	**192**			

Button insert milling cutter R 1007 A

- ▲ Insert angle 7°
- ▲ for Steel < 10 % Cr + Milling machines with low power







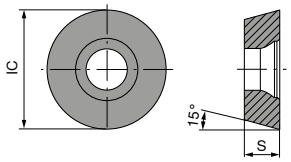
Designation	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	56 409 ... £ WA	
R1007A.42.6.42,5-10.IK	42	6	3.5	42.5	16	35	2,4	RD.X 1003..	369.19	**421**
R1007A.52.7.52,5-10.IK	52	7	3.5	52.5	22	40	2,4	RD.X 1003..	536.77	**521**
R1007A.52.5.52,5-12.IK	52	5	3.5	52.5	22	40	2,4	RD.X 12T3..	368.18	**522**
R1007A.66.6.52,5-12.IK	66	6	3.5	52.5	27	48	2,4	RD.X 12T3..	434.85	**661**
R1007A.80.7.54,5-12.IK	80	7	3.5	54.5	27	60	2,4	RD.X 12T3..	546.60	**801**
R1007A.52.5.53-16.IK	52	5	4.1	53.0	22	40	4,3	RD.X 1604..	404.13	**523**
R1007A.66.5.53-16.IK	66	5	4.6	53.0	27	48	4,3	RD.X 1604..	426.28	**662**
R1007A.66.6.53-16.IK	66	6	5.1	53.0	27	48	4,3	RD.X 1604..	490.64	**663**
R1007A.80.6.53-16.IK	80	6	5.1	53.0	27	60	4,3	RD.X 1604..	546.60	**802**
R1007A.100.7.53-16	100	7	5.1	53.0	32	70	4,3	RD.X 1604..	675.49	**910** 1)
R1007A.125.8.53-16	125	8	5.2	53.0	40	90	4,3	RD.X 1604..	766.08	**925** 1)
R1007A.160.9.53-16	160	9	5.1	53.0	40	120	4,3	RD.X 1604..	1,050.89	**960** 1)
R1007A.66.5.53-20.IK	66	5	7.0	53.0	27	48	4,3	RD.X 2006..	513.78	**664**
R1007A.80.5.53-20.IK	80	5	7.4	53.0	27	60	4,3	RD.X 2006..	633.12	**803**

1) Without Through Coolant

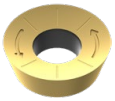
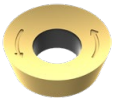
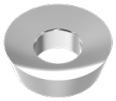
	TORX® blade		 Clamping Screw		 over clamp		 Key D		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		56 950 ...		56 950 ...		80 950 ...		70 950 ...		56 950 ...		80 950 ...	
Spare parts **Insert**	£ Y7		£ WA		£ WA		£ Y7		£ 2A/28		£ WA		£ Y7	
RD.X 1003..	7.02	**036**					12.87	**113**	4.18	**303**	5.84	**010**	162.00	**192**
RD.X 12T3..	7.02	**036**	3.78	**022**			12.87	**113**	4.18	**303**	5.84	**010**	162.00	**192**
RD.X 1604..	7.02	**037**			2.64	**210**	13.77	**114**	4.18	**303**	6.23	**012**	162.00	**192**
RD.X 2006..	7.02	**037**			2.64	**210**	13.77	**114**	4.18	**303**	6.23	**012**	162.00	**192**

RDHX / RDMX / RDEX / RDPX

Designation	IC mm	S mm
RDHX 0501..	5	1.50
RD.X 07T1..	7	1.99
RD.X 0702..	7	2.38
RD.X 1003..	10	3.18
RD.X 12T3..	12	3.97
RD.X 1604..	16	4.76
RDHX 2006..	20	6.00



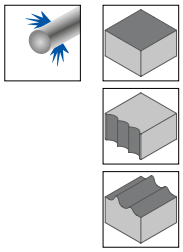
RDHX / RDMX / RDEX / RDPX

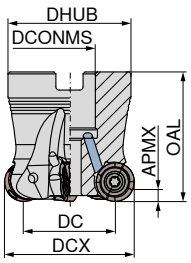
	WTN1205	WAN1240	WAX1240	-HP WAN2225	-F30P WUN4210
					
	RDHX	RDMX	RDEX	RDPX	RDHX
	56 302 ...	56 309 ...	56 314 ...	56 348 ...	56 304 ...
ISO	£ WB	£ WB	£ WB	£ WB	£ WB
0501M0T	17.08 100				
0702M0E					16.14 611
0702M0T	17.56 111		12.32 611		
07T1M0E					16.14 621
07T1M0T	17.56 121		11.82 621		
1003M0S				17.26 231	
1003M0T	17.26 131	13.13 731	12.62 631		18.56 631
12T3M0S				18.69 241	
12T3M0T	18.69 141	15.11 741	14.39 641		22.48 641
1604M0S				23.31 251	
1604M0T	18.69 151	16.32 751	16.28 651		27.41 651
2006M0T	25.62 161				29.89 661
P	●	●	●		
M	●	○	○	●	
K	●	○	○		○
N					●
S				●	
H	●				
O					○

Milling guide

Cutting data standard values	→ 178–180	Machining strategy	→ 181+182
Technical Information	→ 189–194	Grade description	→ 195–197
Designation System	→ 198–201		

MaxiMill – Shell mill A 252







Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS mm	torque moment Nm	Insert	50 689 ... £ 2B/40	
A252.40.R.05-10	30	40	5	2.5	40	38	16	2	RNHU 1004..	390.88	**140**
A252.42.R.05-10	32	42	5	2.5	40	38	16	2	RNHU 1004..	448.26	**142**
A252.50.R.06-10	40	50	6	2.5	40	43	22	2	RNHU 1004..	464.77	**150**
A252.52.R.07-10	42	52	7	2.5	40	43	22	2	RNHU 1004..	504.77	**152**
A252.63.R.08-10	53	63	8	2.5	40	48	22	2	RNHU 1004..	572.06	**16300**
A252.80.R.10-10	70	80	10	2.5	50	58	27	2	RNHU 1004..	650.72	**18000**
A252.40.R.04-12	28	40	4	3.0	40	38	16	3,2	RNHU 1205..	359.10	**240**
A252.50.R.05-12	38	50	5	3.0	40	43	22	3,2	RNHU 1205..	436.03	**250**
A252.52.R.05-12	40	52	5	3.0	40	43	22	3,2	RNHU 1205..	437.08	**252**
A252.63.R.06-12	51	63	6	3.0	40	48	22	3,2	RNHU 1205..	538.65	**263**
A252.66.R.07-12	54	66	7	3.0	40	48	22	3,2	RNHU 1205..	567.38	**266**
A252.80.R.08-12	68	80	8	3.0	50	58	27	3,2	RNHU 1205..	619.69	**280**
A252.100.R.10-12	88	100	10	3.0	50	78	32	3,2	RNHU 1205..	737.48	**30000**
A252.125.R.12-12	113	125	12	3.0	63	88	40	3,2	RNHU 1205..	892.22	**32500**

Spare parts	TORX® blade 80 950 ... £ Y7		 Clamping key - T 80 397 ... £ Y7		 Key D 80 950 ... £ Y7		 Power Screw 70 950 ... £ 2A/28		 Molykote 70 950 ... £ 2A/28		 Clamping screw 70 950 ... £ 2A/28		 Torque screwdriver 80 950 ... £ Y7	
RNHU 1004.. (Ø40 – Ø80)	7.02	**053**			16.08	**127**			4.18	**303**	2.95	**710**	162.00	**192**
RNHU 1205.. (Ø40)	7.02	**054**	5.02	**040**	16.56	**128**	11.92	**151**	4.18	**303**	3.03	**839**	162.00	**192**
RNHU 1205.. (Ø50 – Ø125)	7.02	**054**			16.56	**128**			4.18	**303**	3.03	**839**	162.00	**192**

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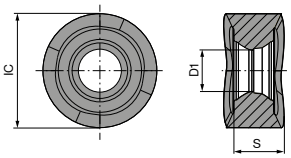
RNHU

Designation	IC mm	D1 mm	S mm
RNHU 1004..	10	3.4	4.60
RNHU 1205..	12	4.4	5.30



RNHU

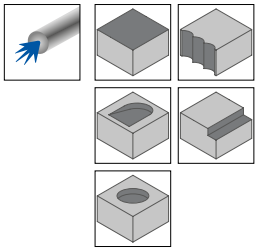
	-M50 CTPP235	-F50 CTPM240	-M31 CTPM245	-M32 CTPM245	-M31 CTC5240	-M31 CTC5240
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	RNHU	RNHU	RNHU	RNHU	RNHU	RNHU
	51 130 ...	51 129 ...	51 106 ...	51 107 ...	50 520 ...	50 521 ...
ISO	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17	£ 17	£ 17
1004M4ER	17.50 12000	17.50 42000	23.68 470	23.68 470	23.68 550	
1205M4ER		18.95 42500	25.92 475	25.92 475		25.92 552
1205M4SR	18.95 12500					
P	●	○	●	●		
M	○	●	●	●		
K	○					
N						
S					●	●
H						
O						

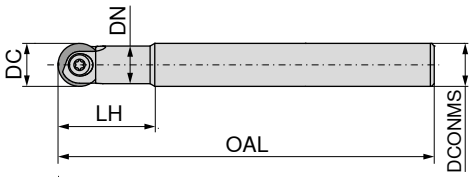
Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 183
Technical Information	→ 189+194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

Copy milling cutter K 2000C / K 2001C

▲ with carbide shank







Designation	DC mm	DN mm	LH mm	OAL mm	DCONMS $_{h6}$ mm	torque moment Nm	56 100 ... £ WA		56 101 ... £ WA	
K2000C.6.16.100	6	5.3	16	100	8	0,5	541.24	**060** [1]		
K2000C.6.20.100	6	5.8	20	100	6	0,5	541.24	**061** [1]		
K2000C.6.70.150	6	5.8	70	150	6	0,5	704.03	**062** [1]		
K2000C.6.100.200	6	5.8	100	200	6	0,5	853.05	**063** [1]		
K2000C.8.25.80	8	7.0	25	80	8	1	574.59	**081** [1]		
K2000C.8.25.100	8	7.0	25	100	8	1	574.59	**082** [1]		
K2000C.8.25.150	8	7.0	40	150	8	1	637.34	**083** [1]		
K2000C.10.35.80	10	8.8	35	80	10	3	690.30	**101** [1]		
K2000C.10.35.120	10	8.8	35	120	10	3	711.86	**102** [1]		
K2000C.10.50.150	10	8.8	50	150	10	3	788.35	**103** [1]		
K2000C/K2001C.12.35.80	12	10.5	35	80	12	4	719.72	**121** [1]	719.72	**121**
K2000C/K2001C.12.35.120	12	10.5	35	120	12	4	751.09	**122** [1]	751.09	**122**
K2000C/K2001C.12.50.160	12	10.5	50	160	12	4	804.06	**123** [1]	804.06	**123**
K2001C.16.40.100	16	14.0	40	100	16	5			992.31	**161**
K2001C.16.40.140	16	14.0	40	140	16	5			992.31	**162**
K2001C.16.55.175	16	14.0	55	175	16	5			1,080.52	**163**
K2001C.20.50.100	20	18.0	50	100	20	5			1,260.96	**201**
K2001C.20.50.140	20	18.0	50	140	20	5			1,260.96	**202**
K2001C.20.75.190	20	18.0	75	190	20	5			1,482.56	**203**
K2001C.25.60.160	25	22.4	60	160	25	8			1,792.41	**252**
K2001C.25.90.210	25	22.4	90	210	25	8			2,237.57	**253**

1) Without Through Coolant

Applicable inserts

	**ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4**

	**XOHX06.. -MR2, XOHX-FM1**

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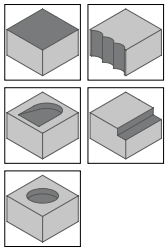
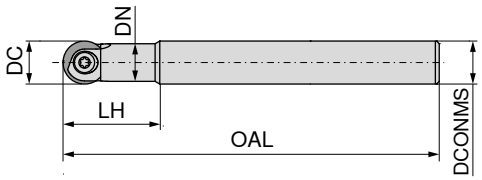
Copy milling cutter K 2002C

▲ cylindrical steel shank version







Designation	DC mm	DN mm	LH mm	OAL mm	DCONMS $_{h6}$ mm	torque moment Nm	56 102 ... £ WA	
K2002C.12.32.90	12	10.5	32	90	12	4	154.92	**121**
K2002C.12.32.130	12	10.5	32	130	12	4	154.92	**122**
K2002C.12.46.150	12	10.5	46	150	12	4	162.76	**123**
K2002C.16.36.100	16	14.0	36	100	16	5	164.72	**161**
K2002C.16.36.140	16	14.0	36	140	16	5	164.72	**162**
K2002C.16.53.160	16	14.0	53	160	16	5	176.51	**163**
K2002C.20.45.160	20	18.0	45	160	20	5	172.59	**202**
K2002C.20.61.175	20	18.0	61	175	20	5	203.95	**203**
K2002C.25.45.160	25	22.4	45	160	25	8	241.21	**252**
K2002C.25.70.190	25	22.4	70	190	25	8	251.02	**253**
K2002C.32.56.175	32	28.6	56	175	32	8	309.87	**322**
K2002C.32.80.210	32	28.6	80	210	32	8	325.55	**323**

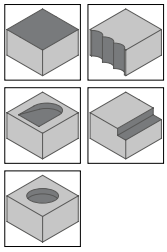
Applicable inserts

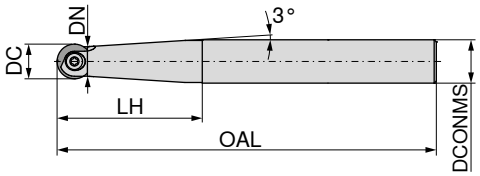
	**ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4**

	**XOHX-FM1**

Copy milling cutter K 2003C

▲ tapered execution







56 104 ...

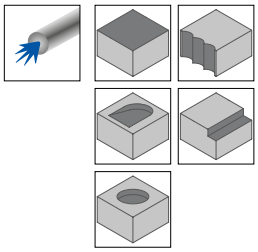
Designation	DC mm	DN mm	LH mm	OAL mm	DCONMS $_{h6}$ mm	torque moment Nm	£ WA	
K2003C.6.16.90	6	5.3	40	90	10	0,5	176.51	**061**
K2003C.8.50.85	8	7.5	50	85	12	1	209.83	**081**
K2003C.8.50.140	8	7.5	50	140	12	1	209.83	**082**
K2003C.10.35.85	10	9.0	35	85	12	3	209.83	**101**
K2003C.10.35.150	10	9.0	35	150	12	3	209.83	**102**
K2003C.12.60.110	12	10.5	60	110	16	4	211.82	**121**
K2003C.12.60.160	12	10.5	60	160	16	4	211.82	**122**
K2003C.16.67.120	16	14.0	67	120	20	5	229.46	**161**
K2003C.16.67.175	16	14.0	67	175	20	5	229.46	**162**
K2003C.20.80.190	20	18.0	80	190	25	5	266.71	**201**
K2003C.25.100.210	25	22.4	100	210	32	8	329.46	**251**
K2003C.32.123.240	32	28.6	123	240	40	8	421.63	**321**

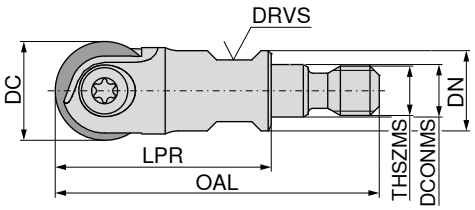
Applicable inserts

	**ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4**

	**XOHX-FM1**

Copy milling cutter K 2000G







56 120 ...

Designation	DC mm	LPR mm	DN mm	OAL mm	DCONMS mm	THSZMS	DRVS mm	torque moment Nm	£ WA	
K2000G.8.25.M6	8	25	10	39.5	6.5	M6	8	1	347.12	**081** 1)
K2000G.10.25.M6	10	25	10	39.5	6.5	M6	8	3	345.15	**101** 1)
K2000G.12.25.M6	12	25	10	39.5	6.5	M6	8	4	356.91	**121** 1)
K2000G.12.26.M8	12	26	13	43.5	8.5	M8	10	4	356.91	**122**
K2000G.16.26.M8	16	26	13	43.5	8.5	M8	10	5	372.61	**161**
K2000G.20.30.M10	20	30	18	49.5	10.5	M10	15	5	378.48	**201**
K2000G.25.40.M12	25	40	21	62.0	12.5	M12	17	8	394.18	**251**
K2000G.32.45.M16	32	45	30	69.0	17.0	M16	26	8	415.75	**321**

1) Without Through Coolant

Applicable inserts



ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4



XOHX-FM1

TORX® blade

80 950 ...


Key D

80 950 ...


Molykote

70 950 ...


Clamping screw

56 950 ...

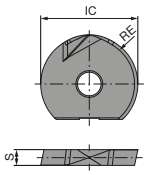

Torque screwdriver

80 950 ...

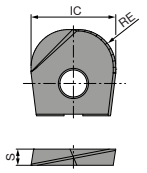
Spare parts DC	£ Y7		£ Y7		£ 2A/28		£ WA		£ Y7	
6	7.02	**031**	11.71	**108**	4.18	**303**	10.16	**041**	171.76	**191**
8	7.02	**033**	10.82	**110**	4.18	**303**	10.16	**042**	171.76	**191**
10	7.02	**036**	12.87	**113**	4.18	**303**	10.16	**043**	192.38	**193**
12	7.02	**037**	13.77	**114**	4.18	**303**	13.73	**044**	192.38	**193**
16	7.02	**037**	13.77	**114**	4.18	**303**	13.73	**045**	192.38	**193**
20	7.02	**037**	13.77	**114**	4.18	**303**	13.73	**046**	192.38	**193**
25			14.86	**131**	4.18	**303**	13.78	**047**		
32			14.86	**131**	4.18	**303**	14.24	**048**		

ROHX / XOHX / ROGX

Designation	IC mm	S mm
ROHX0616R..	6	1.60
ROHX0820R..	8	2.00
ROHX1025R..	10	2.50
XOHX10254..	10	2.50
XOHX12255..	12	2.50
RO.X1225R..	12	2.50
RO.X1630R..	16	3.00
XOHX16307..	16	3.00
XOHX20309..	20	3.00
RO.X2030R..	20	3.00
RO.X2540R..	25	4.00
RO.X3250R..	32	5.00



RO.X



XOHX

ROHX / XOHX / ROGX

	-MR5 CTPP211	-FM1 CTPP216	-FM3 CTPP216	-FM4 CTPP216	-FM4 CTPK226	-MR4 CTPK231	-FM6 CTCN211
							
	ROHX	XOHX	ROHX	ROHX	ROHX	ROGX	ROHX
	56 149 ...	56 169 ...	56 147 ...	56 141 ...	56 141 ...	56 143 ...	56 145 ...
ISO	RE mm	£ WB	£ WB	£ WB	£ WB	£ WB	£ WB	£ WB	£ WB
0616 R3	3.0			44.17 30200	36.81 90200			107.86 602 1)
0820 R4	4.0	44.90 71300		53.56 31300	35.37 71300	37.09 11300		139.25 613 1)
1025 R5	5.0	44.90 72400		53.56 32400	35.37 72400	37.09 12400		139.25 624 1)
102540	4.0		48.50 92400					
1225 R6	6.0			54.42 33500	36.81 73500	37.09 13500	36.09 53500	139.25 635 1)
122550	5.0		51.96 93500					
1630 R8	8.0			58.60 34600	42.29 74600	43.23 14600	42.29 54600	158.87 646 1)
163070	7.0		55.58 94700					
2030 R10	10.0			62.07 35700	48.50 75700	48.31 15700	48.50 55700	
203090	9.0		63.36 95900					
2540 R12,5	12.5			77.24 36800	72.32 76800	72.07 16800	71.46 56800	
3250 R16	16.0			103.50 37900	105.65 77900	106.88 17900	98.58 57900	
P		●	●	●	●	●	●	
M		○	○	○	○	●	●	
K		○	●	●	●	●	●	
N		○	○	○	○		○	○
S		○	○	○	○		○	
H		○	●	●	●	○	○	
O		○	○	○	○			●

1) Specifically for machining graphite !

Milling guide

Cutting data standard values	→ 184+185	Depth of Cut	→ 186
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

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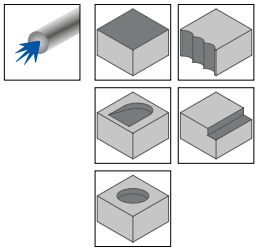
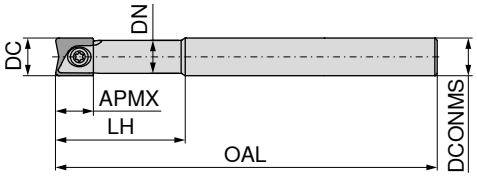
Copy milling cutter K 2005C / K 2006C

▲ with carbide shank







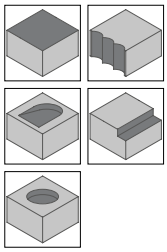
Designation	DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS $_{h6}$ mm	torque moment Nm	56 110 ... £ WA		56 111 ... £ WA	
K2005C.8.27.82	8	9.5	7.0	27	82	8	1	574.59	**081** [1]		
K2005C.8.27.102	8	9.5	7.0	27	102	8	1	574.59	**082** [1]		
K2005C.8.42.152	8	9.5	7.0	42	152	8	1	637.34	**083** [1]		
K2005C.10.37.82	10	11.5	8.8	37	82	10	3	690.30	**101** [1]		
K2005C.10.37.122	10	11.5	8.8	37	122	10	3	711.86	**102** [1]		
K2005C.10.52.152	10	11.5	8.8	52	152	10	3	788.35	**103** [1]		
K2005C/K2006C.12.37.82	12	14.0	10.5	37	82	12	4	719.72	**121** [1]	719.72	**121**
K2005C/K2006C.12.37.122	12	14.0	10.5	37	122	12	4	751.09	**122** [1]	751.09	**122**
K2005C/K2006C.12.52.162	12	14.0	10.5	52	162	12	4	804.06	**123** [1]	804.06	**123**
K2006C.16.42.102	16	16.0	14.0	42	102	16	5			992.31	**161**
K2006C.16.42.142	16	16.0	14.0	42	142	16	5			992.31	**162**
K2006C.16.57.177	16	16.0	14.0	57	177	16	5			1,080.52	**163**
K2006C.20.52.102	20	18.0	18.0	52	102	20	5			1,260.96	**201**
K2006C.20.52.142	20	18.0	18.0	52	142	20	5			1,260.96	**202**
K2006C.20.77.192	20	18.0	18.0	77	192	20	5			1,482.56	**203**
K2006C.25.62.162	25	23.5	22.4	62	162	25	8			1,792.41	**252**
K2006C.25.92.212	25	23.5	22.4	92	212	25	8			2,237.57	**253**

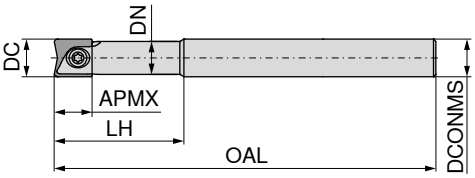
1) Without Through Coolant

Applicable inserts

	XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6
	XOGX-MF4

Copy milling cutter K 2007C







56 112 ...

Designation	DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS $_{h6}$ mm	torque moment Nm	£ WA	
K2007C.12.34.92	12	14.0	10.5	34	92	12	4	170.61	**121**
K2007C.12.34.132	12	14.0	10.5	34	132	12	4	154.92	**122**
K2007C.12.48.152	12	14.0	10.5	48	152	12	4	162.76	**123**
K2007C.16.38.102	16	16.0	14.0	38	102	16	5	164.72	**161**
K2007C.16.38.142	16	16.0	14.0	38	142	16	5	164.72	**162**
K2007C.16.55.162	16	16.0	14.0	55	162	16	5	176.51	**163**
K2007C.20.47.162	20	18.0	18.0	47	162	20	5	172.59	**202**
K2007C.20.63.177	20	18.0	18.0	63	177	20	5	203.95	**203**
K2007C.25.47.162	25	23.5	22.4	47	162	25	8	241.21	**252**
K2007C.25.72.192	25	23.5	22.4	72	192	25	8	251.02	**253**
K2007C.32.58.177	32	28.0	28.6	58	177	32	8	309.87	**322**
K2007C.32.82.212	32	28.0	28.6	82	212	32	8	325.55	**323**

Applicable inserts

	**XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6**
	XOGX-MF4

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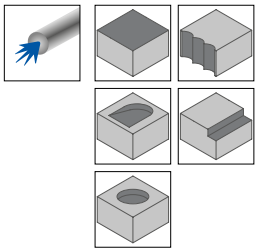
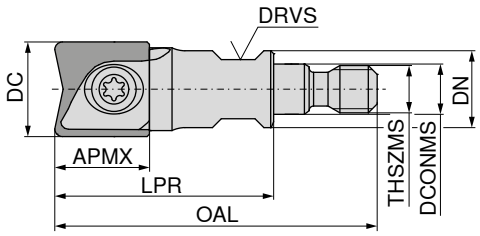
Copy milling cutter K 2005G







56 130 ...

Designation	DC mm	APMX mm	DN mm	LPR mm	OAL mm	DCONMS mm	THSZMS	DRVS mm	torque moment Nm	£ WA	
K2005G.8.25.M6	8	9.5	10	25	39.5	6.5	M6	8	1	347.12	**081** 1)
K2005G.10.25.M6	10	11.5	10	25	39.5	6.5	M6	8	3	345.15	**101** 1)
K2005G.12.25.M6	12	14.0	10	25	39.5	6.5	M6	8	4	356.91	**121** 1)
K2005G.12.28.M8	12	14.0	13	28	45.5	8.5	M8	8	4	356.91	**122**
K2005G.16.28.M8	16	16.0	13	28	45.5	8.5	M8	10	5	372.61	**161**
K2005G.20.32.M10	20	18.0	18	32	51.5	10.5	M10	15	5	378.48	**201**
K2005G.25.42.M12	25	23.5	21	42	64.0	12.5	M12	17	8	394.18	**251**
K2005G.32.47.M16	32	28.0	30	47	71.0	17.0	M16	26	8	415.75	**321**

1) Without Through Coolant

Applicable inserts



XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6
XOGX-MF4

TORX® blade

80 950 ...


Key D

80 950 ...


Molykote

70 950 ...


Clamping screw

56 950 ...

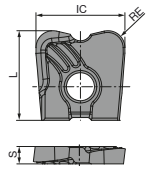

Torque screwdriver

80 950 ...

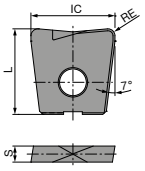
Spare parts DC	£ Y7		£ Y7		£ 2A/28		£ WA		£ Y7	
8	7.02	033	10.82	110	4.18	303	10.16	042	171.76	191
10	7.02	036	12.87	113	4.18	303	10.16	043	192.38	193
12	7.02	037	13.77	114	4.18	303	13.73	044	192.38	193
16	7.02	037	13.77	114	4.18	303	13.73	045	192.38	193
20	7.02	037	13.77	114	4.18	303	13.73	046	192.38	193
25			14.86	131	4.18	303	13.78	047		
32			14.86	131	4.18	303	14.24	048		

XOHX / XOGX

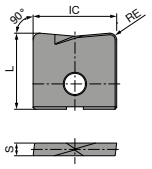
Designation	IC mm	S mm	L mm
XO.X10251..	10	2.50	11.5
XO.X12251..	12	2.50	14.0
XO.X16301..	16	3.00	16.0
XO.X16303..	16	3.00	16.0
XO.X20301..	20	3.00	18.0
XO.X20304..	20	3.00	18.0
XOGX12252..	12	2.50	14.0
XOHX06160..	6	1.60	8.0
XOHX08200..	8	2.00	9.5
XOHX08201..	8	2.00	9.5
XOHX10250..	10	2.50	11.5
XOHX12252..	12	3.00	14.0
XOHX20302..	20	3.00	18.0
XOHX25401..	25	4.00	23.5
XOHX25402..	25	4.00	23.5
XOHX25405..	25	4.00	23.5
XOHX32502..	32	5.00	28.0



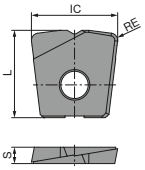
XOGX



XOHX

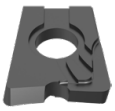
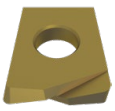


XOHX



XOHX

XOHX / XOGX

	-MR2 CTPP211	-MR6 CTPP211	-FM2 CTPP216	-FM5 CTPP216	-MF4 CTPP216	-MR3 CTPK231	-MR2 CTCN211
							
	XOHX	XOHX	XOHX	XOHX	XOGX	XOHX	XOHX
	56 167 ...	56 163 ...	56 165 ...	56 159 ...	56 161 ...	56 171 ...	56 168 ...
ISO / RE mm	£ WB	£ WB	£ WB	£ WB	£ WB	£ WB	£ WB
061605 / 0.5	45.91 71000						107.86 610 1)
082006 / 0.6		49.36 71000	43.45 71000	37.97 71000			
082010 / 1.0	50.24 71200		43.45 71200				127.47 612 1)
102508 / 0.8		49.36 72100	43.45 72100	37.54 72100		54.71 32100	
102510 / 1.0	50.24 72200		43.45 72200		43.88 92200		135.32 622 1)
122510 / 1.0	53.83 73200	53.83 73200	44.90 73200	42.29 73200	47.63 93200	54.71 53200	149.05 632 1)
122520 / 2.0	53.83 73500		44.90 73500		47.63 93500		
163010 / 1.0	58.17 74200		51.96 74200		53.83 94200		186.30 642 1)
163013 / 1.3		57.31 74300	51.96 74300	48.50 74300			
163015 / 1.5						58.17 54400	
163030 / 3.0	58.17 74700		51.96 74500		53.83 94700		
203010 / 1.0	66.98 75200		57.31 75200		60.77 95200		
203016 / 1.6		65.24 75400	57.31 75400	55.58 75400			
203020 / 2.0						68.70 55500	
203040 / 4.0	66.98 75800		57.31 75800		60.77 95800		
254010 / 1.0	85.45 76200		74.06 76200				
254020 / 2.0		89.79 76500	74.06 76500	77.51 76500			
254050 / 5.0	85.45 76900		74.06 76900				
325025 / 2.5		126.87 77600		107.54 77600			
P	●	●	●	●	●	●	
M	○	○	○	○	○	●	
K	○	○	●	●	●	●	
N	○	○	○	○	○	○	○
S	○	○	○	○	○	○	
H	○	○	●	●	●	○	
O	○	○	○	○	○		●

1) Specifically for machining graphite !

Milling guide

Cutting data standard values	→ 184+185	Depth of Cut	→ 186
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

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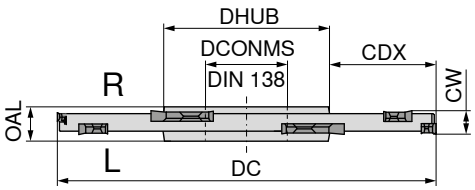
Saw Cutter TX

▲ Note: side and face milling cutters TX are cross-pitched and equipped with indexable inserts for both right-hand and left-hand version.
▲ ZEFP = number of inserts

Scope of supply:
side and face milling cutter, 2 spare clamping screws and 1 Torx key







Designation	DC mm	CW mm	ZNF	CDX mm	DCONMS mm	DHUB mm	OAL mm	ZEFP	Insert	torque moment Nm	£ V5	50 730 ...	
TX.STF.80X27.03.Z4	80	3	4	18.0	27	40	8	8	TX. 161702	0,7	855.59	083	
TX.STF.100X32.03.Z5	100	3	5	25.0	32	46	8	10	TX. 161702	0,7	909.99	103	
TX.STF.125X40.03.Z6	125	3	6	32.0	40	54	10	12	TX. 161702	0,7	992.38	123	
TX.STF.160X40.03.Z8	160	3	8	50.0	40	54	10	16	TX. 161702	0,7	1,160.95	163	1)
TX.STF.80X27.04.Z4	80	4	4	18.0	27	40	8	8	TX. 162302	1,3	714.81	084	
TX.STF.100X32.04.Z5	100	4	5	25.0	32	46	8	10	TX. 162302	1,3	901.12	104	
TX.STF.125X40.04.Z6	125	4	6	32.0	40	54	10	12	TX. 162302	1,3	983.51	124	
TX.STF.160X40.04.Z8	160	4	8	50.0	40	54	10	16	TX. 162302	1,3	1,150.81	164	1)
TX.STF.80X27.06.Z4	80	6	4	21.0	27	36	10	8	TX. 223202	2	467.67	086	
TX.STF.80X22.06.Z4	80	6	4	22.0	22	33	10	8	TX. 223202	2	467.67	080	
TX.STF.100X32.06.Z5	100	6	5	25.5	32	47	10	10	TX. 223202	2	557.66	106	
TX.STF.125X40.06.Z6	125	6	6	32.5	40	58	10	12	TX. 223202	2	751.59	136	
TX.STF.160X40.06.Z8	160	6	8	50.0	40	58	10	16	TX. 223202	2	1,181.91	166	1)
TX.STF.80X27.08.Z4	80	8	4	21.0	27	36	12	8	TX. 224302	2,8	467.67	088	
TX.STF.100X32.08.Z5	100	8	5	25.5	32	47	12	10	TX. 224302	2,8	557.66	108	
TX.STF.125X40.08.Z6	125	8	6	32.5	40	58	12	12	TX. 224302	2,8	751.59	138	
TX.STF.160X40.08.Z8	160	8	8	50.0	40	58	12	16	TX. 224302	2,8	965.77	168	1)
TX.STF.80X27.10.Z4	80	10	4	21.0	27	36	12	8	TX. 225402	3	467.67	090	
TX.STF.100X32.10.Z5	100	10	5	25.5	32	47	12	10	TX. 225402	3	557.66	110	
TX.STF.125X40.10.Z6	125	10	6	32.5	40	58	14	12	TX. 225402	3	751.59	140	
TX.STF.160X40.10.Z8	160	10	8	50.0	40	58	14	16	TX. 225402	3	1,181.91	170	1)

1) Without Through Coolant

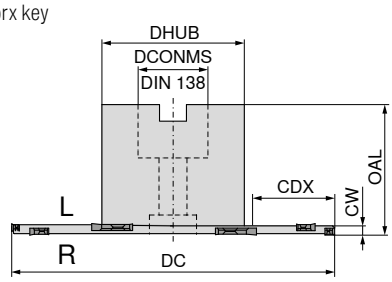
	TORX® blade		 Key D		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		80 950 ...		70 950 ...		70 950 ...		80 950 ...	
Spare parts CW	£ Y7		£ Y7		£ 2A/28		£ V5		£ Y7	
3	7.02	**032**	10.82	**109**	4.18	**303**	8.12	**858**	171.76	**191**
4	7.02	**033**	10.82	**110**	4.18	**303**	3.78	**218**	171.76	**191**
6	7.02	**036**	12.87	**113**	4.18	**303**	4.80	**101**	162.00	**192**
8	7.02	**037**	13.77	**114**	4.18	**303**	4.80	**135**	162.00	**192**
10	7.02	**037**	13.77	**114**	4.18	**303**	4.80	**146**	162.00	**192**

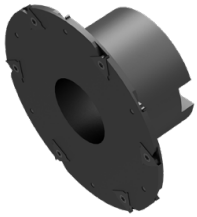
TX shell / side and face milling cutter

▲ Note: side and face milling cutters TX are cross-pitched and equipped with indexable inserts for both right-hand and left-hand version.
▲ ZEFP = number of inserts

Scope of supply:
side and face milling cutter, 2 spare clamping screws and 1 Torx key







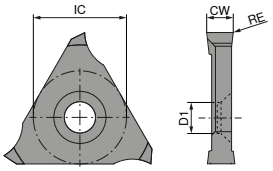
Designation	DC mm	CW mm	ZNF	CDX mm	DCONMS mm	DHUB mm	OAL mm	ZEFP	torque moment Nm	Insert	50 734 ... £ V5	
TX.ASF.100.R.03.Z5	100	3	5	25.0	27	48	50	10	0,7	TX. 161702	966.89	**300**
TX.ASF.125.R.03.Z6	125	3	6	37.5	27	48	50	12	0,7	TX. 161702	1,500.69	**225**
TX.ASF.160.R.03.Z8	160	3	8	44.0	40	70	50	16	0,7	TX. 161702	1,607.47	**260** 1)
TX.ASF.100.R.04.Z5	100	4	5	25.0	27	48	50	10	3,2	TX. 162302	956.36	**100**
TX.ASF.125.R.04.Z6	125	4	6	37.5	27	48	50	12	3,2	TX. 162302	1,381.89	**025**
TX.ASF.125.R.04.Z6	125	4	6	26.5	40	70	50	12	3,2	TX. 162302	1,344.34	**125**
TX.ASF.160.R.04.Z8	160	4	8	55.0	27	48	50	16	3,2	TX. 162302	1,693.18	**060** 1)
TX.ASF.160.R.04.Z8	160	4	8	44.0	40	70	50	16	3,2	TX. 162302	1,592.44	**160** 1)
TX.ASF.180.R.04.Z9	180	4	9	54.0	40	70	50	18	3,2	TX. 162302	1,843.55	**180** 1)
TX.ASF.200.R.04.Z10	200	4	10	64.0	40	70	50	20	3,2	TX. 162302	2,051.04	**200** 1)

1) Without Through Coolant

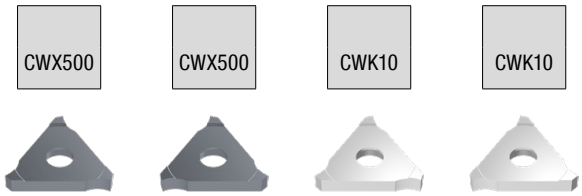
		Washer		TORX® blade		Clamping Screw		Key D		Molykote		Clamping screw		Torque screwdriver	
		70 950 ...		80 950 ...		70 950 ...		80 950 ...		70 950 ...		70 950 ...		80 950 ...	
Spare parts		£		£		£		£		£		£		£	
CW	**DCONMS**	V5		Y7		V5		Y7		2A/28		V5		Y7	
3	27	1.60	**221**	7.02	**032**	2.82	**219**	10.82	**109**	4.18	**303**	8.12	**858**	171.76	**191**
3	40	2.82	**222**	7.02	**032**	12.22	**220**	10.82	**109**	4.18	**303**	8.12	**858**	171.76	**191**
4	27	1.60	**221**	7.02	**033**	2.82	**219**	10.82	**110**	4.18	**303**	3.78	**218**	162.00	**192**
4	40	2.82	**222**	7.02	**033**	12.22	**220**	10.82	**110**	4.18	**303**	3.78	**218**	162.00	**192**

TX-L / TX-R

Designation	IC mm	D1 mm	CW mm
TX . 1617..	10	3.95	1.7
TX . 1623..	10	3.95	2.3
TX . 2232..	13	5.50	3.2
TX . 2243..	13	5.50	4.3
TX . 2254..	13	5.50	5.4



TX-L / TX-R



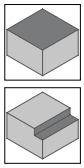
		TX-L		TX-R		TX-L		TX-R	
		50 382 ...		**50 381 ...**		**50 382 ...**		**50 381 ...**	
ISO	RE mm	£ V5		£ V5		£ V5		£ V5	
TX 161702	0.2	23.75	**217**	23.75	**217**				
TX 162302	0.2	34.17	**223**	34.17	**223**				
TX 223202	0.2	51.57	**232**	51.57	**232**	45.92	**532**	45.92	**532**
TX 224302	0.2	51.18	**243**	51.18	**243**	46.85	**543**	46.85	**543**
TX 225402	0.2	38.72	**254**	38.72	**254**	33.25	**554**	33.25	**554**
P			●		●				
M			●		●				
K			●		●				
N			●		●		●		●
S			○		○				
H									
O			○		○		○		○

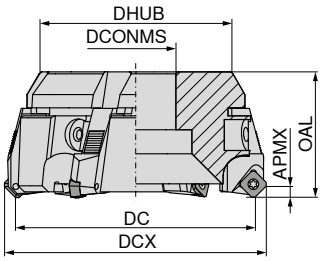
Milling guide

Cutting data standard values	→ 187	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Combi Mill Base Holder 260

▲ Basic body with clamping wedges, without cartridges







DC mm	ZNF	DCONMS mm	DHUB mm	OAL mm	WT kg	50 715 ... £ 2B/40	
80	5	27	66	52	1	350.61	**080**
100	6	32	86	52	2	384.02	**100**
125	7	40	95	63	3	534.73	**125**
160	10	40	130	63	6	586.48	**160** 1)
200	12	60	172	63	9	749.51	**200** 1)
250	14	60	222	63	17	970.78	**250** 1)
315	18	60	280	80	31	1,014.68	**315** 1)
400	22	60	365	80	52	2,187.82	**400** 1)

1) Without Through Coolant

For information on axial runout setting, see → **page 188**

Spare parts DC	 Clamping wedge screw 70 950 ... £ 2A/28		 Clamping Wedge 70 950 ... £ 2A/28		 Key-T 70 950 ... £ 2A/28		 Molykote 70 950 ... £ 2A/28		 Eccentric Key 70 950 ... £ 2A/28	
80 - 400	2.85	**297**	16.67	**296**	6.77	**317**	4.18	**303**	11.81	**298**

Insert related diameter

	Inserts	Nominal Ø in mm 80 DC mm	80 DCX mm	100 DC mm	100 DCX mm	120 DC mm	120 DCX mm	160 DC mm	160 DCX mm	200 DC mm	200 DCX mm	250 DC mm	250 DCX mm	315 DC mm	315 DCX mm	400 DC mm	400 DCX mm
	SD.. 0903..	80	88,4	100	108,4	123	131,4	158	166,4	198	206,4	248	256,4	313	321,4	398	406,4
	SD.. 1204..	80	94,5	100	114,5	123	137,5	158	172,5	198	212,5	248	262,5	313	327,5	398	412,5
	SE.. 1204..	80	93	100	113	123	136	158	171	198	211	248	261	313	326	398	411
	SD.. 1504..	75	94	95	114	118	137	153	172	193	212	243	262	308	327	393	412
	SP.. 1204..	82	88	102	108	125	131	160	166	200	206	250	256	315	321	400	406
	OA.. 0605..	80	85,6	100	105,6	123	128,6	158	163,6	198	203,6	248	253,6	313	318,6	398	403,6
	RP.X 1204..	80	92	100	112	123	135	158	170	198	210	248	260	313	325	398	410
	RP.X 16..	76	92	96	112	119	135	154	170	194	210	244	260	309	325	394	410
	SD.. 1205..	89		109		132		167		207		257		322		407	
	SD.. 09T3	89		109		132		167		207		257		322		407	
	LD..1504..	89		109		132		167		207		257		322		407	
	XD.T 11T3	89		109		132		167		207		257		322		407	
	XDKT 1505	89		109		132		167		207		257		322		407	
	AP.. 1003..	89		109		132		167		207		257		322		407	
	TPKW 2204..	89		109		132		167		207		257		322		407	

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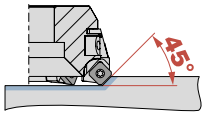
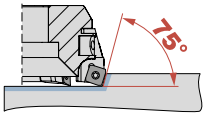
MaxiMill 260/combi cutter system

Cassette for inserts

Face milling

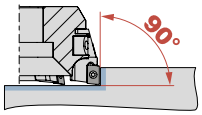


	SD.. 0903..	SD.. 1204.. XD.. 1204..	SE.. 1204..	SD.. 1504..	SA.. 1706..	OA.. 0605..
Cartridge no.	041	031	029	032	058	057
Article no. 70 950 ...	329	411	306	412	30800	338



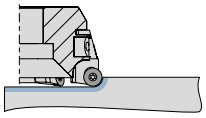
	SP.. 1204..
Cartridge no.	018
Article no. 70 950 ...	310

Shoulder milling



	AP.. 1003..	LD.. 1504..	XD.T 11T3..	XDKT 1505..	SD.. 1205..	SD.. 09T3..	TPKW 2204..
Cartridge no.	042	051	054	056	039	055	025
Article no. 70 950 ...	307	300	336	339	311	337	313

Face/Copy milling



	RP.X 1204..	RP.X 16....
Cartridge no.	052	053
Article no. 70 950 ...	333	707

Insert	APMX mm	Cassette 70 950 ... £ 2B/40	
AP.. 1003..	8.0	80.43	307
LD.. 1504..	14.0	80.43	300
OA.. 0605..	3.5	80.43	338
RP.X 1204..	6.0	80.43	333
RP.X 16..	8.0	80.43	707
SAKU 1706	8.4	80.43	30800
SD.. 0903..	4.0	80.43	329
SD.. 09T3..	8.0	80.43	337
SD.. 1204..	6.0	80.43	411
SD.. 1205..	6.0	80.43	311
SD.. 1504..	9.0	80.43	412
SE.. 1204..	6.0	80.43	306
SP.. 1204..	9.0	80.43	310
TPKW 2204..	18.0	80.43	313
XD.T 11T3	10.0	80.43	336
XDKT 1505..	14.0	80.43	339

Spare parts Insert	TORX® blade 80 950 ... £ Y7		Key D 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A		Torque screwdriver 80 950 ... £ Y7	
AP.. 1003..	7.02	033	10.82	110	4.18	303	2.26	112	171.76	191
OA.. 0605..	7.02	037	13.77	114	4.18	303	3.91	302	192.38	193
RP.X 1204.. / LD.. 1504..	7.02	036	12.87	113	4.18	303	2.99	304	162.00	192
SD.. 0903..	7.02	033	10.82	110	4.18	303	2.46	115	171.76	191
SD.. 09T3..	7.02	036	12.87	113	4.18	303	2.99	110	162.00	192
SD.. 1204.. / SE.. 1204.. / SP.. 1204.. / SD.. 1205.. / SD.. 1504.. / RP.X 16.. / TPKW 2204..	7.02	037	13.77	114	4.18	303	2.40	280	192.38	193
XD.T.. 11T3..	7.02	043	14.16	125	4.18	303	3.91	131	171.76	191
XDKT 1505..	7.02	054	16.56	128	4.18	303	3.03	839	162.00	192

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values

Cutting Material **hard** (v_c↑) → **tough** (v_c↓)

	DRAGONSKIN CERMET CTEP210		DRAGONSKIN CERMET TCM10		DRAGONSKIN CTCP220		DRAGONSKIN CTPP225		DRAGONSKIN CTCP230		DRAGONSKIN CTPP231		DRAGONSKIN CTPP235		DRAGONSKIN CTPP236	
Index																
P.1.1	344		292		339	170	263	157	286	150	200	100	246	137	300	180
P.1.2	302		257		308	154	234	143	242	133	170	90	208	121	270	160
P.1.3	263		224		280	140	207	129	202	118	140	80	172	106	225	130
P.1.4	250		214		270	135	198	125	189	112	170	90	160	101	270	160
P.1.5	230		197		256	128	185	118	169	105	160	90	143	94	240	140
P.2.1	308		262		313	157	238	145	249	136	170	90	214	123	270	160
P.2.2	246		211		268	134	196	124	185	111	130	70	157	100	200	120
P.2.3	230		197		256	128	185	118	169	105	170	90	143	94	270	160
P.2.4	181		157		220	110	151	102	118	85	120	60	98	76	180	110
P.3.1					140	70	130	65	140	87	170	90	121	97	270	160
P.3.2					95	50	100	50	90	55	140	80	108	83	180	140
P.3.3					50	30	70	35	40	22	120	70	96	69	150	120
P.4.1					140	70	130	65	140	87	140	80	121	97	180	140
P.4.2					118	60	115	58	115	71	130	70	114	90	170	130
M.1.1											170	90	121	97	270	160
M.2.1													108	83		
M.3.1													117	93		
K.1.1									310	190	150	110	160	110	360	90
K.1.2	300		240						160	100	150	110	150	110	360	90
K.2.1	350		280						200	120	150	110	150	110	230	170
K.2.2	300		240						130	80	150	110	150	110	160	110
K.3.1	300		240						190	115					210	160
K.3.2									160	100					210	160
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions.

Cutting data standard values

Cutting Material **hard** (v_c↑) → **tough** (v_c↓)

	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN					
	CTPM225		CTCM235		CTPM240		CTPM241		CTPM245		CTCM245		CERAMIC CTN3105		CBN CTL3215	
Index																
P.1.1	272	191	251	184	226	141	200	100	244	139	279	134				
P.1.2	231	163	210	152	188	126	170	90	207	124	242	119				
P.1.3	193	137	172	123	152	112	140	70	173	109	208	104				
P.1.4	180	129	160	113	140	107	170	90	161	104	196	99				
P.1.5	161	116	141	99	123	100	150	80	144	97	179	92				
P.2.1	237	167	217	157	194	128	170	90	212	126	247	121				
P.2.2	177	127	157	111	137	106	120	60	158	103	193	98				
P.2.3	161	116	141	99	123	100	170	90	144	97	179	92				
P.2.4	114	84	94	62	78	83	110	60	101	78	136	73				
P.3.1	148	121	136	115	126	105	210	100	155	107	175	122				
P.3.2	121	101	128	110	112	95	180	100	143	93	163	108				
P.3.3	95	81	120	105	98	85	160	90	131	79	151	94				
P.4.1	148	121	136	115	126	105	140	90	155	107	175	122				
P.4.2	134	111	132	113	119	100	130	80	149	100	169	115				
M.1.1	**148**	**121**	**136**	**115**	**126**	**105**	**210**	**100**	**155**	**107**	**175**	**122**				
M.2.1	**121**	**101**	**128**	**110**	**112**	**95**	**180**	**90**	**143**	**93**	**163**	**108**				
M.3.1	**140**	**115**	**134**	**114**	**121**	**102**	**210**	**100**	**152**	**103**	**172**	**118**				
K.1.1													**800**		**800**	
K.1.2													**600**		**600**	
K.2.1																
K.2.2															**450**	
K.3.1																
K.3.2																
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1								60				80				
S.1.2								60				70				
S.2.1								60				35				
S.2.2								60				25				
S.2.3								60				30				
S.3.1								60				80				
S.3.2								60				50				
S.3.3								60				40				
H.1.1																
H.1.2															150	
H.1.3																
H.1.4																
H.2.1															280	
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions.

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Cutting data standard values

Cutting Material **hard** (v_c↑) → **tough** (v_c↓)

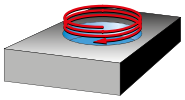
Index	CTCK215		CTPK220		CTPK221		AMZ		H216T		CTWN215		CTC5240		CTCS245		CTP6215	
	DRAGONSKIN		DRAGONSKIN										DRAGONSKIN					
	✗	🚰	✗	🚰	✗	🚰	✗	🚰	✗	🚰	✗	🚰	✗	🚰	✗	🚰	✗	🚰
P.1.1					190	120												
P.1.2					180	100												
P.1.3					150	80												
P.1.4					180	100												
P.1.5					170	90												
P.2.1					180	100												
P.2.2					140	80												
P.2.3					180	100												
P.2.4					130	80												
P.3.1					210	120												
P.3.2					160	90												
P.3.3					130	80												
P.4.1					210	120												
P.4.2					190	100												
M.1.1																		
M.2.1																		
M.3.1																		
K.1.1	**360**	**210**	**320**	**190**	**270**	**200**	200		130	130	130	130					280	250
K.1.2	**220**	**130**	**170**	**100**	**270**	**200**	160		110	110	110	110					190	160
K.2.1	**230**	**140**	**210**	**130**	**250**	**180**	185		130	130	130	130					180	150
K.2.2	**160**	**100**	**140**	**90**	**180**	**120**	150		120	120	120	120					180	150
K.3.1	**250**	**150**	**200**	**120**	**220**	**170**	200		130	130	130	130					250	220
K.3.2	**210**	**130**	**170**	**100**	**220**	**170**	175		110	120	110	110					190	160
N.1.1								**1500**		**1500**		**1500**						
N.1.2								**1000**		**1000**		**1000**						
N.2.1								**1200**		**1100**		**1100**						
N.2.2								**1200**		**1000**		**1000**						
N.2.3								**300**		**280**		**280**						
N.3.1								**350**		**350**		**350**						
N.3.2								**350**		**350**		**350**						
N.3.3								**320**		**320**		**320**						
N.4.1								**320**		**320**		**320**						
S.1.1														**80**		**64**		
S.1.2														**70**		**56**		
S.2.1														**35**		**28**		
S.2.2														**25**		**20**		
S.2.3														**30**		**24**		
S.3.1														**80**		**64**		
S.3.2														**50**		**40**		
S.3.3														**40**		**32**		
H.1.1																	**50**	
H.1.2																	**40**	
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1								160	160	160	160	160						
O.1.2																		
O.2.1								180	240	240	240	240						
O.2.2																		
O.3.1																		

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions.

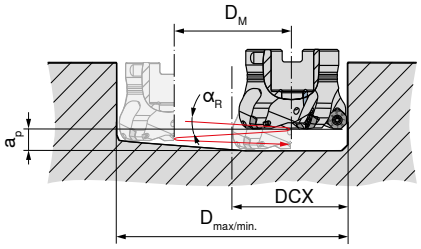
System MaxiMill 274-04/-09

Machining strategy

Helical plunge milling



$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface
D_M = D_{max} – DCX and D_{min} – DCX



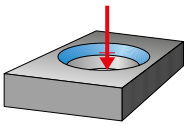
OF..04

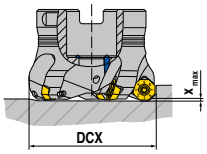
DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
25,6	45	39	2,3
30,7	55	49	1,9
37,7	69	63	1,4
45,7	85	79	1,2
55,7	105	99	0,9
68,7	131	125	0,7
85,7	165	159	0,6
105,7	205	199	0,5
130,7	255	249	0,4

SF..09

DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
27,4	45,00	42,0	1,9
32,5	55,00	52,0	1,5
39,2	69,00	66,0	1,1
47,6	85,00	82,0	0,9
57,6	105,00	102,0	0,7
70,5	131,00	128,0	0,5
87,5	165,00	162,0	0,4
107,5	205,00	202,0	0,3
132,5	255,00	252,0	0,3

Axial plunging





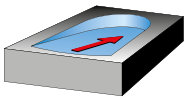
OF..04

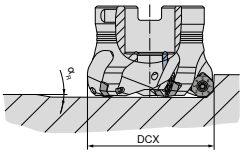
DCX mm	x_{max} mm
25,6	2,5
30,7	2,5
37,7	2,5
45,7	2,5
55,7	2,5
68,7	2,5
85,7	2,5
105,7	2,5
130,7	2,5

SF..09

DCX mm	x_{max} mm
27,4	3,7
32,5	3,5
39,2	3,2
47,6	3,1
57,6	3,1
70,5	3,0
87,5	2,9
107,5	2,7
132,5	2,7

Angled ramping





OF..04

DCX mm	$\alpha_{R\,max}$ °
25,6	14,2
30,7	9,5
37,7	6,5
45,7	4,7
55,7	3,5
68,7	2,7
85,7	2,0
105,7	1,6
130,7	1,2

SF..09

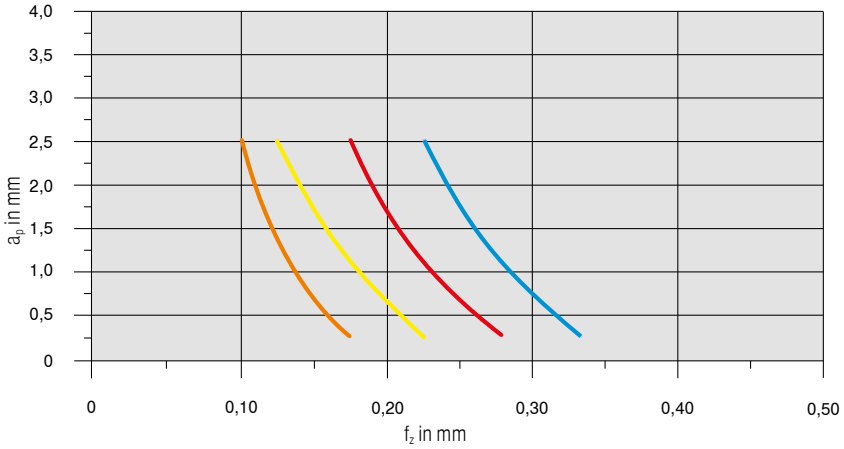
DCX mm	$\alpha_{R\,max}$ °
27,4	20,4
32,5	13,0
39,2	8,0
47,6	5,8
57,6	4,3
70,5	3,2
87,5	2,3
107,5	1,7
132,5	1,3

System MaxiMill 274-04

Starting Parameter



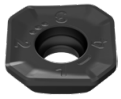
OF.. 04



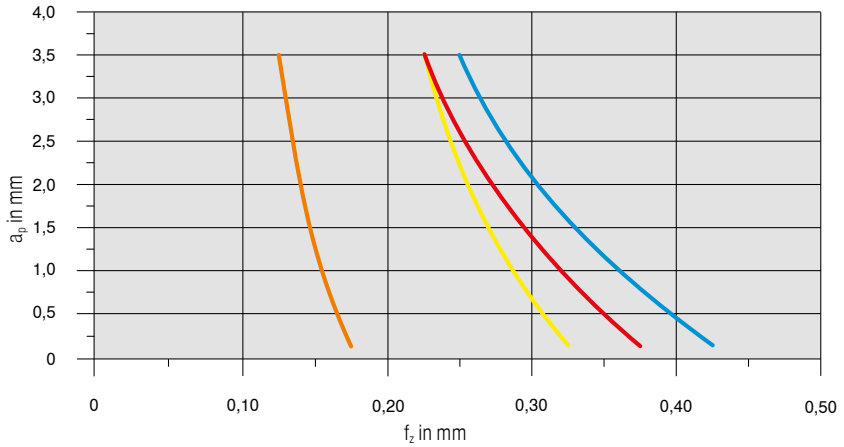
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**OFHT040305SN-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OFHT040305SN-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**OFHT040305SN-M50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**OFHT040305SN-F50**	**CTC5240**	35	Emulsion

System MaxiMill 274-09

Starting Parameter



SF.. 09



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SFKT0903AFSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SFHT0903AFSR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SFKT0903AFSR-R50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**SFHT0903AFSR-F50**	**CTC5240**	35	Emulsion

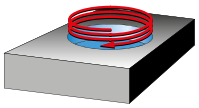
Detailed information on cutting speed for each grade can be found on → page 142–144

From v_c > 400 m/min, the tool must be balanced!

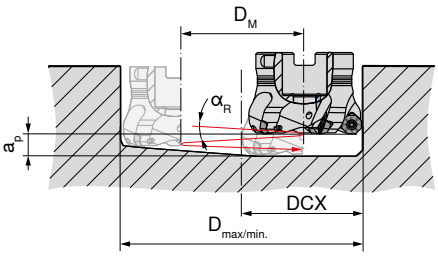
System MaxiMill 274-05/-12

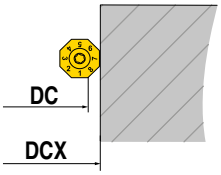
Machining strategy

Helical plunge milling



$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface
D_M = D_{max} – DCX and D_{min} – DCX





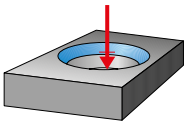
OF..05

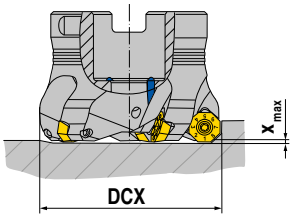
DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
50	**58**	107	99	1,1
63	**71**	133	125	0,9
80	**88**	167	159	0,7
100	**107,9**	207	199	0,5
125	**132,9**	257	249	0,4

SF..12

DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
47,0	**61,0**	107	105	0,5
59,9	**74,0**	133	131	0,4
76,9	**90,9**	167	165	0,3
96,9	**110,9**	207	205	0,25
121,9	**135,9**	257	255	0,2

Axial plunging





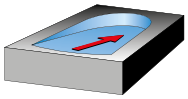
OF..05

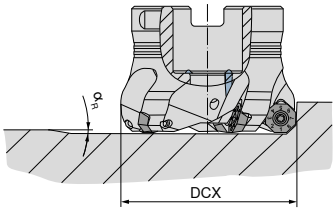
DC mm	DCX mm	X_{max} mm
50	**58**	2,2
63	**71**	1,9
80	**88**	1,8
100	**107,9**	1,1
125	**132,9**	1,4

SF..12

DC mm	DCX mm	X_{max} mm
47,0	**61,0**	3,4
59,9	**74,0**	3,2
76,9	**90,9**	3,0
96,9	**110,9**	2,5
121,9	**135,9**	2,6

Angled ramping





OF..05

DC mm	DCX mm	$\alpha_{R\,max}$ °
50	**58**	3,2
63	**71**	2,0
80	**88**	1,5
100	**107,9**	0,7
125	**132,9**	0,7

SF..12

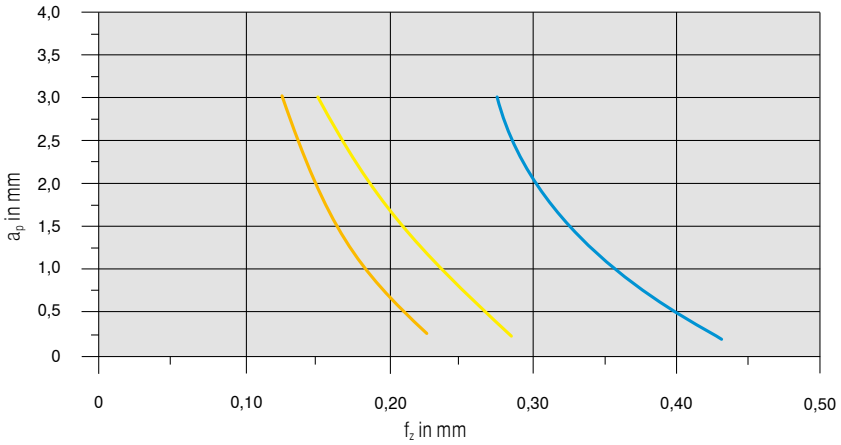
DC mm	DCX mm	$\alpha_{R\,max}$ °
47,0	**61,0**	4,9
59,9	**74,0**	3,4
76,9	**90,9**	2,4
96,9	**110,9**	1,6
121,9	**135,9**	1,3

System MaxiMill 274-05

Starting Parameter



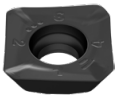
OF.. 05



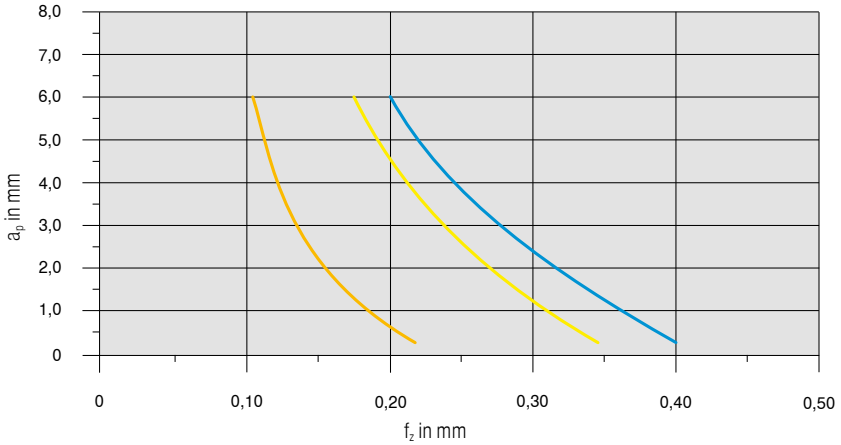
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**OFHT050410SN-M50**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OFHT050410SN-F50**	**CTPM240**	180	Dry
Heat resistant	**S.2.2**	Inconel 718	**OFHT050410SN-F50**	**CTC5240**	35	Emulsion

System MaxiMill 274-12

Starting Parameter



SF.. 12



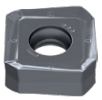
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SFKT1204AFSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SFKT1204AFSR-M50**	**CTPM240**	180	Dry
Heat resistant	**S.2.2**	Inconel 718	**SFHT1204AFER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

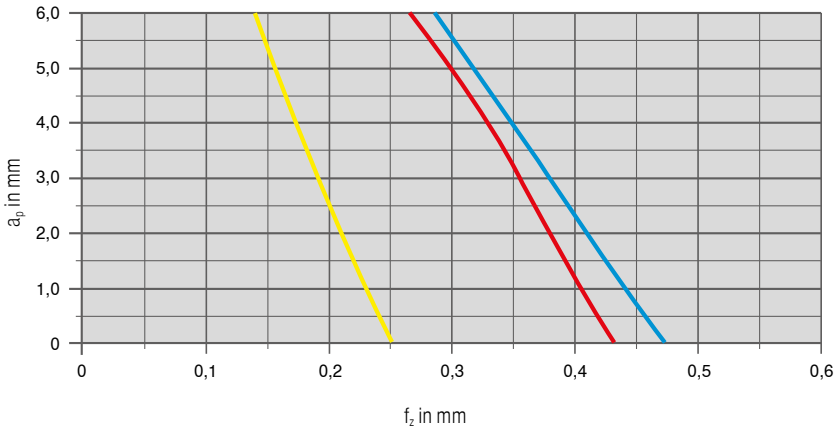
From v_c > 400 m/min, the tool must be balanced!

MaxiMill 271-12 system

Starting Parameter



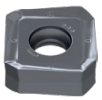
SOHU 12



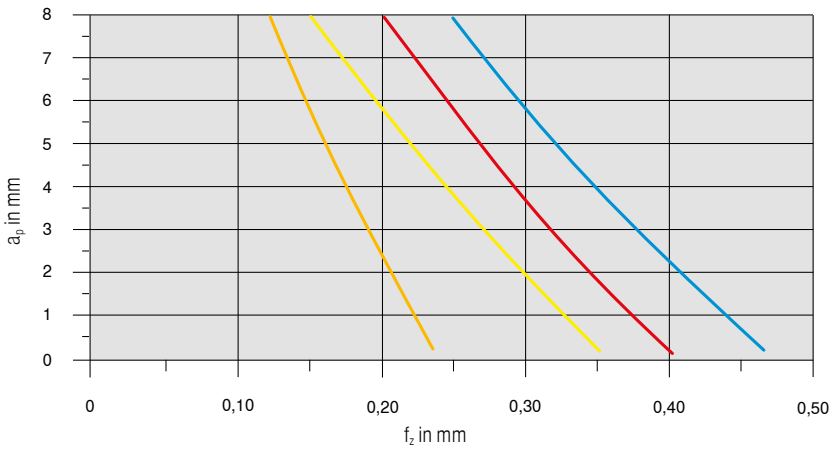
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SOHU 1204ABSR-M50**	**CTPP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SOHU 1204ABSR**	**CTPM240**		Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SOHU 1204ABSR-R50**	**CTCK215**	300	Dry
Heat resistant	**S.2.2**	Inconel 718	**SOHU 1204ABSR-F50**	**CTC5240**	30	Emulsion

System MaxiMill 271-17

Starting Parameter



SAKU 17



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SAKU 1706ABSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SAKU 1706ABSR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SAKU 1706ABSR-R50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**SAKU 1706ABSR-F50**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

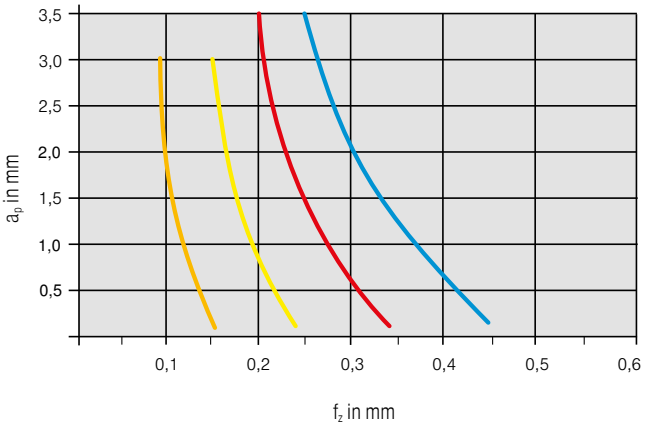
From v_c > 400 m/min, the tool must be balanced!

MaxiMill 273 system

Starting Parameter



OAKU



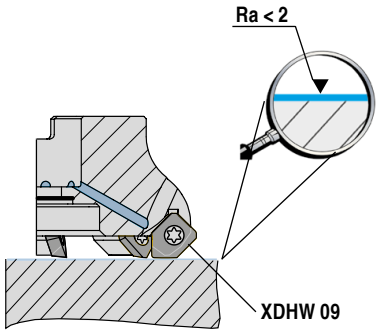
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**OAKU 060508SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OAKU 060508SR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**OAKU 060508SR-R50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**OAKU 060508ER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

From v_c > 400 m/min, the tool must be balanced!

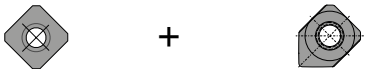
MaxiMill 270 system

Machining strategy



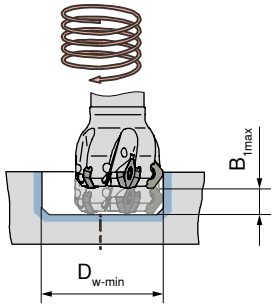
Finish milling with wiper inserts

Two wiper inserts are mounted in each 125 mm head



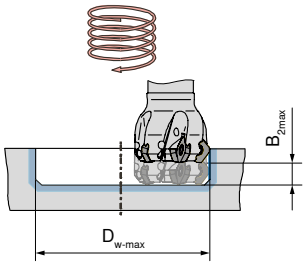
Steel	SDNT	0903AESN-29	CTPP235	+	XDHW	0903AESN	CTPP235
	SDNT	0903AESN-29	CTCP230	+	XDHW	0903AESN	CTCP230
	SDHT	0903AESN-33	CTCP230	+	XDHW	0903AESN	CTCP230
	SDHW	0903AESN	TCM10	+	XDHW	0903AESN	TCM10
Cast iron	SDNT	0903AESN-31	CTCK215	+	XDHW	0903AEEN	CTCK215
Non ferrous metals	SDHT	0903AEFN-ALP	-27P H216T	+	XDHW	0903AEFN	-27P H216T

Helical plunge milling (without start hole)



C 270-09

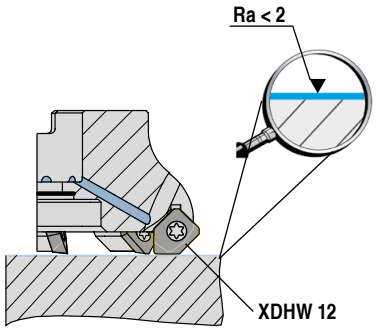
DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm
6	14,4	1,5	19,0	1,5
12	28,5	1,5	31,0	1,5
16	36,5	1,5	39,0	1,5
20	44,5	1,5	47,0	1,5
25	54,5	1,5	57,0	1,5
32	68,5	1,5	71,0	1,5



A 270-09

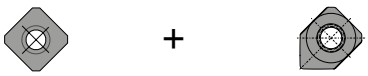
DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm
32	68,5	1,5	71,0	1,5
40	84,5	1,5	87,0	1,5
50	104,5	1,5	107,0	1,5
63	130,5	1,5	133,0	1,5
80	164,5	1,5	167,0	1,5
100	204,5	1,5	207,0	1,5
125	254,5	1,5	257,0	1,5
160	324,5	1,5	327,0	1,5

System MaxiMill 270-12



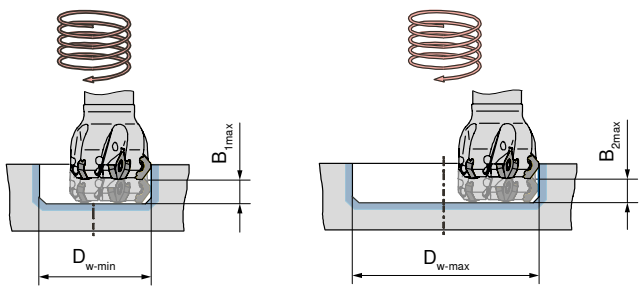
Finish milling with wiper inserts

Two wiper inserts are mounted in each 125 mm head



Steel	SDMT	1204AESN-29R	CTPP235	+	XDHW	1204AESN	CTPP235
	SDMT	1204AESN-29R	CTCP230	+	XDHW	1204AESN	CTCP230
	SDHW	1204AESN-R	TCM10	+	XDHW	1204AESN	TCM10
Cast iron	SDMT	1204AEEN-31	CTCK215	+	XDHW	1204AEEN	CTCK215
	SDHW	1204AESN-R	CTCK215	+	XDHW	1204AEEN	CTCK215
Non ferrous metals	SDHT	1204AEFN-ALP	-27P H216T	+	XDHW	1204AEFN	-27P H216T

Helical plunge milling (without start hole)

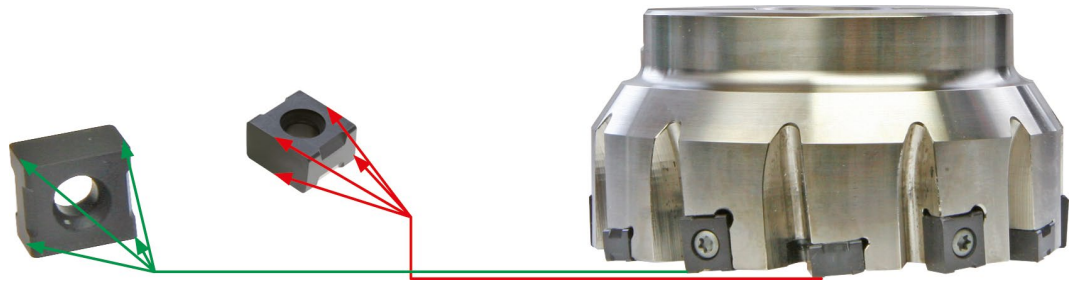


DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm
32	74,5	1,5	78,0	1,5
40	90,5	1,5	94,0	1,5
50	110,5	1,5	114,0	1,5
63	136,5	1,5	140,0	1,5
80	170,5	1,5	174,0	1,5
100	210,5	1,5	214,0	1,5
125	260,5	1,5	264,0	1,5
160	330,5	1,5	334,0	1,5

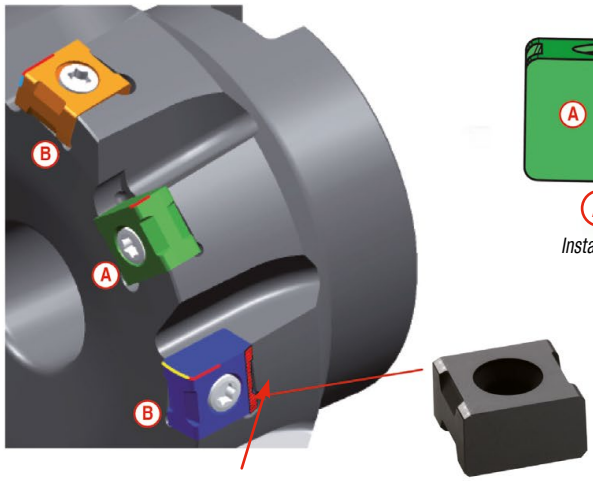
From v_c > 400 m/min, the tool must be balanced!

MaxiMill HEC 11 / HEC 12 system

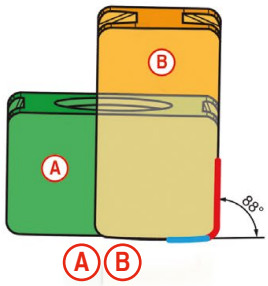
4 cutting edges per installation position



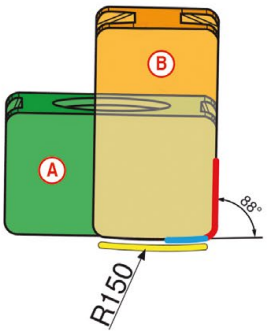
Correct assembly of standard and wiper inserts



Marking for the correct assembly



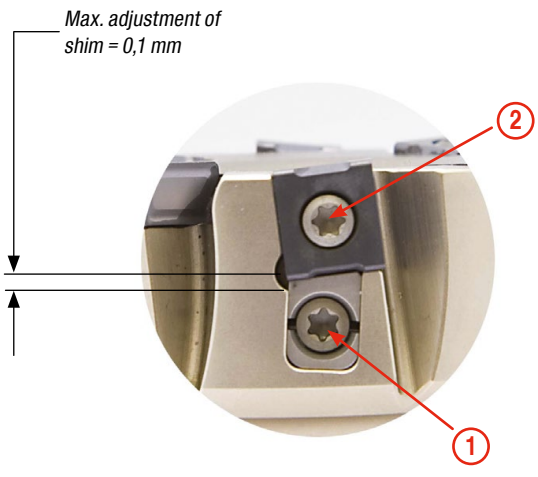
Installation position



Face machining insert — B
Insert main cutting edge — A B
Wiper Facet — B

Adjust the tools in axial direction

- Install the wedge into the cutter body and lightly clamp the clamping screw so as not to clamp. (1)
- Install the inserts as shown and tighten to 1,0 Nm torque. (2)
- Using pre-setting equipment, mark the highest cutting edge. (1)
- With small adjustments of the setting screw set all cutting edges to the same height by 0,005 mm or better. (1)
- Clamp insert with 3,2 Nm torque. (2)



Average chip thickness [h_m] – the approach

Face milling

1 Select appropriate average chip thickness [h_m] for the steel from the table.

Material	Tensile strength N/mm²	h_m mm
for steel	...–800	0,2
for steel	800–1000	0,18
for steel	1000–1200	0,16
for steel	1200–...	0,14
for stainless steel	... –750	0,21
for stainless steel	750–900	0,19
for stainless steel	900–1150	0,17
for stainless steel	1150– ...	0,15

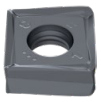
2 Select the corrected feed rate value from the table based on the appropriate chip thickness [h_m] and depth of cut [a_e].

h_m mm	Corrected feed value f_z for h_m			
0,20	0,40 **	0,40 **	0,33	0,28
0,18	0,40 **	0,40 **	0,29	0,25
0,16	0,40 **	0,36	0,26	0,23
0,14	0,36	0,31	0,23	0,20
0,21	0,40 **	0,40 **	0,34	0,30
0,19	0,40 **	0,40 **	0,31	0,27
0,17	0,40 **	0,38	0,28	0,24
0,15	0,39	0,34	0,24	0,21
a_e =	**0,3 x DC**	**0,4 x DC**	**0,75 x DC**	**1 x DC**

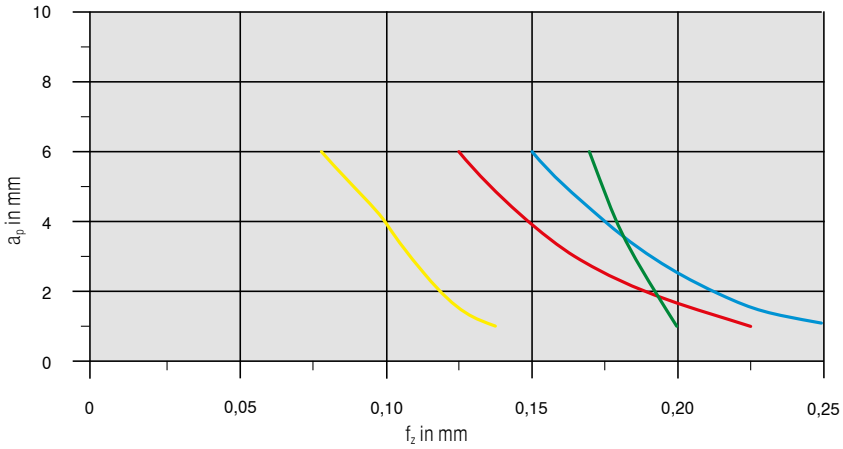
** f_z > 0,4 mm: Danger of an open space contact

MaxiMill 491-09 system

Starting Parameter



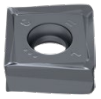
SNHU 09



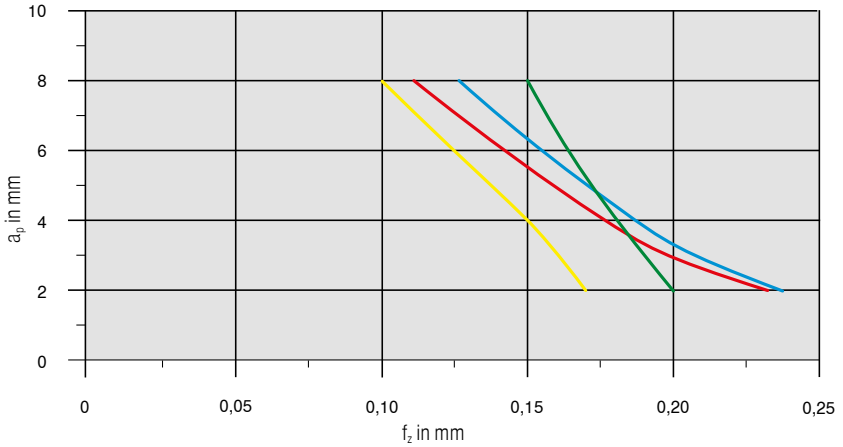
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SNHU09T308SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SNHU09T308SR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SNHU09T308SR-R50**	**CTCK215**	250	Dry
Non ferrous metals	**N.1.2**	AlMgSi1	**SNHU09T308FR-F10**	**CTWN215**	500	Emulsion

MaxiMill 491-12 system

Starting Parameter



SNHU 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SNHU120408SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SNHU120408SR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SNHU120408SR-R50**	**CTCK215**	250	Dry
Non ferrous metals	**N.1.2**	AlMgSi1	**SNHU120408FR-F10**	**CTC5240**	500	Emulsion

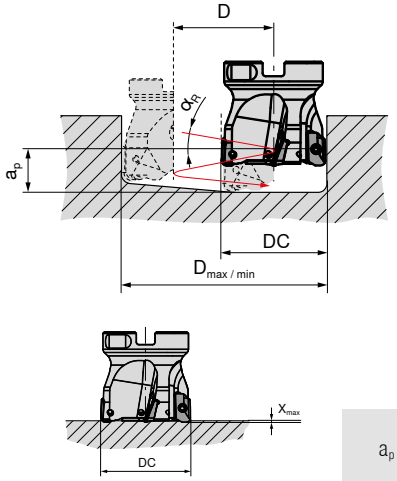
Detailed information on cutting speed for each grade can be found on → page 142–144

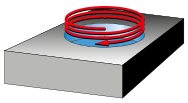
From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 211-07

Machining strategy

Helical plunge milling



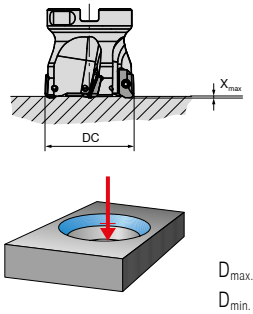


a_p in mm = $D * \pi * \tan \alpha_R$

DC mm	D_{max} / RE 0,4 mm	D_{min} mm	$\alpha_{R\,max}$ °
10	19	13	5,5
12	23	17	6,0
16	31	25	3,0
20	39	33	2,0
25	49	43	1,5
32	63	57	1,2
40	79	73	0,8
50	99	93	0,7

DC mm	D mm	$\alpha_{R\,max\,360°}$ °
10	13	5,5
12	17	6,0
16	25	3,0
20	33	2,0
25	43	1,5
32	57	1,2
40	73	0,8
50	93	0,7

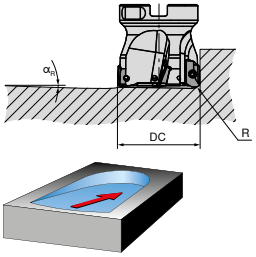
Axial plunging



DC mm	X_{max} mm
10	0,8
12	0,8
16	0,8
20	0,8
25	0,8
32	0,8
40	0,8
50	0,8

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface

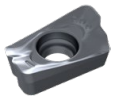
Angled ramping



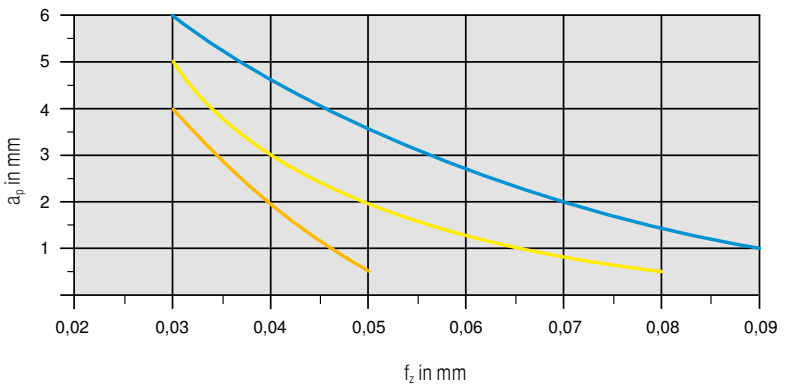
DC mm	α °
10	11,0
12	7,9
16	4,3
20	3,0
25	2,5
32	1,6
40	1,2
50	1,0

$D = D_{max} - DC / D_{min} - DC$

Starting Parameter



XDKT 07



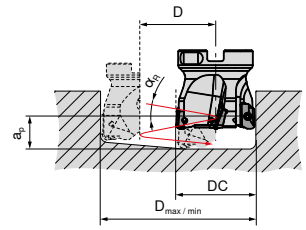
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XDKT070308SR-M50**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDKT070308SR-F50**	**CTPM240**	180	Dry
Heat resistant	**S.2.2**	Inconel 718	**XDKT070308ER-F50**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

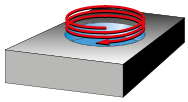
From v_c > 400 m/min, the tool must be balanced!

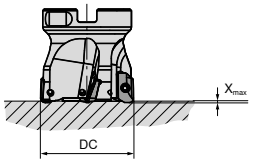
System MaxiMill 211-11

Machining strategy

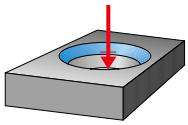


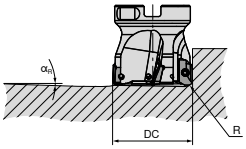
1 Helical plunge milling



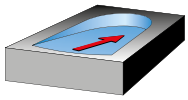


2 Axial plunging





3 Angled ramping



DC mm	1 Helical plunge milling RE = 0,8 mm	2 Axial plunging X_{max}	3 Angled ramping α_R
12	α_R 16 ° $D_{max.}$ 21 mm $D_{min.}$ 14 mm	1,3 mm	18 °
16	α_R 9,5 ° $D_{max.}$ 29 mm $D_{min.}$ 21 mm	1,5 mm	10,8 °
20	α_R 7 ° $D_{max.}$ 37 mm $D_{min.}$ 30 mm	2,0 mm	9,8 °
25	α_R 4,5 ° $D_{max.}$ 47 mm $D_{min.}$ 40 mm	2,0 mm	7,5 °
32	α_R 3,2 ° $D_{max.}$ 61 mm $D_{min.}$ 53 mm	1,0 mm	4,8 °
40	α_R 2,2 ° $D_{max.}$ 77 mm $D_{min.}$ 72 mm	1,6 mm	2,9 °
50	α_R 1,7 ° $D_{max.}$ 98 mm $D_{min.}$ 93 mm	1,6 mm	2,2 °
63	α_R 1,5 ° $D_{max.}$ 123 mm $D_{min.}$ 116 mm	1,6 mm	1,8 °
80	α_R 1,0 ° $D_{max.}$ 157 mm $D_{min.}$ 153 mm	1,6 mm	1,4 °
100	α_R 0,8 ° $D_{max.}$ 107 mm $D_{min.}$ 101 mm	1,6 mm	1,1 °

$D_{max.}$ in mm = largest diameter for flat bottom hole

$D_{min.}$ in mm = Smallest diameter for flat bottom surface

a_p in mm = $D \times \pi \times \tan(\alpha_R)$ = Pitch

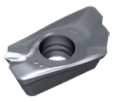
l_a in mm = Overhang length

Maximum speed related to projection length

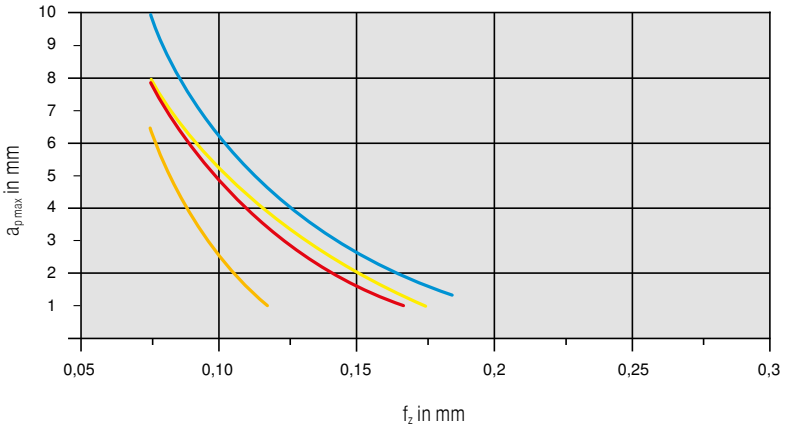
n_{max} in min^{-1}

DC mm	l_a = 1–2 x Ø mm	l_a = 2,5 x Ø mm	l_a = 3 x Ø mm	l_a = 4 x Ø mm	l_a = 5 x Ø mm
12	55000	51500	47000	42000	37000
16	42000	38500	34100	28900	24200
20	36900	33000	28500	23900	19500
25	33200	29000	24400	19900	15400
32	30200	26000	20900	16600	11900
40	27700	23000	18000	13500	9000
50	25400	20400	15400	10800	6100
63	23300	18300	12900	8300	3700
80	21300	16100	10600	5800	
100	19600	14100	8400		

Starting Parameter



XDKT 11



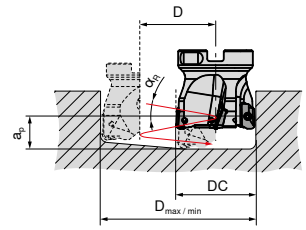
Material			Inserts		v_c in m/min	Cooling
Steel	P.4.1	40CrMnMoS 8-6	XDKT11T308SR-M50	CTCP230	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XDKT11T308SR-F50	CTPM240	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	XDKT11T308SR-R50	CTCK215	250	Dry
Heat resistant	S.2.2	Inconel 718	XDKT11T308ER-F50	CTC5240	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

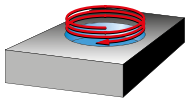
From v_c > 400 m/min, the tool must be balanced!

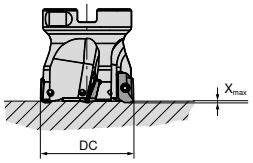
System MaxiMill 211-15

Machining strategy

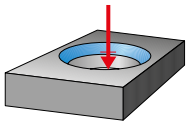


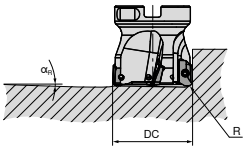
1 Helical plunge milling



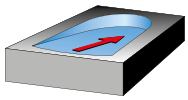


2 Axial plunging





3 Angled ramping



DC mm	1 Helical plunge milling RE = 0,8 mm	2 Axial plunging X_{max}	3 Angled ramping α_R
25	α_R 7,5 ° $D_{max.}$ 48 mm $D_{min.}$ 37 mm	2,7 mm	9,5 °
32	α_R 5 ° $D_{max.}$ 62 mm $D_{min.}$ 47 mm	2,5 mm	6,8 °
40	α_R 3,2 ° $D_{max.}$ 78 mm $D_{min.}$ 63 mm	2,5 mm	5,1 °
50	α_R 2,5 ° $D_{max.}$ 98 mm $D_{min.}$ 86 mm	2,5 mm	2,5 °
63	α_R 1,5 ° $D_{max.}$ 124 mm $D_{min.}$ 111 mm	2,5 mm	2,5 °
80	α_R 1,3 ° $D_{max.}$ 158 mm $D_{min.}$ 147 mm	2,5 mm	2,0 °
100	α_R 1,1 ° $D_{max.}$ 198 mm $D_{min.}$ 190 mm	2,5 mm	1,5 °
125	α_R 0,9 ° $D_{max.}$ 248 mm $D_{min.}$ 240 mm	2,5 mm	0,9 °
160	α_R 0,6 ° $D_{max.}$ 318 mm $D_{min.}$ 310 mm	2,5 mm	0,7 °
100	α_R 0,8 ° $D_{max.}$ 107 mm $D_{min.}$ 101 mm	1,6 mm	1,1 °

Maximum speed related to projection length n_{max} in min^{-1}			
DC mm	l_a = 2 x Ø mm	l_a = 3 x Ø mm	l_a = 5 x Ø mm
25	26560	19520	13320
32	24160	16720	9520
40	22160	14400	7200
50	20320	12320	4880
63	18640	10320	2960
80	17040	8480	
100	15680	6720	
125	14320		
160	13200		

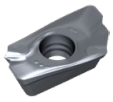
$D_{max.}$ in mm = largest diameter for flat bottom hole

$D_{min.}$ in mm = Smallest diameter for flat bottom surface

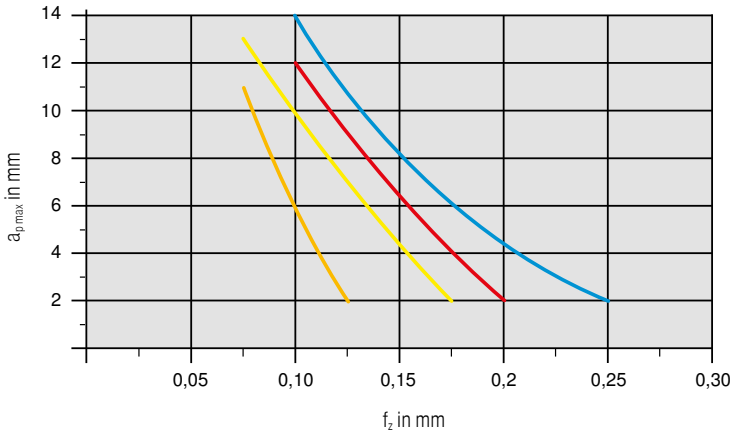
a_p in mm = D x π x tan (α_R) = Pitch

l_a in mm = Overhang length

Starting Parameter



XDKT 15



Material			Inserts		v_c in m/min	Cooling
Steel	P.4.1	40CrMnMoS 8-6	XDKT150508SR-M50	CTCP230	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XDKT150508SR-F50	CTPM240	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	XDKT150508SR-R50	CTCK215	250	Dry
Heat resistant	S.2.2	Inconel 718	XDKT150508ER-F40	CTC5240	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

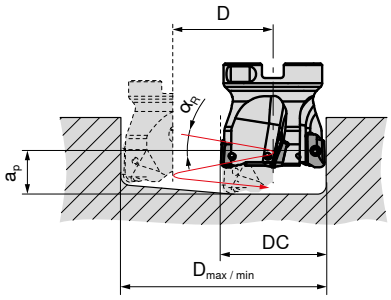
From v_c > 400 m/min, the tool must be balanced!

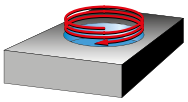
15

System MaxiMill 211-20

Machining strategy

Helical plunge milling

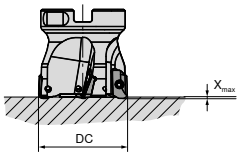


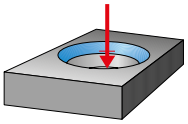


DC mm	D_{max} / RE 0,4 mm	D_{min} mm	$\alpha_{R\,max}$ °
63	124	107	2,2
80	158	143	1,7
100	198	183	1,3

a_p in mm = $D * \pi * \tan \alpha_R$

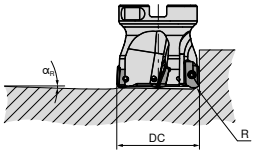
Axial plunging

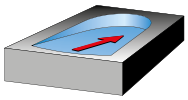




DC mm	X_{max} mm
63	2,0
80	2,0
100	2,0

Angled ramping



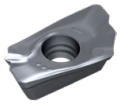


DC mm	α °
63	2,2
80	1,7
100	1,3

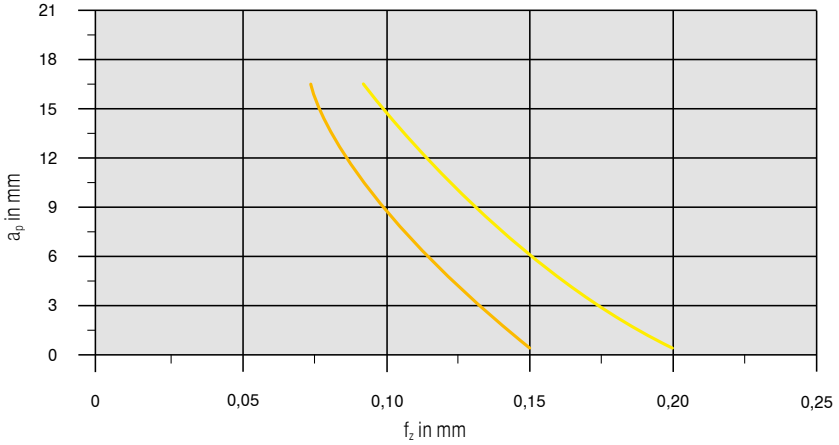
D = D_{max} - DC / D_{min} - DC

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface

Starting Parameter



XDKT 20



Material			Inserts		v_c in m/min	Cooling
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDKT200708ER-F40**	**CTPM240**	180	Dry
Heat resistant	**S.2.2**	Inconel 718	**XDKT200708ER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 490-09

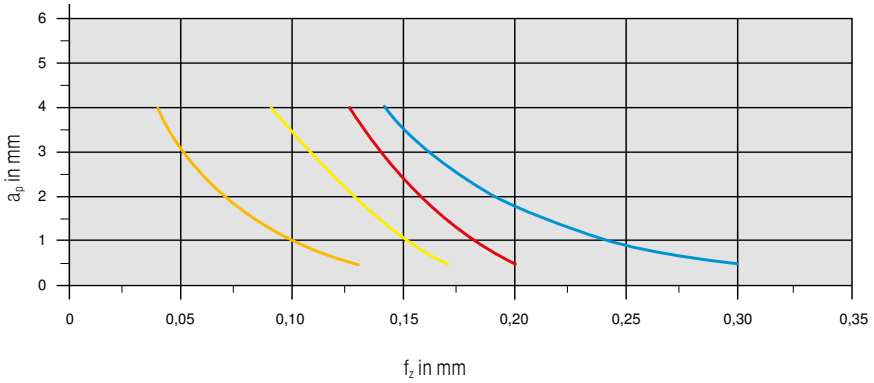
Machining strategy

System MaxiMill 490-09 is not suitable for plunging!

Starting Parameter



SDNT 09



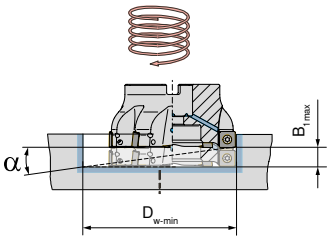
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SDNT09T308SR-29**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SDNT09T308SR-33**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SDNT09T308SR-31**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**SDNT09T308ER-M31**	**CTC5240**	35	Emulsion

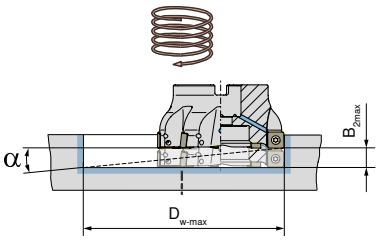
Detailed information on cutting speed for each grade can be found on → page 142–144

System MaxiMill 490-12

Machining strategy

Helical plunge milling (without start hole)





$$B = (D_W - DC) \times \pi \times \tan \alpha$$

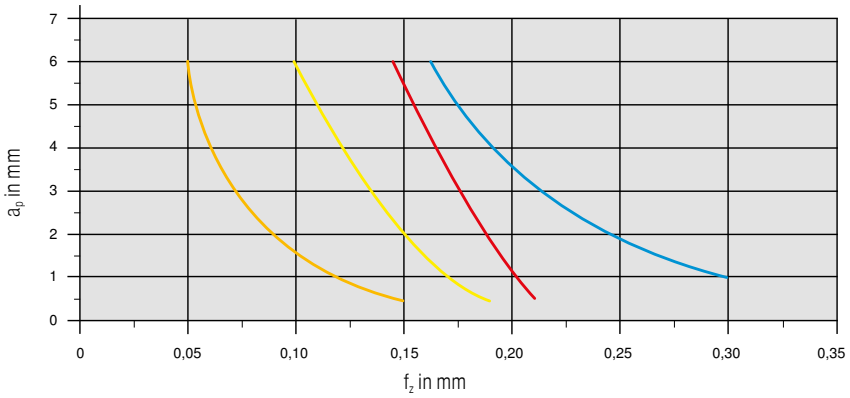
D_w = Diameter of the hole to be produced
DC = Nominal diameter of the milling tool
B = Axial feed to 360° circular movement

DC mm	D_{w-min} mm	$B_{1\,max}$ mm	D_{w-max} mm	$B_{2\,max}$ mm	α °
50	77	2,5	98	4,8	2,0
63	103	1,8	124	3,0	1,0
80	137	2,1	158	3,0	0,8
100	177	2,1	198	2,9	0,6
125	227	1,8	248	2,4	0,4

Starting Parameter



SDMT 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SDMT1205ZZSN-29**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SDMT120512SR-33**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SDMT1205ZZSN-31**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**SDMT120508ER-M31**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

HSC/HPC machining

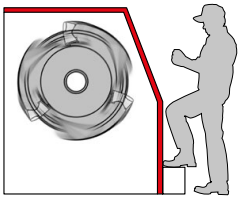
Safety advice

Suitability of the tool for HSC machining

HSC tools from CERATIZIT have been specially developed for this machining strategy and guarantee maximum operational reliability.

Observation of safety precautions of the machine manufacturer

Make sure that all safety precautions of the machine-manufacturer are observed (e.g.: closed machine guards).

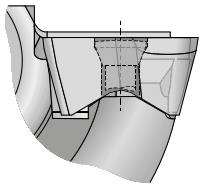


Suitability of the adapters for HSC machining

According to the milling situation, choose the optimum tool/clamping device combination.
For high speed milling applications it is necessary to dynamically balance tool and tool adapter together (see ISO 1940 directives).

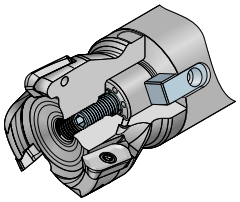
Mounting the indexable insert with centrifugal force protection

Insert clamping: EURO-patent EP 1083017A1
Make sure that the insert pocket is cleaned and the threading bore for the clamping screw is in good condition.
Check the axial and radial contact points of the insert in the pocket.
The clamping screws for positive insert clamping must be tightened with a torque of (XDHT11 = 1,8 Nm; XDH.19 = 6,0 Nm).



Optimum mounting of HSC milling cutters (DC = Ø 40–63) to milling arbors using power screw

The power screw guarantees a stable connection of tool and milling adapter and is easy to use.



Power Screw

Maximum admissible number of revolutions

Please note the maximum number of revolutions stated on the tool. This number is exclusively valid for the specific tool and must be adapted according to the selected tool adapter, total overhang length and the respective machining situation.



Optimum application range of the tool (a_e, a_p, f_z, n)

In order to guarantee productive milling, please observe the recommendations regarding the cutting parameters.

Failure to comply with these safety regulations automatically excludes CERATIZIT from any liability

System MaxiMill HSC-11

Cutting data standard values

Workpiece material		Treatment / alloy		VDI 3323 Group	Hardness HB	H216T (CWK26) v_c in m/min (dry)	H216T (CWK26) v_c in m/min (MQL)
N	Aluminum alloys,	non hardenable		21	60		200–3000
		hardenable		22	100		200–2000
	Cast aluminum alloy	non hardenable	< 12 % Si	23	80		200–2000
		hardenable	< 12 % Si	24	90		200–1800
		non hardenable	> 12 % Si	25	130		200–1000
	Copper and copper alloys (Bronze, Brass)		Free-cutting steel alloy (1 % Pb)	26			200–600
			brass, red bronze	27	90	250–1000	250–1000
			bronze	28	100		150–400
			lead-free copper and electrolytic copper	29	100		300–800
O	Non metal materials		Duroplastics	29		80–1000	80–1000
			Fibre-reinforced plastics	29		70–500	70–500
			hard rubber	30		80–300	80–300

= full lubricant

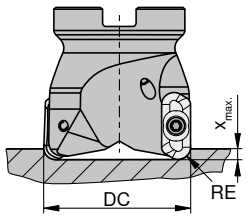
= Minimum quantity lubrication

= dry machining

System MaxiMill HSC-11

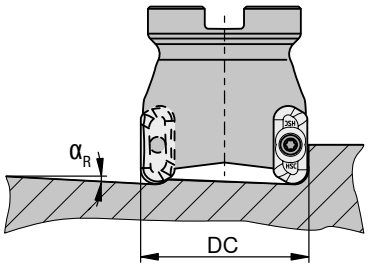
Machining strategy

Axial ramping



DC mm	11 RE 0,2–4,0 $x_{max.}$ mm
16	1,70
18	2,11
19	2,24
20	2,39
22	2,70
25	2,55
32	2,40
40	2,28
50	2,26
63	2,10
80	1,75
100	1,79

Linear ramping



DC mm	α_R °
16	18,8
18	16,3
19	15,3
20	14,8
22	13,8
25	10,3
32	6,8
40	4,8
50	3,5
63	2,5
80	1,8
100	1,3

Milling strategy for roughing and finishing

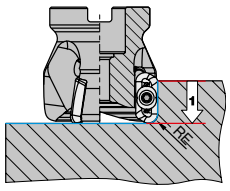
With maximum chip volume

Indexable Insert	RE mm	1 a_p mm	2 3 4 $a_{p\,max.}$ mm
XDHT 11T302FR-ALP	0,2	10	9,8
XDHT 11T304FR-ALP	0,4	10	9,6
XDHT 11T308FR-ALP	0,8	10	9,2
XDHT 11T312FR-ALP	1,2	10	8,8
XDHT 11T316FR-ALP	1,6	10	8,4
XDHT 11T320FR-ALP	2,0	10	8,0
XDHT 11T325FR-ALP	2,5	10	7,5
XDHT 11T332FR-ALP	3,2	10	6,8
XDHT 11T340FR-ALP	4,0	10	6,0
XDHT 11T350FR-ALP	5,0	10	5,0

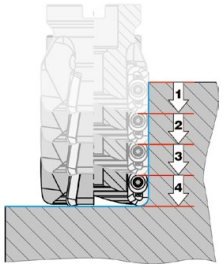
With maximum side wall quality

Indexable Insert	RE mm	2 3 4 $a_{p\,max.}$ mm
XDHT 11T302FR-ALP	0,2	7,8
XDHT 11T304FR-ALP	0,4	7,6
XDHT 11T308FR-ALP	0,8	7,2
XDHT 11T312FR-ALP	1,2	6,5
XDHT 11T316FR-ALP	1,6	6,8
XDHT 11T320FR-ALP	2,0	6,4
XDHT 11T325FR-ALP	2,5	5,5
XDHT 11T332FR-ALP	3,2	4,8
XDHT 11T340FR-ALP	4,0	4,0
XDHT 11T350FR-ALP	5,0	3,0

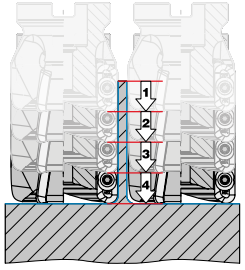
Shoulder milling



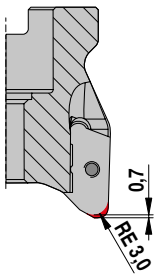
Pocket milling

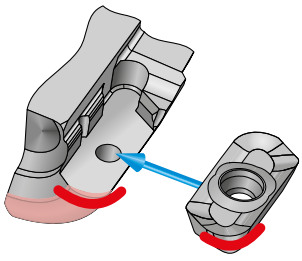


Pocket milling with thin walled components



Modification to front profile



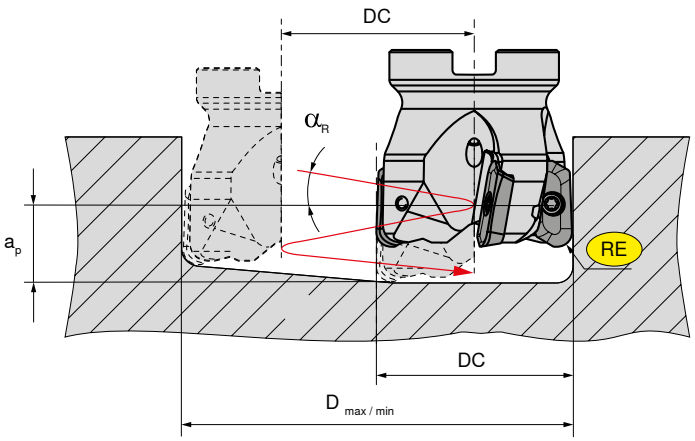


For inserts with a corner radius larger than 3.2 mm the basic body of the tool must be modified according to the drawing above.

System MaxiMill HSC-11

Machining strategy

Helical plunging



RE = Insert radius
α_R in mm = Maximum ramping angle (related to centre of tool)

a_p in mm = pitch → D x π x tan (α_R)

D in mm = → D_{max} – DC and/or D_{min} – DC

For flat bottom hole

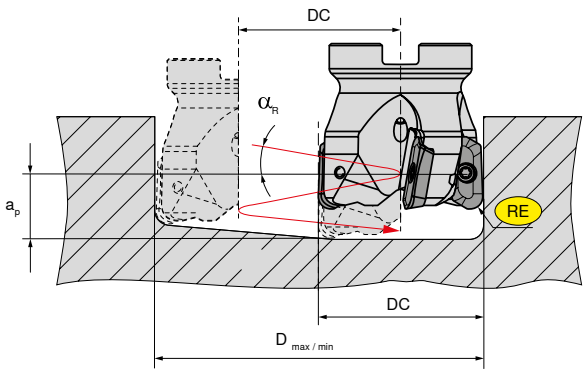
$D_{max.}$ in mm = largest drilling diameter
$D_{min.}$ in mm = smallest drilling diameter
$DN_{max.}$ in mm = Maximum hole diameter for non flat bottom

DC mm		XDHT-11 (HSC-11)								
(DN_{max})		RE = 0,2	RE = 0,4	RE = 0,8	RE = 1,2	RE = 1,6	RE = 2,0	RE = 2,5	RE = 3,2	RE = 4,0
16	α_R	9,7°	10,0°	9,9°	9,4°	8,9°	8,4°	7,9°	7,0°	6,1°
	$D_{max..}$	30	30	29	28	27	27	26	24	23
(31)	$D_{min..}$	18	18	18	18	18	18	18	18	18
18	α_R	9,4°	9,1°	8,7°	8,3°	7,9°	7,5°	6,9°	6,2°	5,3°
	$D_{max.}$	34	34	33	32	31	31	30	28	27
(35)	$D_{min.}$	22	22	22	22	22	22	22	22	22
19	α_R	8,8°	8,6°	8,3°	7,9°	7,5°	7,5°	6,5°	5,9°	5,1°
	$D_{max..}$	36	36	35	34	33	33	32	30	29
(37)	$D_{min..}$	24	24	24	24	24	24	24	24	24
20	α_R	8,4°	8,2°	7,8°	7,4°	7,7°	6,7°	6,2°	5,5°	4,8°
	$D_{max.}$	38	38	37	36	35	35	34	32	31
(39)	$D_{min.}$	26	26	26	26	26	26	26	26	26
22	α_R	7,6°	7,4°	7,8°	6,7°	6,4°	6,5°	5,6°	5,2°	4,3°
	$D_{max..}$	42	42	41	40	39	39	38	36	35
(43)	$D_{min..}$	30	30	30	30	30	30	30	30	30
25	α_R	6,7°	6,5°	6,2°	5,9°	5,6°	5,3°	4,9°	4,4°	3,8°
	$D_{max.}$	48	48	47	46	45	45	44	42	41
(49)	$D_{min.}$	36	36	36	36	36	36	36	36	36
32	α_R	4,7°	4,7°	4,8°	4,6°	4,3°	4,1°	3,8°	3,4°	2,9°
	$D_{max.}$	62	62	61	60	59	59	58	56	55
(63)	$D_{min.}$	50	50	50	50	50	50	50	50	50
40	α_R	3,3°	3,3°	3,4°	3,4°	3,5°	3,3°	3,0°	2,7°	2,3°
	$D_{max.}$	78	78	77	76	75	75	74	72	71
(79)	$D_{min.}$	66	66	66	66	66	66	66	66	66
50	α_R	2,4°	2,5°	2,5°	2,5°	2,6°	2,6°	2,4°	2,2°	1,9°
	$D_{max.}$	98	98	97	96	95	95	94	92	91
(99)	$D_{min.}$	86	86	86	86	86	86	86	86	86
63	α_R	1,7°	1,7°	1,7°	1,8°	1,8°	1,8°	1,8°	1,7°	1,5°
	$D_{max.}$	124	124	123	122	121	121	120	118	117
(125)	$D_{min.}$	112	112	112	112	112	112	112	112	112
80	α_R	1,1°	1,1°	1,1°	1,1°	1,1°	1,1°	1,1°	1,2°	1,2°
	$D_{max.}$	158	158	157	156	155	155	154	152	151
(159)	$D_{min.}$	146	146	146	146	146	146	146	146	146
100	α_R	0,8°	0,8°	0,9°	0,9°	0,9°	0,9°	0,9°	0,9°	0,9°
	D_{max}	198	198	197	196	195	195	194	192	191
(199)	$D_{min.}$	186	186	186	186	186	186	186	186	186

System MaxiMill HSC/HPC-19

Machining strategy

Helical plunging



RE = Insert radius
α_R in mm = Maximum ramping angle (related to centre of tool)

a_p in mm = pitch → D x π x tan (α_R)

D in mm = → D_{max} – DC and/or D_{min} – DC

For flat bottom hole

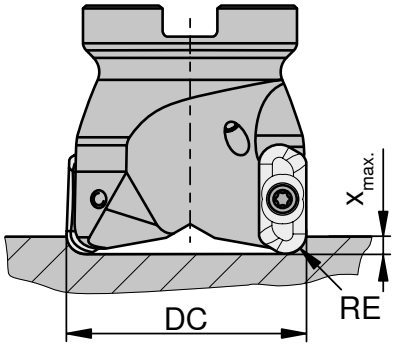
$D_{max.}$ in mm = largest drilling diameter
$D_{min.}$ in mm = smallest drilling diameter
$DN_{max.}$ in mm = Maximum hole diameter for non flat bottom

	DC mm	DN_{max} mm	α_R °	D_{max} mm	D_{min} mm
RE = 0,2 mm	**25**	49	7°02‘	48	32
	32	63	4°34‘	62	46
	40	79	3°47‘	78	62
	50	99	3°01‘	97	81
	63	125	2°17‘	124	107
	80	159		158	141
	100	199		198	181
RE = 0,4 mm	**25**	49	7°08‘	48	32
	32	63	4°37‘	62	46
	40	79	3°49‘	78	62
	50	99	3°02‘	98	81
	63	125	2°18‘	124	107
	80	159		158	141
	100	199		198	181
RE = 0,8 mm	**25**	49	7°21‘	47	32
	32	63	4°44‘	61	46
	40	79	3°53‘	77	62
	50	99	3°05‘	97	81
	63	125	2°20‘	123	107
	80	159		157	141
	100	199		197	181
RE = 2,0 mm	**25**	49	8°40‘	45	32
	32	63	5°04‘	59	46
	40	79	4°06‘	75	62
	50	99	3°13‘	95	81
	63	125	2°25‘	121	107
	80	159		155	141
	100	199		195	181
RE = 2,5 mm	**25**	49	8°24‘	44	32
	32	63	5°13‘	58	46
	40	79	4°12‘	74	62
	50	99	3°17‘	94	81
	63	125	2°27‘	120	107
	80	159		154	141
	100	199		194	181
RE = 3,2 mm	**25**	49	8°54‘	42	32
	32	63	5°26‘	56	46
	40	79	4°20‘	72	62
	50	99	3°21‘	92	81
	63	125	2°30‘	118	107
	80	159		152	141
	100	199		192	181
RE = 4,0 mm	**25**	49	9°32‘	41	32
	32	63	5°42‘	55	46
	40	79	4°30‘	71	62
	50	99	3°28‘	91	81
	63	125	2°33‘	117	107
	80	159		151	141
	100	199		191	181
RE = 5,0 mm	**25**	49	6°49‘	39	32
	32	63	3°59‘	53	46
	40	79	3°20‘	69	62
	50	99	2°13‘	89	81
	63	125	1°52‘	115	107
	80	159		149	141
	100	199		189	181

System MaxiMill HSC/HPC-19

Machining strategy

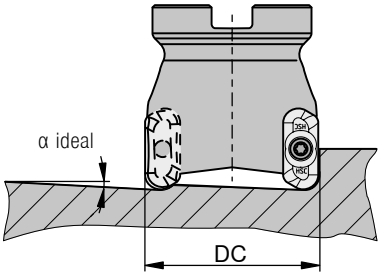
Axial ramping



HSC 19	DC mm	19 RE 0,2–4,0 $x_{max.}$ mm	19 RE 5,0 $x_{max.}$ mm
CHSC 19 / GHSC 19 / MHSC 19	25	5,0	4,0
CHSC 19 / GHSC 19 / MHSC 19	32–40	4,0	3,0
AHSC 19	40–100	4,0	3,0

HPC 19	DC mm	19 RE 0,2–4,0 $x_{max.}$ mm	19 RE 5,0 $x_{max.}$ mm
CHPC 19 / MHPC 19	22–25	5,0	4,0
CHPC 19 / MHPC 19	32–50	6,0	5,0
AHPC 19	40–63	6,0	5,0

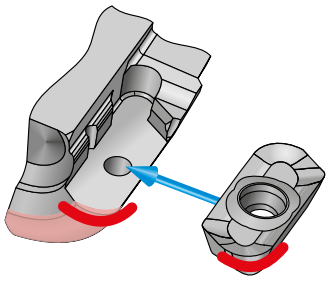
Linear ramping

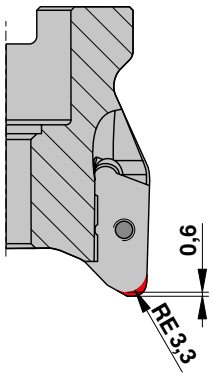


DC mm	α ideal HSC 19	α ideal HPC 19
25	11°	11°
32	7°	7°
40	5°	5°
50	4°	4°
63	3°	3°
80	2°	
100	2°	

Modification to basic body

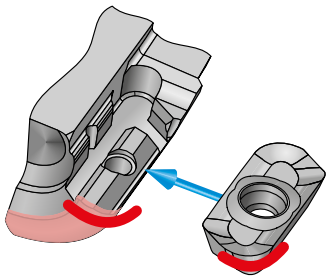
HSC 19





Modification to front profile

HPC 19

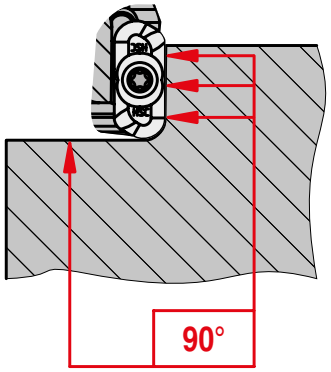


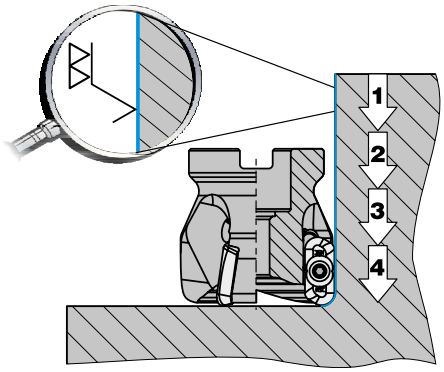
For inserts with a corner radius larger than 4.0 mm the basic body of the tool must be modified according to the drawing above.

System MaxiMill HSC/HPC-19

Machining strategy

Excellent side wall quality after roughing operation.
Additional finishing operations minimized or no longer required.





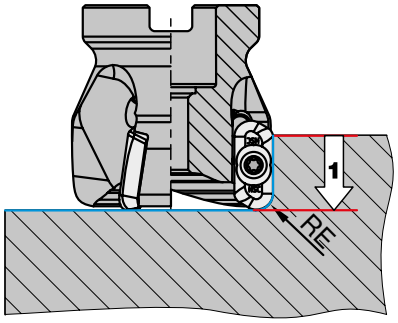
With maximum chip volume

Indexable Insert	RE mm	a_p mm	$a_{p\ max.}$ mm
XDH. 190402FR-ALP	0,2	18,0	17,8
XDH. 190404FR-ALP	0,4	18,0	17,6
XDH. 190408FR-ALP	0,8	18,0	17,2
XDH. 190420FR-ALP	2,0	18,0	16,0
XDH. 190425FR-ALP	2,5	18,0	15,0
XDH. 190432FR-ALP	3,2	18,0	14,8
XDH. 190440FR-ALP	4,0	18,0	14,0
XDH. 190450FR-ALP	5,0	17,0	13,0

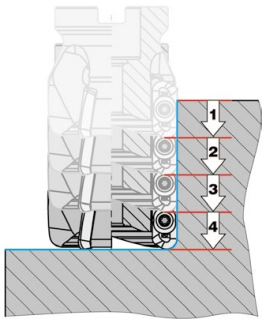
With maximum side wall quality

Indexable Insert	RE mm	$a_{p\ max.}$ mm
XDH. 190402FR-ALP	0,2	11,8
XDH. 190404FR-ALP	0,4	11,6
XDH. 190408FR-ALP	0,8	11,2
XDH. 190420FR-ALP	2,0	10,0
XDH. 190425FR-ALP	2,5	9,5
XDH. 190432FR-ALP	3,2	8,8
XDH. 190440FR-ALP	4,0	8,0
XDH. 190450FR-ALP	5,0	7,0

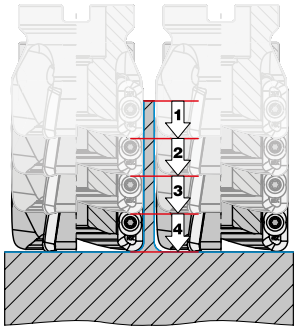
Shoulder milling



Pocket milling



Pocket milling with
thin walled components



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This information applies to the inserts type XDHT 19 and XDHX 19.

System MaxiMill HPC-04/12

Machining strategy

What do you have to take into account?

- Machine stability.
- Stable work piece clamping and tool adapter.
- Use of coolant generally not necessary, however, this will facilitate the removal of the chips - also improved surface quality.
- Take into account thermal stress and critical temperature of 600°C! If required for material, work with coolant.
- Avoid vibration.
- Observe balancing quality class.
- Observe chemical reactions of diamond to carbide forming elements (Fe, Ti, Ta, Co, Ni)

Excellent suitability

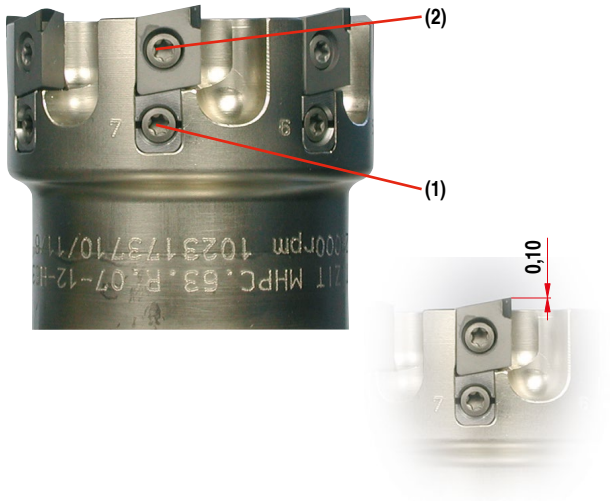
- for components made of light metals and non-ferrous metals, plastic, fibre composite materials, graphite ...
- when the simplest setting method saves cost for tool presetting.
- for high-volume production.
- for high surface quality of the work pieces.
- when long tool life is necessary to reduce tool changes and expensive machine downtime.
- when the tool is already on site (presetting, etc.)

Quality class check

After assembly, clamping of the inserts and adjustment of the axial run-out the balancing quality class of the tools should be checked. When applying shell milling cutters, after assembly with an adapter balancing is necessary.

Setting wiper inserts

As in the setting procedure described above the standard inserts are adjusted to a radial run-out of = 0.02 mm. The inserts with wiper edge are then set to 0.02–0.03 mm above the highest cutting edge.



The adjustment procedure

1 Mount Adjustment wedgesin the tools (as delivered).
Tighten adjustment screw (1) without deforming the wedges.

2 Mount the PCD inserts and tighten the clamping screws (2) with 1.0 Nm.

3 Mark „ highest edge“ with the help of pre-setting equipment.

4 Adjust the PCD insert by 0.02 mm turning the clamping screw (1) clockwise. Pre-loading must be reached. Use the angled TORX screwdrivers

5 Set other cutting edges to this level, maximum deviation of 0.005 mm. Maximum length adjustment = 0.10 mm.

6 Tighten all insert tightening screws (2) to 5,0 Nm.

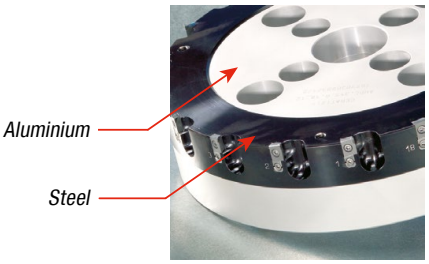
7 Check axial run-out of all inserts: Target = 0.005 mm.

Perfect precision – MaxiMill HPC-12

The adjustable high-performance tool for the finishing of aluminium components

Tool body made of steel

- For highest stability
- Maximum abrasion resistance
- Bimetallic version from diameter 160 mm easier handling and spindle protection with large tools



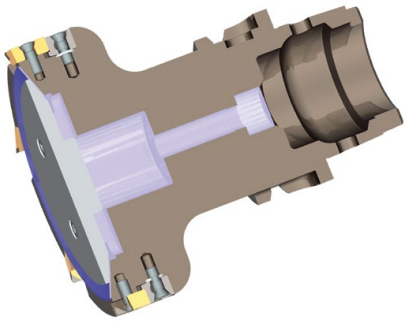
Picture shows bimetallic version

Available as shell milling cutters and monobloc type

- Direct HSK63 connection as monobloc type
- Monobloc tools balanced to G 2.5 at n=20,000 min^{-1} (ISO1940)

Particularly for HSC applications with internal coolant supply

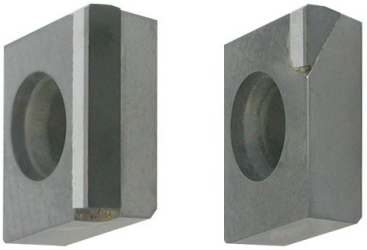
- Improved chip evacuation
- High surface quality
- Optimum application conditions
- Suitability for minimum quantity lubrication



Time is money – the system MaxiMill HPC-12 is simple and quick to adjust!

Highly positive rake angle of +25°

- Low cutting forces
- Increased parallelism of surfaces
- Minimised component deformation



Tangential concept

- Stable location for the PCD segment and maximum process security

Adapted PCD cutting edge

- High impact strength when milling!
- Maximum edge stability
- Reduced built-up edge on the work piece
- The machining of Al-Si alloys with over 12 % silicon is possible without problems

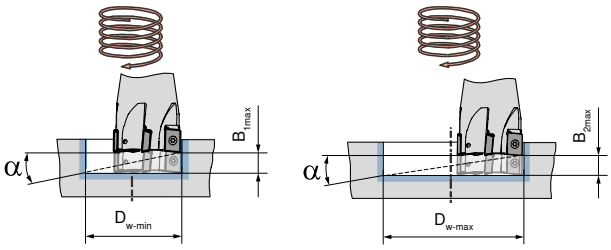
Inserts Selection

- Standard insert
- Insert with corner radius
- Insert with wiper edge

System MaxiMill 141 / 241

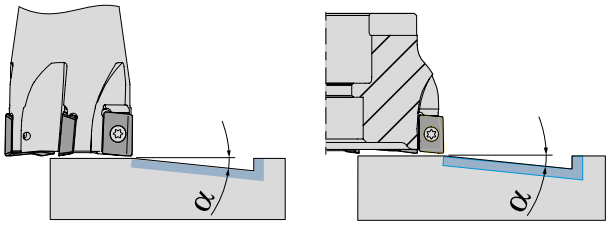
Machining strategy

Helical plunge milling (without start hole)



D_w = Diameter of bore to be produced
DC = Nominal diameter of milling cutter
B = Depth of cut calculated for 360° helical movement

Angled ramping



$$B = (D_w - DC) \times \pi \times \tan \alpha$$

C 141

DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm	α °
16	20,0	0,4	30,0	1,5	2,0
20	24,0	0,4	38,0	1,9	2,0
25	34,0	0,9	48,0	2,5	2,0
32	48,0	1,7	62,0	3,2	2,0
40	64,0	1,9	78,0	3,1	1,5

A 241

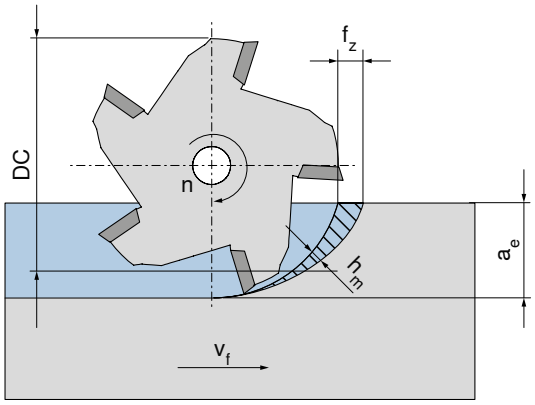
DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm	α °
40	64,0	1,9	78,0	3,1	1,5
50	84,0	1,8	98,0	2,6	1,0
63	110,0	1,2	124,0	1,6	0,5
80	144,0	1,4	158,0	1,7	0,4
100	184,0	1,3	198,0	1,6	0,3
125	234,0	1,2	248,0	1,3	0,2

Average chip thickness [h_m] – the approach

Shoulder milling

1 Select appropriate average chip thickness [h_m] for the steel from the table.

Material	Tensile strength N/mm²	h_m mm
for steel	...–800	0,16
for steel	800–1000	0,14
for steel	1000–1200	0,12
for steel	1200–...	0,10
for stainless steel	...–750	0,15
for stainless steel	750–900	0,13
for stainless steel	900–1150	0,11
for stainless steel	1150–...	0,09 *

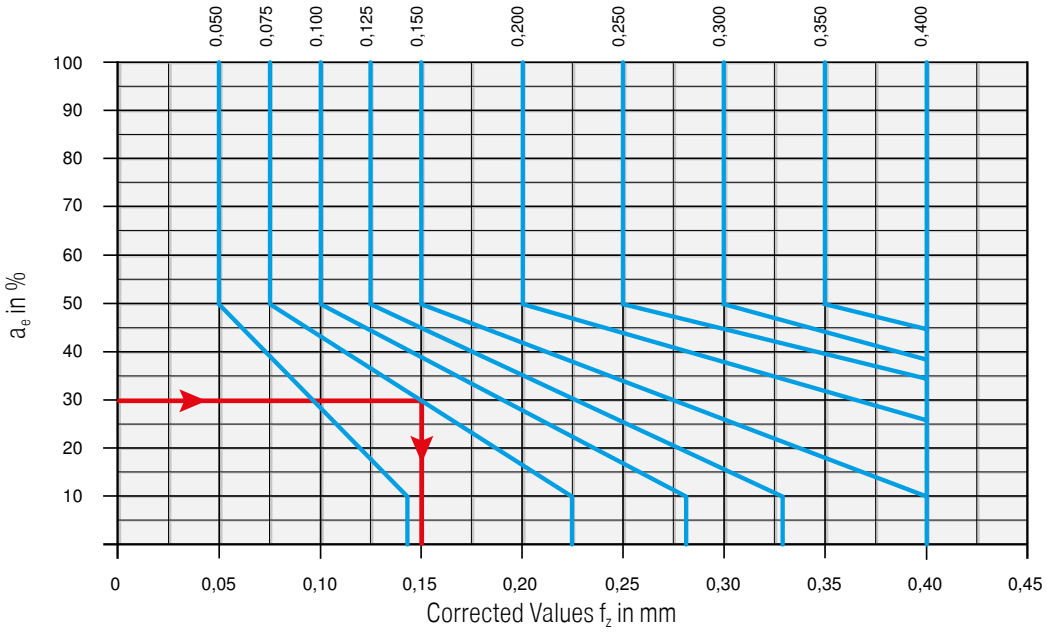


2 Select the corrected feed rate value from the table based on the appropriate chip thickness [h_m] and depth of cut [a_e].

h_m mm	Corrected feed value f_z for h_m				
0,16	0,36	0,29	0,25	0,18	0,16
0,14	0,31	0,26	0,22	0,16	0,14
0,12	0,27	0,22	0,19	0,14	0,12
0,10	0,22	0,18	0,16	0,12	0,10
0,15	0,34	0,27	0,24	0,17	0,15
0,13	0,29	0,24	0,21	0,15	0,13
0,11	0,25	0,20	0,17	0,13	0,11
0,09 *	0,20	0,16	0,14	0,10	0,09 *
a_e =	**0,2 x DC**	**0,3 x DC**	**0,4 x DC**	**0,75 x DC**	**1 x DC**

* f_z < 0,08 mm: Danger, as tool is not working and cutting

Start values f_z in mm from starting parameter diagram



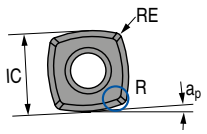
Example:
Start value (f_z) = 0.075 mm
a_e = 30 %
corrected value (f_z) = 0.15 mm

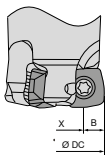
15

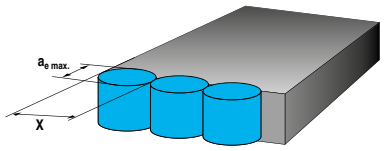
System MaxiMill HFC-06

Machining strategy

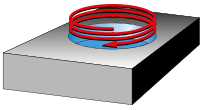
Programmed radius R = 1.2 mm

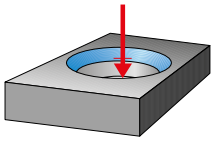


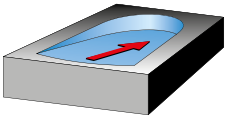




Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\ max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\ max.}$ in mm	f_z in mm			X
							initial	min.	max.	
6,35	0,5	0,8	16–32	DC–(2 x B)	4,3	5,3	0,10	0,08	0,15	<0,7 x DC

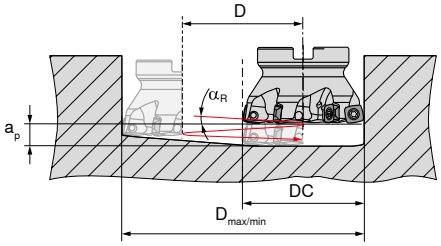






	circular		
	Helical plunging (helical plunging into solid material)		
DC mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\ max.}$ °
16	31	22	4,5°
20	39	30	2,3°
25	49	40	1,3°
32	63	54	0,9°

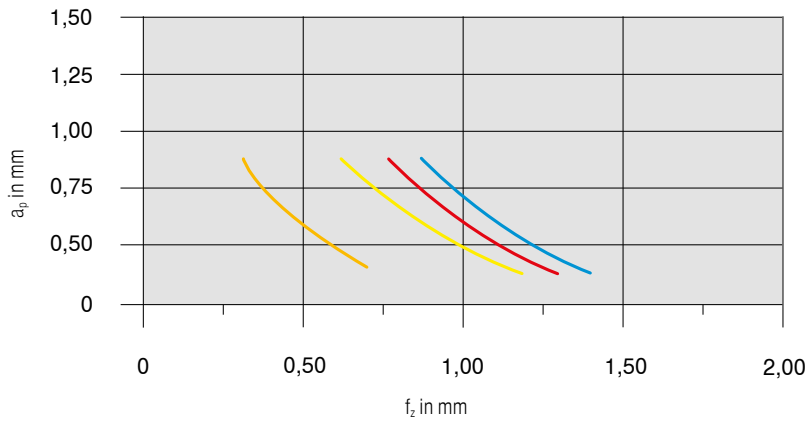
	axial	Angled
	Plunging	
DC mm	$X_{max.}$ mm	$\alpha_{R\ max.}$ °
16	0,5	5,9°
20		3,2°
25		2°
32		1,3°



Starting Parameter



XPLX 06



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XPLX 060305SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XPLX 060305ER-M40**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XPLX 060305ER-M50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**XPLX 060305SR-F40**	**CTC5240**	35	Emulsion

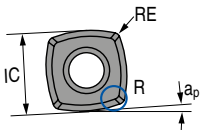
Detailed information on cutting speed for each grade can be found on → page 142–144

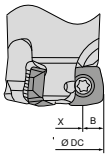
From v_c > 400 m/min, the tool must be balanced!

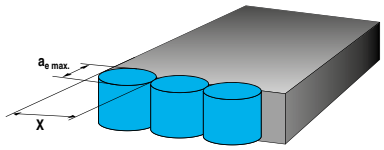
System MaxiMill HFC-09

Machining strategy

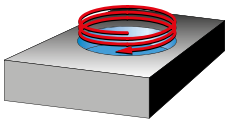
Programmed radius R = 2 mm

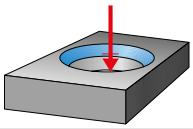


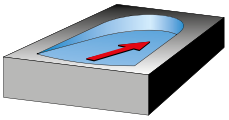




Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
9	0,8	1	25–66	DC–(2 x B)	5,9	7,5	0,10	0,08	0,15	<0,7 x DC

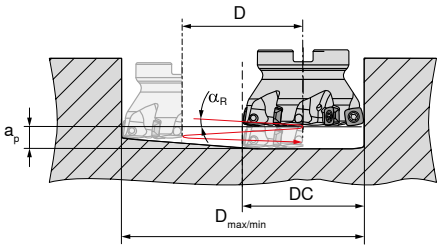






	circular		
	Helical plunging (helical plunging into solid material)		
DC mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\,max.}$ °
25	48	35	3,1°
32	62	49	1,7°
35	68	55	1,4°
40	78	65	1,0°
42	82	69	0,9°
50	98	85	0,8°
52	102	89	0,7°
63	124	111	0,7°
66	130	117	0,6°

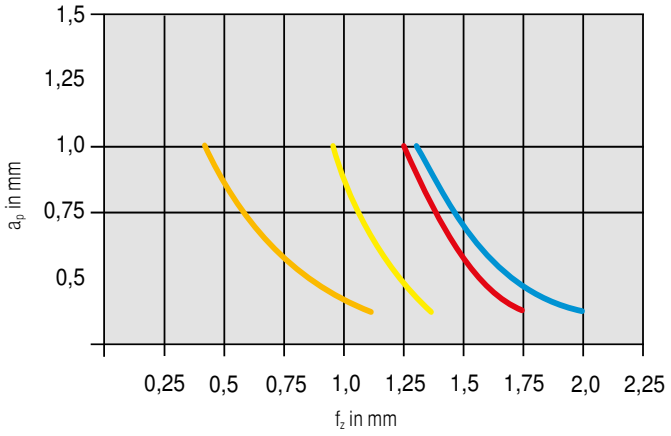
	axial	Angled
	Plunging	
DC mm	$X_{max.}$ mm	$\alpha_{R\,max.}$ °
25		3,6°
32		2,0°
35		1,6°
40		1,2°
42	0,75	1,1°
50		0,9°
52		0,8°
63		0,8°
66		0,7°



Starting Parameter



XDLX 09



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XDLX09T308SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDLX09T308SR-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XDLX09T308SR-M50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**XDLX09T308ER-F40**	**CTC5240**	35	Emulsion

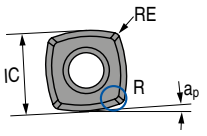
Detailed information on cutting speed for each grade can be found on → page 142–144

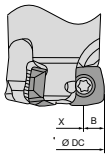
From v_c > 400 m/min, the tool must be balanced!

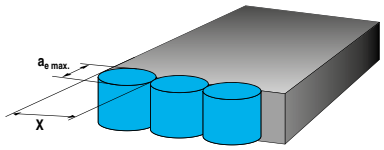
System MaxiMill HFC-12

Machining strategy

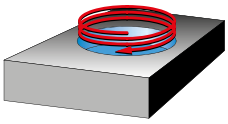
Programmed radius R = 3 mm

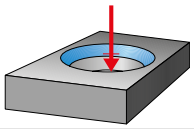


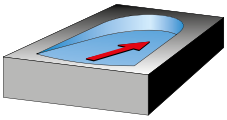




Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
12	1,0	2	32–100	DC–(2 x B)	8,3	10	0,15	0,10	0,20	<0,7 x DC

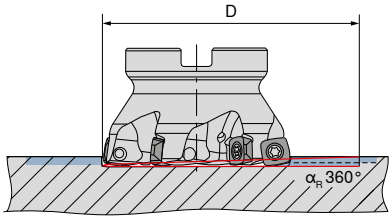






	circular	
	Helical plunging (helical plunging into solid material)	
DC mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\,max.}$ °
32	62	44	6,1°
35	68	50	3,7°
40	78	60	2,5°
42	82	64	2,3°
50	98	80	1,3°
52	102	84	1,3°
63	124	106	0,9°
66	130	112	0,9°
80	158	140	1,1°
100	198	180	0,6°

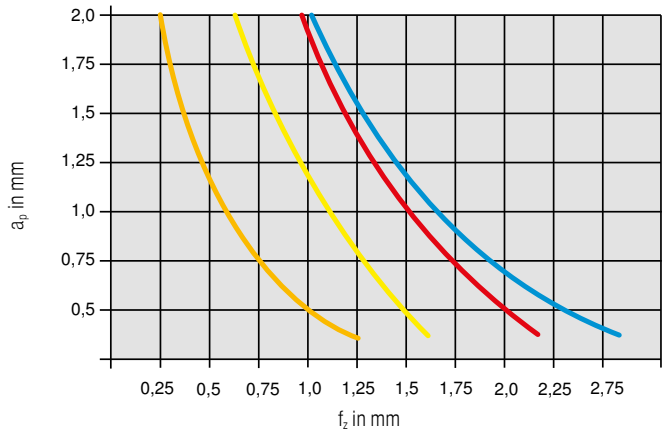
	axial	Angled
	Plunging	
DC mm	$X_{max.}$ mm	$\alpha_{R\,max.}$ °
32	1,15	7,2°
35		4,4°
40		2,9°
42		2,7°
50 + 52		1,5°
63 + 66		1,1°
80		1,3°
100		0,7°



Starting Parameter



XOLX 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XOLX120410SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XOLX120410ER-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XOLX120410ER-M50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**XOLX120410ER-F40**	**CTC5240**	35	Emulsion

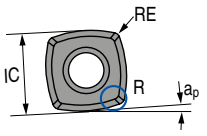
Detailed information on cutting speed for each grade can be found on → page 142–144

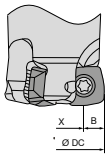
From v_c > 400 m/min, the tool must be balanced!

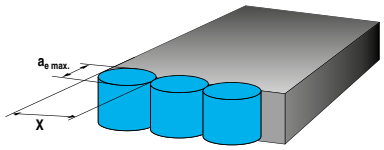
System MaxiMill HFC-19

Machining strategy

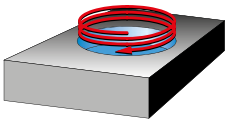
Programmed radius R = 5 mm

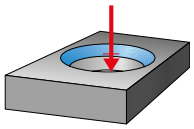


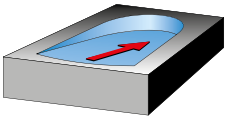




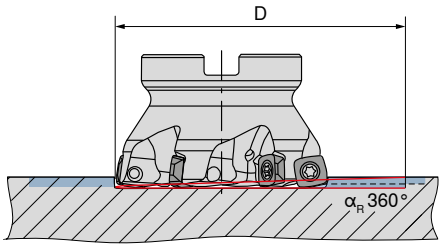
Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
19,14	1,5	3,3	63–160	DC–(2 x B)	13,1	12	0,2	0,10	0,25	<0,65 x DC







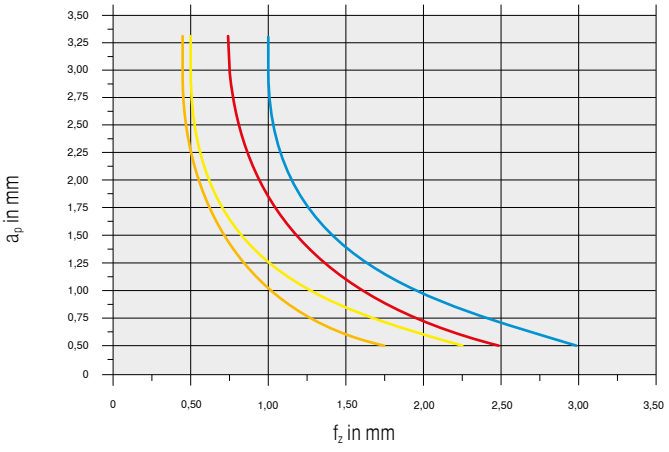
	circular			axial	Angled	
	Helical plunging (helical plunging into solid material)				Plunging	
DC mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\,max.}$ °	$X_{max.}$ mm	$\alpha_{R\,max.}$ °	$a_{p\,max}$ mm
63	97	123	2,5		2,9	
80	131	157	1,4		1,8	
100	171	197	1,0	1,7	1,3	3,3
125	221	247	0,7		1,0	
160	291	317	0,5		0,7	



Starting Parameter



XOLX 19



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XOLX190615SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XOLX190615SR-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XOLX190615SR-M50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**XOLX190615ER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

From v_c > 400 m/min, the tool must be balanced!

System DHFC

Cutting data standard values

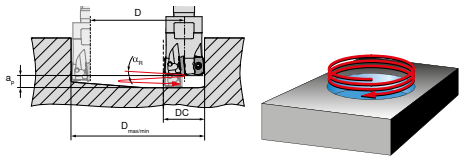
for standard inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	130–300	0,25–1,0	0,70	130–300	0,25–1,0	0,75			
Stainless steel				90–210	0,25–1,0	0,60			
Cast iron				120–270	0,2–1,1	0,70	120–270	0,2–1,2	0,75
Non ferrous metals									
Heat resistant				40–80	0,15–0,75	0,60			
Hardened materials									
Non metal materials									

Machining strategy

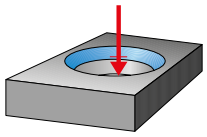
Programmed Radius R = 1,4 mm

Circular Milling



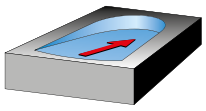
DC mm	D_{min} mm	D_{max} mm
16	23	31
20	31	39
25	41	49
32	55	63
35	61	69
42	75	83

Axial plunging into solid material



DC mm	X_{max} mm
16	0,35
20	0,40
25	0,45
32–35	0,50
40	0,55

Angled ramping



DC mm	α°	y mm
16	<2,5	7
20	<1,9	11
25	<1,5	16
32	<1,2	23
35	<1,0	26
42	<0,9	33

Detailed information on cutting speed for each grade can be found on → page 142–144

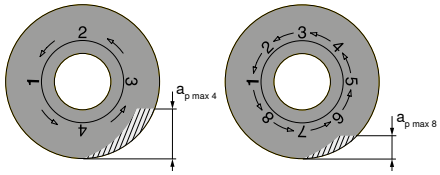
MaxiMill 251/251 RS system

Technical data

Recommended cutting depth

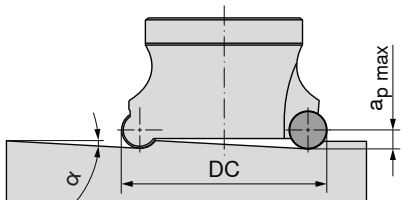
Ø mm	4-position $a_{p\,max.}$ mm	4-position $a_{p\,max}$ theoretical mm	8-face $a_{p\,max.}$ mm
5	1,0	2,0	0,7
8	1,5	3,5	1,1
10	2,5	4,5	1,4
12	3,0	5,5	1,7
16	4,0	7,5	2,3
20	4,0	9,5	2,9

Average depth for the 4/8 index use of the insert



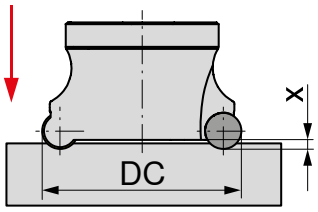
Detailed information on cutting speed for each grade can be found on → page 142–144

Linear ramping



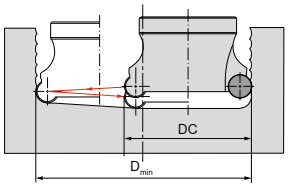
Ø DC mm	05 α °	08 α °	10 α °	12 α °	16 α °	20 α °
10	3,4					
12	16,0					
16	8,0	5,0				
20	5,5	20,0	1,3			
25	4,0	13,0	2,0	6,0		
32	3,0	8,0	3,0	4,0		
40			3,3	2,8		
42			3,1			
50			2,4	2,6	4,0	
52			2,2	2,3		
63				1,9	2,8	
66				1,6		
80				1,3	2,0	3,2
100				1,0	1,5	2,3
125						1,7

Axial ramping

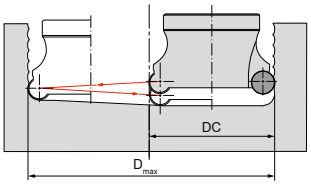


Ø DC mm	05 $X_{max.}$ mm	08 $X_{max.}$ mm	10 $X_{max.}$ mm	12 $X_{max.}$ mm	16 $X_{max.}$ mm	20 $X_{max.}$ mm
10	0,5					
12	1,3					
16	1,3	0,5				
20	1,3	2,7	0,2			
25	1,3	2,7	0,4	1,0		
32	1,3	2,7	0,8	1,1		
40			1,5	1,2		
42			1,5	1,5		
50			1,5	1,5	2,0	
52			1,5	1,5	2,0	
63				1,5	2,0	
66				1,5	2,0	
80				1,5	2,0	3,0
100				1,5	2,0	3,0
125						3,0

Circular milling into solid



$D_{min.}$ = smallest drilling diameter depending on the tool diameter



$D_{max.}$ = Maximum hole diameter Depending on the tool diameter

maximum possible hole diameter = 2 x DC – 1 mm

Ø DC mm	05 D_{min} mm	05 D_{max} mm	05 α_R °	08 D_{min} mm	08 D_{max} mm	08 α_R °	10 D_{min} mm	10 D_{max} mm	10 α_R °	12 D_{min} mm	12 D_{max} mm	12 α_R °	16 D_{min} mm	16 D_{max} mm	16 α_R °	20 D_{min} mm	20 D_{max} mm	20 α_R °
10	12	15	2,5															
12	16	19	2,1															
16	24	27	1,5	21	24	2,4												
20	32	35	1,2	27	32	1,9	26	30	1,3									
25	42	45	1,0	37	42	1,5	37	40	1,8	31	38	2,2						
32	56	59	0,7	51	56	1,2	50	54	1,5	46	52	1,7						
40							64	70	1,1	62	68	1,4						
42							68	74	1,1									
50							84	90	0,9	81	88	1,1	75	84	1,5			
52							88	94	0,9	86	92	1,0						
63										107	114	0,9	101	110	1,1			
66										113	120	0,8						
80										142	148	0,7	135	144	0,9	128	140	1,1
100										181	188	0,5	175	184	0,7	168	180	0,9
125																218	230	0,7

R100. system

Cutting data standard values

Index	WTN1205	WTN1205	WAN2225	WAN2225	WAN1240	WAN1240	WAX1240	WAX1240	WUN4210	WUN4210
P.1.1	**275**	150			**300**	180	**200**	100		
P.1.2	**230**	130			**270**	160	**170**	90		
P.1.3	**190**	100			**225**	130	**140**	80		
P.1.4	**230**	130			**270**	160	**170**	90		
P.1.5	**210**	110			**240**	140	**160**	90		
P.2.1	**230**	130			**270**	160	**170**	90		
P.2.2	**170**	100			**200**	120	**130**	70		
P.2.3	**230**	130			**270**	160	**170**	90		
P.2.4	**160**	90			**180**	110	**120**	60		
P.3.1	**230**	130			**270**	160	**170**	90		
P.3.2	**150**	110			**180**	140	**140**	80		
P.3.3	**130**	90			**150**	120	**120**	70		
P.4.1	**150**	110			**180**	140	**140**	80		
P.4.2	**150**	100			**170**	130	**130**	70		
M.1.1	**230**	130	**230**	**140**	270	160	170	90		
M.2.1			**200**	**120**						
M.3.1										
K.1.1	**275**	200			360	90	150	110	200	150
K.1.2	**150**	100			360	90	150	110	150	120
K.2.1	**180**	100			230	170	150	110	200	150
K.2.2	**150**	100			160	110	150	110	160	130
K.3.1	**180**	100			210	160			200	150
K.3.2	**180**	100			210	160			150	120
N.1.1										**1200**
N.1.2										**800**
N.2.1										**880**
N.2.2										**800**
N.2.3										**230**
N.3.1										**280**
N.3.2										**280**
N.3.3										**160**
N.4.1										**260**
S.1.1				**50**						
S.1.2				**45**						
S.2.1				**24**						
S.2.2				**16**						
S.2.3				**20**						
S.3.1				**50**						
S.3.2				**32**						
S.3.3				**25**						
H.1.1	**140**	80								
H.1.2	**120**	70								
H.1.3	80	40								
H.1.4										
H.2.1										
H.3.1										
O.1.1									180	150
O.1.2										
O.2.1									260	230
O.2.2										
O.3.1									450	

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions.

System R 1000, 1002, 1007

Cutting data standard values

		f_z / a_p mm	WTN1205	WAN2225	WAN1240	WAX1240	WUN4210
Steel							
	0501	f_z	**0,1–0,3**				
		a_p	**0,1–0,3**				
	07T1	f_z	**0,1–0,3**			**0,1–0,3**	0,1–0,2
		a_p	**0,1–0,3**			**0,1–0,7**	0,1–0,2
	0702	f_z	**0,1–0,7**			**0,2–0,5**	0,1–0,2
		a_p	**0,1–0,7**			**0,1–0,75**	0,1–0,2
	1003	f_z	**0,1–0,3**		**0,2–0,9**	**0,2–0,7**	0,15–0,3
		a_p	**0,1–1,0**		**0,2–1,5**	**0,2–1,5**	0,1–0,3
	12T3	f_z	**0,1–0,3**		**0,25–1,0**	**0,–0,8**	0,15–0,3
		a_p	**0,1–1,5**		**0,2–2,0**	**0,2–2,0**	0,1–0,3
	1604	f_z	**0,2–0,3**		**0,3–1,2**	**0,25–1,0**	0,15–0,3
		a_p	**0,2–1,5**		**0,25–3,0**	**0,2–3,0**	0,1–0,4
	2006	f_z	**0,25–0,4**				0,15–0,4
		a_p	**0,2–2,0**				0,1–0,3
Stainless steel							
	0501	f_z	0,1–0,15				
		a_p	0,1–0,15				
	07T1	f_z	0,1–0,2			0,1–0,3	0,1–0,2
		a_p	0,1–0,2			0,1–0,7	0,1–0,2
	0702	f_z	0,1–0,2			0,2–0,5	0,1–0,2
		a_p	0,1–0,2			0,1–0,75	0,1–0,2
	1003	f_z	0,15–0,3	**0,15–0,6**		0,2–0,7	0,15–0,3
		a_p	0,1–0,3	**0,4–1,0**		0,2–1,5	0,1–0,3
	12T3	f_z	0,15–0,3	**0,2–0,8**		0,–0,8	0,15–0,3
		a_p	0,1–0,3	**0,5–2,0**		0,2–2,0	0,1–0,3
	1604	f_z	0,15–0,3	**0,3–1,0**		0,25–1,0	0,15–0,3
		a_p	0,1–0,3	**0,6–3,0**		0,2–3,0	0,1–0,3
	2006	f_z	0,15–0,4				0,15–0,4
		a_p	0,1–0,4				0,1–0,4
Cast iron							
	**0501**	f_z	**0,1–0,2**				
		a_p	**0,1–0,3**				
	**07T1**	f_z	**0,1–0,3**			0,1–0,3	0,1–0,3
		a_p	**0,1–0,5**			0,1–0,5	0,1–0,5
	**0702**	f_z	**0,1–0,3**			0,1–0,3	0,1–0,3
		a_p	**0,1–0,7**			0,1–0,7	0,1–0,7
	**1003**	f_z	**0,15–0,3**		0,1–0,3	0,1–0,3	0,15–0,3
		a_p	**0,1–1,0**		0,1–1,0	0,1–1,0	0,1–1,0
	**12T3**	f_z	**0,15–0,4**		0,1–0,4	0,1–0,4	0,15–0,4
		a_p	**0,1–1,5**		0,1–1,15	0,1–1,5	0,1–1,5
	**1604**	f_z	**0,2–0,5**		0,2–0,5	0,2–0,5	0,2–0,5
		a_p	**0,2–3,0**		0,2–2,0	0,2–3,0	0,2–3,0
	**2006**	f_z	**0,25–0,6**				0,25–0,6
		a_p	**0,2–4,0**				0,2–4,0

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System R 1000, 1002, 1007

Cutting data standard values

		f_z / a_p mm	WTN1205	WAN2225	WAN1240	WAX1240	WUN4210
Non ferrous metals							
	07T1	f_z					**0,1–0,3**
		a_p					**0,1–0,7**
	0702	f_z					**0,1–0,3**
		a_p					**0,1–1,0**
	1003	f_z					**0,1–0,3**
		a_p					**0,1–1,5**
	12T3	f_z					**0,1–0,4**
		a_p					**0,1–2,0**
	1604	f_z					**0,2–0,5**
		a_p					**0,2–4,0**
	2006	f_z					**0,25–0,6**
		a_p					**0,2–5,0**
Heat resistant							
	1003	f_z		**0,1–0,4**			
		a_p		**0,2–1,0**			
	12T3	f_z		**0,15–0,5**			
		a_p		**0,3–1,5**			
	1604	f_z		**0,15–0,5**			
		a_p		**0,3–2,0**			
Hardened materials							
	0501	f_z	**0,1–0,15**				
		a_p	**0,1–0,2**				
	07T1	f_z	**0,1–0,15**				
		a_p	**0,1–0,2**				
	0702	f_z	**01–0,2**				
		a_p	**0,1–0,3**				
	1003	f_z	**0,1–0,2**				
		a_p	**0,1–0,5**				
	12T3	f_z	**0,1–0,25**				
		a_p	**0,1–0,7**				
	1604	f_z	**0,15–0,3**				
		a_p	**0,2–1,0**				
	2006	f_z	**0,2–0,4**				
		a_p	**0,2–1,0**				
Non metal materials							
	07T1	f_z					0,1–0,3
		a_p					0,1–0,7
	0702	f_z					0,1–0,3
		a_p					0,1–1,0
	1003	f_z					0,1–0,3
		a_p					0,1–1,5
	12T3	f_z					0,1–0,4
		a_p					0,1–2,0
	1604	f_z					0,2–0,5
		a_p					0,2–4,0
	2006	f_z					0,25–0,6
		a_p					0,2–5,0

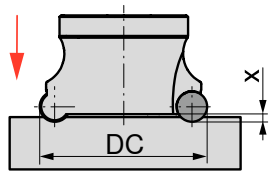
WTN 1205

Up to 48 HRC: a_p-range as indicated in the table
Up to 55 HRC: maximum value a_p x 0,7
Up to 65 HRC: maximum value a_p x 0,5

System R 1000, 1002, 1007

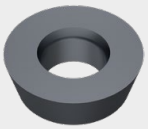
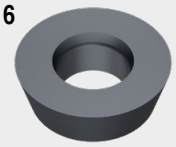
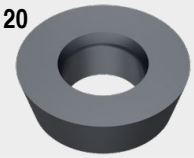
Machining strategy

Axial ramping

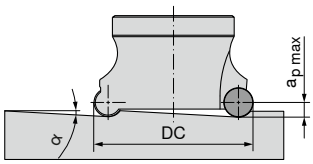


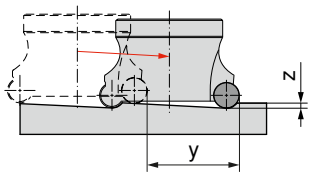
reduce f_z according to table by 30 %

→ v_c Page 178–180

	05	07	10	12	16	20
						
ØDC mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm
8–160	1,0	1,2	2,5	3,0	4,0	5,0

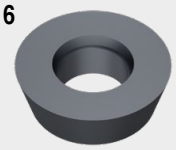
Linear ramping





y = minimum cutter movement
z = minimum cutter movement
a_p / f_z application table

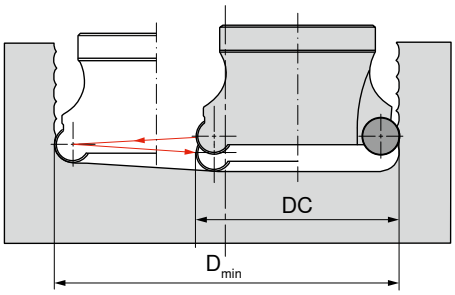
→ v_c Page 178–180

	05	07	10	12	16	20
						
ØDC mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm
8	26,5	2	< 1,0															
10																		
12	14,0	4	< 1,0															
14	9,5	6	< 1,0															
15	8,1	7	< 1,0	26,5	2	< 1,2												
16	7,1	8	< 1,0	14,0	4	< 1,2												
18	5,7	10	< 1,0	11,3	6	< 1,2												
20	4,7	12	< 1,0	8,5	8	< 1,2												
22																		
24																		
25				5,3	13	< 1,2	19,7	7	< 2,5									
30				3,8	18	< 1,2	11,7	12	< 2,5									
32																		
35				3,0	23	< 1,2	8,4	17	< 2,5	13,0	13	< 3,0	38,7	5	< 4,0			
40																		
42				2,3	30	< 1,2	5,9	24	< 2,5	8,5	20	< 3,0						
50																22,6	12	< 5,0
52							4,2	34	< 2,5	5,7	30	< 3,0	10,3	22	< 4,0			
66										3,9	44	< 3,0	6,4	36	< 4,0	10,1	28	< 5,0
80										3,0	58	< 3,0	4,6	50	< 4,0	6,8	42	< 5,0
100													3,3	70	< 4,0	4,6	62	< 5,0
125													2,4	95	< 4,0	3,3	87	< 5,0
160													1,8	130	< 4,0	2,3	122	< 5,0

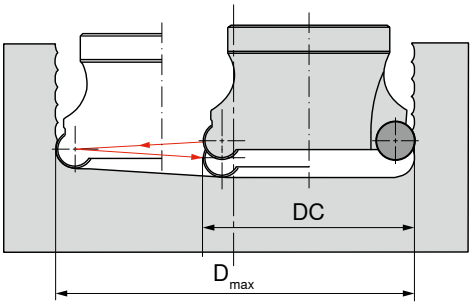
System R 1000, 1002, 1007

Machining strategy

Helical plunging



D_{min} = smallest drilling diameter depending on the tool diameter



D_{max} = largest drilling diameter depending on the tool diameter

a_p / f_z according to table
→ v_c Page 178–180

	05			07			10			12			16			20		
ØDC mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm
8	10	16																
10	12	20																
12	16	24	14	24														
14	20	28	16	28														
15	22	30	17	30														
16	24	30	20	32														
18	28	36	24	36	20	36												
20	32	40	28	40	22	40												
22							24	44										
24							26	48										
25			38	50	32	50												
30			48	60	42	60												
32									34	64								
35			58	80	72	70	48	70	40	70			38,7	5	< 4,0			
40											42	80						
42			72	84	66	84	62	84										
50											62	100				22,6	12	< 5,0
52					86	104	82	104	74	104			10,3	22	< 4,0			
66							110	132	102	132	94	132	6,4	36	< 4,0	10,1	28	< 5,0
80							138	160	130	160	122	160	4,6	50	< 4,0	6,8	42	< 5,0
100									170	200	162	200	3,3	70	< 4,0	4,6	62	< 5,0
125									220	250	212	250	2,4	95	< 4,0	3,3	87	< 5,0
160									290	320	282	320	1,8	130	< 4,0	2,3	122	< 5,0

System MaxiMill 252

Machining strategy

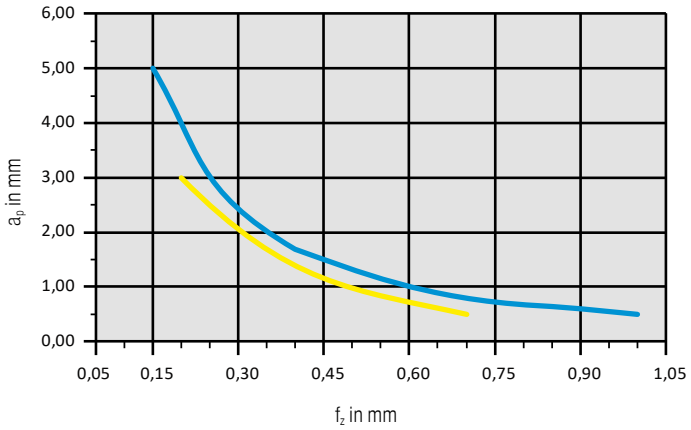
Recommended cutting depth

Ø	4-position	
	$a_{p\,max}$	
mm	mm	mm
10	2,5	4,5
12	3,0	5,5

Starting Parameter



RNHU 10

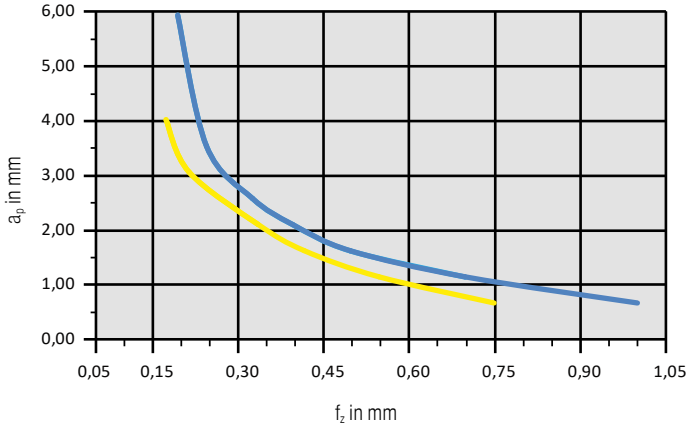


Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**RNHU1005M4SR-M50**	**CTPP235**	180	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**RNHU1005M4ER-F50**	**CTPM240**	180	Dry

Starting Parameter



RNHU 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**RNHU1205M4SR-M50**	**CTPP235**	180	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**RNHU1205M4ER-F50**	**CTPM240**	180	Dry

Detailed information on cutting speed for each grade can be found on → page 142–144

From v_c > 400 m/min, the tool must be balanced!

Cutting data standard values for copy milling cutter K200.

	R	F	R	F	R	F	R	F	R	F	● 1st choice	○ suitable	
	CTPK226		CTPP211		CTPK231		CTCN211		CTPP216		Emulsion	Compressed air	MMS
Index	v_c m/min		v_c m/min		v_c m/min		v_c m/min		v_c m/min				
P.1.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	●
P.1.2		220–240	180–220	220–280	160–200				220–300	280–300	○	●	●
P.1.3		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.1.4		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.1.5		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.2.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	●
P.2.2		280–300	180–220	220–300	160–200				220–300	280–300	○	●	●
P.2.3		280–300	180–220	240–320	160–200				250–360	240–320	○	●	
P.2.4		280–300	180–220	240–320	160–200				250–360	240–320	○	●	
P.3.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	
P.3.2		280–320	180 – 220	240–320	160–200				250–360	240–320	○	●	●
P.3.3		280–320	180 – 220	240–320	160–200				250–360	240–320	○	●	●
P.4.1		220–220	140–180	200–240	120–180				140–180	200–240	○	●	
P.4.2		220–220	140–180	200–240	120–180				140–180	200–240	○	●	
M.1.1		180–200	140–160	180–200	120–160				220–250	220–240	●	○	
M.2.1		180–200	140–160	180–240	120–160				220–250	220–240	●		
M.3.1		220–220	140–180	200–240	120–180				140–180	200–240	●		
K.1.1		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.1.2		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.2.1		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.2.2		300–350	180–220	240–350	180–200				340–400	240–360		●	○
K.3.1		300–350	180–220	240–350	180–200				340–400	240–360		●	○
K.3.2		240–260	160–200	220–260	160–200				280–340	220–300		●	○
N.1.1			240–280	300–600	300–600					400–450	●		
N.1.2			240–280	300–600	300–600					400–450	●		
N.2.1			240–280	300–600	300–600					400–450	●		
N.2.2			240–280	300–600	300–600					400–450	●		
N.2.3										300–400	●		
N.3.1			240–280	280–320	240–280					300–400	●		
N.3.2			240–280	280–320	240–280					300–400	●		
N.3.3			240–280	280–320	240–280					300–400	●		
N.4.1			300–400	300–400				300–400			●		
S.1.1				80–120	80–120					60–80	●		
S.1.2				80–120	80–120					60–80	●		
S.2.1				80–120	80–120					60–80	●		
S.2.2				80–120	80–120					60–80	●		
S.2.3				80–120	80–120					60–80	●		
S.3.1				60–80	80–120					60–80	●		
S.3.2				60–80	60–80					60–80	●	○	
S.3.3				60–80	60–80					60–80	●	○	
H.1.1		240–260		280–300	140–160				240–260	240–260		●	
H.1.2		240–260		280–300	80–100				220–240	160–240		●	○
H.1.3		200–220		240–260					120–140	100–140		●	○
H.1.4		120–140		160–200								●	○
H.2.1		240–260		280–300	80–100				220–240	160–240		●	○
H.3.1		240–260		280–300	80–100				220–240	160–240		●	
O.1.1			300–400	300–400						300–350		●	
O.1.2			500–600	500–600						600–800		●	
O.2.1			300–400	300–400								●	
O.2.2			300–400	300–400								●	
O.3.1							400–600	600–800				●	

Cutting data standard values for copy milling cutter K200.

	Roughing (R)		Finishing (F)		only for -MR3 Roughing (R)		● 1st choice	○ suitable	
	Ø 6-16	Ø 20-32	Ø 6-16	Ø 20-32	Ø 6-16	Ø 20-32	Emulsion	Compressed air	MMS
Index	f_z in mm		f_z in mm		f_z in mm				
P.1.1	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○	●	●
P.1.2	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○	●	●
P.1.3	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
P.1.4	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.1.5	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.2.1	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○	●	●
P.2.2	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○	●	●
P.2.3	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.2.4	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.3.1	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
P.3.2	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○	●	●
P.3.3	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○	●	●
P.4.1	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
P.4.2	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
M.1.1	0,08–0,4	**0,25–0,5**	0,08–0,3	0,2–0,5	**0,3–0,6**	0,8–1,5	●	○	
M.2.1	0,08–0,4	**0,25–0,5**	0,08–0,4	0,2–0,6	**0,3–0,6**	0,8–1,25	●		
M.3.1	0,08–0,4	**0,25–0,5**	0,08–0,5	0,2–0,7	**0,3–0,6**	0,8–1,25	●		
K.1.1	0,08–0,4	**0,25–0,5**	0,08–0,3	0,2–0,5	**0,3–0,8**	1,0–1,5		●	○
K.1.2	0,08–0,5	**0,25–0,6**	0,08–0,4	0,2–0,6	**0,3–0,8**	1,0–1,5		●	○
K.2.1	0,08–0,6	**0,25–0,7**	0,08–0,5	0,2–0,7	**0,3–0,8**	1,0–1,5		●	○
K.2.2	0,08–0,7	**0,25–0,8**	0,08–0,6	0,2–0,8	**0,3–0,6**	0,8–1,25		●	○
K.3.1	0,08–0,8	**0,25–0,9**	0,08–0,7	0,2–0,9	**0,3–0,6**	0,8–1,25		●	○
K.3.2	0,08–0,9	**0,25–0,10**	0,08–0,8	0,2–0,10	**0,3–0,6**	0,8–1,25		●	○
N.1.1	0,08–0,35	0,25–0,45	0,06–0,25	0,025–0,45			●		
N.1.2	0,08–0,36	0,25–0,46	0,06–0,26	0,025–0,46			●		
N.2.1	0,08–0,37	0,25–0,47	0,06–0,27	0,025–0,47			●		
N.2.2	0,08–0,38	0,25–0,48	0,06–0,28	0,025–0,48			●		
N.2.3	0,08–0,39	0,25–0,49	0,06–0,29	0,025–0,49			●		
N.3.1	0,08–0,40	0,25–0,50	0,06–0,30	0,025–0,50			●		
N.3.2	0,08–0,41	0,25–0,51	0,06–0,31	0,025–0,51			●		
N.3.3	0,08–0,42	0,25–0,52	0,06–0,32	0,025–0,52			●		
N.4.1	0,08–0,43	0,25–0,53	0,06–0,33	0,025–0,53			●		
S.1.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.1.2	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.2	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.3	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.3.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.3.2	0,08–0,35	0,4–0,5	0,08–0,3	0,25–0,5	0,25–0,5	0,6–1,0	●	○	
S.3.3	0,08–0,35	0,4–0,5	0,08–0,3	0,25–0,5	0,25–0,5	0,6–1,0	●	○	
H.1.1								●	
H.1.2								●	○
H.1.3								●	○
H.1.4								●	○
H.2.1								●	○
H.3.1								●	
O.1.1								●	
O.1.2								●	
O.2.1								●	
O.2.2								●	
O.3.1								●	

15

Maximum axial depths of cut a_p for copy milling cutter K200.



Ball nose insert									
Insert Ø in mm		6	8	10	12	16	20	25	32
		$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$
ROHX-FM3	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROHX-FM4	**R**	0,8	1,0	2,0	3,0	4,0	5,0	6,0	8,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROHX-FM6	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROGX-MR4	**R***				4,0	6,0	8,0	12,0	16,0
	F				2,0	3,0	4,0	5,0	6,0
ROHX-MR5	**R**		1,5	2,0					
	F		0,8	1,0					

*a_p with full interference 25 % of Ø DC maximum!



Torus inserts									
Insert Ø in mm		6	8	10	12	16	20	25	32
		$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$
XOHX-FM5	**R**		2,0	3,0	3,0	4,0	5,0	6,0	8,0
	F		0,6	2,0	2,4	3,2	4,0	5,0	6,4
XOHX-MR6	**R**		2,0	3,0	3,0	4,0	5,0	6,0	8,0
	F		0,6	2,0	2,4	3,2	4,0	5,0	6,4
XOHX-FM1	**R**			1,5	2,0	3,0	4,0		
	F			0,8	0,8	1,0	1,0		
XOHX-FM2	**R**		1,0	1,5	2,0	3,0	4,0	5,0	
	F		0,5	0,7	0,8	1,0	1,0	1,5	
XOHX-MR2	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	
	F	0,5	0,5	0,7	0,8	1,0	1,0	1,5	
XOGX-MF4	**R**			1,5	2,0	3,0	4,0		
	F			0,7	0,8	1,0	1,0		
XOHX-MR3	**R**			0,5	0,6	0,8	1,0		
	F								

Ranges of application of geometry

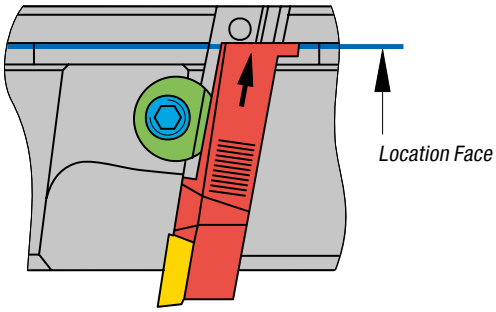
Inserts	F	M	R	Main Application
XOHX-FM1	●	●		Steel, steel casting, heat resistant steel, hardened steel to 63 HRC
XOHX-FM2	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRC
ROHX-FM3	●	●		Steel, steel casting, heat resistant steel
ROHX-FM4	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRC
XOHX-FM5	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRC
ROHX-FM6	●	●	●	Non ferrous metals, plastics, graphite
XOHX-MR2		●	●	long-chipping ferrous metals
XOHX-MR3		●	●	Steel, steel casting, heat resistant steel
ROGX-MR4		●	●	Steel, steel casting, heat resistant steel
XOGX-MF4	●	●		Steel, steel casting, heat resistant steel
ROHX-MR5		●	●	long-chipping ferrous metals
XOHX-MR6		●	●	long-chipping ferrous metals

Cutting data for side and face milling cutters TX

Index	CWX500 v_c m/min	CWK10 v_c m/min
P.1.1	160	
P.1.2	140	
P.1.3	110	
P.1.4	110	
P.1.5	90	
P.2.1	110	
P.2.2	90	
P.2.3	90	
P.2.4	80	
P.3.1	80	
P.3.2	60	
P.3.3	50	
P.4.1	100	
P.4.2	90	
M.1.1	110	
M.2.1	90	
M.3.1	70	
K.1.1	140	
K.1.2	100	
K.2.1	90	
K.2.2	80	
K.3.1	140	
K.3.2	120	
N.1.1	600	250
N.1.2	400	230
N.2.1	220	210
N.2.2	180	190
N.2.3	140	120
N.3.1	240	200
N.3.2	200	180
N.3.3	180	160
N.4.1	180	160
S.1.1	60	
S.1.2	50	
S.2.1	60	
S.2.2	50	
S.2.3	40	
S.3.1	60	
S.3.2	40	
S.3.3	30	
H.1.1		
H.1.2		
H.1.3		
H.1.4		
H.2.1		
H.3.1		
O.1.1	180	160
O.1.2	180	160
O.2.1	150	120
O.2.2	110	100
O.3.1	170	160

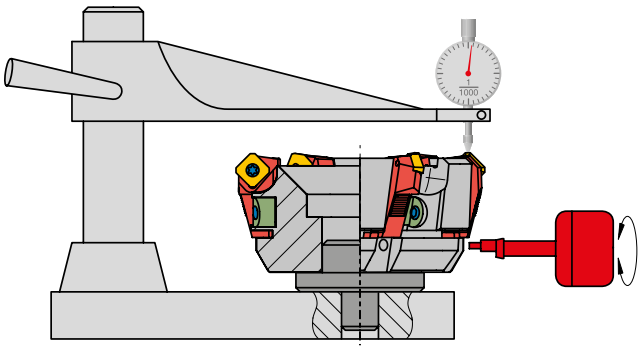
System MaxiMill 260

Setting of axial run-out for roughing



For assembly simply press cartridges onto the location face of the radial groove. The axial run-out amounts to 0.03 mm measured on the master insert.

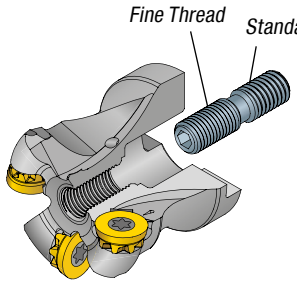
Setting of axial run-out with eccentric key and clock gauge or on optical presetting equipment



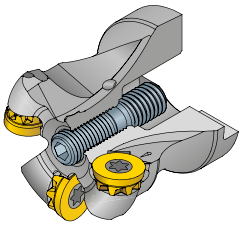
Exact setting of axial run-out up to 0.002 mm

- Clean the milling tools
- Mount cutter on appropriate setting equipment.
- Loosen clamping wedge, push cassette to face and tighten wedge lightly.
- Insert ecentric key into hole and turn until cassette is in desired position.
- Keep ecentric key in contact with the cassette so that it remains in position.
  Tighten wedge (torque moment 10 Nm).
- The tool is now ready for use.

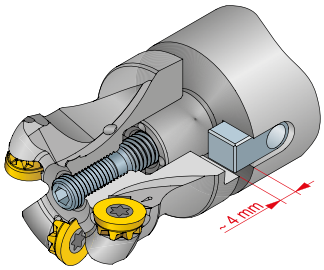
Easy and safe clamping – with the CERATIZIT power screw



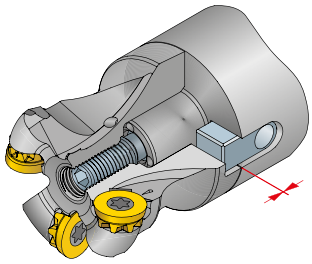
The fine-pitch part of the power screw is threaded into the milling cutter.



The power screw is turned carefully until the stop (as screw was delivered).



In order to guarantee an optimum connection of tool and shank, a gap of 4 mm is required between cutter body and adapter prior to final clamping. Using standardised adpaters this is automatically guaranteed. If necessary, you can readjust by means of the power screw with 0.5 mm/rev.



Turn clamping screw to tighten.

Torque moments for clamping screws for mounting the milling cutter to the shell mill adapter

	10				12				16			
Cutter Ø mm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm
40			70 950 151	10			70 950 151	10				
42			70 950 151	10			70 950 151	10				
50	M10x25	80			M10x25	80					70 950 154	15
52					M10x25	80					70 950 154	15
63					M10x25	80			M10x25	80		
66					M10x25	80			M10x25	80		

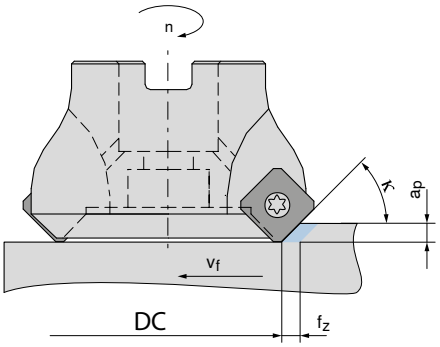
	12				16				20			
Cutter Ø mm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm
80	M12x30	140			M12x30	140			M12x30	140		
100	M16x35	180			M16x35	180			M16x35	180		
125					M16x35	180			M16x35	180		

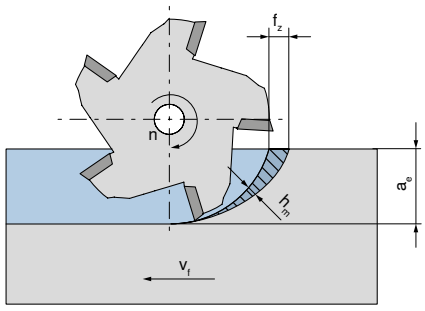
15

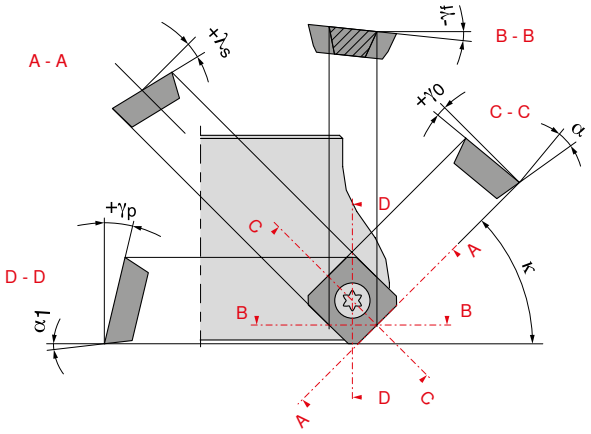
Abbreviations & dimensions

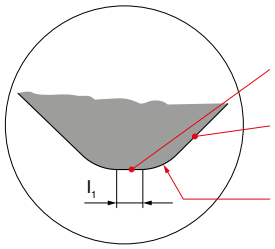
a_e	Cutting width	mm
a_p	Cutting depth	mm
DC	Tool diameter	mm
D_w	Workpiece diameter	mm
f_z	Feed per tooth	mm
h_m	Average Chip Thickness	mm
k	Number of teeth	
k_c	Specific cutting force	N/mm²
$k_{c1.1}$	Specific cutting force for 1 mm ² chip area	N/mm²
BS	Length of wiper land	mm
m_c	Increase of specific cutting force	
n	rpm	rpm
Q	Chip volume	cm³/min
v_c	Cutting speed	m/min
v_f	Feed rate	mm/min.
ZNF	Number of Effective Teeth	

γ_0	Effective cutting angle	degree
γ_f	Side clearance angle	degree
γ_p	Axial cutting angle	degree
κ	Cutting edge angle	degree
λ_s	Angle of inclination	degree
α	Clearance angle	degree
α_1	Side clearance angle	degree









Wiper land

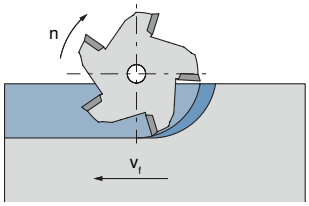
Main cutting edge

Corner radius

Engagement conditions

Recommended

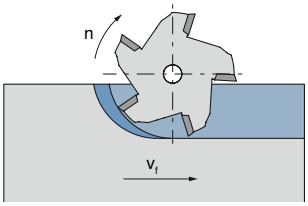
Climb milling



The feed direction of the workpiece is the same as the direction of rotation of the milling cutter in the cutting zone. The chips have maximum thickness at the beginning, chip thickness then decreases until it becomes zero at the end of the cut.

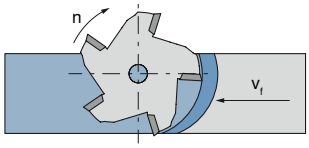
Unsuitable

Conventional milling

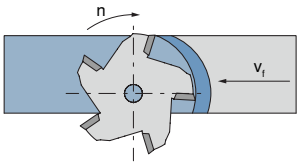


The feed direction of the workpiece is opposite to the direction of rotation of the milling cutter in the cutting zone. Chip thickness is zero at the beginning and increases until it reaches its maximum at the end of the cut.

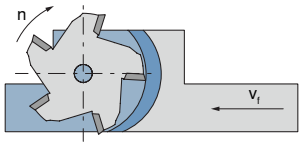
Cutter positioning



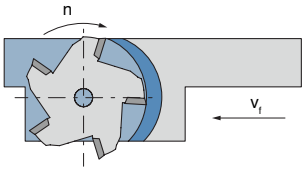
If possible the cutter should exit tangentially of the workpiece.



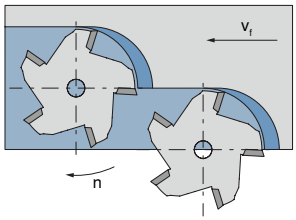
Workpiece situation



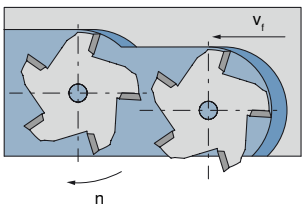
The workpiece should be clamped in such a way as to allow the cutter to emerge tangentially of the workpiece along the whole machining length.



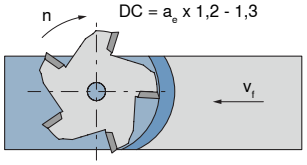
Overlapping



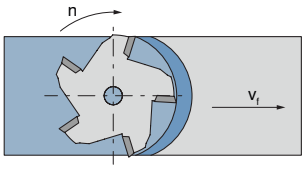
Either employ climb milling or ensure that the cutter comes out of the workpiece tangentially, as in the illustration on the left.



Cutter size



When face milling the diameter of the cutter should be 20–30 % larger than that of the workpiece.



15

ISO designation indexable milling inserts

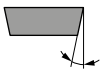
X	D	K	T	11	T3	08	S	R	-	F50
1	2	3	4	5	6	7	8	9		10

Z	N	H	W	12	05	PO	S	R	-	15	06	-	R
1	2	3	4	5	6	7	8	9		11	12		13

1 Insert shape

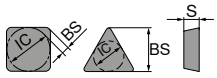
A	85°	
B	82°	
K	55°	
H	120°	
L	90°	
O	135°	
P	108°	
C	80°	
D	55°	
E	75°	
M	86°	
V	35°	
R		
S	90°	
T	60°	
W	80°	
X Z	Special version	

2 Clearance angle

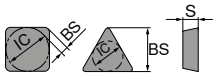


	α
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Special version

3 Tolerances

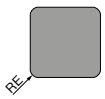


	IC ±mm	BS ±mm	S ±mm	IC = 6,35 / 9,52	IC = 12,7	IC = 15,8 / 19,05
A	0,025	0,005	0,025	●	●	●
C	0,025	0,013	0,025	●	●	●
E	0,025	0,025	0,025	●	●	●
F	0,013	0,005	0,025	●	●	●
G	0,025	0,025	0,13	●	●	●
H	0,013	0,013	0,025	●	●	●
J	0,05	0,005	0,025	●		
	0,08	0,005	0,025		●	
	0,10	0,005	0,025			●
K	0,05	0,013	0,025	●		
	0,08	0,013	0,02		●	
	0,10	0,013	0,02			●



	IC ±mm	BS ±mm	S ±mm	IC = 6,35 / 9,52	IC = 12,7	IC = 15,8 / 19,05
M	0,05	0,08	0,13	●		
	0,08	0,13	0,13		●	
	0,10	0,15	0,13			●
N	0,05	0,08	0,025	●		
	0,08	0,13	0,025		●	
	0,10	0,15	0,025			●
U	0,08	0,13	0,13	●		
	0,13	0,20	0,13		●	
	0,18	0,27	0,13			●

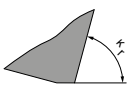
7 Wiper land / corner radius



Radius

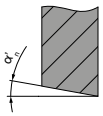
	RE in mm
M0*	
02	0,2
04	0,4
08	0,8
12	1,2

* Only with insert type "R"



1. Designation

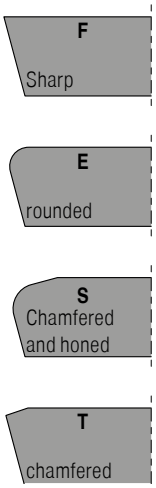
	K_r
A	45°
D	60°
E	75°
F	85°
P	90°
Z	Alternative



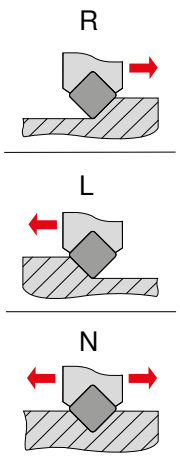
2. Designation

	α'_n
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
Z O	Alternative

8 Cutting edge

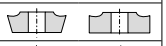
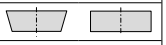


9 Direction of cut



4

Characteristics

A	
F	
G	
M	
N	
Q	
R	
T	
U	
W	
X	Special version

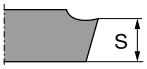
5

Cutting length

IC mm	A	T	C/S	H	L	R	V	W	O	X	Z
4,90										07	
5,00						05					
5,56			05		08			03			
6,00											
6,35		11	06		10			04		06	
6,65	10										
6,80										11	
7,00											04
7,94			07								
8,00						08					
9,00					12						
9,30										15	
9,52	16	16	09		15			06	04		
9,57	15										
9,60										09	
10,00			10		11	10					12
12,00						12					
12,50										20	
12,70		12/22	12		20		22	08		12	
15,81			15		22			10			
16,00						16					
16,20				09							
16,74			16								
17,00			17								
17,18									06		
18,18									07		
19,05			19					13			
20,00						20					

6

Insert thickness



	S mm
01	1,59
T1	1,98
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
09	9,52

10

Chip groove

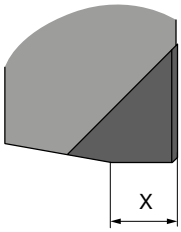
Chip breaker designation
F.. = fine
M.. = medium
R.. = roughing

Additional characteristics:
R = transition radius main/ secondary cutting edge
Q = Masterfinish

11

Manufacturer specification

Length of the finishing cutting edge

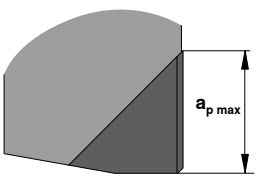


00 = 0,0 mm
10 = 1,0 mm
12 = 1,2 mm
15 = 1,5 mm
30 = 3,0 mm
50 = 5,0 mm

12

Manufacturer specification

$a_{p\,max}$



02 = 2,0 mm
03 = 3,0 mm
04 = 4,0 mm
06 = 6,0 mm
07 = 7,0 mm
11 = 11,0 mm

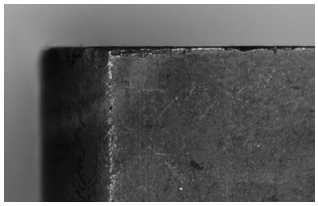
13

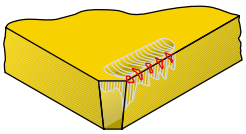
Manufacturer specification

F = Fine
M = Medium
R = Rough

15

Cutting demands when milling

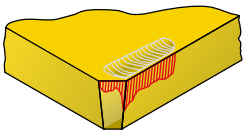




Edge chipping

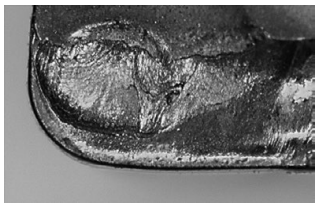
Cutting speed ↑
Feed per tooth ↓
Toughness of grade ↑
Cutting edge chamfer ↑

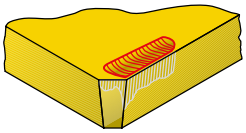




Wear on clearance face

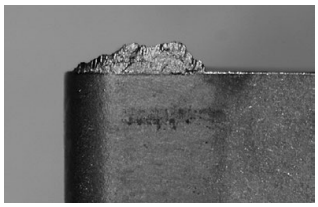
Cutting speed ↓
Feed per tooth ↑
Abrasion resistant grade ↑

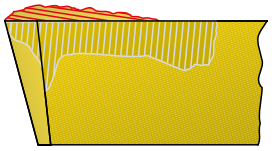




Cratering

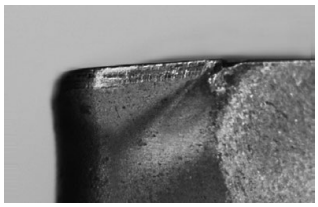
Cutting speed ↓
Feed per tooth ↓
Abrasion resistant grade ↑

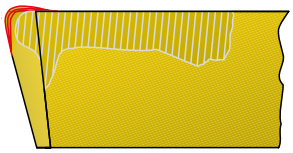




Built-up edge

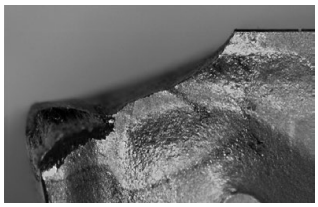
Cutting speed ↑
Feed per tooth ↑
Wear resistance ↑

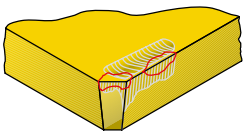




Cutting-edge deformation

Cutting speed ↓
Feed per tooth ↓
Abrasion resistant grade ↑

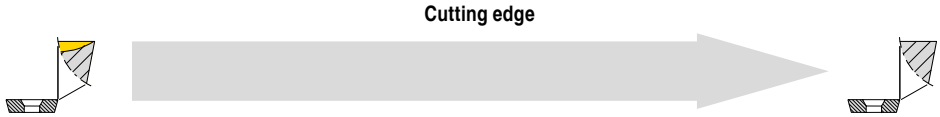




Cutting Edge Breakage

Cutting speed ↓
Toughness of grade ↑

Chip Breakers Overview



			sharp ●		medium ● ●		stable ● ● ●	
			10	20	30	40	50	60
increasing wedge angle	fine	F	**-F10 -27 -27P**	**-F20**		**-F40**	**-F50**	**-ER -FN -33P -33**
	medium	M			**-M31 -M30 -M32**		**-M50 -31**	**-EN -29**
	rough	R			**-R30**		**-R50**	**-SN -R60 -SR**

Chip breaker code

			Cutting edge		
			sharp 10–20	medium 30–40	stable 50–60
Application type	light	F	●	● ●	● ● ●
	universal	M	●	● ●	● ● ●
	difficult	R	●	● ●	● ● ●

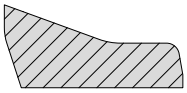
Example: Chip breaker -M50



Chip groove description

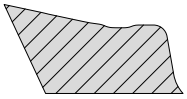
-27P

- Highly positive geometry
- Sharp cutting edges
- Reduced built up edge
- First choice for non-ferrous metals



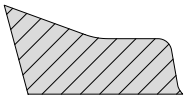
-F10

- Very positive geometry
- Sharp cutting edge
- Prevents sticking and edge build up
- First Choice for non-ferrous metal



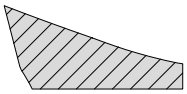
-27

- Highly positive geometry
- Sharp cutting edges
- First choice for non-ferrous metals



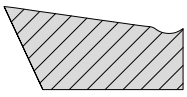
-F20

- Extremely positive geometry
- Lightly rounded cutting edge
- First choice for non-ferrous metals



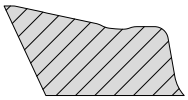
-F40

- Positive geometry
- Rounded cutting edge
- Finish and rough machining
- For unstable clamping situations
- For heat-resistant materials, titanium and super alloys



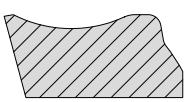
-F50

- Positive geometry with small positive protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



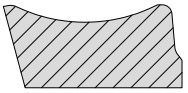
-33P

- Positive geometry with small neutral protective chamfer
- Low adhesion
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



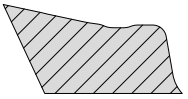
-33

- Positive geometry with small neutral protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



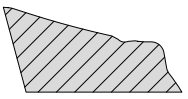
-M30

- Positive geometry
- Rounded cutting edge
- Medium rough machining
- First choice for martensitic stainless steels



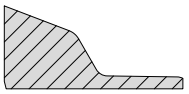
-M31

- Positive geometry
- Rounded cutting edge
- Finish and rough machining
- For unstable clamping situations
- For heat-resistant materials, titanium and super alloys



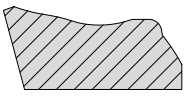
-M32

- Positive geometry
- Rounded cutting edge
- Low cutting force and good stability
- Medium rough machining
- First choice for martensitic stainless steels



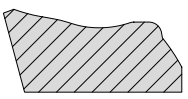
-M50

- Positive geometry with slightly negative protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



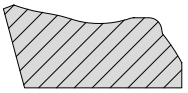
-31

- Positive geometry with neutral protective chamfer
- Rounded cutting edge
- Heavy rough machining
- Strongly interrupted cuts
- First choice for cast iron materials



-29

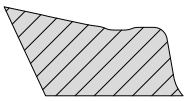
- Positive geometry with slightly negative protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



Chip groove description

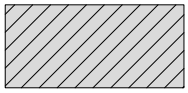
-29R

- Positive geometry with slightly negative protective chamfer
- Heavily rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



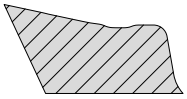
-ER

- Neutral Geometry
- Rounded cutting edge
- Universal application
- High surface quality due to face chamfer
- First choice for machining cast iron and non-ferrous metals



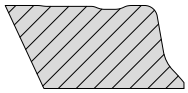
-R30

- Positive geometry with slightly negative protective chamfer
- Heavily rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



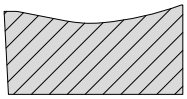
-EN

- Neutral geometry
- Rounded cutting edge
- High surface quality due to face chamfer (radial protective chamfer on indexable insert)
- First choice for machining cast iron and -ferrous metals



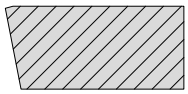
-R50

- Slightly positive geometry
- Rounded cutting edge
- Medium rough machining
- Strongly interrupted cuts
- First choice for cast iron materials



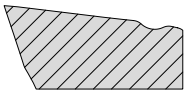
-SN

- Neutral geometry
- Rounded cutting edge
- High surface quality due to face chamfer (radial protective chamfer on indexable insert)
- Low cutting forces
- First choice for good flatness



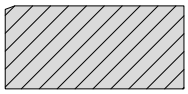
-R60

- Positive geometry with negative stable protective chamfer
- Heavily rounded cutting edge
- For stable machining conditions
- First choice for heavily interrupted cuts
- Heavy rough machining
- First choice for cast iron materials



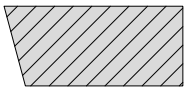
-SR

- Neutral geometry with negative protective chamfer
- Rounded cutting edge
- Robust indexable insert
- For poor machining conditions
- First choice for machining cast iron and steels



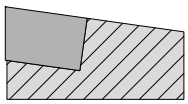
-FN

- Neutral and highly stable geometry
- Heavily rounded cutting edge
- For stable machining conditions
- First choice for hard machining up to approx. 50 HRC



-FR

- Neutral Geometry
- Slightly rounded and stable cutting edge
- Associated with Ceramic and CBN cutting materials.
- For stable machining situations
- First choice for machining cast irons



Grades Overview

Grade designation	Standard designation	ISO application range	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials
			P	M	K	N	S	H	O
CTEP210	HE-P10	01 10 20 30 40 50 / 05 15 25 35 45	●		●				
	HE-K05								
TCM10 (CWC10)	HT-P15		●		○				
	HT-K10								
WTN1205	HC-P10		●	○	●			●	
	HC-M15								
	HC-K05								
	HC-H10								
CTPP211	HC-P10		●	○	○	○	○	○	○
	HC-K10								
	HC-M15								
	HC-N10								
	HC-S15								
	HC-H10								
	HC-O10								
CTPP216	HC-P15		●	○	●	○	○	●	○
	HC-M20								
	HC-K15								
	HC-N15								
	HC-S20								
	HC-H15								
	HC-O15								
CTCP220	HC-P20		●		●				
	HC-K20								
CTPP225	HC-P25		●		●				
	HC-K25								
CTCP230	HC-P30		●		●				
	HC-K25								
CTPP231	HC-P30		●		○				
	HC-K25								
CTPP235	HC-P35		●	○	○				
	HC-M30								
	HC-K30								
CTPP236	HC-P35		●	○	○				
	HC-M35								
	HC-K30								
WAN1240	HC-P40		●	○	○				
	HC-M35								
	HC-K30								
WAX1240	HC-P30		●	○	○				
	HC-M25								
	HC-K25								
CTPM225	HC-P25		●	●					
	HC-M25								
WAN2225	HC-M25			●			●		
	HC-S30								
CTCM235	HC-P40		●	●					
	HC-M35								
CTPM240	HC-P40		○	●					
	HC-M40								
CWK10	HC-N10					●			○
	HC-O10								

● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c− tough

Grades Overview

Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O
CTPM241	HC-P40	05 15 25 35 45 / 01 10 20 30 40 50	●	●			○		
	HC-M40								
	HC-S40								
CTPM245	HC-P45		●	●					
	HC-M50								
CTCM245	HC-P45		●	●			○		
	HC-M50								
	HC-S35								
CTN3105	CN-K05				●				
CTL3215	BC-K10				●			○	
	BC-H10								
CTCK215	HC-K15				●				
CTPK220	HC-K20				●				
CTPK221	HC-P15		○		●				
	HC-K10								
CTPK226	HC-P15		●	●	●			○	
	HC-M20								
	HC-K15								
	HC-H15								
CTPK231	HC-P30		●	●	●	○	○	○	
	HC-M35								
	HC-K30								
	HC-N30								
	HC-S35								
	HC-H30								
CTD4205	DP-N05					●			○
	DP-005								
AMZ	HC-K10				○	●			○
	HC-N10								
	HC-O10								
WUN4210	HT-K10				○	●			
	HT-N15								
CTCN211	HC-N10					○			●
	HC-O10								
CTWN215	HC-K15				○	●			○
	HC-N10								
	HC-O10								
H216T	HW-K15				○	●			○
	HW-N15								
	HW-O15								
CTC5240	HC-S35						●		
CTCS245	HC-S45						●		
CTP6215	HC-K15				●			●	
	HC-H15								
CWX500	HC-P15		●	●	○	●	○		○
	HC-M15								
	HC-K15								
	HC-N15								
	HC-S15								
	HC-O15								

● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c− tough

15

Grade description

AMZ
- Carbide, TiAlN-coated
- ISO | K10 | **N10** | O10
- The coated carbide grade for aluminium machining

CTC5240
- Carbide, TiN-TiB_2-coated
- ISO | **S35**
- The special grade for machining titanium and titanium alloys

CTCK215
- Carbide, TiCN-Al_2O_3-coated
- ISO | **K15**
- The first choice for machining cast iron materials at high cutting speeds

CTCN211
- Carbide, coated
- ISO | N10 | **O10**
- Diamond-coated carbide grade especially for machining graphite and non-ferrous metals

CTCM235
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P40** | **M35**
- The tough alternative for general steel machining
- Well suited to martensitic steel materials

CTCM245
- Carbide, TiCN-Al_2O_3 coated
- ISO | **P5** | **M45** | S35
- Special grade for machining high-alloy steel materials

CTCP220
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P20** | **K20**
- The wear-resistant grade for dry machining steels

CTCP225
- Carbide, TiAlTaN-coated
- ISO | **P25** | **K25**
- The wear-resistant grade for wet machining of steels

CTCP230
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P30** | K25
- The first choice for dry machining steel at high cutting speeds

CTD4205
- Carbide, uncoated
- ISO | **N05** | O05
- Polycrystalline diamond grade for machining non-ferrous metals and non-metallic materials

CTEP210
- Cermet, TiCN-Al_2O_3-coated
- ISO | **P10** | **K05**
- The coated cermet grade with reserves of toughness for finish machining at high cutting speeds

CTP6215
- Carbide, TiAlN-coated
- ISO | **K15** | **H15**
- The coated carbide grade for hard machining

CTPK220
- Carbide, TiAlTaN-coated
- ISO | **K20**
- Optimal for machining high-strength cast iron materials in the tougher application range

CTPK221
- Carbide, TiAlN-coated
- ISO | P15 | **K10**
- The coated standard grade for fine machining of cast iron and non-ferrous metals at medium cutting speeds

CTPK226
- Carbide, coated
- ISO | **P15** | **M20** | **K15** | H15
- Extremely wear-resistant ultra-fine grain carbide grade for machining cast iron materials and hardened steels up to 62 HRC

CTPK231
- Carbide, coated
- ISO | **P30** | **M35** | **K30** | N30 | S35 | H30
- Tough carbide grade for medium and rough machining of steel and cast iron materials
- Well suited to dry machining

CTPM225
- Carbide, TiAlTaN-coated
- ISO | **P25** | **M25**
- The wear-resistant choice for machining austenitic steels

CTPM240
- Carbide, TiAlTaN-coated
- ISO | P40 | **M40**
- The first choice for machining austenitic steels

CTPM241
- Carbide, AlTiN-coated
- ISO | **P40** | **M40** | S40
- The tough carbide grade for machining stainless and heat-resistant steels

CTPM245
- Carbide, TiAlTaN-coated
- ISO | **M45** | **P50**
- The first choice for machining martensitic steels

Grade description

CTPP211
- Carbide, coated
- ISO | **P10** | M15 | K10 | N10 | S15 | H10 | O10
- Wear-resistant carbide grade for medium and rough machining of steel and stainless steel
- Well suited to dry machining

CTPP216
- Carbide, TiAlN-coated
- ISO | **P10** | M20 | **K15** | N15 | S20 | **H15** | O15
- Highly wear-resistant carbide grade with high cutting edge stability for finish machining of high-strength materials, unalloyed tool steels, cast iron and hardened steel up to 54 HRC

CTPP231
- Carbide, coated
- ISO | **P30** | K25
- A very tough special grade for medium and rough machining of steel at medium cutting speeds and an extremely high feed per tooth

CTPP235
- Carbide, TiAlTaN-coated
- ISO | **P35** | M30 | K30
- The wear-resistant grade for wet machining of steels

CTPP236
- Carbide, TiAlN-TiN coated
- ISO | **P35** | M35 | K30
- The tough special grade for medium and rough machining of steel at high cutting speeds
- This grade is also suitable for machining cast iron and stainless steel

CTWN215
- Carbide, uncoated
- ISO | K15 | **N10** | O10
- Uncoated carbide grade for machining non-ferrous metals

H216T
- Carbide, uncoated
- ISO | K15 | **N15** | O15
- The uncoated carbide grade for machining aluminium and other non-ferrous metals
- Also highly suitable for HSC machining

TCM10
- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

WAN1240
- Carbide, coated
- ISO | **P40** | M35 | K30
- Coated, tough special grade for machining steel at medium to high cutting speeds
- Also suitable for machining cast iron as a secondary application

WAN2225
- Carbide, coated
- ISO | **M25** | **S25**
- Fine grain size with high toughness and temperature resistance
- For rough and finish machining of rust and acid-resistant steels in both wet and dry cutting

WAX1240
- Carbide, coated
- ISO | **P40** | M25 | K30
- High-strength special grades for medium and rough machining of steel at medium cutting speeds and an extremely high feed per tooth

WTN1205
- Carbide, coated
- ISO | **P10** | M15 | **K05** | **H10**
- Coated special grade for machining steel, hardened steel, cast iron, graphite and plastics

WUN4210
- Carbide, uncoated
- ISO | K15 | **N10** | O10
- Uncoated standard grade for medium machining of non-ferrous metals and graphite

CTCS245
- Carbide, CVD TiN-TiB2 coated
- ISO | **S45**
- The special grade for machining nickel-based alloys

Grade description

C T C P 2 2 0 (Example)

Main application – material

1|P	Steel
2|M	Stainless steel
3|K	Cast iron
4|N	Light and non ferrous metals
5|S	Super alloys, titanium
6|H	Hard materials
7|X	Universal application

Application

1	Turning
2	Milling
3	Grooving
4	Drilling
5	Thread turning
6	Others
7	Several processes

Degree of hardness

05	ISO 05
10	ISO 10
15	ISO 15
	...

15

New products for machining technicians

NEW ABS adapters



Work with flexibility and process-security with the modular ABS coupling system for rotating and stationary tools.

NEW Adapter with ABS connection



The expansion of the tried and tested ABS system complements the existing range and continues to meet the high demands for precision.

NEW ER precision collet chuck – PCC



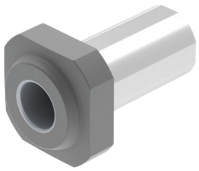
With our new PCC (Precision Collet Chuck), we offer an ER precision collet chuck that is almost equal to our Centro-P in terms of precision and quality. Compatibility with our existing range of collets and use of the same roll key complements the new PCC standard line.

NEW ER precision collet chucks – HDC



- **Secure** – the form fit using a wedge collet gives an excellent holding torque on the shaft. So the HDC doesn't just offer maximum security against twisting but also 100 % security against micro-creeping and pull-out.
- **Rigid** – stable outer contour for high stability and vibration dampening
- **Powerful** – ball-bearing clamping nut for high holding torque protects against twisting of the collet (up to 700 Nm holding torque). Thanks to the ball-bearing nut, smooth clamping is assured, with little effort.
- **Dampening** – multi-part clamping nut for additional dampening of the system
- **HDC** = Heavy Duty Chuck, specially designed for heavy duty machining

NEW Hydraulic expansion chucks and hydraulic expansion chucks with Straight shank – VDI



CERATIZIT is extending its portfolio of clamping devices with a hydraulic chuck which brings the benefits of hydro expansion technology to turning/milling centres.
It ensures highly accurate clamping of boring bars with a h7 shank tolerance and a repeatability of 3 µm. Tools are changed in a matter of seconds and this can be performed directly in the machine without auxiliary equipment.



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Toolfinder

- Machine interface 3
- Rotating toolholders 4+5
- Adapters, stationary
  - HSK-T and PSC tool holders 6+7
  - VDI adapters for star turrets 8
  - VDI adapters for disc turrets 9
- Accessories 10

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- Adapters 12–281

Product programme

- Accessories 229–290

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- Driven Tools 292+293
- Quick-Change 294+295
- Technical data – DIN ISO 7388-1 / DIN ISO 7388-2 / PSC 296
- Technical data – HSK-A / HSK-E 297
- Technical Information for Polygon Shank Adapters 298
- High Pressure Milling Chuck 299
- Transmittable torques and static clamping torques 300
- Technical information – ABS 301

WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Coolant supply version


without coolant supply (Form A)


Coolant supply central
Steep taper Form AD


Coolant supply either via the flange, or central (Form AD/B)


with eroded cooling ducts


Coolant supply centrally or via the collar
with eroded cooling channels


Adapter with two additional coolant holes


Coolant supply centrally or via the collar
also additional coolant holes


Central coolant supply or via a coolant nozzle

TG specially matched adapter for ThermoGrip® shrinking process

ER-B 2 µm
Collet description
- ▲ Type version
- ▲ Radial run-out accuracy

Toolfinder – Machine interface

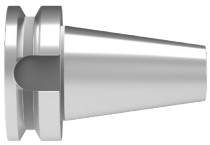
ISO 7388-1 – SK steep taper holders



- SK 30
- SK 40
- SK 50

Toolfinder – Adapters, rotating 4+5
Product programme 12–58

ISO 7388-2 – MAS-BT taper shank

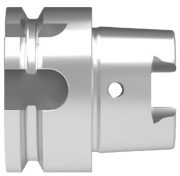


MAS-BT / MAS-BT-FC with face contact

- BT 30
- BT 40
- BT 50
- BT-FC 30
- BT-FC 40
- BT-FC 50

Toolfinder – Adapters, rotating 4+5
MAS-BT product range 59–102
MAS-BT-FC product range 103–112

HSK hollow taper adapters with face contact



ISO 12164 – HSK-A / HSK-E

- HSK-A 32
- HSK-A 40
- HSK-A 50
- HSK-A 63
- HSK-A 100
- HSK-E 25
- HSK-E 32
- HSK-E 40
- HSK-E 50

Toolfinder – Adapters, rotating 4+5
HSK-A product range 113–158
HSK-E product range 159–163

ISO 12164-3 – HSK-T

- HSK-T 63
- HSK-T 100

Toolfinder – Adapters, stationary 6+7
Product programme 199–201

ISO 26623-1 – PSC polygon hollow adapters with face contact



PSC, rotating

- PSC 32
- PSC 40
- PSC 50
- PSC 63
- PSC 80

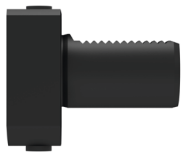
Toolfinder – Adapters, rotating 4+5
Product programme 164–182

PSC, stationary

- PSC 32
- PSC 40
- PSC 50
- PSC 63
- PSC 80
- PSC 80X

Toolfinder – Adapters, stationary 6+7
Product programme 202–208

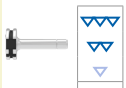
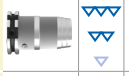
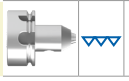
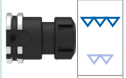
ISO 10889 – VDI tool holders with cylindrical shank



- VDI 16
- VDI 20
- VDI 25
- VDI 30
- VDI 40
- VDI 50

Toolfinder – Adapters, stationary 8+9
Product programme 209–228
Driven Tools 292+293

Toolfinder – Adapters, rotating

Holder Type		ISO 7388-1		ISO 7388-2		ISO 12164		ISO 26623-1	ABS	Morse taper	Cylindrical shank
		SK	SK-FC	MAS-BT	MAS-BT-FC	HSK-A	HSK-E	PSC			
Accuracy											
Maximum											
Centro-P											
▲ ER Precision Collet chuck		12–14		59–61	103	113–115	159+160	164			240
▲ OZ precision Collet chuck		15		62		116					
HDC											
▲ ER Precision Collet chuck		16		63	104	117					
High Pressure Milling Chuck		17–19		64–65	106	118+119		165			
Hydraulic chuck		21		66–69	107	120–122			183		236+237
Heat Shrink Adapter		22–27		70–74	105	123+129	161	166+167	184		235
Micro-Precision Collet Chuck						142	162				238
High											
Cylindrical shank adapter											
▲ Weldon		28–30		75+76	108	130–134		168	185		239
▲ Whistle Notch		31+32		77+78		135		169	186+187		
Indexable insert drill adapter		33		79		136		170			
Collet Chuck											
▲ Precision Collet chuck – PCC		34		80		137					
▲ ER Collet chuck		35		81	109	138–140		171+172	188		241+242
▲ OZ Collet Chuck		36		82							
Short drill chuck		37		83		141		173	189	231	231

Main Application
Extended application
Finishing
Roughing - Finishing
Roughing

Toolfinder – Adapters, rotating

Holder Type	ISO 7388-1 SK	ISO 7388-1 SK-FC	ISO 7388-2 MAS-BT	ISO 7388-2 MAS-BT-FC	ISO 12164 HSK-A	ISO 12164 HSK-E	ISO 26623-1 PSC	ABS	Morse taper	Cylindrical shank
Accuracy										
High										
Quick change tapping chuck										
▲ With minimum length compensation	38–39		84+85		143+144		174	190		232
▲ with length compensation	40		86		145		175	189	233	233
▲ Without length compensation	40		86		145					
ABS adapters	41+42	43	87–89	90	146+147		176	193–197		
Medium										
Adapter for milling cutters with threaded end	44+45		91		148+149		177		247	243–246
Face mill adapter										
▲ Combination shell mill adapter	46		92		150		178+179	192		
▲ Shell mill adapter	47+48		93+94	110	151+153			191		
▲ Large diameter facemill adapter	49		95							
Drill chuck adapter	50		96						230	
Milling adapter sleeve for MK shanks with thread	51		97							
Taper adapter for Morse taper	52		98		154		180		230	
Adapter										
▲ SK	53				54		55			
▲ MAS-BT	99		99		100		101			
▲ HSK-A					155		156			
▲ PSC							206+207			
Blank	56		102		157		181	198		
Test bar	56		102		158		182			
Accessories										
Pull stud	57+58		111+112							
Coolant pipe/key					163		182			

Main Application
Extended application

Finishing
Roughing - Finishing
Roughing

16

Toolfinder – Stationary adapters – HSK-T and PSC tool holders

Toolholders for negative turning inserts

	Type Machining	Illustration
CN..	DCLN 95° Internal + External	
	DCMN 95° External	
	DCMN+ DDMN External	

All tool holders for negative rotary indexable inserts CN..
can be found in → **Section 9, Turning Tools**

DN..	DCMN+ DDMN External	
	DDUN 93° Internal + External	
	DDJN 93° Internal + External	
	DDHN 107,5° Internal + External	
	DDMN 48° External	

All tool holders for negative rotary indexable inserts DN..
can be found in → **Section 9, Turning Tools**

SN..	DSDN 45° External	
VN..	DVMN 50° External	
WN..	DWLN 95° Internal + External	

All tool holders for negative rotary indexable inserts SN.., VN.. and
WN.. can be found in → **Section 9, Turning Tools**

Toolholders for positive turning inserts

	Type Machining	Illustration
CC..	SCLC 95° Internal + External	
	SCMC 50° External	

All tool holders for positive rotary indexable inserts CC..
can be found in → **Section 9, Turning Tools**

DC..	SDJC 93° Internal + External	
	SDNC 62,5° Internal + External	
	SDMC 48° External	

All tool holders for positive rotary indexable inserts DC..
can be found in → **Section 9, Turning Tools**

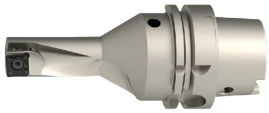
RC..	PRDC 0° External	
	PRSC Internal + External	

All tool holders for positive rotary indexable inserts RC..
can be found in → **Section 9, Turning Tools**

VC..	SVUC 93° Internal + External	
	SVJC 93° Internal + External	
	SVHC 107,5° Internal + External	
	SVMC 50° External	

All tool holders for positive rotary indexable inserts VC..
can be found in → **Section 9, Turning Tools**

You can find more information on the multifunction tool EcoCut in
→ **Section 10, Multifunctional Tools – EcoCut and FreeTurn**


2,25xD

Toolfinder – Stationary adapters – HSK-T and PSC tool holders

Holders for grooving and threading inserts

Type	Illustration
0°	
90°	

All tool holders for grooving and threading inserts can be found in
→ **Section 11, Grooving Tools**

Toolholders for threading inserts

Type	Illustration
Internal thread	
External thread	

All tool holders for threading inserts can be found in
→ **Section 8, Thread turning**

Boring bars for negative inserts

	Type	Illustration
 CN..	DCLN 95°	
 DN..	DDUN 93°	
 WN..	DWLN 95°	

All boring bars for negative indexable inserts can be found in
→ **Section 9, Turning Tools**

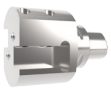
Boring bars for positive inserts

	Type	Illustration
 CC..	SCLC 95°	
 DC..	SDUC 93°	
 VC..	SVUC 93°	
	SVQC 107,5°	

All boring bars for positive indexable inserts can be found in
→ **Section 9, Turning Tools**

Basic holder




Type	Illustration	HSK-T ISO 12164	PSC ISO 26623
Square shank holder 0°		200	202
Square shank holder 45°		200	203
Square shank holder 90°		201	202
Square shank holder 2 face 0°			203
Square shank holder 3 face 0°		200	203
Boring bar holder		201	204

Parting blade holders

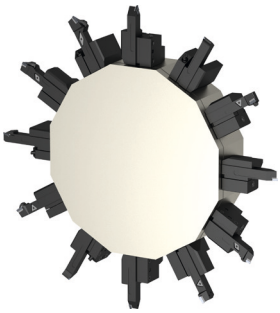
Type	Illustration	HSK-T ISO 12164	PSC ISO 26623
Parting Blade Holder GX / LX / FX / SX		199	
Radial Grooving Holders, right / left			202

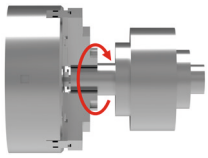
Accessories

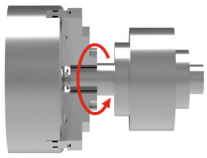
Protection plug		208
Hollow nose keys		208

16

Toolfinder – Stationary adapters – VDI adapters for star turrets







Toolholders above

Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters	B2/B3/B6/B7/C1/C2/D1/D2	209–212	B2/B3/B6/B7/C3/C4/D1/D2	209–212
	Part Off Holder	double	217+218	double – overhead	217+218
	Adapter VDI to VDI	Left-hand	224	Left-hand	224
	Boring bar holder	Left-hand	223+224	Left-hand	223+224

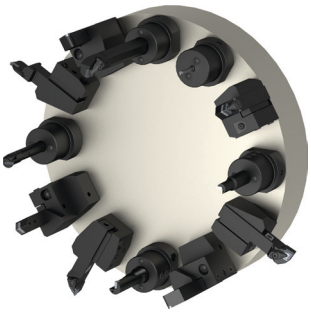
Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters	B2/B3/B6/B7/C3/C4/D1/D2	209–212	B2/B3/B6/B7/C1/C2/D1/D2	209–212
	Part Off Holder	double – overhead	217+218	double	217+218
	Adapter VDI to VDI	Right-hand	224	Right-hand	224
	Boring bar holder	Right-hand	223+224	Right-hand	223+224

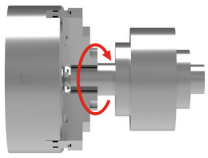
Toolholders below

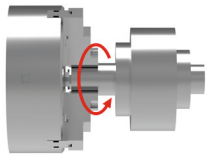
Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters	B2/B3/B6/B7/C3/C4/D1/D2	209–212	B2/B3/B6/B7/C1/C2/D1/D2	209–212
	Part Off Holder	double	217+218	double – overhead	217+218
	Adapter VDI to VDI	Right-hand	224	Right-hand	224
	Boring bar holder	Right-hand	223+224	Right-hand	223+224

Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters	B2/B3/B6/B7/C1/C2/D1/D2	209–212	B2/B3/B6/B7/C3/C4/D1/D2	209–212
	Part Off Holder	double – overhead	217+218	double	217+218
	Adapter VDI to VDI	Left-hand	224	Left-hand	224
	Boring bar holder	Left-hand	223+224	Left-hand	223+224

Toolfinder – Stationary adapters – VDI adapters for disc turrets







Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	**Square Shank Adapters**	B1/B5/C1/C2/D1	209–212	B3/B7/C3/C4/D2	209–212
	**Cylindrical Shank Adapters**	E/E1/E2/E3/E4	212–215	E/E1/E2/E3/E4	212–215
	**Taper Adapters**	F1	216	F1	216
	**Part Off Holder**	Right-hand	217+218	Overhead right	217+218
	**Short drill chuck**	NC 2010	219	NC 2010	219
	**Tapping Chucks**	GSF/GML	220	GSF/GML	220
	**Hydraulic chuck**		221		221

Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	**Square Shank Adapters**	B4/B8/C3/C4/D2	209–212	B2/B6/C1/C2/D1	209–212
	**Cylindrical Shank Adapters**	E/E1/E2/E3/E4	212–215	E/E1/E2/E3/E4	212–215
	**Taper Adapters**	F1	216	F1	216
	**Part Off Holder**	Overhead left	217+218	Left-hand	217+218
	**Short drill chuck**	NC 2010	219	NC 2010	219
	**Tapping Chucks**	GSF/GML	220	GSF/GML	220
	**Hydraulic chuck**		221		221

Accessories

 **Bar stop** 219

 **Test arbors** 221

 **Tool holders** 222

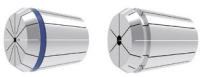
 **Bar pullers** 227

 **Gripper accessories** 228

 **Protection plug** 228

16

Toolfinder – accessories

Type		Page No.
Drill chuck with internal taper		229
Tap clamping sleeve for Weldon adapters		234
Extension for Shell mill arbors		252
Milling adapter ring		253
Accessories for VDI		254
Accessories for driven tools		255
Lock nuts		276
Accessories for Centro-P		274
Collets		256–268
Sealing discs		269+270
Roll key		275
Quick change applications		277–281
Reduction sleeve and reducing bushings		271+272
Cleaning propeller		291
TORX® screwdrivers, TORX® interchangeable blades, TORX® bit holders and adapters		283–287
Assembly device for SK, HSK and PSC adapters		273
MultiChange - Holder		249–251
3D tester and zero setting device		288+289
MultiChange key		282
Cool-jet		290
Taper wiper		273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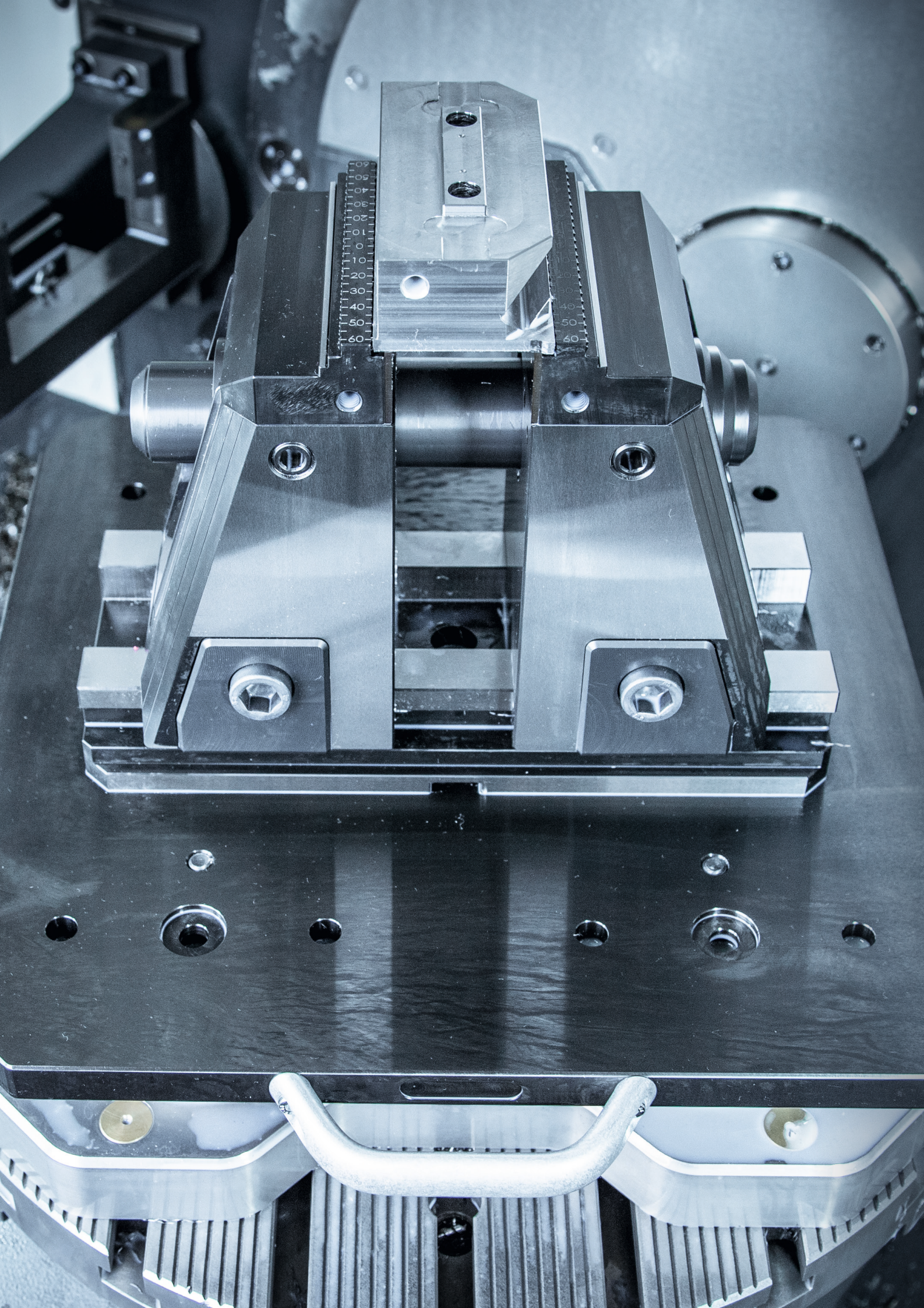
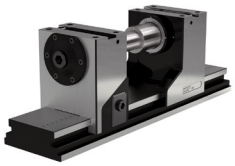
83 402 32099
Ø 20 x 19, 5 mm
4751352-023



New products for clamping technology

NEW H5G-Z and H5G-Z-S single vice



→ Page 23

H5G -Z | H5G -Z-S

New overall lengths for the H5G-Z and H5G-Z-S.

NEW X5G-Z single vice



→ Page 32

X5G -Z | X5G -Z-S

All the advantages that ensure optimum and simple 5- and 6-sided machining combined in a single clamping device.

NEW Single vice ESG 5

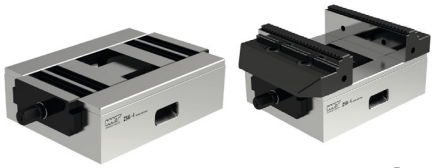


→ Page 51

ESG 5

New version of the sealed centric vice ZSG 4 as single vice.

NEW Centric Vice ZSG 4



→ Page 74–76

ZSG 4

New overall lengths for the ZSG 4.

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

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

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

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

Catalogue – Clamping technology
16 Adaptors and Accessories
17 Workpiece clamping
18 Material examples and article no. Index

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The new X5G-Z	2
Clamping systems overview	3
Toolfinder – Vices	4+5
Toolfinder – Clamping variants and clamping towers	6
Product programme	8–149
General top jaws overview	134–140
Workpiece supports overview	141–144
Accessories General Overview	145+146
Clamping levers overview	147
Screws Overview	148+149

WNT \ Performance

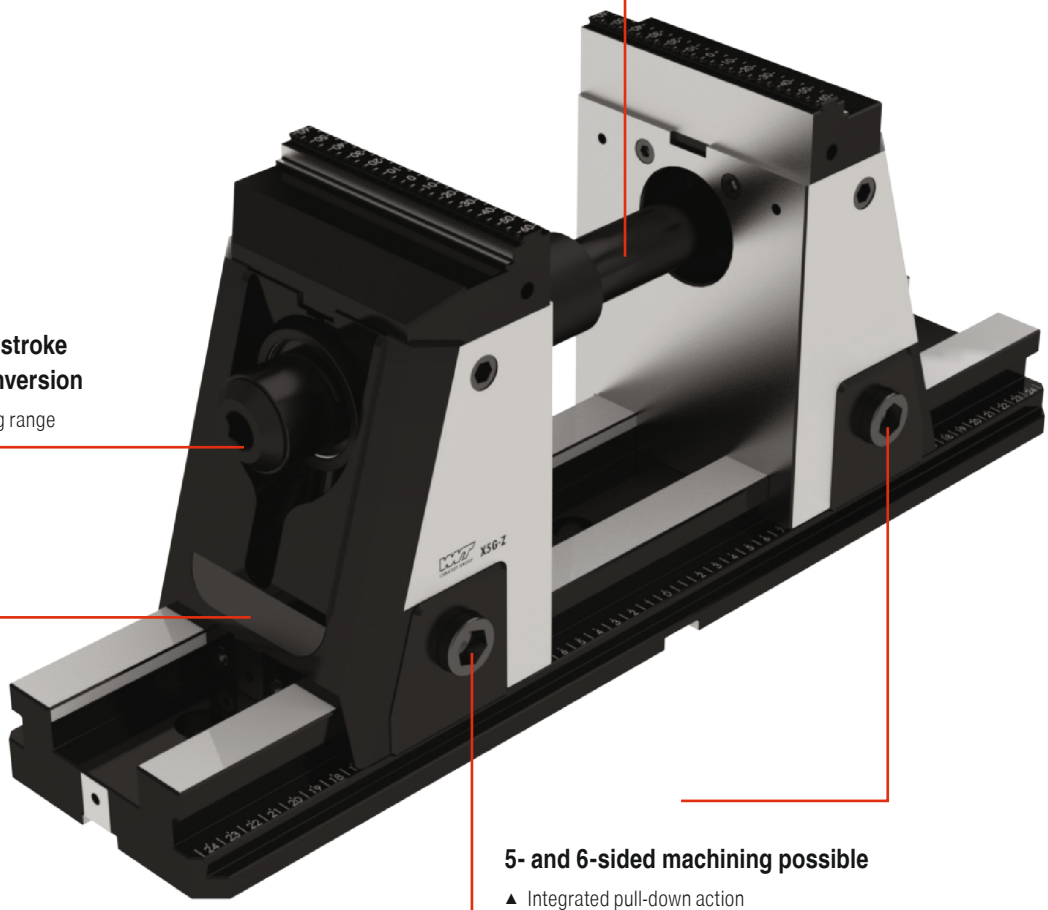
Premium quality tools for high performance.

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

The new X5G-Z

Simple to extend up to a clamping range of 687 mm

▲ Fully encapsulated, mechanical spindle



130 mm basic clamping stroke without the need for conversion

▲ Quick adjustment of clamping range

Optimised against vibrations

▲ Integrated, internal elastomer damping

5- and 6-sided machining possible

▲ Integrated pull-down action
▲ No force transmission across the seating surface

Clamping systems overview

Single clamping vice

- Power-assisted systems NCG, HDG and H5G
- Fixed jaws as reference
- High repeatability
- Very good angular accuracy



High precision and force amplification

Centric vice

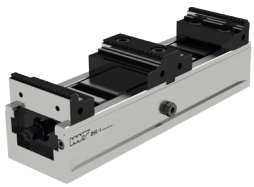
- symmetrical clamping
- very good accessibility for 5-sided machining
- part datum always centered
- high repeatability



High process security with encapsulated system

Multiple vice

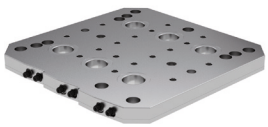
- Faster set up times
- multifunctional use
- optimum utilization of the machine table
- high repeatability



Increased machine uptime

Clamping variants

- Zero point clamping system
- Zero point clamping system grid plate



Reduction in setup times

Clamping Towers

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

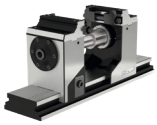
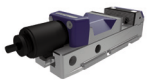
A variety of clamping towers can be found in our online shop at cuttingtools.ceratizit.com



Automation made easy

17

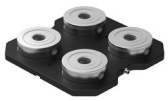
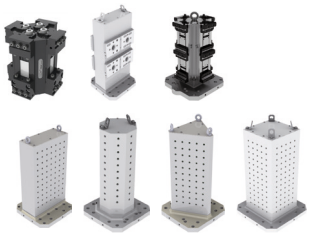
Toolfinder clamping systems – Vices

	Type		Description	3 axis	5 axis
Single clamping vice	NCG		▲ 160° quick clamping ▲ rapid installation and removal of the spindle assembly ▲ quick span adjustment	✓	
	NCG 5A		▲ 160° quick clamping ▲ for 5 axis machining ▲ quick span adjustment	✓	✓
	H5G		▲ fast handle clamping ▲ 5 axis high power vice ▲ 100% encapsulated	✓	✓
	H5G -Z		▲ Fast handle clamping ▲ 5-axis high power vice ▲ 100% encapsulated ▲ With movable fixed jaw	✓	✓
	X5G -Z		▲ 100% encapsulated ▲ Optimum accessibility ▲ 5- and 6-sided machining possible ▲ Fast jaw changeover without tools	✓	✓
	ESG 4		▲ 100 % encapsulated ▲ Precision base body ▲ High clamping force ▲ Large clamping range	✓	✓
	ESG 5		▲ New version of the sealed centric vice ZSG 4 as single vice ▲ Identical dimensions and function as the ZSG 4	✓	✓
	ESG mini		▲ 100% encapsulated ▲ Compact and precise ▲ Fixed zero point ▲ Hydraulic versions also available	✓	✓
	HDG 2		▲ mechanical power transmission ▲ clamping force with only one turn of the handle ▲ infinitely variable clamping force setting	✓	
Centric vice	ZSG 4		▲ ball bearing, backlash free spindle ▲ high precision, clamping force and process security ▲ repeatability ±0.01 mm	✓	✓
Multiple vice	DSG 4		▲ Quick assembly and disassembly ▲ Flexible clamping system ▲ Can be converted into single vice	✓	✓
	MSG 2		▲ internal serration ▲ variable use	✓	✓

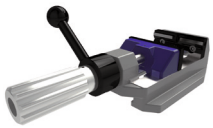
Jaw width in mm	Body length in mm	max. clamping range in mm	cubic workpieces	assymetrical workpieces	round workpieces	max. clamping force in kN	Page No.
100 125 160	305 390 530	245 343 506	✓	✓	✓	30 40 40	8–18
100 125	305 390	199 269	✓		✓	18 24	11–18
125	300	274	✓	✓	✓	40	19–29
125	430 500 630	396 466 596	✓	✓	✓	40	23–29
125	330 430 500 630 800	80-210 80-310 80-380 80-510 80-680	✓	✓	✓	40	30–39
80 125 160	214 362 480	192 308 324	✓	✓	✓	25 40 50	40–48
80 125 160	130+190 160+235+300 280+480	63-171 84-281 125-448	✓	✓	✓	35	49–55
40 65 100	132 180 240	122 174 243	✓	✓	✓	12 20 40	56–66
100 125 160	342 400 544	278 338 470	✓		✓	30 40 60	67–70
80 125 160	130+190 160+235+300 280+480	121–185 163–303 134–465	✓	✓	✓	25 35 50	71–86
80 125	300 320+390+460 530+600+670+740	122 114+149+184 219+254+289+324	✓	✓	✓	25 40	87–95
65 90	220–650 400–650	538 538	✓		✓	25–50	96–103

17

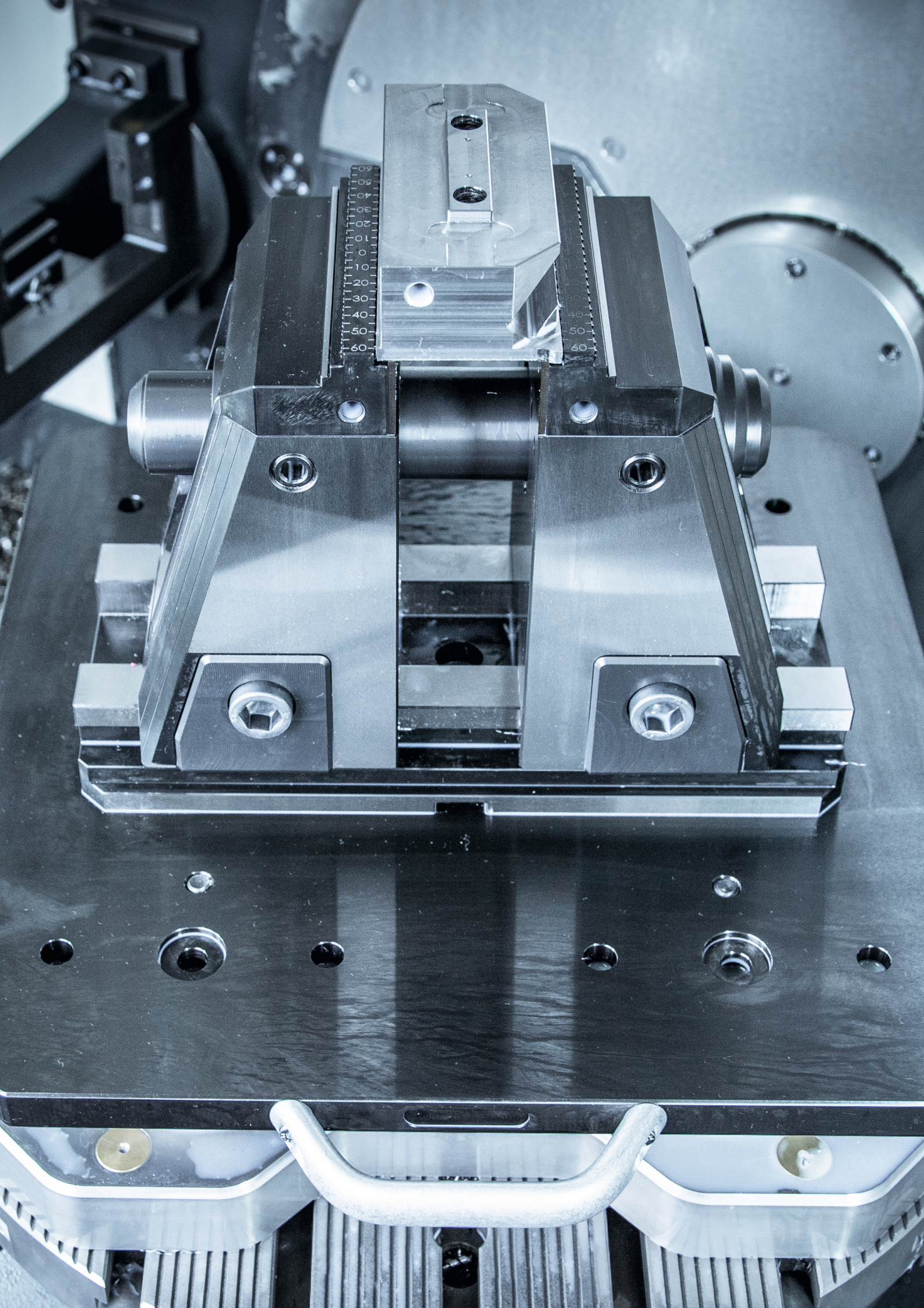
Toolfinder clamping systems – Clamping variants and clamping towers

	Type		mechanical	pneumatic	Comments	Page No.
Zero point clamping system grid plate	MNG		✓		All round plate for all machine tables	107–121
Multi-adapter pallets	PNG			✓	Process security thanks to self-locking mechanism	122–133
Clamping Towers			✓		Increased machine uptime	

Manual machine vice

	Type		mechanical	pneumatic	Comments	Page No.
Drilling machine vice	HSG		✓		fast jaw adjustment, compact and precise	104–106

This article can be found in our online shop at cuttingtools.ceratizit.com







Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

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Extended Material Examples for the Cutting Data Tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB
		P.1.3		Tempered	840 N/mm² / 250 HB
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB
		P.1.5		Tempered	1010 N/mm² / 300 HB
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB
		P.2.2		Tempered	930 N/mm² / 275 HB
		P.2.3		Tempered	1010 N/mm² / 300 HB
		P.2.4		Tempered	1200 N/mm² / 375 HB
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB
		M.2.1	Austenitic	Tempered	300 HB
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB
		K.2.2	Pearlitic		845 N/mm² / 250 HB
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB
		K.3.2	Pearlitic		780 N/mm² / 230 HB
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB
		S.1.2		Age-hardened	950 N/mm² / 280 HB
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB
		S.2.2		Age-hardened	1180 N/mm² / 350 HB
		S.2.3		Cast	1080 N/mm² / 320 HB
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB
		S.3.3	Beta alloys		1400 N/mm² / 410 HB
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC
		H.1.2		Hardened and tempered	56–60 HRC
		H.1.3		Hardened and tempered	61–65 HRC
		H.1.4		Hardened and tempered	66–70 HRC
	Chilled iron	H.2.1		Cast	400 HB
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²
		O.3.1	Graphite		

*** Tensile strength**

On the following 16 pages you will find an extension of the material examples to our usual indexes with additional international standards.

Overview of standards:

DIN

Deutsche **I**ndustrie **N**orm
(German Standard)

AFNOR

Association **F**rancaise de **N**ormalisation
(French Standard)

UNI

Unificazione **I**taliana
(Italian Standard)

ČSN

Czechoslovakian Standard

BS

British **S**tandards

SIS

Standardiseringen **i** **S**verige
(Swedish Standard)

UNE

Spanish Standard

JIS

Japanese **I**ndustrial **S**tandard

ГОСТ

Soviet Standard

UNS

Unified **N**umbering **S**ystem

USA

Under **USA** several American standards are summarized

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
P	P.1.1	1.5423	16 Mo 5		16 Mo 5		1503-245-420					G 45200	4520
		1.0037	St 37-2	E 24-2		11 343				STKM 12 C			
		1.0044	St 44-2	E 28-2	Fe 430 B FN	11 443	4360-43 B	1412		SM 41 B			A 570 Gr. 40
		1.0116	St 37-3	E 24-3; E 24-4	Fe 360 D FF	11 378	4360-40 C	1312; 1313			St 3 kp; ps; sp		A 573 Gr. 58
		1.0144	St 44-3	E 28-3; E 28-4	Fe 430 D FF		4360-43 C	1412; 1414		SM 41 C	St 4 kp; ps; sp		A 573 Gr. 70
		1.0301	C 10	AF 34 C 10; XC 10	C 10	12 010	045 M 10			S 10 C	10	G 10100	1010
		1.0401	C 15	AF3 7 C 12; XC 18	C 15; C 16	12 020	080 M 15	1350	F-111			G 10170	1015
		1.0402	C 22	AF 42 C 20	C 20; C 21	12 024	050 A 20	1450	F-112		20	G 10200	1020
		1.0406	C 25	AF 50 C 30	C 25	12 030	070 M 26						1025
		1.0570	St 52-3	E 36-3; E 36-4	Fe 510 B; C; D	11 523	4360-50 B	2132		SM 50 YA	17 GS		
		1.1121	Ck 10	XC 10	C 10	12 010	045 M 10	1265	F-1510	S 10 C; S 9 CK	08; 10	G 10100	1010
		1.1133	20 Mn 5	20 M 5	G 22 Mn 3		120 M 19			SMnC 420		G 10220	1022; 1518
		1.1141	Ck 15	XC 15; XC 18	C 15; C 16	12 020	080 M 15	1370	F-1511	S 15 C; S 15 CK	15	G 10170	1015
		1.1151	Ck 22	XC 25; XC 18	C 20		050 A 20			S 20 C; S 20 CK	20		1023
		1.1158	Ck 25	XC 25	C 25	12 030	070 M 26			S 25 C	25	G 10250	1025
	P.1.2	1.0050	St 50-2	A 50-2	Fe 490	11 500	4360-50 B	2172		SS 50	BSt 5 ps; sp		A 570 Gr. 50
		1.0060	St 60-2	A 60-2	Fe 590; Fe 60-2	11 600	4360-SSE; SSC			SM 58	St 6 ps; sp		
		1.0406	C 25	AF 50 C 30	C 25	12 030	070 M 26						1025
		1.0420	GS-38										
		1.0446	GS-45										
		1.0481	17 Mn 4			11 748							
		1.0501	C 35	AF 55 C 35	C 35	12 040	060 A 35	1550	F-113		35	G 10350	1035
		1.0503	C 45	AF 65 C 45	C 45	12 050	080 M 46	1650	F-114		45	G 10430	1045
		1.0511	C 40	AF 60 C 40	C 40	12 041							1040
		1.0528	C 30			12 031							
		1.0540	C 50										
		1.0552	GS-52										
		1.0558	GS-60										
		1.0619	GS-C 25										
		1.0711	9 S 20		CF 9 S 22		220 M 07	220 M 07		SUM 21	SUM 21	G 12120	1212
		1.0715	9 SMn 28	S 250	CF 9 SMn 28	11 109	230 M 07	1912	F-211 / F-2111	SUM 22		G 12130	1213
		1.0718	9 SMnPb 28	S 250 Pb	CF 9 SMnPb 28			1914	F-212 / F-2112	SUM 22 L		G 12134	12 L 13
		1.0721	10 S 20	10 F 1	CF 10 S 20	10 110	210 M 15		F-2121				1108
		1.0722	10 SPb 20	10 PbF 2	CF 10 SPb 20				F-2122				11 L 08
		1.0723	15 S 20				210 A 15	1922		SUM 32			
		1.0736	9 SMn 36	S 300	CF 9 SMn 36		240 M 07		F-2113			G 12150	1215
		1.0737	9 SMnPb 36	S 300 Pb	CF 9 SMnPb 36			1926	F-2114			G 12144	12 L 14
		1.1118	GS-24 Mn 6			42 2714							
		1.1120	GS-20 Mn 5										
		1.1131	GS-16 Mn 5										
		1.1138	GS-21 Mn 5										
		1.1142	GS-Ck 16										
		1.1151	Ck 22	XC 25; XC 18	C 20		050 A 20			S 20 C; S 20 CK	20		1023
		1.1155	GS-Ck 25										
		1.1158	Ck 25	XC 25	C 25	12 030	070 M 26			S 25 C	25	G 10250	1025
		1.1178	Ck 30										
		1.1181	Ck 35	XC 38 H1:XC 32	C 35		080 M 36	1572		S 35 C	35	G 10340	1035
		1.1186	Ck 40	XC 42 H1	C 40		080 M 40			S 40 C	40		1040
		1.1191	Ck 45	XC 42	C 45		080 M 46	1672		S 45 C	45	G 10420	1045
		1.1206	Ck 50	XC 48 H1			080 M 50				50		1050
		1.1730	C 45 W	Y3 42									

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P	P.1.3	1.0501	C 35	AF 55 C 35	C 35	12 040	060 A 35	1550	F-113		35	G 10350	1035
		1.0503	C 45	AF 65 C 45	C 45	12 050	080 M 46	1650	F-114		45	G 10430	1045
		1.0511	C 40	AF 60 C 40	C 40	12 041							1040
		1.0528	C 30			12 031							
		1.0540	C 50										
		1.0726	35 S 20	35 MF 4		11 140	212 M 36	1957	F-210.G			G 11400	1140
		1.0727	45 S 20	45 MF 4			212 M 44	1973				G 11460	1146
		1.0728	60 S 20	60 MF 4									
		1.1178	Ck 30										
		1.1181	Ck 35	XC 38 H1:XC 32	C 35		080 M 36	1572		S 35 C	35	G 10340	1035
		1.1186	Ck 40	XC 42 H1	C 40		080 M 40			S 40 C	40		1040
		1.1191	Ck 45	XC 42	C 45		080 M 46	1672		S 45 C	45	G 10420	1045
		1.1206	Ck 50	XC 48 H1			080 M 50				50		1050
	P.1.4	1.0535	C 55	AF 70 C55	C 55	12 060	070 M 55	1655			55		1055
		1.0601	C 60	CC 55	C 60		080 A 62				60	G 10600	1060
		1.0757	46 SPb 20										
		1.1203	Ck 55	XC 55	C50		070 M 55			S 55 C	55		1055
		1.1221	Ck 60	XC 60	C60		080 A 62	1665; 1678		S 58 C	60; 60G	G 10640	1060
		1.1248	Ck 75	XC 75	C 75	12 081	060 A 78	1774; 1778			75	G 10780	1078; 1080
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
		1.1520	C 70 W1										
		1.1525	C 80 W1	Y1 90; Y1 80	C 80 KU						U8A	T 72301	W 108
		1.1545+G502	C 105 W1	Y1 105	C 100 KU			1880			U10A	T 72301	W 110
		1.1620	C 70 W2										
		1.1625	C 80 W2		C 80 KU		BW 1 B			SKC 3; SK 5; SK 6	U8; 80	T 72301	W 1
		1.1645	C 105 W2	Y2 105	C 100 KU					SK 3	U10	T 72301	
		1.1663	C 125 W	Y2 120	C 120 KU					SK 2	U13	T 72301	W 112
		1.1673	C 135 W	Y2 140	C 140 KU					SK 1			
		1.1740	C 60 W	Y3 55						SK 7			
		1.1750	C 75 W				BW 1A				75		W 1
		1.1820	C 55 W										
		1.1830	C 85 W	Y3 90						SK 5			
	P.1.5	1.0535	C 55	AF 70 C55	C 55	12 060	070 M 55	1655			55		1055
		1.0601	C 60	CC 55	C 60		080 A 62				60	G 10600	1060
		1.1203	Ck 55	XC 55	C50		070 M 55			S 55 C	55		1055
		1.1221	Ck 60	XC 60	C60		080 A 62	1665; 1678		S 58 C	60; 60G	G 10640	1060
		1.1231	Ck 67	XC 68	C 70	12 071	060 A 67	1770			70	G 10700	1070
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
		1.1520	C 70 W1										
	P.2.1	1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2323	GS-48 CrMoV 6 7										
		1.2341	X 6 CrMo 4										
		1.2369	81 CrMov 42 16										
		1.2516	120 WV 4	110 WC 20	110 W 4 KU	19 711	BF 1						
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2735	15 NiCr 14	10 NC 12		16 240				SNC 22		T 51606	
		1.2762	75 CrMoNiW 6 7										
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2

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P	P.2.1	1.5015	GS-8 Mn 7										
		1.5122	37 MnSi 4			13 240							
		1.5415	15 Mo 3	15 D 3	16 Mo 3		1501-240	2912					A 204 Gr. A
		1.5419	GS-22 Mo 4										
		1.5621	GS-10 Ni 6										
		1.5622	14 Ni 6	16 N 6	14 Ni 6								A 350-LF 5
		1.5633	GS-24 Ni 8										
		1.5638	GS-10 Ni 14										
		1.5732	14 NiCr 10	14 NC 11	16 NiCr 11				F-1540	SNC 415 (H)			3415
		1.5752	14 NiCr 14	12 NC 15		16 240	655 M 13		F-1540	SNC 815 (H)		G 33106	3310; 9314
		1.5919	15 CrNi 6	16 NC 6	16 CrNi 4	16 220	S 107						
		1.5920	18 CrNi 8	20 NC 6		13 231							
		1.6221	GS-13 MnNi 6 4										
		1.6523	21 NiCrMo 2	20 NCD 2	20 NiCrMo 2		805 M 20	2506	F-1522	SNCM 220 (H)		G 86170	8620
		1.6587	17 CrNiMo 6	18 NCD 6	18 NiCrMo 7		820 A 16						
		1.6750	GS-20 NiCrMo 3 7										
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7012	13 Cr 2										
		1.7015	15 Cr 3	12 C 3		14 120	523 M 15			SCr 415 (H)	15Ch	G 50150	5015
		1.7020	32 Cr 2										
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17	2511	F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7139	16 MnCrS 5						F-150D				
		1.7147	20 MnCr 5	20 MC 5	20 MnCr 5	14 221				SMnC 420 (H)	18ChG	G 51200	5120
		1.7149	20 MnCrS 5						F-1551				
		1.7218	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300	4130
		1.7219	GS-26 CrMo 4										
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234		SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137
		1.7262	15 CrMo 5	12 CD 4	12 CrMo 4					SCM 415 (H)			
		1.7264	20 CrMo 5	18 CD 4						SCM 421			
		1.7271	23 CrMoB 3 3										
		1.7311	20 CrMo 2						F-1523				
		1.7321	20 MoCr 4	20 CD 4									
		1.7335	13 CrMo 4 4	15 CD 3.5	14 CrMo 4 5		1501-620 Gr. 27	2216			12ChM; 15ChM		A 182-F11; F12
		1.7337	16 CrMo 4 4	15 CD 4.5	14 CrMo 4 5		1501-620 Gr. 27	2216			15ChM		A 387 Gr. 12 Cl. 2
		1.7357	GS-17 CrMo 5 5										
		1.7363	GS-12 CrMo 19 5										
		1.7377	GS-17 CrMo 9 10										
		1.7379	GS-18 CrMo 9 10										
		1.7380	10 CrMo 9 10	10 CD 9.10	12 CrMo 9 10		1501-622 Gr. 31; 45	2218				J 21890	A 182-F22
		1.7715	14 MoV 6 3				1503-660-440						
		1.7725	GS-30 CrMoV 6 4										
		1.8504	34 CrAl 6			14 340							
		1.8506	34 CrAlS 5									K 23745	
		1.8521	15 CrMoV 5 9										
		1.0904	55 Si 7	55 S 7	55 Si 8		250 A 53	2085; 2090			55S2		9255
	P.2.2	1.2067	100 Cr 6	Y 100 C 6			BL 3					T 61203	L 3
		1.2101	62 SiMnCr 4										
		1.2103	58 SiCr 8			19 452							

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P	P.2.2	1.2108	90 CrSi 5P										
		1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2311	40 CrMnMo 7			19 520							
		1.2312	40 CrMnMoS 8 6	40 CMD 8 + S									
		1.2323	GS-48 CrMoV 6 7										
		1.2330	35 CrMo 4	34 CD 4	35 CrMo 4		708 A 37	2234			35 HM	T 51620	4135
		1.2332	47 CrMo 4	42 CD 4	40 CrMo 4		708 M 40	2244					4142
		1.2419	105 WCr 6	105 WC 13	107 WCr 5 KU					SKS 31	ChWG		
		1.2510	100 MnCrW 4	90 MWCV 5	95 MnWCr 5 KU	19 314	BO 1	2140	F-5220	SKS 3		T 31501	O 1
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2713	55 NiCrMoV 6	55 NCDV 7		19 662			F-520.S	SKT 4	5ChNM	T 61206	L 6
		1.2721	50 NiCr 13										
		1.2738	40 CrMnNiMo 8						F-5303				
		1.2826	60 MnSiCr 4										
		1.2833	100 V 1	Y1 105 V	102 V 2 KU	19 356	BW 2			SKS 43		T 72302	W 210
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2
		1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.3520	100 CrMn 6			14 209							
		1.3561	44 Cr 2										
		1.3563	43 CrMo 4										
		1.5120	38 MnSi 4										
		1.5121	46 MnSi 4										
		1.5122	37 MnSi 5			13 240							
		1.5131	50 MnSi 4										
		1.5141	53 MnSi 4										
		1.5223	42 MnV 7			13 242							
		1.5710	36 NiCr 6	35 NC 6		16 240	640 A 35			SNC 236			3135
		1.5736	36 NiCr 10	30 NC 11	35 NiCr 9					SNC 631 (H)			3435
		1.5755	31 NiCr 14	18 NC 13			653 M 31			SNC 836			
		1.6511	36 CrNiMo 4	40 NCD 3	38 NiCrMo 4 (KB)	16 341	816 M 40				40 ChN2MA	G 98400	9840
		1.6513	28 NiCrMo 4										
		1.6546	40 NiCrMo 2 2	40 NCD 2	40 NiCrMo 2 (KB)		311-Type 7			SNCM 240	38ChGNM	G 87400	8740
		1.6565	40 NiCrMo 6				311-Type 6			SNCM 439	40Ch2N2MA		4340
		1.6570	GS-30 NiCrMo 8 5										
		1.6580	30 CrNiMo 8	30 CND 8	30 NiCrMo 8		823 M 30		F-1272	SNCM 431			
		1.6582	34 CrNiMo 6	35 NCD 6	35 NiCrMo 6 (KW)	16 342	817 M 40	2541	F-128 / F-1270	SNCM 447	38Ch2N2MA		4340
		1.6746	32 NiCrMo 14 5	35 NCD 14			830 M 31						
		1.6781	GS-18 NiCrMo 12 6										
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7034	37 Cr 4	38 C 4	38 Cr 4	14 140	530 A 36			SCr 435 H	40Ch		5135
		1.7035	41 Cr 4	42 C 4	41 Cr 4		530 M 40			SCr 440 (H)	40Ch	G 51400	5140
		1.7045	42 Cr 4	42 C 4 TS	41 Cr 4		530 A 40	2245		SCr 440	40Ch		5140
		1.7103	67 SiCr 5										
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17	2511	F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7139	16 MnCrS 5						F-150D				

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P	P.2.2	1.7147	20 MnCr 5	20 MC 5	20 MnCr 5	14 221				SMnC 420 (H)	18ChG	G 51200	5120
		1.7149	20 MnCrS 5						F-1551				
		1.7176	55 Cr 3	55 C 3	55 Cr 3		527 A 60	2253	F-1431	SUP 9 (A)	50ChGA	G 51550	5155
		1.7218	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300	4130
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234		SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137
		1.7223	41 CrMo 4	42 CD 4 TS	41 CrMo 4		708 M 40	2244		SCM 440	40 ChFA	G 41420	4142; 4140
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400	4142; 4140
		1.7228	50 CrMo 4	50 CR MO4			708 A 47			SCM 445 (H)	50ChFA	G 41470	4150
		1.7323	20 MoCrS 4	20 CD 4 S									
		1.7325	25 MoCr 4	25 CD 4									
		1.7326	25 MoCrS 4	25 CD 4 S									
		1.7361	32 CrMo 12	30 CD 12	32 CrMo 12	15 230	722 M 24	2240	F-124A				
		1.7707	30 CrMoV 9			15 330							
		1.7709	21 CrMoV 5 7										
		1.7725	GS-30 CrMoV 6 4										
		1.7735	14 CrMoV 6 9	15 CDV 6									
		1.8159	50 CrV 4	50 CV 4	51 CrV 4	15 260	735 A 50	2230	F-143 / F-1430	SUP 10	50ChGFA	G 61500	6150
		1.8161	58 CrV 4			15 261							
		1.8507	34 CrAlMo 5	30 CAD 6.12	34 CrAlMo 7		905 M 31		F-1741			K 23545	A 355 Cl. D
		1.8509	41 CrAlMo 7	40 CAD 6.12	41 CrAlMo 7	15 340	905 M 39	2940	F-1740	SACM 645	38ChMJuA	K 24065	A 355 Cl. A
		1.8515	31 CrMo 12	30 CD 12	31 CrMo 12		722 M 24	2240	F-1712				
		1.8519	31 CrMoV 9						F-1721				
		1.8523	39 CrMoV 13 9		36 CrMoV 13 9		897 M 39						
		1.8550	34 CrAlNi 7									K 52440	
		1.0904	55 Si 7	55 S 7	55 Si 8		250 A 53	2085; 2090			55S2		9255
		1.1157	40 Mn 4	35 M 5			150 M 36				40G	G 10390	1039
		1.1165	30 Mn 5	35 M 5			120 M 36			SMn 433 H; SCMn 2	30GSL		1330
		1.1167	36 Mn 5	40 M 5		42 2715	150 M 36	2120		SMn 438 (H); SCMn 3	35G2; 35GL	G 13350	1335
		1.1170	28 Mn 6	20 M 5	C 28 Mn		150 M 28			SCMn 1	30G		1330
	P.2.3	1.2744	57 NiCrMoV 7 7										
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17		F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7755	GS-35 CrMoV 10 4										
	P.2.4	1.2714	56 NiCrMoV 7										
		1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400	4142; 4140
	P.3.1	1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2201	G-X 165 CrV 12										
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2367	X 38 CrMoV 5 3										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrV-Mo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2436	X 210 CrW 12	Z 200 CW 12	X 215 CrW 12 1 KU	19 437		2312	F-5213	SKD 2			
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2601	X 165 CrMoV 12		X 165 CrMoW 12 KU	19 572		2310					
		1.2606	G-X 37 CrMoW 5 1										
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.2880	G-X 165 CrCoMo 12										
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									

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P	P.3.1	1.3302	S 12-1-4			19 810							
		1.3318	S 12-1-2			19 802							
		1.3333	S 3-3-2		HS 3-3-2	19 820							
		1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	HS 6-5-2	19 830	BM 2	2722	F-5603	SKH 9; SKH 51	R6AM5	T 11302	M 2
		1.3346	S 2-9-1	Z 85 DCWV 08-04-02-0	HS 1-8-1		BM 1				H41	T 11301	H 41; M 1
		1.4943	X 4 NiCrTi 25 15	Z 6 NCTDV 25.15 B			HR 251; HR 52; HR 51			SUH 660			
		1.5662	G-X 8 Ni 9										
		1.5680	12 Ni 19	Z 18 N 5									2515
	P.3.2	1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	X 40 CrMo 5 1 1 KU	19 554	BH 13	2242	F-5318	SKD 61	4Ch5MF1S	T 20813	H 13
		1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2367	X 38 CrMoV 5 3										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrVMo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2606	G-X 37 CrMoW 5 1										
		1.2709	X 2 NiCoMoTi 18 9 5										
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									
		1.3207	S 10-4-3-10	Z 130 WKCDV 10-10-04	HS 10-4-3-10	19 861	BT 42		F-5553	SKH 57			
		1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05	HS 6-5-2-5	19 852		2723	F-5613	SKH 55	R6M5K5		
		1.3246	S 7-4-2-5	Z 110 WKCDV 07-05-04	HS 7-4-2-5	19 851						T 11341	M 41
		1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	HS 2-9-1-8		BM 42			SKH 51		T 11342	M 42
		1.3249	S 2-9-2-8				BM 34					T 11333	M 33; M 34
		1.3255	S 18-1-2-5	Z 80 WKCV 18-05-04-0	HS 18-1-1-5	19 855	BT 4			SKH 3		T 12004	T 4
		1.3265	S 18-1-2-10		HS 18-0-1-10	19 860	BT 5			SKH 4 A		T 12005	T 5
		1.3344	S 6-5-3	Z 120 WDCV 06-05-04	HS 6-5-3		BM 4			SKH 52; SKH 53		T 11323	M 3 Cl. 2
		1.3348	S 2-9-2	Z 100 DCWV 09-04-02	HS 2-9-2			2782				T 11307	M 7
		1.3401	G-X 120 Mn 12	Z 120 M 12	XG 120 Mn 12		Z 120 M 12			SCMnH 1	110G13L		A 128 (A)
		1.5860	14 NiCr 18			16 523							
		1.5864	35 NiCr 18			16 640			F-122				
	P.3.3	1.6359	X 2 NiCrMo 18 8 5	Maraging 250								K 92890	
	P.4.1	1.2083	X 42 Cr 13	Z 40 C 14	X 41 Cr 13 KU	19 435			F-5263	SUS 420 J 2			
		1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.3543	X 102 CrMo 17	Z 100 CD 17									
		1.4001	G-X 7 Cr 13	Z 8 C 13 FF		17 020			F-8401				
		1.4002	X 6 CrAl 13	Z 6 CA 13	X 6 CrAl 13		405 S 17	2302	F-3111	SUS 405		S 40500	405
		1.4005	X 12 CrS 13	Z 12 CF 13	X 12 CrS 13		416 S 21	2380		SUS 416		S 41600	416
		1.4006	X 10 Cr 13	Z 12 C 13	X 12 Cr 13	17 021	410 S 21	2302	F-3401	SUS 410	12Ch13	S 41000	410; CA-15
		1.4008	G-X 8 CrNi 13	Z 12 CN 13 M		42 2904							
		1.4016	X 6 Cr 17	Z 8 C 17	X 8 Cr 17	17 040	430 S 15	2320	F-3113	SUS 430	12Ch17	S 43000	430
		1.4021	X 20 Cr 13	Z 20 C 13	X 20 Cr 13	17 022	420 S 37	2303	F-3402	SUS 420 J 1	20Ch13	S 42000	420
		1.4024	X 15 Cr 13	Z 13 C 13		17 021	420 S 29			SUS 410 J 1			
		1.4027	G-X 20 Cr 14	Z 20 C 13 M		42 2906	420 C 29			SCS 2	20Ch13L		
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4085	G-X 70 Cr 29										

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P	P.4.1	1.4104	X 12 CrMoS 17	Z 10 CF 17	X 10 CrS 17	17 140		2383	F-3403	SUS 430 F		S 43020	430 F
		1.4105	X 4 CrMoS 18						F-3114				
		1.4106	X 2 CrMoSiS 18 2 1										
		1.4107	G-X 8 CrNi 12			42 2904							
		1.4109	X 65 CrMo 14										
		1.4112	X 90 CrMoV 18									S 44003	
		1.4113	X 6 CrMo 17	Z 8 CD 17.01	X 8 CrMo 17		434 S 17	2325	F-3116	SUS 434		S 43400	434
		1.4116	X 45 CrMoV 15						F-3422				
		1.4122	G-X 35 CrMo 17			17 137							
		1.4125	X 105 CrMo 17	Z 100 CD 17	X 105 CrMo 17					SUS 440 C		S 44004	440 C
		1.4136	G-X 70 CrMo 29 2										
		1.4405	G-X 5 CrNiMo 16 5										
		1.4407	G-X 5 CrNiMo 13 4										
		1.4510	X 6 CrTi 17	Z 8 CT 17	X 6 CrTi 17					SUS 430 LX	08Ch17T	S 43036	XM 8; 430 Ti
		1.4511	X 8 CrNb 17	Z 8 CNb 17	X 6 CrNb 17				F-3122	SUS 430 LX			
		1.4512	X 5 CrTi 12	Z 6 CT 12	X 6 CrTi 12		409 S 19		F-3121	SUH 409		S 40900	409
		1.4528	X 105 CrCoMo 18 2										
		1.4540	G-X 4 CrNiCuNb 16 4										
		1.4724	X 10 CrAl 13	Z 10 C 13	X 10 CrAl 12	17 125	403 S 17		F-3152		10Ch13SJu		
		1.4742	X 10 CrAl 18	Z 10 CAS 18	X 8 Cr 17		430 S 15		F-3153	SUS 430; SUH21			430
		1.4761	G-X 120 CrSi 23										
		1.4762	X 10 CrAl 24	Z 10 CAS 24	X 16 Cr 26	17 153			F-3154			S 44600	446
		1.4931	G-X 22 CrMoV 12 1										
		1.4962	X 12 CrNiWTi 16 3										
		1.6982	G-X 3 CrNi 13 4										
	P.4.2	1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.4000	X 6 Cr 13	Z 6 C 13	X 6 Cr 13	17 020	403 S 17	2301		SUS 403	08Ch13	S 40300	403
		1.4021	X 20 Cr 13	Z 20 C 13	X 20 Cr 13	17 022	420 S 37	2303	F-3402	SUS 420 J 1	20Ch13	S 42000	420
		1.4024	X 15 Cr 13	Z 13 C 13		17 021	420 S 29			SUS 410 J 1			
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4057	X 20 CrNi 17 2	Z 15 CN 16.02	X 16 CrNi 16	17 145	431 S 29	2321	F-3427	SUS 431	20Ch17N2	S 43100	431
		1.4059	G-X 22 CrNi 17										
		1.4086	G-X 120 Cr 29										
		1.4108	X 100 CrMo 13										
		1.4112	X 90 CrMoV 18									S 44003	
		1.4116	X 45 CrMoV 15						F-3422				
		1.4120	G-X 20 CrMo 13										
		1.4122	G-X 35 CrMo 17			17 137							
		1.4138	G-X 120 CrMo 29 2										
		1.4313	X 5 CrNi 13 4	Z 5 CN 13.4	X 6 CrNi 13 04		425 C 11	2385		SCS 5			CA 6-NM
		1.4340	G-X 40 CrNi 27 4										
		1.4464	G-X 40 CrNiMo 27 5										
		1.4542	X 7 CrNiCu 16 4 4	Z7 CNU 17 04 04 (17-4PH)						SCS 24; SUS 630		S 17400	630
		1.4545	X 5 CrNiCu 15-5	E-Z5 CNU 15 05 (15-5PH)									
		1.4710	G-X 30 CrSi 6										
		1.4718	X 45 CrSi 9 3	Z 45 CS 9	X 45 CrSi 8	17 115	401 S 45		F-3220	SUH 1	40Ch9S2	S 65007	HNV 3
		1.4729	G-X 40 CrSi 13										
		1.4740	G-X 40 CrSi 17										
		1.4743	G-X 160 CrSi 18										

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P	P.4.2	1.4745	G-X 40 CrSi 23										
		1.4747	X 80 CrNiSi 20	Z 80 CSN 20.02	X 80 CrSiNi 20		443 S 65			SUH 4		S 65006	HNV 6
		1.4776	G-X 40 CrSi 29										
		1.4823	G-X 40 CrNiSi 27 4										
		1.4923	X 22 CrMoV 12 1			17 134	762						
		1.4928	G-X 12 CrNiMoCoVN 12										
		1.4935	X 20 CrMoWV 12 1									S 42200	
M	M.1.1	1.3941	G-X 4 CrNi 18 13										
		1.3944	G-X 5 CrNi 18 11										
		1.3952	G-X 4 CrNiMoN 18 14										
		1.3953	G-X 2 CrNiMo 18 15										
		1.3955	G-X 12 CrNi 18 11										
		1.3959	G-X 10 CrNiNb 16 13										
		1.4301	X 5 CrNi 18 10	Z6 CN 18-09	X 5 CrNi 18 10	17 240	304 S 15	2332; 2333	F-3504	SUS 304	08Ch18N10	S 30400	304; 304 H
		1.4303	X 5 CrNi 18 12	Z 8 CN 18.12	X 8 CrNi 19 10		305 S 19			SUS 305	06Ch18N11	S 30500	308; 305
		1.4305	X 10 CrNiS 18 9	Z8 CNF 18-03	X 10 CrNi 18 09	17 243	303 S 21	2346		SUS 303		S 30300	303
		1.4306	X 2 CrNi 19 11	Z3 CN 18-10	X 2 CrNi 18 11	17 249	304 S 12	2352; 2333	F-3503	SCS 19	03Ch18N11	S 30403	304 L
		1.4308	G-X 6 CrNi 18 9	Z 6 CN 18.10 M		42 2930	304 C 15	2333	F-8411	SCS 13	07Ch18N9L		CF-8
		1.4311	X 2 CrNiN 18 10	Z 2 CN 18 .10	X 2 CrNiN 18 11	17 249	304 S 62	2371		SUS 304 LN		S 30453	304 LN
		1.4312	G-X 10 CrNi 18 8			42 2931							
		1.4401	X 5 CrNiMo 18 10	Z6 CND 17 12 02	X 5 CrNiMo 17 12	17 346	316 S 16	2347	F-3543	SUS 316		S 31600	316
		1.4404	X 2 CrNiMo 17 13 2	Z3 CND 17 12 02	X 2 CrNiMo 17 12	17 349	316 S 11	2348	F-3533	SUS 316 L		S 31603	316 L
		1.4406	X 2 CrNiMoN 17 12 2	Z 2 CND 17.12 Az	X 2 CrNiMoN 17 12		316 S 61			SUS 316 LN		S 31653	316 LN
		1.4408	G-X 6 CrNiMo 18 10			42 2940			F-8414				
		1.4413	G-X 4 CrNiMo 13-4										
		1.4429	X 2 CrNiMoN 17 13 3	Z3 CND 17 11 03 Az	X 2 CrNiMoN 17 13		316 S 62	2375		SUS 316 LN		S 31653	316 LN
		1.4435	X 2 CrNiMo 18 14 3	Z 2 CND 17.13	X 2 CrNiMo 17 13		316 S 12	2353		SCS 16; SUS 316 L	03Ch17N 14M2	S 31603	316 L
		1.4436	X 5 CrNiMo 17 13 3	Z 6 CND 17.12	X 5 CrNiMo 17 13		316 S 16	2343		SUS 316		S 31600	316
		1.4437	G-X 6 CrNiMo 18 12			42 2940							
		1.4438	X 2 CrNiMo 18 16 4	Z 2 CND 19.15	X 2 CrNiMo 18 15		317 S 12	2367		SUS 317 L		S 31703	317 L
		1.4439	G-X 3 CrNiMo 17 13 5						F-3544				
		1.4446	G-X 2 CrNiMo 17 13 4										
		1.4448	G-X 6 CrNiMo 17 13										
		1.4449	X 3 CrNiMo 18 12 3										
		1.4507	X 2 CrNiMOCuN 25 6 3	Z3 CNDU 25 07 Az (Uranus 52 N)								S 32750	F61
		1.4541	X 6 CrNiTi 18 10	Z 6 CNT 18.10	X 6 CrNiTi 18 11	17 248	321 S 12	2337		SUS 321	12Ch18N 10T	S 32100	321
		1.4546	X 5 CrNiNb 18 10		X 6 CrNiNb 18 11		347 S 18					S 34800	348
		1.4550	X 6 CrNiNb 18 10	Z10 CNNb 18-10	X 6 CrNiNb 18 11	17 245	347 S 17	2338	F-3552 / F-3524	SUS 347	08Ch18N 12B	S 34700	347
		1.4552	G-X 5 CrNiNb 18 9			42 2933			F-8413				
		1.4571	X 6 CrNiMoTi 17 12 2	Z 6 CNT 17.12	X 6 CrNiMoTi 17 12	17 348	320 S 31	2350	F-3535		10Ch17N-13M2T	S 31635	316 Ti
		1.4573	X 10 CrNiMoTi 18 12		X 6 CrNiMoTi 17 13		320 S 33				10Ch17N-13M3T	S 31635	316 Ti
		1.4580	X 6 CrNiMoNb 17 12 2	Z 6 CNDNb 17.12	X 6 CrNiMoNb 17 12		318 S 17		F-3536		08Ch16N-13M2B	S 31640	316 Cb
		1.4581	G-X 5 CrNiMoNb 18 10	Z 4 CNDNb 18.12 M	GX 6 CrMoNb 20 11	42 2941	318 C 17			SCS 22			
		1.4583	X 10 CrNiMoNb 18 12		X 6 CrNiMoNb 17 13								318
		1.4821	X 15 CrNiSi 25-4	Z20 CNS 25 04									
		1.4825	G-X 25 CrNiSi 18 9			42 2932							
		1.4826	G-X 40 CrNiSi 22 9			42 2934							
		1.4828	X 15 CrNiSi 20 12	Z 15 CNS 20.12		17 251	309 S 24		F-3312	SUH 309	20Ch20N 14S2	S 30900	309
		1.4832	G-X 25 CrNiSi 20 14										
		1.4876	X 10 NiCrAlTi 32 20	Z10 NCAT 32-21 (Incoloy 800)		17 358	NA 15 (H)		F-3314	NCF 800			B 163
		1.4878	X 12 CrNiTi 18 9	Z 6 CNT 18.12 (B)	X 6 CrNiTi 18 11	17 246	321 S 20	2337		SUS 321	12Ch18N 10T		321

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M	M.1.1	1.4968	G-X 7 CrNiNb 16 13										
		1.4988	G-X 8 CrNiMoVNb 16 1										
		1.6901	G-X 8 CrNi 18 10										
		1.6902	G-X 6 CrNi 18 10										
		1.6905	G-X 5 CrNiNb 18 10										
	M.2.1	1.3964	G-X 4 CrNiMnMoN 19 1										
		1.4310	X 12 CrNi 17 7	Z 12 CN 17.07	X 12 CrNi 17 07		301 S 21			SUS 301		S 30100	301
		1.4465	G-X 2 CrNiMoN 25 25										
		1.4536	G-X 2 NiCrMoCuN 25 2										
		1.4539	X 1 NiCrMoCu 25 20 5	Z2 NCDU 25 20 (Uranus B6)								N 08904	904L
		1.4547	X 1 CrNiMoCuN 20 18 17	Z1 CNDU 20 18 06 Az (254 SMO)									F44
		1.4568	X 7 CrNiAl 17 7										17-7 PH
		1.4837	G-X 40 CrNiSi 25 12			42 2936							
		1.4840	G-X 15 CrNi 25 20										
		1.4841	X 15 CrNiSi 25 20	Z 15 CNS 25.20	X 16 CrNiSi 25 20	17 255			F-3310	SUH 310	20Ch25N 20S2	S 31000	314; 310
		1.4845	X 12 CrNi 25 21	Z 12 CN 25.20	X 6 CrNi 26 20	17 255	310 S24	2361		SUH 310;		S 31008	310 S
		1.4848	G-X 40 CrNiSi 25 20		GX 40 CrNi 26 20	42 2952							
		1.4849	G-X 40 NiCrSiNb 38 1										
		1.4852	G-X 40 NiCrNb 35 25										
		1.4855	G-X 30 CrNiSiNb 24 2										
		1.4857	G-X 40 NiCrSi 35 25										
		1.4864	X 12 NiCrSi 36 16	Z 12 NCS 37.18		17 253	NA 17		F-3313	SUH 330		N 08330	330
		1.4865	G-X 40 NiCrSi 38 18		GX 50 NiCr 39 19		330 C 40			SCH 15; SCH 16			
		1.4871	X 53 CrMnNiN 21 9	Z 52 CMN 21.09	X 53 CrMnNiN 21 9		349 S 54		F-3217	SUH 35; SUH 36	55Ch-20G9AN4	S 63008	EV 8
		1.4873	X 45 CrNiW 18 9	Z 35 CNWS 20.09	X 45 CrNiW 18 9		331 S 40			SUH 31			
	M.3.1	1.4339	G-X 32 CrNi 28 10										
		1.4347	G-X 8 CrNi 26 7										
		1.4410	X 2 CrNiMoN 25 7 4	Z2 CND 25 07 04 Az					F-3552				F53
		1.4460	X 8 CrNiMo 27 5	Z5 CND 25 05 AZ				2324		SUS 329 J 1		S 32900	329 LN
		1.4462	X 2 CrNiMoN 22 5 3	Z2 CND 22 05 03 AZ (Uranus 45 N)		17 381			F-3308			S 31803	329 A (F51)
		1.4463	G-X 6 CrNiMo 24 8 2										
		1.4501	X 2 CrNiMoCuWN 25 7 4	Z2 CNDUW 25 07 04 Az (Zeron 100)								S 32760	F55
		1.4815	G-X 8 CrNi 19 10										
		1.4822	G-X 40 CrNi 24 5										
K	K.1.1	0.6010	GG-10	Ft 10 D	G 10	42 2410		01 10-00		FC 10	Sc 10		A48-20 B
		0.6015	GG-15	Ft 15 D	G 15	42 2415	Grade 150	01 15-00	FG-15	FC 15	Sc 15		A48-25 B
		0.6020	GG-20	Ft 20 D	G 20	42 2420	Grade 220	01 20-00	FG-20	FC 20	Sc 20		A48-30 B
		0.6025	GG-25	Ft 25 D	G 25	42 2425	Grade 260	01 25-00	FG-25	FC 25	Sc 25		A48-40 B
	K.1.2	0.6030	GG-30	Ft 30 D	G 30	42 2430	Grade 300	01 30-00	FG-30	FC 30	Sc 30		A48-45 B
		0.6035	GG-35	Ft 35 D	G 35	42 2435	Grade 350	01 35-00	FG-35	FC 35	Sc 35		A48-50 B
		0.6040	GG-40	Ft 40 D		42 2440	Grade 400	01 40-00			Sc 40		A48-60 B
		0.6652	GGL-NiMn 13 7	L- NM 13 7			L-NiMn 13 7						
		0.6655	GGL-NiCuCr 15 6 2	L-NUC 15 6 2			L-NiCuCr 15 6 2						A 436 Type 1
		0.6656	GGL-NiCuCr 15 6 3	L-NUC 15 6 3			L-NiCuCr 15 6 3						A 436 Type 1b
		0.6660	GGL-NiCr 20 2	L-NC 20 2			L-NiCr 20 2	05 23-00					A 436 Type 2
		0.6661	GGL-NiCr 20 3	L-NC 20 3			L-NiCr 20 3						A 436 Type 2b
		0.6667	GGL-NiSiCr 20 5 3	L-NSC 20 5 3			L-NiSiCr 20 5 3						
		0.6676	GGL-NiCr 30 3	L-NC 30 3			L-NiCr 30 3						A 436 Type 3
		0.6680	GGL-NiSiCr 30 5 5	L-NSC 30 5 5			L-NiSiCr 30 5 5						A 436 Type 4
	K.2.1	0.7033	GGG-35.3			42 2303							
		0.7040	GGG-40	FGS 400-12	GS 400-12	42 2304	SNG 420/12	0717-02	FGE 38-17	FCD 40	VC 42-12		60 40 18

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K	K.2.1	0.7043	GGG-40.3	FGS 370-17	GSO 42/17	42 2314	SNG 370/17	0717-15			VC 42-12		
		0.7050	GGG-50	FGS 500-7	GS 500/7	42 2305	SNG 500/7	0727-02	FGE 50-7	FCD 50	VC 50-2		65-45-12
		0.7060	GGG-60	FGS 600-3	GS 600/3	42 2306	SNG 600/3	0732-03		FCD 60	VC 60-2		80-55-06
	K.2.2	0.7070	GGG-70	FGS 700-2	GS 700-2	42 2307	SNG 700/2	0737-01	FGS 70-2	FCD 70	VC 70-2		100-70-03
		0.7080	GGG-80	FGS 800-2	GS 800-2	42 2308	SNG 800/2				VC 80-2		120-90-02
		0.7652	GGG-NiMn 13 7	S-NM 13 7			S-NiMn 13 7						
		0.7660	GGG-NiCr 20 2	S-NC 20 2			S-NiCr 20 2						A 439 Type D-2
		0.7661	GGG-NiCr 20 3	S-NC 20 3			S-NiCr 20 3						A 439 Type D-2B
		0.7665	GGG-NiSiCr 20 5 2	S-NSC 20 5 2			S-NiSiCr 20 5 2						
		0.7670	GGG-Ni 22	S-N 22			S-Ni 22						A 439 Type D-2C
		0.7673	GGG-NiMn 23 4	S-NM 23 4			S-NiMn 23 4						A 439 Type D-2M
		0.7676	GGG-NiCr 30 3	S-NC 30 3			S-NiCr 30 3						A 439 Type D-3
		0.7677	GGG-NiCr 30 1	S-NC 30 1			S-NiCr 30 1						A 439 Type D-3A
		0.7680	GGG-NiSiCr 30 5 5	S-NSC 30 5 5			S-NiSiCr 30 5 5						A 439 Type D-4
		0.7683	GGG-Ni 35	S-N 35			S-Ni 35						A 439 Type D-5
		0.7685	GGG-NiCr 35 3	S-NC 35 3			S-NiCr 35 3						A 439 Type D-5B
		0.8065	GTW-65										
	K.3.1	0.8035	GTW-35-04			42 2536			GTW 35				
		0.8040	GTW-40-05			42 2540							
		0.8045	GTW-45-07										
		0.8055	GTW-55										
		0.8135	GTS-35-10	MN 35-10		42 2533	B 340/12		GTS 35				
		0.8145	GTS-45-06			42 2545	P 440/7		GTS 45				
		0.8155	GTS-55-04	MP 50-5		42 2555	P 510/4		GTS 55				
		0.8165	GTS-65-02	MP 60-3			P 570/3		GTS 65				
	K.3.2	0.8170	GTS-70-02	IP 70-2			P 690/2		GTS 70				
N	N.1.1	3.3307	Al99.85Mg0.5										
		3.3308	Al99,9Mg0,5										
		3.3315	AlMg1	5005 (AlMg1)					L-3350				
		3.3316	AlMg1.5										
		3.3317	Al99.85Mg1										
		3.3318	Al99.9Mg1										
		3.3326	AlMg1.8										
		3.3523	AlMg2.5										
		3.3525	AlMg2Mn0.3										
		3.3527	AlMg2Mn0.8										
		3.3535	AlMg3	5754									
		3.3537	AlMg2.7Mn										
		3.3555	AlMg5	5056 A									
		3.3561	G-AlMg5										
		3.3591	G-AlMg10										
		3.0205	Al99	1200 (A4)	9001/1	42 4009			L-3001				
		3.0255	Al99.5	1050 A	9001/2	42 4004			L-3051				
		3.0275	Al99.7	1070 A		42 4003			L-3071				
		3.0285	Al99.8	1080 A (A8)		42 4002			L-3081				
		3.0305	Al99.9										
		3.0505	AlMn0.5Mg0.5										
		3.0506	AlMn0.6										
		3.0515	AlMn1			42 4432			L-3810				
		3.0517	AlMnCu										
		3.0525	AlMn1Mg0.5	3005									

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N	N.1.1	3.0526	AlMn1Mg1										
		3.0615	AlMgSiPb										
		3.0915	AlFeSi										
	N.1.2	3.2307	Al99.85MgSi										
		3.2315	AlMgSi1	6082	9006/4	42 4400							6082
		3.3206	AlMgSi0,5	6060 (AGS)		42 4401			L-3441				6063
		3.3208	Al99.9MgSi										
		3.3210	AlMgSi0.7	6005 A									
		3.3211	AlMg1SiCu	6061									
		3.3345	AlMg4.5										
		3.3545	AlMg4Mn	5086 (AG4MC)	9005/5				L-3322				5083
		3.3547	AlMg4,5Mn0,7	5083 (AlMg5Mn0,7)			N8		L-3321	A 5083			A95083
		3.3549	AlMg5Mn										
		3.4335	AlZn4,5Mg1	7020 (AZ5G)	9007/1	42 4441			L-3741				7020
		3.4337	Al99.8ZnMg										
		3.4345	AlZnMgCu0.5										
		3.4365	AlZnMgCu1.5	7075 (AZ5GU)		42 4222			L-3710				7075
		2.1086	G-CuSn10Zn										
		3.1255	AlCuSiMn	2014	9002/3								2014
		3.1305	AlCu2.5Mg0.5										
		3.1325	AlCuMg1	2017 A (AU4G)					L-3120				2017 A
		3.1355	AlCuMg2	2024 (AU4G1)	9002/4	42 4203			L-3140				2024
		3.1645	AlCuMgPb	2030 (AU4PB)		42 4254			L-3121				
		3.1655	AlCuBiPb	2011 (AU5PbBi)	9002/5				L-3192				2011
		MFK											
	N.2.1	3.2581	G-AlSi12			42 4330							
		3.2583	G-AlSi12(Cu)			42 4330							
		3.3261	G-AlMg5Si			42 4515							
		3.3292	GD-AlMg9			42 4519							
		3.3541	G-AlMg3										
		3.3543	G-AlMg3(Cu)										
	N.2.2	3.2134	G-AlSi5Cu1Mg										
		3.2151	G-AlSi6Cu4			42 4357							
		3.2161	G-AlSi8Cu3										
		3.2341	G-AlSi5Mg										
		3.2371	G-AlSi7Mg			42 4334							
		3.2373	G-AlSi9Mg			42 4331							
		3.2381	G-AlSi10Mg			42 4331							
		3.2383	G-AlSi10Mg(Cu)			42 4331							
		3.3241	G-AlMg3Si										
		3.1371	G-AlCu4TiMg										
		3.1841	G-AlCu4Ti										
	N.3.1	2.0040	OF-Cu			42 3000							
		2.0060	E-Cu57			42 3001							
		2.0065	E-Cu58			42 3001							
		2.0070	SE-Cu										
		2.0076	SW-Cu										
		2.0090	SF-Cu			42 3003							
		2.0220	CuZn5			42 3200							
		2.0230	CuZn10			42 3201							
		2.0240	CuZn15			42 3202							

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N	N.3.1	2.0250	CuZn20			42 3203							
		2.0261	CuZn28										
		2.0265	CuZn30			42 3210							
		2.0280	CuZn33			42 3212							
		2.0321	CuZn37		C2700	42 3213							
		2.0335	CuZn36										
		2.0360	CuZn40			42 3220							
		2.0460	CuZn20Al2										
		2.0470	CuZn28Sn1										
		2.0510	CuZn37Al1			42 3231							
		2.0530	CuZn38Sn1			42 3237							
		2.0730	CuNi12Zn24										
		2.0740	CuNi18Zn20										
		2.0830	CuNi25										
		2.0842	CuNi44Mn1										
		2.0853	CuNi1.5Si										
		2.0855	CuNi2Si			42 3054							
		2.0857	CuNi3Si										
		2.0872	CuNi10Fe1Mn										
		2.0875	CuNi9Sn2										
		2.0882	CuNi30Mn1Fe										
		2.0883	CuNi30Fe2Mn2										
		2.0918	CuAl5As										
		2.0920	CuAl8										
		2.0932	CuAl8Fe3										
		2.0936	CuAl10Fe3Mn2										
		2.0960	CuAl9Mn2										
		2.0966	CuAl10Ni5Fe4										
		2.0971	CuAl9Ni3Fe2										
		2.1016	CuSn4										
		2.1020	CuSn6										
		2.1030	CuSn8										
		2.1080	CuSn6Zn6										
		2.1191	CuAg0.1P										
		2.1203	CuAg0.1										
		2.1245	CuBe1.7										
		2.1247	CuBe2										
		2.1293	CuCrZr			42 3039							
		2.1310	CuFe2P										
		2.1522	CuSi2Mn										
		2.1525	CuSi3Mn										
		Ampco 16	CuAl10Fe3										
		Ampco 18	CuAl10.5Fe3.5										
		Ampco 8	CuAl6.5Fe2.5Sn										
			Ampco 8-16										
	N.3.2	2.0331	CuZn36Pb1.5			42 3214							
		2.0332	CuZn37Pb0.5										
		2.0372	CuZn39Pb0.5			42 3221							
		2.0540	CuZn35Ni2										
		2.0550	CuZn40Al2										
		2.0561	CuZn40Al1			42 3231							

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N	N.3.2	2.0572	CuZn40Mn1			42 3234							
		2.0580	CuZn40Mn1Pb										
		2.0780	CuNi12Zn30Pb1										
		2.0790	CuNi18Zn19Pb1										
		2.1498	CuSP										
		2.1504	NiAlBz										
		2.1546	CuTeP										
		Ampco 12	CuAl9Fe3										
		Ampco 20	CuAl11Fe4										
	N.3.3	2.0371	CuZn38Pb1.5			42 3222							
		2.0375	CuZn36Pb3										
		2.0380	CuZn39Pb2			42 3223							
		2.0401	CuZn39Pb3										
		2.0402	CuZn40Pb2			42 3223							
		2.0410	CuZn44Pb2										
		2.0490	CuZn31Si1										
		2.0500	CuZn23Al6Mn-4Fe3										
		2.0771	CuNi7Zn39Mn-5Pb3										
		2.0978	CuAl11Ni6Fe5										
		2.1093	G-CuSn6ZnNi										
		2.1096	G-CuSn5ZnPb										
		2.1285	CuCo2Be										
		Ampco 21	CuAl13Fe4.5										
		Ampco 22	CuAl14Fe5										
		Ampco 25											
		Ampco 26											
			Ampco 18-26										
	N.4.1	3.5101	G-MgZn4SE1Zr1										
		3.5102	G-MgZn5Th2Zr1										
		3.5103	G-MgSE3Zn2Zr1										
		3.5105	G-MgTh3Zn2Zr1										
		3.5106	G-MgAg3Se2Zr1										
		3.5200	MgMn2										
		3.5312	MgAl3Zn										
		3.5470	GD-MgAl4Si1										
		3.5612	GD-MgAl6Zn1										
		3.5662	G-MgAl6										
		3.5812	G-MgAl8Zn1			42 4911							
		3.5912	GD-MgAl9Zn1			42 4911							
S	S.1.2	1.4980	X 5 NiCrTi 26 15									S66286	
	S.2.1	1.3924	Ni54										
		1.3926	RNi12			42 3484							
		1.3927	RNi8			42 3484							
		2.4360	NiCu30Fe	Monel 400		42 3431							
		2.4610	NiMo16Cr16Ti	Hastelloy C-4									
		2.4617	NiMo28	Hastelloy B-2									
		2.4630	NiCr20Ti	Nimonic 75			HR 5						
		2.4668	NiCr19Fe18Nb5Mg	Inconel 718									
		2.4812	NiCr17Mo17FeW	Hastelloy C									
		2.4819	NiMo16Cr15W	Hastelloy C-276									
		2.4851	NiCr23Fe, Inconel 601	Inconel 601									

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S	S.2.1	2.4856	NiCr22Mo9Nb	Inconel 625									
		2.4858	NiCr21Mo				NA 16			NCF 825		N 08825	
		2.4951	NiCr20Ti	Nimonic 75			HR 5						
		2.4964	CoCr20W15Ni										
		2.4989	CoCr20NiW										
	S.2.2	2.4375	NiCu30Al	Monel K 500									
		2.4631	NiCr20TiAl	Nimonic 80 A			HR 401; 601			NCF 80 A		N 07080	
		2.4634	NiCo20Cr15MoAlTi	Nimonic 105									
		2.4640	NiCr15Fe	Inconel 600									
		2.4654	NiCr20Co13Mo-4Ti4Al	Waspaloy									
		2.4662	NiCr13Mo6Ti3	Nimonic 901									
		2.4668	NiCr19Fe18Nb5Mg	Inconel 718									
		2.4816	NiCr15Fe	Inconel 600			NA 14			NCF 600		N 06600	
		2.4952	NiCr20TiAl	Nimonic 80 A									
		2.4973	NiCr19Co11MoTi										
		2.4983	NiCr18Co18MoAlTi	Udimet 500									
	S.2.3	2.4670	G-NiCr13Al6MoNb	Nimocast 713									
		2.4674	NiCo15Cr10MoAlTi	Nimocast PK 24									
		2.4979	CoCr28MoNi										
	S.3.1	3.7024	Ti99,5										
		3.7025	Ti99,8										
		3.7034	Ti99,7										
		3.7055	Ti99,4										
		3.7064	Ti99,2										
		3.7124	TiCu2										
	S.3.2	3.7114	TiAl5Sn2										
		3.7144	TiAl6Sn2Zr4Mo2										
		3.7154	TiAl6Zr5										
		3.7165	TiAl6V4	T-A 6 V			TA 10 – TA 13					R 56400	
		3.7174	TiAl6V6Sn2										
		3.7184	TiAl4Mo4Sn2				TA 45 – TA 51						
H	H.1.1	1.2311	40 CrMnMo 7			19 520							
		1.2312	40 CrMnMoS 8 6	40 CMD 8 + S									
		1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2738	40 CrMnNiMo 8						F-5303				
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4112	X 90 CrMoV 18									S 44003	
		1.5122	37 MnSi 4			13 240							
		1.6358	X 2 NiCoMoTi 18 9 5										
		1.6582	34 CrNiMo 6	35 NCD 6	35 NiCrMo 6 (KW)	16 342	817 M 40	2541	F-128 / F-1270	SNCM 447	38Ch2N2MA		4340
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7176	55 Cr 3	55 C 3	55 Cr 3		527 A 60	2253	F-1431	SUP 9 (A)	50ChGA	G 51550	5155
		1.0961	60 SiCr 7	60 SC 7	60 SiCr 8					SUP 7			9262

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H	H.1.1	1.1248	Ck 75	XC 75	C 75	12 081	060 A 78	1774; 1778			75	G 10780	1078; 1080
		1.1273	90 Mn 4										
	H.1.2	1.2083	X 42 Cr 13	Z 40 C 14	X 41 Cr 13 KU	19 435			F-5263	SUS 420 J 2			
		1.2323	GS-48 CrMoV 6 7										
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2367	X 38 CrMoV 5 3										
		1.2510	100 MnCrW 4	90 MWCV 5	95 MnWCr 5 KU	19 314	BO 1	2140	F-5220	SKS 3		T 31501	O 1
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2606	G-X 37 CrMoW 5 1										
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2713	55 NiCrMoV 6	55 NCDV 7		19 662			F-520.S	SKT 4	5ChNM	T 61206	L 6
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.4109	X 65 CrMo 14										
		1.4112	X 90 CrMoV 18									S 44003	
		1.1157	40 Mn 4	35 M 5			150 M 36				40G	G 10390	1039
		1.1231	Ck 67	XC 68	C 70	12 071	060 A 67	1770			70	G 10700	1070
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
	H.1.3	1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2101	62 SiMnCr 4										
		1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2201	G-X 165 CrV 12										
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2341	X 6 CrMo 4										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrV-Mo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2419	105 WCr 6	105 WC 13	107 WCr 5 KU					SKS 31	ChWG		
		1.2601	X 165 CrMoV 12		X 165 CrMoW 12 KU	19 572		2310					
		1.2721	50 NiCr 13										
		1.2735	15 NiCr 14	10 NC 12		16 240				SNC 22		T 51606	
		1.2833	100 V 1	Y1 105 V	102 V 2 KU	19 356	BW 2			SKS 43		T 72302	W 210
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2
		1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.4112	X 90 CrMoV 18									S 44003	
		1.4125	X 105 CrMo 17	Z 100 CD 17	X 105 CrMo 17					SUS 440 C		S 44004	440 C
		1.8161	58 CrV 4			15 261							
		1.1520	C 70 W1										
	H.1.4	1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2436	X 210 CrW 12	Z 200 CW 12	X 215 CrW 12 1 KU	19 437		2312	F-5213	SKD 2			
		1.2880	G-X 165 CrCoMo 12										
		1.3202	S 12-1-4-5			19 858						T 12015	T15
		1.3207	S 10-4-3-10	Z 130 WKCDV 10-10-04	HS 10-4-3-10	19 861	BT 42		F-5553	SKH 57			
		1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05	HS 6-5-2-5	19 852		2723	F-5613	SKH 55	R6M5K5		
		1.3246	S 7-4-2-5	Z 110 WKCDV 07-05-04	HS 7-4-2-5	19 851						T 11341	M 41
		1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	HS 2-9-1-8		BM 42			SKH 51		T 11342	M 42
		1.3249	S 2-9-2-8				BM 34					T 11333	M 33; M 34
		1.3257	S 18-1-2-15										
		1.3333	S 3-3-2		HS 3-3-2	19 820							
		1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	HS 6-5-2	19 830	BM 2	2722	F-5603	SKH 9; SKH 51	R6AM5	T 11302	M 2
		1.3344	S 6-5-3	Z 120 WDCV 06-05-04	HS 6-5-3		BM 4			SKH 52; SKH 53		T 11323	M 3 Cl. 2
		1.3346	S 2-9-1	Z 85 DCWV 08-04-02-0	HS 1-8-1		BM 1				H41	T 11301	H 41; M 1

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H	H.1.4	1.3348	S 2-9-2	Z 100 DCWV 09-04-02	HS 2-9-2			2782				T 11307	M 7
		1.3355	S 18-0-1	Z 80 WCV 18-04-01	HS 18-0-1	19 824	BT 1			SKH 2	R18	T 12001	T 1
		1.1654	C 110 W										
	H.3.1	0.9620	G-X 260 NiCr 4 2				Grade 2 A	0512-00					A 532 I B NiCr-LC
		0.9625	G-X 330 NiCr 4 2				Grade 2 B	0513-00					A 532 I A NiCr-HC
		0.9630	G-X 300 CrNiSi 9 5 2				Grade 2 C; D; E	0457-00					A 532 I D Ni-HiCr
		0.9635	G-X 330 CrMo 15 3				Grade 3 A; B						A 532 II C 15% CrMo-
		0.9640	G-X 300 CrMoNi 15 2				Grade 3 A; B						
		0.9645	G-X 260 CrMoNi 20 2				Grade 3 C						A 532 II D 20% CrMo-
		0.9650	G-X 260 Cr 27				Grade 3 D	0466-00					A 532 III A 25% Cr
		0.9655	G-X 300 CrMo 27 1				Grade 3 E						A 532 III A 25% Cr
O	O.1.1	EP											
		MF											
		PF											
		UP											
	O.1.2	PA											
		PC											
		PE											
		PI											
		PMMA											
		POM											
		PP											
		PS											
		PTFE											
		PVC											
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	O.2.2	CFK											
		GFK											
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ISO designation system

ISO attribute	Feature Description
A	
ADJRG	Adjustment range
ADJRGR	Adjustment range radial
ALP	Clearance angle axial
AN	Clearance angle major
APMX	Depth of cut maximum
B	
B	Shank width
BD	Body diameter
BD_1	Body diameter, 1st cutting step
BD_2	Body diameter, 2nd cutting step
BD_3	Body diameter, 3rd cutting step
BD_4	Body diameter, 4th cutting step
BDRED	Body diameter, reduced
BDX	Body diameter maximum
BHTA	Body half taper angle
BN	Face land width
BS	Wiper edge length
BTED	Body taper end diameter
C	
CDX	Cutting depth maximum
CF	Central flat
CHW	Corner chamfer width
CHWTL	Flank chamfer width left hand
CLDIS_1	centre line distance 1
CLDIS_2	centre line distance 2
CLDIS_3	centre line distance 3
CND	Coolant entry diameter
CNT	Coolant entry, thread size
CODX	Parting off diameter, max.
CRE	Spot radius
CRKS	Pull stud thread size
CW	Cutting width
CXD	Coolant exit diameter
D	
D1	Fixing hole diameter
DAXN	Axial groove outside diameter minimum
DAXX	Axial groove outside diameter maximum
DC	Cutting diameter
DC_1	Cutting diameter, 1st cutting step
DC_2	Cutting diameter, 2nd cutting step
DCD	Cutting diameter drilling part
DCINTF	Interference cutting diameter
DCN	Cutting diameter minimum
DCONMS	Mounting spigot diameter
DCONWS	Connection diameter workpiece side
DCONWS_1	Connection diameter workpiece side 1
DCONWS_2	Connection diameter workpiece side 2
DCSKX	Countersunk diameter, max
DCX	Cutting diameter maximum
DF	Flange diameter
DFC	Functional diameter
DHUB	Hub diameter
DLN	Diameter lock nut
DMIN	Minimum bore diameter
DN	Neck Diameter
DRVS	Drive size

ISO attribute	Feature Description
G	
GAN	Insert rake angle
GB	Face land angle
H	
H	Shank height
HDD	Head diameter
HDW	head width
HF	Functional height
HLN	Lock nut height
HSUP	Support height
I	
IC	Inscribed circle diameter
IH	Insert hand
INSL	Insert length
K	
KAPR	Tool cutting edge angle
KCH	Corner chamfer angle
L	
L	Cutting edge length
L_1	Cutting edge length 1
L_2	Cutting edge length 2
L_3	Cutting edge length 3
LB	Body length
LB_1	Body length 1
LB_2	Body length 2
LCF	Length chip flute
LCOL	Collet length
LDRED	Reduced body diameter length
LE	Cutting edge effective length
LF	Functional length
LF_1	Functional length 1
LF_2	Functional length 2
LF_3	Functional length 3
LFSF	Distance to face
LH	Head length
LPCON	Connection protruding length
LPR	Protruding length
LS	Shank length
LSC	Clamping length machine side
LSCN	Clamping length minimum machine side
LSCX	Clamping length maximum machine side
LTA	length tool assembly
LU	Usable length
LUX	Usable length maximum
M	
MXC_R	Clamping force maximum
N	
NOF	Flute count
NT	Tooth count
O	
OAH	Overall height
OAL	Overall length
OAW	Overall width

Continued on next page

ISO designation system

ISO attribute	Feature Description
P	
PDPT	Profile depth insert
PDX	Profile distance ex
PDY	Profile distance ey
PHD	Premachined hole diameter
PL	Point length
PLGL	Plug length
PNA	Profile included angle
PRFA	Profile angle
PRFRAD	Profile radius
PRFRAD1	Profile radius 1
PRFRAD2	Profile radius 2
PRFRAD3	Profile radius 3
PSIR	Tool lead angle
R	
RA	Relief angle
RADH	Radial height
RADW	Radial width
RADWOF	Radial offset width
RAR	Relief angle rh
RCSK	Radius countersunk
RE	Corner radius
RE_1	Corner radius 1
RE_2	Corner radius 2
RE_3	Corner radius 3
REL	Corner radius left hand
RETL	Flank radius left hand
RETR	Flank radius right hand
RPMX	Rotational speed maximum
S	
S	Insert thickness
S1	Insert thickness total
SD	Step distance
SDL	Step diameter length
SDL_1	Step diameter length 1
SDL_2	Step diameter length 2
SZID	nominal size
T	
THID	Thread designation inside
THL	Thread cutting part length
THOD	Thread designation outside
THSZMS	Connection thread nominal size
THSZWS	Connection thread nominal size workpiece side
TP	Thread pitch
TPI	Threads per inch
TQX	Torque maximum
W	
W1	Insert width
WF	Functional width
WF2	Functional width 2
WT	Weight of item
Z	
ZEFP	Peripheral effective cutting edge count
ZNF	Face mounted insert count
ZNP	Peripheral mounted insert count



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